

# FINAL REPORT

## Next-Generation Rainfall IDF Curves for the Virginian Drainage Area of Chesapeake Bay

SERDP Project RC18-1569

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| 14. ABSTRACT<br>Probability-based intensity-duration-frequency (IDF) curves are needed but currently lacking for Department of Defense (DoD) to construct and manage its infrastructure in changing climate. The objectives of this project were to: 1) develop an innovative approach for considering rainfall non-stationarity in developing such IDF curves; and 2) apply this approach to the state of Virginia. In this regard, the observed data on 15-min rainfall at 57 gauges and the precipitations projected by twelve pairs of Regional Climate Model (RCM) and Global Circulation Model (GCM) were used. For a given gauge or watershed, in terms of fitting the empirical exceedance probabilities, a best statistical distribution was chosen and then used to create the existing, projected historic, and projected future IDF curves. For a given return period, the projected historic IDF curves were compared with the existing ones to determine the lower and upper limits of the future IDF curve. The most-probable future IDF curve was determined as the average of the twelve curves responding to the GCM-RCM models. In addition, for a given duration and return period, the responding rainfall intensities were used to create a probability-based IDF curve. Further, the areal precipitations for each of the 53 watersheds were used to create the watershed-level future IDF curves. The project results are expected to be a useful and usable tool in guarding against over- or under-committing resources. |                  |                                      |                                      |                                                           |                                                           |
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## **LIST OF ACRONYMS**

CPZ: Climatic-Physiographic Zone  
CUSUM: Distribution-free cumulative sum technique  
DoD: Department of Defense  
ECDF: Empirical cumulative distribution function  
GCM: Global Circulation Model or General Circulation Model  
HUC: Hydrologic Cataloging Unit  
IDF: Intensity-duration-frequency  
K-S: Kolmogorov-Smirnov  
NARCCAP: North American Regional Climate Change Assessment Program  
NCDC: National Climate Data Center  
NHD: National Hydrography Dataset  
NIPCC: Nongovernmental International Panel on Climate Change  
NOAA: National Oceanic and Atmospheric Administration  
RCM: Regional Climate Model  
SCS: Soil Conservation Service  
USDA: U.S. Department of Agriculture  
USGS: U.S. Geological Survey

## **KEYWORDS**

Climate change

Design storm

DoD

Hydrology

IDF

Infrastructure

Non-stationarity

Precipitation

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Trend

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## ABSTRACT

Hydraulic flow infrastructure is conventionally designed under the guidance of historic rainfall intensity-duration-frequency (IDF) curves that assume climate stationarity. However, climate change has altered, and will continue to modify, rainfall characteristics in many regions, particularly in coastal areas such as the Chesapeake Bay Watershed. As a result, the stationarity assumption will likely become invalid, making the existing deterministic IDF curves inadequate in accordance with relevant engineering design standards. To resolve this issue, next-generation probability-based IDF curves that can reflect the non-stationarity at temporal and spatial scales are needed to improve future Department of Defense (DoD) infrastructure planning processes and prevent over- or under-committing resources. In present, such probability-based IDF curves are lacking.

**Objectives:** The objectives of this project were to: 1) develop an innovative approach for creating next-generation IDF curves that consider nonstationary rainfall, and 2) use this approach to create probability-based IDF curves for the state of Virginia, most of which is located within the Chesapeake Bay Watershed.

**Technical Approach:** This project used 15-min rainfall data for the historical (prior 2013) periods of 57 rain gauges in Virginia and the projected precipitation time series by twelve pairs of Regional Climate Model (RCM) and Global Circulation Model (GCM).

The approach consisted of five steps. *First*, the missing values at each of the rain gauges were filled using advanced geostatistical techniques, such as inverse distance weighting and Kriging. For a given gauge and its record period, the missing-filled time series was used to formulate a dataset of historical annual maximum rainfall intensity. *Second*, for each gauge with a record period longer than 30 years, the time series were used to detect possible temporal trends using a modified Mann-Kendall technique. Herein, the non-stationarity was defined in terms of cumulative deviations from the mean. *Third*, in accordance to Gumbel, Fréchet, and Weibull statistical distributions, a best distribution was chosen for each of the 57 gauges. *Fourth*, statistical methods were developed and used to downscale the 3-h predictions of the RCM-GCM models to the gauges. Datasets of projected annual maximum rainfall intensities for selected twelve durations from 15 min to 72 h were created. *Fifth*, the best statistical distribution was applied to the historical and projected datasets to create gauge-level IDF curves.

In addition, the boundaries of the 53 Virginia 8-digit watersheds were extracted from the National Hydrography Dataset. Each watershed was subdivided into several Thiessen polygons in ArcGIS® to compute the areal rainfall intensities, which in turn were used to formulate the datasets of historical and projected annual maximum rainfall intensities. The best statistical distribution for this watershed, which was assumed to be same as that of the gauge with a largest Thiessen polygon area, was applied to the datasets to create the watershed-level IDF curves.

**Results:** To facilitate the development of such an innovative approach, this project created several Microsoft® Excel spreadsheets and computer scripts in VBA and R. They proved to be efficient in manipulating large-size datasets for creating next-generation IDF curves. While no significant step changes were detected across Virginia, the historical annual maximum rainfall intensity was detected to have a significant (at a significance level of  $\alpha = 0.05$ ) decreasing trend at 11 gauges and a nonsignificant decreasing trend at another 46 gauges. For four gauges, the significant decreasing trends have led to the significant non-stationarity of annual maximum

rainfall intensity. Given that the continuation of current climate trends would result in significant non-stationarity of annual maximum rainfall intensity at more gauges, it is imperative to develop probability-based IDF curves.

For a gauge with significant non-stationarity, each of its datasets of annual maximum durational rainfall intensity was iteratively subdivided into two or more sub-datasets until all sub-datasets were stationary. The sub-datasets were then used to develop IDF curves for this gauge. The annual maximum rainfall intensities at 30 gauges best fitted Gumbel distribution, while those at another 23 gauges best fitted Weibull distribution. These two distributions were found to be equally accurate for the remaining 4 gauges. Using the best distributions, this project generated 61 historical IDF curves for the rain gauges and 68 sets of historical IDF curves for the watersheds of Virginia. The gauge-level historical IDF curves were visually comparable with the Point Precipitation Frequency Estimates (PPFEs) of the National Oceanic and Atmospheric Administration (NOAA). Nevertheless, limited by the project period, probability-based IDF curves were created for eight gauges and one watershed only. For other gauges and watersheds, the relevant datasets were formulated for creating probability-based IDF curves.

**Benefits:** The preliminary results of this project demonstrated the inevitable need for probability-based IDF curves. An innovative approach for the development of such curves was developed and then applied to the state of Virginia. The project results can be a useful tool for the planning, design, and management of DoD, as well as civic, infrastructure.

**Follow-on Research:** Although this project fulfilled its initial objectives, a follow-on project will be crucial to make the probability-based IDF curves applicable in practice by pursuing the following issues that were raised during this project period.

*First*, the datasets on 15-min precipitation have a significant number of missing values. As glimpsed by a NOAA's senior hydro-meteorologist in an email communication, the number of missing values tended to become large for the record years after 2010 and some recorded time periods might be longer than 15 min. A follow-on research will enable us to scrutinize the accuracy of the recorded values by consulting relevant NOAA scientists. In addition, we will systematically compare the historical gauge-level IDF curves with the NOAA PPFEs to elucidate the reasons for any noted discrepancies.

*Second*, this project developed regression equations using predictions by one RCM-GCM model. With the assumption that the equations were independent of the RCM-GCM models, this same set of equations were used to downscale and disaggregate the predictions made by each model. A follow-on research will enable us to validate such an assumption by comparing the regression equations to be developed using the predictions by the twelve RCM-GCM models. Also, we will develop methods to quantify uncertainties in the downscaled and disaggregated data and then incorporate the uncertainties into the creation of next-generation IDF curves.

*Third*, limited by time, this project created the probability-based IDF curves for eight gauges and one watershed only. A follow-on research will allow us to generate probability-based IDF curves (totaling 1210 sets) for all 57 gauges and 53 watersheds in Virginia. Also, we will apply this approach to other DoD concerned regions, such as Maryland.

*Finally*, A follow-on research will allow us to standardize the spreadsheets and computer scripts generated in this project to develop user-friendly software tools that can be used by others to create next-generation IDF curves for the regions of their interest.

## OBJECTIVE

The overarching goal of this project was to advance the scientific understanding of climate non-stationarity and to improve the planning, design, and management of hydrology-influenced infrastructure (e.g., port locks and military bases) in changing climate.

The specific objectives were to:

- Develop an innovative approach for creating next-generation probability-based IDF curves that consider nonstationary rainfall
- Use this approach to create probability-based IDF curves for the state of Virginia

To facilitate the process of developing such an approach, this project generated a variety of Microsoft® Excel spreadsheets and computer scripts in VBA and R. It has been shown that this approach can be effectively used to manipulate large datasets for practically creating next-generation IDF curves. Limited by the project time, probability-based IDF curves were created for eight gauges and one watershed only. Datasets for creating probability-based IDF curves for the other gauges and watersheds in Virginia were also formulated.

The tools and datasets created in this project have laid a solid foundation for a more extensive follow-on project with minimal technical or scientific risks.

The next-generation IDF curves created in this project reflect “*the non-stationarity at temporal and spatial scales relevant for improving future Department of Defense (DoD) infrastructure planning processes*” (Statement of Need). They will be beneficial for the DoD to construct and/or manage its hydrology-influenced infrastructure in changing climate; additional prevention against over- or under-committing resources can also be provided via using such IDF curves.

# 1. BACKGROUND

## 1.1 Practical Needs

The 166,534 km<sup>2</sup> Chesapeake Bay Watershed (hereinafter referred to as Bay) is an estuary lying land from the Atlantic Ocean. As the largest watershed in the United States, it stretches across six states, covering parts of Virginia, West Virginia, the District of Columbia, Delaware, Maryland, Pennsylvania, and New York (Figure 1). Across the watershed, there are numerous populated centers (e.g., cities of Norfolk and Virginia Beach in Virginia) and civic and military infrastructure (e.g., Norfolk Naval Station) (Wray, 2013). This study focused on the state of Virginia.



Figure 1. The Chesapeake Bay Watershed.  
(Source: Smith *et al.*, 2013)

Conventionally, the infrastructure involving hydrologic flows, such as stormwater management facilities, erosion and sediment control structures, and flood protection structures, were designed in terms of historic rainfall intensity-duration-frequency (IDF) curves, which are functional relationships among historic rainfall event statistics of intensity, duration, and frequency or return period (McCuen, 1998; Prodanovic and Simonovic, 2007; Wolcott *et al.*, 2009). Herein, the IDF curves assume that climate is stationary (Auld, 2013), meaning that for a given location, the paired values of rainfall intensity, duration, and frequency are temporally invariant.

However, as climate has shown significant changes in rainfall characteristics in many regions (particularly in coastal regions such as the Bay) (NIPCC, 2011), such a stationary assumption will likely become invalid and thus the adequacy of the existing IDF curves may be questionable (Liew *et al.*, 2013). For instance, a dyke designed to resist a 100-year flood event (meaning that each year the probability of occurrence of a flood exceeding the design value is 0.01) would provide a significantly lower level of protection if the rainfall magnitude will be increasing (Auld, 2013). In contrast, if the rainfall magnitude will be decreasing, the dyke would provide unnecessary overprotection. Such an over- or under-protection is possible for various infrastructure. Hence, it is necessary to create next-generation IDF curves that consider the changed rainfall characteristics in a foreseeable future (Kutschera *et al.*, 2011; AMEC, 2012; Liew *et al.*, 2013; Mirhosseini, 2013; Mirhosseini *et al.*, 2013; Rodríguez *et al.*, 2013; Wang *et al.*, 2013).

## 1.2 Previous Studies

Liew *et al.* (2013) used a novel three-step (i.e., downscaling-comparison-derivation or DCD) approach to derive IDF curves for both present and future climates at stations (i.e., sites) with a short or no rainfall record in Indonesia. First, the 30-km 6-h-resolution ERA-40 Global Reanalysis Datasets (available at <http://www.ecmwf.int/research/era>) were downscaled using a Weather Research and Forecasting Model (WRF) (available at <http://www.wrf-model.org>) for

four stations with observed IDF curves and the site of interest where there is no rainfall record but IDF curves need to be created. Second, for the present (i.e., 1961 to 1990) climate and for each of the three of the four stations, the IDF curves based on the downscaled precipitation were compared with the IDF curves based on the observed rainfall to determine a “range of bias correction.” Herein, a generalized extreme value (GEV) distribution (McCuen, 1998) was adopted to derive the IDF curves. The GEV parameters were estimated (Hosking *et al.*, 1985; Bhunya *et al.*, 2007) by fitting the distribution to the data at those three stations. Subsequently, for the fourth station, this “range of bias correction” was used to adjust the IDF curves based on the downscaled precipitation and the adjusted IDF curves were compared with the IDF curves based on the observed rainfall to validate the “range of bias correction.” Third, for the site of interest, its IDF curves for the present climate were derived using the downscaled precipitation with adjustments by the “range of bias correction.” In turn, the climate change factors (future or 2011 to 2100 rainfall intensities minus present rainfall intensities) were added to the rainfall intensities of these present IDF curves to derive the future IDF curves for the site of interest. The results indicated that this approach worked well for the study area and could provide the lower and upper limits of an IDF curve. However, this study did not examine uncertainties in climatologic input parameters. That is, it did not adopt an ensemble approach of multiple simulations using perturbed initial and lateral boundary conditions: the future precipitation was simply simulated by a Regional Climate Model (RCM) driven by a Global Climate Model (GCM ECHAM5) for the A2 emission scenario only (NIPCC, 2011; Solaiman and Simonovic, 2011). In addition, this study made a stationary assumption without detecting whether there are any step change and/or trend in the historic and future precipitations. Further, this study used a constant ratio of the future to present intensities regardless of the durations and frequencies, which is inconsistent with the finding of previous studies (e.g., Groisman *et al.*, 1999; Endo *et al.*, 2006; NIPCC, 2011; Wang *et al.*, 2013) that climate change will likely cause more frequent low- and high-magnitude precipitations with distinctly different amplification factors.

Mirhosseini *et al.* (2013) used six historic (i.e., 1968 to 2000) and future (i.e., 2038 to 2070) projections of 3-h precipitation, downloaded from the North American Regional Climate Change Assessment Program (NARCCAP) website (<http://www.narccap.ucar.edu>), to assess the impacts of climate change on rainfall IDF curves in the state of Alabama. First, in accordance with the randomly selected events from the 15-min observed precipitation data, downloaded from the National Climate Data Center (NCDC) website (<http://www.ncdc.noaa.gov>), the 3-h projections were disaggregated into 15-min-resolution time series using a stochastic method that was presented by Socolofsky *et al.* (2001). Second, the 15-min-resolution time series were used to derive future IDF curves by fitting a GEV distribution. Third, the future IDF curves were compared with the present IDF curves to assess the impacts of climate change. The results revealed that for short rainfall durations (i.e., less than 4 h), the precipitation pattern for Alabama will veer toward less intense rainfalls, for long durations (i.e., greater than 4 h), however, a large uncertainty on projected rainfall intensity by these six climate models made it difficult to draw any inclusive conclusions about expected changes of future rainfall intensity. Those authors recommended that methodologies be developed for creating probability-based IDF curves. Although it adopted an ensemble approach of multiple simulations by HRM3-HadCM3, CRCM-CGCM3, HRM3-GFDL, CRCM-CCSM, RCM3-GFDL, and ECP2-GFDL, this study made a stationary assumption without detecting any step change and/or trend in the historic and future precipitations, so the possible violation of stationarity required by the GEV distribution might cause unknown uncertainties in the derived IDF curves. Also, this study derived IDF curves only

for individual climatic stations and did not provide IDF curves at watershed levels, which can be a limitation in straightly determining a design storm for a drainage area of interest.

Rodríguez *et al.* (2013) assessed influences of climate change on IDF curves at six thermo-pluviometric stations of the Spanish Meteorology Agency in the metropolitan area of Barcelona in Spain. These stations had more than 20 years of observed daily rainfall data. The study used 114 time series of precipitation predicted by five GCMs (NIPCC, 2011), namely EGMAM, CBCM3, ECHAM5, BCM2, and AR3, for four greenhouse gas emission scenarios (NIPCC, 2011), namely A1B, A2, B1, and B2. The control period was either from 1951 to 1999 or 1961 to 1999, depending on the models and scenarios of interest, while the future period was from 2071 to 2100. First, at daily time scale, each of the time series was downscaled to the stations using an analogue method presented by Ribalaygua *et al.* (2013). Second, the daily rainfall IDF curves for the future period were created using an empirical potential-exponential distribution (Casas *et al.*, 2004). Third, the values for climate change factor (Arnbjerg-Nielsen, 2012), defined as the ratio between the rainfall intensity with a return period for a future climate scenario to the rainfall intensity with the same return period for the control climate, were computed and used to examine influences of climate change on IDF curves. The results indicated an increase of at least 4% on the expected daily rainfall for return periods of longer than 20-year. This study adopted an ensemble approach of multiple simulations from five GCMs for four emission scenarios. However, it did not create probability-based IDF curves, which is needed to address uncertainties in climate drivers (e.g., future economy, demography, and technology) and climate models (Solaiman and Simonovic, 2011). Also, as with the studies of Liew *et al.* (2013) and Mirhosseini *et al.* (2013), this study did not examine stationarity of the historic and future precipitations.

### 1.3 Research Needs and Objectives

Although the above studies presented a few preliminary applications of methodologies for assessing influences of climate change on IDF curves, there is a large room for improvement because they: 1) made a stationary assumption without detecting any possible step change and/or trend in historic and future precipitations; 2) adopted only one type of distribution, namely GEV, exponential, or Gringorten (Gringorten, 1963; NOAA, 1986; McCuen, 1998), with its parameters determined by solely fitting the distribution to the historic data on precipitation; however, the three special cases of the GEV distribution (Coles, 2001; Viessman and Lewis, 2003), namely Fréchet (1927), Weibull (1951), and Gumbel (1958), which have been widely used in practice, may be more tangible; 3) assumed that a fitted distribution is independent of climate (i.e., applicable for both historic and future precipitations); 4) did not create probability-based IDF curves except for Solaiman and Simonovic (2011); and 5) were not conducted in geographic regions with dense DoD facilities.

In contrast, our project studied the entire state of Virginia, which is a very important geographic region with numerous DoD infrastructure. Our project filled these research gaps and developed an approach that can be used to create next-generation probability-based rainfall IDF curves by considering non-stationarity of historic and future precipitations, and applied this approach to the Virginian drainage area of Chesapeake Bay. Herein, it is hypothesized that the rainfall IDF curves created using such an approach will be least influenced by non-stationarity-related uncertainties and thus they can be used in practice with more confidence.

## 2. MATERIALS AND METHODS

### 2.1 The Study Sites

This project was conducted for the entire state of Virginia, most of which is located within the Chesapeake Bay Watershed (Figure 1). The state has a humid subtropical climate, with an annual average of 35 to 45 days of thunderstorm activity and an average annual precipitation of 1080 mm. The average temperature varies from -3°C in January to 30°C in July.

Virginia has a significant topographic relief (Figure 2a), with elevations varying from Virginia Beach in the east at sea level to Mount Rogers in the west at 1746 m above sea level (Wikipedia, 2018). The major gradations occur at the edges of the Atlantic Ocean, the end of the Piedmont, and the Blue Ridge and Allegheny chains of the Appalachian Mountains. The moderating influence of the ocean from the east, powered by the Gulf Stream, also creates the potential for hurricanes near the mouth of Chesapeake Bay. Cold air masses arrive over the mountains, especially in winter, which can lead to significant snowfalls when coastal storms,

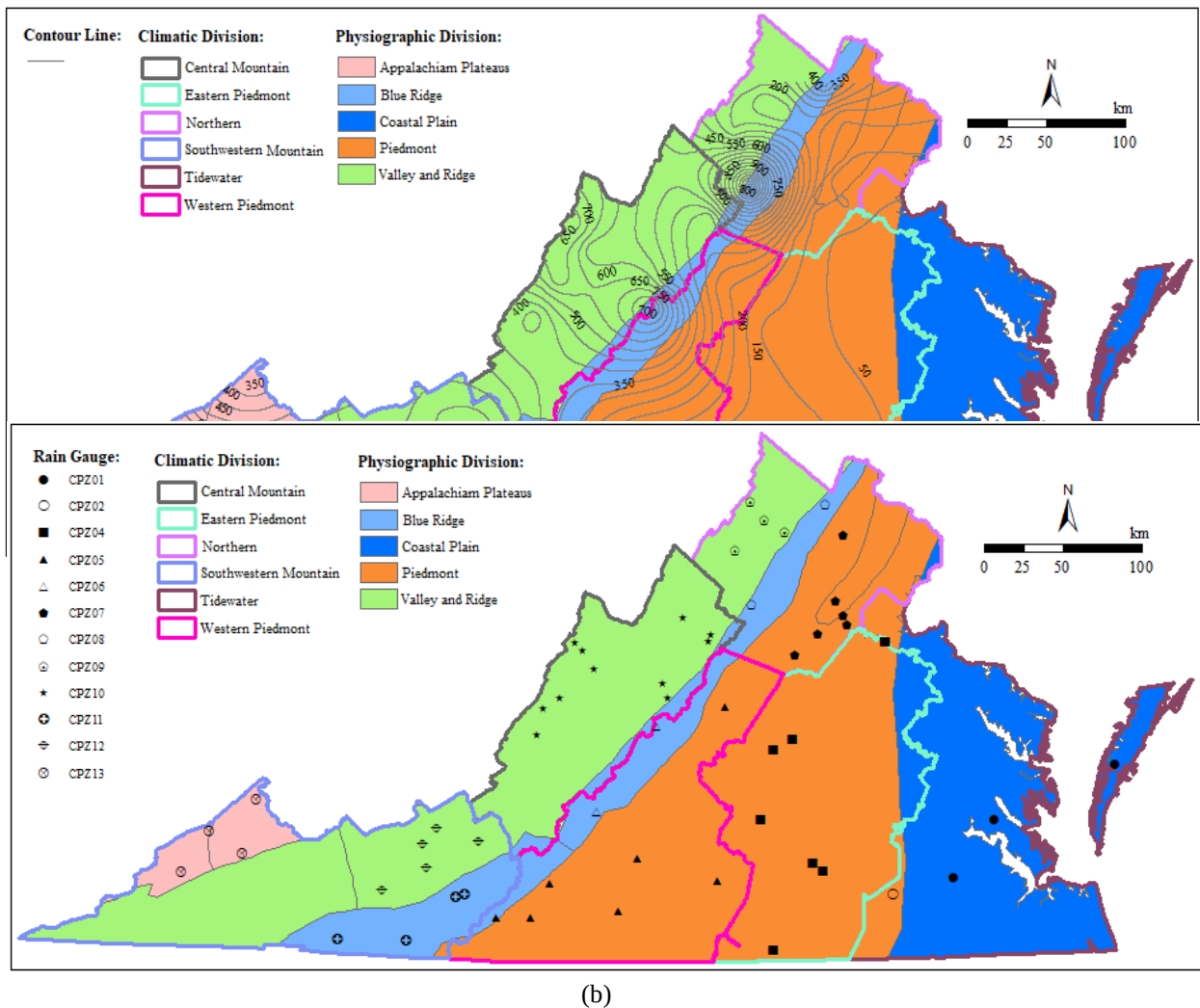


Figure 2. The Virginian climatic and physiographic divisions superimposed by the: (a) topographic elevation contours at a 50-m interval, and (b) 57 rain gauges with 15-min rainfall data.

known as nor'easters, move up the Atlantic coast. The interaction of these elements with the state's topography creates micro-climates in the Shenandoah Valley, the mountainous southwest, and the coastal plains that are slightly but noticeably distinct from each other. To differentiate and characterize the micro-climates, NOAA (National Oceanic and Atmospheric Administration) subdivides Virginia into six climatic divisions (Figure 2), namely Tidewater, Eastern Piedmont, Western Piedmont, Northern, Central Mountain, and Southwestern Mountain.

On the other hand, to differentiate and characterize the topographic relief, USGS (U.S. Geological Survey) subdivides Virginia into five physiographic divisions (Figure 2), namely Coastal Plain, Piedmont, Blue Ridge, Valley and Ridge, and Appalachian Plateaus. The Coastal Plain division is between the Atlantic coast and the fall line. It includes the Eastern Shore and major estuaries of Chesapeake Bay. The Piedmont division is a series of sedimentary and igneous rock-based foothills east of the mountains which were formed in the Mesozoic era. The region, known for its heavy clay soil, includes the Southwest Mountains around City of Charlottesville. The Blue Ridge division is a physiographic province of the Appalachian Mountains with the highest points in the state, the tallest being Mount Rogers. The Valley and Ridge division is west of the mountains and includes the Great Appalachian Valley. The region is carbonate rock based and includes Massanutten Mountain. The Cumberland Plateau and the Cumberland Mountains are in the southwest corner of Virginia, south of the Allegheny Plateau.

This study overlaid the climatic and physiographic divisions, resulting in 13 zones (Table 1 and Figure 2b), within which the 57 rain gauges with 15-min rainfall data are located. Note that there is no such rain gauge in one of the zones (i.e., CPZ03). This project did some analyses by pooling together the rainfall data at the rain gauges within each of the climatic-physiographic zones, as detailed in the following contexts.

Table 1. The climatic-physiographic zones with inclusive rain gauges.

| Climatic-Physiographic Zone | Climatic Division           | Physiographic Division      | Rain Gauge ID                                                                          |
|-----------------------------|-----------------------------|-----------------------------|----------------------------------------------------------------------------------------|
| CPZ01                       | CD1 (Tidewater)             | PGD1 (Coastal Plain)        | 446475, 448800, 449151                                                                 |
| CPZ02                       | CD1 (Tidewater)             | PGD2 (Piedmont)             | 448129                                                                                 |
| CPZ03                       | CD2 (Eastern Piedmont)      | PGD1 (Coastal Plain)        | None                                                                                   |
| CPZ04                       | CD2 (Eastern Piedmont)      | PGD2 (Piedmont)             | 440778, 440993, 441322, 441929, 442941, 443192, 443200, 444414                         |
| CPZ05                       | CD3 (Western Piedmont)      | PGD2 (Piedmont)             | 440166, 441614, 446178, 446692, 447025, 447338, 449272                                 |
| CPZ06                       | CD3 (Western Piedmont)      | PGD3 (Blue Ridge)           | 440561, 445690                                                                         |
| CPZ07                       | CD4 (Northern)              | PGD2 (Piedmont)             | 442159, 442729, 446712, 447130, 447164, 448396                                         |
| CPZ08                       | CD4 (Northern)              | PGD3 (Blue Ridge)           | 440720, 445851                                                                         |
| CPZ09                       | CD4 (Northern)              | PGD4 (Valley and Ridge)     | 442663, 443229, 48046, 448149                                                          |
| CPZ10                       | CD5 (Central Mountain)      | PGD4 (Valley and Ridge)     | 442044, 442208, 443310, 444128, 445142, 445423, 445595, 445880, 448062, 448172, 449159 |
| CPZ11                       | CD6 (Southwestern Mountain) | PGD3 (Blue Ridge)           | 443272, 444246, 448547, 449169                                                         |
| CPZ12                       | CD6 (Southwestern Mountain) | PGD4 (Valley and Ridge)     | 440766, 446955, 448022, 449060, 449301                                                 |
| CPZ13                       | CD6 (Southwestern Mountain) | PGD5 (Appalachian Plateaus) | 442269, 444180, 444410, 449215                                                         |

## 2.2 Data and Preprocessing

This study used data on observed 5-min precipitation, predicted precipitation by Regional Climate Models (RCMs), topography, and hydrography.

### 2.2.1 The observed 15-min precipitation

The data on 15-min precipitation observed at 57 rain gauges were downloaded from the NOAA National Climatic Data Center (NCDC) website <https://www.ncdc.noaa.gov/data-access/land-based-station-data>. The gauges were grouped by the climatic-physiographic zones (Figure 2b and Table 2). Herein, it was hypothesized that the data at the gauges within a same zone are from a same population and can be pooled together into one dataset for statistical analysis. The rationale behind this hypothesis is that the spatial variability of precipitation across the zone might be statistically insignificant because each CPZ has a similar micro-climate and a similar physiology, as stated above. However, given the limited time, this project could not test this hypothesis using a statistical technique. A test will be done once a follow-up research will be awarded.

For a given rain gauge, the record only has times when precipitation was nonzero. To make the record consecutive at a 15-min interval, the times when precipitation was zero were added back by executing a Microsoft® Excel VBA program developed by the project team. In addition, the record has missing values for a time interval or more on a record day and/or for one day or more in a record year. The missing values were filled by executing another VBA program, which estimates a missing value as a function of the responding values at the neighboring gauges of this rain gauge. This function is expressed as (Yozgatligil *et al.*, 2012; Mohanty *et al.*, 2014):

$$P_{x,j} = \bar{P}_x \frac{\sum_{i=1}^m \frac{P_{i,j}}{\bar{P}_i}}{m} \quad (1)$$

where  $P_{x,j}$  is the estimated 15-min precipitation of gauge  $x$  at time  $j$ ;  $\bar{P}_x$  is the mean annual precipitation of gauge  $x$ ;  $P_{i,j}$  is the observed 15-min precipitation of gauge  $i$  at time  $j$ ;  $\bar{P}_i$  is the mean annual precipitation of gauge  $i$ ; and  $m$  is the number of the neighboring gauges of gauge  $x$ . The mean annual precipitations of the 57 gauges, obtained from NOAA-NCDC and der Leeden (1994), are given in Table 2.

For a rain gauge, its neighboring gauges (Table 3) were selected as those that are within a geographic distance of 50 km and have relatively fewer missing values. In the table, a rain gauge of interest is highlighted in red, while its neighboring gauges are highlighted in black. At a time when the precipitation at the rain gauge was filled, the neighboring gauges with observations were used in Eq. (1) and those without observations were excluded.

For each of the 57 rain gauges (Table 2 and Figure 2), the missing-filled 15-min precipitation time series was used to generate a dataset of annual maximum 15-min precipitation (designated  $\tilde{X}_{15m,i}$  for description purpose, where subscript “15m” signifies the duration of 15 min; and  $i = 1, 2, \dots, 57$ , signifies the gauge). For a given observation year, the element value of  $\tilde{X}_{15m,i}$  was computed as the maximum of the observed values (at gauge  $i$ ) within this year. In addition, for each of the other eleven durations of longer than 15 min, the durational precipitation time series was formulated based on the missing-filled 15-min precipitation time series: the interval values of the durational time series was computed as accumulation (from beginning of the record) of the observed values of 15-min precipitation the duration apart. For instance, for the

duration of 30 min, the first value of the 30-min precipitation time series was computed as the summation of first two observed values of the corresponding 15-min precipitation time series, the second value of the 30-min precipitation time series was computed as the summation of third and fourth observed values of the 15-min precipitation time series, and so on. For the duration of 72 h, the first value of the 72-h precipitation time series was computed as the summation of first 288 ( $= 72 \times 60 \div 15$ ) values of the 15-min precipitation time series. As a result, eleven more time series, which respectively have durations of 30 and 45 min and 1, 2, 3, 4, 6, 12, 24, 48 and 72 h, were formulated for the rain gauge. Further, for each of the eleven time series and for a given observation year, the annual maximum durational precipitation is computed. This generated another eleven datasets of annual maximum durational precipitation for gauge  $i$ , namely  $\tilde{X}_{30m,i}$ ,  $\tilde{X}_{45m,i}$ ,  $\tilde{X}_{1h,i}$ ,  $\tilde{X}_{2h,i}$ ,  $\tilde{X}_{3h,i}$ ,  $\tilde{X}_{4h,i}$ ,  $\tilde{X}_{6h,i}$ ,  $\tilde{X}_{12h,i}$ ,  $\tilde{X}_{24h,i}$ ,  $\tilde{X}_{48h,i}$ , and  $\tilde{X}_{72h,i}$ .

Table 2. The 57 rain gauges and their climatic-physiographic zones.

| Gauge Name                     | ID     | Begin Date | End Date   | Elevation (m) | Mean Annual Precipitation (mm) <sup>[1]</sup> | Divisions | Zone  |
|--------------------------------|--------|------------|------------|---------------|-----------------------------------------------|-----------|-------|
| Painter 2 W                    | 446475 | 05/02/1971 | 09/30/2012 | 9.1           | 1121.79                                       | CD1⊗PGD1  | CPZ01 |
| CPZ01Wakefield 1 NW            | 448800 | 05/31/1985 | 02/28/2013 | 34.4          | 1204.72                                       | CD1⊗PGD1  |       |
| Williamsburg 2 N               | 449151 | 05/02/1971 | 02/28/2013 | 21.3          | 1236.35                                       | CD1⊗PGD1  |       |
| Stony Creek 2 N                | 448129 | 05/02/1974 | 04/30/1985 | 32.0          | 1193.04                                       | CD1⊗PGD2  | CPZ02 |
| Blackstone Water Wor           | 440778 | 05/03/1971 | 03/31/1974 | 128.0         | 1133.95                                       | CD2⊗PGD2  | CPZ04 |
| Bremo Bluff                    | 440993 | 07/31/1986 | 02/28/2013 | 68.6          | 1087.75                                       | CD2⊗PGD2  |       |
| Camp Pickett                   | 441322 | 03/31/1974 | 02/28/2013 | 100.6         | 1169.42                                       | CD2⊗PGD2  |       |
| Columbia 2 SSE                 | 441929 | 05/07/1971 | 05/31/1986 | 88.4          | 1000.32                                       | CD2⊗PGD2  |       |
| Farmville 2 N                  | 442941 | 07/31/2009 | 12/31/2012 | 137.2         | 1126.24                                       | CD2⊗PGD2  |       |
| Fredericksburg 2               | 443200 | 08/31/1978 | 02/28/1993 | 36.6          | 1044.51                                       | CD2⊗PGD2  |       |
| Fredericksburg National Park   | 443192 | 05/02/1971 | 08/31/1978 | 27.4          | 1044.51                                       | CD2⊗PGD2  |       |
| John H Kerr Dam                | 444414 | 05/07/1971 | 02/28/2013 | 76.2          | 1103.50                                       | CD2⊗PGD2  |       |
| Altavista                      | 440166 | 12/31/1983 | 02/28/2013 | 161.2         | 1118.11                                       | CD3⊗PGD2  | CPZ05 |
| Chatham                        | 441614 | 05/06/1971 | 02/28/2013 | 198.4         | 1149.60                                       | CD3⊗PGD2  |       |
| North Garden                   | 446178 | 05/31/1971 | 02/29/1992 | 209.1         | 1129.46                                       | CD3⊗PGD2  |       |
| Philpott Dam 2                 | 446692 | 05/06/1971 | 05/31/2009 | 342.3         | 1278.38                                       | CD3⊗PGD2  |       |
| Randolph 5 NNE                 | 447025 | 05/12/1971 | 01/31/1984 | 107.0         | 1077.36                                       | CD3⊗PGD2  |       |
| Rocky Mount                    | 447338 | 05/06/1971 | 02/28/2013 | 400.8         | 1189.74                                       | CD3⊗PGD2  |       |
| Woolwine 4 S                   | 449272 | 12/31/1983 | 02/28/2013 | 457.2         | 1293.88                                       | CD3⊗PGD2  |       |
| Bedford                        | 440561 | 01/31/1996 | 02/28/2013 | 374.3         | 1122.68                                       | CD3⊗PGD3  | CPZ06 |
| Montebello Fish Hatchery       | 445690 | 04/30/1971 | 08/31/2007 | 812.9         | 1125.29                                       | CD3⊗PGD3  |       |
| Culpeper Riverside Coast Guard | 442159 | 07/01/1979 | 12/31/2003 | 79.2          | 1046.62                                       | CD4⊗PGD2  | CPZ07 |
| Elkwood 6 SE                   | 442729 | 06/04/1972 | 06/02/1984 | 100.0         | 1045.29                                       | CD4⊗PGD2  |       |
| Piemont Research Station       | 446712 | 05/07/1971 | 02/28/2013 | 158.5         | 1112.90                                       | CD4⊗PGD2  |       |
| Remington 2                    | 447130 | 07/07/1979 | 02/28/1989 | 85.3          | 1120.14                                       | CD4⊗PGD2  |       |
| Richardsville                  | 447164 | 06/30/1984 | 04/30/1987 | 105.2         | 1044.08                                       | CD4⊗PGD2  |       |
| The Plains 2 NNE               | 448396 | 05/01/1971 | 09/30/2004 | 161.5         | 1118.87                                       | CD4⊗PGD2  |       |
| Big Meadows                    | 440720 | 05/02/1971 | 07/31/1976 | 1079.0        | 1385.19                                       | CD4⊗PGD3  | CPZ08 |
| Mount Weather                  | 445851 | 05/02/1971 | 01/31/1987 | 505.7         | 1099.57                                       | CD4⊗PGD3  |       |
| Edinburg                       | 442663 | 06/30/1996 | 03/31/1999 | 282.9         | 896.11                                        | CD4⊗PGD4  | CPZ09 |
| Front Royal                    | 443229 | 01/01/1979 | 03/31/1990 | 283.5         | 1039.37                                       | CD4⊗PGD4  |       |
| Star Tannery                   | 448046 | 05/02/1972 | 01/31/2012 | 289.6         | 1023.62                                       | CD4⊗PGD4  |       |
| Strasburg 2 ESE                | 448149 | 12/31/1978 | 04/30/1984 | 195.1         | 1068.64                                       | CD4⊗PGD4  |       |

Table 2. Continuous .....

|                                |        |            |            |       |         |          |       |
|--------------------------------|--------|------------|------------|-------|---------|----------|-------|
| Cobington Filter Plant         | 442044 | 12/31/1972 | 08/31/2011 | 374.9 | 952.75  | CD5⊗PGD4 | CPZ10 |
| Dale Enterprise                | 442208 | 09/11/1978 | 01/31/2009 | 413.9 | 922.02  | CD5⊗PGD4 |       |
| Gathright Dam                  | 443310 | 12/31/1983 | 02/28/2013 | 539.5 | 986.54  | CD5⊗PGD4 |       |
| Hot Springs                    | 444128 | 09/04/1970 | 08/31/2011 | 681.5 | 1097.41 | CD5⊗PGD4 |       |
| Lynnwood                       | 445142 | 09/30/1983 | 12/01/1983 | 309.1 | 938.17  | CD5⊗PGD4 |       |
| Mc Gaheysville 2 S             | 445423 | 04/30/1971 | 11/30/1983 | 331.9 | 1149.60 | CD5⊗PGD4 |       |
| Millgap 2 NNW                  | 445595 | 09/01/1976 | 02/28/2013 | 737.9 | 1124.71 | CD5⊗PGD4 |       |
| Mustoe 1 SW                    | 445880 | 06/30/1982 | 10/28/2007 | 725.4 | 1135.89 | CD5⊗PGD4 |       |
| Staunton Water Treatment Plant | 448062 | 12/31/1972 | 08/31/2007 | 51.5  | 989.96  | CD5⊗PGD4 |       |
| Stuarts Draft                  | 448172 | 05/01/1979 | 05/29/1984 | 442.0 | 1058.43 | CD5⊗PGD4 |       |
| Williamsburg 2 S               | 449159 | 07/01/1978 | 08/31/2011 | 499.9 | 1029.32 | CD5⊗PGD4 |       |
| Galax Water Plant              | 443272 | 04/01/1972 | 02/28/2013 | 719.3 | 1005.84 | CD6⊗PGD3 | CPZ11 |
| Indian Valley                  | 444246 | 04/30/1973 | 09/30/1993 | 823.0 | 1063.93 | CD6⊗PGD3 |       |
| Trout Dale 3 SSE               | 448547 | 03/31/1974 | 02/28/2013 | 865.3 | 1077.98 | CD6⊗PGD3 |       |
| Willis                         | 449169 | 09/30/1993 | 02/28/2013 | 856.5 | 1144.78 | CD6⊗PGD3 |       |
| Blacksburg National Weather    | 440766 | 03/31/2003 | 02/28/2013 | 604.1 | 1060.70 | CD6⊗PGD4 | CPZ12 |
| Pulaski                        | 446955 | 04/01/1972 | 02/28/2013 | 563.9 | 949.20  | CD6⊗PGD4 |       |
| Staffordsville 3 ENE           | 448022 | 11/30/1993 | 02/28/2013 | 594.4 | 1000.25 | CD6⊗PGD4 |       |
| White Gate                     | 449060 | 12/31/1983 | 09/30/1993 | 563.9 | 965.88  | CD6⊗PGD4 |       |
| Wytheville 1 S                 | 449301 | 12/31/1983 | 02/28/2013 | 637.9 | 968.63  | CD6⊗PGD4 |       |
| Davenport 2 NE                 | 442269 | 12/31/1983 | 05/31/1986 | 488.0 | 1157.38 | CD6⊗PGD5 | CPZ13 |
| Hurley 4 S                     | 444180 | 03/31/1973 | 12/31/2009 | 331.6 | 1135.39 | CD6⊗PGD5 |       |
| John Flannagan Lake            | 444410 | 12/31/1983 | 11/30/1991 | 445.0 | 1144.02 | CD6⊗PGD5 |       |
| Wise 3 E                       | 449215 | 12/31/1983 | 02/28/2013 | 776.9 | 1206.25 | CD6⊗PGD5 |       |

<sup>[1]</sup> The black number is the average of the values from <https://www.ncei.noaa.gov/data/climate-normals-deprecated/access/clim20/va> and <https://www.ncdc.noaa.gov/cdo-web/datatools/normals> and when both present the mean annual precipitations, whereas, it is the value from one of these two websites whichever presents the mean annual precipitation. On the other hand, the red number is from der Leeden (1994).

Table 3. Groups of the neighboring rain gauges (signified by their IDs) for filling missing values.<sup>[1]</sup>

|                                                                                                                  |                                                                          |                                                                  |                                                          |                                                                  |
|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------|
| Group 01: 443229, 448149, 448046, 442663, 445851, 442208, 440720, 446712, 442159, 447164, 442729, 447130, 445423 | Group 02: 445851, 448149, 448046, 443229                                 | Group 03: 442663, 448149, 448046, 443229, 440720, 442208         | Group 04: 445142, 445423, 442208, 440720, 448062         | Group 05: 440720, 445142, 445423, 446712                         |
| Group 06: 448062, 448172, 445690, 445142, 445423, 446178                                                         | Group 07: 446178, 445142, 448172, 448062, 440993, 445423, 445690, 441929 | Group 08: 445690, 446178, 448172, 448062, 449159                 | Group 09: 445595, 445880, 449159, 443310, 444128,        | Group 10: 442044, 443310, 444128, 445595, 445880, 445690, 449159 |
| Group 11: 440766, 446955, 448022, 449060, 444246, 449169, 449301, 443272                                         | Group 12: 449301, 449060, 446955, 443272, 448547                         | Group 13: 444246, 449169, 440766, 446955, 449272                 | Group 14: 443272, 446955, 444246, 449169, 449301, 448547 | Group 15: 446692, 449272, 444246, 449169, 447338                 |
| Group 16: 447338, 446692, 449272, 441614                                                                         | Group 17: 441614, 440166, 447338, 446692                                 | Group 18: 440561, 440166, 447338                                 | Group 19: 440166, 440561, 441614, 447338, 447025         | Group 20: 448547, 446955, 449301, 443272                         |
| Group 21: 447025, 440778, 444414, 440166, 442941                                                                 | Group 22: 440778, 441322, 447025, 444414, 442941, 448129                 | Group 23: 448129, 440778, 441322, 448800, 444414, 449151         | Group 24: 448800, 440778, 441322, 448129, 449151, 444414 | Group 25: 449151, 446475, 448129, 448800, 440778, 441322         |
| Group 26: 446475, 449151                                                                                         | Group 27: 442159, 442729, 443192, 443200, 447130, 447164, 446712         | Group 28: 446712, 442159, 440720, 442729, 447164, 447130, 440993 | Group 29: 444414, 440778, 447025, 441322                 | Group 30: 442941, 447025, 440993, 441322                         |
| Group 31: 440993, 441929, 442941, 446178, 446712                                                                 | Group 32: 442269, 444410, 444180, 449215, 446955, 449301, 448547         | Group 33: 448396, 448149, 447130, 443229, 445851, 442729, 448046 |                                                          |                                                                  |

<sup>[1]</sup> In a given group, a rain gauge highlighted in red was filled by the other rain gauges of this group.

## 2.2.2 The RCMs predicted precipitation

The predicted historic (i.e., pre-2013) and future (i.e., 2038 ~ 2070) data on regional precipitation at a 3-h time interval and a 50-km spatial resolution were downloaded from the North American Regional Climate Change Assessment Program (NARCCAP) website <http://www.narccap.ucar.edu>. To date, NARCCAP has generated twelve different dynamically downscaled datasets (Table 4), and all twelve datasets of precipitation for the grids (Figure 3) that cover Virginia were used in this study. The time series of precipitation were extracted from the NARCCAP “.nc” files using a computer program written in r language by the project team. The extracted time series were stored in plain text files, which in turn were uploaded into Excel® spreadsheets for spatial and temporal downscaling.

Table 4. The twelve dynamically downscaled datasets by NARCCAP.

| Dataset | Regional Climate Model (RCM) | General Circulation Model (GCM) |
|---------|------------------------------|---------------------------------|
| 1       | CRCM                         | CCSM                            |
| 2       |                              | CGCM3                           |
| 3       | ECP2                         | GFDL                            |
| 4       |                              | HadCM3                          |
| 5       | HRM3                         | GFDL                            |
| 6       |                              | HadCM3                          |
| 7       | MM5I                         | CCSM                            |
| 8       |                              | HadCM3                          |
| 9       | RCM3                         | CGCM3                           |
| 10      |                              | GFDL                            |
| 11      | WRFG                         | CCSM                            |
| 12      |                              | CGCM3                           |

## 2.2.3 The watershed-level data

The National Hydrography Dataset (NHD) (i.e., hydrography) was downloaded from the USGS website <http://viewer.nationalmap.gov/viewer>. NHD is a comprehensive set of digital spatial data about surface water features (e.g., rivers) (USGS, 2001a, b). This study used the 8-digit hydrologic cataloging units (HUCs) or

watersheds presented by the NHD. Totally, there are 53 such HUCs in Virginia (Figure 4). The 8-digit HUCs were selected because the relevant data are publicly available and because primary water management projects and practices have been implemented at such a

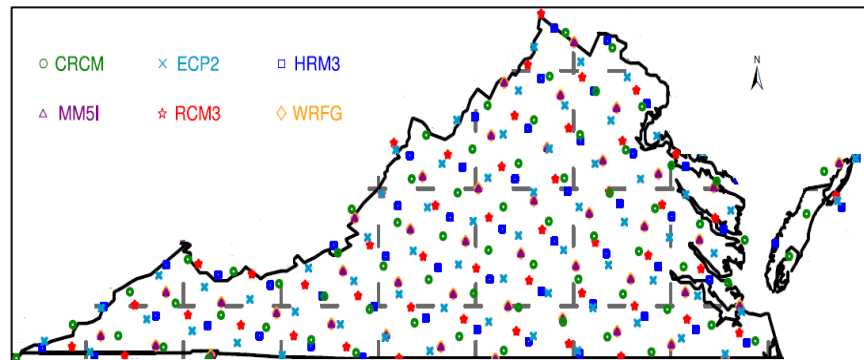


Figure 3. The centers of each 50-km grid cell for the six RCMs (not drawn to a scale). (Source: <http://www.narccap.ucar.edu/data/gridpoint-maps.html>)

spatial scale. The rain gauges within and adjacent to a HUC were used to calculate the areal precipitation, which in turn was used to develop the watershed-level IDF curves.

## 2.3 Methods

This subsection elaborates the methods for trend analysis, selection of best statistical distributions, development of historic IDF curves, spatial and temporal downscaling of the RCMs’ predictions, and development of probability-based IDF curves. In terms of practical

applications (Viessman and Lewis, 2003), this study chose twelve durations, including 15 min, 30 min, 45 min, 1, 2, 3, 4, 6, 12, 24, 48, and 72 h, and nine return periods, including 2-, 5-, 10-, 25-, 50-, 100-, 200-, 500-, and 1000-year, for the historic and next-generation IDF curves. Figure 5 shows the framework of the methods.

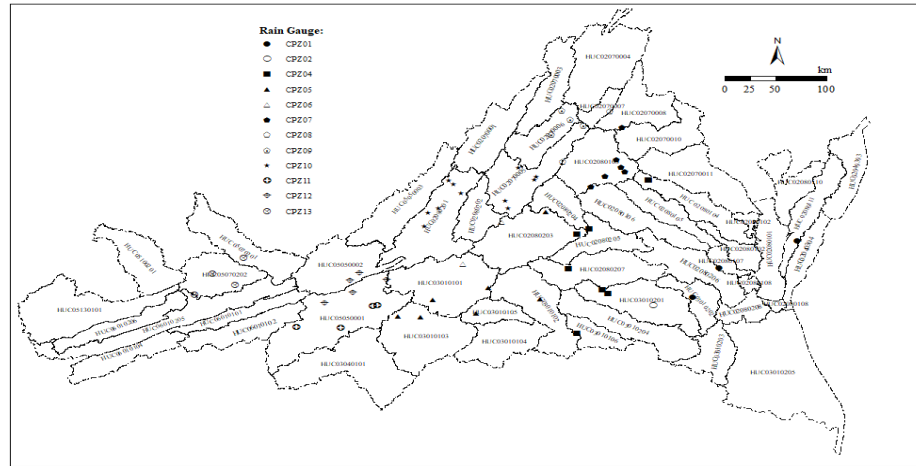


Figure 4. The 53 U.S. Geological Survey (USGS) 8-digit hydrologic cataloging units (HUCs) in Virginia, superimposed by the 57 rain gauges with 15-min rainfall data.

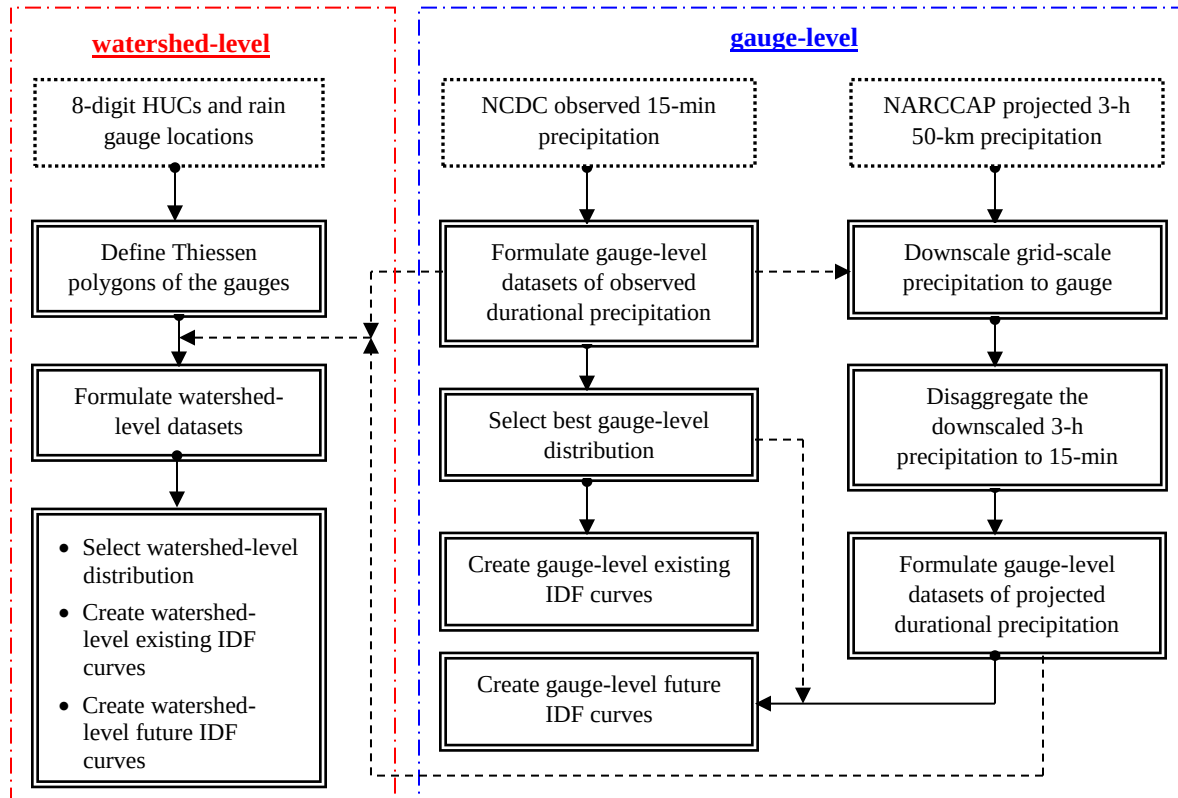


Figure 5. The sequential relationships among elements of the methods developed and used in this study. HUC: Hydrologic Cataloging Unit; IDF: intensity-duration-frequency; NCDC: National Climate Data Center; and NARCCAP: North American Regional Climate Change Assessment Program.

### 2.3.1 Detection of step changes and temporal trends

For the rain gauges with a record period of 30 years or longer, the twelve datasets of annual maximum durational precipitation were used to detect step change and trend using the approach

presented by Wang *et al.*, 2013, as shown in Figure 6. Herein, it was assumed that for a rain gauge, the step changes and/or trends (if any) are independent of duration. The approach was coded in VBA into computer programs, which in turn were run in Microsoft® Excel 2010.

For a given time series (i.e., dataset), the distribution-free cumulative sum (CUSUM) technique presented by McGilchrist and Woodyer (1975) was used to detect whether, and at which year, a

significant step (i.e., upward-to-downward or downward-to-upward) change occurred, at a significance level of  $\alpha = 0.05$ . The null hypothesis was that there was no step change (i.e., the mean value of the time series would be statistically independent of the

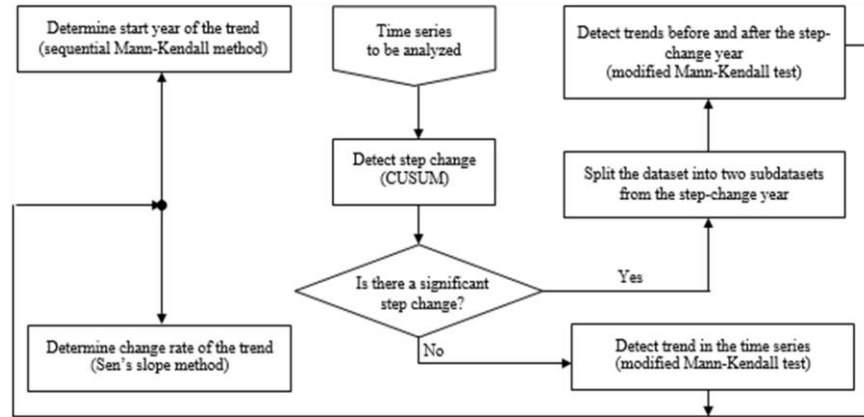


Figure 6. Schematic diagram of the approach to detect step change and trend. CUSUM is the distribution-free cumulative sum technique.

number of computational years). If no significant step change was detected, the modified Mann-Kendall (Mann, 1945; Kendall, 1970; Hirsch *et al.*, 1982; Hamed and Rao 1998) was applied to the entire dataset to determine whether a statistically significant ( $\alpha = 0.05$ ) temporal (i.e., downward or upward) trend existed. Otherwise, the dataset was split into two, one for before and another for after the step-change year, and the modified Mann-Kendall test was applied independently to each subdataset to identify any trends. The sequential Mann-Kendall method (Taubenheim, 1989; Sneyers, 1990) was used to determine the year when a trend started and the Sen's slope (Sen, 1968) was computed and used to measure the rate of change of the trend.

The modified Mann-Kendall test took autocorrelation into account (Hamed and Rao, 1998) and was executed by the following six sequential steps: 1) compute the Sen's slope of the time series; 2) subtract the Sen's slope from the original values to obtain a trend-free time series of  $\{x'_1, x'_2, \dots, x'_N\}$  and then assign ranks to these new values; 3) compute autocorrelation coefficients,  $\rho_s(i)$ ,  $i = 1, 2, \dots, N-3$ , using these ranks (Sen, 1968; Zetterqvist, 1991) and ensure the coefficients are statistically significant at  $\alpha = 0.05$  based on t-test statistics; 4) compute the ratio of  $\frac{N}{N_s}$  (Wang *et al.*, 2013); 5) compute variance  $\text{var}^*(S)$ ; 5) compute the conventional Mann-

Kendall statistics for S (Mann, 1945; Kendall, 1970); and 6) compute the modified Mann-Kendall test statistics of  $Z^*$ . If  $Z^*$  was positive and greater than the standard normal  $1-\alpha = 95^{\text{th}}$  percentile, a statistically significant upward trend was detected. In contrast, if  $Z^*$  was negative and smaller than the  $95^{\text{th}}$  percentile, a statistically significant downward trend was detected. Otherwise, no significant trend was detected.

The sequential Mann-Kendall method (Sneyers, 1990) tests the null hypothesis that a stationary time series shows no beginning in developing a trend. It computes two statistics, one for the time series in progressive order (i.e., from the start to the end year) and the other for the

time series in retrograde order (i.e., from the end to the start year). When these two statistics are plotted versus year, the intersection between these two curves, from which onward one of these two statistics is either monotonically smaller or greater than the other, is judged to be the beginning of the trend (Figure 7). Otherwise, the trend is considered to extend unbroken throughout the entire period of the time series.

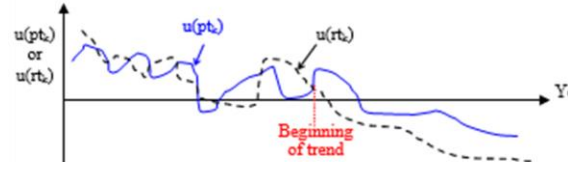


Figure 7. Illustration of the beginning of a trend.  $u(ptk)$  and  $u(rtk)$  are the progressive and retrograde statistics, respectively.

### 2.3.2 Selection of best statistical distributions

For each of the 57 rain gauges, when statistically significant (at a significance level of  $\alpha = 0.05$ ) step changes and/or trends were detected, each of the twelve datasets might be subdivided into two or more subdatasets at the change and/or trend start years, depending on whether the dataset was non-homogenous in terms of the homogeneity test discussed in section 2.3.9. For each of the twelve datasets, it was sorted in descending order and then assigned consecutive ranks from one to  $n_i$  (the number of record years at station  $i$ ). The empirical frequency at which a given durational precipitation is equaled or exceeded was computed using the Weibull formula (USDA-SCS, 1968; NOAA, 1986) as the ratio of rank to  $(n_i + 1)$ . Subsequently, three commonly used distributions, namely Gumbel (Gumbel, 1958), Fréchet (Fréchet, 1927), and Weibull (Weibull, 1951), were tentatively fitted to the Weibull positioning points for the whole record period as well as the periods of the subdatasets. Based on the goodness of fit as measured by visualization plot and Kolmogorov-Smirnov (i.e., K-S) test (Massey, 1951; Neter et al., 1996), a best distribution was selected. Herein, it was hypothesized that the best distribution is independent of step change, trend, and return period, but the best distribution can be different by gauge. On the other hand, for each of the rain gauges with a record period of shorter than 30 years, its twelve whole datasets were used to compute Weibull points, to which the three distributions were tentatively fitted to select a best distribution for this gauge. If the K-S test rejects all three distributions, in terms of the visualization plot, the distribution that is closest to the empirical Weibull points was judged to be best. Otherwise, the best distribution was the one that was most significant as indicated by the K-S test. The fitting of the distributions and the K-S tests were implemented by creating VBA programs in Microsoft® Excel 2010. As a result, a best distribution and a set of existing IDF curves were determined for each of the rain gauges.

The Gumbel distribution computes the chance for a rainfall ( $X_p$ ) to be equaled or exceeded as (Gumbel, 1958):

$$P(x \geq X_p) = 1 - e^{-e^{-b}} \quad (2)$$

$$b = \frac{1}{0.7797 \cdot s} \cdot (X_p - \bar{x} + 0.45 \cdot s) \quad (3)$$

where  $\bar{x}$  and  $s$ , respectively, are the mean and standard deviation of observed rainfall extreme values for a duration of interest.

The Fréchet distribution computes the chance for a rainfall ( $X_p$ ) to be equaled or exceeded as (Fréchet, 1927):

$$P(x \geq X_p) = 1 - e^{-\left(\frac{X_p - m}{S_s}\right)^\alpha} \quad (4)$$

where  $m$ ,  $S_s$ , and  $\alpha$  ( $> 1$ ) are three parameters, and can be estimated by solving Equations (5) to (7) simultaneously.

$$\bar{x} = m + S_s \cdot \left[ \Gamma\left(1 - \frac{1}{\alpha}\right) \right] \quad (5)$$

$$x_m = m + \frac{S_s}{\sqrt[\alpha]{\ln(2)}} \quad (6)$$

$$s = (S_s)^2 \cdot \left\{ \Gamma\left(1 - \frac{2}{\alpha}\right) - \left[ \Gamma\left(1 - \frac{1}{\alpha}\right) \right]^2 \right\} \quad (7)$$

where  $\bar{x}$ ,  $x_m$ , and  $s$ , respectively, are the mean, median, and standard deviation of observed rainfall extreme values for a duration of interest; and  $\Gamma(\cdot)$  is gamma function (Neter et al., 1996).

The Weibull distribution computes the chance for a rainfall ( $X_p$ ) to be equaled or exceeded as (Weibull, 1951):

$$P(x \geq X_p) = e^{-\left(\frac{x_p}{\lambda}\right)^k} \quad (8)$$

where  $\lambda$  and  $k$  are two positive parameters and can be estimated by solving Equations (9) and (10) simultaneously.

$$\bar{x} = \lambda \cdot \left[ \Gamma\left(1 + \frac{1}{k}\right) \right] \quad (9)$$

$$s = \lambda^2 \cdot \left\{ \Gamma\left(1 + \frac{2}{k}\right) - \left[ \Gamma\left(1 + \frac{1}{k}\right) \right]^2 \right\} \quad (10)$$

where  $\bar{x}$  and  $s$ , respectively, are the mean and standard deviation of observed rainfall extreme values for a duration of interest.

The K-S test is based on an empirical distribution function (ECDF). Given  $N$  data points  $X_1, X_2, \dots, X_N$  that are sorted in ascending order (i.e., from smallest to largest), the ECDF is defined as:

$$F_n(x \leq X_i) = \frac{n_i}{N} \quad (11)$$

where  $n_i$  is the number of points less than  $X_i$ .

The null hypothesis is that the data follow a specified distribution (e.g., Gumbel, Fréchet, or Weibull), while the alternative hypothesis is that the data do not follow the specified distribution. Figure 8 is an example plot of the ECDF with a Gumbel cumulative distribution function for 100 normal random numbers. The K-S test is based on the maximum distance between these two curves (Massey, 1951).

The K-S test statistic is defined as:

$$D_n = \max |F_n(x \leq X_i) - F(x \leq X_i)| \quad (i = 1, 2, \dots, N) \quad (12)$$

where  $F(\cdot)$  is the theoretical cumulative density function of the specified distribution.

The K-S goodness-of-fit is tested by using critical values of the Kolmogorov distribution. The null hypothesis is rejected at a significance level of  $\alpha = 0.05$  if:

$$D_n > K_\alpha \quad (13)$$

where  $K_\alpha$  can either be found from Table 5 or determined using the cumulative function of the Kolmogorov distribution expressed as (Wikipedia, 2014):

$$\Pr(K \leq K_\alpha) = 1 - \alpha = \frac{\sqrt{2\pi}}{K_\alpha} \cdot \sum_{j=1}^{\infty} e^{-\frac{(2j-1)^2 \cdot \pi^2}{8K_\alpha^2}} \quad (14)$$

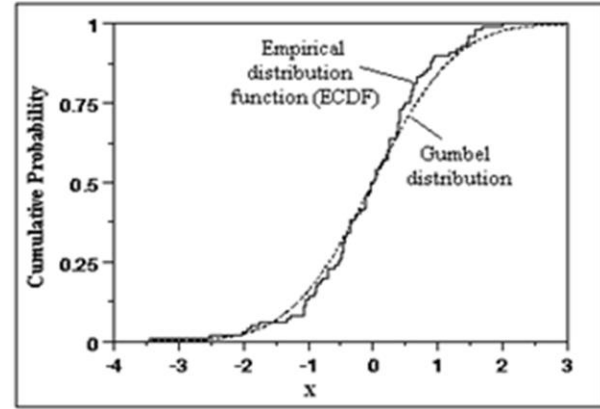


Figure 8. An example ECDF and Gumbel distribution.

Table 5. The critical value,  $K_\alpha$ , of the Kolmogorov distribution.

| Sample Size N | $K_\alpha$ | Sample Size N | $K_\alpha$ | Sample Size N | $K_\alpha$ | Sample Size N | $K_\alpha$ |
|---------------|------------|---------------|------------|---------------|------------|---------------|------------|
| 1             | 0.975      | 11            | 0.39122    | 21            | 0.28724    | 31            | 0.23788    |
| 2             | 0.84189    | 12            | 0.37543    | 22            | 0.28087    | 32            | 0.23424    |
| 3             | 0.7076     | 13            | 0.36143    | 23            | 0.2749     | 33            | 0.23076    |
| 4             | 0.62394    | 14            | 0.3489     | 24            | 0.26931    | 34            | 0.22743    |
| 5             | 0.56328    | 15            | 0.3376     | 25            | 0.26404    | 35            | 0.22425    |
| 6             | 0.51926    | 16            | 0.32733    | 26            | 0.25907    | 36            | 0.22119    |
| 7             | 0.48342    | 17            | 0.31796    | 27            | 0.25438    | 37            | 0.21826    |
| 8             | 0.45427    | 18            | 0.30936    | 28            | 0.24993    | 38            | 0.21544    |
| 9             | 0.43001    | 19            | 0.30143    | 29            | 0.24571    | 39            | 0.21273    |
| 10            | 0.40925    | 20            | 0.29408    | 30            | 0.2417     | 40            | 0.21012    |

### 2.3.3 Development of gauge-level historic IDF curves

For each of the 57 rain gauges, the historic IDF curves were developed using the best statistical distribution. To consider the possible non-stationarity resulting from climate change, based on the trend analysis results, the time series of annual maximum precipitation might be subdivided into several subseries, each of which had invariant statistics of mean, median, and standard deviation. However, if the time series had a sample size of  $N < 10$  years, it was not subdivided. The development was implemented using VBA programs in Excel® 2010. Subsequently, the IDF curves were visually compared with the NOAA Atlas 14 Point Precipitation Frequency Estimates downloaded at <https://hdsc.nws.noaa.gov/hdsc/pfds>.

### 2.3.4 Spatially downscaling of the RCMs' predictions

As shown in Figure 3, the centers of the 50-km grids are different for the six RCMs. For each RCM, its grid layer was overlaid with the layer of the rain gauges (Figure 2b) in ArcMap® to identify the four grids surrounding each gauge. Subsequently, the geographic distances from the

four grid centers to the rain gauge were calculated. At a given time, the RCM's predictions for the four grids were averaged using the inverses of the distances as the weights, resulting in a spatially-averaged 3-h prediction. In addition, for each of the 57 rain gauges, the observed (formulated) 3-h time series  $\tilde{X}_{3h,i}$  was regressed on the synchronic spatially-averaged 3-h time series. That is, the regression was done for the record period of the gauge using the synchronically paired values of observed and spatially-averaged 3-h precipitation. Further, taking the spatially-averaged 3-h precipitations from 2038 to 2070, this regression equation was used to generate a 3-h precipitation time series at this gauge for this future period (i.e., downscale the projected precipitation). The regressions and computations were executed in Excel® 2010.

### 2.3.5 Disaggregating spatially-downscaled precipitation

For each of the 57 rain gauges and for each of the six RCMs, the two spatially-downscaled 3-h precipitation time series, one for the record period and another for the future period, were used to generate two datasets of annual maximum 3-h precipitation, namely  $\tilde{Y}_{3h,i}$  and  $\tilde{Z}_{3h,i}$ , respectively.

To generate the annual maximum precipitation time series of 15, 30 and 45 min, and 1, 2 and 4 h (designated  $\tilde{Y}_{15m,i}$ ,  $\tilde{Y}_{30m,i}$ ,  $\tilde{Y}_{45m,i}$ ,  $\tilde{Y}_{1h,i}$ ,  $\tilde{Y}_{2h,i}$ , and  $\tilde{Y}_{4h,i}$  for the record period, and  $\tilde{Z}_{15m,i}$ ,  $\tilde{Z}_{30m,i}$ ,  $\tilde{Z}_{45m,i}$ ,  $\tilde{Z}_{1h,i}$ ,  $\tilde{Z}_{2h,i}$ , and  $\tilde{Z}_{4h,i}$  for the future period),  $\tilde{X}_{15m,i}$ ,  $\tilde{X}_{30m,i}$ ,  $\tilde{X}_{45m,i}$ ,  $\tilde{X}_{1h,i}$ ,  $\tilde{X}_{2h,i}$ , and  $\tilde{X}_{4h,i}$  were separately regressed over  $\tilde{X}_{3h,i}$  and then use  $\tilde{Y}_{3h,i}$  and  $\tilde{Z}_{3h,i}$  in the responding regression equations to get the responding time series. Herein, it was assumed that the regression equations were held regardless of the climatic conditions (Menabde *et al.*, 1999; Socolofsky *et al.*, 2001; Chang and Hiong, 2013; Mirhosseini *et al.*, 2013). The regressions were implemented by each of the climatic-physiographic zones shown in Figure 2. For example, to regress  $\tilde{X}_{15m,i}$  over  $\tilde{X}_{3h,i}$  for CPZ01 (Table 1), the time series of  $\tilde{X}_{15m,i}$  at the three rain gauges within this zone were pooled together into one 15-min dataset, while the time series of  $\tilde{X}_{3h,i}$  at these same three rain gauges were pooled together into one 3-h dataset. To capsule the datasets, if one value in the 3-h dataset corresponds to two or more values in the 15-min dataset, the arithmetic average, median, 75<sup>th</sup> percentile, and maximum of the multiple values were calculated, resulting in five capsulated datasets: one for 3-h and four for 15-min. The four capsulated 15-min datasets were separately regressed over the capsulated 3-h dataset. The regression equation with a largest coefficient of determination ( $R^2$ ) was chosen as the relationship between  $\tilde{X}_{15m,i}$  and  $\tilde{X}_{3h,i}$ , and adopted to generate  $\tilde{Y}_{15m,i}$  and  $\tilde{Z}_{15m,i}$ . Both linear and nonlinear equations as well as piecewise regressions were tried to best fit the data.

On the other hand, to generate the annual maximum precipitation time series of 6, 12, 24, 48, and 72 h (designated  $\tilde{Y}_{6h,i}$ ,  $\tilde{Y}_{12h,i}$ ,  $\tilde{Y}_{24h,i}$ ,  $\tilde{Y}_{48h,i}$ , and  $\tilde{Y}_{72h,i}$  for the record period, and  $\tilde{Z}_{6h,i}$ ,  $\tilde{Z}_{12h,i}$ ,  $\tilde{Z}_{24h,i}$ ,  $\tilde{Z}_{48h,i}$ , and  $\tilde{Z}_{72h,i}$  for the future period), the accumulation procedure discussed in section 2.2.1 was applied to  $\tilde{Y}_{3h,i}$  and  $\tilde{Z}_{3h,i}$ , respectively.

As a result, for each rain gauge and each RCM, twelve time series ( $\tilde{Y}_{15m,i}$ ,  $\tilde{Y}_{30m,i}$ ,  $\tilde{Y}_{45m,i}$ ,  $\tilde{Y}_{1h,i}$ ,  $\tilde{Y}_{2h,i}$ ,  $\tilde{Y}_{3h,i}$ ,  $\tilde{Y}_{4h,i}$ ,  $\tilde{Y}_{6h,i}$ ,  $\tilde{Y}_{12h,i}$ ,  $\tilde{Y}_{24h,i}$ ,  $\tilde{Y}_{48h,i}$ , and  $\tilde{Y}_{72h,i}$ ) were generated for the record period and another twelve time series ( $\tilde{Z}_{15m,i}$ ,  $\tilde{Z}_{30m,i}$ ,  $\tilde{Z}_{45m,i}$ ,  $\tilde{Z}_{1h,i}$ ,  $\tilde{Z}_{2h,i}$ ,  $\tilde{Z}_{3h,i}$ ,  $\tilde{Z}_{4h,i}$ ,  $\tilde{Z}_{6h,i}$ ,  $\tilde{Z}_{12h,i}$ ,  $\tilde{Z}_{24h,i}$ ,  $\tilde{Z}_{48h,i}$ , and  $\tilde{Z}_{72h,i}$ ) were generated for the future period.

$\tilde{Z}_{72h,i}$ ) were generated for the future period. Totally, 16,416 (= 57 gauges \* 12 RCMs \* 24 time series per gauge per RCM) datasets were generated. Again, all regressions and computations were executed in Excel® 2010

### 2.3.6 Development of gauge-level future IDF curves

To consider possible non-stationarity, the approach discussed in section 2.3.1 was used to detect any step changes and/or trends in  $\tilde{Y}$  and  $\tilde{Z}$ . Again, the null hypothesis was that for a rain gauge, the step changes and/or trends (if any) were independent of duration. If statistically significant step changes and/or trends were detected, each of the twenty-two  $\tilde{Y}$  and  $\tilde{Z}$  datasets might be subdivided into two or more subdatasets at the change and/or trend start years. Nevertheless, whether the dataset was subdivided was also dependent on the homogeneity test discussed in section 2.3.9. For each of the eleven  $\tilde{Y}$  datasets, it was sorted in descending order and then assigned consecutive ranks from one to  $n_i$  (the number of record years at gauge  $i$ ). The empirical frequency at which a given durational precipitation is equaled or exceeded was computed using the Weibull formula as the ratio of rank to  $(n_i + 1)$ . Subsequently, the Fréchet, Weibull, and Gumbel distributions were tentatively fitted to the Weibull points for the whole record period as well as the periods of the subdatasets. Based on the goodness of fit, a best distribution was selected. Similarly, analyses of step changes and/or trends in  $\tilde{Z}$  were conducted and a best distribution was selected by gauge. Herein, the null hypothesis was that the best distributions selected using  $\tilde{Y}$  and  $\tilde{Z}$  were same as the one selected using  $\tilde{X}$  for a given rain gauge. Further, in terms of the best distribution (determined above) for this rain gauge, the datasets  $\tilde{Y}$  were used to create a set of IDF curves (designated  $\tilde{Y}IDF$  for description purpose), while the datasets  $\tilde{Z}$  were used to create another set of IDF curves (designated  $\tilde{Z}IDF$  for description purpose).

### 2.3.7 Development of gauge-level probability-based IDF curves

The above sequential analyses, including regression, downscaling, disaggregating, detection of step changes and trends, selection of best distribution, and creation of IDF curves, were repeated for each of the 16,416 datasets. As a result, for a given rain gauge, twelve sets of  $\tilde{Y}IDF$  curves and another twelve sets of  $\tilde{Z}IDF$  curves were generated. The twelve sets of  $\tilde{Y}IDF$  curves were compared with the historic IDF curves (created in section 2.3.3 using  $\tilde{X}$ ) to determine the lower and

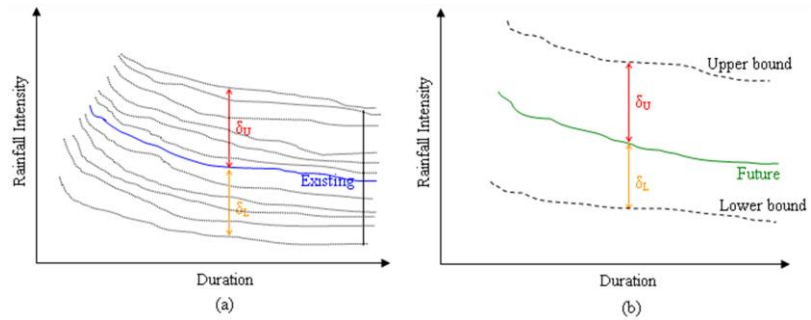


Figure 9. Illustration of the: (a) bias correction factors ( $\delta_L$  and  $\delta_U$ ), and (b) future intensity-duration-frequency (IDF) curve and its range, for a given return period. In (a), the solid-blue line is based on  $\tilde{X}$  datasets, while the dot-black lines are based on  $\tilde{Y}$  datasets. In (b), the solid-green line (historic IDF curve) is the average of the twelve IDF curves based on  $\tilde{Z}$  datasets, and the dash-black lines are upper and lower bounds of the future IDF curve.

upper bounds of bias correction factor by return period (Liew *et al.*, 2013) (Figure 9a). By assuming a same distribution, the future IDF curves were determined as the average of the  $\tilde{Z}IDF$

curves (created using the datasets of  $\tilde{Z}$ ) as well as the lower and upper bounds (Figure 9b), providing a range of future rainfall intensity for a given duration and a return period. Herein, the null hypothesis was that the correction factors would be same regardless of climatic conditions. In addition, for a given duration (e.g., 1 hr) and a given return period (e.g., 50 year), the twelve values of the  $\tilde{Z}$ IDF curves were used to create a probability curve of the future IDF curve of this duration and this return period. Figure 10 illustrates a hypothetical example result of probability-based IDF curves for a given duration. To determine the future design rainfall intensity for a duration and a return period of interest, its mean, minimum, and maximum values can be found from Figure 9b, while the probabilities associated with these three values can be determined from Figure 10. Such additional range (from minimum to maximum) and probabilities can well represent uncertainties of future climate projections, allowing the use of future IDF curves with more confidence.

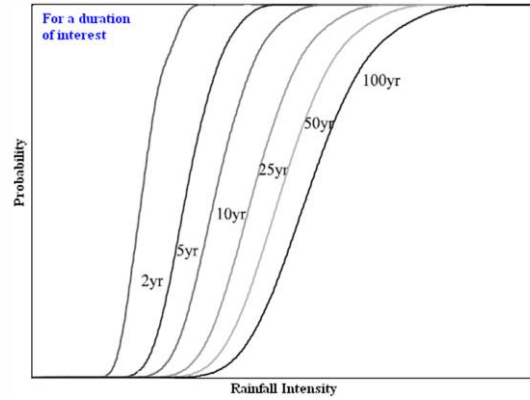


Figure 10. Hypothetical probability intensity-duration-frequency (IDF) curves at a rain gauge of interest for a given duration.

The probability curve was developed using the kernel density estimation (KDE) method (Silverman, 1998), a nonparametric way to estimate the probability density function of a random variable based on a finite (i.e., small-size) data sample. The KDE method has been widely used as a viable and flexible alternative to parametric methods in hydrology for estimating probability density function of hydrological variables (e.g., precipitation) (Lall *et al.*, 1996; Sharma *et al.*, 1997). The KDE method estimates the probability for a value  $x$  to occur,  $p(x)$ , as:

$$p(x) = \frac{1}{N \cdot h} \cdot \sum_{i=1}^n K\left(\frac{x - x_i}{h}\right) \quad (15)$$

where  $N$  is the sample size;  $h$  is the bandwidth (smoothing parameter);  $x_i$  is the  $i^{\text{th}}$  sample value; and  $K(\cdot)$  is the smooth kernel function satisfying  $\int_{-\infty}^{\infty} K(y)dy = 1$ .

### 2.3.8 Development of watershed-level probability-based IDF curves

This study used the 8-digit HUCs presented by the NHD in ArcMap<sup>®</sup> (Wang and Melesse, 2005) to delineate boundaries of the watersheds within the Virginian drainage area of Chesapeake Bay. For each watershed, the rain gauges that are within, or have a Euclidian distance of less than 50 km from, the watershed boundary were used to subdivide the watershed into Thiessen polygons (Viessman and Lewis, 2003). The number of polygons was equal to that of the gauges. Taking polygon-area-weighted averages formulated: 1) twelve observed datasets of annual maximum durational precipitation, designated  $w\tilde{X}_{15m,j}$ ,  $w\tilde{X}_{30m,j}$ ,  $w\tilde{X}_{45m,j}$ ,  $w\tilde{X}_{1h,j}$ ,  $w\tilde{X}_{2h,j}$ ,  $w\tilde{X}_{3h,j}$ ,  $w\tilde{X}_{4h,j}$ ,  $w\tilde{X}_{6h,j}$ ,  $w\tilde{X}_{12h,j}$ ,  $w\tilde{X}_{24h,j}$ ,  $w\tilde{X}_{48h,j}$ , and  $w\tilde{X}_{72h,j}$  for description purpose, where  $j$  signifies the watershed; 2) twelve projected datasets of annual maximum durational precipitation for the record period, designated  $w\tilde{Y}_{15m,j}$ ,  $w\tilde{Y}_{30m,j}$ ,  $w\tilde{Y}_{45m,j}$ ,  $w\tilde{Y}_{1h,j}$ ,  $w\tilde{Y}_{2h,j}$ ,  $w\tilde{Y}_{3h,j}$ ,  $w\tilde{Y}_{4h,j}$ ,  $w\tilde{Y}_{6h,j}$ ,  $w\tilde{Y}_{12h,j}$ ,  $w\tilde{Y}_{24h,j}$ ,  $w\tilde{Y}_{48h,j}$ , and  $w\tilde{Y}_{72h,j}$  for description purpose; and 3) twelve projected datasets of annual maximum

durational precipitation for the future period, designated  $\tilde{wZ}_{15m,j}$ ,  $\tilde{wZ}_{30m,j}$ ,  $\tilde{wZ}_{45m,j}$ ,  $\tilde{wZ}_{1h,j}$ ,  $\tilde{wZ}_{2h,j}$ ,  $\tilde{wZ}_{3h,j}$ ,  $\tilde{wZ}_{4h,j}$ ,  $\tilde{wZ}_{6h,j}$ ,  $\tilde{wZ}_{12h,j}$ ,  $\tilde{wZ}_{24h,j}$ ,  $\tilde{wZ}_{48h,j}$ , and  $\tilde{wZ}_{72h,j}$  for description purpose. Any missing values for a gauge were filled using the corresponding values at another nearest station. Herein, the basic assumption was that polygon-area-weighted averages can represent areal precipitations of the watershed.

For each watershed,  $\tilde{wX}$ ,  $\tilde{wY}$ , and  $\tilde{wZ}$  were analyzed using the procedures elaborated in sections 2.3.3, 2.3.6, and 2.3.7 for  $\tilde{X}$ ,  $\tilde{Y}$ , and  $\tilde{Z}$ , respectively, resulting in the watershed-level IDF curves with additional ranges and probabilities, as with range-level IDF curves illustrated in Figures 9(b) and 10. The twelve datasets of  $\tilde{wX}$  were used to compute Weibull points (NOAA, 1986) for the whole record period. Three distributions (i.e., Fréchet, Weibull, and Gumbel) were tentatively fitted to the Weibull points to select a best distribution for the watershed in terms of goodness of fit and to create a set of historic IDF curves. Herein, the null hypothesis was that the best distribution is independent of return period but can be different by watershed.

Subsequently, in terms of the best distribution for this watershed, the datasets  $\tilde{wY}$  were used to create a set of IDF curves, which in turn were compared with the historic IDF curves to determine lower and upper bounds of bias correction factor. In addition, a similar fitting analysis of  $\tilde{wZ}$  was conducted and a best distribution was selected by watershed. Herein, the null hypothesis was that the best distributions selected using  $\tilde{wZ}$  is same as the one selected using either  $\tilde{wX}$  or  $\tilde{wY}$  for a given watershed. Using this best distribution, the future watershed-level IDF curves were determined as the averages of the IDF curves created using the datasets of  $\tilde{wZ}$ , plus lower and upper bounds. Moreover, for a given duration and a given return period, the twelve values of the  $\tilde{wZ}$ -based IDF curves were used in the KED method (discussed in section 2.3.7) to create a probability curve of the future IDF curve of this duration and this return period. Again, such an additional range (from minimum to maximum) and probabilities can well represent uncertainties of future climate projections, allowing the use of future IDF curves with more confidence.

### 2.3.9 Homogeneity test of time series

The development of IDF curves requires that a time series be homogenous and independent. The requirement of independence can be reasonably assumed because the maximum durational precipitation in a year does not depend on the maximum duration precipitation in another year. However, the requirement of homogeneity would become invalid because of climate change. Herein, the homogeneity assures that the values of the time series are from a same population. That is, the mean and standard deviation can be estimated using any subsets of the time series with no difference from a statistical perspective. The homogeneity can be tested based on the cumulative deviations from the mean estimated using the entire time series (Buishand, 1982).

Given the time series of  $X_1, X_2, \dots, X_N$ , the cumulative deviations,  $S_k$ , are computed as:

$$S_k = \sum_{i=1}^k (X_i - \bar{X}) \quad k = 1, 2, \dots, N \quad (16)$$

where  $\bar{X}$  is the mean of the time series.

The test statistics,  $Q$  and  $R$ , are computed as:

$$Q = \max \left| \frac{S_k}{S_x} \right| \quad (17)$$

$$R = \left| \max \left( \frac{S_k}{S_x} \right) - \min \left( \frac{S_k}{S_x} \right) \right| \quad (18)$$

where  $S_x$  is the standard deviation of the time series.

The homogeneity of a time series is rejected when  $Q$  and  $R$  are larger than their critical values. Table 6 gives the critical values at a significance level of  $\alpha = 0.05$ . In this study, if the time series was found to be non-homogenous, it was iteratively subdivided into two or more subsets, each of which is homogenous. However, if the size of a subset is smaller than ten, this subset was pooled together with another subset to assure that the sample size of the pooled subset was larger than ten. In this regard, for the time series, if either  $Q$  or  $R$  is larger than the responding critical value but not both, it was judged to be homogenous. Subsequently, the IDF curves were developed using the subsets instead of the time series. Moreover, such an approach of homogeneity test and subdivision was applied to both the observed and derived time series.

Table 6. The critical values at a significance level of  $\alpha = 0.05$  for test of homogeneity of time series.<sup>[1]</sup>

| Sample Size N | Critical Value of $\frac{Q}{\sqrt{N}}$ | Critical Value of $\frac{R}{\sqrt{N}}$ |
|---------------|----------------------------------------|----------------------------------------|
| 10            | 1.14                                   | 1.28                                   |
| 20            | 1.22                                   | 1.43                                   |
| 30            | 1.24                                   | 1.50                                   |
| 40            | 1.26                                   | 1.53                                   |
| 50            | 1.27                                   | 1.55                                   |
| 100           | 1.29                                   | 1.62                                   |
| $\infty$      | 1.36                                   | 1.75                                   |

<sup>[1]</sup> Source: Buishand (1982).

### 3. RESULTS AND DISCUSSION

#### 3.1 The Step Changes and Temporal Trends

Among the 57 rain gauges, 25 of them were found to have a record period of 30 years or longer (Table 7). These gauges are located within ten climatic-physiographic zones in Virginia. This study used the observed data on precipitation at these gauges to detect any step changes and/or temporal trends. In this regard, the time series of  $\tilde{X}_{15m,i}$ ,  $\tilde{X}_{30m,i}$ ,  $\tilde{X}_{45m,i}$ ,  $\tilde{X}_{1h,i}$ ,  $\tilde{X}_{2h,i}$ ,  $\tilde{X}_{3h,i}$ ,  $\tilde{X}_{4h,i}$ ,  $\tilde{X}_{6h,i}$ ,  $\tilde{X}_{12h,i}$ ,  $\tilde{X}_{24h,i}$ ,  $\tilde{X}_{48h,i}$ , and  $\tilde{X}_{72h,i}$  were divided by the responding durations (i.e., 15, 30 and 45 min, and 1, 2, 3, 4, 6, 12, 24, 48 and 72 h) to convert the annual maximum durational precipitations into the responding intensities in units of  $\text{mm h}^{-1}$ .

Figure 11 shows the summary statistics of the intensities by gauge. As expected, at a given rain gauge, the statistics for a shorter duration (e.g., 15 min) were smaller than those for a longer duration (e.g., 72 h). The smaller standard deviation for a longer duration indicated that the interannual variation of the annual maximum precipitations tended to become smaller with increase of duration, whereas, the smaller skewness coefficients for a longer duration implied that the distribution of the annual maximum precipitations tended to become normal with increase of duration. In addition, across the state, regardless of the durations, the rainfall intensity

and its interannual variation in the climatic divisions of Northern, Central Mountain, Western Piedmont, and Eastern Piedmont tended to be higher than those in the climatic divisions of Tidewater and Southwestern Mountain, as for example revealed by Figure 12, which shows the contours of the mean, maximum, and coefficient of variation ( $C_v$ ) of the annual maximum 15-min rainfall intensity. Herein,  $C_v$  is defined as the ratio of the standard deviation to the mean and measures the overall variation of the annual maximum rainfall intensities around the mean. Such spatial patterns can mainly be attributed to the topographic variations (Figure 2a). The former three climatic divisions (especially the southwestern portions of the Northern and Western Piedmont divisions and the middle portion of the Central Mountain division) have a relatively higher elevation and larger gradient, which are favorable for cooling and condensing moist air to form heavy precipitation (Viessman and Lewis, 2003).

While no step change was detected, the annual maximum durational intensities exhibited a decreasing trend at most of the rain gauges except for seven gauges (Table 8). At two of these exceptional gauges, namely gauge 448062 and 443272, the intensities exhibited an increasing trend, while at the other five exceptional gauges, namely gauge 446475, 449151, 449272, 442208, and 444180, the intensities exhibited a decreasing trend for the durations of shorter than 6 h but an increasing trend for the durations of longer. Gauge 448062 is in a valley and gauge 443272 is located at a locally high-elevation leeward side of the mountains, implying that such locations tended to get more and more intense storm events. The five gauges with a mixing (i.e., decreasing and then increasing) trend are in the coastal plain (gauge 446475 and 449151) and at locations with a relatively highest elevation (gauge 449272, 442208, and 444180).

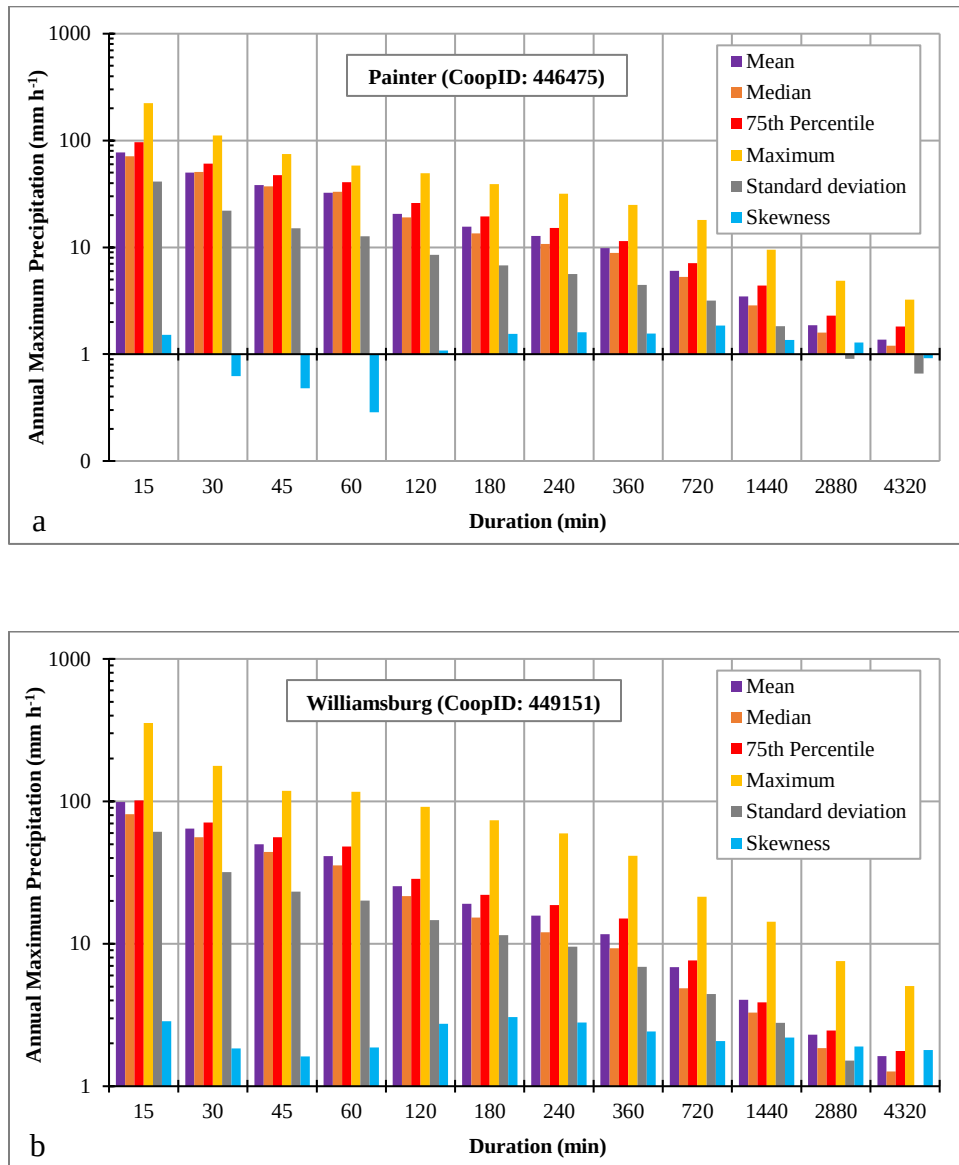
Table 7. The 25 rain gauges with a record period of 30 years or longer.

| Gauge Name                     | ID     | Begin Date | End Date   | Elevation (m) | Mean Annual Precipitation (mm) <sup>[1]</sup> | Divisions | Zone  |
|--------------------------------|--------|------------|------------|---------------|-----------------------------------------------|-----------|-------|
| Painter 2 W                    | 446475 | 05/02/1971 | 09/30/2012 | 9.1           | 1121.79                                       | CD1⊗PGD1  | CPZ01 |
| Williamsburg 2 N               | 449151 | 05/02/1971 | 02/28/2013 | 21.3          | 1236.35                                       | CD1⊗PGD1  |       |
| Camp Pickett                   | 441322 | 03/31/1974 | 02/28/2013 | 100.6         | 1169.42                                       | CD2⊗PGD2  | CPZ04 |
| John H Kerr Dam                | 444414 | 05/07/1971 | 02/28/2013 | 76.2          | 1103.50                                       | CD2⊗PGD2  |       |
| Altavista                      | 440166 | 12/31/1983 | 02/28/2013 | 161.2         | 1118.11                                       | CD3⊗PGD2  | CPZ05 |
| Chatham                        | 441614 | 05/06/1971 | 02/28/2013 | 198.4         | 1149.60                                       | CD3⊗PGD2  |       |
| Philpott Dam 2                 | 446692 | 05/06/1971 | 05/31/2009 | 342.3         | 1278.38                                       | CD3⊗PGD2  |       |
| Rocky Mount                    | 447338 | 05/06/1971 | 02/28/2013 | 400.8         | 1189.74                                       | CD3⊗PGD2  |       |
| Woolwine 4 S                   | 449272 | 12/31/1983 | 02/28/2013 | 457.2         | 1293.88                                       | CD3⊗PGD2  |       |
| Montebello Fish Hatchery       | 445690 | 04/30/1971 | 08/31/2007 | 812.9         | 1125.29                                       | CD3⊗PGD3  | CPZ06 |
| Piemont Research Station       | 446712 | 05/07/1971 | 02/28/2013 | 158.5         | 1112.90                                       | CD4⊗PGD2  | CPZ07 |
| The Plains 2 NNE               | 448396 | 05/01/1971 | 09/30/2004 | 161.5         | 1118.87                                       | CD4⊗PGD2  |       |
| Star Tannery                   | 448046 | 05/02/1972 | 01/31/2012 | 289.6         | 1023.62                                       | CD4⊗PGD4  | CPZ09 |
| Cobington Filter Plant         | 442044 | 12/31/1972 | 08/31/2011 | 374.9         | 952.75                                        | CD5⊗PGD4  | CPZ10 |
| Dale Enterprise                | 442208 | 09/11/1978 | 01/31/2009 | 413.9         | 922.02                                        | CD5⊗PGD4  |       |
| Gathright Dam                  | 443310 | 12/31/1983 | 02/28/2013 | 539.5         | 986.54                                        | CD5⊗PGD4  |       |
| Hot Springs                    | 444128 | 09/04/1970 | 08/31/2011 | 681.5         | 1097.41                                       | CD5⊗PGD4  |       |
| Millgap 2 NNW                  | 445595 | 09/01/1976 | 02/28/2013 | 737.9         | 1124.71                                       | CD5⊗PGD4  |       |
| Staunton Water Treatment Plant | 448062 | 12/31/1972 | 08/31/2007 | 51.5          | 989.96                                        | CD5⊗PGD4  |       |
| Williamsburg 2 S               | 449159 | 07/01/1978 | 08/31/2011 | 499.9         | 1029.32                                       | CD5⊗PGD4  |       |
| Galax Water Plant              | 443272 | 04/01/1972 | 02/28/2013 | 719.3         | 1005.84                                       | CD6⊗PGD3  | CPZ11 |
| Trout Dale 3 SSE               | 448547 | 03/31/1974 | 02/28/2013 | 865.3         | 1077.98                                       | CD6⊗PGD3  |       |

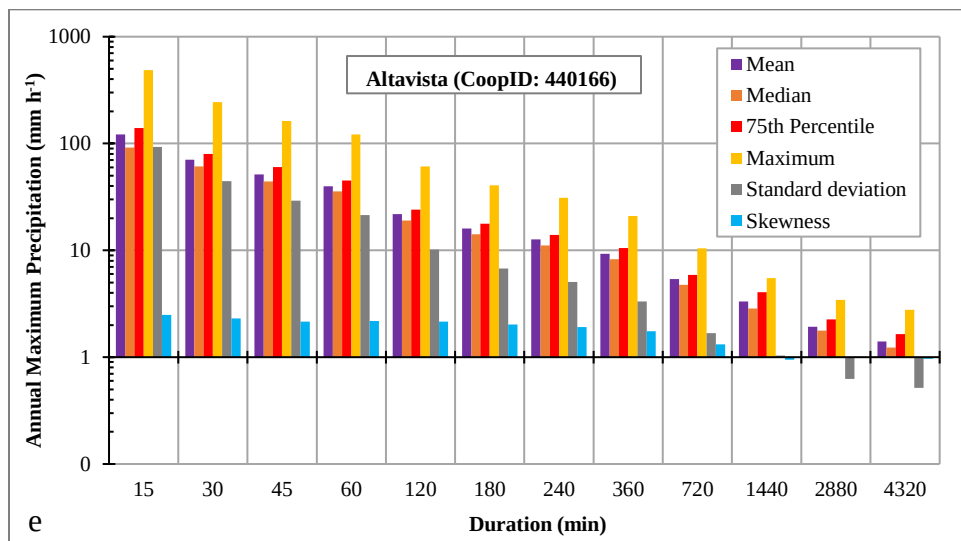
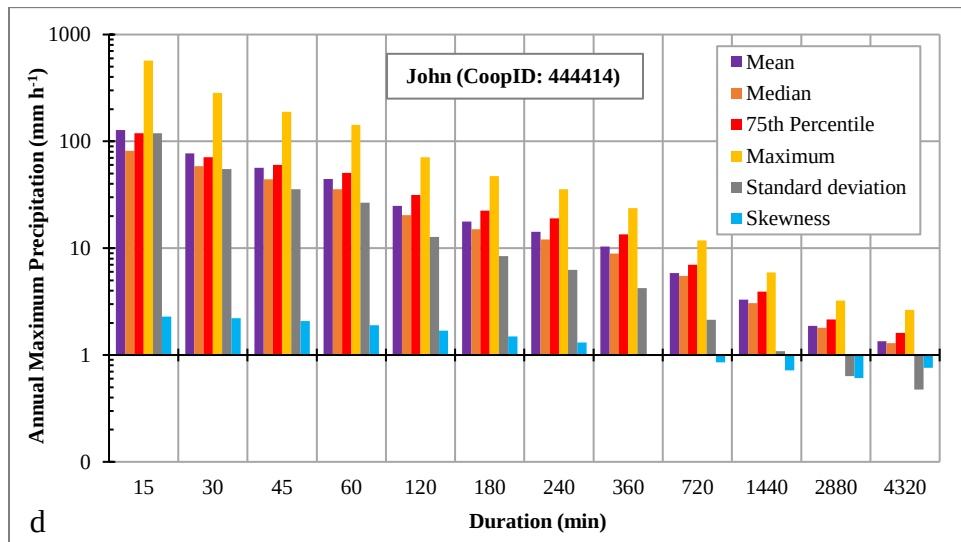
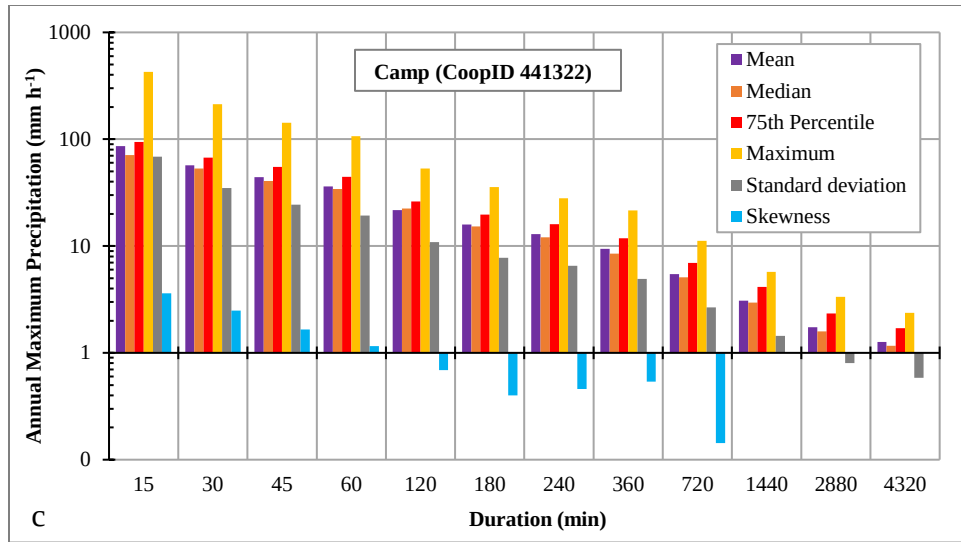
Table 7. Continuous .....

|            |        |            |            |       |         |          |       |
|------------|--------|------------|------------|-------|---------|----------|-------|
| Pulaski    | 446955 | 04/01/1972 | 02/28/2013 | 563.9 | 949.20  | CD6@PGD4 | CPZ12 |
| Hurley 4 S | 444180 | 03/31/1973 | 12/31/2009 | 331.6 | 1135.39 | CD6@PGD5 | CPZ13 |
| Wise 3 E   | 449215 | 12/31/1983 | 02/28/2013 | 776.9 | 1206.25 | CD6@PGD5 |       |

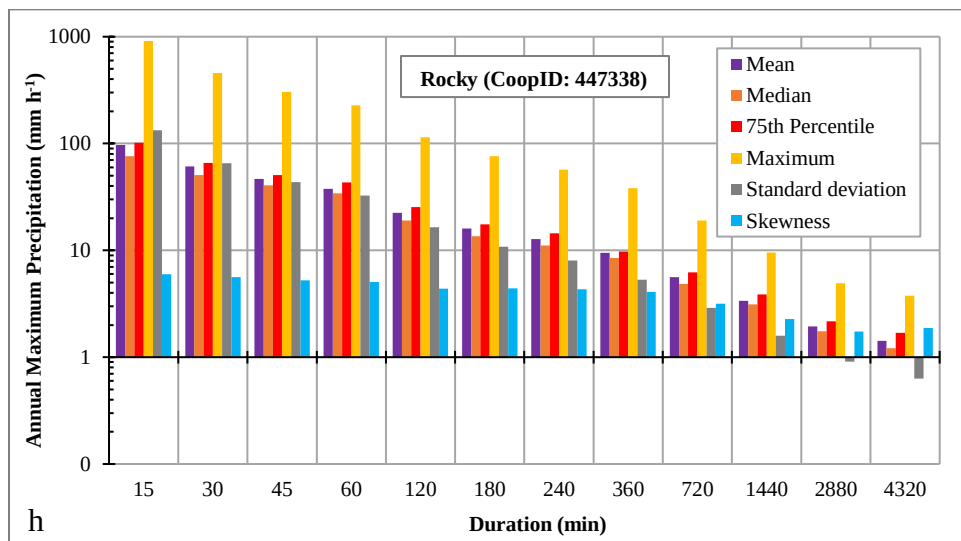
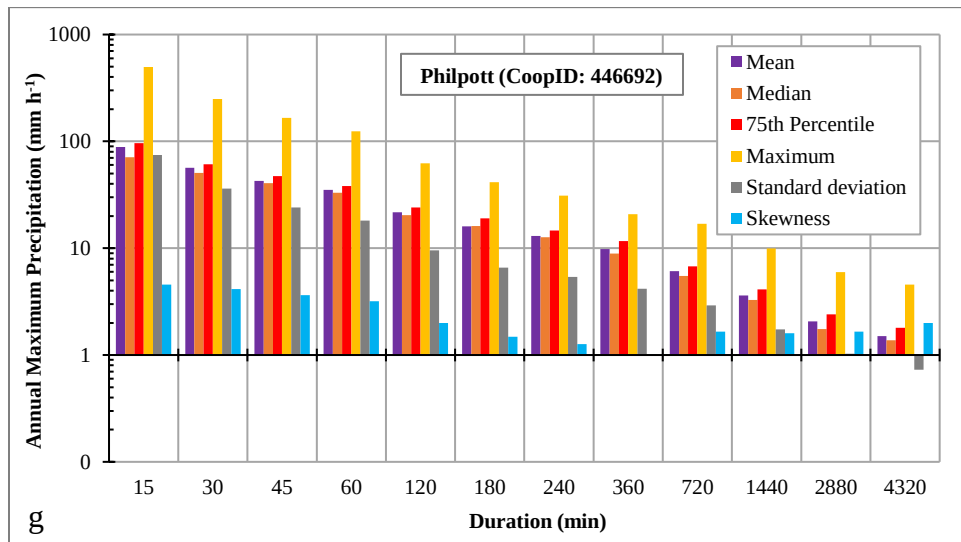
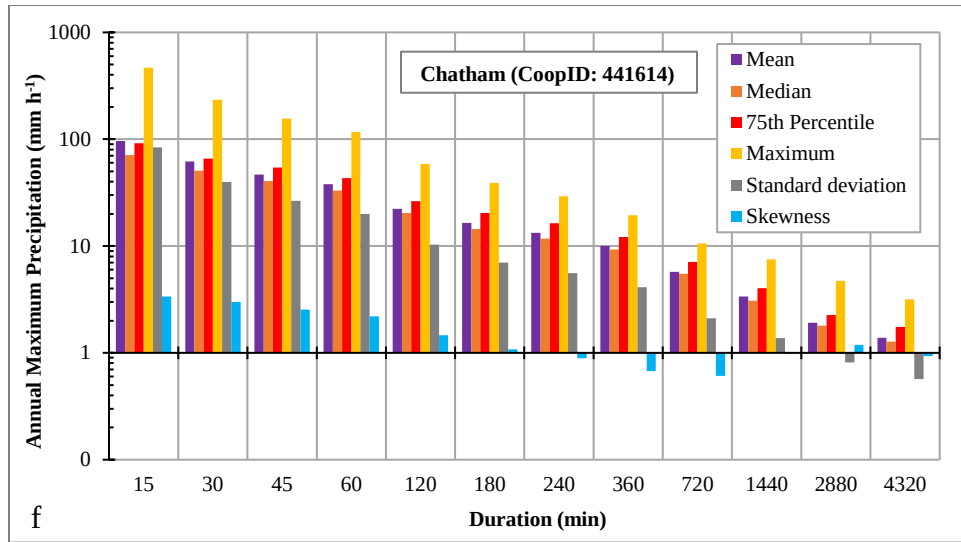
<sup>[1]</sup> The black number is the average of the values from <https://www.ncei.noaa.gov/data/climate-normals-deprecated/access/clim20/va> and <https://www.ncdc.noaa.gov/cdo-web/datatools/normals> and when both present the mean annual precipitations, whereas, it is the value from one of the two websites whichever presents the mean annual precipitation. On the other hand, the red number is from der Leeden (1994).



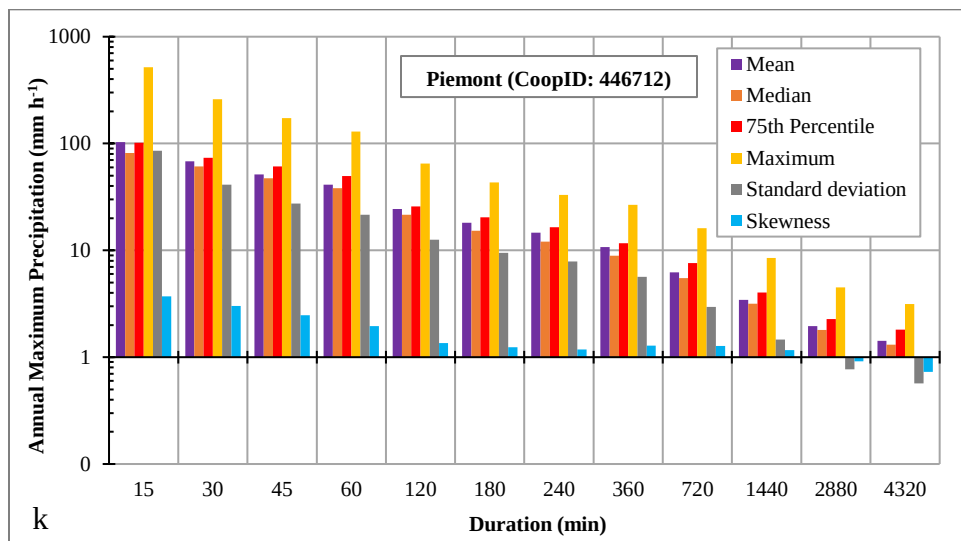
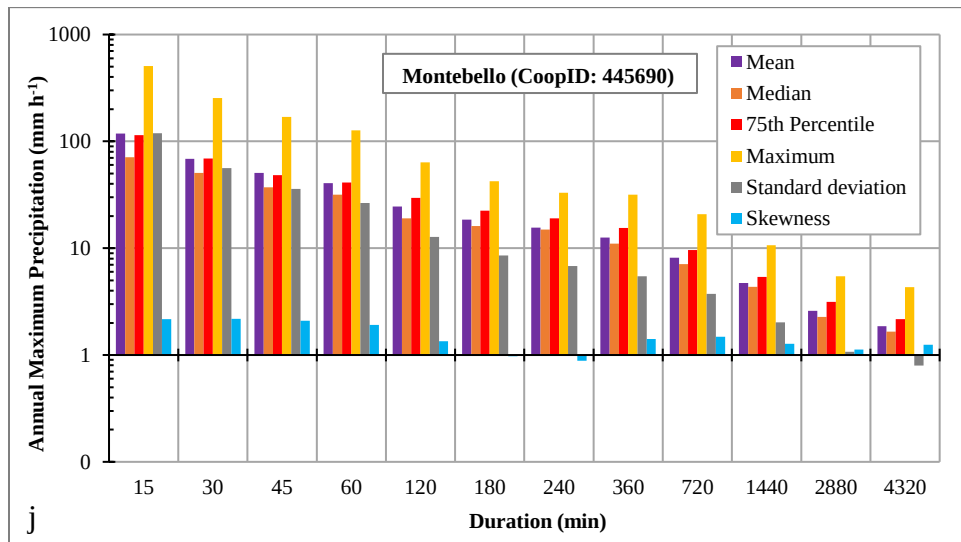
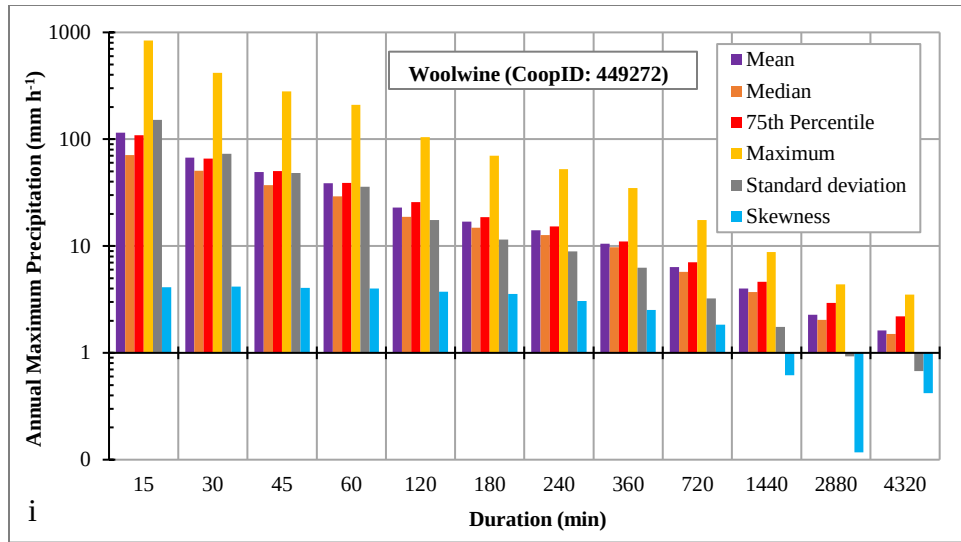
[Figure 11. The summary statistics of .....]



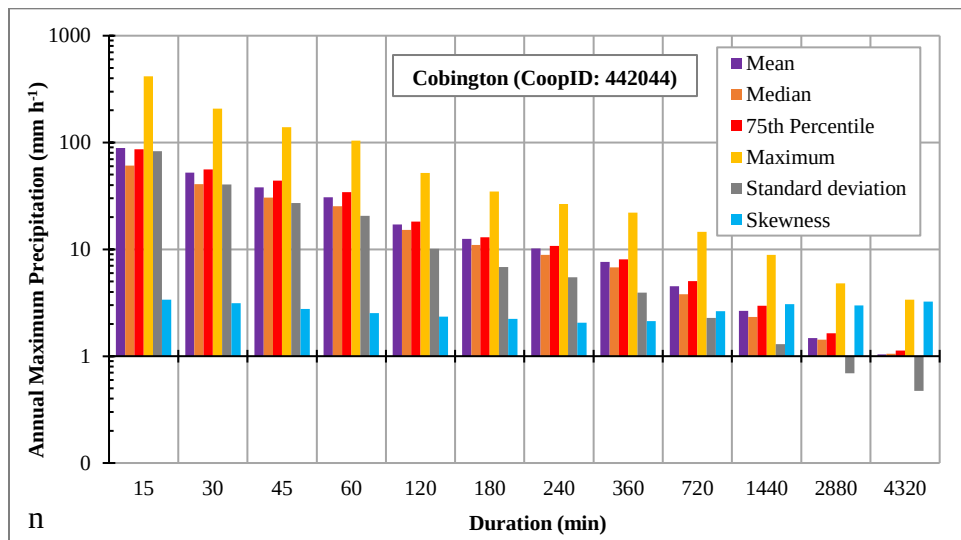
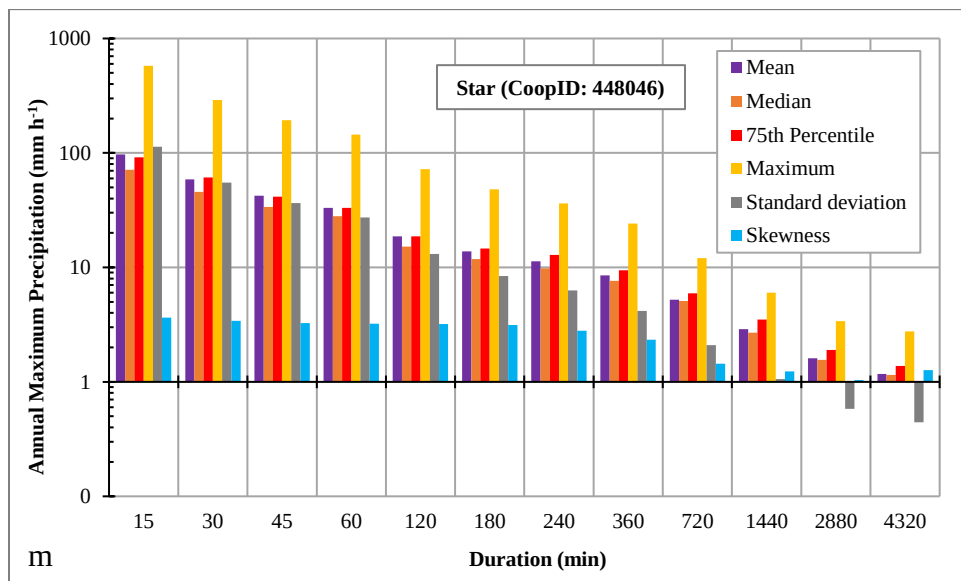
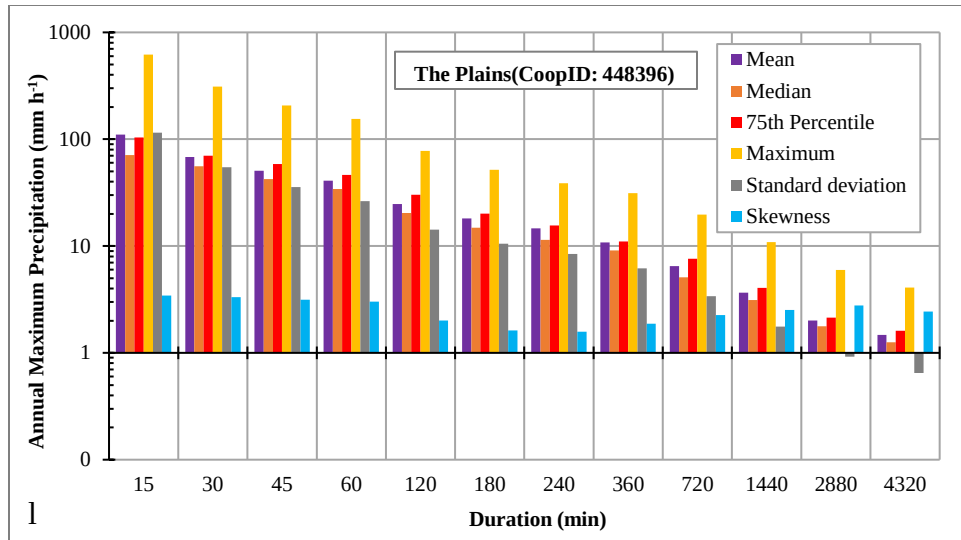
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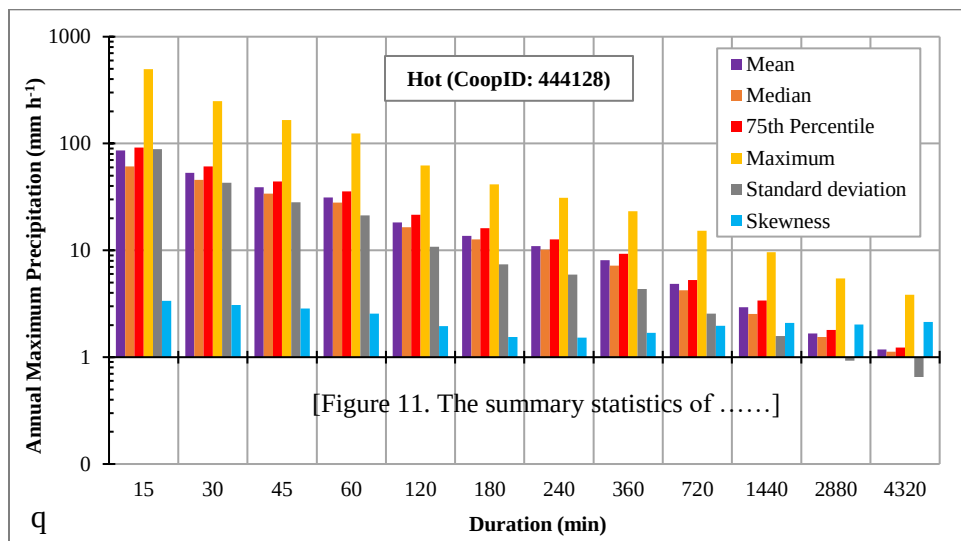
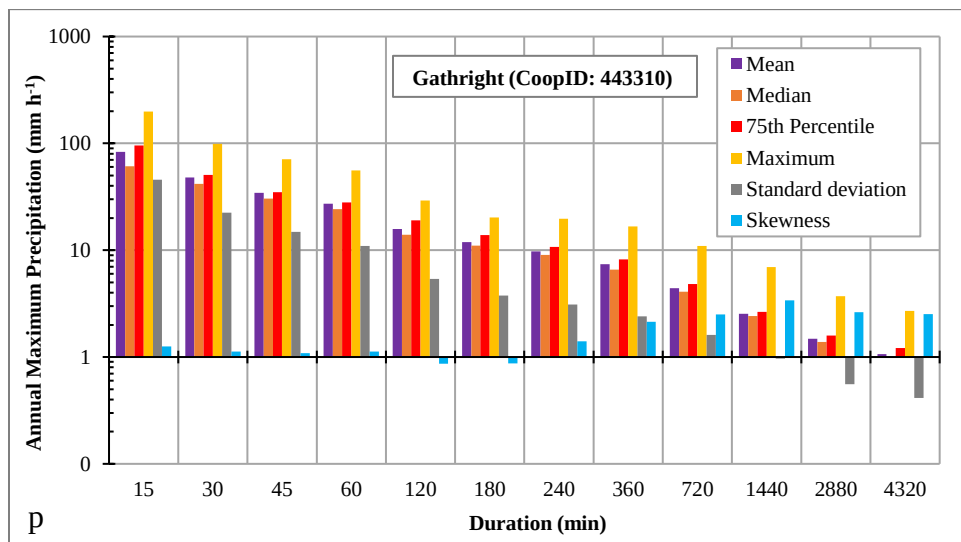
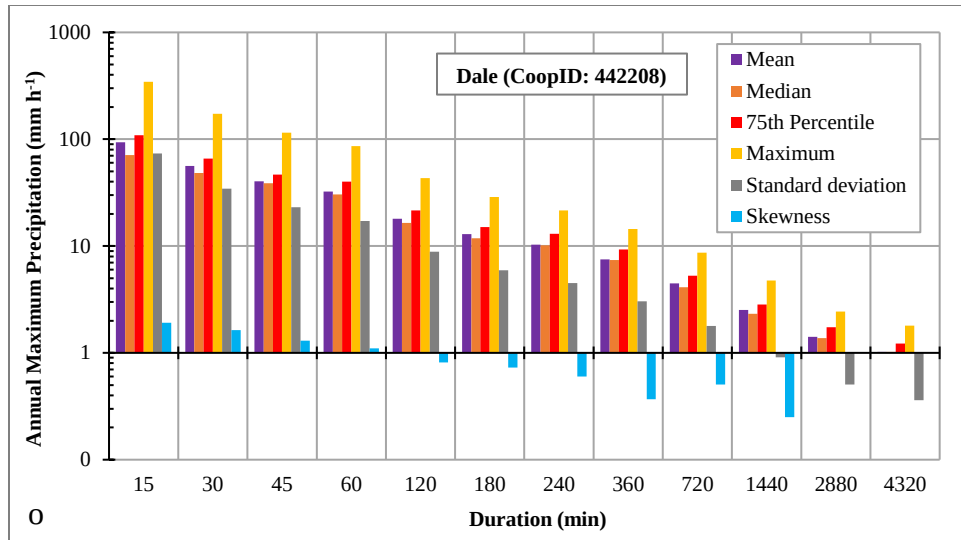
[Figure 11. The summary statistics of .....]



[Figure 11. The summary statistics of .....]

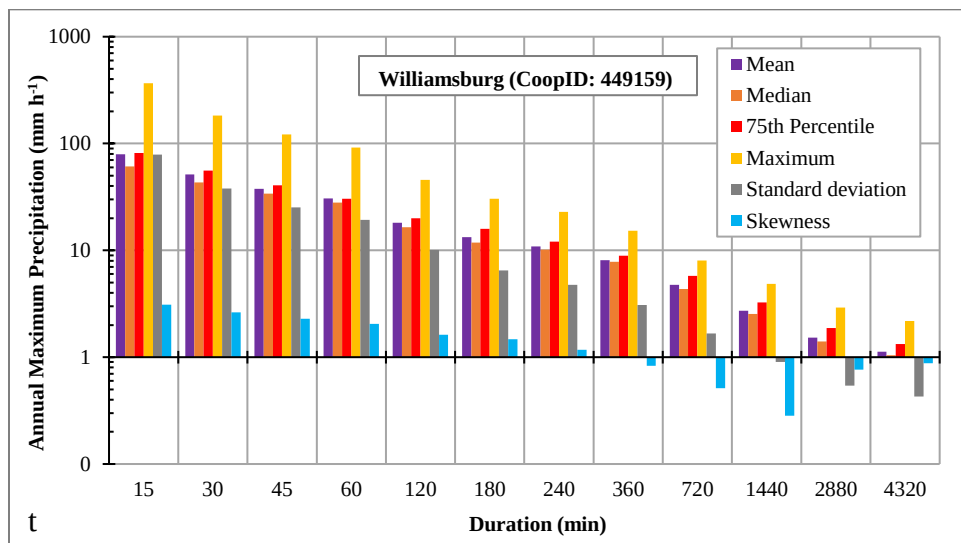
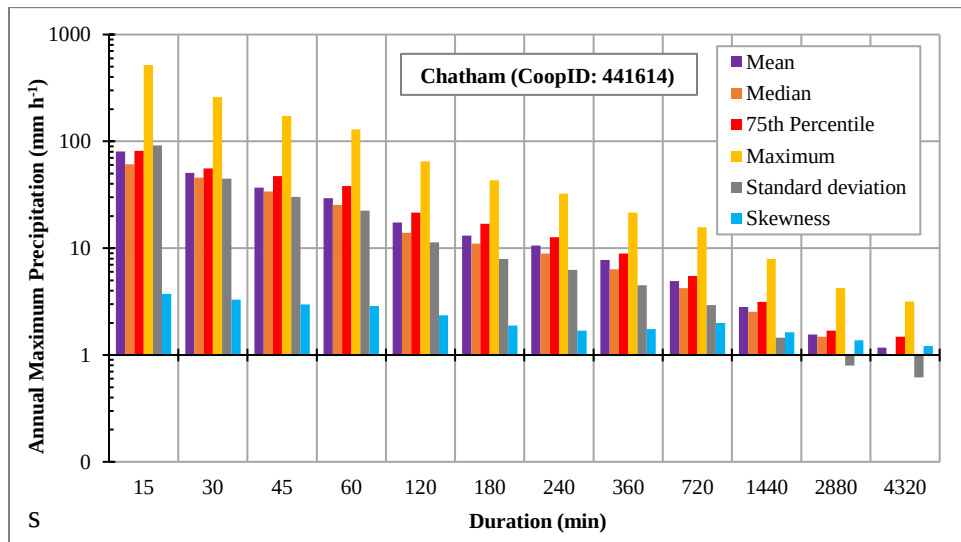
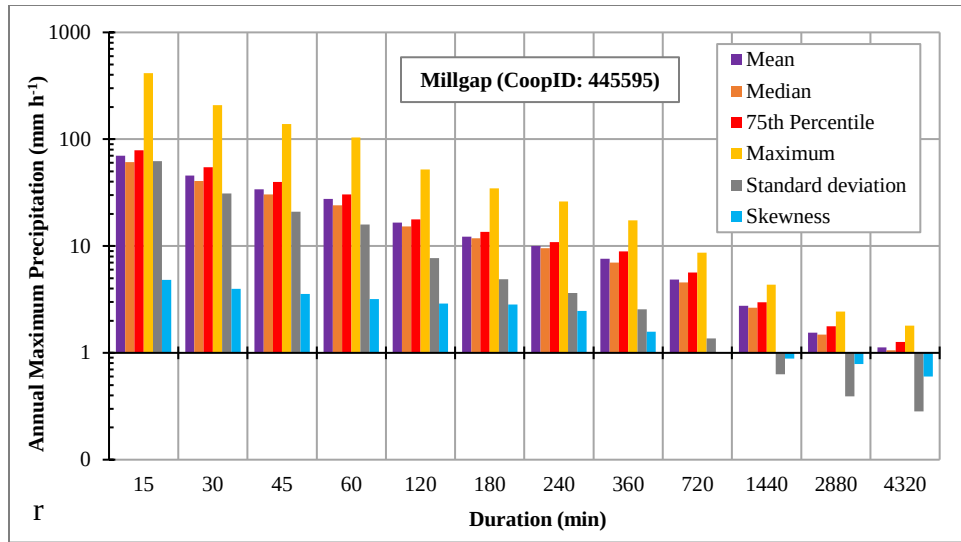


[Figure 11. The summary statistics of .....]

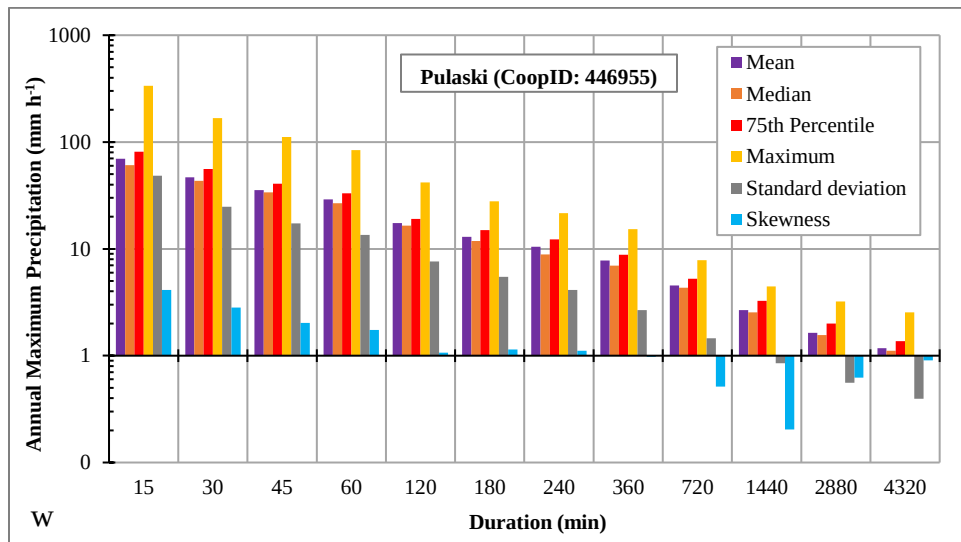
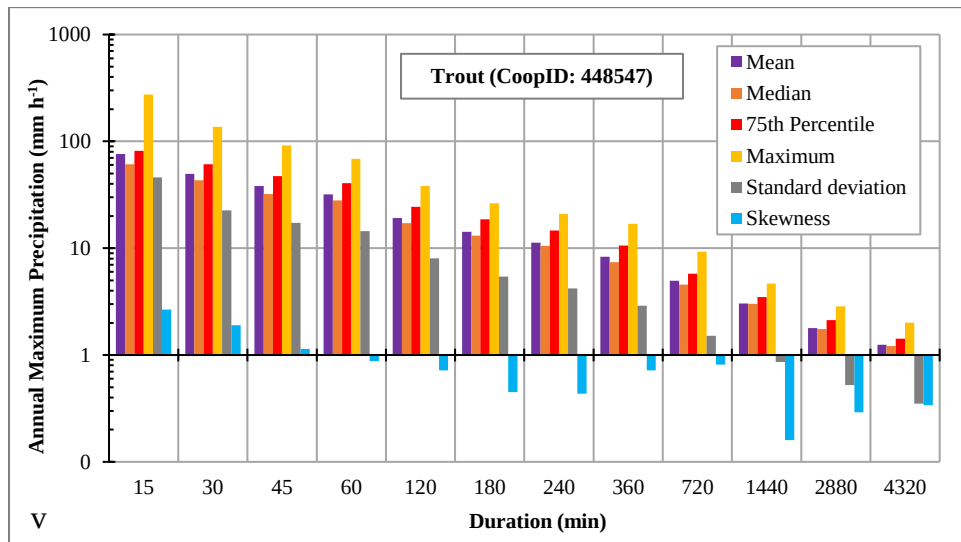
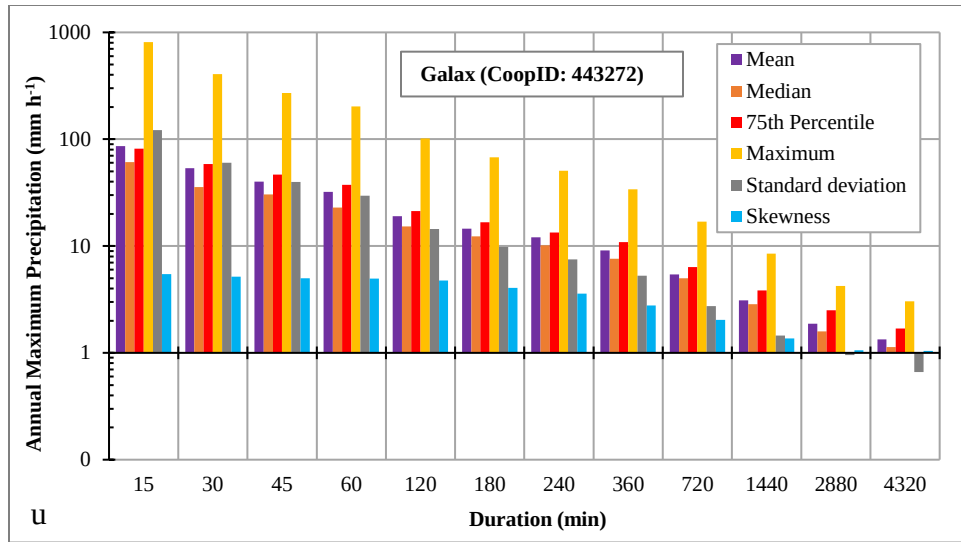


[Figure 11. The summary statistics of .....]

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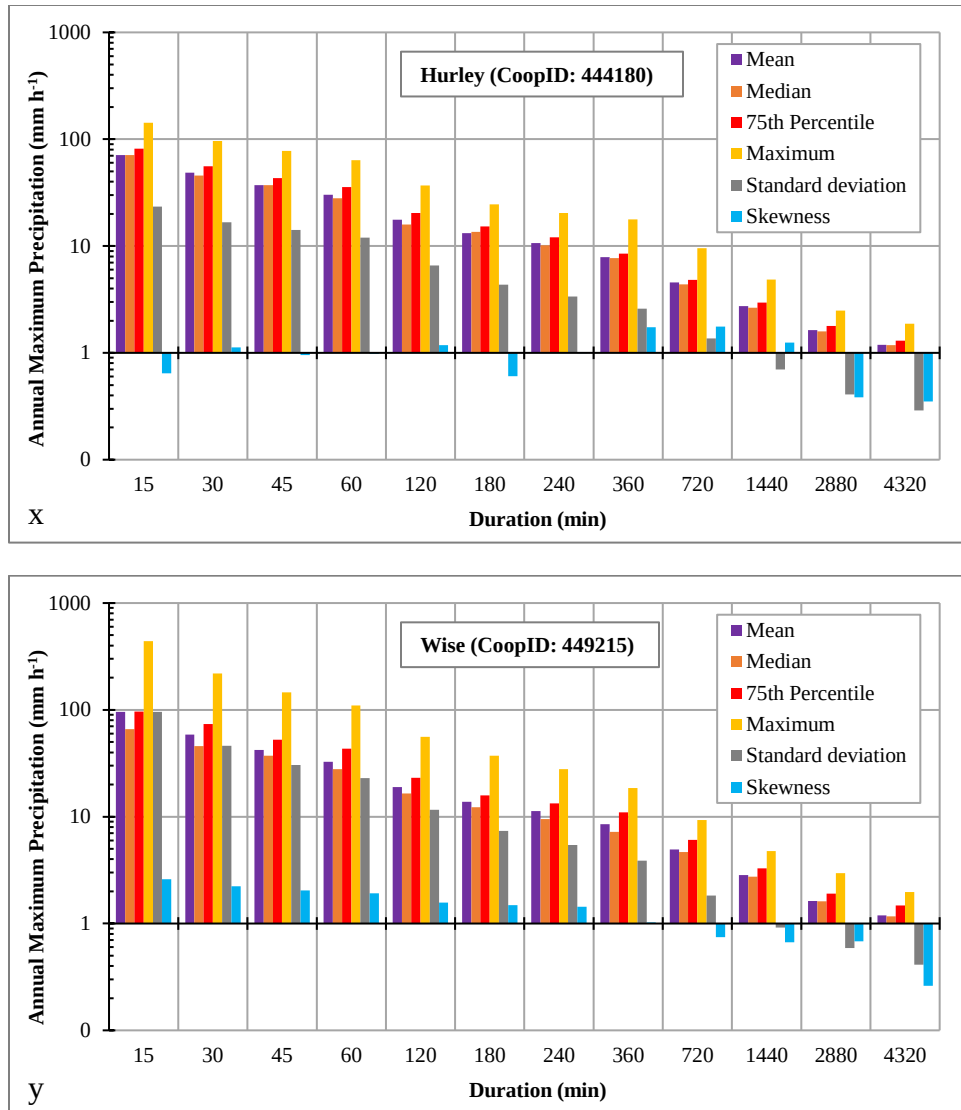
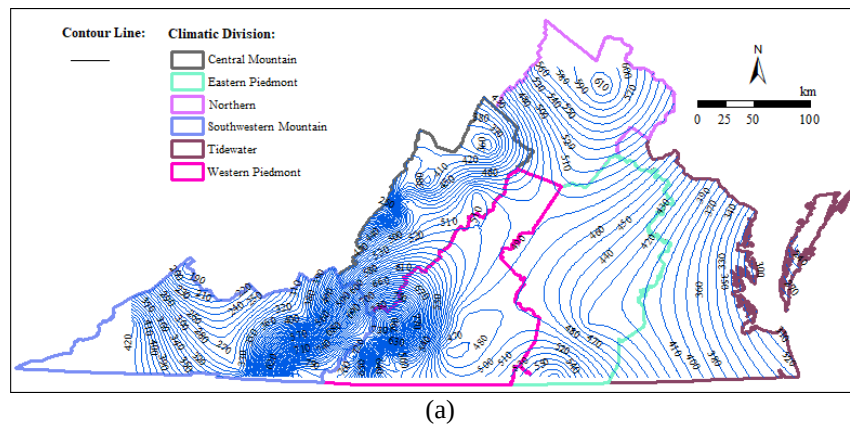


Figure 11. The summary statistics of the annual maximum durational precipitations by gauge.



[Figure 12. Contours of the: (a) maximum, .....]

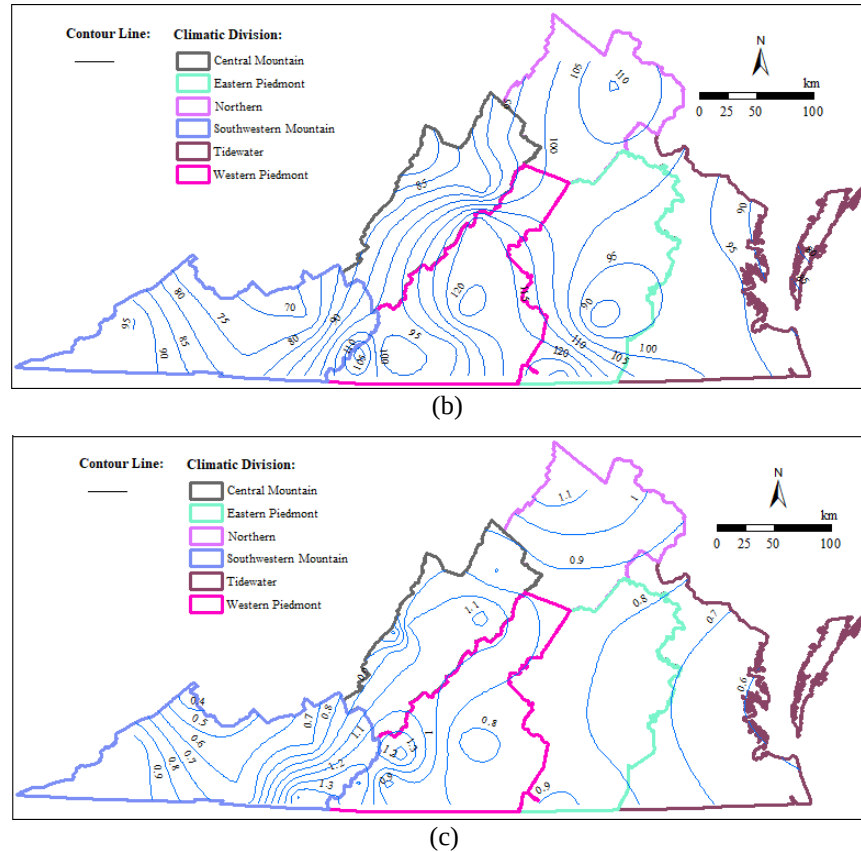


Figure 12. Contours of the: (a) maximum, (b) mean, and (c) coefficient of variation ( $C_v$ ), of the historic annual maximum 15-min intensities. The maximum and mean are in  $\text{mm h}^{-1}$ , while the  $C_v$  is dimensionless.

However, not all the exhibited trends were significant at a significance level of  $\alpha = 0.05$ . Most of the significant trends occurred in two climatic divisions, namely Northern (CD4) and Central Mountain (CD5), specifically in the climatic-physiographic zones of CPZ07 (Northern-Piedmont), CPZ09 (Northern-Valley and Ridge), and CPZ10 (Central Mountain-Valley and Ridge) (Tables 2 and 7). Figure 13 shows the historic variations of annual maximum intensities for selected gauges and durations with a significant trend. The intensities in these zones had an annual decreasing rate of  $0.01 \text{ mm h}^{-1}$  for the duration of 72 h to  $2.54 \text{ mm h}^{-1}$  for the duration of 15 min. Overall, the decreasing rate for a shorter duration was larger than that for a longer duration. The few decreasing rates in the zones of CPZ04, CPZ05, CPZ06, and CPZ13 were also within this range (i.e.,  $0.01$  to  $2.54 \text{ mm h}^{-1}$ ), except for the decreasing rate at gauge 440166 in CPZ05 for the duration of 15 min, which was  $4.40 \text{ mm h}^{-1}$ . On the other hand, the only significant increasing rates occurred at gauge 449151 in CPZ01 were  $0.02$  to  $0.3 \text{ mm h}^{-1}$  for the durations of 12 and 48 h, respectively. Overall, the extreme rainfall intensities had been decreasing across the entire state of Virginia.

The above trend analysis results indicated that for a given duration, both the magnitude and interannual variation of annual maximum precipitation tended to decrease. This may imply that for a design storm of interest, the resulting peak discharge would be smaller, but the runoff volume would be larger, than those that are estimated using the rainfall intensity presented by a historic IDF curve that does not consider such trends. Consequently, the structures (e.g., culverts) that are controlled by a design peak discharge will likely be oversized, whereas, the structures (e.g., detention and retention ponds) that are controlled by a design runoff volume will probably

be undersized. Thus, although not all trends are significant at  $\alpha = 0.05$ , it is needed to develop next-generation probably-based IDF curves that consider the trends. Using such IDF curves to design and construct new structures and/or manage and operate existing structures will be crucial for engineering communities to guard against over- or under-committing resources.

Among the 300 time series at the 25 rain gauges, only seven time series at gauge 441322, 440166, 448046, and 443310 were found to be non-homogenous (Table 9). For gauge 441322, the non-homogenous time series had a duration of 72 h, whereas, for gauge 443310, the non-homogenous time series had a duration of 15 min. Gauge 440166 had three non-homogenous time series with durations of 15, 30, and 45 min, respectively, while gauge 448046 had two non-homogenous time series with durations of 12 and 24 h, respectively. Three non-homogenous time series, including the ones at gauge 441322, 440166 (45 min duration), and 448046 (12 h), were marginally significant because either Q or R was very close to its critical value. For some of the time series, the non-homogeneity was caused by the insignificant trend and/or temporal variation, for the others, however, the non-homogeneity might be attributed to the significant trend. Some significant trends could not switch the time series from being homogenous to non-homogenous (Table 8 versus Table 9). Through iterations, each of the seven non-homogenous time series was subdivided into two homogenous subsets (Table 10), which in turn were used to develop the IDF curves.

Table 8. Trends of the historic annual maximum precipitations at various durations with the p-values in bracket.<sup>[1]</sup>

| Rain Gauge<br>ID   | Mann-Kendall<br>Statistics        | Duration (min) <sup>[2]</sup> |                               |                               |                               |                 |                 |                 |                 |                 |                              |                              |                 |
|--------------------|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------------------|------------------------------|-----------------|
|                    |                                   | 15                            | 30                            | 45                            | 60                            | 120             | 180             | 240             | 360             | 720             | 1440                         | 2880                         | 4320            |
| 446475<br>(N = 39) | Step change year                  | None                          | None                          | none                          | None                          | none            | none            | none            | none            | none            | none                         | none                         | none            |
|                    | Sen's slope (mm h <sup>-1</sup> ) | -0.68<br>(0.13)               | 0.00<br>(0.57)                | -0.09<br>(0.51)               | -0.12<br>(0.47)               | -0.05<br>(0.66) | -0.05<br>(0.48) | -0.03<br>(0.61) | -0.02<br>(0.54) | 0.01<br>(0.80)  | 0.02<br>(0.49)               | 0.01<br>(0.32)               | 0.01<br>(0.18)  |
| 449151<br>(N = 39) | Step change year                  | None                          | None                          | none                          | None                          | none            | none            | none            | none            | none            | none                         | none                         | none            |
|                    | Sen's slope (mm h <sup>-1</sup> ) | 0.00<br>(0.61)                | -0.13<br>(0.56)               | 0.00<br>(1.00)                | 0.00<br>(0.82)                | 0.00<br>(0.95)  | 0.00<br>(0.79)  | 0.03<br>(0.66)  | 0.04<br>(0.38)  | 0.04<br>(0.07)  | <b>0.03</b><br><b>(0.05)</b> | <b>0.02</b><br><b>(0.04)</b> | 0.01<br>(0.08)  |
| 441322<br>(N = 36) | Step change year                  | None                          | None                          | none                          | None                          | none            | none            | none            | none            | none            | none                         | none                         | none            |
|                    | Sen's slope (mm h <sup>-1</sup> ) | -1.02<br>(0.09)               | <b>-0.78</b><br><b>(0.03)</b> | <b>-0.62</b><br><b>(0.03)</b> | <b>-0.56</b><br><b>(0.02)</b> | -0.27<br>(0.06) | -0.18<br>(0.08) | -0.13<br>(0.13) | -0.09<br>(0.15) | -0.06<br>(0.15) | -0.03<br>(0.27)              | -0.01<br>(0.33)              | -0.01<br>(0.24) |
| 444414<br>(N = 38) | Step change year                  | None                          | None                          | none                          | None                          | none            | none            | none            | none            | none            | none                         | none                         | none            |
|                    | Sen's slope (mm h <sup>-1</sup> ) | <b>-1.13</b><br><b>(0.05)</b> | -0.51<br>(0.15)               | -0.31<br>(0.28)               | -0.30<br>(0.16)               | -0.18<br>(0.17) | -0.13<br>(0.17) | -0.08<br>(0.26) | -0.07<br>(0.16) | -0.02<br>(0.36) | -0.01<br>(0.37)              | 0.00<br>(0.69)               | 0.00<br>(0.89)  |
| 440166<br>(N = 30) | Step change year                  | None                          | None                          | none                          | None                          | none            | none            | none            | none            | none            | none                         | none                         | none            |
|                    | Sen's slope (mm h <sup>-1</sup> ) | <b>-4.40</b><br><b>(0.00)</b> | <b>-1.85</b><br><b>(0.00)</b> | <b>-1.13</b><br><b>(0.01)</b> | <b>-0.73</b><br><b>(0.01)</b> | -0.25<br>(0.09) | -0.15<br>(0.19) | -0.10<br>(0.22) | -0.04<br>(0.51) | -0.05<br>(0.07) | -0.02<br>(0.22)              | -0.01<br>(0.28)              | -0.01<br>(0.26) |
| 441614<br>(N = 42) | Step change year                  | None                          | None                          | none                          | None                          | none            | none            | none            | none            | none            | none                         | none                         | none            |
|                    | Sen's slope (mm h <sup>-1</sup> ) | -0.34<br>(0.27)               | -0.27<br>(0.24)               | -0.27<br>(0.21)               | -0.23<br>(0.15)               | -0.15<br>(0.13) | -0.08<br>(0.22) | -0.06<br>(0.26) | -0.03<br>(0.55) | -0.04<br>(0.33) | -0.02<br>(0.39)              | -0.01<br>(0.35)              | -0.01<br>(0.40) |
| 446692<br>(N = 39) | Step change year                  | None                          | None                          | None                          | None                          | none            | none            | none            | none            | none            | none                         | none                         | none            |
|                    | Sen's slope (mm h <sup>-1</sup> ) | -0.75<br>(0.10)               | -0.25<br>(0.27)               | -0.18<br>(0.22)               | -0.08<br>(0.49)               | -0.08<br>(0.44) | -0.08<br>(0.28) | -0.05<br>(0.39) | -0.05<br>(0.32) | -0.04<br>(0.18) | -0.03<br>(0.13)              | -0.02<br>(0.17)              | -0.01<br>(0.24) |
| 447338<br>(N = 42) | Step change year                  | None                          | None                          | None                          | None                          | none            | none            | none            | none            | none            | none                         | none                         | none            |
|                    | Sen's slope (mm h <sup>-1</sup> ) | -0.78<br>(0.07)               | -0.21<br>(0.41)               | 0.00<br>(0.93)                | 0.00<br>(0.90)                | 0.00<br>(0.99)  | 0.00<br>(0.97)  | 0.00<br>(0.85)  | 0.00<br>(0.86)  | -0.01<br>(0.63) | 0.00<br>(1.00)               | 0.00<br>(0.75)               | 0.00<br>(0.92)  |
| 449272<br>(N = 30) | Step change year                  | None                          | None                          | None                          | None                          | none            | none            | none            | none            | none            | none                         | none                         | none            |
|                    | Sen's slope (mm h <sup>-1</sup> ) | <b>-2.24</b><br><b>(0.05)</b> | <b>-1.13</b><br><b>(0.05)</b> | <b>-0.75</b><br><b>(0.05)</b> | -0.51<br>(0.10)               | -0.32<br>(0.08) | -0.15<br>(0.26) | -0.08<br>(0.49) | -0.03<br>(0.63) | 0.00<br>(0.93)  | 0.03<br>(0.34)               | 0.02<br>(0.26)               | 0.01<br>(0.51)  |

Table 8. Continuous .....

|          |                                   |                               |                               |                               |                               |                               |                               |                               |                               |                               |                               |                               |                               |
|----------|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 445690   | Step change year                  | None                          | None                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 36) | Sen's slope (mm h <sup>-1</sup> ) | 0.00<br>(0.56)                | -0.27<br>(0.40)               | -0.14<br>(0.56)               | -0.20<br>(0.42)               | -0.12<br>(0.31)               | -0.17<br>(0.17)               | -0.15<br>(0.16)               | -0.12<br>(0.09)               | -0.05<br>(0.28)               | -0.02<br>(0.49)               | -0.01<br>(0.32)               | -0.01<br>(0.32)               |
| 446712   | Step change year                  | None                          | None                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 39) | Sen's slope (mm h <sup>-1</sup> ) | <b>-1.13</b><br><b>(0.01)</b> | <b>-0.85</b><br><b>(0.01)</b> | <b>-0.61</b><br><b>(0.01)</b> | <b>-0.51</b><br><b>(0.01)</b> | <b>-0.33</b><br><b>(0.00)</b> | <b>-0.24</b><br><b>(0.00)</b> | <b>-0.16</b><br><b>(0.01)</b> | <b>-0.09</b><br><b>(0.04)</b> | <b>-0.07</b><br><b>(0.03)</b> | <b>-0.04</b><br><b>(0.03)</b> | <b>-0.02</b><br><b>(0.02)</b> | <b>-0.02</b><br><b>(0.02)</b> |
| 448396   | Step change year                  | None                          | None                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          | None                          |
| (N = 34) | Sen's slope (mm h <sup>-1</sup> ) | -0.83<br>(0.22)               | -0.55<br>(0.14)               | -0.47<br>(0.17)               | -0.39<br>(0.16)               | -0.38<br>(0.10)               | -0.27<br>(0.09)               | -0.22<br>(0.07)               | <b>-0.14</b><br><b>(0.03)</b> | -0.08<br>(0.06)               | -0.03<br>(0.23)               | <b>-0.02</b><br><b>(0.04)</b> | <b>-0.02</b><br><b>(0.02)</b> |
| 448046   | Step change year                  | None                          | None                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 40) | Sen's slope (mm h <sup>-1</sup> ) | <b>-1.07</b><br><b>(0.01)</b> | -0.53<br>(0.08)               | -0.33<br>(0.13)               | -0.23<br>(0.08)               | <b>-0.18</b><br><b>(0.02)</b> | <b>-0.13</b><br><b>(0.02)</b> | <b>-0.13</b><br><b>(0.01)</b> | <b>-0.10</b><br><b>(0.01)</b> | <b>-0.07</b><br><b>(0.00)</b> | <b>-0.03</b><br><b>(0.02)</b> | <b>-0.02</b><br><b>(0.02)</b> | <b>-0.01</b><br><b>(0.04)</b> |
| 442044   | Step change year                  | none                          | None                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 39) | Sen's slope (mm h <sup>-1</sup> ) | <b>-0.73</b><br><b>(0.04)</b> | <b>-0.49</b><br><b>(0.05)</b> | <b>-0.42</b><br><b>(0.05)</b> | <b>-0.33</b><br><b>(0.04)</b> | <b>-0.17</b><br><b>(0.03)</b> | <b>-0.11</b><br><b>(0.05)</b> | -0.08<br>(0.13)               | -0.06<br>(0.09)               | -0.03<br>(0.06)               | -0.02<br>(0.06)               | -0.01<br>(0.06)               | -0.01<br>(0.19)               |
| 442208   | Step change year                  | none                          | None                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 30) | Sen's slope (mm h <sup>-1</sup> ) | <b>-2.54</b><br><b>(0.01)</b> | <b>-1.15</b><br><b>(0.02)</b> | <b>-0.75</b><br><b>(0.03)</b> | -0.54<br>(0.06)               | -0.20<br>(0.17)               | -0.11<br>(0.32)               | -0.04<br>(0.63)               | 0.00<br>(0.94)                | 0.02<br>(0.60)                | 0.00<br>(0.77)                | 0.01<br>(0.58)                | 0.01<br>(0.33)                |
| 443310   | Step change year                  | none                          | none                          | None                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 30) | Sen's slope (mm h <sup>-1</sup> ) | <b>-2.26</b><br><b>(0.00)</b> | <b>-0.71</b><br><b>(0.02)</b> | -0.35<br>(0.07)               | -0.15<br>(0.13)               | -0.15<br>(0.14)               | -0.14<br>(0.08)               | -0.08<br>(0.09)               | -0.04<br>(0.14)               | -0.02<br>(0.48)               | 0.00<br>(0.93)                | 0.00<br>(0.69)                | 0.00<br>(0.73)                |
| 444128   | Step change year                  | none                          | none                          | None                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 36) | Sen's slope (mm h <sup>-1</sup> ) | -0.56<br>(0.16)               | -0.16<br>(0.48)               | -0.16<br>(0.48)               | -0.14<br>(0.51)               | -0.08<br>(0.49)               | -0.08<br>(0.27)               | -0.05<br>(0.19)               | -0.04<br>(0.35)               | -0.02<br>(0.27)               | -0.01<br>(0.35)               | 0.00<br>(0.53)                | 0.00<br>(0.85)                |
| 445595   | Step change year                  | none                          | none                          | none                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 38) | Sen's slope (mm h <sup>-1</sup> ) | 0.00<br>(0.69)                | -0.22<br>(0.40)               | -0.23<br>(0.26)               | -0.15<br>(0.35)               | -0.07<br>(0.38)               | -0.05<br>(0.30)               | 0.00<br>(0.70)                | -0.03<br>(0.33)               | -0.02<br>(0.26)               | -0.02<br>(0.08)               | -0.01<br>(0.08)               | 0.00<br>(0.32)                |
| 448062   | Step change year                  | none                          | none                          | none                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 33) | Sen's slope (mm h <sup>-1</sup> ) | 0.00<br>(0.74)                | 0.00<br>(0.93)                | 0.00<br>(0.96)                | 0.00<br>(0.95)                | 0.00<br>(0.99)                | 0.00<br>(0.82)                | 0.01<br>(0.76)                | 0.05<br>(0.31)                | 0.03<br>(0.28)                | 0.02<br>(0.42)                | 0.01<br>(0.41)                | 0.00<br>(0.60)                |
| 449159   | Step change year                  | none                          | none                          | none                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 30) | Sen's slope (mm h <sup>-1</sup> ) | -0.44<br>(0.34)               | -0.36<br>(0.30)               | -0.24<br>(0.24)               | -0.18<br>(0.30)               | -0.13<br>(0.27)               | -0.10<br>(0.30)               | -0.08<br>(0.22)               | -0.05<br>(0.29)               | -0.02<br>(0.38)               | -0.02<br>(0.33)               | -0.01<br>(0.52)               | 0.00<br>(0.64)                |
| 443272   | Step change year                  | none                          | none                          | none                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 42) | Sen's slope (mm h <sup>-1</sup> ) | 0.00<br>(0.38)                | 0.24<br>(0.22)                | 0.09<br>(0.56)                | 0.09<br>(0.43)                | 0.00<br>(0.70)                | 0.00<br>(0.66)                | 0.02<br>(0.63)                | 0.00<br>(0.69)                | -0.01<br>(0.81)               | 0.00<br>(0.95)                | 0.01<br>(0.52)                | 0.00<br>(0.54)                |
| 448547   | Step change year                  | none                          | none                          | none                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 40) | Sen's slope (mm h <sup>-1</sup> ) | -0.52<br>(0.16)               | -0.28<br>(0.12)               | -0.19<br>(0.27)               | -0.17<br>(0.27)               | -0.13<br>(0.25)               | -0.09<br>(0.25)               | -0.07<br>(0.23)               | -0.02<br>(0.43)               | -0.02<br>(0.39)               | 0.00<br>(0.82)                | 0.00<br>(1.00)                | 0.00<br>(0.92)                |
| 446955   | Step change year                  | none                          | none                          | none                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 42) | Sen's slope (mm h <sup>-1</sup> ) | 0.00<br>(0.82)                | 0.00<br>(0.62)                | -0.09<br>(0.56)               | -0.08<br>(0.51)               | -0.06<br>(0.44)               | 0.00<br>(0.50)                | 0.00<br>(0.44)                | 0.00<br>(0.79)                | -0.01<br>(0.63)               | -0.01<br>(0.64)               | -0.01<br>(0.35)               | -0.01<br>(0.35)               |
| 444180   | Step change year                  | none                          | none                          | none                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 34) | Sen's slope (mm h <sup>-1</sup> ) | -0.62<br>(0.10)               | 0.00<br>(0.65)                | 0.00<br>(0.54)                | -0.14<br>(0.43)               | -0.08<br>(0.41)               | -0.03<br>(0.54)               | -0.01<br>(0.48)               | -0.02<br>(0.48)               | 0.00<br>(0.71)                | 0.01<br>(0.21)                | 0.00<br>(0.80)                | 0.00<br>(0.85)                |
| 449215   | Step change year                  | none                          | none                          | none                          | None                          | None                          | none                          | none                          | none                          | none                          | none                          | none                          | none                          |
| (N = 28) | Sen's slope (mm h <sup>-1</sup> ) | <b>-2.03</b><br><b>(0.05)</b> | -0.91<br>(0.13)               | -0.78<br>(0.15)               | -0.58<br>(0.11)               | -0.28<br>(0.24)               | -0.12<br>(0.26)               | -0.07<br>(0.44)               | 0.00<br>(0.89)                | 0.00<br>(0.87)                | 0.00<br>(1.00)                | 0.00<br>(0.74)                | 0.01<br>(0.54)                |

<sup>[1]</sup> N: sample size. The details of Mann-Kendall test and its statistics (e.g., Sen's slope) can be found from Wang *et al.* (2013).<sup>[2]</sup> The number in bracket is the p-value. The Sen's slopes highlighted in bold red are significant at a significance level of  $\alpha = 0.05$ .

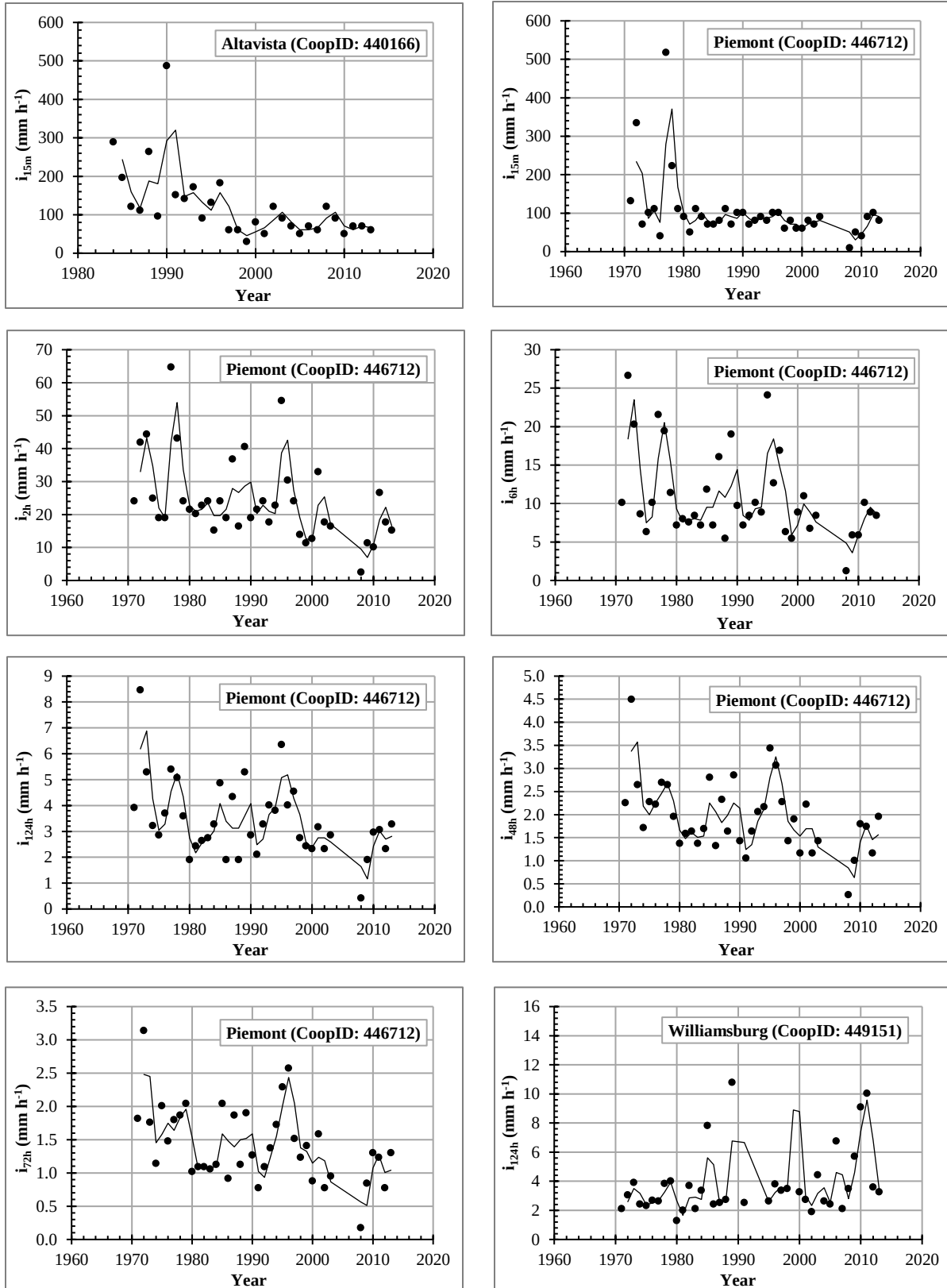


Figure 13. The typical significant trends of historic annual maximum durational precipitations as illustrated by those at three selected gauges (Cooperative Identification or CoopID 440166, 446712, and 449151).  $i$  signifies the intensity for the duration represented by the subscript.

Table 9. Homogeneity tests of the historic annual maximum precipitations at various durations.<sup>[1]</sup>

| Rain Gauge<br>ID   | Homogeneity Test<br>Statistics | Duration (min) <sup>[2]</sup> |      |      |      |      |      |      |      |      |      |      |      | Critical Value<br>at $\alpha = 0.05$ <sup>[3]</sup> |
|--------------------|--------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|-----------------------------------------------------|
|                    |                                | 15                            | 30   | 45   | 60   | 120  | 180  | 240  | 360  | 720  | 1440 | 2880 | 4320 |                                                     |
| 446475<br>(N = 39) | $Q/\sqrt{N}$                   | 0.96                          | 0.55 | 0.69 | 0.72 | 0.61 | 0.56 | 0.48 | 0.47 | 0.67 | 0.91 | 0.96 | 0.95 | 1.258                                               |
|                    | $R/\sqrt{N}$                   | 0.98                          | 0.91 | 1.06 | 1.09 | 0.96 | 0.83 | 0.80 | 0.93 | 1.06 | 1.12 | 1.20 | 1.23 | 1.527                                               |
| 449151<br>(N = 39) | $Q/\sqrt{N}$                   | 1.17                          | 0.69 | 0.64 | 0.62 | 0.47 | 0.43 | 0.65 | 0.76 | 0.94 | 1.01 | 1.06 | 1.05 | 1.258                                               |
|                    | $R/\sqrt{N}$                   | 1.36                          | 0.96 | 1.01 | 0.98 | 0.72 | 0.76 | 0.74 | 0.83 | 1.02 | 1.08 | 1.13 | 1.14 | 1.527                                               |
| 441322<br>(N = 36) | $Q/\sqrt{N}$                   | 0.98                          | 1.07 | 1.14 | 1.17 | 1.18 | 1.20 | 1.16 | 1.14 | 1.19 | 1.25 | 1.27 | 1.29 | 1.252                                               |
|                    | $R/\sqrt{N}$                   | 1.09                          | 1.25 | 1.35 | 1.39 | 1.36 | 1.36 | 1.36 | 1.35 | 1.39 | 1.47 | 1.51 | 1.53 | 1.518                                               |
| 444414<br>(N = 38) | $Q/\sqrt{N}$                   | 1.51                          | 1.38 | 1.24 | 1.15 | 1.11 | 1.02 | 0.86 | 0.92 | 0.86 | 0.81 | 0.60 | 0.57 | 1.256                                               |
|                    | $R/\sqrt{N}$                   | 1.51                          | 1.38 | 1.24 | 1.18 | 1.18 | 1.13 | 0.96 | 0.99 | 0.95 | 0.94 | 1.01 | 0.97 | 1.524                                               |
| 440166<br>(N = 30) | $Q/\sqrt{N}$                   | 1.68                          | 1.66 | 1.52 | 1.42 | 1.21 | 1.15 | 1.10 | 1.08 | 1.46 | 1.23 | 1.09 | 1.09 | 1.240                                               |
|                    | $R/\sqrt{N}$                   | 1.68                          | 1.66 | 1.52 | 1.42 | 1.25 | 1.20 | 1.15 | 1.12 | 1.47 | 1.43 | 1.24 | 1.30 | 1.500                                               |
| 441614<br>(N = 42) | $Q/\sqrt{N}$                   | 0.88                          | 0.78 | 0.76 | 0.78 | 0.87 | 0.72 | 0.72 | 0.66 | 0.97 | 0.83 | 0.72 | 0.74 | 1.262                                               |
|                    | $R/\sqrt{N}$                   | 0.91                          | 0.79 | 0.83 | 0.88 | 0.92 | 0.74 | 0.72 | 0.69 | 0.97 | 0.89 | 0.88 | 0.98 | 1.534                                               |
| 446692<br>(N = 39) | $Q/\sqrt{N}$                   | 0.77                          | 0.79 | 0.84 | 0.77 | 0.88 | 1.00 | 1.00 | 1.07 | 1.17 | 1.13 | 1.12 | 1.12 | 1.258                                               |
|                    | $R/\sqrt{N}$                   | 1.08                          | 1.14 | 1.21 | 1.25 | 1.08 | 1.20 | 1.19 | 1.19 | 1.21 | 1.20 | 1.19 | 1.17 | 1.527                                               |
| 447338<br>(N = 42) | $Q/\sqrt{N}$                   | 0.68                          | 0.66 | 0.60 | 0.60 | 0.71 | 0.71 | 0.72 | 0.71 | 0.77 | 0.74 | 0.64 | 0.59 | 1.262                                               |
|                    | $R/\sqrt{N}$                   | 0.99                          | 1.03 | 1.03 | 1.07 | 1.32 | 1.36 | 1.42 | 1.39 | 1.29 | 1.25 | 1.08 | 1.05 | 1.534                                               |
| 449272<br>(N = 30) | $Q/\sqrt{N}$                   | 1.25                          | 1.17 | 1.13 | 1.11 | 1.04 | 0.93 | 0.83 | 0.66 | 0.53 | 0.56 | 0.79 | 0.58 | 1.240                                               |
|                    | $R/\sqrt{N}$                   | 1.25                          | 1.17 | 1.13 | 1.11 | 1.07 | 0.96 | 0.86 | 0.76 | 0.74 | 0.89 | 1.00 | 1.02 | 1.500                                               |
| 445690<br>(N = 36) | $Q/\sqrt{N}$                   | 0.97                          | 0.96 | 0.95 | 1.02 | 1.00 | 0.96 | 0.94 | 0.93 | 0.77 | 0.80 | 0.74 | 0.69 | 1.252                                               |
|                    | $R/\sqrt{N}$                   | 1.78                          | 1.79 | 1.79 | 1.77 | 1.48 | 1.20 | 1.09 | 0.94 | 0.86 | 0.90 | 0.81 | 0.79 | 1.518                                               |
| 446712<br>(N = 39) | $Q/\sqrt{N}$                   | 1.35                          | 1.42 | 1.40 | 1.46 | 1.55 | 1.53 | 1.45 | 1.32 | 1.29 | 1.19 | 1.17 | 1.21 | 1.258                                               |
|                    | $R/\sqrt{N}$                   | 1.35                          | 1.20 | 1.18 | 1.21 | 1.33 | 1.34 | 1.28 | 1.19 | 1.27 | 1.24 | 1.27 | 1.29 | 1.527                                               |
| 448396<br>(N = 34) | $Q/\sqrt{N}$                   | 1.02                          | 0.96 | 0.95 | 1.00 | 1.10 | 1.18 | 1.20 | 1.25 | 1.07 | 0.88 | 1.01 | 1.08 | 1.248                                               |
|                    | $R/\sqrt{N}$                   | 1.24                          | 1.24 | 1.16 | 1.14 | 1.21 | 1.31 | 1.31 | 1.33 | 1.15 | 0.97 | 1.05 | 1.15 | 1.512                                               |
| 448046<br>(N = 40) | $Q/\sqrt{N}$                   | 1.20                          | 1.14 | 1.10 | 1.07 | 1.19 | 1.22 | 1.38 | 1.46 | 1.66 | 1.57 | 1.41 | 1.32 | 1.260                                               |
|                    | $R/\sqrt{N}$                   | 1.40                          | 1.35 | 1.34 | 1.31 | 1.33 | 1.33 | 1.45 | 1.46 | 1.66 | 1.57 | 1.41 | 1.32 | 1.530                                               |
| 442044<br>(N = 39) | $Q/\sqrt{N}$                   | 1.11                          | 1.03 | 1.03 | 0.97 | 1.04 | 1.07 | 0.99 | 1.06 | 1.09 | 1.07 | 1.03 | 0.95 | 1.258                                               |
|                    | $R/\sqrt{N}$                   | 1.27                          | 1.24 | 1.30 | 1.24 | 1.26 | 1.27 | 1.23 | 1.28 | 1.26 | 1.27 | 1.19 | 1.15 | 1.527                                               |
| 442208<br>(N = 30) | $Q/\sqrt{N}$                   | 1.45                          | 1.35 | 1.29 | 1.22 | 1.19 | 1.09 | 0.95 | 0.64 | 0.76 | 0.59 | 0.55 | 0.75 | 1.240                                               |
|                    | $R/\sqrt{N}$                   | 1.45                          | 1.38 | 1.34 | 1.29 | 1.30 | 1.36 | 1.35 | 1.27 | 1.11 | 0.91 | 0.84 | 0.99 | 1.500                                               |
| 443310<br>(N = 30) | $Q/\sqrt{N}$                   | 1.77                          | 1.21 | 0.99 | 0.82 | 0.77 | 0.89 | 0.88 | 0.86 | 0.78 | 0.80 | 0.64 | 0.62 | 1.240                                               |
|                    | $R/\sqrt{N}$                   | 1.77                          | 1.21 | 0.99 | 0.83 | 0.77 | 0.89 | 0.88 | 0.86 | 0.87 | 0.88 | 0.91 | 0.90 | 1.500                                               |
| 444128<br>(N = 36) | $Q/\sqrt{N}$                   | 0.48                          | 0.47 | 0.45 | 0.56 | 0.68 | 0.72 | 0.77 | 0.76 | 0.68 | 0.69 | 0.58 | 0.48 | 1.252                                               |
|                    | $R/\sqrt{N}$                   | 0.89                          | 0.86 | 0.89 | 1.04 | 1.07 | 1.02 | 0.98 | 0.91 | 0.92 | 0.91 | 0.88 | 0.80 | 1.518                                               |
| 445595<br>(N = 38) | $Q/\sqrt{N}$                   | 0.72                          | 0.74 | 0.79 | 0.82 | 0.90 | 0.87 | 0.77 | 0.81 | 0.80 | 0.98 | 1.14 | 0.92 | 1.256                                               |
|                    | $R/\sqrt{N}$                   | 0.90                          | 0.89 | 0.92 | 0.92 | 1.01 | 0.97 | 0.88 | 0.95 | 0.89 | 0.98 | 1.14 | 1.15 | 1.524                                               |
| 448062<br>(N = 33) | $Q/\sqrt{N}$                   | 0.63                          | 0.60 | 0.63 | 0.66 | 0.70 | 0.73 | 0.69 | 0.60 | 0.85 | 0.73 | 0.80 | 0.87 | 1.246                                               |
|                    | $R/\sqrt{N}$                   | 0.87                          | 0.92 | 0.98 | 1.02 | 1.16 | 1.21 | 1.20 | 1.13 | 1.35 | 1.22 | 1.31 | 1.37 | 1.509                                               |

Table 9. Continuous .....

|          |               |      |      |      |      |      |      |      |      |             |             |      |             |       |
|----------|---------------|------|------|------|------|------|------|------|------|-------------|-------------|------|-------------|-------|
| 449159   | Q/ $\sqrt{N}$ | 1.01 | 0.98 | 0.95 | 0.81 | 0.71 | 0.70 | 0.75 | 0.58 | 0.57        | 0.71        | 0.47 | 0.41        | 1.240 |
| (N = 30) | R/ $\sqrt{N}$ | 1.29 | 1.26 | 1.21 | 1.15 | 1.11 | 1.08 | 1.16 | 1.03 | 0.93        | 1.11        | 0.82 | 0.73        | 1.500 |
| 443272   | Q/ $\sqrt{N}$ | 1.01 | 0.98 | 0.95 | 0.81 | 0.71 | 0.70 | 0.75 | 0.58 | 0.57        | 0.71        | 0.47 | 0.41        | 1.262 |
| (N = 42) | R/ $\sqrt{N}$ | 1.29 | 1.26 | 1.21 | 1.15 | 1.11 | 1.08 | 1.16 | 1.03 | 0.93        | 1.11        | 0.82 | 0.73        | 1.534 |
| 448547   | Q/ $\sqrt{N}$ | 1.10 | 1.15 | 1.00 | 0.98 | 0.91 | 0.88 | 0.86 | 0.73 | 0.73        | 0.71        | 0.78 | 0.59        | 1.260 |
| (N = 40) | R/ $\sqrt{N}$ | 1.36 | 1.44 | 1.37 | 1.39 | 1.27 | 1.21 | 1.10 | 1.18 | 1.19        | 1.24        | 1.30 | 1.16        | 1.530 |
| 446955   | Q/ $\sqrt{N}$ | 0.56 | 0.68 | 0.67 | 0.60 | 0.64 | 1.01 | 1.11 | 1.24 | <b>1.33</b> | <b>1.28</b> | 1.10 | 0.92        | 1.262 |
| (N = 42) | R/ $\sqrt{N}$ | 0.88 | 0.97 | 0.92 | 0.92 | 0.84 | 1.13 | 1.20 | 1.32 | 1.51        | 1.47        | 1.52 | <b>1.62</b> | 1.534 |
| 444180   | Q/ $\sqrt{N}$ | 1.19 | 1.01 | 0.85 | 0.80 | 0.73 | 0.91 | 0.73 | 0.55 | 0.55        | 0.80        | 0.66 | 0.53        | 1.248 |
| (N = 34) | R/ $\sqrt{N}$ | 1.19 | 1.28 | 1.20 | 1.20 | 1.22 | 1.28 | 1.19 | 1.06 | 0.92        | 1.11        | 1.25 | 0.94        | 1.512 |
| 449215   | Q/ $\sqrt{N}$ | 1.12 | 1.00 | 1.00 | 0.99 | 0.97 | 0.82 | 0.63 | 0.49 | 0.50        | 0.51        | 0.57 | 0.69        | 1.236 |
| (N = 28) | R/ $\sqrt{N}$ | 1.15 | 1.10 | 1.10 | 1.07 | 1.04 | 0.86 | 0.68 | 0.66 | 0.84        | 0.93        | 1.07 | 1.16        | 1.486 |

<sup>[1]</sup> N: sample size; Q: homogeneity test statistics by Eq. (17); and R: homogeneity test statistics by Eq. (18).

<sup>[2]</sup> The red statistics is larger than the responding critical value listed in the last column of the table. The time series with the bold red statistics are non-homogenous at a significance level of  $\alpha = 0.05$ .

<sup>[3]</sup> Lineally interpolated from Table 6,

Table 10. The homogenous subsets of the seven non-homogenous time series.<sup>[1]</sup>

| Rain Gauge<br>ID | Duration | Time Series<br>Subset | Record<br>Year | Sample<br>Size N | Homogeneity Test Statistics |               | Critical Value at $\alpha = 0.05$ |               |
|------------------|----------|-----------------------|----------------|------------------|-----------------------------|---------------|-----------------------------------|---------------|
|                  |          |                       |                |                  | Q/ $\sqrt{N}$               | R/ $\sqrt{N}$ | Q/ $\sqrt{N}$                     | R/ $\sqrt{N}$ |
| 441322           | 72 h     | Time Series           | 1974 to 2014   | 36               | <b>1.29</b>                 | <b>1.53</b>   | 1.252                             | 1.518         |
|                  |          | Subset 1              | 1974 to 1983   | 10               | 0.64                        | 1.14          | 1.140                             | 1.280         |
|                  |          | Subset 2              | 1984 to 2014   | 26               | <b>1.44</b>                 | 1.45          | 1.232                             | 1.472         |
| 440166           | 15 min   | Time Series           | 1984 to 2013   | 30               | <b>1.68</b>                 | <b>1.68</b>   | 1.240                             | 1.500         |
|                  |          | Subset 1              | 1984 to 1999   | 16               | 0.97                        | 0.97          | 1.188                             | 1.360         |
|                  |          | Subset 2              | 2000 to 2013   | 14               | 0.58                        | 0.81          | 1.172                             | 1.340         |
|                  | 30 min   | Time Series           | 1984 to 2013   | 30               | <b>1.66</b>                 | <b>1.66</b>   | 1.240                             | 1.500         |
|                  |          | Subset 1              | 1984 to 1999   | 16               | 0.86                        | 0.86          | 1.188                             | 1.360         |
|                  |          | Subset 2              | 2000 to 2013   | 14               | 0.76                        | 0.81          | 1.172                             | 1.340         |
|                  | 45 min   | Time Series           | 1984 to 2013   | 30               | <b>1.52</b>                 | <b>1.52</b>   | 1.240                             | 1.500         |
|                  |          | Subset 1              | 1984 to 1999   | 16               | 0.44                        | 0.76          | 1.188                             | 1.360         |
|                  |          | Subset 2              | 2000 to 2013   | 14               | 0.72                        | 0.94          | 1.172                             | 1.340         |
| 448046           | 12 h     | Time Series           | 1972 to 2011   | 40               | <b>1.32</b>                 | <b>1.82</b>   | 1.260                             | 1.530         |
|                  |          | Subset 1              | 1972 to 1999   | 18               | <b>1.58</b>                 | 1.33          | 1.236                             | 1.486         |
|                  |          | Subset 2              | 2000 to 2011   | 12               | 0.92                        | 1.11          | 1.156                             | 1.310         |
|                  | 24 h     | Time Series           | 1972 to 2011   | 40               | <b>1.27</b>                 | <b>1.75</b>   | 1.260                             | 1.530         |
|                  |          | Subset 1              | 1972 to 1999   | 18               | <b>1.52</b>                 | 1.35          | 1.236                             | 1.486         |
|                  |          | Subset 2              | 2000 to 2011   | 12               | 0.87                        | 1.16          | 1.156                             | 1.310         |
|                  | 15 min   | Time Series           | 1984 to 2013   | 30               | <b>1.77</b>                 | <b>1.77</b>   | 1.240                             | 1.500         |
|                  |          | Subset 1              | 1984 to 1999   | 16               | 1.02                        | 1.02          | 1.188                             | 1.370         |
|                  |          | Subset 2              | 2000 to 2013   | 14               | 0.66                        | 1.14          | 1.240                             | 1.500         |

<sup>[1]</sup> Q: homogeneity test statistics by Eq. (17); and R: homogeneity test statistics by Eq. (18). The critical values are lineally interpolated from Table 6. The red statistics is larger than the responding critical value listed in the last column of the table. The time series with the bold red statistics are non-homogenous at a significance level of  $\alpha = 0.05$ .

### 3.2 The Gauge-Level Best Distributions and Historic IDF Curves

Based on the K-S tests and visualization plots, the best distributions (Table 11) for the rain gauges with a record period of more than three years were determined. For each of the seven gauges with a record period of three years or fewer, including gauge 440778, 442269, 442663, 442941, 443200, 445142, and 447164, its best distribution was assumed to be same as that of the geographically closed gauge in a same climatic-physiographic zone (Table 2). Herein, a same best distribution was assumed for gauge 440778 and 444414, 442269 and 444410, 442663 and 448149, 442941 and 448149, 443200 and 447164, 445142 and 442208, and 447164 and 442729. Table 11 lists the best distributions for the 57 rain gauges.

The K-S test results (see Appendix I) indicated that the time series at most of the rain gauges followed Gumbel and Weibull distributions. The time series at ten gauges, including gauge 440561, 440766, 441929, 442729, 443229, 444246, 448022, 448129, 448172, and 449060, followed all three distributions. For a given rain gauge, the time series of a duration followed either Gumbel and Weibull distributions only or all three distributions. For each of the distributions that were not significant at  $\alpha = 0.05$ , the summation of the values for  $D_n$  (Eq. 12) of the twelve durations was computed. The best distribution of this rain gauge was chosen as the one with a smallest value of the summation. As expected, the best distributions based on the K-S test results were consistent with those based on the visualization plots. Figure 14 shows the visualization plots for selected two rain gauges and eight durations.

The historic IDF curves for each of the gauges were created using its best distribution and are shown in Figure 15 and tabulated in Appendix II.

Table 11. The best distributions for the 57 rain gauges.<sup>[1]</sup>

| Rain Gauge ID         | Best Distribution | Rain Gauge ID | Best Distribution | Rain Gauge ID | Best Distribution              | Rain Gauge ID | Best Distribution |
|-----------------------|-------------------|---------------|-------------------|---------------|--------------------------------|---------------|-------------------|
| 446475                | Gumbel            | 446692        | Gumbel            | 443229        | Gumbel                         | 444246        | Gumbel            |
| 448800                | Weibull           | 447025        | Weibull           | 448046        | Gumbel/Gumbel <sup>[2]</sup>   | 448547        | Weibull           |
| 449151                | Gumbel            | 447338        | Gumbel            | 448149        | Weibull                        | 449169        | Gumbel            |
| 448129                | Weibull           | 449272        | Gumbel            | 442044        | Gumbel                         | 440766        | Gumbel            |
| <b>440778</b>         | <b>Gumbel</b>     | 440561        | Gumbel            | 442208        | Weibull                        | 446955        | Weibull           |
| 440993                | Gumbel            | 445690        | Weibull           | 443310        | Weibull/Weibull <sup>[2]</sup> | 448022        | Gumbel            |
| 441322 <sup>[2]</sup> | Weibull/Gumbel    | 442159        | Gumbel            | 444128        | Gumbel                         | 449060        | Gumbel            |
| 441929                | Gumbel            | 442729        | Weibull           | <b>445142</b> | <b>Weibull</b>                 | 449301        | Weibull           |
| <b>442941</b>         | <b>Weibull</b>    | 446712        | Gumbel            | 445423        | Gumbel                         | <b>442269</b> | <b>Weibull</b>    |
| 443192                | Weibull           | 447130        | Weibull           | 445595        | Gumbel                         | 444180        | Gumbel            |
| <b>443200</b>         | <b>Weibull</b>    | <b>447164</b> | <b>Weibull</b>    | 445880        | Gumbel                         | 444410        | Weibull           |
| 444414                | Gumbel            | 448396        | Gumbel            | 448062        | Gumbel                         | 449215        | Weibull           |
| 440166 <sup>[2]</sup> | Gumbel/Weibull    | 440720        | Weibull           | 448172        | Weibull                        |               |                   |
| 441614                | Gumbel            | 445851        | Weibull           | 449159        | Gumbel                         |               |                   |
| 446178                | Gumbel            | <b>442663</b> | <b>Weibull</b>    | 443272        | Gumbel                         |               |                   |

<sup>[1]</sup> The gauges in bold had a record period of three years or fewer. The best distribution for each of these gauges was assumed to be same as that of an adjacent gauge in a same climatic-physiographic zone.

<sup>[2]</sup> As shown in Table 10, the time series for the gauge were non-homogenous and subdivided into two subsets, whose best distributions might be either same or different.

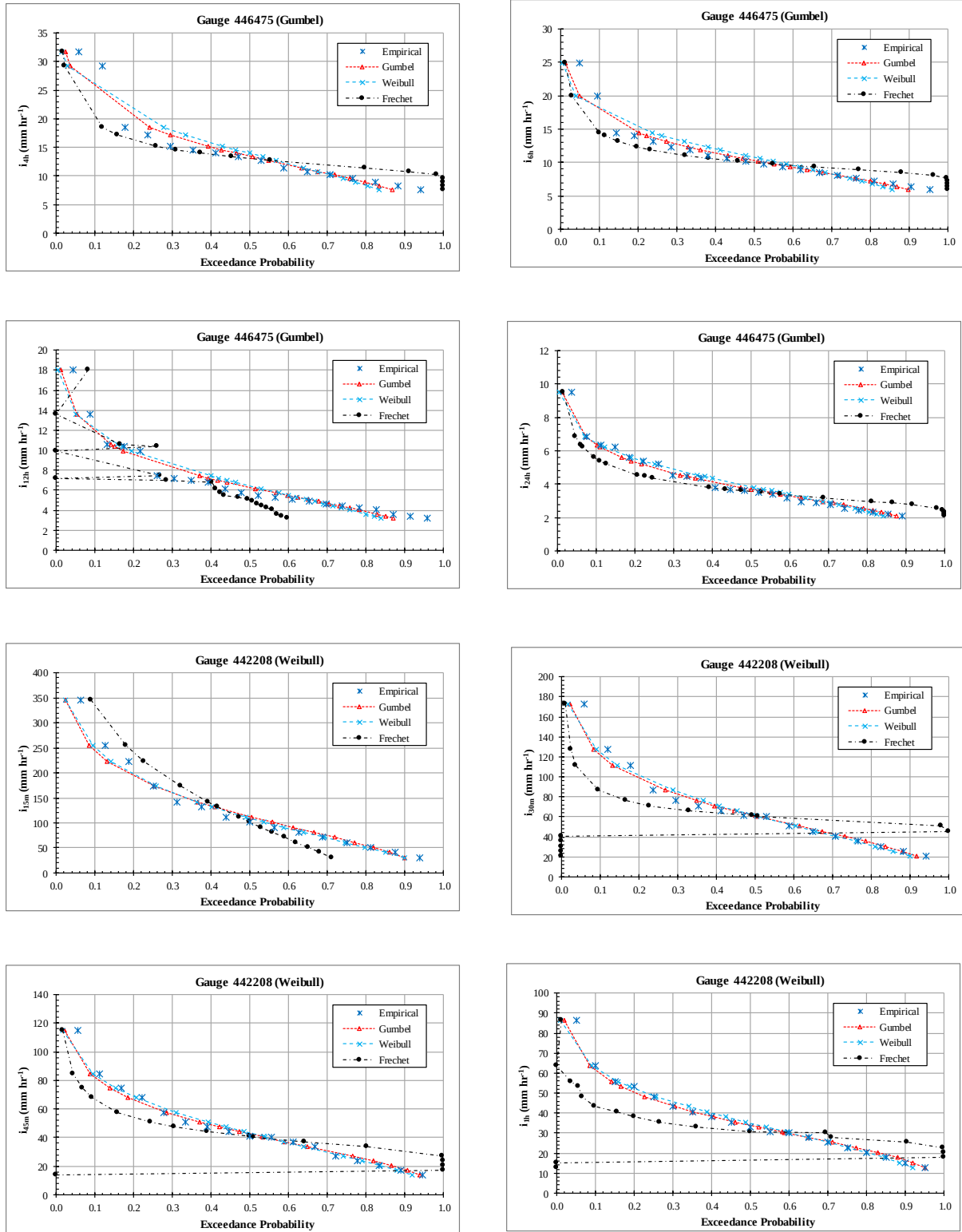
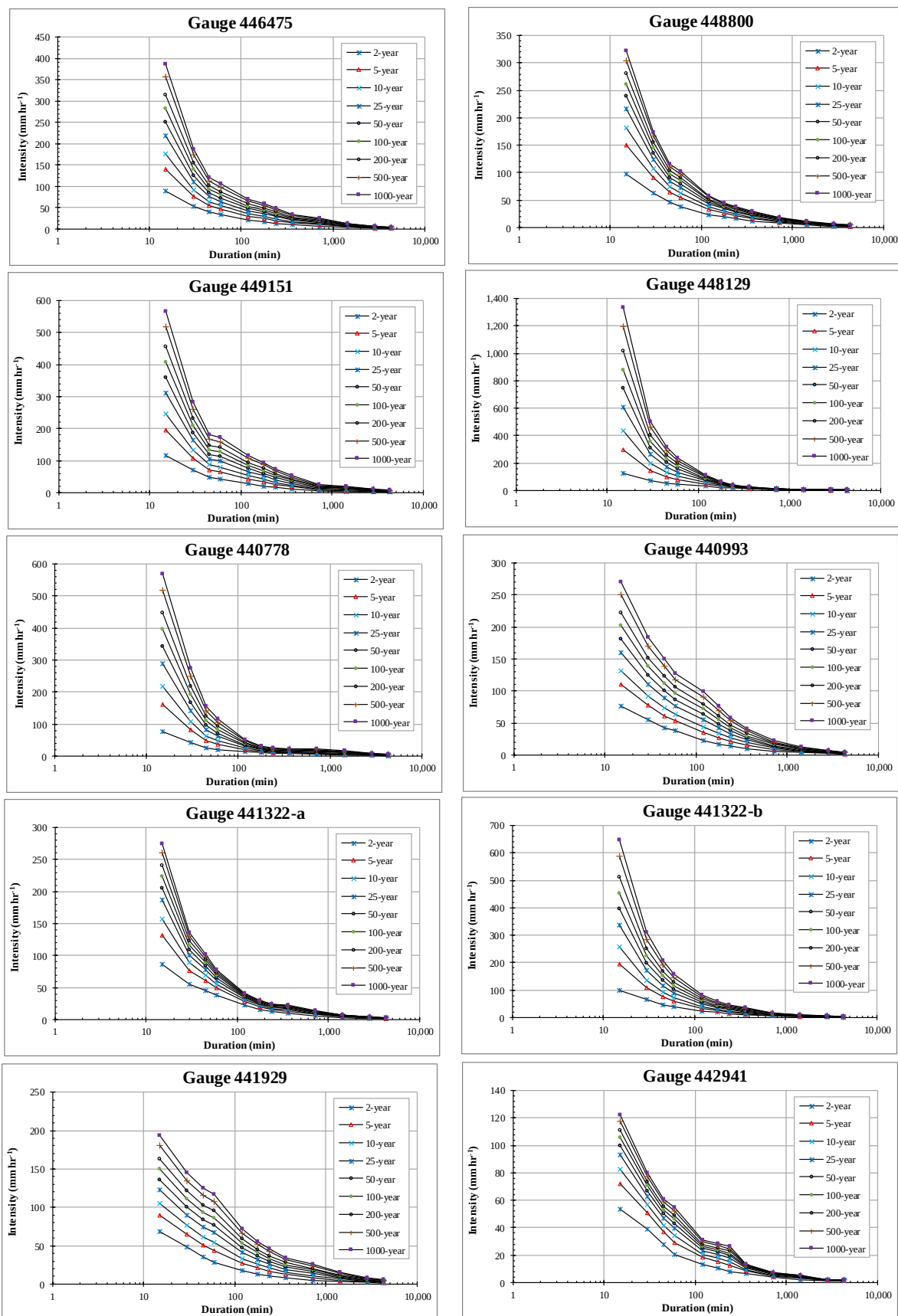
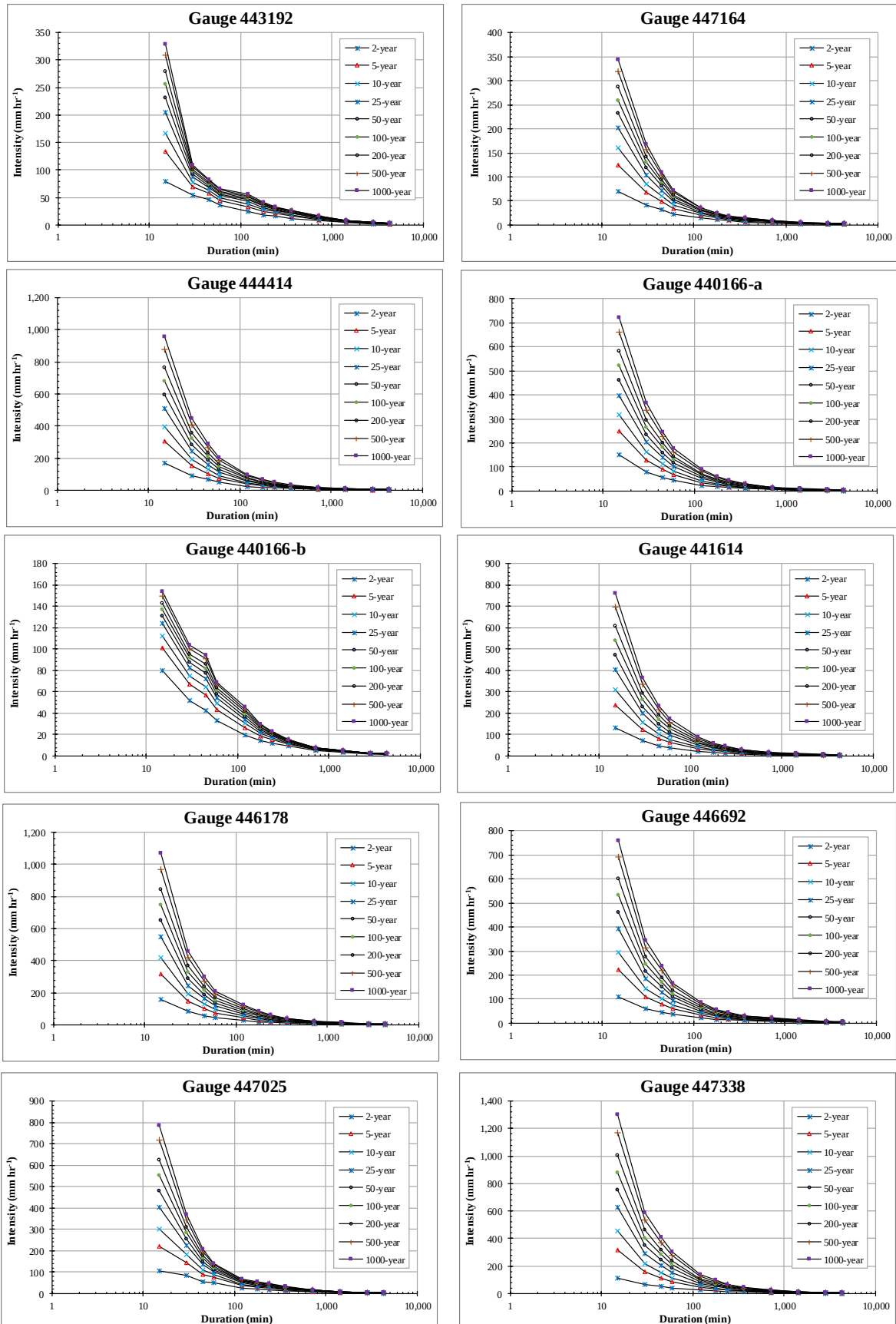


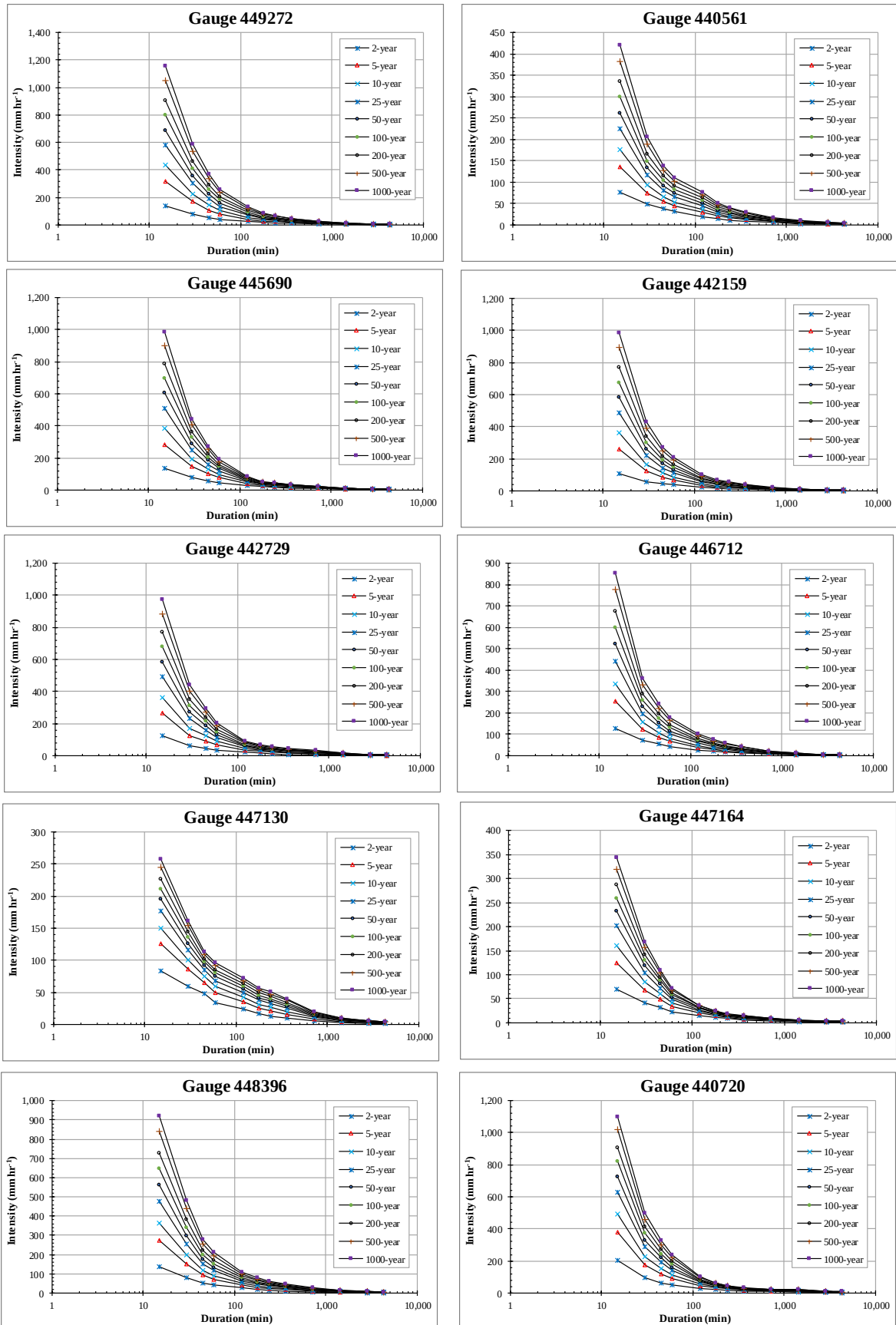
Figure 14. The visualization plots for selected two gauges and eight durations.  $i$  signifies the intensity for the duration represented by the subscript. The best distribution for gauge 446475 was determined to be Gumbel, whereas, the best distribution for gauge 442208 was determined to be Weibull.



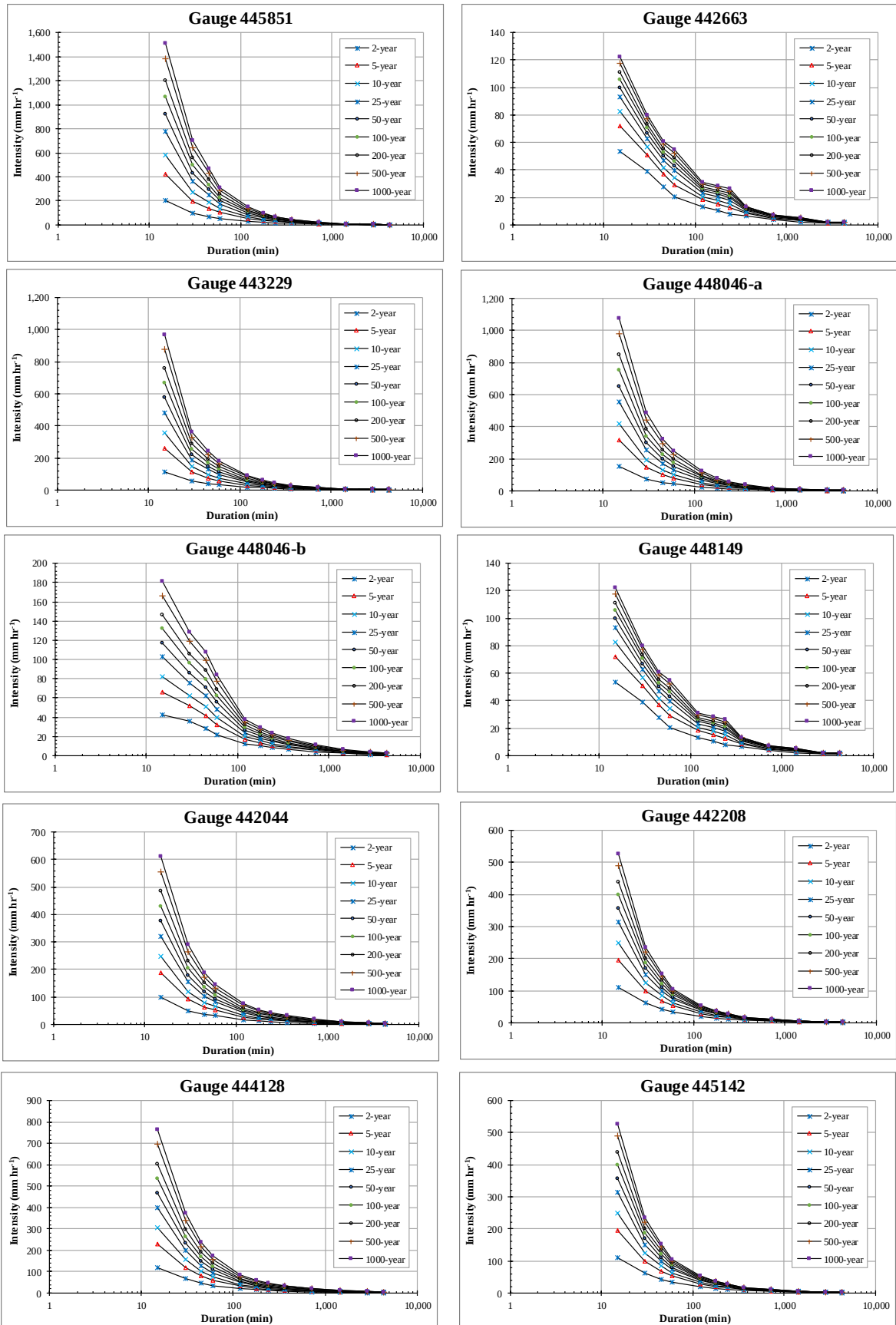
[Figure 15. The gauge-level historic intensity-duration-frequency (IDF) curves .....]



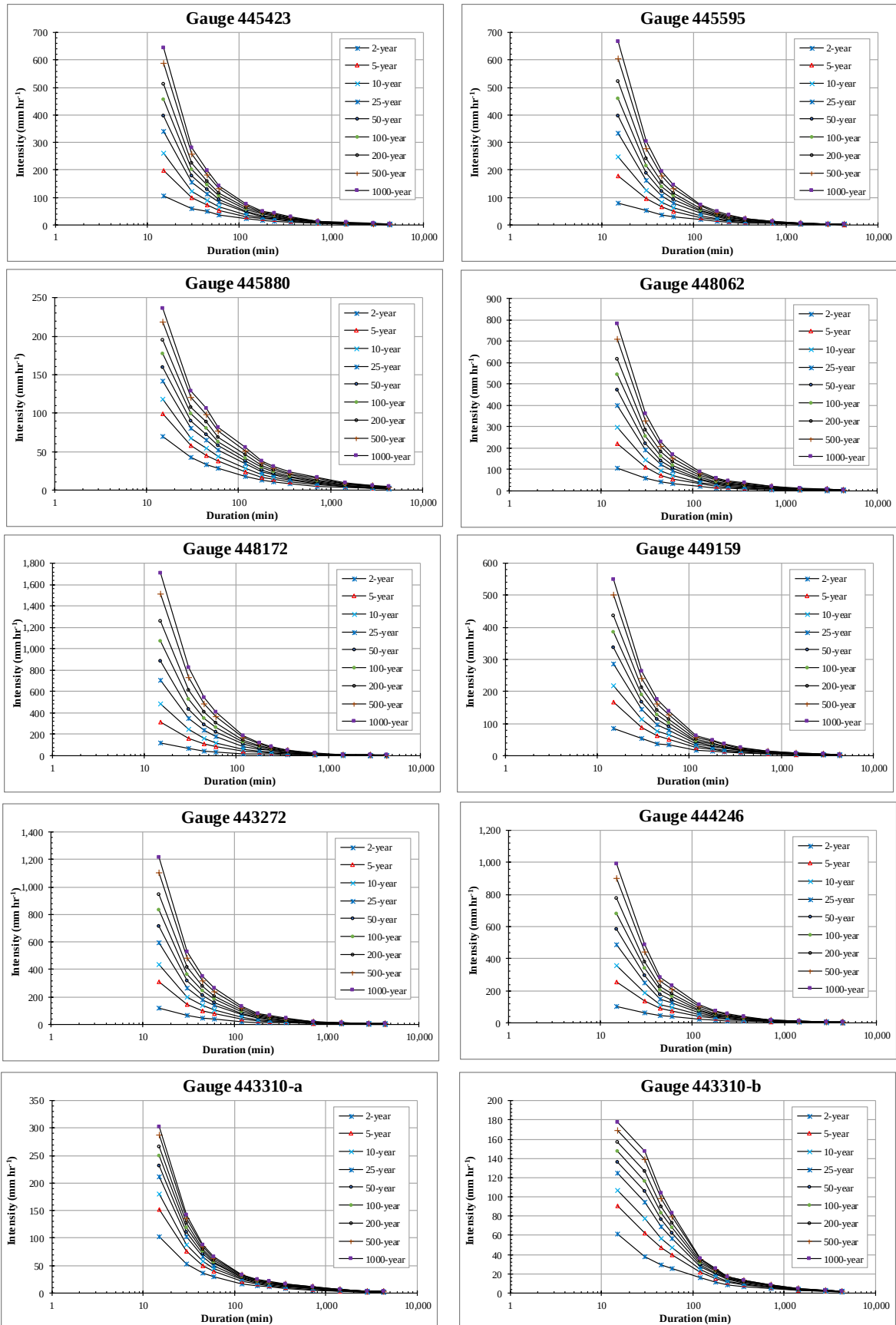
[Figure 15. The gauge-level historic intensity-duration-frequency (IDF) curves .....]



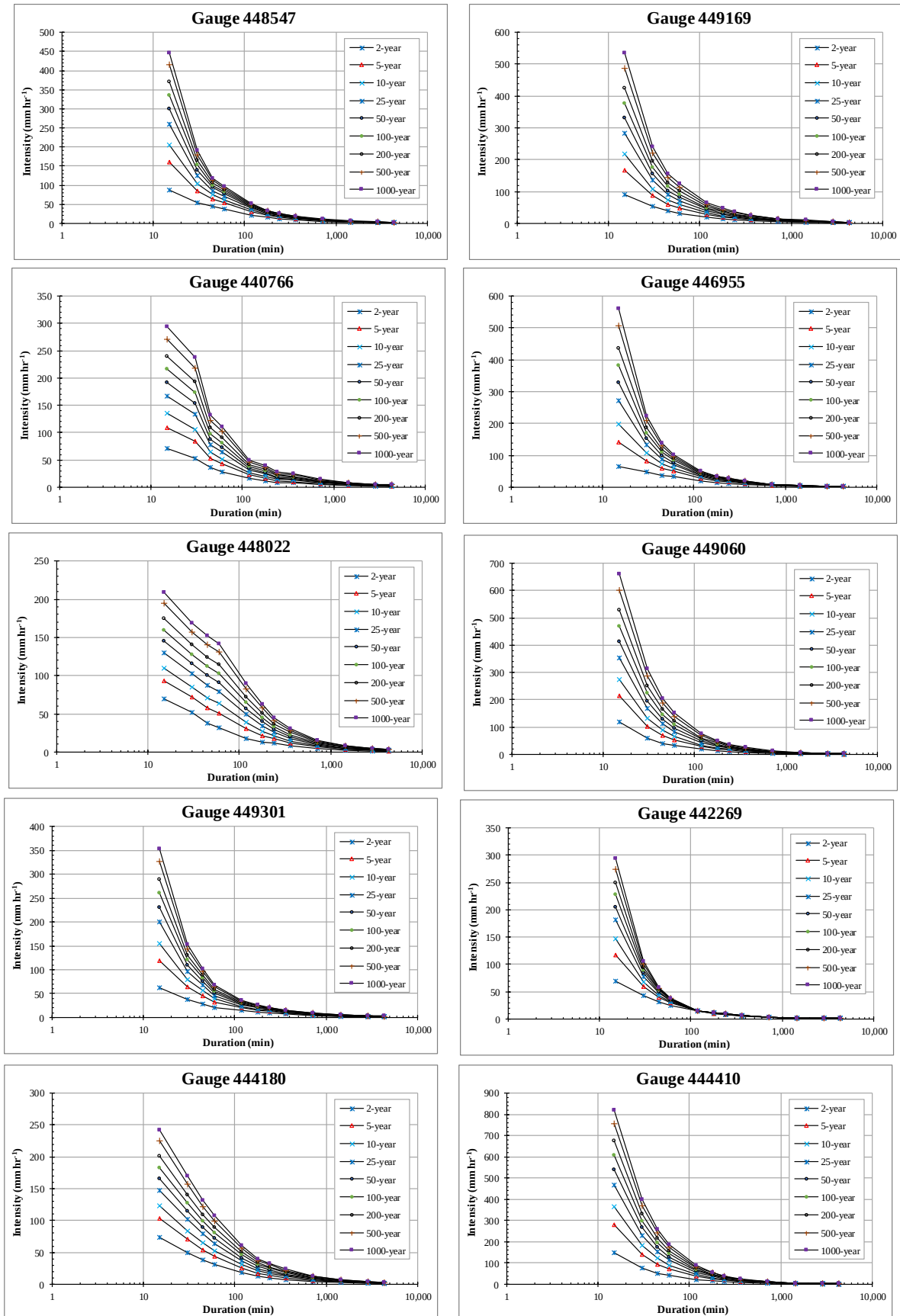
[Figure 15. The gauge-level historic intensity-duration-frequency (IDF) curves .....]



[Figure 15. The gauge-level historic intensity-duration-frequency (IDF) curves .....]



[Figure 15. The gauge-level historic intensity-duration-frequency (IDF) curves .....]



[Figure 15. The gauge-level historic intensity-duration-frequency (IDF) curves .....]

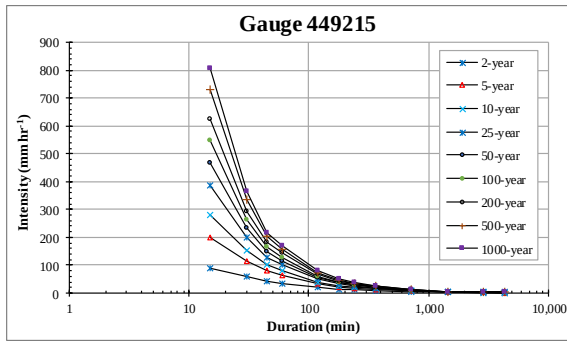


Figure 15. The gauge-level historic intensity-duration-frequency (IDF) curves for the 57 rain gauges. Because the time series at gauges 441322, 440166, 448046, and 443310 were non-homogenous, the IDF curves for these four gauges were created for the responding subsets and are signified by -a and -b, respectively.

A visual comparison (not shown to be concise) with the NOAA Atlas 14 Point Precipitation Frequency Estimates (PPFEs) (<https://hdsc.nws.noaa.gov/hdsc/pfds/index.html>) indicated that the ID curves (developed in this study and shown in Figure 15) and the PPFEs had a similar shape or pattern. In present, the PPFEs are available for 52 out of the 57 rain gauges. However, at each of the 52 rain gauges, for a given duration and a given return period, the intensity from the IDF curve tended to be larger than that from the responding PPFE curve. Overall, for a given return period, the discrepancies were smaller for a longer (> 1 h) than a shorter duration, whereas, for a given duration, the discrepancies were smaller for a lower than a higher return period. For a return period of 100-year or higher and a duration of 1 h or shorter, the intensities from the IDF curves were almost two to five times larger than those from the PPFEs. The largest discrepancy occurred for a return period of 1000-year and a duration of 15 min. One possible reason is that the data and/or distributions used in this study may be different from those used by NOAA. The actual reasons need to be investigated in a future study.

### 3.3 The Watershed-Level Historic IDF Curves

The Thiessen polygons of the 53 HUCs are shown in Figure 16, while the control rain gauge and area of each of the polygons are listed in Table 12. The IDF curves are shown in Figure 17 and tabulated in Appendix III.

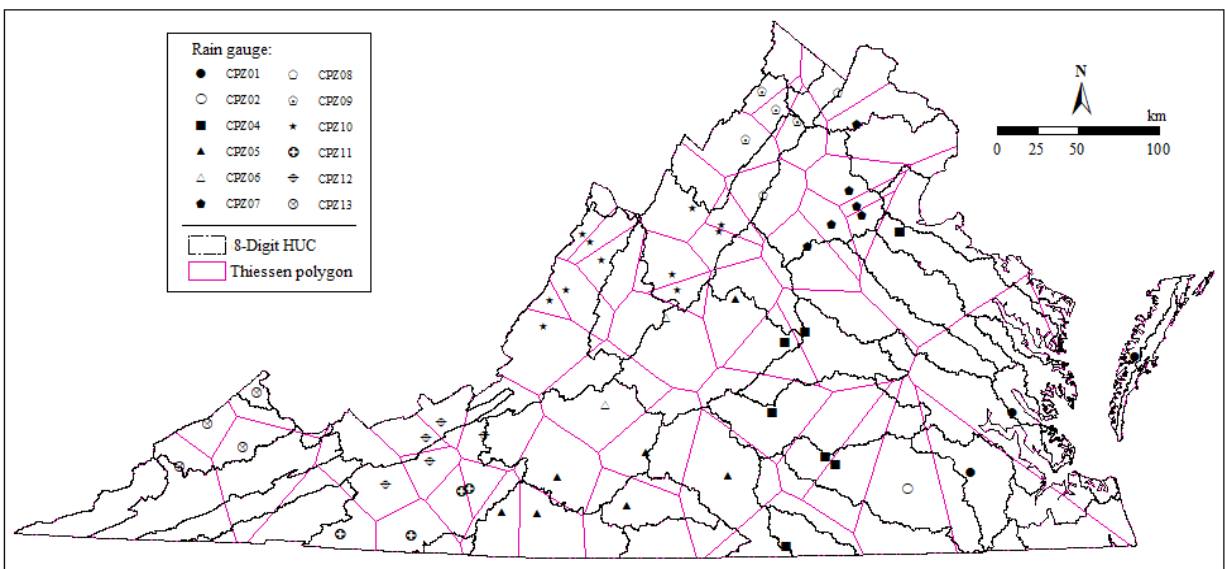


Figure 16. The Thiessen polygons of the 53 Virginian 8-digit Hydrologic Cataloging Units (HUCs).

Table 12. The control rain gauges, areas, and best statistical distributions of the Thiessen polygons.<sup>[1]</sup>

| HUC            | Area               | Best Distribution for the |                | HUC            | Area               | Best Distribution for the |               | HUC            | Area               | Best Distribution for the |                |
|----------------|--------------------|---------------------------|----------------|----------------|--------------------|---------------------------|---------------|----------------|--------------------|---------------------------|----------------|
| Gauge          | (km <sup>2</sup> ) | Gauge                     | HUC            | Gauge          | (km <sup>2</sup> ) | Gauge                     | HUC           | Gauge          | (km <sup>2</sup> ) | Gauge                     | HUC            |
| <b>2040303</b> | <b>2716.3</b>      |                           | <b>Gumbel</b>  | <b>2080108</b> | <b>592.9</b>       |                           | <b>Gumbel</b> | <b>3010201</b> | <b>4463.5</b>      |                           | <b>Weibull</b> |
| 446475         | 2716.3             | Gumbel                    |                | 446475         | 0.0                | Gumbel                    |               | 440778         | 501.0              | Gumbel                    |                |
| <b>2040304</b> | <b>1961.3</b>      |                           | <b>Gumbel</b>  | 449151         | 592.9              | Gumbel                    |               | 441322         | 933.0              | Weibull/Gumbel            |                |
| 446475         | 1941.8             | Gumbel                    |                | <b>2080110</b> | <b>2514.1</b>      |                           | <b>Gumbel</b> | 442941         | 23.5               | Weibull                   |                |
| 449151         | 19.6               | Gumbel                    |                | 446475         | 2514.1             | Gumbel                    |               | 448129         | 2126.0             | Weibull                   |                |
| <b>2070001</b> | <b>3831.5</b>      |                           | <b>Weibull</b> | <b>2080111</b> | <b>2786.8</b>      |                           | <b>Gumbel</b> | 448800         | 880.0              | Weibull                   |                |
| 442208         | 1391.5             | Weibull                   |                | 446475         | 2786.8             | Gumbel                    |               | <b>3010202</b> | <b>1916.8</b>      |                           | <b>Weibull</b> |
| 442663         | 803.4              | Weibull                   |                | <b>2080201</b> | <b>5726.5</b>      |                           | <b>Gumbel</b> | 448129         | 129.7              | Weibull                   |                |
| 445595         | 755.5              | Gumbel                    |                | 440561         | 716.1              | Gumbel                    |               | 448800         | 1781.7             | Weibull                   |                |
| 445880         | 133.8              | Gumbel                    |                | 440766         | 614.4              | Gumbel                    |               | 449151         | 5.3                | Gumbel                    |                |
| 448046         | 747.2              | Gumbel/Gumbel             |                | 442044         | 2014.9             | Gumbel                    |               | <b>3010203</b> | <b>2329.7</b>      |                           | <b>Weibull</b> |
| <b>2070003</b> | <b>3120.0</b>      |                           | <b>Gumbel</b>  | 443310         | 287.6              | Weibull/Weibull           |               | 448129         | 197.7              | Weibull                   |                |
| 442663         | 421.1              | Weibull                   |                | 444128         | 805.3              | Gumbel                    |               | 448800         | 2132.0             | Weibull                   |                |
| 448046         | 2698.9             | Gumbel/Gumbel             |                | 445595         | 302.0              | Gumbel                    |               | <b>3010204</b> | <b>4177.0</b>      |                           | <b>Weibull</b> |
| <b>2070004</b> | <b>5898.6</b>      |                           | <b>Weibull</b> | 445880         | 499.7              | Gumbel                    |               | 440778         | 284.6              | Gumbel                    |                |
| 443229         | 14.9               | Gumbel                    |                | 448022         | 12.9               | Gumbel                    |               | 441322         | 540.7              | Weibull/Gumbel            |                |
| 445851         | 4397.7             | Weibull                   |                | 449159         | 473.5              | Gumbel                    |               | 442941         | 29.2               | Weibull                   |                |
| 448046         | 1429.1             | Gumbel/Gumbel             |                | <b>2080202</b> | <b>2169.9</b>      |                           | <b>Gumbel</b> | 444414         | 596.8              | Gumbel                    |                |
| 448149         | 57.0               | Weibull                   |                | 440561         | 124.0              | Gumbel                    |               | 447025         | 331.7              | Weibull                   |                |
| <b>2070005</b> | <b>4328.3</b>      |                           | <b>Weibull</b> | 442044         | 55.0               | Gumbel                    |               | 448129         | 2156.0             | Weibull                   |                |
| 440720         | 580.2              | Weibull                   |                | 444128         | 237.8              | Gumbel                    |               | 448800         | 238.0              | Weibull                   |                |
| 442208         | 1039.3             | Weibull                   |                | 445690         | 877.9              | Weibull                   |               | <b>3010205</b> | <b>11200.4</b>     |                           | <b>Weibull</b> |
| 442663         | 227.5              | Weibull                   |                | 445880         | 1.6                | Gumbel                    |               | 446475         | 100.9              | Gumbel                    |                |
| 443229         | 277.7              | Gumbel                    |                | 448062         | 155.9              | Gumbel                    |               | 448800         | 10546.4            | Weibull                   |                |
| 445142         | 439.2              | Weibull                   |                | 448172         | 21.6               | Weibull                   |               | 449151         | 553.1              | Gumbel                    |                |
| 445423         | 370.6              | Gumbel                    |                | 449159         | 696.0              | Gumbel                    |               | <b>3040101</b> | <b>6362.7</b>      |                           | <b>Gumbel</b>  |
| 445690         | 10.5               | Weibull                   |                | <b>2080203</b> | <b>5238.4</b>      |                           | <b>Gumbel</b> | 443272         | 3765.5             | Gumbel                    |                |

Table 12. Continuous .....

|                |               |               |                |                |               |                |               |                |               |                 |                |
|----------------|---------------|---------------|----------------|----------------|---------------|----------------|---------------|----------------|---------------|-----------------|----------------|
| 445880         | 0.4           | Gumbel        |                | 440166         | 404.5         | Gumbel/Weibull |               | 444246         | 16.4          | Gumbel          |                |
| 446178         | 16.8          | Gumbel        |                | 440561         | 531.3         | Gumbel         |               | 446692         | 78.7          | Gumbel          |                |
| 448062         | 935.8         | Gumbel        |                | 440993         | 822.7         | Gumbel         |               | 448547         | 1426.4        | Weibull         |                |
| 448149         | 36.5          | Weibull       |                | 441929         | 29.3          | Gumbel         |               | 449272         | 1075.8        | Gumbel          |                |
| 448172         | 390.5         | Weibull       |                | 442941         | 463.1         | Weibull        |               | <b>5050001</b> | <b>7622.3</b> |                 | <b>Weibull</b> |
| 449159         | 3.3           | Gumbel        |                | 445690         | 1743.2        | Weibull        |               | 440766         | 423.4         | Gumbel          |                |
| <b>2070006</b> | <b>2676.7</b> |               | <b>Weibull</b> | 446178         | 1108.6        | Gumbel         |               | 443272         | 1306.9        | Gumbel          |                |
| 440720         | 39.7          | Weibull       |                | 448172         | 135.7         | Weibull        |               | 444246         | 706.7         | Gumbel          |                |
| 442208         | 755.9         | Weibull       |                | <b>2080204</b> | <b>1988.5</b> |                | <b>Gumbel</b> | 446692         | 1.8           | Gumbel          |                |
| 442663         | 1157.6        | Weibull       |                | 440720         | 18.7          | Weibull        |               | 446955         | 648.8         | Weibull         |                |
| 443229         | 10.8          | Gumbel        |                | 440993         | 132.0         | Gumbel         |               | 447338         | 65.1          | Gumbel          |                |
| 445423         | 60.7          | Gumbel        |                | 441929         | 242.6         | Gumbel         |               | 448022         | 104.1         | Gumbel          |                |
| 448046         | 335.3         | Gumbel/Gumbel |                | 445142         | 343.5         | Weibull        |               | 448547         | 2403.8        | Weibull         |                |
| 448149         | 316.7         | Weibull       |                | 445423         | 105.3         | Gumbel         |               | 449060         | 58.9          | Gumbel          |                |
| <b>2070007</b> | <b>911.0</b>  |               | <b>Weibull</b> | 446178         | 874.0         | Gumbel         |               | 449169         | 535.7         | Gumbel          |                |
| 443229         | 238.2         | Gumbel        |                | 446712         | 270.9         | Gumbel         |               | 449272         | 316.9         | Gumbel          |                |
| 445851         | 609.3         | Weibull       |                | 448172         | 1.4           | Weibull        |               | 449301         | 1050.2        | Weibull         |                |
| 448149         | 63.5          | Weibull       |                | <b>2080205</b> | <b>2446.4</b> |                | <b>Gumbel</b> | <b>5050002</b> | <b>4349.9</b> |                 | <b>Gumbel</b>  |
| <b>2070008</b> | <b>3206.1</b> |               | <b>Gumbel</b>  | 440993         | 431.5         | Gumbel         |               | 440766         | 199.4         | Gumbel          |                |
| 443229         | 53.7          | Gumbel        |                | 441322         | 0.2           | Weibull/Gumbel |               | 446955         | 35.7          | Weibull         |                |
| 445851         | 1542.7        | Weibull       |                | 441929         | 1651.9        | Gumbel         |               | 448022         | 1954.2        | Gumbel          |                |
| 448396         | 1609.8        | Gumbel        |                | 442941         | 362.9         | Weibull        |               | 449060         | 1368.2        | Gumbel          |                |
| <b>2070010</b> | <b>3373.0</b> |               | <b>Gumbel</b>  | <b>2080206</b> | <b>3732.7</b> |                | <b>Gumbel</b> | 449301         | 792.3         | Weibull         |                |
| 442729         | 47.1          | Weibull       |                | 440778         | 28.9          | Gumbel         |               | <b>5050003</b> | <b>4258.6</b> |                 | <b>Gumbel</b>  |
| 443200         | 576.7         | Weibull       |                | 441322         | 76.9          | Weibull/Gumbel |               | 440766         | 50.4          | Gumbel          |                |
| 447130         | 394.1         | Weibull       |                | 441929         | 355.5         | Gumbel         |               | 442044         | 1212.2        | Gumbel          |                |
| 448396         | 2355.2        | Gumbel        |                | 448129         | 189.2         | Weibull        |               | 443310         | 1179.1        | Weibull/Weibull |                |
| <b>2070011</b> | <b>4675.0</b> |               | <b>Weibull</b> | 448800         | 737.1         | Weibull        |               | 444128         | 102.8         | Gumbel          |                |
| 442729         | 76.3          | Weibull       |                | 449151         | 2345.1        | Gumbel         |               | 445595         | 1186.6        | Gumbel          |                |

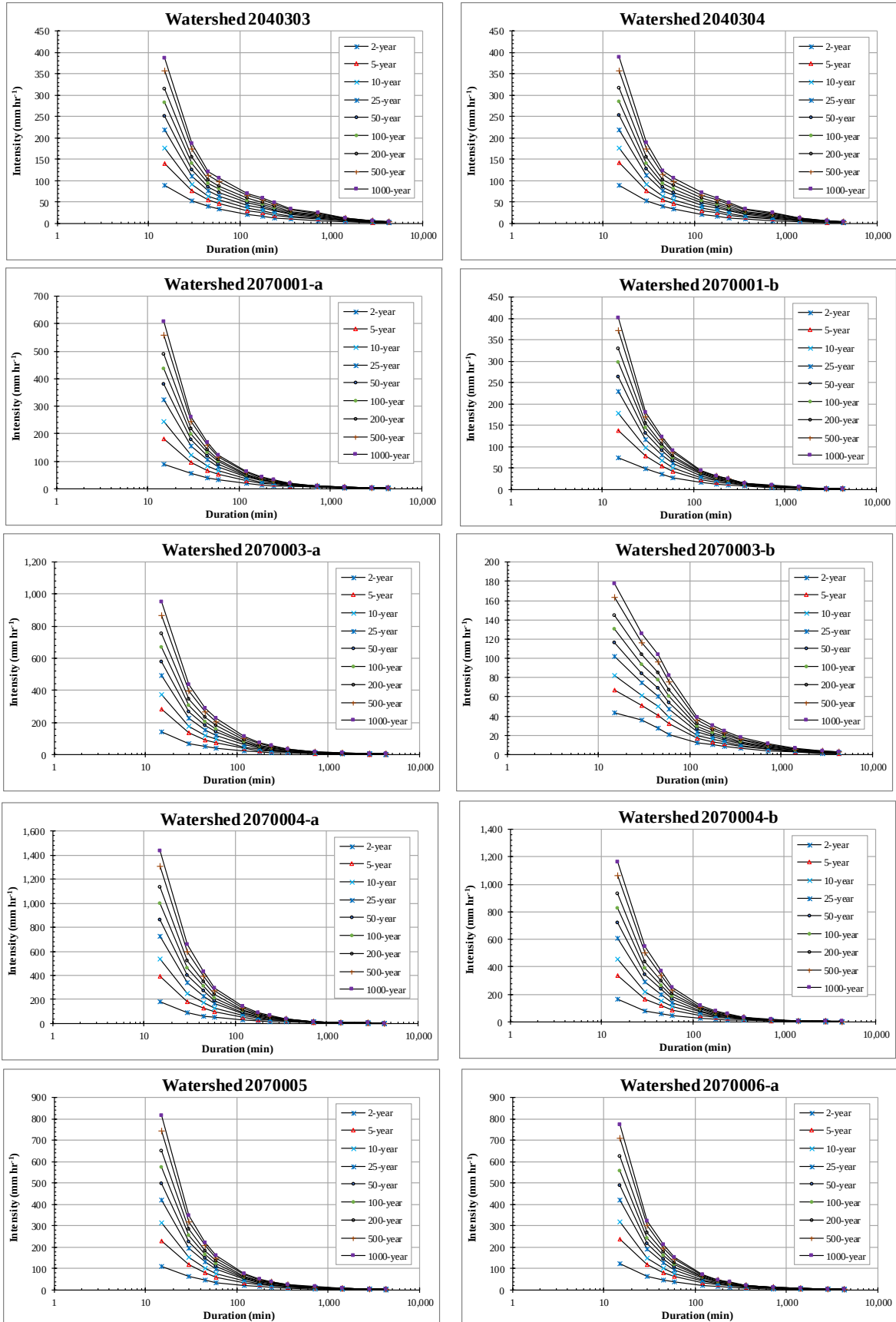
Table 12. Continuous .....

|                |               |         |                |               |                |                |                |               |                |
|----------------|---------------|---------|----------------|---------------|----------------|----------------|----------------|---------------|----------------|
| 443200         | 3817.8        | Weibull | <b>2080207</b> | <b>4169.8</b> | <b>Weibull</b> | 448022         | 527.5          | Gumbel        |                |
| 446475         | 611.1         | Gumbel  | 440778         | 1133.1        | Gumbel         | <b>5070201</b> | <b>4029.0</b>  |               | <b>Gumbel</b>  |
| 447130         | 19.9          | Weibull | 440993         | 12.3          | Gumbel         | 442269         | 72.3           | Weibull       |                |
| 447164         | 47.7          | Weibull | 441322         | 488.6         | Weibull/Gumbel | 444180         | 3719.1         | Gumbel        |                |
| 449151         | 102.1         | Gumbel  | 441929         | 240.0         | Gumbel         | 444410         | 122.0          | Weibull       |                |
| <b>2080101</b> | <b>3047.4</b> |         | <b>Gumbel</b>  | 442941        | 1827.7         | Weibull        | 449060         | 54.8          | Gumbel         |
| 446475         | 2315.1        | Gumbel  | 447025         | 61.4          | Weibull        | 449301         | 60.7           | Weibull       |                |
| 449151         | 732.3         | Gumbel  | 448129         | 368.7         | Weibull        | <b>5070202</b> | <b>3140.9</b>  |               | <b>Weibull</b> |
| <b>2080102</b> | <b>1739.5</b> |         | <b>Gumbel</b>  | 448800        | 38.0           | Weibull        | 442269         | 741.6         | Weibull        |
| 446475         | 435.4         | Gumbel  | <b>2080208</b> | <b>1309.1</b> | <b>Weibull</b> | 444180         | 444.6          | Gumbel        |                |
| 449151         | 1304.1        | Gumbel  | 448800         | 857.4         | Weibull        | 444410         | 1405.2         | Weibull       |                |
| <b>2080103</b> | <b>4030.3</b> |         | <b>Weibull</b> | 449151        | 451.7          | Gumbel         | 449215         | 549.5         | Weibull        |
| 440720         | 879.1         | Weibull | <b>3010101</b> | <b>5674.0</b> | <b>Gumbel</b>  | <b>5100201</b> | <b>3428.1</b>  |               | <b>Weibull</b> |
| 442159         | 620.5         | Gumbel  | 440166         | 904.8         | Gumbel/Weibull | 444410         | 796.7          | Weibull       |                |
| 442663         | 5.9           | Weibull | 440561         | 1641.4        | Gumbel         | 449215         | 2631.5         | Weibull       |                |
| 442729         | 199.5         | Weibull | 440766         | 930.3         | Gumbel         | <b>5130101</b> | <b>6039.5</b>  |               | <b>Weibull</b> |
| 443229         | 461.7         | Gumbel  | 441614         | 373.4         | Gumbel         | 449215         | 6039.5         | Weibull       |                |
| 445423         | 0.0           | Gumbel  | 446692         | 23.9          | Gumbel         | <b>6010101</b> | <b>1882.5</b>  |               | <b>Weibull</b> |
| 446712         | 565.6         | Gumbel  | 447338         | 1799.8        | Gumbel         | 442269         | 651.0          | Weibull       |                |
| 447130         | 794.1         | Weibull | 449169         | 0.3           | Gumbel         | 448547         | 309.2          | Weibull       |                |
| 447164         | 312.2         | Weibull | <b>3010102</b> | <b>4503.0</b> | <b>Weibull</b> | 449215         | 663.8          | Weibull       |                |
| 448396         | 191.7         | Gumbel  | 440166         | 920.4         | Gumbel/Weibull | 449301         | 258.5          | Weibull       |                |
| <b>2080104</b> | <b>2992.6</b> |         | <b>Weibull</b> | 442941        | 53.2           | Weibull        | <b>6010102</b> | <b>3055.4</b> | <b>Weibull</b> |
| 443200         | 1698.0        | Weibull | 444414         | 1364.2        | Gumbel         | 442269         | 240.8          | Weibull       |                |
| 446475         | 81.0          | Gumbel  | 447025         | 2165.2        | Weibull        | 448547         | 1685.6         | Weibull       |                |
| 447164         | 19.8          | Weibull | <b>3010103</b> | <b>5325.8</b> | <b>Gumbel</b>  | 449215         | 1068.1         | Weibull       |                |
| 449151         | 1193.8        | Gumbel  | 441614         | 843.7         | Gumbel         | 449301         | 60.9           | Weibull       |                |
| <b>2080105</b> | <b>2358.4</b> |         | <b>Weibull</b> | 446692        | 2777.0         | Gumbel         | <b>6010104</b> | <b>2591.8</b> | <b>Weibull</b> |
| 442159         | 26.4          | Gumbel  | 447338         | 36.9          | Gumbel         | 449215         | 2591.8         | Weibull       |                |

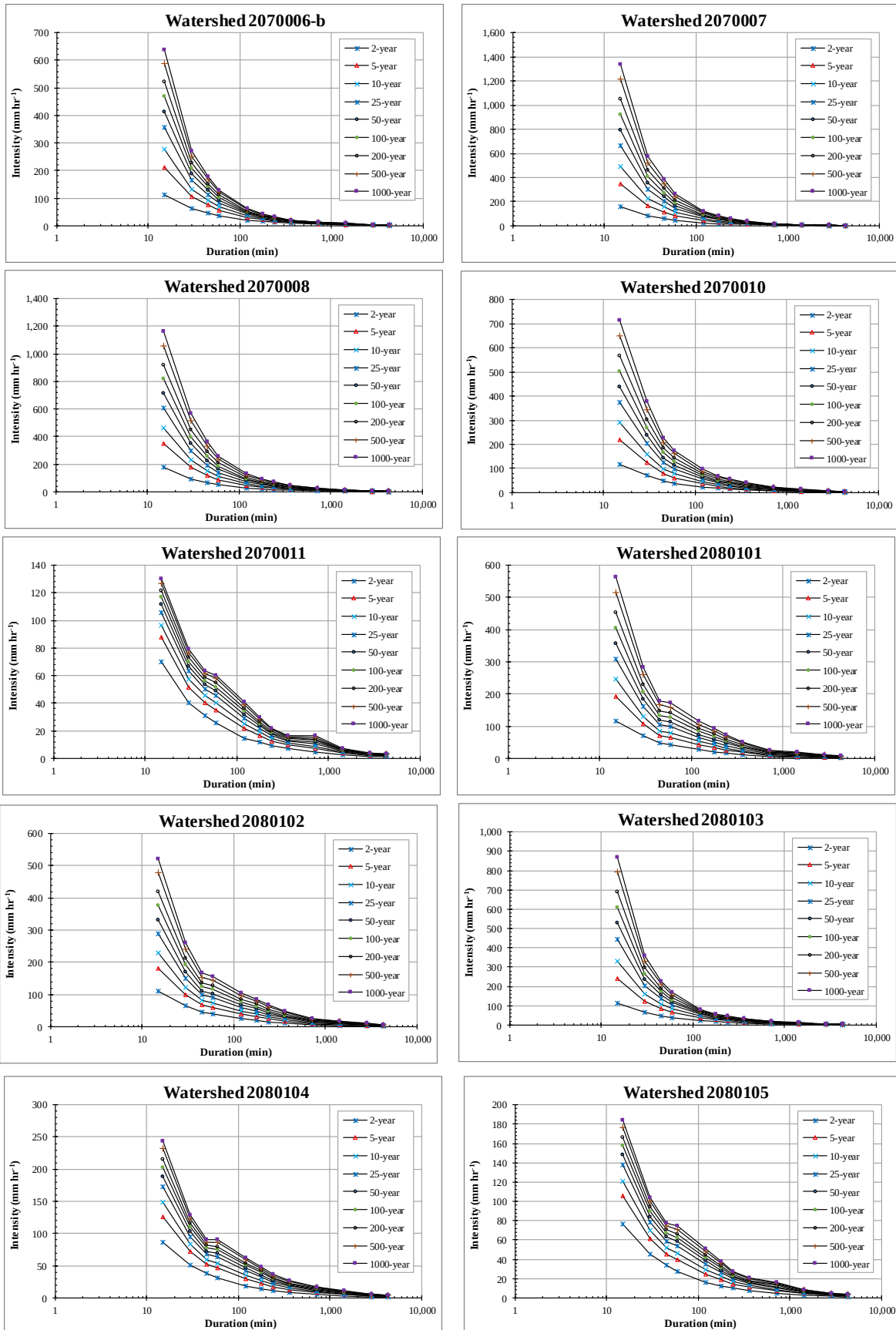
Table 12. Continuous .....

|                |               |         |               |                |               |                |               |                |               |         |                |
|----------------|---------------|---------|---------------|----------------|---------------|----------------|---------------|----------------|---------------|---------|----------------|
| 443200         | 1667.8        | Weibull |               | 449272         | 1668.2        | Gumbel         |               | <b>6010205</b> | <b>5092.5</b> |         | <b>Weibull</b> |
| 447164         | 151.7         | Weibull |               | <b>3010104</b> | <b>3327.0</b> |                | <b>Gumbel</b> | 442269         | 1356.0        | Weibull |                |
| 449151         | 512.4         | Gumbel  |               | 441614         | 2460.6        | Gumbel         |               | 444180         | 15.5          | Gumbel  |                |
| <b>2080106</b> | <b>3810.6</b> |         | <b>Gumbel</b> | 444414         | 445.5         | Gumbel         |               | 448547         | 5.8           | Weibull |                |
| 441929         | 1125.6        | Gumbel  |               | 447025         | 420.9         | Weibull        |               | 449215         | 3505.2        | Weibull |                |
| 442159         | 222.1         | Gumbel  |               | <b>3010105</b> | <b>1545.8</b> |                | <b>Gumbel</b> | 449301         | 210.0         | Weibull |                |
| 443200         | 764.8         | Weibull |               | 440166         | 189.4         | Gumbel/Weibull |               | <b>6010206</b> | <b>2452.7</b> |         | <b>Weibull</b> |
| 446712         | 923.5         | Gumbel  |               | 441614         | 1039.4        | Gumbel         |               | 449215         | 2452.7        | Weibull |                |
| 447164         | 13.7          | Weibull |               | 447025         | 317.0         | Weibull        |               |                |               |         |                |
| 449151         | 760.9         | Gumbel  |               | <b>3010106</b> | <b>1533.4</b> |                | <b>Gumbel</b> |                |               |         |                |
| <b>2080107</b> | <b>755.8</b>  |         | <b>Gumbel</b> | 444414         | 1499.3        | Gumbel         |               |                |               |         |                |
| 449151         | 755.8         | Gumbel  |               | 448129         | 34.1          | Weibull        |               |                |               |         |                |

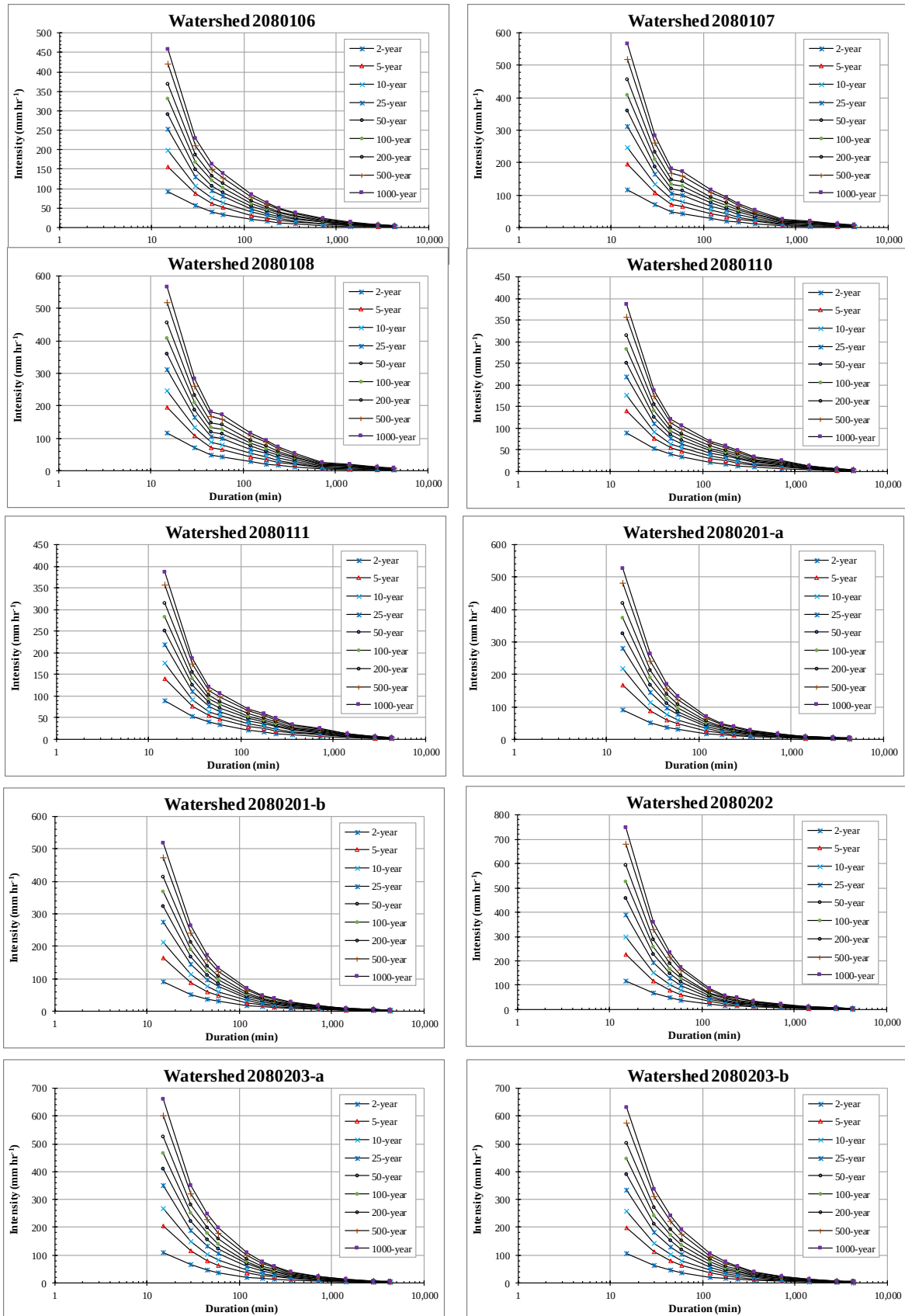
<sup>[1]</sup> HUC: U.S. Geological Survey 8-digit Hydrologic Cataloging Unit. The best distribution for a HUC was assumed to be same as that of the gauge(s) controlling most of the HUC area.



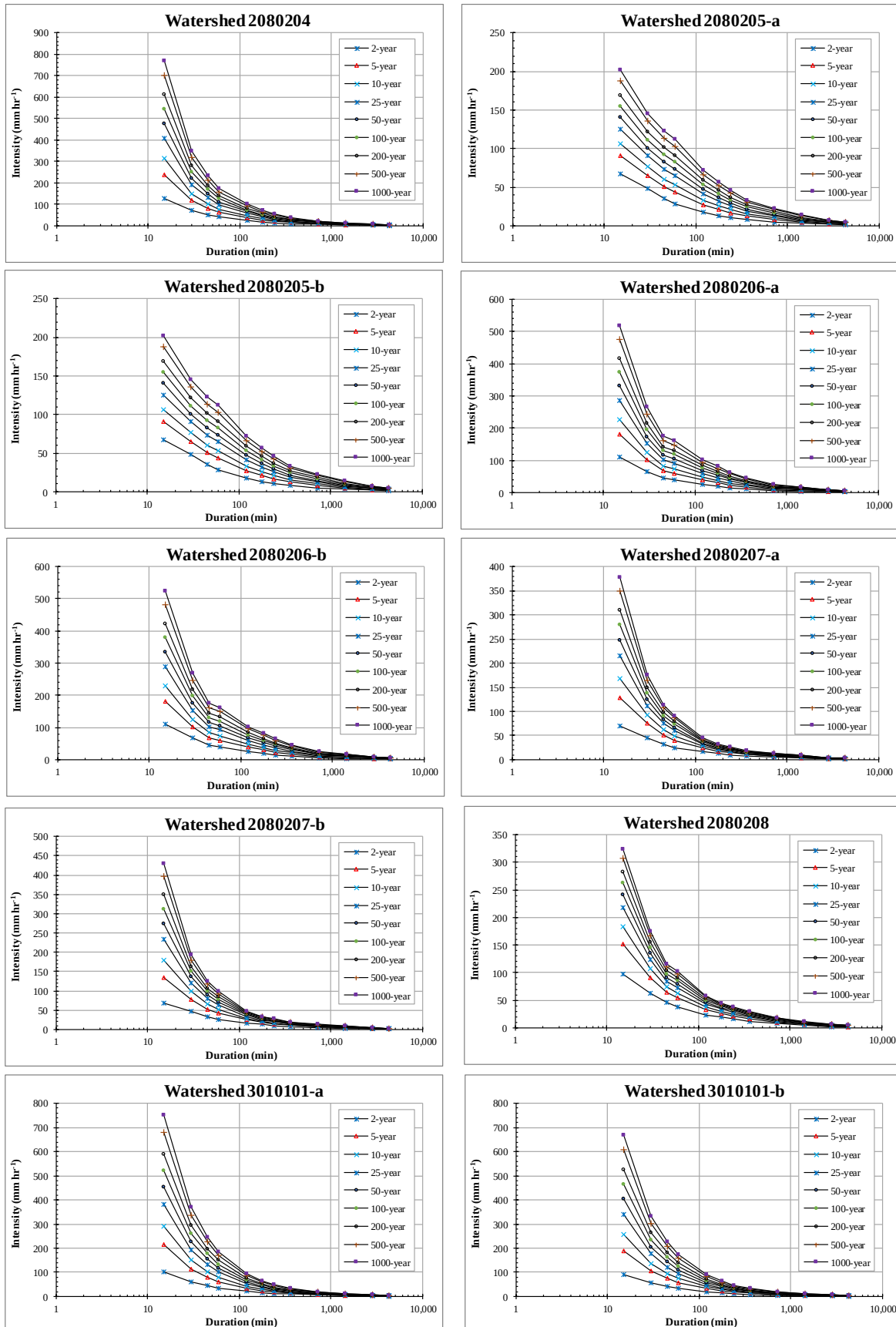
[Figure 17. The watershed-level historic intensity-duration-frequency (IDF) curves .....]



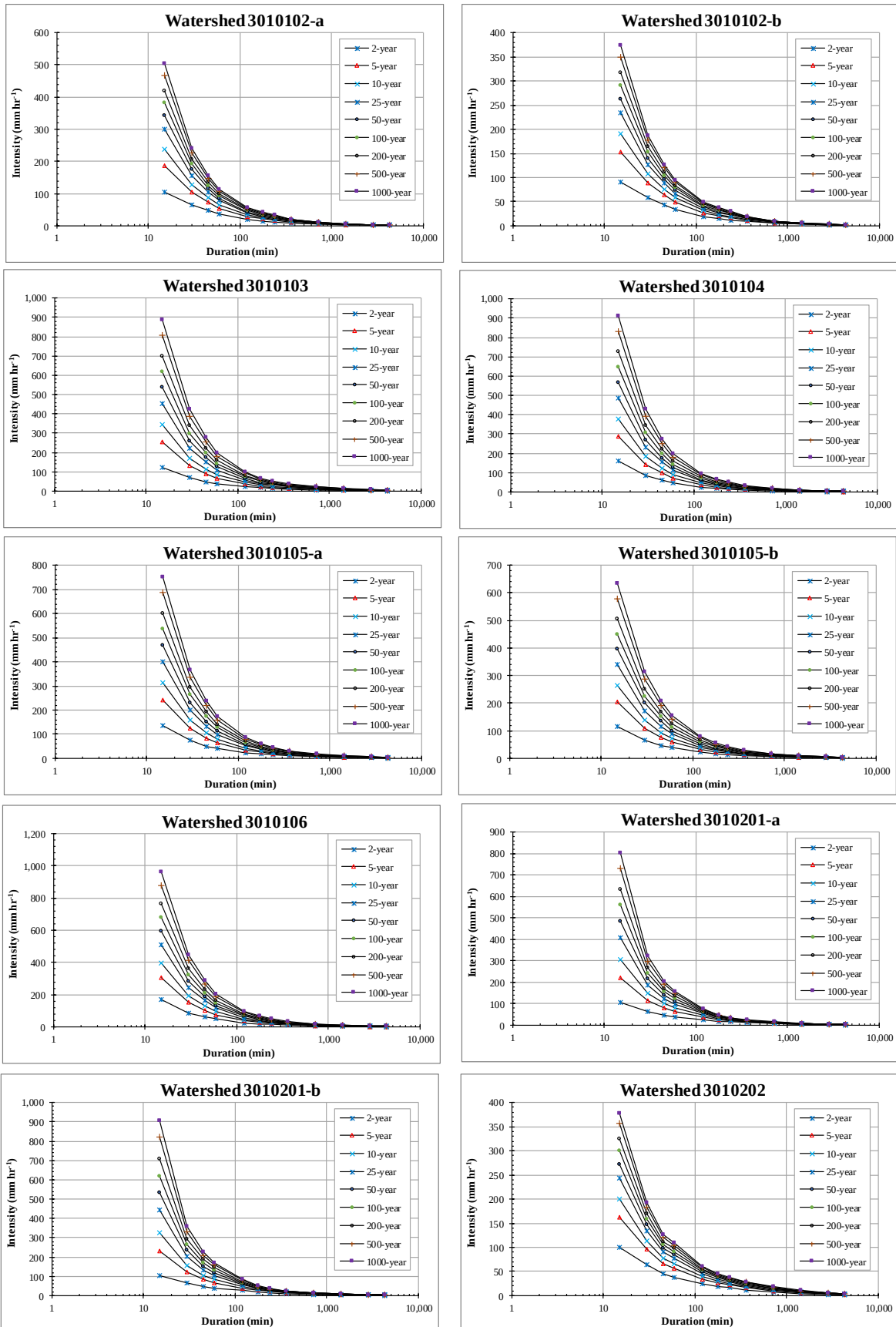
[Figure 17. The watershed-level historic intensity-duration-frequency (IDF) curves .....]



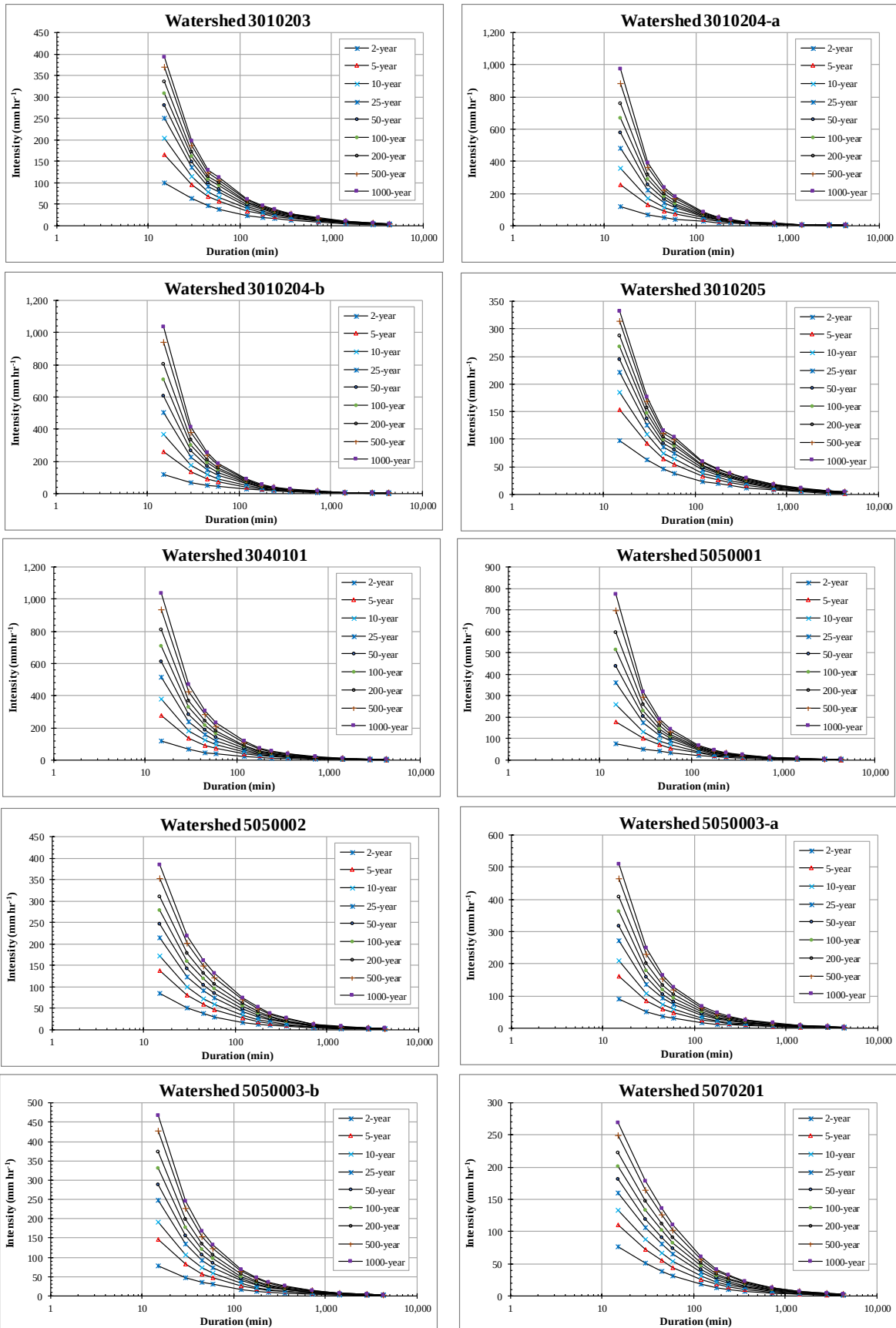
[Figure 17. The watershed-level historic intensity-duration-frequency (IDF) curves .....]



[Figure 17. The watershed-level historic intensity-duration-frequency (IDF) curves .....]



[Figure 17. The watershed-level historic intensity-duration-frequency (IDF) curves .....]



[Figure 17. The watershed-level historic intensity-duration-frequency (IDF) curves .....]

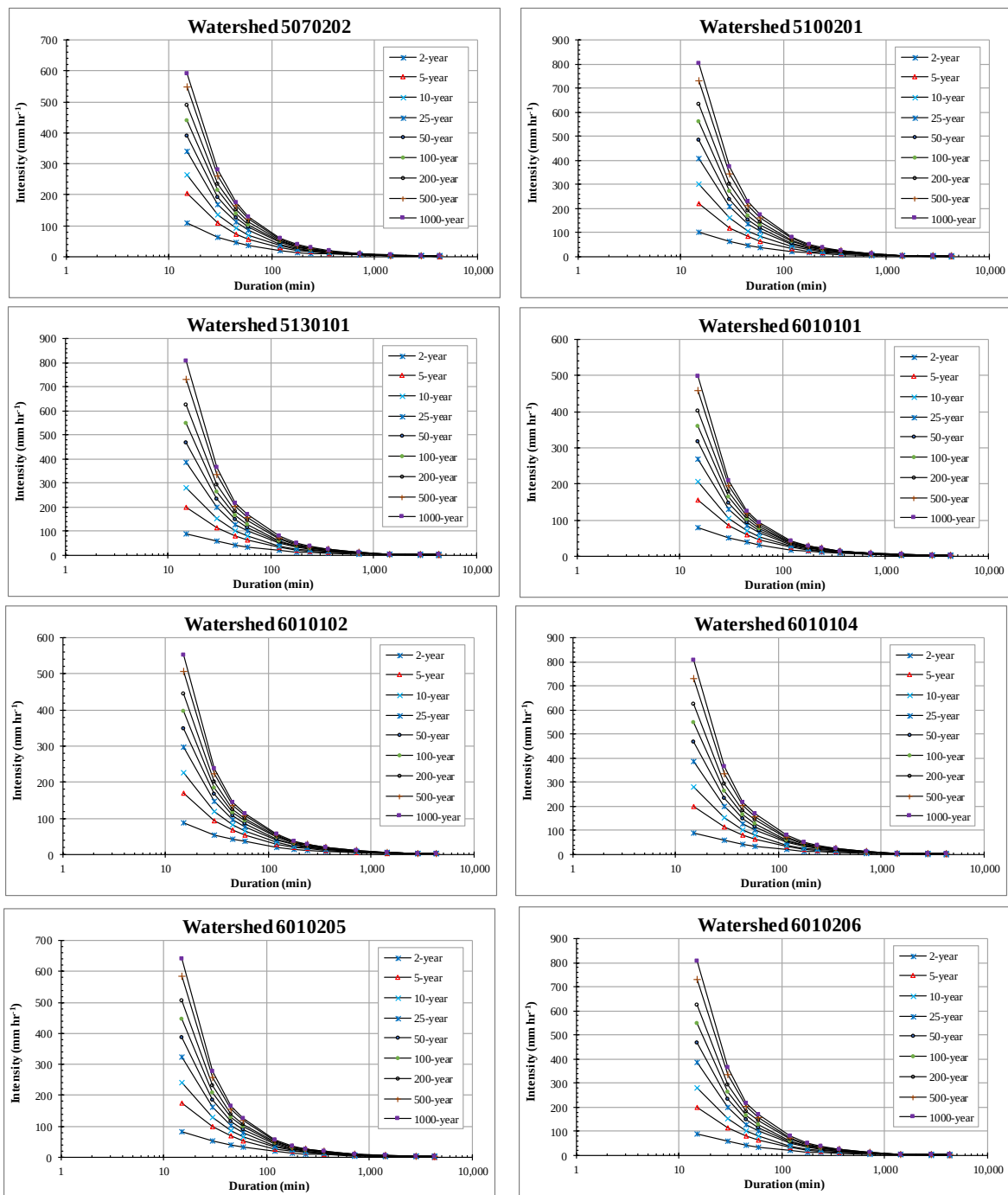


Figure 17. The watershed-level historic intensity-duration-frequency (IDF) curves for the 53 U.S. Geological Survey 8-digit Hydrologic Cataloging Units. Because the time series at gauges 441322, 440166, 448046, and 443310 were non-homogenous, the IDF curves for the HUCs controlled by these four gauges were created for the responding subsets and are signified by -a and -b, respectively.

### 3.4 Downscaling of the RCMs' Predictions

As discussed in section 2.3.4, downscaling of the RCMs' predictions was realized by four steps. First, the predicted 3-h precipitation at a rain gauge by an RCM (hereinafter referred to as RCM-predicted gauge precipitation) was computed as the inverse-distance-weighted average of the RCM's predictions for the four modeling grids surrounding the gauge. Second, the RCM-predicted gauge precipitation was corrected for possible errors in accordance with the observations at this same gauge, deriving the spatially-downscaled gauge precipitation. Third, the spatially-downscaled gauge precipitation was disaggregated to derive the 15-, 30- and 45-min and 1- and 2-h gauge precipitations. Fourth, the spatially-downscaled gauge precipitation for a longer duration of 6, 12, 24, 48, or 72 h was derived from that for the duration of 3 h (i.e., the result of the second step). Herein, to alleviate the burden of data processing, the annual maximum durational precipitations rather than the time series were downscaled. The basic assumption is that the extreme values are independent of the mathematical operations involved in the downscaling procedure.

The equations used in the second step (Table 13) were derived by regressing the observed annual maximum 3-h precipitations over the RCM-predicted annual maximum gauge 3-h precipitations for the historic period, whereas, the equations used in the third step (Table 14) were derived by regressing the observed annual maximum precipitations for a shorter or 4-h duration over those for the duration of 3 h. Both regressions were done by each of the climatic-physiographic zones (Figure 2b and Table 1). In this regard, the data at the rain gauges within a zone of interest (Table 2) were pooled together and then capsulated by excluding any abnormal and/or redundant values.

Table 13. The regression equations of RCM-predicted over observed annual maximum 3-h rainfall.

| RCM       | Zone  | Regression Equation <sup>[1]</sup>                                           | Coefficient of Determination (R <sup>2</sup> ) |
|-----------|-------|------------------------------------------------------------------------------|------------------------------------------------|
| CRCM-CCSM | CPZ01 | $P_{3h,obs} = 7.44(P_{3h,rcm}) - 44.76$                                      | 0.86                                           |
|           | CPZ02 | $P_{3h,obs} = 6.82(P_{3h,rcm}) - 34.60$                                      | 0.87                                           |
|           | CPZ04 | $P_{3h,obs} = 7.57(P_{3h,rcm}) - 45.09$                                      | 0.96                                           |
|           | CPZ05 | $P_{3h,obs} = 10.01(P_{3h,rcm}) - 64.51$                                     | 0.87                                           |
|           | CPZ06 | $P_{3h,obs} = 10.29(P_{3h,rcm}) - 61.20$                                     | 0.87                                           |
|           | CPZ07 | $P_{3h,obs} = 11.59(P_{3h,rcm}) - 96.41$                                     | 0.93                                           |
|           | CPZ08 | $P_{3h,obs} = 17.64(P_{3h,rcm}) - 153.41$                                    | 0.84                                           |
|           | CPZ09 | $P_{3h,obs} = 3.74(P_{3h,rcm}) - 7.66 \quad P_{3h,rcm} \leq 15.0 \text{ mm}$ | 0.95                                           |
|           |       | $P_{3h,obs} = 64.29(P_{3h,rcm}) - 930.36 \quad P_{3h,rcm} > 15.0 \text{ mm}$ | 0.92                                           |
|           | CPZ10 | $P_{3h,obs} = 7.18(P_{3h,rcm}) - 42.31$                                      | 0.88                                           |
|           | CPZ11 | $P_{3h,obs} = 7.46(P_{3h,rcm}) - 37.43$                                      | 0.80                                           |
|           | CPZ12 | $P_{3h,obs} = 6.47(P_{3h,rcm}) - 35.77$                                      | 0.90                                           |
|           | CPZ13 | $P_{3h,obs} = 6.78(P_{3h,rcm}) - 42.87$                                      | 0.95                                           |

<sup>[1]</sup>  $P_{3h,obs}$ : observed annual maximum 3-h precipitation;  $P_{3h,rcm}$ : RCM-predicted annual maximum gauge 3-h precipitation.

Table 14. The regression equations of observed shorter-duration over 3-h annual maximum rainfall.

| Zone  | Duration | Regression Equation <sup>[1]</sup>      | Coefficient of Determination (R <sup>2</sup> ) |
|-------|----------|-----------------------------------------|------------------------------------------------|
| CPZ01 | 15 min   | $P_{15m,obs} = 1.76(P_{3h,obs})^{0.62}$ | 0.67                                           |
|       | 30 min   | $P_{30m,obs} = 1.54(P_{3h,obs})^{0.73}$ | 0.83                                           |
|       | 45 min   | $P_{45m,obs} = 1.45(P_{3h,obs})^{0.78}$ | 0.89                                           |
|       | 1 h      | $P_{1h,obs} = 1.22(P_{3h,obs})^{0.86}$  | 0.95                                           |
|       | 2 h      | $P_{2h,obs} = 1.04(P_{3h,obs})^{0.96}$  | 0.99                                           |
|       | 4 h      | $P_{4h,obs} = 1.07(P_{3h,obs})^{1.01}$  | 0.99                                           |
| CPZ02 | 15 min   | $P_{15m,obs} = 0.25(P_{3h,obs})^{1.14}$ | 0.89                                           |
|       | 30 min   | $P_{30m,obs} = 0.21(P_{3h,obs})^{1.25}$ | 0.70                                           |
|       | 45 min   | $P_{45m,obs} = 0.55(P_{3h,obs})^{1.04}$ | 0.71                                           |
|       | 1 h      | $P_{1h,obs} = 0.36(P_{3h,obs})^{1.18}$  | 0.84                                           |
|       | 2 h      | $P_{2h,obs} = 0.46(P_{3h,obs})^{1.17}$  | 0.96                                           |
|       | 4 h      | $P_{4h,obs} = 1.01(P_{3h,obs})^{1.01}$  | 0.99                                           |
| CPZ04 | 15 min   | $P_{15m,obs} = 1.08(P_{3h,obs})^{0.76}$ | 0.90                                           |
|       | 30 min   | $P_{30m,obs} = 1.03(P_{3h,obs})^{0.86}$ | 0.97                                           |
|       | 45 min   | $P_{45m,obs} = 1.05(P_{3h,obs})^{0.89}$ | 0.98                                           |
|       | 1 h      | $P_{1h,obs} = 1.01(P_{3h,obs})^{0.92}$  | 0.99                                           |
|       | 2 h      | $P_{2h,obs} = 1.00(P_{3h,obs})^{0.98}$  | 1.00                                           |
|       | 4 h      | $P_{4h,obs} = 1.16(P_{3h,obs})^{0.99}$  | 0.99                                           |
| CPZ05 | 15 min   | $P_{15m,obs} = 1.14(P_{3h,obs})^{0.75}$ | 0.62                                           |
|       | 30 min   | $P_{30m,obs} = 1.06(P_{3h,obs})^{0.83}$ | 0.74                                           |
|       | 45 min   | $P_{45m,obs} = 0.98(P_{3h,obs})^{0.89}$ | 0.85                                           |
|       | 1 h      | $P_{1h,obs} = 1.01(P_{3h,obs})^{0.91}$  | 0.87                                           |
|       | 2 h      | $P_{2h,obs} = 0.83(P_{3h,obs})^{1.02}$  | 0.99                                           |
|       | 4 h      | $P_{4h,obs} = 1.17(P_{3h,obs})^{0.98}$  | 0.99                                           |
| CPZ06 | 15 min   | $P_{15m,obs} = 0.58(P_{3h,obs})^{0.89}$ | 0.66                                           |
|       | 30 min   | $P_{30m,obs} = 0.84(P_{3h,obs})^{0.88}$ | 0.74                                           |
|       | 45 min   | $P_{45m,obs} = 1.04(P_{3h,obs})^{0.86}$ | 0.79                                           |
|       | 1 h      | $P_{1h,obs} = 0.99(P_{3h,obs})^{0.90}$  | 0.84                                           |
|       | 2 h      | $P_{2h,obs} = 0.92(P_{3h,obs})^{0.98}$  | 0.95                                           |
|       | 4 h      | $P_{4h,obs} = 1.25(P_{3h,obs})^{0.97}$  | 0.98                                           |
| CPZ07 | 15 min   | $P_{15m,obs} = 0.56(P_{3h,obs})^{0.93}$ | 0.64                                           |
|       | 30 min   | $P_{30m,obs} = 0.72(P_{3h,obs})^{0.94}$ | 0.78                                           |
|       | 45 min   | $P_{45m,obs} = 0.68(P_{3h,obs})^{0.99}$ | 0.88                                           |
|       | 1 h      | $P_{1h,obs} = 0.69(P_{3h,obs})^{1.01}$  | 0.91                                           |
|       | 2 h      | $P_{2h,obs} = 0.40(P_{3h,obs})^{1.18}$  | 0.94                                           |
|       | 4 h      | $P_{4h,obs} = 1.49(P_{3h,obs})^{0.93}$  | 0.98                                           |
| CPZ08 | 15 min   | $P_{15m,obs} = 1.26(P_{3h,obs})^{0.80}$ | 0.89                                           |
|       | 30 min   | $P_{30m,obs} = 1.13(P_{3h,obs})^{0.86}$ | 0.95                                           |
|       | 45 min   | $P_{45m,obs} = 1.17(P_{3h,obs})^{0.89}$ | 0.95                                           |
|       | 1 h      | $P_{1h,obs} = 1.17(P_{3h,obs})^{0.90}$  | 0.96                                           |
|       | 2 h      | $P_{2h,obs} = 1.06(P_{3h,obs})^{0.97}$  | 0.99                                           |

Table 14. Continuous .....

|       |        |                                         |      |
|-------|--------|-----------------------------------------|------|
| CPZ09 | 4 h    | $P_{2h,obs} = 1.18(P_{3h,obs})^{0.99}$  | 0.95 |
|       | 15 min | $P_{15m,obs} = 0.78(P_{3h,obs})^{0.85}$ | 0.55 |
|       | 30 min | $P_{30m,obs} = 0.85(P_{3h,obs})^{0.91}$ | 0.63 |
|       | 45 min | $P_{45m,obs} = 0.73(P_{3h,obs})^{0.98}$ | 0.72 |
|       | 1 h    | $P_{1h,obs} = 0.70(P_{3h,obs})^{1.01}$  | 0.76 |
|       | 2 h    | $P_{2h,obs} = 0.76(P_{3h,obs})^{1.03}$  | 0.94 |
|       | 4 h    | $P_{4h,obs} = 1.10(P_{3h,obs})^{1.01}$  | 0.94 |
| CPZ10 | 15 min | $P_{15m,obs} = 1.14(P_{3h,obs})^{0.77}$ | 0.67 |
|       | 30 min | $P_{30m,obs} = 0.79(P_{3h,obs})^{0.93}$ | 0.81 |
|       | 45 min | $P_{45m,obs} = 0.81(P_{3h,obs})^{0.95}$ | 0.88 |
|       | 1 h    | $P_{1h,obs} = 0.77(P_{3h,obs})^{0.98}$  | 0.88 |
|       | 2 h    | $P_{2h,obs} = 0.63(P_{3h,obs})^{1.09}$  | 0.96 |
|       | 4 h    | $P_{4h,obs} = 1.18(P_{3h,obs})^{0.98}$  | 0.98 |
| CPZ11 | 15 min | $P_{15m,obs} = 0.65(P_{3h,obs})^{0.88}$ | 0.67 |
|       | 30 min | $P_{30m,obs} = 1.08(P_{3h,obs})^{0.83}$ | 0.80 |
|       | 45 min | $P_{45m,obs} = 1.06(P_{3h,obs})^{0.88}$ | 0.88 |
|       | 1 h    | $P_{1h,obs} = 1.06(P_{3h,obs})^{0.90}$  | 0.91 |
|       | 2 h    | $P_{2h,obs} = 1.17(P_{3h,obs})^{0.93}$  | 0.96 |
|       | 4 h    | $P_{4h,obs} = 1.26(P_{3h,obs})^{0.96}$  | 0.96 |
| CPZ12 | 15 min | $P_{15m,obs} = 0.56(P_{3h,obs})^{0.92}$ | 0.61 |
|       | 30 min | $P_{30m,obs} = 0.82(P_{3h,obs})^{0.90}$ | 0.78 |
|       | 45 min | $P_{45m,obs} = 0.67(P_{3h,obs})^{0.99}$ | 0.84 |
|       | 1 h    | $P_{1h,obs} = 0.69(P_{3h,obs})^{1.01}$  | 0.89 |
|       | 2 h    | $P_{2h,obs} = 0.69(P_{3h,obs})^{1.07}$  | 0.96 |
|       | 4 h    | $P_{4h,obs} = 1.42(P_{3h,obs})^{0.93}$  | 0.98 |
| CPZ13 | 15 min | $P_{15m,obs} = 0.65(P_{3h,obs})^{0.92}$ | 0.62 |
|       | 30 min | $P_{30m,obs} = 0.69(P_{3h,obs})^{0.98}$ | 0.82 |
|       | 45 min | $P_{45m,obs} = 0.59(P_{3h,obs})^{1.05}$ | 0.89 |
|       | 1 h    | $P_{1h,obs} = 0.54(P_{3h,obs})^{1.10}$  | 0.91 |
|       | 2 h    | $P_{2h,obs} = 0.84(P_{3h,obs})^{1.02}$  | 0.94 |
|       | 4 h    | $P_{4h,obs} = 1.51(P_{3h,obs})^{0.91}$  | 0.98 |

<sup>[1]</sup>  $P_{15m,obs}$ ,  $P_{30m,obs}$ ,  $P_{45m,obs}$ ,  $P_{1h,obs}$ ,  $P_{2h,obs}$ ,  $P_{3h,obs}$ , and  $P_{4h,obs}$  are the precipitations, in mm, for the durations signified by the subscripts.

The equations used in the fourth step (Table 15) were derived by regressing the RCM-predicted annual maximum gauge precipitations for a longer duration (i.e., 6, 12, 24, 48, or 72 h) over the RCM-predicted annual maximum gauge precipitations for one or more shorter durations spanning the entire RCM modeling period.

Table 15. The regression equations of RCM-predicted longer- over shorter-duration annual maximum rainfall.

| Zone  | Duration | Regression Equation <sup>[1]</sup>          | Coefficient of Determination (R <sup>2</sup> ) |
|-------|----------|---------------------------------------------|------------------------------------------------|
| CPZ01 | 6 h      | $P_{6h,obs} = 1.854 + 1.530(P_{3h,obs})$    | 0.84                                           |
|       | 12 h     | $P_{12h,obs} = 4.084 + 1.266(P_{6h,obs})$   | 0.78                                           |
|       | 24 h     | $P_{24h,obs} = 3.870 + 1.207(P_{12h,obs})$  | 0.68                                           |
|       | 48 h     | $P_{48h,obs} = -0.997 + 1.266(P_{24h,obs})$ | 0.77                                           |
|       | 72 h     | $P_{72h,obs} = 1.922 + 1.073(P_{48h,obs})$  | 0.92                                           |
| CPZ02 | 6 h      | $P_{6h,obs} = 1.535 + 1.534(P_{3h,obs})$    | 0.85                                           |
|       | 12 h     | $P_{12h,obs} = 6.953 + 1.144(P_{6h,obs})$   | 0.80                                           |
|       | 24 h     | $P_{24h,obs} = 7.177 + 1.099(P_{12h,obs})$  | 0.70                                           |
|       | 48 h     | $P_{48h,obs} = 4.560 + 1.116(P_{24h,obs})$  | 0.69                                           |
|       | 72 h     | $P_{72h,obs} = 2.907 + 1.051(P_{48h,obs})$  | 0.92                                           |
| CPZ04 | 6 h      | $P_{6h,obs} = 1.872 + 1.494(P_{3h,obs})$    | 0.73                                           |
|       | 12 h     | $P_{12h,obs} = 4.803 + 1.241(P_{6h,obs})$   | 0.78                                           |
|       | 24 h     | $P_{24h,obs} = 7.670 + 1.073(P_{12h,obs})$  | 0.68                                           |
|       | 48 h     | $P_{48h,obs} = 5.770 + 1.094(P_{24h,obs})$  | 0.68                                           |
|       | 72 h     | $P_{72h,obs} = 1.671 + 1.081(P_{48h,obs})$  | 0.89                                           |
| CPZ05 | 6 h      | $P_{6h,obs} = 0.740 + 1.602(P_{3h,obs})$    | 0.77                                           |
|       | 12 h     | $P_{12h,obs} = 2.557 + 1.362(P_{6h,obs})$   | 0.81                                           |
|       | 24 h     | $P_{24h,obs} = 8.552 + 1.067(P_{12h,obs})$  | 0.70                                           |
|       | 48 h     | $P_{48h,obs} = 8.935 + 1.023(P_{24h,obs})$  | 0.65                                           |
|       | 72 h     | $P_{72h,obs} = 5.039 + 1.018(P_{48h,obs})$  | 0.85                                           |
| CPZ06 | 6 h      | $P_{6h,obs} = -0.569 + 1.738(P_{3h,obs})$   | 0.82                                           |
|       | 12 h     | $P_{12h,obs} = 3.004 + 1.332(P_{6h,obs})$   | 0.82                                           |
|       | 24 h     | $P_{24h,obs} = 9.135 + 1.033(P_{12h,obs})$  | 0.65                                           |
|       | 48 h     | $P_{48h,obs} = 7.652 + 1.034(P_{24h,obs})$  | 0.62                                           |
|       | 72 h     | $P_{72h,obs} = 7.421 + 0.966(P_{48h,obs})$  | 0.80                                           |
| CPZ07 | 6 h      | $P_{6h,obs} = 0.867 + 1.554(P_{3h,obs})$    | 0.74                                           |
|       | 12 h     | $P_{12h,obs} = 3.896 + 1.295(P_{6h,obs})$   | 0.78                                           |
|       | 24 h     | $P_{24h,obs} = 6.300 + 1.140(P_{12h,obs})$  | 0.67                                           |
|       | 48 h     | $P_{48h,obs} = -3.961 + 1.340(P_{24h,obs})$ | 0.76                                           |
|       | 72 h     | $P_{72h,obs} = 0.945 + 1.115(P_{48h,obs})$  | 0.91                                           |
| CPZ08 | 6 h      | $P_{6h,obs} = 4.249 + 1.324(P_{3h,obs})$    | 0.74                                           |
|       | 12 h     | $P_{12h,obs} = 4.937 + 1.237(P_{6h,obs})$   | 0.70                                           |
|       | 24 h     | $P_{24h,obs} = 6.353 + 1.149(P_{12h,obs})$  | 0.62                                           |
|       | 48 h     | $P_{48h,obs} = -0.244 + 1.258(P_{24h,obs})$ | 0.67                                           |
|       | 72 h     | $P_{72h,obs} = 2.249 + 1.088(P_{48h,obs})$  | 0.88                                           |
| CPZ09 | 6 h      | $P_{6h,obs} = 5.306 + 1.226(P_{3h,obs})$    | 0.72                                           |
|       | 12 h     | $P_{12h,obs} = 3.697 + 1.302(P_{6h,obs})$   | 0.76                                           |
|       | 24 h     | $P_{24h,obs} = 7.544 + 1.109(P_{12h,obs})$  | 0.67                                           |
|       | 48 h     | $P_{48h,obs} = 2.952 + 1.182(P_{24h,obs})$  | 0.63                                           |
|       | 72 h     | $P_{72h,obs} = 3.862 + 1.062(P_{48h,obs})$  | 0.86                                           |

Table 15. Continuous .....

|       |      |                                            |      |
|-------|------|--------------------------------------------|------|
| CPZ10 | 6 h  | $P_{6h,obs} = 1.555 + 1.551(P_{3h,obs})$   | 0.83 |
|       | 12 h | $P_{12h,obs} = 4.470 + 1.264(P_{6h,obs})$  | 0.80 |
|       | 24 h | $P_{24h,obs} = 7.913 + 1.065(P_{12h,obs})$ | 0.68 |
|       | 48 h | $P_{48h,obs} = 7.181 + 1.047(P_{24h,obs})$ | 0.61 |
|       | 72 h | $P_{72h,obs} = 6.315 + 0.982(P_{48h,obs})$ | 0.82 |
| CPZ11 | 6 h  | $P_{6h,obs} = 0.574 + 1.650(P_{3h,obs})$   | 0.87 |
|       | 12 h | $P_{12h,obs} = 1.922 + 1.388(P_{6h,obs})$  | 0.86 |
|       | 24 h | $P_{24h,obs} = 2.939 + 1.257(P_{12h,obs})$ | 0.74 |
|       | 48 h | $P_{48h,obs} = 3.291 + 1.177(P_{24h,obs})$ | 0.74 |
|       | 72 h | $P_{72h,obs} = 1.818 + 1.091(P_{48h,obs})$ | 0.91 |
| CPZ12 | 6 h  | $P_{6h,obs} = 0.145 + 1.693(P_{3h,obs})$   | 0.87 |
|       | 12 h | $P_{12h,obs} = 2.798 + 1.336(P_{6h,obs})$  | 0.86 |
|       | 24 h | $P_{24h,obs} = 3.461 + 1.213(P_{12h,obs})$ | 0.79 |
|       | 48 h | $P_{48h,obs} = 6.856 + 1.077(P_{24h,obs})$ | 0.72 |
|       | 72 h | $P_{72h,obs} = 8.380 + 0.961(P_{48h,obs})$ | 0.85 |
| CPZ13 | 6 h  | $P_{6h,obs} = 4.140 + 1.381(P_{3h,obs})$   | 0.70 |
|       | 12 h | $P_{12h,obs} = 6.500 + 1.200(P_{6h,obs})$  | 0.63 |
|       | 24 h | $P_{24h,obs} = 2.287 + 1.263(P_{12h,obs})$ | 0.75 |
|       | 48 h | $P_{48h,obs} = 2.502 + 1.145(P_{24h,obs})$ | 0.74 |
|       | 72 h | $P_{72h,obs} = 3.048 + 1.062(P_{48h,obs})$ | 0.83 |

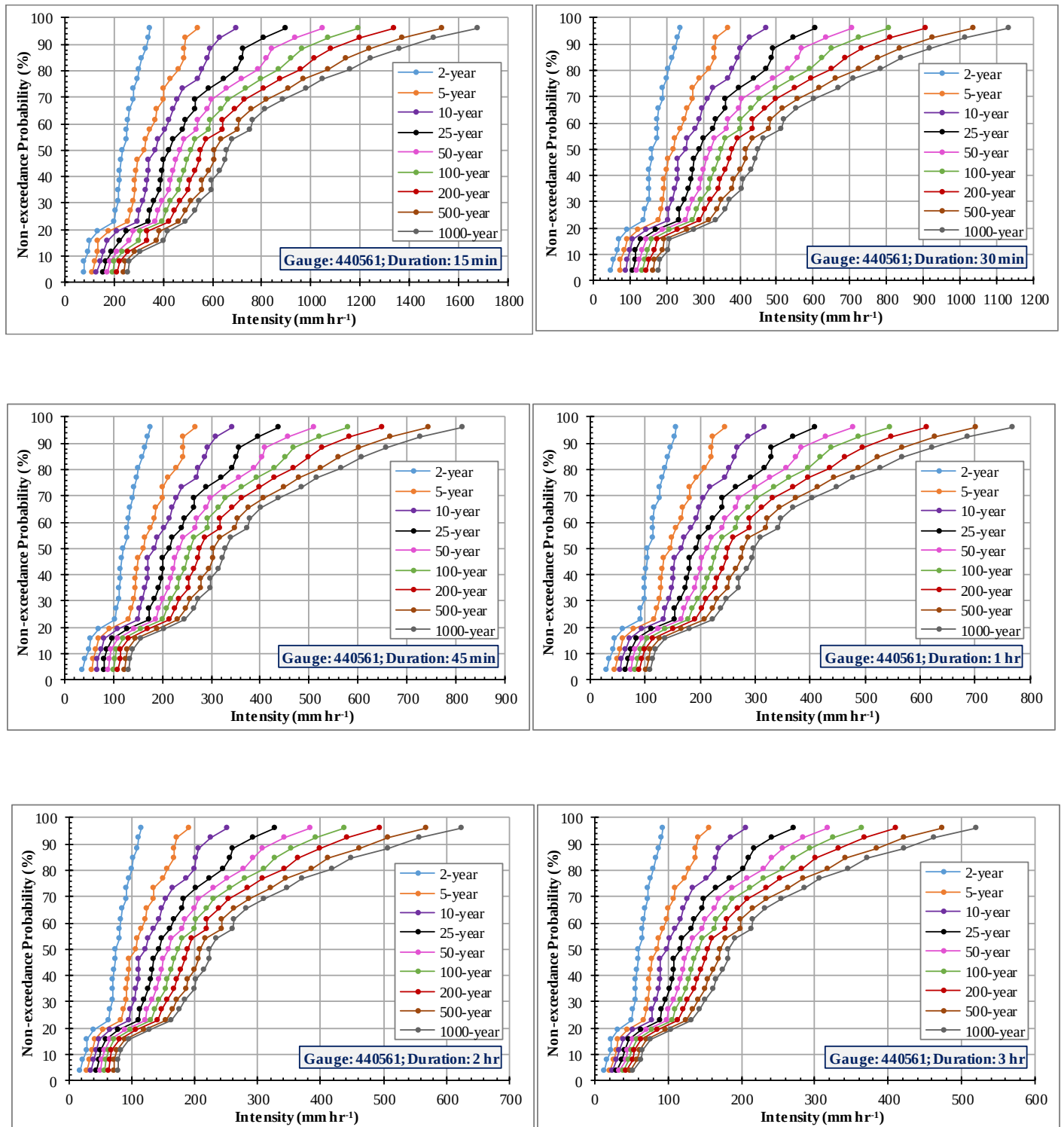
<sup>[1]</sup>  $P_{3h,obs}$ ,  $P_{6h,obs}$ ,  $P_{12h,obs}$ ,  $P_{24h,obs}$ ,  $P_{48h,obs}$ , and  $P_{72h,obs}$  are the precipitations, in mm, for the durations signified by the subscripts.

### 3.5 The Gauge-Level Probability-Based IDF Curves

Figures 18 through 25 show the probability-based IDF curves (tabulated in Appendix IV) for gauge 440561, 442044, 444128, 445690, 445880, 448062, 448172, and 449159, respectively. The curves' coefficients of variation, defined as the ratios of standard deviation to mean and used to measure the dispersion of an IDF curve, range from 0.27 to 0.60 (Table 16). Overall, while the dispersions of the IDF curves are not very different, for a given duration, the IDF curve for a higher return period tends to have a relatively greater dispersion than that for a lower return period, whereas, for a given return period, the IDF curve for a longer duration tends to have a relatively greater dispersion than that for a shorter duration, and vice versa.

Table 16. The dispersions of the probability-based intensity-duration-frequency (IDF) curves of eight gauges.

| Duration | Return Period |           |           |           |           |           |           |           |           |
|----------|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|          | 2-year        | 5-year    | 10-year   | 25-year   | 50-year   | 100-year  | 200-year  | 500-year  | 1000-year |
| 15 min   | 0.27~0.37     | 0.27~0.38 | 0.28~0.41 | 0.29~0.44 | 0.30~0.45 | 0.31~0.47 | 0.32~0.48 | 0.33~0.49 | 0.34~0.50 |
| 30 min   | 0.32~0.38     | 0.33~0.40 | 0.33~0.41 | 0.32~0.44 | 0.32~0.46 | 0.32~0.47 | 0.32~0.48 | 0.33~0.49 | 0.33~0.50 |
| 45 min   | 0.33~0.38     | 0.33~0.40 | 0.32~0.42 | 0.32~0.44 | 0.32~0.45 | 0.32~0.46 | 0.32~0.48 | 0.32~0.49 | 0.32~0.50 |
| 1 h      | 0.34~0.39     | 0.35~0.41 | 0.34~0.43 | 0.34~0.45 | 0.34~0.47 | 0.34~0.48 | 0.34~0.50 | 0.34~0.51 | 0.34~0.52 |
| 2 h      | 0.37~0.42     | 0.39~0.45 | 0.38~0.48 | 0.38~0.52 | 0.38~0.54 | 0.38~0.56 | 0.38~0.58 | 0.39~0.59 | 0.39~0.60 |
| 3 h      | 0.35~0.43     | 0.37~0.44 | 0.39~0.47 | 0.39~0.51 | 0.39~0.53 | 0.40~0.54 | 0.40~0.55 | 0.40~0.57 | 0.41~0.58 |
| 4 h      | 0.35~0.43     | 0.38~0.45 | 0.40~0.48 | 0.40~0.51 | 0.40~0.53 | 0.40~0.55 | 0.41~0.56 | 0.41~0.57 | 0.42~0.58 |
| 6 h      | 0.35~0.43     | 0.38~0.45 | 0.40~0.48 | 0.40~0.51 | 0.40~0.53 | 0.40~0.55 | 0.41~0.56 | 0.41~0.57 | 0.42~0.58 |
| 12 h     | 0.35~0.43     | 0.38~0.45 | 0.40~0.48 | 0.40~0.51 | 0.40~0.53 | 0.40~0.55 | 0.41~0.56 | 0.41~0.58 | 0.42~0.58 |
| 24 h     | 0.34~0.42     | 0.37~0.44 | 0.39~0.47 | 0.39~0.51 | 0.39~0.53 | 0.40~0.54 | 0.40~0.56 | 0.41~0.57 | 0.41~0.58 |
| 48 h     | 0.33~0.41     | 0.36~0.43 | 0.39~0.47 | 0.39~0.50 | 0.39~0.52 | 0.39~0.54 | 0.40~0.55 | 0.40~0.57 | 0.41~0.58 |
| 72 h     | 0.32~0.40     | 0.36~0.43 | 0.38~0.46 | 0.38~0.50 | 0.39~0.52 | 0.39~0.53 | 0.39~0.55 | 0.40~0.56 | 0.41~0.57 |



[Figure 18. The probability-based intensity-duration-frequency (IDF) curves for gauge 440561]

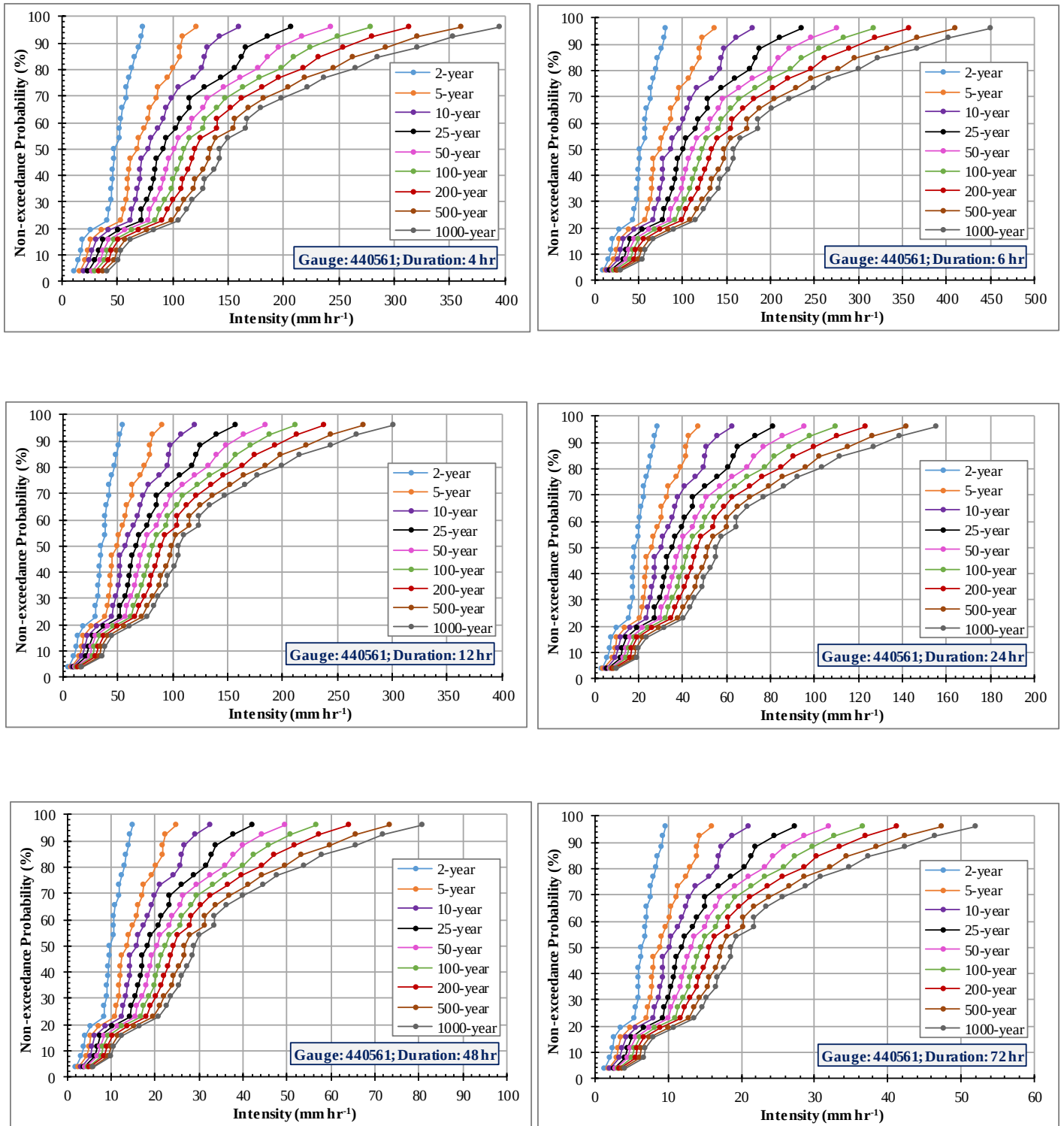
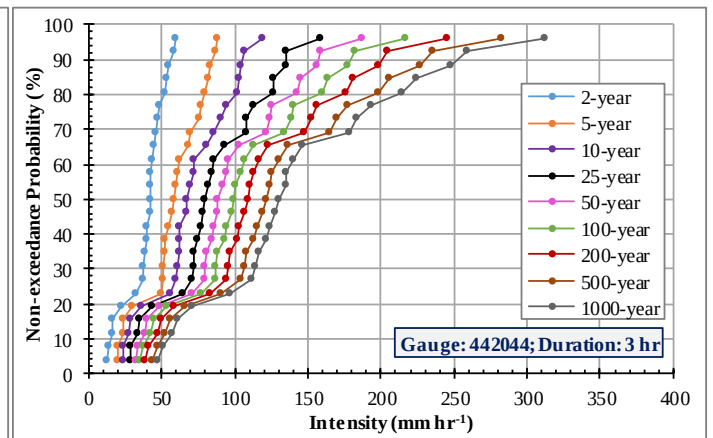
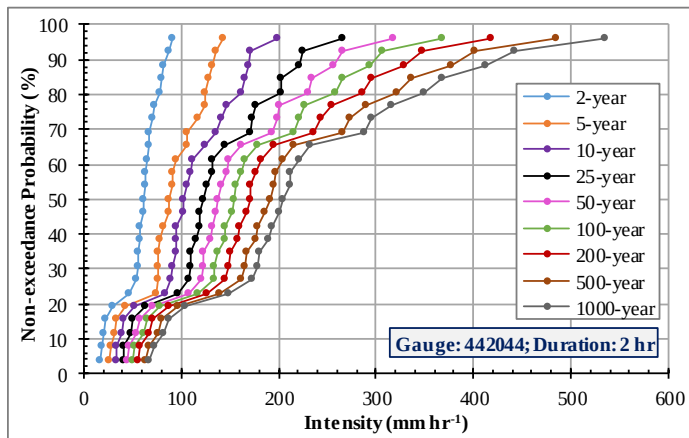
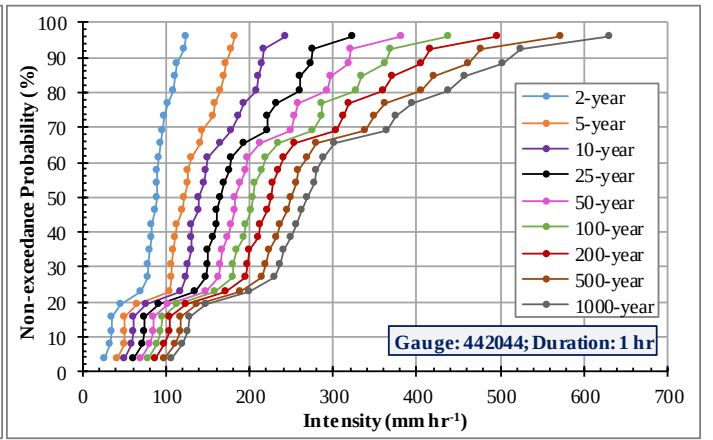
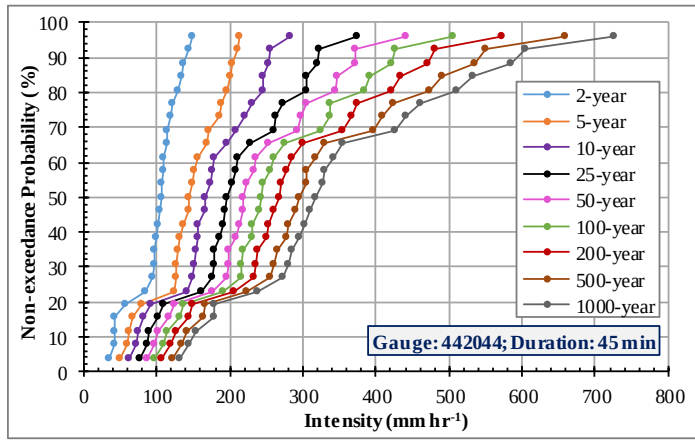
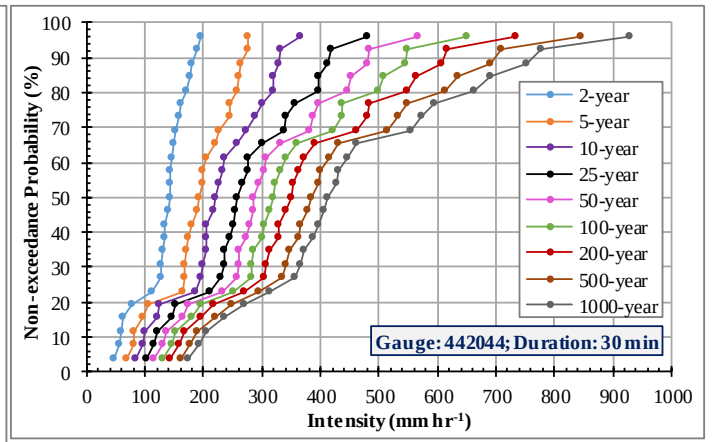
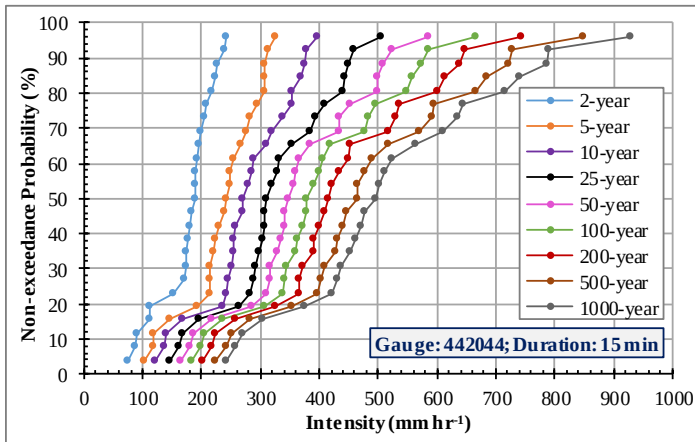


Figure 18. The probability-based intensity-duration-frequency (IDF) curves for gauge 440561.



[Figure 19. The probability-based intensity-duration-frequency (IDF) curves for gauge 442044]

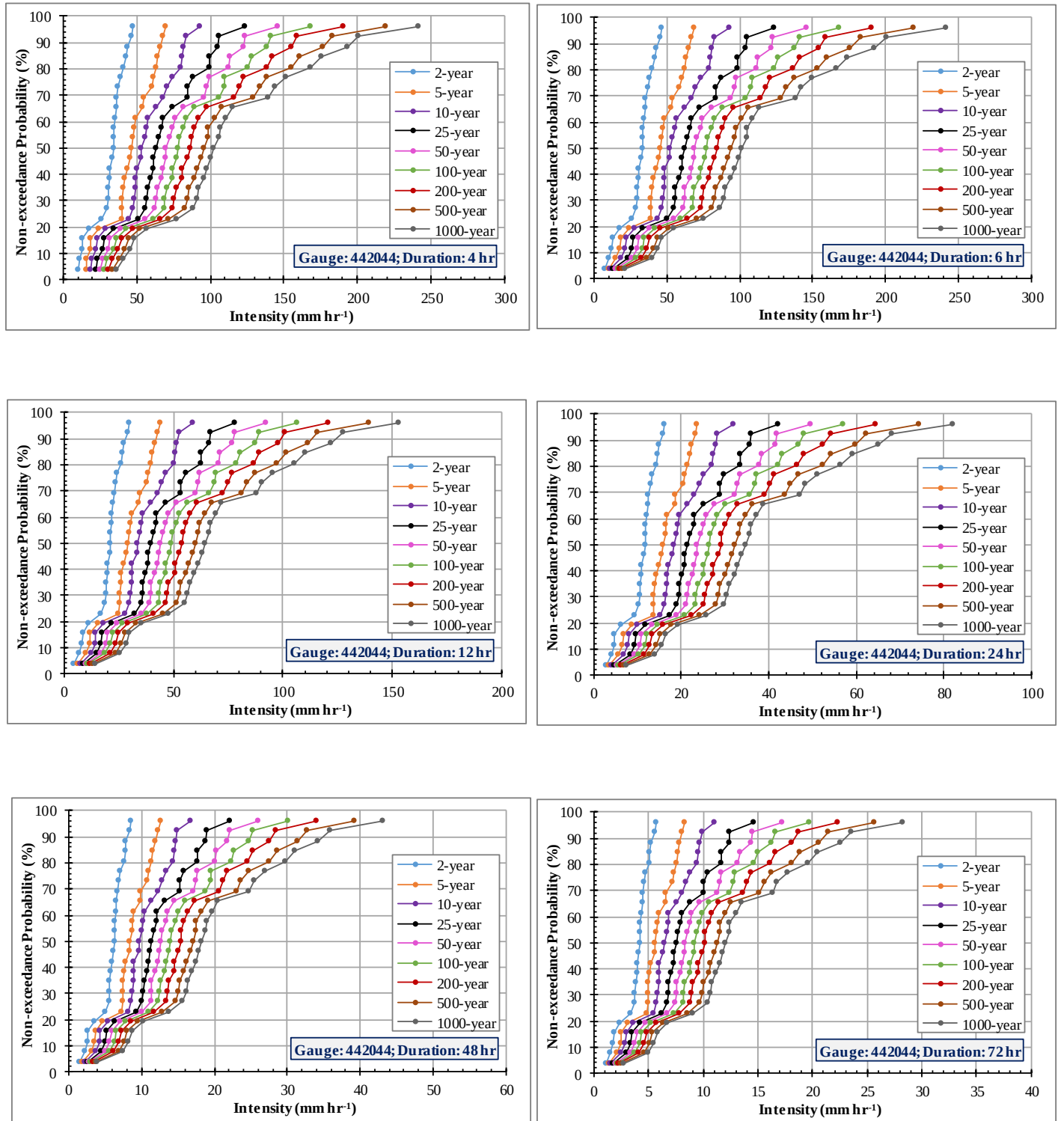
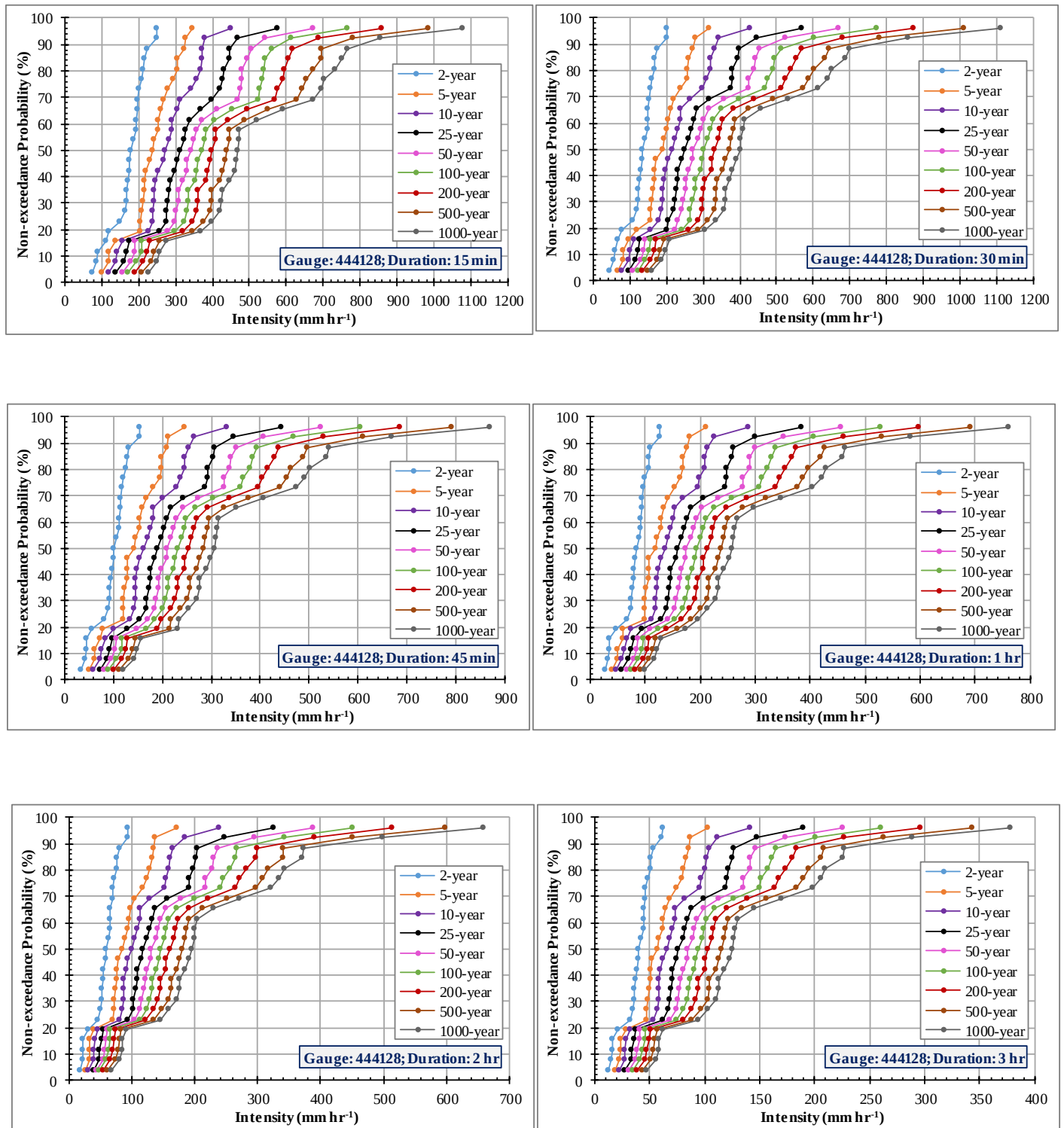


Figure 19. The probability-based intensity-duration-frequency (IDF) curves for gauge 442044.



[Figure 20. The probability-based intensity-duration-frequency (IDF) curves for gauge 444128]

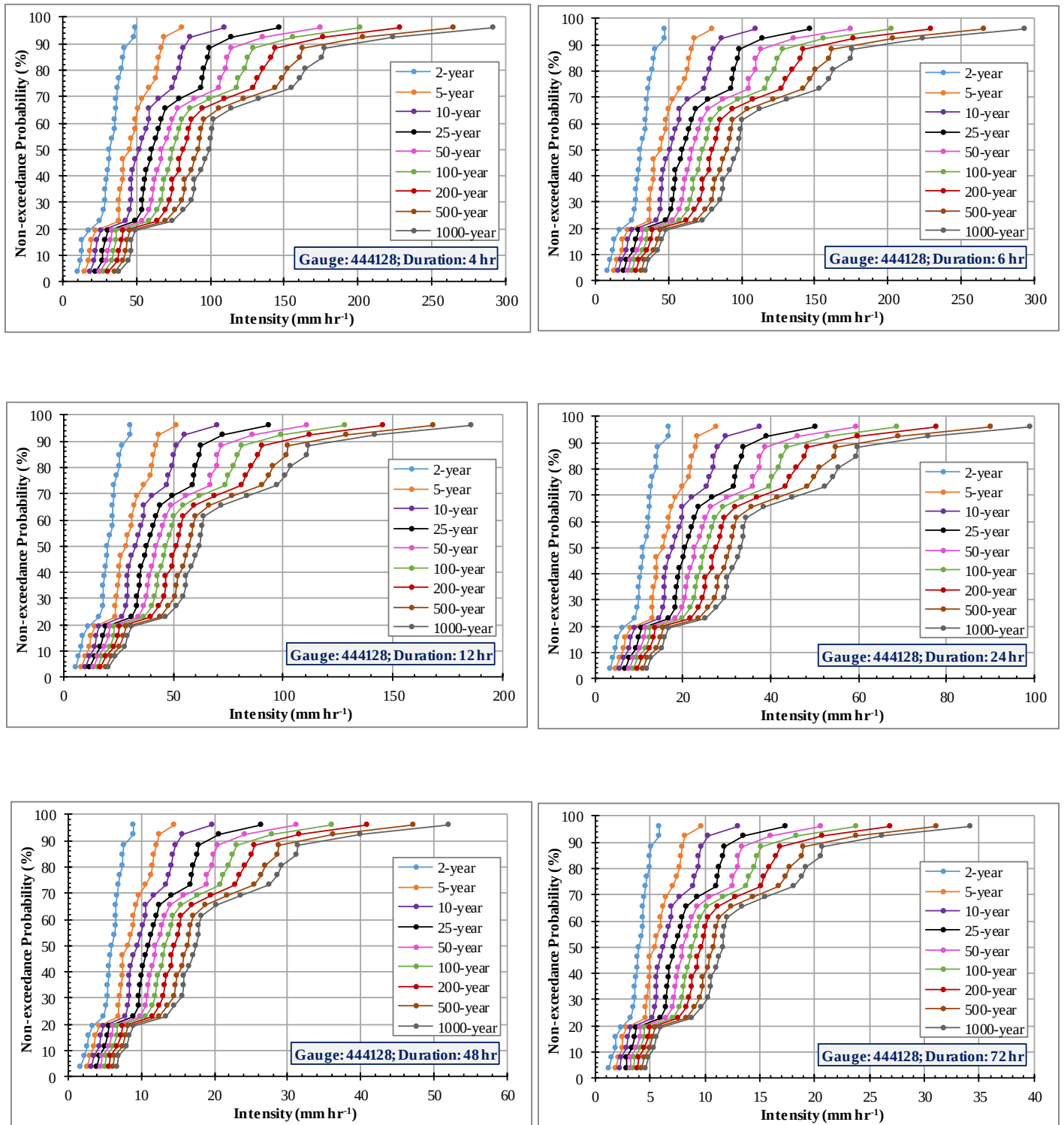
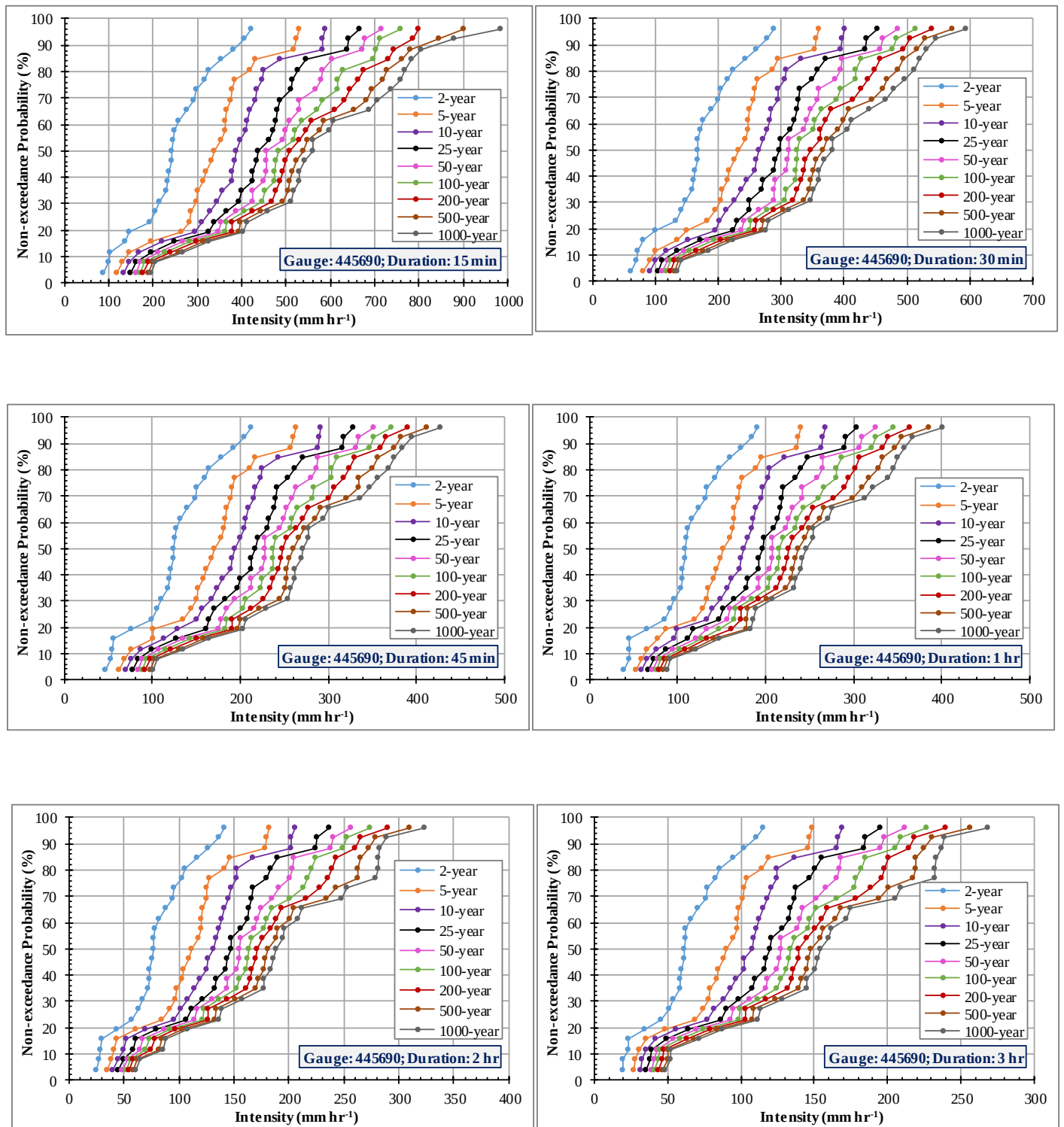


Figure 20. The probability-based intensity-duration-frequency (IDF) curves for gauge 444128.



[Figure 21. The probability-based intensity-duration-frequency (IDF) curves for gauge 445690]

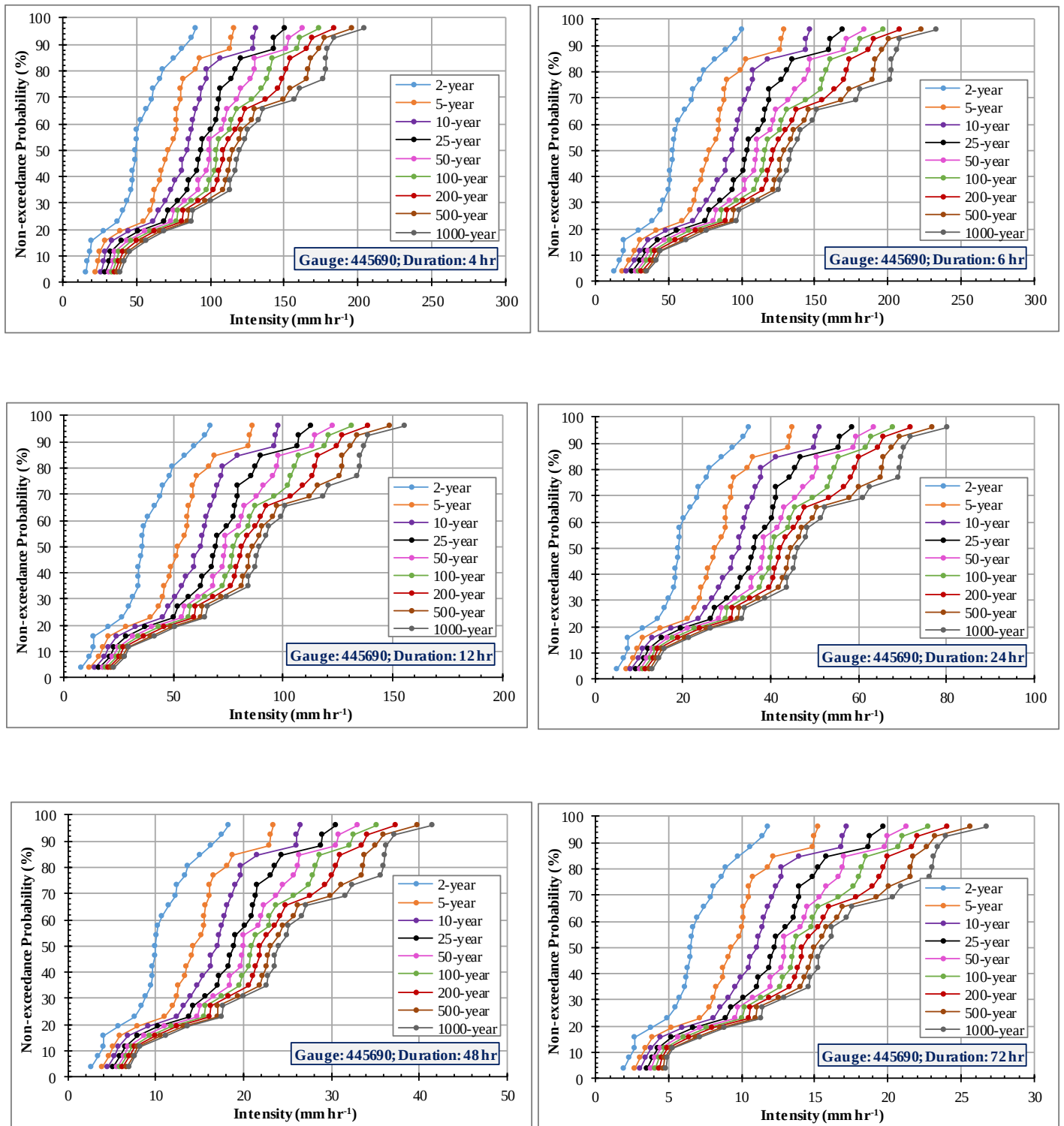
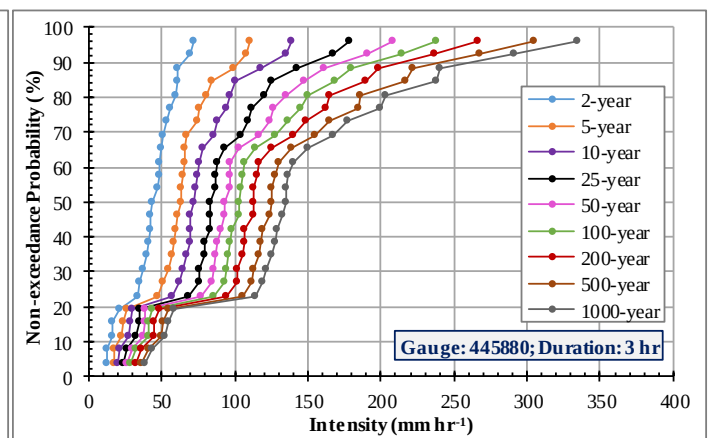
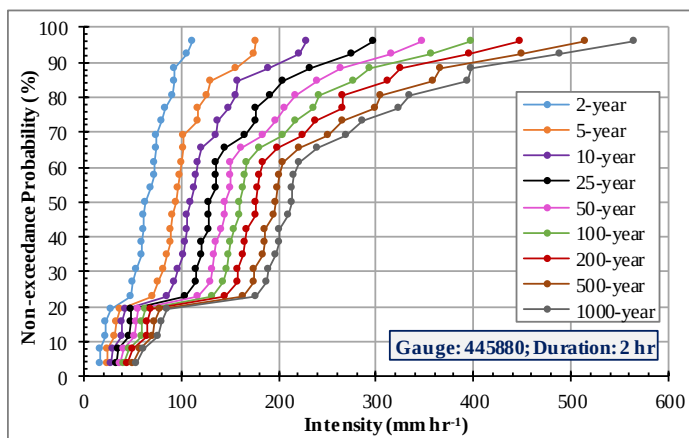
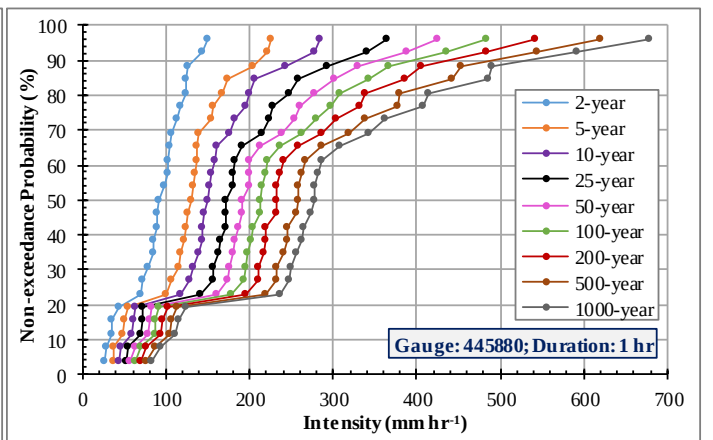
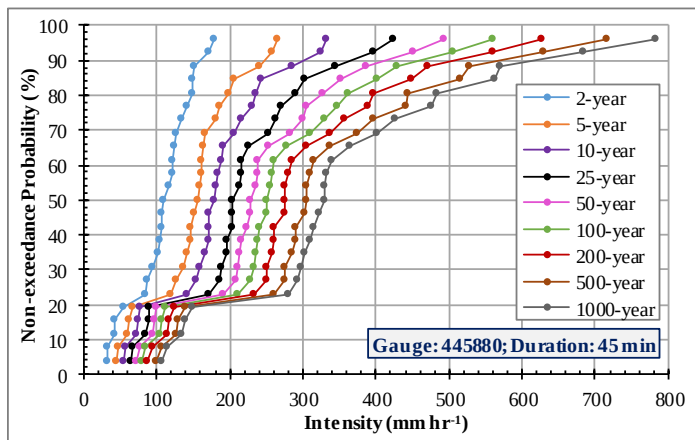
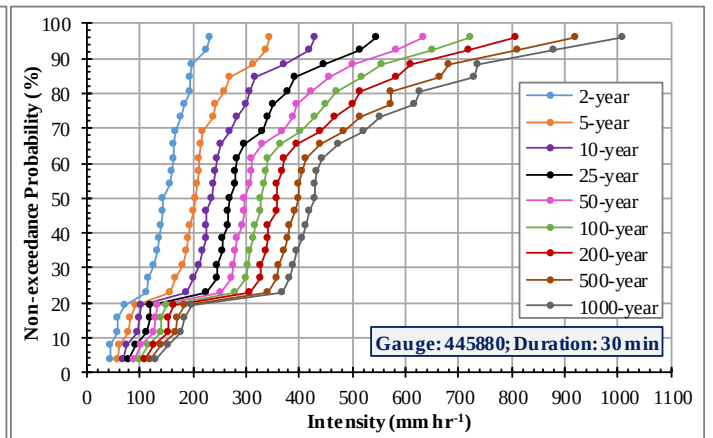
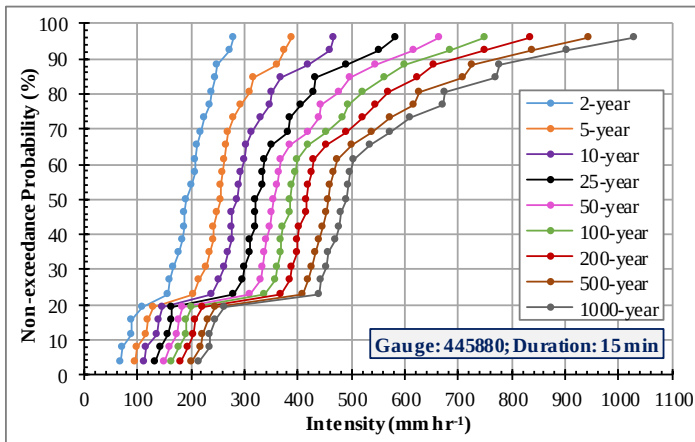


Figure 21. The probability-based intensity-duration-frequency (IDF) curves for gauge 445690.



[Figure 22. The probability-based intensity-duration-frequency (IDF) curves for gauge 445880]

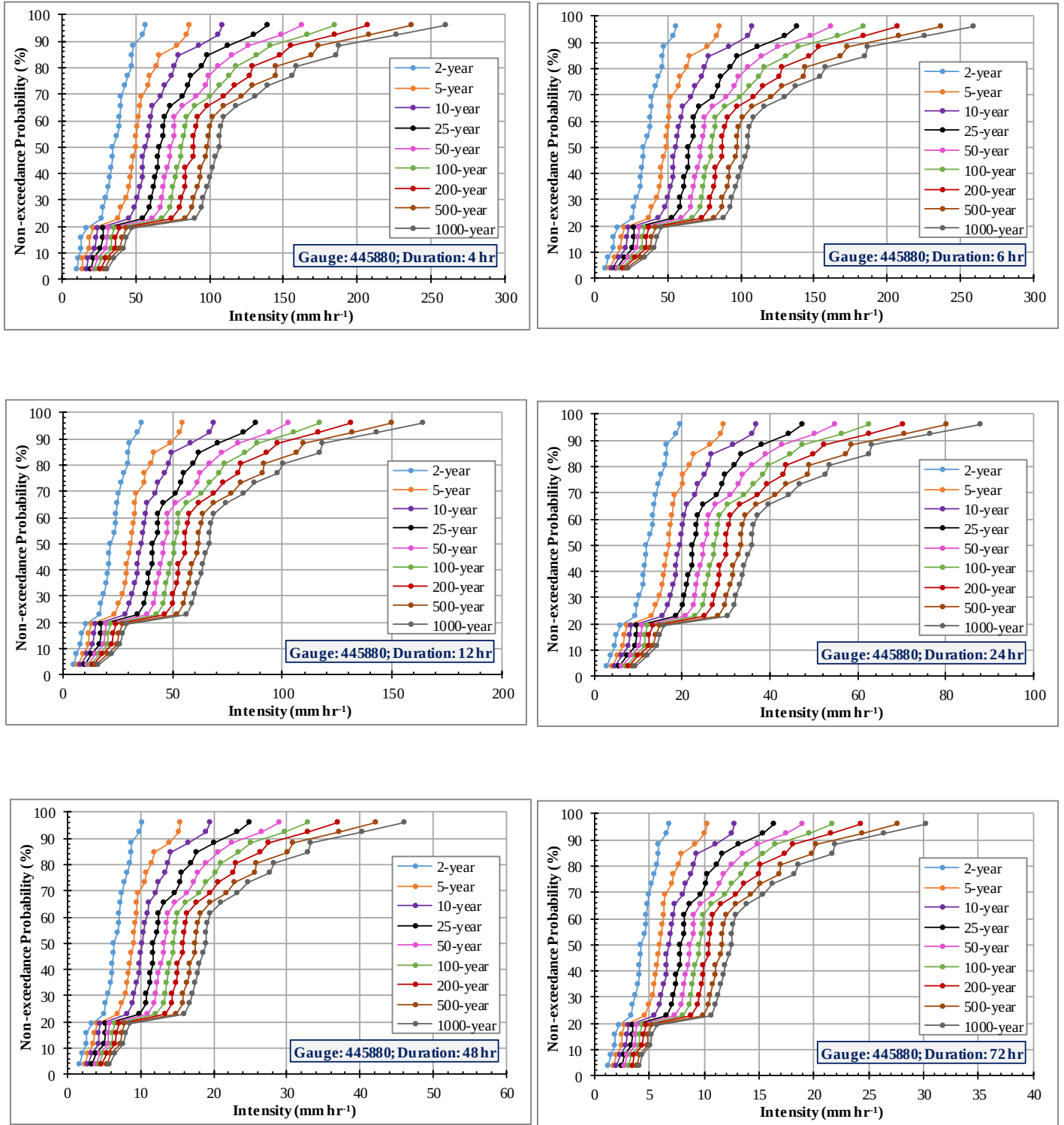
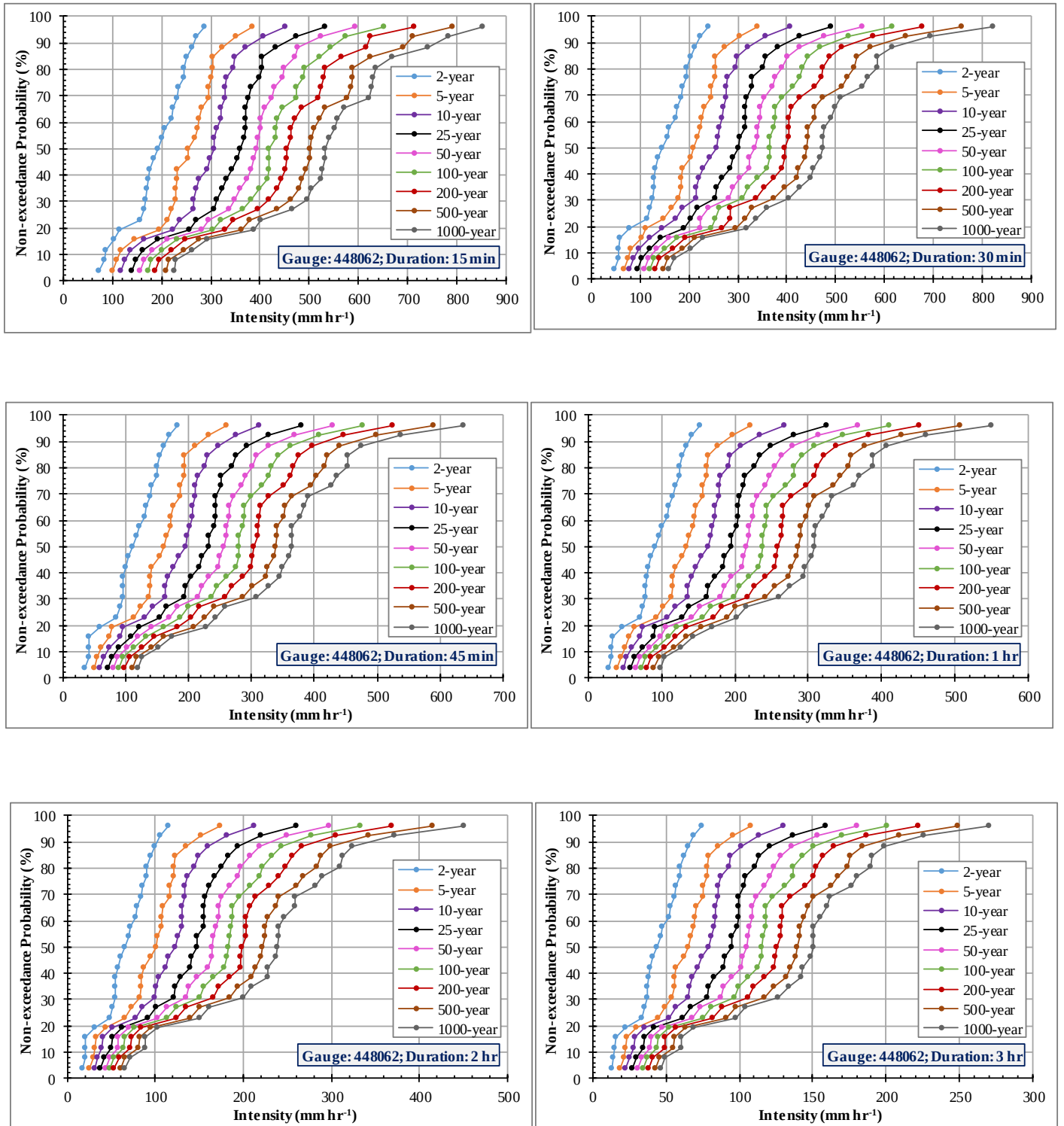


Figure 22. The probability-based intensity-duration-frequency (IDF) curves for gauge 445880.



[Figure 23. The probability-based intensity-duration-frequency (IDF) curves for gauge 448062]

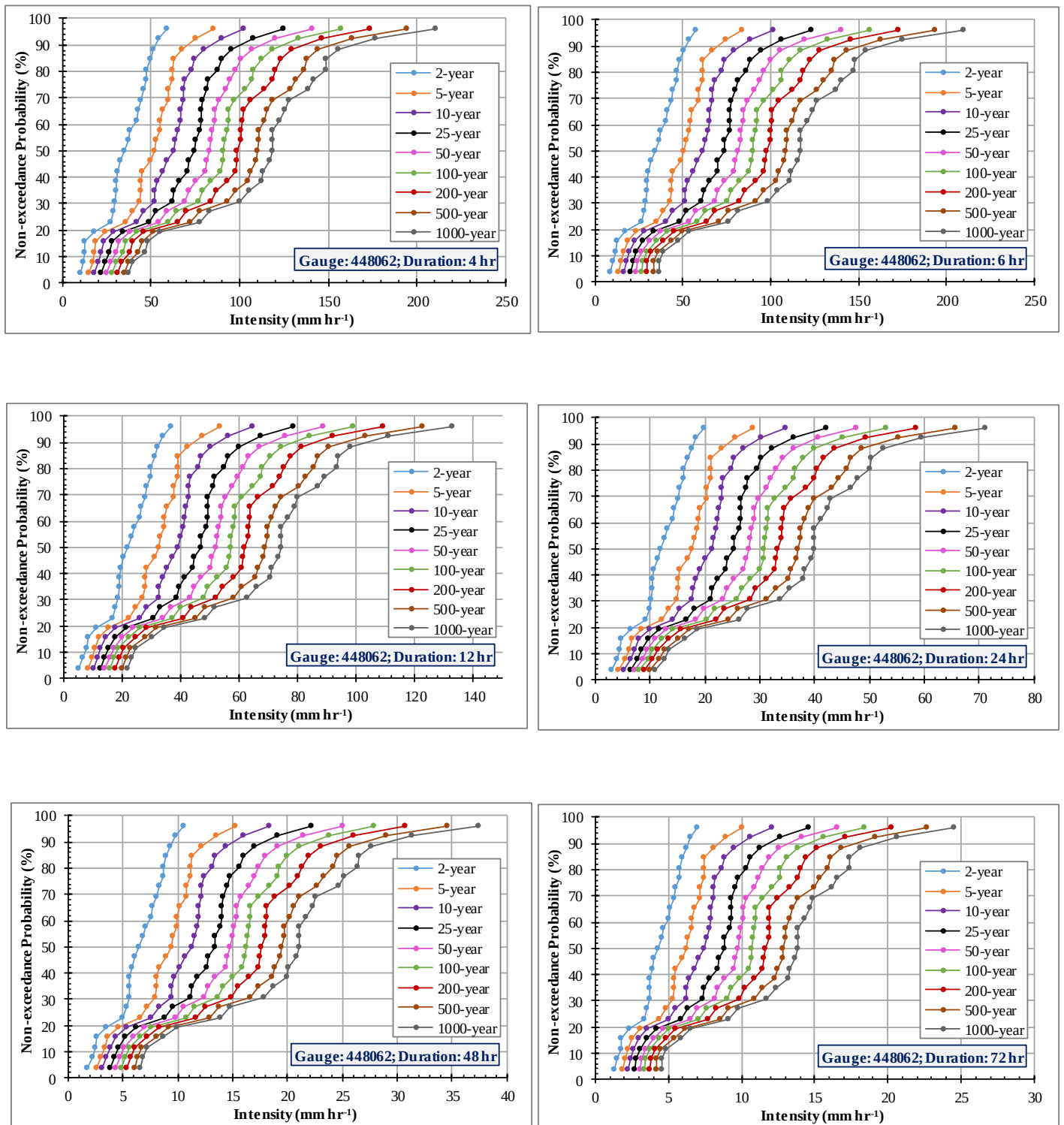
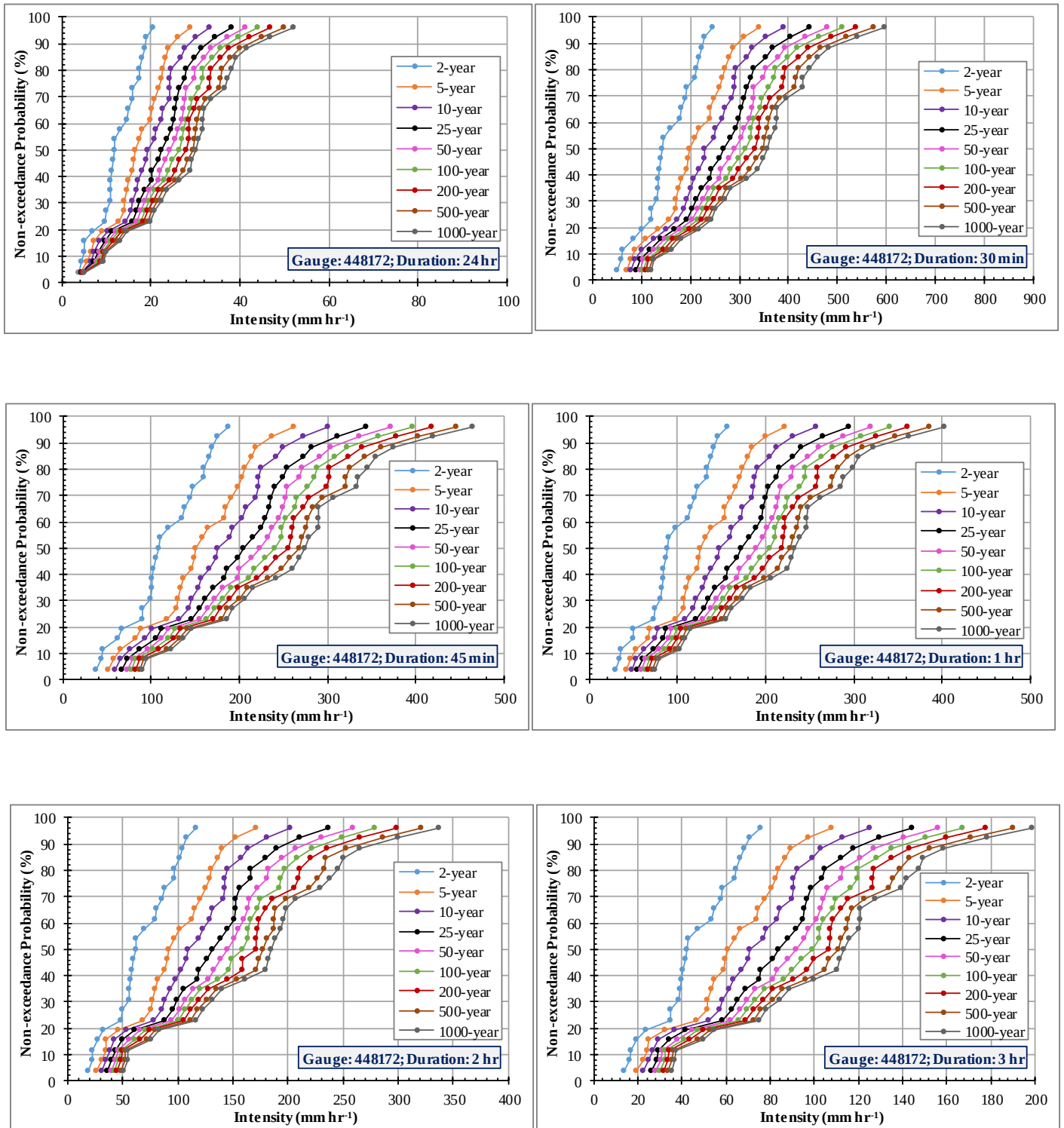


Figure 23. The probability-based intensity-duration-frequency (IDF) curves for gauge 448062.



[Figure 24. The probability-based intensity-duration-frequency (IDF) curves for gauge 448172]

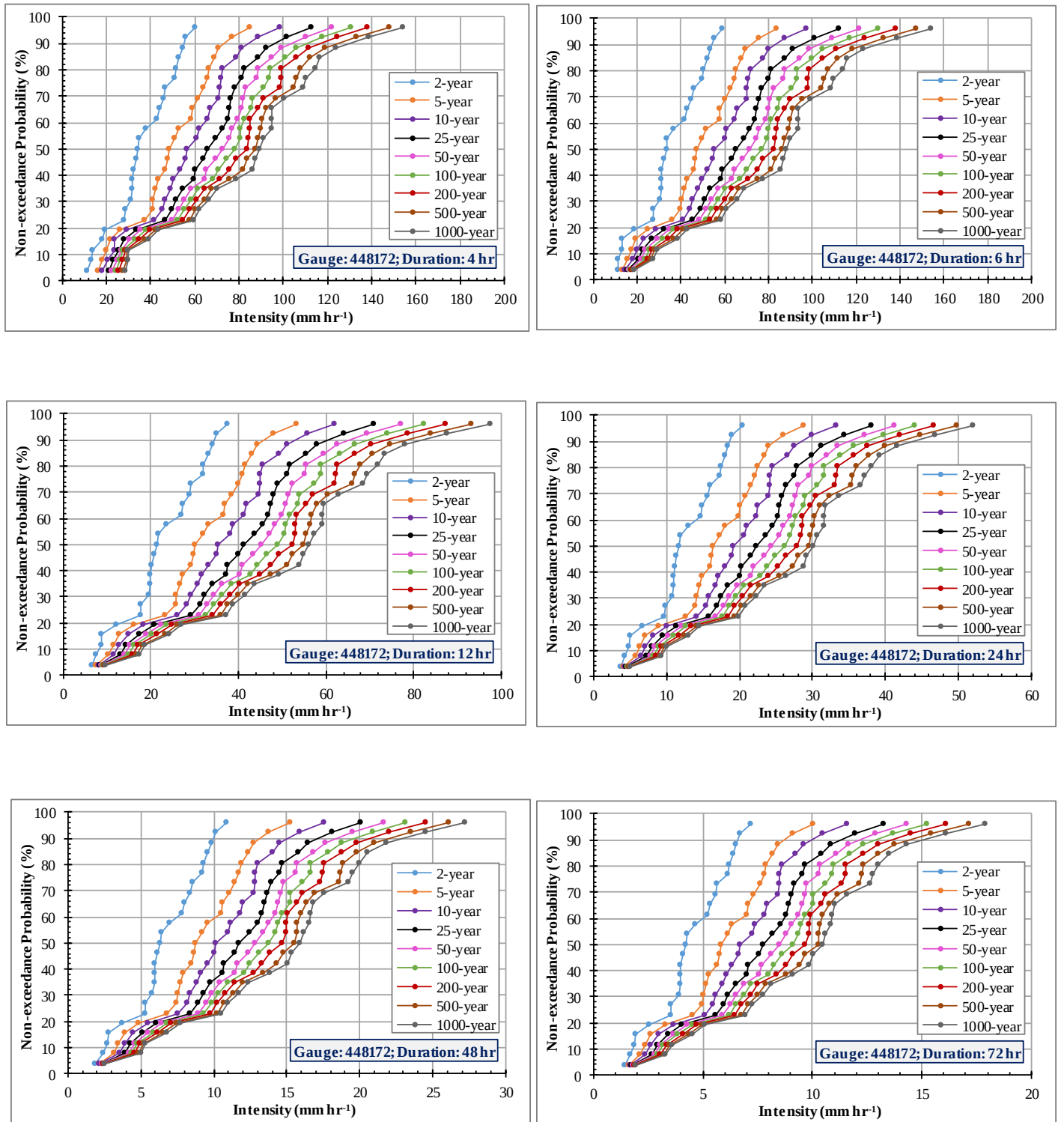
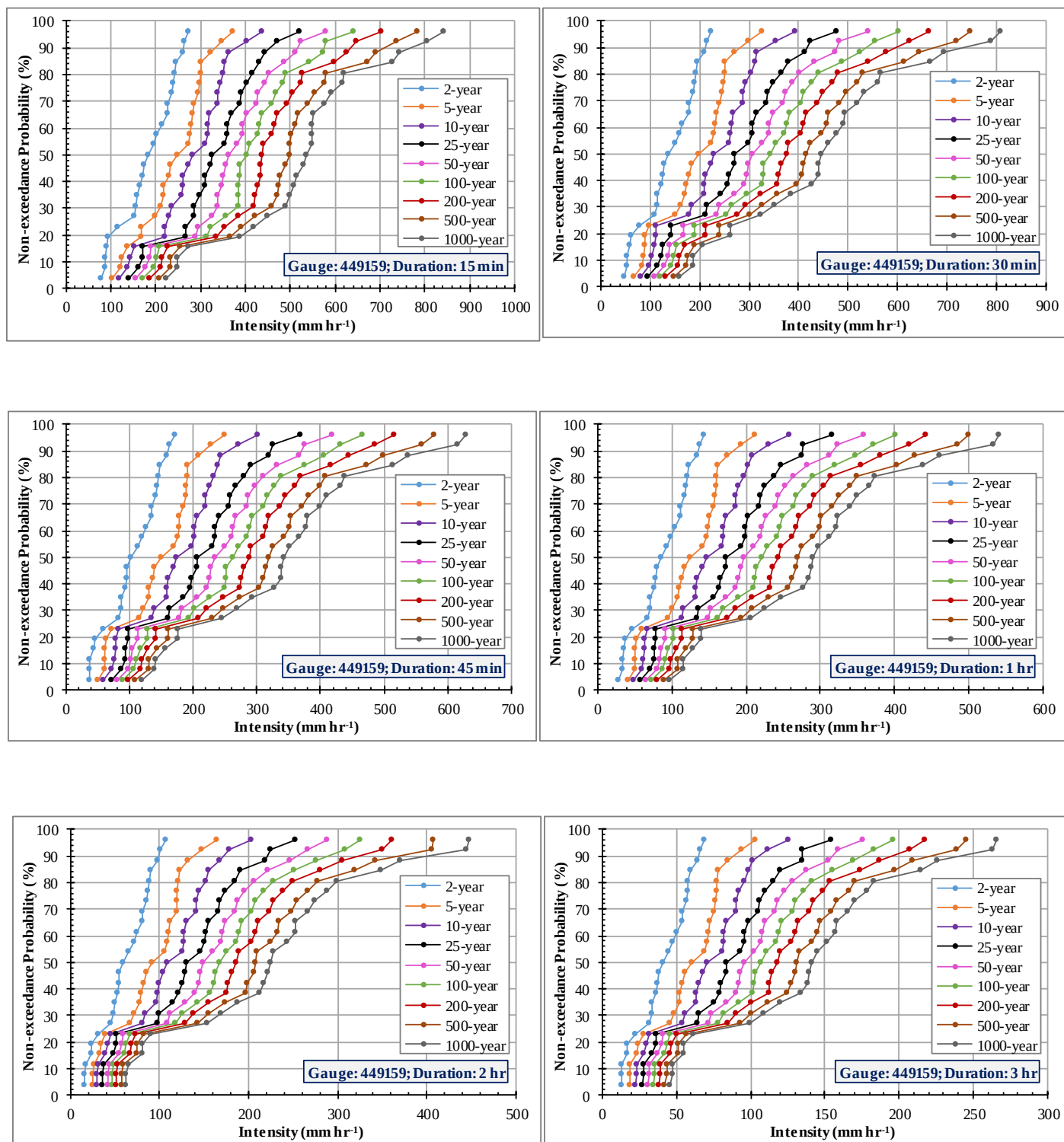


Figure 24. The probability-based intensity-duration-frequency (IDF) curves for gauge 448172.



[Figure 25. The probability-based intensity-duration-frequency (IDF) curves for gauge 449159]

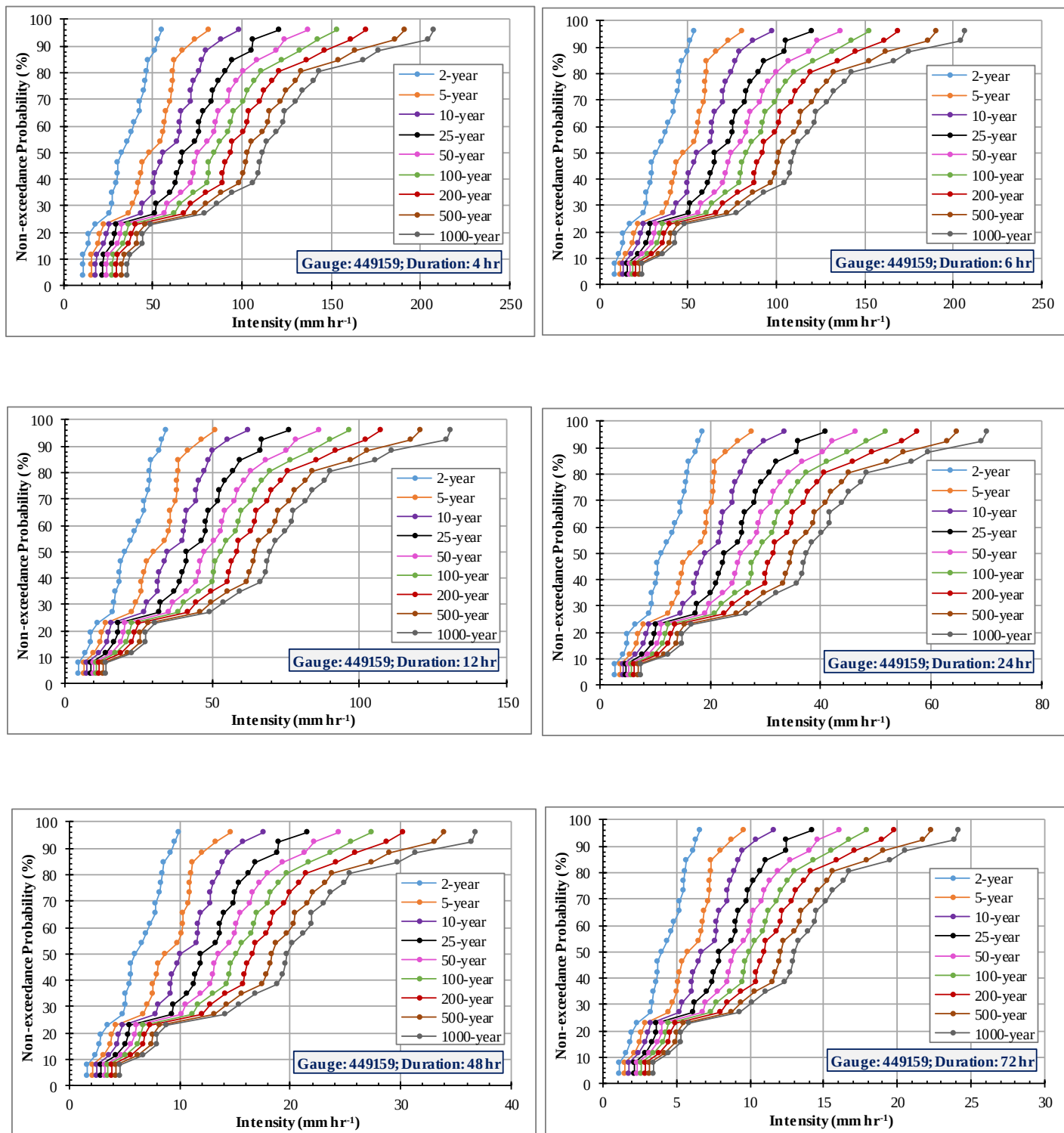


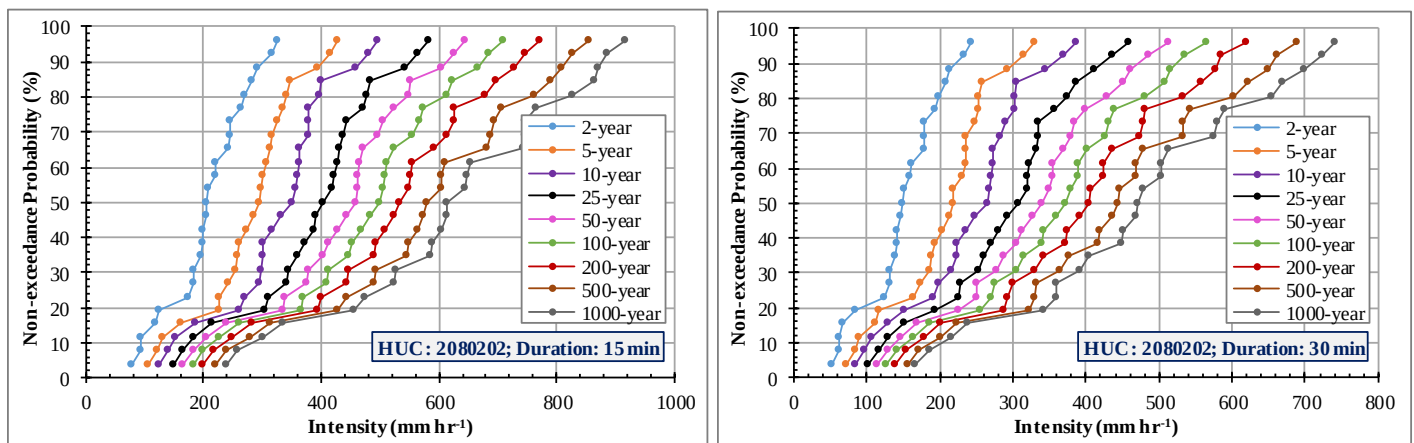
Figure 25. The probability-based intensity-duration-frequency (IDF) curves for gauge 449159.

### 3.6 The Watershed-Level Probability-Based IDF Curves

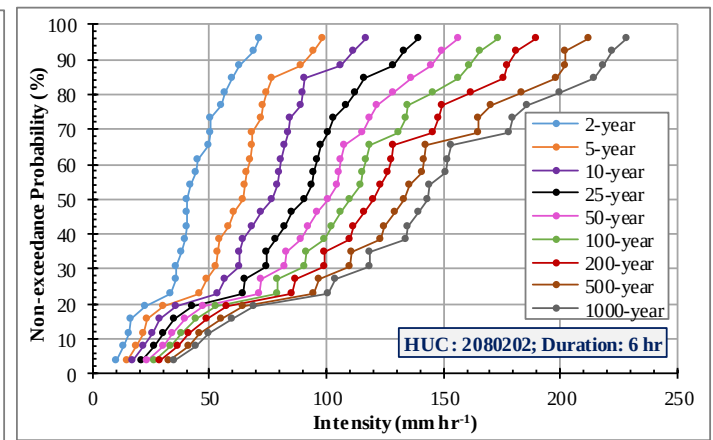
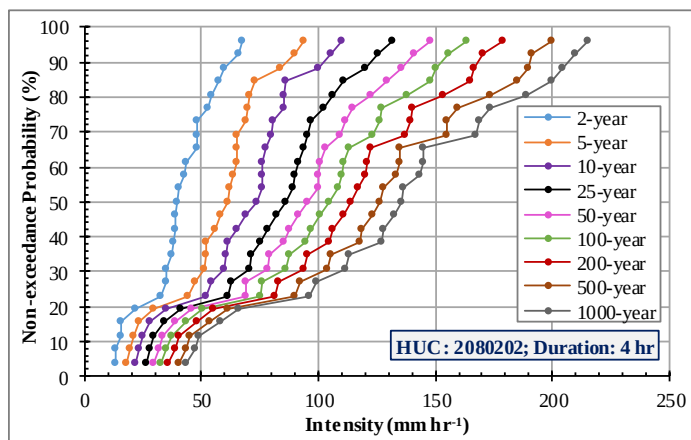
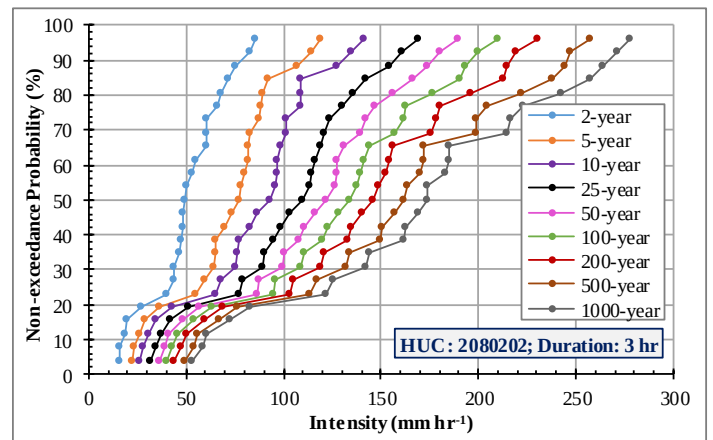
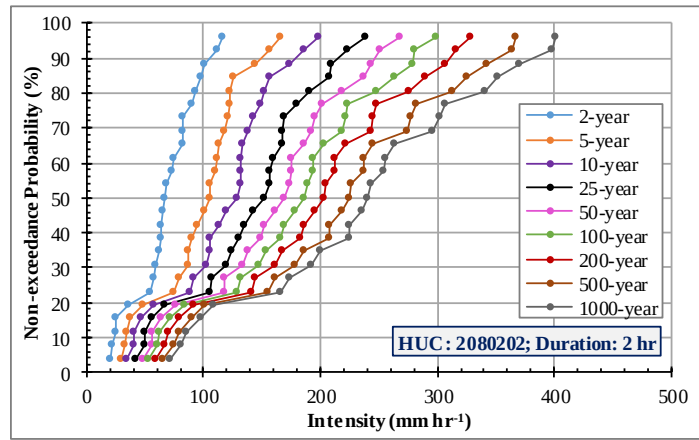
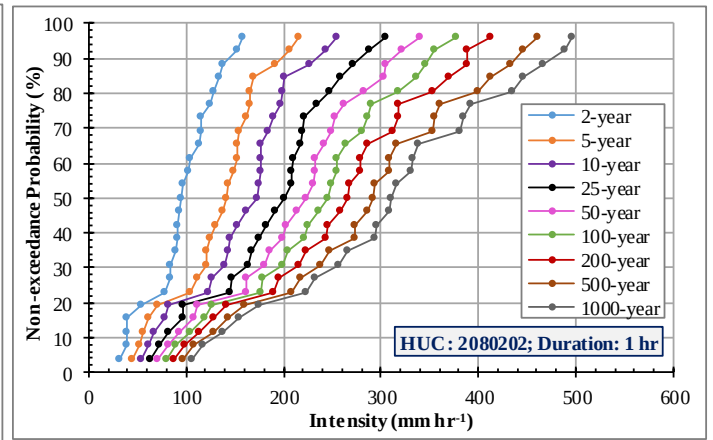
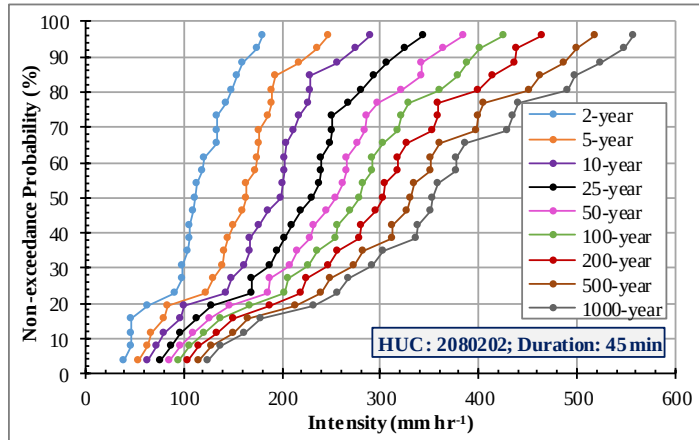
Figure 26 shows the probability-based IDF curves (tabulated in Appendix V) for HUC 2080202. This watershed was subdivided into eight polygons that are controlled by the gauges listed in section 3.5. The curves' coefficients of variation range from 0.30 to 0.42 (Table 17). The dispersions of the IDF curves are not very different. However, as expected, for a given duration and/or a given return period, the dispersion of the watershed-level IDF curve is less than those of the responding gauge-level IDF curves. This is because the watershed-level IDF curve represents the overall average of the rainfall intensities at the gauges, smoothing out the localized peaks and troughs

Table 17. The dispersions of the probability-based intensity-duration-frequency (IDF) curves of HUC 2080202.

| Duration | Return Period |        |         |         |         |          |          |          |           |
|----------|---------------|--------|---------|---------|---------|----------|----------|----------|-----------|
|          | 2-year        | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |
| 15 min   | 0.33          | 0.30   | 0.30    | 0.30    | 0.31    | 0.31     | 0.31     | 0.32     | 0.32      |
| 30 min   | 0.36          | 0.34   | 0.33    | 0.34    | 0.34    | 0.34     | 0.34     | 0.35     | 0.35      |
| 45 min   | 0.36          | 0.34   | 0.34    | 0.34    | 0.34    | 0.35     | 0.35     | 0.35     | 0.36      |
| 1 h      | 0.37          | 0.35   | 0.35    | 0.36    | 0.36    | 0.36     | 0.37     | 0.37     | 0.37      |
| 2 h      | 0.40          | 0.39   | 0.39    | 0.40    | 0.40    | 0.41     | 0.41     | 0.41     | 0.42      |
| 3 h      | 0.40          | 0.38   | 0.38    | 0.39    | 0.39    | 0.40     | 0.40     | 0.40     | 0.40      |
| 4 h      | 0.40          | 0.39   | 0.39    | 0.40    | 0.40    | 0.40     | 0.41     | 0.41     | 0.41      |
| 6 h      | 0.40          | 0.39   | 0.39    | 0.40    | 0.40    | 0.40     | 0.41     | 0.41     | 0.41      |
| 12 h     | 0.40          | 0.39   | 0.39    | 0.40    | 0.40    | 0.40     | 0.41     | 0.41     | 0.41      |
| 24 h     | 0.39          | 0.38   | 0.38    | 0.39    | 0.39    | 0.40     | 0.40     | 0.41     | 0.41      |
| 48 h     | 0.38          | 0.38   | 0.38    | 0.39    | 0.39    | 0.39     | 0.40     | 0.40     | 0.40      |
| 72 h     | 0.37          | 0.37   | 0.37    | 0.38    | 0.38    | 0.39     | 0.39     | 0.40     | 0.40      |



[Figure 26. The probability-based intensity-duration-frequency (IDF) curves for HUC 2080202]



[Figure 26. The probability-based intensity-duration-frequency (IDF) curves for HUC 2080202]

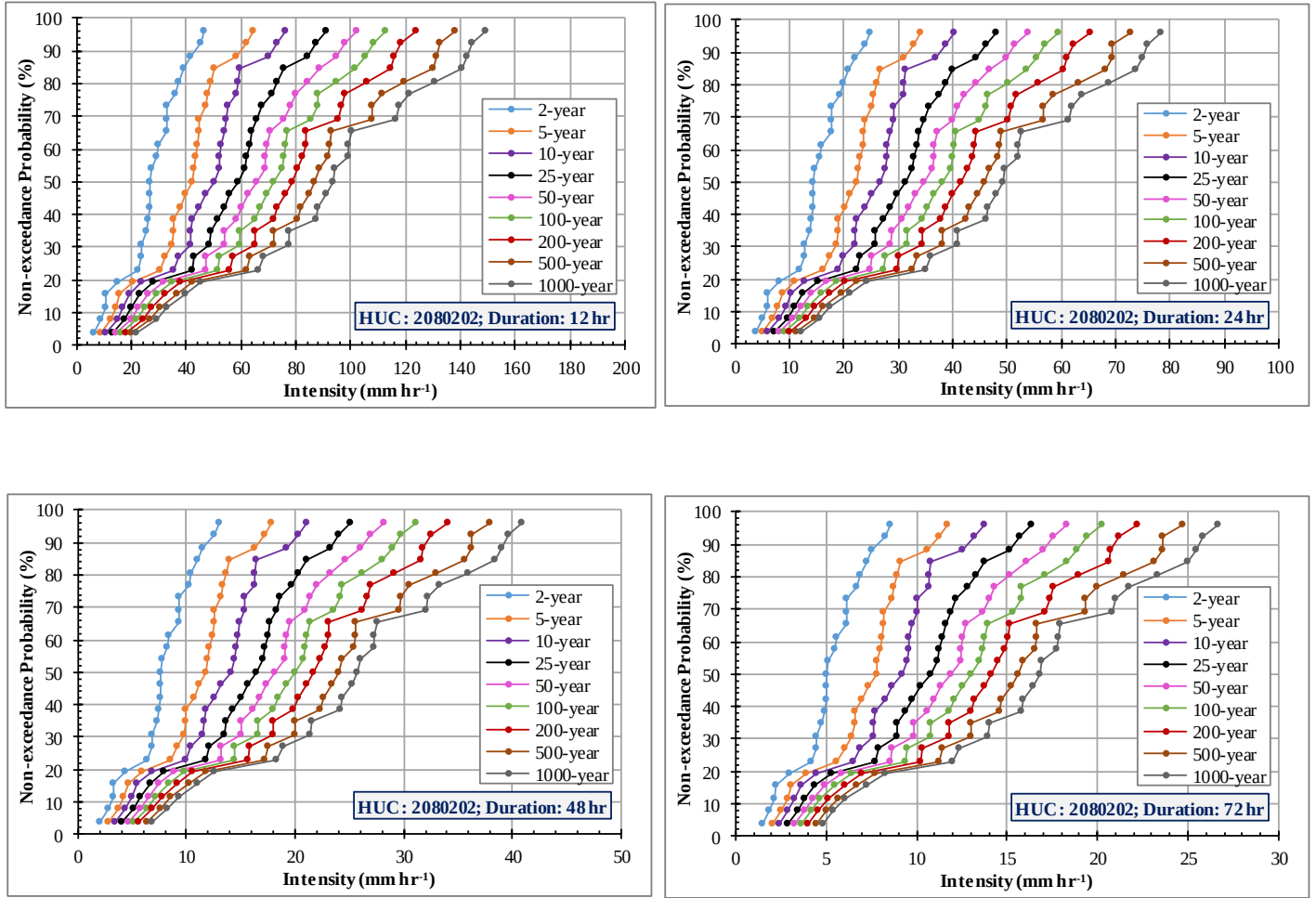


Figure 26. The probability-based intensity-duration-frequency (IDF) curves for HUC 2080202.

#### 4. CONCLUSIONS AND IMPLICATIONS FOR FUTURE RESEARCH

This project developed an innovative approach for creating gauge- and watershed-level probability-based (i.e., next-generation) intensity-duration-frequency (IDF) curves. This approach consisted of a variety of methods, spreadsheets, and computer scripts for filling missing values of precipitation, detecting temporal trends and non-stationarities, selecting best statistical distributions, downscaling and disaggregating predictions of the RCM-GCM models, and creating probability-based IDF curves. It requires observed historical data on 15-min precipitation at various gauges and predicted historical and future 3-h time series by the RCM-GCM models. Subsequently, this approach was applied to the state of Virginia to create the historical and next-generation IDF curves for 57 gauges and 53 Virginia 8-digit watersheds. Such IDF curves consider the non-stationarity at temporal and spatial scales relevant to improving future DoD infrastructure planning processes and can be a useful tool for DoD to construct and/or manage its hydrology-influenced infrastructure in changing climate in guarding against over- or under-committing resources. The preliminary results indicate that the project objectives (i.e., proofs of concept) have been successfully achieved.

For the state of Virginia, the annual maximum durational intensities tended to decrease, but they did not experience any significant step change. The decreasing trends have caused the intensities at four gauges, but are expected to cause intensities at more gauges, to become non-stationary. The intensities tended to follow a normal distribution with increase of duration. Overall, the intensity for a longer duration had a smaller interannual variation than that for a shorter duration, implying that using a historic IDF curve, the structures that are controlled by a design peak discharge will likely be oversized, whereas, the structures that are controlled by a design runoff volume will probably be undersized. Regardless of the durations, the southwestern portions of the Northern and Western Piedmont divisions and the middle portion of the Central Mountain division tended to get more and more intense storm events in comparison with the coastal plain. In addition, the intensities at the gauges either follow a Gumbel or Weibull distribution, while the best distribution for a watershed might be assumed to be same as that for the control rain gauges, which account for most of the watershed drainage area. Based on these two types of distributions, the gauge- and watershed-level historic IDF curves were created. Further, the predictions of the 13 RCMs were spatially downscaled to the rain gauges and then temporally disaggregated into 15-min precipitations. However, limited by the project time, the probability based IDF curves were created for eight gauges and one watershed only.

Although this project fulfilled its initial objectives, a follow-on project will be crucial to make the probability-based IDF curves applicable in practice by pursuing the following issues that were raised during this project period.

*First*, the datasets on 15-min precipitation have a significant number of missing values. As glimpsed by a NOAA's senior hydro-meteorologist in an email communication, the number of missing values tended to become large for the record years after 2010 and some recorded time periods might be longer than 15 min. A follow-on research will enable us to scrutinize the accuracy of the recorded values by consulting relevant NOAA scientists. In addition, we will systematically compare the historical gauge-level IDF curves with the NOAA PPFEs to elucidate the reasons for any noted discrepancies.

*Second*, this project developed regression equations using predictions by one RCM-GCM model. With the assumption that the equations were independent of the RCM-GCM models, this same set of equations were used to downscale and disaggregate the predictions made by each model. A follow-on research will enable us to validate such an assumption by comparing the regression equations to be developed using the predictions by the twelve RCM-GCM models. Also, we will develop methods to quantify uncertainties in the downscaled and disaggregated data and then incorporate the uncertainties into the creation of next-generation IDF curves.

*Third*, limited by time, this project created the probability-based IDF curves for eight gauges and one watershed only. A follow-on research will allow us to generate probability-based IDF curves (totaling 1210 sets) for all 57 gauges and 53 watersheds in Virginia. Also, we will apply this approach to other DoD concerned regions, such as Maryland.

*Finally*, A follow-on research will allow us to standardize the spreadsheets and computer scripts generated in this project to develop user-friendly software tools that can be used by others to create next-generation IDF curves for the regions of their interest.

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## APPENDICES

### I. The K-S Test Results for Selecting Best Distributions

| Rain Gauge ID | Distribution & Critical Value | K-S Test Statistics for Duration (min) |         |         |         |         |         |         |         |         |         |         |         | Best Distribution | Gross   |          |         |
|---------------|-------------------------------|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|----------|---------|
|               |                               | 15                                     | 30      | 45      | 60      | 120     | 180     | 240     | 360     | 720     | 1440    | 2880    | 4320    |                   | Minimum | Sum      | Maximum |
| 446475        | Gumbel                        | 0.07                                   | 0.07    | 0.08    | 0.11    | 0.04    | 0.07    | 0.10    | 0.06    | 0.11    | 0.06    | 0.06    | 0.10    | Gumbel            | 0.93    | 0.93     | 0.11    |
|               | Weibull                       | 0.06                                   | 0.03    | 0.04    | 0.06    | 0.04    | 0.09    | 0.14    | 0.10    | 0.14    | 0.10    | 0.07    | 0.12    |                   |         | 0.99     | 0.14    |
|               | Fréchet                       | 0.30                                   | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 0.21    | 0.28    | 0.25    | 9999.00 | 0.24    | 9999.00 | 0.23    |                   |         | 59995.51 | 9999    |
|               | Critical Value                | 0.38                                   | 0.34    | 0.35    | 0.33    | 0.29    | 0.33    | 0.33    | 0.29    | 0.28    | 0.26    | 0.26    | 0.26    |                   |         | 3.7      | 0.38    |
| 448800        | Gumbel                        | 0.06                                   | 0.12    | 0.09    | 0.14    | 0.09    | 0.09    | 0.13    | 0.09    | 0.09    | 0.11    | 0.09    | 0.06    | Weibull           | 1.01    | 1.16     | 0.14    |
|               | Weibull                       | 0.06                                   | 0.08    | 0.06    | 0.10    | 0.07    | 0.06    | 0.09    | 0.07    | 0.12    | 0.10    | 0.11    | 0.09    |                   |         | 1.01     | 0.12    |
|               | Fréchet                       | 9999.00                                | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 0.23    | 0.26    |                   |         | 99990.49 | 9999    |
|               | Critical Value                | 0.35                                   | 0.31    | 0.33    | 0.32    | 0.33    | 0.29    | 0.29    | 0.31    | 0.28    | 0.28    | 0.27    | 0.28    |                   |         | 3.64     | 0.35    |
| 449151        | Gumbel                        | 0.09                                   | 0.08    | 0.04    | 0.04    | 0.06    | 0.09    | 0.08    | 0.07    | 0.13    | 0.20    | 0.13    | 0.16    | Gumbel            | 1.17    | 1.17     | 0.2     |
|               | Weibull                       | 0.08                                   | 0.06    | 0.06    | 0.06    | 0.09    | 0.10    | 0.10    | 0.08    | 0.17    | 0.18    | 0.12    | 0.15    |                   |         | 1.25     | 0.18    |
|               | Fréchet                       | 0.28                                   | 0.31    | 9999.00 | 0.17    | 9999.00 | 9999.00 | 9999.00 | 0.26    | 0.19    | 9999.00 | 9999.00 | 9999.00 |                   |         | 69994.21 | 9999    |
|               | Critical Value                | 0.34                                   | 0.31    | 0.32    | 0.29    | 0.28    | 0.29    | 0.26    | 0.26    | 0.30    | 0.25    | 0.25    | 0.24    |                   |         | 3.39     | 0.34    |
| 448129        | Gumbel                        | 0.25                                   | 0.21    | 0.21    | 0.21    | 0.20    | 0.18    | 0.21    | 0.08    | 0.09    | 0.11    | 0.13    | 0.08    | Weibull           | 1.89    | 1.96     | 0.25    |
|               | Weibull                       | 0.21                                   | 0.16    | 0.17    | 0.18    | 0.18    | 0.19    | 0.24    | 0.13    | 0.10    | 0.11    | 0.11    | 0.11    |                   |         | 1.89     | 0.24    |
|               | Fréchet                       | 0.34                                   | 0.31    | 0.28    | 0.34    | 0.30    | 0.30    | 0.31    | 0.32    | 0.32    | 0.29    | 0.42    | 0.24    |                   |         | 3.77     | 0.42    |
|               | Critical Value                | 0.52                                   | 0.45    | 0.45    | 0.48    | 0.56    | 0.52    | 0.48    | 0.45    | 0.56    | 0.45    | 0.45    | 0.45    |                   |         | 5.82     | 0.56    |
| 440778        | Gumbel                        |                                        |         |         |         |         |         |         |         |         |         |         |         | Gumbel            |         |          |         |
|               | Weibull                       |                                        |         |         |         |         |         |         |         |         |         |         |         |                   |         |          |         |
|               | Fréchet                       |                                        |         |         |         |         |         |         |         |         |         |         |         |                   |         |          |         |
|               | Critical Value                |                                        |         |         |         |         |         |         |         |         |         |         |         |                   |         |          |         |
| 440993        | Gumbel                        | 0.09                                   | 0.12    | 0.09    | 0.05    | 0.06    | 0.12    | 0.09    | 0.08    | 0.09    | 0.06    | 0.08    | 0.09    | Gumbel            | 1.02    | 1.02     | 0.12    |
|               | Weibull                       | 0.07                                   | 0.09    | 0.06    | 0.06    | 0.08    | 0.13    | 0.12    | 0.10    | 0.11    | 0.06    | 0.10    | 0.12    |                   |         | 1.1      | 0.13    |
|               | Fréchet                       | 0.38                                   | 9999.00 | 9999.00 | 9999.00 | 0.20    | 9999.00 | 0.25    | 0.23    | 9999.00 | 9999.00 | 0.27    | 0.16    |                   |         | 59995.49 | 9999    |
|               | Critical Value                | 0.43                                   | 0.35    | 0.35    | 0.31    | 0.32    | 0.32    | 0.31    | 0.32    | 0.31    | 0.29    | 0.28    | 0.29    |                   |         | 3.88     | 0.43    |

| Rain Gauge ID | Distribution & Critical Value | K-S Test Statistics for Duration (min) |         |         |      |      |         |         |         |         |         |         |         | Best Distribution | Gross   |          |         |  |
|---------------|-------------------------------|----------------------------------------|---------|---------|------|------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|----------|---------|--|
|               |                               | 15                                     | 30      | 45      | 60   | 120  | 180     | 240     | 360     | 720     | 1440    | 2880    | 4320    |                   | Minimum | Sum      | Maximum |  |
| 441322        | Gumbel                        | 0.13                                   | 0.14    | 0.11    | 0.05 | 0.07 | 0.06    | 0.06    | 0.08    | 0.10    | 0.10    | 0.13    | 0.11    | Gumbel            | 1.14    | 1.14     | 0.14    |  |
|               | Weibull                       | 0.12                                   | 0.15    | 0.13    | 0.08 | 0.10 | 0.07    | 0.09    | 0.11    | 0.08    | 0.07    | 0.07    | 0.07    |                   |         | 1.14     | 0.15    |  |
|               | Fréchet                       | 0.25                                   | 9999.00 | 9999.00 | 0.32 | 0.30 | 9999.00 | 0.19    | 0.24    | 9999.00 | 9999.00 | 9999.00 | 9999.00 |                   |         | 69994.3  | 9999    |  |
|               | Critical Value                | 0.35                                   | 0.33    | 0.33    | 0.32 | 0.30 | 0.29    | 0.29    | 0.28    | 0.26    | 0.25    | 0.28    | 0.26    |                   |         | 3.54     | 0.35    |  |
| 441929        | Gumbel                        | 0.08                                   | 0.07    | 0.07    | 0.14 | 0.14 | 0.12    | 0.09    | 0.11    | 0.19    | 0.19    | 0.17    | 0.11    | Gumbel            | 1.48    | 1.48     | 0.19    |  |
|               | Weibull                       | 0.07                                   | 0.09    | 0.11    | 0.13 | 0.16 | 0.13    | 0.11    | 0.13    | 0.20    | 0.22    | 0.18    | 0.13    |                   |         | 1.66     | 0.22    |  |
|               | Fréchet                       | 0.34                                   | 0.34    | 0.23    | 0.34 | 0.29 | 0.28    | 0.28    | 0.26    | 0.22    | 0.32    | 0.32    | 0.25    |                   |         | 3.47     | 0.34    |  |
|               | Critical Value                | 0.48                                   | 0.48    | 0.43    | 0.48 | 0.41 | 0.39    | 0.39    | 0.36    | 0.35    | 0.36    | 0.35    | 0.35    |                   |         | 4.83     | 0.48    |  |
| 442941        | Gumbel                        |                                        |         |         |      |      |         |         |         |         |         |         |         | Weibull           |         |          |         |  |
|               | Weibull                       |                                        |         |         |      |      |         |         |         |         |         |         |         |                   |         |          |         |  |
|               | Fréchet                       |                                        |         |         |      |      |         |         |         |         |         |         |         |                   |         |          |         |  |
|               | Critical Value                |                                        |         |         |      |      |         |         |         |         |         |         |         |                   |         |          |         |  |
| 443192        | Gumbel                        | 0.17                                   | 0.09    | 0.17    | 0.08 | 0.10 | 0.13    | 0.09    | 0.10    | 0.15    | 0.13    | 0.12    | 0.13    | Weibull           | 1.4     | 1.46     | 0.17    |  |
|               | Weibull                       | 0.16                                   | 0.10    | 0.14    | 0.09 | 0.12 | 0.17    | 0.13    | 0.08    | 0.11    | 0.09    | 0.08    | 0.13    |                   |         | 1.4      | 0.17    |  |
|               | Fréchet                       | 0.25                                   | 0.40    | 0.29    | 0.33 | 0.22 | 0.22    | 0.15    | 0.26    | 9999.00 | 9999.00 | 0.15    | 0.26    |                   |         | 20000.53 | 9999    |  |
|               | Critical Value                | 0.62                                   | 0.52    | 0.56    | 0.45 | 0.56 | 0.52    | 0.52    | 0.52    | 0.48    | 0.45    | 0.48    | 0.48    |                   |         | 6.16     | 0.62    |  |
| 443200        | Gumbel                        |                                        |         |         |      |      |         |         |         |         |         |         |         | Weibull           |         |          |         |  |
|               | Weibull                       |                                        |         |         |      |      |         |         |         |         |         |         |         |                   |         |          |         |  |
|               | Fréchet                       |                                        |         |         |      |      |         |         |         |         |         |         |         |                   |         |          |         |  |
|               | Critical Value                |                                        |         |         |      |      |         |         |         |         |         |         |         |                   |         |          |         |  |
| 444414        | Gumbel                        | 0.16                                   | 0.14    | 0.08    | 0.06 | 0.05 | 0.06    | 0.08    | 0.08    | 0.04    | 0.07    | 0.07    | 0.06    | Gumbel            | 0.95    | 0.95     | 0.16    |  |
|               | Weibull                       | 0.12                                   | 0.12    | 0.07    | 0.06 | 0.07 | 0.07    | 0.07    | 0.09    | 0.08    | 0.09    | 0.09    | 0.09    |                   |         | 1.02     | 0.12    |  |
|               | Fréchet                       | 9999.00                                | 9999.00 | 0.24    | 0.25 | 0.19 | 0.23    | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 |                   |         | 79992.91 | 9999    |  |
|               | Critical Value                | 0.32                                   | 0.30    | 0.29    | 0.27 | 0.26 | 0.26    | 0.28    | 0.26    | 0.27    | 0.26    | 0.25    | 0.26    |                   |         | 3.28     | 0.32    |  |

| Rain Gauge ID | Distribution & Critical Value | K-S Test Statistics for Duration (min) |      |      |      |         |         |         |         |         |         |         |         | Best Distribution | Gross   |          |         |
|---------------|-------------------------------|----------------------------------------|------|------|------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|----------|---------|
|               |                               | 15                                     | 30   | 45   | 60   | 120     | 180     | 240     | 360     | 720     | 1440    | 2880    | 4320    |                   | Minimum | Sum      | Maximum |
| 440166        | Gumbel                        | 0.07                                   | 0.06 | 0.05 | 0.08 | 0.07    | 0.07    | 0.07    | 0.07    | 0.09    | 0.10    | 0.07    | 0.10    | Gumbel            | 0.9     | 0.9      | 0.1     |
|               | Weibull                       | 0.07                                   | 0.08 | 0.06 | 0.11 | 0.10    | 0.12    | 0.12    | 0.14    | 0.12    | 0.13    | 0.09    | 0.10    |                   |         | 1.24     | 0.14    |
|               | Fréchet                       | 0.23                                   | 0.25 | 0.26 | 0.17 | 9999.00 | 0.23    | 9999.00 | 0.25    | 9999.00 | 0.18    | 0.18    | 9999.00 |                   |         | 39997.75 | 9999    |
|               | Critical Value                | 0.31                                   | 0.30 | 0.29 | 0.29 | 0.31    | 0.29    | 0.29    | 0.29    | 0.30    | 0.30    | 0.28    | 0.28    |                   |         | 3.53     | 0.31    |
| 441614        | Gumbel                        | 0.14                                   | 0.12 | 0.09 | 0.06 | 0.05    | 0.05    | 0.07    | 0.06    | 0.07    | 0.07    | 0.05    | 0.07    | Gumbel            | 0.9     | 0.9      | 0.14    |
|               | Weibull                       | 0.11                                   | 0.12 | 0.10 | 0.08 | 0.06    | 0.06    | 0.07    | 0.05    | 0.06    | 0.07    | 0.08    | 0.06    |                   |         | 0.92     | 0.12    |
|               | Fréchet                       | 0.27                                   | 0.28 | 0.23 | 0.28 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 |                   |         | 79993.06 | 9999    |
|               | Critical Value                | 0.34                                   | 0.33 | 0.31 | 0.29 | 0.29    | 0.29    | 0.28    | 0.28    | 0.26    | 0.25    | 0.24    | 0.25    |                   |         | 3.41     | 0.34    |
| 446178        | Gumbel                        | 0.15                                   | 0.16 | 0.12 | 0.11 | 0.09    | 0.12    | 0.08    | 0.08    | 0.11    | 0.14    | 0.13    | 0.08    | Gumbel            | 1.37    | 1.37     | 0.16    |
|               | Weibull                       | 0.16                                   | 0.18 | 0.14 | 0.13 | 0.10    | 0.13    | 0.10    | 0.09    | 0.16    | 0.18    | 0.17    | 0.12    |                   |         | 1.66     | 0.18    |
|               | Fréchet                       | 0.36                                   | 0.34 | 0.26 | 0.27 | 0.24    | 0.29    | 0.29    | 9999.00 | 0.30    | 0.22    | 0.20    | 0.26    |                   |         | 10002.03 | 9999    |
|               | Critical Value                | 0.43                                   | 0.38 | 0.36 | 0.34 | 0.38    | 0.35    | 0.33    | 0.32    | 0.31    | 0.32    | 0.32    | 0.33    |                   |         | 4.17     | 0.43    |
| 446692        | Gumbel                        | 0.17                                   | 0.15 | 0.13 | 0.09 | 0.08    | 0.04    | 0.05    | 0.06    | 0.07    | 0.06    | 0.08    | 0.06    | Gumbel            | 1.04    | 1.04     | 0.17    |
|               | Weibull                       | 0.18                                   | 0.15 | 0.13 | 0.11 | 0.12    | 0.07    | 0.10    | 0.06    | 0.11    | 0.10    | 0.08    | 0.09    |                   |         | 1.3      | 0.18    |
|               | Fréchet                       | 0.32                                   | 0.20 | 0.20 | 0.21 | 0.24    | 0.30    | 9999.00 | 9999.00 | 0.28    | 0.21    | 9999.00 | 0.20    |                   |         | 29999.16 | 9999    |
|               | Critical Value                | 0.39                                   | 0.35 | 0.36 | 0.33 | 0.33    | 0.30    | 0.30    | 0.28    | 0.28    | 0.26    | 0.26    | 0.25    |                   |         | 3.69     | 0.39    |
| 447025        | Gumbel                        | 0.14                                   | 0.14 | 0.09 | 0.10 | 0.08    | 0.09    | 0.13    | 0.16    | 0.17    | 0.12    | 0.21    | 0.20    | Weibull           | 1.38    | 1.63     | 0.21    |
|               | Weibull                       | 0.12                                   | 0.12 | 0.06 | 0.09 | 0.09    | 0.06    | 0.11    | 0.16    | 0.14    | 0.10    | 0.17    | 0.16    |                   |         | 1.38     | 0.17    |
|               | Fréchet                       | 0.33                                   | 0.28 | 0.27 | 0.25 | 0.17    | 9999.00 | 0.24    | 0.31    | 0.34    | 0.37    | 0.39    | 9999.00 |                   |         | 20000.95 | 9999    |
|               | Critical Value                | 0.41                                   | 0.48 | 0.41 | 0.43 | 0.41    | 0.39    | 0.43    | 0.43    | 0.39    | 0.41    | 0.39    | 0.41    |                   |         | 4.99     | 0.48    |
| 447338        | Gumbel                        | 0.28                                   | 0.25 | 0.20 | 0.23 | 0.14    | 0.15    | 0.17    | 0.15    | 0.16    | 0.13    | 0.07    | 0.10    | Gumbel            | 2.03    | 2.03     | 0.28    |
|               | Weibull                       | 0.26                                   | 0.24 | 0.24 | 0.23 | 0.17    | 0.16    | 0.19    | 0.17    | 0.18    | 0.17    | 0.10    | 0.11    |                   |         | 2.22     | 0.26    |
|               | Fréchet                       | 0.34                                   | 0.13 | 0.12 | 0.06 | 0.06    | 0.21    | 0.13    | 0.28    | 9999.00 | 0.26    | 0.20    | 9999.00 |                   |         | 19999.79 | 9999    |
|               | Critical Value                | 0.36                                   | 0.33 | 0.34 | 0.34 | 0.29    | 0.31    | 0.29    | 0.28    | 0.29    | 0.27    | 0.26    | 0.26    |                   |         | 3.62     | 0.36    |

| Rain Gauge ID | Distribution & Critical Value | K-S Test Statistics for Duration (min) |      |         |         |      |         |         |         |         |         |         |         | Best Distribution | Gross   |          |         |
|---------------|-------------------------------|----------------------------------------|------|---------|---------|------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|----------|---------|
|               |                               | 15                                     | 30   | 45      | 60      | 120  | 180     | 240     | 360     | 720     | 1440    | 2880    | 4320    |                   | Minimum | Sum      | Maximum |
| 449272        | Gumbel                        | 0.21                                   | 0.21 | 0.24    | 0.19    | 0.14 | 0.17    | 0.17    | 0.17    | 0.13    | 0.06    | 0.12    | 0.10    | Gumbel            | 1.91    | 1.91     | 0.24    |
|               | Weibull                       | 0.20                                   | 0.21 | 0.23    | 0.20    | 0.17 | 0.20    | 0.17    | 0.20    | 0.17    | 0.12    | 0.12    | 0.08    |                   |         | 2.07     | 0.23    |
|               | Fréchet                       | 9999.00                                | 0.33 | 0.32    | 9999.00 | 0.32 | 9999.00 | 0.31    | 9999.00 | 0.19    | 9999.00 | 9999.00 | 9999.00 |                   |         | 69994.47 | 9999    |
|               | Critical Value                | 0.34                                   | 0.35 | 0.33    | 0.30    | 0.32 | 0.30    | 0.31    | 0.29    | 0.30    | 0.27    | 0.28    | 0.27    |                   |         | 3.66     | 0.35    |
| 440561        | Gumbel                        | 0.11                                   | 0.06 | 0.06    | 0.10    | 0.06 | 0.09    | 0.08    | 0.09    | 0.07    | 0.11    | 0.10    | 0.09    | Gumbel            | 1.02    | 1.02     | 0.11    |
|               | Weibull                       | 0.10                                   | 0.08 | 0.05    | 0.11    | 0.09 | 0.12    | 0.12    | 0.11    | 0.12    | 0.14    | 0.15    | 0.10    |                   |         | 1.29     | 0.15    |
|               | Fréchet                       | 0.22                                   | 0.23 | 0.30    | 0.28    | 0.22 | 0.22    | 0.30    | 0.39    | 0.32    | 0.26    | 0.33    | 0.13    |                   |         | 3.2      | 0.39    |
|               | Critical Value                | 0.43                                   | 0.39 | 0.38    | 0.39    | 0.38 | 0.36    | 0.36    | 0.39    | 0.36    | 0.34    | 0.36    | 0.34    |                   |         | 4.48     | 0.43    |
| 445690        | Gumbel                        | 0.17                                   | 0.16 | 0.15    | 0.09    | 0.07 | 0.05    | 0.10    | 0.05    | 0.05    | 0.07    | 0.08    | 0.07    | Weibull           | 1.08    | 1.11     | 0.17    |
|               | Weibull                       | 0.13                                   | 0.13 | 0.13    | 0.08    | 0.06 | 0.04    | 0.07    | 0.06    | 0.08    | 0.10    | 0.10    | 0.10    |                   |         | 1.08     | 0.13    |
|               | Fréchet                       | 9999.00                                | 0.32 | 9999.00 | 0.29    | 0.24 | 9999.00 | 9999.00 | 0.27    | 0.23    | 0.20    | 9999.00 | 0.20    |                   |         | 49996.75 | 9999    |
|               | Critical Value                | 0.32                                   | 0.32 | 0.31    | 0.30    | 0.29 | 0.28    | 0.29    | 0.28    | 0.25    | 0.26    | 0.27    | 0.25    |                   |         | 3.42     | 0.32    |
| 442159        | Gumbel                        | 0.26                                   | 0.20 | 0.16    | 0.12    | 0.11 | 0.11    | 0.11    | 0.13    | 0.06    | 0.13    | 0.09    | 0.08    | Gumbel            | 1.56    | 1.56     | 0.26    |
|               | Weibull                       | 0.25                                   | 0.19 | 0.15    | 0.13    | 0.14 | 0.14    | 0.13    | 0.16    | 0.08    | 0.08    | 0.07    | 0.09    |                   |         | 1.61     | 0.25    |
|               | Fréchet                       | 0.34                                   | 0.09 | 0.17    | 0.10    | 0.26 | 0.27    | 0.28    | 0.34    | 9999.00 | 9999.00 | 9999.00 | 0.30    |                   |         | 29999.15 | 9999    |
|               | Critical Value                | 0.43                                   | 0.38 | 0.35    | 0.35    | 0.33 | 0.33    | 0.33    | 0.34    | 0.31    | 0.31    | 0.33    | 0.31    |                   |         | 4.1      | 0.43    |
| 442729        | Gumbel                        | 0.12                                   | 0.18 | 0.16    | 0.13    | 0.14 | 0.16    | 0.13    | 0.18    | 0.19    | 0.22    | 0.19    | 0.18    | Weibull           | 1.87    | 1.98     | 0.22    |
|               | Weibull                       | 0.10                                   | 0.15 | 0.14    | 0.13    | 0.13 | 0.14    | 0.13    | 0.16    | 0.21    | 0.19    | 0.18    | 0.21    |                   |         | 1.87     | 0.21    |
|               | Fréchet                       | 0.32                                   | 0.35 | 0.34    | 0.31    | 0.33 | 0.32    | 0.33    | 0.37    | 0.39    | 0.34    | 0.32    | 0.35    |                   |         | 4.07     | 0.39    |
|               | Critical Value                | 0.48                                   | 0.45 | 0.48    | 0.45    | 0.43 | 0.45    | 0.43    | 0.41    | 0.43    | 0.45    | 0.41    | 0.41    |                   |         | 5.28     | 0.48    |
| 446712        | Gumbel                        | 0.18                                   | 0.14 | 0.11    | 0.06    | 0.08 | 0.07    | 0.14    | 0.11    | 0.07    | 0.06    | 0.04    | 0.08    | Gumbel            | 1.14    | 1.14     | 0.18    |
|               | Weibull                       | 0.14                                   | 0.14 | 0.13    | 0.07    | 0.08 | 0.08    | 0.14    | 0.11    | 0.08    | 0.10    | 0.09    | 0.06    |                   |         | 1.22     | 0.14    |
|               | Fréchet                       | 0.35                                   | 0.25 | 0.21    | 0.29    | 0.19 | 0.24    | 9999.00 | 9999.00 | 0.26    | 9999.00 | 9999.00 | 9999.00 |                   |         | 49996.79 | 9999    |
|               | Critical Value                | 0.38                                   | 0.32 | 0.32    | 0.30    | 0.28 | 0.28    | 0.29    | 0.27    | 0.26    | 0.26    | 0.26    | 0.25    |                   |         | 3.47     | 0.38    |

| Rain Gauge ID | Distribution & Critical Value | K-S Test Statistics for Duration (min) |         |         |         |      |         |      |      |         |         |         |         | Best Distribution | Gross   |          |         |
|---------------|-------------------------------|----------------------------------------|---------|---------|---------|------|---------|------|------|---------|---------|---------|---------|-------------------|---------|----------|---------|
|               |                               | 15                                     | 30      | 45      | 60      | 120  | 180     | 240  | 360  | 720     | 1440    | 2880    | 4320    |                   | Minimum | Sum      | Maximum |
| 447130        | Gumbel                        | 0.07                                   | 0.19    | 0.19    | 0.15    | 0.11 | 0.07    | 0.10 | 0.11 | 0.08    | 0.10    | 0.10    | 0.12    | Weibull           | 1.32    | 1.39     | 0.19    |
|               | Weibull                       | 0.08                                   | 0.15    | 0.14    | 0.13    | 0.09 | 0.08    | 0.11 | 0.11 | 0.10    | 0.10    | 0.12    | 0.11    |                   |         | 1.32     | 0.15    |
|               | Fréchet                       | 0.40                                   | 9999.00 | 9999.00 | 9999.00 | 0.44 | 0.33    | 0.33 | 0.20 | 0.35    | 0.22    | 0.23    | 0.31    |                   |         | 29999.81 | 9999    |
|               | Critical Value                | 0.45                                   | 0.45    | 0.48    | 0.48    | 0.45 | 0.45    | 0.45 | 0.45 | 0.43    | 0.45    | 0.43    | 0.45    |                   |         | 5.42     | 0.48    |
| 447164        | Gumbel                        |                                        |         |         |         |      |         |      |      |         |         |         |         | Weibull           |         |          |         |
|               | Weibull                       |                                        |         |         |         |      |         |      |      |         |         |         |         |                   |         |          |         |
|               | Fréchet                       |                                        |         |         |         |      |         |      |      |         |         |         |         |                   |         |          |         |
|               | Critical Value                |                                        |         |         |         |      |         |      |      |         |         |         |         |                   |         |          |         |
| 448396        | Gumbel                        | 0.17                                   | 0.13    | 0.13    | 0.11    | 0.06 | 0.11    | 0.12 | 0.14 | 0.08    | 0.11    | 0.10    | 0.10    | Gumbel            | 1.36    | 1.36     | 0.17    |
|               | Weibull                       | 0.14                                   | 0.14    | 0.13    | 0.12    | 0.09 | 0.13    | 0.13 | 0.15 | 0.10    | 0.12    | 0.12    | 0.13    |                   |         | 1.5      | 0.15    |
|               | Fréchet                       | 0.33                                   | 0.33    | 0.14    | 0.26    | 0.26 | 0.18    | 0.24 | 0.28 | 9999.00 | 9999.00 | 0.25    | 9999.00 |                   |         | 29999.27 | 9999    |
|               | Critical Value                | 0.34                                   | 0.36    | 0.31    | 0.31    | 0.29 | 0.29    | 0.28 | 0.28 | 0.28    | 0.29    | 0.28    | 0.26    |                   |         | 3.57     | 0.36    |
| 440720        | Gumbel                        | 0.17                                   | 0.19    | 0.20    | 0.14    | 0.10 | 0.13    | 0.11 | 0.11 | 0.09    | 0.12    | 0.11    | 0.11    | Weibull           | 1.44    | 1.58     | 0.2     |
|               | Weibull                       | 0.14                                   | 0.16    | 0.17    | 0.12    | 0.10 | 0.11    | 0.09 | 0.13 | 0.09    | 0.11    | 0.11    | 0.11    |                   |         | 1.44     | 0.17    |
|               | Fréchet                       | 0.15                                   | 0.31    | 0.32    | 0.30    | 0.33 | 9999.00 | 0.26 | 0.16 | 0.37    | 0.13    | 0.22    | 0.22    |                   |         | 10001.77 | 9999    |
|               | Critical Value                | 0.62                                   | 0.56    | 0.56    | 0.56    | 0.56 | 0.56    | 0.56 | 0.62 | 0.56    | 0.62    | 0.56    | 0.56    |                   |         | 6.9      | 0.62    |
| 445851        | Gumbel                        | 0.19                                   | 0.19    | 0.19    | 0.15    | 0.11 | 0.13    | 0.14 | 0.14 | 0.14    | 0.11    | 0.08    | 0.08    | Weibull           | 1.45    | 1.65     | 0.19    |
|               | Weibull                       | 0.16                                   | 0.14    | 0.14    | 0.12    | 0.10 | 0.10    | 0.12 | 0.12 | 0.14    | 0.12    | 0.10    | 0.09    |                   |         | 1.45     | 0.16    |
|               | Fréchet                       | 0.38                                   | 0.36    | 0.36    | 0.35    | 0.30 | 0.34    | 0.21 | 0.26 | 9999.00 | 0.28    | 9999.00 | 0.33    |                   |         | 20001.17 | 9999    |
|               | Critical Value                | 0.39                                   | 0.36    | 0.38    | 0.35    | 0.35 | 0.35    | 0.36 | 0.36 | 0.35    | 0.36    | 0.35    | 0.35    |                   |         | 4.31     | 0.39    |
| 442663        | Gumbel                        |                                        |         |         |         |      |         |      |      |         |         |         |         | Weibull           |         |          |         |
|               | Weibull                       |                                        |         |         |         |      |         |      |      |         |         |         |         |                   |         |          |         |
|               | Fréchet                       |                                        |         |         |         |      |         |      |      |         |         |         |         |                   |         |          |         |
|               | Critical Value                |                                        |         |         |         |      |         |      |      |         |         |         |         |                   |         |          |         |

| Rain Gauge ID | Distribution & Critical Value | K-S Test Statistics for Duration (min) |         |         |         |         |         |         |         |         |         |         |         | Best Distribution | Gross   |          |         |
|---------------|-------------------------------|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|----------|---------|
|               |                               | 15                                     | 30      | 45      | 60      | 120     | 180     | 240     | 360     | 720     | 1440    | 2880    | 4320    |                   | Minimum | Sum      | Maximum |
| 443229        | Gumbel                        | 0.22                                   | 0.18    | 0.16    | 0.15    | 0.17    | 0.12    | 0.14    | 0.12    | 0.10    | 0.09    | 0.12    | 0.12    | Gumbel            | 1.69    | 1.69     | 0.22    |
|               | Weibull                       | 0.13                                   | 0.16    | 0.14    | 0.13    | 0.17    | 0.14    | 0.16    | 0.16    | 0.16    | 0.15    | 0.12    | 0.08    |                   |         | 1.7      | 0.17    |
|               | Fréchet                       | 0.29                                   | 0.27    | 0.30    | 0.35    | 0.32    | 0.20    | 0.38    | 0.38    | 0.27    | 0.16    | 0.29    | 0.40    |                   |         | 3.61     | 0.4     |
|               | Critical Value                | 0.56                                   | 0.43    | 0.43    | 0.43    | 0.43    | 0.48    | 0.45    | 0.45    | 0.45    | 0.45    | 0.45    | 0.43    |                   |         | 5.44     | 0.56    |
| 448046        | Gumbel                        | 0.21                                   | 0.19    | 0.17    | 0.14    | 0.13    | 0.15    | 0.11    | 0.08    | 0.06    | 0.06    | 0.06    | 0.04    | Gumbel            | 1.4     | 1.4      | 0.21    |
|               | Weibull                       | 0.13                                   | 0.16    | 0.16    | 0.15    | 0.14    | 0.15    | 0.13    | 0.11    | 0.10    | 0.08    | 0.08    | 0.08    |                   |         | 1.47     | 0.16    |
|               | Fréchet                       | 0.35                                   | 0.34    | 0.32    | 9999.00 | 0.29    | 0.30    | 0.26    | 0.28    | 0.29    | 0.26    | 9999.00 | 9999.00 |                   |         | 29999.69 | 9999    |
|               | Critical Value                | 0.35                                   | 0.34    | 0.33    | 0.35    | 0.33    | 0.32    | 0.30    | 0.29    | 0.29    | 0.28    | 0.27    | 0.26    |                   |         | 3.71     | 0.35    |
| 448149        | Gumbel                        | 0.19                                   | 0.21    | 0.16    | 0.23    | 0.19    | 0.11    | 0.13    | 0.16    | 0.20    | 0.14    | 0.11    | 0.16    | Weibull           | 1.72    | 1.99     | 0.23    |
|               | Weibull                       | 0.13                                   | 0.14    | 0.12    | 0.18    | 0.14    | 0.12    | 0.15    | 0.18    | 0.19    | 0.10    | 0.11    | 0.16    |                   |         | 1.72     | 0.19    |
|               | Fréchet                       | 0.51                                   | 0.62    | 9999.00 | 0.29    | 9999.00 | 0.16    | 0.20    | 0.29    | 0.20    | 0.32    | 0.27    | 0.36    |                   |         | 20001.22 | 9999    |
|               | Critical Value                | 0.71                                   | 0.62    | 0.62    | 0.71    | 0.62    | 0.62    | 0.62    | 0.56    | 0.56    | 0.56    | 0.56    | 0.62    |                   |         | 7.38     | 0.71    |
| 442044        | Gumbel                        | 0.12                                   | 0.10    | 0.08    | 0.07    | 0.09    | 0.12    | 0.10    | 0.12    | 0.09    | 0.12    | 0.10    | 0.12    | Gumbel            | 1.23    | 1.23     | 0.12    |
|               | Weibull                       | 0.11                                   | 0.10    | 0.08    | 0.08    | 0.10    | 0.14    | 0.11    | 0.14    | 0.12    | 0.15    | 0.12    | 0.14    |                   |         | 1.39     | 0.15    |
|               | Fréchet                       | 0.24                                   | 0.25    | 0.30    | 0.11    | 0.26    | 0.29    | 0.28    | 0.18    | 0.29    | 9999.00 | 9999.00 | 9999.00 |                   |         | 29999.2  | 9999    |
|               | Critical Value                | 0.36                                   | 0.34    | 0.32    | 0.32    | 0.31    | 0.31    | 0.29    | 0.29    | 0.29    | 0.26    | 0.26    | 0.27    |                   |         | 3.62     | 0.36    |
| 442208        | Gumbel                        | 0.07                                   | 0.05    | 0.04    | 0.04    | 0.06    | 0.08    | 0.08    | 0.08    | 0.07    | 0.09    | 0.10    | 0.07    | Weibull           | 0.81    | 0.83     | 0.1     |
|               | Weibull                       | 0.05                                   | 0.07    | 0.06    | 0.04    | 0.09    | 0.07    | 0.07    | 0.06    | 0.08    | 0.08    | 0.06    | 0.08    |                   |         | 0.81     | 0.09    |
|               | Fréchet                       | 0.23                                   | 9999.00 | 0.27    | 0.25    | 0.20    | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 0.27    |                   |         | 69994.22 | 9999    |
|               | Critical Value                | 0.34                                   | 0.33    | 0.32    | 0.30    | 0.36    | 0.33    | 0.34    | 0.32    | 0.31    | 0.31    | 0.31    | 0.30    |                   |         | 3.87     | 0.36    |
| 443310        | Gumbel                        | 0.11                                   | 0.12    | 0.12    | 0.13    | 0.10    | 0.08    | 0.04    | 0.08    | 0.10    | 0.14    | 0.12    | 0.11    | Gumbel            | 1.25    | 1.25     | 0.14    |
|               | Weibull                       | 0.09                                   | 0.12    | 0.16    | 0.17    | 0.07    | 0.10    | 0.11    | 0.14    | 0.16    | 0.18    | 0.15    | 0.13    |                   |         | 1.58     | 0.18    |
|               | Fréchet                       | 0.22                                   | 0.15    | 0.16    | 0.29    | 9999.00 | 9999.00 | 9999.00 | 0.30    | 9999.00 | 0.26    | 9999.00 | 0.25    |                   |         | 49996.63 | 9999    |
|               | Critical Value                | 0.34                                   | 0.33    | 0.32    | 0.32    | 0.32    | 0.29    | 0.31    | 0.30    | 0.28    | 0.28    | 0.26    | 0.28    |                   |         | 3.63     | 0.34    |

| Rain Gauge ID | Distribution & Critical Value | K-S Test Statistics for Duration (min) |         |      |         |         |         |         |         |         |         |         |         | Best Distribution | Gross   |          |         |  |
|---------------|-------------------------------|----------------------------------------|---------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|----------|---------|--|
|               |                               | 15                                     | 30      | 45   | 60      | 120     | 180     | 240     | 360     | 720     | 1440    | 2880    | 4320    |                   | Minimum | Sum      | Maximum |  |
| 444128        | Gumbel                        | 0.15                                   | 0.14    | 0.10 | 0.09    | 0.06    | 0.06    | 0.08    | 0.14    | 0.10    | 0.11    | 0.12    | 0.15    | Gumbel            | 1.3     | 1.3      | 0.15    |  |
|               | Weibull                       | 0.10                                   | 0.13    | 0.11 | 0.10    | 0.09    | 0.09    | 0.12    | 0.17    | 0.14    | 0.14    | 0.15    | 0.17    |                   |         | 1.51     | 0.17    |  |
|               | Fréchet                       | 0.31                                   | 0.30    | 0.24 | 0.14    | 0.30    | 0.29    | 0.20    | 0.24    | 9999.00 | 0.26    | 9999.00 | 0.28    |                   |         | 20000.56 | 9999    |  |
|               | Critical Value                | 0.35                                   | 0.35    | 0.33 | 0.32    | 0.31    | 0.30    | 0.30    | 0.31    | 0.31    | 0.28    | 0.27    | 0.28    |                   |         | 3.71     | 0.35    |  |
| 445142        | Gumbel                        |                                        |         |      |         |         |         |         |         |         |         |         |         | Weibull           |         |          |         |  |
|               | Weibull                       |                                        |         |      |         |         |         |         |         |         |         |         |         |                   |         |          |         |  |
|               | Fréchet                       |                                        |         |      |         |         |         |         |         |         |         |         |         |                   |         |          |         |  |
|               | Critical Value                |                                        |         |      |         |         |         |         |         |         |         |         |         |                   |         |          |         |  |
| 445423        | Gumbel                        | 0.12                                   | 0.16    | 0.12 | 0.10    | 0.12    | 0.10    | 0.10    | 0.08    | 0.12    | 0.10    | 0.13    | 0.09    | Gumbel            | 1.34    | 1.34     | 0.16    |  |
|               | Weibull                       | 0.07                                   | 0.16    | 0.14 | 0.12    | 0.11    | 0.09    | 0.10    | 0.12    | 0.08    | 0.16    | 0.13    | 0.11    |                   |         | 1.39     | 0.16    |  |
|               | Fréchet                       | 0.27                                   | 0.27    | 0.22 | 0.27    | 9999.00 | 0.16    | 0.23    | 0.33    | 9999.00 | 0.25    | 0.38    | 0.13    |                   |         | 20000.51 | 9999    |  |
|               | Critical Value                | 0.45                                   | 0.41    | 0.45 | 0.43    | 0.43    | 0.39    | 0.41    | 0.41    | 0.38    | 0.39    | 0.38    | 0.38    |                   |         | 4.91     | 0.45    |  |
| 445595        | Gumbel                        | 0.23                                   | 0.18    | 0.12 | 0.10    | 0.07    | 0.14    | 0.08    | 0.07    | 0.07    | 0.10    | 0.10    | 0.07    | Gumbel            | 1.33    | 1.33     | 0.23    |  |
|               | Weibull                       | 0.16                                   | 0.16    | 0.12 | 0.12    | 0.09    | 0.18    | 0.13    | 0.07    | 0.08    | 0.12    | 0.07    | 0.06    |                   |         | 1.36     | 0.18    |  |
|               | Fréchet                       | 0.30                                   | 0.18    | 0.26 | 0.14    | 0.24    | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 |                   |         | 69994.12 | 9999    |  |
|               | Critical Value                | 0.41                                   | 0.38    | 0.35 | 0.34    | 0.34    | 0.34    | 0.32    | 0.29    | 0.28    | 0.31    | 0.28    | 0.28    |                   |         | 3.92     | 0.41    |  |
| 445880        | Gumbel                        | 0.11                                   | 0.11    | 0.09 | 0.11    | 0.09    | 0.06    | 0.05    | 0.09    | 0.06    | 0.09    | 0.12    | 0.14    | Gumbel            | 1.12    | 1.12     | 0.14    |  |
|               | Weibull                       | 0.06                                   | 0.06    | 0.08 | 0.09    | 0.08    | 0.06    | 0.07    | 0.10    | 0.11    | 0.14    | 0.16    | 0.19    |                   |         | 1.2      | 0.19    |  |
|               | Fréchet                       | 9999.00                                | 9999.00 | 0.35 | 9999.00 | 9999.00 | 9999.00 | 0.25    | 9999.00 | 0.31    | 0.27    | 0.26    | 0.26    |                   |         | 59995.7  | 9999    |  |
|               | Critical Value                | 0.41                                   | 0.39    | 0.41 | 0.39    | 0.38    | 0.35    | 0.38    | 0.33    | 0.33    | 0.31    | 0.32    | 0.31    |                   |         | 4.31     | 0.41    |  |
| 448062        | Gumbel                        | 0.15                                   | 0.11    | 0.13 | 0.09    | 0.08    | 0.07    | 0.09    | 0.12    | 0.14    | 0.08    | 0.10    | 0.07    | Gumbel            | 1.23    | 1.23     | 0.15    |  |
|               | Weibull                       | 0.10                                   | 0.11    | 0.12 | 0.10    | 0.10    | 0.10    | 0.11    | 0.13    | 0.16    | 0.12    | 0.09    | 0.08    |                   |         | 1.32     | 0.16    |  |
|               | Fréchet                       | 0.33                                   | 0.16    | 0.31 | 0.27    | 9999.00 | 0.23    | 9999.00 | 0.31    | 9999.00 | 9999.00 | 0.24    | 9999.00 |                   |         | 49996.85 | 9999    |  |
|               | Critical Value                | 0.36                                   | 0.34    | 0.32 | 0.31    | 0.33    | 0.32    | 0.32    | 0.32    | 0.29    | 0.28    | 0.33    | 0.30    |                   |         | 3.82     | 0.36    |  |

| Rain Gauge ID | Distribution & Critical Value | K-S Test Statistics for Duration (min) |      |         |         |         |         |         |         |         |         |         |         | Best Distribution | Gross   |          |         |
|---------------|-------------------------------|----------------------------------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|----------|---------|
|               |                               | 15                                     | 30   | 45      | 60      | 120     | 180     | 240     | 360     | 720     | 1440    | 2880    | 4320    |                   | Minimum | Sum      | Maximum |
| 448172        | Gumbel                        | 0.22                                   | 0.23 | 0.23    | 0.23    | 0.18    | 0.15    | 0.13    | 0.11    | 0.16    | 0.19    | 0.17    | 0.19    | Weibull           | 1.72    | 2.19     | 0.23    |
|               | Weibull                       | 0.14                                   | 0.16 | 0.16    | 0.16    | 0.12    | 0.10    | 0.11    | 0.10    | 0.15    | 0.18    | 0.17    | 0.17    |                   |         | 1.72     | 0.18    |
|               | Fréchet                       | 0.25                                   | 0.27 | 0.27    | 0.30    | 0.28    | 0.24    | 0.17    | 0.19    | 0.17    | 0.30    | 0.28    | 0.22    |                   |         | 2.94     | 0.3     |
|               | Critical Value                | 0.56                                   | 0.56 | 0.56    | 0.56    | 0.56    | 0.56    | 0.62    | 0.56    | 0.56    | 0.56    | 0.56    | 0.56    |                   |         | 6.78     | 0.62    |
| 449159        | Gumbel                        | 0.16                                   | 0.11 | 0.09    | 0.09    | 0.07    | 0.10    | 0.09    | 0.08    | 0.11    | 0.10    | 0.08    | 0.06    | Gumbel            | 1.14    | 1.14     | 0.16    |
|               | Weibull                       | 0.14                                   | 0.12 | 0.09    | 0.10    | 0.10    | 0.13    | 0.10    | 0.12    | 0.10    | 0.09    | 0.10    | 0.08    |                   |         | 1.27     | 0.14    |
|               | Fréchet                       | 0.27                                   | 0.25 | 0.21    | 0.19    | 0.36    | 0.29    | 0.25    | 0.19    | 9999.00 | 9999.00 | 9999.00 | 0.23    |                   |         | 29999.24 | 9999    |
|               | Critical Value                | 0.41                                   | 0.39 | 0.38    | 0.38    | 0.36    | 0.34    | 0.34    | 0.35    | 0.33    | 0.32    | 0.33    | 0.29    |                   |         | 4.22     | 0.41    |
| 443272        | Gumbel                        | 0.21                                   | 0.21 | 0.21    | 0.20    | 0.20    | 0.14    | 0.13    | 0.07    | 0.08    | 0.05    | 0.09    | 0.08    | Gumbel            | 1.67    | 1.67     | 0.21    |
|               | Weibull                       | 0.20                                   | 0.19 | 0.20    | 0.21    | 0.22    | 0.16    | 0.13    | 0.09    | 0.11    | 0.07    | 0.10    | 0.07    |                   |         | 1.75     | 0.22    |
|               | Fréchet                       | 0.35                                   | 0.20 | 0.18    | 0.15    | 0.23    | 0.26    | 9999.00 | 9999.00 | 0.25    | 0.23    | 9999.00 | 9999.00 |                   |         | 39997.85 | 9999    |
|               | Critical Value                | 0.38                                   | 0.33 | 0.33    | 0.33    | 0.33    | 0.29    | 0.29    | 0.30    | 0.27    | 0.26    | 0.25    | 0.26    |                   |         | 3.62     | 0.38    |
| 444246        | Gumbel                        | 0.22                                   | 0.21 | 0.17    | 0.15    | 0.08    | 0.10    | 0.09    | 0.14    | 0.09    | 0.12    | 0.14    | 0.09    | Gumbel            | 1.6     | 1.6      | 0.22    |
|               | Weibull                       | 0.16                                   | 0.22 | 0.16    | 0.13    | 0.10    | 0.13    | 0.10    | 0.16    | 0.14    | 0.15    | 0.14    | 0.12    |                   |         | 1.71     | 0.22    |
|               | Fréchet                       | 0.32                                   | 0.30 | 0.19    | 0.13    | 0.32    | 0.25    | 0.15    | 0.25    | 0.30    | 0.28    | 0.21    | 0.23    |                   |         | 2.93     | 0.32    |
|               | Critical Value                | 0.39                                   | 0.39 | 0.34    | 0.36    | 0.34    | 0.33    | 0.35    | 0.34    | 0.32    | 0.34    | 0.34    | 0.32    |                   |         | 4.16     | 0.39    |
| 448547        | Gumbel                        | 0.09                                   | 0.05 | 0.06    | 0.11    | 0.10    | 0.09    | 0.10    | 0.06    | 0.09    | 0.11    | 0.07    | 0.08    | Weibull           | 0.82    | 1.01     | 0.11    |
|               | Weibull                       | 0.08                                   | 0.08 | 0.03    | 0.07    | 0.07    | 0.06    | 0.07    | 0.06    | 0.06    | 0.08    | 0.08    | 0.08    |                   |         | 0.82     | 0.08    |
|               | Fréchet                       | 0.24                                   | 0.28 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 |                   |         | 99990.52 | 9999    |
|               | Critical Value                | 0.39                                   | 0.36 | 0.32    | 0.30    | 0.32    | 0.30    | 0.30    | 0.30    | 0.29    | 0.31    | 0.28    | 0.28    |                   |         | 3.75     | 0.39    |
| 449169        | Gumbel                        | 0.14                                   | 0.10 | 0.07    | 0.11    | 0.10    | 0.11    | 0.07    | 0.16    | 0.11    | 0.09    | 0.11    | 0.12    | Gumbel            | 1.29    | 1.29     | 0.16    |
|               | Weibull                       | 0.10                                   | 0.11 | 0.10    | 0.14    | 0.12    | 0.15    | 0.08    | 0.09    | 0.10    | 0.13    | 0.06    | 0.11    |                   |         | 1.29     | 0.15    |
|               | Fréchet                       | 0.31                                   | 0.23 | 0.22    | 0.29    | 0.24    | 0.27    | 0.14    | 9999.00 | 9999.00 | 0.25    | 9999.00 | 0.12    |                   |         | 29999.07 | 9999    |
|               | Critical Value                | 0.43                                   | 0.39 | 0.38    | 0.41    | 0.39    | 0.38    | 0.34    | 0.36    | 0.35    | 0.34    | 0.32    | 0.35    |                   |         | 4.44     | 0.43    |

| Rain Gauge ID | Distribution & Critical Value | K-S Test Statistics for Duration (min) |      |         |         |         |         |         |         |         |         |         |         | Best Distribution | Gross   |          |         |  |
|---------------|-------------------------------|----------------------------------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|----------|---------|--|
|               |                               | 15                                     | 30   | 45      | 60      | 120     | 180     | 240     | 360     | 720     | 1440    | 2880    | 4320    |                   | Minimum | Sum      | Maximum |  |
| 440766        | Gumbel                        | 0.11                                   | 0.12 | 0.11    | 0.09    | 0.07    | 0.11    | 0.08    | 0.11    | 0.07    | 0.14    | 0.08    | 0.08    | Gumbel            | 1.17    | 1.17     | 0.14    |  |
|               | Weibull                       | 0.13                                   | 0.12 | 0.14    | 0.12    | 0.09    | 0.08    | 0.08    | 0.09    | 0.09    | 0.14    | 0.08    | 0.09    |                   |         | 1.25     | 0.14    |  |
|               | Fréchet                       | 0.19                                   | 0.21 | 0.29    | 0.25    | 0.30    | 0.36    | 0.33    | 0.38    | 0.34    | 0.23    | 0.40    | 0.41    |                   |         | 3.69     | 0.41    |  |
|               | Critical Value                | 0.52                                   | 0.62 | 0.52    | 0.52    | 0.43    | 0.45    | 0.45    | 0.48    | 0.43    | 0.45    | 0.41    | 0.41    |                   |         | 5.69     | 0.62    |  |
| 446955        | Gumbel                        | 0.14                                   | 0.10 | 0.08    | 0.04    | 0.08    | 0.08    | 0.07    | 0.09    | 0.10    | 0.10    | 0.06    | 0.03    | Weibull           | 0.95    | 0.97     | 0.14    |  |
|               | Weibull                       | 0.12                                   | 0.11 | 0.10    | 0.05    | 0.05    | 0.06    | 0.09    | 0.07    | 0.10    | 0.06    | 0.06    | 0.08    |                   |         | 0.95     | 0.12    |  |
|               | Fréchet                       | 0.27                                   | 0.34 | 9999.00 | 0.26    | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 |                   |         | 89991.87 | 9999    |  |
|               | Critical Value                | 0.38                                   | 0.35 | 0.34    | 0.34    | 0.31    | 0.31    | 0.33    | 0.31    | 0.30    | 0.28    | 0.28    | 0.28    |                   |         | 3.81     | 0.38    |  |
| 448022        | Gumbel                        | 0.07                                   | 0.07 | 0.09    | 0.10    | 0.18    | 0.19    | 0.15    | 0.14    | 0.11    | 0.08    | 0.11    | 0.10    | Gumbel            | 1.39    | 1.39     | 0.19    |  |
|               | Weibull                       | 0.08                                   | 0.09 | 0.12    | 0.12    | 0.18    | 0.19    | 0.17    | 0.17    | 0.16    | 0.09    | 0.15    | 0.14    |                   |         | 1.66     | 0.19    |  |
|               | Fréchet                       | 0.28                                   | 0.30 | 0.28    | 0.27    | 0.31    | 0.14    | 0.31    | 0.25    | 0.25    | 0.20    | 0.24    | 0.15    |                   |         | 2.98     | 0.31    |  |
|               | Critical Value                | 0.48                                   | 0.43 | 0.39    | 0.38    | 0.38    | 0.39    | 0.38    | 0.39    | 0.36    | 0.36    | 0.35    | 0.32    |                   |         | 4.61     | 0.48    |  |
| 449060        | Gumbel                        | 0.09                                   | 0.10 | 0.12    | 0.13    | 0.19    | 0.20    | 0.11    | 0.08    | 0.10    | 0.12    | 0.10    | 0.14    | Gumbel            | 1.48    | 1.48     | 0.2     |  |
|               | Weibull                       | 0.07                                   | 0.09 | 0.12    | 0.13    | 0.20    | 0.21    | 0.15    | 0.11    | 0.17    | 0.08    | 0.09    | 0.13    |                   |         | 1.55     | 0.21    |  |
|               | Fréchet                       | 0.16                                   | 0.31 | 0.24    | 0.30    | 0.29    | 0.31    | 0.23    | 0.15    | 0.37    | 0.37    | 0.32    | 0.35    |                   |         | 3.4      | 0.37    |  |
|               | Critical Value                | 0.43                                   | 0.41 | 0.41    | 0.41    | 0.43    | 0.45    | 0.45    | 0.48    | 0.45    | 0.45    | 0.45    | 0.48    |                   |         | 5.3      | 0.48    |  |
| 449301        | Gumbel                        | 0.05                                   | 0.06 | 0.07    | 0.13    | 0.11    | 0.13    | 0.10    | 0.10    | 0.13    | 0.07    | 0.10    | 0.11    | Weibull           | 0.86    | 1.16     | 0.13    |  |
|               | Weibull                       | 0.07                                   | 0.05 | 0.06    | 0.10    | 0.07    | 0.07    | 0.05    | 0.06    | 0.08    | 0.05    | 0.10    | 0.10    |                   |         | 0.86     | 0.1     |  |
|               | Fréchet                       | 0.26                                   | 0.32 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 |                   |         | 99990.58 | 9999    |  |
|               | Critical Value                | 0.39                                   | 0.32 | 0.32    | 0.33    | 0.36    | 0.33    | 0.31    | 0.30    | 0.33    | 0.29    | 0.28    | 0.29    |                   |         | 3.85     | 0.39    |  |
| 442269        | Gumbel                        |                                        |      |         |         |         |         |         |         |         |         |         |         | Weibull           |         |          |         |  |
|               | Weibull                       |                                        |      |         |         |         |         |         |         |         |         |         |         |                   |         |          |         |  |
|               | Fréchet                       |                                        |      |         |         |         |         |         |         |         |         |         |         |                   |         |          |         |  |
|               | Critical Value                |                                        |      |         |         |         |         |         |         |         |         |         |         |                   |         |          |         |  |

| Rain Gauge ID | Distribution & Critical Value | K-S Test Statistics for Duration (min) |      |         |      |         |         |         |         |         |         |         |         | Best Distribution | Gross   |          |         |
|---------------|-------------------------------|----------------------------------------|------|---------|------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|----------|---------|
|               |                               | 15                                     | 30   | 45      | 60   | 120     | 180     | 240     | 360     | 720     | 1440    | 2880    | 4320    |                   | Minimum | Sum      | Maximum |
| 444180        | Gumbel                        | 0.12                                   | 0.07 | 0.07    | 0.09 | 0.09    | 0.07    | 0.09    | 0.05    | 0.08    | 0.08    | 0.07    | 0.08    | Gumbel            | 0.96    | 0.96     | 0.12    |
|               | Weibull                       | 0.07                                   | 0.07 | 0.05    | 0.07 | 0.09    | 0.06    | 0.09    | 0.09    | 0.13    | 0.11    | 0.08    | 0.09    |                   |         | 1        | 0.13    |
|               | Fréchet                       | 9999.00                                | 0.27 | 9999.00 | 0.24 | 9999.00 | 9999.00 | 0.26    | 9999.00 | 0.26    | 9999.00 | 9999.00 | 9999.00 |                   |         | 79993.03 | 9999    |
|               | Critical Value                | 0.39                                   | 0.35 | 0.35    | 0.33 | 0.33    | 0.30    | 0.32    | 0.29    | 0.30    | 0.30    | 0.30    | 0.28    |                   |         | 3.84     | 0.39    |
| 444410        | Gumbel                        | 0.20                                   | 0.21 | 0.22    | 0.24 | 0.16    | 0.18    | 0.12    | 0.12    | 0.18    | 0.15    | 0.12    | 0.11    | Weibull           | 1.66    | 2.01     | 0.24    |
|               | Weibull                       | 0.16                                   | 0.18 | 0.19    | 0.21 | 0.13    | 0.15    | 0.10    | 0.10    | 0.15    | 0.10    | 0.11    | 0.08    |                   |         | 1.66     | 0.21    |
|               | Fréchet                       | 0.33                                   | 0.33 | 0.35    | 0.36 | 0.28    | 0.37    | 0.30    | 0.41    | 9999.00 | 0.37    | 0.12    | 0.35    |                   |         | 10002.57 | 9999    |
|               | Critical Value                | 0.48                                   | 0.48 | 0.48    | 0.48 | 0.48    | 0.48    | 0.48    | 0.52    | 0.48    | 0.48    | 0.48    | 0.48    |                   |         | 5.8      | 0.52    |
| 449215        | Gumbel                        | 0.10                                   | 0.10 | 0.10    | 0.10 | 0.07    | 0.05    | 0.06    | 0.06    | 0.08    | 0.09    | 0.10    | 0.12    | Weibull           | 0.94    | 1.03     | 0.12    |
|               | Weibull                       | 0.07                                   | 0.09 | 0.10    | 0.09 | 0.08    | 0.07    | 0.07    | 0.07    | 0.06    | 0.09    | 0.08    | 0.07    |                   |         | 0.94     | 0.1     |
|               | Fréchet                       | 0.25                                   | 0.23 | 9999.00 | 0.19 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 | 9999.00 |                   |         | 89991.67 | 9999    |
|               | Critical Value                | 0.33                                   | 0.34 | 0.33    | 0.35 | 0.32    | 0.32    | 0.32    | 0.31    | 0.30    | 0.29    | 0.30    | 0.28    |                   |         | 3.79     | 0.35    |

## II. Tabulated Gauge-Level Historical IDF Curves

| <b>Gauge 440166-a</b> |                       |                       |                       |    | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|-----------------------|-----------------------|-----------------------|-----------------------|----|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration              | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N  | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)                 | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |    | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                    | 168.93                | 112.16                | 142.24                | 15 | 150.51                                                                          | 249.63 | 315.26  | 398.17  | 459.69  | 520.75   | 581.58   | 661.85   | 722.51    |
| 30                    | 89.44                 | 55.71                 | 76.2                  | 15 | 80.29                                                                           | 129.52 | 162.12  | 203.31  | 233.86  | 264.19   | 294.41   | 334.27   | 364.4     |
| 45                    | 63.43                 | 37.15                 | 54.19                 | 14 | 57.33                                                                           | 90.16  | 111.9   | 139.36  | 159.74  | 179.96   | 200.11   | 226.69   | 246.79    |
| 60                    | 48.04                 | 26.39                 | 43.18                 | 15 | 43.71                                                                           | 67.03  | 82.47   | 101.98  | 116.45  | 130.82   | 145.13   | 164.02   | 178.29    |
| 120                   | 25.16                 | 12.97                 | 22.61                 | 14 | 23.03                                                                           | 34.49  | 42.08   | 51.67   | 58.78   | 65.84    | 72.88    | 82.16    | 89.17     |
| 180                   | 18.5                  | 8.38                  | 16.68                 | 14 | 17.12                                                                           | 24.53  | 29.43   | 35.63   | 40.22   | 44.79    | 49.33    | 55.33    | 59.86     |
| 240                   | 14.24                 | 6.1                   | 12.89                 | 15 | 13.24                                                                           | 18.63  | 22.2    | 26.71   | 30.05   | 33.37    | 36.68    | 41.05    | 44.35     |
| 360                   | 10.55                 | 4.03                  | 10.27                 | 14 | 9.89                                                                            | 13.45  | 15.81   | 18.79   | 21      | 23.19    | 25.38    | 28.26    | 30.44     |
| 720                   | 6.06                  | 1.95                  | 5.5                   | 15 | 5.74                                                                            | 7.46   | 8.6     | 10.05   | 11.12   | 12.18    | 13.23    | 14.63    | 15.68     |
| 1440                  | 3.74                  | 1.2                   | 3.27                  | 14 | 3.54                                                                            | 4.6    | 5.31    | 6.19    | 6.85    | 7.5      | 8.15     | 9.01     | 9.66      |
| 2880                  | 2.18                  | 0.7                   | 1.91                  | 14 | 2.07                                                                            | 2.68   | 3.09    | 3.61    | 3.99    | 4.38     | 4.76     | 5.26     | 5.63      |
| 4320                  | 1.53                  | 0.62                  | 1.47                  | 15 | 1.43                                                                            | 1.98   | 2.34    | 2.8     | 3.14    | 3.47     | 3.81     | 4.25     | 4.59      |
|                       |                       |                       |                       |    | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>Gauge 440166-b</b> |                       |                       |                       |    | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|-----------------------|-----------------------|-----------------------|-----------------------|----|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration              | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N  | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)                 | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |    | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                    | 79.59                 | 25.23                 | 76.2                  | 6  | 79.65                                                                           | 101.39 | 112.34 | 123.65 | 130.76 | 137.01 | 142.62 | 149.29 | 153.88 |
| 30                    | 52.07                 | 17.12                 | 55.88                 | 8  | 51.99                                                                           | 66.85  | 74.39  | 82.2   | 87.13  | 91.47  | 95.38  | 100.03 | 103.23 |
| 45                    | 42.76                 | 16.19                 | 42.33                 | 8  | 42.22                                                                           | 56.65  | 64.19  | 72.16  | 77.24  | 81.77  | 85.87  | 90.79  | 94.2   |
| 60                    | 33.53                 | 11.66                 | 33.02                 | 10 | 33.35                                                                           | 43.58  | 48.82  | 54.3   | 57.77  | 60.84  | 63.62  | 66.92  | 69.21  |
| 120                   | 19.69                 | 7.89                  | 17.78                 | 8  | 19.32                                                                           | 26.43  | 30.2   | 34.21  | 36.78  | 39.08  | 41.17  | 43.69  | 45.44  |
| 180                   | 14.56                 | 4.9                   | 13.55                 | 10 | 14.52                                                                           | 18.79  | 20.96  | 23.23  | 24.66  | 25.92  | 27.06  | 28.41  | 29.34  |
| 240                   | 11.78                 | 3.73                  | 10.48                 | 11 | 11.79                                                                           | 15     | 16.62  | 18.29  | 19.34  | 20.27  | 21.1   | 22.08  | 22.76  |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 360  | 8.93 | 2.38 | 7.83 | 10 | 9.01   | 10.99  | 11.96   | 12.95   | 13.56   | 14.09    | 14.56    | 15.12    | 15.51     |
| 720  | 4.73 | 1.16 | 4.45 | 9  | 4.78   | 5.73   | 6.19    | 6.66    | 6.94    | 7.19     | 7.41     | 7.67     | 7.85      |
| 1440 | 3.22 | 0.81 | 2.8  | 9  | 3.25   | 3.92   | 4.24    | 4.57    | 4.77    | 4.95     | 5.11     | 5.29     | 5.42      |
| 2880 | 1.72 | 0.41 | 1.77 | 10 | 1.74   | 2.07   | 2.24    | 2.4     | 2.5     | 2.58     | 2.66     | 2.75     | 2.81      |
| 4320 | 1.29 | 0.38 | 1.13 | 11 | 1.3    | 1.62   | 1.78    | 1.94    | 2.05    | 2.14     | 2.22     | 2.31     | 2.38      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>Guague 440561</b> |                       |                       |                       |    | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|----------------------|-----------------------|-----------------------|-----------------------|----|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration             | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N  | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |    | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                   | 88.05                 | 67.2                  | 71.12                 | 9  | 77.01                                                                           | 136.4  | 175.72  | 225.4   | 262.26  | 298.84   | 335.29   | 383.38   | 419.72    |
| 30                   | 53.11                 | 30.76                 | 45.72                 | 11 | 48.06                                                                           | 75.24  | 93.24   | 115.98  | 132.85  | 149.6    | 166.28   | 188.29   | 204.93    |
| 45                   | 40.92                 | 19.77                 | 38.95                 | 12 | 37.67                                                                           | 55.14  | 66.71   | 81.33   | 92.17   | 102.93   | 113.66   | 127.8    | 138.5     |
| 60                   | 33.48                 | 15.44                 | 27.94                 | 11 | 30.94                                                                           | 44.59  | 53.62   | 65.04   | 73.51   | 81.91    | 90.29    | 101.33   | 109.69    |
| 120                  | 20.32                 | 11.53                 | 17.15                 | 12 | 18.43                                                                           | 28.62  | 35.36   | 43.89   | 50.21   | 56.49    | 62.74    | 70.99    | 77.23     |
| 180                  | 15.11                 | 7.4                   | 14.39                 | 13 | 13.89                                                                           | 20.43  | 24.76   | 30.23   | 34.29   | 38.32    | 42.34    | 47.63    | 51.63     |
| 240                  | 12.31                 | 5.72                  | 12.07                 | 13 | 11.37                                                                           | 16.43  | 19.77   | 24      | 27.14   | 30.25    | 33.35    | 37.45    | 40.54     |
| 360                  | 9.5                   | 4                     | 8.89                  | 11 | 8.84                                                                            | 12.38  | 14.72   | 17.68   | 19.87   | 22.05    | 24.22    | 27.08    | 29.24     |
| 720                  | 5.68                  | 2.29                  | 5.08                  | 13 | 5.3                                                                             | 7.33   | 8.67    | 10.36   | 11.62   | 12.86    | 14.11    | 15.74    | 16.98     |
| 1440                 | 3.1                   | 1.34                  | 2.65                  | 15 | 2.88                                                                            | 4.06   | 4.85    | 5.84    | 6.57    | 7.3      | 8.03     | 8.99     | 9.71      |
| 2880                 | 2.01                  | 0.81                  | 1.85                  | 13 | 1.88                                                                            | 2.59   | 3.07    | 3.67    | 4.11    | 4.55     | 4.99     | 5.57     | 6.01      |
| 4320                 | 1.45                  | 0.54                  | 1.31                  | 15 | 1.36                                                                            | 1.84   | 2.15    | 2.55    | 2.85    | 3.14     | 3.44     | 3.82     | 4.12      |
|                      |                       |                       |                       |    | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>Gauge 440720</b> |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |         |         |
|---------------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|---------|---------|
| Duration            | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500     | 1000    |
| (min)               | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002   | 0.001   |
| 15                  | 246.38                | 181.44                | 198.12                | 4 | 206.34                                                                          | 381.1  | 494.67 | 631.35 | 727.7  | 819.5  | 907.6  | 1019.41 | 1101.02 |
| 30                  | 112.24                | 82.21                 | 65.26                 | 5 | 94.24                                                                           | 173.43 | 224.78 | 286.48 | 329.93 | 371.29 | 410.97 | 461.29  | 497.99  |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 45   | 75.5  | 54.19 | 43.51 | 5 | 63.97  | 116.2  | 149.76  | 189.88  | 218.02  | 244.73   | 270.29   | 302.63   | 326.17    |
| 60   | 57.89 | 39.8  | 38.95 | 5 | 49.96  | 88.32  | 112.53  | 141.14  | 161.04  | 179.83   | 197.72   | 220.24   | 236.57    |
| 120  | 32.62 | 17.38 | 28.96 | 5 | 30.51  | 46.92  | 56.35   | 66.87   | 73.88   | 80.3     | 86.27    | 93.6     | 98.79     |
| 180  | 23.08 | 10.96 | 23.41 | 5 | 22.1   | 32.28  | 37.92   | 44.08   | 48.12   | 51.78    | 55.15    | 59.26    | 62.14     |
| 240  | 18.91 | 8.07  | 17.78 | 5 | 18.41  | 25.77  | 29.73   | 33.98   | 36.73   | 39.2     | 41.46    | 44.18    | 46.09     |
| 360  | 12.6  | 5.53  | 11.43 | 4 | 12.22  | 17.29  | 20.03   | 23      | 24.92   | 26.65    | 28.23    | 30.15    | 31.49     |
| 720  | 8.93  | 4.33  | 8.26  | 5 | 8.52   | 12.55  | 14.8    | 17.27   | 18.89   | 20.36    | 21.72    | 23.37    | 24.54     |
| 1440 | 5.87  | 3.88  | 4.82  | 4 | 5.14   | 8.88   | 11.2    | 13.92   | 15.79   | 17.55    | 19.22    | 21.32    | 22.83     |
| 2880 | 3.29  | 2.08  | 2.54  | 5 | 2.93   | 4.93   | 6.15    | 7.56    | 8.53    | 9.43     | 10.28    | 11.35    | 12.11     |
| 4320 | 2.21  | 1.42  | 1.69  | 5 | 1.96   | 3.32   | 4.16    | 5.14    | 5.81    | 6.43     | 7.03     | 7.77     | 8.3       |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 440766 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 77.89                 | 43.9                                                                            | 66.04                 | 6  | 70.68  | 109.48 | 135.16  | 167.62  | 191.69  | 215.59   | 239.4    | 270.82   | 294.56    |
| 30           | 58.42                 | 36.51                                                                           | 45.72                 | 4  | 52.42  | 84.69  | 106.05  | 133.04  | 153.07  | 172.94   | 192.75   | 218.87   | 238.62    |
| 45           | 38.95                 | 18.89                                                                           | 35.56                 | 6  | 35.85  | 52.54  | 63.59   | 77.56   | 87.92   | 98.2     | 108.45   | 121.97   | 132.18    |
| 60           | 30.9                  | 16.1                                                                            | 27.94                 | 6  | 28.26  | 42.48  | 51.9    | 63.81   | 72.64   | 81.4     | 90.13    | 101.66   | 110.36    |
| 120          | 17.78                 | 6.41                                                                            | 16.51                 | 9  | 16.73  | 22.39  | 26.14   | 30.88   | 34.4    | 37.89    | 41.36    | 45.95    | 49.42     |
| 180          | 13.12                 | 5.26                                                                            | 12.7                  | 8  | 12.26  | 16.9   | 19.98   | 23.87   | 26.76   | 29.62    | 32.47    | 36.24    | 39.08     |
| 240          | 9.53                  | 3.58                                                                            | 9.21                  | 8  | 8.94   | 12.11  | 14.2    | 16.85   | 18.81   | 20.76    | 22.7     | 25.26    | 27.2      |
| 360          | 8.04                  | 3.35                                                                            | 8.04                  | 7  | 7.49   | 10.45  | 12.41   | 14.89   | 16.72   | 18.55    | 20.37    | 22.76    | 24.57     |
| 720          | 4.99                  | 1.97                                                                            | 4.45                  | 9  | 4.67   | 6.41   | 7.56    | 9.02    | 10.1    | 11.17    | 12.24    | 13.65    | 14.71     |
| 1440         | 3                     | 1.16                                                                            | 2.65                  | 8  | 2.81   | 3.83   | 4.51    | 5.37    | 6.01    | 6.64     | 7.27     | 8.1      | 8.73      |
| 2880         | 1.85                  | 0.77                                                                            | 1.83                  | 10 | 1.72   | 2.4    | 2.85    | 3.42    | 3.85    | 4.27     | 4.68     | 5.23     | 5.65      |
| 4320         | 1.33                  | 0.61                                                                            | 1.33                  | 10 | 1.23   | 1.77   | 2.13    | 2.58    | 2.91    | 3.24     | 3.57     | 4.01     | 4.34      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 440778 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 91.44                 | 96.92                                                                           | 40.64                 | 3 | 75.52  | 161.17 | 217.88  | 289.53  | 342.69  | 395.45   | 448.02   | 517.38   | 569.8     |
| 30           | 49.11                 | 45.53                                                                           | 25.4                  | 3 | 41.63  | 81.87  | 108.51  | 142.17  | 167.14  | 191.93   | 216.62   | 249.2    | 273.83    |
| 45           | 29.63                 | 25.55                                                                           | 18.63                 | 4 | 25.43  | 48.01  | 62.96   | 81.85   | 95.86   | 109.77   | 123.63   | 141.92   | 155.73    |
| 60           | 22.86                 | 18.89                                                                           | 15.24                 | 4 | 19.76  | 36.45  | 47.5    | 61.47   | 71.83   | 82.11    | 92.36    | 105.88   | 116.09    |
| 120          | 14.29                 | 7.58                                                                            | 11.43                 | 4 | 13.05  | 19.74  | 24.18   | 29.78   | 33.94   | 38.07    | 42.18    | 47.6     | 51.7      |
| 180          | 11.22                 | 3.87                                                                            | 9.74                  | 4 | 10.58  | 14     | 16.27   | 19.13   | 21.25   | 23.36    | 25.46    | 28.23    | 30.32     |
| 240          | 9.31                  | 3.2                                                                             | 8.89                  | 3 | 8.78   | 11.61  | 13.48   | 15.85   | 17.61   | 19.35    | 21.08    | 23.37    | 25.1      |
| 360          | 7.51                  | 3.08                                                                            | 6.77                  | 4 | 7      | 9.73   | 11.53   | 13.81   | 15.49   | 17.17    | 18.84    | 21.05    | 22.71     |
| 720          | 5.14                  | 3.46                                                                            | 4.04                  | 4 | 4.57   | 7.63   | 9.65    | 12.21   | 14.11   | 15.99    | 17.87    | 20.35    | 22.22     |
| 1440         | 3.19                  | 2.73                                                                            | 2.21                  | 4 | 2.74   | 5.15   | 6.75    | 8.77    | 10.27   | 11.75    | 13.23    | 15.19    | 16.66     |
| 2880         | 1.73                  | 1.38                                                                            | 1.32                  | 4 | 1.5    | 2.72   | 3.53    | 4.55    | 5.31    | 6.06     | 6.81     | 7.79     | 8.54      |
| 4320         | 1.2                   | 0.96                                                                            | 0.9                   | 4 | 1.04   | 1.89   | 2.45    | 3.16    | 3.69    | 4.21     | 4.73     | 5.42     | 5.94      |
|              |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 440993 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |       |        |        |        |        |        |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2     | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5   | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 82.41                 | 38.17                                                                           | 81.28                 | 9  | 76.14 | 109.87 | 132.21 | 160.43 | 181.36 | 202.14 | 222.84 | 250.16 | 270.8  |
| 30           | 59.15                 | 25.17                                                                           | 58.42                 | 14 | 55.02 | 77.26  | 91.99  | 110.59 | 124.4  | 138.1  | 151.75 | 169.77 | 183.38 |
| 45           | 45.24                 | 21.28                                                                           | 42.34                 | 14 | 41.75 | 60.55  | 73     | 88.73  | 100.41 | 111.99 | 123.53 | 138.76 | 150.27 |
| 60           | 41.06                 | 17.52                                                                           | 39.37                 | 18 | 38.18 | 53.67  | 63.92  | 76.87  | 86.48  | 96.02  | 105.52 | 118.06 | 127.53 |
| 120          | 24.43                 | 15.02                                                                           | 22.86                 | 17 | 21.96 | 35.24  | 44.03  | 55.13  | 63.37  | 71.54  | 79.69  | 90.44  | 98.56  |
| 180          | 18.38                 | 11.67                                                                           | 16.93                 | 17 | 16.46 | 26.78  | 33.6   | 42.23  | 48.63  | 54.99  | 61.32  | 69.67  | 75.98  |
| 240          | 14.85                 | 8.74                                                                            | 12.39                 | 18 | 13.41 | 21.14  | 26.25  | 32.71  | 37.51  | 42.27  | 47.01  | 53.26  | 57.99  |
| 360          | 11.48                 | 5.94                                                                            | 10.16                 | 17 | 10.5  | 15.75  | 19.23  | 23.62  | 26.88  | 30.11  | 33.33  | 37.58  | 40.8   |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 6.46 | 3.14 | 5.4  | 18 | 5.94   | 8.72   | 10.56   | 12.88   | 14.6    | 16.31    | 18.01    | 20.26    | 21.96     |
| 1440 | 3.74 | 1.82 | 3.49 | 21 | 3.44   | 5.05   | 6.11    | 7.46    | 8.46    | 9.45     | 10.44    | 11.74    | 12.72     |
| 2880 | 2.22 | 1    | 1.99 | 22 | 2.06   | 2.94   | 3.52    | 4.26    | 4.81    | 5.36     | 5.9      | 6.61     | 7.16      |
| 4320 | 1.54 | 0.63 | 1.38 | 21 | 1.44   | 1.99   | 2.36    | 2.83    | 3.17    | 3.52     | 3.86     | 4.31     | 4.65      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 441322-a |                       |                       |                       |    | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|----------------|-----------------------|-----------------------|-----------------------|----|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration       | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N  | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)          | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |    | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15             | 91.44                 | 48.37                 | 81.28                 | 7  | 85.66                                                                           | 131.3  | 157.45  | 186.6   | 205.99  | 223.75   | 240.24   | 260.48   | 274.83    |
| 30             | 56.74                 | 23.81                 | 53.34                 | 8  | 55.37                                                                           | 77.01  | 88.6    | 101.02  | 109.04  | 116.23   | 122.79   | 130.7    | 136.23    |
| 45             | 46.3                  | 17.5                  | 48.02                 | 8  | 45.72                                                                           | 61.32  | 69.46   | 78.07   | 83.56   | 88.44    | 92.87    | 98.18    | 101.86    |
| 60             | 37.68                 | 13.22                 | 38.55                 | 10 | 37.45                                                                           | 49.07  | 55.04   | 61.28   | 65.23   | 68.74    | 71.9     | 75.67    | 78.28     |
| 120            | 22.45                 | 6.47                  | 23.5                  | 8  | 22.57                                                                           | 28.05  | 30.76   | 33.53   | 35.26   | 36.78    | 38.13    | 39.73    | 40.83     |
| 180            | 15.7                  | 4.86                  | 15.89                 | 7  | 15.73                                                                           | 19.9   | 21.99   | 24.15   | 25.5    | 26.68    | 27.75    | 29.01    | 29.88     |
| 240            | 12.45                 | 3.93                  | 12.39                 | 8  | 12.46                                                                           | 15.85  | 17.55   | 19.31   | 20.41   | 21.38    | 22.26    | 23.29    | 24        |
| 360            | 9.63                  | 3.95                  | 8.47                  | 9  | 9.42                                                                            | 13     | 14.9    | 16.94   | 18.25   | 19.42    | 20.49    | 21.77    | 22.67     |
| 720            | 5.85                  | 2.42                  | 5.84                  | 10 | 5.72                                                                            | 7.91   | 9.08    | 10.34   | 11.14   | 11.87    | 12.52    | 13.32    | 13.87     |
| 1440           | 3.28                  | 1.3                   | 3.28                  | 9  | 3.22                                                                            | 4.39   | 5.01    | 5.67    | 6.09    | 6.46     | 6.8      | 7.22     | 7.5       |
| 2880           | 1.72                  | 0.68                  | 1.62                  | 10 | 1.69                                                                            | 2.3    | 2.62    | 2.97    | 3.19    | 3.38     | 3.56     | 3.78     | 3.93      |
| 4320           | 1.36                  | 0.6                   | 1.2                   | 9  | 1.32                                                                            | 1.87   | 2.17    | 2.49    | 2.7     | 2.89     | 3.06     | 3.27     | 3.42      |
|                |                       |                       |                       |    | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 441322-b |                       |                       |                       |    | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |       |        |        |        |        |        |        |        |
|----------------|-----------------------|-----------------------|-----------------------|----|---------------------------------------------------------------------------------|-------|--------|--------|--------|--------|--------|--------|--------|
| Duration       | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N  | 2                                                                               | 5     | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)          | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |    | 0.5                                                                             | 0.2   | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15             | 116.38                | 107.46                | 91.44                 | 11 | 98.73                                                                           | 193.7 | 256.57 | 336.02 | 394.95 | 453.45 | 511.74 | 588.64 | 646.76 |
| 30             | 74.51                 | 47.52                 | 63.5                  | 12 | 66.71                                                                           | 108.7 | 136.51 | 171.64 | 197.7  | 223.57 | 249.34 | 283.35 | 309.05 |
| 45             | 51.36                 | 31.8                  | 42.34                 | 12 | 46.14                                                                           | 74.24 | 92.85  | 116.36 | 133.8  | 151.11 | 168.36 | 191.11 | 208.31 |

|      |       |       |       |    |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 42.59 | 23.35 | 35.56 | 13 | 38.76  | 59.39  | 73.05   | 90.31   | 103.12  | 115.83   | 128.5    | 145.21   | 157.84    |
| 120  | 25.48 | 11.75 | 22.23 | 16 | 23.55  | 33.93  | 40.81   | 49.5    | 55.94   | 62.34    | 68.71    | 77.12    | 83.47     |
| 180  | 19.53 | 7.88  | 19.05 | 16 | 18.24  | 25.2   | 29.81   | 35.64   | 39.96   | 44.25    | 48.52    | 54.16    | 58.42     |
| 240  | 15.16 | 6.31  | 12.7  | 15 | 14.12  | 19.7   | 23.39   | 28.06   | 31.52   | 34.95    | 38.38    | 42.89    | 46.3      |
| 360  | 10.95 | 4.95  | 9.31  | 15 | 10.14  | 14.51  | 17.41   | 21.07   | 23.78   | 26.48    | 29.16    | 32.7     | 35.38     |
| 720  | 6.3   | 2.35  | 5.93  | 19 | 5.91   | 7.99   | 9.37    | 11.1    | 12.39   | 13.67    | 14.95    | 16.63    | 17.9      |
| 1440 | 3.5   | 1.21  | 3.07  | 21 | 3.3    | 4.37   | 5.08    | 5.97    | 6.64    | 7.3      | 7.95     | 8.82     | 9.47      |
| 2880 | 2.03  | 0.67  | 1.91  | 17 | 1.92   | 2.51   | 2.9     | 3.4     | 3.77    | 4.13     | 4.5      | 4.97     | 5.34      |
| 4320 | 1.41  | 0.45  | 1.31  | 19 | 1.34   | 1.73   | 2       | 2.33    | 2.58    | 2.82     | 3.07     | 3.39     | 3.63      |
|      |       |       |       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 441614 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 149.69                | 124.05                                                                          | 111.76                | 15 | 129.32 | 238.94 | 311.53  | 403.24  | 471.27  | 538.8    | 606.09   | 694.86   | 761.95    |
| 30           | 80.96                 | 57.64                                                                           | 68.58                 | 16 | 71.49  | 122.43 | 156.16  | 198.77  | 230.38  | 261.76   | 293.03   | 334.27   | 365.45    |
| 45           | 54.19                 | 36.66                                                                           | 45.72                 | 18 | 48.17  | 80.57  | 102.02  | 129.12  | 149.23  | 169.18   | 189.07   | 215.3    | 235.13    |
| 60           | 44.2                  | 25.93                                                                           | 39.37                 | 20 | 39.94  | 62.86  | 78.03   | 97.2    | 111.42  | 125.54   | 139.6    | 158.16   | 172.18    |
| 120          | 24.73                 | 12.65                                                                           | 22.86                 | 21 | 22.65  | 33.83  | 41.23   | 50.59   | 57.52   | 64.41    | 71.27    | 80.32    | 87.17     |
| 180          | 19.22                 | 8.21                                                                            | 17.78                 | 20 | 17.87  | 25.13  | 29.93   | 36      | 40.5    | 44.97    | 49.43    | 55.3     | 59.74     |
| 240          | 15.18                 | 6.14                                                                            | 14.29                 | 22 | 14.17  | 19.6   | 23.19   | 27.73   | 31.1    | 34.44    | 37.77    | 42.16    | 45.48     |
| 360          | 10.34                 | 4.27                                                                            | 9.74                  | 23 | 9.64   | 13.41  | 15.91   | 19.07   | 21.41   | 23.73    | 26.05    | 29.11    | 31.41     |
| 720          | 6.3                   | 2.21                                                                            | 5.93                  | 27 | 5.94   | 7.89   | 9.18    | 10.82   | 12.03   | 13.23    | 14.43    | 16.01    | 17.21     |
| 1440         | 3.64                  | 1.47                                                                            | 3.39                  | 29 | 3.4    | 4.7    | 5.56    | 6.64    | 7.45    | 8.25     | 9.05     | 10.1     | 10.9      |
| 2880         | 1.97                  | 0.89                                                                            | 1.78                  | 30 | 1.82   | 2.61   | 3.13    | 3.79    | 4.28    | 4.76     | 5.24     | 5.88     | 6.36      |
| 4320         | 1.47                  | 0.6                                                                             | 1.41                  | 29 | 1.37   | 1.9    | 2.25    | 2.7     | 3.03    | 3.35     | 3.68     | 4.11     | 4.43      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>Gauge 441929</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|---------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration            | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)               | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                  | 72.57                 | 24.49                                                                           | 71.12                 | 7  | 68.55  | 90.19  | 104.52  | 122.63  | 136.06  | 149.39   | 162.67   | 180.2    | 193.44    |
| 30                  | 51.53                 | 18.88                                                                           | 50.8                  | 7  | 48.43  | 65.11  | 76.16   | 90.12   | 100.47  | 110.75   | 120.99   | 134.5    | 144.71    |
| 45                  | 38.01                 | 17.58                                                                           | 33.87                 | 9  | 35.12  | 50.66  | 60.95   | 73.94   | 83.58   | 93.15    | 102.69   | 115.27   | 124.78    |
| 60                  | 31.01                 | 17.43                                                                           | 22.86                 | 7  | 28.15  | 43.55  | 53.75   | 66.64   | 76.19   | 85.68    | 95.14    | 107.61   | 117.04    |
| 120                 | 19.62                 | 10.53                                                                           | 15.88                 | 10 | 17.89  | 27.2   | 33.36   | 41.14   | 46.92   | 52.65    | 58.36    | 65.9     | 71.59     |
| 180                 | 14.66                 | 8.34                                                                            | 11.85                 | 11 | 13.29  | 20.66  | 25.54   | 31.71   | 36.28   | 40.82    | 45.34    | 51.31    | 55.82     |
| 240                 | 12.03                 | 6.78                                                                            | 9.53                  | 11 | 10.92  | 16.91  | 20.88   | 25.89   | 29.61   | 33.3     | 36.97    | 41.83    | 45.49     |
| 360                 | 8.89                  | 5.1                                                                             | 7.2                   | 13 | 8.05   | 12.56  | 15.54   | 19.31   | 22.11   | 24.89    | 27.65    | 31.3     | 34.06     |
| 720                 | 5.85                  | 3.99                                                                            | 4.98                  | 14 | 5.19   | 8.72   | 11.06   | 14.01   | 16.19   | 18.37    | 20.53    | 23.39    | 25.54     |
| 1440                | 3.41                  | 2.4                                                                             | 2.75                  | 13 | 3.02   | 5.14   | 6.54    | 8.32    | 9.63    | 10.94    | 12.24    | 13.96    | 15.26     |
| 2880                | 1.99                  | 1.24                                                                            | 1.78                  | 14 | 1.79   | 2.88   | 3.61    | 4.52    | 5.2     | 5.88     | 6.55     | 7.44     | 8.11      |
| 4320                | 1.48                  | 0.81                                                                            | 1.26                  | 14 | 1.35   | 2.06   | 2.54    | 3.14    | 3.58    | 4.02     | 4.46     | 5.04     | 5.48      |
|                     |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>Gauge 442044</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |        |        |        |        |        |        |        |
|---------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration            | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)               | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                  | 116.45                | 100.03                                                                          | 91.44                 | 13 | 100.02 | 188.42 | 246.95 | 320.9  | 375.76 | 430.22 | 484.47 | 556.06 | 610.16 |
| 30                  | 57.87                 | 46.97                                                                           | 45.72                 | 15 | 50.16  | 91.67  | 119.15 | 153.87 | 179.63 | 205.2  | 230.68 | 264.29 | 289.69 |
| 45                  | 40.22                 | 29.95                                                                           | 33.87                 | 17 | 35.3   | 61.77  | 79.29  | 101.43 | 117.86 | 134.17 | 150.41 | 171.84 | 188.04 |
| 60                  | 35.97                 | 22.07                                                                           | 30.48                 | 17 | 32.35  | 51.85  | 64.76  | 81.08  | 93.18  | 105.2  | 117.17 | 132.96 | 144.9  |
| 120                 | 18.42                 | 11.39                                                                           | 15.88                 | 18 | 16.55  | 26.62  | 33.28  | 41.7   | 47.95  | 54.15  | 60.33  | 68.48  | 74.64  |
| 180                 | 13.17                 | 8.16                                                                            | 11.43                 | 18 | 11.83  | 19.04  | 23.82  | 29.85  | 34.32  | 38.77  | 43.19  | 49.03  | 53.44  |
| 240                 | 10.64                 | 6.55                                                                            | 9.21                  | 20 | 9.56   | 15.35  | 19.19  | 24.03  | 27.62  | 31.19  | 34.74  | 39.43  | 42.97  |
| 360                 | 8.07                  | 4.75                                                                            | 6.99                  | 20 | 7.29   | 11.49  | 14.27  | 17.78  | 20.38  | 22.97  | 25.55  | 28.95  | 31.51  |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 4.99 | 2.81 | 4.27 | 21 | 4.53   | 7.01   | 8.66    | 10.73   | 12.27   | 13.8     | 15.33    | 17.34    | 18.86     |
| 1440 | 2.8  | 1.5  | 2.6  | 25 | 2.55   | 3.88   | 4.76    | 5.87    | 6.69    | 7.51     | 8.32     | 9.39     | 10.2      |
| 2880 | 1.53 | 0.82 | 1.43 | 25 | 1.4    | 2.12   | 2.6     | 3.21    | 3.66    | 4.1      | 4.55     | 5.13     | 5.58      |
| 4320 | 1.08 | 0.58 | 1.01 | 24 | 0.98   | 1.5    | 1.84    | 2.27    | 2.58    | 2.9      | 3.21     | 3.63     | 3.94      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 442159 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 135.47                | 172.27                                                                          | 81.28                 | 9  | 107.18 | 259.42 | 360.22  | 487.57  | 582.05  | 675.84   | 769.28   | 892.55   | 985.72    |
| 30           | 70.7                  | 73.15                                                                           | 53.34                 | 12 | 58.69  | 123.33 | 166.13  | 220.21  | 260.33  | 300.15   | 339.83   | 392.18   | 431.74    |
| 45           | 52.49                 | 44.49                                                                           | 42.34                 | 14 | 45.18  | 84.5   | 110.53  | 143.42  | 167.82  | 192.04   | 216.18   | 248.01   | 272.07    |
| 60           | 43.72                 | 33.33                                                                           | 35.56                 | 14 | 38.25  | 67.7   | 87.2    | 111.84  | 130.12  | 148.27   | 166.35   | 190.2    | 208.22    |
| 120          | 25                    | 15.16                                                                           | 20.96                 | 16 | 22.51  | 35.91  | 44.78   | 55.99   | 64.3    | 72.55    | 80.78    | 91.62    | 99.82     |
| 180          | 16.88                 | 10.34                                                                           | 13.97                 | 16 | 15.18  | 24.32  | 30.37   | 38.01   | 43.68   | 49.31    | 54.92    | 62.32    | 67.91     |
| 240          | 13.77                 | 8.2                                                                             | 11.44                 | 16 | 12.42  | 19.67  | 24.47   | 30.53   | 35.03   | 39.49    | 43.94    | 49.81    | 54.24     |
| 360          | 10.89                 | 5.93                                                                            | 9.74                  | 15 | 9.92   | 15.16  | 18.63   | 23.01   | 26.26   | 29.49    | 32.71    | 36.95    | 40.16     |
| 720          | 6.09                  | 2.82                                                                            | 5.61                  | 18 | 5.63   | 8.12   | 9.77    | 11.85   | 13.4    | 14.94    | 16.47    | 18.48    | 20.01     |
| 1440         | 3.68                  | 1.51                                                                            | 3.76                  | 18 | 3.43   | 4.77   | 5.65    | 6.77    | 7.59    | 8.42     | 9.24     | 10.32    | 11.13     |
| 2880         | 2                     | 0.83                                                                            | 1.88                  | 16 | 1.86   | 2.6    | 3.08    | 3.7     | 4.15    | 4.6      | 5.05     | 5.65     | 6.1       |
| 4320         | 1.4                   | 0.61                                                                            | 1.35                  | 18 | 1.3    | 1.84   | 2.2     | 2.65    | 2.98    | 3.31     | 3.64     | 4.08     | 4.41      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 442208 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |        |        |        |        |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 127.34                | 88.56                                                                           | 101.6                 | 15 | 109.37 | 194.74 | 248.87 | 313.04 | 357.77 | 400.06 | 440.37 | 491.21 | 528.1  |
| 30           | 67.61                 | 40.8                                                                            | 60.79                 | 16 | 61.13  | 100.19 | 123.61 | 150.46 | 168.69 | 185.63 | 201.54 | 221.31 | 235.47 |
| 45           | 46.8                  | 26.7                                                                            | 40.64                 | 17 | 43.01  | 68.44  | 83.39  | 100.3  | 111.69 | 122.21 | 132.03 | 144.17 | 152.82 |

|      |       |       |       |    |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 36.89 | 18.52 | 33.02 | 19 | 34.95  | 52.3   | 62.07   | 72.86   | 79.98   | 86.47    | 92.47    | 99.8     | 104.98    |
| 120  | 20.7  | 9.55  | 17.78 | 13 | 19.92  | 28.75  | 33.6    | 38.87   | 42.32   | 45.43    | 48.29    | 51.77    | 54.21     |
| 180  | 14.97 | 6.52  | 13.97 | 16 | 14.53  | 20.5   | 23.73   | 27.21   | 29.46   | 31.49    | 33.34    | 35.59    | 37.16     |
| 240  | 11.81 | 5.05  | 11.43 | 15 | 11.5   | 16.1   | 18.58   | 21.25   | 22.97   | 24.52    | 25.93    | 27.64    | 28.84     |
| 360  | 8.02  | 2.7   | 7.62  | 17 | 8      | 10.35  | 11.55   | 12.8    | 13.58   | 14.28    | 14.91    | 15.65    | 16.17     |
| 720  | 4.96  | 1.85  | 4.56  | 18 | 4.9    | 6.55   | 7.41    | 8.31    | 8.88    | 9.4      | 9.86     | 10.41    | 10.8      |
| 1440 | 2.82  | 0.92  | 2.7   | 18 | 2.82   | 3.61   | 4.02    | 4.44    | 4.7     | 4.93     | 5.14     | 5.39     | 5.56      |
| 2880 | 1.57  | 0.48  | 1.56  | 18 | 1.57   | 1.99   | 2.19    | 2.4     | 2.53    | 2.65     | 2.76     | 2.88     | 2.96      |
| 4320 | 1.12  | 0.32  | 1.09  | 19 | 1.13   | 1.4    | 1.53    | 1.67    | 1.75    | 1.83     | 1.89     | 1.97     | 2.03      |
|      |       |       |       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 442269 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 78.24                 | 50.29                                                                           | 78.24                 | 2 | 69.27  | 117.64 | 147.35  | 181.89  | 205.62  | 227.83   | 248.82   | 275.07   | 293.98    |
| 30           | 43.94                 | 18.33                                                                           | 43.94                 | 2 | 42.91  | 59.55  | 68.45   | 77.98   | 84.13   | 89.64    | 94.67    | 100.73   | 104.96    |
| 45           | 31.33                 | 9.34                                                                            | 31.33                 | 2 | 31.46  | 39.41  | 43.37   | 47.44   | 49.98   | 52.21    | 54.2     | 56.57    | 58.19     |
| 60           | 24.64                 | 5.39                                                                            | 24.64                 | 2 | 24.96  | 29.3   | 31.36   | 33.43   | 34.69   | 35.78    | 36.75    | 37.88    | 38.65     |
| 120          | 14.29                 | 0.09                                                                            | 14.29                 | 2 | 14.3   | 14.36  | 14.39   | 14.41   | 14.43   | 14.44    | 14.45    | 14.46    | 14.47     |
| 180          | 9.99                  | 0.6                                                                             | 9.99                  | 2 | 10.07  | 10.49  | 10.68   | 10.85   | 10.95   | 11.04    | 11.12    | 11.2     | 11.26     |
| 240          | 7.78                  | 0.68                                                                            | 7.78                  | 2 | 7.87   | 8.35   | 8.57    | 8.78    | 8.9     | 9.01     | 9.1      | 9.2      | 9.27      |
| 360          | 5.36                  | 0.39                                                                            | 5.36                  | 2 | 5.41   | 5.69   | 5.81    | 5.93    | 5.99    | 6.05     | 6.1      | 6.16     | 6.2       |
| 720          | 3.07                  | 0.12                                                                            | 3.07                  | 2 | 3.09   | 3.17   | 3.21    | 3.24    | 3.26    | 3.28     | 3.29     | 3.31     | 3.32      |
| 1440         | 1.71                  | 0.16                                                                            | 1.71                  | 2 | 1.73   | 1.85   | 1.9     | 1.95    | 1.98    | 2        | 2.02     | 2.05     | 2.06      |
| 2880         | 1.01                  | 0                                                                               | 1.01                  | 2 | 1.01   | 1.01   | 1.01    | 1.01    | 1.01    | 1.01     | 1.01     | 1.01     | 1.01      |
| 4320         | 0.8                   | 0.07                                                                            | 0.8                   | 2 | 0.81   | 0.86   | 0.88    | 0.9     | 0.92    | 0.93     | 0.94     | 0.95     | 0.95      |
|              |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>Gauge 442663</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|---------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration            | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)               | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                  | 54.19                 | 21.15                                                                           | 60.96                 | 3 | 53.33  | 72.3   | 82.29   | 92.87   | 99.65   | 105.7    | 111.19   | 117.78   | 122.37    |
| 30                  | 39.37                 | 13.36                                                                           | 43.18                 | 4 | 39.23  | 50.89  | 56.85   | 63.05   | 66.97   | 70.43    | 73.55    | 77.26    | 79.83     |
| 45                  | 27.94                 | 10.48                                                                           | 30.48                 | 4 | 27.61  | 36.94  | 41.8    | 46.93   | 50.2    | 53.11    | 55.75    | 58.91    | 61.1      |
| 60                  | 21.17                 | 9.62                                                                            | 25.4                  | 3 | 20.42  | 29.29  | 34.14   | 39.41   | 42.84   | 45.93    | 48.77    | 52.22    | 54.64     |
| 120                 | 13.65                 | 5.33                                                                            | 14.61                 | 4 | 13.43  | 18.21  | 20.73   | 23.4    | 25.11   | 26.63    | 28.02    | 29.68    | 30.84     |
| 180                 | 10.8                  | 5                                                                               | 9.74                  | 4 | 10.39  | 15.01  | 17.55   | 20.32   | 22.13   | 23.77    | 25.27    | 27.09    | 28.38     |
| 240                 | 8.74                  | 4.59                                                                            | 7.64                  | 4 | 8.2    | 12.53  | 15      | 17.75   | 19.58   | 21.26    | 22.81    | 24.72    | 26.07     |
| 360                 | 6.49                  | 2.27                                                                            | 5.36                  | 5 | 6.45   | 8.45   | 9.47    | 10.54   | 11.22   | 11.82    | 12.36    | 13.01    | 13.45     |
| 720                 | 3.77                  | 1.22                                                                            | 3.18                  | 5 | 3.77   | 4.82   | 5.36    | 5.91    | 6.26    | 6.56     | 6.84     | 7.17     | 7.39      |
| 1440                | 2.28                  | 0.89                                                                            | 2.22                  | 5 | 2.24   | 3.04   | 3.46    | 3.91    | 4.19    | 4.45     | 4.68     | 4.96     | 5.15      |
| 2880                | 1.29                  | 0.29                                                                            | 1.22                  | 5 | 1.31   | 1.54   | 1.65    | 1.76    | 1.83    | 1.89     | 1.95     | 2.01     | 2.05      |
| 4320                | 1.1                   | 0.31                                                                            | 1.08                  | 4 | 1.11   | 1.37   | 1.5     | 1.63    | 1.71    | 1.78     | 1.85     | 1.92     | 1.97      |
|                     |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>Gauge 442729</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |        |        |        |        |        |        |        |
|---------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration            | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)               | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                  | 165.46                | 148.36                                                                          | 101.6                 | 7  | 124.02 | 263.9  | 363.81 | 491.23 | 585.07 | 677.2  | 767.89 | 885.93 | 974.01 |
| 30                  | 80.01                 | 68.47                                                                           | 48.26                 | 8  | 61.8   | 126.87 | 172.24 | 229.27 | 270.81 | 311.28 | 350.86 | 402.05 | 440.03 |
| 45                  | 58.06                 | 47.15                                                                           | 33.87                 | 7  | 46.24  | 91.36  | 122.03 | 159.98 | 187.29 | 213.69 | 239.33 | 272.27 | 296.56 |
| 60                  | 43.18                 | 32.75                                                                           | 31.75                 | 8  | 35.65  | 67.16  | 87.92  | 113.1  | 130.97 | 148.06 | 164.52 | 185.48 | 200.83 |
| 120                 | 23.12                 | 15.47                                                                           | 16.51                 | 9  | 20.17  | 35.07  | 44.37  | 55.29  | 62.85  | 69.95  | 76.7   | 85.17  | 91.3   |
| 180                 | 17.24                 | 11.64                                                                           | 11.86                 | 8  | 14.99  | 26.2   | 33.23  | 41.49  | 47.22  | 52.62  | 57.75  | 64.19  | 68.85  |
| 240                 | 13.57                 | 9.09                                                                            | 9.53                  | 9  | 11.83  | 20.59  | 26.06  | 32.48  | 36.92  | 41.1   | 45.07  | 50.06  | 53.66  |
| 360                 | 9.59                  | 7.12                                                                            | 6.14                  | 10 | 8      | 14.86  | 19.33  | 24.73  | 28.54  | 32.18  | 35.67  | 40.1   | 43.35  |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 6    | 5.06 | 3.6  | 9  | 4.68   | 9.49   | 12.83   | 17.01   | 20.04   | 22.98    | 25.86    | 29.57    | 32.32     |
| 1440 | 3.39 | 2.59 | 2.28 | 8  | 2.79   | 5.28   | 6.93    | 8.93    | 10.35   | 11.71    | 13.02    | 14.7     | 15.92     |
| 2880 | 1.72 | 1.23 | 1.3  | 10 | 1.46   | 2.65   | 3.41    | 4.31    | 4.95    | 5.55     | 6.13     | 6.86     | 7.4       |
| 4320 | 1.25 | 0.82 | 0.95 | 10 | 1.1    | 1.89   | 2.38    | 2.95    | 3.34    | 3.71     | 4.06     | 4.5      | 4.82      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 442941 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 54.19                 | 21.15                                                                           | 60.96                 | 3 | 53.33  | 72.3   | 82.29   | 92.87   | 99.65   | 105.7    | 111.19   | 117.78   | 122.37    |
| 30           | 39.37                 | 13.36                                                                           | 43.18                 | 4 | 39.23  | 50.89  | 56.85   | 63.05   | 66.97   | 70.43    | 73.55    | 77.26    | 79.83     |
| 45           | 27.94                 | 10.48                                                                           | 30.48                 | 4 | 27.61  | 36.94  | 41.8    | 46.93   | 50.2    | 53.11    | 55.75    | 58.91    | 61.1      |
| 60           | 21.17                 | 9.62                                                                            | 25.4                  | 3 | 20.42  | 29.29  | 34.14   | 39.41   | 42.84   | 45.93    | 48.77    | 52.22    | 54.64     |
| 120          | 13.65                 | 5.33                                                                            | 14.61                 | 4 | 13.43  | 18.21  | 20.73   | 23.4    | 25.11   | 26.63    | 28.02    | 29.68    | 30.84     |
| 180          | 10.8                  | 5                                                                               | 9.74                  | 4 | 10.39  | 15.01  | 17.55   | 20.32   | 22.13   | 23.77    | 25.27    | 27.09    | 28.38     |
| 240          | 8.74                  | 4.59                                                                            | 7.64                  | 4 | 8.2    | 12.53  | 15      | 17.75   | 19.58   | 21.26    | 22.81    | 24.72    | 26.07     |
| 360          | 6.49                  | 2.27                                                                            | 5.36                  | 5 | 6.45   | 8.45   | 9.47    | 10.54   | 11.22   | 11.82    | 12.36    | 13.01    | 13.45     |
| 720          | 3.77                  | 1.22                                                                            | 3.18                  | 5 | 3.77   | 4.82   | 5.36    | 5.91    | 6.26    | 6.56     | 6.84     | 7.17     | 7.39      |
| 1440         | 2.28                  | 0.89                                                                            | 2.22                  | 5 | 2.24   | 3.04   | 3.46    | 3.91    | 4.19    | 4.45     | 4.68     | 4.96     | 5.15      |
| 2880         | 1.29                  | 0.29                                                                            | 1.22                  | 5 | 1.31   | 1.54   | 1.65    | 1.76    | 1.83    | 1.89     | 1.95     | 2.01     | 2.05      |
| 4320         | 1.1                   | 0.31                                                                            | 1.08                  | 4 | 1.11   | 1.37   | 1.5     | 1.63    | 1.71    | 1.78     | 1.85     | 1.92     | 1.97      |
|              |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 443192 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |       |        |       |        |        |       |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|-------|--------|-------|--------|--------|-------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2     | 5      | 10    | 25     | 50     | 100   | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5   | 0.2    | 0.1   | 0.04   | 0.02   | 0.01  | 0.005  | 0.002  | 0.001  |
| 15           | 88.9                  | 56.49                                                                           | 66.04                 | 4 | 79.03 | 133.31 | 166.5 | 204.98 | 231.35 | 256   | 279.28 | 308.34 | 329.26 |
| 30           | 54.19                 | 18.36                                                                           | 50.8                  | 6 | 54    | 70.03  | 78.21 | 86.72  | 92.1   | 96.85 | 101.13 | 106.23 | 109.75 |
| 45           | 46.06                 | 13.03                                                                           | 44.03                 | 5 | 46.35 | 57.33  | 62.76 | 68.3   | 71.75  | 74.76 | 77.46  | 80.64  | 82.82  |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 35.56 | 10.52 | 34.29 | 8 | 35.72  | 44.66  | 49.11   | 53.68   | 56.53   | 59.02    | 61.26    | 63.91    | 65.73     |
| 120  | 24.89 | 9.57  | 21.59 | 5 | 24.54  | 33.09  | 37.58   | 42.33   | 45.36   | 48.07    | 50.52    | 53.47    | 55.52     |
| 180  | 18.21 | 7.22  | 15.67 | 6 | 17.89  | 24.39  | 27.82   | 31.46   | 33.8    | 35.89    | 37.79    | 40.07    | 41.66     |
| 240  | 16.73 | 5.47  | 15.25 | 6 | 16.71  | 21.45  | 23.86   | 26.35   | 27.91   | 29.3     | 30.54    | 32.02    | 33.04     |
| 360  | 12.35 | 4.58  | 11.65 | 6 | 12.22  | 16.28  | 18.4    | 20.63   | 22.05   | 23.31    | 24.45    | 25.82    | 26.77     |
| 720  | 7.44  | 2.9   | 7.41  | 7 | 7.32   | 9.92   | 11.29   | 12.74   | 13.67   | 14.5     | 15.25    | 16.15    | 16.78     |
| 1440 | 4.22  | 1.49  | 4.24  | 8 | 4.19   | 5.5    | 6.18    | 6.88    | 7.33    | 7.73     | 8.09     | 8.51     | 8.81      |
| 2880 | 2.15  | 0.88  | 1.91  | 7 | 2.1    | 2.9    | 3.32    | 3.78    | 4.07    | 4.33     | 4.57     | 4.85     | 5.05      |
| 4320 | 1.53  | 0.65  | 1.27  | 7 | 1.49   | 2.08   | 2.4     | 2.74    | 2.96    | 3.16     | 3.34     | 3.56     | 3.71      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 443200 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 60.96                 | 10.16                                                                           | 60.96                 | 3 | 61.84  | 69.68  | 73.31   | 76.88   | 79.03   | 80.88    | 82.5     | 84.39    | 85.66     |
| 30           | 35.56                 | 8.8                                                                             | 40.64                 | 3 | 35.93  | 43.17  | 46.68   | 50.21   | 52.39   | 54.29    | 55.97    | 57.95    | 59.3      |
| 45           | 28.22                 | 8.52                                                                            | 27.09                 | 3 | 28.32  | 35.59  | 39.22   | 42.95   | 45.29   | 47.34    | 49.17    | 51.35    | 52.84     |
| 60           | 23.71                 | 8.92                                                                            | 22.86                 | 3 | 23.42  | 31.37  | 35.51   | 39.88   | 42.67   | 45.16    | 47.41    | 50.1     | 51.97     |
| 120          | 13.55                 | 6.39                                                                            | 12.7                  | 3 | 12.99  | 18.92  | 22.2    | 25.77   | 28.12   | 30.24    | 32.19    | 34.57    | 36.24     |
| 180          | 10.72                 | 4.26                                                                            | 10.16                 | 3 | 10.53  | 14.36  | 16.39   | 18.54   | 19.93   | 21.16    | 22.28    | 23.63    | 24.57     |
| 240          | 8.26                  | 2.91                                                                            | 7.62                  | 3 | 8.21   | 10.77  | 12.08   | 13.46   | 14.33   | 15.11    | 15.8     | 16.64    | 17.21     |
| 360          | 6.35                  | 2.36                                                                            | 5.93                  | 3 | 6.28   | 8.38   | 9.47    | 10.62   | 11.35   | 12       | 12.59    | 13.3     | 13.79     |
| 720          | 4.37                  | 2.65                                                                            | 3.18                  | 3 | 3.95   | 6.48   | 8.01    | 9.76    | 10.95   | 12.05    | 13.09    | 14.38    | 15.31     |
| 1440         | 2.65                  | 1.06                                                                            | 2.65                  | 3 | 2.6    | 3.56   | 4.06    | 4.6     | 4.94    | 5.25     | 5.53     | 5.87     | 6.11      |
| 2880         | 1.45                  | 0.57                                                                            | 1.69                  | 3 | 1.43   | 1.94   | 2.21    | 2.49    | 2.68    | 2.84     | 2.99     | 3.17     | 3.29      |
| 4320         | 1.2                   | 0.56                                                                            | 1.2                   | 3 | 1.15   | 1.67   | 1.96    | 2.27    | 2.47    | 2.66     | 2.83     | 3.03     | 3.18      |
|              |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>Gauge 443229</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|---------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration            | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)               | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                  | 138.18                | 168.42                                                                          | 71.12                 | 5 | 110.52 | 259.36 | 357.9   | 482.41  | 574.78  | 666.47   | 757.82   | 878.34   | 969.43    |
| 30                  | 68.3                  | 59.19                                                                           | 50.8                  | 9 | 58.58  | 110.89 | 145.52  | 189.28  | 221.74  | 253.96   | 286.07   | 328.43   | 360.44    |
| 45                  | 47.04                 | 39.4                                                                            | 33.87                 | 9 | 40.57  | 75.39  | 98.44   | 127.57  | 149.18  | 170.63   | 192      | 220.19   | 241.5     |
| 60                  | 35.84                 | 29.69                                                                           | 25.4                  | 9 | 30.96  | 57.2   | 74.57   | 96.52   | 112.81  | 128.97   | 145.07   | 166.32   | 182.38    |
| 120                 | 19.05                 | 14.34                                                                           | 13.97                 | 9 | 16.69  | 29.37  | 37.76   | 48.36   | 56.22   | 64.03    | 71.81    | 82.07    | 89.83     |
| 180                 | 16.39                 | 9.41                                                                            | 13.94                 | 7 | 14.84  | 23.16  | 28.67   | 35.62   | 40.78   | 45.91    | 51.01    | 57.74    | 62.83     |
| 240                 | 12.14                 | 6.67                                                                            | 10.79                 | 8 | 11.04  | 16.94  | 20.84   | 25.77   | 29.43   | 33.06    | 36.68    | 41.45    | 45.06     |
| 360                 | 8.73                  | 4.26                                                                            | 8.05                  | 8 | 8.03   | 11.8   | 14.29   | 17.44   | 19.77   | 22.09    | 24.4     | 27.45    | 29.76     |
| 720                 | 5.29                  | 1.93                                                                            | 4.87                  | 8 | 4.97   | 6.68   | 7.81    | 9.23    | 10.29   | 11.34    | 12.39    | 13.77    | 14.82     |
| 1440                | 2.73                  | 0.94                                                                            | 2.49                  | 8 | 2.58   | 3.41   | 3.96    | 4.65    | 5.17    | 5.68     | 6.19     | 6.86     | 7.37      |
| 2880                | 1.55                  | 0.53                                                                            | 1.51                  | 8 | 1.46   | 1.93   | 2.24    | 2.63    | 2.92    | 3.21     | 3.5      | 3.88     | 4.17      |
| 4320                | 1.1                   | 0.37                                                                            | 1.09                  | 9 | 1.04   | 1.37   | 1.58    | 1.86    | 2.06    | 2.26     | 2.46     | 2.73     | 2.93      |
|                     |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>Gauge 443272</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |        |        |        |        |        |         |         |
|---------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| Duration            | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500     | 1000    |
| (min)               | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002   | 0.001   |
| 15                  | 155.79                | 215.28                                                                          | 86.36                 | 12 | 120.43 | 310.68 | 436.65 | 595.8  | 713.87 | 831.07 | 947.84 | 1101.89 | 1218.32 |
| 30                  | 81.6                  | 90.79                                                                           | 63.5                  | 16 | 66.69  | 146.92 | 200.05 | 267.17 | 316.96 | 366.38 | 415.63 | 480.6   | 529.7   |
| 45                  | 58.21                 | 59.59                                                                           | 45.72                 | 16 | 48.42  | 101.09 | 135.95 | 180.01 | 212.69 | 245.13 | 277.45 | 320.09  | 352.32  |
| 60                  | 45.56                 | 44.03                                                                           | 36.83                 | 16 | 38.33  | 77.24  | 103    | 135.55 | 159.7  | 183.67 | 207.55 | 239.06  | 262.87  |
| 120                 | 25.16                 | 21.42                                                                           | 20.96                 | 16 | 21.64  | 40.57  | 53.1   | 68.94  | 80.69  | 92.35  | 103.97 | 119.3   | 130.88  |
| 180                 | 17.75                 | 12.78                                                                           | 15.24                 | 21 | 15.65  | 26.95  | 34.42  | 43.87  | 50.88  | 57.84  | 64.77  | 73.91   | 80.83   |
| 240                 | 14.9                  | 9.73                                                                            | 13.02                 | 20 | 13.3   | 21.9   | 27.59  | 34.79  | 40.12  | 45.42  | 50.7   | 57.66   | 62.92   |
| 360                 | 11.3                  | 6.91                                                                            | 10.16                 | 19 | 10.17  | 16.27  | 20.31  | 25.42  | 29.21  | 32.97  | 36.72  | 41.67   | 45.4    |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 6.18 | 3.13 | 5.61 | 24 | 5.67   | 8.43   | 10.26   | 12.58   | 14.29   | 16       | 17.7     | 19.94    | 21.63     |
| 1440 | 3.34 | 1.55 | 2.97 | 26 | 3.09   | 4.46   | 5.36    | 6.51    | 7.36    | 8.2      | 9.04     | 10.15    | 10.99     |
| 2880 | 2.13 | 1    | 1.91 | 29 | 1.97   | 2.85   | 3.43    | 4.17    | 4.72    | 5.27     | 5.81     | 6.52     | 7.07      |
| 4320 | 1.56 | 0.71 | 1.41 | 26 | 1.44   | 2.07   | 2.49    | 3.01    | 3.4     | 3.79     | 4.17     | 4.68     | 5.06      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 443310-a |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|----------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration       | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)          | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15             | 107.95                | 53.31                                                                           | 93.98                 | 12 | 102.61 | 152.42 | 180.34  | 211.07  | 231.31  | 249.73   | 266.73   | 287.48   | 302.12    |
| 30             | 54.12                 | 25.02                                                                           | 48.26                 | 13 | 52.06  | 75.19  | 87.92   | 101.76  | 110.8   | 118.97   | 126.48   | 135.6    | 142       |
| 45             | 36.98                 | 15.35                                                                           | 33.87                 | 15 | 36.14  | 50.06  | 57.5    | 65.45   | 70.58   | 75.18    | 79.37    | 84.43    | 87.95     |
| 60             | 29.9                  | 11.21                                                                           | 25.79                 | 14 | 29.55  | 39.52  | 44.73   | 50.21   | 53.71   | 56.82    | 59.64    | 63.02    | 65.36     |
| 120            | 17                    | 5.59                                                                            | 16.77                 | 14 | 16.98  | 21.83  | 24.29   | 26.84   | 28.45   | 29.87    | 31.14    | 32.66    | 33.71     |
| 180            | 12.93                 | 3.88                                                                            | 12.28                 | 14 | 12.98  | 16.29  | 17.94   | 19.63   | 20.69   | 21.62    | 22.45    | 23.44    | 24.12     |
| 240            | 10.9                  | 3.36                                                                            | 10.32                 | 14 | 10.93  | 13.8   | 15.25   | 16.73   | 17.67   | 18.48    | 19.22    | 20.09    | 20.69     |
| 360            | 7.91                  | 2.79                                                                            | 7.29                  | 16 | 7.86   | 10.31  | 11.58   | 12.9    | 13.73   | 14.48    | 15.15    | 15.95    | 16.5      |
| 720            | 4.84                  | 1.99                                                                            | 4.66                  | 13 | 4.74   | 6.54   | 7.5     | 8.52    | 9.18    | 9.78     | 10.31    | 10.96    | 11.42     |
| 1440           | 2.63                  | 1.2                                                                             | 2.38                  | 16 | 2.54   | 3.64   | 4.25    | 4.91    | 5.34    | 5.72     | 6.08     | 6.51     | 6.81      |
| 2880           | 1.48                  | 0.64                                                                            | 1.27                  | 16 | 1.44   | 2.02   | 2.34    | 2.68    | 2.9     | 3.1      | 3.28     | 3.5      | 3.65      |
| 4320           | 1.12                  | 0.51                                                                            | 0.94                  | 14 | 1.08   | 1.55   | 1.81    | 2.09    | 2.27    | 2.43     | 2.58     | 2.77     | 2.9       |
|                |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 443310-b |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |       |       |        |        |        |        |        |        |        |
|----------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| Duration       | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2     | 5     | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)          | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5   | 0.2   | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15             | 64.35                 | 31.26                                                                           | 55.88                 | 6 | 61.36 | 90.49 | 106.74 | 124.58 | 136.3  | 146.95 | 156.77 | 168.73 | 177.16 |
| 30             | 42.09                 | 25.52                                                                           | 35.56                 | 7 | 38    | 62.44 | 77.12  | 93.97  | 105.42 | 116.06 | 126.06 | 138.49 | 147.4  |
| 45             | 31.93                 | 18.22                                                                           | 27.09                 | 7 | 29.34 | 46.7  | 56.9   | 68.44  | 76.22  | 83.39  | 90.1   | 98.38  | 104.29 |

|      |       |       |       |    |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 27.52 | 14.67 | 24.13 | 6  | 25.73  | 39.59  | 47.55   | 56.43   | 62.35   | 67.78    | 72.81    | 79       | 83.39     |
| 120  | 16.03 | 6.26  | 14.61 | 8  | 15.78  | 21.39  | 24.35   | 27.48   | 29.49   | 31.28    | 32.9     | 34.86    | 36.22     |
| 180  | 11.38 | 4.42  | 10.16 | 9  | 11.21  | 15.17  | 17.25   | 19.45   | 20.87   | 22.13    | 23.27    | 24.64    | 25.6      |
| 240  | 8.8   | 2.85  | 8.26  | 7  | 8.8    | 11.26  | 12.51   | 13.8    | 14.61   | 15.33    | 15.97    | 16.74    | 17.27     |
| 360  | 6.89  | 2.21  | 6.35  | 7  | 6.89   | 8.8    | 9.76    | 10.76   | 11.39   | 11.94    | 12.43    | 13.02    | 13.43     |
| 720  | 4.3   | 1.34  | 4.13  | 12 | 4.31   | 5.46   | 6.04    | 6.63    | 7.01    | 7.33     | 7.63     | 7.98     | 8.22      |
| 1440 | 2.52  | 0.67  | 2.49  | 10 | 2.54   | 3.1    | 3.37    | 3.65    | 3.82    | 3.97     | 4.11     | 4.26     | 4.37      |
| 2880 | 1.46  | 0.5   | 1.46  | 12 | 1.45   | 1.89   | 2.11    | 2.35    | 2.5     | 2.63     | 2.74     | 2.88     | 2.98      |
| 4320 | 1.05  | 0.36  | 1.01  | 12 | 1.05   | 1.36   | 1.52    | 1.69    | 1.8     | 1.89     | 1.97     | 2.08     | 2.14      |
|      |       |       |       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 444128 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 138.61                | 126.81                                                                          | 96.52                 | 14 | 117.78 | 229.85 | 304.05  | 397.8   | 467.34  | 536.38   | 605.16   | 695.91   | 764.49    |
| 30           | 76.93                 | 59.87                                                                           | 58.42                 | 14 | 67.1   | 120.01 | 155.04  | 199.3   | 232.13  | 264.73   | 297.2    | 340.04   | 372.42    |
| 45           | 51.86                 | 37.24                                                                           | 42.34                 | 16 | 45.74  | 78.65  | 100.44  | 127.97  | 148.4   | 168.67   | 188.87   | 215.52   | 235.66    |
| 60           | 39.59                 | 27.14                                                                           | 33.02                 | 17 | 35.13  | 59.12  | 75      | 95.06   | 109.95  | 124.72   | 139.44   | 158.86   | 173.54    |
| 120          | 23.57                 | 12.41                                                                           | 20.96                 | 18 | 21.53  | 32.5   | 39.76   | 48.93   | 55.74   | 62.5     | 69.23    | 78.11    | 84.82     |
| 180          | 16.22                 | 8.53                                                                            | 14.39                 | 19 | 14.82  | 22.36  | 27.35   | 33.65   | 38.33   | 42.98    | 47.6     | 53.71    | 58.32     |
| 240          | 13.07                 | 6.77                                                                            | 11.43                 | 19 | 11.96  | 17.94  | 21.9    | 26.91   | 30.62   | 34.31    | 37.98    | 42.82    | 46.48     |
| 360          | 9.55                  | 5.06                                                                            | 8.26                  | 18 | 8.72   | 13.19  | 16.15   | 19.89   | 22.67   | 25.42    | 28.17    | 31.79    | 34.52     |
| 720          | 5.85                  | 3.01                                                                            | 4.98                  | 18 | 5.36   | 8.02   | 9.78    | 12      | 13.65   | 15.29    | 16.92    | 19.08    | 20.71     |
| 1440         | 3.56                  | 1.64                                                                            | 3.13                  | 22 | 3.29   | 4.74   | 5.7     | 6.91    | 7.81    | 8.7      | 9.59     | 10.77    | 11.65     |
| 2880         | 1.92                  | 0.98                                                                            | 1.62                  | 24 | 1.76   | 2.63   | 3.2     | 3.92    | 4.46    | 4.99     | 5.53     | 6.23     | 6.76      |
| 4320         | 1.35                  | 0.71                                                                            | 1.16                  | 23 | 1.23   | 1.86   | 2.28    | 2.8     | 3.19    | 3.58     | 3.96     | 4.47     | 4.85      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 444180 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 79.39                 | 33.01                                                                           | 81.28                 | 11 | 73.97  | 103.14 | 122.46  | 146.86  | 164.96  | 182.93   | 200.84   | 224.46   | 242.31    |
| 30           | 53.32                 | 23.56                                                                           | 48.26                 | 14 | 49.45  | 70.27  | 84.06   | 101.47  | 114.4   | 127.22   | 140      | 156.86   | 169.6     |
| 45           | 41.12                 | 18.35                                                                           | 38.95                 | 14 | 38.11  | 54.32  | 65.06   | 78.63   | 88.69   | 98.68    | 108.63   | 121.76   | 131.69    |
| 60           | 32.85                 | 15.14                                                                           | 29.21                 | 16 | 30.36  | 43.74  | 52.6    | 63.79   | 72.1    | 80.34    | 88.55    | 99.39    | 107.57    |
| 120          | 19.63                 | 8.41                                                                            | 18.42                 | 16 | 18.25  | 25.68  | 30.6    | 36.82   | 41.43   | 46.01    | 50.57    | 56.59    | 61.14     |
| 180          | 13.76                 | 5.32                                                                            | 13.55                 | 19 | 12.89  | 17.59  | 20.7    | 24.63   | 27.55   | 30.45    | 33.33    | 37.14    | 40.02     |
| 240          | 10.88                 | 4.49                                                                            | 10.16                 | 17 | 10.14  | 14.11  | 16.74   | 20.06   | 22.52   | 24.96    | 27.4     | 30.61    | 33.04     |
| 360          | 7.94                  | 3.13                                                                            | 7.41                  | 20 | 7.43   | 10.19  | 12.02   | 14.34   | 16.05   | 17.76    | 19.46    | 21.7     | 23.39     |
| 720          | 4.76                  | 1.72                                                                            | 4.45                  | 19 | 4.48   | 6      | 7       | 8.28    | 9.22    | 10.16    | 11.09    | 12.32    | 13.25     |
| 1440         | 2.81                  | 0.89                                                                            | 2.65                  | 19 | 2.66   | 3.45   | 3.97    | 4.63    | 5.12    | 5.6      | 6.08     | 6.72     | 7.2       |
| 2880         | 1.69                  | 0.47                                                                            | 1.66                  | 19 | 1.61   | 2.03   | 2.3     | 2.65    | 2.91    | 3.16     | 3.42     | 3.76     | 4.01      |
| 4320         | 1.24                  | 0.33                                                                            | 1.23                  | 23 | 1.19   | 1.48   | 1.67    | 1.91    | 2.1     | 2.28     | 2.45     | 2.69     | 2.87      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 444246 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |        |        |        |        |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 130.23                | 174.97                                                                          | 81.28                 | 11 | 101.49 | 256.12 | 358.5  | 487.85 | 583.81 | 679.06 | 773.97 | 899.18 | 993.81 |
| 30           | 78.05                 | 82.49                                                                           | 55.88                 | 11 | 64.5   | 137.4  | 185.67 | 246.65 | 291.89 | 336.8  | 381.54 | 440.57 | 485.19 |
| 45           | 53.74                 | 46.91                                                                           | 44.03                 | 15 | 46.04  | 87.49  | 114.94 | 149.62 | 175.35 | 200.88 | 226.33 | 259.9  | 285.27 |
| 60           | 46.7                  | 36.98                                                                           | 38.1                  | 13 | 40.63  | 73.31  | 94.94  | 122.28 | 142.56 | 162.7  | 182.75 | 209.22 | 229.22 |
| 120          | 25.82                 | 17.36                                                                           | 22.86                 | 15 | 22.97  | 38.31  | 48.47  | 61.3   | 70.82  | 80.27  | 89.69  | 102.11 | 111.5  |
| 180          | 17.94                 | 11.06                                                                           | 14.82                 | 16 | 16.12  | 25.9   | 32.37  | 40.55  | 46.61  | 52.63  | 58.63  | 66.55  | 72.53  |
| 240          | 14.52                 | 8.67                                                                            | 12.39                 | 14 | 13.1   | 20.76  | 25.83  | 32.24  | 37     | 41.72  | 46.42  | 52.62  | 57.31  |
| 360          | 10.44                 | 5.79                                                                            | 8.89                  | 15 | 9.49   | 14.61  | 17.99  | 22.27  | 25.45  | 28.6   | 31.74  | 35.89  | 39.02  |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 5.97 | 2.56 | 5.5  | 17 | 5.55   | 7.81   | 9.31    | 11.2    | 12.61   | 14       | 15.39    | 17.22    | 18.61     |
| 1440 | 3.37 | 1.4  | 2.86 | 15 | 3.14   | 4.38   | 5.2     | 6.23    | 7       | 7.76     | 8.52     | 9.52     | 10.28     |
| 2880 | 1.91 | 0.72 | 1.69 | 15 | 1.79   | 2.43   | 2.85    | 3.38    | 3.78    | 4.17     | 4.56     | 5.07     | 5.46      |
| 4320 | 1.34 | 0.42 | 1.2  | 17 | 1.27   | 1.64   | 1.89    | 2.2     | 2.43    | 2.66     | 2.89     | 3.19     | 3.41      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 444410 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|--------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 180.12                | 134.37                | 101.6                 | 7 | 149.9                                                                           | 279.31 | 363.91  | 466.09  | 538.32  | 607.27   | 673.54   | 757.78   | 819.34    |
| 30           | 91.01                 | 66.17                 | 50.8                  | 7 | 76.67                                                                           | 140.43 | 181.63  | 231.05  | 265.79  | 298.84   | 330.5    | 370.63   | 399.88    |
| 45           | 61.54                 | 43.21                 | 33.87                 | 7 | 52.64                                                                           | 94.3   | 120.81  | 152.33  | 174.34  | 195.17   | 215.05   | 240.15   | 258.38    |
| 60           | 46.81                 | 31.78                 | 25.4                  | 7 | 40.6                                                                            | 71.22  | 90.45   | 113.11  | 128.82  | 143.64   | 157.72   | 175.44   | 188.26    |
| 120          | 24.44                 | 15.13                 | 17.78                 | 7 | 21.92                                                                           | 36.43  | 45.22   | 55.34   | 62.25   | 68.69    | 74.75    | 82.3     | 87.72     |
| 180          | 16.8                  | 9.81                  | 14.65                 | 7 | 15.34                                                                           | 24.7   | 30.25   | 36.57   | 40.83   | 44.78    | 48.48    | 53.05    | 56.32     |
| 240          | 13.13                 | 6.98                  | 12.19                 | 7 | 12.29                                                                           | 18.88  | 22.66   | 26.88   | 29.69   | 32.26    | 34.65    | 37.59    | 39.67     |
| 360          | 10.06                 | 4.07                  | 9.97                  | 6 | 9.86                                                                            | 13.54  | 15.49   | 17.57   | 18.9    | 20.1     | 21.18    | 22.49    | 23.41     |
| 720          | 5.34                  | 2.05                  | 5.42                  | 7 | 5.26                                                                            | 7.1    | 8.06    | 9.07    | 9.72    | 10.3     | 10.83    | 11.46    | 11.9      |
| 1440         | 2.88                  | 0.91                  | 2.71                  | 7 | 2.88                                                                            | 3.67   | 4.06    | 4.47    | 4.72    | 4.95     | 5.15     | 5.39     | 5.56      |
| 2880         | 1.49                  | 0.45                  | 1.36                  | 7 | 1.5                                                                             | 1.88   | 2.07    | 2.27    | 2.39    | 2.5      | 2.6      | 2.71     | 2.79      |
| 4320         | 1.04                  | 0.35                  | 0.98                  | 7 | 1.04                                                                            | 1.34   | 1.5     | 1.66    | 1.76    | 1.85     | 1.93     | 2.03     | 2.1       |
|              |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 444414 |                       |                       |                       |    | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|--------------|-----------------------|-----------------------|-----------------------|----|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N  | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |    | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 193.04                | 155.21                | 121.92                | 17 | 167.55                                                                          | 304.71 | 395.53 | 510.27 | 595.4  | 679.89 | 764.08 | 875.15 | 959.09 |
| 30           | 99.19                 | 70.71                 | 71.12                 | 19 | 87.58                                                                           | 150.07 | 191.44 | 243.71 | 282.49 | 320.99 | 359.34 | 409.94 | 448.19 |
| 45           | 71.97                 | 43.55                 | 59.27                 | 20 | 64.82                                                                           | 103.3  | 128.79 | 160.98 | 184.87 | 208.57 | 232.2  | 263.36 | 286.91 |

|      |       |       |       |    |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 53.29 | 30.42 | 44.45 | 24 | 48.29  | 75.18  | 92.98   | 115.47  | 132.15  | 148.71   | 165.21   | 186.98   | 203.43    |
| 120  | 27.16 | 14.36 | 23.5  | 26 | 24.8   | 37.49  | 45.89   | 56.51   | 64.39   | 72.2     | 79.99    | 90.27    | 98.04     |
| 180  | 18.83 | 9.38  | 16.09 | 25 | 17.29  | 25.58  | 31.07   | 38      | 43.15   | 48.25    | 53.34    | 60.05    | 65.13     |
| 240  | 16.06 | 7.04  | 15.25 | 22 | 14.9   | 21.13  | 25.24   | 30.45   | 34.31   | 38.14    | 41.96    | 47       | 50.81     |
| 360  | 10.84 | 4.49  | 9.95  | 26 | 10.1   | 14.07  | 16.7    | 20.02   | 22.48   | 24.92    | 27.36    | 30.57    | 33        |
| 720  | 6.12  | 2.28  | 5.61  | 24 | 5.75   | 7.76   | 9.09    | 10.78   | 12.03   | 13.27    | 14.51    | 16.14    | 17.37     |
| 1440 | 3.26  | 1.13  | 3.07  | 25 | 3.07   | 4.07   | 4.73    | 5.57    | 6.19    | 6.8      | 7.42     | 8.23     | 8.84      |
| 2880 | 1.88  | 0.65  | 1.75  | 28 | 1.77   | 2.35   | 2.73    | 3.21    | 3.57    | 3.92     | 4.27     | 4.74     | 5.09      |
| 4320 | 1.42  | 0.5   | 1.32  | 27 | 1.34   | 1.78   | 2.07    | 2.44    | 2.72    | 2.99     | 3.26     | 3.62     | 3.89      |
|      |       |       |       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 445142 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 127.34                | 88.56                                                                           | 101.6                 | 15 | 109.37 | 194.74 | 248.87  | 313.04  | 357.77  | 400.06   | 440.37   | 491.21   | 528.1     |
| 30           | 67.61                 | 40.8                                                                            | 60.79                 | 16 | 61.13  | 100.19 | 123.61  | 150.46  | 168.69  | 185.63   | 201.54   | 221.31   | 235.47    |
| 45           | 46.8                  | 26.7                                                                            | 40.64                 | 17 | 43.01  | 68.44  | 83.39   | 100.3   | 111.69  | 122.21   | 132.03   | 144.17   | 152.82    |
| 60           | 36.89                 | 18.52                                                                           | 33.02                 | 19 | 34.95  | 52.3   | 62.07   | 72.86   | 79.98   | 86.47    | 92.47    | 99.8     | 104.98    |
| 120          | 20.7                  | 9.55                                                                            | 17.78                 | 13 | 19.92  | 28.75  | 33.6    | 38.87   | 42.32   | 45.43    | 48.29    | 51.77    | 54.21     |
| 180          | 14.97                 | 6.52                                                                            | 13.97                 | 16 | 14.53  | 20.5   | 23.73   | 27.21   | 29.46   | 31.49    | 33.34    | 35.59    | 37.16     |
| 240          | 11.81                 | 5.05                                                                            | 11.43                 | 15 | 11.5   | 16.1   | 18.58   | 21.25   | 22.97   | 24.52    | 25.93    | 27.64    | 28.84     |
| 360          | 8.02                  | 2.7                                                                             | 7.62                  | 17 | 8      | 10.35  | 11.55   | 12.8    | 13.58   | 14.28    | 14.91    | 15.65    | 16.17     |
| 720          | 4.96                  | 1.85                                                                            | 4.56                  | 18 | 4.9    | 6.55   | 7.41    | 8.31    | 8.88    | 9.4      | 9.86     | 10.41    | 10.8      |
| 1440         | 2.82                  | 0.92                                                                            | 2.7                   | 18 | 2.82   | 3.61   | 4.02    | 4.44    | 4.7     | 4.93     | 5.14     | 5.39     | 5.56      |
| 2880         | 1.57                  | 0.48                                                                            | 1.56                  | 18 | 1.57   | 1.99   | 2.19    | 2.4     | 2.53    | 2.65     | 2.76     | 2.88     | 2.96      |
| 4320         | 1.12                  | 0.32                                                                            | 1.09                  | 19 | 1.13   | 1.4    | 1.53    | 1.67    | 1.75    | 1.83     | 1.89     | 1.97     | 2.03      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 445423 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 123.19                | 105.65                                                                          | 86.36                 | 8  | 105.84 | 199.21 | 261.02  | 339.13  | 397.07  | 454.59   | 511.89   | 587.5    | 644.63    |
| 30           | 66.04                 | 43.5                                                                            | 53.34                 | 10 | 58.9   | 97.34  | 122.79  | 154.95  | 178.81  | 202.49   | 226.08   | 257.21   | 280.74    |
| 45           | 52.49                 | 29.19                                                                           | 45.72                 | 8  | 47.7   | 73.49  | 90.57   | 112.15  | 128.16  | 144.05   | 159.88   | 180.77   | 196.56    |
| 60           | 38.99                 | 20.87                                                                           | 33.02                 | 9  | 35.56  | 54.01  | 66.22   | 81.65   | 93.09   | 104.45   | 115.77   | 130.71   | 142       |
| 120          | 23.23                 | 10.47                                                                           | 24.33                 | 9  | 21.51  | 30.76  | 36.89   | 44.63   | 50.37   | 56.07    | 61.75    | 69.24    | 74.91     |
| 180          | 16.25                 | 7                                                                               | 14.39                 | 11 | 15.1   | 21.29  | 25.38   | 30.56   | 34.4    | 38.21    | 42       | 47.01    | 50.8      |
| 240          | 13.85                 | 5.74                                                                            | 13.07                 | 10 | 12.91  | 17.98  | 21.34   | 25.58   | 28.73   | 31.85    | 34.97    | 39.08    | 42.18     |
| 360          | 10.09                 | 3.91                                                                            | 9.8                   | 10 | 9.45   | 12.9   | 15.19   | 18.08   | 20.23   | 22.35    | 24.48    | 27.27    | 29.39     |
| 720          | 5.48                  | 1.83                                                                            | 5.48                  | 12 | 5.18   | 6.8    | 7.87    | 9.22    | 10.22   | 11.22    | 12.21    | 13.52    | 14.51     |
| 1440         | 3.14                  | 1.05                                                                            | 3.07                  | 11 | 2.97   | 3.9    | 4.51    | 5.29    | 5.86    | 6.43     | 7        | 7.75     | 8.32      |
| 2880         | 1.82                  | 0.59                                                                            | 1.77                  | 12 | 1.72   | 2.24   | 2.59    | 3.03    | 3.35    | 3.67     | 3.99     | 4.41     | 4.73      |
| 4320         | 1.44                  | 0.56                                                                            | 1.29                  | 12 | 1.35   | 1.84   | 2.17    | 2.58    | 2.89    | 3.2      | 3.5      | 3.9      | 4.2       |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 445595 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |       |       |        |        |        |        |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2     | 5     | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5   | 0.2   | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 96.52                 | 115.47                                                                          | 66.04                 | 10 | 77.56 | 179.6 | 247.16 | 332.53 | 395.86 | 458.72 | 521.35 | 603.98 | 666.43 |
| 30           | 59.27                 | 49.6                                                                            | 48.26                 | 12 | 51.12 | 94.96 | 123.98 | 160.65 | 187.85 | 214.85 | 241.76 | 277.25 | 304.08 |
| 45           | 41.85                 | 31.06                                                                           | 35.56                 | 14 | 36.75 | 64.2  | 82.37  | 105.33 | 122.37 | 139.28 | 156.12 | 178.35 | 195.15 |
| 60           | 33.37                 | 22.65                                                                           | 27.94                 | 15 | 29.65 | 49.67 | 62.92  | 79.66  | 92.09  | 104.42 | 116.7  | 132.91 | 145.16 |
| 120          | 19.86                 | 10.94                                                                           | 16.51                 | 15 | 18.06 | 27.73 | 34.13  | 42.22  | 48.22  | 54.18  | 60.11  | 67.94  | 73.86  |
| 180          | 13.76                 | 6.9                                                                             | 12.7                  | 15 | 12.63 | 18.72 | 22.76  | 27.86  | 31.65  | 35.4   | 39.15  | 44.08  | 47.82  |
| 240          | 11.14                 | 4.75                                                                            | 10.8                  | 17 | 10.36 | 14.56 | 17.34  | 20.85  | 23.45  | 26.04  | 28.62  | 32.02  | 34.58  |
| 360          | 8.3                   | 3.08                                                                            | 8.28                  | 20 | 7.79  | 10.52 | 12.32  | 14.6   | 16.28  | 17.96  | 19.63  | 21.84  | 23.5   |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 5.25 | 1.53 | 5.1  | 23 | 5      | 6.35   | 7.25    | 8.38    | 9.22    | 10.05    | 10.88    | 11.97    | 12.8      |
| 1440 | 3.01 | 0.73 | 2.91 | 18 | 2.89   | 3.54   | 3.96    | 4.5     | 4.9     | 5.3      | 5.7      | 6.22     | 6.61      |
| 2880 | 1.63 | 0.46 | 1.62 | 22 | 1.55   | 1.96   | 2.23    | 2.57    | 2.82    | 3.07     | 3.32     | 3.65     | 3.9       |
| 4320 | 1.14 | 0.31 | 1.13 | 22 | 1.09   | 1.36   | 1.54    | 1.77    | 1.94    | 2.11     | 2.28     | 2.5      | 2.67      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 445690 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 178.1                 | 153.17                                                                          | 111.76                | 17 | 137.15 | 282.59 | 384.27  | 512.26  | 605.58  | 696.58   | 785.64   | 900.89   | 986.47    |
| 30           | 95.78                 | 72.14                                                                           | 68.66                 | 17 | 79.35  | 148.79 | 194.38  | 249.6   | 288.7   | 326.08   | 362.05   | 407.83   | 441.32    |
| 45           | 65.57                 | 45.48                                                                           | 46.59                 | 18 | 56.38  | 100.22 | 127.99  | 160.88  | 183.8   | 205.46   | 226.1    | 252.12   | 271       |
| 60           | 51.33                 | 32.56                                                                           | 40.64                 | 19 | 45.66  | 76.94  | 96.05   | 118.21  | 133.39  | 147.57   | 160.96   | 177.68   | 189.71    |
| 120          | 28.57                 | 15.1                                                                            | 27.31                 | 20 | 26.77  | 41.02  | 49.17   | 58.27   | 64.32   | 69.86    | 75       | 81.32    | 85.79     |
| 180          | 20.57                 | 9.23                                                                            | 19.05                 | 22 | 19.88  | 28.37  | 33      | 38.01   | 41.27   | 44.22    | 46.91    | 50.18    | 52.47     |
| 240          | 17.61                 | 8                                                                               | 15.88                 | 20 | 16.99  | 24.36  | 28.4    | 32.77   | 35.63   | 38.2     | 40.56    | 43.43    | 45.44     |
| 360          | 13.25                 | 6.29                                                                            | 11.85                 | 23 | 12.69  | 18.53  | 21.76   | 25.3    | 27.62   | 29.72    | 31.65    | 34.01    | 35.66     |
| 720          | 8.69                  | 4.02                                                                            | 7.73                  | 28 | 8.36   | 12.08  | 14.12   | 16.35   | 17.8    | 19.11    | 20.32    | 21.79    | 22.82     |
| 1440         | 5.09                  | 2.28                                                                            | 4.45                  | 25 | 4.92   | 7.02   | 8.16    | 9.4     | 10.2    | 10.93    | 11.59    | 12.4     | 12.96     |
| 2880         | 2.78                  | 1.23                                                                            | 2.57                  | 24 | 2.69   | 3.82   | 4.43    | 5.1     | 5.53    | 5.91     | 6.27     | 6.7      | 7         |
| 4320         | 1.99                  | 0.84                                                                            | 1.75                  | 28 | 1.94   | 2.7    | 3.11    | 3.55    | 3.84    | 4.09     | 4.33     | 4.61     | 4.8       |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 445851 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |        |        |        |         |         |         |         |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10     | 25     | 50     | 100     | 200     | 500     | 1000    |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01    | 0.005   | 0.002   | 0.001   |
| 15           | 267.85                | 233.47                                                                          | 132.08                | 11 | 204.48 | 425.77 | 581.56 | 778.51 | 922.58 | 1063.38 | 1201.44 | 1380.44 | 1513.56 |
| 30           | 125.05                | 108.89                                                                          | 76.2                  | 13 | 95.52  | 198.75 | 271.39 | 363.19 | 430.32 | 495.92  | 560.24  | 643.61  | 705.61  |
| 45           | 88.05                 | 73.65                                                                           | 52.5                  | 12 | 68.95  | 139.17 | 187.6  | 248.04 | 291.83 | 334.34  | 375.79  | 429.24  | 468.8   |

|      |       |       |       |    |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 65.13 | 50.35 | 44.45 | 14 | 53.26  | 101.65 | 133.8   | 173.02  | 200.95  | 227.74   | 253.61   | 286.63   | 310.85    |
| 120  | 34.21 | 24.57 | 26.04 | 14 | 28.98  | 52.66  | 67.88   | 86.08   | 98.84   | 110.96   | 122.56   | 137.23   | 147.92    |
| 180  | 23.35 | 16.24 | 19.48 | 14 | 20.05  | 35.71  | 45.64   | 57.4    | 65.61   | 73.36    | 80.76    | 90.08    | 96.84     |
| 240  | 18.96 | 11.99 | 15.88 | 13 | 16.88  | 28.4   | 35.43   | 43.57   | 49.15   | 54.35    | 59.27    | 65.4     | 69.81     |
| 360  | 13.3  | 7.59  | 11.01 | 13 | 12.22  | 19.45  | 23.7    | 28.51   | 31.75   | 34.74    | 37.53    | 40.98    | 43.44     |
| 720  | 6.96  | 3.48  | 5.61  | 14 | 6.6    | 9.86   | 11.69   | 13.71   | 15.05   | 16.26    | 17.38    | 18.76    | 19.72     |
| 1440 | 3.74  | 1.73  | 3.07  | 13 | 3.6    | 5.2    | 6.08    | 7.03    | 7.66    | 8.23     | 8.74     | 9.38     | 9.82      |
| 2880 | 2.01  | 0.76  | 1.88  | 14 | 1.98   | 2.66   | 3.02    | 3.39    | 3.63    | 3.84     | 4.03     | 4.26     | 4.42      |
| 4320 | 1.37  | 0.5   | 1.27  | 14 | 1.36   | 1.8    | 2.03    | 2.27    | 2.42    | 2.56     | 2.68     | 2.83     | 2.93      |
|      |       |       |       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 445880 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 75.18                 | 32.55                                                                           | 76.2                  | 10 | 69.83  | 98.6   | 117.65  | 141.71  | 159.56  | 177.28   | 194.94   | 218.23   | 235.83    |
| 30           | 45.72                 | 16.85                                                                           | 45.72                 | 11 | 42.95  | 57.84  | 67.7    | 80.16   | 89.4    | 98.57    | 107.71   | 119.77   | 128.88    |
| 45           | 34.88                 | 14.46                                                                           | 33.87                 | 10 | 32.51  | 45.28  | 53.74   | 64.43   | 72.37   | 80.24    | 88.08    | 98.43    | 106.25    |
| 60           | 30.02                 | 10.52                                                                           | 30.48                 | 11 | 28.29  | 37.59  | 43.74   | 51.52   | 57.29   | 63.02    | 68.72    | 76.25    | 81.94     |
| 120          | 18.52                 | 7.37                                                                            | 18.42                 | 12 | 17.31  | 23.82  | 28.13   | 33.58   | 37.63   | 41.64    | 45.64    | 50.91    | 54.9      |
| 180          | 13.31                 | 5.04                                                                            | 13.13                 | 14 | 12.48  | 16.94  | 19.89   | 23.61   | 26.38   | 29.12    | 31.85    | 35.46    | 38.19     |
| 240          | 11.54                 | 3.85                                                                            | 11.12                 | 12 | 10.91  | 14.31  | 16.56   | 19.41   | 21.52   | 23.62    | 25.7     | 28.46    | 30.54     |
| 360          | 8.41                  | 2.99                                                                            | 7.83                  | 16 | 7.92   | 10.56  | 12.31   | 14.52   | 16.16   | 17.79    | 19.41    | 21.55    | 23.17     |
| 720          | 5.35                  | 2.19                                                                            | 4.87                  | 16 | 4.99   | 6.93   | 8.21    | 9.83    | 11.03   | 12.22    | 13.41    | 14.97    | 16.16     |
| 1440         | 3.16                  | 1.24                                                                            | 2.91                  | 18 | 2.96   | 4.05   | 4.78    | 5.69    | 6.37    | 7.05     | 7.72     | 8.61     | 9.28      |
| 2880         | 1.81                  | 0.8                                                                             | 1.59                  | 17 | 1.68   | 2.39   | 2.85    | 3.45    | 3.88    | 4.32     | 4.75     | 5.33     | 5.76      |
| 4320         | 1.29                  | 0.58                                                                            | 1.18                  | 18 | 1.19   | 1.71   | 2.05    | 2.48    | 2.79    | 3.11     | 3.42     | 3.84     | 4.15      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 446178 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 187.4                 | 178.39                                                                          | 101.6                 | 9  | 158.1  | 315.75 | 420.13  | 552.01  | 649.85  | 746.96   | 843.72   | 971.38   | 1067.86   |
| 30           | 94.83                 | 73.79                                                                           | 68.58                 | 12 | 82.71  | 147.92 | 191.1   | 245.65  | 286.12  | 326.29   | 366.31   | 419.12   | 459.03    |
| 45           | 66.17                 | 46.8                                                                            | 54.19                 | 13 | 58.48  | 99.84  | 127.23  | 161.82  | 187.49  | 212.97   | 238.35   | 271.84   | 297.16    |
| 60           | 51.48                 | 32.12                                                                           | 43.18                 | 15 | 46.2   | 74.59  | 93.38   | 117.13  | 134.75  | 152.23   | 169.65   | 192.64   | 210.01    |
| 120          | 30.8                  | 19.12                                                                           | 25.4                  | 12 | 27.66  | 44.56  | 55.74   | 69.88   | 80.37   | 90.77    | 101.15   | 114.83   | 125.17    |
| 180          | 21.11                 | 12.74                                                                           | 16.94                 | 14 | 19.02  | 30.28  | 37.73   | 47.15   | 54.14   | 61.07    | 67.98    | 77.1     | 83.99     |
| 240          | 17.15                 | 9.01                                                                            | 15.25                 | 16 | 15.67  | 23.63  | 28.9    | 35.57   | 40.51   | 45.41    | 50.3     | 56.75    | 61.62     |
| 360          | 12.18                 | 6                                                                               | 11.01                 | 17 | 11.19  | 16.5   | 20.01   | 24.44   | 27.73   | 31       | 34.25    | 38.55    | 41.79     |
| 720          | 7.39                  | 3.41                                                                            | 6.46                  | 18 | 6.83   | 9.84   | 11.84   | 14.36   | 16.23   | 18.09    | 19.94    | 22.38    | 24.22     |
| 1440         | 4.37                  | 1.99                                                                            | 3.81                  | 17 | 4.04   | 5.8    | 6.97    | 8.44    | 9.53    | 10.61    | 11.69    | 13.12    | 14.19     |
| 2880         | 2.43                  | 1.1                                                                             | 2.17                  | 17 | 2.25   | 3.22   | 3.87    | 4.68    | 5.28    | 5.88     | 6.48     | 7.26     | 7.86      |
| 4320         | 1.84                  | 0.79                                                                            | 1.68                  | 16 | 1.71   | 2.41   | 2.87    | 3.45    | 3.89    | 4.32     | 4.75     | 5.31     | 5.74      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 446475 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |       |        |        |        |        |        |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2     | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5   | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 99.06                 | 58.47                                                                           | 86.36                 | 12 | 89.46 | 141.13 | 175.34 | 218.57 | 250.63 | 282.46 | 314.18 | 356.02 | 387.64 |
| 30           | 57.23                 | 26.43                                                                           | 55.88                 | 15 | 52.89 | 76.25  | 91.71  | 111.25 | 125.75 | 140.13 | 154.47 | 173.38 | 187.68 |
| 45           | 42.82                 | 15.97                                                                           | 42.34                 | 14 | 40.2  | 54.31  | 63.65  | 75.46  | 84.22  | 92.91  | 101.58 | 113    | 121.64 |
| 60           | 35.56                 | 14.16                                                                           | 34.29                 | 16 | 33.23 | 45.75  | 54.03  | 64.5   | 72.27  | 79.98  | 87.66  | 97.79  | 105.45 |
| 120          | 23.24                 | 9.65                                                                            | 22.23                 | 20 | 21.66 | 30.18  | 35.83  | 42.96  | 48.26  | 53.51  | 58.74  | 65.65  | 70.87  |
| 180          | 18.31                 | 8.43                                                                            | 16.09                 | 16 | 16.93 | 24.38  | 29.31  | 35.54  | 40.16  | 44.75  | 49.33  | 55.36  | 59.92  |
| 240          | 14.57                 | 6.96                                                                            | 13.02                 | 16 | 13.43 | 19.58  | 23.65  | 28.8   | 32.61  | 36.4   | 40.18  | 45.16  | 48.92  |
| 360          | 11.03                 | 4.69                                                                            | 9.95                  | 20 | 10.26 | 14.4   | 17.15  | 20.62  | 23.19  | 25.74  | 28.29  | 31.64  | 34.18  |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 6.86 | 3.65 | 5.61 | 22 | 6.26   | 9.49   | 11.62   | 14.32   | 16.32   | 18.31    | 20.29    | 22.9     | 24.87     |
| 1440 | 3.99 | 1.83 | 3.55 | 26 | 3.69   | 5.31   | 6.38    | 7.73    | 8.73    | 9.73     | 10.72    | 12.03    | 13.02     |
| 2880 | 2.09 | 0.92 | 1.91 | 25 | 1.94   | 2.75   | 3.29    | 3.97    | 4.47    | 4.98     | 5.47     | 6.13     | 6.63      |
| 4320 | 1.52 | 0.65 | 1.31 | 27 | 1.41   | 1.99   | 2.37    | 2.85    | 3.21    | 3.56     | 3.91     | 4.38     | 4.73      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 446692 |                       |                       |                       |    | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|--------------|-----------------------|-----------------------|-----------------------|----|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N  | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |    | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 129.31                | 127.96                | 91.44                 | 11 | 108.3                                                                           | 221.38 | 296.25  | 390.85  | 461.03  | 530.69   | 600.09   | 691.66   | 760.87    |
| 30           | 70.39                 | 55.29                 | 58.42                 | 14 | 61.31                                                                           | 110.17 | 142.52  | 183.4   | 213.72  | 243.82   | 273.81   | 313.38   | 343.28    |
| 45           | 52.62                 | 37.4                  | 44.03                 | 13 | 46.48                                                                           | 79.53  | 101.41  | 129.06  | 149.57  | 169.93   | 190.22   | 216.98   | 237.21    |
| 60           | 42.23                 | 25.41                 | 36.83                 | 16 | 38.06                                                                           | 60.51  | 75.38   | 94.17   | 108.1   | 121.93   | 135.72   | 153.9    | 167.64    |
| 120          | 25                    | 12.42                 | 22.23                 | 16 | 22.96                                                                           | 33.94  | 41.2    | 50.39   | 57.2    | 63.96    | 70.69    | 79.58    | 86.3      |
| 180          | 17.78                 | 7.98                  | 16.09                 | 19 | 16.47                                                                           | 23.52  | 28.19   | 34.09   | 38.47   | 42.81    | 47.14    | 52.85    | 57.17     |
| 240          | 14.94                 | 6.21                  | 13.97                 | 19 | 13.92                                                                           | 19.41  | 23.04   | 27.63   | 31.04   | 34.42    | 37.79    | 42.23    | 45.59     |
| 360          | 10.97                 | 4.03                  | 10.37                 | 22 | 10.31                                                                           | 13.87  | 16.23   | 19.21   | 21.42   | 23.61    | 25.8     | 28.68    | 30.86     |
| 720          | 7.12                  | 3.28                  | 6.25                  | 22 | 6.58                                                                            | 9.48   | 11.4    | 13.82   | 15.62   | 17.41    | 19.19    | 21.53    | 23.31     |
| 1440         | 4.07                  | 1.88                  | 3.6                   | 26 | 3.76                                                                            | 5.42   | 6.52    | 7.91    | 8.94    | 9.97     | 10.99    | 12.33    | 13.35     |
| 2880         | 2.38                  | 1.09                  | 2.17                  | 26 | 2.2                                                                             | 3.16   | 3.8     | 4.61    | 5.21    | 5.8      | 6.39     | 7.17     | 7.76      |
| 4320         | 1.66                  | 0.77                  | 1.47                  | 28 | 1.53                                                                            | 2.21   | 2.66    | 3.23    | 3.66    | 4.08     | 4.49     | 5.04     | 5.46      |
|              |                       |                       |                       |    | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 446712 |                       |                       |                       |    | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|--------------|-----------------------|-----------------------|-----------------------|----|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N  | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |    | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 151.55                | 142.53                | 96.52                 | 12 | 128.14                                                                          | 254.1  | 337.5  | 442.87 | 521.04 | 598.63 | 675.94 | 777.93 | 855.02 |
| 30           | 81.78                 | 56.4                  | 66.04                 | 17 | 72.52                                                                           | 122.36 | 155.36 | 197.06 | 227.99 | 258.69 | 289.28 | 329.64 | 360.15 |
| 45           | 59.3                  | 36.63                 | 50.8                  | 17 | 53.28                                                                           | 85.66  | 107.09 | 134.17 | 154.26 | 174.2  | 194.07 | 220.28 | 240.09 |

|      |       |       |       |    |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 46.34 | 27    | 38.1  | 19 | 41.91  | 65.77  | 81.56   | 101.53  | 116.33  | 131.03   | 145.68   | 165      | 179.6     |
| 120  | 28.14 | 14.58 | 24.13 | 23 | 25.75  | 38.63  | 47.16   | 57.94   | 65.94   | 73.87    | 81.78    | 92.22    | 100.1     |
| 180  | 20.71 | 10.83 | 17.33 | 23 | 18.93  | 28.5   | 34.84   | 42.85   | 48.79   | 54.68    | 60.56    | 68.31    | 74.16     |
| 240  | 16.47 | 8.56  | 13    | 21 | 15.06  | 22.63  | 27.64   | 33.97   | 38.66   | 43.32    | 47.96    | 54.09    | 58.72     |
| 360  | 12.69 | 6.25  | 10.59 | 24 | 11.66  | 17.19  | 20.84   | 25.46   | 28.89   | 32.29    | 35.68    | 40.16    | 43.54     |
| 720  | 6.87  | 3.14  | 6.14  | 27 | 6.35   | 9.13   | 10.97   | 13.29   | 15.01   | 16.72    | 18.42    | 20.67    | 22.37     |
| 1440 | 3.85  | 1.48  | 3.6   | 25 | 3.61   | 4.91   | 5.78    | 6.87    | 7.69    | 8.49     | 9.3      | 10.35    | 11.15     |
| 2880 | 2.1   | 0.79  | 1.96  | 27 | 1.97   | 2.67   | 3.13    | 3.71    | 4.15    | 4.58     | 5.01     | 5.57     | 6         |
| 4320 | 1.52  | 0.56  | 1.41  | 29 | 1.43   | 1.92   | 2.25    | 2.66    | 2.97    | 3.28     | 3.58     | 3.98     | 4.28      |
|      |       |       |       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 446955 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 88.09                 | 83.35                                                                           | 66.04                 | 12 | 63.61  | 141.25 | 198.28  | 272.3   | 327.53  | 382.25   | 436.52   | 507.71   | 561.18    |
| 30           | 54.43                 | 37.72                                                                           | 48.26                 | 14 | 46.82  | 83.18  | 106.2   | 133.47  | 152.46  | 170.4    | 187.51   | 209.07   | 224.71    |
| 45           | 40.64                 | 23.95                                                                           | 37.25                 | 15 | 37.01  | 59.89  | 73.49   | 89      | 99.5    | 109.22   | 118.33   | 129.62   | 137.7     |
| 60           | 36.58                 | 17.77                                                                           | 33.02                 | 15 | 34.88  | 51.44  | 60.68   | 70.82   | 77.48   | 83.53    | 89.11    | 95.92    | 100.71    |
| 120          | 20.88                 | 8.79                                                                            | 19.69                 | 18 | 20.37  | 28.36  | 32.65   | 37.24   | 40.21   | 42.87    | 45.3     | 48.24    | 50.28     |
| 180          | 15.15                 | 5.97                                                                            | 14.82                 | 18 | 14.9   | 20.26  | 23.09   | 26.09   | 28.02   | 29.74    | 31.3     | 33.18    | 34.48     |
| 240          | 12.58                 | 4.87                                                                            | 11.75                 | 16 | 12.39  | 16.75  | 19.04   | 21.47   | 23.02   | 24.4     | 25.66    | 27.17    | 28.21     |
| 360          | 9.24                  | 3.15                                                                            | 8.68                  | 18 | 9.2    | 11.96  | 13.36   | 14.83   | 15.75   | 16.57    | 17.31    | 18.19    | 18.8      |
| 720          | 4.91                  | 1.59                                                                            | 4.66                  | 19 | 4.91   | 6.28   | 6.98    | 7.7     | 8.15    | 8.55     | 8.91     | 9.34     | 9.63      |
| 1440         | 2.89                  | 0.86                                                                            | 2.81                  | 22 | 2.9    | 3.63   | 4       | 4.37    | 4.61    | 4.81     | 4.99     | 5.21     | 5.36      |
| 2880         | 1.76                  | 0.62                                                                            | 1.72                  | 22 | 1.75   | 2.29   | 2.57    | 2.87    | 3.05    | 3.22     | 3.37     | 3.54     | 3.67      |
| 4320         | 1.22                  | 0.45                                                                            | 1.13                  | 23 | 1.21   | 1.61   | 1.81    | 2.03    | 2.17    | 2.29     | 2.41     | 2.54     | 2.63      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 447025 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 138.18                | 121.18                                                                          | 91.44                 | 10 | 105.08 | 219.81 | 300.84  | 403.46  | 478.64  | 552.18   | 624.36   | 718.01   | 787.7     |
| 30           | 95.07                 | 62.89                                                                           | 66.04                 | 7  | 83.29  | 143.85 | 181.47  | 225.52  | 255.94  | 284.51   | 311.6    | 345.57   | 370.1     |
| 45           | 61.64                 | 35.91                                                                           | 55.88                 | 10 | 56.32  | 90.59  | 110.88  | 133.96  | 149.54  | 163.96   | 177.46   | 194.17   | 206.11    |
| 60           | 53.62                 | 25.03                                                                           | 45.72                 | 9  | 51.5   | 74.68  | 87.46   | 101.39  | 110.5   | 118.74   | 126.32   | 135.53   | 142       |
| 120          | 25.65                 | 12.09                                                                           | 22.23                 | 10 | 24.59  | 35.81  | 42.01   | 48.78   | 53.21   | 57.22    | 60.91    | 65.4     | 68.56     |
| 180          | 21.01                 | 9.64                                                                            | 19.47                 | 11 | 20.24  | 29.14  | 34.02   | 39.33   | 42.79   | 45.93    | 48.8     | 52.29    | 54.73     |
| 240          | 16.09                 | 8.44                                                                            | 12.7                  | 9  | 15.1   | 23.06  | 27.6    | 32.66   | 36.02   | 39.1     | 41.95    | 45.45    | 47.93     |
| 360          | 11.38                 | 5.69                                                                            | 8.47                  | 9  | 10.79  | 16.12  | 19.11   | 22.42   | 24.6    | 26.59    | 28.42    | 30.67    | 32.25     |
| 720          | 7.35                  | 3.23                                                                            | 6.35                  | 11 | 7.13   | 10.09  | 11.69   | 13.42   | 14.55   | 15.56    | 16.49    | 17.61    | 18.39     |
| 1440         | 3.84                  | 1.7                                                                             | 3.71                  | 10 | 3.72   | 5.28   | 6.13    | 7.04    | 7.64    | 8.17     | 8.66     | 9.26     | 9.67      |
| 2880         | 2.2                   | 0.98                                                                            | 2.12                  | 11 | 2.13   | 3.03   | 3.52    | 4.05    | 4.39    | 4.7      | 4.99     | 5.33     | 5.57      |
| 4320         | 1.59                  | 0.69                                                                            | 1.68                  | 10 | 1.54   | 2.18   | 2.52    | 2.88    | 3.12    | 3.34     | 3.53     | 3.77     | 3.93      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 447130 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |       |        |        |        |        |        |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2     | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5   | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 88.9                  | 45.36                                                                           | 81.28                 | 8 | 83.94 | 126.54 | 150.66 | 177.36 | 195.04 | 211.17 | 226.1  | 244.37 | 257.29 |
| 30           | 62.23                 | 28.45                                                                           | 68.58                 | 8 | 59.97 | 86.22  | 100.61 | 116.24 | 126.43 | 135.63 | 144.08 | 154.33 | 161.53 |
| 45           | 48.38                 | 19.72                                                                           | 50.8                  | 7 | 47.38 | 65.21  | 74.69  | 84.81  | 91.31  | 97.14  | 102.44 | 108.83 | 113.28 |
| 60           | 35.92                 | 16.94                                                                           | 38.1                  | 7 | 34.44 | 50.15  | 58.84  | 68.33  | 74.54  | 80.17  | 85.34  | 91.64  | 96.07  |
| 120          | 25.08                 | 12.71                                                                           | 24.77                 | 8 | 23.72 | 35.64  | 42.38  | 49.83  | 54.75  | 59.25  | 63.4   | 68.49  | 72.08  |
| 180          | 17.89                 | 9.86                                                                            | 16.51                 | 8 | 16.59 | 25.95  | 31.38  | 37.48  | 41.57  | 45.32  | 48.82  | 53.14  | 56.2   |
| 240          | 14.69                 | 8.74                                                                            | 13.34                 | 8 | 13.34 | 21.7   | 26.68  | 32.38  | 36.24  | 39.82  | 43.18  | 47.34  | 50.32  |
| 360          | 10.74                 | 6.89                                                                            | 9.11                  | 8 | 9.51  | 16.14  | 20.21  | 24.93  | 28.18  | 31.22  | 34.09  | 37.68  | 40.26  |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 5.97 | 3.5  | 5.08 | 9 | 5.44   | 8.79   | 10.77   | 13.03   | 14.56   | 15.97    | 17.29    | 18.93    | 20.11     |
| 1440 | 3.36 | 1.77 | 2.77 | 8 | 3.15   | 4.82   | 5.77    | 6.84    | 7.55    | 8.19     | 8.79     | 9.53     | 10.05     |
| 2880 | 1.91 | 1.06 | 1.59 | 9 | 1.77   | 2.77   | 3.36    | 4.02    | 4.46    | 4.87     | 5.25     | 5.71     | 6.05      |
| 4320 | 1.49 | 0.78 | 1.31 | 8 | 1.4    | 2.13   | 2.55    | 3.02    | 3.33    | 3.61     | 3.88     | 4.2      | 4.43      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 447164 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|--------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 81.28                 | 57.47                 | 81.28                 | 2 | 69.32                                                                           | 124.72 | 160.09  | 202.21  | 231.66  | 259.56   | 286.21   | 319.88   | 344.35    |
| 30           | 45.72                 | 28.74                 | 45.72                 | 2 | 40.79                                                                           | 68.39  | 85.2    | 104.63  | 117.93  | 130.34   | 142.04   | 156.64   | 167.14    |
| 45           | 33.87                 | 19.16                 | 33.87                 | 2 | 31.2                                                                            | 49.43  | 60.12   | 72.19   | 80.3    | 87.79    | 94.78    | 103.41   | 109.56    |
| 60           | 23.71                 | 12.53                 | 17.78                 | 3 | 22.22                                                                           | 34.04  | 40.81   | 48.35   | 53.37   | 57.97    | 62.24    | 67.48    | 71.19     |
| 120          | 15.24                 | 6.35                  | 15.24                 | 3 | 14.89                                                                           | 20.65  | 23.73   | 27.03   | 29.16   | 31.07    | 32.8     | 34.9     | 36.37     |
| 180          | 10.72                 | 4.34                  | 11.85                 | 3 | 10.51                                                                           | 14.43  | 16.51   | 18.72   | 20.15   | 21.43    | 22.59    | 23.98    | 24.96     |
| 240          | 8.68                  | 3.13                  | 10.16                 | 3 | 8.61                                                                            | 11.37  | 12.8    | 14.3    | 15.25   | 16.1     | 16.86    | 17.78    | 18.41     |
| 360          | 5.72                  | 2.69                  | 5.72                  | 2 | 5.49                                                                            | 7.98   | 9.36    | 10.86   | 11.85   | 12.74    | 13.56    | 14.56    | 15.26     |
| 720          | 4.37                  | 1.64                  | 4.87                  | 3 | 4.32                                                                            | 5.78   | 6.54    | 7.34    | 7.85    | 8.31     | 8.72     | 9.22     | 9.56      |
| 1440         | 2.65                  | 0.74                  | 2.96                  | 3 | 2.67                                                                            | 3.29   | 3.6     | 3.91    | 4.1     | 4.27     | 4.43     | 4.61     | 4.73      |
| 2880         | 1.5                   | 0.53                  | 1.69                  | 3 | 1.49                                                                            | 1.96   | 2.2     | 2.45    | 2.61    | 2.75     | 2.88     | 3.03     | 3.13      |
| 4320         | 1.14                  | 0.53                  | 1.16                  | 3 | 1.1                                                                             | 1.59   | 1.86    | 2.15    | 2.34    | 2.52     | 2.68     | 2.87     | 3.01      |
|              |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 447338 |                       |                       |                       |    | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |         |         |         |
|--------------|-----------------------|-----------------------|-----------------------|----|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|---------|---------|---------|
| Duration     | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N  | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200     | 500     | 1000    |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |    | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005   | 0.002   | 0.001   |
| 15           | 150.06                | 232.76                | 91.44                 | 13 | 111.83                                                                          | 317.53 | 453.72 | 625.8  | 753.45 | 880.17 | 1006.42 | 1172.98 | 1298.87 |
| 30           | 80.66                 | 103.29                | 55.97                 | 16 | 63.7                                                                            | 154.98 | 215.41 | 291.77 | 348.42 | 404.65 | 460.68  | 534.59  | 590.46  |
| 45           | 61.41                 | 69.97                 | 44.03                 | 15 | 49.92                                                                           | 111.75 | 152.69 | 204.42 | 242.8  | 280.89 | 318.84  | 368.91  | 406.75  |

|      |       |       |       |    |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 46.57 | 52.08 | 35.56 | 15 | 38.02  | 84.04  | 114.51  | 153.02  | 181.58  | 209.93   | 238.18   | 275.45   | 303.62    |
| 120  | 26.97 | 21.99 | 21.59 | 21 | 23.36  | 42.79  | 55.66   | 71.92   | 83.98   | 95.95    | 107.87   | 123.61   | 135.5     |
| 180  | 19.43 | 15.59 | 16.09 | 18 | 16.87  | 30.65  | 39.77   | 51.29   | 59.84   | 68.33    | 76.79    | 87.94    | 96.38     |
| 240  | 14.89 | 10.91 | 12.39 | 20 | 13.1   | 22.74  | 29.12   | 37.19   | 43.17   | 49.11    | 55.03    | 62.84    | 68.74     |
| 360  | 11.23 | 6.79  | 9.53  | 22 | 10.11  | 16.12  | 20.09   | 25.11   | 28.83   | 32.53    | 36.21    | 41.07    | 44.74     |
| 720  | 6.45  | 3.77  | 5.5   | 21 | 5.83   | 9.16   | 11.37   | 14.16   | 16.22   | 18.28    | 20.32    | 23.02    | 25.06     |
| 1440 | 3.86  | 1.85  | 3.44  | 24 | 3.56   | 5.19   | 6.27    | 7.64    | 8.66    | 9.66     | 10.67    | 11.99    | 12.99     |
| 2880 | 2.21  | 1.02  | 1.96  | 25 | 2.04   | 2.94   | 3.54    | 4.29    | 4.85    | 5.41     | 5.96     | 6.69     | 7.24      |
| 4320 | 1.6   | 0.72  | 1.43  | 26 | 1.48   | 2.12   | 2.54    | 3.07    | 3.47    | 3.86     | 4.25     | 4.76     | 5.15      |
|      |       |       |       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 448022 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 74.02                 | 27.33                                                                           | 71.12                 | 7  | 69.53  | 93.68  | 109.68  | 129.88  | 144.87  | 159.75   | 174.57   | 194.13   | 208.91    |
| 30           | 55.32                 | 23.06                                                                           | 50.8                  | 9  | 51.53  | 71.91  | 85.4    | 102.45  | 115.1   | 127.65   | 140.16   | 156.66   | 169.13    |
| 45           | 41.87                 | 22.32                                                                           | 37.25                 | 11 | 38.2   | 57.93  | 70.99   | 87.49   | 99.73   | 111.88   | 123.99   | 139.96   | 152.03    |
| 60           | 34.93                 | 21.72                                                                           | 29.21                 | 12 | 31.36  | 50.56  | 63.27   | 79.32   | 91.24   | 103.06   | 114.84   | 130.38   | 142.13    |
| 120          | 20.43                 | 14.12                                                                           | 17.78                 | 12 | 18.11  | 30.59  | 38.85   | 49.29   | 57.03   | 64.72    | 72.38    | 82.48    | 90.12     |
| 180          | 14.16                 | 9.81                                                                            | 11.85                 | 11 | 12.55  | 21.22  | 26.96   | 34.21   | 39.59   | 44.93    | 50.25    | 57.27    | 62.58     |
| 240          | 12.23                 | 6.67                                                                            | 11.12                 | 12 | 11.13  | 17.03  | 20.93   | 25.86   | 29.52   | 33.15    | 36.77    | 41.54    | 45.15     |
| 360          | 8.58                  | 4.57                                                                            | 7.62                  | 11 | 7.83   | 11.87  | 14.54   | 17.92   | 20.43   | 22.91    | 25.39    | 28.66    | 31.14     |
| 720          | 4.9                   | 2.09                                                                            | 4.45                  | 13 | 4.56   | 6.4    | 7.63    | 9.17    | 10.32   | 11.46    | 12.59    | 14.09    | 15.22     |
| 1440         | 2.85                  | 1.14                                                                            | 2.54                  | 13 | 2.66   | 3.67   | 4.34    | 5.18    | 5.81    | 6.43     | 7.04     | 7.86     | 8.48      |
| 2880         | 1.76                  | 0.69                                                                            | 1.51                  | 14 | 1.65   | 2.26   | 2.66    | 3.17    | 3.55    | 3.92     | 4.3      | 4.79     | 5.17      |
| 4320         | 1.21                  | 0.48                                                                            | 1.09                  | 17 | 1.13   | 1.56   | 1.84    | 2.19    | 2.45    | 2.72     | 2.98     | 3.32     | 3.58      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 448046-a |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|----------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration       | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)          | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15             | 183.73                | 181.31                                                                          | 116.84                | 12 | 153.95 | 314.18 | 420.27  | 554.31  | 653.75  | 752.45   | 850.8    | 980.54   | 1078.6    |
| 30             | 88.05                 | 81.07                                                                           | 60.96                 | 15 | 74.74  | 146.38 | 193.81  | 253.75  | 298.21  | 342.35   | 386.32   | 444.33   | 488.18    |
| 45             | 61.86                 | 52.8                                                                            | 44.03                 | 15 | 53.19  | 99.85  | 130.74  | 169.78  | 198.74  | 227.48   | 256.12   | 293.9    | 322.46    |
| 60             | 50.26                 | 40.16                                                                           | 34.29                 | 14 | 43.66  | 79.16  | 102.65  | 132.34  | 154.37  | 176.23   | 198.01   | 226.75   | 248.47    |
| 120            | 26.4                  | 19.56                                                                           | 19.69                 | 14 | 23.19  | 40.47  | 51.92   | 66.38   | 77.11   | 87.75    | 98.36    | 112.36   | 122.94    |
| 180            | 17.67                 | 11.96                                                                           | 13.97                 | 16 | 15.71  | 26.28  | 33.27   | 42.12   | 48.67   | 55.19    | 61.67    | 70.23    | 76.7      |
| 240            | 14.49                 | 8.64                                                                            | 12.07                 | 16 | 13.07  | 20.71  | 25.76   | 32.15   | 36.89   | 41.59    | 46.28    | 52.46    | 57.13     |
| 360            | 10.66                 | 5.48                                                                            | 9.1                   | 16 | 9.76   | 14.6   | 17.81   | 21.86   | 24.87   | 27.85    | 30.82    | 34.74    | 37.71     |
| 720            | 5.92                  | 2.49                                                                            | 5.4                   | 20 | 5.51   | 7.71   | 9.17    | 11.01   | 12.37   | 13.73    | 15.08    | 16.86    | 18.21     |
| 1440           | 3.13                  | 1.28                                                                            | 2.75                  | 19 | 2.92   | 4.05   | 4.8     | 5.75    | 6.45    | 7.15     | 7.84     | 8.76     | 9.45      |
| 2880           | 1.79                  | 0.66                                                                            | 1.72                  | 20 | 1.68   | 2.26   | 2.65    | 3.14    | 3.5     | 3.86     | 4.22     | 4.69     | 5.05      |
| 4320           | 1.25                  | 0.5                                                                             | 1.16                  | 21 | 1.17   | 1.61   | 1.9     | 2.27    | 2.55    | 2.82     | 3.09     | 3.45     | 3.72      |
|                |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 448046-b |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |       |       |       |        |        |        |        |        |        |
|----------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| Duration       | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2     | 5     | 10    | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)          | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5   | 0.2   | 0.1   | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15             | 46.99                 | 27.12                                                                           | 45.72                 | 8  | 42.54 | 66.5  | 82.37 | 102.42 | 117.29 | 132.06 | 146.77 | 166.18 | 180.84 |
| 30             | 38.46                 | 18.28                                                                           | 40.64                 | 7  | 35.46 | 51.61 | 62.31 | 75.82  | 85.85  | 95.8   | 105.71 | 118.8  | 128.68 |
| 45             | 30.48                 | 15.7                                                                            | 33.87                 | 5  | 27.9  | 41.78 | 50.96 | 62.57  | 71.18  | 79.73  | 88.24  | 99.48  | 107.97 |
| 60             | 23.22                 | 12.39                                                                           | 25.4                  | 7  | 21.19 | 32.13 | 39.38 | 48.54  | 55.34  | 62.08  | 68.8   | 77.67  | 84.37  |
| 120            | 12.84                 | 5.1                                                                             | 12.7                  | 9  | 12    | 16.51 | 19.49 | 23.26  | 26.06  | 28.84  | 31.6   | 35.25  | 38.01  |
| 180            | 10.69                 | 3.7                                                                             | 10.59                 | 8  | 10.08 | 13.35 | 15.52 | 18.25  | 20.28  | 22.3   | 24.3   | 26.95  | 28.95  |
| 240            | 8.54                  | 3                                                                               | 8.26                  | 9  | 8.05  | 10.7  | 12.45 | 14.67  | 16.32  | 17.95  | 19.58  | 21.72  | 23.35  |
| 360            | 6.82                  | 2.15                                                                            | 6.14                  | 10 | 6.47  | 8.37  | 9.62  | 11.21  | 12.39  | 13.56  | 14.73  | 16.27  | 17.43  |
| 720            | 4.33                  | 1.36                                                                            | 4.23                  | 9  | 4.11  | 5.31  | 6.1   | 7.11   | 7.86   | 8.6    | 9.33   | 10.31  | 11.04  |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1440 | 2.45 | 0.8  | 2.43 | 11 | 2.32   | 3.03   | 3.49    | 4.09    | 4.52    | 4.96     | 5.39     | 5.97     | 6.4       |
| 2880 | 1.33 | 0.47 | 1.25 | 12 | 1.25   | 1.67   | 1.94    | 2.29    | 2.55    | 2.8      | 3.06     | 3.4      | 3.65      |
| 4320 | 1.01 | 0.41 | 0.92 | 11 | 0.94   | 1.3    | 1.54    | 1.85    | 2.07    | 2.3      | 2.52     | 2.81     | 3.03      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 448062 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 125.83                | 132.96                                                                          | 81.28                 | 13 | 103.99 | 221.5  | 299.29  | 397.59  | 470.51  | 542.89   | 615.01   | 710.16   | 782.07    |
| 30           | 69.43                 | 58.83                                                                           | 55.88                 | 15 | 59.77  | 111.76 | 146.18  | 189.67  | 221.94  | 253.96   | 285.87   | 327.97   | 359.79    |
| 45           | 47.41                 | 36.4                                                                            | 40.64                 | 17 | 41.43  | 73.6   | 94.9    | 121.81  | 141.77  | 161.59   | 181.33   | 207.38   | 227.07    |
| 60           | 36.41                 | 26.73                                                                           | 31.75                 | 18 | 32.02  | 55.64  | 71.28   | 91.04   | 105.7   | 120.25   | 134.75   | 153.88   | 168.34    |
| 120          | 21.99                 | 13.47                                                                           | 19.69                 | 16 | 19.78  | 31.68  | 39.56   | 49.52   | 56.91   | 64.24    | 71.55    | 81.19    | 88.47     |
| 180          | 15.94                 | 8.97                                                                            | 13.55                 | 17 | 14.47  | 22.39  | 27.64   | 34.27   | 39.19   | 44.08    | 48.94    | 55.36    | 60.21     |
| 240          | 12.81                 | 6.82                                                                            | 11.43                 | 17 | 11.69  | 17.72  | 21.71   | 26.75   | 30.49   | 34.2     | 37.9     | 42.78    | 46.47     |
| 360          | 9.59                  | 5.38                                                                            | 7.62                  | 17 | 8.71   | 13.46  | 16.61   | 20.59   | 23.54   | 26.47    | 29.38    | 33.23    | 36.14     |
| 720          | 5.9                   | 3.2                                                                             | 5.08                  | 21 | 5.37   | 8.2    | 10.07   | 12.44   | 14.2    | 15.94    | 17.67    | 19.96    | 21.69     |
| 1440         | 3.22                  | 1.54                                                                            | 2.91                  | 22 | 2.97   | 4.33   | 5.23    | 6.37    | 7.21    | 8.05     | 8.89     | 9.99     | 10.82     |
| 2880         | 1.92                  | 0.94                                                                            | 1.64                  | 16 | 1.77   | 2.6    | 3.15    | 3.84    | 4.36    | 4.87     | 5.38     | 6.05     | 6.56      |
| 4320         | 1.39                  | 0.64                                                                            | 1.27                  | 19 | 1.28   | 1.85   | 2.22    | 2.7     | 3.05    | 3.4      | 3.74     | 4.2      | 4.55      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 448129 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |       |        |        |        |        |        |        |         |         |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|-------|--------|--------|--------|--------|--------|--------|---------|---------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2     | 5      | 10     | 25     | 50     | 100    | 200    | 500     | 1000    |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5   | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002   | 0.001   |
| 15           | 186.27                | 190.47                                                                          | 76.2                  | 6 | 126.7 | 300.11 | 433.01 | 610.14 | 744.95 | 880.33 | 1016.2 | 1196.44 | 1333.21 |
| 30           | 91.44                 | 78.23                                                                           | 60.96                 | 8 | 70.64 | 144.99 | 196.83 | 261.97 | 309.42 | 355.64 | 400.85 | 459.32  | 502.7   |
| 45           | 63.92                 | 50.51                                                                           | 45.72                 | 8 | 51.68 | 100.14 | 132.66 | 172.58 | 201.15 | 228.64 | 255.25 | 289.32  | 314.37  |
| 60           | 51.89                 | 38.99                                                                           | 35.56                 | 7 | 43.04 | 80.57  | 105.19 | 134.99 | 156.08 | 176.23 | 195.62 | 220.29  | 238.33  |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 120  | 33.02 | 19.41 | 21.59 | 5 | 30.09  | 48.63  | 59.64   | 72.19   | 80.68   | 88.54    | 95.9     | 105.03   | 111.55    |
| 180  | 22.16 | 10.99 | 16.94 | 6 | 21.05  | 31.32  | 37.09   | 43.44   | 47.63   | 51.44    | 54.96    | 59.25    | 62.28     |
| 240  | 17.06 | 7     | 13.97 | 7 | 16.69  | 23.03  | 26.41   | 30.01   | 32.33   | 34.41    | 36.3     | 38.58    | 40.17     |
| 360  | 12.33 | 3.97  | 11.65 | 8 | 12.33  | 15.76  | 17.49   | 19.29   | 20.42   | 21.41    | 22.3     | 23.36    | 24.1      |
| 720  | 6.86  | 2.17  | 6.35  | 5 | 6.87   | 8.73   | 9.68    | 10.65   | 11.26   | 11.8     | 12.28    | 12.85    | 13.24     |
| 1440 | 3.85  | 1.01  | 3.76  | 8 | 3.88   | 4.72   | 5.13    | 5.55    | 5.81    | 6.03     | 6.23     | 6.47     | 6.63      |
| 2880 | 2.14  | 0.68  | 2.04  | 8 | 2.14   | 2.73   | 3.02    | 3.33    | 3.52    | 3.69     | 3.84     | 4.02     | 4.14      |
| 4320 | 1.52  | 0.55  | 1.4   | 8 | 1.51   | 1.99   | 2.24    | 2.51    | 2.68    | 2.83     | 2.96     | 3.12     | 3.23      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 448149 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 54.19                 | 21.15                                                                           | 60.96                 | 3 | 53.33  | 72.3   | 82.29   | 92.87   | 99.65   | 105.7    | 111.19   | 117.78   | 122.37    |
| 30           | 39.37                 | 13.36                                                                           | 43.18                 | 4 | 39.23  | 50.89  | 56.85   | 63.05   | 66.97   | 70.43    | 73.55    | 77.26    | 79.83     |
| 45           | 27.94                 | 10.48                                                                           | 30.48                 | 4 | 27.61  | 36.94  | 41.8    | 46.93   | 50.2    | 53.11    | 55.75    | 58.91    | 61.1      |
| 60           | 21.17                 | 9.62                                                                            | 25.4                  | 3 | 20.42  | 29.29  | 34.14   | 39.41   | 42.84   | 45.93    | 48.77    | 52.22    | 54.64     |
| 120          | 13.65                 | 5.33                                                                            | 14.61                 | 4 | 13.43  | 18.21  | 20.73   | 23.4    | 25.11   | 26.63    | 28.02    | 29.68    | 30.84     |
| 180          | 10.8                  | 5                                                                               | 9.74                  | 4 | 10.39  | 15.01  | 17.55   | 20.32   | 22.13   | 23.77    | 25.27    | 27.09    | 28.38     |
| 240          | 8.74                  | 4.59                                                                            | 7.64                  | 4 | 8.2    | 12.53  | 15      | 17.75   | 19.58   | 21.26    | 22.81    | 24.72    | 26.07     |
| 360          | 6.49                  | 2.27                                                                            | 5.36                  | 5 | 6.45   | 8.45   | 9.47    | 10.54   | 11.22   | 11.82    | 12.36    | 13.01    | 13.45     |
| 720          | 3.77                  | 1.22                                                                            | 3.18                  | 5 | 3.77   | 4.82   | 5.36    | 5.91    | 6.26    | 6.56     | 6.84     | 7.17     | 7.39      |
| 1440         | 2.28                  | 0.89                                                                            | 2.22                  | 5 | 2.24   | 3.04   | 3.46    | 3.91    | 4.19    | 4.45     | 4.68     | 4.96     | 5.15      |
| 2880         | 1.29                  | 0.29                                                                            | 1.22                  | 5 | 1.31   | 1.54   | 1.65    | 1.76    | 1.83    | 1.89     | 1.95     | 2.01     | 2.05      |
| 4320         | 1.1                   | 0.31                                                                            | 1.08                  | 4 | 1.11   | 1.37   | 1.5     | 1.63    | 1.71    | 1.78     | 1.85     | 1.92     | 1.97      |
|              |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 448172 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 197.1                 | 227.71                                                                          | 121.92                | 5 | 120.15 | 317.47 | 479.85  | 706.18  | 884.32  | 1067.39  | 1254.75  | 1508.21  | 1703.85   |
| 30           | 100.82                | 112.08                                                                          | 62.15                 | 5 | 63.74  | 162.59 | 242.1   | 351.33  | 436.38  | 523.14   | 611.38   | 729.99   | 821.04    |
| 45           | 67.22                 | 74.72                                                                           | 41.44                 | 5 | 42.5   | 108.4  | 161.41  | 234.23  | 290.92  | 348.76   | 407.57   | 486.64   | 547.33    |
| 60           | 50.41                 | 56.04                                                                           | 31.08                 | 5 | 31.87  | 81.29  | 121.05  | 175.67  | 218.19  | 261.57   | 305.69   | 364.99   | 410.52    |
| 120          | 26.98                 | 27.22                                                                           | 16.81                 | 5 | 18.55  | 43.44  | 62.38   | 87.5    | 106.55  | 125.63   | 144.74   | 170.05   | 189.21    |
| 180          | 19.17                 | 17.68                                                                           | 13.75                 | 5 | 14.1   | 30.67  | 42.67   | 58.13   | 69.59   | 80.89    | 92.07    | 106.66   | 117.59    |
| 240          | 17.66                 | 13.65                                                                           | 13.41                 | 4 | 14.44  | 27.56  | 36.28   | 46.91   | 54.48   | 61.74    | 68.75    | 77.7     | 84.27     |
| 360          | 10.83                 | 8.33                                                                            | 8.57                  | 5 | 8.88   | 16.89  | 22.2    | 28.66   | 33.26   | 37.67    | 41.93    | 47.35    | 51.33     |
| 720          | 6.52                  | 3.73                                                                            | 4.6                   | 5 | 5.99   | 9.54   | 11.63   | 14      | 15.59   | 17.07    | 18.44    | 20.14    | 21.36     |
| 1440         | 3.61                  | 1.71                                                                            | 2.64                  | 5 | 3.46   | 5.05   | 5.92    | 6.88    | 7.51    | 8.08     | 8.61     | 9.25     | 9.7       |
| 2880         | 1.87                  | 0.82                                                                            | 1.44                  | 5 | 1.81   | 2.56   | 2.97    | 3.41    | 3.7     | 3.95     | 4.19     | 4.47     | 4.67      |
| 4320         | 1.42                  | 0.65                                                                            | 1.16                  | 5 | 1.37   | 1.97   | 2.3     | 2.65    | 2.89    | 3.1      | 3.29     | 3.53     | 3.69      |
|              |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 448396 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |        |        |        |        |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 162.56                | 153.99                                                                          | 111.76                | 15 | 137.27 | 273.36 | 363.46 | 477.3  | 561.75 | 645.59 | 729.11 | 839.31 | 922.59 |
| 30           | 93.78                 | 78.06                                                                           | 66.04                 | 13 | 80.96  | 149.94 | 195.62 | 253.33 | 296.14 | 338.63 | 380.97 | 436.83 | 479.05 |
| 45           | 59.83                 | 44.48                                                                           | 49.11                 | 18 | 52.53  | 91.83  | 117.86 | 150.74 | 175.14 | 199.35 | 223.48 | 255.31 | 279.36 |
| 60           | 48.26                 | 32.86                                                                           | 41.91                 | 18 | 42.86  | 71.9   | 91.13  | 115.42 | 133.44 | 151.33 | 169.16 | 192.67 | 210.44 |
| 120          | 28.53                 | 16.48                                                                           | 24.77                 | 20 | 25.82  | 40.39  | 50.03  | 62.21  | 71.25  | 80.22  | 89.16  | 100.96 | 109.87 |
| 180          | 20.9                  | 11.55                                                                           | 17.78                 | 21 | 19     | 29.21  | 35.97  | 44.51  | 50.84  | 57.13  | 63.39  | 71.66  | 77.91  |
| 240          | 15.86                 | 9.62                                                                            | 13.02                 | 22 | 14.28  | 22.78  | 28.41  | 35.52  | 40.8   | 46.04  | 51.25  | 58.14  | 63.34  |
| 360          | 12.12                 | 7.03                                                                            | 9.6                   | 22 | 10.97  | 17.18  | 21.29  | 26.49  | 30.34  | 34.17  | 37.98  | 43.02  | 46.82  |
| 720          | 7.06                  | 3.8                                                                             | 5.93                  | 23 | 6.44   | 9.79   | 12.02  | 14.83  | 16.91  | 18.98  | 21.04  | 23.76  | 25.82  |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1440 | 4.01 | 2.06 | 3.28 | 21 | 3.67   | 5.49   | 6.7     | 8.22    | 9.35    | 10.47    | 11.59    | 13.06    | 14.18     |
| 2880 | 2.09 | 1.08 | 1.78 | 22 | 1.91   | 2.87   | 3.5     | 4.3     | 4.89    | 5.48     | 6.06     | 6.84     | 7.42      |
| 4320 | 1.49 | 0.7  | 1.34 | 27 | 1.38   | 1.99   | 2.4     | 2.92    | 3.3     | 3.69     | 4.07     | 4.57     | 4.94      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 448547 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 103.45                | 74.22                                                                           | 81.28                 | 11 | 87.67  | 159.2  | 205.16  | 260.1   | 298.62  | 335.19   | 370.18   | 414.45   | 446.67    |
| 30           | 58.22                 | 33.29                                                                           | 50.8                  | 13 | 53.47  | 85.19  | 103.84  | 124.97  | 139.19  | 152.33   | 164.6    | 179.78   | 190.6     |
| 45           | 46.22                 | 20.87                                                                           | 44.03                 | 17 | 44.63  | 63.85  | 74.34   | 85.72   | 93.13   | 99.81    | 105.94   | 113.37   | 118.58    |
| 60           | 38.5                  | 17.09                                                                           | 38.1                  | 19 | 37.28  | 52.96  | 61.5    | 70.72   | 76.71   | 82.11    | 87.05    | 93.04    | 97.23     |
| 120          | 22.26                 | 9.04                                                                            | 22.86                 | 17 | 21.81  | 29.98  | 34.32   | 38.94   | 41.92   | 44.58    | 47.01    | 49.92    | 51.96     |
| 180          | 15.51                 | 5.84                                                                            | 15.24                 | 19 | 15.32  | 20.52  | 23.24   | 26.1    | 27.93   | 29.56    | 31.03    | 32.79    | 34.02     |
| 240          | 12.37                 | 4.54                                                                            | 12.7                  | 19 | 12.25  | 16.27  | 18.36   | 20.56   | 21.95   | 23.2     | 24.32    | 25.66    | 26.59     |
| 360          | 9.05                  | 3.18                                                                            | 8.89                  | 19 | 8.99   | 11.79  | 13.23   | 14.73   | 15.68   | 16.52    | 17.29    | 18.19    | 18.82     |
| 720          | 5.44                  | 1.72                                                                            | 5.19                  | 20 | 5.45   | 6.93   | 7.67    | 8.44    | 8.93    | 9.35     | 9.73     | 10.19    | 10.5      |
| 1440         | 3.17                  | 0.92                                                                            | 3.13                  | 18 | 3.19   | 3.97   | 4.35    | 4.75    | 4.99    | 5.21     | 5.4      | 5.63     | 5.79      |
| 2880         | 1.79                  | 0.58                                                                            | 1.69                  | 23 | 1.79   | 2.29   | 2.54    | 2.81    | 2.97    | 3.12     | 3.25     | 3.41     | 3.51      |
| 4320         | 1.29                  | 0.39                                                                            | 1.27                  | 22 | 1.29   | 1.63   | 1.79    | 1.96    | 2.07    | 2.17     | 2.25     | 2.35     | 2.42      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 448800 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |       |        |        |        |        |        |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2     | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5   | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 104.5                 | 56.56                                                                           | 96.52                 | 14 | 97.36 | 150.89 | 181.78 | 216.38 | 239.48 | 260.68 | 280.4  | 304.66 | 321.88 |
| 30           | 65.48                 | 30.67                                                                           | 68.58                 | 18 | 62.85 | 91.27  | 106.95 | 124.06 | 135.25 | 145.38 | 154.69 | 166.01 | 173.97 |
| 45           | 46.78                 | 20.14                                                                           | 45.72                 | 16 | 45.49 | 63.88  | 73.8   | 84.47  | 91.38  | 97.59  | 103.26 | 110.12 | 114.91 |
| 60           | 38.7                  | 17.95                                                                           | 38.1                  | 17 | 37.21 | 53.81  | 62.95  | 72.9   | 79.4   | 85.29  | 90.69  | 97.25  | 101.86 |

|      |       |       |       |    |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 120  | 24.13 | 10.05 | 23.5  | 16 | 23.57  | 32.69  | 37.57   | 42.79   | 46.15   | 49.17    | 51.92    | 55.24    | 57.56     |
| 180  | 19.69 | 7.73  | 18.21 | 20 | 19.37  | 26.31  | 29.97   | 33.85   | 36.33   | 38.55    | 40.57    | 42.99    | 44.68     |
| 240  | 16.39 | 6.47  | 15.25 | 20 | 16.11  | 21.93  | 25      | 28.25   | 30.34   | 32.21    | 33.9     | 35.94    | 37.36     |
| 360  | 12.07 | 5.05  | 11.65 | 18 | 11.78  | 16.37  | 18.83   | 21.46   | 23.15   | 24.67    | 26.06    | 27.74    | 28.9      |
| 720  | 7.55  | 3.23  | 6.46  | 22 | 7.35   | 10.29  | 11.88   | 13.59   | 14.69   | 15.68    | 16.58    | 17.68    | 18.44     |
| 1440 | 4.33  | 1.88  | 4.19  | 22 | 4.21   | 5.93   | 6.85    | 7.86    | 8.5     | 9.09     | 9.62     | 10.27    | 10.72     |
| 2880 | 2.3   | 1.08  | 1.94  | 24 | 2.21   | 3.21   | 3.76    | 4.36    | 4.76    | 5.12     | 5.44     | 5.84     | 6.13      |
| 4320 | 1.66  | 0.76  | 1.48  | 23 | 1.6    | 2.3    | 2.69    | 3.1     | 3.38    | 3.62     | 3.85     | 4.12     | 4.31      |
|      |       |       |       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 449060 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 137.5                 | 105.9                                                                           | 121.92                | 9  | 120.11 | 213.7  | 275.66  | 353.95  | 412.03  | 469.68   | 527.12   | 602.9    | 660.18    |
| 30           | 66.95                 | 49.92                                                                           | 55.88                 | 10 | 58.75  | 102.87 | 132.08  | 168.98  | 196.36  | 223.54   | 250.61   | 286.34   | 313.33    |
| 45           | 46.19                 | 31.98                                                                           | 37.26                 | 10 | 40.94  | 69.2   | 87.91   | 111.55  | 129.09  | 146.5    | 163.85   | 186.73   | 204.03    |
| 60           | 35.26                 | 23.45                                                                           | 27.94                 | 10 | 31.41  | 52.13  | 65.85   | 83.19   | 96.05   | 108.82   | 121.54   | 138.32   | 151       |
| 120          | 19.93                 | 11.04                                                                           | 16.51                 | 9  | 18.12  | 27.87  | 34.33   | 42.49   | 48.55   | 54.56    | 60.55    | 68.45    | 74.42     |
| 180          | 14.1                  | 7.45                                                                            | 11.43                 | 8  | 12.88  | 19.46  | 23.82   | 29.33   | 33.41   | 37.47    | 41.51    | 46.84    | 50.87     |
| 240          | 11.55                 | 5.17                                                                            | 10.04                 | 8  | 10.7   | 15.27  | 18.29   | 22.12   | 24.95   | 27.77    | 30.57    | 34.27    | 37.07     |
| 360          | 8.51                  | 3.31                                                                            | 8.04                  | 7  | 7.97   | 10.89  | 12.83   | 15.28   | 17.09   | 18.89    | 20.69    | 23.06    | 24.85     |
| 720          | 4.47                  | 1.44                                                                            | 4.34                  | 8  | 4.23   | 5.51   | 6.35    | 7.41    | 8.2     | 8.99     | 9.77     | 10.8     | 11.58     |
| 1440         | 2.43                  | 0.73                                                                            | 2.38                  | 8  | 2.31   | 2.96   | 3.38    | 3.92    | 4.32    | 4.72     | 5.12     | 5.64     | 6.03      |
| 2880         | 1.32                  | 0.35                                                                            | 1.26                  | 8  | 1.26   | 1.57   | 1.78    | 2.04    | 2.23    | 2.42     | 2.61     | 2.86     | 3.05      |
| 4320         | 0.96                  | 0.23                                                                            | 0.91                  | 7  | 0.92   | 1.13   | 1.26    | 1.43    | 1.56    | 1.68     | 1.81     | 1.97     | 2.1       |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 449151 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 131.4                 | 88.19                                                                           | 101.6                 | 15 | 116.92 | 194.85 | 246.45  | 311.65  | 360.02  | 408.03   | 455.86   | 518.97   | 566.67    |
| 30           | 77.33                 | 41.87                                                                           | 68.58                 | 18 | 70.45  | 107.46 | 131.95  | 162.91  | 185.87  | 208.67   | 231.38   | 261.34   | 283.98    |
| 45           | 52.59                 | 25.96                                                                           | 47.41                 | 17 | 48.33  | 71.27  | 86.46   | 105.65  | 119.89  | 134.02   | 148.1    | 166.68   | 180.72    |
| 60           | 45.72                 | 25.94                                                                           | 39.37                 | 20 | 41.46  | 64.38  | 79.56   | 98.74   | 112.97  | 127.09   | 141.16   | 159.72   | 173.75    |
| 120          | 29.71                 | 17.54                                                                           | 26.67                 | 23 | 26.83  | 42.33  | 52.59   | 65.56   | 75.18   | 84.73    | 94.24    | 106.79   | 116.28    |
| 180          | 22.34                 | 14.65                                                                           | 19.47                 | 21 | 19.93  | 32.88  | 41.45   | 52.28   | 60.32   | 68.29    | 76.24    | 86.72    | 94.65     |
| 240          | 17.44                 | 11.34                                                                           | 13.97                 | 26 | 15.58  | 25.6   | 32.23   | 40.62   | 46.84   | 53.01    | 59.16    | 67.28    | 73.41     |
| 360          | 13.36                 | 7.89                                                                            | 11.01                 | 25 | 12.06  | 19.04  | 23.65   | 29.49   | 33.81   | 38.11    | 42.39    | 48.03    | 52.3      |
| 720          | 7                     | 3.6                                                                             | 6.14                  | 19 | 6.41   | 9.59   | 11.7    | 14.36   | 16.33   | 18.29    | 20.24    | 22.82    | 24.77     |
| 1440         | 4.51                  | 3.09                                                                            | 3.49                  | 29 | 4      | 6.73   | 8.54    | 10.83   | 12.52   | 14.2     | 15.88    | 18.09    | 19.76     |
| 2880         | 2.54                  | 1.72                                                                            | 1.83                  | 28 | 2.26   | 3.78   | 4.78    | 6.06    | 7       | 7.94     | 8.87     | 10.1     | 11.03     |
| 4320         | 1.73                  | 1.11                                                                            | 1.27                  | 31 | 1.55   | 2.53   | 3.18    | 4       | 4.61    | 5.21     | 5.81     | 6.61     | 7.21      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 449159 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |       |       |        |        |        |        |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2     | 5     | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5   | 0.2   | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 100.58                | 90.93                                                                           | 76.2                  | 10 | 85.65 | 166   | 219.21 | 286.43 | 336.3  | 385.8  | 435.12 | 500.19 | 549.37 |
| 30           | 59.11                 | 41.29                                                                           | 50.8                  | 11 | 52.33 | 88.82 | 112.98 | 143.5  | 166.15 | 188.63 | 211.02 | 240.57 | 262.9  |
| 45           | 41.77                 | 27.26                                                                           | 35.56                 | 12 | 37.29 | 61.38 | 77.33  | 97.49  | 112.44 | 127.28 | 142.06 | 161.57 | 176.31 |
| 60           | 36.2                  | 20.95                                                                           | 31.75                 | 12 | 32.76 | 51.27 | 63.53  | 79.02  | 90.51  | 101.91 | 113.28 | 128.27 | 139.6  |
| 120          | 17.88                 | 9.03                                                                            | 16.51                 | 13 | 16.4  | 24.38 | 29.66  | 36.34  | 41.29  | 46.2   | 51.1   | 57.56  | 62.45  |
| 180          | 14.17                 | 6.83                                                                            | 12.7                  | 15 | 13.05 | 19.08 | 23.08  | 28.13  | 31.88  | 35.59  | 39.3   | 44.19  | 47.88  |
| 240          | 11.73                 | 4.8                                                                             | 10.16                 | 15 | 10.94 | 15.18 | 17.99  | 21.54  | 24.17  | 26.79  | 29.39  | 32.82  | 35.42  |
| 360          | 9.1                   | 3.07                                                                            | 8.26                  | 14 | 8.6   | 11.31 | 13.11  | 15.37  | 17.06  | 18.73  | 20.39  | 22.59  | 24.25  |
| 720          | 5.21                  | 1.75                                                                            | 4.97                  | 16 | 4.92  | 6.47  | 7.49   | 8.79   | 9.75   | 10.7   | 11.65  | 12.9   | 13.85  |

|      |      |      |      |    |        |        |         |         |         |          |          |          |           |
|------|------|------|------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1440 | 2.98 | 0.89 | 2.86 | 17 | 2.83   | 3.62   | 4.14    | 4.8     | 5.29    | 5.77     | 6.25     | 6.89     | 7.37      |
| 2880 | 1.73 | 0.57 | 1.61 | 16 | 1.64   | 2.14   | 2.47    | 2.9     | 3.21    | 3.52     | 3.83     | 4.24     | 4.54      |
| 4320 | 1.2  | 0.45 | 1.09 | 21 | 1.13   | 1.52   | 1.79    | 2.12    | 2.37    | 2.61     | 2.86     | 3.18     | 3.42      |
|      |      |      |      |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 449169 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 103.86                | 87.37                                                                           | 71.12                 | 9  | 89.51  | 166.72 | 217.84  | 282.44  | 330.35  | 377.92   | 425.31   | 487.83   | 535.08    |
| 30           | 60.96                 | 36.49                                                                           | 50.8                  | 11 | 54.97  | 87.21  | 108.57  | 135.54  | 155.55  | 175.42   | 195.21   | 221.32   | 241.06    |
| 45           | 44.31                 | 22.62                                                                           | 38.95                 | 12 | 40.6   | 60.59  | 73.82   | 90.54   | 102.95  | 115.26   | 127.53   | 143.72   | 155.95    |
| 60           | 35.05                 | 17.91                                                                           | 29.21                 | 10 | 32.11  | 47.94  | 58.42   | 71.66   | 81.48   | 91.23    | 100.94   | 113.76   | 123.45    |
| 120          | 21.13                 | 8.97                                                                            | 17.78                 | 11 | 19.66  | 27.58  | 32.83   | 39.46   | 44.38   | 49.27    | 54.13    | 60.55    | 65.4      |
| 180          | 14.61                 | 6.57                                                                            | 12.28                 | 12 | 13.53  | 19.34  | 23.18   | 28.04   | 31.64   | 35.22    | 38.78    | 43.48    | 47.04     |
| 240          | 12.03                 | 4.72                                                                            | 10.8                  | 15 | 11.25  | 15.43  | 18.19   | 21.68   | 24.27   | 26.84    | 29.4     | 32.77    | 35.33     |
| 360          | 9.41                  | 3.36                                                                            | 10.16                 | 13 | 8.86   | 11.83  | 13.79   | 16.28   | 18.12   | 19.95    | 21.77    | 24.18    | 25.99     |
| 720          | 5.44                  | 2                                                                               | 5.4                   | 14 | 5.11   | 6.88   | 8.05    | 9.53    | 10.62   | 11.71    | 12.8     | 14.23    | 15.31     |
| 1440         | 3.35                  | 1.29                                                                            | 3.07                  | 15 | 3.14   | 4.28   | 5.03    | 5.99    | 6.69    | 7.4      | 8.1      | 9.02     | 9.72      |
| 2880         | 1.9                   | 0.67                                                                            | 1.85                  | 17 | 1.79   | 2.38   | 2.77    | 3.27    | 3.64    | 4        | 4.37     | 4.84     | 5.21      |
| 4320         | 1.37                  | 0.52                                                                            | 1.24                  | 14 | 1.28   | 1.74   | 2.05    | 2.43    | 2.72    | 3        | 3.28     | 3.66     | 3.94      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 449215 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |       |        |        |        |        |        |        |        |        |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2     | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5   | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15           | 124.14                | 119.12                                                                          | 86.36                 | 16 | 88.73 | 199.28 | 281.1  | 387.79 | 467.69 | 547.02 | 625.88 | 729.51 | 807.5  |
| 30           | 72.98                 | 58.25                                                                           | 55.88                 | 15 | 58.68 | 114.52 | 152.17 | 198.52 | 231.75 | 263.78 | 294.83 | 334.63 | 363.92 |
| 45           | 51.75                 | 36.41                                                                           | 45.72                 | 16 | 44.23 | 79.33  | 101.69 | 128.28 | 146.86 | 164.45 | 181.24 | 202.44 | 217.84 |
| 60           | 40.91                 | 28.62                                                                           | 34.29                 | 14 | 35.05 | 62.64  | 80.18  | 101    | 115.53 | 129.28 | 142.39 | 158.94 | 170.95 |

|      |       |       |       |    |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 120  | 21.16 | 13.47 | 19.05 | 17 | 18.8   | 31.74  | 39.66   | 48.85   | 55.15   | 61.04    | 66.6     | 73.54    | 78.54     |
| 180  | 15.45 | 8.52  | 14.39 | 17 | 14.33  | 22.41  | 27.1    | 32.38   | 35.91   | 39.16    | 42.19    | 45.92    | 48.57     |
| 240  | 12.07 | 6.51  | 10.99 | 17 | 11.26  | 17.41  | 20.96   | 24.94   | 27.59   | 30.02    | 32.28    | 35.06    | 37.04     |
| 360  | 9.34  | 4.38  | 9.1   | 18 | 8.96   | 13.02  | 15.26   | 17.71   | 19.31   | 20.76    | 22.09    | 23.71    | 24.84     |
| 720  | 5.26  | 2.03  | 5.08  | 19 | 5.18   | 7      | 7.95    | 8.96    | 9.61    | 10.18    | 10.71    | 11.33    | 11.77     |
| 1440 | 2.92  | 1.01  | 2.8   | 20 | 2.91   | 3.79   | 4.24    | 4.72    | 5.02    | 5.28     | 5.52     | 5.81     | 6         |
| 2880 | 1.72  | 0.65  | 1.64  | 19 | 1.7    | 2.28   | 2.58    | 2.9     | 3.1     | 3.29     | 3.45     | 3.65     | 3.78      |
| 4320 | 1.22  | 0.41  | 1.16  | 23 | 1.22   | 1.57   | 1.76    | 1.94    | 2.06    | 2.17     | 2.27     | 2.38     | 2.46      |
|      |       |       |       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 449272 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 172.79                | 199.6                                                                           | 111.76                | 15 | 140.01 | 316.4  | 433.19  | 580.75  | 690.22  | 798.88   | 907.15   | 1049.98  | 1157.93   |
| 30           | 97.28                 | 99.34                                                                           | 68.58                 | 14 | 80.97  | 168.76 | 226.88  | 300.32  | 354.8   | 408.88   | 462.77   | 533.85   | 587.58    |
| 45           | 61.62                 | 62.34                                                                           | 45.72                 | 16 | 51.38  | 106.47 | 142.95  | 189.04  | 223.23  | 257.16   | 290.98   | 335.59   | 369.3     |
| 60           | 46.4                  | 43.09                                                                           | 35.56                 | 19 | 39.32  | 77.4   | 102.62  | 134.47  | 158.1   | 181.56   | 204.93   | 235.77   | 259.07    |
| 120          | 26.86                 | 21.28                                                                           | 20.07                 | 18 | 23.37  | 42.17  | 54.62   | 70.35   | 82.03   | 93.61    | 105.15   | 120.38   | 131.89    |
| 180          | 18.94                 | 13.64                                                                           | 15.24                 | 19 | 16.7   | 28.75  | 36.73   | 46.82   | 54.3    | 61.73    | 69.12    | 78.88    | 86.26     |
| 240          | 15.8                  | 10.71                                                                           | 12.64                 | 18 | 14.04  | 23.51  | 29.77   | 37.69   | 43.56   | 49.39    | 55.2     | 62.87    | 68.66     |
| 360          | 11.43                 | 7.12                                                                            | 9.53                  | 20 | 10.26  | 16.55  | 20.72   | 25.98   | 29.89   | 33.76    | 37.63    | 42.72    | 46.57     |
| 720          | 7                     | 3.6                                                                             | 6.14                  | 19 | 6.41   | 9.59   | 11.7    | 14.36   | 16.33   | 18.29    | 20.24    | 22.82    | 24.77     |
| 1440         | 4.45                  | 1.57                                                                            | 4.18                  | 24 | 4.19   | 5.58   | 6.5     | 7.66    | 8.52    | 9.37     | 10.23    | 11.35    | 12.2      |
| 2880         | 2.47                  | 0.88                                                                            | 2.49                  | 23 | 2.33   | 3.1    | 3.62    | 4.27    | 4.75    | 5.23     | 5.71     | 6.34     | 6.81      |
| 4320         | 1.71                  | 0.64                                                                            | 1.57                  | 24 | 1.6    | 2.17   | 2.54    | 3.02    | 3.37    | 3.72     | 4.06     | 4.52     | 4.87      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| Gauge 449301 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |    |        |        |         |         |         |          |          |          |           |
|--------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|----|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration     | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N  | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)        | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |    | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15           | 76.01                 | 57.68                                                                           | 71.12                 | 11 | 62.74  | 118.24 | 154.8   | 199.17  | 230.65  | 260.76   | 289.77   | 326.72   | 353.77    |
| 30           | 42.46                 | 26.48                                                                           | 40.64                 | 17 | 37.99  | 63.4   | 78.83   | 96.64   | 108.81  | 120.15   | 130.85   | 144.17   | 153.75    |
| 45           | 31.54                 | 17.92                                                                           | 30.48                 | 17 | 29.02  | 46.08  | 56.09   | 67.42   | 75.03   | 82.06    | 88.63    | 96.74    | 102.52    |
| 60           | 22.75                 | 11.82                                                                           | 21.59                 | 16 | 21.4   | 32.52  | 38.86   | 45.9    | 50.58   | 54.85    | 58.81    | 63.66    | 67.09     |
| 120          | 14.76                 | 6.36                                                                            | 15.24                 | 13 | 14.35  | 20.16  | 23.29   | 26.66   | 28.85   | 30.81    | 32.6     | 34.77    | 36.29     |
| 180          | 11.47                 | 4.53                                                                            | 11.81                 | 16 | 11.27  | 15.35  | 17.5    | 19.78   | 21.24   | 22.55    | 23.73    | 25.16    | 26.15     |
| 240          | 9.11                  | 3.71                                                                            | 8.86                  | 18 | 8.92   | 12.28  | 14.06   | 15.96   | 17.19   | 18.28    | 19.28    | 20.48    | 21.31     |
| 360          | 6.63                  | 2.67                                                                            | 6.35                  | 19 | 6.5    | 8.91   | 10.19   | 11.55   | 12.42   | 13.2     | 13.91    | 14.77    | 15.37     |
| 720          | 3.81                  | 1.51                                                                            | 3.81                  | 16 | 3.74   | 5.1    | 5.82    | 6.58    | 7.07    | 7.51     | 7.9      | 8.38     | 8.71      |
| 1440         | 2.31                  | 0.94                                                                            | 2.22                  | 21 | 2.26   | 3.11   | 3.56    | 4.05    | 4.36    | 4.63     | 4.89     | 5.19     | 5.4       |
| 2880         | 1.4                   | 0.61                                                                            | 1.38                  | 23 | 1.36   | 1.92   | 2.22    | 2.54    | 2.76    | 2.95     | 3.12     | 3.33     | 3.48      |
| 4320         | 1.02                  | 0.49                                                                            | 0.99                  | 21 | 0.97   | 1.43   | 1.68    | 1.96    | 2.14    | 2.31     | 2.46     | 2.65     | 2.78      |
|              |                       |                                                                                 |                       |    | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

### III. Tabulated Watershed-Level Historical IDF Curves

| HUC 2040303 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 99.06                 | 58.47                 | 86.36                 | 0 | 89.46                                                                           | 141.13 | 175.34  | 218.57  | 250.63  | 282.46   | 314.18   | 356.02   | 387.64    |
| 30          | 57.23                 | 26.43                 | 55.88                 | 0 | 52.89                                                                           | 76.25  | 91.71   | 111.25  | 125.75  | 140.13   | 154.47   | 173.38   | 187.68    |
| 45          | 42.82                 | 15.97                 | 42.34                 | 0 | 40.2                                                                            | 54.31  | 63.65   | 75.46   | 84.22   | 92.91    | 101.58   | 113      | 121.64    |
| 60          | 35.56                 | 14.16                 | 34.29                 | 0 | 33.23                                                                           | 45.75  | 54.03   | 64.5    | 72.27   | 79.98    | 87.66    | 97.79    | 105.45    |
| 120         | 23.24                 | 9.65                  | 22.23                 | 0 | 21.66                                                                           | 30.18  | 35.83   | 42.96   | 48.26   | 53.51    | 58.74    | 65.65    | 70.87     |
| 180         | 18.31                 | 8.43                  | 16.09                 | 0 | 16.93                                                                           | 24.38  | 29.31   | 35.54   | 40.16   | 44.75    | 49.33    | 55.36    | 59.92     |
| 240         | 14.57                 | 6.96                  | 13.02                 | 0 | 13.43                                                                           | 19.58  | 23.65   | 28.8    | 32.61   | 36.4     | 40.18    | 45.16    | 48.92     |
| 360         | 11.03                 | 4.69                  | 9.95                  | 0 | 10.26                                                                           | 14.4   | 17.15   | 20.62   | 23.19   | 25.74    | 28.29    | 31.64    | 34.18     |
| 720         | 6.86                  | 3.65                  | 5.61                  | 0 | 6.26                                                                            | 9.49   | 11.62   | 14.32   | 16.32   | 18.31    | 20.29    | 22.9     | 24.87     |
| 1440        | 3.99                  | 1.83                  | 3.55                  | 0 | 3.69                                                                            | 5.31   | 6.38    | 7.73    | 8.73    | 9.73     | 10.72    | 12.03    | 13.02     |
| 2880        | 2.09                  | 0.92                  | 1.91                  | 0 | 1.94                                                                            | 2.75   | 3.29    | 3.97    | 4.47    | 4.98     | 5.47     | 6.13     | 6.63      |
| 4320        | 1.52                  | 0.65                  | 1.31                  | 0 | 1.41                                                                            | 1.99   | 2.37    | 2.85    | 3.21    | 3.56     | 3.91     | 4.38     | 4.73      |
|             |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2040304 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15          | 99.38                 | 58.76                 | 86.51                 | 0 | 89.73                                                                           | 141.66 | 176.04 | 219.48 | 251.71 | 283.69 | 315.57 | 357.62 | 389.4  |
| 30          | 57.44                 | 26.58                 | 56.01                 | 0 | 53.07                                                                           | 76.56  | 92.12  | 111.77 | 126.34 | 140.81 | 155.23 | 174.25 | 188.63 |
| 45          | 42.91                 | 16.07                 | 42.39                 | 0 | 40.27                                                                           | 54.47  | 63.88  | 75.76  | 84.57  | 93.32  | 102.03 | 113.53 | 122.22 |
| 60          | 35.66                 | 14.27                 | 34.34                 | 0 | 33.32                                                                           | 45.93  | 54.28  | 64.83  | 72.65  | 80.42  | 88.16  | 98.37  | 106.09 |
| 120         | 23.31                 | 9.73                  | 22.27                 | 0 | 21.71                                                                           | 30.31  | 36     | 43.2   | 48.53  | 53.83  | 59.11  | 66.07  | 71.33  |
| 180         | 18.35                 | 8.49                  | 16.12                 | 0 | 16.96                                                                           | 24.46  | 29.43  | 35.7   | 40.36  | 44.98  | 49.59  | 55.66  | 60.25  |
| 240         | 14.6                  | 7                     | 13.03                 | 0 | 13.45                                                                           | 19.64  | 23.73  | 28.91  | 32.75  | 36.56  | 40.35  | 45.36  | 49.15  |

|      |       |      |      |   |        |        |         |         |         |          |          |          |           |
|------|-------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 360  | 11.05 | 4.72 | 9.96 | 0 | 10.27  | 14.45  | 17.21   | 20.7    | 23.29   | 25.86    | 28.42    | 31.79    | 34.35     |
| 720  | 6.86  | 3.65 | 5.62 | 0 | 6.26   | 9.49   | 11.62   | 14.32   | 16.32   | 18.31    | 20.29    | 22.9     | 24.87     |
| 1440 | 4     | 1.85 | 3.54 | 0 | 3.7    | 5.33   | 6.41    | 7.78    | 8.8     | 9.8      | 10.81    | 12.13    | 13.13     |
| 2880 | 2.09  | 0.93 | 1.91 | 0 | 1.94   | 2.76   | 3.3     | 3.99    | 4.5     | 5.01     | 5.51     | 6.18     | 6.68      |
| 4320 | 1.53  | 0.66 | 1.31 | 0 | 1.42   | 2      | 2.39    | 2.88    | 3.24    | 3.6      | 3.96     | 4.43     | 4.79      |
|      |       |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070001-a |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|---------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 115.1                 | 95.86                 | 88.15                 | 0 | 90.37                                                                           | 181.81 | 244.74  | 323.19  | 379.96  | 435.05   | 488.73   | 557.91   | 609.09    |
| 30            | 63.26                 | 43.8                  | 54.13                 | 0 | 54.43                                                                           | 96.65  | 123.37  | 155.02  | 177.05  | 197.87   | 217.72   | 242.72   | 260.86    |
| 45            | 44.39                 | 28.82                 | 37.93                 | 0 | 39.16                                                                           | 66.89  | 83.99   | 103.92  | 117.64  | 130.49   | 142.65   | 157.88   | 168.85    |
| 60            | 35.26                 | 21.41                 | 30.58                 | 0 | 31.82                                                                           | 52.33  | 64.65   | 78.8    | 88.41   | 97.36    | 105.76   | 116.21   | 123.69    |
| 120           | 20.09                 | 10.82                 | 17.26                 | 0 | 18.74                                                                           | 28.97  | 34.87   | 41.47   | 45.87   | 49.91    | 53.66    | 58.28    | 61.55     |
| 180           | 14.33                 | 7.29                  | 12.8                  | 0 | 13.54                                                                           | 20.38  | 24.25   | 28.54   | 31.37   | 33.96    | 36.35    | 39.28    | 41.35     |
| 240           | 11.55                 | 5.55                  | 10.62                 | 0 | 11.04                                                                           | 16.2   | 19.07   | 22.22   | 24.28   | 26.15    | 27.88    | 29.98    | 31.46     |
| 360           | 8.28                  | 3.24                  | 7.57                  | 0 | 8.15                                                                            | 11.05  | 12.59   | 14.21   | 15.25   | 16.18    | 17.02    | 18.03    | 18.74     |
| 720           | 4.97                  | 1.79                  | 4.55                  | 0 | 4.93                                                                            | 6.51   | 7.33    | 8.18    | 8.73    | 9.21     | 9.65     | 10.17    | 10.53     |
| 1440          | 2.82                  | 0.96                  | 2.66                  | 0 | 2.81                                                                            | 3.65   | 4.08    | 4.52    | 4.8     | 5.05     | 5.28     | 5.55     | 5.73      |
| 2880          | 1.58                  | 0.48                  | 1.53                  | 0 | 1.58                                                                            | 2      | 2.2     | 2.41    | 2.54    | 2.66     | 2.76     | 2.89     | 2.97      |
| 4320          | 1.15                  | 0.36                  | 1.11                  | 0 | 1.15                                                                            | 1.46   | 1.62    | 1.78    | 1.88    | 1.97     | 2.05     | 2.14     | 2.2       |
|               |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070001-b |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |       |
|---------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|-------|
| Duration      | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000  |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001 |
| 15            | 88.43                 | 65.79                 | 74.28                 | 0 | 73.69                                                                           | 137.06 | 178.43 | 228.37 | 263.65 | 297.32 | 329.66 | 370.77 | 400.8 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 30   | 53.59 | 31.55 | 50.17 | 0 | 48.82  | 78.96  | 96.87   | 117.28  | 131.1   | 143.89   | 155.88   | 170.74   | 181.36    |
| 45   | 38.27 | 21.59 | 35.95 | 0 | 35.28  | 55.82  | 67.84   | 81.42   | 90.54   | 98.96    | 106.81   | 116.5    | 123.41    |
| 60   | 29.99 | 15.99 | 28.85 | 0 | 28.04  | 43.15  | 51.82   | 61.51   | 67.96   | 73.87    | 79.36    | 86.11    | 90.9      |
| 120  | 17.45 | 8     | 15.9  | 0 | 16.81  | 24.2   | 28.25   | 32.65   | 35.52   | 38.12    | 40.5     | 43.39    | 45.43     |
| 180  | 12.96 | 5.68  | 12.14 | 0 | 12.57  | 17.77  | 20.59   | 23.63   | 25.61   | 27.38    | 29.01    | 30.97    | 32.35     |
| 240  | 10.39 | 4.45  | 9.88  | 0 | 10.11  | 14.17  | 16.36   | 18.71   | 20.23   | 21.59    | 22.84    | 24.35    | 25.4      |
| 360  | 7.53  | 2.59  | 6.99  | 0 | 7.5    | 9.76   | 10.92   | 12.13   | 12.9    | 13.58    | 14.19    | 14.91    | 15.42     |
| 720  | 4.66  | 1.57  | 4.32  | 0 | 4.65   | 6.01   | 6.71    | 7.44    | 7.9     | 8.3      | 8.67     | 9.1      | 9.4       |
| 1440 | 2.69  | 0.87  | 2.6   | 0 | 2.69   | 3.44   | 3.82    | 4.22    | 4.46    | 4.68     | 4.88     | 5.11     | 5.27      |
| 2880 | 1.48  | 0.45  | 1.44  | 0 | 1.48   | 1.87   | 2.06    | 2.26    | 2.38    | 2.49     | 2.59     | 2.7      | 2.78      |
| 4320 | 1.11  | 0.34  | 1.06  | 0 | 1.11   | 1.4    | 1.55    | 1.7     | 1.79    | 1.88     | 1.95     | 2.04     | 2.1       |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070003-a |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|---------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 166.24                | 159.69                | 109.3                 | 0 | 140.01                                                                          | 281.14 | 374.57  | 492.63  | 580.21  | 667.15   | 753.76   | 868.04   | 954.4     |
| 30            | 81.48                 | 71.93                 | 58.56                 | 0 | 69.67                                                                           | 133.23 | 175.32  | 228.5   | 267.95  | 307.11   | 346.12   | 397.59   | 436.5     |
| 45            | 57.28                 | 47.09                 | 42.2                  | 0 | 49.55                                                                           | 91.16  | 118.71  | 153.53  | 179.35  | 204.99   | 230.53   | 264.23   | 289.7     |
| 60            | 46.33                 | 36.04                 | 33.09                 | 0 | 40.41                                                                           | 72.26  | 93.35   | 119.99  | 139.76  | 159.38   | 178.93   | 204.72   | 224.21    |
| 120           | 24.68                 | 17.64                 | 19                    | 0 | 21.78                                                                           | 37.37  | 47.69   | 60.73   | 70.41   | 80.01    | 89.58    | 102.2    | 111.74    |
| 180           | 16.75                 | 11.02                 | 13.4                  | 0 | 14.94                                                                           | 24.68  | 31.13   | 39.27   | 45.32   | 51.32    | 57.29    | 65.18    | 71.14     |
| 240           | 13.71                 | 8.09                  | 11.47                 | 0 | 12.38                                                                           | 19.53  | 24.26   | 30.25   | 34.68   | 39.09    | 43.47    | 49.26    | 53.64     |
| 360           | 10.1                  | 5.05                  | 8.6                   | 0 | 9.27                                                                            | 13.73  | 16.69   | 20.42   | 23.19   | 25.94    | 28.68    | 32.29    | 35.02     |
| 720           | 5.63                  | 2.32                  | 5.1                   | 0 | 5.25                                                                            | 7.3    | 8.66    | 10.37   | 11.64   | 12.91    | 14.17    | 15.83    | 17.08     |
| 1440          | 3.02                  | 1.23                  | 2.68                  | 0 | 2.82                                                                            | 3.9    | 4.62    | 5.53    | 6.21    | 6.88     | 7.55     | 8.43     | 9.09      |
| 2880          | 1.73                  | 0.61                  | 1.65                  | 0 | 1.63                                                                            | 2.17   | 2.53    | 2.98    | 3.31    | 3.64     | 3.97     | 4.41     | 4.74      |
| 4320          | 1.23                  | 0.48                  | 1.15                  | 0 | 1.15                                                                            | 1.58   | 1.86    | 2.21    | 2.47    | 2.74     | 3        | 3.34     | 3.6       |
|               |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070003-b |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 47.96                 | 26.31                                                                           | 47.78                 | 0 | 43.64  | 66.89  | 82.28   | 101.73  | 116.16  | 130.49   | 144.76   | 163.59   | 177.82    |
| 30            | 38.59                 | 17.62                                                                           | 40.98                 | 0 | 35.7   | 51.27  | 61.58   | 74.6    | 84.27   | 93.86    | 103.42   | 116.03   | 125.56    |
| 45            | 30.14                 | 15                                                                              | 33.41                 | 0 | 27.68  | 40.93  | 49.71   | 60.8    | 69.03   | 77.19    | 85.33    | 96.06    | 104.17    |
| 60            | 22.95                 | 12.02                                                                           | 25.4                  | 0 | 20.98  | 31.6   | 38.63   | 47.52   | 54.11   | 60.65    | 67.17    | 75.77    | 82.28     |
| 120           | 12.95                 | 5.13                                                                            | 12.96                 | 0 | 12.11  | 16.64  | 19.64   | 23.44   | 26.25   | 29.04    | 31.82    | 35.5     | 38.27     |
| 180           | 10.7                  | 3.88                                                                            | 10.47                 | 0 | 10.06  | 13.49  | 15.76   | 18.63   | 20.76   | 22.87    | 24.98    | 27.75    | 29.85     |
| 240           | 8.57                  | 3.21                                                                            | 8.18                  | 0 | 8.04   | 10.88  | 12.76   | 15.13   | 16.89   | 18.64    | 20.38    | 22.68    | 24.41     |
| 360           | 6.77                  | 2.17                                                                            | 6.03                  | 0 | 6.41   | 8.33   | 9.6     | 11.21   | 12.4    | 13.58    | 14.75    | 16.31    | 17.48     |
| 720           | 4.25                  | 1.34                                                                            | 4.09                  | 0 | 4.03   | 5.21   | 6       | 6.99    | 7.72    | 8.45     | 9.18     | 10.14    | 10.86     |
| 1440          | 2.43                  | 0.81                                                                            | 2.4                   | 0 | 2.3    | 3.01   | 3.49    | 4.09    | 4.53    | 4.97     | 5.41     | 5.99     | 6.43      |
| 2880          | 1.32                  | 0.45                                                                            | 1.24                  | 0 | 1.25   | 1.64   | 1.91    | 2.24    | 2.49    | 2.73     | 2.98     | 3.3      | 3.54      |
| 4320          | 1.03                  | 0.4                                                                             | 0.94                  | 0 | 0.96   | 1.32   | 1.55    | 1.85    | 2.07    | 2.28     | 2.5      | 2.79     | 3         |
|               |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070004-a |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |        |        |        |        |         |         |         |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10     | 25     | 50     | 100    | 200     | 500     | 1000    |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005   | 0.002   | 0.001   |
| 15            | 245.08                | 218.62                                                                          | 127.55                | 0 | 184.33 | 390.66 | 537.64 | 724.8  | 862.46 | 997.49 | 1130.33 | 1303.09 | 1431.94 |
| 30            | 115.11                | 101.1                                                                           | 72.12                 | 0 | 87.45  | 183.15 | 250.78 | 336.48 | 399.29 | 460.73 | 521.06  | 599.34  | 657.62  |
| 45            | 81.02                 | 67.9                                                                            | 50.18                 | 0 | 63.38  | 128.1  | 172.77 | 228.56 | 269    | 308.27 | 346.58  | 395.98  | 432.54  |
| 60            | 61.03                 | 47.44                                                                           | 41.76                 | 0 | 49.77  | 95.34  | 125.7  | 162.79 | 189.23 | 214.61 | 239.14  | 270.47  | 293.47  |
| 120           | 32.08                 | 23.15                                                                           | 24.36                 | 0 | 27.12  | 49.43  | 63.8   | 81     | 93.07  | 104.55 | 115.53  | 129.44  | 139.57  |
| 180           | 21.84                 | 15.07                                                                           | 18.03                 | 0 | 18.82  | 33.34  | 42.53  | 53.39  | 60.95  | 68.09  | 74.89   | 83.45   | 89.67   |
| 240           | 17.76                 | 11.09                                                                           | 14.86                 | 0 | 15.88  | 26.53  | 32.99  | 40.46  | 45.56  | 50.32  | 54.8    | 60.39   | 64.41   |
| 360           | 12.58                 | 7.02                                                                            | 10.49                 | 0 | 11.63  | 18.3   | 22.19  | 26.57  | 29.51  | 32.21  | 34.74   | 37.85   | 40.06   |
| 720           | 6.67                  | 3.22                                                                            | 5.53                  | 0 | 6.37   | 9.37   | 11.03  | 12.86  | 14.07  | 15.16  | 16.16   | 17.39   | 18.25   |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1440 | 3.58 | 1.61 | 2.98 | 0 | 3.46   | 4.94   | 5.75    | 6.62    | 7.19    | 7.71     | 8.18     | 8.75     | 9.15      |
| 2880 | 1.95 | 0.73 | 1.83 | 0 | 1.93   | 2.58   | 2.92    | 3.27    | 3.5     | 3.7      | 3.89     | 4.11     | 4.26      |
| 4320 | 1.34 | 0.5  | 1.24 | 0 | 1.32   | 1.77   | 2       | 2.24    | 2.4     | 2.54     | 2.66     | 2.81     | 2.92      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070004-b |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|---------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 211.95                | 181.26                | 110.32                | 0 | 163.79                                                                          | 336.05 | 456.15  | 607.06  | 716.95  | 824.01   | 928.71   | 1064.1   | 1164.56   |
| 30            | 103.1                 | 85.89                 | 67.2                  | 0 | 80.93                                                                           | 162.86 | 219.25  | 289.55  | 340.44  | 389.81   | 437.93   | 499.93   | 545.8     |
| 45            | 73.42                 | 58.91                 | 47.72                 | 0 | 58.87                                                                           | 115.31 | 153.46  | 200.5   | 234.26  | 266.84   | 298.43   | 338.94   | 368.79    |
| 60            | 54.48                 | 40.71                 | 39.6                  | 0 | 45.3                                                                            | 84.51  | 110.16  | 141.15  | 163.06  | 183.99   | 204.1    | 229.68   | 248.38    |
| 120           | 28.79                 | 19.64                 | 22.66                 | 0 | 24.92                                                                           | 43.85  | 55.76   | 69.8    | 79.56   | 88.76    | 97.51    | 108.52   | 116.5     |
| 180           | 20.14                 | 13.07                 | 17.21                 | 0 | 17.77                                                                           | 30.35  | 38.1    | 47.14   | 53.35   | 59.18    | 64.69    | 71.59    | 76.57     |
| 240           | 16.32                 | 9.72                  | 13.94                 | 0 | 14.81                                                                           | 24.11  | 29.66   | 36      | 40.29   | 44.28    | 48.02    | 52.66    | 55.98     |
| 360           | 11.65                 | 6.21                  | 9.77                  | 0 | 10.89                                                                           | 16.76  | 20.13   | 23.89   | 26.39   | 28.69    | 30.82    | 33.44    | 35.3      |
| 720           | 6.29                  | 2.94                  | 5.25                  | 0 | 6.04                                                                            | 8.76   | 10.26   | 11.9    | 12.97   | 13.94    | 14.83    | 15.92    | 16.68     |
| 1440          | 3.41                  | 1.5                   | 2.91                  | 0 | 3.31                                                                            | 4.68   | 5.43    | 6.23    | 6.75    | 7.22     | 7.65     | 8.18     | 8.54      |
| 2880          | 1.83                  | 0.68                  | 1.72                  | 0 | 1.81                                                                            | 2.41   | 2.73    | 3.06    | 3.27    | 3.46     | 3.63     | 3.83     | 3.97      |
| 4320          | 1.28                  | 0.48                  | 1.18                  | 0 | 1.26                                                                            | 1.69   | 1.91    | 2.15    | 2.3     | 2.43     | 2.55     | 2.7      | 2.8       |
|               |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070005 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15          | 145.47                | 126.14                | 106.24                | 0 | 111.45                                                                          | 231.07 | 315.04 | 421    | 498.41 | 573.98 | 648.04 | 743.98 | 815.28 |
| 30          | 75.33                 | 56.62                 | 58.14                 | 0 | 62.47                                                                           | 116.98 | 152.73 | 196.01 | 226.64 | 255.92 | 284.09 | 319.92 | 346.13 |
| 45          | 52.09                 | 36.98                 | 40.54                 | 0 | 44.35                                                                           | 79.99  | 102.79 | 129.97 | 148.99 | 167.01 | 184.24 | 206.01 | 221.84 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 40.06 | 26.99 | 32.47 | 0 | 34.85  | 60.85  | 77.13   | 96.27   | 109.53  | 122.02   | 133.88   | 148.78   | 159.57    |
| 120  | 22.88 | 13.22 | 19.78 | 0 | 20.95  | 33.56  | 41      | 49.45   | 55.15   | 60.42    | 65.34    | 71.44    | 75.79     |
| 180  | 16.63 | 8.82  | 14.92 | 0 | 15.57  | 23.89  | 28.67   | 33.99   | 37.54   | 40.78    | 43.8     | 47.5     | 50.12     |
| 240  | 13.55 | 6.77  | 12.35 | 0 | 12.85  | 19.19  | 22.75   | 26.68   | 29.28   | 31.64    | 33.82    | 36.49    | 38.37     |
| 360  | 9.38  | 4.37  | 8.32  | 0 | 9.01   | 13.06  | 15.29   | 17.72   | 19.3    | 20.74    | 22.06    | 23.67    | 24.79     |
| 720  | 5.85  | 2.62  | 5.2   | 0 | 5.66   | 8.07   | 9.38    | 10.8    | 11.72   | 12.56    | 13.32    | 14.25    | 14.9      |
| 1440 | 3.39  | 1.54  | 3.02  | 0 | 3.27   | 4.69   | 5.47    | 6.31    | 6.86    | 7.35     | 7.81     | 8.36     | 8.75      |
| 2880 | 1.91  | 0.83  | 1.7   | 0 | 1.85   | 2.61   | 3.02    | 3.47    | 3.75    | 4.01     | 4.25     | 4.53     | 4.73      |
| 4320 | 1.38  | 0.59  | 1.24  | 0 | 1.34   | 1.88   | 2.17    | 2.48    | 2.68    | 2.86     | 3.03     | 3.23     | 3.37      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070006-a |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 152.38                | 123.16                                                                          | 114.1                 | 0 | 121.69 | 239.6  | 319.58  | 418.39  | 489.44  | 558.05   | 624.66   | 710.16   | 773.2     |
| 30            | 76.52                 | 53.94                                                                           | 58.21                 | 0 | 65.35  | 117.34 | 150.5   | 189.95  | 217.52  | 243.62   | 268.55   | 300.03   | 322.91    |
| 45            | 53.7                  | 35.66                                                                           | 40.93                 | 0 | 46.98  | 81.32  | 102.69  | 127.73  | 145.04  | 161.3    | 176.72   | 196.07   | 210.05    |
| 60            | 41.65                 | 26.12                                                                           | 33.01                 | 0 | 37.19  | 62.27  | 77.53   | 95.16   | 107.22  | 118.47   | 129.08   | 142.32   | 151.83    |
| 120           | 23.42                 | 12.6                                                                            | 20.58                 | 0 | 21.85  | 33.77  | 40.63   | 48.31   | 53.43   | 58.13    | 62.49    | 67.86    | 71.67     |
| 180           | 16.9                  | 8.3                                                                             | 15.55                 | 0 | 16.08  | 23.83  | 28.17   | 32.93   | 36.07   | 38.93    | 41.56    | 44.77    | 47.04     |
| 240           | 13.63                 | 6.31                                                                            | 12.64                 | 0 | 13.11  | 18.94  | 22.15   | 25.65   | 27.93   | 29.99    | 31.89    | 34.19    | 35.81     |
| 360           | 9.51                  | 3.9                                                                             | 8.74                  | 0 | 9.31   | 12.84  | 14.72   | 16.72   | 18.02   | 19.17    | 20.23    | 21.5     | 22.38     |
| 720           | 5.88                  | 2.38                                                                            | 5.45                  | 0 | 5.76   | 7.91   | 9.05    | 10.27   | 11.05   | 11.75    | 12.39    | 13.15    | 13.69     |
| 1440          | 3.46                  | 1.57                                                                            | 3.12                  | 0 | 3.34   | 4.79   | 5.58    | 6.43    | 6.99    | 7.5      | 7.96     | 8.52     | 8.92      |
| 2880          | 1.95                  | 0.83                                                                            | 1.77                  | 0 | 1.9    | 2.66   | 3.06    | 3.5     | 3.78    | 4.04     | 4.27     | 4.55     | 4.74      |
| 4320          | 1.39                  | 0.6                                                                             | 1.25                  | 0 | 1.35   | 1.9    | 2.2     | 2.51    | 2.72    | 2.91     | 3.07     | 3.28     | 3.42      |
|               |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 2070006-b</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|----------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration             | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                   | 135.17                | 103.76                                                                          | 105.15                | 0 | 110.93 | 210.7  | 276.77  | 357.21  | 414.4   | 469.22   | 522.1    | 589.53   | 638.97    |
| 30                   | 70.28                 | 46.04                                                                           | 55.66                 | 0 | 61.79  | 106.11 | 133.54  | 165.57  | 187.65  | 208.37   | 227.99   | 252.57   | 270.31    |
| 45                   | 49.75                 | 30.99                                                                           | 39.65                 | 0 | 44.53  | 74.27  | 92.31   | 113.14  | 127.37  | 140.63   | 153.13   | 168.71   | 179.89    |
| 60                   | 38.25                 | 22.63                                                                           | 31.89                 | 0 | 34.79  | 56.42  | 69.3    | 83.99   | 93.94   | 103.16   | 111.8    | 122.52   | 130.18    |
| 120                  | 21.71                 | 10.78                                                                           | 19.7                  | 0 | 20.61  | 30.69  | 36.35   | 42.59   | 46.7    | 50.44    | 53.9     | 58.12    | 61.1      |
| 180                  | 16.02                 | 7.26                                                                            | 15.12                 | 0 | 15.46  | 22.15  | 25.81   | 29.77   | 32.36   | 34.69    | 36.83    | 39.42    | 41.24     |
| 240                  | 12.88                 | 5.6                                                                             | 12.16                 | 0 | 12.51  | 17.63  | 20.4    | 23.38   | 25.32   | 27.06    | 28.65    | 30.57    | 31.92     |
| 360                  | 9.02                  | 3.48                                                                            | 8.37                  | 0 | 8.89   | 12     | 13.64   | 15.37   | 16.47   | 17.46    | 18.35    | 19.43    | 20.17     |
| 720                  | 5.68                  | 2.23                                                                            | 5.3                   | 0 | 5.59   | 7.59   | 8.64    | 9.76    | 10.48   | 11.12    | 11.7     | 12.4     | 12.89     |
| 1440                 | 3.37                  | 1.51                                                                            | 3.08                  | 0 | 3.26   | 4.65   | 5.4     | 6.22    | 6.76    | 7.24     | 7.68     | 8.21     | 8.58      |
| 2880                 | 1.89                  | 0.8                                                                             | 1.71                  | 0 | 1.84   | 2.57   | 2.96    | 3.38    | 3.65    | 3.9      | 4.12     | 4.39     | 4.57      |
| 4320                 | 1.37                  | 0.59                                                                            | 1.22                  | 0 | 1.33   | 1.87   | 2.16    | 2.47    | 2.68    | 2.86     | 3.02     | 3.23     | 3.37      |
|                      |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 2070007</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |        |        |        |        |         |         |         |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10     | 25     | 50     | 100    | 200     | 500     | 1000    |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005   | 0.002   | 0.001   |
| 15                 | 219.06                | 201.67                                                                          | 111.18                | 0 | 161.29 | 350.37 | 487.27 | 663.37 | 793.89 | 922.58 | 1049.74 | 1215.86 | 1340.22 |
| 30                 | 104.24                | 89.24                                                                           | 67.26                 | 0 | 80.5   | 165.3  | 224.45 | 298.79 | 352.95 | 405.71 | 457.33  | 524.08  | 573.61  |
| 45                 | 73.14                 | 60.29                                                                           | 46.09                 | 0 | 57.77  | 115.36 | 154.79 | 203.79 | 239.18 | 273.46 | 306.82  | 349.75  | 381.47  |
| 60                 | 54.41                 | 42.11                                                                           | 38.14                 | 0 | 44.47  | 84.94  | 111.84 | 144.66 | 168.04 | 190.47 | 212.14  | 239.79  | 260.08  |
| 120                | 28.81                 | 20.56                                                                           | 22.08                 | 0 | 24.47  | 44.29  | 56.99  | 72.16  | 82.78  | 92.85  | 102.49  | 114.67  | 123.53  |
| 180                | 20.65                 | 13.67                                                                           | 17.35                 | 0 | 18.09  | 31.25  | 39.43  | 49.01  | 55.63  | 61.84  | 67.73   | 75.12   | 80.46   |
| 240                | 16.47                 | 10.08                                                                           | 13.97                 | 0 | 14.83  | 24.49  | 30.31  | 37     | 41.56  | 45.8   | 49.79   | 54.76   | 58.32   |
| 360                | 11.63                 | 6.35                                                                            | 9.84                  | 0 | 10.81  | 16.83  | 20.31  | 24.22  | 26.83  | 29.23  | 31.46   | 34.21   | 36.16   |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 6.3  | 2.92 | 5.25 | 0 | 6.06   | 8.76   | 10.25   | 11.86   | 12.92   | 13.88    | 14.75    | 15.82    | 16.57     |
| 1440 | 3.37 | 1.46 | 2.86 | 0 | 3.27   | 4.61   | 5.33    | 6.11    | 6.61    | 7.06     | 7.48     | 7.98     | 8.32      |
| 2880 | 1.84 | 0.66 | 1.74 | 0 | 1.83   | 2.41   | 2.71    | 3.02    | 3.22    | 3.4      | 3.56     | 3.75     | 3.89      |
| 4320 | 1.28 | 0.45 | 1.21 | 0 | 1.27   | 1.67   | 1.87    | 2.08    | 2.22    | 2.34     | 2.45     | 2.57     | 2.66      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070008 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 212.82                | 192.47                | 120.86                | 0 | 181.21                                                                          | 351.3  | 463.92  | 606.21  | 711.77  | 816.55   | 920.94   | 1058.68  | 1162.77   |
| 30          | 108.4                 | 92.58                 | 70.67                 | 0 | 93.2                                                                            | 175.01 | 229.18  | 297.62  | 348.4   | 398.8    | 449.02   | 515.27   | 565.34    |
| 45          | 73.2                  | 58.43                 | 50.48                 | 0 | 63.6                                                                            | 115.24 | 149.43  | 192.62  | 224.67  | 256.48   | 288.17   | 329.99   | 361.59    |
| 60          | 56.17                 | 41.23                 | 42.86                 | 0 | 49.4                                                                            | 85.84  | 109.96  | 140.44  | 163.05  | 185.5    | 207.86   | 237.37   | 259.66    |
| 120         | 31.1                  | 20.34                 | 25.2                  | 0 | 27.76                                                                           | 45.73  | 57.64   | 72.67   | 83.83   | 94.9     | 105.93   | 120.49   | 131.49    |
| 180         | 22                    | 13.77                 | 18.53                 | 0 | 19.74                                                                           | 31.91  | 39.96   | 50.14   | 57.7    | 65.19    | 72.66    | 82.52    | 89.96     |
| 240         | 17.29                 | 10.71                 | 14.36                 | 0 | 15.53                                                                           | 25     | 31.26   | 39.18   | 45.05   | 50.88    | 56.69    | 64.36    | 70.15     |
| 360         | 12.63                 | 7.25                  | 10.25                 | 0 | 11.44                                                                           | 17.85  | 22.09   | 27.45   | 31.42   | 35.37    | 39.3     | 44.49    | 48.41     |
| 720         | 6.98                  | 3.62                  | 5.76                  | 0 | 6.39                                                                            | 9.58   | 11.7    | 14.38   | 16.36   | 18.33    | 20.3     | 22.89    | 24.85     |
| 1440        | 3.86                  | 1.89                  | 3.17                  | 0 | 3.55                                                                            | 5.22   | 6.33    | 7.72    | 8.76    | 9.79     | 10.81    | 12.17    | 13.19     |
| 2880        | 2.04                  | 0.91                  | 1.82                  | 0 | 1.89                                                                            | 2.69   | 3.23    | 3.9     | 4.4     | 4.89     | 5.39     | 6.04     | 6.53      |
| 4320        | 1.43                  | 0.6                   | 1.3                   | 0 | 1.33                                                                            | 1.86   | 2.21    | 2.66    | 2.99    | 3.31     | 3.64     | 4.07     | 4.39      |
|             |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070010 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15          | 136.62                | 116.63                | 99.37                 | 0 | 117.47                                                                          | 220.54 | 288.78 | 375    | 438.96 | 502.46 | 565.72 | 649.18 | 712.26 |
| 30          | 79.95                 | 60.29                 | 61.75                 | 0 | 70.05                                                                           | 123.33 | 158.61 | 203.18 | 236.24 | 269.06 | 301.77 | 344.91 | 377.52 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 45   | 53.06 | 35.47 | 45.33 | 0 | 47.23  | 78.58  | 99.33   | 125.56  | 145.01  | 164.32   | 183.56   | 208.94   | 228.13    |
| 60   | 42.55 | 26.91 | 38.07 | 0 | 38.13  | 61.91  | 77.66   | 97.55   | 112.31  | 126.96   | 141.56   | 160.81   | 175.37    |
| 120  | 25.49 | 14.3  | 22.59 | 0 | 23.14  | 35.78  | 44.15   | 54.72   | 62.56   | 70.35    | 78.1     | 88.33    | 96.07     |
| 180  | 18.75 | 10.11 | 16.25 | 0 | 17.09  | 26.02  | 31.94   | 39.41   | 44.96   | 50.46    | 55.95    | 63.18    | 68.65     |
| 240  | 14.39 | 8.36  | 12.08 | 0 | 13.02  | 20.41  | 25.3    | 31.48   | 36.06   | 40.61    | 45.15    | 51.13    | 55.65     |
| 360  | 10.93 | 6.21  | 8.86  | 0 | 9.91   | 15.4   | 19.03   | 23.62   | 27.03   | 30.41    | 33.78    | 38.22    | 41.58     |
| 720  | 6.46  | 3.58  | 5.33  | 0 | 5.87   | 9.04   | 11.13   | 13.78   | 15.74   | 17.69    | 19.63    | 22.19    | 24.13     |
| 1440 | 3.69  | 1.87  | 3.1   | 0 | 3.38   | 5.04   | 6.13    | 7.51    | 8.54    | 9.56     | 10.57    | 11.91    | 12.92     |
| 2880 | 1.95  | 0.99  | 1.73  | 0 | 1.79   | 2.66   | 3.24    | 3.97    | 4.52    | 5.06     | 5.59     | 6.3      | 6.84      |
| 4320 | 1.43  | 0.69  | 1.31  | 0 | 1.32   | 1.93   | 2.33    | 2.84    | 3.22    | 3.59     | 3.97     | 4.46     | 4.84      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2070011 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|-------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 69.51                 | 21.07                                                                           | 66.13                 | 0 | 69.73  | 87.73  | 96.73   | 105.98  | 111.76  | 116.84   | 121.39   | 126.79   | 130.5     |
| 30          | 40.25                 | 13.09                                                                           | 43.54                 | 0 | 40.22  | 51.55  | 57.29   | 63.24   | 66.98   | 70.28    | 73.24    | 76.77    | 79.2      |
| 45          | 31.29                 | 10.66                                                                           | 29.81                 | 0 | 31.17  | 40.48  | 45.24   | 50.2    | 53.33   | 56.1     | 58.6     | 61.57    | 63.62     |
| 60          | 26.11                 | 10.44                                                                           | 24.87                 | 0 | 25.63  | 35.03  | 40.01   | 45.31   | 48.71   | 51.75    | 54.51    | 57.84    | 60.15     |
| 120         | 15.39                 | 7.24                                                                            | 14.39                 | 0 | 14.76  | 21.47  | 25.18   | 29.23   | 31.88   | 34.28    | 36.49    | 39.17    | 41.06     |
| 180         | 12.11                 | 5.18                                                                            | 11.21                 | 0 | 11.79  | 16.51  | 19.06   | 21.79   | 23.56   | 25.15    | 26.6     | 28.35    | 29.58     |
| 240         | 9.4                   | 3.75                                                                            | 8.55                  | 0 | 9.23   | 12.61  | 14.39   | 16.29   | 17.51   | 18.6     | 19.59    | 20.78    | 21.61     |
| 360         | 7.18                  | 2.88                                                                            | 6.58                  | 0 | 7.05   | 9.64   | 11.02   | 12.48   | 13.42   | 14.26    | 15.03    | 15.94    | 16.59     |
| 720         | 4.79                  | 2.83                                                                            | 3.59                  | 0 | 4.36   | 7.06   | 8.67    | 10.51   | 11.75   | 12.9     | 13.98    | 15.32    | 16.28     |
| 1440        | 2.88                  | 1.23                                                                            | 2.78                  | 0 | 2.8    | 3.93   | 4.53    | 5.18    | 5.6     | 5.97     | 6.32     | 6.73     | 7.02      |
| 2880        | 1.56                  | 0.65                                                                            | 1.72                  | 0 | 1.52   | 2.11   | 2.43    | 2.77    | 2.98    | 3.18     | 3.36     | 3.57     | 3.72      |
| 4320        | 1.25                  | 0.59                                                                            | 1.21                  | 0 | 1.2    | 1.75   | 2.05    | 2.38    | 2.6     | 2.79     | 2.97     | 3.19     | 3.35      |
|             |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 2080101</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                 | 130.77                | 87.61                                                                           | 101.3                 | 0 | 116.38 | 193.81 | 245.07  | 309.84  | 357.89  | 405.58   | 453.1    | 515.79   | 563.18    |
| 30                 | 76.93                 | 41.57                                                                           | 68.33                 | 0 | 70.1   | 106.84 | 131.16  | 161.89  | 184.69  | 207.32   | 229.87   | 259.62   | 282.1     |
| 45                 | 52.4                  | 25.77                                                                           | 47.31                 | 0 | 48.17  | 70.94  | 86.02   | 105.07  | 119.2   | 133.23   | 147.21   | 165.65   | 179.59    |
| 60                 | 45.52                 | 25.71                                                                           | 39.27                 | 0 | 41.3   | 64.02  | 79.06   | 98.07   | 112.17  | 126.17   | 140.11   | 158.51   | 172.41    |
| 120                | 29.58                 | 17.38                                                                           | 26.58                 | 0 | 26.73  | 42.08  | 52.25   | 65.1    | 74.63   | 84.1     | 93.52    | 105.96   | 115.36    |
| 180                | 22.26                 | 14.53                                                                           | 19.41                 | 0 | 19.87  | 32.71  | 41.22   | 51.96   | 59.93   | 67.84    | 75.72    | 86.12    | 93.97     |
| 240                | 17.38                 | 11.26                                                                           | 13.95                 | 0 | 15.53  | 25.48  | 32.07   | 40.39   | 46.57   | 52.7     | 58.81    | 66.86    | 72.95     |
| 360                | 13.31                 | 7.83                                                                            | 10.99                 | 0 | 12.02  | 18.94  | 23.53   | 29.31   | 33.61   | 37.87    | 42.12    | 47.72    | 51.96     |
| 720                | 7                     | 3.6                                                                             | 6.13                  | 0 | 6.41   | 9.59   | 11.7    | 14.36   | 16.33   | 18.29    | 20.24    | 22.82    | 24.77     |
| 1440               | 4.5                   | 3.07                                                                            | 3.49                  | 0 | 4      | 6.71   | 8.51    | 10.77   | 12.46   | 14.13    | 15.79    | 17.99    | 19.65     |
| 2880               | 2.53                  | 1.71                                                                            | 1.83                  | 0 | 2.25   | 3.76   | 4.76    | 6.03    | 6.96    | 7.89     | 8.82     | 10.05    | 10.97     |
| 4320               | 1.73                  | 1.1                                                                             | 1.27                  | 0 | 1.55   | 2.52   | 3.17    | 3.98    | 4.58    | 5.18     | 5.78     | 6.56     | 7.16      |
|                    |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 2080102</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |        |        |        |        |        |        |        |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                 | 123.31                | 80.75                                                                           | 97.79                 | 0 | 110.05 | 181.41 | 228.66 | 288.35 | 332.64 | 376.6  | 420.4  | 478.19 | 521.86 |
| 30                 | 72.3                  | 38.01                                                                           | 65.4                  | 0 | 66.06  | 99.65  | 121.89 | 149.99 | 170.83 | 191.53 | 212.14 | 239.34 | 259.9  |
| 45                 | 50.15                 | 23.46                                                                           | 46.14                 | 0 | 46.3   | 67.03  | 80.76  | 98.1   | 110.97 | 123.74 | 136.46 | 153.25 | 165.94 |
| 60                 | 43.18                 | 22.99                                                                           | 38.1                  | 0 | 39.4   | 59.72  | 73.17  | 90.17  | 102.78 | 115.29 | 127.76 | 144.22 | 156.65 |
| 120                | 28.09                 | 15.56                                                                           | 25.56                 | 0 | 25.53  | 39.29  | 48.39  | 59.89  | 68.43  | 76.9   | 85.34  | 96.47  | 104.89 |
| 180                | 21.33                 | 13.09                                                                           | 18.63                 | 0 | 19.18  | 30.75  | 38.41  | 48.08  | 55.26  | 62.39  | 69.49  | 78.86  | 85.94  |
| 240                | 16.72                 | 10.25                                                                           | 13.73                 | 0 | 15.04  | 24.09  | 30.09  | 37.67  | 43.29  | 48.87  | 54.43  | 61.77  | 67.31  |
| 360                | 12.78                 | 7.09                                                                            | 10.74                 | 0 | 11.62  | 17.88  | 22.03  | 27.27  | 31.16  | 35.02  | 38.87  | 43.94  | 47.77  |
| 720                | 6.97                  | 3.61                                                                            | 6.01                  | 0 | 6.38   | 9.57   | 11.68  | 14.35  | 16.33  | 18.29  | 20.25  | 22.84  | 24.79  |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1440 | 4.38 | 2.78 | 3.5  | 0 | 3.92   | 6.38   | 8.01    | 10.06   | 11.59   | 13.1     | 14.61    | 16.6     | 18.1      |
| 2880 | 2.43 | 1.52 | 1.85 | 0 | 2.18   | 3.52   | 4.41    | 5.54    | 6.37    | 7.2      | 8.02     | 9.11     | 9.93      |
| 4320 | 1.68 | 1    | 1.28 | 0 | 1.52   | 2.4    | 2.98    | 3.72    | 4.27    | 4.82     | 5.36     | 6.07     | 6.62      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080103 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 151.51                | 133.48                | 110.17                | 0 | 114.88                                                                          | 241.16 | 330.54  | 443.91  | 527.05  | 608.44   | 688.37   | 792.14   | 869.42    |
| 30          | 78.95                 | 58.84                 | 60.18                 | 0 | 65.74                                                                           | 122.4  | 159.44  | 204.15  | 235.75  | 265.91   | 294.9    | 331.75   | 358.67    |
| 45          | 56.18                 | 38.16                 | 43.71                 | 0 | 48.72                                                                           | 85.49  | 108.58  | 135.79  | 154.68  | 172.47   | 189.4    | 210.68   | 226.09    |
| 60          | 43.35                 | 28.51                 | 34.71                 | 0 | 38.06                                                                           | 65.51  | 82.52   | 102.41  | 116.13  | 129.01   | 141.21   | 156.5    | 167.54    |
| 120         | 25.74                 | 14.37                 | 22.61                 | 0 | 23.8                                                                            | 37.45  | 45.41   | 54.38   | 60.39   | 65.94    | 71.11    | 77.48    | 82.02     |
| 180         | 18.63                 | 9.99                  | 16.9                  | 0 | 17.4                                                                            | 26.84  | 32.27   | 38.35   | 42.4    | 46.11    | 49.56    | 53.8     | 56.81     |
| 240         | 14.95                 | 7.87                  | 13.22                 | 0 | 14.02                                                                           | 21.44  | 25.69   | 30.41   | 33.56   | 36.44    | 39.1     | 42.38    | 44.7      |
| 360         | 10.83                 | 5.74                  | 9.4                   | 0 | 10.14                                                                           | 15.56  | 18.66   | 22.13   | 24.43   | 26.54    | 28.5     | 30.91    | 32.62     |
| 720         | 6.61                  | 3.29                  | 5.93                  | 0 | 6.27                                                                            | 9.35   | 11.08   | 12.99   | 14.24   | 15.39    | 16.44    | 17.74    | 18.65     |
| 1440        | 3.93                  | 2.03                  | 3.46                  | 0 | 3.7                                                                             | 5.61   | 6.7     | 7.9     | 8.7     | 9.43     | 10.11    | 10.93    | 11.52     |
| 2880        | 2.18                  | 1.12                  | 1.89                  | 0 | 2.06                                                                            | 3.11   | 3.71    | 4.37    | 4.81    | 5.21     | 5.58     | 6.03     | 6.35      |
| 4320        | 1.55                  | 0.79                  | 1.36                  | 0 | 1.46                                                                            | 2.21   | 2.63    | 3.09    | 3.4     | 3.68     | 3.94     | 4.26     | 4.48      |
|             |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080104 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15          | 90.23                 | 42.91                 | 77.99                 | 0 | 86.38                                                                           | 126.23 | 148.33 | 172.48 | 188.32 | 202.67 | 215.89 | 231.97 | 243.28 |
| 30          | 52.88                 | 22.6                  | 52.23                 | 0 | 51.48                                                                           | 72.09  | 83.18  | 95.1   | 102.81 | 109.74 | 116.07 | 123.71 | 129.05 |
| 45          | 38.38                 | 15.75                 | 35.66                 | 0 | 37.56                                                                           | 51.81  | 59.41  | 67.52  | 72.74  | 77.42  | 81.68  | 86.81  | 90.39  |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 32.81 | 15.88 | 29.72 | 0 | 31.31  | 46.1   | 54.34   | 63.38   | 69.32   | 74.71    | 79.68    | 85.74    | 90        |
| 120  | 20.27 | 10.93 | 18.55 | 0 | 18.9   | 29.24  | 35.2    | 41.87   | 46.32   | 50.41    | 54.2     | 58.87    | 62.18     |
| 180  | 15.56 | 8.52  | 14.05 | 0 | 14.46  | 22.53  | 27.21   | 32.46   | 35.97   | 39.2     | 42.21    | 45.91    | 48.54     |
| 240  | 12.09 | 6.39  | 10.32 | 0 | 11.33  | 17.36  | 20.81   | 24.66   | 27.22   | 29.56    | 31.74    | 34.41    | 36.3      |
| 360  | 9.27  | 4.63  | 8.06  | 0 | 8.79   | 13.12  | 15.56   | 18.25   | 20.02   | 21.64    | 23.13    | 24.95    | 26.24     |
| 720  | 5.49  | 3.05  | 4.43  | 0 | 5.08   | 7.98   | 9.66    | 11.56   | 12.83   | 14       | 15.1     | 16.44    | 17.4      |
| 1440 | 3.43  | 1.89  | 3.01  | 0 | 3.18   | 4.97   | 6.01    | 7.18    | 7.97    | 8.69     | 9.36     | 10.19    | 10.77     |
| 2880 | 1.9   | 1.04  | 1.75  | 0 | 1.77   | 2.75   | 3.32    | 3.96    | 4.39    | 4.79     | 5.15     | 5.6      | 5.92      |
| 4320 | 1.42  | 0.78  | 1.23  | 0 | 1.32   | 2.06   | 2.49    | 2.97    | 3.29    | 3.59     | 3.86     | 4.2      | 4.44      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080105 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|-------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 78.41                 | 31.98                                                                           | 71.32                 | 0 | 76.79  | 105.7  | 121.08  | 137.49  | 148.05  | 157.5    | 166.11   | 176.47   | 183.69    |
| 30          | 45.68                 | 17.99                                                                           | 47.18                 | 0 | 44.91  | 61.08  | 69.6    | 78.65   | 84.45   | 89.63    | 94.33    | 99.99    | 103.92    |
| 45          | 34.15                 | 13.4                                                                            | 32.11                 | 0 | 33.59  | 45.62  | 51.96   | 58.69   | 63      | 66.84    | 70.34    | 74.54    | 77.45     |
| 60          | 28.71                 | 13.12                                                                           | 26.26                 | 0 | 27.67  | 39.78  | 46.41   | 53.61   | 58.31   | 62.56    | 66.45    | 71.18    | 74.49     |
| 120         | 17.3                  | 8.91                                                                            | 15.99                 | 0 | 16.3   | 24.68  | 29.44   | 34.72   | 38.21   | 41.41    | 44.37    | 47.99    | 50.56     |
| 180         | 13.32                 | 6.59                                                                            | 12.34                 | 0 | 12.66  | 18.82  | 22.27   | 26.07   | 28.58   | 30.86    | 32.96    | 35.53    | 37.35     |
| 240         | 10.34                 | 4.82                                                                            | 9.21                  | 0 | 9.93   | 14.4   | 16.86   | 19.54   | 21.29   | 22.87    | 24.33    | 26.1     | 27.35     |
| 360         | 7.88                  | 3.62                                                                            | 7.06                  | 0 | 7.59   | 10.93  | 12.77   | 14.76   | 16.06   | 17.24    | 18.32    | 19.63    | 20.55     |
| 720         | 4.96                  | 2.79                                                                            | 3.96                  | 0 | 4.58   | 7.23   | 8.78    | 10.53   | 11.71   | 12.79    | 13.8     | 15.05    | 15.94     |
| 1440        | 3.06                  | 1.48                                                                            | 2.86                  | 0 | 2.92   | 4.3    | 5.07    | 5.91    | 6.46    | 6.96     | 7.43     | 7.99     | 8.39      |
| 2880        | 1.69                  | 0.82                                                                            | 1.72                  | 0 | 1.61   | 2.38   | 2.8     | 3.27    | 3.58    | 3.86     | 4.11     | 4.43     | 4.65      |
| 4320        | 1.31                  | 0.68                                                                            | 1.21                  | 0 | 1.23   | 1.87   | 2.24    | 2.64    | 2.91    | 3.16     | 3.38     | 3.66     | 3.86      |
|             |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 2080106</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                 | 104.83                | 71.67                                                                           | 81.95                 | 0 | 93.06  | 156.4  | 198.33  | 251.32  | 290.62  | 329.64   | 368.51   | 419.8    | 458.56    |
| 30                 | 61.9                  | 33.74                                                                           | 56.13                 | 0 | 56.36  | 86.18  | 105.92  | 130.86  | 149.37  | 167.73   | 186.03   | 210.18   | 228.43    |
| 45                 | 44.94                 | 23.63                                                                           | 39.81                 | 0 | 41.06  | 61.94  | 75.77   | 93.24   | 106.2   | 119.06   | 131.88   | 148.79   | 161.57    |
| 60                 | 36.91                 | 20.65                                                                           | 30.57                 | 0 | 33.52  | 51.77  | 63.85   | 79.12   | 90.44   | 101.68   | 112.88   | 127.66   | 138.83    |
| 120                | 22.78                 | 12.34                                                                           | 19.69                 | 0 | 20.75  | 31.66  | 38.88   | 48      | 54.77   | 61.49    | 68.18    | 77.01    | 83.69     |
| 180                | 16.98                 | 9.49                                                                            | 14.48                 | 0 | 15.42  | 23.81  | 29.36   | 36.38   | 41.58   | 46.75    | 51.9     | 58.69    | 63.82     |
| 240                | 13.52                 | 7.41                                                                            | 10.99                 | 0 | 12.3   | 18.85  | 23.19   | 28.67   | 32.73   | 36.76    | 40.78    | 46.09    | 50.09     |
| 360                | 10.3                  | 5.43                                                                            | 8.67                  | 0 | 9.41   | 14.21  | 17.38   | 21.4    | 24.38   | 27.33    | 30.28    | 34.16    | 37.1      |
| 720                | 6.04                  | 3.36                                                                            | 5.16                  | 0 | 5.49   | 8.46   | 10.42   | 12.91   | 14.75   | 16.58    | 18.4     | 20.81    | 22.62     |
| 1440               | 3.6                   | 1.99                                                                            | 3.14                  | 0 | 3.27   | 5.03   | 6.2     | 7.67    | 8.76    | 9.84     | 10.92    | 12.35    | 13.42     |
| 2880               | 2.02                  | 1.07                                                                            | 1.82                  | 0 | 1.84   | 2.79   | 3.42    | 4.21    | 4.79    | 5.38     | 5.96     | 6.72     | 7.3       |
| 4320               | 1.48                  | 0.75                                                                            | 1.29                  | 0 | 1.36   | 2.02   | 2.46    | 3.01    | 3.42    | 3.83     | 4.24     | 4.78     | 5.18      |
|                    |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 2080107</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |        |        |        |        |        |        |        |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                 | 131.4                 | 88.19                                                                           | 101.6                 | 0 | 116.92 | 194.85 | 246.45 | 311.65 | 360.02 | 408.03 | 455.86 | 518.97 | 566.67 |
| 30                 | 77.33                 | 41.87                                                                           | 68.58                 | 0 | 70.45  | 107.46 | 131.95 | 162.91 | 185.87 | 208.67 | 231.38 | 261.34 | 283.98 |
| 45                 | 52.59                 | 25.96                                                                           | 47.41                 | 0 | 48.33  | 71.27  | 86.46  | 105.65 | 119.89 | 134.02 | 148.1  | 166.68 | 180.72 |
| 60                 | 45.72                 | 25.94                                                                           | 39.37                 | 0 | 41.46  | 64.38  | 79.56  | 98.74  | 112.97 | 127.09 | 141.16 | 159.72 | 173.75 |
| 120                | 29.71                 | 17.54                                                                           | 26.67                 | 0 | 26.83  | 42.33  | 52.59  | 65.56  | 75.18  | 84.73  | 94.24  | 106.79 | 116.28 |
| 180                | 22.34                 | 14.65                                                                           | 19.47                 | 0 | 19.93  | 32.88  | 41.45  | 52.28  | 60.32  | 68.29  | 76.24  | 86.72  | 94.65  |
| 240                | 17.44                 | 11.34                                                                           | 13.97                 | 0 | 15.58  | 25.6   | 32.23  | 40.62  | 46.84  | 53.01  | 59.16  | 67.28  | 73.41  |
| 360                | 13.36                 | 7.89                                                                            | 11.01                 | 0 | 12.06  | 19.04  | 23.65  | 29.49  | 33.81  | 38.11  | 42.39  | 48.03  | 52.3   |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 7    | 3.6  | 6.14 | 0 | 6.41   | 9.59   | 11.7    | 14.36   | 16.33   | 18.29    | 20.24    | 22.82    | 24.77     |
| 1440 | 4.51 | 3.09 | 3.49 | 0 | 4      | 6.73   | 8.54    | 10.83   | 12.52   | 14.2     | 15.88    | 18.09    | 19.76     |
| 2880 | 2.54 | 1.72 | 1.83 | 0 | 2.26   | 3.78   | 4.78    | 6.06    | 7       | 7.94     | 8.87     | 10.1     | 11.03     |
| 4320 | 1.73 | 1.11 | 1.27 | 0 | 1.55   | 2.53   | 3.18    | 4       | 4.61    | 5.21     | 5.81     | 6.61     | 7.21      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080108 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 131.4                 | 88.19                 | 101.6                 | 0 | 116.92                                                                          | 194.85 | 246.45  | 311.65  | 360.02  | 408.03   | 455.86   | 518.97   | 566.67    |
| 30          | 77.33                 | 41.87                 | 68.58                 | 0 | 70.45                                                                           | 107.46 | 131.95  | 162.91  | 185.87  | 208.67   | 231.38   | 261.34   | 283.98    |
| 45          | 52.59                 | 25.96                 | 47.41                 | 0 | 48.33                                                                           | 71.27  | 86.46   | 105.65  | 119.89  | 134.02   | 148.1    | 166.68   | 180.72    |
| 60          | 45.72                 | 25.94                 | 39.37                 | 0 | 41.46                                                                           | 64.38  | 79.56   | 98.74   | 112.97  | 127.09   | 141.16   | 159.72   | 173.75    |
| 120         | 29.71                 | 17.54                 | 26.67                 | 0 | 26.83                                                                           | 42.33  | 52.59   | 65.56   | 75.18   | 84.73    | 94.24    | 106.79   | 116.28    |
| 180         | 22.34                 | 14.65                 | 19.47                 | 0 | 19.93                                                                           | 32.88  | 41.45   | 52.28   | 60.32   | 68.29    | 76.24    | 86.72    | 94.65     |
| 240         | 17.44                 | 11.34                 | 13.97                 | 0 | 15.58                                                                           | 25.6   | 32.23   | 40.62   | 46.84   | 53.01    | 59.16    | 67.28    | 73.41     |
| 360         | 13.36                 | 7.89                  | 11.01                 | 0 | 12.06                                                                           | 19.04  | 23.65   | 29.49   | 33.81   | 38.11    | 42.39    | 48.03    | 52.3      |
| 720         | 7                     | 3.6                   | 6.14                  | 0 | 6.41                                                                            | 9.59   | 11.7    | 14.36   | 16.33   | 18.29    | 20.24    | 22.82    | 24.77     |
| 1440        | 4.51                  | 3.09                  | 3.49                  | 0 | 4                                                                               | 6.73   | 8.54    | 10.83   | 12.52   | 14.2     | 15.88    | 18.09    | 19.76     |
| 2880        | 2.54                  | 1.72                  | 1.83                  | 0 | 2.26                                                                            | 3.78   | 4.78    | 6.06    | 7       | 7.94     | 8.87     | 10.1     | 11.03     |
| 4320        | 1.73                  | 1.11                  | 1.27                  | 0 | 1.55                                                                            | 2.53   | 3.18    | 4       | 4.61    | 5.21     | 5.81     | 6.61     | 7.21      |
|             |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080110 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15          | 99.06                 | 58.47                 | 86.36                 | 0 | 89.46                                                                           | 141.13 | 175.34 | 218.57 | 250.63 | 282.46 | 314.18 | 356.02 | 387.64 |
| 30          | 57.23                 | 26.43                 | 55.88                 | 0 | 52.89                                                                           | 76.25  | 91.71  | 111.25 | 125.75 | 140.13 | 154.47 | 173.38 | 187.68 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 45   | 42.82 | 15.97 | 42.34 | 0 | 40.2   | 54.31  | 63.65   | 75.46   | 84.22   | 92.91    | 101.58   | 113      | 121.64    |
| 60   | 35.56 | 14.16 | 34.29 | 0 | 33.23  | 45.75  | 54.03   | 64.5    | 72.27   | 79.98    | 87.66    | 97.79    | 105.45    |
| 120  | 23.24 | 9.65  | 22.23 | 0 | 21.66  | 30.18  | 35.83   | 42.96   | 48.26   | 53.51    | 58.74    | 65.65    | 70.87     |
| 180  | 18.31 | 8.43  | 16.09 | 0 | 16.93  | 24.38  | 29.31   | 35.54   | 40.16   | 44.75    | 49.33    | 55.36    | 59.92     |
| 240  | 14.57 | 6.96  | 13.02 | 0 | 13.43  | 19.58  | 23.65   | 28.8    | 32.61   | 36.4     | 40.18    | 45.16    | 48.92     |
| 360  | 11.03 | 4.69  | 9.95  | 0 | 10.26  | 14.4   | 17.15   | 20.62   | 23.19   | 25.74    | 28.29    | 31.64    | 34.18     |
| 720  | 6.86  | 3.65  | 5.61  | 0 | 6.26   | 9.49   | 11.62   | 14.32   | 16.32   | 18.31    | 20.29    | 22.9     | 24.87     |
| 1440 | 3.99  | 1.83  | 3.55  | 0 | 3.69   | 5.31   | 6.38    | 7.73    | 8.73    | 9.73     | 10.72    | 12.03    | 13.02     |
| 2880 | 2.09  | 0.92  | 1.91  | 0 | 1.94   | 2.75   | 3.29    | 3.97    | 4.47    | 4.98     | 5.47     | 6.13     | 6.63      |
| 4320 | 1.52  | 0.65  | 1.31  | 0 | 1.41   | 1.99   | 2.37    | 2.85    | 3.21    | 3.56     | 3.91     | 4.38     | 4.73      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080111 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|-------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 99.06                 | 58.47                                                                           | 86.36                 | 0 | 89.46  | 141.13 | 175.34  | 218.57  | 250.63  | 282.46   | 314.18   | 356.02   | 387.64    |
| 30          | 57.23                 | 26.43                                                                           | 55.88                 | 0 | 52.89  | 76.25  | 91.71   | 111.25  | 125.75  | 140.13   | 154.47   | 173.38   | 187.68    |
| 45          | 42.82                 | 15.97                                                                           | 42.34                 | 0 | 40.2   | 54.31  | 63.65   | 75.46   | 84.22   | 92.91    | 101.58   | 113      | 121.64    |
| 60          | 35.56                 | 14.16                                                                           | 34.29                 | 0 | 33.23  | 45.75  | 54.03   | 64.5    | 72.27   | 79.98    | 87.66    | 97.79    | 105.45    |
| 120         | 23.24                 | 9.65                                                                            | 22.23                 | 0 | 21.66  | 30.18  | 35.83   | 42.96   | 48.26   | 53.51    | 58.74    | 65.65    | 70.87     |
| 180         | 18.31                 | 8.43                                                                            | 16.09                 | 0 | 16.93  | 24.38  | 29.31   | 35.54   | 40.16   | 44.75    | 49.33    | 55.36    | 59.92     |
| 240         | 14.57                 | 6.96                                                                            | 13.02                 | 0 | 13.43  | 19.58  | 23.65   | 28.8    | 32.61   | 36.4     | 40.18    | 45.16    | 48.92     |
| 360         | 11.03                 | 4.69                                                                            | 9.95                  | 0 | 10.26  | 14.4   | 17.15   | 20.62   | 23.19   | 25.74    | 28.29    | 31.64    | 34.18     |
| 720         | 6.86                  | 3.65                                                                            | 5.61                  | 0 | 6.26   | 9.49   | 11.62   | 14.32   | 16.32   | 18.31    | 20.29    | 22.9     | 24.87     |
| 1440        | 3.99                  | 1.83                                                                            | 3.55                  | 0 | 3.69   | 5.31   | 6.38    | 7.73    | 8.73    | 9.73     | 10.72    | 12.03    | 13.02     |
| 2880        | 2.09                  | 0.92                                                                            | 1.91                  | 0 | 1.94   | 2.75   | 3.29    | 3.97    | 4.47    | 4.98     | 5.47     | 6.13     | 6.63      |
| 4320        | 1.52                  | 0.65                                                                            | 1.31                  | 0 | 1.41   | 1.99   | 2.37    | 2.85    | 3.21    | 3.56     | 3.91     | 4.38     | 4.73      |
|             |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080201-a |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 105.39                | 85.33                                                                           | 83.04                 | 0 | 91.38  | 166.79 | 216.71  | 279.8   | 326.59  | 373.05   | 419.33   | 480.39   | 526.54    |
| 30            | 58.93                 | 41.52                                                                           | 48.2                  | 0 | 52.11  | 88.8   | 113.1   | 143.79  | 166.56  | 189.17   | 211.69   | 241.4    | 263.86    |
| 45            | 41.4                  | 26.25                                                                           | 36.11                 | 0 | 37.09  | 60.29  | 75.65   | 95.05   | 109.45  | 123.74   | 137.98   | 156.76   | 170.96    |
| 60            | 34.68                 | 19.7                                                                            | 29.98                 | 0 | 31.44  | 48.85  | 60.38   | 74.94   | 85.75   | 96.47    | 107.16   | 121.26   | 131.91    |
| 120           | 19.29                 | 10.16                                                                           | 17.17                 | 0 | 17.62  | 26.6   | 32.54   | 40.06   | 45.63   | 51.16    | 56.67    | 63.94    | 69.44     |
| 180           | 13.95                 | 7.15                                                                            | 12.72                 | 0 | 12.78  | 19.09  | 23.28   | 28.56   | 32.49   | 36.38    | 40.26    | 45.37    | 49.24     |
| 240           | 11.28                 | 5.52                                                                            | 10.27                 | 0 | 10.37  | 15.25  | 18.48   | 22.56   | 25.59   | 28.59    | 31.59    | 35.54    | 38.52     |
| 360           | 8.58                  | 4.07                                                                            | 7.78                  | 0 | 7.91   | 11.51  | 13.89   | 16.9    | 19.13   | 21.35    | 23.55    | 26.47    | 28.67     |
| 720           | 5.25                  | 2.43                                                                            | 4.66                  | 0 | 4.85   | 7      | 8.42    | 10.22   | 11.55   | 12.87    | 14.19    | 15.93    | 17.24     |
| 1440          | 3.01                  | 1.34                                                                            | 2.74                  | 0 | 2.79   | 3.97   | 4.76    | 5.75    | 6.48    | 7.21     | 7.94     | 8.9      | 9.62      |
| 2880          | 1.72                  | 0.79                                                                            | 1.58                  | 0 | 1.59   | 2.29   | 2.75    | 3.33    | 3.77    | 4.2      | 4.63     | 5.19     | 5.62      |
| 4320          | 1.22                  | 0.57                                                                            | 1.13                  | 0 | 1.13   | 1.63   | 1.96    | 2.39    | 2.7     | 3.01     | 3.32     | 3.73     | 4.03      |
|               |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080201-b |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |       |       |        |        |        |        |        |        |        |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2     | 5     | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5   | 0.2   | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15            | 103.2                 | 84.23                                                                           | 81.13                 | 0 | 89.37 | 163.8 | 213.09 | 275.36 | 321.55 | 367.41 | 413.09 | 473.37 | 518.92 |
| 30            | 58.33                 | 41.54                                                                           | 47.56                 | 0 | 51.51 | 88.22 | 112.52 | 143.23 | 166.02 | 188.63 | 211.16 | 240.89 | 263.35 |
| 45            | 41.14                 | 26.39                                                                           | 35.77                 | 0 | 36.81 | 60.13 | 75.57  | 95.08  | 109.55 | 123.92 | 138.23 | 157.12 | 171.39 |
| 60            | 34.56                 | 19.87                                                                           | 29.9                  | 0 | 31.3  | 48.86 | 60.48  | 75.17  | 86.07  | 96.89  | 107.66 | 121.88 | 132.63 |
| 120           | 19.24                 | 10.2                                                                            | 17.06                 | 0 | 17.56 | 26.58 | 32.55  | 40.09  | 45.68  | 51.23  | 56.77  | 64.07  | 69.58  |
| 180           | 13.87                 | 7.17                                                                            | 12.61                 | 0 | 12.69 | 19.03 | 23.22  | 28.52  | 32.46  | 36.36  | 40.25  | 45.38  | 49.26  |
| 240           | 11.18                 | 5.5                                                                             | 10.17                 | 0 | 10.28 | 15.14 | 18.36  | 22.42  | 25.44  | 28.43  | 31.42  | 35.35  | 38.33  |
| 360           | 8.52                  | 4.04                                                                            | 7.73                  | 0 | 7.86  | 11.43 | 13.79  | 16.78  | 18.99  | 21.19  | 23.38  | 26.27  | 28.46  |
| 720           | 5.23                  | 2.4                                                                             | 4.64                  | 0 | 4.84  | 6.96  | 8.36   | 10.14  | 11.45  | 12.76  | 14.06  | 15.78  | 17.08  |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1440 | 3.01 | 1.31 | 2.74 | 0 | 2.79   | 3.95   | 4.72    | 5.69    | 6.41    | 7.12     | 7.83     | 8.77     | 9.48      |
| 2880 | 1.72 | 0.78 | 1.59 | 0 | 1.59   | 2.28   | 2.74    | 3.31    | 3.74    | 4.17     | 4.59     | 5.15     | 5.57      |
| 4320 | 1.22 | 0.56 | 1.13 | 0 | 1.13   | 1.62   | 1.95    | 2.36    | 2.67    | 2.98     | 3.28     | 3.68     | 3.98      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080202 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 138.55                | 123.25                | 93.73                 | 0 | 118.31                                                                          | 227.23 | 299.34  | 390.46  | 458.06  | 525.15   | 592      | 680.2    | 746.86    |
| 30          | 76.67                 | 57.3                  | 58.92                 | 0 | 67.26                                                                           | 117.9  | 151.42  | 193.79  | 225.21  | 256.4    | 287.48   | 328.49   | 359.48    |
| 45          | 53.07                 | 36.48                 | 41.34                 | 0 | 47.08                                                                           | 79.32  | 100.66  | 127.63  | 147.64  | 167.5    | 187.29   | 213.39   | 233.12    |
| 60          | 42.68                 | 26.79                 | 35.23                 | 0 | 38.28                                                                           | 61.96  | 77.63   | 97.44   | 112.13  | 126.71   | 141.24   | 160.42   | 174.9     |
| 120         | 23.37                 | 12.56                 | 21.62                 | 0 | 21.31                                                                           | 32.41  | 39.76   | 49.04   | 55.93   | 62.77    | 69.58    | 78.57    | 85.36     |
| 180         | 17.19                 | 8.31                  | 15.59                 | 0 | 15.83                                                                           | 23.17  | 28.03   | 34.17   | 38.73   | 43.26    | 47.76    | 53.71    | 58.2      |
| 240         | 14.4                  | 6.64                  | 12.82                 | 0 | 13.31                                                                           | 19.18  | 23.06   | 27.97   | 31.61   | 35.23    | 38.83    | 43.58    | 47.17     |
| 360         | 10.88                 | 4.91                  | 9.67                  | 0 | 10.07                                                                           | 14.41  | 17.29   | 20.92   | 23.61   | 26.28    | 28.94    | 32.46    | 35.11     |
| 720         | 6.77                  | 2.99                  | 6.08                  | 0 | 6.28                                                                            | 8.92   | 10.67   | 12.88   | 14.52   | 16.15    | 17.77    | 19.91    | 21.53     |
| 1440        | 3.93                  | 1.63                  | 3.51                  | 0 | 3.66                                                                            | 5.1    | 6.06    | 7.26    | 8.16    | 9.04     | 9.93     | 11.09    | 11.98     |
| 2880        | 2.2                   | 0.93                  | 2.01                  | 0 | 2.05                                                                            | 2.87   | 3.41    | 4.1     | 4.61    | 5.12     | 5.62     | 6.29     | 6.79      |
| 4320        | 1.56                  | 0.66                  | 1.39                  | 0 | 1.45                                                                            | 2.03   | 2.42    | 2.91    | 3.27    | 3.63     | 3.99     | 4.46     | 4.82      |
|             |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080203-a |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|---------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration      | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15            | 128.2                 | 108.04                | 95.81                 | 0 | 110.46                                                                          | 205.94 | 269.15 | 349.02 | 408.28 | 467.09 | 525.69 | 603.01 | 661.44 |
| 30            | 73.98                 | 56.24                 | 58.05                 | 0 | 64.74                                                                           | 114.44 | 147.35 | 188.93 | 219.77 | 250.39 | 280.9  | 321.14 | 351.56 |
| 45            | 51.95                 | 39.78                 | 39.63                 | 0 | 45.42                                                                           | 80.57  | 103.85 | 133.26 | 155.07 | 176.73 | 198.31 | 226.77 | 248.29 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 41.03 | 31.51 | 30.08 | 0 | 35.86  | 63.7   | 82.14   | 105.43  | 122.71  | 139.87   | 156.96   | 179.51   | 196.55    |
| 120  | 23.59 | 16.95 | 18.27 | 0 | 20.81  | 35.79  | 45.7    | 58.23   | 67.53   | 76.76    | 85.95    | 98.08    | 107.25    |
| 180  | 17.23 | 11.78 | 13.92 | 0 | 15.3   | 25.71  | 32.6    | 41.31   | 47.77   | 54.18    | 60.57    | 69       | 75.37     |
| 240  | 14.73 | 9.24  | 11.86 | 0 | 13.21  | 21.38  | 26.78   | 33.62   | 38.68   | 43.71    | 48.73    | 55.34    | 60.33     |
| 360  | 10.25 | 6.23  | 8.55  | 0 | 9.23   | 14.73  | 18.38   | 22.98   | 26.4    | 29.79    | 33.17    | 37.63    | 41        |
| 720  | 6.36  | 3.65  | 5.14  | 0 | 5.76   | 8.99   | 11.12   | 13.82   | 15.82   | 17.81    | 19.79    | 22.4     | 24.37     |
| 1440 | 3.65  | 2.01  | 2.95  | 0 | 3.32   | 5.1    | 6.27    | 7.76    | 8.86    | 9.95     | 11.05    | 12.48    | 13.57     |
| 2880 | 2.05  | 1.04  | 1.76  | 0 | 1.88   | 2.8    | 3.41    | 4.18    | 4.75    | 5.31     | 5.88     | 6.62     | 7.18      |
| 4320 | 1.51  | 0.72  | 1.29  | 0 | 1.39   | 2.03   | 2.45    | 2.98    | 3.38    | 3.77     | 4.16     | 4.67     | 5.06      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080203-b |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 123.1                 | 103.07                                                                          | 92.03                 | 0 | 106.17 | 197.26 | 257.57  | 333.76  | 390.29  | 446.4    | 502.31   | 576.07   | 631.81    |
| 30            | 71.84                 | 54.03                                                                           | 56.89                 | 0 | 62.97  | 110.71 | 142.33  | 182.27  | 211.9   | 241.32   | 270.62   | 309.29   | 338.51    |
| 45            | 50.77                 | 38.58                                                                           | 38.95                 | 0 | 44.43  | 78.53  | 101.1   | 129.62  | 150.78  | 171.79   | 192.71   | 220.32   | 241.18    |
| 60            | 40.2                  | 30.67                                                                           | 29.5                  | 0 | 35.16  | 62.27  | 80.21   | 102.89  | 119.71  | 136.4    | 153.04   | 174.99   | 191.57    |
| 120           | 23.28                 | 16.66                                                                           | 18                    | 0 | 20.54  | 35.27  | 45.01   | 57.33   | 66.47   | 75.54    | 84.57    | 96.5     | 105.51    |
| 180           | 17.01                 | 11.59                                                                           | 13.74                 | 0 | 15.11  | 25.35  | 32.13   | 40.7    | 47.06   | 53.36    | 59.65    | 67.95    | 74.21     |
| 240           | 14.59                 | 9.11                                                                            | 11.72                 | 0 | 13.09  | 21.14  | 26.48   | 33.21   | 38.21   | 43.17    | 48.11    | 54.63    | 59.55     |
| 360           | 10.16                 | 6.14                                                                            | 8.41                  | 0 | 9.15   | 14.58  | 18.17   | 22.71   | 26.08   | 29.42    | 32.75    | 37.14    | 40.46     |
| 720           | 6.28                  | 3.6                                                                             | 5.08                  | 0 | 5.69   | 8.87   | 10.98   | 13.64   | 15.61   | 17.57    | 19.52    | 22.1     | 24.05     |
| 1440          | 3.62                  | 1.99                                                                            | 2.93                  | 0 | 3.29   | 5.05   | 6.22    | 7.69    | 8.78    | 9.86     | 10.94    | 12.37    | 13.44     |
| 2880          | 2.02                  | 1.02                                                                            | 1.75                  | 0 | 1.85   | 2.75   | 3.35    | 4.1     | 4.66    | 5.22     | 5.77     | 6.5      | 7.05      |
| 4320          | 1.5                   | 0.71                                                                            | 1.27                  | 0 | 1.38   | 2.01   | 2.43    | 2.95    | 3.34    | 3.73     | 4.11     | 4.62     | 5         |
|               |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 2080204</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                 | 148.32                | 126.1                                                                           | 95.95                 | 0 | 127.61 | 239.05 | 312.83  | 406.06  | 475.21  | 543.86   | 612.26   | 702.5    | 770.7     |
| 30                 | 79.34                 | 54.29                                                                           | 63.2                  | 0 | 70.42  | 118.4  | 150.17  | 190.3   | 220.08  | 249.63   | 279.08   | 317.93   | 347.29    |
| 45                 | 56.43                 | 35.84                                                                           | 47.56                 | 0 | 50.54  | 82.22  | 103.19  | 129.68  | 149.34  | 168.85   | 188.29   | 213.94   | 233.32    |
| 60                 | 44.47                 | 25.8                                                                            | 37.41                 | 0 | 40.23  | 63.03  | 78.13   | 97.2    | 111.35  | 125.4    | 139.39   | 157.85   | 171.81    |
| 120                | 26.52                 | 15.06                                                                           | 22.55                 | 0 | 24.05  | 37.36  | 46.17   | 57.3    | 65.56   | 73.76    | 81.93    | 92.7     | 100.85    |
| 180                | 18.78                 | 10.48                                                                           | 15.78                 | 0 | 17.06  | 26.32  | 32.45   | 40.2    | 45.95   | 51.65    | 57.34    | 64.84    | 70.5      |
| 240                | 15.2                  | 7.79                                                                            | 13.3                  | 0 | 13.92  | 20.8   | 25.36   | 31.12   | 35.39   | 39.64    | 43.86    | 49.44    | 53.65     |
| 360                | 10.97                 | 5.24                                                                            | 9.78                  | 0 | 10.11  | 14.74  | 17.81   | 21.68   | 24.55   | 27.41    | 30.25    | 34       | 36.83     |
| 720                | 6.56                  | 3.08                                                                            | 5.8                   | 0 | 6.05   | 8.78   | 10.58   | 12.86   | 14.54   | 16.22    | 17.89    | 20.1     | 21.76     |
| 1440               | 3.82                  | 1.75                                                                            | 3.41                  | 0 | 3.53   | 5.08   | 6.1     | 7.4     | 8.36    | 9.31     | 10.26    | 11.51    | 12.46     |
| 2880               | 2.15                  | 0.94                                                                            | 1.96                  | 0 | 2      | 2.83   | 3.38    | 4.07    | 4.59    | 5.1      | 5.61     | 6.28     | 6.79      |
| 4320               | 1.59                  | 0.66                                                                            | 1.45                  | 0 | 1.48   | 2.06   | 2.45    | 2.94    | 3.3     | 3.66     | 4.02     | 4.49     | 4.85      |
|                    |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 2080205-a</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |       |       |        |        |        |        |        |        |        |
|----------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| Duration             | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2     | 5     | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5   | 0.2   | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                   | 71.58                 | 26.41                                                                           | 71.41                 | 0 | 67.24 | 90.58 | 106.03 | 125.56 | 140.04 | 154.42 | 168.75 | 187.65 | 201.93 |
| 30                   | 51.07                 | 19.17                                                                           | 51.01                 | 0 | 47.92 | 64.86 | 76.08  | 90.25  | 100.77 | 111.2  | 121.6  | 135.32 | 145.69 |
| 45                   | 37.79                 | 17.18                                                                           | 34.86                 | 0 | 34.97 | 50.15 | 60.2   | 72.9   | 82.33  | 91.68  | 101    | 113.29 | 122.58 |
| 60                   | 31.32                 | 16.28                                                                           | 26.15                 | 0 | 28.65 | 43.03 | 52.56  | 64.59  | 73.52  | 82.39  | 91.22  | 102.87 | 111.67 |
| 120                  | 19.58                 | 10.55                                                                           | 16.92                 | 0 | 17.85 | 27.17 | 33.34  | 41.14  | 46.93  | 52.67  | 58.39  | 65.94  | 71.65  |
| 180                  | 14.74                 | 8.43                                                                            | 12.43                 | 0 | 13.36 | 20.81 | 25.74  | 31.97  | 36.59  | 41.18  | 45.76  | 51.79  | 56.35  |
| 240                  | 12.04                 | 6.8                                                                             | 9.75                  | 0 | 10.92 | 16.93 | 20.91  | 25.94  | 29.67  | 33.37  | 37.06  | 41.92  | 45.6   |
| 360                  | 8.99                  | 4.83                                                                            | 7.45                  | 0 | 8.2   | 12.47 | 15.29  | 18.86  | 21.51  | 24.14  | 26.76  | 30.22  | 32.83  |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 5.65 | 3.43 | 4.78 | 0 | 5.09   | 8.12   | 10.12   | 12.66   | 14.54   | 16.41    | 18.27    | 20.72    | 22.58     |
| 1440 | 3.3  | 2.08 | 2.8  | 0 | 2.96   | 4.8    | 6.01    | 7.55    | 8.69    | 9.82     | 10.95    | 12.44    | 13.57     |
| 2880 | 1.93 | 1.06 | 1.73 | 0 | 1.76   | 2.69   | 3.31    | 4.1     | 4.68    | 5.25     | 5.83     | 6.59     | 7.16      |
| 4320 | 1.43 | 0.7  | 1.25 | 0 | 1.32   | 1.93   | 2.34    | 2.86    | 3.24    | 3.63     | 4.01     | 4.51     | 4.88      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080205-b |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|---------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 71.58                 | 26.41                 | 71.41                 | 0 | 67.24                                                                           | 90.58  | 106.03  | 125.56  | 140.04  | 154.42   | 168.75   | 187.65   | 201.93    |
| 30            | 51.07                 | 19.17                 | 51.01                 | 0 | 47.92                                                                           | 64.86  | 76.08   | 90.25   | 100.77  | 111.2    | 121.6    | 135.32   | 145.69    |
| 45            | 37.79                 | 17.18                 | 34.86                 | 0 | 34.97                                                                           | 50.15  | 60.2    | 72.9    | 82.33   | 91.68    | 101      | 113.29   | 122.58    |
| 60            | 31.32                 | 16.28                 | 26.15                 | 0 | 28.65                                                                           | 43.03  | 52.56   | 64.59   | 73.52   | 82.39    | 91.22    | 102.87   | 111.67    |
| 120           | 19.58                 | 10.55                 | 16.92                 | 0 | 17.85                                                                           | 27.17  | 33.34   | 41.14   | 46.93   | 52.67    | 58.39    | 65.94    | 71.65     |
| 180           | 14.74                 | 8.43                  | 12.43                 | 0 | 13.36                                                                           | 20.81  | 25.74   | 31.97   | 36.59   | 41.18    | 45.76    | 51.79    | 56.35     |
| 240           | 12.04                 | 6.8                   | 9.75                  | 0 | 10.92                                                                           | 16.93  | 20.91   | 25.94   | 29.67   | 33.37    | 37.06    | 41.92    | 45.6      |
| 360           | 8.99                  | 4.83                  | 7.45                  | 0 | 8.2                                                                             | 12.47  | 15.29   | 18.86   | 21.51   | 24.14    | 26.76    | 30.22    | 32.83     |
| 720           | 5.65                  | 3.43                  | 4.78                  | 0 | 5.09                                                                            | 8.12   | 10.12   | 12.66   | 14.54   | 16.41    | 18.27    | 20.72    | 22.58     |
| 1440          | 3.3                   | 2.08                  | 2.8                   | 0 | 2.96                                                                            | 4.8    | 6.01    | 7.55    | 8.69    | 9.82     | 10.95    | 12.44    | 13.57     |
| 2880          | 1.93                  | 1.06                  | 1.73                  | 0 | 1.76                                                                            | 2.69   | 3.31    | 4.1     | 4.68    | 5.25     | 5.83     | 6.59     | 7.16      |
| 4320          | 1.43                  | 0.7                   | 1.25                  | 0 | 1.32                                                                            | 1.93   | 2.34    | 2.86    | 3.24    | 3.63     | 4.01     | 4.51     | 4.88      |
|               |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080206-a |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|---------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration      | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15            | 122.14                | 80.31                 | 95.52                 | 0 | 108.95                                                                          | 179.92 | 226.91 | 286.29 | 330.33 | 374.05 | 417.61 | 475.08 | 518.52 |
| 30            | 72.6                  | 38.97                 | 65.85                 | 0 | 66.2                                                                            | 100.64 | 123.44 | 152.25 | 173.62 | 194.84 | 215.98 | 243.86 | 264.94 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 45   | 50.32 | 25.08 | 45.49 | 0 | 46.2   | 68.37  | 83.04   | 101.58  | 115.34  | 128.99   | 142.59   | 160.54   | 174.1     |
| 60   | 42.9  | 23.9  | 37.15 | 0 | 38.97  | 60.1   | 74.08   | 91.75   | 104.86  | 117.87   | 130.83   | 147.93   | 160.86    |
| 120  | 27.54 | 15.18 | 24.57 | 0 | 25.05  | 38.46  | 47.34   | 58.57   | 66.89   | 75.16    | 83.39    | 94.25    | 102.46    |
| 180  | 20.85 | 12.21 | 18.22 | 0 | 18.84  | 29.64  | 36.78   | 45.81   | 52.5    | 59.15    | 65.77    | 74.51    | 81.11     |
| 240  | 16.53 | 9.51  | 13.73 | 0 | 14.97  | 23.37  | 28.94   | 35.97   | 41.18   | 46.36    | 51.52    | 58.32    | 63.47     |
| 360  | 12.5  | 6.75  | 10.72 | 0 | 11.39  | 17.36  | 21.31   | 26.3    | 30      | 33.67    | 37.33    | 42.16    | 45.82     |
| 720  | 6.96  | 3.47  | 6.08  | 0 | 6.39   | 9.46   | 11.49   | 14.05   | 15.96   | 17.84    | 19.73    | 22.21    | 24.09     |
| 1440 | 4.3   | 2.64  | 3.56  | 0 | 3.87   | 6.2    | 7.74    | 9.7     | 11.14   | 12.58    | 14.01    | 15.9     | 17.33     |
| 2880 | 2.4   | 1.47  | 1.84  | 0 | 2.16   | 3.46   | 4.32    | 5.4     | 6.21    | 7.01     | 7.81     | 8.86     | 9.66      |
| 4320 | 1.67  | 0.97  | 1.31  | 0 | 1.51   | 2.37   | 2.94    | 3.65    | 4.18    | 4.71     | 5.24     | 5.93     | 6.46      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080206-b |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 122.65                | 81.53                                                                           | 95.72                 | 0 | 109.26 | 181.31 | 229.01  | 289.29  | 334     | 378.39   | 422.61   | 480.95   | 525.05    |
| 30            | 72.97                 | 39.46                                                                           | 66.06                 | 0 | 66.49  | 101.36 | 124.45  | 153.62  | 175.26  | 196.75   | 218.15   | 246.39   | 267.73    |
| 45            | 50.43                 | 25.37                                                                           | 45.38                 | 0 | 46.26  | 68.68  | 83.53   | 102.28  | 116.2   | 130.01   | 143.77   | 161.92   | 175.65    |
| 60            | 43                    | 24.11                                                                           | 37.09                 | 0 | 39.04  | 60.35  | 74.45   | 92.28   | 105.5   | 118.63   | 131.7    | 148.96   | 162       |
| 120           | 27.61                 | 15.29                                                                           | 24.55                 | 0 | 25.1   | 38.61  | 47.56   | 58.86   | 67.25   | 75.57    | 83.86    | 94.81    | 103.08    |
| 180           | 20.93                 | 12.28                                                                           | 18.28                 | 0 | 18.91  | 29.77  | 36.95   | 46.03   | 52.76   | 59.45    | 66.11    | 74.9     | 81.54     |
| 240           | 16.59                 | 9.56                                                                            | 13.73                 | 0 | 15.02  | 23.47  | 29.06   | 36.13   | 41.37   | 46.58    | 51.76    | 58.6     | 63.77     |
| 360           | 12.53                 | 6.77                                                                            | 10.73                 | 0 | 11.42  | 17.4   | 21.36   | 26.37   | 30.08   | 33.77    | 37.44    | 42.28    | 45.94     |
| 720           | 6.96                  | 3.46                                                                            | 6.08                  | 0 | 6.39   | 9.45   | 11.47   | 14.03   | 15.93   | 17.81    | 19.69    | 22.17    | 24.04     |
| 1440          | 4.31                  | 2.64                                                                            | 3.55                  | 0 | 3.88   | 6.21   | 7.75    | 9.71    | 11.15   | 12.59    | 14.02    | 15.91    | 17.34     |
| 2880          | 2.41                  | 1.47                                                                            | 1.85                  | 0 | 2.17   | 3.47   | 4.33    | 5.41    | 6.22    | 7.02     | 7.82     | 8.87     | 9.67      |
| 4320          | 1.67                  | 0.97                                                                            | 1.31                  | 0 | 1.51   | 2.37   | 2.94    | 3.65    | 4.18    | 4.71     | 5.24     | 5.93     | 6.46      |
|               |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080207-a |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 83.19                 | 61.94                                                                           | 60.59                 | 0 | 69.3   | 128.95 | 167.92  | 214.96  | 248.2   | 279.92   | 310.4    | 349.14   | 377.45    |
| 30            | 50.47                 | 30.3                                                                            | 42.16                 | 0 | 45.7   | 74.7   | 92.06   | 111.92  | 125.4   | 137.92   | 149.67   | 164.27   | 174.72    |
| 45            | 35.03                 | 19.84                                                                           | 31.4                  | 0 | 32.26  | 51.14  | 62.21   | 74.72   | 83.13   | 90.89    | 98.14    | 107.08   | 113.46    |
| 60            | 27.54                 | 15.93                                                                           | 25.39                 | 0 | 25.21  | 40.41  | 49.38   | 59.57   | 66.44   | 72.79    | 78.74    | 86.09    | 91.34     |
| 120           | 17.22                 | 7.79                                                                            | 15.69                 | 0 | 16.62  | 23.8   | 27.72   | 31.97   | 34.74   | 37.24    | 39.53    | 42.31    | 44.26     |
| 180           | 12.97                 | 5.51                                                                            | 11.46                 | 0 | 12.64  | 17.66  | 20.35   | 23.25   | 25.12   | 26.8     | 28.34    | 30.19    | 31.49     |
| 240           | 10.45                 | 4.56                                                                            | 9.36                  | 0 | 10.14  | 14.32  | 16.58   | 19.01   | 20.59   | 22.01    | 23.31    | 24.88    | 25.98     |
| 360           | 7.93                  | 3.09                                                                            | 6.89                  | 0 | 7.81   | 10.58  | 12.03   | 13.58   | 14.57   | 15.45    | 16.25    | 17.21    | 17.88     |
| 720           | 4.88                  | 2.27                                                                            | 4.19                  | 0 | 4.69   | 6.79   | 7.95    | 9.21    | 10.03   | 10.78    | 11.46    | 12.3     | 12.88     |
| 1440          | 2.9                   | 1.56                                                                            | 2.55                  | 0 | 2.71   | 4.18   | 5.03    | 5.98    | 6.62    | 7.2      | 7.74     | 8.4      | 8.87      |
| 2880          | 1.6                   | 0.74                                                                            | 1.42                  | 0 | 1.54   | 2.22   | 2.6     | 3.01    | 3.28    | 3.52     | 3.74     | 4.01     | 4.2       |
| 4320          | 1.23                  | 0.58                                                                            | 1.09                  | 0 | 1.18   | 1.72   | 2.01    | 2.34    | 2.55    | 2.74     | 2.92     | 3.14     | 3.29      |
|               |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080207-b |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |       |        |        |        |        |        |        |        |        |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2     | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5   | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15            | 86.11                 | 68.86                                                                           | 61.78                 | 0 | 69.17 | 135.17 | 179.71 | 234.56 | 273.92 | 311.86 | 348.64 | 395.8  | 430.52 |
| 30            | 52.55                 | 33.08                                                                           | 43.35                 | 0 | 46.87 | 78.63  | 97.99  | 120.38 | 135.7  | 150    | 163.5  | 180.33 | 192.43 |
| 45            | 35.63                 | 21.52                                                                           | 30.74                 | 0 | 32.21 | 52.81  | 65.17  | 79.34  | 88.96  | 97.9   | 106.3  | 116.74 | 124.22 |
| 60            | 28.12                 | 17.12                                                                           | 25.04                 | 0 | 25.35 | 41.76  | 51.62  | 62.95  | 70.66  | 77.83  | 84.57  | 92.95  | 98.96  |
| 120           | 17.57                 | 8.41                                                                            | 15.54                 | 0 | 16.8  | 24.62  | 28.96  | 33.72  | 36.83  | 39.66  | 42.27  | 45.44  | 47.67  |
| 180           | 13.41                 | 5.87                                                                            | 11.83                 | 0 | 13.01 | 18.39  | 21.3   | 24.44  | 26.48  | 28.31  | 29.99  | 32.02  | 33.44  |
| 240           | 10.77                 | 4.84                                                                            | 9.4                   | 0 | 10.41 | 14.86  | 17.29  | 19.92  | 21.63  | 23.18  | 24.59  | 26.31  | 27.51  |
| 360           | 8.08                  | 3.2                                                                             | 6.99                  | 0 | 7.94  | 10.82  | 12.34  | 13.95  | 14.99  | 15.91  | 16.75  | 17.76  | 18.47  |
| 720           | 4.93                  | 2.26                                                                            | 4.2                   | 0 | 4.75  | 6.84   | 7.98   | 9.22   | 10.04  | 10.77  | 11.44  | 12.26  | 12.83  |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1440 | 2.92 | 1.55 | 2.53 | 0 | 2.73   | 4.2    | 5.04    | 5.97    | 6.6     | 7.17     | 7.7      | 8.35     | 8.81      |
| 2880 | 1.64 | 0.74 | 1.46 | 0 | 1.58   | 2.27   | 2.64    | 3.04    | 3.3     | 3.54     | 3.76     | 4.02     | 4.2       |
| 4320 | 1.24 | 0.56 | 1.11 | 0 | 1.2    | 1.71   | 1.99    | 2.3     | 2.5     | 2.68     | 2.84     | 3.04     | 3.18      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 2080208 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 104.79                | 56.9                  | 96.57                 | 0 | 97.56                                                                           | 151.43 | 182.55  | 217.43  | 240.73  | 262.12   | 282.02   | 306.51   | 323.9     |
| 30          | 65.6                  | 30.79                 | 68.58                 | 0 | 62.94                                                                           | 91.48  | 107.24  | 124.44  | 135.69  | 145.87   | 155.24   | 166.63   | 174.64    |
| 45          | 46.84                 | 20.2                  | 45.74                 | 0 | 45.54                                                                           | 63.99  | 73.95   | 84.66   | 91.6    | 97.83    | 103.53   | 110.42   | 115.23    |
| 60          | 38.77                 | 18.04                 | 38.11                 | 0 | 37.25                                                                           | 53.95  | 63.15   | 73.17   | 79.72   | 85.65    | 91.09    | 97.71    | 102.36    |
| 120         | 24.19                 | 10.13                 | 23.53                 | 0 | 23.61                                                                           | 32.81  | 37.74   | 43.02   | 46.43   | 49.48    | 52.27    | 55.63    | 57.97     |
| 180         | 19.71                 | 7.81                  | 18.22                 | 0 | 19.37                                                                           | 26.39  | 30.1    | 34.04   | 36.57   | 38.83    | 40.88    | 43.35    | 45.07     |
| 240         | 16.4                  | 6.53                  | 15.23                 | 0 | 16.11                                                                           | 21.98  | 25.09   | 28.4    | 30.52   | 32.41    | 34.14    | 36.21    | 37.65     |
| 360         | 12.08                 | 5.08                  | 11.64                 | 0 | 11.78                                                                           | 16.4   | 18.88   | 21.53   | 23.25   | 24.79    | 26.19    | 27.88    | 29.06     |
| 720         | 7.55                  | 3.24                  | 6.45                  | 0 | 7.35                                                                            | 10.3   | 11.9    | 13.61   | 14.72   | 15.71    | 16.62    | 17.72    | 18.49     |
| 1440        | 4.33                  | 1.89                  | 4.18                  | 0 | 4.2                                                                             | 5.93   | 6.87    | 7.88    | 8.53    | 9.12     | 9.66     | 10.31    | 10.77     |
| 2880        | 2.31                  | 1.08                  | 1.93                  | 0 | 2.22                                                                            | 3.22   | 3.77    | 4.37    | 4.77    | 5.12     | 5.45     | 5.85     | 6.13      |
| 4320        | 1.66                  | 0.76                  | 1.48                  | 0 | 1.6                                                                             | 2.3    | 2.69    | 3.1     | 3.38    | 3.62     | 3.85     | 4.12     | 4.31      |
|             |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 3010101-a |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|---------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration      | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15            | 123.18                | 127.06                | 90.83                 | 0 | 102.31                                                                          | 214.6  | 288.94 | 382.88 | 452.56 | 521.73 | 590.65 | 681.58 | 750.3  |
| 30            | 70.42                 | 60.56                 | 55.39                 | 0 | 60.47                                                                           | 113.99 | 149.43 | 194.2  | 227.41 | 260.38 | 293.23 | 336.57 | 369.32 |
| 45            | 51.61                 | 39.51                 | 42.9                  | 0 | 45.12                                                                           | 80.04  | 103.16 | 132.36 | 154.03 | 175.54 | 196.97 | 225.25 | 246.62 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 40.27 | 29.65 | 33.58 | 0 | 35.4   | 61.6   | 78.95   | 100.87  | 117.13  | 133.27   | 149.36   | 170.57   | 186.61    |
| 120  | 23.1  | 14.32 | 19.72 | 0 | 20.75  | 33.4   | 41.78   | 52.37   | 60.22   | 68.02    | 75.79    | 86.03    | 93.78     |
| 180  | 16.98 | 9.86  | 15.25 | 0 | 15.36  | 24.07  | 29.84   | 37.13   | 42.54   | 47.91    | 53.26    | 60.31    | 65.64     |
| 240  | 13.18 | 7.11  | 11.99 | 0 | 12.01  | 18.3   | 22.46   | 27.71   | 31.61   | 35.48    | 39.34    | 44.43    | 48.27     |
| 360  | 10.04 | 4.8   | 9.23  | 0 | 9.25   | 13.49  | 16.3    | 19.85   | 22.48   | 25.1     | 27.7     | 31.13    | 33.73     |
| 720  | 5.92  | 2.65  | 5.24  | 0 | 5.48   | 7.83   | 9.38    | 11.34   | 12.79   | 14.23    | 15.67    | 17.57    | 19        |
| 1440 | 3.46  | 1.46  | 3.05  | 0 | 3.22   | 4.51   | 5.36    | 6.44    | 7.24    | 8.04     | 8.83     | 9.88     | 10.67     |
| 2880 | 2.07  | 0.86  | 1.89  | 0 | 1.93   | 2.69   | 3.19    | 3.83    | 4.3     | 4.77     | 5.23     | 5.85     | 6.31      |
| 4320 | 1.49  | 0.63  | 1.38  | 0 | 1.39   | 1.94   | 2.31    | 2.78    | 3.12    | 3.47     | 3.81     | 4.26     | 4.6       |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 3010101-b |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 108.94                | 113.2                                                                           | 80.3                  | 0 | 90.35  | 190.39 | 256.62  | 340.31  | 402.39  | 464.02   | 525.42   | 606.43   | 667.65    |
| 30            | 64.46                 | 54.41                                                                           | 52.15                 | 0 | 55.52  | 103.61 | 135.44  | 175.67  | 205.51  | 235.13   | 264.64   | 303.58   | 333.01    |
| 45            | 48.31                 | 36.16                                                                           | 41.01                 | 0 | 42.37  | 74.33  | 95.48   | 122.22  | 142.05  | 161.73   | 181.35   | 207.22   | 226.78    |
| 60            | 37.96                 | 27.3                                                                            | 31.96                 | 0 | 33.48  | 57.6   | 73.58   | 93.76   | 108.73  | 123.59   | 138.4    | 157.94   | 172.7     |
| 120           | 22.22                 | 13.51                                                                           | 18.95                 | 0 | 20     | 31.94  | 39.85   | 49.83   | 57.24   | 64.6     | 71.93    | 81.59    | 88.9      |
| 180           | 16.35                 | 9.3                                                                             | 14.75                 | 0 | 14.82  | 23.04  | 28.48   | 35.36   | 40.46   | 45.52    | 50.57    | 57.22    | 62.25     |
| 240           | 12.79                 | 6.73                                                                            | 11.6                  | 0 | 11.68  | 17.63  | 21.57   | 26.55   | 30.24   | 33.9     | 37.55    | 42.37    | 46.01     |
| 360           | 9.78                  | 4.54                                                                            | 8.85                  | 0 | 9.03   | 13.05  | 15.7    | 19.06   | 21.55   | 24.02    | 26.48    | 29.73    | 32.19     |
| 720           | 5.71                  | 2.53                                                                            | 5.07                  | 0 | 5.29   | 7.53   | 9.01    | 10.88   | 12.27   | 13.65    | 15.02    | 16.83    | 18.2      |
| 1440          | 3.38                  | 1.4                                                                             | 2.98                  | 0 | 3.15   | 4.39   | 5.21    | 6.24    | 7.01    | 7.77     | 8.53     | 9.53     | 10.29     |
| 2880          | 2                     | 0.81                                                                            | 1.87                  | 0 | 1.87   | 2.58   | 3.06    | 3.66    | 4.1     | 4.54     | 4.98     | 5.56     | 6         |
| 4320          | 1.45                  | 0.59                                                                            | 1.33                  | 0 | 1.35   | 1.87   | 2.22    | 2.66    | 2.98    | 3.3      | 3.62     | 4.04     | 4.36      |
|               |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 3010102-a</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|----------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration             | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                   | 122.85                | 84.64                                                                           | 97.75                 | 0 | 105.92 | 187.5  | 239.03  | 299.98  | 342.38  | 382.41   | 420.55   | 468.58   | 503.4     |
| 30                   | 70.99                 | 41.98                                                                           | 59.91                 | 0 | 64.58  | 104.7  | 128.58  | 155.83  | 174.27  | 191.37   | 207.4    | 227.27   | 241.48    |
| 45                   | 50.19                 | 27.21                                                                           | 45.47                 | 0 | 46.74  | 72.5   | 87.37   | 104.04  | 115.16  | 125.38   | 134.88   | 146.57   | 154.87    |
| 60                   | 38.39                 | 20.08                                                                           | 36.15                 | 0 | 36.05  | 54.97  | 65.77   | 77.79   | 85.77   | 93.07    | 99.83    | 108.14   | 114.02    |
| 120                  | 20.78                 | 9.96                                                                            | 19.37                 | 0 | 19.86  | 29.13  | 34.27   | 39.91   | 43.61   | 46.96    | 50.05    | 53.81    | 56.46     |
| 180                  | 15.54                 | 7.3                                                                             | 13.85                 | 0 | 14.91  | 21.68  | 25.41   | 29.49   | 32.16   | 34.58    | 36.8     | 39.5     | 41.4      |
| 240                  | 12.52                 | 5.91                                                                            | 11.2                  | 0 | 12     | 17.48  | 20.52   | 23.83   | 26      | 27.96    | 29.77    | 31.97    | 33.51     |
| 360                  | 8.97                  | 3.55                                                                            | 7.92                  | 0 | 8.81   | 12.01  | 13.69   | 15.48   | 16.63   | 17.66    | 18.59    | 19.71    | 20.49     |
| 720                  | 5.22                  | 1.84                                                                            | 4.62                  | 0 | 5.19   | 6.8    | 7.64    | 8.51    | 9.06    | 9.55     | 9.99     | 10.52    | 10.88     |
| 1440                 | 3.01                  | 1.1                                                                             | 2.82                  | 0 | 2.98   | 3.96   | 4.46    | 4.99    | 5.33    | 5.63     | 5.9      | 6.23     | 6.45      |
| 2880                 | 1.73                  | 0.54                                                                            | 1.6                   | 0 | 1.73   | 2.2    | 2.43    | 2.67    | 2.82    | 2.95     | 3.07     | 3.21     | 3.31      |
| 4320                 | 1.33                  | 0.46                                                                            | 1.29                  | 0 | 1.32   | 1.73   | 1.93    | 2.15    | 2.29    | 2.41     | 2.51     | 2.64     | 2.73      |
|                      |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 3010102-b</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |       |        |        |        |        |        |        |        |        |
|----------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration             | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2     | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5   | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                   | 101.86                | 64.21                                                                           | 82.23                 | 0 | 90.8  | 152.47 | 190.06 | 233.56 | 263.33 | 291.14 | 317.37 | 350.09 | 373.63 |
| 30                   | 62.21                 | 32.91                                                                           | 55.13                 | 0 | 58.27 | 89.33  | 107.12 | 126.95 | 140.15 | 152.24 | 163.45 | 177.22 | 186.99 |
| 45                   | 45.33                 | 22.28                                                                           | 42.69                 | 0 | 43.13 | 63.93  | 75.57  | 88.38  | 96.81  | 104.47 | 111.55 | 120.18 | 126.26 |
| 60                   | 34.98                 | 16.62                                                                           | 33.77                 | 0 | 33.49 | 48.93  | 57.48  | 66.83  | 72.96  | 78.52  | 83.63  | 89.85  | 94.23  |
| 120                  | 19.5                  | 8.77                                                                            | 18.24                 | 0 | 18.84 | 26.91  | 31.31  | 36.08  | 39.19  | 41.99  | 44.55  | 47.66  | 49.85  |
| 180                  | 14.61                 | 6.49                                                                            | 13.11                 | 0 | 14.14 | 20.1   | 23.34  | 26.85  | 29.12  | 31.17  | 33.05  | 35.33  | 36.92  |
| 240                  | 11.94                 | 5.35                                                                            | 10.63                 | 0 | 11.54 | 16.46  | 19.14  | 22.05  | 23.94  | 25.64  | 27.2   | 29.09  | 30.42  |
| 360                  | 8.59                  | 3.16                                                                            | 7.35                  | 0 | 8.5   | 11.31  | 12.76  | 14.29  | 15.27  | 16.13  | 16.91  | 17.85  | 18.5   |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 4.91 | 1.66 | 4.37 | 0 | 4.89   | 6.34   | 7.08    | 7.85    | 8.34    | 8.76     | 9.15     | 9.61     | 9.93      |
| 1440 | 2.89 | 1.01 | 2.71 | 0 | 2.87   | 3.76   | 4.22    | 4.69    | 4.99    | 5.26     | 5.5      | 5.79     | 5.99      |
| 2880 | 1.62 | 0.47 | 1.56 | 0 | 1.63   | 2.03   | 2.22    | 2.43    | 2.55    | 2.66     | 2.76     | 2.88     | 2.96      |
| 4320 | 1.27 | 0.41 | 1.21 | 0 | 1.27   | 1.62   | 1.8     | 1.99    | 2.11    | 2.21     | 2.3      | 2.41     | 2.49      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 3010103 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 146.3                 | 150.51                | 101.02                | 0 | 121.58                                                                          | 254.59 | 342.66  | 453.93  | 536.47  | 618.41   | 700.05   | 807.75   | 889.16    |
| 30          | 80.56                 | 69.79                 | 63.19                 | 0 | 69.1                                                                            | 130.77 | 171.61  | 223.2   | 261.48  | 299.47   | 337.33   | 387.27   | 425.01    |
| 45          | 55.75                 | 45.32                 | 44.83                 | 0 | 48.31                                                                           | 88.36  | 114.87  | 148.38  | 173.23  | 197.91   | 222.49   | 254.92   | 279.43    |
| 60          | 43.88                 | 31.22                 | 36.83                 | 0 | 38.75                                                                           | 66.34  | 84.61   | 107.69  | 124.81  | 141.81   | 158.74   | 181.08   | 197.97    |
| 120         | 25.56                 | 15.3                  | 21.64                 | 0 | 23.05                                                                           | 36.57  | 45.52   | 56.83   | 65.22   | 73.55    | 81.85    | 92.8     | 101.07    |
| 180         | 18.38                 | 9.84                  | 16.09                 | 0 | 16.76                                                                           | 25.46  | 31.22   | 38.49   | 43.89   | 49.25    | 54.58    | 61.62    | 66.95     |
| 240         | 15.25                 | 7.64                  | 13.59                 | 0 | 14                                                                              | 20.75  | 25.22   | 30.87   | 35.06   | 39.21    | 43.36    | 48.83    | 52.96     |
| 360         | 11.02                 | 5.05                  | 10                    | 0 | 10.19                                                                           | 14.65  | 17.61   | 21.34   | 24.11   | 26.86    | 29.6     | 33.21    | 35.94     |
| 720         | 6.95                  | 3.21                  | 6.16                  | 0 | 6.42                                                                            | 9.26   | 11.14   | 13.51   | 15.27   | 17.02    | 18.76    | 21.06    | 22.79     |
| 1440        | 4.12                  | 1.72                  | 3.74                  | 0 | 3.84                                                                            | 5.36   | 6.36    | 7.64    | 8.58    | 9.52     | 10.45    | 11.68    | 12.61     |
| 2880        | 2.34                  | 0.99                  | 2.21                  | 0 | 2.18                                                                            | 3.05   | 3.63    | 4.36    | 4.91    | 5.45     | 5.98     | 6.69     | 7.23      |
| 4320        | 1.65                  | 0.7                   | 1.49                  | 0 | 1.54                                                                            | 2.15   | 2.56    | 3.08    | 3.46    | 3.85     | 4.23     | 4.73     | 5.1       |
|             |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 3010104 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15          | 182.49                | 147.68                | 119.27                | 0 | 158.24                                                                          | 288.75 | 375.16 | 484.33 | 565.33 | 645.72 | 725.83 | 831.51 | 911.38 |
| 30          | 94.94                 | 67.62                 | 70.48                 | 0 | 83.83                                                                           | 143.59 | 183.16 | 233.15 | 270.23 | 307.05 | 343.72 | 392.11 | 428.68 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 45   | 67.76 | 41.88 | 56.11 | 0 | 60.88  | 97.89  | 122.4   | 153.36  | 176.33  | 199.13   | 221.84   | 251.81   | 274.46    |
| 60   | 51.19 | 29.33 | 43.29 | 0 | 46.37  | 72.29  | 89.45   | 111.14  | 127.22  | 143.19   | 159.1    | 180.09   | 195.95    |
| 120  | 26.58 | 13.95 | 23.34 | 0 | 24.29  | 36.62  | 44.78   | 55.09   | 62.74   | 70.34    | 77.9     | 87.89    | 95.43     |
| 180  | 18.94 | 9.11  | 16.51 | 0 | 17.44  | 25.49  | 30.83   | 37.56   | 42.56   | 47.52    | 52.46    | 58.98    | 63.9      |
| 240  | 15.86 | 6.85  | 15    | 0 | 14.74  | 20.79  | 24.8    | 29.86   | 33.62   | 37.35    | 41.06    | 45.96    | 49.67     |
| 360  | 10.73 | 4.45  | 9.89  | 0 | 10     | 13.93  | 16.54   | 19.83   | 22.27   | 24.69    | 27.1     | 30.29    | 32.69     |
| 720  | 6.17  | 2.27  | 5.69  | 0 | 5.8    | 7.8    | 9.13    | 10.81   | 12.05   | 13.29    | 14.52    | 16.15    | 17.37     |
| 1440 | 3.35  | 1.21  | 3.15  | 0 | 3.15   | 4.22   | 4.93    | 5.82    | 6.49    | 7.15     | 7.8      | 8.67     | 9.32      |
| 2880 | 1.91  | 0.71  | 1.76  | 0 | 1.79   | 2.42   | 2.84    | 3.36    | 3.75    | 4.14     | 4.52     | 5.03     | 5.41      |
| 4320 | 1.43  | 0.52  | 1.34  | 0 | 1.34   | 1.8    | 2.11    | 2.49    | 2.78    | 3.06     | 3.34     | 3.72     | 4         |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 3010105-a |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|---------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 154.01                | 121.28                                                                          | 118.59                | 0 | 134.09 | 241.27 | 312.23  | 401.89  | 468.41  | 534.43   | 600.22   | 687.01   | 752.6     |
| 30            | 83.06                 | 57.25                                                                           | 70.31                 | 0 | 73.66  | 124.25 | 157.75  | 200.07  | 231.47  | 262.64   | 293.69   | 334.66   | 365.62    |
| 45            | 56.39                 | 36.77                                                                           | 47.78                 | 0 | 50.35  | 82.85  | 104.36  | 131.54  | 151.71  | 171.73   | 191.67   | 217.98   | 237.87    |
| 60            | 45.18                 | 26.03                                                                           | 40.31                 | 0 | 40.91  | 63.91  | 79.14   | 98.38   | 112.66  | 126.83   | 140.95   | 159.58   | 173.65    |
| 120           | 24.84                 | 12.72                                                                           | 22.79                 | 0 | 22.75  | 33.99  | 41.43   | 50.84   | 57.81   | 64.74    | 71.64    | 80.74    | 87.62     |
| 180           | 19.07                 | 8.27                                                                            | 17.54                 | 0 | 17.71  | 25.02  | 29.86   | 35.97   | 40.51   | 45.01    | 49.5     | 55.41    | 59.89     |
| 240           | 14.98                 | 6.16                                                                            | 13.95                 | 0 | 13.97  | 19.41  | 23.02   | 27.57   | 30.95   | 34.3     | 37.64    | 42.05    | 45.38     |
| 360           | 10.4                  | 4.23                                                                            | 9.85                  | 0 | 9.71   | 13.44  | 15.92   | 19.05   | 21.37   | 23.67    | 25.96    | 28.99    | 31.28     |
| 720           | 6.25                  | 2.16                                                                            | 5.84                  | 0 | 5.9    | 7.8    | 9.07    | 10.66   | 11.85   | 13.03    | 14.2     | 15.74    | 16.91     |
| 1440          | 3.66                  | 1.41                                                                            | 3.36                  | 0 | 3.43   | 4.67   | 5.5     | 6.54    | 7.32    | 8.08     | 8.85     | 9.86     | 10.62     |
| 2880          | 2.02                  | 0.85                                                                            | 1.81                  | 0 | 1.88   | 2.63   | 3.13    | 3.76    | 4.22    | 4.69     | 5.15     | 5.76     | 6.22      |
| 4320          | 1.48                  | 0.6                                                                             | 1.43                  | 0 | 1.38   | 1.91   | 2.26    | 2.71    | 3.04    | 3.36     | 3.69     | 4.12     | 4.44      |
|               |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 3010105-b</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|----------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration             | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                   | 133.4                 | 101.22                                                                          | 103.35                | 0 | 116.78 | 206.23 | 265.45  | 340.28  | 395.8   | 450.9    | 505.8    | 578.24   | 632.98    |
| 30                   | 74.44                 | 48.34                                                                           | 65.62                 | 0 | 66.5   | 109.22 | 137.5   | 173.24  | 199.75  | 226.07   | 252.29   | 286.88   | 313.03    |
| 45                   | 51.63                 | 31.93                                                                           | 45.04                 | 0 | 46.39  | 74.6   | 93.29   | 116.89  | 134.4   | 151.79   | 169.11   | 191.95   | 209.22    |
| 60                   | 41.83                 | 22.63                                                                           | 37.97                 | 0 | 38.11  | 58.11  | 71.35   | 88.08   | 100.49  | 112.81   | 125.09   | 141.28   | 153.52    |
| 120                  | 23.58                 | 11.55                                                                           | 21.68                 | 0 | 21.68  | 31.89  | 38.65   | 47.19   | 53.52   | 59.81    | 66.07    | 74.34    | 80.59     |
| 180                  | 18.16                 | 7.46                                                                            | 16.82                 | 0 | 16.93  | 23.53  | 27.89   | 33.41   | 37.5    | 41.56    | 45.61    | 50.94    | 54.98     |
| 240                  | 14.41                 | 5.61                                                                            | 13.39                 | 0 | 13.49  | 18.45  | 21.73   | 25.88   | 28.95   | 32.01    | 35.05    | 39.06    | 42.1      |
| 360                  | 10.03                 | 3.85                                                                            | 9.29                  | 0 | 9.4    | 12.8   | 15.05   | 17.9    | 20.01   | 22.11    | 24.19    | 26.95    | 29.03     |
| 720                  | 5.95                  | 1.98                                                                            | 5.59                  | 0 | 5.62   | 7.37   | 8.53    | 10      | 11.08   | 12.16    | 13.23    | 14.65    | 15.72     |
| 1440                 | 3.54                  | 1.32                                                                            | 3.26                  | 0 | 3.32   | 4.49   | 5.26    | 6.24    | 6.96    | 7.68     | 8.4      | 9.34     | 10.05     |
| 2880                 | 1.92                  | 0.78                                                                            | 1.78                  | 0 | 1.79   | 2.48   | 2.94    | 3.51    | 3.94    | 4.37     | 4.79     | 5.35     | 5.77      |
| 4320                 | 1.43                  | 0.55                                                                            | 1.35                  | 0 | 1.34   | 1.83   | 2.15    | 2.55    | 2.86    | 3.16     | 3.45     | 3.85     | 4.14      |
|                      |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 3010106</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |        |        |        |        |        |        |        |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                 | 192.89                | 155.99                                                                          | 120.9                 | 0 | 167.27 | 305.13 | 396.4  | 511.72 | 597.27 | 682.19 | 766.8  | 878.43 | 962.79 |
| 30                 | 99.01                 | 70.88                                                                           | 70.89                 | 0 | 87.37  | 150.01 | 191.48 | 243.88 | 282.76 | 321.34 | 359.79 | 410.51 | 448.84 |
| 45                 | 71.79                 | 43.7                                                                            | 58.96                 | 0 | 64.61  | 103.23 | 128.8  | 161.11 | 185.08 | 208.87 | 232.57 | 263.84 | 287.48 |
| 60                 | 53.26                 | 30.61                                                                           | 44.25                 | 0 | 48.23  | 75.28  | 93.19  | 115.82 | 132.61 | 149.28 | 165.88 | 187.78 | 204.34 |
| 120                | 27.29                 | 14.47                                                                           | 23.45                 | 0 | 24.91  | 37.7   | 46.17  | 56.87  | 64.8   | 72.68  | 80.53  | 90.88  | 98.71  |
| 180                | 18.9                  | 9.42                                                                            | 16.11                 | 0 | 17.35  | 25.68  | 31.19  | 38.15  | 43.32  | 48.45  | 53.56  | 60.3   | 65.39  |
| 240                | 16.09                 | 7.04                                                                            | 15.22                 | 0 | 14.93  | 21.16  | 25.27  | 30.48  | 34.34  | 38.17  | 41.99  | 47.03  | 50.84  |
| 360                | 10.87                 | 4.48                                                                            | 9.99                  | 0 | 10.13  | 14.09  | 16.71  | 20.03  | 22.48  | 24.92  | 27.35  | 30.56  | 32.98  |
| 720                | 6.13                  | 2.28                                                                            | 5.63                  | 0 | 5.76   | 7.77   | 9.1    | 10.79  | 12.04  | 13.28  | 14.52  | 16.15  | 17.38  |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1440 | 3.27 | 1.12 | 3.09 | 0 | 3.09   | 4.08   | 4.73    | 5.56    | 6.17    | 6.78     | 7.39     | 8.19     | 8.8       |
| 2880 | 1.89 | 0.65 | 1.75 | 0 | 1.78   | 2.36   | 2.74    | 3.22    | 3.58    | 3.93     | 4.28     | 4.75     | 5.1       |
| 4320 | 1.43 | 0.5  | 1.32 | 0 | 1.35   | 1.79   | 2.08    | 2.45    | 2.73    | 3        | 3.27     | 3.63     | 3.9       |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 3010201-a</b> |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|----------------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration             | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                   | 138.99                | 122.98                | 77.2                  | 0 | 105.09                                                                          | 221.34 | 303.81  | 408.55  | 485.44  | 560.76   | 634.78   | 730.93   | 802.57    |
| 30                   | 74.04                 | 53.47                 | 56.78                 | 0 | 62.56                                                                           | 114.09 | 147.29  | 187.04  | 214.96  | 241.48   | 266.87   | 299.03   | 322.45    |
| 45                   | 52.82                 | 34.61                 | 43.08                 | 0 | 46.44                                                                           | 79.76  | 100.37  | 124.46  | 141.06  | 156.64   | 171.39   | 189.87   | 203.21    |
| 60                   | 42.9                  | 27.04                 | 34.35                 | 0 | 38.24                                                                           | 64.21  | 80.04   | 98.36   | 110.9   | 122.6    | 133.65   | 147.43   | 157.34    |
| 120                  | 26.85                 | 13.46                 | 21.19                 | 0 | 25.45                                                                           | 38.05  | 45.15   | 52.98   | 58.15   | 62.86    | 67.22    | 72.54    | 76.29     |
| 180                  | 19.03                 | 8.24                  | 16.12                 | 0 | 18.49                                                                           | 26.02  | 30.09   | 34.47   | 37.31   | 39.86    | 42.19    | 45.01    | 46.99     |
| 240                  | 15.05                 | 5.81                  | 13.29                 | 0 | 14.83                                                                           | 20.03  | 22.76   | 25.65   | 27.49   | 29.14    | 30.64    | 32.43    | 33.68     |
| 360                  | 11.14                 | 4.07                  | 10.4                  | 0 | 11.03                                                                           | 14.64  | 16.51   | 18.47   | 19.72   | 20.83    | 21.83    | 23.03    | 23.87     |
| 720                  | 6.58                  | 2.57                  | 5.99                  | 0 | 6.48                                                                            | 8.78   | 9.99    | 11.28   | 12.11   | 12.84    | 13.51    | 14.31    | 14.87     |
| 1440                 | 3.74                  | 1.43                  | 3.56                  | 0 | 3.69                                                                            | 4.97   | 5.64    | 6.34    | 6.79    | 7.2      | 7.56     | 8        | 8.3       |
| 2880                 | 2.03                  | 0.84                  | 1.85                  | 0 | 1.98                                                                            | 2.75   | 3.15    | 3.59    | 3.87    | 4.12     | 4.35     | 4.62     | 4.81      |
| 4320                 | 1.48                  | 0.64                  | 1.31                  | 0 | 1.44                                                                            | 2.02   | 2.34    | 2.68    | 2.9     | 3.1      | 3.28     | 3.5      | 3.65      |
|                      |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 3010201-b</b> |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|----------------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration             | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                   | 144.2                 | 135.33                | 79.32                 | 0 | 104.74                                                                          | 231.05 | 323.44 | 443.02 | 532.07 | 620.16 | 707.44 | 821.78 | 907.57 |
| 30                   | 77.76                 | 58.42                 | 58.91                 | 0 | 64.5                                                                            | 120.74 | 157.62 | 202.26 | 233.86 | 264.05 | 293.1  | 330.05 | 357.08 |
| 45                   | 53.88                 | 37.6                  | 41.89                 | 0 | 46.21                                                                           | 82.45  | 105.47 | 132.78 | 151.83 | 169.84 | 187.03 | 208.7  | 224.43 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 43.92 | 29.16 | 33.73 | 0 | 38.42  | 66.51  | 83.98   | 104.46  | 118.6   | 131.9    | 144.51   | 160.33   | 171.76    |
| 120  | 27.49 | 14.56 | 20.92 | 0 | 25.74  | 39.49  | 47.36   | 56.14   | 61.99   | 67.34    | 72.31    | 78.41    | 82.73     |
| 180  | 19.83 | 8.87  | 16.78 | 0 | 19.18  | 27.33  | 31.77   | 36.58   | 39.71   | 42.53    | 45.11    | 48.24    | 50.43     |
| 240  | 15.61 | 6.31  | 13.35 | 0 | 15.3   | 21     | 24.02   | 27.24   | 29.31   | 31.17    | 32.85    | 34.88    | 36.29     |
| 360  | 11.42 | 4.28  | 10.58 | 0 | 11.29  | 15.09  | 17.08   | 19.17   | 20.51   | 21.7     | 22.77    | 24.06    | 24.96     |
| 720  | 6.67  | 2.56  | 6.01  | 0 | 6.58   | 8.86   | 10.06   | 11.33   | 12.14   | 12.87    | 13.52    | 14.31    | 14.86     |
| 1440 | 3.79  | 1.41  | 3.51  | 0 | 3.75   | 5      | 5.65    | 6.34    | 6.78    | 7.17     | 7.52     | 7.94     | 8.23      |
| 2880 | 2.1   | 0.83  | 1.91  | 0 | 2.06   | 2.81   | 3.2     | 3.62    | 3.89    | 4.13     | 4.35     | 4.61     | 4.79      |
| 4320 | 1.49  | 0.61  | 1.34  | 0 | 1.46   | 2.01   | 2.3     | 2.62    | 2.82    | 3        | 3.17     | 3.36     | 3.5       |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 3010202 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|-------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 110.11                | 65.71                                                                           | 95.16                 | 0 | 99.9   | 162.75 | 200.28  | 243.19  | 272.28  | 299.27   | 324.6    | 356.03   | 378.53    |
| 30          | 67.27                 | 33.92                                                                           | 68.06                 | 0 | 63.68  | 95.47  | 113.4   | 133.21  | 146.3   | 158.24   | 169.27   | 182.76   | 192.29    |
| 45          | 47.95                 | 22.21                                                                           | 45.72                 | 0 | 46.11  | 66.65  | 77.96   | 90.26   | 98.29   | 105.56   | 112.24   | 120.35   | 126.04    |
| 60          | 39.61                 | 19.4                                                                            | 37.93                 | 0 | 37.71  | 55.81  | 65.94   | 77.06   | 84.38   | 91.04    | 97.18    | 104.66   | 109.94    |
| 120         | 24.75                 | 10.71                                                                           | 23.37                 | 0 | 24.05  | 33.84  | 39.13   | 44.82   | 48.5    | 51.82    | 54.85    | 58.51    | 61.08     |
| 180         | 19.86                 | 7.97                                                                            | 18.12                 | 0 | 19.49  | 26.67  | 30.48   | 34.53   | 37.13   | 39.46    | 41.57    | 44.12    | 45.89     |
| 240         | 16.43                 | 6.52                                                                            | 15.16                 | 0 | 16.14  | 22.01  | 25.11   | 28.4    | 30.51   | 32.4     | 34.12    | 36.18    | 37.61     |
| 360         | 12.09                 | 4.98                                                                            | 11.64                 | 0 | 11.83  | 16.34  | 18.74   | 21.31   | 22.97   | 24.45    | 25.8     | 27.43    | 28.56     |
| 720         | 7.51                  | 3.16                                                                            | 6.45                  | 0 | 7.33   | 10.2   | 11.74   | 13.39   | 14.46   | 15.42    | 16.29    | 17.34    | 18.08     |
| 1440        | 4.3                   | 1.83                                                                            | 4.15                  | 0 | 4.19   | 5.86   | 6.75    | 7.72    | 8.34    | 8.9      | 9.41     | 10.02    | 10.45     |
| 2880        | 2.29                  | 1.05                                                                            | 1.94                  | 0 | 2.21   | 3.18   | 3.71    | 4.29    | 4.66    | 5        | 5.32     | 5.7      | 5.96      |
| 4320        | 1.65                  | 0.74                                                                            | 1.47                  | 0 | 1.6    | 2.28   | 2.65    | 3.05    | 3.31    | 3.55     | 3.76     | 4.02     | 4.21      |
|             |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 3010203</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                 | 111.44                | 67.92                                                                           | 94.8                  | 0 | 100.45 | 165.53 | 204.69  | 249.67  | 280.28  | 308.75   | 335.51   | 368.8    | 392.66    |
| 30                 | 67.68                 | 34.71                                                                           | 67.93                 | 0 | 63.84  | 96.45  | 114.95  | 135.46  | 149.04  | 161.44   | 172.92   | 186.98   | 196.92    |
| 45                 | 48.23                 | 22.72                                                                           | 45.72                 | 0 | 46.25  | 67.32  | 78.97   | 91.68   | 100.01  | 107.55   | 114.48   | 122.92   | 128.85    |
| 60                 | 39.82                 | 19.74                                                                           | 37.88                 | 0 | 37.82  | 56.28  | 66.63   | 78.04   | 85.56   | 92.4     | 98.72    | 106.43   | 111.87    |
| 120                | 24.88                 | 10.85                                                                           | 23.33                 | 0 | 24.15  | 34.08  | 39.46   | 45.25   | 49      | 52.38    | 55.47    | 59.21    | 61.83     |
| 180                | 19.9                  | 8.01                                                                            | 18.1                  | 0 | 19.52  | 26.74  | 30.57   | 34.65   | 37.27   | 39.62    | 41.75    | 44.31    | 46.1      |
| 240                | 16.44                 | 6.52                                                                            | 15.14                 | 0 | 16.15  | 22.02  | 25.12   | 28.41   | 30.52   | 32.41    | 34.12    | 36.18    | 37.62     |
| 360                | 12.09                 | 4.96                                                                            | 11.65                 | 0 | 11.83  | 16.32  | 18.71   | 21.27   | 22.91   | 24.38    | 25.72    | 27.34    | 28.47     |
| 720                | 7.5                   | 3.14                                                                            | 6.45                  | 0 | 7.32   | 10.17  | 11.7    | 13.34   | 14.39   | 15.34    | 16.2     | 17.24    | 17.97     |
| 1440               | 4.29                  | 1.81                                                                            | 4.15                  | 0 | 4.18   | 5.83   | 6.71    | 7.66    | 8.27    | 8.82     | 9.32     | 9.93     | 10.35     |
| 2880               | 2.29                  | 1.04                                                                            | 1.94                  | 0 | 2.21   | 3.17   | 3.69    | 4.26    | 4.63    | 4.97     | 5.27     | 5.65     | 5.91      |
| 4320               | 1.64                  | 0.74                                                                            | 1.47                  | 0 | 1.58   | 2.27   | 2.64    | 3.04    | 3.3     | 3.54     | 3.76     | 4.02     | 4.2       |
|                    |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 3010204-a</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |        |        |        |        |        |        |        |
|----------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration             | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                   | 159.1                 | 146.35                                                                          | 83.23                 | 0 | 117.21 | 254.45 | 353.77 | 481.5  | 576.15 | 669.46 | 761.65 | 882.07 | 972.21 |
| 30                   | 83.61                 | 63.5                                                                            | 59.72                 | 0 | 68.98  | 130.08 | 170.35 | 219.22 | 253.9  | 287.08 | 319.05 | 359.76 | 389.58 |
| 45                   | 59.04                 | 40.37                                                                           | 46.81                 | 0 | 51.06  | 89.97  | 114.47 | 143.39 | 163.48 | 182.43 | 200.46 | 223.16 | 239.61 |
| 60                   | 47.44                 | 30.55                                                                           | 36.71                 | 0 | 41.97  | 71.36  | 89.42  | 110.43 | 124.87 | 138.38 | 151.16 | 167.15 | 178.66 |
| 120                  | 28.31                 | 14.99                                                                           | 21.53                 | 0 | 26.51  | 40.66  | 48.77  | 57.81  | 63.82  | 69.33  | 74.44  | 80.72  | 85.17  |
| 180                  | 19.79                 | 9.15                                                                            | 16.41                 | 0 | 19.04  | 27.5   | 32.15  | 37.21  | 40.52  | 43.51  | 46.25  | 49.59  | 51.93  |
| 240                  | 15.62                 | 6.42                                                                            | 13.53                 | 0 | 15.28  | 21.09  | 24.19  | 27.5   | 29.63  | 31.54  | 33.28  | 35.37  | 36.83  |
| 360                  | 11.31                 | 4.17                                                                            | 10.36                 | 0 | 11.19  | 14.89  | 16.82  | 18.84  | 20.12  | 21.27  | 22.3   | 23.54  | 24.4   |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 6.56 | 2.44 | 6    | 0 | 6.49   | 8.66   | 9.78    | 10.97   | 11.73   | 12.4     | 13.01    | 13.74    | 14.25     |
| 1440 | 3.66 | 1.28 | 3.5  | 0 | 3.64   | 4.76   | 5.34    | 5.94    | 6.33    | 6.66     | 6.97     | 7.33     | 7.59      |
| 2880 | 2.03 | 0.77 | 1.89 | 0 | 2      | 2.69   | 3.05    | 3.43    | 3.67    | 3.89     | 4.08     | 4.32     | 4.48      |
| 4320 | 1.47 | 0.6  | 1.35 | 0 | 1.44   | 1.98   | 2.27    | 2.58    | 2.78    | 2.95     | 3.12     | 3.31     | 3.45      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 3010204-b |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|---------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration      | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)         | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15            | 162.32                | 154                   | 84.54                 | 0 | 116.98                                                                          | 260.33 | 365.78  | 502.77  | 605.06  | 706.43   | 807.03   | 939.02   | 1038.2    |
| 30            | 85.91                 | 66.57                 | 61.03                 | 0 | 70.17                                                                           | 134.14 | 176.68  | 228.61  | 265.62  | 301.13   | 335.42   | 379.2    | 411.34    |
| 45            | 59.7                  | 42.22                 | 46.07                 | 0 | 50.91                                                                           | 91.61  | 117.6   | 148.54  | 170.18  | 190.68   | 210.27   | 235.01   | 252.99    |
| 60            | 48.08                 | 31.86                 | 36.33                 | 0 | 42.09                                                                           | 72.78  | 91.85   | 114.19  | 129.62  | 144.12   | 157.87   | 175.11   | 187.57    |
| 120           | 28.7                  | 15.68                 | 21.36                 | 0 | 26.68                                                                           | 41.53  | 50.14   | 59.79   | 66.24   | 72.17    | 77.69    | 84.48    | 89.31     |
| 180           | 20.28                 | 9.54                  | 16.82                 | 0 | 19.45                                                                           | 28.3   | 33.18   | 38.52   | 42.01   | 45.17    | 48.08    | 51.62    | 54.11     |
| 240           | 15.97                 | 6.72                  | 13.57                 | 0 | 15.58                                                                           | 21.69  | 24.97   | 28.48   | 30.75   | 32.78    | 34.64    | 36.88    | 38.44     |
| 360           | 11.48                 | 4.3                   | 10.47                 | 0 | 11.35                                                                           | 15.17  | 17.17   | 19.27   | 20.61   | 21.8     | 22.88    | 24.18    | 25.08     |
| 720           | 6.62                  | 2.43                  | 6.02                  | 0 | 6.55                                                                            | 8.71   | 9.83    | 11      | 11.75   | 12.41    | 13.02    | 13.74    | 14.23     |
| 1440          | 3.69                  | 1.27                  | 3.47                  | 0 | 3.67                                                                            | 4.78   | 5.35    | 5.95    | 6.32    | 6.66     | 6.95     | 7.31     | 7.56      |
| 2880          | 2.07                  | 0.76                  | 1.93                  | 0 | 2.05                                                                            | 2.72   | 3.07    | 3.44    | 3.67    | 3.88     | 4.07     | 4.3      | 4.45      |
| 4320          | 1.48                  | 0.58                  | 1.36                  | 0 | 1.46                                                                            | 1.98   | 2.25    | 2.54    | 2.73    | 2.89     | 3.05     | 3.23     | 3.35      |
|               |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 3010205 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15          | 105.78                | 58.14                 | 96.68                 | 0 | 98.18                                                                           | 153.31 | 185.29 | 221.21 | 245.25 | 267.36 | 287.94 | 313.29 | 331.32 |
| 30          | 65.99                 | 31.19                 | 68.47                 | 0 | 63.24                                                                           | 92.18  | 108.2  | 125.69 | 137.15 | 147.53 | 157.08 | 168.69 | 176.86 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 45   | 47.03 | 20.39 | 45.77 | 0 | 45.69  | 64.33  | 74.41   | 85.25   | 92.28   | 98.6     | 104.38   | 111.37   | 116.26    |
| 60   | 39.02 | 18.31 | 38.13 | 0 | 37.44  | 54.41  | 63.78   | 74.01   | 80.7    | 86.75    | 92.32    | 99.09    | 103.85    |
| 120  | 24.4  | 10.42 | 23.64 | 0 | 23.75  | 33.26  | 38.37   | 43.86   | 47.42   | 50.61    | 53.52    | 57.05    | 59.51     |
| 180  | 19.8  | 8.08  | 18.25 | 0 | 19.39  | 26.69  | 30.58   | 34.73   | 37.4    | 39.79    | 41.96    | 44.58    | 46.41     |
| 240  | 16.42 | 6.72  | 15.16 | 0 | 16.07  | 22.15  | 25.39   | 28.84   | 31.07   | 33.06    | 34.87    | 37.06    | 38.58     |
| 360  | 12.12 | 5.18  | 11.6  | 0 | 11.8   | 16.52  | 19.07   | 21.8    | 23.57   | 25.15    | 26.6     | 28.35    | 29.58     |
| 720  | 7.52  | 3.26  | 6.43  | 0 | 7.31   | 10.29  | 11.9    | 13.63   | 14.75   | 15.77    | 16.69    | 17.81    | 18.59     |
| 1440 | 4.34  | 1.94  | 4.14  | 0 | 4.2    | 5.98   | 6.95    | 8       | 8.69    | 9.3      | 9.87     | 10.55    | 11.03     |
| 2880 | 2.31  | 1.11  | 1.93  | 0 | 2.21   | 3.24   | 3.81    | 4.44    | 4.86    | 5.23     | 5.58     | 6        | 6.29      |
| 4320 | 1.66  | 0.77  | 1.47  | 0 | 1.6    | 2.31   | 2.7     | 3.13    | 3.41    | 3.66     | 3.89     | 4.17     | 4.37      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 3040101 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|-------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 146.53                | 179.82                                                                          | 89.57                 | 0 | 117    | 275.91 | 381.13  | 514.06  | 612.68  | 710.58   | 808.11   | 936.79   | 1034.05   |
| 30          | 78.86                 | 78.88                                                                           | 61.43                 | 0 | 65.91  | 135.61 | 181.77  | 240.08  | 283.34  | 326.29   | 369.07   | 425.52   | 468.18    |
| 45          | 56.02                 | 51.07                                                                           | 45.32                 | 0 | 47.63  | 92.77  | 122.65  | 160.4   | 188.41  | 216.21   | 243.91   | 280.46   | 308.08    |
| 60          | 44.08                 | 37.58                                                                           | 36.9                  | 0 | 37.91  | 71.12  | 93.11   | 120.89  | 141.5   | 161.96   | 182.34   | 209.23   | 229.56    |
| 120         | 24.8                  | 18.5                                                                            | 21.25                 | 0 | 21.76  | 38.11  | 48.94   | 62.61   | 72.76   | 82.83    | 92.86    | 106.1    | 116.11    |
| 180         | 17.45                 | 11.3                                                                            | 15.25                 | 0 | 15.59  | 25.58  | 32.19   | 40.55   | 46.74   | 52.9     | 59.02    | 67.11    | 73.22     |
| 240         | 14.49                 | 8.68                                                                            | 12.89                 | 0 | 13.06  | 20.74  | 25.81   | 32.23   | 36.99   | 41.72    | 46.42    | 52.64    | 57.33     |
| 360         | 10.81                 | 6.07                                                                            | 9.77                  | 0 | 9.81   | 15.18  | 18.73   | 23.22   | 26.55   | 29.85    | 33.14    | 37.49    | 40.77     |
| 720         | 6.16                  | 2.89                                                                            | 5.61                  | 0 | 5.69   | 8.24   | 9.93    | 12.07   | 13.65   | 15.23    | 16.79    | 18.86    | 20.42     |
| 1440        | 3.5                   | 1.41                                                                            | 3.21                  | 0 | 3.27   | 4.51   | 5.34    | 6.38    | 7.16    | 7.92     | 8.69     | 9.7      | 10.46     |
| 2880        | 2.12                  | 0.89                                                                            | 1.96                  | 0 | 1.97   | 2.76   | 3.28    | 3.94    | 4.43    | 4.91     | 5.39     | 6.03     | 6.51      |
| 4320        | 1.53                  | 0.63                                                                            | 1.41                  | 0 | 1.43   | 1.98   | 2.35    | 2.82    | 3.16    | 3.51     | 3.85     | 4.3      | 4.64      |
|             |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 5050001</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                 | 111.58                | 111.67                                                                          | 79.43                 | 0 | 77.22  | 179.6  | 257.13  | 359.69  | 437.32  | 514.97   | 592.64   | 695.35   | 773.07    |
| 30                 | 63.62                 | 50.89                                                                           | 52.37                 | 0 | 51.1   | 99.87  | 132.79  | 173.34  | 202.43  | 230.48   | 257.67   | 292.53   | 318.2     |
| 45                 | 46.65                 | 32.05                                                                           | 40.97                 | 0 | 40.27  | 71.16  | 90.65   | 113.68  | 129.7   | 144.81   | 159.21   | 177.33   | 190.47    |
| 60                 | 37.8                  | 24.38                                                                           | 33.66                 | 0 | 33.42  | 56.88  | 71.3    | 88.09   | 99.62   | 110.43   | 120.64   | 133.42   | 142.63    |
| 120                | 21.8                  | 12.1                                                                            | 20.26                 | 0 | 20.18  | 31.67  | 38.35   | 45.88   | 50.92   | 55.56    | 59.89    | 65.22    | 69.02     |
| 180                | 15.48                 | 7.84                                                                            | 14.27                 | 0 | 14.64  | 21.99  | 26.15   | 30.74   | 33.78   | 36.55    | 39.11    | 42.25    | 44.46     |
| 240                | 12.55                 | 6.03                                                                            | 11.74                 | 0 | 11.99  | 17.6   | 20.72   | 24.14   | 26.38   | 28.41    | 30.29    | 32.57    | 34.18     |
| 360                | 9.32                  | 4.23                                                                            | 8.79                  | 0 | 8.99   | 12.89  | 15.02   | 17.34   | 18.84   | 20.2     | 21.45    | 22.97    | 24.03     |
| 720                | 5.38                  | 2.13                                                                            | 5.05                  | 0 | 5.29   | 7.2    | 8.21    | 9.29    | 9.98    | 10.59    | 11.15    | 11.82    | 12.29     |
| 1440               | 3.13                  | 1.15                                                                            | 2.92                  | 0 | 3.1    | 4.12   | 4.65    | 5.2     | 5.56    | 5.87     | 6.16     | 6.5      | 6.73      |
| 2880               | 1.84                  | 0.71                                                                            | 1.74                  | 0 | 1.81   | 2.45   | 2.78    | 3.13    | 3.36    | 3.56     | 3.74     | 3.96     | 4.12      |
| 4320               | 1.32                  | 0.5                                                                             | 1.25                  | 0 | 1.3    | 1.75   | 1.98    | 2.23    | 2.39    | 2.52     | 2.65     | 2.8      | 2.91      |
|                    |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 5050002</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |       |        |        |        |        |        |        |        |        |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2     | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5   | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                 | 94.64                 | 58.79                                                                           | 86.82                 | 0 | 84.98 | 136.94 | 171.34 | 214.8  | 247.04 | 279.05 | 310.94 | 353.01 | 384.8  |
| 30                 | 56.77                 | 32.87                                                                           | 50.29                 | 0 | 51.37 | 80.42  | 99.65  | 123.95 | 141.98 | 159.87 | 177.7  | 201.23 | 219    |
| 45                 | 41.2                  | 24.42                                                                           | 35.94                 | 0 | 37.19 | 58.77  | 73.06  | 91.11  | 104.5  | 117.8  | 131.04 | 148.52 | 161.73 |
| 60                 | 32.64                 | 20.17                                                                           | 27.4                  | 0 | 29.33 | 47.15  | 58.95  | 73.87  | 84.93  | 95.91  | 106.85 | 121.28 | 132.19 |
| 120                | 19.12                 | 11.34                                                                           | 16.88                 | 0 | 17.26 | 27.28  | 33.91  | 42.3   | 48.52  | 54.69  | 60.84  | 68.96  | 75.09  |
| 180                | 13.61                 | 7.86                                                                            | 11.77                 | 0 | 12.32 | 19.27  | 23.86  | 29.68  | 33.99  | 38.26  | 42.53  | 48.15  | 52.4   |
| 240                | 11.32                 | 5.5                                                                             | 10.28                 | 0 | 10.42 | 15.28  | 18.5   | 22.56  | 25.58  | 28.57  | 31.56  | 35.49  | 38.47  |
| 360                | 8.18                  | 3.76                                                                            | 7.55                  | 0 | 7.56  | 10.89  | 13.09  | 15.87  | 17.93  | 19.97  | 22.01  | 24.7   | 26.74  |
| 720                | 4.57                  | 1.77                                                                            | 4.3                   | 0 | 4.28  | 5.84   | 6.88   | 8.19   | 9.16   | 10.12  | 11.08  | 12.35  | 13.31  |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1440 | 2.63 | 0.97 | 2.44 | 0 | 2.47   | 3.33   | 3.9     | 4.61    | 5.14    | 5.67     | 6.2      | 6.89     | 7.42      |
| 2880 | 1.56 | 0.57 | 1.42 | 0 | 1.47   | 1.97   | 2.3     | 2.73    | 3.04    | 3.35     | 3.66     | 4.07     | 4.37      |
| 4320 | 1.11 | 0.41 | 1.03 | 0 | 1.04   | 1.4    | 1.64    | 1.95    | 2.17    | 2.4      | 2.62     | 2.91     | 3.13      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 5050003-a</b> |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|----------------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration             | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                   | 103.37                | 82.38                 | 82.37                 | 0 | 89.84                                                                           | 162.64 | 210.84  | 271.75  | 316.93  | 361.77   | 406.46   | 465.41   | 509.96    |
| 30                   | 57.37                 | 38.85                 | 48.07                 | 0 | 50.99                                                                           | 85.32  | 108.05  | 136.78  | 158.08  | 179.23   | 200.3    | 228.11   | 249.12    |
| 45                   | 40.25                 | 25.32                 | 34.98                 | 0 | 36.09                                                                           | 58.47  | 73.28   | 92      | 105.89  | 119.67   | 133.41   | 151.53   | 165.22    |
| 60                   | 33.46                 | 19.23                 | 28.35                 | 0 | 30.3                                                                            | 47.3   | 58.55   | 72.76   | 83.31   | 93.78    | 104.21   | 117.97   | 128.37    |
| 120                  | 18.79                 | 9.96                  | 16.66                 | 0 | 17.15                                                                           | 25.96  | 31.78   | 39.15   | 44.61   | 50.03    | 55.43    | 62.56    | 67.95     |
| 180                  | 13.46                 | 6.8                   | 12.16                 | 0 | 12.34                                                                           | 18.35  | 22.33   | 27.36   | 31.09   | 34.79    | 38.48    | 43.34    | 47.02     |
| 240                  | 11.09                 | 5.15                  | 10.25                 | 0 | 10.24                                                                           | 14.8   | 17.81   | 21.62   | 24.44   | 27.24    | 30.04    | 33.72    | 36.51     |
| 360                  | 8.19                  | 3.71                  | 7.55                  | 0 | 7.58                                                                            | 10.86  | 13.03   | 15.77   | 17.81   | 19.83    | 21.84    | 24.49    | 26.5      |
| 720                  | 5.03                  | 2.13                  | 4.65                  | 0 | 4.68                                                                            | 6.56   | 7.81    | 9.38    | 10.55   | 11.71    | 12.87    | 14.39    | 15.54     |
| 1440                 | 2.84                  | 1.16                  | 2.63                  | 0 | 2.65                                                                            | 3.67   | 4.35    | 5.21    | 5.85    | 6.48     | 7.11     | 7.94     | 8.57      |
| 2880                 | 1.58                  | 0.66                  | 1.46                  | 0 | 1.47                                                                            | 2.05   | 2.44    | 2.93    | 3.29    | 3.65     | 4.01     | 4.48     | 4.84      |
| 4320                 | 1.14                  | 0.47                  | 1.04                  | 0 | 1.06                                                                            | 1.48   | 1.75    | 2.1     | 2.36    | 2.61     | 2.87     | 3.21     | 3.46      |
|                      |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 5050003-b</b> |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|----------------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration             | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)                | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                   | 91.29                 | 76.27                 | 71.82                 | 0 | 78.76                                                                           | 146.17 | 190.79 | 247.18 | 289.01 | 330.53 | 371.9  | 426.48 | 467.73 |
| 30                   | 54.04                 | 38.99                 | 44.55                 | 0 | 47.64                                                                           | 82.09  | 104.91 | 133.73 | 155.12 | 176.34 | 197.49 | 225.39 | 246.48 |
| 45                   | 38.85                 | 26.11                 | 33.11                 | 0 | 34.56                                                                           | 57.64  | 72.91  | 92.22  | 106.54 | 120.75 | 134.91 | 153.6  | 167.72 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 60   | 32.8  | 20.19 | 27.89 | 0 | 29.48  | 47.33  | 59.14   | 74.07   | 85.14   | 96.13    | 107.08   | 121.53   | 132.45    |
| 120  | 18.53 | 10.15 | 16.07 | 0 | 16.86  | 25.83  | 31.77   | 39.28   | 44.84   | 50.37    | 55.87    | 63.14    | 68.63     |
| 180  | 13.04 | 6.95  | 11.57 | 0 | 11.9   | 18.04  | 22.11   | 27.25   | 31.06   | 34.84    | 38.61    | 43.58    | 47.34     |
| 240  | 10.51 | 5.01  | 9.68  | 0 | 9.69   | 14.11  | 17.05   | 20.75   | 23.5    | 26.23    | 28.94    | 32.53    | 35.24     |
| 360  | 7.91  | 3.55  | 7.29  | 0 | 7.33   | 10.46  | 12.54   | 15.17   | 17.11   | 19.05    | 20.97    | 23.51    | 25.43     |
| 720  | 4.88  | 1.95  | 4.5   | 0 | 4.56   | 6.28   | 7.42    | 8.87    | 9.94    | 11       | 12.05    | 13.45    | 14.5      |
| 1440 | 2.81  | 1.01  | 2.66  | 0 | 2.64   | 3.54   | 4.13    | 4.87    | 5.43    | 5.98     | 6.53     | 7.25     | 7.79      |
| 2880 | 1.58  | 0.62  | 1.51  | 0 | 1.48   | 2.03   | 2.39    | 2.85    | 3.19    | 3.52     | 3.86     | 4.3      | 4.64      |
| 4320 | 1.11  | 0.43  | 1.06  | 0 | 1.04   | 1.42   | 1.67    | 1.99    | 2.22    | 2.46     | 2.69     | 3        | 3.23      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 5070201 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|-------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 83.16                 | 37.75                                                                           | 82.24                 | 0 | 76.96  | 110.32 | 132.41  | 160.32  | 181.02  | 201.57   | 222.05   | 249.06   | 269.48    |
| 30          | 54.32                 | 25.16                                                                           | 48.25                 | 0 | 50.19  | 72.42  | 87.14   | 105.74  | 119.54  | 133.24   | 146.89   | 164.89   | 178.5     |
| 45          | 41.49                 | 19.12                                                                           | 38.5                  | 0 | 38.35  | 55.25  | 66.43   | 80.57   | 91.06   | 101.46   | 111.84   | 125.52   | 135.86    |
| 60          | 33.01                 | 15.54                                                                           | 28.88                 | 0 | 30.46  | 44.19  | 53.28   | 64.77   | 73.29   | 81.75    | 90.18    | 101.3    | 109.71    |
| 120         | 19.61                 | 8.47                                                                            | 18.25                 | 0 | 18.22  | 25.7   | 30.66   | 36.92   | 41.57   | 46.18    | 50.77    | 56.83    | 61.41     |
| 180         | 13.75                 | 5.39                                                                            | 13.46                 | 0 | 12.86  | 17.63  | 20.78   | 24.77   | 27.72   | 30.66    | 33.58    | 37.44    | 40.35     |
| 240         | 10.87                 | 4.49                                                                            | 10.16                 | 0 | 10.13  | 14.1   | 16.73   | 20.05   | 22.51   | 24.95    | 27.39    | 30.6     | 33.03     |
| 360         | 7.95                  | 3.1                                                                             | 7.44                  | 0 | 7.44   | 10.18  | 11.99   | 14.29   | 15.99   | 17.67    | 19.36    | 21.57    | 23.25     |
| 720         | 4.73                  | 1.69                                                                            | 4.44                  | 0 | 4.45   | 5.95   | 6.93    | 8.18    | 9.11    | 10.03    | 10.95    | 12.16    | 13.07     |
| 1440        | 2.78                  | 0.87                                                                            | 2.62                  | 0 | 2.64   | 3.41   | 3.92    | 4.56    | 5.04    | 5.51     | 5.98     | 6.6      | 7.07      |
| 2880        | 1.67                  | 0.46                                                                            | 1.63                  | 0 | 1.59   | 2      | 2.27    | 2.61    | 2.86    | 3.11     | 3.36     | 3.69     | 3.94      |
| 4320        | 1.22                  | 0.32                                                                            | 1.21                  | 0 | 1.17   | 1.45   | 1.64    | 1.87    | 2.05    | 2.22     | 2.4      | 2.63     | 2.8       |
|             |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 5070202</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                 | 132.02                | 97.5                                                                            | 90.54                 | 0 | 110.4  | 204.33 | 265.47  | 339.11  | 391.06  | 440.58   | 488.12   | 548.47   | 592.54    |
| 30                 | 71.41                 | 47.46                                                                           | 49.71                 | 0 | 62.45  | 108.16 | 136.61  | 169.96  | 193     | 214.66   | 235.21   | 260.99   | 279.62    |
| 45                 | 49.8                  | 30.5                                                                            | 36.06                 | 0 | 44.82  | 74.05  | 91.68   | 111.94  | 125.75  | 138.59   | 150.67   | 165.7    | 176.48    |
| 60                 | 38.57                 | 22.64                                                                           | 27.32                 | 0 | 35.16  | 56.79  | 69.62   | 84.24   | 94.13   | 103.29   | 111.86   | 122.49   | 130.09    |
| 120                | 20.79                 | 10.34                                                                           | 17.27                 | 0 | 19.73  | 29.41  | 34.84   | 40.82   | 44.77   | 48.37    | 51.69    | 55.74    | 58.6      |
| 180                | 14.53                 | 6.77                                                                            | 13.35                 | 0 | 13.96  | 20.23  | 23.68   | 27.44   | 29.9    | 32.13    | 34.18    | 36.66    | 38.41     |
| 240                | 11.37                 | 5.05                                                                            | 10.65                 | 0 | 11.01  | 15.64  | 18.17   | 20.89   | 22.66   | 24.26    | 25.72    | 27.49    | 28.73     |
| 360                | 8.52                  | 3.12                                                                            | 8.37                  | 0 | 8.44   | 11.2   | 12.64   | 14.14   | 15.1    | 15.95    | 16.72    | 17.65    | 18.29     |
| 720                | 4.71                  | 1.54                                                                            | 4.67                  | 0 | 4.7    | 6.04   | 6.72    | 7.42    | 7.86    | 8.25     | 8.6      | 9.01     | 9.3       |
| 1440               | 2.6                   | 0.75                                                                            | 2.48                  | 0 | 2.61   | 3.25   | 3.56    | 3.89    | 4.09    | 4.26     | 4.42     | 4.6      | 4.73      |
| 2880               | 1.45                  | 0.38                                                                            | 1.37                  | 0 | 1.46   | 1.78   | 1.93    | 2.09    | 2.19    | 2.27     | 2.35     | 2.43     | 2.49      |
| 4320               | 1.04                  | 0.29                                                                            | 1                     | 0 | 1.05   | 1.29   | 1.41    | 1.53    | 1.61    | 1.68     | 1.74     | 1.81     | 1.85      |
|                    |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 5100201</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |        |        |        |        |        |        |        |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                 | 137.15                | 122.66                                                                          | 89.9                  | 0 | 102.98 | 218.68 | 301.22 | 406.4  | 483.81 | 559.77 | 634.53 | 731.79 | 804.35 |
| 30                 | 77.17                 | 60.09                                                                           | 54.7                  | 0 | 62.87  | 120.59 | 159.07 | 206.1  | 239.64 | 271.86 | 302.99 | 342.76 | 371.96 |
| 45                 | 54.03                 | 37.99                                                                           | 42.97                 | 0 | 46.19  | 82.81  | 106.14 | 133.88 | 153.25 | 171.59 | 189.1  | 211.2  | 227.26 |
| 60                 | 42.28                 | 29.35                                                                           | 32.22                 | 0 | 36.34  | 64.63  | 82.56  | 103.8  | 118.6  | 132.59 | 145.92 | 162.73 | 174.93 |
| 120                | 21.92                 | 13.85                                                                           | 18.75                 | 0 | 19.52  | 32.83  | 40.94  | 50.34  | 56.78  | 62.79  | 68.46  | 75.54  | 80.63  |
| 180                | 15.76                 | 8.82                                                                            | 14.45                 | 0 | 14.56  | 22.94  | 27.83  | 33.35  | 37.05  | 40.46  | 43.64  | 47.56  | 50.35  |
| 240                | 12.32                 | 6.61                                                                            | 11.27                 | 0 | 11.5   | 17.75  | 21.35  | 25.37  | 28.05  | 30.51  | 32.79  | 35.6   | 37.59  |
| 360                | 9.51                  | 4.31                                                                            | 9.3                   | 0 | 9.18   | 13.15  | 15.32  | 17.67  | 19.21  | 20.59  | 21.86  | 23.4   | 24.48  |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 720  | 5.28 | 2.04 | 5.16 | 0 | 5.2    | 7.03   | 7.99    | 9       | 9.65    | 10.23    | 10.75    | 11.38    | 11.82     |
| 1440 | 2.91 | 0.99 | 2.78 | 0 | 2.9    | 3.76   | 4.21    | 4.67    | 4.96    | 5.21     | 5.44     | 5.72     | 5.91      |
| 2880 | 1.66 | 0.61 | 1.58 | 0 | 1.64   | 2.18   | 2.47    | 2.76    | 2.95    | 3.12     | 3.27     | 3.45     | 3.57      |
| 4320 | 1.18 | 0.4  | 1.12 | 0 | 1.18   | 1.52   | 1.7     | 1.89    | 2.01    | 2.11     | 2.2      | 2.31     | 2.39      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 5130101 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 124.14                | 119.12                | 86.36                 | 0 | 88.73                                                                           | 199.28 | 281.1   | 387.79  | 467.69  | 547.02   | 625.88   | 729.51   | 807.5     |
| 30          | 72.98                 | 58.25                 | 55.88                 | 0 | 58.68                                                                           | 114.52 | 152.17  | 198.52  | 231.75  | 263.78   | 294.83   | 334.63   | 363.92    |
| 45          | 51.75                 | 36.41                 | 45.72                 | 0 | 44.23                                                                           | 79.33  | 101.69  | 128.28  | 146.86  | 164.45   | 181.24   | 202.44   | 217.84    |
| 60          | 40.91                 | 28.62                 | 34.29                 | 0 | 35.05                                                                           | 62.64  | 80.18   | 101     | 115.53  | 129.28   | 142.39   | 158.94   | 170.95    |
| 120         | 21.16                 | 13.47                 | 19.05                 | 0 | 18.8                                                                            | 31.74  | 39.66   | 48.85   | 55.15   | 61.04    | 66.6     | 73.54    | 78.54     |
| 180         | 15.45                 | 8.52                  | 14.39                 | 0 | 14.33                                                                           | 22.41  | 27.1    | 32.38   | 35.91   | 39.16    | 42.19    | 45.92    | 48.57     |
| 240         | 12.07                 | 6.51                  | 10.99                 | 0 | 11.26                                                                           | 17.41  | 20.96   | 24.94   | 27.59   | 30.02    | 32.28    | 35.06    | 37.04     |
| 360         | 9.34                  | 4.38                  | 9.1                   | 0 | 8.96                                                                            | 13.02  | 15.26   | 17.71   | 19.31   | 20.76    | 22.09    | 23.71    | 24.84     |
| 720         | 5.26                  | 2.03                  | 5.08                  | 0 | 5.18                                                                            | 7      | 7.95    | 8.96    | 9.61    | 10.18    | 10.71    | 11.33    | 11.77     |
| 1440        | 2.92                  | 1.01                  | 2.8                   | 0 | 2.91                                                                            | 3.79   | 4.24    | 4.72    | 5.02    | 5.28     | 5.52     | 5.81     | 6         |
| 2880        | 1.72                  | 0.65                  | 1.64                  | 0 | 1.7                                                                             | 2.28   | 2.58    | 2.9     | 3.1     | 3.29     | 3.45     | 3.65     | 3.78      |
| 4320        | 1.22                  | 0.41                  | 1.16                  | 0 | 1.22                                                                            | 1.57   | 1.76    | 1.94    | 2.06    | 2.17     | 2.27     | 2.38     | 2.46      |
|             |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 6010101 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |        |        |        |        |        |        |        |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15          | 98.26                 | 79.5                  | 80.62                 | 0 | 78.43                                                                           | 154.53 | 206.17 | 270    | 315.9  | 360.24 | 403.29 | 458.55 | 499.3  |
| 30          | 56.32                 | 35.98                 | 48.82                 | 0 | 49.97                                                                           | 84.56  | 105.76 | 130.37 | 147.26 | 163.06 | 177.98 | 196.62 | 210.05 |

|      |       |       |       |   |        |        |         |         |         |          |          |          |           |
|------|-------|-------|-------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 45   | 41    | 21.96 | 38.37 | 0 | 38.3   | 59.05  | 70.99   | 84.33   | 93.22   | 101.38   | 108.96   | 118.27   | 124.87    |
| 60   | 32.39 | 16.38 | 29.83 | 0 | 30.64  | 46     | 54.68   | 64.27   | 70.61   | 76.39    | 81.73    | 88.27    | 92.89     |
| 120  | 18.08 | 7.14  | 17.51 | 0 | 17.77  | 24.19  | 27.58   | 31.17   | 33.48   | 35.54    | 37.41    | 39.66    | 41.22     |
| 180  | 13.02 | 4.79  | 12.66 | 0 | 12.89  | 17.14  | 19.34   | 21.66   | 23.14   | 24.45    | 25.64    | 27.06    | 28.04     |
| 240  | 10.23 | 3.78  | 9.87  | 0 | 10.12  | 13.48  | 15.22   | 17.06   | 18.23   | 19.26    | 20.2     | 21.33    | 22.11     |
| 360  | 7.54  | 2.57  | 7.39  | 0 | 7.51   | 9.76   | 10.9    | 12.1    | 12.85   | 13.52    | 14.12    | 14.84    | 15.34     |
| 720  | 4.33  | 1.25  | 4.23  | 0 | 4.35   | 5.41   | 5.94    | 6.47    | 6.81    | 7.1      | 7.36     | 7.67     | 7.88      |
| 1440 | 2.46  | 0.69  | 2.4   | 0 | 2.48   | 3.06   | 3.34    | 3.64    | 3.82    | 3.98     | 4.12     | 4.29     | 4.4       |
| 2880 | 1.44  | 0.41  | 1.39  | 0 | 1.45   | 1.79   | 1.97    | 2.14    | 2.25    | 2.34     | 2.43     | 2.53     | 2.6       |
| 4320 | 1.06  | 0.3   | 1.03  | 0 | 1.07   | 1.32   | 1.44    | 1.57    | 1.65    | 1.72     | 1.78     | 1.86     | 1.91      |
|      |       |       |       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 6010102 |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|-------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 108.15                | 87.7                                                                            | 82.61                 | 0 | 86.21  | 170.14 | 227.16  | 297.68  | 348.42  | 397.44   | 445.05   | 506.2    | 551.29    |
| 30          | 61.94                 | 40.7                                                                            | 51.83                 | 0 | 54.4   | 93.58  | 117.86  | 146.24  | 165.81  | 184.17   | 201.58   | 223.39   | 239.13    |
| 45          | 46.69                 | 25.34                                                                           | 43.35                 | 0 | 43.47  | 67.46  | 81.32   | 96.85   | 107.22  | 116.74   | 125.6    | 136.5    | 144.24    |
| 60          | 37.94                 | 20.09                                                                           | 35.38                 | 0 | 35.53  | 54.49  | 65.36   | 77.47   | 85.53   | 92.92    | 99.77    | 108.19   | 114.15    |
| 120         | 21.1                  | 9.83                                                                            | 20.7                  | 0 | 20.27  | 29.37  | 34.39   | 39.85   | 43.42   | 46.66    | 49.63    | 53.23    | 55.77     |
| 180         | 14.97                 | 6.34                                                                            | 14.46                 | 0 | 14.59  | 20.36  | 23.46   | 26.79   | 28.94   | 30.87    | 32.63    | 34.76    | 36.24     |
| 240         | 11.84                 | 4.91                                                                            | 11.64                 | 0 | 11.57  | 16.02  | 18.4    | 20.95   | 22.59   | 24.06    | 25.39    | 27.01    | 28.14     |
| 360         | 8.81                  | 3.37                                                                            | 8.63                  | 0 | 8.69   | 11.7   | 13.28   | 14.94   | 16.01   | 16.96    | 17.82    | 18.85    | 19.57     |
| 720         | 5.16                  | 1.7                                                                             | 4.95                  | 0 | 5.15   | 6.63   | 7.38    | 8.15    | 8.64    | 9.08     | 9.46     | 9.93     | 10.24     |
| 1440        | 2.95                  | 0.89                                                                            | 2.88                  | 0 | 2.96   | 3.72   | 4.1     | 4.49    | 4.73    | 4.95     | 5.14     | 5.37     | 5.52      |
| 2880        | 1.7                   | 0.56                                                                            | 1.61                  | 0 | 1.7    | 2.18   | 2.43    | 2.69    | 2.85    | 2.99     | 3.12     | 3.27     | 3.37      |
| 4320        | 1.22                  | 0.37                                                                            | 1.19                  | 0 | 1.22   | 1.54   | 1.7     | 1.86    | 1.96    | 2.05     | 2.13     | 2.23     | 2.29      |
|             |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 6010104</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |        |        |         |         |         |          |          |          |           |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2      | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5    | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15                 | 124.14                | 119.12                                                                          | 86.36                 | 0 | 88.73  | 199.28 | 281.1   | 387.79  | 467.69  | 547.02   | 625.88   | 729.51   | 807.5     |
| 30                 | 72.98                 | 58.25                                                                           | 55.88                 | 0 | 58.68  | 114.52 | 152.17  | 198.52  | 231.75  | 263.78   | 294.83   | 334.63   | 363.92    |
| 45                 | 51.75                 | 36.41                                                                           | 45.72                 | 0 | 44.23  | 79.33  | 101.69  | 128.28  | 146.86  | 164.45   | 181.24   | 202.44   | 217.84    |
| 60                 | 40.91                 | 28.62                                                                           | 34.29                 | 0 | 35.05  | 62.64  | 80.18   | 101     | 115.53  | 129.28   | 142.39   | 158.94   | 170.95    |
| 120                | 21.16                 | 13.47                                                                           | 19.05                 | 0 | 18.8   | 31.74  | 39.66   | 48.85   | 55.15   | 61.04    | 66.6     | 73.54    | 78.54     |
| 180                | 15.45                 | 8.52                                                                            | 14.39                 | 0 | 14.33  | 22.41  | 27.1    | 32.38   | 35.91   | 39.16    | 42.19    | 45.92    | 48.57     |
| 240                | 12.07                 | 6.51                                                                            | 10.99                 | 0 | 11.26  | 17.41  | 20.96   | 24.94   | 27.59   | 30.02    | 32.28    | 35.06    | 37.04     |
| 360                | 9.34                  | 4.38                                                                            | 9.1                   | 0 | 8.96   | 13.02  | 15.26   | 17.71   | 19.31   | 20.76    | 22.09    | 23.71    | 24.84     |
| 720                | 5.26                  | 2.03                                                                            | 5.08                  | 0 | 5.18   | 7      | 7.95    | 8.96    | 9.61    | 10.18    | 10.71    | 11.33    | 11.77     |
| 1440               | 2.92                  | 1.01                                                                            | 2.8                   | 0 | 2.91   | 3.79   | 4.24    | 4.72    | 5.02    | 5.28     | 5.52     | 5.81     | 6         |
| 2880               | 1.72                  | 0.65                                                                            | 1.64                  | 0 | 1.7    | 2.28   | 2.58    | 2.9     | 3.1     | 3.29     | 3.45     | 3.65     | 3.78      |
| 4320               | 1.22                  | 0.41                                                                            | 1.16                  | 0 | 1.22   | 1.57   | 1.76    | 1.94    | 2.06    | 2.17     | 2.27     | 2.38     | 2.46      |
|                    |                       |                                                                                 |                       |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| <b>HUC 6010205</b> |                       | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |                       |   |       |        |        |        |        |        |        |        |        |
|--------------------|-----------------------|---------------------------------------------------------------------------------|-----------------------|---|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Duration           | x <sub>bar</sub>      | s                                                                               | x <sub>m</sub>        | N | 2     | 5      | 10     | 25     | 50     | 100    | 200    | 500    | 1000   |
| (min)              | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> )                                                           | (mm h <sup>-1</sup> ) |   | 0.5   | 0.2    | 0.1    | 0.04   | 0.02   | 0.01   | 0.005  | 0.002  | 0.001  |
| 15                 | 109.78                | 97.94                                                                           | 83.55                 | 0 | 82.56 | 174.99 | 240.84 | 324.69 | 386.37 | 446.87 | 506.39 | 583.8  | 641.53 |
| 30                 | 63.91                 | 46.17                                                                           | 52.04                 | 0 | 54    | 98.49  | 127.16 | 161.49 | 185.6  | 208.51 | 230.45 | 258.22 | 278.46 |
| 45                 | 45.44                 | 28.36                                                                           | 41.24                 | 0 | 40.64 | 67.86  | 84.39  | 103.48 | 116.52 | 128.68 | 140.14 | 154.43 | 164.69 |
| 60                 | 35.8                  | 21.69                                                                           | 31.19                 | 0 | 32.33 | 53.1   | 65.58  | 79.88  | 89.61  | 98.65  | 107.14 | 117.7  | 125.26 |
| 120                | 19.06                 | 9.59                                                                            | 17.63                 | 0 | 18.05 | 27.03  | 32.1   | 37.69  | 41.39  | 44.76  | 47.87  | 51.67  | 54.36  |
| 180                | 13.83                 | 6.23                                                                            | 13.11                 | 0 | 13.36 | 19.09  | 22.22  | 25.61  | 27.82  | 29.81  | 31.64  | 33.85  | 35.41  |
| 240                | 10.8                  | 4.83                                                                            | 10.04                 | 0 | 10.44 | 14.88  | 17.3   | 19.92  | 21.62  | 23.16  | 24.56  | 26.27  | 27.46  |
| 360                | 8.16                  | 3.24                                                                            | 7.99                  | 0 | 8.02  | 10.93  | 12.47  | 14.11  | 15.16  | 16.1   | 16.95  | 17.98  | 18.69  |
| 720                | 4.62                  | 1.5                                                                             | 4.49                  | 0 | 4.62  | 5.92   | 6.57   | 7.25   | 7.68   | 8.06   | 8.4    | 8.8    | 9.08   |

|      |      |      |      |   |        |        |         |         |         |          |          |          |           |
|------|------|------|------|---|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1440 | 2.57 | 0.78 | 2.49 | 0 | 2.58   | 3.24   | 3.58    | 3.92    | 4.13    | 4.32     | 4.49     | 4.69     | 4.83      |
| 2880 | 1.51 | 0.48 | 1.46 | 0 | 1.51   | 1.92   | 2.13    | 2.35    | 2.48    | 2.6      | 2.71     | 2.84     | 2.93      |
| 4320 | 1.1  | 0.32 | 1.06 | 0 | 1.11   | 1.38   | 1.51    | 1.65    | 1.74    | 1.81     | 1.88     | 1.96     | 2.01      |
|      |      |      |      |   | 2-year | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

| HUC 6010206 |                       |                       |                       |   | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           |
|-------------|-----------------------|-----------------------|-----------------------|---|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|
| Duration    | x <sub>bar</sub>      | s                     | x <sub>m</sub>        | N | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |
| (min)       | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) | (mm h <sup>-1</sup> ) |   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |
| 15          | 124.14                | 119.12                | 86.36                 | 0 | 88.73                                                                           | 199.28 | 281.1   | 387.79  | 467.69  | 547.02   | 625.88   | 729.51   | 807.5     |
| 30          | 72.98                 | 58.25                 | 55.88                 | 0 | 58.68                                                                           | 114.52 | 152.17  | 198.52  | 231.75  | 263.78   | 294.83   | 334.63   | 363.92    |
| 45          | 51.75                 | 36.41                 | 45.72                 | 0 | 44.23                                                                           | 79.33  | 101.69  | 128.28  | 146.86  | 164.45   | 181.24   | 202.44   | 217.84    |
| 60          | 40.91                 | 28.62                 | 34.29                 | 0 | 35.05                                                                           | 62.64  | 80.18   | 101     | 115.53  | 129.28   | 142.39   | 158.94   | 170.95    |
| 120         | 21.16                 | 13.47                 | 19.05                 | 0 | 18.8                                                                            | 31.74  | 39.66   | 48.85   | 55.15   | 61.04    | 66.6     | 73.54    | 78.54     |
| 180         | 15.45                 | 8.52                  | 14.39                 | 0 | 14.33                                                                           | 22.41  | 27.1    | 32.38   | 35.91   | 39.16    | 42.19    | 45.92    | 48.57     |
| 240         | 12.07                 | 6.51                  | 10.99                 | 0 | 11.26                                                                           | 17.41  | 20.96   | 24.94   | 27.59   | 30.02    | 32.28    | 35.06    | 37.04     |
| 360         | 9.34                  | 4.38                  | 9.1                   | 0 | 8.96                                                                            | 13.02  | 15.26   | 17.71   | 19.31   | 20.76    | 22.09    | 23.71    | 24.84     |
| 720         | 5.26                  | 2.03                  | 5.08                  | 0 | 5.18                                                                            | 7      | 7.95    | 8.96    | 9.61    | 10.18    | 10.71    | 11.33    | 11.77     |
| 1440        | 2.92                  | 1.01                  | 2.8                   | 0 | 2.91                                                                            | 3.79   | 4.24    | 4.72    | 5.02    | 5.28     | 5.52     | 5.81     | 6         |
| 2880        | 1.72                  | 0.65                  | 1.64                  | 0 | 1.7                                                                             | 2.28   | 2.58    | 2.9     | 3.1     | 3.29     | 3.45     | 3.65     | 3.78      |
| 4320        | 1.22                  | 0.41                  | 1.16                  | 0 | 1.22                                                                            | 1.57   | 1.76    | 1.94    | 2.06    | 2.17     | 2.27     | 2.38     | 2.46      |
|             |                       |                       |                       |   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |

#### IV. Tabulated Probability-Based IDF Curves for the Eight Gauges

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 346.82                                                                          | 539.77 | 697.92  | 897.74  | 1045.98 | 1193.13  | 1339.74  | 1533.16  | 1679.34   | RCM3-CGCM3 (future)          |
| 2                               | 92.31             | 337.9                                                                           | 489.89 | 630.15  | 807.38  | 938.86  | 1069.37  | 1199.4   | 1370.95  | 1500.61   | RCM3-GFDL (future)           |
| 3                               | 88.46             | 326.76                                                                          | 487.26 | 590.27  | 722.9   | 841.73  | 962.23   | 1082.28  | 1240.67  | 1360.38   | RCM3-GFDL (historical)       |
| 4                               | 84.62             | 313.03                                                                          | 485.3  | 580.24  | 720.34  | 821.29  | 918.95   | 1016.26  | 1144.64  | 1241.66   | HRM3-HadCM3 (historical)     |
| 5                               | 80.77             | 300.91                                                                          | 460.98 | 556.7   | 697.72  | 784.87  | 871.38   | 957.57   | 1071.29  | 1157.23   | HRM3-HadCM3 (future)         |
| 6                               | 76.92             | 293.86                                                                          | 427.19 | 542.46  | 645.42  | 721.81  | 797.62   | 873.16   | 972.83   | 1048.15   | HRM3-GFDL (future)           |
| 7                               | 73.08             | 278.38                                                                          | 400.52 | 481.38  | 583.55  | 659.34  | 734.58   | 809.54   | 908.43   | 983.18    | HRM3-GFDL (historical)       |
| 8                               | 69.23             | 278.03                                                                          | 399.5  | 456.74  | 529.92  | 597.89  | 665.36   | 732.58   | 821.26   | 888.29    | RCM3-CGCM3 (historical)      |
| 9                               | 65.38             | 261.73                                                                          | 373.28 | 438.3   | 529.07  | 582.73  | 636      | 689.07   | 759.08   | 812       | MM5I-HadCM3 (future)         |
| 10                              | 61.54             | 256.27                                                                          | 365.79 | 425.87  | 492.31  | 541.59  | 590.52   | 640.31   | 710.79   | 764.07    | WRFG-CGCM3 (historical)      |
| 11                              | 57.69             | 253.97                                                                          | 348.78 | 406.41  | 479.23  | 533.26  | 586.88   | 639.26   | 703.58   | 752.18    | WRFG-CGCM3 (future)          |
| 12                              | 53.85             | 253.91                                                                          | 328.18 | 377.31  | 439.39  | 485.44  | 531.15   | 576.7    | 636.79   | 682.2     | WRFG-CCSM (future)           |
| 13                              | 50.00             | 232.86                                                                          | 322.89 | 368.55  | 426.26  | 469.06  | 511.55   | 553.89   | 610.22   | 658.12    | MM5I-CCSM (historical)       |
| 14                              | 46.15             | 231.59                                                                          | 296.19 | 339.12  | 402.01  | 450.58  | 498.8    | 546.84   | 609.74   | 651.95    | MM5I-HadCM3 (historical)     |
| 15                              | 42.31             | 224.43                                                                          | 291.9  | 338.12  | 398.78  | 443.04  | 486.97   | 530.75   | 588.5    | 632.14    | WRFG-CCSM (historical)       |
| 16                              | 38.46             | 223.56                                                                          | 284.91 | 336.53  | 391.1   | 430.4   | 469.41   | 508.28   | 559.56   | 598.31    | ECP2-GFDL (future)           |
| 17                              | 34.62             | 220.59                                                                          | 284.71 | 328     | 382.45  | 422.85  | 462.94   | 502.89   | 555.59   | 595.43    | MM5I-CCSM (future)           |
| 18                              | 30.77             | 219.82                                                                          | 279.43 | 316.42  | 363.16  | 397.83  | 432.24   | 466.54   | 511.78   | 545.97    | ECP2-HadCM3 (historical)     |
| 19                              | 26.92             | 206.43                                                                          | 270.66 | 301.26  | 343.59  | 378.54  | 413.23   | 447.8    | 493.41   | 527.87    | ECP2-GFDL (historical)       |
| 20                              | 23.08             | 202.86                                                                          | 259.18 | 296.47  | 339.94  | 368.63  | 397.1    | 425.48   | 462.91   | 491.2     | ECP2-HadCM3 (future)         |
| 21                              | 19.23             | 133.19                                                                          | 179.43 | 210.05  | 248.74  | 277.44  | 305.93   | 335.29   | 383.38   | 419.72    | Observed                     |
| 22                              | 15.38             | 99.8                                                                            | 136.4  | 175.72  | 225.4   | 262.26  | 298.84   | 334.31   | 371.76   | 400.06    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 94.56                                                                           | 135.37 | 158.92  | 188.68  | 210.75  | 232.66   | 254.5    | 283.3    | 305.07    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 79.05                                                                           | 123.78 | 143.13  | 167.58  | 185.72  | 203.72   | 221.66   | 245.32   | 263.21    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 77.01                                                                           | 109.81 | 130.17  | 155.9   | 174.98  | 193.93   | 212.8    | 237.71   | 256.53    | CRCM-CCSM (historical)       |
| Gauge: 440561; Duration: 15 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 237.23                                                                          | 366.73 | 473.2   | 607.74  | 707.54  | 806.61   | 905.32   | 1035.55  | 1133.97   | RCM3-CGCM3 (future)          |
| 2                               | 92.31             | 231.19                                                                          | 333.14 | 427.57  | 546.9   | 635.41  | 723.28   | 810.82   | 926.32   | 1013.61   | RCM3-GFDL (future)           |
| 3                               | 88.46             | 223.59                                                                          | 331.98 | 401.42  | 490.92  | 569.58  | 650.65   | 731.43   | 838      | 918.54    | RCM3-GFDL (historical)       |
| 4                               | 84.62             | 214.42                                                                          | 330.58 | 394.71  | 487.91  | 557.32  | 623.23   | 688.9    | 775.54   | 841.02    | HRM3-HadCM3 (historical)     |
| 5                               | 80.77             | 205.9                                                                           | 314.4  | 377.81  | 473.97  | 532.76  | 591.13   | 649.28   | 726      | 783.98    | HRM3-HadCM3 (future)         |
| 6                               | 76.92             | 201.44                                                                          | 290.68 | 369.49  | 439.1   | 490.74  | 542.01   | 593.08   | 660.46   | 711.38    | HRM3-GFDL (future)           |
| 7                               | 73.08             | 190.86                                                                          | 273.45 | 328.14  | 397.23  | 448.49  | 499.37   | 550.06   | 616.94   | 667.49    | HRM3-GFDL (historical)       |
| 8                               | 69.23             | 190.5                                                                           | 272.98 | 311.76  | 361.17  | 407.2   | 452.88   | 498.4    | 558.46   | 603.84    | RCM3-CGCM3 (historical)      |
| 9                               | 65.38             | 179.6                                                                           | 255.24 | 299.13  | 360.75  | 397.09  | 433.17   | 469.12   | 516.54   | 552.38    | MM5I-HadCM3 (future)         |
| 10                              | 61.54             | 175.87                                                                          | 250.03 | 290.85  | 335.85  | 369.24  | 402.37   | 436.46   | 484.28   | 520.43    | WRF3-CGCM3 (historical)      |
| 11                              | 57.69             | 174.38                                                                          | 238.66 | 277.77  | 327.17  | 363.83  | 400.21   | 435.39   | 478.95   | 511.87    | WRF3-CGCM3 (future)          |
| 12                              | 53.85             | 174.35                                                                          | 224.71 | 258.03  | 300.13  | 331.36  | 362.37   | 393.26   | 434.01   | 464.81    | WRF3-CCSM (future)           |
| 13                              | 50.00             | 160.05                                                                          | 221.11 | 252.07  | 291.18  | 320.2   | 349      | 377.7    | 416.25   | 448.79    | MM5I-CCSM (historical)       |
| 14                              | 46.15             | 159.07                                                                          | 203.06 | 232.21  | 274.85  | 307.84  | 340.58   | 373.21   | 415.57   | 444.18    | MM5I-HadCM3 (historical)     |
| 15                              | 42.31             | 154.34                                                                          | 200.13 | 231.54  | 272.75  | 302.82  | 332.67   | 362.41   | 401.64   | 431.3     | WRF3-CCSM (historical)       |
| 16                              | 38.46             | 153.74                                                                          | 195.42 | 230.38  | 267.52  | 294.21  | 320.7    | 347.1    | 381.93   | 408.26    | ECP2-GFDL (future)           |
| 17                              | 34.62             | 151.68                                                                          | 195.19 | 224.73  | 261.76  | 289.23  | 316.5    | 343.67   | 379.51   | 406.6     | MM5I-CCSM (future)           |
| 18                              | 30.77             | 151.15                                                                          | 191.66 | 216.77  | 248.49  | 272.03  | 295.39   | 318.66   | 349.37   | 372.58    | ECP2-HadCM3 (historical)     |
| 19                              | 26.92             | 142.03                                                                          | 185.77 | 206.59  | 235.37  | 259.15  | 282.76   | 306.28   | 337.31   | 360.76    | ECP2-GFDL (historical)       |
| 20                              | 23.08             | 139.63                                                                          | 177.95 | 203.32  | 232.88  | 252.39  | 271.75   | 291.05   | 316.5    | 335.74    | ECP2-HadCM3 (future)         |
| 21                              | 19.23             | 92.09                                                                           | 123.68 | 144.6   | 171.03  | 190.64  | 210.1    | 229.49   | 255.07   | 274.41    | CRCM-CGCM3 (future)          |
| 22                              | 15.38             | 69.23                                                                           | 93.6   | 109.73  | 130.11  | 145.23  | 160.24   | 175.19   | 194.92   | 209.83    | CRCM-CGCM3 (historical)      |
| 23                              | 11.54             | 65.65                                                                           | 85.69  | 98.96   | 115.98  | 132.85  | 149.6    | 166.28   | 188.29   | 204.93    | Observed                     |
| 24                              | 7.69              | 54.97                                                                           | 76.11  | 93.24   | 115.73  | 128.16  | 140.51   | 152.81   | 169.04   | 181.31    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 48.06                                                                           | 75.24  | 90.11   | 107.79  | 120.91  | 133.93   | 146.91   | 164.02   | 176.96    | CRCM-CCSM (historical)       |
| Gauge: 440561; Duration: 30 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 174.73                                                                          | 266.5  | 342.45  | 438.43  | 509.63  | 580.3    | 650.72   | 743.62   | 813.83    | RCM3-CGCM3 (future)          |
| 2                               | 92.31             | 170.36                                                                          | 242.59 | 309.88  | 394.98  | 458.11  | 520.78   | 583.22   | 665.59   | 727.85    | RCM3-GFDL (future)           |
| 3                               | 88.46             | 164.8                                                                           | 242.53 | 292.24  | 356.38  | 410.56  | 468.3    | 525.84   | 601.76   | 659.13    | RCM3-GFDL (historical)       |
| 4                               | 84.62             | 158.35                                                                          | 241.47 | 287.52  | 352.38  | 403.96  | 451.19   | 498.25   | 560.34   | 607.26    | HRM3-HadCM3 (historical)     |
| 5                               | 80.77             | 151.77                                                                          | 230.2  | 273.95  | 344.29  | 386.41  | 428.21   | 469.86   | 524.81   | 566.34    | HRM3-HadCM3 (future)         |
| 6                               | 76.92             | 149.02                                                                          | 211.88 | 269.83  | 319.89  | 357.03  | 393.9    | 430.63   | 479.09   | 515.72    | HRM3-GFDL (future)           |
| 7                               | 73.08             | 141.23                                                                          | 200.67 | 240.03  | 289.75  | 326.64  | 363.26   | 399.74   | 447.87   | 484.25    | HRM3-GFDL (historical)       |
| 8                               | 69.23             | 140.81                                                                          | 200.62 | 228.61  | 264.09  | 297.3   | 330.26   | 363.1    | 406.43   | 439.18    | RCM3-CGCM3 (historical)      |
| 9                               | 65.38             | 133.12                                                                          | 187.84 | 219.32  | 263.97  | 290.2   | 316.24   | 342.18   | 376.41   | 402.28    | MM5I-HadCM3 (future)         |
| 10                              | 61.54             | 130.39                                                                          | 183.9  | 213.54  | 246.02  | 270.11  | 294.03   | 319.18   | 353.82   | 380       | WRF3-CGCM3 (historical)      |
| 11                              | 57.69             | 129.41                                                                          | 175.9  | 204.23  | 240.02  | 266.57  | 292.92   | 317.85   | 349.29   | 373.05    | WRF3-CGCM3 (future)          |
| 12                              | 53.85             | 129.4                                                                           | 165.82 | 189.93  | 220.4   | 243     | 265.43   | 287.79   | 317.28   | 339.57    | WRF3-CCSM (future)           |
| 13                              | 50.00             | 119                                                                             | 163.22 | 185.6   | 213.89  | 234.87  | 255.7    | 276.45   | 304.88   | 328.5     | MM5I-CCSM (historical)       |
| 14                              | 46.15             | 118.14                                                                          | 150.21 | 171.37  | 202.25  | 226.19  | 249.96   | 273.64   | 303.83   | 324.53    | MM5I-HadCM3 (historical)     |
| 15                              | 42.31             | 114.89                                                                          | 148.07 | 170.88  | 200.81  | 222.65  | 244.32   | 265.92   | 294.42   | 315.96    | WRF3-CCSM (historical)       |
| 16                              | 38.46             | 114.45                                                                          | 144.73 | 169.97  | 196.99  | 216.36  | 235.59   | 254.75   | 280.02   | 299.12    | ECP2-GFDL (future)           |
| 17                              | 34.62             | 112.88                                                                          | 144.42 | 166.07  | 193.03  | 213.03  | 232.89   | 252.67   | 278.77   | 298.49    | MM5I-CCSM (future)           |
| 18                              | 30.77             | 112.5                                                                           | 141.94 | 160.15  | 183.15  | 200.21  | 217.14   | 234.02   | 256.28   | 273.11    | ECP2-HadCM3 (historical)     |
| 19                              | 26.92             | 105.84                                                                          | 137.76 | 152.9   | 173.9   | 191.22  | 208.42   | 225.55   | 248.16   | 265.25    | ECP2-GFDL (historical)       |
| 20                              | 23.08             | 104.14                                                                          | 132.06 | 150.54  | 172.04  | 186.23  | 200.32   | 214.36   | 232.88   | 246.87    | ECP2-HadCM3 (future)         |
| 21                              | 19.23             | 69.31                                                                           | 92.51  | 107.88  | 127.29  | 141.69  | 155.99   | 170.23   | 189.03   | 203.23    | CRCM-CGCM3 (future)          |
| 22                              | 15.38             | 52.45                                                                           | 70.44  | 82.35   | 97.4    | 108.57  | 119.65   | 130.7    | 145.27   | 156.28    | CRCM-CGCM3 (historical)      |
| 23                              | 11.54             | 49.8                                                                            | 64.64  | 74.46   | 86.88   | 96.09   | 105.23   | 114.33   | 127.8    | 138.5     | Observed                     |
| 24                              | 7.69              | 41.84                                                                           | 57.55  | 67.96   | 81.33   | 92.17   | 102.93   | 113.66   | 126.35   | 135.43    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 37.67                                                                           | 55.14  | 66.71   | 81.1    | 90.85   | 100.53   | 110.18   | 122.9    | 132.51    | CRCM-CCSM (historical)       |
| Gauge: 440561; Duration: 45 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 156.68                                                                          | 245.52 | 318.09  | 409.8   | 477.82  | 545.35   | 612.63   | 701.39   | 768.48    | RCM3-CGCM3 (future)          |
| 2                             | 92.31             | 152.61                                                                          | 222.63 | 287.01  | 368.35  | 428.7   | 488.6    | 548.28   | 627.01   | 686.52    | RCM3-GFDL (future)           |
| 3                             | 88.46             | 147.56                                                                          | 220.99 | 268.21  | 328.94  | 384.42  | 439.76   | 494.9    | 567.65   | 622.63    | RCM3-GFDL (historical)       |
| 4                             | 84.62             | 141.22                                                                          | 220.15 | 263.57  | 328.66  | 373.98  | 418.7    | 463.25   | 522.03   | 566.46    | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 135.9                                                                           | 208.86 | 253.51  | 317.36  | 357.27  | 396.89   | 436.36   | 488.44   | 527.79    | HRM3-HadCM3 (future)         |
| 6                             | 76.92             | 132.47                                                                          | 194.02 | 246.1   | 293.15  | 328.06  | 362.71   | 397.24   | 442.79   | 477.21    | HRM3-GFDL (future)           |
| 7                             | 73.08             | 125.47                                                                          | 181.27 | 218.21  | 264.89  | 299.52  | 333.89   | 368.14   | 413.32   | 447.47    | HRM3-GFDL (historical)       |
| 8                             | 69.23             | 125.39                                                                          | 180.66 | 206.77  | 240.26  | 271.28  | 302.06   | 332.74   | 373.2    | 403.79    | RCM3-CGCM3 (historical)      |
| 9                             | 65.38             | 117.86                                                                          | 168.7  | 198.46  | 239.77  | 264.25  | 288.54   | 312.75   | 344.69   | 368.83    | MM5I-HadCM3 (future)         |
| 10                            | 61.54             | 115.39                                                                          | 165.37 | 192.69  | 223     | 245.49  | 267.81   | 290.28   | 322.38   | 346.64    | WRFG-CGCM3 (historical)      |
| 11                            | 57.69             | 114.3                                                                           | 157.51 | 183.75  | 216.92  | 241.52  | 265.94   | 290.04   | 319.38   | 341.56    | WRFG-CGCM3 (future)          |
| 12                            | 53.85             | 114.27                                                                          | 148.11 | 170.49  | 198.78  | 219.76  | 240.59   | 261.34   | 288.72   | 309.42    | WRFG-CCSM (future)           |
| 13                            | 50.00             | 104.7                                                                           | 145.71 | 166.53  | 192.83  | 212.35  | 231.72   | 251.01   | 276.48   | 298.18    | MM5I-CCSM (historical)       |
| 14                            | 46.15             | 104.18                                                                          | 133.51 | 153.04  | 181.68  | 203.78  | 225.71   | 247.56   | 276.39   | 295.72    | MM5I-HadCM3 (historical)     |
| 15                            | 42.31             | 100.85                                                                          | 131.57 | 152.58  | 180.17  | 200.3   | 220.28   | 240.18   | 266.45   | 286.3     | WRFG-CCSM (historical)       |
| 16                            | 38.46             | 100.45                                                                          | 128.35 | 151.89  | 176.68  | 194.56  | 212.31   | 229.99   | 253.32   | 270.95    | ECP2-GFDL (future)           |
| 17                            | 34.62             | 99.13                                                                           | 128.32 | 147.93  | 172.67  | 191.02  | 209.24   | 227.38   | 251.33   | 269.42    | MM5I-CCSM (future)           |
| 18                            | 30.77             | 98.78                                                                           | 125.89 | 142.73  | 164     | 179.79  | 195.46   | 211.07   | 231.66   | 247.23    | ECP2-HadCM3 (historical)     |
| 19                            | 26.92             | 92.71                                                                           | 121.85 | 135.76  | 154.97  | 170.84  | 186.6    | 202.29   | 223      | 238.66    | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 91.07                                                                           | 116.64 | 133.58  | 153.33  | 166.37  | 179.31   | 192.2    | 209.21   | 222.07    | ECP2-HadCM3 (future)         |
| 21                            | 19.23             | 59.52                                                                           | 80.43  | 94.28   | 111.77  | 124.74  | 137.63   | 150.46   | 167.39   | 180.19    | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 44.46                                                                           | 60.5   | 71.12   | 84.54   | 94.49   | 104.37   | 114.22   | 127.2    | 137.02    | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 42.09                                                                           | 55.26  | 63.98   | 74.99   | 83.17   | 91.28    | 99.36    | 110.02   | 118.08    | CRCM-CCSM (future)           |
| 24                            | 7.69              | 35.13                                                                           | 48.95  | 58.1    | 69.67   | 78.24   | 86.76    | 95.24    | 106.43   | 114.89    | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 30.94                                                                           | 44.59  | 53.62   | 65.04   | 73.51   | 81.91    | 90.29    | 101.33   | 109.69    | Observed                     |
| Gauge: 440561; Duration: 1 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 114.93                                                                          | 190.42 | 250.58  | 326.58  | 382.97  | 438.94   | 494.7    | 568.27   | 623.88    | RCM3-CGCM3 (future)          |
| 2                             | 92.31             | 111.72                                                                          | 171.48 | 224.88  | 292.36  | 342.41  | 392.1    | 441.61   | 506.92   | 556.28    | RCM3-GFDL (future)           |
| 3                             | 88.46             | 107.96                                                                          | 167.36 | 206.1   | 261.36  | 307.9   | 354.09   | 400.12   | 460.85   | 506.74    | RCM3-GFDL (historical)       |
| 4                             | 84.62             | 102.43                                                                          | 167.01 | 202.07  | 255.5   | 292.15  | 328.53   | 364.77   | 412.59   | 448.73    | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 99.57                                                                           | 156.79 | 198.62  | 245.93  | 278.47  | 310.77   | 342.95   | 385.41   | 417.5     | HRM3-HadCM3 (future)         |
| 6                             | 76.92             | 95.47                                                                           | 148.97 | 186.64  | 224.34  | 252.31  | 280.07   | 307.74   | 344.23   | 371.81    | HRM3-GFDL (future)           |
| 7                             | 73.08             | 90.82                                                                           | 134.98 | 164.54  | 201.88  | 229.58  | 257.08   | 284.47   | 320.62   | 347.94    | HRM3-GFDL (historical)       |
| 8                             | 69.23             | 90.34                                                                           | 133.58 | 154.21  | 181.24  | 205.78  | 230.13   | 254.39   | 286.4    | 310.59    | RCM3-CGCM3 (historical)      |
| 9                             | 65.38             | 84.28                                                                           | 124.09 | 148.18  | 180.27  | 199.6   | 218.79   | 237.91   | 263.13   | 282.2     | MM5I-HadCM3 (future)         |
| 10                            | 61.54             | 82.47                                                                           | 122    | 143.05  | 166.99  | 184.76  | 202.39   | 219.96   | 243.57   | 262.47    | WRF3-CGCM3 (historical)      |
| 11                            | 57.69             | 81.34                                                                           | 115.16 | 135.6   | 161.43  | 180.6   | 199.62   | 218.57   | 243.14   | 260.65    | WRF3-CGCM3 (future)          |
| 12                            | 53.85             | 81.24                                                                           | 107.76 | 125.26  | 147.36  | 163.76  | 180.04   | 196.26   | 217.65   | 233.82    | WRF3-CCSM (future)           |
| 13                            | 50.00             | 73.97                                                                           | 105.89 | 122.21  | 142.82  | 158.12  | 173.3    | 188.43   | 208.39   | 223.76    | MM5I-CCSM (historical)       |
| 14                            | 46.15             | 73.9                                                                            | 96.16  | 111.3   | 133.69  | 150.77  | 167.73   | 184.63   | 206.92   | 223.47    | MM5I-HadCM3 (historical)     |
| 15                            | 42.31             | 70.85                                                                           | 94.74  | 110.9   | 132.21  | 147.73  | 163.13   | 178.47   | 198.72   | 214.02    | WRF3-CCSM (historical)       |
| 16                            | 38.46             | 70.56                                                                           | 92.43  | 110.66  | 129.53  | 143.34  | 157.05   | 170.72   | 188.74   | 202.37    | ECP2-GFDL (future)           |
| 17                            | 34.62             | 69.74                                                                           | 92.05  | 107     | 125.89  | 139.9   | 153.81   | 167.67   | 185.96   | 199.77    | MM5I-CCSM (future)           |
| 18                            | 30.77             | 69.47                                                                           | 90.3   | 103.38  | 119.89  | 132.14  | 144.3    | 156.42   | 172.41   | 184.49    | ECP2-HadCM3 (historical)     |
| 19                            | 26.92             | 64.9                                                                            | 86.92  | 97.56   | 112.17  | 124.25  | 136.24   | 148.19   | 163.96   | 175.87    | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 63.52                                                                           | 82.99  | 95.88   | 111     | 120.97  | 130.87   | 140.73   | 153.74   | 163.57    | ECP2-HadCM3 (future)         |
| 21                            | 19.23             | 40.06                                                                           | 55.47  | 65.67   | 78.57   | 88.13   | 97.62    | 107.08   | 119.56   | 129       | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 29.14                                                                           | 40.71  | 48.37   | 58.04   | 65.22   | 72.35    | 79.45    | 88.82    | 95.9      | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 27.42                                                                           | 36.83  | 43.05   | 50.92   | 56.75   | 62.54    | 68.32    | 75.93    | 81.68     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 22.6                                                                            | 32.31  | 38.74   | 46.86   | 52.89   | 58.87    | 64.83    | 72.7     | 78.64     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 18.43                                                                           | 28.62  | 35.36   | 43.89   | 50.21   | 56.49    | 62.74    | 70.99    | 77.23     | Observed                     |
| Gauge: 440561; Duration: 2 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 93.37                                                                           | 156.92 | 207.26  | 270.86  | 318.04  | 364.87   | 411.54   | 473.1    | 519.63    | RCM3-CGCM3 (future)          |
| 2                             | 92.31             | 90.71                                                                           | 141.09 | 185.79  | 242.27  | 284.17  | 325.77   | 367.21   | 421.88   | 463.2     | RCM3-GFDL (future)           |
| 3                             | 88.46             | 87.66                                                                           | 137.06 | 169.4   | 216.72  | 255.75  | 294.48   | 333.07   | 383.99   | 422.47    | RCM3-GFDL (historical)       |
| 4                             | 84.62             | 82.97                                                                           | 136.84 | 165.99  | 210.54  | 241.06  | 271.36   | 301.54   | 341.37   | 371.47    | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 80.89                                                                           | 128.11 | 164.12  | 202.54  | 229.66  | 256.57   | 283.39   | 318.77   | 345.51    | HRM3-HadCM3 (future)         |
| 6                             | 76.92             | 77.21                                                                           | 122.49 | 152.87  | 184.16  | 207.37  | 230.41   | 253.36   | 283.65   | 306.53    | HRM3-GFDL (future)           |
| 7                             | 73.08             | 73.57                                                                           | 110.09 | 134.6   | 165.58  | 188.56  | 211.37   | 234.1    | 264.08   | 286.74    | HRM3-GFDL (historical)       |
| 8                             | 69.23             | 73.06                                                                           | 108.73 | 125.78  | 148.25  | 168.54  | 188.68   | 208.74   | 235.21   | 255.22    | RCM3-CGCM3 (historical)      |
| 9                             | 65.38             | 68.03                                                                           | 100.88 | 120.91  | 147.32  | 163.3   | 179.16   | 194.97   | 215.82   | 231.58    | MM5I-HadCM3 (future)         |
| 10                            | 61.54             | 66.58                                                                           | 99.26  | 116.55  | 136.35  | 151.03  | 165.61   | 180.14   | 199.3    | 214.86    | WRFG-CGCM3 (historical)      |
| 11                            | 57.69             | 65.57                                                                           | 93.47  | 110.32  | 131.6   | 147.39  | 163.07   | 178.68   | 199.28   | 213.79    | WRFG-CGCM3 (future)          |
| 12                            | 53.85             | 65.48                                                                           | 87.36  | 101.78  | 120     | 133.52  | 146.94   | 160.31   | 177.95   | 191.28    | WRFG-CCSM (future)           |
| 13                            | 50.00             | 59.62                                                                           | 85.82  | 99.29   | 116.31  | 128.94  | 141.47   | 153.95   | 170.43   | 182.88    | MM5I-HadCM3 (historical)     |
| 14                            | 46.15             | 59.46                                                                           | 77.75  | 90.2    | 108.66  | 122.71  | 136.65   | 150.54   | 168.87   | 182.72    | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 56.94                                                                           | 76.6   | 89.87   | 107.38  | 120.13  | 132.78   | 145.38   | 162.01   | 174.58    | WRFG-CCSM (historical)       |
| 16                            | 38.46             | 56.7                                                                            | 74.75  | 89.73   | 105.17  | 116.52  | 127.79   | 139.02   | 153.83   | 165.03    | ECP2-GFDL (future)           |
| 17                            | 34.62             | 56.06                                                                           | 74.35  | 86.61   | 102.1   | 113.59  | 124.99   | 136.36   | 151.35   | 162.68    | MM5I-CCSM (future)           |
| 18                            | 30.77             | 55.84                                                                           | 72.95  | 83.71   | 97.31   | 107.39  | 117.4    | 127.38   | 140.54   | 150.49    | ECP2-HadCM3 (historical)     |
| 19                            | 26.92             | 52.11                                                                           | 70.12  | 78.84   | 90.79   | 100.69  | 110.51   | 120.29   | 133.2    | 142.96    | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 50.96                                                                           | 66.9   | 77.46   | 89.86   | 98.04   | 106.16   | 114.25   | 124.92   | 132.98    | ECP2-HadCM3 (future)         |
| 21                            | 19.23             | 31.84                                                                           | 44.37  | 52.66   | 63.13   | 70.9    | 78.62    | 86.3     | 96.44    | 104.11    | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 23.02                                                                           | 32.37  | 38.56   | 46.38   | 52.19   | 57.95    | 63.69    | 71.26    | 76.98     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 21.63                                                                           | 29.21  | 34.23   | 40.58   | 45.28   | 49.95    | 54.61    | 60.75    | 65.39     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 17.76                                                                           | 25.56  | 30.73   | 37.26   | 42.1    | 46.91    | 51.7     | 58.02    | 62.79     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 13.89                                                                           | 20.43  | 24.76   | 30.23   | 34.29   | 38.32    | 42.34    | 47.63    | 51.63     | Observed                     |
| Gauge: 440561; Duration: 3 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 73.74                                                                           | 121.32 | 159.35  | 207.39  | 243.04  | 278.42   | 313.67   | 360.17   | 395.32    | RCM3-CGCM3 (future)          |
| 2                             | 92.31             | 71.7                                                                            | 109.35 | 143.1   | 185.75  | 217.39  | 248.8    | 280.09   | 321.37   | 352.57    | RCM3-GFDL (future)           |
| 3                             | 88.46             | 69.29                                                                           | 106.95 | 131.48  | 165.98  | 195.37  | 224.55   | 253.62   | 291.96   | 320.95    | RCM3-GFDL (historical)       |
| 4                             | 84.62             | 65.82                                                                           | 106.7  | 128.94  | 162.78  | 186     | 209.05   | 232.01   | 262.31   | 285.21    | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 63.89                                                                           | 100.32 | 126.36  | 156.72  | 177.33  | 197.79   | 218.17   | 245.06   | 265.39    | HRM3-HadCM3 (future)         |
| 6                             | 76.92             | 61.39                                                                           | 95.01  | 119.26  | 143.2   | 160.96  | 178.59   | 196.15   | 219.32   | 236.83    | HRM3-GFDL (future)           |
| 7                             | 73.08             | 58.37                                                                           | 86.44  | 105.21  | 128.92  | 146.51  | 163.97   | 181.36   | 204.31   | 221.65    | HRM3-GFDL (historical)       |
| 8                             | 69.23             | 58.1                                                                            | 85.63  | 98.75   | 115.89  | 131.49  | 146.97   | 162.39   | 182.75   | 198.13    | RCM3-CGCM3 (historical)      |
| 9                             | 65.38             | 54.24                                                                           | 79.59  | 94.86   | 115.32  | 127.62  | 139.83   | 151.99   | 168.03   | 180.16    | MM5I-HadCM3 (future)         |
| 10                            | 61.54             | 53.09                                                                           | 78.22  | 91.64   | 106.87  | 118.17  | 129.39   | 140.56   | 155.73   | 167.77    | WRFG-CGCM3 (historical)      |
| 11                            | 57.69             | 52.38                                                                           | 73.92  | 86.94   | 103.4   | 115.61  | 127.72   | 139.8    | 155.3    | 166.44    | WRFG-CGCM3 (future)          |
| 12                            | 53.85             | 52.33                                                                           | 69.21  | 80.35   | 94.43   | 104.87  | 115.23   | 125.56   | 139.19   | 149.48    | WRFG-CCSM (future)           |
| 13                            | 50.00             | 47.65                                                                           | 68.03  | 78.42   | 91.55   | 101.29  | 110.96   | 120.59   | 133.3    | 143.17    | MM5I-CCSM (historical)       |
| 14                            | 46.15             | 47.65                                                                           | 61.85  | 71.5    | 85.74   | 96.63   | 107.45   | 118.22   | 132.43   | 142.91    | MM5I-HadCM3 (historical)     |
| 15                            | 42.31             | 45.71                                                                           | 60.94  | 71.24   | 84.84   | 94.74   | 104.57   | 114.36   | 127.28   | 137.04    | WRFG-CCSM (historical)       |
| 16                            | 38.46             | 45.52                                                                           | 59.44  | 71.06   | 83.11   | 91.92   | 100.67   | 109.38   | 120.87   | 129.56    | ECP2-GFDL (future)           |
| 17                            | 34.62             | 44.99                                                                           | 59.23  | 68.78   | 80.85   | 89.8    | 98.68    | 107.53   | 119.21   | 128.04    | MM5I-CCSM (future)           |
| 18                            | 30.77             | 44.81                                                                           | 58.11  | 66.44   | 76.97   | 84.77   | 92.53    | 100.25   | 110.44   | 118.14    | ECP2-HadCM3 (historical)     |
| 19                            | 26.92             | 41.89                                                                           | 55.97  | 62.77   | 72.09   | 79.8    | 87.46    | 95.1     | 105.16   | 112.77    | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 41.02                                                                           | 53.45  | 61.69   | 71.35   | 77.72   | 84.04    | 90.33    | 98.64    | 104.92    | ECP2-HadCM3 (future)         |
| 21                            | 19.23             | 25.97                                                                           | 35.86  | 42.41   | 50.68   | 56.82   | 62.91    | 68.98    | 76.99    | 83.04     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 18.97                                                                           | 26.41  | 31.33   | 37.56   | 42.18   | 46.76    | 51.33    | 57.35    | 61.91     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 17.87                                                                           | 23.92  | 27.93   | 32.99   | 36.75   | 40.48    | 44.19    | 49.09    | 52.8      | CRCM-CCSM (future)           |
| 24                            | 7.69              | 14.74                                                                           | 21     | 25.15   | 30.39   | 34.28   | 38.14    | 41.99    | 47.06    | 50.89     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 11.37                                                                           | 16.43  | 19.77   | 24      | 27.14   | 30.25    | 33.35    | 37.45    | 40.54     | Observed                     |
| Gauge: 440561; Duration: 4 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 81.04                                                                           | 136.27 | 180.01  | 235.28  | 276.28  | 316.98   | 357.53   | 411.03   | 451.46    | RCM3-CGCM3 (future)          |
| 2                             | 92.31             | 78.74                                                                           | 122.51 | 161.35  | 210.43  | 246.85  | 282.99   | 319      | 366.51   | 402.41    | RCM3-GFDL (future)           |
| 3                             | 88.46             | 76.08                                                                           | 119.01 | 147.11  | 188.23  | 222.14  | 255.8    | 289.34   | 333.59   | 367.03    | RCM3-GFDL (historical)       |
| 4                             | 84.62             | 72.01                                                                           | 118.82 | 144.15  | 182.86  | 209.39  | 235.71   | 261.94   | 296.55   | 322.7     | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 70.2                                                                            | 111.24 | 142.52  | 175.91  | 199.47  | 222.85   | 246.16   | 276.9    | 300.13    | HRM3-HadCM3 (future)         |
| 6                             | 76.92             | 67                                                                              | 106.35 | 132.75  | 159.93  | 180.1   | 200.12   | 220.06   | 246.37   | 266.26    | HRM3-GFDL (future)           |
| 7                             | 73.08             | 63.84                                                                           | 95.57  | 116.87  | 143.79  | 163.76  | 183.58   | 203.33   | 229.38   | 249.07    | HRM3-GFDL (historical)       |
| 8                             | 69.23             | 63.39                                                                           | 94.39  | 109.2   | 128.75  | 146.38  | 163.89   | 181.32   | 204.33   | 221.72    | RCM3-CGCM3 (historical)      |
| 9                             | 65.38             | 59.02                                                                           | 87.56  | 104.98  | 127.92  | 141.81  | 155.59   | 169.33   | 187.45   | 201.14    | MM5I-HadCM3 (future)         |
| 10                            | 61.54             | 57.76                                                                           | 86.17  | 101.18  | 118.38  | 131.14  | 143.81   | 156.43   | 173.09   | 186.62    | WRFG-CGCM3 (historical)      |
| 11                            | 57.69             | 56.89                                                                           | 81.13  | 95.77   | 114.27  | 127.99  | 141.61   | 155.18   | 173.09   | 185.67    | WRFG-CGCM3 (future)          |
| 12                            | 53.85             | 56.81                                                                           | 75.82  | 88.35   | 104.19  | 115.94  | 127.6    | 139.22   | 154.55   | 166.13    | WRFG-CCSM (future)           |
| 13                            | 50.00             | 51.71                                                                           | 74.48  | 86.18   | 100.97  | 111.94  | 122.82   | 133.67   | 147.98   | 158.8     | MM5I-HadCM3 (historical)     |
| 14                            | 46.15             | 51.58                                                                           | 67.47  | 78.29   | 94.35   | 106.56  | 118.67   | 130.75   | 146.68   | 158.72    | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 49.38                                                                           | 66.47  | 78      | 93.23   | 104.31  | 115.3    | 126.26   | 140.71   | 151.64    | WRFG-CCSM (historical)       |
| 16                            | 38.46             | 49.18                                                                           | 64.87  | 77.89   | 91.3    | 101.17  | 110.96   | 120.72   | 133.59   | 143.32    | ECP2-GFDL (future)           |
| 17                            | 34.62             | 48.62                                                                           | 64.51  | 75.16   | 88.62   | 98.6    | 108.51   | 118.38   | 131.4    | 141.25    | MM5I-CCSM (future)           |
| 18                            | 30.77             | 48.43                                                                           | 63.3   | 72.65   | 84.46   | 93.23   | 101.93   | 110.59   | 122.03   | 130.67    | ECP2-HadCM3 (historical)     |
| 19                            | 26.92             | 45.19                                                                           | 60.83  | 68.42   | 78.81   | 87.41   | 95.94    | 104.45   | 115.67   | 124.15    | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 44.18                                                                           | 58.04  | 67.22   | 78      | 85.11   | 92.16    | 99.19    | 108.47   | 115.48    | ECP2-HadCM3 (future)         |
| 21                            | 19.23             | 27.58                                                                           | 38.46  | 45.66   | 54.76   | 61.51   | 68.21    | 74.89    | 83.7     | 90.36     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 19.91                                                                           | 28.03  | 33.41   | 40.2    | 45.24   | 50.25    | 55.23    | 61.81    | 66.78     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 18.71                                                                           | 25.29  | 29.65   | 35.16   | 39.24   | 43.3     | 47.34    | 52.67    | 56.7      | CRCM-CCSM (future)           |
| 24                            | 7.69              | 15.34                                                                           | 22.12  | 26.61   | 32.28   | 36.48   | 40.66    | 44.82    | 50.31    | 54.46     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 8.84                                                                            | 12.38  | 14.72   | 17.68   | 19.87   | 22.05    | 24.22    | 27.08    | 29.24     | Observed                     |
| Gauge: 440561; Duration: 6 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr (x ≤ X)      | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-----------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance  | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%) | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15           | 54.22                                                                           | 91     | 120.14  | 156.95  | 184.25  | 211.36   | 238.36   | 273.99   | 300.92    | RCM3-CGCM3 (future)          |
| 2                              | 92.31           | 52.69                                                                           | 81.85  | 107.72  | 140.41  | 164.66  | 188.74   | 212.72   | 244.37   | 268.28    | RCM3-GFDL (future)           |
| 3                              | 88.46           | 50.92                                                                           | 79.5   | 98.23   | 125.62  | 148.2   | 170.62   | 192.96   | 222.43   | 244.7     | RCM3-GFDL (historical)       |
| 4                              | 84.62           | 48.21                                                                           | 79.39  | 96.24   | 122.04  | 139.71  | 157.24   | 174.72   | 197.76   | 215.19    | HRM3-HadCM3 (historical)     |
| 5                              | 80.77           | 47                                                                              | 74.33  | 95.17   | 117.4   | 133.09  | 148.66   | 164.18   | 184.65   | 200.13    | HRM3-HadCM3 (future)         |
| 6                              | 76.92           | 44.87                                                                           | 71.08  | 88.66   | 106.77  | 120.2   | 133.53   | 146.81   | 164.34   | 177.58    | HRM3-GFDL (future)           |
| 7                              | 73.08           | 42.77                                                                           | 63.9   | 78.09   | 96.01   | 109.31  | 122.52   | 135.67   | 153.02   | 166.14    | HRM3-GFDL (historical)       |
| 8                              | 69.23           | 42.47                                                                           | 63.12  | 72.99   | 85.99   | 97.73   | 109.39   | 121      | 136.32   | 147.9     | RCM3-CGCM3 (historical)      |
| 9                              | 65.38           | 39.56                                                                           | 58.57  | 70.16   | 85.46   | 94.71   | 103.9    | 113.05   | 125.12   | 134.24    | MM5I-HadCM3 (future)         |
| 10                             | 61.54           | 38.71                                                                           | 57.63  | 67.64   | 79.1    | 87.6    | 96.04    | 104.45   | 115.54   | 124.53    | WRFG-CGCM3 (historical)      |
| 11                             | 57.69           | 38.14                                                                           | 54.29  | 64.03   | 76.35   | 85.49   | 94.56    | 103.59   | 115.52   | 123.92    | WRFG-CGCM3 (future)          |
| 12                             | 53.85           | 38.08                                                                           | 50.74  | 59.08   | 69.63   | 77.45   | 85.21    | 92.94    | 103.15   | 110.86    | WRFG-CCSM (future)           |
| 13                             | 50.00           | 34.69                                                                           | 49.85  | 57.65   | 67.49   | 74.8    | 82.05    | 89.28    | 98.81    | 106.01    | MM5I-HadCM3 (historical)     |
| 14                             | 46.15           | 34.6                                                                            | 45.19  | 52.39   | 63.07   | 71.2    | 79.27    | 87.3     | 97.91    | 105.93    | MM5I-CCSM (historical)       |
| 15                             | 42.31           | 33.14                                                                           | 44.52  | 52.2    | 62.33   | 69.71   | 77.03    | 84.32    | 93.95    | 101.22    | WRFG-CCSM (historical)       |
| 16                             | 38.46           | 33                                                                              | 43.44  | 52.11   | 61.06   | 67.63   | 74.15    | 80.65    | 89.22    | 95.7      | ECP2-GFDL (future)           |
| 17                             | 34.62           | 32.63                                                                           | 43.22  | 50.31   | 59.27   | 65.92   | 72.52    | 79.09    | 87.76    | 94.32     | MM5I-CCSM (future)           |
| 18                             | 30.77           | 32.51                                                                           | 42.41  | 48.63   | 56.5    | 62.33   | 68.12    | 73.9     | 81.51    | 87.26     | ECP2-HadCM3 (historical)     |
| 19                             | 26.92           | 30.35                                                                           | 40.77  | 45.82   | 52.73   | 58.45   | 64.14    | 69.8     | 77.27    | 82.92     | ECP2-GFDL (historical)       |
| 20                             | 23.08           | 29.68                                                                           | 38.9   | 45.01   | 52.2    | 56.93   | 61.63    | 66.31    | 72.49    | 77.15     | ECP2-HadCM3 (future)         |
| 21                             | 19.23           | 18.61                                                                           | 25.86  | 30.66   | 36.72   | 41.22   | 45.68    | 50.13    | 56       | 60.43     | CRCM-CGCM3 (future)          |
| 22                             | 15.38           | 13.51                                                                           | 18.92  | 22.5    | 27.03   | 30.39   | 33.72    | 37.04    | 41.42    | 44.73     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54           | 12.71                                                                           | 17.09  | 19.99   | 23.66   | 26.38   | 29.08    | 31.77    | 35.32    | 38        | CRCM-CCSM (future)           |
| 24                             | 7.69            | 10.47                                                                           | 14.99  | 17.98   | 21.75   | 24.56   | 27.34    | 30.11    | 33.77    | 36.53     | CRCM-CCSM (historical)       |
| 25                             | 3.85            | 5.3                                                                             | 7.33   | 8.67    | 10.36   | 11.62   | 12.86    | 14.11    | 15.74    | 16.98     | Observed                     |
| Gauge: 440561; Duration: 12 hr |                 | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 28.38                                                                           | 47.39  | 62.43   | 81.45   | 95.56   | 109.56   | 123.51   | 141.91   | 155.82    | RCM3-CGCM3 (future)          |
| 2                              | 92.31             | 27.59                                                                           | 42.65  | 56.02   | 72.9    | 85.43   | 97.86    | 110.25   | 126.6    | 138.95    | RCM3-GFDL (future)           |
| 3                              | 88.46             | 26.68                                                                           | 41.44  | 51.12   | 65.26   | 76.93   | 88.51    | 100.05   | 115.27   | 126.77    | RCM3-GFDL (historical)       |
| 4                              | 84.62             | 25.28                                                                           | 41.38  | 50.09   | 63.42   | 72.55   | 81.61    | 90.63    | 102.54   | 111.54    | HRM3-HadCM3 (historical)     |
| 5                              | 80.77             | 24.66                                                                           | 38.77  | 49.54   | 61.02   | 69.12   | 77.17    | 85.19    | 95.76    | 103.76    | HRM3-HadCM3 (future)         |
| 6                              | 76.92             | 23.55                                                                           | 37.09  | 46.17   | 55.53   | 62.46   | 69.35    | 76.21    | 85.26    | 92.11     | HRM3-GFDL (future)           |
| 7                              | 73.08             | 22.47                                                                           | 33.38  | 40.7    | 49.96   | 56.83   | 63.64    | 70.43    | 79.39    | 86.16     | HRM3-GFDL (historical)       |
| 8                              | 69.23             | 22.31                                                                           | 32.98  | 38.07   | 44.8    | 50.86   | 56.88    | 62.88    | 70.8     | 76.78     | RCM3-CGCM3 (historical)      |
| 9                              | 65.38             | 20.82                                                                           | 30.63  | 36.62   | 44.51   | 49.29   | 54.03    | 58.76    | 64.99    | 69.7      | MM5I-HadCM3 (future)         |
| 10                             | 61.54             | 20.37                                                                           | 30.15  | 35.32   | 41.24   | 45.63   | 50       | 54.34    | 60.07    | 64.73     | WRFG-CGCM3 (historical)      |
| 11                             | 57.69             | 20.08                                                                           | 28.42  | 33.46   | 39.83   | 44.55   | 49.24    | 53.91    | 60.07    | 64.4      | WRFG-CGCM3 (future)          |
| 12                             | 53.85             | 20.05                                                                           | 26.59  | 30.9    | 36.35   | 40.4    | 44.41    | 48.41    | 53.68    | 57.67     | WRFG-CCSM (future)           |
| 13                             | 50.00             | 18.3                                                                            | 26.13  | 30.16   | 35.24   | 39.02   | 42.76    | 46.49    | 51.42    | 55.14     | MM5I-HadCM3 (historical)     |
| 14                             | 46.15             | 18.25                                                                           | 23.72  | 27.45   | 32.97   | 37.17   | 41.34    | 45.49    | 50.97    | 55.12     | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 17.5                                                                            | 23.38  | 27.35   | 32.59   | 36.4    | 40.18    | 43.95    | 48.92    | 52.68     | WRFG-CCSM (historical)       |
| 16                             | 38.46             | 17.43                                                                           | 22.82  | 27.3    | 31.92   | 35.32   | 38.69    | 42.04    | 46.47    | 49.82     | ECP2-GFDL (future)           |
| 17                             | 34.62             | 17.24                                                                           | 22.7   | 26.37   | 30.99   | 34.43   | 37.84    | 41.23    | 45.71    | 49.1      | MM5I-CCSM (future)           |
| 18                             | 30.77             | 17.17                                                                           | 22.29  | 25.51   | 29.57   | 32.59   | 35.58    | 38.57    | 42.5     | 45.48     | ECP2-HadCM3 (historical)     |
| 19                             | 26.92             | 16.05                                                                           | 21.44  | 24.05   | 27.61   | 30.56   | 33.5     | 36.42    | 40.28    | 43.19     | ECP2-GFDL (historical)       |
| 20                             | 23.08             | 15.7                                                                            | 20.47  | 23.62   | 27.35   | 29.79   | 32.22    | 34.64    | 37.83    | 40.24     | ECP2-HadCM3 (future)         |
| 21                             | 19.23             | 10                                                                              | 13.73  | 16.21   | 19.34   | 21.66   | 23.96    | 26.25    | 29.28    | 31.57     | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 7.36                                                                            | 10.15  | 12      | 14.34   | 16.07   | 17.79    | 19.51    | 21.77    | 23.48     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 6.94                                                                            | 9.2    | 10.7    | 12.59   | 14      | 15.39    | 16.78    | 18.61    | 20        | CRCM-CCSM (future)           |
| 24                             | 7.69              | 5.79                                                                            | 8.12   | 9.66    | 11.62   | 13.06   | 14.5     | 15.93    | 17.82    | 19.25     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 2.88                                                                            | 4.06   | 4.85    | 5.84    | 6.57    | 7.3      | 8.03     | 8.99     | 9.71      | Observed                     |
| Gauge: 440561; Duration: 24 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 14.84                                                                           | 24.66  | 32.44   | 42.27   | 49.57   | 56.81    | 64.02    | 73.54    | 80.73     | RCM3-CGCM3 (future)          |
| 2                              | 92.31             | 14.43                                                                           | 22.22  | 29.13   | 37.86   | 44.34   | 50.76    | 57.17    | 65.62    | 72.01     | RCM3-GFDL (future)           |
| 3                              | 88.46             | 13.96                                                                           | 21.59  | 26.59   | 33.9    | 39.94   | 45.92    | 51.89    | 59.76    | 65.71     | RCM3-GFDL (historical)       |
| 4                              | 84.62             | 13.23                                                                           | 21.56  | 26.06   | 32.95   | 37.66   | 42.35    | 47.01    | 53.16    | 57.82     | HRM3-HadCM3 (historical)     |
| 5                              | 80.77             | 12.91                                                                           | 20.21  | 25.77   | 31.71   | 35.9    | 40.05    | 44.2     | 49.67    | 53.8      | HRM3-HadCM3 (future)         |
| 6                              | 76.92             | 12.34                                                                           | 19.33  | 24.03   | 28.87   | 32.45   | 36.01    | 39.56    | 44.24    | 47.78     | HRM3-GFDL (future)           |
| 7                              | 73.08             | 11.78                                                                           | 17.42  | 21.2    | 25.98   | 29.53   | 33.05    | 36.56    | 41.19    | 44.69     | HRM3-GFDL (historical)       |
| 8                              | 69.23             | 11.7                                                                            | 17.21  | 19.84   | 23.32   | 26.46   | 29.57    | 32.67    | 36.77    | 39.86     | RCM3-CGCM3 (historical)      |
| 9                              | 65.38             | 10.92                                                                           | 16     | 19.09   | 23.17   | 25.64   | 28.09    | 30.53    | 33.75    | 36.18     | MM5I-HadCM3 (future)         |
| 10                             | 61.54             | 10.69                                                                           | 15.75  | 18.42   | 21.48   | 23.75   | 26.01    | 28.25    | 31.21    | 33.61     | WRFG-CGCM3 (historical)      |
| 11                             | 57.69             | 10.54                                                                           | 14.85  | 17.46   | 20.75   | 23.19   | 25.61    | 28.02    | 31.21    | 33.45     | WRFG-CGCM3 (future)          |
| 12                             | 53.85             | 10.53                                                                           | 13.91  | 16.14   | 18.96   | 21.05   | 23.12    | 25.19    | 27.91    | 29.97     | WRFG-CCSM (future)           |
| 13                             | 50.00             | 9.61                                                                            | 13.67  | 15.75   | 18.39   | 20.34   | 22.28    | 24.21    | 26.76    | 28.68     | MM5I-HadCM3 (historical)     |
| 14                             | 46.15             | 9.59                                                                            | 12.42  | 14.34   | 17.2    | 19.38   | 21.53    | 23.68    | 26.51    | 28.65     | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 9.2                                                                             | 12.24  | 14.29   | 17      | 18.97   | 20.92    | 22.87    | 25.44    | 27.38     | WRFG-CCSM (historical)       |
| 16                             | 38.46             | 9.17                                                                            | 11.96  | 14.28   | 16.66   | 18.42   | 20.16    | 21.89    | 24.18    | 25.91     | ECP2-GFDL (future)           |
| 17                             | 34.62             | 9.07                                                                            | 11.9   | 13.8    | 16.19   | 17.97   | 19.73    | 21.49    | 23.81    | 25.56     | MM5I-CCSM (future)           |
| 18                             | 30.77             | 9.04                                                                            | 11.68  | 13.35   | 15.44   | 17      | 18.55    | 20.09    | 22.12    | 23.66     | ECP2-HadCM3 (historical)     |
| 19                             | 26.92             | 8.46                                                                            | 11.23  | 12.58   | 14.44   | 15.97   | 17.49    | 19       | 21       | 22.51     | ECP2-GFDL (historical)       |
| 20                             | 23.08             | 8.28                                                                            | 10.75  | 12.38   | 14.28   | 15.54   | 16.79    | 18.04    | 19.69    | 20.93     | ECP2-HadCM3 (future)         |
| 21                             | 19.23             | 5.33                                                                            | 7.27   | 8.55    | 10.17   | 11.37   | 12.56    | 13.75    | 15.31    | 16.5      | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 3.96                                                                            | 5.41   | 6.37    | 7.58    | 8.48    | 9.37     | 10.26    | 11.44    | 12.32     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 3.75                                                                            | 4.93   | 5.71    | 6.69    | 7.42    | 8.14     | 8.86     | 9.82     | 10.53     | CRCM-CCSM (future)           |
| 24                             | 7.69              | 3.16                                                                            | 4.36   | 5.15    | 6.16    | 6.91    | 7.65     | 8.38     | 9.36     | 10.09     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.88                                                                            | 2.59   | 3.07    | 3.67    | 4.11    | 4.55     | 4.99     | 5.57     | 6.01      | Observed                     |
| Gauge: 440561; Duration: 48 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 9.66                                                                            | 15.98  | 20.99   | 27.32   | 32.01   | 36.67    | 41.31    | 47.44    | 52.07     | RCM3-CGCM3 (future)          |
| 2                              | 92.31             | 9.39                                                                            | 14.41  | 18.86   | 24.47   | 28.64   | 32.78    | 36.9     | 42.34    | 46.45     | RCM3-GFDL (future)           |
| 3                              | 88.46             | 9.09                                                                            | 14.01  | 17.23   | 21.93   | 25.81   | 29.67    | 33.51    | 38.57    | 42.4      | RCM3-GFDL (historical)       |
| 4                              | 84.62             | 8.62                                                                            | 13.99  | 16.89   | 21.32   | 24.36   | 27.38    | 30.38    | 34.35    | 37.34     | HRM3-HadCM3 (historical)     |
| 5                              | 80.77             | 8.41                                                                            | 13.11  | 16.7    | 20.53   | 23.22   | 25.9     | 28.57    | 32.09    | 34.75     | HRM3-HadCM3 (future)         |
| 6                              | 76.92             | 8.05                                                                            | 12.55  | 15.57   | 18.68   | 20.99   | 23.29    | 25.57    | 28.58    | 30.86     | HRM3-GFDL (future)           |
| 7                              | 73.08             | 7.69                                                                            | 11.32  | 13.76   | 16.84   | 19.13   | 21.4     | 23.66    | 26.65    | 28.9      | HRM3-GFDL (historical)       |
| 8                              | 69.23             | 7.64                                                                            | 11.19  | 12.88   | 15.11   | 17.13   | 19.13    | 21.13    | 23.76    | 25.75     | RCM3-CGCM3 (historical)      |
| 9                              | 65.38             | 7.14                                                                            | 10.41  | 12.39   | 15.03   | 16.62   | 18.2     | 19.77    | 21.84    | 23.41     | MM5I-HadCM3 (future)         |
| 10                             | 61.54             | 6.99                                                                            | 10.24  | 11.97   | 13.95   | 15.41   | 16.87    | 18.31    | 20.22    | 21.78     | WRFG-CGCM3 (historical)      |
| 11                             | 57.69             | 6.89                                                                            | 9.67   | 11.35   | 13.48   | 15.05   | 16.61    | 18.17    | 20.22    | 21.67     | WRFG-CGCM3 (future)          |
| 12                             | 53.85             | 6.88                                                                            | 9.05   | 10.49   | 12.3    | 13.64   | 14.98    | 16.3     | 18.06    | 19.38     | WRFG-CCSM (future)           |
| 13                             | 50.00             | 6.3                                                                             | 8.91   | 10.25   | 11.94   | 13.2    | 14.44    | 15.69    | 17.32    | 18.56     | MM5I-CCSM (historical)       |
| 14                             | 46.15             | 6.28                                                                            | 8.1    | 9.33    | 11.18   | 12.58   | 13.97    | 15.35    | 17.18    | 18.56     | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 6.04                                                                            | 7.98   | 9.31    | 11.04   | 12.31   | 13.57    | 14.82    | 16.47    | 17.72     | WRFG-CCSM (historical)       |
| 16                             | 38.46             | 6.01                                                                            | 7.8    | 9.3     | 10.83   | 11.96   | 13.08    | 14.2     | 15.67    | 16.79     | ECP2-GFDL (future)           |
| 17                             | 34.62             | 5.94                                                                            | 7.76   | 8.97    | 10.51   | 11.65   | 12.78    | 13.91    | 15.4     | 16.53     | MM5I-CCSM (future)           |
| 18                             | 30.77             | 5.92                                                                            | 7.63   | 8.7     | 10.05   | 11.05   | 12.05    | 13.04    | 14.35    | 15.34     | ECP2-HadCM3 (historical)     |
| 19                             | 26.92             | 5.55                                                                            | 7.34   | 8.21    | 9.41    | 10.4    | 11.38    | 12.35    | 13.64    | 14.61     | ECP2-GFDL (historical)       |
| 20                             | 23.08             | 5.43                                                                            | 7.03   | 8.08    | 9.3     | 10.12   | 10.92    | 11.73    | 12.78    | 13.58     | ECP2-HadCM3 (future)         |
| 21                             | 19.23             | 3.54                                                                            | 4.78   | 5.61    | 6.65    | 7.43    | 8.19     | 8.96     | 9.97     | 10.73     | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 2.66                                                                            | 3.59   | 4.2     | 4.98    | 5.55    | 6.12     | 6.69     | 7.44     | 8.01      | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 2.52                                                                            | 3.27   | 3.77    | 4.4     | 4.86    | 5.33     | 5.79     | 6.4      | 6.86      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 2.14                                                                            | 2.91   | 3.43    | 4.08    | 4.56    | 5.04     | 5.52     | 6.15     | 6.62      | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.36                                                                            | 1.84   | 2.15    | 2.55    | 2.85    | 3.14     | 3.44     | 3.82     | 4.12      | Observed                     |
| Gauge: 440561; Duration: 72 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 242.72                                                                          | 324.83 | 397.26  | 505.44  | 585.7   | 665.37   | 744.75   | 849.47   | 928.61    | RCM3-GFDL (historical)       |
| 2                               | 92.31             | 238.99                                                                          | 311.63 | 379.19  | 459.67  | 522.32  | 584.5    | 646.45   | 728.19   | 789.96    | RCM3-CGCM3 (future)          |
| 3                               | 88.46             | 227.65                                                                          | 308.4  | 375.23  | 447.88  | 506.98  | 572.19   | 637.15   | 722.86   | 787.64    | RCM3-CGCM3 (historical)      |
| 4                               | 84.62             | 224.8                                                                           | 308.11 | 368.18  | 444.09  | 500.4   | 556.29   | 611.98   | 685.45   | 740.98    | HRM3-HadCM3 (historical)     |
| 5                               | 80.77             | 217.38                                                                          | 307.56 | 352.97  | 441.3   | 498.83  | 549.41   | 599.81   | 666.3    | 716.55    | HRM3-GFDL (future)           |
| 6                               | 76.92             | 207.46                                                                          | 294.11 | 352.75  | 410.34  | 452.9   | 495.14   | 537.23   | 594.98   | 643.28    | RCM3-GFDL (future)           |
| 7                               | 73.08             | 204.24                                                                          | 282.67 | 338.11  | 393.7   | 434.94  | 482.64   | 531.08   | 592.76   | 634.73    | HRM3-HadCM3 (future)         |
| 8                               | 69.23             | 198.94                                                                          | 276.33 | 319.03  | 385.05  | 434.03  | 475.88   | 516.67   | 570.49   | 611.16    | WRFG-CGCM3 (future)          |
| 9                               | 65.38             | 196.93                                                                          | 266.78 | 310.45  | 353.56  | 385.54  | 417.28   | 453.17   | 516.54   | 564.44    | Observed                     |
| 10                              | 61.54             | 192.03                                                                          | 254.51 | 287.8   | 330.52  | 364.92  | 405.13   | 448.91   | 490.64   | 522.17    | MM5I-HadCM3 (future)         |
| 11                              | 57.69             | 189.9                                                                           | 247.46 | 284.16  | 329.86  | 361.06  | 399.07   | 433.09   | 477.97   | 511.89    | MM5I-HadCM3 (historical)     |
| 12                              | 53.85             | 188.79                                                                          | 246.92 | 278.69  | 318.82  | 356.92  | 392.03   | 422.89   | 464.62   | 501.55    | MM5I-CCSM (historical)       |
| 13                              | 50.00             | 187.86                                                                          | 241.37 | 270.79  | 311.19  | 348.6   | 378.71   | 415.75   | 463.6    | 494.37    | WRFG-CCSM (future)           |
| 14                              | 46.15             | 182.31                                                                          | 238.44 | 270.58  | 308.35  | 341.53  | 378.15   | 407.6    | 446.45   | 475.81    | ECP2-HadCM3 (future)         |
| 15                              | 42.31             | 180.07                                                                          | 229.33 | 256.18  | 307.96  | 341.32  | 371.22   | 401.02   | 440.32   | 470.03    | WRFG-CGCM3 (historical)      |
| 16                              | 38.46             | 176.83                                                                          | 222.19 | 255.3   | 304.08  | 335.53  | 362.91   | 390.18   | 430.17   | 460.77    | WRFG-CCSM (historical)       |
| 17                              | 34.62             | 173.53                                                                          | 219.32 | 253.59  | 297.13  | 328.17  | 358.98   | 389.67   | 426.16   | 453.35    | HRM3-GFDL (historical)       |
| 18                              | 30.77             | 172.18                                                                          | 215.14 | 249.64  | 290.09  | 316.38  | 344.59   | 372.69   | 409.78   | 437.8     | ECP2-GFDL (historical)       |
| 19                              | 26.92             | 170                                                                             | 213.85 | 245.03  | 287.95  | 315.26  | 340.23   | 366.32   | 402.87   | 430.5     | MM5I-CCSM (future)           |
| 20                              | 23.08             | 153.28                                                                          | 213.63 | 242.88  | 282.79  | 310.81  | 338.61   | 365.12   | 397.95   | 422.76    | ECP2-GFDL (future)           |
| 21                              | 19.23             | 113.21                                                                          | 191.06 | 236.21  | 264.47  | 285.43  | 306.24   | 326.97   | 354.32   | 374.99    | ECP2-HadCM3 (historical)     |
| 22                              | 15.38             | 112.8                                                                           | 146.09 | 167.85  | 195.35  | 215.76  | 236.01   | 256.18   | 282.8    | 302.92    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 88.73                                                                           | 118.75 | 139.67  | 166.1   | 185.71  | 205.17   | 224.56   | 250.14   | 269.48    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 87.16                                                                           | 118.17 | 137.66  | 162.28  | 180.55  | 198.68   | 216.75   | 240.59   | 258.6     | CRCM-CCSM (future)           |
| 25                              | 3.85              | 73.44                                                                           | 102.72 | 122.11  | 146.61  | 164.79  | 182.83   | 200.81   | 224.52   | 242.45    | CRCM-CCSM (historical)       |
| Gauge: 442044; Duration: 15 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 194.86                                                                          | 276.34 | 366.94  | 481.42  | 566.34  | 650.64   | 734.64   | 845.45   | 929.2     | RCM3-GFDL (historical)       |
| 2                               | 92.31             | 190.74                                                                          | 275.91 | 332.46  | 418.24  | 481.89  | 549.4    | 617.82   | 708.1    | 776.32    | RCM3-CGCM3 (historical)      |
| 3                               | 88.46             | 179.55                                                                          | 264.56 | 329.57  | 411.54  | 480.72  | 545.06   | 608      | 691.04   | 753.8     | RCM3-CGCM3 (future)          |
| 4                               | 84.62             | 176.32                                                                          | 261.14 | 320.69  | 397.37  | 451.76  | 507.17   | 562.37   | 635.21   | 690.25    | HRM3-HadCM3 (historical)     |
| 5                               | 80.77             | 171.19                                                                          | 256.97 | 318.28  | 395.94  | 447.66  | 497.59   | 547.33   | 612.96   | 662.56    | HRM3-GFDL (future)           |
| 6                               | 76.92             | 162.01                                                                          | 244.56 | 300.82  | 356.22  | 397.32  | 438.12   | 484.41   | 548.02   | 596.08    | RCM3-GFDL (future)           |
| 7                               | 73.08             | 157.28                                                                          | 244.47 | 287.6   | 341.98  | 387.82  | 436.2    | 478.77   | 532.39   | 572.92    | HRM3-HadCM3 (future)         |
| 8                               | 69.23             | 152.12                                                                          | 225.73 | 273.36  | 339.07  | 382.32  | 422.37   | 462.27   | 514.91   | 554.69    | WRFG-CGCM3 (future)          |
| 9                               | 65.38             | 150.33                                                                          | 221.36 | 258.44  | 299.77  | 330.44  | 360.87   | 391.2    | 431.21   | 461.45    | MM5I-HadCM3 (future)         |
| 10                              | 61.54             | 146.27                                                                          | 204.25 | 235.35  | 275.98  | 308.19  | 340.17   | 372.03   | 414.07   | 445.84    | MM5I-HadCM3 (historical)     |
| 11                              | 57.69             | 143.94                                                                          | 198.18 | 232.55  | 274.64  | 303.79  | 332.73   | 361.56   | 399.59   | 431.3     | MM5I-CCSM (historical)       |
| 12                              | 53.85             | 142.81                                                                          | 197.41 | 227.39  | 265.27  | 293.37  | 321.27   | 352.66   | 397.45   | 428.34    | WRFG-CCSM (future)           |
| 13                              | 50.00             | 142.7                                                                           | 191.39 | 219.46  | 257.48  | 285.68  | 318.71   | 349.06   | 385.73   | 413.44    | ECP2-HadCM3 (future)         |
| 14                              | 46.15             | 139.49                                                                          | 189.38 | 218.57  | 252.92  | 284.63  | 313.67   | 341.56   | 378.36   | 406.17    | WRFG-CGCM3 (historical)      |
| 15                              | 42.31             | 134.53                                                                          | 180    | 205.1   | 250.31  | 278.4   | 303.69   | 329.6    | 367.12   | 395.47    | WRFG-CCSM (historical)       |
| 16                              | 38.46             | 132.98                                                                          | 174.42 | 204.7   | 243.86  | 272.62  | 301.16   | 328.89   | 362.14   | 387.27    | HRM3-GFDL (historical)       |
| 17                              | 34.62             | 129.14                                                                          | 171.32 | 204.04  | 235.9   | 260.71  | 286.7    | 312.59   | 346.74   | 372.56    | ECP2-GFDL (historical)       |
| 18                              | 30.77             | 128.09                                                                          | 167.68 | 199.25  | 234.54  | 259.05  | 282.03   | 307.64   | 341.48   | 367.05    | MM5I-CCSM (future)           |
| 19                              | 26.92             | 125.88                                                                          | 167.41 | 195.35  | 230.31  | 256.24  | 281.99   | 304.93   | 335.13   | 357.96    | ECP2-GFDL (future)           |
| 20                              | 23.08             | 112.1                                                                           | 165.47 | 185.95  | 211.84  | 231.04  | 250.1    | 269.09   | 294.14   | 313.07    | ECP2-HadCM3 (historical)     |
| 21                              | 19.23             | 77.3                                                                            | 104.8  | 123.01  | 151     | 173.38  | 195.59   | 217.72   | 246.92   | 268.98    | Observed                     |
| 22                              | 15.38             | 60.91                                                                           | 96.97  | 120.84  | 146.02  | 163.08  | 180.03   | 196.9    | 219.17   | 236.01    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 57.82                                                                           | 82.08  | 98.94   | 120.23  | 136.04  | 151.72   | 167.35   | 187.96   | 203.54    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 56.62                                                                           | 81.18  | 96.65   | 116.2   | 130.7   | 145.1    | 159.44   | 178.36   | 192.66    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 46.34                                                                           | 68.65  | 83.42   | 102.08  | 115.92  | 129.66   | 143.35   | 161.41   | 175.06    | CRCM-CCSM (historical)       |
| Gauge: 442044; Duration: 30 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 148                                                                             | 212.75 | 283.86  | 373.7   | 440.36  | 506.52   | 572.44   | 659.4    | 725.13    | RCM3-GFDL (historical)       |
| 2                               | 92.31             | 144.76                                                                          | 211.02 | 255.72  | 322.7   | 373     | 426.88   | 480.56   | 551.39   | 604.92    | RCM3-CGCM3 (historical)      |
| 3                               | 88.46             | 136.06                                                                          | 202.71 | 252.75  | 318.72  | 372.39  | 421.71   | 470.85   | 535.68   | 584.68    | RCM3-CGCM3 (future)          |
| 4                               | 84.62             | 133.5                                                                           | 199.72 | 246.05  | 305.48  | 348.03  | 391.14   | 434.09   | 490.76   | 533.59    | HRM3-HadCM3 (historical)     |
| 5                               | 80.77             | 129.73                                                                          | 196.11 | 245.56  | 304.6   | 344.6   | 383.42   | 422.11   | 473.14   | 511.72    | HRM3-GFDL (future)           |
| 6                               | 76.92             | 122.64                                                                          | 187.65 | 230.11  | 273.07  | 304.94  | 336.58   | 373.73   | 423.26   | 460.69    | RCM3-GFDL (future)           |
| 7                               | 73.08             | 118.82                                                                          | 186.55 | 219.99  | 262.23  | 298.52  | 336.19   | 368.1    | 409.68   | 441.11    | HRM3-HadCM3 (future)         |
| 8                               | 69.23             | 114.82                                                                          | 171.77 | 209.39  | 260.56  | 293.57  | 324.67   | 355.67   | 396.56   | 427.46    | WRFG-CGCM3 (future)          |
| 9                               | 65.38             | 113.44                                                                          | 168.9  | 197.11  | 229.13  | 252.88  | 276.46   | 299.95   | 330.95   | 354.37    | MM5I-HadCM3 (future)         |
| 10                              | 61.54             | 110.36                                                                          | 155.09 | 179.1   | 210.54  | 235.42  | 260.12   | 284.73   | 317.2    | 341.74    | MM5I-HadCM3 (historical)     |
| 11                              | 57.69             | 108.52                                                                          | 150.45 | 177     | 209.44  | 231.95  | 254.29   | 276.55   | 305.92   | 330.07    | MM5I-CCSM (historical)       |
| 12                              | 53.85             | 107.73                                                                          | 149.84 | 173.02  | 202.31  | 224.04  | 245.61   | 269.49   | 303.99   | 328.12    | WRFG-CCSM (future)           |
| 13                              | 50.00             | 107.55                                                                          | 145.09 | 166.85  | 196.2   | 217.98  | 243.33   | 267.1    | 295.45   | 316.88    | ECP2-HadCM3 (future)         |
| 14                              | 46.15             | 105.35                                                                          | 143.61 | 166.05  | 192.53  | 217.08  | 239.6    | 261.14   | 289.56   | 311.03    | WRFG-CGCM3 (historical)      |
| 15                              | 42.31             | 101.24                                                                          | 136.3  | 155.76  | 190.64  | 212.18  | 231.68   | 251.81   | 280.76   | 302.63    | WRFG-CCSM (historical)       |
| 16                              | 38.46             | 100.19                                                                          | 132.09 | 155.33  | 185.67  | 207.85  | 229.87   | 251.11   | 276.74   | 296.11    | HRM3-GFDL (historical)       |
| 17                              | 34.62             | 97.14                                                                           | 129.65 | 154.99  | 179.38  | 198.55  | 218.58   | 238.54   | 264.86   | 284.76    | ECP2-GFDL (historical)       |
| 18                              | 30.77             | 96.35                                                                           | 126.87 | 151.18  | 178.37  | 197.22  | 215.05   | 234.84   | 260.94   | 280.67    | MM5I-CCSM (future)           |
| 19                              | 26.92             | 94.63                                                                           | 126.77 | 148.21  | 175.18  | 195.19  | 214.93   | 232.57   | 255.85   | 273.44    | ECP2-GFDL (future)           |
| 20                              | 23.08             | 84.16                                                                           | 125.07 | 140.84  | 160.77  | 175.56  | 190.24   | 204.86   | 224.15   | 238.73    | ECP2-HadCM3 (historical)     |
| 21                              | 19.23             | 57.53                                                                           | 78.48  | 92.35   | 109.88  | 122.88  | 135.79   | 148.65   | 165.62   | 178.58    | Observed                     |
| 22                              | 15.38             | 42.78                                                                           | 66.01  | 81.63   | 101.37  | 116.02  | 130.55   | 145.03   | 164.14   | 178.44    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 42.42                                                                           | 61.19  | 73.98   | 90.13   | 102.11  | 114.01   | 125.86   | 141.5    | 153.31    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 41.88                                                                           | 60.47  | 72.18   | 86.97   | 97.94   | 108.84   | 119.69   | 134.01   | 144.83    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 34.16                                                                           | 50.95  | 62.07   | 76.11   | 86.53   | 96.88    | 107.18   | 120.78   | 131.06    | CRCM-CCSM (historical)       |
| Gauge: 442044; Duration: 45 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 123.59                                                                          | 181.43 | 243.78  | 322.55  | 380.98  | 438.99   | 496.78   | 573.03   | 630.66    | RCM3-GFDL (historical)       |
| 2                             | 92.31             | 120.75                                                                          | 178.09 | 217.69  | 275.95  | 321.73  | 368.95   | 415.99   | 478.06   | 524.96    | RCM3-CGCM3 (historical)      |
| 3                             | 88.46             | 113.23                                                                          | 171.57 | 214.18  | 274.17  | 319.17  | 362.08   | 404.82   | 461.22   | 503.84    | RCM3-CGCM3 (future)          |
| 4                             | 84.62             | 110.97                                                                          | 168.54 | 210.05  | 259.77  | 296.87  | 334.17   | 371.33   | 420.37   | 457.43    | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 107.99                                                                          | 164.95 | 208.63  | 259.29  | 293.59  | 327.16   | 360.61   | 404.74   | 438.1     | HRM3-GFDL (future)           |
| 6                             | 76.92             | 101.93                                                                          | 159.3  | 194.22  | 231.2   | 258.63  | 286.96   | 319.47   | 362.38   | 394.8     | RCM3-GFDL (future)           |
| 7                             | 73.08             | 98.43                                                                           | 156.81 | 185.66  | 222.11  | 254.32  | 285.86   | 312.99   | 348.79   | 375.84    | HRM3-HadCM3 (future)         |
| 8                             | 69.23             | 94.99                                                                           | 143.87 | 177.12  | 221.44  | 249.16  | 276      | 302.75   | 338.04   | 364.7     | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 93.82                                                                           | 142.04 | 165.65  | 193.17  | 213.59  | 233.86   | 254.05   | 280.7    | 300.83    | MM5I-HadCM3 (future)         |
| 10                            | 61.54             | 91.24                                                                           | 129.46 | 150     | 176.98  | 198.28  | 219.42   | 240.48   | 268.27   | 289.27    | MM5I-HadCM3 (historical)     |
| 11                            | 57.69             | 89.64                                                                           | 125.56 | 148.28  | 175.96  | 195.22  | 214.33   | 233.37   | 258.5    | 278.78    | MM5I-CCSM (historical)       |
| 12                            | 53.85             | 89.06                                                                           | 125    | 144.87  | 169.98  | 188.61  | 207.09   | 227.12   | 256.54   | 277.49    | WRFG-CCSM (future)           |
| 13                            | 50.00             | 88.79                                                                           | 120.84 | 139.55  | 164.67  | 183.31  | 204.81   | 225.51   | 249.82   | 268.18    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 87.27                                                                           | 119.67 | 138.72  | 161.32  | 182.43  | 201.81   | 220.24   | 244.55   | 262.93    | WRFG-CGCM3 (historical)      |
| 15                            | 42.31             | 83.39                                                                           | 113.29 | 130.07  | 159.88  | 178.09  | 194.73   | 212.13   | 236.86   | 255.55    | WRFG-CCSM (historical)       |
| 16                            | 38.46             | 82.66                                                                           | 109.85 | 129.52  | 155.62  | 174.57  | 193.39   | 211.31   | 233.19   | 249.72    | HRM3-GFDL (historical)       |
| 17                            | 34.62             | 79.96                                                                           | 107.71 | 129.48  | 150.02  | 166.49  | 183.58   | 200.61   | 223.07   | 240.05    | ECP2-GFDL (historical)       |
| 18                            | 30.77             | 79.3                                                                            | 105.42 | 126.07  | 149.28  | 165.23  | 180.68   | 197.58   | 219.88   | 236.73    | MM5I-CCSM (future)           |
| 19                            | 26.92             | 77.82                                                                           | 105.36 | 123.59  | 146.63  | 163.72  | 180.32   | 195.36   | 215.21   | 230.2     | ECP2-GFDL (future)           |
| 20                            | 23.08             | 69.08                                                                           | 103.69 | 117.13  | 134.11  | 146.71  | 159.21   | 171.67   | 188.11   | 200.53    | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 46.61                                                                           | 64.17  | 75.79   | 90.48   | 101.38  | 112.2    | 122.97   | 137.19   | 147.94    | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 34.35                                                                           | 50.22  | 61.05   | 74.74   | 84.9    | 94.98    | 105.03   | 118.28   | 128.3     | Observed                     |
| 23                            | 11.54             | 33.85                                                                           | 49.69  | 60.33   | 73.78   | 83.75   | 93.66    | 103.52   | 116.54   | 126.38    | CRCM-CGCM3 (historical)      |
| 24                            | 7.69              | 33.61                                                                           | 49.02  | 58.74   | 71.01   | 80.11   | 89.15    | 98.15    | 110.03   | 119.01    | CRCM-CCSM (future)           |
| 25                            | 3.85              | 27.28                                                                           | 41.11  | 50.27   | 61.84   | 70.42   | 78.94    | 87.43    | 98.63    | 107.09    | CRCM-CCSM (historical)       |
| Gauge: 442044; Duration: 1 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 90.42                                                                           | 144.01 | 198.24  | 266.76  | 317.59  | 368.04   | 418.31   | 484.64   | 534.76    | RCM3-GFDL (historical)       |
| 2                             | 92.31             | 87.93                                                                           | 135.39 | 171.13  | 224.23  | 265.55  | 306.57   | 347.44   | 401.36   | 442.12    | RCM3-CGCM3 (historical)      |
| 3                             | 88.46             | 81.76                                                                           | 132.16 | 168.52  | 220.36  | 256.89  | 293.15   | 329.27   | 376.93   | 412.95    | RCM3-CGCM3 (future)          |
| 4                             | 84.62             | 79.75                                                                           | 128.19 | 165.16  | 203.27  | 234.36  | 265.22   | 295.97   | 336.54   | 367.2     | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 78.09                                                                           | 124.43 | 161.36  | 202.77  | 230.68  | 258.38   | 285.97   | 322.38   | 349.9     | HRM3-GFDL (future)           |
| 6                             | 76.92             | 73.3                                                                            | 123.77 | 147.49  | 177.47  | 200.17  | 227.3    | 254.34   | 290      | 316.96    | RCM3-GFDL (future)           |
| 7                             | 73.08             | 69.88                                                                           | 117.46 | 141.1   | 172.84  | 199.71  | 221.78   | 243.78   | 272.8    | 294.73    | HRM3-HadCM3 (future)         |
| 8                             | 69.23             | 67.1                                                                            | 106.83 | 135.99  | 170.96  | 193.12  | 215.11   | 237.03   | 265.94   | 287.79    | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 66.18                                                                           | 106.27 | 123.83  | 146.02  | 162.48  | 178.81   | 195.09   | 216.57   | 232.8     | MM5I-HadCM3 (future)         |
| 10                            | 61.54             | 64.34                                                                           | 94.47  | 110.76  | 132.43  | 149.35  | 166.14   | 182.86   | 204.93   | 221.61    | MM5I-HadCM3 (historical)     |
| 11                            | 57.69             | 62.95                                                                           | 91.59  | 109.63  | 131.33  | 146.59  | 161.75   | 176.84   | 196.76   | 211.82    | MM5I-CCSM (historical)       |
| 12                            | 53.85             | 62.78                                                                           | 91.06  | 106.93  | 126.98  | 141.85  | 156.62   | 171.33   | 194.39   | 211.81    | WRFG-CCSM (future)           |
| 13                            | 50.00             | 62.2                                                                            | 87.43  | 102.55  | 122.48  | 137.27  | 153.85   | 171.33   | 190.74   | 205.4     | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 62.11                                                                           | 86.78  | 101.49  | 119.27  | 136.3   | 151.95   | 166.57   | 185.86   | 200.44    | WRFG-CGCM3 (historical)      |
| 15                            | 42.31             | 57.92                                                                           | 81.39  | 95.1    | 118.62  | 132.45  | 145.54   | 159.92   | 179.46   | 194.22    | WRFG-CCSM (historical)       |
| 16                            | 38.46             | 57.85                                                                           | 79.12  | 94.8    | 115.28  | 130.25  | 145.11   | 158.58   | 175.78   | 188.78    | HRM3-GFDL (historical)       |
| 17                            | 34.62             | 55.45                                                                           | 77.23  | 94.09   | 110.14  | 123.38  | 136.79   | 150.15   | 167.79   | 181.11    | ECP2-GFDL (historical)       |
| 18                            | 30.77             | 55                                                                              | 75.94  | 91.65   | 109.86  | 122.05  | 134.88   | 148.21   | 165.79   | 179.08    | MM5I-CCSM (future)           |
| 19                            | 26.92             | 53.77                                                                           | 75.49  | 89.86   | 108.03  | 121.5   | 133.87   | 145.64   | 161.18   | 172.92    | ECP2-GFDL (future)           |
| 20                            | 23.08             | 47.46                                                                           | 73.78  | 84.27   | 97.54   | 107.38  | 117.14   | 126.87   | 139.71   | 149.41    | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 30.48                                                                           | 43.4   | 51.95   | 62.76   | 70.78   | 78.74    | 86.67    | 97.13    | 105.04    | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 21.78                                                                           | 32.81  | 40.46   | 50.12   | 57.29   | 64.41    | 71.5     | 80.85    | 87.92     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 21.26                                                                           | 32.19  | 39.08   | 47.79   | 54.25   | 60.66    | 67.05    | 75.48    | 81.85     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 19.13                                                                           | 27.57  | 33.16   | 40.8    | 46.73   | 52.62    | 58.48    | 66.22    | 72.06     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 16.93                                                                           | 26.49  | 32.81   | 40.22   | 45.46   | 50.66    | 55.84    | 62.67    | 67.83     | Observed                     |
| Gauge: 442044; Duration: 2 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 59.46                                                                           | 88.54  | 119.51  | 158.64  | 187.67  | 216.49   | 245.2    | 283.07   | 311.7     | RCM3-GFDL (historical)       |
| 2                             | 92.31             | 58.04                                                                           | 86.28  | 106.08  | 134.88  | 158.17  | 181.62   | 204.98   | 235.8    | 259.1     | RCM3-CGCM3 (historical)      |
| 3                             | 88.46             | 54.34                                                                           | 83.29  | 104.03  | 134.55  | 156.24  | 177.45   | 198.57   | 226.45   | 247.51    | RCM3-CGCM3 (future)          |
| 4                             | 84.62             | 53.21                                                                           | 81.66  | 102.71  | 126.47  | 144.85  | 163.21   | 181.51   | 205.66   | 223.91    | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 51.84                                                                           | 79.73  | 101.4   | 126.34  | 143.12  | 159.64   | 176.1    | 197.82   | 214.24    | HRM3-GFDL (future)           |
| 6                             | 76.92             | 48.87                                                                           | 77.51  | 94.09   | 112.23  | 125.69  | 140.07   | 156.09   | 177.23   | 193.21    | RCM3-GFDL (future)           |
| 7                             | 73.08             | 47.1                                                                            | 75.76  | 89.94   | 107.86  | 123.99  | 139.05   | 152.36   | 169.92   | 183.19    | HRM3-HadCM3 (future)         |
| 8                             | 69.23             | 45.41                                                                           | 69.34  | 85.95   | 107.79  | 121.16  | 134.35   | 147.5    | 164.85   | 177.96    | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 44.84                                                                           | 68.66  | 80.02   | 93.51   | 103.52  | 113.46   | 123.35   | 136.41   | 146.28    | MM5I-HadCM3 (future)         |
| 10                            | 61.54             | 43.6                                                                            | 62.26  | 72.29   | 85.51   | 95.92   | 106.26   | 116.55   | 130.13   | 140.4     | MM5I-HadCM3 (historical)     |
| 11                            | 57.69             | 42.8                                                                            | 60.38  | 71.48   | 84.97   | 94.38   | 103.72   | 113.02   | 125.29   | 135.11    | MM5I-CCSM (historical)       |
| 12                            | 53.85             | 42.56                                                                           | 60.09  | 69.81   | 82.09   | 91.2    | 100.24   | 109.92   | 124.26   | 134.57    | WRFG-CCSM (future)           |
| 13                            | 50.00             | 42.38                                                                           | 58.02  | 67.2    | 79.48   | 88.59   | 99.04    | 109.25   | 121.14   | 130.12    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 41.77                                                                           | 57.48  | 66.75   | 77.78   | 88.13   | 97.63    | 106.64   | 118.53   | 127.51    | WRFG-CGCM3 (historical)      |
| 15                            | 42.31             | 39.74                                                                           | 54.33  | 62.58   | 77.13   | 85.97   | 94.09    | 102.66   | 114.74   | 123.87    | WRFG-CCSM (historical)       |
| 16                            | 38.46             | 39.45                                                                           | 52.71  | 62.31   | 75.06   | 84.32   | 93.51    | 102.18   | 112.86   | 120.93    | HRM3-GFDL (historical)       |
| 17                            | 34.62             | 38.1                                                                            | 51.63  | 62.24   | 72.23   | 80.3    | 88.63    | 96.94    | 107.89   | 116.17    | ECP2-GFDL (historical)       |
| 18                            | 30.77             | 37.79                                                                           | 50.58  | 60.58   | 71.9    | 79.65   | 87.26    | 95.51    | 106.39   | 114.62    | MM5I-CCSM (future)           |
| 19                            | 26.92             | 37.05                                                                           | 50.49  | 59.39   | 70.64   | 78.98   | 87.01    | 94.34    | 104.02   | 111.33    | ECP2-GFDL (future)           |
| 20                            | 23.08             | 32.86                                                                           | 49.63  | 56.18   | 64.45   | 70.59   | 76.68    | 82.75    | 90.76    | 96.81     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 21.97                                                                           | 30.43  | 36.04   | 43.12   | 48.37   | 53.59    | 58.79    | 65.64    | 70.82     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 16.1                                                                            | 23.46  | 28.57   | 35.02   | 39.81   | 44.56    | 49.3     | 55.55    | 60.27     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 15.75                                                                           | 23.13  | 27.78   | 33.66   | 38.02   | 42.35    | 46.66    | 52.35    | 56.65     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 13.9                                                                            | 19.66  | 23.69   | 29.21   | 33.3    | 37.36    | 41.41    | 46.74    | 50.78     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 12.73                                                                           | 19.33  | 23.48   | 28.3    | 31.87   | 35.42    | 38.96    | 43.62    | 47.15     | Observed                     |
| Gauge: 442044; Duration: 3 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 47.35                                                                           | 69.51  | 93.39   | 123.57  | 145.96  | 168.18   | 190.32   | 219.53   | 241.61    | RCM3-GFDL (historical)       |
| 2                             | 92.31             | 46.26                                                                           | 68.23  | 83.4    | 105.72  | 123.26  | 141.35   | 159.38   | 183.16   | 201.13    | RCM3-CGCM3 (historical)      |
| 3                             | 88.46             | 43.38                                                                           | 65.73  | 82.06   | 105.04  | 122.27  | 138.71   | 155.08   | 176.69   | 193.02    | RCM3-CGCM3 (future)          |
| 4                             | 84.62             | 42.52                                                                           | 64.57  | 80.47   | 99.53   | 113.73  | 128.02   | 142.26   | 161.04   | 175.24    | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 41.37                                                                           | 63.2   | 79.93   | 99.33   | 112.49  | 125.35   | 138.17   | 155.08   | 167.86    | HRM3-GFDL (future)           |
| 6                             | 76.92             | 39.05                                                                           | 61.03  | 74.41   | 88.57   | 99.08   | 109.94   | 122.4    | 138.84   | 151.26    | RCM3-GFDL (future)           |
| 7                             | 73.08             | 37.71                                                                           | 60.07  | 71.12   | 85.09   | 97.44   | 109.51   | 119.9    | 133.61   | 143.98    | HRM3-HadCM3 (future)         |
| 8                             | 69.23             | 36.39                                                                           | 55.12  | 67.86   | 84.84   | 95.45   | 105.73   | 115.98   | 129.5    | 139.71    | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 35.95                                                                           | 54.42  | 63.46   | 74.01   | 81.83   | 89.59    | 97.32    | 107.53   | 115.24    | MM5I-HadCM3 (future)         |
| 10                            | 61.54             | 34.96                                                                           | 49.6   | 57.47   | 67.81   | 75.97   | 84.07    | 92.15    | 102.79   | 110.84    | MM5I-HadCM3 (historical)     |
| 11                            | 57.69             | 34.34                                                                           | 48.11  | 56.81   | 67.41   | 74.79   | 82.11    | 89.4     | 99.03    | 106.79    | MM5I-CCSM (historical)       |
| 12                            | 53.85             | 34.12                                                                           | 47.89  | 55.5    | 65.12   | 72.26   | 79.34    | 87       | 98.27    | 106.3     | WRFG-CCSM (future)           |
| 13                            | 50.00             | 34.01                                                                           | 46.3   | 53.47   | 63.09   | 70.23   | 78.45    | 86.4     | 95.71    | 102.74    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 33.44                                                                           | 45.85  | 53.15   | 61.8    | 69.88   | 77.32    | 84.38    | 93.7     | 100.74    | WRFG-CGCM3 (historical)      |
| 15                            | 42.31             | 31.94                                                                           | 43.41  | 49.83   | 61.24   | 68.23   | 74.6     | 81.27    | 90.75    | 97.91     | WRFG-CCSM (historical)       |
| 16                            | 38.46             | 31.66                                                                           | 42.09  | 49.63   | 59.62   | 66.88   | 74.09    | 80.95    | 89.33    | 95.67     | HRM3-GFDL (historical)       |
| 17                            | 34.62             | 30.63                                                                           | 41.27  | 49.6    | 57.49   | 63.8    | 70.34    | 76.87    | 85.48    | 91.99     | ECP2-GFDL (historical)       |
| 18                            | 30.77             | 30.39                                                                           | 40.38  | 48.3    | 57.2    | 63.32   | 69.23    | 75.71    | 84.25    | 90.71     | MM5I-CCSM (future)           |
| 19                            | 26.92             | 29.82                                                                           | 40.37  | 47.36   | 56.18   | 62.73   | 69.1     | 74.87    | 82.48    | 88.23     | ECP2-GFDL (future)           |
| 20                            | 23.08             | 26.46                                                                           | 39.72  | 44.87   | 51.38   | 56.2    | 60.99    | 65.77    | 72.06    | 76.82     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 17.85                                                                           | 24.58  | 29.03   | 34.65   | 38.83   | 42.97    | 47.1     | 52.54    | 56.66     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 13.17                                                                           | 19.03  | 23.11   | 28.27   | 32.09   | 35.88    | 39.66    | 44.65    | 48.42     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 12.88                                                                           | 18.79  | 22.51   | 27.21   | 30.7    | 34.16    | 37.61    | 42.16    | 45.6      | CRCM-CCSM (future)           |
| 24                            | 7.69              | 10.98                                                                           | 15.75  | 19.26   | 23.69   | 26.98   | 30.25    | 33.5     | 37.8     | 41.04     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 10.44                                                                           | 15.44  | 18.4    | 22.13   | 24.9    | 27.65    | 30.39    | 34       | 36.73     | Observed                     |
| Gauge: 442044; Duration: 4 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 46.37                                                                           | 68.93  | 92.94   | 123.29  | 145.81  | 168.15   | 190.42   | 219.79   | 242       | RCM3-GFDL (historical)       |
| 2                             | 92.31             | 45.26                                                                           | 67.16  | 82.52   | 104.85  | 122.91  | 141.1    | 159.21   | 183.11   | 201.18    | RCM3-CGCM3 (historical)      |
| 3                             | 88.46             | 42.4                                                                            | 64.85  | 80.93   | 104.6   | 121.41  | 137.85   | 154.23   | 175.84   | 192.17    | RCM3-CGCM3 (future)          |
| 4                             | 84.62             | 41.53                                                                           | 63.57  | 79.9    | 98.32   | 112.57  | 126.81   | 141      | 159.72   | 173.86    | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 40.45                                                                           | 62.08  | 78.88   | 98.22   | 111.23  | 124.04   | 136.8    | 153.64   | 166.36    | HRM3-GFDL (future)           |
| 6                             | 76.92             | 38.16                                                                           | 60.36  | 73.22   | 87.29   | 97.72   | 108.88   | 121.31   | 137.7    | 150.09    | RCM3-GFDL (future)           |
| 7                             | 73.08             | 36.79                                                                           | 59.02  | 70.02   | 83.92   | 96.41   | 108.08   | 118.4    | 132.02   | 142.31    | HRM3-HadCM3 (future)         |
| 8                             | 69.23             | 35.47                                                                           | 54.03  | 66.91   | 83.85   | 94.23   | 104.46   | 114.66   | 128.11   | 138.28    | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 35.03                                                                           | 53.5   | 62.31   | 72.77   | 80.53   | 88.23    | 95.91    | 106.04   | 113.69    | MM5I-HadCM3 (future)         |
| 10                            | 61.54             | 34.07                                                                           | 48.54  | 56.32   | 66.58   | 74.65   | 82.66    | 90.65    | 101.18   | 109.14    | MM5I-HadCM3 (historical)     |
| 11                            | 57.69             | 33.45                                                                           | 47.08  | 55.69   | 66.15   | 73.45   | 80.69    | 87.9     | 97.42    | 105.04    | MM5I-CCSM (historical)       |
| 12                            | 53.85             | 33.26                                                                           | 46.86  | 54.39   | 63.92   | 70.98   | 77.99    | 85.5     | 96.63    | 104.61    | WRFG-CCSM (future)           |
| 13                            | 50.00             | 33.13                                                                           | 45.25  | 52.37   | 61.9    | 68.96   | 77.07    | 84.98    | 94.19    | 101.16    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 32.65                                                                           | 44.84  | 52.02   | 60.58   | 68.6    | 75.97    | 82.96    | 92.17    | 99.14     | WRFG-CGCM3 (historical)      |
| 15                            | 42.31             | 31.07                                                                           | 42.4   | 48.79   | 60.07   | 66.92   | 73.22    | 79.87    | 89.24    | 96.32     | WRFG-CCSM (historical)       |
| 16                            | 38.46             | 30.84                                                                           | 41.13  | 48.58   | 58.46   | 65.64   | 72.77    | 79.5     | 87.78    | 94.03     | HRM3-GFDL (historical)       |
| 17                            | 34.62             | 29.8                                                                            | 40.29  | 48.54   | 56.29   | 62.52   | 68.98    | 75.42    | 83.92    | 90.34     | ECP2-GFDL (historical)       |
| 18                            | 30.77             | 29.56                                                                           | 39.48  | 47.24   | 56.01   | 62.04   | 67.91    | 74.31    | 82.74    | 89.12     | MM5I-CCSM (future)           |
| 19                            | 26.92             | 28.99                                                                           | 39.41  | 46.31   | 55.03   | 61.49   | 67.75    | 73.44    | 80.95    | 86.62     | ECP2-GFDL (future)           |
| 20                            | 23.08             | 25.74                                                                           | 38.75  | 43.82   | 50.24   | 55      | 59.73    | 64.43    | 70.65    | 75.34     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 17.3                                                                            | 23.87  | 28.21   | 33.71   | 37.78   | 41.83    | 45.86    | 51.17    | 55.19     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 12.75                                                                           | 18.46  | 22.42   | 27.43   | 31.14   | 34.83    | 38.5     | 43.34    | 47        | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 12.48                                                                           | 18.19  | 21.8    | 26.35   | 29.73   | 33.08    | 36.42    | 40.83    | 44.16     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 10.14                                                                           | 15.25  | 18.63   | 22.9    | 26.07   | 29.22    | 32.36    | 36.49    | 39.62     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 7.58                                                                            | 9.96   | 11.54   | 13.54   | 15.02   | 16.49    | 17.95    | 19.89    | 21.35     | Observed                     |
| Gauge: 442044; Duration: 6 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 29.68                                                                           | 43.93  | 59.11   | 78.29   | 92.52   | 106.64   | 120.71   | 139.27   | 153.3     | RCM3-GFDL (historical)       |
| 2                              | 92.31             | 28.98                                                                           | 42.82  | 52.54   | 66.65   | 78.05   | 89.55    | 101      | 116.1    | 127.52    | RCM3-CGCM3 (historical)      |
| 3                              | 88.46             | 27.17                                                                           | 41.37  | 51.52   | 66.48   | 77.12   | 87.51    | 97.86    | 111.53   | 121.85    | RCM3-CGCM3 (future)          |
| 4                              | 84.62             | 26.62                                                                           | 40.56  | 50.87   | 62.51   | 71.54   | 80.54    | 89.51    | 101.35   | 110.29    | HRM3-HadCM3 (historical)     |
| 5                              | 80.77             | 25.94                                                                           | 39.62  | 50.24   | 62.47   | 70.67   | 78.76    | 86.83    | 97.47    | 105.51    | HRM3-GFDL (future)           |
| 6                              | 76.92             | 24.49                                                                           | 38.52  | 46.65   | 55.55   | 62.15   | 69.19    | 77.04    | 87.41    | 95.24     | RCM3-GFDL (future)           |
| 7                              | 73.08             | 23.62                                                                           | 37.67  | 44.62   | 53.4    | 61.31   | 68.69    | 75.22    | 83.83    | 90.34     | HRM3-HadCM3 (future)         |
| 8                              | 69.23             | 22.79                                                                           | 34.52  | 42.66   | 53.37   | 59.92   | 66.38    | 72.83    | 81.33    | 87.75     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 22.51                                                                           | 34.19  | 39.75   | 46.36   | 51.27   | 56.13    | 60.98    | 67.38    | 72.21     | MM5I-HadCM3 (future)         |
| 10                             | 61.54             | 21.91                                                                           | 31.05  | 35.97   | 42.45   | 47.55   | 52.61    | 57.66    | 64.31    | 69.34     | MM5I-HadCM3 (historical)     |
| 11                             | 57.69             | 21.51                                                                           | 30.13  | 35.57   | 42.19   | 46.8    | 51.38    | 55.94    | 61.96    | 66.72     | MM5I-CCSM (historical)       |
| 12                             | 53.85             | 21.39                                                                           | 29.99  | 34.75   | 40.77   | 45.23   | 49.66    | 54.38    | 61.41    | 66.51     | WRFG-CCSM (future)           |
| 13                             | 50.00             | 21.31                                                                           | 28.97  | 33.47   | 39.49   | 43.95   | 49.05    | 54.08    | 59.9     | 64.31     | ECP2-HadCM3 (future)         |
| 14                             | 46.15             | 21.01                                                                           | 28.71  | 33.25   | 38.65   | 43.71   | 48.38    | 52.8     | 58.62    | 63.03     | WRFG-CGCM3 (historical)      |
| 15                             | 42.31             | 20.02                                                                           | 27.17  | 31.2    | 38.32   | 42.66   | 46.64    | 50.84    | 56.75    | 61.23     | WRFG-CCSM (historical)       |
| 16                             | 38.46             | 19.86                                                                           | 26.36  | 31.06   | 37.31   | 41.85   | 46.35    | 50.6     | 55.84    | 59.79     | HRM3-GFDL (historical)       |
| 17                             | 34.62             | 19.21                                                                           | 25.84  | 31.05   | 35.95   | 39.88   | 43.97    | 48.03    | 53.4     | 57.46     | ECP2-GFDL (historical)       |
| 18                             | 30.77             | 19.05                                                                           | 25.32  | 30.22   | 35.77   | 39.59   | 43.29    | 47.33    | 52.66    | 56.69     | MM5I-CCSM (future)           |
| 19                             | 26.92             | 18.7                                                                            | 25.28  | 29.64   | 35.15   | 39.23   | 43.2     | 46.79    | 51.54    | 55.12     | ECP2-GFDL (future)           |
| 20                             | 23.08             | 16.64                                                                           | 24.87  | 28.08   | 32.14   | 35.15   | 38.14    | 41.12    | 45.05    | 48.02     | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 11.3                                                                            | 15.44  | 18.19   | 21.66   | 24.23   | 26.78    | 29.33    | 32.68    | 35.22     | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 8.43                                                                            | 12.04  | 14.54   | 17.71   | 20.06   | 22.39    | 24.71    | 27.77    | 30.08     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 8.26                                                                            | 11.88  | 14.16   | 17.04   | 19.18   | 21.3     | 23.42    | 26.21    | 28.32     | CRCM-CCSM (future)           |
| 24                             | 7.69              | 6.78                                                                            | 10.01  | 12.15   | 14.86   | 16.87   | 18.86    | 20.85    | 23.46    | 25.44     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 4.66                                                                            | 6.29   | 7.37    | 8.74    | 9.76    | 10.76    | 11.77    | 13.09    | 14.09     | Observed                     |
| Gauge: 442044; Duration: 12 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 16.13                                                                           | 23.72  | 31.8    | 42.01   | 49.58   | 57.1     | 64.59    | 74.47    | 81.94     | RCM3-GFDL (historical)       |
| 2                              | 92.31             | 15.76                                                                           | 23.13  | 28.29   | 35.81   | 41.9    | 48.02    | 54.11    | 62.16    | 68.24     | RCM3-CGCM3 (historical)      |
| 3                              | 88.46             | 14.8                                                                            | 22.35  | 27.76   | 35.73   | 41.38   | 46.91    | 52.42    | 59.69    | 65.19     | RCM3-CGCM3 (future)          |
| 4                              | 84.62             | 14.51                                                                           | 21.93  | 27.42   | 33.62   | 38.43   | 43.22    | 48       | 54.31    | 59.07     | HRM3-HadCM3 (historical)     |
| 5                              | 80.77             | 14.14                                                                           | 21.41  | 27.08   | 33.6    | 37.96   | 42.27    | 46.57    | 52.24    | 56.52     | HRM3-GFDL (future)           |
| 6                              | 76.92             | 13.37                                                                           | 20.85  | 25.16   | 29.89   | 33.4    | 37.17    | 41.36    | 46.87    | 51.04     | RCM3-GFDL (future)           |
| 7                              | 73.08             | 12.9                                                                            | 20.39  | 24.1    | 28.78   | 32.98   | 36.89    | 40.36    | 44.94    | 48.4      | HRM3-HadCM3 (future)         |
| 8                              | 69.23             | 12.47                                                                           | 18.71  | 23.05   | 28.75   | 32.25   | 35.7     | 39.13    | 43.66    | 47.08     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 12.32                                                                           | 18.54  | 21.5    | 25.02   | 27.63   | 30.22    | 32.8     | 36.21    | 38.78     | MM5I-HadCM3 (future)         |
| 10                             | 61.54             | 12                                                                              | 16.86  | 19.48   | 22.93   | 25.64   | 28.34    | 31.02    | 34.56    | 37.24     | MM5I-HadCM3 (historical)     |
| 11                             | 57.69             | 11.79                                                                           | 16.37  | 19.27   | 22.8    | 25.25   | 27.69    | 30.12    | 33.33    | 35.86     | MM5I-CCSM (historical)       |
| 12                             | 53.85             | 11.72                                                                           | 16.3   | 18.84   | 22.05   | 24.43   | 26.79    | 29.29    | 33.03    | 35.75     | WRFG-CCSM (future)           |
| 13                             | 50.00             | 11.68                                                                           | 15.76  | 18.15   | 21.35   | 23.72   | 26.46    | 29.15    | 32.25    | 34.6      | ECP2-HadCM3 (future)         |
| 14                             | 46.15             | 11.51                                                                           | 15.62  | 18.03   | 20.91   | 23.61   | 26.08    | 28.43    | 31.53    | 33.87     | WRFG-CGCM3 (historical)      |
| 15                             | 42.31             | 10.99                                                                           | 14.8   | 16.94   | 20.74   | 23.04   | 25.16    | 27.39    | 30.54    | 32.92     | WRFG-CCSM (historical)       |
| 16                             | 38.46             | 10.91                                                                           | 14.37  | 16.87   | 20.19   | 22.61   | 25       | 27.27    | 30.06    | 32.16     | HRM3-GFDL (historical)       |
| 17                             | 34.62             | 10.55                                                                           | 14.09  | 16.87   | 19.47   | 21.58   | 23.76    | 25.93    | 28.79    | 30.95     | ECP2-GFDL (historical)       |
| 18                             | 30.77             | 10.48                                                                           | 13.81  | 16.43   | 19.39   | 21.41   | 23.39    | 25.55    | 28.39    | 30.53     | MM5I-CCSM (future)           |
| 19                             | 26.92             | 10.29                                                                           | 13.8   | 16.12   | 19.05   | 21.23   | 23.33    | 25.25    | 27.77    | 29.68     | ECP2-GFDL (future)           |
| 20                             | 23.08             | 9.19                                                                            | 13.57  | 15.28   | 17.44   | 19.04   | 20.63    | 22.21    | 24.3     | 25.88     | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 6.35                                                                            | 8.56   | 10.02   | 11.87   | 13.24   | 14.6     | 15.96    | 17.75    | 19.1      | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 4.82                                                                            | 6.74   | 8.07    | 9.76    | 11.01   | 12.25    | 13.49    | 15.12    | 16.35     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 4.73                                                                            | 6.65   | 7.86    | 9.39    | 10.53   | 11.65    | 12.78    | 14.26    | 15.38     | CRCM-CCSM (future)           |
| 24                             | 7.69              | 3.94                                                                            | 5.66   | 6.8     | 8.25    | 9.32    | 10.38    | 11.43    | 12.83    | 13.88     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 2.67                                                                            | 3.48   | 4.02    | 4.7     | 5.2     | 5.71     | 6.2      | 6.86     | 7.36      | Observed                     |
| Gauge: 442044; Duration: 24 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 8.6                                                                             | 12.57  | 16.8    | 22.15   | 26.11   | 30.05    | 33.97    | 39.14    | 43.05     | RCM3-GFDL (historical)       |
| 2                              | 92.31             | 8.4                                                                             | 12.27  | 14.96   | 18.89   | 22.07   | 25.27    | 28.46    | 32.67    | 35.85     | RCM3-CGCM3 (historical)      |
| 3                              | 88.46             | 7.9                                                                             | 11.85  | 14.69   | 18.85   | 21.81   | 24.71    | 27.59    | 31.4     | 34.28     | RCM3-CGCM3 (future)          |
| 4                              | 84.62             | 7.74                                                                            | 11.63  | 14.5    | 17.76   | 20.26   | 22.77    | 25.27    | 28.57    | 31.06     | HRM3-HadCM3 (historical)     |
| 5                              | 80.77             | 7.55                                                                            | 11.36  | 14.32   | 17.73   | 20.04   | 22.3     | 24.55    | 27.52    | 29.76     | HRM3-GFDL (future)           |
| 6                              | 76.92             | 7.15                                                                            | 11.06  | 13.32   | 15.8    | 17.63   | 19.62    | 21.81    | 24.7     | 26.89     | RCM3-GFDL (future)           |
| 7                              | 73.08             | 6.91                                                                            | 10.82  | 12.76   | 15.21   | 17.42   | 19.46    | 21.28    | 23.67    | 25.48     | HRM3-HadCM3 (future)         |
| 8                              | 69.23             | 6.68                                                                            | 9.94   | 12.22   | 15.21   | 17.02   | 18.82    | 20.62    | 22.99    | 24.78     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 6.59                                                                            | 9.86   | 11.4    | 13.24   | 14.6    | 15.96    | 17.31    | 19.09    | 20.44     | MM5I-HadCM3 (future)         |
| 10                             | 61.54             | 6.43                                                                            | 8.97   | 10.34   | 12.15   | 13.57   | 14.98    | 16.39    | 18.24    | 19.64     | MM5I-HadCM3 (historical)     |
| 11                             | 57.69             | 6.32                                                                            | 8.72   | 10.24   | 12.07   | 13.36   | 14.63    | 15.9     | 17.57    | 18.93     | MM5I-CCSM (historical)       |
| 12                             | 53.85             | 6.29                                                                            | 8.68   | 10.01   | 11.69   | 12.93   | 14.17    | 15.49    | 17.45    | 18.84     | WRFG-CCSM (future)           |
| 13                             | 50.00             | 6.27                                                                            | 8.4    | 9.65    | 11.33   | 12.57   | 14       | 15.4     | 17.03    | 18.25     | ECP2-HadCM3 (future)         |
| 14                             | 46.15             | 6.18                                                                            | 8.32   | 9.59    | 11.1    | 12.51   | 13.81    | 15.04    | 16.67    | 17.89     | WRFG-CGCM3 (historical)      |
| 15                             | 42.31             | 5.9                                                                             | 7.9    | 9.02    | 11.01   | 12.22   | 13.33    | 14.51    | 16.16    | 17.41     | WRFG-CCSM (historical)       |
| 16                             | 38.46             | 5.86                                                                            | 7.67   | 8.98    | 10.73   | 12      | 13.26    | 14.44    | 15.9     | 17        | HRM3-GFDL (historical)       |
| 17                             | 34.62             | 5.68                                                                            | 7.52   | 8.98    | 10.35   | 11.44   | 12.58    | 13.71    | 15.21    | 16.34     | ECP2-GFDL (historical)       |
| 18                             | 30.77             | 5.63                                                                            | 7.38   | 8.75    | 10.29   | 11.37   | 12.4     | 13.53    | 15.02    | 16.15     | MM5I-CCSM (future)           |
| 19                             | 26.92             | 5.54                                                                            | 7.38   | 8.59    | 10.13   | 11.27   | 12.37    | 13.38    | 14.7     | 15.7      | ECP2-GFDL (future)           |
| 20                             | 23.08             | 4.96                                                                            | 7.25   | 8.15    | 9.28    | 10.12   | 10.95    | 11.78    | 12.87    | 13.7      | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 3.47                                                                            | 4.63   | 5.4     | 6.37    | 7.09    | 7.8      | 8.51     | 9.45     | 10.16     | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 2.67                                                                            | 3.68   | 4.37    | 5.25    | 5.9     | 6.55     | 7.2      | 8.05     | 8.69      | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 2.62                                                                            | 3.63   | 4.27    | 5.08    | 5.68    | 6.27     | 6.86     | 7.64     | 8.23      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 2.21                                                                            | 3.11   | 3.71    | 4.46    | 5.02    | 5.58     | 6.13     | 6.86     | 7.41      | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.49                                                                            | 1.92   | 2.2     | 2.55    | 2.81    | 3.08     | 3.34     | 3.68     | 3.94      | Observed                     |
| Gauge: 442044; Duration: 48 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 5.71                                                                            | 8.31   | 11.08   | 14.58   | 17.17   | 19.75    | 22.31    | 25.7     | 28.26     | RCM3-GFDL (historical)       |
| 2                              | 92.31             | 5.59                                                                            | 8.11   | 9.88    | 12.45   | 14.54   | 16.64    | 18.72    | 21.48    | 23.56     | RCM3-CGCM3 (historical)      |
| 3                              | 88.46             | 5.25                                                                            | 7.84   | 9.7     | 12.43   | 14.36   | 16.26    | 18.14    | 20.63    | 22.52     | RCM3-CGCM3 (future)          |
| 4                              | 84.62             | 5.15                                                                            | 7.7    | 9.58    | 11.7    | 13.36   | 15       | 16.64    | 18.8     | 20.44     | HRM3-HadCM3 (historical)     |
| 5                              | 80.77             | 5.03                                                                            | 7.53   | 9.47    | 11.7    | 13.19   | 14.66    | 16.13    | 18.07    | 19.54     | HRM3-GFDL (future)           |
| 6                              | 76.92             | 4.77                                                                            | 7.33   | 8.81    | 10.43   | 11.63   | 12.92    | 14.35    | 16.24    | 17.67     | RCM3-GFDL (future)           |
| 7                              | 73.08             | 4.61                                                                            | 7.17   | 8.44    | 10.05   | 11.48   | 12.82    | 14.01    | 15.57    | 16.76     | HRM3-HadCM3 (future)         |
| 8                              | 69.23             | 4.46                                                                            | 6.59   | 8.08    | 10.04   | 11.24   | 12.42    | 13.59    | 15.15    | 16.32     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 4.41                                                                            | 6.54   | 7.55    | 8.75    | 9.65    | 10.53    | 11.42    | 12.58    | 13.47     | MM5I-HadCM3 (future)         |
| 10                             | 61.54             | 4.3                                                                             | 5.96   | 6.86    | 8.05    | 8.99    | 9.91     | 10.83    | 12.05    | 12.97     | MM5I-HadCM3 (historical)     |
| 11                             | 57.69             | 4.23                                                                            | 5.8    | 6.8     | 7.99    | 8.83    | 9.66     | 10.49    | 11.58    | 12.46     | MM5I-CCSM (historical)       |
| 12                             | 53.85             | 4.21                                                                            | 5.77   | 6.64    | 7.75    | 8.56    | 9.37     | 10.22    | 11.5     | 12.41     | WRFG-CCSM (future)           |
| 13                             | 50.00             | 4.19                                                                            | 5.59   | 6.41    | 7.52    | 8.33    | 9.24     | 10.18    | 11.25    | 12.05     | ECP2-HadCM3 (future)         |
| 14                             | 46.15             | 4.13                                                                            | 5.54   | 6.37    | 7.35    | 8.27    | 9.14     | 9.95     | 11.02    | 11.82     | WRFG-CGCM3 (historical)      |
| 15                             | 42.31             | 3.96                                                                            | 5.26   | 5.99    | 7.29    | 8.08    | 8.8      | 9.58     | 10.66    | 11.47     | WRFG-CCSM (historical)       |
| 16                             | 38.46             | 3.93                                                                            | 5.11   | 5.97    | 7.11    | 7.93    | 8.76     | 9.52     | 10.48    | 11.19     | HRM3-GFDL (historical)       |
| 17                             | 34.62             | 3.81                                                                            | 5.02   | 5.97    | 6.86    | 7.58    | 8.33     | 9.07     | 10.05    | 10.79     | ECP2-GFDL (historical)       |
| 18                             | 30.77             | 3.77                                                                            | 4.92   | 5.82    | 6.83    | 7.53    | 8.2      | 8.93     | 9.91     | 10.64     | MM5I-CCSM (future)           |
| 19                             | 26.92             | 3.71                                                                            | 4.91   | 5.7     | 6.71    | 7.46    | 8.19     | 8.84     | 9.71     | 10.36     | ECP2-GFDL (future)           |
| 20                             | 23.08             | 3.34                                                                            | 4.84   | 5.42    | 6.16    | 6.71    | 7.26     | 7.8      | 8.51     | 9.06      | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 2.36                                                                            | 3.12   | 3.62    | 4.26    | 4.73    | 5.2      | 5.66     | 6.28     | 6.74      | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 1.83                                                                            | 2.49   | 2.95    | 3.52    | 3.95    | 4.38     | 4.8      | 5.36     | 5.78      | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 1.8                                                                             | 2.46   | 2.88    | 3.4     | 3.79    | 4.18     | 4.56     | 5.07     | 5.45      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 1.54                                                                            | 2.13   | 2.52    | 3.02    | 3.39    | 3.75     | 4.12     | 4.59     | 4.96      | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.07                                                                            | 1.35   | 1.54    | 1.77    | 1.95    | 2.12     | 2.3      | 2.53     | 2.7       | Observed                     |
| Gauge: 442044; Duration: 72 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 249.47                                                                          | 347.58 | 448.78  | 576.64  | 671.5   | 765.66   | 859.47   | 983.25   | 1076.79   | RCM3-GFDL (historical)       |
| 2                               | 92.31             | 249.29                                                                          | 327.87 | 379.77  | 469.56  | 542.48  | 614.87   | 687      | 782.15   | 854.06    | RCM3-CGCM3 (historical)      |
| 3                               | 88.46             | 221.53                                                                          | 322.86 | 371.57  | 446.15  | 504.05  | 561.51   | 618.77   | 695.91   | 764.49    | Observed                     |
| 4                               | 84.62             | 217.45                                                                          | 306.35 | 371.25  | 445.35  | 494.01  | 542.3    | 605.16   | 694.31   | 751.4     | RCM3-CGCM3 (future)          |
| 5                               | 80.77             | 213.06                                                                          | 303.43 | 368.11  | 433.11  | 480.36  | 538.56   | 596.54   | 673.04   | 730.85    | RCM3-GFDL (future)           |
| 6                               | 76.92             | 207.3                                                                           | 293.45 | 357.65  | 426.16  | 478.77  | 536.38   | 590.42   | 653.9    | 701.88    | HRM3-GFDL (future)           |
| 7                               | 73.08             | 201.05                                                                          | 280.15 | 342.7   | 421.73  | 476.98  | 527.43   | 577.7    | 644.01   | 694.13    | HRM3-HadCM3 (historical)     |
| 8                               | 69.23             | 196.36                                                                          | 268.48 | 313.12  | 397.8   | 467.34  | 524.09   | 569.25   | 628.82   | 673.85    | HRM3-HadCM3 (future)         |
| 9                               | 65.38             | 195.47                                                                          | 261.69 | 304.05  | 369.53  | 411.38  | 452.91   | 494.3    | 548.9    | 590.17    | WRF3-CGCM3 (future)          |
| 10                              | 61.54             | 194.77                                                                          | 253.35 | 290.98  | 336.88  | 371.79  | 406.43   | 440.95   | 486.49   | 520.91    | MM5I-HadCM3 (historical)     |
| 11                              | 57.69             | 194.72                                                                          | 252.6  | 289.84  | 327.99  | 355.44  | 382.7    | 409.85   | 445.67   | 473.05    | HRM3-GFDL (historical)       |
| 12                              | 53.85             | 185.68                                                                          | 242.37 | 283.84  | 322.37  | 350.95  | 379.32   | 407.58   | 444.87   | 472.75    | MM5I-HadCM3 (future)         |
| 13                              | 50.00             | 179.65                                                                          | 238.21 | 273.43  | 312.66  | 341.77  | 370.66   | 399.44   | 437.42   | 468.36    | WRF3-CGCM3 (historical)      |
| 14                              | 46.15             | 175.94                                                                          | 229.85 | 266.97  | 303.32  | 330.28  | 361.9    | 394      | 436.35   | 466.12    | ECP2-HadCM3 (future)         |
| 15                              | 42.31             | 174.02                                                                          | 218.85 | 253.48  | 297.23  | 329.68  | 357.04   | 385.23   | 429.05   | 462.17    | MM5I-CCSM (historical)       |
| 16                              | 38.46             | 171.45                                                                          | 217.71 | 245.7   | 285.11  | 318.69  | 352.02   | 383.71   | 418.89   | 445.47    | WRF3-CCSM (future)           |
| 17                              | 34.62             | 166.55                                                                          | 217.14 | 242.91  | 281.77  | 308.54  | 335.1    | 362.66   | 399.27   | 426.93    | WRF3-CCSM (historical)       |
| 18                              | 30.77             | 166.03                                                                          | 211.24 | 241.17  | 279     | 307.05  | 334.91   | 361.57   | 396.49   | 422.89    | MM5I-CCSM (future)           |
| 19                              | 26.92             | 162.75                                                                          | 207.54 | 239.84  | 274.75  | 302.48  | 330.07   | 357.57   | 393.84   | 421.25    | ECP2-GFDL (historical)       |
| 20                              | 23.08             | 149.9                                                                           | 205.51 | 237.2   | 274.68  | 298.37  | 321.82   | 345.18   | 376      | 399.3     | ECP2-GFDL (future)           |
| 21                              | 19.23             | 117.78                                                                          | 204.02 | 228.06  | 256.55  | 277.69  | 298.67   | 319.57   | 347.15   | 368       | ECP2-HadCM3 (historical)     |
| 22                              | 15.38             | 112.83                                                                          | 137.98 | 154.63  | 175.67  | 191.28  | 209.48   | 229.59   | 256.13   | 276.18    | CRCM-CGCM3 (historical)      |
| 23                              | 11.54             | 90.6                                                                            | 119.85 | 141.54  | 168.96  | 189.29  | 206.77   | 222.21   | 242.57   | 257.97    | CRCM-CGCM3 (future)          |
| 24                              | 7.69              | 87.08                                                                           | 118.35 | 136.71  | 159.92  | 177.13  | 194.22   | 211.25   | 233.71   | 250.69    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 73.92                                                                           | 100.19 | 117.59  | 139.57  | 155.87  | 172.06   | 188.18   | 209.46   | 225.53    | CRCM-CCSM (historical)       |
| Gauge: 444128; Duration: 15 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 201.06                                                                          | 317.94 | 428.06  | 567.19  | 670.41  | 772.86   | 874.95   | 1009.62  | 1111.41   | RCM3-GFDL (historical)       |
| 2                               | 92.31             | 200.82                                                                          | 278.67 | 341.35  | 446.52  | 524.55  | 601.99   | 679.16   | 780.96   | 857.9     | RCM3-CGCM3 (historical)      |
| 3                               | 88.46             | 174.74                                                                          | 272.65 | 330.06  | 397.7   | 454.88  | 511.65   | 568.2    | 642.82   | 699.21    | RCM3-CGCM3 (future)          |
| 4                               | 84.62             | 169.12                                                                          | 259.6  | 320.61  | 395     | 443.17  | 496.35   | 554.63   | 631.53   | 689.64    | RCM3-GFDL (future)           |
| 5                               | 80.77             | 167.46                                                                          | 258.12 | 320.21  | 380.3   | 437.86  | 490.98   | 538.62   | 601.47   | 648.97    | HRM3-GFDL (future)           |
| 6                               | 76.92             | 159.92                                                                          | 254.97 | 308.1   | 378.93  | 425.01  | 474.43   | 523.68   | 588.65   | 637.75    | HRM3-HadCM3 (historical)     |
| 7                               | 73.08             | 154.88                                                                          | 236.62 | 299.49  | 375.22  | 424.88  | 469.12   | 513.21   | 571.38   | 615.33    | HRM3-HadCM3 (future)         |
| 8                               | 69.23             | 151.62                                                                          | 219.87 | 262.9   | 317.27  | 357.6   | 397.64   | 437.52   | 490.15   | 529.92    | WRFG-CGCM3 (future)          |
| 9                               | 65.38             | 150.1                                                                           | 211.15 | 238.98  | 283.56  | 316.71  | 349.61   | 382.4    | 425.65   | 458.34    | MM5I-HadCM3 (historical)     |
| 10                              | 61.54             | 148.93                                                                          | 203.52 | 238.88  | 274.14  | 300.22  | 326.11   | 351.91   | 385.94   | 411.67    | MM5I-HadCM3 (future)         |
| 11                              | 57.69             | 148.34                                                                          | 202.85 | 231.26  | 267.17  | 293.81  | 320.25   | 346.6    | 381.35   | 407.62    | HRM3-GFDL (historical)       |
| 12                              | 53.85             | 141.66                                                                          | 193    | 222.18  | 259.05  | 286.4   | 313.55   | 340.6    | 376.29   | 403.26    | ECP2-HadCM3 (future)         |
| 13                              | 50.00             | 134.4                                                                           | 188.31 | 214.76  | 248.2   | 273.19  | 302.8    | 332.29   | 371.21   | 400.62    | WRFG-CGCM3 (historical)      |
| 14                              | 46.15             | 132.4                                                                           | 171.35 | 203.16  | 243.37  | 273     | 297.61   | 322.41   | 362.17   | 392.22    | MM5I-CCSM (historical)       |
| 15                              | 42.31             | 129.35                                                                          | 169.44 | 195.98  | 231.56  | 262.03  | 292.28   | 322.14   | 354.5    | 378.96    | WRFG-CCSM (future)           |
| 16                              | 38.46             | 126.84                                                                          | 168.99 | 191.89  | 229.51  | 254.39  | 279.08   | 303.69   | 340.04   | 372.42    | Observed                     |
| 17                              | 34.62             | 123.29                                                                          | 163.95 | 191.43  | 226.15  | 251.91  | 277.48   | 302.96   | 336.57   | 361.97    | WRFG-CCSM (historical)       |
| 18                              | 30.77             | 122.44                                                                          | 160.46 | 190.48  | 221.78  | 247.18  | 272.38   | 297.49   | 336.15   | 360.68    | MM5I-CCSM (future)           |
| 19                              | 26.92             | 119.55                                                                          | 157.98 | 187.55  | 220.83  | 242.29  | 264.73   | 297.2    | 330.63   | 355.67    | ECP2-GFDL (historical)       |
| 20                              | 23.08             | 108.88                                                                          | 157.82 | 178.33  | 204.24  | 232.13  | 263.6    | 284.83   | 312.84   | 334.01    | ECP2-GFDL (future)           |
| 21                              | 19.23             | 76.69                                                                           | 120.01 | 155.04  | 199.3   | 223.46  | 242.54   | 261.55   | 286.64   | 305.59    | ECP2-HadCM3 (historical)     |
| 22                              | 15.38             | 67.1                                                                            | 97.44  | 111.18  | 128.54  | 141.42  | 155.27   | 171.47   | 192.86   | 209.02    | CRCM-CGCM3 (historical)      |
| 23                              | 11.54             | 59.11                                                                           | 83.04  | 100.52  | 122.61  | 139     | 154.2    | 166.94   | 183.74   | 196.44    | CRCM-CGCM3 (future)          |
| 24                              | 7.69              | 56.63                                                                           | 81.38  | 96.13   | 114.76  | 128.58  | 142.3    | 155.96   | 174      | 187.63    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 46.49                                                                           | 66.5   | 79.75   | 96.48   | 108.9   | 121.23   | 133.51   | 149.71   | 161.95    | CRCM-CCSM (historical)       |
| Gauge: 444128; Duration: 30 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 152.77                                                                          | 245.77 | 332.5   | 442.09  | 523.38  | 604.08   | 684.48   | 790.55   | 870.72    | RCM3-GFDL (historical)       |
| 2                               | 92.31             | 152.58                                                                          | 213.15 | 264     | 346.67  | 408     | 468.87   | 529.52   | 609.54   | 670.02    | RCM3-CGCM3 (historical)      |
| 3                               | 88.46             | 132.43                                                                          | 208.35 | 253.13  | 305.94  | 350.42  | 394.57   | 438.56   | 496.59   | 540.46    | RCM3-CGCM3 (future)          |
| 4                               | 84.62             | 127.92                                                                          | 198.57 | 245.98  | 303.65  | 341.12  | 383.49   | 428.93   | 488.88   | 534.19    | RCM3-GFDL (future)           |
| 5                               | 80.77             | 126.86                                                                          | 198.53 | 245.27  | 291.93  | 337.88  | 378.32   | 415.39   | 464.28   | 501.24    | HRM3-GFDL (future)           |
| 6                               | 76.92             | 120.84                                                                          | 194.76 | 236.02  | 291.93  | 326.85  | 365.24   | 403.5    | 453.97   | 492.12    | HRM3-HadCM3 (historical)     |
| 7                               | 73.08             | 117.03                                                                          | 180.97 | 229.99  | 288.17  | 326.54  | 360.9    | 395.13   | 440.29   | 474.42    | HRM3-HadCM3 (future)         |
| 8                               | 69.23             | 114.78                                                                          | 167.42 | 200.78  | 242.93  | 274.21  | 305.25   | 336.17   | 376.98   | 407.82    | WRFG-CGCM3 (future)          |
| 9                               | 65.38             | 113.3                                                                           | 160.44 | 182     | 216.57  | 242.22  | 267.69   | 293.05   | 326.52   | 351.82    | MM5I-HadCM3 (historical)     |
| 10                              | 61.54             | 112.36                                                                          | 154.63 | 181.97  | 209.18  | 229.36  | 249.39   | 269.35   | 295.69   | 315.59    | MM5I-HadCM3 (future)         |
| 11                              | 57.69             | 111.91                                                                          | 153.97 | 175.91  | 203.63  | 224.19  | 244.6    | 264.93   | 291.76   | 312.04    | HRM3-GFDL (historical)       |
| 12                              | 53.85             | 106.93                                                                          | 146.42 | 168.97  | 197.46  | 218.6   | 239.58   | 260.48   | 288.06   | 308.91    | ECP2-HadCM3 (future)         |
| 13                              | 50.00             | 101.17                                                                          | 142.7  | 163.1   | 188.86  | 208.22  | 231.03   | 253.76   | 283.75   | 306.42    | WRFG-CGCM3 (historical)      |
| 14                              | 46.15             | 99.76                                                                           | 129.72 | 154.25  | 185.23  | 207.97  | 226.95   | 245.96   | 276.56   | 299.68    | MM5I-CCSM (historical)       |
| 15                              | 42.31             | 97.28                                                                           | 128.21 | 148.69  | 176.06  | 199.5   | 222.78   | 245.85   | 270.79   | 289.64    | WRFG-CCSM (future)           |
| 16                              | 38.46             | 95.34                                                                           | 127.77 | 145.39  | 174.57  | 193.76  | 212.82   | 231.8    | 256.99   | 276.56    | WRFG-CCSM (historical)       |
| 17                              | 34.62             | 92.69                                                                           | 123.98 | 145.15  | 171.91  | 191.76  | 211.46   | 231.09   | 256.85   | 275.78    | MM5I-CCSM (future)           |
| 18                              | 30.77             | 92                                                                              | 121.29 | 144.45  | 168.5   | 188.06  | 207.46   | 226.8    | 252.31   | 271.59    | ECP2-GFDL (historical)       |
| 19                              | 26.92             | 89.79                                                                           | 119.44 | 142.15  | 167.65  | 184.17  | 200.56   | 216.89   | 238.44   | 254.72    | ECP2-GFDL (future)           |
| 20                              | 23.08             | 81.66                                                                           | 119.18 | 134.96  | 154.89  | 169.69  | 184.37   | 199      | 218.3    | 235.66    | Observed                     |
| 21                              | 19.23             | 57.04                                                                           | 78.65  | 100.44  | 127.97  | 148.4   | 168.67   | 188.87   | 215.52   | 232.88    | ECP2-HadCM3 (historical)     |
| 22                              | 15.38             | 45.74                                                                           | 72.81  | 83.26   | 96.45   | 106.24  | 116.69   | 128.98   | 145.2    | 157.45    | CRCM-CGCM3 (historical)      |
| 23                              | 11.54             | 43.74                                                                           | 61.91  | 75.17   | 91.92   | 104.35  | 115.96   | 125.64   | 138.42   | 148.07    | CRCM-CGCM3 (future)          |
| 24                              | 7.69              | 41.89                                                                           | 60.62  | 71.8    | 85.92   | 96.39   | 106.79   | 117.15   | 130.82   | 141.15    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 34.25                                                                           | 49.32  | 59.29   | 71.9    | 81.25   | 90.53    | 99.78    | 111.98   | 121.2     | CRCM-CCSM (historical)       |
| Gauge: 444128; Duration: 45 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 127.66                                                                          | 210.89 | 287.34  | 383.95  | 455.61  | 526.75   | 597.62   | 691.13   | 761.8     | RCM3-GFDL (historical)       |
| 2                             | 92.31             | 127.49                                                                          | 179.9  | 226.69  | 299.35  | 353.26  | 406.77   | 460.08   | 530.42   | 583.58    | RCM3-CGCM3 (historical)      |
| 3                             | 88.46             | 110.24                                                                          | 175.6  | 214.49  | 260.44  | 298.91  | 337.09   | 375.14   | 425.33   | 463.26    | RCM3-CGCM3 (future)          |
| 4                             | 84.62             | 106.16                                                                          | 169.18 | 208.59  | 258.18  | 290.6   | 328.56   | 368.01   | 420.06   | 459.4     | RCM3-GFDL (future)           |
| 5                             | 80.77             | 105.56                                                                          | 167.55 | 207.45  | 249.08  | 288.97  | 322.78   | 354.84   | 397.14   | 429.11    | HRM3-GFDL (future)           |
| 6                             | 76.92             | 100.14                                                                          | 164.04 | 199.66  | 247.7   | 278.06  | 311.2    | 344.23   | 387.79   | 420.72    | HRM3-HadCM3 (historical)     |
| 7                             | 73.08             | 96.98                                                                           | 152.76 | 195.31  | 244.67  | 277.56  | 307.19   | 336.72   | 375.68   | 405.12    | HRM3-HadCM3 (future)         |
| 8                             | 69.23             | 95.41                                                                           | 140.36 | 169.08  | 205.37  | 232.3   | 259.02   | 285.65   | 320.78   | 347.33    | WRF3-CGCM3 (future)          |
| 9                             | 65.38             | 93.74                                                                           | 134.05 | 152.68  | 182.35  | 204.36  | 226.21   | 247.97   | 276.69   | 298.4     | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 92.89                                                                           | 129.2  | 152.53  | 175.87  | 193.18  | 210.37   | 227.49   | 250.08   | 267.16    | MM5I-HadCM3 (future)         |
| 11                            | 57.69             | 92.51                                                                           | 128.46 | 147.21  | 170.91  | 188.48  | 205.93   | 223.32   | 246.25   | 263.59    | HRM3-GFDL (historical)       |
| 12                            | 53.85             | 88.49                                                                           | 122.06 | 141.38  | 165.78  | 183.88  | 201.85   | 219.76   | 243.38   | 261.23    | ECP2-HadCM3 (future)         |
| 13                            | 50.00             | 83.35                                                                           | 118.78 | 136.18  | 158.16  | 174.8   | 194.27   | 213.67   | 239.26   | 258.6     | WRF3-CGCM3 (historical)      |
| 14                            | 46.15             | 82.32                                                                           | 107.83 | 128.75  | 155.19  | 174.46  | 190.65   | 206.77   | 232.79   | 252.47    | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 80.06                                                                           | 106.5  | 124     | 147.27  | 167.22  | 187.02   | 206.76   | 228.05   | 244.12    | WRF3-CCSM (future)           |
| 16                            | 38.46             | 78.38                                                                           | 105.99 | 120.98  | 146.12  | 162.53  | 178.82   | 195.05   | 216.46   | 232.98    | WRF3-CCSM (historical)       |
| 17                            | 34.62             | 76.23                                                                           | 102.87 | 120.93  | 143.74  | 160.67  | 177.47   | 194.21   | 216.29   | 232.64    | MM5I-CCSM (future)           |
| 18                            | 30.77             | 75.6                                                                            | 100.56 | 120.37  | 140.78  | 157.44  | 173.97   | 190.45   | 212.18   | 228.6     | ECP2-GFDL (historical)       |
| 19                            | 26.92             | 73.72                                                                           | 99.09  | 118.33  | 139.92  | 153.98  | 167.92   | 181.82   | 200.15   | 214.01    | ECP2-GFDL (future)           |
| 20                            | 23.08             | 66.94                                                                           | 98.66  | 112.09  | 129.06  | 141.64  | 154.14   | 166.59   | 183.01   | 195.42    | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 46.15                                                                           | 59.33  | 75      | 95.06   | 109.95  | 124.72   | 139.44   | 158.86   | 173.54    | Observed                     |
| 22                            | 15.38             | 35.13                                                                           | 59.12  | 68.05   | 79.07   | 87.25   | 95.92    | 106.16   | 119.66   | 129.86    | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 35.13                                                                           | 50.31  | 61.35   | 75.3    | 85.65   | 95.37    | 103.46   | 114.13   | 122.19    | CRCM-CGCM3 (future)          |
| 24                            | 7.69              | 33.63                                                                           | 49.17  | 58.46   | 70.2    | 78.91   | 87.55    | 96.16    | 107.53   | 116.12    | CRCM-CCSM (future)           |
| 25                            | 3.85              | 27.32                                                                           | 39.73  | 47.95   | 58.33   | 66.03   | 73.67    | 81.29    | 91.33    | 98.93     | CRCM-CCSM (historical)       |
| Gauge: 444128; Duration: 1 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 93.6                                                                            | 171.3  | 239.15  | 324.88  | 388.48  | 451.61   | 514.5    | 597.49   | 660.2     | RCM3-GFDL (historical)       |
| 2                             | 92.31             | 93.44                                                                           | 136.79 | 184.5   | 248.33  | 295.68  | 342.69   | 389.52   | 451.3    | 498       | RCM3-CGCM3 (historical)      |
| 3                             | 88.46             | 79.74                                                                           | 133.98 | 165.39  | 204.24  | 236.03  | 267.59   | 299.02   | 340.6    | 373.57    | RCM3-GFDL (future)           |
| 4                             | 84.62             | 76.26                                                                           | 132.76 | 161.4   | 201.52  | 230.71  | 263.9    | 296.97   | 340.5    | 371.85    | RCM3-CGCM3 (future)          |
| 5                             | 80.77             | 75.83                                                                           | 127.48 | 158.79  | 197.27  | 228.32  | 254.92   | 281.43   | 316.4    | 342.83    | HRM3-GFDL (future)           |
| 6                             | 76.92             | 71.16                                                                           | 123.84 | 153.04  | 191.68  | 217.3   | 244.46   | 271.53   | 307.24   | 334.23    | HRM3-HadCM3 (historical)     |
| 7                             | 73.08             | 68.95                                                                           | 116.52 | 152.19  | 189.93  | 216.08  | 240.3    | 264.44   | 296.27   | 320.33    | HRM3-HadCM3 (future)         |
| 8                             | 69.23             | 68.83                                                                           | 104.16 | 127.48  | 156.94  | 178.79  | 200.49   | 222.1    | 250.62   | 272.17    | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 66.25                                                                           | 98.17  | 113.51  | 137.3   | 154.95  | 172.47   | 189.92   | 212.95   | 230.36    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 65.44                                                                           | 94.68  | 112.96  | 131.65  | 145.51  | 159.28   | 172.99   | 191.08   | 204.75    | MM5I-HadCM3 (future)         |
| 11                            | 57.69             | 65.16                                                                           | 93.55  | 108.37  | 127.09  | 140.98  | 154.77   | 168.51   | 186.64   | 200.34    | HRM3-GFDL (historical)       |
| 12                            | 53.85             | 62.64                                                                           | 88.68  | 104.06  | 123.49  | 137.91  | 152.22   | 166.48   | 185.3    | 199.52    | ECP2-HadCM3 (future)         |
| 13                            | 50.00             | 57.99                                                                           | 85.78  | 99.44   | 116.69  | 130.15  | 145.44   | 160.68   | 180.78   | 195.97    | WRFG-CGCM3 (historical)      |
| 14                            | 46.15             | 57.68                                                                           | 77.54  | 93.98   | 114.74  | 129.5   | 142.2    | 154.86   | 174.84   | 190.16    | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 55.45                                                                           | 76.35  | 90.18   | 108.26  | 123.8   | 139.21   | 154.57   | 171.56   | 184.19    | WRFG-CCSM (future)           |
| 16                            | 38.46             | 54.09                                                                           | 75.55  | 87.62   | 107.67  | 120.64  | 133.51   | 146.34   | 163.27   | 176.06    | MM5I-CCSM (future)           |
| 17                            | 34.62             | 52.72                                                                           | 73.47  | 87.33   | 105.49  | 118.75  | 131.92   | 145.03   | 162.34   | 175.41    | WRFG-CCSM (historical)       |
| 18                            | 30.77             | 52.1                                                                            | 71.63  | 87.19   | 103.02  | 116.02  | 128.92   | 141.78   | 158.74   | 171.55    | ECP2-GFDL (historical)       |
| 19                            | 26.92             | 50.69                                                                           | 70.76  | 85.5    | 101.88  | 112.79  | 123.61   | 134.39   | 148.62   | 159.37    | ECP2-GFDL (future)           |
| 20                            | 23.08             | 45.73                                                                           | 69.86  | 80.29   | 93.48   | 103.27  | 112.98   | 122.66   | 135.42   | 145.07    | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 30.06                                                                           | 39.65  | 46      | 54.02   | 59.97   | 66.1     | 73.46    | 83.17    | 90.51     | CRCM-CGCM3 (historical)      |
| 22                            | 15.38             | 22.28                                                                           | 33.29  | 41.23   | 51.27   | 58.71   | 65.87    | 71.76    | 79.52    | 85.39     | CRCM-CGCM3 (future)          |
| 23                            | 11.54             | 21.53                                                                           | 32.5   | 39.76   | 48.93   | 55.74   | 62.5     | 69.23    | 78.11    | 84.82     | Observed                     |
| 24                            | 7.69              | 21.3                                                                            | 32.31  | 38.95   | 47.34   | 53.56   | 59.74    | 65.9     | 74.02    | 80.16     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 16.92                                                                           | 25.48  | 31.15   | 38.32   | 43.63   | 48.9     | 54.16    | 61.1     | 66.34     | CRCM-CCSM (historical)       |
| Gauge: 444128; Duration: 2 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 61.44                                                                           | 103.34 | 141.45  | 189.61  | 225.34  | 260.8    | 296.13   | 342.74   | 377.97    | RCM3-GFDL (historical)       |
| 2                             | 92.31             | 61.36                                                                           | 87.16  | 111.13  | 147.29  | 174.11  | 200.74   | 227.27   | 262.27   | 288.72    | RCM3-CGCM3 (historical)      |
| 3                             | 88.46             | 52.92                                                                           | 84.99  | 104.18  | 126.91  | 145.84  | 164.64   | 183.37   | 208.08   | 226.76    | RCM3-CGCM3 (future)          |
| 4                             | 84.62             | 50.85                                                                           | 82.51  | 101.38  | 125.7   | 141.66  | 160.78   | 180.24   | 205.93   | 225.34    | RCM3-GFDL (future)           |
| 5                             | 80.77             | 50.66                                                                           | 81.17  | 100.64  | 121.56  | 141.24  | 157.5    | 173.28   | 194.11   | 209.85    | HRM3-GFDL (future)           |
| 6                             | 76.92             | 47.92                                                                           | 79.37  | 96.89   | 120.4   | 135.43  | 151.72   | 167.96   | 189.37   | 205.56    | HRM3-HadCM3 (historical)     |
| 7                             | 73.08             | 46.42                                                                           | 74.02  | 95.02   | 119.01  | 135.07  | 149.63   | 164.13   | 183.27   | 197.73    | HRM3-HadCM3 (future)         |
| 8                             | 69.23             | 45.77                                                                           | 67.7   | 81.79   | 99.59   | 112.79  | 125.9    | 138.96   | 156.2    | 169.22    | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 44.81                                                                           | 64.51  | 73.68   | 88.2    | 98.98   | 109.68   | 120.34   | 134.4    | 145.02    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 44.39                                                                           | 62.18  | 73.55   | 84.97   | 93.44   | 101.85   | 110.23   | 121.29   | 129.64    | MM5I-HadCM3 (future)         |
| 11                            | 57.69             | 44.2                                                                            | 61.75  | 70.91   | 82.48   | 91.06   | 99.58    | 108.07   | 119.27   | 127.73    | HRM3-GFDL (historical)       |
| 12                            | 53.85             | 42.31                                                                           | 58.65  | 68.1    | 80.03   | 88.88   | 97.67    | 106.42   | 117.97   | 126.7     | ECP2-HadCM3 (future)         |
| 13                            | 50.00             | 39.73                                                                           | 57.01  | 65.5    | 76.22   | 84.38   | 93.87    | 103.33   | 115.81   | 125.25    | WRFG-CGCM3 (historical)      |
| 14                            | 46.15             | 39.29                                                                           | 51.72  | 61.92   | 74.82   | 84.17   | 92.06    | 99.93    | 112.58   | 122.17    | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 38.13                                                                           | 51.04  | 59.59   | 70.93   | 80.65   | 90.29    | 99.9     | 110.3    | 118.15    | WRFG-CCSM (future)           |
| 16                            | 38.46             | 37.32                                                                           | 50.75  | 58.08   | 70.39   | 78.4    | 86.36    | 94.28    | 104.74   | 112.73    | WRFG-CCSM (historical)       |
| 17                            | 34.62             | 36.31                                                                           | 49.28  | 58.05   | 69.21   | 77.46   | 85.66    | 93.82    | 104.59   | 112.64    | MM5I-CCSM (future)           |
| 18                            | 30.77             | 35.98                                                                           | 48.15  | 57.83   | 67.75   | 75.87   | 83.92    | 91.95    | 102.54   | 110.55    | ECP2-GFDL (historical)       |
| 19                            | 26.92             | 35.07                                                                           | 47.46  | 56.81   | 67.27   | 74.11   | 80.9     | 87.66    | 96.58    | 103.33    | ECP2-GFDL (future)           |
| 20                            | 23.08             | 31.8                                                                            | 47.19  | 53.72   | 61.98   | 68.11   | 74.19    | 80.25    | 88.24    | 94.28     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 21.74                                                                           | 28.08  | 32.27   | 37.57   | 41.51   | 45.67    | 50.58    | 57.07    | 61.97     | CRCM-CGCM3 (historical)      |
| 22                            | 15.38             | 16.47                                                                           | 23.77  | 29.07   | 35.77   | 40.74   | 45.41    | 49.3     | 54.43    | 58.32     | Observed                     |
| 23                            | 11.54             | 15.76                                                                           | 23.2   | 27.65   | 33.65   | 38.33   | 42.98    | 47.6     | 53.71    | 58.31     | CRCM-CGCM3 (future)          |
| 24                            | 7.69              | 14.82                                                                           | 22.36  | 27.35   | 33.27   | 37.45   | 41.59    | 45.72    | 51.16    | 55.28     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 12.75                                                                           | 18.66  | 22.58   | 27.52   | 31.19   | 34.83    | 38.46    | 43.25    | 46.87     | CRCM-CCSM (historical)       |
| Gauge: 444128; Duration: 3 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 48.91                                                                           | 80.8   | 110.09  | 147.1   | 174.55  | 201.81   | 228.96   | 264.78   | 291.86    | RCM3-GFDL (historical)       |
| 2                             | 92.31             | 48.84                                                                           | 68.93  | 86.85   | 114.69  | 135.35  | 155.85   | 176.28   | 203.23   | 223.59    | RCM3-CGCM3 (historical)      |
| 3                             | 88.46             | 42.24                                                                           | 67.28  | 82.18   | 99.78   | 114.52  | 129.14   | 143.72   | 162.95   | 177.48    | RCM3-CGCM3 (future)          |
| 4                             | 84.62             | 40.67                                                                           | 64.82  | 79.91   | 98.92   | 111.35  | 125.86   | 140.97   | 160.91   | 175.98    | RCM3-GFDL (future)           |
| 5                             | 80.77             | 40.45                                                                           | 64.19  | 79.48   | 95.41   | 110.69  | 123.68   | 135.96   | 152.17   | 164.42    | HRM3-GFDL (future)           |
| 6                             | 76.92             | 38.36                                                                           | 62.85  | 76.49   | 94.91   | 106.52  | 119.22   | 131.87   | 148.56   | 161.17    | HRM3-HadCM3 (historical)     |
| 7                             | 73.08             | 37.15                                                                           | 58.52  | 74.82   | 93.73   | 106.35  | 117.7    | 129.02   | 143.94   | 155.23    | HRM3-HadCM3 (future)         |
| 8                             | 69.23             | 36.56                                                                           | 53.77  | 64.78   | 78.69   | 89      | 99.24    | 109.44   | 122.91   | 133.08    | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 35.92                                                                           | 51.37  | 58.49   | 69.85   | 78.28   | 86.65    | 94.99    | 105.99   | 114.3     | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 35.58                                                                           | 49.5   | 58.45   | 67.39   | 74.03   | 80.61    | 87.18    | 95.84    | 102.38    | MM5I-HadCM3 (future)         |
| 11                            | 57.69             | 35.44                                                                           | 49.22  | 56.4    | 65.48   | 72.21   | 78.9     | 85.56    | 94.35    | 100.99    | HRM3-GFDL (historical)       |
| 12                            | 53.85             | 33.89                                                                           | 46.76  | 54.16   | 63.52   | 70.45   | 77.34    | 84.2     | 93.25    | 100.1     | ECP2-HadCM3 (future)         |
| 13                            | 50.00             | 31.93                                                                           | 45.51  | 52.17   | 60.59   | 66.98   | 74.43    | 81.86    | 91.67    | 99.08     | WRFG-CGCM3 (historical)      |
| 14                            | 46.15             | 31.54                                                                           | 41.32  | 49.33   | 59.46   | 66.84   | 73.04    | 79.22    | 89.19    | 96.73     | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 30.67                                                                           | 40.8   | 47.5    | 56.42   | 64.07   | 71.66    | 79.22    | 87.37    | 93.53     | WRFG-CCSM (future)           |
| 16                            | 38.46             | 30.03                                                                           | 40.6   | 46.34   | 55.97   | 62.26   | 68.5     | 74.71    | 82.91    | 89.24     | WRFG-CCSM (historical)       |
| 17                            | 34.62             | 29.21                                                                           | 39.4   | 46.32   | 55.06   | 61.54   | 67.98    | 74.39    | 82.85    | 89.11     | MM5I-CCSM (future)           |
| 18                            | 30.77             | 28.96                                                                           | 38.54  | 46.12   | 53.95   | 60.33   | 66.67    | 72.99    | 81.31    | 87.61     | ECP2-GFDL (historical)       |
| 19                            | 26.92             | 28.25                                                                           | 37.96  | 45.35   | 53.59   | 58.97   | 64.31    | 69.63    | 76.65    | 81.96     | ECP2-GFDL (future)           |
| 20                            | 23.08             | 25.64                                                                           | 37.79  | 42.94   | 49.44   | 54.26   | 59.04    | 63.81    | 70.1     | 74.85     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 17.68                                                                           | 22.73  | 26.07   | 30.29   | 33.42   | 36.75    | 40.67    | 45.84    | 49.75     | CRCM-CGCM3 (historical)      |
| 22                            | 15.38             | 13.46                                                                           | 19.27  | 23.5    | 28.85   | 32.81   | 36.53    | 39.63    | 43.71    | 46.8      | CRCM-CGCM3 (future)          |
| 23                            | 11.54             | 12.88                                                                           | 18.83  | 22.39   | 26.91   | 30.62   | 34.31    | 37.98    | 42.82    | 46.48     | Observed                     |
| 24                            | 7.69              | 11.96                                                                           | 17.94  | 21.9    | 26.89   | 30.22   | 33.53    | 36.83    | 41.18    | 44.47     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 10.47                                                                           | 15.22  | 18.37   | 22.35   | 25.3    | 28.23    | 31.14    | 34.99    | 37.9      | CRCM-CCSM (historical)       |
| Gauge: 444128; Duration: 4 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |            |             |             |             |          |          |          |           | Data Source<br>for 1000-year |
|-------------------|---------------------------------------------------------------------------------|------------|-------------|-------------|-------------|----------|----------|----------|-----------|------------------------------|
|                   | 2                                                                               | 5          | 10          | 25          | 50          | 100      | 200      | 500      | 1000      |                              |
|                   | 0.5                                                                             | 0.2        | 0.1         | 0.04        | 0.02        | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 96.15             | 47.9                                                                            | 80.4       | 109.96      | 147.31      | 175.02      | 202.52   | 229.92   | 266.07   | 293.4     | RCM3-GFDL (historical)       |
| 92.31             | 47.84                                                                           | 67.85      | 86.44       | 114.49      | 135.29      | 155.94   | 176.51   | 203.65   | 224.17    | RCM3-CGCM3 (historical)      |
| 88.46             | 41.3                                                                            | 66.17      | 81.06       | 98.67       | 113.35      | 127.92   | 142.44   | 161.6    | 176.08    | RCM3-CGCM3 (future)          |
| 84.62             | 39.69                                                                           | 64.25      | 78.87       | 97.74       | 110.12      | 124.94   | 140.03   | 159.95   | 175       | RCM3-GFDL (future)           |
| 80.77             | 39.55                                                                           | 63.21      | 78.31       | 94.52       | 109.78      | 122.41   | 134.65   | 150.8    | 163.01    | HRM3-GFDL (future)           |
| 76.92             | 37.43                                                                           | 61.81      | 75.39       | 93.64       | 105.28      | 117.91   | 130.5    | 147.11   | 159.66    | HRM3-HadCM3 (historical)     |
| 73.08             | 36.25                                                                           | 57.66      | 73.95       | 92.55       | 105.02      | 116.31   | 127.56   | 142.4    | 153.61    | HRM3-HadCM3 (future)         |
| 69.23             | 35.75                                                                           | 52.76      | 63.69       | 77.5        | 87.74       | 97.91    | 108.05   | 121.41   | 131.52    | WRFG-CGCM3 (future)          |
| 65.38             | 35.01                                                                           | 50.28      | 57.39       | 68.66       | 77.02       | 85.31    | 93.58    | 104.49   | 112.73    | MM5I-HadCM3 (historical)     |
| 61.54             | 34.68                                                                           | 48.48      | 57.29       | 66.15       | 72.72       | 79.24    | 85.74    | 94.31    | 100.79    | MM5I-HadCM3 (future)         |
| 57.69             | 34.53                                                                           | 48.15      | 55.26       | 64.23       | 70.89       | 77.5     | 84.08    | 92.77    | 99.34     | HRM3-GFDL (historical)       |
| 53.85             | 33.07                                                                           | 45.75      | 53.07       | 62.33       | 69.2        | 76.01    | 82.8     | 91.76    | 98.53     | ECP2-HadCM3 (future)         |
| 50.00             | 31.07                                                                           | 44.47      | 51.04       | 59.35       | 65.68       | 73.04    | 80.37    | 90.05    | 97.36     | WRFG-CGCM3 (historical)      |
| 46.15             | 30.73                                                                           | 40.36      | 48.27       | 58.26       | 65.52       | 71.64    | 77.73    | 87.56    | 94.99     | MM5I-CCSM (historical)       |
| 42.31             | 29.83                                                                           | 39.84      | 46.47       | 55.26       | 62.8        | 70.28    | 77.73    | 85.78    | 91.86     | WRFG-CCSM (future)           |
| 38.46             | 29.2                                                                            | 39.62      | 45.3        | 54.85       | 61.06       | 67.23    | 73.37    | 81.48    | 87.68     | WRFG-CCSM (historical)       |
| 34.62             | 28.41                                                                           | 38.48      | 45.28       | 53.93       | 60.33       | 66.69    | 73.02    | 81.37    | 87.61     | MM5I-CCSM (future)           |
| 30.77             | 28.16                                                                           | 37.6       | 45.11       | 52.8        | 59.1        | 65.35    | 71.58    | 79.79    | 86        | ECP2-GFDL (historical)       |
| 26.92             | 27.45                                                                           | 37.07      | 44.32       | 52.42       | 57.73       | 62.99    | 68.24    | 75.16    | 80.39     | ECP2-GFDL (future)           |
| 23.08             | 24.92                                                                           | 36.86      | 41.93       | 48.34       | 53.1        | 57.82    | 62.52    | 68.72    | 73.41     | ECP2-HadCM3 (historical)     |
| 19.23             | 17.12                                                                           | 22.03      | 25.28       | 29.39       | 32.44       | 35.66    | 39.47    | 44.49    | 48.29     | CRCM-CGCM3 (historical)      |
| 15.38             | 13.03                                                                           | 18.69      | 22.8        | 27.99       | 31.84       | 35.47    | 38.49    | 42.46    | 45.47     | CRCM-CGCM3 (future)          |
| 11.54             | 12.49                                                                           | 18.25      | 21.7        | 26.06       | 29.29       | 32.51    | 35.71    | 39.93    | 43.12     | CRCM-CCSM (future)           |
| 7.69              | 10.15                                                                           | 14.73      | 17.77       | 21.61       | 24.45       | 27.28    | 30.09    | 33.81    | 36.62     | CRCM-CCSM (historical)       |
| 3.85              | 8.72                                                                            | 13.19      | 16.15       | 19.89       | 22.67       | 25.42    | 28.17    | 31.79    | 34.52     | Observed                     |
|                   | 2-<br>year                                                                      | 5-<br>year | 10-<br>year | 25-<br>year | 50-<br>year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 30.65                                                                           | 51.18  | 69.87   | 93.47   | 110.98  | 128.37   | 145.69   | 168.53   | 185.8     | RCM3-GFDL (historical)       |
| 2                              | 92.31             | 30.61                                                                           | 43.25  | 55      | 72.72   | 85.87   | 98.92    | 111.92   | 129.07   | 142.04    | RCM3-CGCM3 (historical)      |
| 3                              | 88.46             | 26.47                                                                           | 42.19  | 51.59   | 62.73   | 72.01   | 81.22    | 90.4     | 102.51   | 111.66    | RCM3-CGCM3 (future)          |
| 4                              | 84.62             | 25.46                                                                           | 40.98  | 50.22   | 62.14   | 69.96   | 79.34    | 88.88    | 101.46   | 110.98    | RCM3-GFDL (future)           |
| 5                              | 80.77             | 25.37                                                                           | 40.32  | 49.86   | 60.11   | 69.76   | 77.72    | 85.45    | 95.66    | 103.37    | HRM3-GFDL (future)           |
| 6                              | 76.92             | 24.02                                                                           | 39.44  | 48.02   | 59.56   | 66.91   | 74.9     | 82.85    | 93.35    | 101.29    | HRM3-HadCM3 (historical)     |
| 7                              | 73.08             | 23.28                                                                           | 36.82  | 47.11   | 58.86   | 66.75   | 73.88    | 80.99    | 90.38    | 97.47     | HRM3-HadCM3 (future)         |
| 8                              | 69.23             | 22.97                                                                           | 33.71  | 40.61   | 49.34   | 55.81   | 62.23    | 68.63    | 77.08    | 83.46     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 22.5                                                                            | 32.15  | 36.64   | 43.76   | 49.04   | 54.29    | 59.51    | 66.4     | 71.61     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 22.29                                                                           | 31.01  | 36.58   | 42.17   | 46.32   | 50.45    | 54.55    | 59.97    | 64.06     | MM5I-HadCM3 (future)         |
| 11                             | 57.69             | 22.2                                                                            | 30.8   | 35.29   | 40.96   | 45.16   | 49.34    | 53.5     | 58.99    | 63.14     | HRM3-GFDL (historical)       |
| 12                             | 53.85             | 21.27                                                                           | 29.28  | 33.91   | 39.76   | 44.1    | 48.4     | 52.69    | 58.35    | 62.63     | ECP2-HadCM3 (future)         |
| 13                             | 50.00             | 20.01                                                                           | 28.49  | 32.65   | 37.9    | 41.89   | 46.55    | 51.19    | 57.31    | 61.93     | WRFG-CGCM3 (historical)      |
| 14                             | 46.15             | 19.79                                                                           | 25.88  | 30.88   | 37.21   | 41.8    | 45.67    | 49.53    | 55.7     | 60.39     | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 19.22                                                                           | 25.55  | 29.74   | 35.29   | 40.05   | 44.78    | 49.48    | 54.62    | 58.46     | WRFG-CCSM (future)           |
| 16                             | 38.46             | 18.82                                                                           | 25.41  | 28.99   | 35.03   | 38.96   | 42.86    | 46.74    | 51.87    | 55.76     | WRFG-CCSM (historical)       |
| 17                             | 34.62             | 18.33                                                                           | 24.68  | 28.98   | 34.44   | 38.49   | 42.5     | 46.5     | 51.77    | 55.74     | MM5I-CCSM (future)           |
| 18                             | 30.77             | 18.17                                                                           | 24.14  | 28.87   | 33.74   | 37.71   | 41.66    | 45.59    | 50.78    | 54.7      | ECP2-GFDL (historical)       |
| 19                             | 26.92             | 17.73                                                                           | 23.8   | 28.38   | 33.5    | 36.85   | 40.18    | 43.49    | 47.86    | 51.17     | ECP2-GFDL (future)           |
| 20                             | 23.08             | 16.12                                                                           | 23.66  | 26.87   | 30.92   | 33.93   | 36.91    | 39.88    | 43.8     | 46.77     | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 11.19                                                                           | 14.3   | 16.36   | 18.96   | 20.9    | 22.92    | 25.33    | 28.5     | 30.9      | CRCM-CGCM3 (historical)      |
| 22                             | 15.38             | 8.61                                                                            | 12.18  | 14.78   | 18.06   | 20.5    | 22.81    | 24.72    | 27.24    | 29.14     | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 8.26                                                                            | 11.9   | 14.09   | 16.84   | 18.89   | 20.92    | 22.94    | 25.61    | 27.63     | CRCM-CCSM (future)           |
| 24                             | 7.69              | 6.79                                                                            | 9.69   | 11.61   | 14.03   | 15.83   | 17.62    | 19.4     | 21.74    | 23.52     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 5.36                                                                            | 8.02   | 9.78    | 12      | 13.65   | 15.29    | 16.92    | 19.08    | 20.71     | Observed                     |
| Gauge: 444128; Duration: 12 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 16.65                                                                           | 27.58  | 37.53   | 50.1    | 59.42   | 68.67    | 77.9     | 90.06    | 99.25     | RCM3-GFDL (historical)       |
| 2                              | 92.31             | 16.63                                                                           | 23.36  | 29.62   | 39.05   | 46.05   | 52.99    | 59.92    | 69.05    | 75.95     | RCM3-CGCM3 (historical)      |
| 3                              | 88.46             | 14.43                                                                           | 22.8   | 27.8    | 33.74   | 38.68   | 43.58    | 48.47    | 54.92    | 59.79     | RCM3-CGCM3 (future)          |
| 4                              | 84.62             | 13.89                                                                           | 22.15  | 27.07   | 33.41   | 37.58   | 42.59    | 47.67    | 54.38    | 59.45     | RCM3-GFDL (future)           |
| 5                              | 80.77             | 13.84                                                                           | 21.8   | 26.89   | 32.35   | 37.49   | 41.71    | 45.82    | 51.26    | 55.36     | HRM3-GFDL (future)           |
| 6                              | 76.92             | 13.12                                                                           | 21.33  | 25.9    | 32.05   | 35.96   | 40.21    | 44.44    | 50.03    | 54.26     | HRM3-HadCM3 (historical)     |
| 7                              | 73.08             | 12.73                                                                           | 19.94  | 25.42   | 31.67   | 35.87   | 39.67    | 43.46    | 48.46    | 52.23     | HRM3-HadCM3 (future)         |
| 8                              | 69.23             | 12.56                                                                           | 18.29  | 21.97   | 26.62   | 30.07   | 33.49    | 36.9     | 41.4     | 44.8      | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 12.31                                                                           | 17.45  | 19.84   | 23.64   | 26.45   | 29.24    | 32.02    | 35.7     | 38.47     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 12.2                                                                            | 16.84  | 19.81   | 22.79   | 25      | 27.19    | 29.38    | 32.26    | 34.44     | MM5I-HadCM3 (future)         |
| 11                             | 57.69             | 12.15                                                                           | 16.73  | 19.11   | 22.13   | 24.37   | 26.59    | 28.8     | 31.72    | 33.93     | HRM3-GFDL (historical)       |
| 12                             | 53.85             | 11.66                                                                           | 15.92  | 18.38   | 21.49   | 23.8    | 26.1     | 28.38    | 31.39    | 33.67     | ECP2-HadCM3 (future)         |
| 13                             | 50.00             | 10.99                                                                           | 15.49  | 17.7    | 20.5    | 22.64   | 25.11    | 27.58    | 30.84    | 33.3      | WRFG-CGCM3 (historical)      |
| 14                             | 46.15             | 10.87                                                                           | 14.11  | 16.78   | 20.14   | 22.57   | 24.63    | 26.68    | 29.97    | 32.47     | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 10.56                                                                           | 13.93  | 16.16   | 19.11   | 21.65   | 24.16    | 26.67    | 29.38    | 31.43     | WRFG-CCSM (future)           |
| 16                             | 38.46             | 10.35                                                                           | 13.86  | 15.78   | 18.98   | 21.07   | 23.14    | 25.21    | 27.93    | 30.05     | WRFG-CCSM (historical)       |
| 17                             | 34.62             | 10.09                                                                           | 13.48  | 15.76   | 18.68   | 20.84   | 22.98    | 25.11    | 27.92    | 29.99     | MM5I-CCSM (future)           |
| 18                             | 30.77             | 10                                                                              | 13.18  | 15.7    | 18.29   | 20.41   | 22.51    | 24.6     | 27.36    | 29.45     | ECP2-GFDL (historical)       |
| 19                             | 26.92             | 9.77                                                                            | 12.99  | 15.44   | 18.16   | 19.95   | 21.71    | 23.48    | 25.8     | 27.56     | ECP2-GFDL (future)           |
| 20                             | 23.08             | 8.91                                                                            | 12.93  | 14.64   | 16.8    | 18.4    | 19.99    | 21.57    | 23.66    | 25.24     | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 6.29                                                                            | 7.95   | 9.04    | 10.42   | 11.45   | 12.52    | 13.8     | 15.49    | 16.77     | CRCM-CGCM3 (historical)      |
| 22                             | 15.38             | 4.91                                                                            | 6.82   | 8.2     | 9.94    | 11.24   | 12.47    | 13.48    | 14.82    | 15.83     | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 4.73                                                                            | 6.67   | 7.84    | 9.31    | 10.4    | 11.48    | 12.56    | 13.99    | 15.06     | CRCM-CCSM (future)           |
| 24                             | 7.69              | 3.94                                                                            | 5.49   | 6.51    | 7.81    | 8.77    | 9.72     | 10.67    | 11.92    | 12.87     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 3.29                                                                            | 4.74   | 5.7     | 6.91    | 7.81    | 8.7      | 9.59     | 10.77    | 11.65     | Observed                     |
| Gauge: 444128; Duration: 24 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 8.87                                                                            | 14.59  | 19.8    | 26.38   | 31.26   | 36.11    | 40.93    | 47.3     | 52.12     | RCM3-GFDL (historical)       |
| 2                              | 92.31             | 8.85                                                                            | 12.38  | 15.65   | 20.59   | 24.26   | 27.89    | 31.52    | 36.3     | 39.91     | RCM3-CGCM3 (historical)      |
| 3                              | 88.46             | 7.7                                                                             | 12.08  | 14.71   | 17.82   | 20.41   | 22.98    | 25.54    | 28.91    | 31.47     | RCM3-CGCM3 (future)          |
| 4                              | 84.62             | 7.42                                                                            | 11.75  | 14.33   | 17.65   | 19.84   | 22.43    | 25.09    | 28.59    | 31.24     | RCM3-GFDL (future)           |
| 5                              | 80.77             | 7.39                                                                            | 11.57  | 14.21   | 17.08   | 19.76   | 22       | 24.16    | 27.01    | 29.16     | HRM3-GFDL (future)           |
| 6                              | 76.92             | 7.02                                                                            | 11.31  | 13.71   | 16.91   | 18.97   | 21.2     | 23.42    | 26.34    | 28.56     | HRM3-HadCM3 (historical)     |
| 7                              | 73.08             | 6.81                                                                            | 10.59  | 13.45   | 16.73   | 18.91   | 20.9     | 22.88    | 25.49    | 27.46     | HRM3-HadCM3 (future)         |
| 8                              | 69.23             | 6.73                                                                            | 9.72   | 11.64   | 14.07   | 15.88   | 17.67    | 19.45    | 21.81    | 23.59     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 6.6                                                                             | 9.29   | 10.54   | 12.52   | 13.99   | 15.45    | 16.9     | 18.82    | 20.27     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 6.54                                                                            | 8.97   | 10.52   | 12.08   | 13.24   | 14.39    | 15.53    | 17.04    | 18.18     | MM5I-HadCM3 (future)         |
| 11                             | 57.69             | 6.51                                                                            | 8.91   | 10.16   | 11.74   | 12.92   | 14.08    | 15.24    | 16.77    | 17.93     | HRM3-GFDL (historical)       |
| 12                             | 53.85             | 6.26                                                                            | 8.49   | 9.78    | 11.42   | 12.63   | 13.83    | 15.03    | 16.61    | 17.81     | ECP2-HadCM3 (future)         |
| 13                             | 50.00             | 5.9                                                                             | 8.26   | 9.42    | 10.89   | 11.99   | 13.29    | 14.58    | 16.28    | 17.57     | WRFG-CGCM3 (historical)      |
| 14                             | 46.15             | 5.84                                                                            | 7.53   | 8.92    | 10.68   | 11.97   | 13.05    | 14.12    | 15.85    | 17.15     | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 5.68                                                                            | 7.45   | 8.62    | 10.16   | 11.48   | 12.8     | 14.11    | 15.54    | 16.61     | WRFG-CCSM (future)           |
| 16                             | 38.46             | 5.57                                                                            | 7.4    | 8.41    | 10.1    | 11.19   | 12.28    | 13.37    | 14.8     | 15.89     | WRFG-CCSM (historical)       |
| 17                             | 34.62             | 5.43                                                                            | 7.2    | 8.4     | 9.93    | 11.06   | 12.18    | 13.3     | 14.77    | 15.88     | MM5I-CCSM (future)           |
| 18                             | 30.77             | 5.38                                                                            | 7.05   | 8.37    | 9.73    | 10.84   | 11.94    | 13.03    | 14.48    | 15.57     | ECP2-GFDL (historical)       |
| 19                             | 26.92             | 5.27                                                                            | 6.95   | 8.24    | 9.65    | 10.59   | 11.51    | 12.43    | 13.65    | 14.57     | ECP2-GFDL (future)           |
| 20                             | 23.08             | 4.81                                                                            | 6.92   | 7.82    | 8.95    | 9.79    | 10.62    | 11.45    | 12.54    | 13.37     | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 3.44                                                                            | 4.31   | 4.88    | 5.6     | 6.14    | 6.72     | 7.39     | 8.28     | 8.95      | CRCM-CGCM3 (historical)      |
| 22                             | 15.38             | 2.72                                                                            | 3.72   | 4.45    | 5.36    | 6.04    | 6.67     | 7.21     | 7.91     | 8.44      | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 2.63                                                                            | 3.64   | 4.25    | 5.02    | 5.59    | 6.15     | 6.72     | 7.46     | 8.02      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 2.21                                                                            | 3.01   | 3.55    | 4.22    | 4.72    | 5.21     | 5.71     | 6.36     | 6.85      | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.76                                                                            | 2.63   | 3.2     | 3.92    | 4.46    | 4.99     | 5.53     | 6.23     | 6.76      | Observed                     |
| Gauge: 444128; Duration: 48 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 5.89                                                                            | 9.64   | 13.06   | 17.37   | 20.56   | 23.74    | 26.9     | 31.07    | 34.22     | RCM3-GFDL (historical)       |
| 2                              | 92.31             | 5.89                                                                            | 8.19   | 10.33   | 13.56   | 15.96   | 18.34    | 20.71    | 23.84    | 26.2      | RCM3-CGCM3 (historical)      |
| 3                              | 88.46             | 5.13                                                                            | 8      | 9.71    | 11.76   | 13.45   | 15.13    | 16.81    | 19.02    | 20.69     | RCM3-CGCM3 (future)          |
| 4                              | 84.62             | 4.94                                                                            | 7.77   | 9.47    | 11.63   | 13.06   | 14.78    | 16.52    | 18.82    | 20.55     | RCM3-GFDL (future)           |
| 5                              | 80.77             | 4.93                                                                            | 7.66   | 9.4     | 11.27   | 13.03   | 14.48    | 15.89    | 17.75    | 19.15     | HRM3-GFDL (future)           |
| 6                              | 76.92             | 4.68                                                                            | 7.5    | 9.07    | 11.16   | 12.52   | 13.98    | 15.43    | 17.35    | 18.8      | HRM3-HadCM3 (historical)     |
| 7                              | 73.08             | 4.55                                                                            | 7.02   | 8.9     | 11.05   | 12.48   | 13.78    | 15.07    | 16.78    | 18.08     | HRM3-HadCM3 (future)         |
| 8                              | 69.23             | 4.49                                                                            | 6.45   | 7.7     | 9.29    | 10.47   | 11.64    | 12.81    | 14.35    | 15.51     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 4.4                                                                             | 6.16   | 6.99    | 8.29    | 9.25    | 10.21    | 11.17    | 12.42    | 13.38     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 4.36                                                                            | 5.96   | 6.97    | 7.99    | 8.75    | 9.5      | 10.25    | 11.23    | 11.98     | MM5I-HadCM3 (future)         |
| 11                             | 57.69             | 4.35                                                                            | 5.92   | 6.74    | 7.77    | 8.54    | 9.3      | 10.06    | 11.06    | 11.82     | HRM3-GFDL (historical)       |
| 12                             | 53.85             | 4.18                                                                            | 5.64   | 6.48    | 7.54    | 8.33    | 9.12     | 9.9      | 10.93    | 11.71     | ECP2-HadCM3 (future)         |
| 13                             | 50.00             | 3.95                                                                            | 5.5    | 6.26    | 7.22    | 7.94    | 8.79     | 9.64     | 10.76    | 11.6      | WRFG-CGCM3 (historical)      |
| 14                             | 46.15             | 3.91                                                                            | 5.02   | 5.94    | 7.09    | 7.93    | 8.64     | 9.34     | 10.44    | 11.3      | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 3.8                                                                             | 4.96   | 5.73    | 6.73    | 7.6     | 8.46     | 9.31     | 10.27    | 10.98     | WRFG-CCSM (future)           |
| 16                             | 38.46             | 3.74                                                                            | 4.94   | 5.6     | 6.7     | 7.42    | 8.13     | 8.84     | 9.78     | 10.5      | WRFG-CCSM (historical)       |
| 17                             | 34.62             | 3.64                                                                            | 4.81   | 5.59    | 6.6     | 7.34    | 8.07     | 8.81     | 9.77     | 10.49     | MM5I-CCSM (future)           |
| 18                             | 30.77             | 3.62                                                                            | 4.7    | 5.56    | 6.45    | 7.17    | 7.89     | 8.61     | 9.55     | 10.26     | ECP2-GFDL (historical)       |
| 19                             | 26.92             | 3.53                                                                            | 4.64   | 5.47    | 6.42    | 7.03    | 7.64     | 8.25     | 9.05     | 9.66      | ECP2-GFDL (future)           |
| 20                             | 23.08             | 3.24                                                                            | 4.62   | 5.2     | 5.94    | 6.49    | 7.04     | 7.58     | 8.29     | 8.84      | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 2.34                                                                            | 2.91   | 3.28    | 3.76    | 4.11    | 4.48     | 4.92     | 5.5      | 5.94      | CRCM-CGCM3 (historical)      |
| 22                             | 15.38             | 1.87                                                                            | 2.52   | 3       | 3.6     | 4.04    | 4.46     | 4.8      | 5.26     | 5.61      | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 1.81                                                                            | 2.47   | 2.87    | 3.37    | 3.74    | 4.11     | 4.48     | 4.97     | 5.34      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 1.54                                                                            | 2.07   | 2.42    | 2.87    | 3.2     | 3.58     | 3.96     | 4.47     | 4.85      | Observed                     |
| 25                             | 3.85              | 1.23                                                                            | 1.86   | 2.28    | 2.8     | 3.19    | 3.52     | 3.85     | 4.28     | 4.6       | CRCM-CCSM (historical)       |
| Gauge: 444128; Duration: 72 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 421.84                                                                          | 529.5  | 589.86  | 666.18  | 715.08  | 758.73   | 798.37   | 900.89   | 986.47    | Observed                     |
| 2                               | 92.31             | 407.49                                                                          | 522.85 | 583.23  | 641.88  | 680.01  | 713.64   | 785.64   | 845.99   | 879.12    | HRM3-HadCM3 (historical)     |
| 3                               | 88.46             | 381.4                                                                           | 517.91 | 581.3   | 638.4   | 672.9   | 703.18   | 743.87   | 779.82   | 804.61    | HRM3-HadCM3 (future)         |
| 4                               | 84.62             | 354.58                                                                          | 431.88 | 487.32  | 545.6   | 605.58  | 696.58   | 730.29   | 762.41   | 784.48    | HRM3-GFDL (future)           |
| 5                               | 80.77             | 325.09                                                                          | 419.08 | 449.94  | 527.66  | 582.68  | 629.18   | 674.05   | 729.01   | 767.89    | RCM3-CGCM3 (historical)      |
| 6                               | 76.92             | 314.95                                                                          | 385.09 | 447.58  | 513.78  | 580.72  | 616.39   | 661.93   | 717.84   | 757.49    | RCM3-GFDL (future)           |
| 7                               | 73.08             | 296.11                                                                          | 377.45 | 433.33  | 512.26  | 567.33  | 615.63   | 645.44   | 694.06   | 738.53    | RCM3-GFDL (historical)       |
| 8                               | 69.23             | 291.64                                                                          | 375.36 | 430.6   | 485.43  | 530.43  | 582.02   | 631.98   | 681.1    | 705.83    | HRM3-GFDL (historical)       |
| 9                               | 65.38             | 274.84                                                                          | 365.06 | 416.85  | 480.86  | 528.84  | 571.27   | 608.87   | 654.66   | 686.9     | RCM3-CGCM3 (future)          |
| 10                              | 61.54             | 256.99                                                                          | 362.77 | 411.89  | 478.02  | 508     | 534.51   | 558.4    | 586.88   | 606.56    | WRFG-CGCM3 (historical)      |
| 11                              | 57.69             | 248.13                                                                          | 361.2  | 407.64  | 471.6   | 499.83  | 520.26   | 545.43   | 575.55   | 596.43    | WRFG-CCSM (future)           |
| 12                              | 53.85             | 244.23                                                                          | 354.21 | 398.04  | 461.11  | 492.43  | 516.27   | 530.84   | 547.91   | 560.41    | MM5I-CCSM (future)           |
| 13                              | 50.00             | 242.03                                                                          | 337.82 | 387.36  | 438.07  | 456.82  | 484.05   | 509.2    | 539.4    | 559.52    | MM5I-HadCM3 (future)         |
| 14                              | 46.15             | 241.51                                                                          | 331.1  | 384.27  | 434.13  | 456.63  | 476.34   | 497.38   | 523.82   | 542.11    | WRFG-CCSM (historical)       |
| 15                              | 42.31             | 235.37                                                                          | 318.14 | 379.48  | 425.31  | 456.35  | 475.25   | 493.96   | 514.8    | 530.35    | MM5I-CCSM (historical)       |
| 16                              | 38.46             | 233.18                                                                          | 313.88 | 376.83  | 423.08  | 450.73  | 473.12   | 487.59   | 508.83   | 529.1     | MM5I-HadCM3 (historical)     |
| 17                              | 34.62             | 229.94                                                                          | 299.66 | 357.36  | 398.41  | 424.45  | 452.44   | 477.99   | 504.6    | 516.19    | WRFG-CGCM3 (future)          |
| 18                              | 30.77             | 215.41                                                                          | 296.21 | 344.81  | 393.19  | 424.42  | 447.53   | 468.37   | 493.26   | 510.48    | ECP2-GFDL (future)           |
| 19                              | 26.92             | 205.14                                                                          | 285.19 | 329.89  | 364.84  | 386.87  | 406.32   | 423.81   | 444.63   | 458.99    | ECP2-HadCM3 (future)         |
| 20                              | 23.08             | 191.37                                                                          | 282.59 | 310.67  | 336.57  | 352.63  | 366.65   | 379.43   | 398.18   | 411.12    | ECP2-GFDL (historical)       |
| 21                              | 19.23             | 145.02                                                                          | 264.65 | 294.92  | 326.36  | 346.18  | 363.68   | 379.14   | 393.88   | 403.96    | ECP2-HadCM3 (historical)     |
| 22                              | 15.38             | 137.15                                                                          | 195.1  | 221.32  | 249.03  | 266.73  | 282.5    | 296.8    | 313.95   | 325.86    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 101.92                                                                          | 145.28 | 168.9   | 194.47  | 211.09  | 226.09   | 239.83   | 256.47   | 268.14    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 100.49                                                                          | 130.46 | 145.77  | 161.71  | 171.78  | 180.69   | 188.71   | 198.27   | 204.87    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 87.2                                                                            | 117.22 | 132.93  | 149.53  | 160.13  | 169.57   | 178.13   | 188.4    | 195.53    | CRCM-CCSM (historical)       |
| Gauge: 445690; Duration: 15 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 288.14                                                                          | 360.68 | 401.07  | 452.2   | 484.91  | 514.09   | 540.56   | 572.35   | 594.44    | HRM3-HadCM3 (historical)     |
| 2                               | 92.31             | 278.45                                                                          | 356.23 | 396.8   | 436.27  | 461.87  | 484.44   | 504.71   | 528.81   | 545.42    | HRM3-HadCM3 (future)         |
| 3                               | 88.46             | 260.9                                                                           | 352.78 | 395.56  | 433.86  | 457.01  | 477.32   | 495.49   | 517.01   | 531.79    | HRM3-GFDL (future)           |
| 4                               | 84.62             | 242.67                                                                          | 294.81 | 332.13  | 371.3   | 396.2   | 426.93   | 456.92   | 493.62   | 519.55    | RCM3-CGCM3 (historical)      |
| 5                               | 80.77             | 222.74                                                                          | 286.19 | 306.99  | 358.95  | 394.5   | 418.31   | 448.51   | 485.8    | 512.22    | RCM3-GFDL (future)           |
| 6                               | 76.92             | 215.83                                                                          | 263.25 | 305.2   | 349.47  | 385.32  | 418.11   | 438.29   | 468.14   | 497.56    | RCM3-GFDL (historical)       |
| 7                               | 73.08             | 203.08                                                                          | 258.12 | 295.51  | 330.58  | 360.77  | 393.87   | 427.02   | 462.18   | 478.74    | HRM3-GFDL (historical)       |
| 8                               | 69.23             | 200.05                                                                          | 256.6  | 293.96  | 327.8   | 358.53  | 388.13   | 413.3    | 443.93   | 465.47    | RCM3-CGCM3 (future)          |
| 9                               | 65.38             | 188.66                                                                          | 249.71 | 284.49  | 325.92  | 346.1   | 363.94   | 380.01   | 407.83   | 441.32    | Observed                     |
| 10                              | 61.54             | 176.53                                                                          | 248.14 | 281.32  | 320.41  | 340.57  | 354.3    | 371.23   | 399.15   | 412.37    | WRF3-CGCM3 (historical)      |
| 11                              | 57.69             | 170.65                                                                          | 246.99 | 278.52  | 314.5   | 335.58  | 351.62   | 362.05   | 391.47   | 405.49    | WRF3-CCSM (future)           |
| 12                              | 53.85             | 167.9                                                                           | 242.31 | 271.93  | 299.05  | 311.7   | 329.67   | 361.41   | 372.88   | 380.91    | MM5I-CCSM (future)           |
| 13                              | 50.00             | 166.39                                                                          | 231.28 | 264.16  | 296.25  | 311.4   | 326.08   | 346.56   | 366.83   | 380.68    | MM5I-HadCM3 (future)         |
| 14                              | 46.15             | 166.12                                                                          | 226.68 | 259.42  | 290.18  | 311.06  | 324.66   | 338.89   | 356.67   | 368.97    | WRF3-CCSM (historical)       |
| 15                              | 42.31             | 162                                                                             | 217.91 | 257.53  | 288.84  | 307.48  | 323.99   | 336.51   | 350.52   | 360.61    | MM5I-CCSM (historical)       |
| 16                              | 38.46             | 160.35                                                                          | 214.89 | 244.4   | 272.08  | 289.61  | 322.68   | 332.44   | 346.17   | 360.13    | MM5I-HadCM3 (historical)     |
| 17                              | 34.62             | 158.16                                                                          | 205.37 | 235.86  | 268.46  | 289.48  | 308.31   | 325.48   | 343.89   | 351.7     | WRF3-CGCM3 (future)          |
| 18                              | 30.77             | 148.31                                                                          | 203.07 | 225.84  | 249.6   | 288.7   | 305.15   | 319.16   | 335.89   | 347.46    | ECP2-GFDL (future)           |
| 19                              | 26.92             | 141.27                                                                          | 195.59 | 212.83  | 249.44  | 264.3   | 277.41   | 289.19   | 303.21   | 312.87    | ECP2-HadCM3 (future)         |
| 20                              | 23.08             | 132.24                                                                          | 181.67 | 202.18  | 230.32  | 241.17  | 250.63   | 259.3    | 271.95   | 280.67    | ECP2-GFDL (historical)       |
| 21                              | 19.23             | 100.28                                                                          | 148.79 | 194.38  | 223.45  | 236.85  | 248.67   | 259.05   | 268.98   | 275.78    | ECP2-HadCM3 (historical)     |
| 22                              | 15.38             | 79.35                                                                           | 134.38 | 152.19  | 170.98  | 182.96  | 193.64   | 203.3    | 214.89   | 222.93    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 70.8                                                                            | 100.36 | 116.42  | 133.75  | 145     | 155.14   | 164.42   | 175.65   | 183.52    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 69.76                                                                           | 90.27  | 100.72  | 111.58  | 118.44  | 124.5    | 129.96   | 136.45   | 140.94    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 60.61                                                                           | 81.23  | 91.99   | 103.35  | 110.6   | 117.05   | 122.89   | 129.9    | 134.76    | CRCM-CCSM (historical)       |
| Gauge: 445690; Duration: 30 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 211.63                                                                          | 263.45 | 291.92  | 328.05  | 351.11  | 371.64   | 390.25   | 412.54   | 428.02    | HRM3-HadCM3 (historical)     |
| 2                               | 92.31             | 204.66                                                                          | 260.27 | 289.16  | 317.18  | 335.33  | 351.31   | 365.65   | 382.67   | 394.39    | HRM3-HadCM3 (future)         |
| 3                               | 88.46             | 192.15                                                                          | 257.68 | 288.27  | 315.47  | 331.88  | 346.26   | 359.11   | 374.32   | 384.76    | HRM3-GFDL (future)           |
| 4                               | 84.62             | 178.91                                                                          | 216.24 | 242.84  | 270.67  | 288.32  | 309.37   | 330.45   | 356.17   | 374.32    | RCM3-CGCM3 (historical)      |
| 5                               | 80.77             | 164.6                                                                           | 210.11 | 224.98  | 261.44  | 286.54  | 303.96   | 324.22   | 350.32   | 368.77    | RCM3-GFDL (future)           |
| 6                               | 76.92             | 159.54                                                                          | 193.65 | 223.35  | 254.55  | 279.83  | 302.89   | 318.08   | 335.36   | 355.62    | RCM3-GFDL (historical)       |
| 7                               | 73.08             | 150.35                                                                          | 189.99 | 216.34  | 241.36  | 262.74  | 284.01   | 306.97   | 334.95   | 346.62    | HRM3-GFDL (historical)       |
| 8                               | 69.23             | 148.16                                                                          | 188.75 | 215.66  | 239.83  | 259.45  | 282.08   | 299.84   | 321.4    | 336.54    | RCM3-CGCM3 (future)          |
| 9                               | 65.38             | 139.93                                                                          | 183.89 | 208.6   | 238.49  | 252.89  | 265.59   | 277.02   | 290.62   | 300       | WRF3-CGCM3 (historical)      |
| 10                              | 61.54             | 131.12                                                                          | 182.73 | 206.54  | 232.85  | 248.92  | 258.61   | 270.64   | 285.01   | 294.95    | WRF3-CCSM (future)           |
| 11                              | 57.69             | 127.04                                                                          | 181.82 | 204.64  | 230.25  | 245.28  | 256.79   | 263.76   | 271.91   | 277.45    | MM5I-HadCM3 (future)         |
| 12                              | 53.85             | 124.89                                                                          | 178.48 | 199.76  | 219.37  | 228.42  | 240.8    | 252.8    | 267.17   | 277.15    | MM5I-CCSM (future)           |
| 13                              | 50.00             | 123.78                                                                          | 170.62 | 193.38  | 217.14  | 227.94  | 237.38   | 247.64   | 260.3    | 271       | Observed                     |
| 14                              | 46.15             | 123.69                                                                          | 167.25 | 190.84  | 212.68  | 227.56  | 237.02   | 245.81   | 255.77   | 269.05    | WRF3-CCSM (historical)       |
| 15                              | 42.31             | 120.79                                                                          | 160.93 | 189.36  | 211.91  | 225.23  | 236.28   | 243.25   | 252.27   | 262.59    | MM5I-HadCM3 (historical)     |
| 16                              | 38.46             | 119.35                                                                          | 158.54 | 179.92  | 199.72  | 212.23  | 225.41   | 237.6    | 252.12   | 262.5     | MM5I-CCSM (historical)       |
| 17                              | 34.62             | 117.78                                                                          | 151.86 | 173.73  | 197.03  | 212.01  | 223.29   | 233.26   | 251.43   | 257.01    | WRF3-CGCM3 (future)          |
| 18                              | 30.77             | 110.66                                                                          | 150.23 | 166.61  | 183.54  | 194.18  | 205.46   | 226.1    | 245.15   | 253.36    | ECP2-GFDL (future)           |
| 19                              | 26.92             | 105.46                                                                          | 144.8  | 157.2   | 169.77  | 183.8   | 203.55   | 211.97   | 221.96   | 228.85    | ECP2-HadCM3 (future)         |
| 20                              | 23.08             | 99.38                                                                           | 134.77 | 149.58  | 164.9   | 177.54  | 184.31   | 190.64   | 199.7    | 205.95    | ECP2-GFDL (historical)       |
| 21                              | 19.23             | 75.46                                                                           | 100.34 | 127.99  | 160.88  | 174.53  | 183.02   | 190.34   | 197.43   | 202.28    | ECP2-HadCM3 (historical)     |
| 22                              | 15.38             | 56.38                                                                           | 100.22 | 113.26  | 126.84  | 135.49  | 143.17   | 150.13   | 158.45   | 164.22    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 53.75                                                                           | 75.4   | 87.07   | 99.61   | 107.73  | 115.03   | 121.69   | 129.75   | 135.38    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 52.93                                                                           | 68.03  | 75.69   | 83.64   | 88.64   | 93.06    | 97.03    | 101.75   | 105.01    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 46.11                                                                           | 61.4   | 69.35   | 77.72   | 83.05   | 87.79    | 92.07    | 97.21    | 100.76    | CRCM-CCSM (historical)       |
| Gauge: 445690; Duration: 45 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 190.83                                                                          | 240.2  | 268.06  | 303.25  | 325.82  | 345.99   | 364.33   | 386.37   | 401.71    | HRM3-HadCM3 (historical)     |
| 2                             | 92.31             | 184.26                                                                          | 237.13 | 264.88  | 291.82  | 309.37  | 324.85   | 338.78   | 355.36   | 366.79    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 172.28                                                                          | 234.94 | 263.97  | 290.26  | 306.14  | 320.08   | 332.58   | 347.39   | 357.56    | HRM3-GFDL (future)           |
| 4                             | 84.62             | 160.09                                                                          | 195.5  | 220.94  | 247.73  | 264.8   | 286.54   | 307.28   | 332.71   | 350.72    | RCM3-CGCM3 (historical)      |
| 5                             | 80.77             | 146.6                                                                           | 189.62 | 203.77  | 239.69  | 264.16  | 280.8    | 301.88   | 327.78   | 346.17    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 142.02                                                                          | 174.06 | 202.83  | 233.41  | 258.13  | 279.98   | 293.72   | 318.01   | 338.79    | RCM3-GFDL (historical)       |
| 7                             | 73.08             | 133.42                                                                          | 170.57 | 196.35  | 220.24  | 241.06  | 265.78   | 289.05   | 310.17   | 321.58    | HRM3-GFDL (historical)       |
| 8                             | 69.23             | 131.38                                                                          | 169.66 | 194.89  | 217.96  | 240.96  | 259.78   | 277.13   | 298.28   | 313.18    | RCM3-CGCM3 (future)          |
| 9                             | 65.38             | 123.73                                                                          | 164.93 | 188.72  | 216.63  | 230.38  | 242.56   | 253.53   | 266.62   | 275.67    | WRFG-CGCM3 (historical)      |
| 10                            | 61.54             | 115.6                                                                           | 163.89 | 186.36  | 214.5   | 226.67  | 236.09   | 247.65   | 261.51   | 271.11    | WRFG-CCSM (future)           |
| 11                            | 57.69             | 111.49                                                                          | 163.21 | 184.38  | 208.93  | 223.31  | 234.22   | 240.92   | 248.77   | 254.72    | MM5I-CCSM (future)           |
| 12                            | 53.85             | 109.78                                                                          | 160    | 180.05  | 198.32  | 206.92  | 219.59   | 231.15   | 245.05   | 254.11    | MM5I-HadCM3 (future)         |
| 13                            | 50.00             | 108.79                                                                          | 152.48 | 175.52  | 196.59  | 206.91  | 215.97   | 225.55   | 237.69   | 246.09    | WRFG-CCSM (historical)       |
| 14                            | 46.15             | 108.5                                                                           | 149.44 | 171.52  | 192.6   | 206.86  | 215.39   | 224.07   | 233.65   | 241.01    | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 105.66                                                                          | 143.53 | 170.37  | 191.48  | 204.15  | 214.38   | 221.02   | 231.1    | 240.22    | MM5I-HadCM3 (historical)     |
| 16                            | 38.46             | 104.78                                                                          | 141.65 | 161.48  | 180.29  | 192.28  | 205.15   | 216.9    | 228.82   | 234.14    | WRFG-CGCM3 (future)          |
| 17                            | 34.62             | 103.3                                                                           | 135.11 | 155.77  | 177.94  | 192.24  | 202.84   | 212.42   | 223.86   | 231.79    | ECP2-GFDL (future)           |
| 18                            | 30.77             | 96.68                                                                           | 133.52 | 148.9   | 164.9   | 174.99  | 183.9    | 191.93   | 201.48   | 208.08    | ECP2-HadCM3 (future)         |
| 19                            | 26.92             | 92.04                                                                           | 128.51 | 140.16  | 152.01  | 159.36  | 165.79   | 171.55   | 180.14   | 189.71    | Observed                     |
| 20                            | 23.08             | 85.55                                                                           | 119.12 | 132.92  | 147.28  | 156.34  | 164.34   | 171.52   | 178.28   | 186.06    | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 64.81                                                                           | 87.52  | 99.45   | 118.21  | 133.39  | 147.57   | 160.96   | 177.68   | 182.9     | ECP2-HadCM3 (historical)     |
| 22                            | 15.38             | 45.66                                                                           | 76.94  | 96.05   | 112.08  | 120.15  | 127.35   | 133.89   | 141.72   | 147.17    | CRCM-CGCM3 (future)          |
| 23                            | 11.54             | 45.35                                                                           | 64.98  | 75.72   | 87.36   | 94.95   | 101.8    | 108.09   | 115.71   | 121.05    | CRCM-CGCM3 (historical)      |
| 24                            | 7.69              | 44.73                                                                           | 58.27  | 65.2    | 72.42   | 76.99   | 81.03    | 84.68    | 89.02    | 92.03     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 38.76                                                                           | 52.27  | 59.36   | 66.85   | 71.64   | 75.91    | 79.79    | 84.43    | 87.66     | CRCM-CCSM (historical)       |
| Gauge: 445690; Duration: 1 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 141.44                                                                          | 182    | 206.1   | 236.34  | 255.94  | 273.58   | 289.71   | 309.23   | 322.88    | HRM3-HadCM3 (historical)     |
| 2                             | 92.31             | 136.15                                                                          | 179.43 | 202.59  | 225.19  | 240.05  | 253.23   | 265.13   | 279.36   | 289.21    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 126.19                                                                          | 178.04 | 201.78  | 223.96  | 237.42  | 249.3    | 259.98   | 272.69   | 282.3     | RCM3-GFDL (historical)       |
| 4                             | 84.62             | 116.83                                                                          | 145.67 | 166.77  | 189.28  | 204.77  | 224.23   | 242.43   | 264.93   | 281.46    | HRM3-GFDL (future)           |
| 5                             | 80.77             | 105.96                                                                          | 140.81 | 152.47  | 183.71  | 203.75  | 220.43   | 239.09   | 262.37   | 280.99    | RCM3-CGCM3 (historical)      |
| 6                             | 76.92             | 102.58                                                                          | 128.18 | 152.44  | 179.11  | 200.54  | 216.7    | 234.93   | 262.25   | 278.83    | RCM3-GFDL (future)           |
| 7                             | 73.08             | 95.76                                                                           | 125.3  | 147.5   | 167.32  | 190.42  | 213.19   | 228.49   | 242.69   | 252.58    | HRM3-GFDL (historical)       |
| 8                             | 69.23             | 94.14                                                                           | 124.92 | 145.1   | 166.36  | 184.95  | 201.12   | 216.14   | 234.59   | 247.69    | RCM3-CGCM3 (future)          |
| 9                             | 65.38             | 88.16                                                                           | 120.91 | 140.87  | 164.19  | 174.32  | 184.45   | 193.63   | 204.62   | 212.25    | WRFG-CGCM3 (historical)      |
| 10                            | 61.54             | 81.89                                                                           | 120.2  | 138.28  | 162.94  | 171.44  | 179.33   | 189.01   | 200.66   | 208.78    | WRFG-CCSM (future)           |
| 11                            | 57.69             | 78.17                                                                           | 119.85 | 136.43  | 156.79  | 168.69  | 177.75   | 183.36   | 189.96   | 196.33    | MM5I-CCSM (future)           |
| 12                            | 53.85             | 77.28                                                                           | 117.2  | 133.36  | 147.73  | 155.9   | 166.57   | 176.31   | 188.09   | 194.46    | MM5I-HadCM3 (future)         |
| 13                            | 50.00             | 76.56                                                                           | 111.01 | 131.91  | 146.97  | 155.53  | 163.06   | 170.7    | 180.83   | 187.87    | WRFG-CCSM (historical)       |
| 14                            | 46.15             | 76.03                                                                           | 108.75 | 126.33  | 144.05  | 154.74  | 162.27   | 169.83   | 177.88   | 185.45    | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 73.6                                                                            | 104.1  | 125.75  | 142.58  | 152.99  | 160.86   | 166.3    | 176.99   | 183.42    | MM5I-HadCM3 (historical)     |
| 16                            | 38.46             | 73.55                                                                           | 102.94 | 118.63  | 134.05  | 144.28  | 155.06   | 164.96   | 172.73   | 177.12    | WRFG-CGCM3 (future)          |
| 17                            | 34.62             | 72.42                                                                           | 97.49  | 114.18  | 132.38  | 143.93  | 152.76   | 160.77   | 170.41   | 177.11    | ECP2-GFDL (future)           |
| 18                            | 30.77             | 67.21                                                                           | 96.16  | 108.48  | 121.42  | 129.66  | 136.97   | 143.59   | 151.51   | 157       | ECP2-HadCM3 (future)         |
| 19                            | 26.92             | 63.9                                                                            | 92.27  | 101.58  | 111.14  | 117.11  | 122.35   | 127.04   | 133.74   | 138.58    | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 57.44                                                                           | 84.86  | 95.73   | 107.16  | 114.44  | 120.9    | 126.74   | 132.6    | 136.42    | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 43.55                                                                           | 60.73  | 69.96   | 79.85   | 86.24   | 91.98    | 97.22    | 103.54   | 107.95    | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 29.39                                                                           | 44.01  | 52.26   | 61.36   | 67.37   | 72.85    | 77.92    | 84.11    | 88.49     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 29.12                                                                           | 41.02  | 49.17   | 58.27   | 64.32   | 69.86    | 75       | 81.32    | 85.79     | Observed                     |
| 24                            | 7.69              | 26.77                                                                           | 38.97  | 44.11   | 49.54   | 52.99   | 56.07    | 58.86    | 62.2     | 64.52     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 24.96                                                                           | 34.51  | 39.61   | 45.06   | 48.57   | 51.71    | 54.57    | 58.03    | 60.44     | CRCM-CCSM (historical)       |
| Gauge: 445690; Duration: 2 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 115.18                                                                          | 149.03 | 169.38  | 194.9   | 211.48  | 226.43   | 240.13   | 256.72   | 268.34    | HRM3-HadCM3 (historical)     |
| 2                             | 92.31             | 110.78                                                                          | 146.87 | 166.29  | 185.23  | 197.73  | 208.83   | 218.86   | 230.87   | 239.19    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 102.45                                                                          | 145.79 | 165.58  | 184.23  | 195.55  | 205.56   | 214.57   | 225.29   | 237.01    | RCM3-GFDL (historical)       |
| 4                             | 84.62             | 94.78                                                                           | 118.79 | 136.45  | 155.33  | 168.65  | 185.11   | 200.54   | 219.71   | 233.34    | RCM3-CGCM3 (historical)      |
| 5                             | 80.77             | 85.75                                                                           | 114.74 | 124.6   | 150.87  | 167.51  | 182.13   | 197.99   | 219.67   | 232.7     | HRM3-GFDL (future)           |
| 6                             | 76.92             | 83                                                                              | 104.21 | 124.45  | 147.13  | 165.26  | 178.42   | 195.96   | 217.73   | 231.89    | RCM3-GFDL (future)           |
| 7                             | 73.08             | 77.35                                                                           | 101.83 | 120.51  | 137.13  | 157.65  | 177.21   | 188.37   | 200.36   | 208.73    | HRM3-GFDL (historical)       |
| 8                             | 69.23             | 76.02                                                                           | 101.55 | 118.29  | 137.08  | 151.98  | 165.62   | 178.33   | 193.97   | 205.09    | RCM3-CGCM3 (future)          |
| 9                             | 65.38             | 71.09                                                                           | 98.2   | 114.93  | 134.27  | 142.69  | 151.17   | 158.86   | 168.08   | 174.49    | WRF3-CGCM3 (historical)      |
| 10                            | 61.54             | 65.94                                                                           | 97.63  | 112.66  | 133.17  | 140.34  | 146.96   | 155.07   | 164.85   | 171.68    | WRF3-CCSM (future)           |
| 11                            | 57.69             | 62.77                                                                           | 97.36  | 111.07  | 128.1   | 138.05  | 145.63   | 150.34   | 155.88   | 161.5     | MM5I-CCSM (future)           |
| 12                            | 53.85             | 62.12                                                                           | 95.16  | 108.59  | 120.48  | 127.52  | 136.46   | 144.65   | 154.56   | 159.66    | MM5I-HadCM3 (future)         |
| 13                            | 50.00             | 61.54                                                                           | 90     | 107.8   | 119.96  | 127.11  | 133.42   | 139.74   | 148.22   | 154.12    | WRF3-CCSM (historical)       |
| 14                            | 46.15             | 61.04                                                                           | 88.16  | 102.72  | 117.59  | 126.32  | 132.69   | 139.1    | 145.85   | 152.49    | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 59.12                                                                           | 84.32  | 102.31  | 116.25  | 124.93  | 131.42   | 135.96   | 145.36   | 150.5     | MM5I-HadCM3 (historical)     |
| 16                            | 38.46             | 58.94                                                                           | 83.39  | 96.4    | 109.27  | 117.88  | 126.92   | 135.24   | 141.33   | 145.38    | ECP2-GFDL (future)           |
| 17                            | 34.62             | 58.16                                                                           | 78.85  | 92.73   | 107.92  | 117.53  | 124.93   | 131.65   | 139.74   | 145       | WRF3-CGCM3 (future)          |
| 18                            | 30.77             | 53.85                                                                           | 77.74  | 87.96   | 98.72   | 105.58  | 111.69   | 117.22   | 123.84   | 128.44    | ECP2-HadCM3 (future)         |
| 19                            | 26.92             | 51.19                                                                           | 74.55  | 82.27   | 90.22   | 95.19   | 99.57    | 103.48   | 108.96   | 113       | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 45.58                                                                           | 68.42  | 77.4    | 86.87   | 92.9    | 98.27    | 103.13   | 108.13   | 111.32    | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 34.61                                                                           | 48.65  | 56.23   | 64.38   | 69.67   | 74.42    | 78.76    | 84       | 87.67     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 23.12                                                                           | 35.04  | 41.81   | 49.33   | 54.31   | 58.86    | 63.08    | 68.24    | 71.9      | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 22.95                                                                           | 30.93  | 35.12   | 39.54   | 42.37   | 44.89    | 47.18    | 50.18    | 52.47     | Observed                     |
| 24                            | 7.69              | 19.88                                                                           | 28.37  | 33      | 38.01   | 41.27   | 44.22    | 46.91    | 49.92    | 51.83     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 19.63                                                                           | 27.31  | 31.43   | 35.84   | 38.69   | 41.25    | 43.58    | 46.39    | 48.35     | CRCM-CCSM (historical)       |
| Gauge: 445690; Duration: 3 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 90.64                                                                           | 116.31 | 131.47  | 150.5   | 162.82  | 173.9    | 184.02   | 196.26   | 204.81    | HRM3-HadCM3 (historical)     |
| 2                             | 92.31             | 87.28                                                                           | 114.68 | 129.32  | 143.57  | 152.93  | 161.24   | 168.73   | 177.69   | 183.88    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 80.99                                                                           | 113.78 | 128.8   | 142.81  | 151.3   | 158.78   | 165.51   | 173.52   | 179.04    | HRM3-GFDL (future)           |
| 4                             | 84.62             | 75.01                                                                           | 93.29  | 106.63  | 120.83  | 130.47  | 142.69   | 154.11   | 168.21   | 178.26    | RCM3-CGCM3 (historical)      |
| 5                             | 80.77             | 68.12                                                                           | 90.21  | 97.57   | 117.22  | 129.95  | 140.22   | 151.92   | 166.43   | 178.25    | RCM3-GFDL (historical)       |
| 6                             | 76.92             | 65.94                                                                           | 82.21  | 97.53   | 114.27  | 127.74  | 138.11   | 148.81   | 165.87   | 176.8     | RCM3-GFDL (future)           |
| 7                             | 73.08             | 61.61                                                                           | 80.39  | 94.35   | 106.89  | 121.05  | 135.26   | 145.53   | 154.46   | 160.67    | HRM3-GFDL (historical)       |
| 8                             | 69.23             | 60.59                                                                           | 80.12  | 92.93   | 106     | 118     | 128.18   | 137.63   | 149.22   | 157.44    | RCM3-CGCM3 (future)          |
| 9                             | 65.38             | 56.78                                                                           | 77.59  | 90.19   | 105     | 111.43  | 117.83   | 123.62   | 130.56   | 135.37    | WRFG-CGCM3 (historical)      |
| 10                            | 61.54             | 52.78                                                                           | 77.13  | 88.61   | 104.23  | 109.58  | 114.58   | 120.7    | 128.05   | 133.17    | WRFG-CCSM (future)           |
| 11                            | 57.69             | 50.46                                                                           | 76.89  | 87.45   | 100.33  | 107.86  | 113.57   | 117.11   | 121.27   | 125.2     | MM5I-CCSM (future)           |
| 12                            | 53.85             | 49.85                                                                           | 75.21  | 85.47   | 94.61   | 99.7    | 106.43   | 112.58   | 120.01   | 124.11    | MM5I-HadCM3 (future)         |
| 13                            | 50.00             | 49.38                                                                           | 71.3   | 84.39   | 94.08   | 99.49   | 104.25   | 109.09   | 115.48   | 119.92    | WRFG-CCSM (historical)       |
| 14                            | 46.15             | 49.07                                                                           | 69.85  | 81.02   | 92.21   | 99.05   | 103.76   | 108.53   | 113.61   | 118.29    | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 47.51                                                                           | 66.89  | 80.63   | 91.31   | 97.89   | 102.92   | 106.37   | 112.96   | 117.1     | MM5I-HadCM3 (historical)     |
| 16                            | 38.46             | 47.48                                                                           | 66.14  | 76.1    | 85.86   | 92.32   | 99.12    | 105.37   | 110.44   | 113.22    | WRFG-CGCM3 (future)          |
| 17                            | 34.62             | 46.74                                                                           | 62.69  | 73.28   | 84.8    | 92.11   | 97.68    | 102.74   | 108.82   | 113.05    | ECP2-GFDL (future)           |
| 18                            | 30.77             | 43.42                                                                           | 61.84  | 69.66   | 77.86   | 83.08   | 87.7     | 91.89    | 96.89    | 100.36    | ECP2-HadCM3 (future)         |
| 19                            | 26.92             | 41.29                                                                           | 59.36  | 65.28   | 71.34   | 75.13   | 78.45    | 81.42    | 85.69    | 88.76     | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 37.28                                                                           | 54.66  | 61.57   | 68.84   | 73.45   | 77.55    | 81.26    | 84.94    | 87.36     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 28.25                                                                           | 39.24  | 45.13   | 51.42   | 55.49   | 59.13    | 62.46    | 66.46    | 69.26     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 19.15                                                                           | 28.52  | 33.78   | 39.58   | 43.4    | 46.88    | 50.1     | 54.02    | 56.79     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 18.96                                                                           | 25.29  | 28.59   | 32.77   | 35.63   | 38.2     | 40.56    | 43.43    | 45.44     | Observed                     |
| 24                            | 7.69              | 16.99                                                                           | 24.36  | 28.4    | 32.07   | 34.28   | 36.25    | 38.03    | 40.16    | 41.64     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 16.28                                                                           | 22.44  | 25.72   | 29.22   | 31.48   | 33.5     | 35.33    | 37.55    | 39.09     | CRCM-CCSM (historical)       |
| Gauge: 445690; Duration: 4 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 99.99                                                                           | 129.41 | 147.1   | 169.29  | 183.71  | 196.72   | 208.63   | 223.06   | 233.17    | HRM3-HadCM3 (historical)     |
| 2                             | 92.31             | 96.17                                                                           | 127.54 | 144.41  | 160.89  | 171.76  | 181.41   | 190.14   | 200.58   | 207.81    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 88.92                                                                           | 126.59 | 143.81  | 160.01  | 169.85  | 178.55   | 186.39   | 195.72   | 206.11    | RCM3-GFDL (historical)       |
| 4                             | 84.62             | 82.27                                                                           | 103.13 | 118.49  | 134.91  | 146.5   | 160.82   | 174.25   | 191.02   | 202.8     | RCM3-CGCM3 (historical)      |
| 5                             | 80.77             | 74.41                                                                           | 99.62  | 108.19  | 131.03  | 145.5   | 158.25   | 172.06   | 190.9    | 202.16    | HRM3-GFDL (future)           |
| 6                             | 76.92             | 72.02                                                                           | 90.47  | 108.07  | 127.79  | 143.57  | 155      | 170.33   | 189.25   | 201.58    | RCM3-GFDL (future)           |
| 7                             | 73.08             | 67.11                                                                           | 88.39  | 104.63  | 119.09  | 136.97  | 154      | 163.65   | 174.08   | 181.37    | HRM3-GFDL (historical)       |
| 8                             | 69.23             | 65.96                                                                           | 88.15  | 102.71  | 119.05  | 132     | 143.88   | 154.93   | 168.55   | 178.22    | RCM3-CGCM3 (future)          |
| 9                             | 65.38             | 61.67                                                                           | 85.23  | 99.78   | 116.61  | 123.95  | 131.33   | 138.02   | 146.05   | 151.63    | WRFG-CGCM3 (historical)      |
| 10                            | 61.54             | 57.19                                                                           | 84.76  | 97.81   | 115.67  | 121.89  | 127.64   | 134.71   | 143.22   | 149.16    | WRFG-CCSM (future)           |
| 11                            | 57.69             | 54.44                                                                           | 84.5   | 96.43   | 111.24  | 119.89  | 126.5    | 130.59   | 135.41   | 140.32    | MM5I-CCSM (future)           |
| 12                            | 53.85             | 53.88                                                                           | 82.59  | 94.29   | 104.61  | 110.74  | 118.52   | 125.65   | 134.27   | 138.7     | MM5I-HadCM3 (future)         |
| 13                            | 50.00             | 53.37                                                                           | 78.11  | 93.58   | 104.17  | 110.4   | 115.89   | 121.38   | 128.76   | 133.9     | WRFG-CCSM (historical)       |
| 14                            | 46.15             | 52.94                                                                           | 76.51  | 89.18   | 102.11  | 109.69  | 115.25   | 120.83   | 126.7    | 132.53    | MM5I-CCSM (historical)       |
| 15                            | 42.31             | 51.28                                                                           | 73.18  | 88.82   | 100.95  | 108.5   | 114.13   | 118.09   | 126.32   | 130.75    | MM5I-HadCM3 (historical)     |
| 16                            | 38.46             | 51.11                                                                           | 72.34  | 83.69   | 94.88   | 102.39  | 110.26   | 117.5    | 122.76   | 126.3     | ECP2-GFDL (future)           |
| 17                            | 34.62             | 50.44                                                                           | 68.43  | 80.5    | 93.72   | 102.07  | 108.5    | 114.35   | 121.39   | 125.95    | WRFG-CGCM3 (future)          |
| 18                            | 30.77             | 46.69                                                                           | 67.46  | 76.34   | 85.7    | 91.67   | 96.98    | 101.79   | 107.55   | 111.55    | ECP2-HadCM3 (future)         |
| 19                            | 26.92             | 44.38                                                                           | 64.69  | 71.41   | 78.32   | 82.65   | 86.45    | 89.86    | 94.62    | 98.14     | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 39.49                                                                           | 59.36  | 67.17   | 75.4    | 80.65   | 85.32    | 89.55    | 93.9     | 96.68     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 29.96                                                                           | 42.18  | 48.78   | 55.88   | 60.48   | 64.62    | 68.4     | 72.98    | 76.18     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 19.99                                                                           | 30.35  | 36.25   | 42.79   | 47.14   | 51.11    | 54.79    | 59.3     | 62.49     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 19.84                                                                           | 26.78  | 30.42   | 34.28   | 36.74   | 38.94    | 40.94    | 43.33    | 44.99     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 16.96                                                                           | 23.64  | 27.22   | 31.06   | 33.55   | 35.77    | 37.81    | 40.26    | 41.97     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 12.69                                                                           | 18.53  | 21.76   | 25.3    | 27.62   | 29.72    | 31.65    | 34.01    | 35.66     | Observed                     |
| Gauge: 445690; Duration: 6 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 66.86                                                                           | 86.45  | 98.21   | 112.95  | 122.53  | 131.17   | 139.08   | 148.65   | 155.36    | HRM3-HadCM3 (historical)     |
| 2                              | 92.31             | 64.32                                                                           | 85.2   | 96.43   | 107.38  | 114.6   | 121.01   | 126.81   | 133.74   | 138.55    | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 59.5                                                                            | 84.57  | 96.02   | 106.8   | 113.35  | 119.13   | 124.33   | 130.53   | 136.92    | RCM3-GFDL (historical)       |
| 4                              | 84.62             | 55.05                                                                           | 68.94  | 79.14   | 90.04   | 97.69   | 107.18   | 116.07   | 127.08   | 134.95    | RCM3-CGCM3 (historical)      |
| 5                              | 80.77             | 49.83                                                                           | 66.59  | 72.29   | 87.44   | 97.07   | 105.46   | 114.6    | 126.98   | 134.81    | HRM3-GFDL (future)           |
| 6                              | 76.92             | 48.23                                                                           | 60.51  | 72.2    | 85.29   | 95.74   | 103.36   | 113.34   | 125.97   | 134.12    | RCM3-GFDL (future)           |
| 7                              | 73.08             | 44.97                                                                           | 59.12  | 69.93   | 79.49   | 91.31   | 102.56   | 109.1    | 116.02   | 120.84    | HRM3-GFDL (historical)       |
| 8                              | 69.23             | 44.2                                                                            | 58.98  | 68.65   | 79.46   | 88.05   | 95.9     | 103.22   | 112.22   | 118.61    | RCM3-CGCM3 (future)          |
| 9                              | 65.38             | 41.35                                                                           | 57.02  | 66.69   | 77.88   | 82.74   | 87.63    | 92.07    | 97.39    | 101.08    | WRFG-CGCM3 (historical)      |
| 10                             | 61.54             | 38.37                                                                           | 56.7   | 65.37   | 77.24   | 81.39   | 85.16    | 89.84    | 95.48    | 99.41     | WRFG-CCSM (future)           |
| 11                             | 57.69             | 36.55                                                                           | 56.56  | 64.46   | 74.29   | 80.02   | 84.45    | 87.17    | 90.36    | 93.49     | MM5I-CCSM (future)           |
| 12                             | 53.85             | 36.16                                                                           | 55.28  | 63.03   | 69.9    | 73.91   | 79.07    | 83.78    | 89.49    | 92.55     | MM5I-HadCM3 (future)         |
| 13                             | 50.00             | 35.82                                                                           | 52.28  | 62.58   | 69.6    | 73.73   | 77.37    | 80.98    | 85.87    | 89.27     | WRFG-CCSM (historical)       |
| 14                             | 46.15             | 35.55                                                                           | 51.21  | 59.63   | 68.19   | 73.27   | 76.92    | 80.65    | 84.54    | 88.28     | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 34.42                                                                           | 48.99  | 59.38   | 67.44   | 72.45   | 76.22    | 78.84    | 84.18    | 87.22     | MM5I-HadCM3 (historical)     |
| 16                             | 38.46             | 34.33                                                                           | 48.49  | 55.97   | 63.4    | 68.35   | 73.56    | 78.35    | 81.94    | 84.21     | ECP2-GFDL (future)           |
| 17                             | 34.62             | 33.86                                                                           | 45.83  | 53.85   | 62.61   | 68.17   | 72.43    | 76.3     | 80.97    | 84.06     | WRFG-CGCM3 (future)          |
| 18                             | 30.77             | 31.38                                                                           | 45.18  | 51.08   | 57.28   | 61.24   | 64.76    | 67.94    | 71.76    | 74.4      | ECP2-HadCM3 (future)         |
| 19                             | 26.92             | 29.83                                                                           | 43.33  | 47.79   | 52.37   | 55.24   | 57.76    | 60.02    | 63.16    | 65.48     | ECP2-GFDL (historical)       |
| 20                             | 23.08             | 26.6                                                                            | 39.79  | 44.97   | 50.43   | 53.91   | 57       | 59.8     | 62.69    | 64.53     | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 20.23                                                                           | 28.35  | 32.73   | 37.42   | 40.46   | 43.2     | 45.69    | 48.71    | 50.81     | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 13.6                                                                            | 20.48  | 24.38   | 28.69   | 31.54   | 34.14    | 36.55    | 39.49    | 41.57     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 13.49                                                                           | 18.1   | 20.5    | 23.05   | 24.67   | 26.12    | 27.43    | 29       | 30.09     | CRCM-CCSM (future)           |
| 24                             | 7.69              | 11.57                                                                           | 16     | 18.36   | 20.89   | 22.52   | 23.98    | 25.31    | 26.92    | 28.03     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 8.36                                                                            | 12.08  | 14.12   | 16.35   | 17.8    | 19.11    | 20.32    | 21.79    | 22.82     | Observed                     |
| Gauge: 445690; Duration: 12 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 34.94                                                                           | 45.03  | 51.08   | 58.64   | 63.54   | 67.95    | 71.99    | 76.88    | 80.3      | HRM3-HadCM3 (historical)     |
| 2                              | 92.31             | 33.63                                                                           | 44.39  | 50.16   | 55.78   | 59.48   | 62.77    | 65.73    | 69.28    | 71.74     | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 31.16                                                                           | 44.08  | 49.95   | 55.48   | 58.84   | 61.8     | 64.47    | 67.64    | 70.22     | RCM3-GFDL (historical)       |
| 4                              | 84.62             | 28.83                                                                           | 36     | 41.24   | 46.83   | 50.65   | 55.46    | 59.96    | 65.53    | 69.83     | HRM3-GFDL (future)           |
| 5                              | 80.77             | 26.16                                                                           | 34.78  | 37.71   | 45.44   | 50.42   | 54.56    | 59.18    | 65.25    | 69.51     | RCM3-CGCM3 (historical)      |
| 6                              | 76.92             | 25.31                                                                           | 31.65  | 37.67   | 44.32   | 49.63   | 53.64    | 58.4     | 64.92    | 69.03     | RCM3-GFDL (future)           |
| 7                              | 73.08             | 23.64                                                                           | 30.92  | 36.49   | 41.34   | 47.3    | 52.98    | 56.57    | 60.1     | 62.55     | HRM3-GFDL (historical)       |
| 8                              | 69.23             | 23.23                                                                           | 30.89  | 35.82   | 41.31   | 45.7    | 49.69    | 53.39    | 57.95    | 61.18     | RCM3-CGCM3 (future)          |
| 9                              | 65.38             | 21.77                                                                           | 29.85  | 34.81   | 40.59   | 43.04   | 45.53    | 47.8     | 50.51    | 52.39     | WRF3-CGCM3 (historical)      |
| 10                             | 61.54             | 20.23                                                                           | 29.67  | 34.13   | 40.23   | 42.39   | 44.24    | 46.63    | 49.5     | 51.5      | WRF3-CCSM (future)           |
| 11                             | 57.69             | 19.33                                                                           | 29.64  | 33.66   | 38.69   | 41.62   | 43.96    | 45.35    | 47       | 48.37     | MM5I-CCSM (future)           |
| 12                             | 53.85             | 19.1                                                                            | 28.97  | 32.91   | 36.45   | 38.44   | 41.06    | 43.46    | 46.35    | 48.12     | MM5I-HadCM3 (future)         |
| 13                             | 50.00             | 18.91                                                                           | 27.39  | 32.73   | 36.28   | 38.39   | 40.25    | 42.05    | 44.53    | 46.26     | WRF3-CCSM (historical)       |
| 14                             | 46.15             | 18.8                                                                            | 26.85  | 31.16   | 35.53   | 38.18   | 39.98    | 41.92    | 43.91    | 45.62     | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 18.18                                                                           | 25.69  | 31.03   | 35.15   | 37.7    | 39.69    | 41.03    | 43.55    | 45.27     | MM5I-HadCM3 (historical)     |
| 16                             | 38.46             | 18.17                                                                           | 25.52  | 29.27   | 33.06   | 35.55   | 38.19    | 40.61    | 42.61    | 43.7      | WRF3-CGCM3 (future)          |
| 17                             | 34.62             | 17.9                                                                            | 24.08  | 28.17   | 32.63   | 35.49   | 37.65    | 39.62    | 41.99    | 43.64     | ECP2-GFDL (future)           |
| 18                             | 30.77             | 16.64                                                                           | 23.73  | 26.75   | 29.92   | 31.93   | 33.72    | 35.34    | 37.27    | 38.61     | ECP2-HadCM3 (future)         |
| 19                             | 26.92             | 15.82                                                                           | 22.76  | 25.05   | 27.39   | 28.86   | 30.14    | 31.3     | 32.83    | 34.01     | ECP2-GFDL (historical)       |
| 20                             | 23.08             | 14.21                                                                           | 20.94  | 23.59   | 26.37   | 28.14   | 29.71    | 31.13    | 32.66    | 33.59     | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 10.87                                                                           | 15.03  | 17.25   | 19.62   | 21.15   | 22.52    | 23.77    | 25.27    | 26.32     | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 7.46                                                                            | 10.99  | 12.96   | 15.12   | 16.54   | 17.83    | 19.01    | 20.46    | 21.48     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 7.37                                                                            | 9.73   | 10.94   | 12.22   | 13.03   | 13.75    | 14.4     | 15.18    | 15.72     | CRCM-CCSM (future)           |
| 24                             | 7.69              | 6.39                                                                            | 8.66   | 9.85    | 11.12   | 11.93   | 12.65    | 13.31    | 14.09    | 14.64     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 4.92                                                                            | 7.02   | 8.16    | 9.4     | 10.2    | 10.93    | 11.59    | 12.4     | 12.96     | Observed                     |
| Gauge: 445690; Duration: 24 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 18.23                                                                           | 23.44  | 26.56   | 30.44   | 32.96   | 35.23    | 37.3     | 39.8     | 41.55     | HRM3-HadCM3 (historical)     |
| 2                              | 92.31             | 17.56                                                                           | 23.11  | 26.08   | 28.97   | 30.88   | 32.56    | 34.08    | 35.9     | 37.16     | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 16.29                                                                           | 22.95  | 25.98   | 28.82   | 30.54   | 32.07    | 33.44    | 35.06    | 36.19     | HRM3-GFDL (future)           |
| 4                              | 84.62             | 15.06                                                                           | 18.78  | 21.47   | 24.34   | 26.27   | 28.72    | 31.01    | 33.84    | 36.08     | RCM3-GFDL (historical)       |
| 5                              | 80.77             | 13.7                                                                            | 18.14  | 19.65   | 23.61   | 26.19   | 28.24    | 30.58    | 33.58    | 35.86     | RCM3-CGCM3 (historical)      |
| 6                              | 76.92             | 13.26                                                                           | 16.52  | 19.63   | 23.02   | 25.73   | 27.83    | 30.12    | 33.49    | 35.57     | RCM3-GFDL (future)           |
| 7                              | 73.08             | 12.39                                                                           | 16.15  | 19.02   | 21.49   | 24.5    | 27.38    | 29.33    | 31.14    | 32.4      | HRM3-GFDL (historical)       |
| 8                              | 69.23             | 12.18                                                                           | 16.14  | 18.67   | 21.45   | 23.71   | 25.74    | 27.63    | 29.94    | 31.58     | RCM3-CGCM3 (future)          |
| 9                              | 65.38             | 11.43                                                                           | 15.6   | 18.15   | 21.13   | 22.38   | 23.66    | 24.82    | 26.21    | 27.17     | WRFG-CGCM3 (historical)      |
| 10                             | 61.54             | 10.63                                                                           | 15.51  | 17.8    | 20.94   | 22.06   | 22.99    | 24.21    | 25.68    | 26.7      | WRFG-CCSM (future)           |
| 11                             | 57.69             | 10.18                                                                           | 15.5   | 17.55   | 20.14   | 21.65   | 22.87    | 23.59    | 24.43    | 25.08     | MM5I-CCSM (future)           |
| 12                             | 53.85             | 10.05                                                                           | 15.15  | 17.17   | 18.99   | 20.01   | 21.35    | 22.57    | 24.05    | 25.01     | MM5I-HadCM3 (future)         |
| 13                             | 50.00             | 9.95                                                                            | 14.32  | 17.08   | 18.89   | 19.97   | 20.93    | 21.83    | 23.09    | 23.97     | WRFG-CCSM (historical)       |
| 14                             | 46.15             | 9.9                                                                             | 14.05  | 16.25   | 18.51   | 19.87   | 20.77    | 21.78    | 22.8     | 23.62     | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 9.6                                                                             | 13.44  | 16.2    | 18.3    | 19.61   | 20.65    | 21.33    | 22.57    | 23.5      | MM5I-HadCM3 (historical)     |
| 16                             | 38.46             | 9.57                                                                            | 13.38  | 15.27   | 17.21   | 18.49   | 19.84    | 21.07    | 22.14    | 22.7      | WRFG-CGCM3 (future)          |
| 17                             | 34.62             | 9.43                                                                            | 12.62  | 14.72   | 17      | 18.45   | 19.56    | 20.56    | 21.77    | 22.61     | ECP2-GFDL (future)           |
| 18                             | 30.77             | 8.78                                                                            | 12.43  | 13.97   | 15.6    | 16.63   | 17.54    | 18.36    | 19.35    | 20.03     | ECP2-HadCM3 (future)         |
| 19                             | 26.92             | 8.35                                                                            | 11.93  | 13.11   | 14.32   | 15.07   | 15.73    | 16.32    | 17.05    | 17.65     | ECP2-GFDL (historical)       |
| 20                             | 23.08             | 7.54                                                                            | 10.98  | 12.34   | 13.76   | 14.66   | 15.46    | 16.19    | 17.01    | 17.49     | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 5.8                                                                             | 7.94   | 9.08    | 10.29   | 11.07   | 11.77    | 12.4     | 13.17    | 13.7      | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 4.03                                                                            | 5.85   | 6.85    | 7.94    | 8.65    | 9.3      | 9.89     | 10.61    | 11.12     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 3.98                                                                            | 5.19   | 5.81    | 6.45    | 6.86    | 7.22     | 7.55     | 7.94     | 8.21      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 3.48                                                                            | 4.65   | 5.25    | 5.89    | 6.3     | 6.66     | 6.99     | 7.38     | 7.65      | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 2.69                                                                            | 3.82   | 4.43    | 5.1     | 5.53    | 5.91     | 6.27     | 6.7      | 7         | Observed                     |
| Gauge: 445690; Duration: 48 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 11.85                                                                           | 15.2   | 17.21   | 19.7    | 21.31   | 22.76    | 24.09    | 25.69    | 26.81     | HRM3-HadCM3 (historical)     |
| 2                              | 92.31             | 11.41                                                                           | 14.99  | 16.9    | 18.75   | 19.97   | 21.05    | 22.03    | 23.19    | 24        | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 10.6                                                                            | 14.89  | 16.82   | 18.66   | 19.77   | 20.75    | 21.62    | 22.67    | 23.39     | HRM3-GFDL (future)           |
| 4                              | 84.62             | 9.81                                                                            | 12.2   | 13.93   | 15.77   | 16.97   | 18.53    | 19.99    | 21.78    | 23.18     | RCM3-GFDL (historical)       |
| 5                              | 80.77             | 8.93                                                                            | 11.79  | 12.75   | 15.28   | 16.95   | 18.23    | 19.72    | 21.6     | 23.06     | RCM3-CGCM3 (historical)      |
| 6                              | 76.92             | 8.64                                                                            | 10.74  | 12.74   | 14.91   | 16.63   | 18.01    | 19.41    | 21.57    | 22.89     | RCM3-GFDL (future)           |
| 7                              | 73.08             | 8.09                                                                            | 10.51  | 12.35   | 13.91   | 15.84   | 17.67    | 18.97    | 20.12    | 20.92     | HRM3-GFDL (historical)       |
| 8                              | 69.23             | 7.95                                                                            | 10.5   | 12.11   | 13.9    | 15.32   | 16.62    | 17.81    | 19.28    | 20.32     | RCM3-CGCM3 (future)          |
| 9                              | 65.38             | 7.48                                                                            | 10.15  | 11.78   | 13.7    | 14.48   | 15.29    | 16.03    | 16.91    | 17.53     | WRFG-CGCM3 (historical)      |
| 10                             | 61.54             | 6.96                                                                            | 10.1   | 11.56   | 13.56   | 14.3    | 14.87    | 15.65    | 16.58    | 17.23     | WRFG-CCSM (future)           |
| 11                             | 57.69             | 6.67                                                                            | 10.08  | 11.41   | 13.06   | 14.01   | 14.82    | 15.27    | 15.81    | 16.18     | MM5I-HadCM3 (future)         |
| 12                             | 53.85             | 6.59                                                                            | 9.86   | 11.15   | 12.33   | 12.95   | 13.78    | 14.56    | 15.49    | 16.14     | MM5I-CCSM (future)           |
| 13                             | 50.00             | 6.52                                                                            | 9.33   | 11.11   | 12.26   | 12.94   | 13.56    | 14.12    | 14.93    | 15.49     | WRFG-CCSM (historical)       |
| 14                             | 46.15             | 6.49                                                                            | 9.15   | 10.57   | 11.99   | 12.9    | 13.45    | 14.11    | 14.75    | 15.23     | MM5I-CCSM (historical)       |
| 15                             | 42.31             | 6.29                                                                            | 8.76   | 10.52   | 11.88   | 12.71   | 13.39    | 13.84    | 14.57    | 15.2      | MM5I-HadCM3 (historical)     |
| 16                             | 38.46             | 6.27                                                                            | 8.74   | 9.93    | 11.17   | 11.98   | 12.84    | 13.62    | 14.36    | 14.71     | WRFG-CGCM3 (future)          |
| 17                             | 34.62             | 6.18                                                                            | 8.24   | 9.58    | 11.04   | 11.96   | 12.66    | 13.3     | 14.07    | 14.6      | ECP2-GFDL (future)           |
| 18                             | 30.77             | 5.77                                                                            | 8.11   | 9.1     | 10.13   | 10.79   | 11.37    | 11.9     | 12.52    | 12.96     | ECP2-HadCM3 (future)         |
| 19                             | 26.92             | 5.49                                                                            | 7.78   | 8.53    | 9.29    | 9.77    | 10.19    | 10.56    | 11.06    | 11.44     | ECP2-GFDL (historical)       |
| 20                             | 23.08             | 4.97                                                                            | 7.18   | 8.05    | 8.96    | 9.54    | 10.05    | 10.51    | 11.01    | 11.31     | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 3.85                                                                            | 5.22   | 5.94    | 6.71    | 7.2     | 7.64     | 8.04     | 8.52     | 8.85      | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 2.72                                                                            | 3.88   | 4.51    | 5.19    | 5.64    | 6.04     | 6.4      | 6.85     | 7.16      | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 2.67                                                                            | 3.45   | 3.84    | 4.25    | 4.51    | 4.73     | 4.94     | 5.18     | 5.35      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 2.35                                                                            | 3.09   | 3.47    | 3.87    | 4.13    | 4.35     | 4.55     | 4.79     | 4.96      | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.94                                                                            | 2.7    | 3.11    | 3.55    | 3.84    | 4.09     | 4.33     | 4.61     | 4.8       | Observed                     |
| Gauge: 445690; Duration: 72 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 280.97                                                                          | 389.02 | 466.9   | 581.2   | 665.99  | 750.15   | 834.01   | 944.64   | 1028.25   | RCM3-CGCM3 (future)          |
| 2                               | 92.31             | 272.98                                                                          | 376.45 | 460.56  | 550.96  | 618.02  | 684.58   | 750.9    | 838.4    | 904.52    | HRM3-GFDL (future)           |
| 3                               | 88.46             | 248.47                                                                          | 360.52 | 418.47  | 491.7   | 546.02  | 599.94   | 653.67   | 724.55   | 778.12    | HRM3-HadCM3 (future)         |
| 4                               | 84.62             | 244.17                                                                          | 318.53 | 367.76  | 433.84  | 497.7   | 561.08   | 624.23   | 707.55   | 770.52    | RCM3-GFDL (historical)       |
| 5                               | 80.77             | 239.82                                                                          | 311.11 | 352.58  | 429.96  | 476.11  | 521.91   | 567.55   | 627.76   | 673.27    | HRM3-GFDL (historical)       |
| 6                               | 76.92             | 234.28                                                                          | 293.11 | 347.77  | 404.98  | 443.86  | 493.47   | 546.92   | 617.44   | 670.74    | RCM3-GFDL (future)           |
| 7                               | 73.08             | 226.74                                                                          | 279.64 | 332.07  | 385.77  | 439.82  | 482.44   | 520.89   | 571.61   | 609.94    | HRM3-HadCM3 (historical)     |
| 8                               | 69.23             | 216.83                                                                          | 270.4  | 312.91  | 381.29  | 417.81  | 454.05   | 490.17   | 537.81   | 573.82    | WRF3-CGCM3 (future)          |
| 9                               | 65.38             | 212.57                                                                          | 265.8  | 303.08  | 350.19  | 385.13  | 419.82   | 454.39   | 499.98   | 534.45    | MM5I-HadCM3 (historical)     |
| 10                              | 61.54             | 209.58                                                                          | 261.98 | 299.31  | 336.04  | 366.71  | 398.47   | 430.63   | 473.05   | 505.12    | WRF3-CGCM3 (historical)      |
| 11                              | 57.69             | 209.49                                                                          | 258.49 | 294.7   | 335.84  | 366.19  | 397.16   | 427.49   | 467.5    | 497.75    | WRF3-CCSM (future)           |
| 12                              | 53.85             | 202.75                                                                          | 255.25 | 289.84  | 333.67  | 362.94  | 389.84   | 418.32   | 460.71   | 492.75    | ECP2-HadCM3 (future)         |
| 13                              | 50.00             | 190.64                                                                          | 255.15 | 286.07  | 321.45  | 353.94  | 386.19   | 416.64   | 458.24   | 490.25    | WRF3-CCSM (historical)       |
| 14                              | 46.15             | 188.39                                                                          | 250.33 | 277.66  | 320.92  | 351.55  | 383.77   | 415.88   | 451.99   | 480.1     | MM5I-CCSM (historical)       |
| 15                              | 42.31             | 187.21                                                                          | 242.99 | 277.32  | 319.09  | 346.77  | 372.44   | 401      | 446.05   | 478.72    | MM5I-HadCM3 (future)         |
| 16                              | 38.46             | 183.17                                                                          | 240.7  | 275.33  | 311.41  | 339.76  | 369.89   | 399.9    | 439.51   | 469.44    | ECP2-GFDL (historical)       |
| 17                              | 34.62             | 176.75                                                                          | 236.12 | 268.5   | 309.41  | 336.71  | 366.86   | 398      | 431.74   | 457.23    | ECP2-GFDL (future)           |
| 18                              | 30.77             | 168.16                                                                          | 230.25 | 261.42  | 300.8   | 332.59  | 361.82   | 387.91   | 426.03   | 454.84    | MM5I-CCSM (future)           |
| 19                              | 26.92             | 159.06                                                                          | 214.69 | 251.53  | 298.06  | 330.01  | 359.01   | 386.83   | 419.84   | 444.78    | ECP2-HadCM3 (historical)     |
| 20                              | 23.08             | 156.17                                                                          | 205.09 | 237.48  | 278.41  | 308.77  | 338.91   | 368.94   | 408.55   | 438.49    | RCM3-CGCM3 (historical)      |
| 21                              | 19.23             | 108.37                                                                          | 130.63 | 145.36  | 164.49  | 183.36  | 202.08   | 220.74   | 245.36   | 263.96    | CRCM-CGCM3 (historical)      |
| 22                              | 15.38             | 89.69                                                                           | 118.93 | 139.06  | 163.98  | 177.79  | 191.56   | 208.3    | 230.38   | 247.07    | CRCM-CCSM (future)           |
| 23                              | 11.54             | 88.53                                                                           | 116.96 | 135.02  | 157.83  | 174.76  | 191.49   | 205.15   | 223.17   | 236.79    | CRCM-CGCM3 (future)          |
| 24                              | 7.69              | 71.14                                                                           | 98.6   | 117.65  | 141.71  | 159.56  | 177.28   | 194.94   | 218.23   | 235.83    | Observed                     |
| 25                              | 3.85              | 69.83                                                                           | 96.36  | 113.05  | 134.14  | 149.79  | 165.32   | 180.8    | 201.21   | 216.64    | CRCM-CCSM (historical)       |
| Gauge: 445880; Duration: 15 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 232.94                                                                          | 345.09 | 429.35  | 547.03  | 634.33  | 720.99   | 807.33   | 921.24   | 1007.33   | RCM3-CGCM3 (future)          |
| 2                               | 92.31             | 224.16                                                                          | 336.21 | 419.35  | 513.17  | 582.77  | 651.86   | 720.7    | 811.52   | 880.16    | HRM3-GFDL (future)           |
| 3                               | 88.46             | 199.32                                                                          | 312.83 | 371.54  | 445.72  | 500.76  | 555.38   | 609.81   | 681.61   | 735.88    | HRM3-HadCM3 (future)         |
| 4                               | 84.62             | 195.77                                                                          | 268.94 | 317.39  | 391.3   | 455.11  | 518.45   | 581.56   | 664.82   | 727.75    | RCM3-GFDL (historical)       |
| 5                               | 80.77             | 195.54                                                                          | 260.51 | 305.28  | 378.6   | 424.02  | 469.09   | 514      | 573.26   | 625.77    | RCM3-GFDL (future)           |
| 6                               | 76.92             | 185.28                                                                          | 243.45 | 301.02  | 352.21  | 395.9   | 449.3    | 502.51   | 572.71   | 618.04    | HRM3-GFDL (historical)       |
| 7                               | 73.08             | 177.79                                                                          | 237.2  | 281.96  | 342.1   | 390.18  | 427.88   | 465.43   | 514.98   | 552.43    | HRM3-HadCM3 (historical)     |
| 8                               | 69.23             | 168.45                                                                          | 219.59 | 269.57  | 330.62  | 366.72  | 402.55   | 438.25   | 485.35   | 520.95    | WRFG-CGCM3 (future)          |
| 9                               | 65.38             | 164.9                                                                           | 216.07 | 251.75  | 296.83  | 330.27  | 363.47   | 396.54   | 440.18   | 473.16    | MM5I-HadCM3 (historical)     |
| 10                              | 61.54             | 162.18                                                                          | 212.17 | 247.27  | 282.24  | 310.58  | 341.14   | 371.58   | 411.75   | 442.1     | WRFG-CGCM3 (historical)      |
| 11                              | 57.69             | 161.76                                                                          | 211.45 | 242.26  | 281.2   | 310.09  | 338.76   | 367.33   | 405.02   | 433.51    | WRFG-CCSM (future)           |
| 12                              | 53.85             | 155.85                                                                          | 207.94 | 238.3   | 279.79  | 308.18  | 333.93   | 359.58   | 398.71   | 428.83    | ECP2-HadCM3 (future)         |
| 13                              | 50.00             | 144.77                                                                          | 205.46 | 234.09  | 267.77  | 298.31  | 328.64   | 358.85   | 398.4    | 428.75    | WRFG-CCSM (historical)       |
| 14                              | 46.15             | 142.6                                                                           | 199.86 | 226.59  | 267.13  | 297.27  | 327.81   | 358.25   | 393.43   | 419.01    | MM5I-HadCM3 (future)         |
| 15                              | 42.31             | 141.49                                                                          | 194    | 225.08  | 266.49  | 291.64  | 315.97   | 340.58   | 380.23   | 411.48    | MM5I-CCSM (historical)       |
| 16                              | 38.46             | 137.91                                                                          | 192.18 | 225.01  | 256.95  | 284.28  | 312.48   | 340.21   | 377.65   | 405.66    | ECP2-GFDL (historical)       |
| 17                              | 34.62             | 134.38                                                                          | 187.27 | 217.58  | 255.87  | 280.6   | 307.56   | 338.89   | 372.19   | 396.36    | ECP2-GFDL (future)           |
| 18                              | 30.77             | 125.48                                                                          | 181.27 | 209.97  | 246.24  | 276.11  | 304.06   | 327.45   | 361.58   | 388.11    | MM5I-CCSM (future)           |
| 19                              | 26.92             | 116.86                                                                          | 167.92 | 201.72  | 244.43  | 273.15  | 299.86   | 326.47   | 358.3    | 381.61    | ECP2-HadCM3 (historical)     |
| 20                              | 23.08             | 114.16                                                                          | 158.17 | 187.31  | 224.13  | 251.44  | 278.55   | 305.56   | 341.2    | 368.13    | RCM3-CGCM3 (historical)      |
| 21                              | 19.23             | 72.97                                                                           | 91.18  | 103.24  | 118.75  | 133.93  | 148.99   | 164.01   | 183.82   | 198.79    | CRCM-CGCM3 (historical)      |
| 22                              | 15.38             | 58.34                                                                           | 82.09  | 98.28   | 118.47  | 129.78  | 141      | 154.04   | 171.86   | 185.33    | CRCM-CCSM (future)           |
| 23                              | 11.54             | 57.62                                                                           | 80.35  | 94.91   | 113.32  | 126.98  | 140.53   | 152.18   | 166.93   | 178.07    | CRCM-CGCM3 (future)          |
| 24                              | 7.69              | 44.46                                                                           | 63.31  | 75.79   | 91.56   | 103.25  | 114.87   | 126.44   | 141.7    | 153.24    | CRCM-CCSM (historical)       |
| 25                              | 3.85              | 42.95                                                                           | 57.84  | 67.7    | 80.16   | 89.4    | 98.57    | 107.71   | 119.77   | 128.88    | Observed                     |
| Gauge: 445880; Duration: 30 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 177.64                                                                          | 265.42 | 331.71  | 423.73  | 492     | 559.77   | 627.29   | 716.37   | 783.69    | RCM3-CGCM3 (future)          |
| 2                               | 92.31             | 170.73                                                                          | 258.87 | 323.54  | 396.97  | 451.45  | 505.52   | 559.4    | 630.48   | 684.2     | HRM3-GFDL (future)           |
| 3                               | 88.46             | 151.34                                                                          | 239.9  | 285.69  | 343.56  | 386.48  | 429.09   | 471.55   | 527.56   | 569.89    | HRM3-HadCM3 (future)         |
| 4                               | 84.62             | 148.87                                                                          | 205.54 | 243.19  | 301.57  | 351.29  | 400.64   | 449.8    | 514.67   | 563.7     | RCM3-GFDL (historical)       |
| 5                               | 80.77             | 148.66                                                                          | 198.86 | 234.55  | 290.78  | 326.07  | 361.11   | 396.02   | 442.67   | 483.98    | RCM3-GFDL (future)           |
| 6                               | 76.92             | 140.43                                                                          | 185.66 | 230.32  | 270.07  | 305     | 346.58   | 388.01   | 442.08   | 476.88    | HRM3-GFDL (historical)       |
| 7                               | 73.08             | 134.6                                                                           | 181.51 | 215.61  | 263.11  | 299.56  | 328.83   | 358      | 396.48   | 425.56    | HRM3-HadCM3 (historical)     |
| 8                               | 69.23             | 127.39                                                                          | 166.98 | 206.65  | 253.45  | 281.52  | 309.38   | 337.14   | 373.76   | 401.44    | WRFG-CGCM3 (future)          |
| 9                               | 65.38             | 124.68                                                                          | 164.34 | 191.98  | 226.89  | 252.8   | 278.51   | 304.13   | 337.92   | 363.47    | MM5I-HadCM3 (historical)     |
| 10                              | 61.54             | 122.6                                                                           | 161.96 | 188.41  | 215.49  | 237.4   | 261.04   | 284.59   | 315.66   | 339.14    | WRFG-CGCM3 (historical)      |
| 11                              | 57.69             | 122.22                                                                          | 160.66 | 184.48  | 214.58  | 236.9   | 259.07   | 281.15   | 310.28   | 332.3     | WRFG-CCSM (future)           |
| 12                              | 53.85             | 117.71                                                                          | 157.94 | 181.49  | 213.59  | 235.58  | 255.52   | 275.39   | 305.44   | 328.87    | WRFG-CCSM (historical)       |
| 13                              | 50.00             | 109.18                                                                          | 156.08 | 178.17  | 204.24  | 227.85  | 251.29   | 274.64   | 305.4    | 328.73    | ECP2-HadCM3 (future)         |
| 14                              | 46.15             | 107.49                                                                          | 151.64 | 172.41  | 203.73  | 227.15  | 250.79   | 274.33   | 301.6    | 321.41    | MM5I-HadCM3 (future)         |
| 15                              | 42.31             | 106.65                                                                          | 147.22 | 171.25  | 203.35  | 222.69  | 241.51   | 260.39   | 290.74   | 314.82    | MM5I-CCSM (historical)       |
| 16                              | 38.46             | 103.9                                                                           | 145.85 | 171.12  | 195.73  | 216.91  | 238.69   | 260.26   | 289.01   | 310.64    | ECP2-GFDL (historical)       |
| 17                              | 34.62             | 101.4                                                                           | 142    | 165.4   | 194.98  | 213.99  | 234.74   | 258.89   | 285      | 303.69    | ECP2-GFDL (future)           |
| 18                              | 30.77             | 94.46                                                                           | 137.32 | 159.45  | 187.41  | 210.5   | 232.11   | 250.17   | 276.32   | 296.77    | MM5I-CCSM (future)           |
| 19                              | 26.92             | 87.78                                                                           | 127.12 | 153.17  | 186.08  | 208.15  | 228.74   | 249.26   | 273.99   | 292       | ECP2-HadCM3 (historical)     |
| 20                              | 23.08             | 85.69                                                                           | 119.52 | 141.92  | 170.22  | 191.21  | 212.05   | 232.82   | 260.21   | 280.91    | RCM3-CGCM3 (historical)      |
| 21                              | 19.23             | 54.2                                                                            | 68.03  | 77.19   | 88.96   | 100.47  | 111.89   | 123.27   | 138.28   | 149.63    | CRCM-CGCM3 (historical)      |
| 22                              | 15.38             | 43.16                                                                           | 61.18  | 73.45   | 88.76   | 97.34   | 105.86   | 115.72   | 129.23   | 139.44    | CRCM-CCSM (future)           |
| 23                              | 11.54             | 42.63                                                                           | 59.84  | 70.89   | 84.85   | 95.2    | 105.48   | 114.35   | 125.55   | 134.01    | CRCM-CGCM3 (future)          |
| 24                              | 7.69              | 32.73                                                                           | 46.89  | 56.27   | 68.12   | 76.92   | 85.64    | 94.34    | 105.81   | 114.48    | CRCM-CCSM (historical)       |
| 25                              | 3.85              | 32.51                                                                           | 45.28  | 53.74   | 64.43   | 72.37   | 80.24    | 88.08    | 98.43    | 106.25    | Observed                     |
| Gauge: 445880; Duration: 45 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 149.27                                                                          | 225.9  | 284.22  | 364.46  | 423.99  | 483.08   | 541.95   | 619.63   | 678.33    | RCM3-CGCM3 (future)          |
| 2                             | 92.31             | 143.18                                                                          | 220.71 | 276.63  | 340.74  | 388.29  | 435.5    | 482.53   | 544.58   | 591.47    | HRM3-GFDL (future)           |
| 3                             | 88.46             | 126.34                                                                          | 203.27 | 243.05  | 293.31  | 330.6   | 367.62   | 404.5    | 453.15   | 489.92    | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 124.79                                                                          | 173.25 | 205.79  | 257.49  | 300.61  | 343.41   | 386.05   | 442.32   | 484.84    | RCM3-GFDL (historical)       |
| 5                             | 80.77             | 124.11                                                                          | 167.33 | 199.37  | 246.9   | 277.4   | 307.67   | 337.84   | 379.5    | 415.29    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 116.91                                                                          | 156.02 | 194.47  | 228.76  | 260.24  | 296.26   | 332.15   | 377.63   | 407.71    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 111.87                                                                          | 153.37 | 181.91  | 223.94  | 254.19  | 279.44   | 304.6    | 337.79   | 362.87    | HRM3-HadCM3 (historical)     |
| 8                             | 69.23             | 105.69                                                                          | 139.68 | 175.03  | 214.62  | 238.89  | 262.98   | 286.98   | 318.65   | 342.58    | WRF3-CGCM3 (future)          |
| 9                             | 65.38             | 103.43                                                                          | 137.54 | 161.28  | 191.28  | 213.54  | 235.63   | 257.64   | 286.68   | 308.63    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 101.68                                                                          | 136.31 | 158.1   | 181.36  | 200.14  | 220.41   | 240.61   | 267.26   | 287.4     | WRF3-CGCM3 (historical)      |
| 11                            | 57.69             | 101.29                                                                          | 134.26 | 154.66  | 180.45  | 199.58  | 218.57   | 237.49   | 262.45   | 281.31    | WRF3-CCSM (future)           |
| 12                            | 53.85             | 97.48                                                                           | 131.89 | 152.18  | 179.71  | 198.62  | 215.75   | 232.82   | 258.54   | 278.68    | WRF3-CCSM (historical)       |
| 13                            | 50.00             | 90.21                                                                           | 130.39 | 149.23  | 171.65  | 191.88  | 211.95   | 231.96   | 258.35   | 278.29    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 88.76                                                                           | 126.45 | 144.38  | 171.14  | 191.42  | 211.69   | 231.89   | 255.34   | 272.36    | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 88.04                                                                           | 122.81 | 143.46  | 170.99  | 187.4   | 203.53   | 219.61   | 245.2    | 265.73    | MM5I-CCSM (historical)       |
| 16                            | 38.46             | 85.71                                                                           | 121.67 | 143.11  | 164.16  | 182.4   | 201.03   | 219.6    | 244.09   | 262.61    | ECP2-GFDL (historical)       |
| 17                            | 34.62             | 83.89                                                                           | 118.29 | 138.32  | 163.62  | 179.77  | 197.43   | 218.03   | 240.82   | 256.85    | ECP2-GFDL (future)           |
| 18                            | 30.77             | 77.83                                                                           | 114.23 | 133.11  | 156.97  | 176.76  | 195.27   | 210.72   | 232.83   | 250.28    | MM5I-CCSM (future)           |
| 19                            | 26.92             | 72.09                                                                           | 105.65 | 127.87  | 155.94  | 174.66  | 192.23   | 209.74   | 231.09   | 246.49    | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 70.31                                                                           | 99.06  | 118.09  | 142.14  | 159.98  | 177.69   | 195.33   | 218.61   | 236.2     | RCM3-CGCM3 (historical)      |
| 21                            | 19.23             | 43.79                                                                           | 55.33  | 62.97   | 72.79   | 82.36   | 91.87    | 101.34   | 113.83   | 123.28    | CRCM-CGCM3 (historical)      |
| 22                            | 15.38             | 34.65                                                                           | 49.66  | 59.88   | 72.62   | 79.79   | 86.9     | 95.03    | 106.27   | 114.77    | CRCM-CCSM (future)           |
| 23                            | 11.54             | 34.23                                                                           | 48.53  | 57.73   | 69.34   | 77.96   | 86.51    | 93.98    | 103.33   | 110.39    | CRCM-CGCM3 (future)          |
| 24                            | 7.69              | 28.29                                                                           | 37.71  | 45.41   | 55.14   | 62.36   | 69.52    | 76.66    | 86.07    | 93.19     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 26.08                                                                           | 37.59  | 43.74   | 51.52   | 57.29   | 63.02    | 68.72    | 76.25    | 81.94     | Observed                     |
| Gauge: 445880; Duration: 1 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 111.72                                                                          | 177.22 | 228.59  | 296.96  | 347.68  | 398.03   | 448.19   | 514.37   | 564.38    | RCM3-CGCM3 (future)          |
| 2                             | 92.31             | 106.37                                                                          | 174.48 | 220.59  | 275.38  | 316.03  | 356.38   | 396.59   | 449.63   | 489.72    | HRM3-GFDL (future)           |
| 3                             | 88.46             | 92.75                                                                           | 156.73 | 190.08  | 232.21  | 263.47  | 294.49   | 325.4    | 366.19   | 397.01    | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 92.25                                                                           | 131.1  | 157.87  | 204.41  | 240.44  | 276.2    | 311.83   | 358.84   | 394.37    | RCM3-GFDL (historical)       |
| 5                             | 80.77             | 90.67                                                                           | 125.76 | 155.85  | 191.69  | 216.78  | 241.69   | 266.5    | 305.15   | 334.92    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 84.51                                                                           | 117.41 | 147.94  | 175.96  | 205.97  | 235.92   | 265.77   | 299.24   | 323.98    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 80.35                                                                           | 116.73 | 138.07  | 175.79  | 196.76  | 217.39   | 237.96   | 265.08   | 285.59    | HRM3-HadCM3 (historical)     |
| 8                             | 69.23             | 75.43                                                                           | 102.9  | 135.1   | 165.02  | 185.02  | 204.87   | 224.64   | 250.73   | 270.45    | WRF3-CGCM3 (future)          |
| 9                             | 65.38             | 73.79                                                                           | 102.74 | 120.48  | 144.64  | 162.57  | 180.37   | 198.1    | 221.49   | 239.17    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 72.46                                                                           | 101.35 | 117.56  | 136.28  | 151.35  | 167.59   | 183.77   | 205.12   | 221.25    | WRF3-CGCM3 (historical)      |
| 11                            | 57.69             | 71.97                                                                           | 98.34  | 114.61  | 135.15  | 150.39  | 165.52   | 180.59   | 200.48   | 215.51    | WRF3-CCSM (future)           |
| 12                            | 53.85             | 69.12                                                                           | 96.37  | 112.94  | 134.99  | 150.17  | 163.96   | 177.7    | 198.32   | 214.46    | WRF3-CCSM (historical)       |
| 13                            | 50.00             | 63.44                                                                           | 95.48  | 110.24  | 128.34  | 144.54  | 160.78   | 176.97   | 197.43   | 213.33    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 62.28                                                                           | 91.89  | 106.61  | 128.17  | 144.46  | 160.46   | 176.4    | 195.83   | 209.53    | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 61.71                                                                           | 89.42  | 106.11  | 127.76  | 140.76  | 153.66   | 166.52   | 185.53   | 201.5     | MM5I-CCSM (historical)       |
| 16                            | 38.46             | 59.92                                                                           | 88.65  | 105.08  | 121.74  | 136.58  | 151.36   | 166.1    | 185.4    | 200.22    | ECP2-GFDL (historical)       |
| 17                            | 34.62             | 59.36                                                                           | 85.71  | 101.6   | 121.68  | 134.1   | 147.93   | 164.08   | 183.48   | 196.29    | ECP2-GFDL (future)           |
| 18                            | 30.77             | 54.27                                                                           | 82.31  | 97.13   | 115.85  | 131.72  | 146.37   | 158.6    | 175.4    | 189.1     | MM5I-CCSM (future)           |
| 19                            | 26.92             | 49.63                                                                           | 75.95  | 93.37   | 115.39  | 129.74  | 143.53   | 157.27   | 174.73   | 186.92    | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 48.21                                                                           | 70.44  | 85.16   | 103.76  | 117.56  | 131.26   | 144.91   | 162.91   | 176.52    | RCM3-CGCM3 (historical)      |
| 21                            | 19.23             | 28.32                                                                           | 36.66  | 42.19   | 49.33   | 56.2    | 63.01    | 69.8     | 78.76    | 85.53     | CRCM-CGCM3 (historical)      |
| 22                            | 15.38             | 21.92                                                                           | 32.75  | 40.07   | 49.16   | 54.34   | 59.48    | 65.23    | 73.3     | 79.39     | CRCM-CCSM (future)           |
| 23                            | 11.54             | 21.68                                                                           | 31.88  | 38.47   | 46.8    | 52.99   | 59.12    | 64.6     | 71.36    | 76.46     | CRCM-CGCM3 (future)          |
| 24                            | 7.69              | 17.31                                                                           | 24     | 29.26   | 35.89   | 40.82   | 45.71    | 50.58    | 57       | 61.86     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 16.07                                                                           | 23.82  | 28.13   | 33.58   | 37.63   | 41.64    | 45.64    | 50.91    | 54.9      | Observed                     |
| Gauge: 445880; Duration: 2 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 72.11                                                                           | 110.06 | 139.1   | 178.82  | 208.28  | 237.53   | 266.66   | 305.11   | 334.16    | RCM3-CGCM3 (future)          |
| 2                             | 92.31             | 69.08                                                                           | 107.67 | 135.18  | 166.92  | 190.48  | 213.85   | 237.14   | 267.87   | 291.09    | HRM3-GFDL (future)           |
| 3                             | 88.46             | 60.77                                                                           | 98.74  | 118.37  | 143.18  | 161.59  | 179.86   | 198.06   | 222.08   | 240.23    | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 60.2                                                                            | 83.86  | 99.86   | 125.71  | 146.98  | 168.08   | 189.11   | 216.85   | 237.82    | RCM3-GFDL (historical)       |
| 5                             | 80.77             | 59.69                                                                           | 80.91  | 97.05   | 120.08  | 135.08  | 149.97   | 164.8    | 185.78   | 203.42    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 56.12                                                                           | 75.36  | 94.24   | 111.09  | 127.01  | 144.76   | 162.45   | 184.38   | 199.17    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 53.65                                                                           | 74.37  | 88.1    | 109.12  | 123.59  | 136      | 148.36   | 164.67   | 176.99    | HRM3-HadCM3 (historical)     |
| 8                             | 69.23             | 50.63                                                                           | 67.27  | 85.01   | 104.2   | 116.14  | 127.99   | 139.79   | 155.37   | 167.15    | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 49.54                                                                           | 66.26  | 77.9    | 92.6    | 103.51  | 114.34   | 125.13   | 139.36   | 150.12    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 48.68                                                                           | 65.93  | 76.3    | 87.7    | 96.89   | 106.81   | 116.7    | 129.75   | 139.61    | WRFG-CGCM3 (historical)      |
| 11                            | 57.69             | 48.48                                                                           | 64.61  | 74.6    | 87.21   | 96.57   | 105.85   | 115.11   | 127.31   | 136.54    | WRFG-CCSM (future)           |
| 12                            | 53.85             | 46.64                                                                           | 63.45  | 73.41   | 86.89   | 96.15   | 104.55   | 112.91   | 125.5    | 135.36    | WRFG-CCSM (historical)       |
| 13                            | 50.00             | 43.1                                                                            | 62.75  | 71.94   | 82.91   | 92.8    | 102.62   | 112.45   | 125.3    | 135.05    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 42.39                                                                           | 60.77  | 69.58   | 82.67   | 92.64   | 102.56   | 112.39   | 123.95   | 132.29    | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 42.03                                                                           | 59.03  | 69.16   | 82.64   | 90.62   | 98.52    | 106.39   | 118.69   | 128.7     | MM5I-CCSM (historical)       |
| 16                            | 38.46             | 40.9                                                                            | 58.5   | 68.91   | 79.19   | 88.15   | 97.26    | 106.33   | 118.3    | 127.35    | ECP2-GFDL (historical)       |
| 17                            | 34.62             | 40.1                                                                            | 56.82  | 66.61   | 78.97   | 86.82   | 95.4     | 105.44   | 116.78   | 124.63    | ECP2-GFDL (future)           |
| 18                            | 30.77             | 37.11                                                                           | 54.8   | 64.01   | 75.65   | 85.32   | 94.39    | 101.94   | 112.65   | 121.17    | MM5I-CCSM (future)           |
| 19                            | 26.92             | 34.3                                                                            | 50.66  | 61.49   | 75.17   | 84.28   | 92.85    | 101.39   | 111.89   | 119.41    | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 33.43                                                                           | 47.41  | 56.67   | 68.36   | 77.04   | 85.65    | 94.23    | 105.55   | 114.11    | RCM3-CGCM3 (historical)      |
| 21                            | 19.23             | 20.6                                                                            | 26.15  | 29.82   | 34.55   | 39.14   | 43.71    | 48.25    | 54.25    | 58.78     | CRCM-CGCM3 (historical)      |
| 22                            | 15.38             | 16.23                                                                           | 23.45  | 28.35   | 34.47   | 37.91   | 41.33    | 45.21    | 50.61    | 54.68     | CRCM-CCSM (future)           |
| 23                            | 11.54             | 16.04                                                                           | 22.9   | 27.31   | 32.88   | 37.02   | 41.12    | 44.74    | 49.23    | 52.63     | CRCM-CGCM3 (future)          |
| 24                            | 7.69              | 12.48                                                                           | 17.69  | 21.34   | 25.96   | 29.39   | 32.79    | 36.18    | 40.66    | 44.04     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 12.16                                                                           | 16.94  | 19.89   | 23.61   | 26.38   | 29.12    | 31.85    | 35.46    | 38.19     | Observed                     |
| Gauge: 445880; Duration: 3 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 57.18                                                                           | 86.54  | 108.89  | 139.63  | 162.43  | 185.07   | 207.62   | 237.37   | 259.86    | RCM3-CGCM3 (future)          |
| 2                             | 92.31             | 54.85                                                                           | 84.56  | 105.98  | 130.54  | 148.76  | 166.84   | 184.86   | 208.63   | 226.6     | HRM3-GFDL (future)           |
| 3                             | 88.46             | 48.4                                                                            | 77.87  | 93.12   | 112.37  | 126.66  | 140.84   | 154.97   | 173.61   | 187.7     | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 47.81                                                                           | 66.38  | 78.84   | 98.64   | 115.16  | 131.56   | 147.9    | 169.45   | 185.74    | RCM3-GFDL (historical)       |
| 5                             | 80.77             | 47.55                                                                           | 64.11  | 76.37   | 94.59   | 106.27  | 117.86   | 129.42   | 145.39   | 159.1     | RCM3-GFDL (future)           |
| 6                             | 76.92             | 44.8                                                                            | 59.78  | 74.5    | 87.64   | 99.7    | 113.5    | 127.25   | 144.66   | 156.18    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 42.86                                                                           | 58.75  | 69.69   | 85.79   | 97.39   | 107.06   | 116.7    | 129.41   | 139.03    | HRM3-HadCM3 (historical)     |
| 8                             | 69.23             | 40.49                                                                           | 53.52  | 67.05   | 82.22   | 91.52   | 100.75   | 109.94   | 122.07   | 131.24    | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 39.63                                                                           | 52.7   | 61.8    | 73.29   | 81.82   | 90.29    | 98.72    | 109.85   | 118.26    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 38.96                                                                           | 52.22  | 60.57   | 69.49   | 76.68   | 84.45    | 92.19    | 102.4    | 110.12    | WRFG-CGCM3 (historical)      |
| 11                            | 57.69             | 38.81                                                                           | 51.43  | 59.25   | 69.13   | 76.45   | 83.73    | 90.97    | 100.53   | 107.76    | WRFG-CCSM (future)           |
| 12                            | 53.85             | 37.35                                                                           | 50.53  | 58.31   | 68.86   | 76.1    | 82.67    | 89.21    | 99.06    | 106.78    | WRFG-CCSM (historical)       |
| 13                            | 50.00             | 34.56                                                                           | 49.96  | 57.18   | 65.76   | 73.51   | 81.2     | 88.87    | 98.98    | 106.62    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 34.01                                                                           | 48.45  | 55.31   | 65.58   | 73.34   | 81.11    | 88.85    | 97.84    | 104.36    | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 33.73                                                                           | 47.05  | 54.97   | 65.52   | 71.81   | 77.99    | 84.16    | 93.95    | 101.82    | MM5I-CCSM (historical)       |
| 16                            | 38.46             | 32.84                                                                           | 46.62  | 54.83   | 62.9    | 69.87   | 77       | 84.11    | 93.5     | 100.59    | ECP2-GFDL (historical)       |
| 17                            | 34.62             | 32.13                                                                           | 45.31  | 52.98   | 62.68   | 68.88   | 75.65    | 83.54    | 92.28    | 98.43     | ECP2-GFDL (future)           |
| 18                            | 30.77             | 29.82                                                                           | 43.76  | 50.99   | 60.13   | 67.73   | 74.82    | 80.74    | 89.19    | 95.87     | MM5I-CCSM (future)           |
| 19                            | 26.92             | 27.62                                                                           | 40.48  | 48.99   | 59.75   | 66.91   | 73.64    | 80.34    | 88.55    | 94.45     | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 26.93                                                                           | 37.95  | 45.24   | 54.45   | 61.28   | 68.06    | 74.82    | 83.74    | 90.48     | RCM3-CGCM3 (historical)      |
| 21                            | 19.23             | 16.77                                                                           | 21.19  | 24.11   | 27.88   | 31.55   | 35.19    | 38.82    | 43.61    | 47.23     | CRCM-CGCM3 (historical)      |
| 22                            | 15.38             | 13.27                                                                           | 19.02  | 22.94   | 27.81   | 30.55   | 33.27    | 36.41    | 40.72    | 43.97     | CRCM-CCSM (future)           |
| 23                            | 11.54             | 13.11                                                                           | 18.59  | 22.11   | 26.56   | 29.87   | 33.14    | 35.99    | 39.56    | 42.27     | CRCM-CGCM3 (future)          |
| 24                            | 7.69              | 10.91                                                                           | 14.45  | 17.4    | 21.12   | 23.89   | 26.63    | 29.36    | 32.97    | 35.7      | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 9.99                                                                            | 14.31  | 16.56   | 19.41   | 21.52   | 23.62    | 25.7     | 28.46    | 30.54     | Observed                     |
| Gauge: 445880; Duration: 4 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 56.18                                                                           | 85.61  | 108.13  | 138.93  | 161.78  | 184.46   | 207.05   | 236.87   | 259.4     | RCM3-CGCM3 (future)          |
| 2                             | 92.31             | 53.83                                                                           | 83.75  | 105.09  | 129.71  | 147.97  | 166.1    | 184.17   | 208      | 226.01    | HRM3-GFDL (future)           |
| 3                             | 88.46             | 47.38                                                                           | 76.82  | 92.05   | 111.28  | 125.55  | 139.72   | 153.83   | 172.45   | 186.52    | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 46.94                                                                           | 65.29  | 77.7    | 97.76   | 114.25  | 130.62   | 146.93   | 168.45   | 184.71    | RCM3-GFDL (historical)       |
| 5                             | 80.77             | 46.55                                                                           | 62.99  | 75.53   | 93.38   | 105.01  | 116.56   | 128.06   | 144.33   | 158.01    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 43.79                                                                           | 58.71  | 73.33   | 86.4    | 98.75   | 112.52   | 126.24   | 143.24   | 154.71    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 41.87                                                                           | 57.94  | 68.58   | 84.88   | 96.09   | 105.71   | 115.29   | 127.94   | 137.49    | HRM3-HadCM3 (historical)     |
| 8                             | 69.23             | 39.52                                                                           | 52.44  | 66.18   | 81.06   | 90.32   | 99.51    | 108.66   | 120.74   | 129.87    | WRFG-CGCM3 (future)          |
| 9                             | 65.38             | 38.68                                                                           | 51.63  | 60.66   | 72.06   | 80.51   | 88.91    | 97.27    | 108.31   | 116.65    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 38.01                                                                           | 51.39  | 59.43   | 68.28   | 75.41   | 83.1     | 90.77    | 100.89   | 108.54    | WRFG-CGCM3 (historical)      |
| 11                            | 57.69             | 37.85                                                                           | 50.37  | 58.11   | 67.89   | 75.15   | 82.35    | 89.53    | 98.99    | 106.15    | WRFG-CCSM (future)           |
| 12                            | 53.85             | 36.43                                                                           | 49.46  | 57.2    | 67.65   | 74.83   | 81.35    | 87.83    | 97.59    | 105.24    | WRFG-CCSM (historical)       |
| 13                            | 50.00             | 33.68                                                                           | 48.92  | 56.05   | 64.57   | 72.25   | 79.86    | 87.47    | 97.46    | 105.03    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 33.13                                                                           | 47.38  | 54.23   | 64.36   | 72.11   | 79.8     | 87.45    | 96.39    | 102.86    | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 32.85                                                                           | 46.05  | 53.9    | 64.35   | 70.53   | 76.66    | 82.76    | 92.33    | 100.1     | MM5I-CCSM (historical)       |
| 16                            | 38.46             | 31.98                                                                           | 45.62  | 53.7    | 61.67   | 68.6    | 75.66    | 82.7     | 91.98    | 98.99     | ECP2-GFDL (historical)       |
| 17                            | 34.62             | 31.36                                                                           | 44.31  | 51.9    | 61.49   | 67.59   | 74.26    | 82.05    | 90.81    | 96.9      | ECP2-GFDL (future)           |
| 18                            | 30.77             | 29.04                                                                           | 42.76  | 49.9    | 58.92   | 66.45   | 73.47    | 79.32    | 87.6     | 94.19     | MM5I-CCSM (future)           |
| 19                            | 26.92             | 26.86                                                                           | 39.55  | 47.95   | 58.57   | 65.61   | 72.25    | 78.87    | 87.04    | 92.87     | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 26.18                                                                           | 37.03  | 44.21   | 53.28   | 60.01   | 66.69    | 73.34    | 82.12    | 88.76     | RCM3-CGCM3 (historical)      |
| 21                            | 19.23             | 16.23                                                                           | 20.53  | 23.38   | 27.06   | 30.62   | 34.16    | 37.68    | 42.34    | 45.85     | CRCM-CGCM3 (historical)      |
| 22                            | 15.38             | 12.85                                                                           | 18.45  | 22.25   | 26.98   | 29.65   | 32.31    | 35.33    | 39.52    | 42.68     | CRCM-CCSM (future)           |
| 23                            | 11.54             | 12.7                                                                            | 18.02  | 21.44   | 25.77   | 28.98   | 32.16    | 34.95    | 38.43    | 41.07     | CRCM-CGCM3 (future)          |
| 24                            | 7.69              | 9.69                                                                            | 13.98  | 16.82   | 20.4    | 23.06   | 25.7     | 28.33    | 31.8     | 34.43     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 7.92                                                                            | 10.56  | 12.31   | 14.52   | 16.16   | 17.79    | 19.41    | 21.55    | 23.17     | Observed                     |
| Gauge: 445880; Duration: 6 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 35.87                                                                           | 54.48  | 68.71   | 88.18   | 102.62  | 116.95   | 131.23   | 150.07   | 164.31    | RCM3-CGCM3 (future)          |
| 2                              | 92.31             | 34.39                                                                           | 53.3   | 66.79   | 82.35   | 93.9    | 105.36   | 116.78   | 131.84   | 143.22    | HRM3-GFDL (future)           |
| 3                              | 88.46             | 30.32                                                                           | 48.93  | 58.55   | 70.71   | 79.73   | 88.69    | 97.61    | 109.38   | 118.28    | HRM3-HadCM3 (future)         |
| 4                              | 84.62             | 30.04                                                                           | 41.64  | 49.48   | 62.14   | 72.56   | 82.91    | 93.21    | 106.81   | 117.09    | RCM3-GFDL (historical)       |
| 5                              | 80.77             | 29.79                                                                           | 40.19  | 48.1    | 59.4    | 66.75   | 74.05    | 81.33    | 91.58    | 100.22    | RCM3-GFDL (future)           |
| 6                              | 76.92             | 28.05                                                                           | 37.48  | 46.72   | 54.98   | 62.78   | 71.48    | 80.14    | 90.92    | 98.18     | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 26.83                                                                           | 36.98  | 43.72   | 54.01   | 61.11   | 67.19    | 73.25    | 81.24    | 87.28     | HRM3-HadCM3 (historical)     |
| 8                              | 69.23             | 25.35                                                                           | 33.51  | 42.2    | 51.61   | 57.46   | 63.27    | 69.06    | 76.69    | 82.46     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 24.82                                                                           | 33.02  | 38.72   | 45.93   | 51.28   | 56.58    | 61.87    | 68.85    | 74.12     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 24.4                                                                            | 32.85  | 37.93   | 43.52   | 48.01   | 52.87    | 57.71    | 64.11    | 68.93     | WRFG-CGCM3 (historical)      |
| 11                             | 57.69             | 24.29                                                                           | 32.21  | 37.1    | 43.28   | 47.86   | 52.41    | 56.95    | 62.93    | 67.45     | WRFG-CCSM (future)           |
| 12                             | 53.85             | 23.39                                                                           | 31.64  | 36.51   | 43.11   | 47.67   | 51.78    | 55.88    | 62.03    | 66.85     | WRFG-CCSM (historical)       |
| 13                             | 50.00             | 21.66                                                                           | 31.29  | 35.8    | 41.18   | 46.03   | 50.84    | 55.63    | 61.96    | 66.74     | ECP2-HadCM3 (future)         |
| 14                             | 46.15             | 21.31                                                                           | 30.32  | 34.64   | 41.05   | 45.93   | 50.79    | 55.63    | 61.29    | 65.38     | MM5I-HadCM3 (future)         |
| 15                             | 42.31             | 21.13                                                                           | 29.47  | 34.43   | 41.03   | 44.95   | 48.82    | 52.68    | 58.7     | 63.61     | MM5I-CCSM (historical)       |
| 16                             | 38.46             | 20.58                                                                           | 29.21  | 34.31   | 39.35   | 43.74   | 48.2     | 52.65    | 58.52    | 62.95     | ECP2-GFDL (historical)       |
| 17                             | 34.62             | 20.19                                                                           | 28.38  | 33.18   | 39.24   | 43.09   | 47.29    | 52.21    | 57.77    | 61.61     | ECP2-GFDL (future)           |
| 18                             | 30.77             | 18.73                                                                           | 27.4   | 31.91   | 37.61   | 42.35   | 46.8     | 50.5     | 55.73    | 59.9      | MM5I-CCSM (future)           |
| 19                             | 26.92             | 17.35                                                                           | 25.37  | 30.67   | 37.38   | 41.84   | 46.03    | 50.22    | 55.38    | 59.07     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 16.92                                                                           | 23.77  | 28.3    | 34.03   | 38.28   | 42.5     | 46.7     | 52.25    | 56.44     | RCM3-CGCM3 (historical)      |
| 21                             | 19.23             | 10.63                                                                           | 13.36  | 15.16   | 17.47   | 19.72   | 21.96    | 24.19    | 27.13    | 29.36     | CRCM-CGCM3 (historical)      |
| 22                             | 15.38             | 8.49                                                                            | 12.03  | 14.43   | 17.44   | 19.12   | 20.8     | 22.68    | 25.32    | 27.31     | CRCM-CCSM (future)           |
| 23                             | 11.54             | 8.4                                                                             | 11.75  | 13.91   | 16.64   | 18.67   | 20.67    | 22.47    | 24.68    | 26.34     | CRCM-CGCM3 (future)          |
| 24                             | 7.69              | 6.5                                                                             | 9.21   | 11.01   | 13.27   | 14.96   | 16.63    | 18.29    | 20.49    | 22.15     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 4.99                                                                            | 6.93   | 8.21    | 9.83    | 11.03   | 12.22    | 13.41    | 14.97    | 16.16     | Observed                     |
| Gauge: 445880; Duration: 12 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 19.43                                                                           | 29.34  | 36.92   | 47.29   | 54.97   | 62.61    | 70.21    | 80.24    | 87.83     | RCM3-CGCM3 (future)          |
| 2                              | 92.31             | 18.64                                                                           | 28.72  | 35.89   | 44.18   | 50.33   | 56.43    | 62.51    | 70.54    | 76.6      | HRM3-GFDL (future)           |
| 3                              | 88.46             | 16.47                                                                           | 26.38  | 31.51   | 37.98   | 42.79   | 47.56    | 52.31    | 58.58    | 63.32     | HRM3-HadCM3 (future)         |
| 4                              | 84.62             | 16.33                                                                           | 22.51  | 26.68   | 33.42   | 38.97   | 44.48    | 49.97    | 57.21    | 62.69     | RCM3-GFDL (historical)       |
| 5                              | 80.77             | 16.2                                                                            | 21.73  | 25.94   | 31.96   | 35.88   | 39.77    | 43.64    | 49.1     | 53.7      | RCM3-GFDL (future)           |
| 6                              | 76.92             | 15.27                                                                           | 20.29  | 25.21   | 29.61   | 33.76   | 38.39    | 43.01    | 48.75    | 52.61     | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 14.62                                                                           | 20.02  | 23.61   | 29.09   | 32.87   | 36.11    | 39.34    | 43.6     | 46.82     | HRM3-HadCM3 (historical)     |
| 8                              | 69.23             | 13.83                                                                           | 18.17  | 22.8    | 27.81   | 30.92   | 34.02    | 37.1     | 41.16    | 44.23     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 13.54                                                                           | 17.9   | 20.94   | 24.78   | 27.62   | 30.45    | 33.26    | 36.98    | 39.79     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 13.32                                                                           | 17.82  | 20.52   | 23.5    | 25.91   | 28.5     | 31.08    | 34.49    | 37.06     | WRFG-CGCM3 (historical)      |
| 11                             | 57.69             | 13.26                                                                           | 17.47  | 20.08   | 23.37   | 25.81   | 28.23    | 30.64    | 33.83    | 36.23     | WRFG-CCSM (future)           |
| 12                             | 53.85             | 12.79                                                                           | 17.18  | 19.78   | 23.3    | 25.7    | 27.89    | 30.07    | 33.38    | 35.95     | WRFG-CCSM (historical)       |
| 13                             | 50.00             | 11.87                                                                           | 16.99  | 19.39   | 22.27   | 24.85   | 27.41    | 29.97    | 33.34    | 35.89     | ECP2-HadCM3 (future)         |
| 14                             | 46.15             | 11.68                                                                           | 16.47  | 18.78   | 22.2    | 24.8    | 27.39    | 29.97    | 32.95    | 35.12     | MM5I-HadCM3 (future)         |
| 15                             | 42.31             | 11.58                                                                           | 16.03  | 18.67   | 22.19   | 24.27   | 26.34    | 28.39    | 31.59    | 34.2      | MM5I-CCSM (historical)       |
| 16                             | 38.46             | 11.29                                                                           | 15.88  | 18.6    | 21.28   | 23.63   | 26.01    | 28.38    | 31.51    | 33.87     | ECP2-GFDL (historical)       |
| 17                             | 34.62             | 11.08                                                                           | 15.44  | 18      | 21.23   | 23.27   | 25.51    | 28.13    | 31.11    | 33.16     | ECP2-GFDL (future)           |
| 18                             | 30.77             | 10.3                                                                            | 14.92  | 17.32   | 20.36   | 22.88   | 25.25    | 27.22    | 30.02    | 32.25     | MM5I-CCSM (future)           |
| 19                             | 26.92             | 9.57                                                                            | 13.84  | 16.66   | 20.23   | 22.61   | 24.85    | 27.08    | 29.81    | 31.78     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 9.34                                                                            | 12.99  | 15.41   | 18.46   | 20.73   | 22.97    | 25.21    | 28.17    | 30.4      | RCM3-CGCM3 (historical)      |
| 21                             | 19.23             | 5.99                                                                            | 7.44   | 8.4     | 9.64    | 10.84   | 12.03    | 13.22    | 14.78    | 15.97     | CRCM-CGCM3 (historical)      |
| 22                             | 15.38             | 4.86                                                                            | 6.74   | 8.02    | 9.61    | 10.51   | 11.4     | 12.43    | 13.84    | 14.9      | CRCM-CCSM (future)           |
| 23                             | 11.54             | 4.8                                                                             | 6.6    | 7.75    | 9.21    | 10.29   | 11.36    | 12.29    | 13.47    | 14.35     | CRCM-CGCM3 (future)          |
| 24                             | 7.69              | 3.79                                                                            | 5.23   | 6.19    | 7.39    | 8.29    | 9.17     | 10.06    | 11.22    | 12.11     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 2.96                                                                            | 4.05   | 4.78    | 5.69    | 6.37    | 7.05     | 7.72     | 8.61     | 9.28      | Observed                     |
| Gauge: 445880; Duration: 24 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 10.33                                                                           | 15.51  | 19.48   | 24.9    | 28.93   | 32.92    | 36.9     | 42.16    | 46.13     | RCM3-CGCM3 (future)          |
| 2                              | 92.31             | 9.91                                                                            | 15.18  | 18.95   | 23.29   | 26.51   | 29.7     | 32.89    | 37.09    | 40.26     | HRM3-GFDL (future)           |
| 3                              | 88.46             | 8.78                                                                            | 13.96  | 16.64   | 20.02   | 22.53   | 25.03    | 27.51    | 30.79    | 33.26     | HRM3-HadCM3 (future)         |
| 4                              | 84.62             | 8.69                                                                            | 11.93  | 14.12   | 17.65   | 20.56   | 23.44    | 26.32    | 30.11    | 32.98     | RCM3-GFDL (historical)       |
| 5                              | 80.77             | 8.63                                                                            | 11.53  | 13.73   | 16.88   | 18.94   | 20.97    | 23       | 25.87    | 28.28     | RCM3-GFDL (future)           |
| 6                              | 76.92             | 8.14                                                                            | 10.77  | 13.35   | 15.65   | 17.83   | 20.26    | 22.68    | 25.68    | 27.7      | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 7.8                                                                             | 10.63  | 12.5    | 15.39   | 17.35   | 19.05    | 20.73    | 22.96    | 24.64     | HRM3-HadCM3 (historical)     |
| 8                              | 69.23             | 7.38                                                                            | 9.67   | 12.09   | 14.7    | 16.33   | 17.95    | 19.56    | 21.68    | 23.29     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 7.24                                                                            | 9.53   | 11.12   | 13.13   | 14.62   | 16.1     | 17.58    | 19.52    | 20.99     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 7.12                                                                            | 9.48   | 10.9    | 12.46   | 13.7    | 15.06    | 16.41    | 18.19    | 19.54     | WRFG-CGCM3 (historical)      |
| 11                             | 57.69             | 7.1                                                                             | 9.3    | 10.66   | 12.38   | 13.66   | 14.93    | 16.19    | 17.86    | 19.12     | WRFG-CCSM (future)           |
| 12                             | 53.85             | 6.84                                                                            | 9.13   | 10.5    | 12.34   | 13.62   | 14.77    | 15.91    | 17.61    | 18.96     | WRFG-CCSM (historical)       |
| 13                             | 50.00             | 6.36                                                                            | 9.04   | 10.29   | 11.79   | 13.14   | 14.48    | 15.83    | 17.57    | 18.9      | ECP2-HadCM3 (future)         |
| 14                             | 46.15             | 6.26                                                                            | 8.78   | 9.97    | 11.76   | 13.12   | 14.48    | 15.81    | 17.42    | 18.56     | MM5I-HadCM3 (future)         |
| 15                             | 42.31             | 6.21                                                                            | 8.53   | 9.92    | 11.76   | 12.84   | 13.92    | 15.02    | 16.69    | 18.06     | MM5I-CCSM (historical)       |
| 16                             | 38.46             | 6.06                                                                            | 8.46   | 9.89    | 11.29   | 12.53   | 13.77    | 14.99    | 16.65    | 17.89     | ECP2-GFDL (historical)       |
| 17                             | 34.62             | 5.95                                                                            | 8.24   | 9.58    | 11.27   | 12.34   | 13.51    | 14.88    | 16.41    | 17.48     | ECP2-GFDL (future)           |
| 18                             | 30.77             | 5.54                                                                            | 7.96   | 9.21    | 10.8    | 12.13   | 13.37    | 14.4     | 15.86    | 17.02     | MM5I-CCSM (future)           |
| 19                             | 26.92             | 5.15                                                                            | 7.39   | 8.87    | 10.74   | 11.98   | 13.15    | 14.32    | 15.76    | 16.79     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 5.04                                                                            | 6.94   | 8.21    | 9.8     | 10.99   | 12.17    | 13.34    | 14.88    | 16.05     | RCM3-CGCM3 (historical)      |
| 21                             | 19.23             | 3.29                                                                            | 4.05   | 4.55    | 5.19    | 5.81    | 6.43     | 7.04     | 7.86     | 8.48      | CRCM-CGCM3 (historical)      |
| 22                             | 15.38             | 2.69                                                                            | 3.67   | 4.34    | 5.18    | 5.66    | 6.13     | 6.65     | 7.39     | 7.94      | CRCM-CCSM (future)           |
| 23                             | 11.54             | 2.66                                                                            | 3.6    | 4.2     | 4.97    | 5.53    | 6.09     | 6.59     | 7.21     | 7.67      | CRCM-CGCM3 (future)          |
| 24                             | 7.69              | 2.13                                                                            | 2.88   | 3.38    | 4.01    | 4.47    | 4.94     | 5.4      | 6.01     | 6.47      | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.68                                                                            | 2.39   | 2.85    | 3.45    | 3.88    | 4.32     | 4.75     | 5.33     | 5.76      | Observed                     |
| Gauge: 445880; Duration: 48 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 6.85                                                                            | 10.24  | 12.83   | 16.38   | 19.01   | 21.63    | 24.23    | 27.66    | 30.26     | RCM3-CGCM3 (future)          |
| 2                              | 92.31             | 6.58                                                                            | 10.02  | 12.49   | 15.33   | 17.43   | 19.53    | 21.61    | 24.36    | 26.43     | HRM3-GFDL (future)           |
| 3                              | 88.46             | 5.83                                                                            | 9.23   | 10.98   | 13.2    | 14.85   | 16.48    | 18.11    | 20.25    | 21.88     | HRM3-HadCM3 (future)         |
| 4                              | 84.62             | 5.78                                                                            | 7.9    | 9.34    | 11.64   | 13.55   | 15.43    | 17.32    | 19.8     | 21.68     | RCM3-GFDL (historical)       |
| 5                              | 80.77             | 5.74                                                                            | 7.64   | 9.08    | 11.15   | 12.49   | 13.83    | 15.15    | 17.03    | 18.61     | RCM3-GFDL (future)           |
| 6                              | 76.92             | 5.42                                                                            | 7.14   | 8.83    | 10.34   | 11.77   | 13.36    | 14.94    | 16.91    | 18.23     | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 5.19                                                                            | 7.05   | 8.28    | 10.17   | 11.46   | 12.57    | 13.68    | 15.14    | 16.24     | HRM3-HadCM3 (historical)     |
| 8                              | 69.23             | 4.93                                                                            | 6.41   | 8.01    | 9.73    | 10.8    | 11.86    | 12.91    | 14.31    | 15.36     | WRFG-CGCM3 (future)          |
| 9                              | 65.38             | 4.83                                                                            | 6.32   | 7.36    | 8.68    | 9.65    | 10.62    | 11.59    | 12.86    | 13.83     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 4.75                                                                            | 6.3    | 7.22    | 8.24    | 9.07    | 9.95     | 10.84    | 12       | 12.89     | WRFG-CGCM3 (historical)      |
| 11                             | 57.69             | 4.74                                                                            | 6.18   | 7.08    | 8.21    | 9.05    | 9.88     | 10.71    | 11.8     | 12.63     | WRFG-CCSM (future)           |
| 12                             | 53.85             | 4.57                                                                            | 6.08   | 6.97    | 8.17    | 9       | 9.75     | 10.5     | 11.62    | 12.51     | WRFG-CCSM (historical)       |
| 13                             | 50.00             | 4.26                                                                            | 6.01   | 6.84    | 7.81    | 8.69    | 9.57     | 10.46    | 11.6     | 12.47     | ECP2-HadCM3 (future)         |
| 14                             | 46.15             | 4.19                                                                            | 5.83   | 6.62    | 7.8     | 8.69    | 9.57     | 10.44    | 11.48    | 12.23     | MM5I-HadCM3 (future)         |
| 15                             | 42.31             | 4.15                                                                            | 5.68   | 6.59    | 7.79    | 8.51    | 9.22     | 9.92     | 11.04    | 11.93     | MM5I-CCSM (historical)       |
| 16                             | 38.46             | 4.06                                                                            | 5.63   | 6.56    | 7.47    | 8.29    | 9.11     | 9.92     | 10.99    | 11.8      | ECP2-GFDL (historical)       |
| 17                             | 34.62             | 3.98                                                                            | 5.48   | 6.36    | 7.47    | 8.15    | 8.95     | 9.85     | 10.85    | 11.56     | ECP2-GFDL (future)           |
| 18                             | 30.77             | 3.72                                                                            | 5.3    | 6.13    | 7.17    | 8.04    | 8.83     | 9.5      | 10.49    | 11.25     | MM5I-CCSM (future)           |
| 19                             | 26.92             | 3.47                                                                            | 4.93   | 5.91    | 7.13    | 7.95    | 8.71     | 9.48     | 10.39    | 11.06     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 3.39                                                                            | 4.64   | 5.47    | 6.52    | 7.3     | 8.07     | 8.84     | 9.86     | 10.63     | RCM3-CGCM3 (historical)      |
| 21                             | 19.23             | 2.24                                                                            | 2.73   | 3.06    | 3.48    | 3.89    | 4.3      | 4.71     | 5.25     | 5.65      | CRCM-CGCM3 (historical)      |
| 22                             | 15.38             | 1.85                                                                            | 2.49   | 2.93    | 3.47    | 3.78    | 4.09     | 4.43     | 4.9      | 5.27      | CRCM-CCSM (future)           |
| 23                             | 11.54             | 1.83                                                                            | 2.44   | 2.83    | 3.33    | 3.7     | 4.06     | 4.39     | 4.79     | 5.09      | CRCM-CGCM3 (future)          |
| 24                             | 7.69              | 1.49                                                                            | 1.98   | 2.31    | 2.72    | 3.03    | 3.34     | 3.64     | 4.04     | 4.34      | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.19                                                                            | 1.71   | 2.05    | 2.48    | 2.79    | 3.11     | 3.42     | 3.84     | 4.15      | Observed                     |
| Gauge: 445880; Duration: 72 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 287.53                                                                          | 385.53 | 450.41  | 532.39  | 593.2   | 653.57   | 713.72   | 793.07   | 853.04    | HRM3-GFDL (future)           |
| 2                               | 92.31             | 271.28                                                                          | 352.75 | 406.7   | 474.85  | 525.42  | 575.61   | 625.61   | 710.16   | 782.07    | Observed                     |
| 3                               | 88.46             | 262.36                                                                          | 324.09 | 371.86  | 432.21  | 476.99  | 542.89   | 615.01   | 691.59   | 741.45    | HRM3-HadCM3 (future)         |
| 4                               | 84.62             | 251.94                                                                          | 304.29 | 348.21  | 405     | 470.51  | 521.43   | 565.72   | 624.14   | 668.29    | HRM3-HadCM3 (historical)     |
| 5                               | 80.77             | 246.28                                                                          | 303.28 | 347.1   | 404.99  | 447.95  | 490.59   | 533.07   | 589.12   | 637.03    | RCM3-GFDL (future)           |
| 6                               | 76.92             | 246.28                                                                          | 301.27 | 332.05  | 397.59  | 447.11  | 488.92   | 530.58   | 588.04   | 631.48    | HRM3-GFDL (historical)       |
| 7                               | 73.08             | 235.41                                                                          | 295.83 | 328.64  | 383.04  | 428.36  | 474.11   | 523.23   | 585.54   | 627.07    | WRFG-CGCM3 (historical)      |
| 8                               | 69.23             | 232.06                                                                          | 295.83 | 328.64  | 375.14  | 424.81  | 473.34   | 518.16   | 577.29   | 621.99    | RCM3-CGCM3 (future)          |
| 9                               | 65.38             | 224.19                                                                          | 280.7  | 321.95  | 371.75  | 409.46  | 446.89   | 484.19   | 533.39   | 570.57    | WRFG-CCSM (future)           |
| 10                              | 61.54             | 219.94                                                                          | 276.54 | 320.92  | 370.1   | 400.85  | 434.42   | 471.93   | 521.4    | 558.8     | WRFG-CCSM (historical)       |
| 11                              | 57.69             | 206.2                                                                           | 273.6  | 311.19  | 370.1   | 400.85  | 431.38   | 461.79   | 509.96   | 551.06    | RCM3-GFDL (historical)       |
| 12                              | 53.85             | 200.57                                                                          | 267.3  | 308.18  | 367.13  | 396.78  | 431.38   | 461.79   | 504.34   | 541.38    | MM5I-CCSM (future)           |
| 13                              | 50.00             | 192.09                                                                          | 255.19 | 307.75  | 358.87  | 393.16  | 419.71   | 455.58   | 501.92   | 532.24    | ECP2-HadCM3 (future)         |
| 14                              | 46.15             | 183.45                                                                          | 252.62 | 299.29  | 354.98  | 387.46  | 418.99   | 455.32   | 501.92   | 532.24    | ECP2-HadCM3 (future)         |
| 15                              | 42.31             | 175.15                                                                          | 232.41 | 292.69  | 343.33  | 380.89  | 418.18   | 451.84   | 494.22   | 526.25    | MM5I-HadCM3 (historical)     |
| 16                              | 38.46             | 172.29                                                                          | 230.68 | 275.14  | 331.32  | 372.99  | 414.36   | 444.73   | 485.78   | 523.39    | MM5I-CCSM (historical)       |
| 17                              | 34.62             | 171.15                                                                          | 230.2  | 270.89  | 322.3   | 360.44  | 398.3    | 436.02   | 478.68   | 504.34    | MM5I-HadCM3 (future)         |
| 18                              | 30.77             | 168.75                                                                          | 227.72 | 265.17  | 312.49  | 347.6   | 382.44   | 417.16   | 462.97   | 497.59    | RCM3-CGCM3 (historical)      |
| 19                              | 26.92             | 163.52                                                                          | 221.5  | 264.83  | 305.78  | 336.17  | 366.33   | 396.37   | 436.02   | 465.98    | ECP2-GFDL (future)           |
| 20                              | 23.08             | 156.26                                                                          | 212.16 | 238.56  | 271.92  | 296.67  | 321.23   | 345.7    | 377.99   | 402.39    | ECP2-HadCM3 (historical)     |
| 21                              | 19.23             | 113.72                                                                          | 196.14 | 222.55  | 255.91  | 280.66  | 305.23   | 329.71   | 362.01   | 386.41    | ECP2-GFDL (historical)       |
| 22                              | 15.38             | 103.99                                                                          | 144.99 | 165.69  | 191.84  | 211.25  | 230.51   | 249.7    | 275.02   | 294.15    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 86.97                                                                           | 117.49 | 137.7   | 163.24  | 182.18  | 200.98   | 219.72   | 244.43   | 263.12    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 85.1                                                                            | 110.19 | 126.8   | 147.79  | 163.36  | 178.81   | 194.21   | 214.53   | 229.88    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 73.65                                                                           | 99.96  | 117.38  | 139.39  | 155.71  | 171.92   | 188.07   | 209.37   | 225.47    | CRCM-CCSM (historical)       |
| Gauge: 448062; Duration: 15 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 238.93                                                                          | 339.86 | 406.69  | 491.12  | 553.76  | 615.93   | 677.88   | 759.61   | 821.38    | HRM3-GFDL (future)           |
| 2                               | 92.31             | 222.26                                                                          | 304.12 | 358.32  | 426.8   | 477.6   | 528.03   | 578.27   | 644.56   | 694.66    | HRM3-HadCM3 (future)         |
| 3                               | 88.46             | 211.79                                                                          | 274.45 | 321.75  | 381.52  | 425.85  | 469.86   | 513.71   | 571.56   | 615.28    | HRM3-HadCM3 (historical)     |
| 4                               | 84.62             | 203.01                                                                          | 253.19 | 299.43  | 357.86  | 401.2   | 444.23   | 487.09   | 543.65   | 586.87    | RCM3-GFDL (future)           |
| 5                               | 80.77             | 196.63                                                                          | 252.83 | 296.13  | 350.92  | 391.57  | 431.91   | 474.69   | 538.58   | 586.39    | HRM3-GFDL (historical)       |
| 6                               | 76.92             | 196.63                                                                          | 252.77 | 279.99  | 328.69  | 377.66  | 426.26   | 472.11   | 525.14   | 565.23    | WRF3-CGCM3 (historical)      |
| 7                               | 73.08             | 187.28                                                                          | 244.6  | 276.37  | 328.32  | 371.34  | 414.04   | 456.58   | 512.71   | 555.13    | RCM3-CGCM3 (future)          |
| 8                               | 69.23             | 183.35                                                                          | 244.6  | 276.37  | 318.04  | 354.26  | 390.22   | 426.04   | 473.31   | 509.03    | WRF3-CCSM (future)           |
| 9                               | 65.38             | 175.66                                                                          | 230.56 | 270.33  | 316.5   | 346.27  | 375.82   | 410.03   | 458.53   | 498.62    | RCM3-GFDL (historical)       |
| 10                              | 61.54             | 172.2                                                                           | 226.3  | 269.21  | 316.5   | 346.27  | 375.82   | 405.47   | 456.65   | 491.88    | WRF3-CCSM (historical)       |
| 11                              | 57.69             | 159.63                                                                          | 224.44 | 262.69  | 314.32  | 339.78  | 374.69   | 405.27   | 444.12   | 475.99    | MM5I-CCSM (future)           |
| 12                              | 53.85             | 155.12                                                                          | 217.21 | 259.82  | 303.49  | 339.22  | 365.26   | 405.27   | 444.12   | 473.47    | ECP2-HadCM3 (future)         |
| 13                              | 50.00             | 146.54                                                                          | 210.45 | 255.33  | 302.19  | 333.61  | 365.06   | 395.88   | 441.05   | 473.47    | ECP2-HadCM3 (future)         |
| 14                              | 46.15             | 138.06                                                                          | 203.63 | 241.43  | 289.19  | 324.9   | 364.8    | 394.82   | 436.89   | 467.88    | MM5I-HadCM3 (historical)     |
| 15                              | 42.31             | 131.55                                                                          | 186.04 | 229.42  | 284.23  | 324.62  | 359.78   | 390.24   | 423.47   | 455.62    | MM5I-CCSM (historical)       |
| 16                              | 38.46             | 127.85                                                                          | 183.98 | 220.7   | 268.53  | 304.01  | 339.24   | 374.33   | 420.63   | 448.58    | MM5I-HadCM3 (future)         |
| 17                              | 34.62             | 127.7                                                                           | 182.84 | 214.38  | 257.32  | 289.51  | 321.47   | 353.31   | 395.31   | 427.06    | RCM3-CGCM3 (historical)      |
| 18                              | 30.77             | 125.66                                                                          | 179.57 | 213.92  | 252.79  | 281.29  | 309.57   | 337.76   | 374.94   | 403.04    | ECP2-GFDL (future)           |
| 19                              | 26.92             | 120.52                                                                          | 164.14 | 188.17  | 218.53  | 241.06  | 263.42   | 285.87   | 327.97   | 359.79    | Observed                     |
| 20                              | 23.08             | 113.83                                                                          | 149.3  | 172.79  | 202.46  | 224.48  | 253.96   | 285.69   | 315.08   | 337.29    | ECP2-HadCM3 (historical)     |
| 21                              | 19.23             | 77.62                                                                           | 111.76 | 146.18  | 189.67  | 221.94  | 246.33   | 268.1    | 296.83   | 318.53    | ECP2-GFDL (historical)       |
| 22                              | 15.38             | 59.77                                                                           | 103.84 | 121.2   | 143.13  | 159.4   | 175.56   | 191.65   | 212.88   | 228.93    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 56.2                                                                            | 81.53  | 98.3    | 119.49  | 135.21  | 150.81   | 166.35   | 186.86   | 202.36    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 54.77                                                                           | 74.57  | 87.67   | 104.23  | 116.52  | 128.71   | 140.86   | 156.89   | 169.01    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 46.39                                                                           | 66.16  | 79.24   | 95.78   | 108.05  | 120.23   | 132.36   | 148.37   | 160.47    | CRCM-CCSM (historical)       |
| Gauge: 448062; Duration: 30 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 182.25                                                                          | 261.15 | 313.39  | 379.39  | 428.35  | 476.96   | 525.38   | 589.27   | 637.56    | HRM3-GFDL (future)           |
| 2                               | 92.31             | 169.22                                                                          | 233.01 | 275.25  | 328.61  | 368.2   | 407.5    | 446.65   | 498.3    | 537.34    | HRM3-HadCM3 (future)         |
| 3                               | 88.46             | 160.93                                                                          | 209.82 | 246.61  | 293.1   | 327.59  | 361.82   | 395.92   | 440.92   | 474.93    | HRM3-HadCM3 (historical)     |
| 4                               | 84.62             | 154.25                                                                          | 193.42 | 229.48  | 275.05  | 308.85  | 342.4    | 375.83   | 419.93   | 453.26    | HRM3-GFDL (historical)       |
| 5                               | 80.77             | 149.21                                                                          | 192.84 | 226.46  | 268.94  | 300.46  | 331.74   | 365.95   | 415.64   | 453.19    | RCM3-GFDL (future)           |
| 6                               | 76.92             | 149.21                                                                          | 192.8  | 213.89  | 252.41  | 290.49  | 328.29   | 362.9    | 404.02   | 435.1     | WRFG-CGCM3 (historical)      |
| 7                               | 73.08             | 142.06                                                                          | 186.42 | 211.05  | 251.29  | 284.58  | 317.62   | 350.54   | 393.97   | 426.79    | RCM3-CGCM3 (future)          |
| 8                               | 69.23             | 138.96                                                                          | 186.42 | 211.05  | 243.37  | 271.44  | 299.3    | 327.06   | 363.68   | 391.36    | WRFG-CCSM (future)           |
| 9                               | 65.38             | 132.98                                                                          | 175.59 | 206.42  | 242.18  | 265.27  | 288.19   | 314.28   | 353.07   | 384.21    | RCM3-GFDL (historical)       |
| 10                              | 61.54             | 130.36                                                                          | 172.25 | 205.53  | 242.18  | 265.27  | 288.19   | 311.87   | 350.32   | 377.57    | WRFG-CCSM (historical)       |
| 11                              | 57.69             | 120.69                                                                          | 170.91 | 201.08  | 240.55  | 260.33  | 286.96   | 311.02   | 341.15   | 365.26    | MM5I-CCSM (future)           |
| 12                              | 53.85             | 117.27                                                                          | 165.2  | 198.26  | 231.91  | 259.54  | 280.63   | 311.02   | 341.15   | 363.92    | ECP2-HadCM3 (future)         |
| 13                              | 50.00             | 110.58                                                                          | 160.45 | 194.67  | 231.11  | 255.48  | 279.96   | 303.78   | 338.25   | 363.92    | ECP2-HadCM3 (future)         |
| 14                              | 46.15             | 104                                                                             | 154.71 | 183.93  | 220.85  | 249.29  | 279.68   | 302.52   | 335.58   | 359.62    | MM5I-HadCM3 (historical)     |
| 15                              | 42.31             | 99.09                                                                           | 141.45 | 175.14  | 217.71  | 248.24  | 275.43   | 299.52   | 325.32   | 349.33    | MM5I-CCSM (historical)       |
| 16                              | 38.46             | 96.14                                                                           | 139.48 | 167.93  | 204.86  | 232.26  | 259.46   | 286.56   | 322.31   | 344.83    | MM5I-HadCM3 (future)         |
| 17                              | 34.62             | 96.1                                                                            | 138.7  | 162.97  | 195.98  | 220.78  | 245.4    | 269.94   | 302.3    | 326.77    | RCM3-CGCM3 (historical)      |
| 18                              | 30.77             | 94.55                                                                           | 136.07 | 162.54  | 192.65  | 214.67  | 236.53   | 258.31   | 287.04   | 308.75    | ECP2-GFDL (future)           |
| 19                              | 26.92             | 90.56                                                                           | 124.07 | 142.57  | 165.94  | 183.27  | 200.48   | 217.63   | 240.25   | 257.34    | ECP2-HadCM3 (historical)     |
| 20                              | 23.08             | 85.4                                                                            | 112.63 | 130.66  | 153.43  | 170.33  | 187.1    | 203.81   | 225.86   | 242.53    | ECP2-GFDL (historical)       |
| 21                              | 19.23             | 57.77                                                                           | 77.75  | 94.9    | 121.81  | 141.77  | 161.59   | 181.33   | 207.38   | 227.07    | Observed                     |
| 22                              | 15.38             | 41.54                                                                           | 73.6   | 90.98   | 107.69  | 120.09  | 132.4    | 144.67   | 160.85   | 173.07    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 41.43                                                                           | 60.81  | 73.57   | 89.7    | 101.66  | 113.53   | 125.36   | 140.97   | 152.77    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 40.46                                                                           | 55.42  | 65.33   | 77.84   | 87.13   | 96.34    | 105.53   | 117.64   | 126.8     | CRCM-CCSM (future)           |
| 25                              | 3.85              | 34.18                                                                           | 49.04  | 58.88   | 71.32   | 80.54   | 89.7     | 98.82    | 110.86   | 119.96    | CRCM-CCSM (historical)       |
| Gauge: 448062; Duration: 45 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 153.19                                                                          | 221.94 | 267.46  | 324.97  | 367.63  | 409.98   | 452.18   | 507.85   | 549.92    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 141.85                                                                          | 197.17 | 233.8   | 280.07  | 314.4   | 348.48   | 382.44   | 427.23   | 461.09    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 134.47                                                                          | 176.95 | 208.76  | 248.97  | 278.79  | 308.4    | 337.89   | 376.81   | 406.22    | HRM3-HadCM3 (historical)     |
| 4                             | 84.62             | 128.89                                                                          | 162.97 | 194.28  | 233.85  | 263.2   | 292.34   | 321.37   | 359.67   | 388.61    | HRM3-GFDL (historical)       |
| 5                             | 80.77             | 124.44                                                                          | 162.13 | 191.06  | 227.62  | 254.74  | 281.66   | 312.51   | 355.48   | 387.96    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 124.44                                                                          | 161.96 | 180.17  | 214.33  | 247.26  | 279.95   | 308.48   | 343.87   | 370.61    | WRF3-CGCM3 (historical)      |
| 7                             | 73.08             | 118.43                                                                          | 156.47 | 177.69  | 212.27  | 240.83  | 269.19   | 297.44   | 334.71   | 362.88    | RCM3-CGCM3 (future)          |
| 8                             | 69.23             | 115.67                                                                          | 156.47 | 177.69  | 205.52  | 229.65  | 253.61   | 277.48   | 308.97   | 332.78    | WRF3-CCSM (future)           |
| 9                             | 65.38             | 110.52                                                                          | 147.23 | 173.77  | 204.49  | 224.37  | 244.11   | 265.97   | 300.96   | 327.83    | RCM3-GFDL (historical)       |
| 10                            | 61.54             | 108.34                                                                          | 144.33 | 172.98  | 204.49  | 224.37  | 244.11   | 265.4    | 296.86   | 320.2     | WRF3-CCSM (historical)       |
| 11                            | 57.69             | 100.09                                                                          | 143.29 | 169.93  | 203.17  | 220.23  | 242.56   | 263.77   | 289.71   | 309.78    | MM5I-CCSM (future)           |
| 12                            | 53.85             | 97.27                                                                           | 138.23 | 166.71  | 195.39  | 219.07  | 238.44   | 263.77   | 289.71   | 309.32    | ECP2-HadCM3 (future)         |
| 13                            | 50.00             | 91.46                                                                           | 134.8  | 163.49  | 195     | 215.98  | 237.16   | 257.56   | 286.63   | 309.32    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 85.78                                                                           | 129.29 | 154.34  | 185.99  | 211.39  | 236.81   | 255.99   | 284.94   | 305.64    | MM5I-HadCM3 (historical)     |
| 15                            | 42.31             | 81.74                                                                           | 118.33 | 147.41  | 184.14  | 209.47  | 232.77   | 254.04   | 276.3    | 295.78    | MM5I-CCSM (historical)       |
| 16                            | 38.46             | 79.17                                                                           | 116.17 | 140.63  | 172.22  | 195.65  | 218.91   | 242.09   | 272.67   | 293.13    | MM5I-HadCM3 (future)         |
| 17                            | 34.62             | 79.08                                                                           | 115.62 | 136.28  | 164.33  | 185.49  | 206.48   | 227.4    | 255.01   | 275.87    | RCM3-CGCM3 (historical)      |
| 18                            | 30.77             | 77.86                                                                           | 113.25 | 135.82  | 161.7   | 180.55  | 199.27   | 217.92   | 242.52   | 261.12    | ECP2-GFDL (future)           |
| 19                            | 26.92             | 74.42                                                                           | 102.86 | 118.61  | 138.5   | 153.26  | 167.91   | 182.51   | 201.76   | 216.32    | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 70.01                                                                           | 93.09  | 108.36  | 127.67  | 141.99  | 156.2    | 170.36   | 189.05   | 203.17    | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 46.79                                                                           | 63.53  | 74.62   | 91.04   | 105.7   | 120.25   | 134.75   | 153.88   | 168.34    | Observed                     |
| 22                            | 15.38             | 33.3                                                                            | 55.64  | 71.28   | 88.63   | 99.02   | 109.34   | 119.62   | 133.18   | 143.43    | CRCM-CGCM3 (future)          |
| 23                            | 11.54             | 32.41                                                                           | 49.43  | 60.11   | 73.6    | 83.61   | 93.55    | 103.44   | 116.5    | 126.37    | CRCM-CGCM3 (historical)      |
| 24                            | 7.69              | 32.02                                                                           | 44.82  | 53.04   | 63.42   | 71.12   | 78.76    | 86.38    | 96.42    | 104.02    | CRCM-CCSM (future)           |
| 25                            | 3.85              | 27.27                                                                           | 39.48  | 47.57   | 57.79   | 65.37   | 72.89    | 80.39    | 90.28    | 97.75     | CRCM-CCSM (historical)       |
| Gauge: 448062; Duration: 1 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 114.78                                                                          | 173.1  | 211.72  | 260.51  | 296.7   | 332.63   | 368.42   | 415.65   | 451.34    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 105.18                                                                          | 151.29 | 181.82  | 220.39  | 249     | 277.41   | 305.71   | 343.04   | 371.26    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 98.5                                                                            | 134.11 | 160.37  | 193.54  | 218.15  | 242.58   | 266.91   | 299.02   | 323.29    | HRM3-HadCM3 (historical)     |
| 4                             | 84.62             | 94.46                                                                           | 123.23 | 149.47  | 182.64  | 207.24  | 231.66   | 256      | 288.1    | 312.36    | HRM3-GFDL (historical)       |
| 5                             | 80.77             | 90.5                                                                            | 121.47 | 144.92  | 174.55  | 196.53  | 220.95   | 247.86   | 283.36   | 310.19    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 90.5                                                                            | 120.96 | 135.83  | 166.73  | 193.94  | 218.35   | 240.09   | 268.77   | 290.45    | WRF3-CGCM3 (historical)      |
| 7                             | 73.08             | 86.05                                                                           | 116.51 | 133.73  | 161.66  | 184.57  | 207.31   | 229.97   | 259.87   | 282.46    | RCM3-CGCM3 (future)          |
| 8                             | 69.23             | 83.58                                                                           | 116.51 | 133.73  | 156.34  | 175.85  | 195.2    | 214.49   | 239.93   | 259.17    | WRF3-CCSM (future)           |
| 9                             | 65.38             | 79.37                                                                           | 109.25 | 130.77  | 155.49  | 171.63  | 187.65   | 207.91   | 237.06   | 259.1     | RCM3-GFDL (historical)       |
| 10                            | 61.54             | 77.83                                                                           | 106.81 | 130.06  | 155.49  | 171.63  | 187.65   | 203.75   | 228.4    | 247.02    | WRF3-CCSM (historical)       |
| 11                            | 57.69             | 71.38                                                                           | 106.33 | 130.05  | 154.63  | 168.57  | 185.81   | 203.61   | 224.67   | 240.59    | ECP2-HadCM3 (future)         |
| 12                            | 53.85             | 69.41                                                                           | 101.82 | 124.98  | 147.93  | 166.32  | 185.07   | 203.61   | 224.67   | 240.59    | ECP2-HadCM3 (future)         |
| 13                            | 50.00             | 64.58                                                                           | 101.03 | 121.97  | 147.43  | 164.96  | 182.41   | 198.71   | 220.93   | 239       | MM5I-CCSM (future)           |
| 14                            | 46.15             | 59.95                                                                           | 94.81  | 114.82  | 141.29  | 163.63  | 181.87   | 196.19   | 220.5    | 237.72    | MM5I-HadCM3 (historical)     |
| 15                            | 42.31             | 57.18                                                                           | 87.33  | 111.17  | 140.1   | 158.86  | 177.48   | 196.03   | 214.38   | 228.13    | MM5I-HadCM3 (future)         |
| 16                            | 38.46             | 55.06                                                                           | 84.12  | 103.9   | 128.96  | 147.55  | 166.01   | 184.39   | 208.65   | 226.99    | MM5I-CCSM (historical)       |
| 17                            | 34.62             | 54.71                                                                           | 84.06  | 100.12  | 121.88  | 138.47  | 154.95   | 171.36   | 193.02   | 209.38    | RCM3-CGCM3 (historical)      |
| 18                            | 30.77             | 54.1                                                                            | 81.8   | 99.51   | 120.34  | 135.34  | 150.23   | 165.06   | 184.64   | 199.43    | ECP2-GFDL (future)           |
| 19                            | 26.92             | 51.33                                                                           | 73.23  | 85.49   | 100.99  | 112.49  | 123.9    | 135.26   | 150.26   | 161.6     | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 47.86                                                                           | 65.53  | 77.23   | 92.02   | 102.99  | 113.87   | 124.72   | 139.03   | 149.85    | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 30.58                                                                           | 42.91  | 51.08   | 61.4    | 69.06   | 76.66    | 84.23    | 94.22    | 101.77    | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 20.98                                                                           | 32.78  | 40.6    | 50.48   | 57.8    | 65.08    | 72.32    | 81.88    | 89.11     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 20.36                                                                           | 31.68  | 39.56   | 49.52   | 56.91   | 64.24    | 71.55    | 81.19    | 88.47     | Observed                     |
| 24                            | 7.69              | 19.78                                                                           | 29.12  | 34.92   | 42.25   | 47.68   | 53.08    | 58.45    | 65.54    | 70.9      | CRCM-CCSM (future)           |
| 25                            | 3.85              | 16.89                                                                           | 25.26  | 30.8    | 37.81   | 43      | 48.15    | 53.29    | 60.07    | 65.19     | CRCM-CCSM (historical)       |
| Gauge: 448062; Duration: 2 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 74.02                                                                           | 108.02 | 130.54  | 158.98  | 180.09  | 201.03   | 221.91   | 249.44   | 270.25    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 68.41                                                                           | 95.69  | 113.74  | 136.56  | 153.49  | 170.29   | 187.03   | 209.12   | 225.81    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 64.71                                                                           | 85.69  | 101.35  | 121.15  | 135.83  | 150.4    | 164.92   | 184.08   | 198.56    | HRM3-HadCM3 (historical)     |
| 4                             | 84.62             | 62.03                                                                           | 78.86  | 94.31   | 113.84  | 128.32  | 142.7    | 157.03   | 175.93   | 190.21    | HRM3-GFDL (historical)       |
| 5                             | 80.77             | 59.81                                                                           | 78.35  | 92.54   | 110.47  | 123.78  | 136.99   | 152.59   | 173.74   | 189.72    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 59.81                                                                           | 78.21  | 87.15   | 104.26  | 120.47  | 136.56   | 150.15   | 167.51   | 180.63    | WRFG-CGCM3 (historical)      |
| 7                             | 73.08             | 56.91                                                                           | 75.53  | 85.94   | 102.89  | 116.87  | 130.76   | 144.59   | 162.84   | 176.63    | RCM3-CGCM3 (future)          |
| 8                             | 69.23             | 55.52                                                                           | 75.53  | 85.94   | 99.59   | 111.43  | 123.17   | 134.88   | 150.32   | 161.99    | WRFG-CCSM (future)           |
| 9                             | 65.38             | 53                                                                              | 71.02  | 84.04   | 99.09   | 108.84  | 118.53   | 129.27   | 146.75   | 159.96    | RCM3-GFDL (historical)       |
| 10                            | 61.54             | 51.95                                                                           | 69.59  | 83.64   | 99.09   | 108.84  | 118.53   | 129.07   | 144.17   | 155.59    | WRFG-CCSM (historical)       |
| 11                            | 57.69             | 47.93                                                                           | 69.12  | 82.41   | 98.45   | 106.83  | 117.62   | 128.18   | 140.91   | 150.53    | ECP2-HadCM3 (future)         |
| 12                            | 53.85             | 46.58                                                                           | 66.59  | 80.57   | 94.55   | 106.12  | 116.03   | 128.18   | 140.91   | 150.53    | ECP2-HadCM3 (future)         |
| 13                            | 50.00             | 43.72                                                                           | 65.12  | 78.94   | 94.44   | 104.74  | 115.15   | 125.14   | 139.19   | 150.51    | MM5I-CCSM (future)           |
| 14                            | 46.15             | 40.93                                                                           | 62.23  | 74.48   | 89.96   | 102.73  | 114.96   | 124.2    | 138.57   | 148.72    | MM5I-HadCM3 (historical)     |
| 15                            | 42.31             | 39                                                                              | 57     | 71.29   | 89.34   | 101.44  | 112.84   | 123.44   | 134.37   | 143.6     | MM5I-CCSM (historical)       |
| 16                            | 38.46             | 37.73                                                                           | 55.78  | 67.78   | 83.22   | 94.67   | 106.04   | 117.36   | 132.3    | 142.64    | MM5I-HadCM3 (future)         |
| 17                            | 34.62             | 37.67                                                                           | 55.56  | 65.62   | 79.27   | 89.58   | 99.82    | 110.02   | 123.49   | 133.66    | RCM3-CGCM3 (historical)      |
| 18                            | 30.77             | 37.11                                                                           | 54.35  | 65.36   | 78.05   | 87.27   | 96.42    | 105.54   | 117.57   | 126.66    | ECP2-GFDL (future)           |
| 19                            | 26.92             | 35.42                                                                           | 49.25  | 56.92   | 66.62   | 73.81   | 80.94    | 88.05    | 97.44    | 104.53    | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 33.27                                                                           | 44.47  | 51.89   | 61.27   | 68.22   | 75.12    | 82       | 91.08    | 97.93     | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 22.05                                                                           | 30.13  | 35.47   | 42.23   | 47.24   | 52.22    | 57.18    | 63.72    | 68.66     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 15.6                                                                            | 23.36  | 28.51   | 35.01   | 39.83   | 44.61    | 49.38    | 55.67    | 60.42     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 15.17                                                                           | 22.39  | 27.64   | 34.27   | 39.19   | 44.08    | 48.94    | 55.36    | 60.21     | Observed                     |
| 24                            | 7.69              | 14.47                                                                           | 21.1   | 25.02   | 29.98   | 33.66   | 37.32    | 40.96    | 45.76    | 49.39     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 12.73                                                                           | 18.54  | 22.39   | 27.26   | 30.87   | 34.45    | 38.02    | 42.73    | 46.29     | CRCM-CCSM (historical)       |
| Gauge: 448062; Duration: 3 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 58.69                                                                           | 85.03  | 102.47  | 124.5   | 140.85  | 157.07   | 173.24   | 194.57   | 210.68    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 54.35                                                                           | 75.54  | 89.57   | 107.3   | 120.45  | 133.51   | 146.52   | 163.68   | 176.65    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 51.52                                                                           | 67.79  | 79.99   | 95.39   | 106.82  | 118.17   | 129.47   | 144.39   | 155.66    | HRM3-HadCM3 (historical)     |
| 4                             | 84.62             | 49.38                                                                           | 62.43  | 74.42   | 89.58   | 100.82  | 111.98   | 123.1    | 137.77   | 148.86    | HRM3-GFDL (historical)       |
| 5                             | 80.77             | 47.67                                                                           | 62.11  | 73.19   | 87.19   | 97.58   | 107.89   | 119.73   | 136.19   | 148.63    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 47.67                                                                           | 62.06  | 69.03   | 82.11   | 94.73   | 107.25   | 118.16   | 131.72   | 141.96    | WRFG-CGCM3 (historical)      |
| 7                             | 73.08             | 45.37                                                                           | 59.95  | 68.07   | 81.32   | 92.27   | 103.13   | 113.95   | 128.23   | 139.02    | RCM3-CGCM3 (future)          |
| 8                             | 69.23             | 44.31                                                                           | 59.95  | 68.07   | 78.74   | 87.98   | 97.16    | 106.31   | 118.37   | 127.49    | WRFG-CCSM (future)           |
| 9                             | 65.38             | 42.34                                                                           | 56.41  | 66.57   | 78.34   | 85.96   | 93.52    | 101.91   | 115.32   | 125.61    | RCM3-GFDL (historical)       |
| 10                            | 61.54             | 41.51                                                                           | 55.3   | 66.27   | 78.34   | 85.96   | 93.52    | 101.69   | 113.75   | 122.69    | WRFG-CCSM (historical)       |
| 11                            | 57.69             | 38.34                                                                           | 54.9   | 65.1    | 77.84   | 84.38   | 92.94    | 101.05   | 110.99   | 118.67    | MM5I-CCSM (future)           |
| 12                            | 53.85             | 37.26                                                                           | 52.96  | 63.88   | 74.87   | 83.94   | 91.36    | 101.05   | 110.99   | 118.51    | ECP2-HadCM3 (future)         |
| 13                            | 50.00             | 35.04                                                                           | 51.64  | 62.64   | 74.71   | 82.75   | 90.87    | 98.69    | 109.8    | 118.51    | ECP2-HadCM3 (future)         |
| 14                            | 46.15             | 32.87                                                                           | 49.53  | 59.13   | 71.25   | 81      | 90.73    | 98.07    | 109.18   | 117.11    | MM5I-HadCM3 (historical)     |
| 15                            | 42.31             | 31.31                                                                           | 45.34  | 56.48   | 70.56   | 80.24   | 89.17    | 97.34    | 105.87   | 113.32    | MM5I-CCSM (historical)       |
| 16                            | 38.46             | 30.33                                                                           | 44.51  | 53.88   | 65.98   | 74.96   | 83.87    | 92.75    | 104.46   | 112.31    | MM5I-HadCM3 (future)         |
| 17                            | 34.62             | 30.3                                                                            | 44.3   | 52.21   | 62.97   | 71.07   | 79.12    | 87.14    | 97.71    | 105.71    | RCM3-CGCM3 (historical)      |
| 18                            | 30.77             | 29.83                                                                           | 43.39  | 52.04   | 61.95   | 69.17   | 76.34    | 83.48    | 92.91    | 100.03    | ECP2-GFDL (future)           |
| 19                            | 26.92             | 28.51                                                                           | 39.41  | 45.44   | 53.06   | 58.72   | 64.33    | 69.92    | 77.3     | 82.88     | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 26.83                                                                           | 35.67  | 41.52   | 48.91   | 54.39   | 59.84    | 65.26    | 72.42    | 77.83     | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 17.93                                                                           | 24.34  | 28.59   | 33.96   | 37.94   | 41.89    | 45.83    | 51.03    | 54.95     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 12.76                                                                           | 18.94  | 23.03   | 28.2    | 32.03   | 35.84    | 39.63    | 44.63    | 48.41     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 12.42                                                                           | 17.72  | 21.71   | 26.75   | 30.49   | 34.2     | 37.9     | 42.78    | 46.47     | Observed                     |
| 24                            | 7.69              | 11.69                                                                           | 17.17  | 20.32   | 24.3    | 27.25   | 30.18    | 33.09    | 36.94    | 39.85     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 10.45                                                                           | 15.13  | 18.22   | 22.13   | 25.03   | 27.91    | 30.78    | 34.57    | 37.43     | CRCM-CCSM (historical)       |
| Gauge: 448062; Duration: 4 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 57.66                                                                           | 84.03  | 101.49  | 123.55  | 139.92  | 156.16   | 172.35   | 193.7    | 209.84    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 53.31                                                                           | 74.46  | 88.47   | 106.16  | 119.29  | 132.32   | 145.3    | 162.43   | 175.38    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 50.44                                                                           | 66.71  | 78.85   | 94.2    | 105.59  | 116.89   | 128.15   | 143.01   | 154.23    | HRM3-HadCM3 (historical)     |
| 4                             | 84.62             | 48.36                                                                           | 61.42  | 73.4    | 88.54   | 99.77   | 110.92   | 122.03   | 136.68   | 147.76    | HRM3-GFDL (historical)       |
| 5                             | 80.77             | 46.64                                                                           | 61.01  | 72.02   | 85.93   | 96.24   | 106.48   | 118.59   | 134.99   | 147.39    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 46.64                                                                           | 60.92  | 67.85   | 81.11   | 93.68   | 106.16   | 116.68   | 130.15   | 140.32    | WRFG-CGCM3 (historical)      |
| 7                             | 73.08             | 44.39                                                                           | 58.83  | 66.9    | 80.05   | 90.89   | 101.66   | 112.39   | 126.54   | 137.23    | RCM3-CGCM3 (future)          |
| 8                             | 69.23             | 43.32                                                                           | 58.83  | 66.9    | 77.49   | 86.67   | 95.78    | 104.86   | 116.83   | 125.88    | WRFG-CCSM (future)           |
| 9                             | 65.38             | 41.36                                                                           | 55.33  | 65.43   | 77.1    | 84.67   | 92.18    | 100.52   | 114.08   | 124.32    | RCM3-GFDL (historical)       |
| 10                            | 61.54             | 40.55                                                                           | 54.23  | 65.12   | 77.1    | 84.67   | 92.18    | 100.35   | 112.06   | 120.92    | WRFG-CCSM (historical)       |
| 11                            | 57.69             | 37.43                                                                           | 53.86  | 64.17   | 76.61   | 83.11   | 91.47    | 99.66    | 109.53   | 117       | ECP2-HadCM3 (future)         |
| 12                            | 53.85             | 36.38                                                                           | 51.9   | 62.75   | 73.58   | 82.56   | 90.25    | 99.66    | 109.53   | 117       | ECP2-HadCM3 (future)         |
| 13                            | 50.00             | 34.16                                                                           | 50.76  | 61.48   | 73.51   | 81.49   | 89.56    | 97.32    | 108.2    | 116.98    | MM5I-CCSM (future)           |
| 14                            | 46.15             | 32                                                                              | 48.51  | 58.02   | 70.02   | 79.94   | 89.42    | 96.58    | 107.74   | 115.61    | MM5I-HadCM3 (historical)     |
| 15                            | 42.31             | 30.5                                                                            | 44.47  | 55.55   | 69.55   | 78.93   | 87.77    | 95.99    | 104.47   | 111.6     | MM5I-CCSM (historical)       |
| 16                            | 38.46             | 29.52                                                                           | 43.52  | 52.81   | 64.78   | 73.66   | 82.47    | 91.26    | 102.84   | 110.88    | MM5I-HadCM3 (future)         |
| 17                            | 34.62             | 29.47                                                                           | 43.34  | 51.14   | 61.74   | 69.74   | 77.68    | 85.6     | 96.04    | 103.93    | RCM3-CGCM3 (historical)      |
| 18                            | 30.77             | 29.03                                                                           | 42.42  | 50.95   | 60.77   | 67.92   | 75.01    | 82.08    | 91.4     | 98.45     | ECP2-GFDL (future)           |
| 19                            | 26.92             | 27.73                                                                           | 38.45  | 44.39   | 51.91   | 57.48   | 63.01    | 68.52    | 75.79    | 81.29     | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 26.07                                                                           | 34.75  | 40.5    | 47.77   | 53.16   | 58.51    | 63.85    | 70.88    | 76.2      | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 17.36                                                                           | 23.62  | 27.77   | 33.01   | 36.9    | 40.76    | 44.61    | 49.68    | 53.51     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 12.35                                                                           | 18.37  | 22.35   | 27.39   | 31.12   | 34.83    | 38.52    | 43.4     | 47.08     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 12.02                                                                           | 16.63  | 19.68   | 23.53   | 26.39   | 29.22    | 32.05    | 35.78    | 38.59     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 10.13                                                                           | 14.64  | 17.62   | 21.39   | 24.19   | 26.97    | 29.73    | 33.38    | 36.14     | Observed                     |
| 25                            | 3.85              | 8.71                                                                            | 13.46  | 16.61   | 20.59   | 23.54   | 26.47    | 29.38    | 33.23    | 36.14     | Observed                     |
| Gauge: 448062; Duration: 6 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr (x ≤ X)      | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-----------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance  | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%) | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15           | 36.81                                                                           | 53.48  | 64.51   | 78.46   | 88.8    | 99.07    | 109.3    | 122.79   | 132.99    | HRM3-GFDL (future)           |
| 2                              | 92.31           | 34.07                                                                           | 47.43  | 56.28   | 67.47   | 75.76   | 84       | 92.2     | 103.03   | 111.21    | HRM3-HadCM3 (future)         |
| 3                              | 88.46           | 32.25                                                                           | 42.53  | 50.21   | 59.91   | 67.1    | 74.24    | 81.36    | 90.75    | 97.84     | HRM3-HadCM3 (historical)     |
| 4                              | 84.62           | 30.94                                                                           | 39.19  | 46.76   | 56.33   | 63.42   | 70.47    | 77.49    | 86.75    | 93.75     | HRM3-GFDL (historical)       |
| 5                              | 80.77           | 29.85                                                                           | 38.93  | 45.89   | 54.68   | 61.2    | 67.68    | 75.32    | 85.69    | 93.52     | RCM3-GFDL (future)           |
| 6                              | 76.92           | 29.85                                                                           | 38.87  | 43.25   | 51.64   | 59.58   | 67.46    | 74.13    | 82.63    | 89.06     | WRFG-CGCM3 (historical)      |
| 7                              | 73.08           | 28.43                                                                           | 37.55  | 42.65   | 50.96   | 57.82   | 64.62    | 71.4     | 80.34    | 87.1      | RCM3-CGCM3 (future)          |
| 8                              | 69.23           | 27.75                                                                           | 37.55  | 42.65   | 49.35   | 55.15   | 60.91    | 66.64    | 74.21    | 79.93     | WRFG-CCSM (future)           |
| 9                              | 65.38           | 26.51                                                                           | 35.34  | 41.72   | 49.1    | 53.88   | 58.63    | 63.9     | 72.47    | 78.94     | RCM3-GFDL (historical)       |
| 10                             | 61.54           | 26                                                                              | 34.64  | 41.53   | 49.1    | 53.88   | 58.63    | 63.81    | 71.22    | 76.81     | WRFG-CCSM (historical)       |
| 11                             | 57.69           | 24.03                                                                           | 34.41  | 40.93   | 48.79   | 52.9    | 58.2     | 63.36    | 69.6     | 74.31     | ECP2-HadCM3 (future)         |
| 12                             | 53.85           | 23.37                                                                           | 33.18  | 40.02   | 46.88   | 52.56   | 57.41    | 63.36    | 69.6     | 74.31     | ECP2-HadCM3 (future)         |
| 13                             | 50.00           | 21.97                                                                           | 32.45  | 39.23   | 46.82   | 51.87   | 56.97    | 61.87    | 68.74    | 74.29     | MM5I-CCSM (future)           |
| 14                             | 46.15           | 20.6                                                                            | 31.03  | 37.04   | 44.62   | 50.89   | 56.88    | 61.4     | 68.45    | 73.43     | MM5I-HadCM3 (historical)     |
| 15                             | 42.31           | 19.65                                                                           | 28.47  | 35.48   | 44.33   | 50.25   | 55.83    | 61.04    | 66.4     | 70.89     | MM5I-CCSM (historical)       |
| 16                             | 38.46           | 19.04                                                                           | 27.88  | 33.75   | 41.31   | 46.92   | 52.49    | 58.04    | 65.36    | 70.45     | MM5I-HadCM3 (future)         |
| 17                             | 34.62           | 19                                                                              | 27.76  | 32.7    | 39.39   | 44.45   | 49.47    | 54.47    | 61.07    | 66.06     | RCM3-CGCM3 (historical)      |
| 18                             | 30.77           | 18.72                                                                           | 27.18  | 32.58   | 38.79   | 43.31   | 47.8     | 52.27    | 58.16    | 62.62     | ECP2-GFDL (future)           |
| 19                             | 26.92           | 17.89                                                                           | 24.67  | 28.43   | 33.17   | 36.69   | 40.19    | 43.67    | 48.26    | 51.74     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08           | 16.84                                                                           | 22.33  | 25.96   | 30.55   | 33.96   | 37.34    | 40.71    | 45.15    | 48.51     | ECP2-GFDL (historical)       |
| 21                             | 19.23           | 11.34                                                                           | 15.3   | 17.92   | 21.24   | 23.69   | 26.13    | 28.56    | 31.77    | 34.19     | CRCM-CGCM3 (future)          |
| 22                             | 15.38           | 8.18                                                                            | 11.99  | 14.51   | 17.7    | 20.06   | 22.41    | 24.75    | 27.83    | 30.16     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54           | 7.97                                                                            | 10.88  | 12.8    | 15.23   | 17.04   | 18.83    | 20.61    | 22.97    | 24.75     | CRCM-CCSM (future)           |
| 24                             | 7.69            | 6.77                                                                            | 9.62   | 11.5    | 13.88   | 15.65   | 17.4     | 19.15    | 21.45    | 23.19     | CRCM-CCSM (historical)       |
| 25                             | 3.85            | 5.37                                                                            | 8.2    | 10.07   | 12.44   | 14.2    | 15.94    | 17.67    | 19.96    | 21.69     | Observed                     |
| Gauge: 448062; Duration: 12 hr |                 | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 19.93                                                                           | 28.81  | 34.68   | 42.11   | 47.62   | 53.08    | 58.53    | 65.72    | 71.15     | HRM3-GFDL (future)           |
| 2                              | 92.31             | 18.47                                                                           | 25.59  | 30.3    | 36.26   | 40.67   | 45.06    | 49.43    | 55.19    | 59.55     | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 17.5                                                                            | 22.98  | 27.07   | 32.24   | 36.07   | 39.88    | 43.67    | 48.67    | 52.45     | HRM3-HadCM3 (historical)     |
| 4                              | 84.62             | 16.8                                                                            | 21.2   | 25.23   | 30.32   | 34.1    | 37.85    | 41.59    | 46.52    | 50.25     | HRM3-GFDL (historical)       |
| 5                              | 80.77             | 16.22                                                                           | 21.06  | 24.77   | 29.45   | 32.92   | 36.37    | 40.44    | 45.96    | 50.13     | RCM3-GFDL (future)           |
| 6                              | 76.92             | 16.22                                                                           | 21.03  | 23.37   | 27.83   | 32.06   | 36.25    | 39.8     | 44.33    | 47.75     | WRFG-CGCM3 (historical)      |
| 7                              | 73.08             | 15.47                                                                           | 20.33  | 23.04   | 27.47   | 31.12   | 34.74    | 38.35    | 43.11    | 46.71     | RCM3-CGCM3 (future)          |
| 8                              | 69.23             | 15.11                                                                           | 20.33  | 23.04   | 26.61   | 29.7    | 32.76    | 35.82    | 39.85    | 42.89     | WRFG-CCSM (future)           |
| 9                              | 65.38             | 14.45                                                                           | 19.15  | 22.55   | 26.48   | 29.02   | 31.55    | 34.35    | 38.9     | 42.35     | RCM3-GFDL (historical)       |
| 10                             | 61.54             | 14.17                                                                           | 18.78  | 22.44   | 26.48   | 29.02   | 31.55    | 34.3     | 38.25    | 41.23     | WRFG-CCSM (historical)       |
| 11                             | 57.69             | 13.13                                                                           | 18.65  | 22.12   | 26.32   | 28.5    | 31.31    | 34.07    | 37.39    | 39.92     | MM5I-CCSM (future)           |
| 12                             | 53.85             | 12.77                                                                           | 17.99  | 21.64   | 25.29   | 28.31   | 30.89    | 34.07    | 37.39    | 39.9      | ECP2-HadCM3 (future)         |
| 13                             | 50.00             | 12.02                                                                           | 17.61  | 21.22   | 25.27   | 27.95   | 30.68    | 33.28    | 36.96    | 39.9      | ECP2-HadCM3 (future)         |
| 14                             | 46.15             | 11.3                                                                            | 16.86  | 20.06   | 24.1    | 27.42   | 30.62    | 33.04    | 36.78    | 39.43     | MM5I-HadCM3 (historical)     |
| 15                             | 42.31             | 10.79                                                                           | 15.49  | 19.22   | 23.93   | 27.1    | 30.08    | 32.84    | 35.7     | 38.09     | MM5I-CCSM (historical)       |
| 16                             | 38.46             | 10.46                                                                           | 15.18  | 18.3    | 22.33   | 25.32   | 28.29    | 31.24    | 35.14    | 37.85     | MM5I-HadCM3 (future)         |
| 17                             | 34.62             | 10.45                                                                           | 15.11  | 17.75   | 21.31   | 24      | 26.67    | 29.33    | 32.85    | 35.5      | RCM3-CGCM3 (historical)      |
| 18                             | 30.77             | 10.29                                                                           | 14.8   | 17.68   | 20.99   | 23.4    | 25.79    | 28.17    | 31.31    | 33.69     | ECP2-GFDL (future)           |
| 19                             | 26.92             | 9.86                                                                            | 13.47  | 15.47   | 18      | 19.88   | 21.74    | 23.59    | 26.04    | 27.89     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 9.3                                                                             | 12.22  | 14.16   | 16.61   | 18.42   | 20.22    | 22.02    | 24.39    | 26.18     | ECP2-GFDL (historical)       |
| 21                             | 19.23             | 6.37                                                                            | 8.47   | 9.86    | 11.62   | 12.93   | 14.23    | 15.52    | 17.22    | 18.51     | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 4.68                                                                            | 6.71   | 8.05    | 9.74    | 11      | 12.24    | 13.49    | 15.12    | 16.36     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 4.57                                                                            | 6.12   | 7.14    | 8.44    | 9.4     | 10.35    | 11.3     | 12.55    | 13.5      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 3.94                                                                            | 5.46   | 6.46    | 7.74    | 8.68    | 9.62     | 10.55    | 11.78    | 12.71     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 2.97                                                                            | 4.33   | 5.23    | 6.37    | 7.21    | 8.05     | 8.89     | 9.99     | 10.82     | Observed                     |
| Gauge: 448062; Duration: 24 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 10.58                                                                           | 15.23  | 18.31   | 22.19   | 25.08   | 27.94    | 30.79    | 34.55    | 37.4      | HRM3-GFDL (future)           |
| 2                              | 92.31             | 9.82                                                                            | 13.54  | 16.01   | 19.13   | 21.44   | 23.74    | 26.03    | 29.04    | 31.32     | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 9.32                                                                            | 12.18  | 14.32   | 17.03   | 19.04   | 21.03    | 23.02    | 25.63    | 27.61     | HRM3-HadCM3 (historical)     |
| 4                              | 84.62             | 8.95                                                                            | 11.25  | 13.36   | 16.03   | 18.01   | 19.97    | 21.93    | 24.52    | 26.47     | HRM3-GFDL (historical)       |
| 5                              | 80.77             | 8.64                                                                            | 11.17  | 13.11   | 15.56   | 17.37   | 19.17    | 21.32    | 24.21    | 26.39     | RCM3-GFDL (future)           |
| 6                              | 76.92             | 8.64                                                                            | 11.16  | 12.39   | 14.72   | 16.93   | 19.13    | 20.97    | 23.34    | 25.13     | WRFG-CGCM3 (historical)      |
| 7                              | 73.08             | 8.25                                                                            | 10.79  | 12.21   | 14.53   | 16.44   | 18.34    | 20.23    | 22.72    | 24.6      | RCM3-CGCM3 (future)          |
| 8                              | 69.23             | 8.06                                                                            | 10.79  | 12.21   | 14.08   | 15.7    | 17.3     | 18.9     | 21.01    | 22.6      | WRFG-CCSM (future)           |
| 9                              | 65.38             | 7.71                                                                            | 10.17  | 11.95   | 14.01   | 15.34   | 16.67    | 18.15    | 20.54    | 22.34     | RCM3-GFDL (historical)       |
| 10                             | 61.54             | 7.57                                                                            | 9.97   | 11.9    | 14.01   | 15.34   | 16.67    | 18.09    | 20.15    | 21.7      | WRFG-CCSM (historical)       |
| 11                             | 57.69             | 7.02                                                                            | 9.91   | 11.73   | 13.93   | 15.08   | 16.52    | 17.98    | 19.72    | 21.04     | ECP2-HadCM3 (future)         |
| 12                             | 53.85             | 6.84                                                                            | 9.56   | 11.47   | 13.38   | 14.96   | 16.34    | 17.98    | 19.72    | 21.04     | ECP2-HadCM3 (future)         |
| 13                             | 50.00             | 6.44                                                                            | 9.37   | 11.25   | 13.36   | 14.77   | 16.22    | 17.55    | 19.48    | 21.03     | MM5I-CCSM (future)           |
| 14                             | 46.15             | 6.06                                                                            | 8.97   | 10.64   | 12.76   | 14.52   | 16.16    | 17.43    | 19.38    | 20.77     | MM5I-HadCM3 (historical)     |
| 15                             | 42.31             | 5.8                                                                             | 8.26   | 10.22   | 12.69   | 14.32   | 15.88    | 17.35    | 18.85    | 20.08     | MM5I-CCSM (historical)       |
| 16                             | 38.46             | 5.63                                                                            | 8.09   | 9.73    | 11.84   | 13.4    | 14.95    | 16.5     | 18.54    | 19.98     | MM5I-HadCM3 (future)         |
| 17                             | 34.62             | 5.62                                                                            | 8.06   | 9.44    | 11.3    | 12.71   | 14.11    | 15.51    | 17.34    | 18.73     | RCM3-CGCM3 (historical)      |
| 18                             | 30.77             | 5.54                                                                            | 7.9    | 9.4     | 11.14   | 12.4    | 13.65    | 14.9     | 16.55    | 17.79     | ECP2-GFDL (future)           |
| 19                             | 26.92             | 5.31                                                                            | 7.2    | 8.25    | 9.57    | 10.55   | 11.52    | 12.5     | 13.78    | 14.74     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 5.02                                                                            | 6.54   | 7.56    | 8.84    | 9.78    | 10.73    | 11.66    | 12.9     | 13.84     | ECP2-GFDL (historical)       |
| 21                             | 19.23             | 3.48                                                                            | 4.59   | 5.32    | 6.24    | 6.93    | 7.61     | 8.29     | 9.18     | 9.86      | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 2.6                                                                             | 3.66   | 4.37    | 5.25    | 5.91    | 6.56     | 7.21     | 8.07     | 8.72      | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 2.54                                                                            | 3.35   | 3.89    | 4.57    | 5.07    | 5.58     | 6.07     | 6.73     | 7.23      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 2.21                                                                            | 3.01   | 3.53    | 4.2     | 4.69    | 5.18     | 5.67     | 6.32     | 6.8       | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.77                                                                            | 2.6    | 3.15    | 3.84    | 4.36    | 4.87     | 5.38     | 6.05     | 6.56      | Observed                     |
| Gauge: 448062; Duration: 48 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 7.02                                                                            | 10.06  | 12.07   | 14.62   | 16.5    | 18.38    | 20.24    | 22.71    | 24.57     | HRM3-GFDL (future)           |
| 2                              | 92.31             | 6.52                                                                            | 8.96   | 10.57   | 12.61   | 14.13   | 15.63    | 17.13    | 19.1     | 20.59     | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 6.19                                                                            | 8.06   | 9.46    | 11.22   | 12.54   | 13.84    | 15.13    | 16.84    | 18.14     | HRM3-HadCM3 (historical)     |
| 4                              | 84.62             | 5.95                                                                            | 7.45   | 8.83    | 10.57   | 11.87   | 13.15    | 14.43    | 16.12    | 17.4      | HRM3-GFDL (historical)       |
| 5                              | 80.77             | 5.75                                                                            | 7.4    | 8.67    | 10.28   | 11.47   | 12.65    | 14.04    | 15.94    | 17.37     | RCM3-GFDL (future)           |
| 6                              | 76.92             | 5.75                                                                            | 7.4    | 8.2     | 9.72    | 11.17   | 12.61    | 13.82    | 15.38    | 16.55     | WRFG-CGCM3 (historical)      |
| 7                              | 73.08             | 5.48                                                                            | 7.15   | 8.08    | 9.6     | 10.85   | 12.09    | 13.33    | 14.96    | 16.19     | RCM3-CGCM3 (future)          |
| 8                              | 69.23             | 5.36                                                                            | 7.15   | 8.08    | 9.3     | 10.36   | 11.41    | 12.46    | 13.84    | 14.89     | WRFG-CCSM (future)           |
| 9                              | 65.38             | 5.13                                                                            | 6.75   | 7.91    | 9.26    | 10.13   | 11       | 11.94    | 13.5     | 14.68     | RCM3-GFDL (historical)       |
| 10                             | 61.54             | 5.04                                                                            | 6.62   | 7.88    | 9.26    | 10.13   | 11       | 11.94    | 13.3     | 14.32     | WRFG-CCSM (historical)       |
| 11                             | 57.69             | 4.68                                                                            | 6.58   | 7.77    | 9.21    | 9.96    | 10.92    | 11.86    | 13       | 13.86     | ECP2-HadCM3 (future)         |
| 12                             | 53.85             | 4.56                                                                            | 6.35   | 7.6     | 8.85    | 9.89    | 10.76    | 11.86    | 13       | 13.86     | ECP2-HadCM3 (future)         |
| 13                             | 50.00             | 4.3                                                                             | 6.22   | 7.46    | 8.84    | 9.77    | 10.71    | 11.59    | 12.83    | 13.84     | MM5I-CCSM (future)           |
| 14                             | 46.15             | 4.05                                                                            | 5.96   | 7.05    | 8.43    | 9.57    | 10.68    | 11.49    | 12.79    | 13.7      | MM5I-HadCM3 (historical)     |
| 15                             | 42.31             | 3.89                                                                            | 5.49   | 6.76    | 8.38    | 9.46    | 10.48    | 11.45    | 12.43    | 13.25     | MM5I-CCSM (historical)       |
| 16                             | 38.46             | 3.77                                                                            | 5.38   | 6.46    | 7.84    | 8.87    | 9.89     | 10.9     | 12.24    | 13.17     | MM5I-HadCM3 (future)         |
| 17                             | 34.62             | 3.77                                                                            | 5.37   | 6.26    | 7.48    | 8.41    | 9.32     | 10.23    | 11.43    | 12.34     | RCM3-CGCM3 (historical)      |
| 18                             | 30.77             | 3.71                                                                            | 5.26   | 6.24    | 7.37    | 8.19    | 9.01     | 9.82     | 10.89    | 11.7      | ECP2-GFDL (future)           |
| 19                             | 26.92             | 3.56                                                                            | 4.8    | 5.49    | 6.35    | 6.99    | 7.63     | 8.26     | 9.1      | 9.73      | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 3.37                                                                            | 4.37   | 5.03    | 5.87    | 6.49    | 7.1      | 7.72     | 8.53     | 9.14      | ECP2-GFDL (historical)       |
| 21                             | 19.23             | 2.37                                                                            | 3.09   | 3.57    | 4.18    | 4.63    | 5.07     | 5.52     | 6.1      | 6.55      | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 1.79                                                                            | 2.49   | 2.95    | 3.53    | 3.97    | 4.4      | 4.83     | 5.39     | 5.82      | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 1.75                                                                            | 2.28   | 2.63    | 3.08    | 3.41    | 3.73     | 4.06     | 4.49     | 4.81      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 1.53                                                                            | 2.05   | 2.4     | 2.84    | 3.16    | 3.48     | 3.8      | 4.22     | 4.55      | Observed                     |
| 25                             | 3.85              | 1.28                                                                            | 1.85   | 2.22    | 2.7     | 3.05    | 3.4      | 3.74     | 4.2      | 4.54      | CRCM-CCSM (historical)       |
| Gauge: 448062; Duration: 72 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 298.63                                                                          | 388.1  | 433.84  | 481.49  | 511.61  | 538.24   | 562.23   | 590.84   | 610.59    | HRM3-GFDL (future)           |
| 2                               | 92.31             | 281.6                                                                           | 358.11 | 400.17  | 443.97  | 471.64  | 496.11   | 518.15   | 544.42   | 562.57    | HRM3-HadCM3 (future)         |
| 3                               | 88.46             | 275.79                                                                          | 335.68 | 372.07  | 409.67  | 433.29  | 454.09   | 472.76   | 494.93   | 510.2     | HRM3-HadCM3 (historical)     |
| 4                               | 84.62             | 269.19                                                                          | 330.46 | 365.2   | 400.99  | 423.42  | 443.15   | 460.84   | 481.82   | 496.25    | WRFG-CGCM3 (historical)      |
| 5                               | 80.77             | 263.5                                                                           | 321.28 | 342.84  | 376.6   | 397.77  | 416.38   | 433.08   | 452.89   | 466.52    | WRFG-CCSM (future)           |
| 6                               | 76.92             | 261.22                                                                          | 317.55 | 340.66  | 365.25  | 386.51  | 405.24   | 422.06   | 442.05   | 459.82    | RCM3-GFDL (future)           |
| 7                               | 73.08             | 244.85                                                                          | 310.08 | 339.8   | 363.8   | 377.99  | 391.1    | 413.59   | 440.8    | 455.82    | HRM3-GFDL (historical)       |
| 8                               | 69.23             | 241.37                                                                          | 298.72 | 331.43  | 358.09  | 373.42  | 391.06   | 406.96   | 425.79   | 440.16    | Observed                     |
| 9                               | 65.38             | 233.96                                                                          | 291.52 | 321.32  | 353.33  | 369.19  | 390.28   | 401.16   | 423.91   | 438.75    | WRFG-CCSM (historical)       |
| 10                              | 61.54             | 228.61                                                                          | 290.29 | 315.88  | 340.51  | 366.39  | 381.04   | 400.53   | 413.91   | 422.58    | WRFG-CGCM3 (future)          |
| 11                              | 57.69             | 207.22                                                                          | 267.35 | 297.94  | 338.93  | 359.55  | 378.73   | 387.14   | 402.29   | 415.36    | MM5I-CCSM (future)           |
| 12                              | 53.85             | 194.26                                                                          | 262.14 | 297.77  | 335.45  | 355.72  | 368.96   | 383.34   | 396.92   | 410.8     | MM5I-CCSM (historical)       |
| 13                              | 50.00             | 193.58                                                                          | 256.95 | 296.48  | 329.7   | 349.74  | 367.42   | 380.74   | 395.72   | 404.06    | MM5I-HadCM3 (historical)     |
| 14                              | 46.15             | 191.7                                                                           | 248.81 | 278.57  | 313.6   | 335.99  | 355.94   | 374.02   | 394.59   | 403.55    | MM5I-HadCM3 (future)         |
| 15                              | 42.31             | 187.19                                                                          | 245.44 | 277.99  | 308.36  | 327.55  | 344.52   | 359.8    | 378.02   | 390.6     | RCM3-CGCM3 (future)          |
| 16                              | 38.46             | 183.53                                                                          | 241.89 | 265.92  | 290.55  | 305.93  | 319.41   | 331.99   | 350.38   | 363.13    | RCM3-GFDL (historical)       |
| 17                              | 34.62             | 182.53                                                                          | 229.9  | 250.9   | 280.51  | 299.63  | 316.62   | 331.48   | 345.76   | 355.57    | ECP2-GFDL (future)           |
| 18                              | 30.77             | 182.22                                                                          | 221.92 | 250.48  | 272.27  | 285.53  | 297.13   | 307.47   | 319.67   | 328.03    | ECP2-HadCM3 (future)         |
| 19                              | 26.92             | 177.84                                                                          | 220.28 | 241.27  | 262.7   | 276.05  | 287.73   | 298.17   | 310.5    | 318.95    | RCM3-CGCM3 (historical)      |
| 20                              | 23.08             | 166.93                                                                          | 218.8  | 236.33  | 253.99  | 264.88  | 274.34   | 282.74   | 292.61   | 299.35    | ECP2-HadCM3 (historical)     |
| 21                              | 19.23             | 164.7                                                                           | 203.07 | 221.97  | 241.25  | 253.23  | 263.71   | 273.06   | 284.11   | 291.68    | ECP2-GFDL (historical)       |
| 22                              | 15.38             | 121.23                                                                          | 152.58 | 168.25  | 184.37  | 194.45  | 203.31   | 211.24   | 220.65   | 227.11    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 93.95                                                                           | 124.22 | 139.88  | 156.32  | 166.76  | 176.02   | 184.4    | 194.41   | 201.35    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 91.46                                                                           | 114.74 | 126.36  | 138.28  | 145.73  | 152.27   | 158.13   | 165.07   | 169.83    | CRCM-CCSM (future)           |
| 25                              | 3.85              | 80.33                                                                           | 104.59 | 117     | 129.95  | 138.14  | 145.38   | 151.91   | 159.69   | 165.07    | CRCM-CCSM (historical)       |
| Gauge: 448172; Duration: 15 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 245.59                                                                          | 340.15 | 390.67  | 444.69  | 479.52  | 510.73   | 539.19   | 573.49   | 597.42    | HRM3-GFDL (future)           |
| 2                               | 92.31             | 229.73                                                                          | 308.65 | 354.32  | 403.14  | 434.6   | 462.79   | 488.47   | 519.44   | 541.04    | HRM3-HadCM3 (future)         |
| 3                               | 88.46             | 223.11                                                                          | 285.95 | 325.35  | 367.1   | 393.83  | 417.68   | 439.33   | 465.33   | 483.4     | HRM3-HadCM3 (historical)     |
| 4                               | 84.62             | 217.51                                                                          | 279.36 | 315.73  | 354.02  | 378.42  | 400.11   | 419.75   | 443.26   | 459.57    | WRFG-CGCM3 (historical)      |
| 5                               | 80.77             | 211.07                                                                          | 269.94 | 293.69  | 329.97  | 353.13  | 373.74   | 392.41   | 419.97   | 443.68    | RCM3-GFDL (future)           |
| 6                               | 76.92             | 209.49                                                                          | 266.11 | 289.93  | 323.59  | 348.08  | 369.98   | 389.91   | 414.79   | 430.58    | HRM3-GFDL (historical)       |
| 7                               | 73.08             | 193.46                                                                          | 259.3  | 289.1   | 314.13  | 330.25  | 359.44   | 386.59   | 413.88   | 430.32    | WRFG-CCSM (future)           |
| 8                               | 69.23             | 190.33                                                                          | 249.68 | 285.47  | 308.25  | 329.15  | 344.88   | 362.16   | 382.86   | 397.24    | WRFG-CCSM (historical)       |
| 9                               | 65.38             | 182.18                                                                          | 240.96 | 270.86  | 304.41  | 325.82  | 342.25   | 353.93   | 367.71   | 377.13    | WRFG-CGCM3 (future)          |
| 10                              | 61.54             | 178.24                                                                          | 239.07 | 266.38  | 298.44  | 319.98  | 330.13   | 339.69   | 360.71   | 375.36    | MM5I-CCSM (future)           |
| 11                              | 57.69             | 157.98                                                                          | 216.92 | 250.79  | 292.57  | 308.99  | 323.43   | 339.11   | 357.35   | 374.55    | MM5I-CCSM (historical)       |
| 12                              | 53.85             | 145.44                                                                          | 208.23 | 248.23  | 281.59  | 303.04  | 322.23   | 336.38   | 351.75   | 362.32    | MM5I-HadCM3 (historical)     |
| 13                              | 50.00             | 143.73                                                                          | 198.93 | 229.82  | 266.73  | 290.89  | 312.77   | 332.89   | 349.63   | 356.78    | MM5I-HadCM3 (future)         |
| 14                              | 46.15             | 139.93                                                                          | 195.99 | 228.41  | 259.93  | 280.24  | 298.45   | 315.04   | 335.04   | 348.99    | RCM3-CGCM3 (future)          |
| 15                              | 42.31             | 135.89                                                                          | 192.82 | 217.38  | 243.17  | 261.08  | 280.89   | 299.13   | 321.31   | 336.92    | RCM3-GFDL (historical)       |
| 16                              | 38.46             | 134.76                                                                          | 180.88 | 205.84  | 239.21  | 259.58  | 274.14   | 287.32   | 303.07   | 313.99    | ECP2-GFDL (future)           |
| 17                              | 34.62             | 134.45                                                                          | 175.29 | 201.74  | 223.43  | 237.11  | 249.19   | 260.07   | 273.03   | 281.97    | ECP2-HadCM3 (future)         |
| 18                              | 30.77             | 131.69                                                                          | 171.27 | 191.52  | 212.61  | 225.95  | 237.74   | 248.37   | 261.04   | 269.8     | RCM3-CGCM3 (historical)      |
| 19                              | 26.92             | 120.13                                                                          | 170.23 | 187.34  | 204.91  | 215.88  | 225.51   | 234.13   | 244.33   | 251.34    | ECP2-HadCM3 (historical)     |
| 20                              | 23.08             | 120                                                                             | 155.35 | 173.37  | 192.11  | 203.94  | 214.4    | 223.81   | 235.02   | 242.76    | ECP2-GFDL (historical)       |
| 21                              | 19.23             | 99.74                                                                           | 132.91 | 150.17  | 168.34  | 179.91  | 190.19   | 199.5    | 210.65   | 218.38    | Observed                     |
| 22                              | 15.38             | 82.78                                                                           | 110.14 | 124.36  | 139.31  | 148.83  | 157.29   | 164.95   | 174.11   | 180.47    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 60.33                                                                           | 86.53  | 100.86  | 116.41  | 126.55  | 135.7    | 144.09   | 154.27   | 161.42    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 58.93                                                                           | 77.98  | 87.85   | 98.21   | 104.79  | 110.63   | 115.91   | 122.23   | 126.6     | CRCM-CCSM (future)           |
| 25                              | 3.85              | 50.5                                                                            | 69.45  | 79.52   | 90.27   | 97.18   | 103.36   | 108.99   | 115.77   | 120.5     | CRCM-CCSM (historical)       |
| Gauge: 448172; Duration: 30 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 187                                                                             | 261.11 | 300.93  | 343.66  | 371.28  | 396.07   | 418.7    | 446.03   | 465.12    | HRM3-GFDL (future)           |
| 2                               | 92.31             | 174.77                                                                          | 236.45 | 272.37  | 310.91  | 335.8   | 358.15   | 378.54   | 403.16   | 420.35    | HRM3-HadCM3 (future)         |
| 3                               | 88.46             | 169.53                                                                          | 218.72 | 249.69  | 282.62  | 303.75  | 322.63   | 339.8    | 360.45   | 374.82    | HRM3-HadCM3 (historical)     |
| 4                               | 84.62             | 165.27                                                                          | 213.47 | 241.94  | 272     | 291.18  | 308.27   | 323.76   | 342.32   | 355.21    | WRF3-CGCM3 (historical)      |
| 5                               | 80.77             | 160.18                                                                          | 206.13 | 224.81  | 253.31  | 271.54  | 287.78   | 302.52   | 326.07   | 345.05    | RCM3-GFDL (future)           |
| 6                               | 76.92             | 159.02                                                                          | 203.12 | 221.73  | 248.87  | 268.29  | 285.69   | 301.54   | 320.65   | 333.98    | HRM3-GFDL (historical)       |
| 7                               | 73.08             | 146.58                                                                          | 197.88 | 221.11  | 240.68  | 254.54  | 277.76   | 299.4    | 320.21   | 332.51    | WRF3-CCSM (future)           |
| 8                               | 69.23             | 144.16                                                                          | 190.55 | 218.74  | 236.11  | 252.44  | 264.97   | 278.57   | 294.88   | 306.22    | WRF3-CCSM (historical)       |
| 9                               | 65.38             | 137.74                                                                          | 183.64 | 206.92  | 233.19  | 249.99  | 262.73   | 271.9    | 282.73   | 290.14    | WRF3-CGCM3 (future)          |
| 10                              | 61.54             | 134.82                                                                          | 182.09 | 203.54  | 229.32  | 245.3   | 253.27   | 261.18   | 277.76   | 289.33    | MM5I-CCSM (future)           |
| 11                              | 57.69             | 119.15                                                                          | 164.92 | 191.69  | 224.1   | 237.02  | 248.39   | 260.32   | 275.46   | 289.07    | MM5I-CCSM (historical)       |
| 12                              | 53.85             | 109.48                                                                          | 158.26 | 189.36  | 215.49  | 232.33  | 247.42   | 258.6    | 270.73   | 279.08    | MM5I-HadCM3 (historical)     |
| 13                              | 50.00             | 108.18                                                                          | 150.96 | 175.1   | 204.02  | 223.01  | 240.24   | 256.12   | 268.59   | 274.21    | MM5I-HadCM3 (future)         |
| 14                              | 46.15             | 105.28                                                                          | 148.69 | 173.94  | 198.59  | 214.51  | 228.81   | 241.86   | 257.61   | 268.62    | RCM3-CGCM3 (future)          |
| 15                              | 42.31             | 102.19                                                                          | 146.27 | 165.44  | 185.65  | 200.48  | 216.22   | 230.74   | 248.44   | 260.92    | RCM3-GFDL (historical)       |
| 16                              | 38.46             | 101.24                                                                          | 137    | 156.81  | 183.15  | 198.52  | 209.98   | 220.35   | 232.78   | 241.4     | ECP2-GFDL (future)           |
| 17                              | 34.62             | 100.84                                                                          | 132.83 | 153.23  | 170.15  | 180.85  | 190.31   | 198.84   | 209      | 216.03    | ECP2-HadCM3 (future)         |
| 18                              | 30.77             | 98.98                                                                           | 129.52 | 145.21  | 161.6   | 171.98  | 181.18   | 189.47   | 199.37   | 206.22    | RCM3-CGCM3 (historical)      |
| 19                              | 26.92             | 90                                                                              | 128.75 | 142.04  | 155.71  | 164.26  | 171.78   | 178.51   | 186.49   | 191.98    | ECP2-HadCM3 (historical)     |
| 20                              | 23.08             | 89.89                                                                           | 117.24 | 131.2   | 145.74  | 154.94  | 163.08   | 170.42   | 179.17   | 185.22    | ECP2-GFDL (historical)       |
| 21                              | 19.23             | 66.5                                                                            | 88.62  | 100.13  | 112.24  | 119.95  | 126.81   | 133.02   | 140.45   | 145.61    | Observed                     |
| 22                              | 15.38             | 61.58                                                                           | 82.52  | 93.45   | 104.98  | 112.34  | 118.89   | 124.82   | 131.93   | 136.87    | CRCM-CGCM3 (future)          |
| 23                              | 11.54             | 44.52                                                                           | 64.55  | 75.59   | 87.62   | 95.49   | 102.62   | 109.16   | 117.12   | 122.71    | CRCM-CGCM3 (historical)      |
| 24                              | 7.69              | 43.53                                                                           | 57.99  | 65.52   | 73.43   | 78.47   | 82.96    | 87.01    | 91.87    | 95.24     | CRCM-CCSM (future)           |
| 25                              | 3.85              | 37.19                                                                           | 51.49  | 59.13   | 67.29   | 72.56   | 77.28    | 81.58    | 86.76    | 90.38     | CRCM-CCSM (historical)       |
| Gauge: 448172; Duration: 45 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 156.73                                                                          | 221.53 | 256.64  | 294.5   | 319.06  | 341.17   | 361.4    | 385.87   | 403       | HRM3-GFDL (future)           |
| 2                             | 92.31             | 146.3                                                                           | 199.98 | 231.56  | 265.59  | 287.67  | 307.53   | 325.7    | 347.68   | 363.06    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 141.65                                                                          | 184.6  | 211.81  | 240.88  | 259.61  | 276.39   | 291.67   | 310.09   | 322.94    | HRM3-HadCM3 (historical)     |
| 4                             | 84.62             | 138.11                                                                          | 179.91 | 204.76  | 231.11  | 247.98  | 263.04   | 276.71   | 293.13   | 304.55    | WRF3-CGCM3 (historical)      |
| 5                             | 80.77             | 133.59                                                                          | 173.52 | 189.97  | 214.98  | 231.03  | 245.38   | 258.91   | 281.66   | 298.81    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 132.69                                                                          | 170.91 | 187.13  | 211.86  | 229.16  | 244.7    | 258.42   | 276.07   | 288.07    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 121.94                                                                          | 166.44 | 186.58  | 203.68  | 217.42  | 238.19   | 257.62   | 274.09   | 285.01    | WRF3-CCSM (future)           |
| 8                             | 69.23             | 119.89                                                                          | 160.29 | 185.14  | 199.68  | 213.98  | 225.13   | 237.09   | 251.47   | 261.49    | WRF3-CCSM (historical)       |
| 9                             | 65.38             | 114.21                                                                          | 154.12 | 174.3   | 197.24  | 211.97  | 223      | 231.05   | 240.57   | 247.39    | MM5I-CCSM (historical)       |
| 10                            | 61.54             | 111.89                                                                          | 152.71 | 171.49  | 194.96  | 207.73  | 214.71   | 222.18   | 236.83   | 247.09    | WRF3-CGCM3 (future)          |
| 11                            | 57.69             | 98.46                                                                           | 137.93 | 161.65  | 189.51  | 200.86  | 210.87   | 220.9    | 235.29   | 247.06    | MM5I-CCSM (future)           |
| 12                            | 53.85             | 90.21                                                                           | 132.31 | 159.18  | 182.02  | 196.79  | 210.06   | 219.87   | 230.58   | 237.97    | MM5I-HadCM3 (historical)     |
| 13                            | 50.00             | 89.11                                                                           | 125.9  | 146.94  | 172.24  | 188.93  | 204.12   | 218.15   | 228.15   | 233.09    | MM5I-HadCM3 (future)         |
| 14                            | 46.15             | 86.68                                                                           | 123.99 | 145.83  | 167.32  | 181.26  | 193.81   | 205.28   | 219.17   | 228.89    | RCM3-CGCM3 (future)          |
| 15                            | 42.31             | 84.08                                                                           | 121.95 | 138.62  | 156.28  | 170.29  | 184.35   | 197.37   | 213.3    | 224.56    | RCM3-GFDL (historical)       |
| 16                            | 38.46             | 83.16                                                                           | 113.92 | 131.58  | 154.87  | 167.57  | 177.64   | 186.78   | 197.76   | 205.38    | ECP2-GFDL (future)           |
| 17                            | 34.62             | 82.61                                                                           | 110.53 | 127.95  | 142.64  | 151.95  | 160.21   | 167.66   | 176.57   | 182.73    | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 81.35                                                                           | 107.46 | 120.95  | 135.11  | 144.1   | 152.08   | 159.29   | 167.91   | 173.87    | RCM3-CGCM3 (historical)      |
| 19                            | 26.92             | 73.76                                                                           | 106.84 | 118.3   | 130.13  | 137.56  | 144.09   | 149.96   | 156.92   | 161.71    | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 73.37                                                                           | 96.98  | 108.95  | 121.47  | 129.42  | 136.47   | 142.83   | 150.42   | 155.68    | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 49.87                                                                           | 67.52  | 76.82   | 86.67   | 92.97   | 98.6     | 103.7    | 109.83   | 114.1     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 49.85                                                                           | 66.46  | 75.09   | 84.17   | 89.95   | 95.1     | 99.75    | 105.33   | 109.19    | Observed                     |
| 23                            | 11.54             | 35.6                                                                            | 52.46  | 61.86   | 72.18   | 78.96   | 85.12    | 90.79    | 97.71    | 102.58    | CRCM-CGCM3 (historical)      |
| 24                            | 7.69              | 34.86                                                                           | 46.92  | 53.23   | 59.9    | 64.17   | 67.97    | 71.41    | 75.54    | 78.41     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 29.64                                                                           | 41.47  | 47.84   | 54.68   | 59.1    | 63.07    | 66.7     | 71.08    | 74.14     | CRCM-CCSM (historical)       |
| Gauge: 448172; Duration: 1 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 115.98                                                                          | 171.48 | 202.49  | 236.56  | 258.98  | 279.35   | 298.13   | 321.05   | 337.2     | HRM3-GFDL (future)           |
| 2                             | 92.31             | 107.81                                                                          | 153.04 | 180.64  | 210.94  | 230.86  | 248.97   | 265.66   | 286.02   | 300.37    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 103.63                                                                          | 140.2  | 163.96  | 189.82  | 206.71  | 221.98   | 236.02   | 253.06   | 265.03    | HRM3-HadCM3 (historical)     |
| 4                             | 84.62             | 101.09                                                                          | 135.85 | 157.04  | 179.84  | 194.61  | 207.89   | 220.03   | 234.7    | 250.13    | RCM3-GFDL (future)           |
| 5                             | 80.77             | 97.01                                                                           | 130.56 | 144.91  | 166.65  | 182.24  | 196.69   | 210.46   | 233.49   | 244.96    | WRF3-CGCM3 (historical)      |
| 6                             | 76.92             | 96.6                                                                            | 128.33 | 142.2   | 166.34  | 180.79  | 193.52   | 210.03   | 226.31   | 237.79    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 87.79                                                                           | 124.79 | 142.03  | 156.16  | 172.75  | 192.1    | 205.19   | 219.31   | 229.21    | WRF3-CCSM (future)           |
| 8                             | 69.23             | 86.2                                                                            | 120.26 | 141.64  | 152.85  | 165.03  | 175.24   | 185.73   | 198.44   | 207.34    | WRF3-CCSM (historical)       |
| 9                             | 65.38             | 81.08                                                                           | 114.71 | 131.44  | 152.16  | 163.77  | 172.84   | 179.84   | 188.15   | 198.11    | MM5I-CCSM (historical)       |
| 10                            | 61.54             | 79.87                                                                           | 113.29 | 129.52  | 151.04  | 159.77  | 165.81   | 173.86   | 187.08   | 196.08    | MM5I-CCSM (future)           |
| 11                            | 57.69             | 69.13                                                                           | 101.28 | 122.35  | 145.11  | 155.03  | 163.85   | 171.82   | 186.9    | 193.87    | WRF3-CGCM3 (future)          |
| 12                            | 53.85             | 62.64                                                                           | 96.9   | 119.15  | 138.69  | 151.52  | 163.15   | 171.61   | 181.38   | 188       | MM5I-HadCM3 (historical)     |
| 13                            | 50.00             | 61.85                                                                           | 91.49  | 109.3   | 131.03  | 145.62  | 159.06   | 171.18   | 177.5    | 184.41    | RCM3-GFDL (historical)       |
| 14                            | 46.15             | 60.06                                                                           | 90.03  | 108.06  | 126.26  | 138.24  | 149.13   | 159.17   | 173.51   | 181.82    | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 58.12                                                                           | 88.54  | 102.58  | 118.79  | 132.91  | 146      | 158.28   | 171.41   | 180.05    | RCM3-CGCM3 (future)          |
| 16                            | 38.46             | 57.06                                                                           | 81.95  | 97.94   | 117.71  | 127.53  | 136.37   | 144.45   | 154.24   | 161.08    | ECP2-GFDL (future)           |
| 17                            | 34.62             | 56.05                                                                           | 79.69  | 93.52   | 105.82  | 113.71  | 120.77   | 127.18   | 134.88   | 140.25    | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 56                                                                              | 76.64  | 87.54   | 99.14   | 106.58  | 113.24   | 119.29   | 126.57   | 131.64    | RCM3-CGCM3 (historical)      |
| 19                            | 26.92             | 50.25                                                                           | 76.3   | 85.65   | 95.44   | 101.65  | 107.15   | 112.11   | 118.04   | 122.14    | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 49.05                                                                           | 68.39  | 77.97   | 88.15   | 94.67   | 100.49   | 105.78   | 112.14   | 116.57    | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 32.46                                                                           | 45.76  | 52.96   | 60.71   | 65.73   | 70.25    | 74.38    | 79.38    | 82.87     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 26.9                                                                            | 34.8   | 42.02   | 50.27   | 55.8    | 60.89    | 65.63    | 71.48    | 75.64     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 22.11                                                                           | 34.69  | 38.83   | 43.02   | 45.66   | 48       | 50.1     | 52.6     | 54.45     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 21.82                                                                           | 30.5   | 35.17   | 40.19   | 43.43   | 46.34    | 49       | 52.2     | 54.33     | Observed                     |
| 25                            | 3.85              | 18.26                                                                           | 26.53  | 31.09   | 36.07   | 39.33   | 42.27    | 44.98    | 48.28    | 50.6      | CRCM-CCSM (historical)       |
| Gauge: 448172; Duration: 2 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 75.58                                                                           | 107.7  | 125.19  | 144.12  | 156.44  | 167.54   | 177.71   | 190.04   | 198.67    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 70.49                                                                           | 97.02  | 112.73  | 129.72  | 140.77  | 150.73   | 159.85   | 170.9    | 178.64    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 68.16                                                                           | 89.43  | 102.96  | 117.48  | 126.85  | 135.26   | 142.93   | 152.2    | 158.66    | HRM3-HadCM3 (historical)     |
| 4                             | 84.62             | 66.46                                                                           | 87.06  | 99.37   | 112.46  | 120.86  | 128.37   | 135.19   | 143.39   | 149.1     | WRFG-CGCM3 (historical)      |
| 5                             | 80.77             | 64.19                                                                           | 83.91  | 92.11   | 104.54  | 112.54  | 119.71   | 126.86   | 138.57   | 147.27    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 63.78                                                                           | 82.63  | 90.64   | 103.21  | 111.89  | 119.7    | 126.42   | 135.51   | 141.58    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 58.51                                                                           | 80.45  | 90.37   | 98.84   | 106.17  | 116.62   | 126.22   | 134.06   | 139.53    | WRFG-CCSM (future)           |
| 8                             | 69.23             | 57.5                                                                            | 77.48  | 89.85   | 96.86   | 103.95  | 109.54   | 115.49   | 122.66   | 127.66    | WRFG-CCSM (historical)       |
| 9                             | 65.38             | 54.67                                                                           | 74.38  | 84.32   | 95.69   | 103     | 108.43   | 112.43   | 117.16   | 120.98    | MM5I-CCSM (historical)       |
| 10                            | 61.54             | 53.6                                                                            | 73.66  | 82.98   | 94.9    | 100.85  | 104.32   | 108.19   | 115.5    | 120.61    | MM5I-CCSM (future)           |
| 11                            | 57.69             | 47.03                                                                           | 66.41  | 78.26   | 91.92   | 97.56   | 102.54   | 107.39   | 114.92   | 120.41    | WRFG-CGCM3 (future)          |
| 12                            | 53.85             | 43                                                                              | 63.69  | 76.9    | 88.22   | 95.55   | 102.16   | 107.03   | 112.37   | 116.06    | MM5I-HadCM3 (historical)     |
| 13                            | 50.00             | 42.47                                                                           | 60.5   | 70.92   | 83.46   | 91.76   | 99.34    | 106.34   | 110.99   | 113.45    | MM5I-HadCM3 (future)         |
| 14                            | 46.15             | 41.3                                                                            | 59.58  | 70.33   | 80.95   | 87.86   | 94.09    | 99.8     | 106.72   | 111.57    | RCM3-CGCM3 (future)          |
| 15                            | 42.31             | 40.05                                                                           | 58.59  | 66.83   | 75.58   | 82.85   | 89.92    | 96.48    | 104.53   | 110.23    | RCM3-GFDL (historical)       |
| 16                            | 38.46             | 39.56                                                                           | 54.64  | 63.49   | 75.12   | 81.2    | 86.21    | 90.77    | 96.25    | 100.06    | ECP2-GFDL (future)           |
| 17                            | 34.62             | 39.22                                                                           | 53.04  | 61.55   | 68.79   | 73.4    | 77.49    | 81.18    | 85.6     | 88.67     | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 38.72                                                                           | 51.46  | 58.08   | 65.03   | 69.46   | 73.39    | 76.95    | 81.2     | 84.16     | RCM3-CGCM3 (historical)      |
| 19                            | 26.92             | 35.03                                                                           | 51.18  | 56.81   | 62.64   | 66.3    | 69.53    | 72.42    | 75.87    | 78.24     | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 34.75                                                                           | 46.35  | 52.21   | 58.36   | 62.26   | 65.73    | 68.87    | 72.61    | 75.21     | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 23.49                                                                           | 32.03  | 36.55   | 41.36   | 44.44   | 47.19    | 49.69    | 52.7     | 54.79     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 19.22                                                                           | 24.78  | 29.37   | 34.42   | 37.75   | 40.78    | 43.59    | 47.01    | 49.42     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 16.63                                                                           | 24.26  | 26.79   | 29.39   | 31.02   | 32.45    | 33.97    | 35.98    | 37.38     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 16.3                                                                            | 22.09  | 25.14   | 28.37   | 30.44   | 32.29    | 33.74    | 35.26    | 36.31     | Observed                     |
| 25                            | 3.85              | 13.82                                                                           | 19.47  | 22.53   | 25.82   | 27.95   | 29.87    | 31.62    | 33.75    | 35.23     | CRCM-CCSM (historical)       |
| Gauge: 448172; Duration: 3 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 60.05                                                                           | 84.88  | 98.33   | 112.84  | 122.25  | 130.73   | 138.48   | 147.85   | 154.42    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 56.05                                                                           | 76.62  | 88.71   | 101.75  | 110.21  | 117.82   | 124.77   | 133.19   | 139.08    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 54.27                                                                           | 70.72  | 81.14   | 92.28   | 99.45   | 105.88   | 111.73   | 118.79   | 123.71    | HRM3-HadCM3 (historical)     |
| 4                             | 84.62             | 52.91                                                                           | 68.92  | 78.45   | 88.54   | 95.01   | 100.78   | 106.02   | 112.31   | 116.69    | WRFG-CGCM3 (historical)      |
| 5                             | 80.77             | 51.18                                                                           | 66.48  | 72.78   | 82.37   | 88.52   | 94.02    | 99.19    | 107.92   | 114.49    | RCM3-GFDL (future)           |
| 6                             | 76.92             | 50.83                                                                           | 65.47  | 71.68   | 81.16   | 87.79   | 93.75    | 99.01    | 105.77   | 110.36    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 46.72                                                                           | 63.76  | 71.48   | 78.02   | 83.31   | 91.26    | 98.71    | 105.02   | 109.2     | WRFG-CCSM (future)           |
| 8                             | 69.23             | 45.93                                                                           | 61.41  | 70.93   | 76.5    | 81.96   | 86.27    | 90.86    | 96.37    | 100.21    | WRFG-CCSM (historical)       |
| 9                             | 65.38             | 43.75                                                                           | 59.05  | 66.79   | 75.58   | 81.23   | 85.42    | 88.5     | 92.14    | 94.76     | MM5I-CCSM (historical)       |
| 10                            | 61.54             | 42.87                                                                           | 58.51  | 65.71   | 74.7    | 79.59   | 82.26    | 85.13    | 90.74    | 94.66     | MM5I-CCSM (future)           |
| 11                            | 57.69             | 37.71                                                                           | 52.84  | 61.94   | 72.61   | 76.96   | 80.8     | 84.63    | 90.13    | 94.64     | WRFG-CGCM3 (future)          |
| 12                            | 53.85             | 34.56                                                                           | 50.7   | 60.98   | 69.73   | 75.4    | 80.48    | 84.25    | 88.35    | 91.18     | MM5I-HadCM3 (historical)     |
| 13                            | 50.00             | 34.15                                                                           | 48.24  | 56.29   | 65.98   | 72.37   | 78.19    | 83.56    | 87.41    | 89.3      | MM5I-HadCM3 (future)         |
| 14                            | 46.15             | 33.21                                                                           | 47.5   | 55.87   | 64.1    | 69.44   | 74.24    | 78.64    | 83.95    | 87.67     | RCM3-CGCM3 (future)          |
| 15                            | 42.31             | 32.21                                                                           | 46.71  | 53.1    | 59.86   | 65.25   | 70.64    | 75.63    | 81.73    | 86.05     | RCM3-GFDL (historical)       |
| 16                            | 38.46             | 31.86                                                                           | 43.64  | 50.41   | 59.34   | 64.19   | 68.05    | 71.55    | 75.75    | 78.68     | ECP2-GFDL (future)           |
| 17                            | 34.62             | 31.65                                                                           | 42.35  | 49.02   | 54.64   | 58.21   | 61.37    | 64.22    | 67.63    | 69.99     | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 31.17                                                                           | 41.17  | 46.33   | 51.75   | 55.2    | 58.25    | 61.01    | 64.31    | 66.59     | RCM3-CGCM3 (historical)      |
| 19                            | 26.92             | 28.26                                                                           | 40.93  | 45.32   | 49.86   | 52.7    | 55.21    | 57.46    | 60.12    | 61.96     | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 28.11                                                                           | 37.15  | 41.74   | 46.53   | 49.58   | 52.27    | 54.71    | 57.62    | 59.63     | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 19.1                                                                            | 25.87  | 29.43   | 33.2    | 35.61   | 37.77    | 39.72    | 42.07    | 43.71     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 17.83                                                                           | 21.6   | 23.71   | 27.67   | 30.27   | 32.63    | 34.81    | 37.46    | 39.33     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 13.64                                                                           | 20.1   | 23.43   | 25.29   | 26.44   | 27.44    | 28.33    | 29.38    | 30.09     | Observed                     |
| 24                            | 7.69              | 13.36                                                                           | 17.97  | 20.39   | 22.95   | 24.58   | 26.03    | 27.35    | 28.93    | 30.03     | CRCM-CCSM (future)           |
| 25                            | 3.85              | 11.35                                                                           | 15.88  | 18.32   | 20.94   | 22.63   | 24.15    | 25.54    | 27.22    | 28.39     | CRCM-CCSM (historical)       |
| Gauge: 448172; Duration: 4 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 58.9                                                                            | 83.79  | 97.33   | 111.98  | 121.5   | 130.09   | 137.95   | 147.47   | 154.14    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 54.93                                                                           | 75.51  | 87.67   | 100.81  | 109.35  | 117.04   | 124.09   | 132.62   | 138.59    | HRM3-HadCM3 (future)         |
| 3                             | 88.46             | 53.15                                                                           | 69.62  | 80.09   | 91.3    | 98.54   | 105.03   | 110.96   | 118.1    | 123.09    | HRM3-HadCM3 (historical)     |
| 4                             | 84.62             | 51.81                                                                           | 67.78  | 77.3    | 87.42   | 93.91   | 99.71    | 104.97   | 111.3    | 115.71    | WRFG-CGCM3 (historical)      |
| 5                             | 80.77             | 50.08                                                                           | 65.34  | 71.67   | 81.29   | 87.47   | 93       | 98.51    | 107.42   | 114.1     | RCM3-GFDL (future)           |
| 6                             | 76.92             | 49.75                                                                           | 64.34  | 70.54   | 80.26   | 86.96   | 92.99    | 98.07    | 105.19   | 109.87    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 45.65                                                                           | 62.65  | 70.35   | 76.88   | 82.48   | 90.53    | 98.03    | 104.08   | 108.3     | WRFG-CCSM (future)           |
| 8                             | 69.23             | 44.88                                                                           | 60.35  | 69.93   | 75.37   | 80.83   | 85.1     | 89.7     | 95.22    | 99.07     | WRFG-CCSM (historical)       |
| 9                             | 65.38             | 42.68                                                                           | 57.95  | 65.63   | 74.41   | 80.06   | 84.29    | 87.38    | 91.04    | 93.79     | MM5I-CCSM (historical)       |
| 10                            | 61.54             | 41.85                                                                           | 57.39  | 64.6    | 73.79   | 78.46   | 81.14    | 84.04    | 89.67    | 93.61     | MM5I-CCSM (future)           |
| 11                            | 57.69             | 36.76                                                                           | 51.77  | 60.95   | 71.51   | 75.87   | 79.72    | 83.52    | 89.13    | 93.55     | WRFG-CGCM3 (future)          |
| 12                            | 53.85             | 33.63                                                                           | 49.68  | 59.89   | 68.63   | 74.29   | 79.38    | 83.19    | 87.31    | 90.16     | MM5I-HadCM3 (historical)     |
| 13                            | 50.00             | 33.22                                                                           | 47.19  | 55.23   | 64.91   | 71.31   | 77.14    | 82.54    | 86.31    | 88.21     | MM5I-HadCM3 (future)         |
| 14                            | 46.15             | 32.31                                                                           | 46.48  | 54.79   | 63      | 68.33   | 73.13    | 77.53    | 82.86    | 86.6      | RCM3-CGCM3 (future)          |
| 15                            | 42.31             | 31.33                                                                           | 45.71  | 52.08   | 58.84   | 64.43   | 69.87    | 74.92    | 81.11    | 85.49     | RCM3-GFDL (historical)       |
| 16                            | 38.46             | 30.97                                                                           | 42.64  | 49.5    | 58.47   | 63.17   | 67.04    | 70.55    | 74.78    | 77.71     | ECP2-GFDL (future)           |
| 17                            | 34.62             | 30.72                                                                           | 41.42  | 47.99   | 53.59   | 57.14   | 60.3     | 63.15    | 66.56    | 68.92     | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 30.31                                                                           | 40.18  | 45.29   | 50.67   | 54.08   | 57.12    | 59.86    | 63.14    | 65.42     | RCM3-CGCM3 (historical)      |
| 19                            | 26.92             | 27.45                                                                           | 39.96  | 44.31   | 48.81   | 51.64   | 54.13    | 56.37    | 59.03    | 60.86     | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 27.24                                                                           | 36.21  | 40.74   | 45.48   | 48.5    | 51.17    | 53.58    | 56.47    | 58.47     | ECP2-GFDL (historical)       |
| 21                            | 19.23             | 18.49                                                                           | 25.11  | 28.6    | 32.29   | 34.66   | 36.78    | 38.7     | 41       | 42.61     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 13.2                                                                            | 19.5   | 23.02   | 26.89   | 29.43   | 31.75    | 33.88    | 36.48    | 38.31     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 12.92                                                                           | 17.4   | 19.74   | 22.22   | 23.8    | 25.21    | 26.49    | 28.03    | 29.09     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 11.01                                                                           | 15.37  | 17.72   | 20.23   | 21.86   | 23.32    | 24.65    | 26.25    | 27.38     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 10.93                                                                           | 13.24  | 14.36   | 15.49   | 16.19   | 16.8     | 17.34    | 17.98    | 18.42     | Observed                     |
| Gauge: 448172; Duration: 6 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 37.64                                                                           | 53.35  | 61.88   | 71.08   | 77.06   | 82.44    | 87.37    | 93.33    | 97.51     | HRM3-GFDL (future)           |
| 2                              | 92.31             | 35.1                                                                            | 48.1   | 55.75   | 63.99   | 69.35   | 74.16    | 78.57    | 83.91    | 87.64     | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 34                                                                              | 44.39  | 50.98   | 58.02   | 62.56   | 66.63    | 70.34    | 74.81    | 77.93     | HRM3-HadCM3 (historical)     |
| 4                              | 84.62             | 33.13                                                                           | 43.22  | 49.21   | 55.56   | 59.63   | 63.26    | 66.55    | 70.51    | 73.27     | WRFG-CGCM3 (historical)      |
| 5                              | 80.77             | 32.06                                                                           | 41.67  | 45.65   | 51.69   | 55.56   | 59.02    | 62.43    | 67.77    | 71.9      | RCM3-GFDL (future)           |
| 6                              | 76.92             | 31.85                                                                           | 41.03  | 44.93   | 51.02   | 55.21   | 58.99    | 62.16    | 66.6     | 69.52     | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 29.27                                                                           | 39.98  | 44.82   | 48.92   | 52.3    | 57.3     | 61.98    | 65.95    | 68.58     | WRFG-CCSM (future)           |
| 8                              | 69.23             | 28.75                                                                           | 38.53  | 44.54   | 47.98   | 51.41   | 54.06    | 56.93    | 60.38    | 62.79     | WRFG-CCSM (historical)       |
| 9                              | 65.38             | 27.39                                                                           | 37     | 41.85   | 47.36   | 50.89   | 53.58    | 55.52    | 57.81    | 59.39     | WRFG-CGCM3 (future)          |
| 10                             | 61.54             | 26.86                                                                           | 36.66  | 41.19   | 46.89   | 49.92   | 51.61    | 53.31    | 56.82    | 59.27     | MM5I-CCSM (future)           |
| 11                             | 57.69             | 23.65                                                                           | 33.11  | 38.87   | 45.53   | 48.27   | 50.69    | 53.1     | 56.34    | 59.22     | MM5I-CCSM (historical)       |
| 12                             | 53.85             | 21.65                                                                           | 31.81  | 38.21   | 43.68   | 47.22   | 50.41    | 52.86    | 55.44    | 57.23     | MM5I-HadCM3 (historical)     |
| 13                             | 50.00             | 21.41                                                                           | 30.22  | 35.26   | 41.3    | 45.28   | 48.91    | 52.25    | 54.85    | 56.05     | MM5I-HadCM3 (future)         |
| 14                             | 46.15             | 20.82                                                                           | 29.77  | 34.98   | 40.12   | 43.45   | 46.44    | 49.18    | 52.5     | 54.82     | RCM3-CGCM3 (future)          |
| 15                             | 42.31             | 20.19                                                                           | 29.26  | 33.26   | 37.49   | 40.92   | 44.29    | 47.42    | 51.24    | 53.94     | RCM3-GFDL (historical)       |
| 16                             | 38.46             | 20                                                                              | 27.33  | 31.63   | 37.22   | 40.2    | 42.61    | 44.8     | 47.43    | 49.25     | ECP2-GFDL (future)           |
| 17                             | 34.62             | 19.85                                                                           | 26.57  | 30.68   | 34.19   | 36.41   | 38.38    | 40.16    | 42.28    | 43.75     | ECP2-HadCM3 (future)         |
| 18                             | 30.77             | 19.56                                                                           | 25.78  | 28.99   | 32.35   | 34.48   | 36.38    | 38.09    | 40.13    | 41.54     | RCM3-CGCM3 (historical)      |
| 19                             | 26.92             | 17.75                                                                           | 25.62  | 28.35   | 31.17   | 32.94   | 34.5     | 35.89    | 37.55    | 38.69     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 17.65                                                                           | 23.27  | 26.11   | 29.08   | 30.96   | 32.62    | 34.13    | 35.92    | 37.17     | ECP2-GFDL (historical)       |
| 21                             | 19.23             | 12.1                                                                            | 16.26  | 18.43   | 20.73   | 22.2    | 23.5     | 24.69    | 26.11    | 27.09     | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 8.75                                                                            | 12.71  | 14.89   | 17.27   | 18.83   | 20.24    | 21.54    | 23.11    | 24.22     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 8.57                                                                            | 11.37  | 12.83   | 14.36   | 15.34   | 16.21    | 16.99    | 17.93    | 18.58     | CRCM-CCSM (future)           |
| 24                             | 7.69              | 7.36                                                                            | 10.1   | 11.55   | 13.09   | 14.09   | 14.97    | 15.78    | 16.76    | 17.43     | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 6.61                                                                            | 7.59   | 8.05    | 8.5     | 8.77    | 9.01     | 9.22     | 9.46     | 9.63      | Observed                     |
| Gauge: 448172; Duration: 12 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr (x ≤ X)      | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-----------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance  | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%) | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15           | 20.41                                                                           | 28.75  | 33.26   | 38.11   | 41.26   | 44.09    | 46.67    | 49.8     | 51.99     | HRM3-GFDL (future)           |
| 2                              | 92.31           | 19.03                                                                           | 25.96  | 30      | 34.35   | 37.17   | 39.71    | 42.02    | 44.82    | 46.77     | HRM3-HadCM3 (future)         |
| 3                              | 88.46           | 18.47                                                                           | 23.97  | 27.45   | 31.16   | 33.55   | 35.68    | 37.63    | 39.97    | 41.6      | HRM3-HadCM3 (historical)     |
| 4                              | 84.62           | 17.99                                                                           | 23.36  | 26.52   | 29.87   | 32.01   | 33.91    | 35.64    | 37.72    | 39.16     | WRFG-CGCM3 (historical)      |
| 5                              | 80.77           | 17.43                                                                           | 22.52  | 24.62   | 27.8    | 29.84   | 31.65    | 33.41    | 36.03    | 38.16     | RCM3-GFDL (future)           |
| 6                              | 76.92           | 17.32                                                                           | 22.18  | 24.24   | 27.44   | 29.63   | 31.61    | 33.3     | 35.58    | 37.1      | HRM3-GFDL (historical)       |
| 7                              | 73.08           | 15.94                                                                           | 21.63  | 24.19   | 26.35   | 28.03   | 30.62    | 33.04    | 35.29    | 36.66     | WRFG-CCSM (future)           |
| 8                              | 69.23           | 15.67                                                                           | 20.86  | 24.03   | 25.86   | 27.65   | 29.01    | 30.51    | 32.31    | 33.57     | WRFG-CCSM (historical)       |
| 9                              | 65.38           | 14.95                                                                           | 20.04  | 22.59   | 25.49   | 27.35   | 28.8     | 29.82    | 31.02    | 31.85     | WRFG-CGCM3 (future)          |
| 10                             | 61.54           | 14.66                                                                           | 19.86  | 22.25   | 25.21   | 26.89   | 27.78    | 28.57    | 30.39    | 31.67     | MM5I-CCSM (future)           |
| 11                             | 57.69           | 12.95                                                                           | 17.97  | 21.02   | 24.54   | 25.98   | 27.25    | 28.56    | 30.08    | 31.57     | MM5I-CCSM (historical)       |
| 12                             | 53.85           | 11.9                                                                            | 17.31  | 20.66   | 23.53   | 25.38   | 27.05    | 28.39    | 29.75    | 30.68     | MM5I-HadCM3 (historical)     |
| 13                             | 50.00           | 11.77                                                                           | 16.43  | 19.09   | 22.25   | 24.33   | 26.22    | 27.96    | 29.49    | 30.12     | MM5I-HadCM3 (future)         |
| 14                             | 46.15           | 11.44                                                                           | 16.2   | 18.94   | 21.63   | 23.36   | 24.92    | 26.35    | 28.06    | 29.26     | RCM3-CGCM3 (future)          |
| 15                             | 42.31           | 11.1                                                                            | 15.92  | 18.02   | 20.23   | 22.01   | 23.76    | 25.37    | 27.34    | 28.73     | RCM3-GFDL (historical)       |
| 16                             | 38.46           | 11.02                                                                           | 14.89  | 17.16   | 20.08   | 21.64   | 22.9     | 24.04    | 25.4     | 26.35     | ECP2-GFDL (future)           |
| 17                             | 34.62           | 10.96                                                                           | 14.51  | 16.65   | 18.49   | 19.65   | 20.68    | 21.61    | 22.71    | 23.47     | ECP2-HadCM3 (future)         |
| 18                             | 30.77           | 10.76                                                                           | 14.05  | 15.74   | 17.5    | 18.61   | 19.6     | 20.48    | 21.54    | 22.28     | RCM3-CGCM3 (historical)      |
| 19                             | 26.92           | 9.8                                                                             | 13.98  | 15.41   | 16.89   | 17.81   | 18.62    | 19.35    | 20.21    | 20.8      | ECP2-HadCM3 (historical)     |
| 20                             | 23.08           | 9.77                                                                            | 12.72  | 14.21   | 15.76   | 16.74   | 17.6     | 18.38    | 19.31    | 19.96     | ECP2-GFDL (historical)       |
| 21                             | 19.23           | 6.8                                                                             | 8.99   | 10.13   | 11.32   | 12.07   | 12.74    | 13.35    | 14.08    | 14.58     | CRCM-CGCM3 (future)          |
| 22                             | 15.38           | 5.03                                                                            | 7.12   | 8.25    | 9.48    | 10.27   | 10.98    | 11.64    | 12.43    | 12.98     | CRCM-CGCM3 (historical)      |
| 23                             | 11.54           | 4.92                                                                            | 6.4    | 7.15    | 7.94    | 8.44    | 8.88     | 9.28     | 9.75     | 10.08     | CRCM-CCSM (future)           |
| 24                             | 7.69            | 4.28                                                                            | 5.71   | 6.46    | 7.24    | 7.74    | 8.19     | 8.59     | 9.07     | 9.4       | CRCM-CCSM (historical)       |
| 25                             | 3.85            | 3.66                                                                            | 4.1    | 4.3     | 4.5     | 4.62    | 4.72     | 4.81     | 4.91     | 4.98      | Observed                     |
| Gauge: 448172; Duration: 24 hr |                 | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 10.85                                                                           | 15.2   | 17.55   | 20.06   | 21.69   | 23.16    | 24.49    | 26.11    | 27.24     | HRM3-GFDL (future)           |
| 2                              | 92.31             | 10.11                                                                           | 13.75  | 15.85   | 18.1    | 19.56   | 20.87    | 22.06    | 23.51    | 24.51     | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 9.84                                                                            | 12.71  | 14.52   | 16.44   | 17.68   | 18.78    | 19.78    | 20.99    | 21.83     | HRM3-HadCM3 (historical)     |
| 4                              | 84.62             | 9.57                                                                            | 12.38  | 14.02   | 15.76   | 16.86   | 17.85    | 18.74    | 19.81    | 20.55     | WRFG-CGCM3 (historical)      |
| 5                              | 80.77             | 9.29                                                                            | 11.93  | 13.03   | 14.68   | 15.73   | 16.67    | 17.58    | 18.86    | 19.94     | RCM3-GFDL (future)           |
| 6                              | 76.92             | 9.23                                                                            | 11.76  | 12.83   | 14.49   | 15.63   | 16.65    | 17.52    | 18.7     | 19.48     | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 8.51                                                                            | 11.48  | 12.8    | 13.93   | 14.77   | 16.1     | 17.33    | 18.55    | 19.26     | WRFG-CCSM (future)           |
| 8                              | 69.23             | 8.36                                                                            | 11.08  | 12.73   | 13.68   | 14.61   | 15.27    | 16.04    | 16.96    | 17.61     | WRFG-CCSM (historical)       |
| 9                              | 65.38             | 7.99                                                                            | 10.64  | 11.96   | 13.46   | 14.42   | 15.2     | 15.73    | 16.36    | 16.79     | WRFG-CGCM3 (future)          |
| 10                             | 61.54             | 7.84                                                                            | 10.55  | 11.79   | 13.32   | 14.21   | 14.67    | 15.08    | 15.95    | 16.6      | MM5I-CCSM (future)           |
| 11                             | 57.69             | 6.94                                                                            | 9.56   | 11.16   | 12.98   | 13.73   | 14.38    | 15.01    | 15.75    | 16.5      | MM5I-CCSM (historical)       |
| 12                             | 53.85             | 6.39                                                                            | 9.23   | 10.95   | 12.43   | 13.38   | 14.24    | 14.97    | 15.68    | 16.16     | MM5I-HadCM3 (historical)     |
| 13                             | 50.00             | 6.32                                                                            | 8.75   | 10.13   | 11.75   | 12.82   | 13.78    | 14.67    | 15.56    | 15.89     | MM5I-HadCM3 (future)         |
| 14                             | 46.15             | 6.14                                                                            | 8.64   | 10.05   | 11.44   | 12.33   | 13.13    | 13.87    | 14.75    | 15.36     | RCM3-CGCM3 (future)          |
| 15                             | 42.31             | 5.97                                                                            | 8.49   | 9.58    | 10.72   | 11.6    | 12.49    | 13.32    | 14.32    | 15.02     | RCM3-GFDL (historical)       |
| 16                             | 38.46             | 5.94                                                                            | 7.94   | 9.12    | 10.62   | 11.45   | 12.1     | 12.69    | 13.39    | 13.88     | ECP2-GFDL (future)           |
| 17                             | 34.62             | 5.91                                                                            | 7.75   | 8.85    | 9.8     | 10.4    | 10.93    | 11.4     | 11.97    | 12.36     | ECP2-HadCM3 (future)         |
| 18                             | 30.77             | 5.8                                                                             | 7.51   | 8.38    | 9.29    | 9.86    | 10.36    | 10.82    | 11.36    | 11.74     | RCM3-CGCM3 (historical)      |
| 19                             | 26.92             | 5.29                                                                            | 7.46   | 8.21    | 8.97    | 9.45    | 9.87     | 10.24    | 10.69    | 10.99     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 5.29                                                                            | 6.81   | 7.58    | 8.38    | 8.89    | 9.33     | 9.73     | 10.21    | 10.54     | ECP2-GFDL (historical)       |
| 21                             | 19.23             | 3.72                                                                            | 4.86   | 5.45    | 6.06    | 6.44    | 6.78     | 7.09     | 7.46     | 7.72      | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 2.8                                                                             | 3.88   | 4.46    | 5.08    | 5.47    | 5.83     | 6.16     | 6.55     | 6.82      | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 2.73                                                                            | 3.49   | 3.87    | 4.27    | 4.52    | 4.74     | 4.94     | 5.18     | 5.34      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 2.41                                                                            | 3.14   | 3.52    | 3.92    | 4.17    | 4.39     | 4.59     | 4.82     | 4.99      | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.9                                                                             | 2.1    | 2.19    | 2.29    | 2.34    | 2.39     | 2.43     | 2.48     | 2.51      | Observed                     |
| Gauge: 448172; Duration: 48 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 7.2                                                                             | 10.05  | 11.58   | 13.23   | 14.29   | 15.24    | 16.11    | 17.16    | 17.89     | HRM3-GFDL (future)           |
| 2                              | 92.31             | 6.71                                                                            | 9.09   | 10.46   | 11.93   | 12.87   | 13.72    | 14.49    | 15.43    | 16.08     | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 6.54                                                                            | 8.4    | 9.58    | 10.83   | 11.63   | 12.34    | 12.99    | 13.78    | 14.32     | HRM3-HadCM3 (historical)     |
| 4                              | 84.62             | 6.36                                                                            | 8.19   | 9.26    | 10.39   | 11.11   | 11.74    | 12.32    | 13.01    | 13.49     | WRF3-CGCM3 (historical)      |
| 5                              | 80.77             | 6.17                                                                            | 7.9    | 8.61    | 9.68    | 10.36   | 10.97    | 11.53    | 12.33    | 13.03     | RCM3-GFDL (future)           |
| 6                              | 76.92             | 6.14                                                                            | 7.79   | 8.49    | 9.54    | 10.28   | 10.93    | 11.52    | 12.25    | 12.75     | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 5.67                                                                            | 7.6    | 8.47    | 9.2     | 9.71    | 10.57    | 11.36    | 12.17    | 12.63     | WRF3-CCSM (future)           |
| 8                              | 69.23             | 5.57                                                                            | 7.33   | 8.4     | 9.03    | 9.65    | 10.07    | 10.58    | 11.18    | 11.59     | WRF3-CCSM (historical)       |
| 9                              | 65.38             | 5.33                                                                            | 7.06   | 7.92    | 8.9     | 9.52    | 10.03    | 10.38    | 10.78    | 11.06     | WRF3-CGCM3 (future)          |
| 10                             | 61.54             | 5.23                                                                            | 7      | 7.8     | 8.78    | 9.38    | 9.68     | 9.94     | 10.47    | 10.89     | MM5I-CCSM (future)           |
| 11                             | 57.69             | 4.64                                                                            | 6.35   | 7.39    | 8.57    | 9.05    | 9.48     | 9.87     | 10.35    | 10.84     | MM5I-CCSM (historical)       |
| 12                             | 53.85             | 4.28                                                                            | 6.14   | 7.25    | 8.21    | 8.82    | 9.37     | 9.86     | 10.31    | 10.62     | MM5I-HadCM3 (historical)     |
| 13                             | 50.00             | 4.23                                                                            | 5.81   | 6.72    | 7.77    | 8.46    | 9.09     | 9.66     | 10.26    | 10.47     | MM5I-HadCM3 (future)         |
| 14                             | 46.15             | 4.11                                                                            | 5.75   | 6.65    | 7.55    | 8.12    | 8.64     | 9.11     | 9.67     | 10.06     | RCM3-CGCM3 (future)          |
| 15                             | 42.31             | 4                                                                               | 5.64   | 6.35    | 7.09    | 7.67    | 8.25     | 8.77     | 9.42     | 9.87      | RCM3-GFDL (historical)       |
| 16                             | 38.46             | 3.98                                                                            | 5.29   | 6.06    | 7.03    | 7.56    | 7.98     | 8.36     | 8.81     | 9.12      | ECP2-GFDL (future)           |
| 17                             | 34.62             | 3.98                                                                            | 5.17   | 5.88    | 6.49    | 6.88    | 7.22     | 7.53     | 7.9      | 8.15      | ECP2-HadCM3 (future)         |
| 18                             | 30.77             | 3.88                                                                            | 5      | 5.57    | 6.16    | 6.54    | 6.87     | 7.16     | 7.52     | 7.76      | RCM3-CGCM3 (historical)      |
| 19                             | 26.92             | 3.56                                                                            | 4.98   | 5.46    | 5.95    | 6.26    | 6.53     | 6.77     | 7.05     | 7.25      | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 3.56                                                                            | 4.55   | 5.06    | 5.58    | 5.9     | 6.19     | 6.45     | 6.76     | 6.97      | ECP2-GFDL (historical)       |
| 21                             | 19.23             | 2.53                                                                            | 3.27   | 3.65    | 4.04    | 4.29    | 4.51     | 4.7      | 4.94     | 5.1       | CRCM-CGCM3 (future)          |
| 22                             | 15.38             | 1.92                                                                            | 2.63   | 3       | 3.39    | 3.65    | 3.87     | 4.08     | 4.33     | 4.5       | CRCM-CGCM3 (historical)      |
| 23                             | 11.54             | 1.88                                                                            | 2.38   | 2.63    | 2.89    | 3.05    | 3.19     | 3.32     | 3.47     | 3.57      | CRCM-CCSM (future)           |
| 24                             | 7.69              | 1.67                                                                            | 2.14   | 2.39    | 2.64    | 2.8     | 2.94     | 3.06     | 3.21     | 3.31      | CRCM-CCSM (historical)       |
| 25                             | 3.85              | 1.44                                                                            | 1.61   | 1.69    | 1.76    | 1.81    | 1.85     | 1.88     | 1.92     | 1.95      | Observed                     |
| Gauge: 448172; Duration: 72 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 272.1                                                                           | 371    | 436.48  | 519.21  | 580.59  | 641.51   | 702.21   | 782.3    | 842.82    | HRM3-GFDL (future)           |
| 2                               | 92.31             | 263.59                                                                          | 346.6  | 401.56  | 471     | 522.52  | 579.11   | 647.04   | 736.67   | 804.41    | RCM3-GFDL (historical)       |
| 3                               | 88.46             | 259.69                                                                          | 321.34 | 362.16  | 442.23  | 510.92  | 573.65   | 624.6    | 691.82   | 742.62    | HRM3-HadCM3 (future)         |
| 4                               | 84.62             | 243.82                                                                          | 301.46 | 353.79  | 429.81  | 486.22  | 542.2    | 597.98   | 671.58   | 727.2     | RCM3-CGCM3 (future)          |
| 5                               | 80.77             | 241.15                                                                          | 301.27 | 349.63  | 413.73  | 451.99  | 489.97   | 527.81   | 578.61   | 619.39    | HRM3-GFDL (historical)       |
| 6                               | 76.92             | 237.56                                                                          | 298.82 | 345.58  | 401.33  | 442.69  | 483.74   | 524.64   | 577.73   | 615.46    | WRFG-CGCM3 (future)          |
| 7                               | 73.08             | 234.82                                                                          | 293.61 | 339.38  | 390.62  | 428.64  | 466.38   | 503.98   | 553.58   | 591.07    | HRM3-HadCM3 (historical)     |
| 8                               | 69.23             | 226.51                                                                          | 286.03 | 339.31  | 387.37  | 423.03  | 458.42   | 493.68   | 540.2    | 575.36    | WRFG-CCSM (future)           |
| 9                               | 65.38             | 226.19                                                                          | 282.79 | 320.26  | 367.6   | 402.72  | 437.59   | 472.32   | 518.15   | 552.78    | MM5I-HadCM3 (historical)     |
| 10                              | 61.54             | 213.69                                                                          | 280.21 | 315.76  | 360.68  | 394.16  | 429.8    | 465.31   | 512.16   | 549.37    | Observed                     |
| 11                              | 57.69             | 202.73                                                                          | 276.35 | 315.74  | 358.25  | 394     | 427.08   | 460.03   | 503.51   | 549.37    | Observed                     |
| 12                              | 53.85             | 196.12                                                                          | 271.55 | 309.85  | 353.28  | 381.13  | 408.77   | 440.51   | 500.19   | 547.57    | WRFG-CCSM (historical)       |
| 13                              | 50.00             | 182.18                                                                          | 247.1  | 280.85  | 325.13  | 363.83  | 402.24   | 436.32   | 500.19   | 536.38    | WRFG-CGCM3 (historical)      |
| 14                              | 46.15             | 172.56                                                                          | 231.68 | 272.96  | 323.5   | 355.14  | 388.68   | 435.12   | 491      | 529.17    | MM5I-CCSM (historical)       |
| 15                              | 42.31             | 169.32                                                                          | 228.45 | 259.21  | 311.45  | 350.21  | 386.55   | 435.12   | 477.59   | 515.81    | RCM3-CGCM3 (historical)      |
| 16                              | 38.46             | 165.66                                                                          | 218.48 | 259.09  | 309.8   | 347.61  | 385.8    | 427.02   | 472.66   | 509.18    | RCM3-GFDL (future)           |
| 17                              | 34.62             | 157.55                                                                          | 217.86 | 258.82  | 297.8   | 336.3   | 385.8    | 422.55   | 471.89   | 500.12    | MM5I-HadCM3 (future)         |
| 18                              | 30.77             | 155.4                                                                           | 209.97 | 234.73  | 286.43  | 336.3   | 385.15   | 417.84   | 459.12   | 490.32    | MM5I-CCSM (future)           |
| 19                              | 26.92             | 151.05                                                                          | 197.32 | 227.96  | 286.43  | 326.52  | 355.02   | 383.42   | 420.89   | 449.21    | ECP2-HadCM3 (future)         |
| 20                              | 23.08             | 114.45                                                                          | 166    | 219.21  | 266.67  | 295.39  | 323.89   | 352.29   | 389.76   | 418.08    | ECP2-GFDL (historical)       |
| 21                              | 19.23             | 93.35                                                                           | 166    | 219.21  | 266.03  | 289.24  | 312.29   | 335.25   | 365.54   | 388.43    | ECP2-HadCM3 (historical)     |
| 22                              | 15.38             | 91.53                                                                           | 137.37 | 152.55  | 171.73  | 189.11  | 208.38   | 227.58   | 252.91   | 272.06    | CRCM-CGCM3 (historical)      |
| 23                              | 11.54             | 85.65                                                                           | 122.81 | 143.52  | 169.69  | 185.96  | 200.08   | 214.15   | 232.71   | 248.74    | CRCM-CCSM (future)           |
| 24                              | 7.69              | 85.65                                                                           | 120.27 | 138.1   | 160.63  | 177.34  | 193.93   | 210.45   | 232.26   | 246.74    | CRCM-CGCM3 (future)          |
| 25                              | 3.85              | 77.01                                                                           | 102.12 | 118.74  | 139.75  | 155.33  | 170.79   | 186.2    | 206.53   | 221.9     | CRCM-CCSM (historical)       |
| Gauge: 449159; Duration: 15 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 223.81                                                                          | 325.22 | 392.36  | 477.2   | 540.13  | 602.6    | 664.84   | 746.96   | 809.02    | HRM3-GFDL (future)           |
| 2                               | 92.31             | 214.86                                                                          | 298.05 | 353.12  | 422.71  | 483.56  | 554.65   | 625.47   | 718.92   | 789.54    | RCM3-GFDL (historical)       |
| 3                               | 88.46             | 209.75                                                                          | 271.6  | 315.41  | 411.94  | 474.34  | 525.58   | 576.64   | 644      | 694.91    | HRM3-HadCM3 (future)         |
| 4                               | 84.62             | 194.57                                                                          | 251.13 | 312.55  | 378.08  | 432.72  | 486.95   | 540.99   | 612.27   | 666.15    | RCM3-CGCM3 (future)          |
| 5                               | 80.77             | 191.52                                                                          | 250.57 | 304.44  | 364.29  | 402.68  | 440.78   | 478.74   | 528.83   | 566.68    | WRFG-CGCM3 (future)          |
| 6                               | 76.92             | 188.79                                                                          | 248.36 | 293.87  | 347.88  | 387.94  | 427.71   | 467.33   | 519.61   | 559.11    | HRM3-GFDL (historical)       |
| 7                               | 73.08             | 186.57                                                                          | 246.15 | 287.8   | 337.64  | 374.61  | 411.31   | 447.87   | 496.11   | 532.57    | HRM3-HadCM3 (historical)     |
| 8                               | 69.23             | 177.95                                                                          | 239    | 287.65  | 334.5   | 369.26  | 403.75   | 438.13   | 483.48   | 517.75    | WRFG-CCSM (future)           |
| 9                               | 65.38             | 177.74                                                                          | 234.77 | 268.97  | 314.89  | 348.95  | 382.76   | 416.45   | 460.9    | 494.49    | MM5I-HadCM3 (historical)     |
| 10                              | 61.54             | 165.96                                                                          | 232.63 | 264.13  | 307.51  | 341.64  | 376.33   | 410.9    | 456.51   | 490.97    | WRFG-CCSM (historical)       |
| 11                              | 57.69             | 158.11                                                                          | 229.8  | 263.39  | 306.69  | 339.68  | 371.62   | 403.45   | 445.43   | 477.16    | WRFG-CGCM3 (historical)      |
| 12                              | 53.85             | 149.72                                                                          | 222.28 | 259.57  | 299.57  | 326.4   | 353.04   | 379.58   | 424.48   | 459.86    | MM5I-CCSM (historical)       |
| 13                              | 50.00             | 136.93                                                                          | 197.68 | 229.44  | 270.71  | 306.59  | 342.19   | 377.67   | 414.6    | 446.4     | RCM3-GFDL (future)           |
| 14                              | 46.15             | 128.05                                                                          | 184.08 | 222.35  | 269.57  | 299.34  | 329.67   | 364.87   | 411.31   | 441.74    | RCM3-CGCM3 (historical)      |
| 15                              | 42.31             | 126.28                                                                          | 179.69 | 210.79  | 258.76  | 294.35  | 328.89   | 361.07   | 407.02   | 441.06    | MM5I-HadCM3 (future)         |
| 16                              | 38.46             | 123.6                                                                           | 172.82 | 208.6   | 256.07  | 291.28  | 326.24   | 358.33   | 397.18   | 426.53    | MM5I-CCSM (future)           |
| 17                              | 34.62             | 115.47                                                                          | 171.03 | 208     | 243.76  | 270.3   | 296.64   | 322.88   | 357.5    | 383.66    | ECP2-HadCM3 (future)         |
| 18                              | 30.77             | 114.28                                                                          | 161.81 | 184.16  | 214.11  | 240.11  | 265.92   | 291.64   | 325.57   | 351.21    | ECP2-GFDL (historical)       |
| 19                              | 26.92             | 109.42                                                                          | 151.32 | 179.06  | 212.4   | 233.35  | 254.14   | 274.86   | 302.2    | 322.86    | ECP2-HadCM3 (historical)     |
| 20                              | 23.08             | 77.97                                                                           | 96.68  | 112.98  | 143.5   | 166.15  | 188.63   | 211.02   | 240.57   | 262.9     | Observed                     |
| 21                              | 19.23             | 61.19                                                                           | 88.82  | 112.98  | 143.5   | 166.15  | 188.63   | 211.02   | 240.57   | 262.9     | Observed                     |
| 22                              | 15.38             | 59.97                                                                           | 88.82  | 109.07  | 124.72  | 139.19  | 154.84   | 170.43   | 191      | 206.54    | CRCM-CGCM3 (historical)      |
| 23                              | 11.54             | 52.33                                                                           | 85.37  | 102.18  | 123.43  | 136.33  | 147.85   | 159.34   | 174.49   | 186.65    | CRCM-CCSM (future)           |
| 24                              | 7.69              | 52.33                                                                           | 82.93  | 97.32   | 115.51  | 129     | 142.39   | 155.74   | 173.34   | 185.94    | CRCM-CGCM3 (future)          |
| 25                              | 3.85              | 48.81                                                                           | 67.79  | 80.36   | 96.24   | 108.02  | 119.72   | 131.37   | 146.74   | 158.36    | CRCM-CCSM (historical)       |
| Gauge: 449159; Duration: 30 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                            | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|---------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                 | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                 | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                               | 96.15             | 170.5                                                                           | 249.75 | 302.21  | 368.51  | 417.69  | 466.5    | 515.14   | 579.31   | 627.8     | HRM3-GFDL (future)           |
| 2                               | 92.31             | 163.49                                                                          | 228.29 | 271.2   | 325.41  | 375.09  | 430.79   | 486.29   | 559.51   | 614.85    | RCM3-GFDL (historical)       |
| 3                               | 88.46             | 159.39                                                                          | 207.58 | 243.33  | 318.97  | 365.63  | 405.55   | 445.32   | 497.8    | 537.46    | HRM3-HadCM3 (future)         |
| 4                               | 84.62             | 147.64                                                                          | 191.59 | 239.49  | 290.34  | 332.73  | 374.81   | 416.73   | 472.04   | 513.84    | RCM3-CGCM3 (future)          |
| 5                               | 80.77             | 145.24                                                                          | 191.11 | 233.2   | 279.8   | 309.71  | 339.4    | 368.97   | 408      | 437.49    | WRFG-CGCM3 (future)          |
| 6                               | 76.92             | 143.19                                                                          | 189.42 | 224.75  | 266.65  | 297.73  | 328.58   | 359.32   | 399.87   | 430.52    | HRM3-GFDL (historical)       |
| 7                               | 73.08             | 141.51                                                                          | 187.98 | 220.02  | 258.7   | 287.39  | 315.86   | 344.24   | 381.67   | 409.96    | HRM3-HadCM3 (historical)     |
| 8                               | 69.23             | 134.77                                                                          | 183.46 | 219.89  | 256.26  | 283.24  | 310.02   | 336.7    | 371.9    | 398.5     | WRFG-CCSM (future)           |
| 9                               | 65.38             | 134.61                                                                          | 178.75 | 205.38  | 240.99  | 267.42  | 293.65   | 319.78   | 354.26   | 380.32    | MM5I-HadCM3 (historical)     |
| 10                              | 61.54             | 125.51                                                                          | 177.19 | 201.59  | 235.22  | 261.85  | 288.77   | 315.6    | 350.99   | 377.74    | WRFG-CCSM (historical)       |
| 11                              | 57.69             | 119.68                                                                          | 174.97 | 200.94  | 234.72  | 260.17  | 284.93   | 309.6    | 342.16   | 366.76    | WRFG-CGCM3 (historical)      |
| 12                              | 53.85             | 112.98                                                                          | 169.22 | 198.16  | 228.97  | 249.77  | 270.42   | 290.98   | 325.08   | 352.37    | MM5I-CCSM (historical)       |
| 13                              | 50.00             | 103.13                                                                          | 150.05 | 174.6   | 206.46  | 234.13  | 261.6    | 288.97   | 318.12   | 342.57    | RCM3-GFDL (future)           |
| 14                              | 46.15             | 96.28                                                                           | 139.63 | 169.15  | 205.61  | 228.62  | 252.32   | 279.53   | 315.43   | 338.63    | MM5I-HadCM3 (future)         |
| 15                              | 42.31             | 95.03                                                                           | 136.1  | 160.4   | 197.49  | 225.01  | 251.46   | 275.84   | 311.21   | 337.95    | RCM3-CGCM3 (historical)      |
| 16                              | 38.46             | 93.04                                                                           | 131.05 | 158.47  | 195.01  | 222.12  | 249.03   | 274.21   | 304.23   | 326.92    | MM5I-CCSM (future)           |
| 17                              | 34.62             | 86.71                                                                           | 129.55 | 157.92  | 185.5   | 205.95  | 226.26   | 246.49   | 273.18   | 293.36    | ECP2-HadCM3 (future)         |
| 18                              | 30.77             | 85.86                                                                           | 122.23 | 139.42  | 162.57  | 182.57  | 202.43   | 222.21   | 248.31   | 268.03    | ECP2-GFDL (historical)       |
| 19                              | 26.92             | 82.04                                                                           | 114.27 | 135.61  | 161.13  | 177.24  | 193.23   | 209.16   | 230.17   | 246.06    | ECP2-HadCM3 (historical)     |
| 20                              | 23.08             | 58.01                                                                           | 72.21  | 81.62   | 97.49   | 112.44  | 127.28   | 142.06   | 161.57   | 176.31    | Observed                     |
| 21                              | 19.23             | 45.31                                                                           | 63.68  | 77.33   | 97.49   | 112.44  | 127.28   | 142.06   | 161.57   | 176.31    | Observed                     |
| 22                              | 15.38             | 44.4                                                                            | 61.79  | 77.33   | 93.5    | 104.54  | 116.42   | 128.26   | 143.87   | 155.67    | CRCM-CGCM3 (historical)      |
| 23                              | 11.54             | 37.29                                                                           | 61.38  | 76.45   | 92.58   | 102.31  | 111.06   | 119.77   | 131.27   | 140.42    | CRCM-CCSM (future)           |
| 24                              | 7.69              | 37.29                                                                           | 61.38  | 72.7    | 86.49   | 96.72   | 106.87   | 116.99   | 130.33   | 139.96    | CRCM-CGCM3 (future)          |
| 25                              | 3.85              | 35.99                                                                           | 50.27  | 59.72   | 71.67   | 80.53   | 89.33    | 98.09    | 109.66   | 118.4     | CRCM-CCSM (historical)       |
| Gauge: 449159; Duration: 45 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 143.06                                                                          | 212.07 | 257.76  | 315.49  | 358.32  | 400.83   | 443.18   | 499.07   | 541.3     | HRM3-GFDL (future)           |
| 2                             | 92.31             | 136.92                                                                          | 193.09 | 230.28  | 277.27  | 323.38  | 372.11   | 420.65   | 484.7    | 533.11    | RCM3-GFDL (historical)       |
| 3                             | 88.46             | 133.23                                                                          | 175    | 208.13  | 274.3   | 312.13  | 346.73   | 381.21   | 426.69   | 461.07    | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 123.14                                                                          | 161.08 | 202.66  | 246.51  | 283.04  | 319.3    | 355.42   | 403.08   | 439.1     | RCM3-CGCM3 (future)          |
| 5                             | 80.77             | 121                                                                             | 160.61 | 197.28  | 237.61  | 263.53  | 289.26   | 314.9    | 348.73   | 374.3     | WRFG-CGCM3 (future)          |
| 6                             | 76.92             | 119.33                                                                          | 159.17 | 189.64  | 225.73  | 252.51  | 279.09   | 305.57   | 340.5    | 366.91    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 117.93                                                                          | 158.31 | 185.54  | 218.87  | 243.59  | 268.13   | 292.59   | 324.85   | 349.23    | HRM3-HadCM3 (historical)     |
| 8                             | 69.23             | 112.06                                                                          | 155.77 | 185.43  | 216.78  | 240.04  | 263.13   | 286.13   | 316.48   | 339.42    | WRFG-CCSM (future)           |
| 9                             | 65.38             | 111.93                                                                          | 149.83 | 172.89  | 203.57  | 226.33  | 248.92   | 271.43   | 301.13   | 323.58    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 104.14                                                                          | 148.61 | 169.58  | 198.53  | 221.7   | 244.92   | 268.06   | 298.58   | 321.64    | WRFG-CCSM (historical)       |
| 11                            | 57.69             | 99.45                                                                           | 146.67 | 168.92  | 198.31  | 220.01  | 241.32   | 262.57   | 290.59   | 311.77    | WRFG-CGCM3 (historical)      |
| 12                            | 53.85             | 93.45                                                                           | 141.83 | 166.78  | 193.03  | 210.92  | 228.68   | 246.37   | 274.87   | 298.19    | MM5I-CCSM (historical)       |
| 13                            | 50.00             | 85.05                                                                           | 125.21 | 146.24  | 173.5   | 197.15  | 220.63   | 244.01   | 269.72   | 290.48    | RCM3-GFDL (future)           |
| 14                            | 46.15             | 79.2                                                                            | 116.39 | 141.62  | 172.81  | 192.52  | 213.13   | 236.45   | 267.22   | 287.36    | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 78.29                                                                           | 113.2  | 134.35  | 166.14  | 189.72  | 212.08   | 232.33   | 262.45   | 285.21    | RCM3-CGCM3 (historical)      |
| 16                            | 38.46             | 76.67                                                                           | 109.19 | 132.38  | 163.5   | 186.58  | 209.5    | 231.58   | 257.3    | 276.73    | MM5I-CCSM (future)           |
| 17                            | 34.62             | 71.19                                                                           | 107.75 | 131.83  | 155.38  | 172.85  | 190.19   | 207.46   | 230.25   | 247.48    | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 70.56                                                                           | 101.26 | 115.86  | 135.7   | 152.71  | 169.6    | 186.43   | 208.63   | 225.4     | ECP2-GFDL (historical)       |
| 19                            | 26.92             | 67.21                                                                           | 94.62  | 112.77  | 134.32  | 148     | 161.59   | 175.13   | 192.99   | 206.49    | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 46.96                                                                           | 58.8   | 66.64   | 79.02   | 90.51   | 101.91   | 113.28   | 128.27   | 139.6     | Observed                     |
| 21                            | 19.23             | 36.42                                                                           | 51.77  | 63.53   | 79.02   | 90.51   | 101.91   | 113.28   | 128.27   | 139.6     | Observed                     |
| 22                            | 15.38             | 35.69                                                                           | 51.27  | 63.53   | 76.55   | 85.83   | 95.74    | 105.6    | 118.62   | 128.46    | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 32.76                                                                           | 51.27  | 62.41   | 75.86   | 83.9    | 91.19    | 98.46    | 108.05   | 115.62    | CRCM-CCSM (future)           |
| 24                            | 7.69              | 32.76                                                                           | 50.14  | 59.23   | 70.71   | 79.23   | 87.68    | 96.11    | 107.22   | 115.3     | CRCM-CGCM3 (future)          |
| 25                            | 3.85              | 28.76                                                                           | 40.51  | 48.29   | 58.12   | 65.42   | 72.66    | 79.87    | 89.39    | 96.58     | CRCM-CCSM (historical)       |
| Gauge: 449159; Duration: 1 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 106.45                                                                          | 164.93 | 203.65  | 252.56  | 288.86  | 324.88   | 360.77   | 408.12   | 447.43    | RCM3-GFDL (historical)       |
| 2                             | 92.31             | 101.2                                                                           | 147.93 | 178.87  | 224.05  | 266.42  | 308.47   | 350.37   | 405.65   | 443.91    | HRM3-GFDL (future)           |
| 3                             | 88.46             | 97.69                                                                           | 132.45 | 166.94  | 217.96  | 246.96  | 275.75   | 304.43   | 342.27   | 370.87    | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 89.57                                                                           | 121.74 | 155.46  | 191.34  | 221.11  | 250.65   | 280.09   | 318.92   | 348.27    | RCM3-CGCM3 (future)          |
| 5                             | 80.77             | 87.67                                                                           | 120.69 | 151.22  | 184.54  | 206.11  | 227.52   | 248.85   | 277      | 298.27    | WRFG-CGCM3 (future)          |
| 6                             | 76.92             | 86.59                                                                           | 120.13 | 143.93  | 173.29  | 195.08  | 216.7    | 238.25   | 266.67   | 288.15    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 85.59                                                                           | 119.47 | 140.54  | 167.69  | 187.84  | 207.83   | 227.75   | 254.04   | 273.9     | HRM3-HadCM3 (historical)     |
| 8                             | 69.23             | 80.64                                                                           | 119.05 | 140.36  | 165.93  | 184.89  | 203.72   | 222.47   | 247.22   | 265.92    | WRFG-CCSM (future)           |
| 9                             | 65.38             | 80.58                                                                           | 110.97 | 130.12  | 155.06  | 173.56  | 191.92   | 210.22   | 234.35   | 252.6     | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 74.36                                                                           | 110.39 | 127.27  | 151.21  | 170.29  | 189.24   | 208.11   | 233.02   | 251.84    | WRFG-CCSM (historical)       |
| 11                            | 57.69             | 71.51                                                                           | 108.69 | 126.4   | 150.74  | 168.16  | 185.44   | 202.66   | 225.38   | 242.55    | WRFG-CGCM3 (historical)      |
| 12                            | 53.85             | 65.94                                                                           | 105.12 | 125.48  | 145.9   | 160.36  | 174.72   | 189.02   | 209.67   | 228.08    | MM5I-CCSM (historical)       |
| 13                            | 50.00             | 59.38                                                                           | 91.27  | 108.04  | 129.64  | 148.31  | 166.84   | 185.31   | 207.89   | 224.17    | RCM3-GFDL (future)           |
| 14                            | 46.15             | 54.79                                                                           | 84.56  | 104.48  | 129.23  | 144.95  | 162.36   | 181      | 205.58   | 222.15    | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 54.48                                                                           | 81.53  | 99.41   | 124.81  | 143.65  | 160.55   | 176.09   | 198.51   | 216.28    | RCM3-CGCM3 (historical)      |
| 16                            | 38.46             | 53.47                                                                           | 79.3   | 96.93   | 121.23  | 139.26  | 157.15   | 174.98   | 196.6    | 212.1     | MM5I-CCSM (future)           |
| 17                            | 34.62             | 48.94                                                                           | 77.7   | 96.19   | 114.72  | 128.46  | 142.11   | 155.7    | 173.63   | 187.19    | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 48.65                                                                           | 71.85  | 83.14   | 98.94   | 112.14  | 125.24   | 138.3    | 155.52   | 168.54    | ECP2-GFDL (historical)       |
| 19                            | 26.92             | 45.79                                                                           | 67.06  | 81.14   | 97.41   | 107.99  | 118.5    | 128.97   | 142.78   | 153.22    | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 30.63                                                                           | 39.18  | 44.85   | 52      | 58.9    | 66.05    | 73.17    | 82.56    | 89.66     | CRCM-CGCM3 (historical)      |
| 21                            | 19.23             | 23.16                                                                           | 34.31  | 41.99   | 51.7    | 57.31   | 62.58    | 67.83    | 74.76    | 80        | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 22.7                                                                            | 33.01  | 39.52   | 47.76   | 53.87   | 59.93    | 65.98    | 73.95    | 79.97     | CRCM-CCSM (future)           |
| 23                            | 11.54             | 17.88                                                                           | 25.96  | 31.32   | 38.08   | 43.1    | 48.08    | 53.04    | 59.59    | 64.54     | CRCM-CCSM (historical)       |
| 24                            | 7.69              | 16.4                                                                            | 24.38  | 29.66   | 36.34   | 41.29   | 46.2     | 51.1     | 57.56    | 62.45     | Observed                     |
| 25                            | 3.85              | 16.4                                                                            | 24.38  | 29.66   | 36.34   | 41.29   | 46.2     | 51.1     | 57.56    | 62.45     | Observed                     |
| Gauge: 449159; Duration: 2 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 69.04                                                                           | 103.17 | 125.76  | 154.32  | 175.5   | 196.52   | 217.47   | 245.11   | 265.99    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 65.99                                                                           | 93.68  | 112.01  | 135.18  | 158.92  | 183.09   | 207.17   | 238.93   | 262.94    | RCM3-GFDL (historical)       |
| 3                             | 88.46             | 64.12                                                                           | 84.71  | 101.76  | 134.58  | 152.36  | 169.41   | 186.41   | 208.83   | 225.77    | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 59.18                                                                           | 77.84  | 98.35   | 119.9   | 137.83  | 155.63   | 173.37   | 196.77   | 214.45    | RCM3-CGCM3 (future)          |
| 5                             | 80.77             | 58.11                                                                           | 77.59  | 95.72   | 115.57  | 128.35  | 141.04   | 153.67   | 170.35   | 182.95    | WRFG-CGCM3 (future)          |
| 6                             | 76.92             | 57.32                                                                           | 76.89  | 91.86   | 109.58  | 122.73  | 135.78   | 148.78   | 165.93   | 178.9     | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 56.65                                                                           | 76.59  | 89.84   | 106.21  | 118.35  | 130.41   | 142.42   | 158.26   | 170.23    | HRM3-HadCM3 (historical)     |
| 8                             | 69.23             | 53.76                                                                           | 75.79  | 89.78   | 105.17  | 116.6   | 127.94   | 139.24   | 154.14   | 165.41    | WRFG-CCSM (future)           |
| 9                             | 65.38             | 53.69                                                                           | 72.24  | 83.61   | 98.67   | 109.85  | 120.94   | 131.98   | 146.56   | 157.58    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 49.88                                                                           | 71.7   | 81.97   | 96.17   | 107.63  | 119.03   | 130.4    | 145.39   | 156.72    | WRFG-CCSM (historical)       |
| 11                            | 57.69             | 47.69                                                                           | 70.73  | 81.6    | 96.14   | 106.71  | 117.17   | 127.59   | 141.33   | 151.72    | WRFG-CGCM3 (historical)      |
| 12                            | 53.85             | 44.66                                                                           | 68.39  | 80.65   | 93.42   | 102.19  | 110.9    | 119.57   | 133.29   | 144.67    | MM5I-CCSM (historical)       |
| 13                            | 50.00             | 40.58                                                                           | 60.2   | 70.49   | 83.8    | 95.35   | 106.81   | 118.23   | 131.01   | 141.16    | RCM3-GFDL (future)           |
| 14                            | 46.15             | 37.72                                                                           | 55.93  | 68.24   | 83.48   | 93.12   | 103.32   | 114.73   | 129.79   | 139.66    | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 37.32                                                                           | 54.31  | 64.77   | 80.32   | 91.86   | 102.69   | 112.41   | 127.09   | 138.18    | RCM3-CGCM3 (historical)      |
| 16                            | 38.46             | 36.56                                                                           | 52.46  | 63.71   | 78.87   | 90.12   | 101.28   | 112.23   | 124.81   | 134.32    | MM5I-CCSM (future)           |
| 17                            | 34.62             | 33.86                                                                           | 51.71  | 63.4    | 74.89   | 83.41   | 91.87    | 100.3    | 111.42   | 119.83    | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 33.58                                                                           | 48.44  | 55.55   | 65.25   | 73.53   | 81.75    | 89.95    | 100.75   | 108.92    | ECP2-GFDL (historical)       |
| 19                            | 26.92             | 31.91                                                                           | 45.25  | 54.09   | 64.52   | 71.18   | 77.79    | 84.37    | 93.06    | 99.63     | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 22.12                                                                           | 27.81  | 31.58   | 36.34   | 40.81   | 45.56    | 50.3     | 56.55    | 61.27     | CRCM-CGCM3 (historical)      |
| 21                            | 19.23             | 17.09                                                                           | 24.46  | 29.57   | 36.02   | 39.87   | 43.38    | 46.87    | 51.48    | 55.08     | CRCM-CCSM (future)           |
| 22                            | 15.38             | 16.75                                                                           | 23.67  | 28.03   | 33.54   | 37.62   | 41.68    | 45.72    | 51.05    | 54.97     | CRCM-CGCM3 (future)          |
| 23                            | 11.54             | 13.43                                                                           | 19.08  | 23.08   | 28.13   | 31.88   | 35.59    | 39.3     | 44.19    | 47.88     | Observed                     |
| 24                            | 7.69              | 13.05                                                                           | 19.08  | 23.08   | 28.13   | 31.88   | 35.59    | 39.3     | 44.19    | 47.88     | Observed                     |
| 25                            | 3.85              | 13.05                                                                           | 19.02  | 22.73   | 27.41   | 30.88   | 34.33    | 37.76    | 42.29    | 45.71     | CRCM-CCSM (historical)       |
| Gauge: 449159; Duration: 3 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 54.81                                                                           | 81.25  | 98.75   | 120.87  | 137.28  | 153.57   | 169.8    | 191.21   | 207.39    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 52.46                                                                           | 73.98  | 88.23   | 106.23  | 123.9   | 142.57   | 161.17   | 185.71   | 204.25    | RCM3-GFDL (historical)       |
| 3                             | 88.46             | 51.04                                                                           | 67.04  | 79.75   | 105.1   | 119.58  | 132.84   | 146.05   | 163.47   | 176.64    | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 47.17                                                                           | 61.7   | 77.64   | 94.43   | 108.42  | 122.31   | 136.14   | 154.4    | 168.2     | RCM3-CGCM3 (future)          |
| 5                             | 80.77             | 46.36                                                                           | 61.53  | 75.57   | 91.02   | 100.96  | 110.82   | 120.64   | 133.6    | 143.39    | WRF3-CGCM3 (future)          |
| 6                             | 76.92             | 45.71                                                                           | 60.98  | 72.65   | 86.47   | 96.73   | 106.91   | 117.05   | 130.43   | 140.55    | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 45.18                                                                           | 60.64  | 71.08   | 83.85   | 93.32   | 102.72   | 112.09   | 124.45   | 133.79    | HRM3-HadCM3 (historical)     |
| 8                             | 69.23             | 42.94                                                                           | 59.68  | 71.04   | 83.05   | 91.97   | 100.81   | 109.63   | 121.25   | 130.04    | WRF3-CCSM (future)           |
| 9                             | 65.38             | 42.89                                                                           | 57.4   | 66.24   | 78      | 86.72   | 95.37    | 104      | 115.38   | 123.98    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 39.9                                                                            | 56.94  | 64.97   | 76.06   | 84.94   | 93.83    | 102.7    | 114.39   | 123.23    | WRF3-CCSM (historical)       |
| 11                            | 57.69             | 38.1                                                                            | 56.19  | 64.72   | 75.98   | 84.29   | 92.45    | 100.59   | 111.32   | 119.43    | WRF3-CGCM3 (historical)      |
| 12                            | 53.85             | 35.8                                                                            | 54.34  | 63.9    | 73.96   | 80.81   | 87.62    | 94.4     | 105.3    | 114.24    | MM5I-CCSM (historical)       |
| 13                            | 50.00             | 32.59                                                                           | 47.97  | 56.02   | 66.47   | 75.53   | 84.52    | 93.48    | 103.34   | 111.27    | RCM3-GFDL (future)           |
| 14                            | 46.15             | 30.34                                                                           | 44.59  | 54.25   | 66.2    | 73.76   | 81.64    | 90.58    | 102.36   | 110.1     | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 29.99                                                                           | 43.37  | 51.47   | 63.64   | 72.68   | 81.25    | 89.02    | 100.57   | 109.29    | RCM3-CGCM3 (historical)      |
| 16                            | 38.46             | 29.38                                                                           | 41.83  | 50.72   | 62.65   | 71.49   | 80.28    | 88.72    | 98.58    | 106.02    | MM5I-CCSM (future)           |
| 17                            | 34.62             | 27.28                                                                           | 41.29  | 50.51   | 59.53   | 66.22   | 72.86    | 79.48    | 88.21    | 94.8      | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 27.03                                                                           | 38.79  | 44.38   | 51.98   | 58.5    | 64.96    | 71.41    | 79.91    | 86.33     | ECP2-GFDL (historical)       |
| 19                            | 26.92             | 25.75                                                                           | 36.25  | 43.2    | 51.45   | 56.69   | 61.9     | 67.08    | 73.92    | 79.09     | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 17.99                                                                           | 22.53  | 25.54   | 29.34   | 32.89   | 36.68    | 40.46    | 45.45    | 49.22     | CRCM-CGCM3 (historical)      |
| 21                            | 19.23             | 13.95                                                                           | 19.83  | 23.91   | 29.07   | 32.15   | 34.95    | 37.74    | 41.42    | 44.3      | CRCM-CCSM (future)           |
| 22                            | 15.38             | 13.68                                                                           | 19.21  | 22.69   | 27.09   | 30.35   | 33.59    | 36.82    | 41.08    | 44.2      | CRCM-CGCM3 (future)          |
| 23                            | 11.54             | 11.01                                                                           | 15.51  | 18.49   | 22.25   | 25.05   | 27.82    | 30.58    | 34.22    | 36.97     | CRCM-CCSM (historical)       |
| 24                            | 7.69              | 10.94                                                                           | 15.18  | 17.99   | 21.54   | 24.17   | 26.79    | 29.39    | 32.82    | 35.42     | Observed                     |
| 25                            | 3.85              | 10.94                                                                           | 15.18  | 17.99   | 21.54   | 24.17   | 26.79    | 29.39    | 32.82    | 35.42     | Observed                     |
| Gauge: 449159; Duration: 4 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 53.79                                                                           | 80.26  | 97.78   | 119.92  | 136.35  | 152.66   | 168.9    | 190.33   | 206.53    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 51.44                                                                           | 72.91  | 87.12   | 105.08  | 123.52  | 142.27   | 160.94   | 185.58   | 204.2     | RCM3-GFDL (historical)       |
| 3                             | 88.46             | 49.98                                                                           | 65.95  | 79.19   | 104.64  | 118.4   | 131.62   | 144.8    | 162.18   | 175.32    | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 46.15                                                                           | 60.63  | 76.52   | 93.24   | 107.15  | 120.96   | 134.71   | 152.86   | 166.58    | RCM3-CGCM3 (future)          |
| 5                             | 80.77             | 45.33                                                                           | 60.42  | 74.49   | 89.88   | 99.79   | 109.63   | 119.43   | 132.36   | 142.14    | WRF3-CGCM3 (future)          |
| 6                             | 76.92             | 44.71                                                                           | 59.88  | 71.5    | 85.25   | 95.44   | 105.56   | 115.65   | 128.95   | 139       | HRM3-GFDL (historical)       |
| 7                             | 73.08             | 44.2                                                                            | 59.66  | 69.93   | 82.62   | 92.04   | 101.39   | 110.7    | 122.99   | 132.27    | HRM3-HadCM3 (historical)     |
| 8                             | 69.23             | 41.94                                                                           | 59.04  | 69.87   | 81.81   | 90.67   | 99.46    | 108.22   | 119.78   | 128.51    | WRF3-CCSM (future)           |
| 9                             | 65.38             | 41.91                                                                           | 56.29  | 65.11   | 76.79   | 85.46   | 94.06    | 102.63   | 113.94   | 122.48    | MM5I-HadCM3 (historical)     |
| 10                            | 61.54             | 38.94                                                                           | 55.87  | 63.83   | 74.84   | 83.71   | 92.55    | 101.36   | 112.98   | 121.76    | WRF3-CCSM (historical)       |
| 11                            | 57.69             | 37.25                                                                           | 55.11  | 63.55   | 74.8    | 83.02   | 91.13    | 99.21    | 109.87   | 117.93    | WRF3-CGCM3 (historical)      |
| 12                            | 53.85             | 34.9                                                                            | 53.29  | 62.8    | 72.71   | 79.52   | 86.27    | 92.99    | 103.6    | 112.43    | MM5I-CCSM (historical)       |
| 13                            | 50.00             | 31.72                                                                           | 46.95  | 54.92   | 65.24   | 74.19   | 83.07    | 91.92    | 101.86   | 109.7     | RCM3-GFDL (future)           |
| 14                            | 46.15             | 29.51                                                                           | 43.62  | 53.17   | 65      | 72.47   | 80.36    | 89.21    | 100.88   | 108.57    | MM5I-HadCM3 (future)         |
| 15                            | 42.31             | 29.2                                                                            | 42.37  | 50.48   | 62.54   | 71.48   | 79.89    | 87.41    | 98.79    | 107.39    | RCM3-CGCM3 (historical)      |
| 16                            | 38.46             | 28.62                                                                           | 40.94  | 49.65   | 61.41   | 70.13   | 78.78    | 87.29    | 97.04    | 104.41    | MM5I-CCSM (future)           |
| 17                            | 34.62             | 26.52                                                                           | 40.35  | 49.42   | 58.33   | 64.94   | 71.5     | 78.03    | 86.66    | 93.17     | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 26.3                                                                            | 37.83  | 43.34   | 50.86   | 57.29   | 63.66    | 70.01    | 78.39    | 84.73     | ECP2-GFDL (historical)       |
| 19                            | 26.92             | 25.01                                                                           | 35.36  | 42.21   | 50.29   | 55.45   | 60.58    | 65.68    | 72.41    | 77.5      | ECP2-HadCM3 (historical)     |
| 20                            | 23.08             | 17.42                                                                           | 21.83  | 24.75   | 28.44   | 31.9    | 35.59    | 39.26    | 44.1     | 47.76     | CRCM-CGCM3 (historical)      |
| 21                            | 19.23             | 13.51                                                                           | 19.22  | 23.18   | 28.19   | 31.18   | 33.89    | 36.6     | 40.17    | 42.99     | CRCM-CCSM (future)           |
| 22                            | 15.38             | 13.24                                                                           | 18.62  | 22      | 26.27   | 29.44   | 32.59    | 35.73    | 39.86    | 42.87     | CRCM-CGCM3 (future)          |
| 23                            | 11.54             | 10.67                                                                           | 15.01  | 17.89   | 21.52   | 24.21   | 26.88    | 29.54    | 33.06    | 35.71     | CRCM-CCSM (historical)       |
| 24                            | 7.69              | 8.6                                                                             | 11.31  | 13.11   | 15.37   | 17.06   | 18.73    | 20.39    | 22.59    | 24.25     | Observed                     |
| 25                            | 3.85              | 8.6                                                                             | 11.31  | 13.11   | 15.37   | 17.06   | 18.73    | 20.39    | 22.59    | 24.25     | Observed                     |
| Gauge: 449159; Duration: 6 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 34.37                                                                           | 51.1   | 62.18   | 76.17   | 86.55   | 96.86    | 107.13   | 120.67   | 130.91    | HRM3-GFDL (future)           |
| 2                              | 92.31             | 32.88                                                                           | 46.44  | 55.43   | 66.77   | 78.44   | 90.29    | 102.09   | 117.66   | 129.43    | RCM3-GFDL (historical)       |
| 3                              | 88.46             | 31.96                                                                           | 42.06  | 50.42   | 66.51   | 75.19   | 83.55    | 91.87    | 102.86   | 111.16    | HRM3-HadCM3 (future)         |
| 4                              | 84.62             | 29.54                                                                           | 38.68  | 48.74   | 59.3    | 68.1    | 76.82    | 85.52    | 96.99    | 105.66    | RCM3-CGCM3 (future)          |
| 5                              | 80.77             | 29.02                                                                           | 38.57  | 47.45   | 57.18   | 63.44   | 69.66    | 75.86    | 84.03    | 90.2      | WRFG-CGCM3 (future)          |
| 6                              | 76.92             | 28.63                                                                           | 38.22  | 45.56   | 54.25   | 60.69   | 67.09    | 73.46    | 81.87    | 88.22     | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 28.3                                                                            | 38.07  | 44.57   | 52.59   | 58.54   | 64.44    | 70.33    | 78.09    | 83.96     | HRM3-HadCM3 (historical)     |
| 8                              | 69.23             | 26.88                                                                           | 37.69  | 44.54   | 52.09   | 57.69   | 63.25    | 68.78    | 76.09    | 81.61     | WRFG-CCSM (future)           |
| 9                              | 65.38             | 26.85                                                                           | 35.95  | 41.51   | 48.89   | 54.36   | 59.79    | 65.21    | 72.35    | 77.75     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 24.98                                                                           | 35.67  | 40.71   | 47.66   | 53.29   | 58.88    | 64.45    | 71.8     | 77.36     | WRFG-CCSM (historical)       |
| 11                             | 57.69             | 23.91                                                                           | 35.2   | 40.54   | 47.66   | 52.82   | 57.95    | 63.05    | 69.78    | 74.87     | WRFG-CGCM3 (historical)      |
| 12                             | 53.85             | 22.42                                                                           | 34.06  | 40.07   | 46.33   | 50.63   | 54.9     | 59.15    | 65.87    | 71.46     | MM5I-CCSM (historical)       |
| 13                             | 50.00             | 20.42                                                                           | 30.04  | 35.09   | 41.61   | 47.27   | 52.89    | 58.49    | 64.76    | 69.72     | RCM3-GFDL (future)           |
| 14                             | 46.15             | 19.02                                                                           | 27.95  | 33.98   | 41.46   | 46.19   | 51.17    | 56.76    | 64.14    | 69.01     | MM5I-HadCM3 (future)         |
| 15                             | 42.31             | 18.83                                                                           | 27.15  | 32.28   | 39.9    | 45.56   | 50.88    | 55.62    | 62.81    | 68.24     | RCM3-CGCM3 (historical)      |
| 16                             | 38.46             | 18.46                                                                           | 26.25  | 31.75   | 39.18   | 44.69   | 50.16    | 55.55    | 61.72    | 66.38     | MM5I-CCSM (future)           |
| 17                             | 34.62             | 17.14                                                                           | 25.87  | 31.61   | 37.24   | 41.42   | 45.57    | 49.71    | 55.16    | 59.28     | ECP2-HadCM3 (future)         |
| 18                             | 30.77             | 16.99                                                                           | 24.28  | 27.76   | 32.51   | 36.57   | 40.6     | 44.62    | 49.91    | 53.91     | ECP2-GFDL (historical)       |
| 19                             | 26.92             | 16.17                                                                           | 22.71  | 27.04   | 32.16   | 35.42   | 38.66    | 41.89    | 46.15    | 49.37     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 11.38                                                                           | 14.17  | 16.02   | 18.36   | 20.54   | 22.87    | 25.19    | 28.25    | 30.56     | CRCM-CGCM3 (historical)      |
| 21                             | 19.23             | 8.91                                                                            | 12.52  | 15.02   | 18.19   | 20.09   | 21.81    | 23.53    | 25.79    | 27.52     | CRCM-CCSM (future)           |
| 22                             | 15.38             | 8.74                                                                            | 12.14  | 14.27   | 16.97   | 18.97   | 20.96    | 22.94    | 25.55    | 27.5      | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 7.12                                                                            | 9.86   | 11.67   | 13.97   | 15.67   | 17.35    | 19.04    | 21.25    | 22.93     | CRCM-CCSM (historical)       |
| 24                             | 7.69              | 4.92                                                                            | 6.47   | 7.49    | 8.79    | 9.75    | 10.7     | 11.65    | 12.9     | 13.85     | Observed                     |
| 25                             | 3.85              | 4.92                                                                            | 6.47   | 7.49    | 8.79    | 9.75    | 10.7     | 11.65    | 12.9     | 13.85     | Observed                     |
| Gauge: 449159; Duration: 12 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 18.63                                                                           | 27.54  | 33.44   | 40.89   | 46.42   | 51.91    | 57.38    | 64.59    | 70.04     | HRM3-GFDL (future)           |
| 2                              | 92.31             | 17.84                                                                           | 25.07  | 29.85   | 35.9    | 42.11   | 48.41    | 54.7     | 63       | 69.26     | RCM3-GFDL (historical)       |
| 3                              | 88.46             | 17.35                                                                           | 22.72  | 27.18   | 35.75   | 40.39   | 44.84    | 49.28    | 55.13    | 59.55     | HRM3-HadCM3 (future)         |
| 4                              | 84.62             | 16.06                                                                           | 20.93  | 26.28   | 31.89   | 36.57   | 41.22    | 45.84    | 51.95    | 56.56     | RCM3-CGCM3 (future)          |
| 5                              | 80.77             | 15.79                                                                           | 20.86  | 25.59   | 30.78   | 34.11   | 37.42    | 40.72    | 45.07    | 48.36     | WRFG-CGCM3 (future)          |
| 6                              | 76.92             | 15.58                                                                           | 20.69  | 24.58   | 29.2    | 32.63   | 36.03    | 39.42    | 43.9     | 47.28     | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 15.4                                                                            | 20.6   | 24.07   | 28.34   | 31.51   | 34.66    | 37.8     | 41.93    | 45.06     | HRM3-HadCM3 (historical)     |
| 8                              | 69.23             | 14.65                                                                           | 20.4   | 24.05   | 28.07   | 31.05   | 34.01    | 36.96    | 40.86    | 43.8      | WRFG-CCSM (future)           |
| 9                              | 65.38             | 14.63                                                                           | 19.47  | 22.44   | 26.37   | 29.29   | 32.19    | 35.07    | 38.88    | 41.76     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 13.63                                                                           | 19.33  | 22.01   | 25.71   | 28.71   | 31.69    | 34.65    | 38.57    | 41.53     | WRFG-CCSM (historical)       |
| 11                             | 57.69             | 13.06                                                                           | 19.07  | 21.91   | 25.71   | 28.46   | 31.19    | 33.9     | 37.49    | 40.2      | WRFG-CGCM3 (historical)      |
| 12                             | 53.85             | 12.28                                                                           | 18.47  | 21.67   | 24.99   | 27.28   | 29.55    | 31.81    | 35.39    | 38.36     | MM5I-CCSM (historical)       |
| 13                             | 50.00             | 11.2                                                                            | 16.33  | 19.02   | 22.48   | 25.49   | 28.48    | 31.46    | 34.8     | 37.45     | RCM3-GFDL (future)           |
| 14                             | 46.15             | 10.46                                                                           | 15.21  | 18.42   | 22.41   | 24.93   | 27.57    | 30.55    | 34.48    | 37.05     | MM5I-HadCM3 (future)         |
| 15                             | 42.31             | 10.36                                                                           | 14.79  | 17.51   | 21.57   | 24.58   | 27.43    | 29.94    | 33.77    | 36.67     | RCM3-CGCM3 (historical)      |
| 16                             | 38.46             | 10.16                                                                           | 14.3   | 17.24   | 21.19   | 24.13   | 27.04    | 29.92    | 33.2     | 35.68     | MM5I-CCSM (future)           |
| 17                             | 34.62             | 9.45                                                                            | 14.11  | 17.17   | 20.17   | 22.39   | 24.61    | 26.81    | 29.71    | 31.91     | ECP2-HadCM3 (future)         |
| 18                             | 30.77             | 9.38                                                                            | 13.26  | 15.12   | 17.64   | 19.8    | 21.95    | 24.09    | 26.91    | 29.04     | ECP2-GFDL (historical)       |
| 19                             | 26.92             | 8.94                                                                            | 12.42  | 14.73   | 17.46   | 19.2    | 20.92    | 22.64    | 24.91    | 26.63     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 6.39                                                                            | 7.88   | 8.86    | 10.1    | 11.27   | 12.51    | 13.75    | 15.38    | 16.61     | CRCM-CGCM3 (historical)      |
| 21                             | 19.23             | 5.07                                                                            | 7      | 8.33    | 10.02   | 11.03   | 11.94    | 12.85    | 14.05    | 14.97     | CRCM-CCSM (future)           |
| 22                             | 15.38             | 4.99                                                                            | 6.79   | 7.92    | 9.36    | 10.42   | 11.48    | 12.53    | 13.92    | 14.96     | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 4.12                                                                            | 5.58   | 6.54    | 7.76    | 8.67    | 9.57     | 10.46    | 11.64    | 12.53     | CRCM-CCSM (historical)       |
| 24                             | 7.69              | 2.83                                                                            | 3.62   | 4.14    | 4.8     | 5.29    | 5.77     | 6.25     | 6.89     | 7.37      | Observed                     |
| 25                             | 3.85              | 2.83                                                                            | 3.62   | 4.14    | 4.8     | 5.29    | 5.77     | 6.25     | 6.89     | 7.37      | Observed                     |
| Gauge: 449159; Duration: 24 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 9.9                                                                             | 14.57  | 17.66   | 21.56   | 24.46   | 27.33    | 30.2     | 33.97    | 36.83     | HRM3-GFDL (future)           |
| 2                              | 92.31             | 9.49                                                                            | 13.27  | 15.77   | 18.94   | 22.2    | 25.5     | 28.79    | 33.14    | 36.42     | RCM3-GFDL (historical)       |
| 3                              | 88.46             | 9.24                                                                            | 12.05  | 14.38   | 18.87   | 21.29   | 23.62    | 25.94    | 29       | 31.31     | HRM3-HadCM3 (future)         |
| 4                              | 84.62             | 8.55                                                                            | 11.1   | 13.91   | 16.86   | 19.31   | 21.74    | 24.17    | 27.36    | 29.78     | RCM3-CGCM3 (future)          |
| 5                              | 80.77             | 8.41                                                                            | 11.07  | 13.55   | 16.26   | 18      | 19.73    | 21.46    | 23.74    | 25.46     | WRFG-CGCM3 (future)          |
| 6                              | 76.92             | 8.3                                                                             | 10.97  | 13.02   | 15.43   | 17.23   | 19.01    | 20.78    | 23.12    | 24.89     | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 8.21                                                                            | 10.94  | 12.74   | 14.97   | 16.63   | 18.27    | 19.91    | 22.07    | 23.71     | HRM3-HadCM3 (historical)     |
| 8                              | 69.23             | 7.82                                                                            | 10.83  | 12.74   | 14.85   | 16.41   | 17.96    | 19.51    | 21.55    | 23.09     | WRFG-CCSM (future)           |
| 9                              | 65.38             | 7.81                                                                            | 10.35  | 11.9    | 13.95   | 15.48   | 16.99    | 18.5     | 20.49    | 21.99     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 7.29                                                                            | 10.27  | 11.67   | 13.61   | 15.17   | 16.73    | 18.28    | 20.33    | 21.88     | WRFG-CCSM (historical)       |
| 11                             | 57.69             | 6.99                                                                            | 10.14  | 11.63   | 13.61   | 15.04   | 16.47    | 17.89    | 19.76    | 21.18     | WRFG-CGCM3 (historical)      |
| 12                             | 53.85             | 6.58                                                                            | 9.82   | 11.49   | 13.25   | 14.45   | 15.64    | 16.83    | 18.7     | 20.25     | MM5I-CCSM (historical)       |
| 13                             | 50.00             | 6.01                                                                            | 8.7    | 10.1    | 11.93   | 13.51   | 15.07    | 16.64    | 18.39    | 19.74     | RCM3-GFDL (future)           |
| 14                             | 46.15             | 5.63                                                                            | 8.11   | 9.8     | 11.88   | 13.19   | 14.57    | 16.13    | 18.18    | 19.58     | MM5I-HadCM3 (future)         |
| 15                             | 42.31             | 5.57                                                                            | 7.89   | 9.31    | 11.44   | 13.01   | 14.5     | 15.82    | 17.83    | 19.34     | RCM3-CGCM3 (historical)      |
| 16                             | 38.46             | 5.46                                                                            | 7.63   | 9.17    | 11.24   | 12.78   | 14.3     | 15.8     | 17.52    | 18.82     | MM5I-CCSM (future)           |
| 17                             | 34.62             | 5.1                                                                             | 7.53   | 9.13    | 10.69   | 11.86   | 13.01    | 14.16    | 15.68    | 16.82     | ECP2-HadCM3 (future)         |
| 18                             | 30.77             | 5.06                                                                            | 7.09   | 8.07    | 9.38    | 10.51   | 11.63    | 12.75    | 14.22    | 15.34     | ECP2-GFDL (historical)       |
| 19                             | 26.92             | 4.83                                                                            | 6.65   | 7.86    | 9.29    | 10.2    | 11.11    | 12.01    | 13.2     | 14.09     | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 3.5                                                                             | 4.27   | 4.79    | 5.44    | 6.03    | 6.68     | 7.33     | 8.18     | 8.82      | CRCM-CGCM3 (historical)      |
| 21                             | 19.23             | 2.8                                                                             | 3.81   | 4.5     | 5.38    | 5.92    | 6.4      | 6.88     | 7.51     | 8         | CRCM-CCSM (future)           |
| 22                             | 15.38             | 2.75                                                                            | 3.7    | 4.3     | 5.05    | 5.61    | 6.17     | 6.72     | 7.45     | 7.98      | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 2.31                                                                            | 3.07   | 3.57    | 4.21    | 4.68    | 5.15     | 5.61     | 6.23     | 6.69      | CRCM-CCSM (historical)       |
| 24                             | 7.69              | 1.64                                                                            | 2.14   | 2.47    | 2.9     | 3.21    | 3.52     | 3.83     | 4.24     | 4.54      | Observed                     |
| 25                             | 3.85              | 1.64                                                                            | 2.14   | 2.47    | 2.9     | 3.21    | 3.52     | 3.83     | 4.24     | 4.54      | Observed                     |
| Gauge: 449159; Duration: 48 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 6.57                                                                            | 9.62   | 11.64   | 14.19   | 16.08   | 17.96    | 19.83    | 22.3     | 24.17     | HRM3-GFDL (future)           |
| 2                              | 92.31             | 6.3                                                                             | 8.77   | 10.41   | 12.48   | 14.61   | 16.77    | 18.93    | 21.77    | 23.91     | RCM3-GFDL (historical)       |
| 3                              | 88.46             | 6.13                                                                            | 7.97   | 9.5     | 12.43   | 14.02   | 15.54    | 17.06    | 19.07    | 20.58     | HRM3-HadCM3 (future)         |
| 4                              | 84.62             | 5.69                                                                            | 7.36   | 9.18    | 11.11   | 12.71   | 14.3     | 15.88    | 17.97    | 19.55     | RCM3-CGCM3 (future)          |
| 5                              | 80.77             | 5.6                                                                             | 7.34   | 8.95    | 10.72   | 11.86   | 12.99    | 14.12    | 15.61    | 16.74     | WRFG-CGCM3 (future)          |
| 6                              | 76.92             | 5.52                                                                            | 7.27   | 8.61    | 10.19   | 11.37   | 12.53    | 13.69    | 15.22    | 16.38     | HRM3-GFDL (historical)       |
| 7                              | 73.08             | 5.47                                                                            | 7.24   | 8.43    | 9.9     | 10.98   | 12.06    | 13.13    | 14.55    | 15.62     | HRM3-HadCM3 (historical)     |
| 8                              | 69.23             | 5.21                                                                            | 7.18   | 8.43    | 9.8     | 10.82   | 11.83    | 12.84    | 14.17    | 15.18     | WRFG-CCSM (future)           |
| 9                              | 65.38             | 5.2                                                                             | 6.86   | 7.87    | 9.22    | 10.22   | 11.21    | 12.2     | 13.5     | 14.48     | MM5I-HadCM3 (historical)     |
| 10                             | 61.54             | 4.86                                                                            | 6.81   | 7.73    | 9.01    | 10.02   | 11.04    | 12.05    | 13.39    | 14.4      | WRFG-CCSM (historical)       |
| 11                             | 57.69             | 4.66                                                                            | 6.73   | 7.7     | 8.99    | 9.95    | 10.89    | 11.82    | 13.05    | 13.98     | WRFG-CGCM3 (historical)      |
| 12                             | 53.85             | 4.39                                                                            | 6.52   | 7.61    | 8.75    | 9.54    | 10.32    | 11.09    | 12.3     | 13.32     | MM5I-CCSM (historical)       |
| 13                             | 50.00             | 4.02                                                                            | 5.78   | 6.7     | 7.88    | 8.91    | 9.94     | 10.96    | 12.11    | 13.01     | RCM3-GFDL (future)           |
| 14                             | 46.15             | 3.77                                                                            | 5.39   | 6.49    | 7.86    | 8.72    | 9.63     | 10.65    | 11.99    | 12.89     | MM5I-HadCM3 (future)         |
| 15                             | 42.31             | 3.73                                                                            | 5.25   | 6.18    | 7.57    | 8.6     | 9.57     | 10.43    | 11.74    | 12.73     | RCM3-CGCM3 (historical)      |
| 16                             | 38.46             | 3.67                                                                            | 5.08   | 6.09    | 7.44    | 8.44    | 9.44     | 10.43    | 11.55    | 12.4      | MM5I-CCSM (future)           |
| 17                             | 34.62             | 3.42                                                                            | 5.02   | 6.06    | 7.09    | 7.85    | 8.61     | 9.36     | 10.36    | 11.11     | ECP2-HadCM3 (future)         |
| 18                             | 30.77             | 3.4                                                                             | 4.73   | 5.37    | 6.23    | 6.97    | 7.7      | 8.44     | 9.4      | 10.13     | ECP2-GFDL (historical)       |
| 19                             | 26.92             | 3.25                                                                            | 4.44   | 5.23    | 6.18    | 6.78    | 7.37     | 7.96     | 8.74     | 9.33      | ECP2-HadCM3 (historical)     |
| 20                             | 23.08             | 2.37                                                                            | 2.89   | 3.23    | 3.66    | 4.04    | 4.47     | 4.89     | 5.45     | 5.87      | CRCM-CGCM3 (historical)      |
| 21                             | 19.23             | 1.92                                                                            | 2.58   | 3.04    | 3.61    | 3.97    | 4.29     | 4.6      | 5.02     | 5.34      | CRCM-CCSM (future)           |
| 22                             | 15.38             | 1.89                                                                            | 2.51   | 2.9     | 3.4     | 3.77    | 4.13     | 4.5      | 4.97     | 5.33      | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 1.6                                                                             | 2.1    | 2.43    | 2.86    | 3.17    | 3.48     | 3.79     | 4.2      | 4.5       | CRCM-CCSM (historical)       |
| 24                             | 7.69              | 1.13                                                                            | 1.52   | 1.79    | 2.12    | 2.37    | 2.61     | 2.86     | 3.18     | 3.42      | Observed                     |
| 25                             | 3.85              | 1.13                                                                            | 1.52   | 1.79    | 2.12    | 2.37    | 2.61     | 2.86     | 3.18     | 3.42      | Observed                     |
| Gauge: 449159; Duration: 72 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

## V. Tabulated Probability-Based IDF Curves for HUC 2080202

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 325.43                                                                          | 428.03 | 495.95  | 581.78  | 645.44  | 708.64   | 771.61   | 854.69   | 917.47    | HRM3-GFDL (future)           |
| 2                              | 92.31             | 316.23                                                                          | 415.04 | 480.46  | 563.12  | 624.44  | 685.31   | 745.96   | 825.97   | 886.44    | HRM3-HadCM3 (future)         |
| 3                              | 88.46             | 292.19                                                                          | 392.53 | 458.95  | 542.88  | 605.15  | 666.95   | 728.53   | 809.78   | 871.18    | HRM3-HadCM3 (historical)     |
| 4                              | 84.62             | 282.91                                                                          | 346.13 | 401.28  | 483.36  | 550.74  | 623.37   | 695.74   | 791.22   | 863.38    | RCM3-GFDL (historical)       |
| 5                              | 80.77             | 269.32                                                                          | 340.35 | 395.66  | 477.57  | 548.42  | 613      | 677.35   | 762.24   | 826.4     | RCM3-CGCM3 (future)          |
| 6                              | 76.92             | 262.83                                                                          | 334.07 | 378.93  | 470.97  | 522.66  | 573.98   | 625.89   | 705.4    | 765.49    | RCM3-GFDL (future)           |
| 7                              | 73.08             | 243.79                                                                          | 326.24 | 378.38  | 444.2   | 505.14  | 565.62   | 625.11   | 692.56   | 746.86    | Observed                     |
| 8                              | 69.23             | 243.75                                                                          | 314.92 | 376.94  | 436.7   | 495.52  | 553.92   | 612.1    | 688.85   | 746.86    | Observed                     |
| 9                              | 65.38             | 243.05                                                                          | 313.23 | 362.06  | 431.11  | 471.29  | 525.15   | 592      | 680.2    | 743.54    | HRM3-GFDL (historical)       |
| 10                             | 61.54             | 221.41                                                                          | 307.83 | 362.04  | 426.43  | 465.74  | 511.18   | 553.26   | 610.89   | 654.44    | WRFG-CGCM3 (historical)      |
| 11                             | 57.69             | 219.43                                                                          | 300.87 | 359.69  | 421.58  | 462.08  | 509.58   | 550.92   | 605.08   | 648.02    | WRFG-CCSM (future)           |
| 12                             | 53.85             | 208.71                                                                          | 297.04 | 357.4   | 418.4   | 461.95  | 505.18   | 548.25   | 603.35   | 642.98    | WRFG-CGCM3 (future)          |
| 13                             | 50.00             | 204.27                                                                          | 294.64 | 350.22  | 403.79  | 458.06  | 497.47   | 532.72   | 579.24   | 614.39    | MM5I-HadCM3 (future)         |
| 14                             | 46.15             | 203.14                                                                          | 286.17 | 330.35  | 390.46  | 443.53  | 482.98   | 522.28   | 574.13   | 613.32    | MM5I-HadCM3 (historical)     |
| 15                             | 42.31             | 199.85                                                                          | 274.27 | 317.68  | 386.19  | 427.6   | 468.72   | 509.68   | 563.72   | 604.57    | WRFG-CCSM (historical)       |
| 16                             | 38.46             | 198.85                                                                          | 260.06 | 300.15  | 372.53  | 413.22  | 453.6    | 493.85   | 546.94   | 588.38    | MM5I-CCSM (historical)       |
| 17                             | 34.62             | 195.19                                                                          | 258.67 | 299.34  | 358.83  | 402.37  | 445.58   | 488.64   | 545.45   | 587.06    | MM5I-CCSM (future)           |
| 18                             | 30.77             | 183.55                                                                          | 253.7  | 296.99  | 343.65  | 378.27  | 412.63   | 446.87   | 492.04   | 526.17    | ECP2-HadCM3 (future)         |
| 19                             | 26.92             | 182.96                                                                          | 240.52 | 295.44  | 341.9   | 376.36  | 410.57   | 444.66   | 489.63   | 523.61    | ECP2-GFDL (future)           |
| 20                             | 23.08             | 173.83                                                                          | 227.23 | 270.54  | 308.46  | 336.6   | 367.7    | 399.56   | 441.58   | 473.35    | ECP2-GFDL (historical)       |
| 21                             | 19.23             | 124.7                                                                           | 225.74 | 260.1   | 303.52  | 335.73  | 364.52   | 392.35   | 429.06   | 456.81    | ECP2-HadCM3 (historical)     |
| 22                             | 15.38             | 118.31                                                                          | 160.92 | 184.91  | 215.21  | 237.69  | 260      | 282.24   | 311.57   | 333.74    | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 93.53                                                                           | 129.37 | 153.09  | 183.07  | 205.31  | 227.38   | 249.38   | 278.4    | 300.33    | CRCM-CGCM3 (historical)      |
| 24                             | 7.69              | 93.1                                                                            | 121.53 | 140.35  | 164.13  | 181.78  | 199.29   | 216.74   | 239.76   | 257.16    | CRCM-CCSM (future)           |
| 25                             | 3.85              | 78.8                                                                            | 106.41 | 124.69  | 147.78  | 164.91  | 181.92   | 198.87   | 221.22   | 238.12    | CRCM-CCSM (historical)       |
| HUC: 2080202; Duration: 15 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 242.08                                                                          | 328.66 | 385.98  | 458.41  | 512.14  | 565.48   | 618.62   | 688.72   | 741.71    | HRM3-GFDL (future)           |
| 2                              | 92.31             | 234.29                                                                          | 314.88 | 368.24  | 435.65  | 485.67  | 535.31   | 584.77   | 660.47   | 723.17    | RCM3-GFDL (historical)       |
| 3                              | 88.46             | 213.91                                                                          | 292.81 | 345.05  | 411.05  | 460.01  | 514.63   | 577.51   | 650.03   | 699.35    | HRM3-HadCM3 (future)         |
| 4                              | 84.62             | 207.62                                                                          | 258.69 | 303.74  | 387.94  | 451.52  | 508.62   | 557.04   | 620.93   | 669.22    | HRM3-HadCM3 (historical)     |
| 5                              | 80.77             | 199.57                                                                          | 253.71 | 302.41  | 374.94  | 427.75  | 480.18   | 532.41   | 601.32   | 653.41    | RCM3-CGCM3 (future)          |
| 6                              | 76.92             | 192.65                                                                          | 253.36 | 302.23  | 357.66  | 398.65  | 439.33   | 479.86   | 542.14   | 589.64    | RCM3-GFDL (future)           |
| 7                              | 73.08             | 179.37                                                                          | 247.4  | 289.56  | 335.67  | 383.84  | 431.65   | 479.29   | 533.89   | 580.37    | RCM3-CGCM3 (historical)      |
| 8                              | 69.23             | 178.36                                                                          | 235.34 | 283.65  | 334.86  | 378.97  | 425.76   | 472.38   | 533.34   | 573.76    | HRM3-GFDL (historical)       |
| 9                              | 65.38             | 177.93                                                                          | 234.44 | 272.39  | 331.83  | 368.46  | 401.82   | 435.05   | 478.9    | 512.03    | WRFG-CGCM3 (future)          |
| 10                             | 61.54             | 162.29                                                                          | 234.4  | 271.86  | 321.91  | 354.21  | 389.02   | 423.71   | 469.47   | 504.06    | WRFG-CGCM3 (historical)      |
| 11                             | 57.69             | 159.55                                                                          | 230.35 | 270.73  | 319.21  | 353.94  | 388.42   | 422.77   | 468.09   | 502.34    | WRFG-CCSM (future)           |
| 12                             | 53.85             | 150.73                                                                          | 219.34 | 268.29  | 319.14  | 350.3   | 378.48   | 406.55   | 446.56   | 478.38    | MM5I-HadCM3 (historical)     |
| 13                             | 50.00             | 147.98                                                                          | 218    | 264.77  | 308.26  | 340.53  | 372.55   | 404.46   | 443.59   | 471.59    | MM5I-HadCM3 (future)         |
| 14                             | 46.15             | 145.57                                                                          | 213.16 | 248.65  | 293.49  | 326.76  | 359.78   | 392.69   | 436.1    | 468.9     | WRFG-CCSM (historical)       |
| 15                             | 42.31             | 142.04                                                                          | 202.29 | 236.43  | 279.57  | 311.57  | 343.34   | 374.99   | 417.78   | 451.8     | MM5I-CCSM (historical)       |
| 16                             | 38.46             | 141.73                                                                          | 192.5  | 223.41  | 269.91  | 304.41  | 338.65   | 372.77   | 416.74   | 448.3     | MM5I-CCSM (future)           |
| 17                             | 34.62             | 139.27                                                                          | 188.18 | 221.98  | 259.22  | 286.85  | 314.28   | 341.61   | 377.66   | 404.9     | ECP2-HadCM3 (future)         |
| 18                             | 30.77             | 131.95                                                                          | 186.61 | 216.4   | 252.05  | 278.49  | 304.74   | 330.9    | 365.4    | 391.48    | ECP2-GFDL (future)           |
| 19                             | 26.92             | 131.02                                                                          | 174.56 | 197.92  | 227.44  | 250.21  | 275.33   | 300.36   | 333.37   | 359.48    | Observed                     |
| 20                             | 23.08             | 123.02                                                                          | 163.8  | 190.79  | 224.91  | 249.34  | 271.08   | 292.74   | 328.49   | 358.33    | ECP2-GFDL (historical)       |
| 21                             | 19.23             | 85.58                                                                           | 117.9  | 151.42  | 193.79  | 225.21  | 256.4    | 287.48   | 321.31   | 342.91    | ECP2-HadCM3 (historical)     |
| 22                             | 15.38             | 67.26                                                                           | 112.22 | 129.85  | 152.13  | 168.66  | 185.07   | 201.42   | 222.99   | 239.29    | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 62.91                                                                           | 89.61  | 107.28  | 129.62  | 146.18  | 162.63   | 179.02   | 200.64   | 216.97    | CRCM-CGCM3 (historical)      |
| 24                             | 7.69              | 62.6                                                                            | 83.79  | 97.82   | 115.55  | 128.7   | 141.76   | 154.77   | 171.93   | 184.9     | CRCM-CCSM (future)           |
| 25                             | 3.85              | 52.2                                                                            | 72.15  | 85.36   | 102.04  | 114.42  | 126.71   | 138.95   | 155.1    | 167.31    | CRCM-CCSM (historical)       |
| HUC: 2080202; Duration: 30 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                           | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|--------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                                | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                                | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                              | 96.15             | 181.04                                                                          | 246.41 | 289.69  | 344.38  | 384.95  | 425.21   | 465.34   | 518.27   | 558.28    | HRM3-GFDL (future)           |
| 2                              | 92.31             | 175.15                                                                          | 235.6  | 275.63  | 326.2   | 363.72  | 400.96   | 438.07   | 500.12   | 547.71    | RCM3-GFDL (historical)       |
| 3                              | 88.46             | 159.71                                                                          | 218.42 | 257.29  | 306.4   | 342.83  | 389.43   | 437.16   | 487.02   | 524.02    | HRM3-HadCM3 (future)         |
| 4                              | 84.62             | 155.25                                                                          | 193.48 | 228.22  | 293.27  | 341.53  | 378.99   | 415.03   | 462.56   | 498.49    | HRM3-HadCM3 (historical)     |
| 5                              | 80.77             | 149.63                                                                          | 190.56 | 227.92  | 281.37  | 321.03  | 360.4    | 399.62   | 451.36   | 490.47    | RCM3-CGCM3 (future)          |
| 6                              | 76.92             | 144.14                                                                          | 189.46 | 226.15  | 267.42  | 298.04  | 328.43   | 358.72   | 404.78   | 440.24    | RCM3-GFDL (future)           |
| 7                              | 73.08             | 134.56                                                                          | 185.61 | 217.66  | 251.89  | 286.61  | 322.3    | 357.86   | 399.79   | 434.64    | RCM3-CGCM3 (historical)      |
| 8                              | 69.23             | 133.61                                                                          | 176.74 | 212.11  | 250.66  | 283.66  | 318.74   | 353.69   | 398.67   | 428.86    | HRM3-GFDL (historical)       |
| 9                              | 65.38             | 133.18                                                                          | 176.52 | 204.3   | 248.33  | 277.29  | 302.5    | 327.62   | 360.76   | 385.81    | WRF3-CGCM3 (future)          |
| 10                             | 61.54             | 121.7                                                                           | 175.5  | 203.52  | 240.73  | 265.44  | 291.29   | 317.23   | 351.5    | 377.41    | WRF3-CGCM3 (historical)      |
| 11                             | 57.69             | 119.54                                                                          | 172.69 | 202.19  | 239.4   | 265.19  | 291.26   | 317.05   | 351.02   | 376.7     | WRF3-CCSM (future)           |
| 12                             | 53.85             | 112.88                                                                          | 163.83 | 200.7   | 238.92  | 261.96  | 283.03   | 304.03   | 335.25   | 359.17    | MM5I-HadCM3 (historical)     |
| 13                             | 50.00             | 110.93                                                                          | 163    | 198.57  | 231.27  | 255.53  | 279.61   | 303.6    | 331.73   | 352.67    | MM5I-HadCM3 (future)         |
| 14                             | 46.15             | 108.91                                                                          | 159.82 | 186.49  | 220.19  | 245.19  | 270      | 294.73   | 327.34   | 351.99    | WRF3-CCSM (historical)       |
| 15                             | 42.31             | 106.06                                                                          | 151.47 | 177.02  | 209.31  | 233.26  | 257.03   | 280.72   | 313.22   | 338.74    | MM5I-CCSM (historical)       |
| 16                             | 38.46             | 105.89                                                                          | 144.38 | 167.39  | 202.28  | 228.16  | 253.85   | 279.45   | 311.97   | 335.59    | MM5I-CCSM (future)           |
| 17                             | 34.62             | 104.21                                                                          | 140.65 | 166.53  | 194.51  | 215.27  | 235.88   | 256.41   | 283.49   | 303.96    | ECP2-HadCM3 (future)         |
| 18                             | 30.77             | 98.98                                                                           | 139.78 | 161.67  | 188.23  | 207.93  | 227.48   | 246.96   | 272.67   | 292.1     | ECP2-GFDL (future)           |
| 19                             | 26.92             | 98.08                                                                           | 130.59 | 148.07  | 170.14  | 187.49  | 206.33   | 225.11   | 249.89   | 268.61    | ECP2-GFDL (historical)       |
| 20                             | 23.08             | 92.05                                                                           | 122.65 | 142.91  | 168.5   | 186.52  | 202.77   | 218.97   | 240.34   | 256.49    | ECP2-HadCM3 (historical)     |
| 21                             | 19.23             | 64.03                                                                           | 83.85  | 100.66  | 127.63  | 147.64  | 167.5    | 187.29   | 213.39   | 233.12    | Observed                     |
| 22                             | 15.38             | 47.11                                                                           | 79.32  | 96.97   | 113.55  | 125.86  | 138.07   | 150.23   | 166.28   | 178.42    | CRCM-CGCM3 (future)          |
| 23                             | 11.54             | 47.08                                                                           | 67.07  | 80.29   | 96.99   | 109.38  | 121.68   | 133.93   | 150.1    | 162.31    | CRCM-CGCM3 (historical)      |
| 24                             | 7.69              | 46.9                                                                            | 62.79  | 73.31   | 86.6    | 96.46   | 106.25   | 116      | 128.87   | 138.59    | CRCM-CCSM (future)           |
| 25                             | 3.85              | 39.09                                                                           | 54.03  | 63.92   | 76.41   | 85.68   | 94.88    | 104.05   | 116.14   | 125.28    | CRCM-CCSM (historical)       |
| HUC: 2080202; Duration: 45 min |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                         | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                              | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                              | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                            | 96.15             | 157.48                                                                          | 216.21 | 255.09  | 304.23  | 340.68  | 376.86   | 412.91   | 460.47   | 496.41    | HRM3-GFDL (future)           |
| 2                            | 92.31             | 152.18                                                                          | 206.62 | 242.66  | 288.2   | 321.99  | 355.52   | 388.94   | 445.17   | 488.02    | RCM3-GFDL (historical)       |
| 3                            | 88.46             | 138.49                                                                          | 191.72 | 226.97  | 271.5   | 304.54  | 345.49   | 388.47   | 433.02   | 466.33    | HRM3-HadCM3 (future)         |
| 4                            | 84.62             | 134.05                                                                          | 168.53 | 200.33  | 258.91  | 302.36  | 337.34   | 370.01   | 413.12   | 445.7     | HRM3-HadCM3 (historical)     |
| 5                            | 80.77             | 128.68                                                                          | 165.09 | 199.17  | 247.02  | 282.52  | 317.75   | 352.85   | 399.17   | 434.17    | RCM3-CGCM3 (future)          |
| 6                            | 76.92             | 124.15                                                                          | 164.73 | 197.9   | 235.02  | 262.56  | 289.9    | 317.5    | 359.77   | 391.72    | RCM3-GFDL (future)           |
| 7                            | 73.08             | 115.2                                                                           | 161.31 | 189.2   | 220.9   | 253.3   | 285.46   | 317.13   | 354.19   | 385.45    | RCM3-CGCM3 (historical)      |
| 8                            | 69.23             | 114.52                                                                          | 153.98 | 185.05  | 219.66  | 250.03  | 281.49   | 312.84   | 353.06   | 380.22    | HRM3-GFDL (historical)       |
| 9                            | 65.38             | 114.32                                                                          | 152.66 | 177.46  | 218.34  | 242.25  | 264.68   | 287.03   | 316.51   | 338.8     | WRFG-CGCM3 (future)          |
| 10                           | 61.54             | 104.11                                                                          | 152.11 | 177.23  | 210.71  | 232.21  | 255.5    | 278.7    | 309.3    | 332.44    | WRFG-CGCM3 (historical)      |
| 11                           | 57.69             | 102.04                                                                          | 149.34 | 177.14  | 208.8   | 232.05  | 255.13   | 278.12   | 308.45   | 331.38    | WRFG-CCSM (future)           |
| 12                           | 53.85             | 96.19                                                                           | 142.67 | 175.61  | 208.76  | 229.76  | 248.66   | 267.49   | 294.14   | 315.45    | MM5I-HadCM3 (historical)     |
| 13                           | 50.00             | 94.32                                                                           | 141.8  | 172.39  | 201.52  | 223.13  | 244.58   | 265.95   | 292.34   | 311.11    | MM5I-HadCM3 (future)         |
| 14                           | 46.15             | 92.76                                                                           | 137.86 | 161.58  | 191.54  | 213.77  | 235.83   | 257.82   | 286.82   | 308.74    | WRFG-CCSM (historical)       |
| 15                           | 42.31             | 90.73                                                                           | 130.56 | 153.32  | 182.07  | 203.4   | 224.57   | 245.66   | 273.67   | 296.26    | MM5I-CCSM (historical)       |
| 16                           | 38.46             | 90.47                                                                           | 123.92 | 144.63  | 175.5   | 198.41  | 221.14   | 243.79   | 273.49   | 294.52    | MM5I-CCSM (future)           |
| 17                           | 34.62             | 88.59                                                                           | 121.07 | 143.52  | 168.29  | 186.66  | 204.9    | 223.07   | 247.04   | 265.16    | ECP2-HadCM3 (future)         |
| 18                           | 30.77             | 83.96                                                                           | 120.2  | 139.81  | 163.49  | 181.05  | 198.49   | 215.86   | 238.78   | 256.11    | ECP2-GFDL (future)           |
| 19                           | 26.92             | 83.29                                                                           | 111.95 | 127.41  | 146.95  | 161.91  | 178.49   | 195.02   | 216.81   | 233.29    | ECP2-GFDL (historical)       |
| 20                           | 23.08             | 77.95                                                                           | 104.87 | 122.69  | 145.21  | 161.45  | 175.83   | 190.17   | 209.08   | 223.38    | ECP2-HadCM3 (historical)     |
| 21                           | 19.23             | 53.5                                                                            | 70.84  | 82.33   | 97.44   | 112.13  | 126.71   | 141.24   | 160.42   | 174.9     | Observed                     |
| 22                           | 15.38             | 38.88                                                                           | 61.96  | 77.63   | 96.84   | 107.61  | 118.29   | 128.94   | 142.99   | 153.61    | CRCM-CGCM3 (future)          |
| 23                           | 11.54             | 38.65                                                                           | 56.14  | 67.57   | 82.01   | 92.72   | 103.35   | 113.94   | 127.92   | 138.48    | CRCM-CGCM3 (historical)      |
| 24                           | 7.69              | 38.28                                                                           | 52.26  | 61.27   | 72.66   | 81.1    | 89.49    | 97.84    | 108.86   | 117.19    | CRCM-CCSM (future)           |
| 25                           | 3.85              | 32.08                                                                           | 44.76  | 53.15   | 63.75   | 71.61   | 79.42    | 87.2     | 97.46    | 105.22    | CRCM-CCSM (historical)       |
| HUC: 2080202; Duration: 1 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                         | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                              | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                              | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                            | 96.15             | 116.74                                                                          | 165.42 | 197.65  | 238.37  | 268.58  | 298.56   | 328.44   | 367.85   | 400.85    | RCM3-GFDL (historical)       |
| 2                            | 92.31             | 112.38                                                                          | 156.94 | 186.45  | 223.73  | 251.39  | 280.18   | 316.57   | 364.57   | 397.64    | HRM3-GFDL (future)           |
| 3                            | 88.46             | 101.28                                                                          | 144.71 | 173.47  | 209.81  | 243.66  | 278.85   | 306.2    | 342.29   | 369.56    | HRM3-HadCM3 (future)         |
| 4                            | 84.62             | 97.33                                                                           | 125.55 | 157.28  | 206.87  | 236.76  | 263.52   | 290.18   | 325.35   | 351.93    | HRM3-HadCM3 (historical)     |
| 5                            | 80.77             | 93.28                                                                           | 122.75 | 151.4   | 190.1   | 218.8   | 247.3    | 275.69   | 313.14   | 341.45    | RCM3-CGCM3 (future)          |
| 6                            | 76.92             | 89.78                                                                           | 121.97 | 149.23  | 179.15  | 201.34  | 223.37   | 247.33   | 281.53   | 307.37    | RCM3-GFDL (future)           |
| 7                            | 73.08             | 82.74                                                                           | 120.78 | 142.26  | 169.18  | 195.39  | 221.4    | 245.32   | 276.91   | 302.18    | RCM3-CGCM3 (historical)      |
| 8                            | 69.23             | 82.04                                                                           | 118.03 | 138.28  | 167.05  | 192.68  | 218.12   | 243.47   | 274.29   | 296.17    | HRM3-GFDL (historical)       |
| 9                            | 65.38             | 82                                                                              | 112.55 | 133.85  | 166.9   | 185.19  | 203.34   | 221.42   | 245.28   | 263.31    | WRFG-CGCM3 (future)          |
| 10                           | 61.54             | 74.52                                                                           | 112.06 | 132.5   | 158.89  | 175.76  | 194.27   | 212.72   | 237.06   | 255.45    | WRFG-CGCM3 (historical)      |
| 11                           | 57.69             | 72.38                                                                           | 109.88 | 132.28  | 157.22  | 175.72  | 194.08   | 212.38   | 236.51   | 254.76    | WRFG-CCSM (future)           |
| 12                           | 53.85             | 67.8                                                                            | 105.89 | 131.96  | 157.1   | 174.18  | 189.36   | 204.48   | 225.69   | 242.73    | MM5I-HadCM3 (historical)     |
| 13                           | 50.00             | 66.31                                                                           | 105.16 | 128.32  | 151.61  | 168.89  | 186.05   | 203.14   | 224.44   | 239.51    | MM5I-HadCM3 (future)         |
| 14                           | 46.15             | 65.03                                                                           | 100.77 | 119.56  | 143.31  | 160.93  | 178.41   | 195.83   | 218.82   | 236.19    | WRFG-CCSM (historical)       |
| 15                           | 42.31             | 63.87                                                                           | 94.86  | 112.78  | 135.41  | 152.21  | 168.88   | 185.49   | 207.4    | 224.54    | MM5I-CCSM (historical)       |
| 16                           | 38.46             | 63.65                                                                           | 89.51  | 105.99  | 130.12  | 148.03  | 165.8    | 183.51   | 206.88   | 223.96    | MM5I-CCSM (future)           |
| 17                           | 34.62             | 61.74                                                                           | 87.07  | 104.87  | 124.27  | 138.67  | 152.96   | 167.2    | 185.98   | 200.18    | ECP2-HadCM3 (future)         |
| 18                           | 30.77             | 58.75                                                                           | 86.88  | 101.67  | 120.1   | 133.78  | 147.36   | 160.89   | 178.74   | 192.22    | ECP2-GFDL (future)           |
| 19                           | 26.92             | 58.03                                                                           | 79.84  | 91.82   | 106.96  | 118.36  | 131.11   | 143.82   | 160.59   | 173.26    | ECP2-GFDL (historical)       |
| 20                           | 23.08             | 53.77                                                                           | 74.48  | 88.19   | 105.51  | 118.19  | 129.34   | 140.45   | 155.1    | 166.18    | ECP2-HadCM3 (historical)     |
| 21                           | 19.23             | 35.53                                                                           | 48.3   | 56.75   | 67.43   | 75.36   | 83.23    | 91.06    | 101.4    | 109.22    | CRCM-CGCM3 (future)          |
| 22                           | 15.38             | 25.08                                                                           | 37.63  | 45.94   | 56.43   | 64.22   | 71.95    | 79.65    | 89.82    | 97.5      | CRCM-CGCM3 (historical)      |
| 23                           | 11.54             | 24.86                                                                           | 34.6   | 41.05   | 49.19   | 55.93   | 62.77    | 69.58    | 78.57    | 85.36     | Observed                     |
| 24                           | 7.69              | 21.31                                                                           | 32.41  | 39.76   | 49.04   | 55.24   | 61.24    | 67.21    | 75.1     | 81.06     | CRCM-CCSM (future)           |
| 25                           | 3.85              | 20.34                                                                           | 29.12  | 34.94   | 42.29   | 47.74   | 53.15    | 58.54    | 65.65    | 71.03     | CRCM-CCSM (historical)       |
| HUC: 2080202; Duration: 2 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                         | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                              | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                              | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                            | 96.15             | 85.82                                                                           | 119.07 | 141.09  | 168.91  | 189.55  | 210.04   | 230.45   | 257.37   | 277.73    | HRM3-GFDL (future)           |
| 2                            | 92.31             | 82.85                                                                           | 114.21 | 134.97  | 161.2   | 180.66  | 199.97   | 219.22   | 246.9    | 271.04    | RCM3-GFDL (historical)       |
| 3                            | 88.46             | 75.32                                                                           | 106.89 | 127.79  | 154.2   | 173.79  | 193.23   | 214.96   | 244.61   | 263.79    | HRM3-HadCM3 (future)         |
| 4                            | 84.62             | 72.04                                                                           | 92.07  | 109.09  | 141.96  | 166.44  | 190.74   | 212.61   | 238.17   | 257.49    | HRM3-HadCM3 (historical)     |
| 5                            | 80.77             | 68.24                                                                           | 89.7   | 108.96  | 135.99  | 156.17  | 176.21   | 196.18   | 222.52   | 242.43    | RCM3-CGCM3 (future)          |
| 6                            | 76.92             | 66.37                                                                           | 88.42  | 108.77  | 130.59  | 146.54  | 162.37   | 180.08   | 204.7    | 223.31    | RCM3-GFDL (future)           |
| 7                            | 73.08             | 60.67                                                                           | 87.23  | 101.79  | 123.81  | 142.68  | 161.42   | 178.14   | 198.95   | 216.82    | RCM3-CGCM3 (historical)      |
| 8                            | 69.23             | 60.51                                                                           | 82.84  | 101.39  | 121.19  | 139.33  | 157.33   | 175.27   | 198.93   | 214.68    | HRM3-GFDL (historical)       |
| 9                            | 65.38             | 60.5                                                                            | 82.16  | 98.37   | 118.67  | 131.2   | 143.63   | 156.02   | 172.37   | 184.72    | WRF3-CGCM3 (future)          |
| 10                           | 61.54             | 54.7                                                                            | 81.74  | 96.74   | 116.16  | 127.71  | 140.95   | 154.14   | 171.54   | 184.69    | WRF3-CGCM3 (historical)      |
| 11                           | 57.69             | 53.47                                                                           | 80.06  | 96.39   | 114.37  | 127.11  | 139.83   | 152.86   | 170.06   | 183.05    | WRF3-CCSM (future)           |
| 12                           | 53.85             | 50.32                                                                           | 78.24  | 95.8    | 113.56  | 126.74  | 137.99   | 148.83   | 163.13   | 173.93    | MM5I-HadCM3 (future)         |
| 13                           | 50.00             | 48.98                                                                           | 77.39  | 93.01   | 109.37  | 121.51  | 133.56   | 145.56   | 161.4    | 173.36    | MM5I-HadCM3 (historical)     |
| 14                           | 46.15             | 48.58                                                                           | 73.53  | 86.8    | 103.58  | 116.02  | 128.37   | 140.68   | 156.92   | 169.19    | WRF3-CCSM (historical)       |
| 15                           | 42.31             | 48.17                                                                           | 69.79  | 82.68   | 98.97   | 111.05  | 123.04   | 134.99   | 150.76   | 162.67    | MM5I-CCSM (future)           |
| 16                           | 38.46             | 47.83                                                                           | 65.43  | 77.53   | 94.74   | 107.51  | 120.18   | 132.81   | 149.47   | 162.06    | MM5I-CCSM (historical)       |
| 17                           | 34.62             | 46.21                                                                           | 64.79  | 76.32   | 90.08   | 100.28  | 110.41   | 120.51   | 133.83   | 143.89    | ECP2-HadCM3 (future)         |
| 18                           | 30.77             | 43.39                                                                           | 63.91  | 75.52   | 89.08   | 99.13   | 109.12   | 119.07   | 132.19   | 142.11    | ECP2-GFDL (future)           |
| 19                           | 26.92             | 43.34                                                                           | 59.32  | 68      | 78.96   | 87.09   | 95.73    | 104.83   | 116.83   | 125.9     | ECP2-GFDL (historical)       |
| 20                           | 23.08             | 40.38                                                                           | 55.2   | 65.01   | 77.41   | 86.6    | 95.17    | 103.21   | 113.82   | 121.84    | ECP2-HadCM3 (historical)     |
| 21                           | 19.23             | 27.06                                                                           | 36.68  | 43.04   | 51.09   | 57.05   | 62.98    | 68.88    | 76.66    | 82.55     | CRCM-CGCM3 (future)          |
| 22                           | 15.38             | 19.2                                                                            | 28.45  | 34.58   | 42.32   | 48.06   | 53.76    | 59.44    | 66.93    | 72.6      | CRCM-CGCM3 (historical)      |
| 23                           | 11.54             | 19.01                                                                           | 26.15  | 30.88   | 36.85   | 41.29   | 45.68    | 50.07    | 55.85    | 60.22     | CRCM-CCSM (future)           |
| 24                           | 7.69              | 15.83                                                                           | 23.17  | 28.03   | 34.17   | 38.73   | 43.26    | 47.76    | 53.71    | 58.2      | Observed                     |
| 25                           | 3.85              | 15.67                                                                           | 22.22  | 26.56   | 32.04   | 36.1    | 40.13    | 44.15    | 49.46    | 53.46     | CRCM-CCSM (historical)       |
| HUC: 2080202; Duration: 3 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                         | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                              | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                              | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                            | 96.15             | 67.81                                                                           | 93.39  | 110.33  | 131.73  | 147.61  | 163.37   | 179.07   | 199.79   | 215.45    | HRM3-GFDL (future)           |
| 2                            | 92.31             | 65.51                                                                           | 89.65  | 105.63  | 125.82  | 140.8   | 155.66   | 170.48   | 190.98   | 209.49    | RCM3-GFDL (historical)       |
| 3                            | 88.46             | 59.69                                                                           | 83.93  | 99.98   | 120.25  | 135.3   | 150.23   | 166.47   | 190.02   | 204.79    | HRM3-HadCM3 (future)         |
| 4                            | 84.62             | 57.24                                                                           | 72.64  | 85.78   | 110.48  | 129.26  | 147.9    | 165.11   | 184.74   | 199.57    | HRM3-HadCM3 (historical)     |
| 5                            | 80.77             | 54.31                                                                           | 70.89  | 85.46   | 106.49  | 122.09  | 137.57   | 152.99   | 173.35   | 188.73    | RCM3-CGCM3 (future)          |
| 6                            | 76.92             | 52.8                                                                            | 69.96  | 85.17   | 102.38  | 114.69  | 126.91   | 140.28   | 159.26   | 173.61    | RCM3-GFDL (future)           |
| 7                            | 73.08             | 48.38                                                                           | 68.82  | 80.31   | 96.89   | 111.44  | 125.89   | 139.09   | 155.15   | 168.92    | RCM3-CGCM3 (historical)      |
| 8                            | 69.23             | 48.29                                                                           | 65.14  | 79.92   | 95.01   | 109.03  | 122.94   | 136.81   | 155.1    | 167.29    | HRM3-GFDL (historical)       |
| 9                            | 65.38             | 48.29                                                                           | 65.06  | 77.28   | 93.4    | 103.1   | 112.74   | 122.34   | 135.01   | 144.61    | WRF3-CGCM3 (historical)      |
| 10                           | 61.54             | 43.69                                                                           | 64.77  | 76.12   | 91.34   | 100.4   | 110.67   | 120.91   | 134.41   | 144.58    | WRF3-CGCM3 (future)          |
| 11                           | 57.69             | 42.8                                                                            | 63.46  | 76.1    | 90.05   | 99.81   | 109.85   | 119.97   | 133.31   | 143.4     | WRF3-CCSM (future)           |
| 12                           | 53.85             | 40.33                                                                           | 61.76  | 75.68   | 89.47   | 99.7    | 108.21   | 116.59   | 127.63   | 135.99    | MM5I-HadCM3 (future)         |
| 13                           | 50.00             | 39.31                                                                           | 61.16  | 73.5    | 86.18   | 95.59   | 104.94   | 114.24   | 126.52   | 135.8     | MM5I-HadCM3 (historical)     |
| 14                           | 46.15             | 38.98                                                                           | 58.4   | 68.73   | 81.77   | 91.45   | 101.06   | 110.64   | 123.27   | 132.81    | WRF3-CCSM (historical)       |
| 15                           | 42.31             | 38.57                                                                           | 55.47  | 65.49   | 78.15   | 87.55   | 96.87    | 106.16   | 118.42   | 127.69    | MM5I-CCSM (future)           |
| 16                           | 38.46             | 38.31                                                                           | 52.13  | 61.5    | 74.92   | 84.87   | 94.75    | 104.6    | 117.58   | 127.4     | MM5I-CCSM (historical)       |
| 17                           | 34.62             | 37.14                                                                           | 51.59  | 60.62   | 71.35   | 79.3    | 87.2     | 95.07    | 105.46   | 113.31    | ECP2-HadCM3 (future)         |
| 18                           | 30.77             | 34.88                                                                           | 50.88  | 59.94   | 70.49   | 78.31   | 86.08    | 93.82    | 104.03   | 111.75    | ECP2-GFDL (future)           |
| 19                           | 26.92             | 34.84                                                                           | 47.36  | 54.13   | 62.69   | 69.03   | 75.92    | 83.04    | 92.45    | 99.55     | ECP2-GFDL (historical)       |
| 20                           | 23.08             | 32.54                                                                           | 44.15  | 51.84   | 61.56   | 68.76   | 75.33    | 81.61    | 89.89    | 96.14     | ECP2-HadCM3 (historical)     |
| 21                           | 19.23             | 22.03                                                                           | 29.63  | 34.66   | 41.02   | 45.73   | 50.42    | 55.08    | 61.23    | 65.89     | CRCM-CGCM3 (future)          |
| 22                           | 15.38             | 15.76                                                                           | 23.12  | 27.98   | 34.14   | 38.7    | 43.23    | 47.74    | 53.69    | 58.19     | CRCM-CGCM3 (historical)      |
| 23                           | 11.54             | 15.62                                                                           | 21.32  | 25.09   | 29.86   | 33.4    | 36.91    | 40.41    | 45.03    | 48.51     | CRCM-CCSM (future)           |
| 24                           | 7.69              | 13.31                                                                           | 19.18  | 23.06   | 27.97   | 31.61   | 35.23    | 38.83    | 43.58    | 47.17     | Observed                     |
| 25                           | 3.85              | 12.93                                                                           | 18.21  | 21.7    | 26.11   | 29.39   | 32.64    | 35.87    | 40.15    | 43.38     | CRCM-CCSM (historical)       |
| HUC: 2080202; Duration: 4 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                         | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                              | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                              | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                            | 96.15             | 71.26                                                                           | 98.55  | 116.62  | 139.45  | 156.38  | 173.19   | 189.94   | 212.04   | 228.74    | HRM3-GFDL (future)           |
| 2                            | 92.31             | 68.82                                                                           | 94.74  | 111.89  | 133.57  | 149.65  | 165.61   | 181.51   | 202.49   | 221.9     | RCM3-GFDL (historical)       |
| 3                            | 88.46             | 62.69                                                                           | 89.01  | 106.44  | 128.47  | 144.81  | 161.02   | 177.18   | 202.17   | 218.35    | HRM3-HadCM3 (future)         |
| 4                            | 84.62             | 59.81                                                                           | 76.4   | 90.53   | 116.41  | 136.42  | 156.28   | 176.07   | 198.5    | 214.61    | HRM3-HadCM3 (historical)     |
| 5                            | 80.77             | 56.41                                                                           | 74.44  | 89.82   | 112.27  | 128.93  | 145.46   | 161.94   | 183.67   | 200.09    | RCM3-CGCM3 (future)          |
| 6                            | 76.92             | 55.05                                                                           | 72.93  | 89.44   | 108.38  | 121.63  | 134.77   | 149.77   | 170.24   | 185.72    | RCM3-GFDL (future)           |
| 7                            | 73.08             | 50.28                                                                           | 72.05  | 84.13   | 102.99  | 118.68  | 134.25   | 147.87   | 165.15   | 179.8     | RCM3-CGCM3 (historical)      |
| 8                            | 69.23             | 50.1                                                                            | 68.1   | 83.88   | 100.62  | 115.64  | 130.54   | 145.39   | 164.99   | 178.21    | HRM3-GFDL (historical)       |
| 9                            | 65.38             | 49.93                                                                           | 68.09  | 81.83   | 97.7    | 107.96  | 118.14   | 128.28   | 142.14   | 153.04    | WRFG-CGCM3 (historical)      |
| 10                           | 61.54             | 45.21                                                                           | 67.52  | 80.38   | 96.38   | 105.83  | 116.8    | 127.72   | 141.66   | 151.78    | WRFG-CGCM3 (future)          |
| 11                           | 57.69             | 44.24                                                                           | 66.21  | 79.88   | 94.77   | 105.46  | 115.62   | 126.41   | 140.66   | 151.42    | WRFG-CCSM (future)           |
| 12                           | 53.85             | 41.67                                                                           | 65.09  | 79.16   | 93.87   | 104.79  | 114.47   | 123.46   | 135.31   | 144.26    | MM5I-HadCM3 (future)         |
| 13                           | 50.00             | 40.48                                                                           | 64.36  | 76.87   | 90.35   | 100.35  | 110.27   | 120.16   | 133.21   | 143.07    | MM5I-HadCM3 (historical)     |
| 14                           | 46.15             | 40.3                                                                            | 60.8   | 71.76   | 85.6    | 95.87   | 106.07   | 116.23   | 129.63   | 139.76    | WRFG-CCSM (historical)       |
| 15                           | 42.31             | 40.16                                                                           | 57.82  | 68.51   | 82.01   | 92.03   | 101.98   | 111.89   | 124.96   | 134.84    | MM5I-CCSM (future)           |
| 16                           | 38.46             | 39.81                                                                           | 54.04  | 64.15   | 78.34   | 88.87   | 99.33    | 109.74   | 123.48   | 133.86    | MM5I-CCSM (historical)       |
| 17                           | 34.62             | 38.35                                                                           | 53.81  | 63.01   | 74.35   | 82.77   | 91.12    | 99.44    | 110.42   | 118.71    | ECP2-HadCM3 (future)         |
| 18                           | 30.77             | 35.95                                                                           | 52.91  | 62.76   | 74.06   | 82.45   | 90.77    | 99.06    | 110.01   | 118.28    | ECP2-GFDL (future)           |
| 19                           | 26.92             | 35.86                                                                           | 49.21  | 56.39   | 65.47   | 72.2    | 79.17    | 86.67    | 96.57    | 104.05    | ECP2-GFDL (historical)       |
| 20                           | 23.08             | 33.52                                                                           | 45.74  | 53.83   | 64.06   | 71.64   | 78.89    | 85.55    | 94.34    | 100.98    | ECP2-HadCM3 (historical)     |
| 21                           | 19.23             | 22.51                                                                           | 30.54  | 35.86   | 42.58   | 47.56   | 52.51    | 57.44    | 63.95    | 68.86     | CRCM-CGCM3 (future)          |
| 22                           | 15.38             | 15.96                                                                           | 23.6   | 28.66   | 35.06   | 39.8    | 44.51    | 49.2     | 55.39    | 60.07     | CRCM-CGCM3 (historical)      |
| 23                           | 11.54             | 15.78                                                                           | 21.65  | 25.55   | 30.46   | 34.11   | 37.73    | 41.34    | 46.1     | 49.69     | CRCM-CCSM (future)           |
| 24                           | 7.69              | 13.05                                                                           | 18.46  | 22.04   | 26.57   | 29.93   | 33.26    | 36.58    | 40.96    | 44.27     | CRCM-CCSM (historical)       |
| 25                           | 3.85              | 10.07                                                                           | 14.41  | 17.29   | 20.92   | 23.61   | 26.28    | 28.94    | 32.46    | 35.11     | Observed                     |
| HUC: 2080202; Duration: 6 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 46.81                                                                           | 64.53  | 76.26   | 91.08   | 102.08  | 112.99   | 123.87   | 138.21   | 149.06    | HRM3-GFDL (future)           |
| 2                             | 92.31             | 45.22                                                                           | 62.1   | 73.28   | 87.4    | 97.87   | 108.27   | 118.63   | 132.3    | 144.26    | RCM3-GFDL (historical)       |
| 3                             | 88.46             | 41.26                                                                           | 58.48  | 69.87   | 84.28   | 94.96   | 105.56   | 116.13   | 131.47   | 142.63    | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 39.33                                                                           | 50.15  | 59.37   | 75.87   | 88.84   | 101.71   | 114.54   | 130.07   | 140.61    | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 37.04                                                                           | 48.87  | 58.78   | 73.4    | 84.24   | 95       | 105.73   | 119.87   | 130.57    | RCM3-CGCM3 (future)          |
| 6                             | 76.92             | 36.21                                                                           | 47.76  | 58.38   | 71.03   | 79.68   | 88.27    | 98.13    | 111.51   | 121.62    | RCM3-GFDL (future)           |
| 7                             | 73.08             | 33.09                                                                           | 47.21  | 55.19   | 67.57   | 77.82   | 88       | 96.82    | 108.11   | 117.59    | RCM3-CGCM3 (historical)      |
| 8                             | 69.23             | 32.94                                                                           | 44.7   | 54.85   | 65.97   | 75.76   | 85.48    | 95.16    | 107.94   | 116.63    | HRM3-GFDL (historical)       |
| 9                             | 65.38             | 32.79                                                                           | 44.55  | 53.75   | 63.82   | 70.48   | 77.08    | 83.66    | 93       | 100.1     | WRFG-CGCM3 (historical)      |
| 10                            | 61.54             | 29.74                                                                           | 44.26  | 52.78   | 63.17   | 69.31   | 76.47    | 83.59    | 92.34    | 98.98     | WRFG-CCSM (future)           |
| 11                            | 57.69             | 29.12                                                                           | 43.42  | 52.39   | 62.11   | 69.1    | 75.63    | 82.68    | 91.96    | 98.9      | WRFG-CGCM3 (future)          |
| 12                            | 53.85             | 27.45                                                                           | 42.82  | 51.85   | 61.45   | 68.57   | 74.98    | 80.83    | 88.56    | 94.4      | MM5I-HadCM3 (future)         |
| 13                            | 50.00             | 26.65                                                                           | 42.33  | 50.36   | 59.13   | 65.64   | 72.09    | 78.52    | 87.01    | 93.43     | MM5I-HadCM3 (historical)     |
| 14                            | 46.15             | 26.59                                                                           | 39.9   | 47.04   | 56.06   | 62.75   | 69.39    | 76.01    | 84.74    | 91.33     | WRFG-CCSM (historical)       |
| 15                            | 42.31             | 26.56                                                                           | 37.99  | 44.96   | 53.77   | 60.31   | 66.8     | 73.27    | 81.8     | 88.24     | MM5I-CCSM (future)           |
| 16                            | 38.46             | 26.3                                                                            | 35.47  | 42.1    | 51.34   | 58.19   | 65       | 71.78    | 80.72    | 87.48     | MM5I-CCSM (historical)       |
| 17                            | 34.62             | 25.32                                                                           | 35.43  | 41.31   | 48.69   | 54.16   | 59.6     | 65.02    | 72.18    | 77.59     | ECP2-GFDL (future)           |
| 18                            | 30.77             | 23.74                                                                           | 34.78  | 41.28   | 48.67   | 54.15   | 59.59    | 65.01    | 72.15    | 77.55     | ECP2-HadCM3 (future)         |
| 19                            | 26.92             | 23.65                                                                           | 32.4   | 37.09   | 43.01   | 47.4    | 51.91    | 56.8     | 63.25    | 68.12     | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 22.17                                                                           | 30.13  | 35.4    | 42.07   | 47.01   | 51.77    | 56.11    | 61.84    | 66.17     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 14.98                                                                           | 20.24  | 23.72   | 28.12   | 31.38   | 34.62    | 37.85    | 42.11    | 45.33     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 10.7                                                                            | 15.69  | 18.99   | 23.16   | 26.25   | 29.32    | 32.38    | 36.42    | 39.47     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 10.58                                                                           | 14.4   | 16.93   | 20.12   | 22.49   | 24.84    | 27.18    | 30.28    | 32.61     | CRCM-CCSM (future)           |
| 24                            | 7.69              | 8.82                                                                            | 12.33  | 14.66   | 17.6    | 19.79   | 21.95    | 24.11    | 26.96    | 29.11     | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 6.28                                                                            | 8.92   | 10.67   | 12.88   | 14.52   | 16.15    | 17.77    | 19.91    | 21.53     | Observed                     |
| HUC: 2080202; Duration: 12 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr (x ≤ X)      | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-----------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance  | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%) | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15           | 24.82                                                                           | 34.11  | 40.26   | 48.03   | 53.8    | 59.52    | 65.22    | 72.74    | 78.42     | HRM3-GFDL (future)           |
| 2                             | 92.31           | 23.99                                                                           | 32.82  | 38.66   | 46.05   | 51.53   | 56.97    | 62.38    | 69.53    | 76.02     | RCM3-GFDL (historical)       |
| 3                             | 88.46           | 21.91                                                                           | 30.9   | 36.85   | 44.37   | 49.94   | 55.48    | 61       | 69.31    | 74.94     | HRM3-HadCM3 (future)         |
| 4                             | 84.62           | 20.91                                                                           | 26.57  | 31.39   | 40.13   | 46.94   | 53.7     | 60.43    | 68.27    | 73.77     | HRM3-HadCM3 (historical)     |
| 5                             | 80.77           | 19.74                                                                           | 25.91  | 31.12   | 38.77   | 44.45   | 50.09    | 55.7     | 63.11    | 68.7      | RCM3-CGCM3 (future)          |
| 6                             | 76.92           | 19.29                                                                           | 25.36  | 30.96   | 37.48   | 42      | 46.49    | 51.61    | 58.59    | 63.87     | RCM3-GFDL (future)           |
| 7                             | 73.08           | 17.66                                                                           | 25.07  | 29.21   | 35.65   | 41      | 46.31    | 50.96    | 56.85    | 61.81     | RCM3-CGCM3 (historical)      |
| 8                             | 69.23           | 17.59                                                                           | 23.73  | 29.08   | 34.83   | 39.95   | 45.03    | 50.09    | 56.76    | 61.31     | HRM3-GFDL (historical)       |
| 9                             | 65.38           | 17.53                                                                           | 23.7   | 28.43   | 33.78   | 37.27   | 40.73    | 44.18    | 48.98    | 52.7      | WRFG-CGCM3 (historical)      |
| 10                            | 61.54           | 15.92                                                                           | 23.52  | 27.93   | 33.39   | 36.6    | 40.34    | 44.07    | 48.73    | 52.17     | WRFG-CGCM3 (future)          |
| 11                            | 57.69           | 15.59                                                                           | 23.08  | 27.75   | 32.83   | 36.49   | 39.91    | 43.58    | 48.44    | 52.1      | WRFG-CCSM (future)           |
| 12                            | 53.85           | 14.72                                                                           | 22.72  | 27.49   | 32.5    | 36.22   | 39.56    | 42.63    | 46.67    | 49.73     | MM5I-HadCM3 (future)         |
| 13                            | 50.00           | 14.31                                                                           | 22.47  | 26.71   | 31.3    | 34.71   | 38.09    | 41.46    | 45.9     | 49.26     | MM5I-HadCM3 (historical)     |
| 14                            | 46.15           | 14.25                                                                           | 21.23  | 24.96   | 29.68   | 33.18   | 36.65    | 40.11    | 44.68    | 48.13     | WRFG-CCSM (historical)       |
| 15                            | 42.31           | 14.23                                                                           | 20.22  | 23.87   | 28.47   | 31.89   | 35.28    | 38.66    | 43.12    | 46.49     | MM5I-CCSM (future)           |
| 16                            | 38.46           | 14.1                                                                            | 18.93  | 22.38   | 27.22   | 30.8    | 34.36    | 37.91    | 42.59    | 46.13     | MM5I-CCSM (historical)       |
| 17                            | 34.62           | 13.59                                                                           | 18.87  | 21.99   | 25.86   | 28.73   | 31.58    | 34.41    | 38.15    | 40.98     | ECP2-HadCM3 (future)         |
| 18                            | 30.77           | 12.78                                                                           | 18.56  | 21.92   | 25.78   | 28.64   | 31.48    | 34.32    | 38.05    | 40.87     | ECP2-GFDL (future)           |
| 19                            | 26.92           | 12.73                                                                           | 17.29  | 19.75   | 22.84   | 25.14   | 27.49    | 30.05    | 33.42    | 35.97     | ECP2-GFDL (historical)       |
| 20                            | 23.08           | 11.95                                                                           | 16.11  | 18.86   | 22.35   | 24.93   | 27.42    | 29.7     | 32.69    | 34.96     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23           | 8.19                                                                            | 10.94  | 12.76   | 15.06   | 16.76   | 18.46    | 20.14    | 22.37    | 24.05     | CRCM-CGCM3 (future)          |
| 22                            | 15.38           | 5.96                                                                            | 8.56   | 10.29   | 12.47   | 14.09   | 15.69    | 17.29    | 19.4     | 21        | CRCM-CGCM3 (historical)      |
| 23                            | 11.54           | 5.9                                                                             | 7.9    | 9.22    | 10.89   | 12.13   | 13.36    | 14.58    | 16.2     | 17.42     | CRCM-CCSM (future)           |
| 24                            | 7.69            | 4.97                                                                            | 6.81   | 8.02    | 9.56    | 10.7    | 11.83    | 12.96    | 14.45    | 15.58     | CRCM-CCSM (historical)       |
| 25                            | 3.85            | 3.66                                                                            | 5.1    | 6.06    | 7.26    | 8.16    | 9.04     | 9.93     | 11.09    | 11.98     | Observed                     |
| HUC: 2080202; Duration: 24 hr |                 | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 13.05                                                                           | 17.89  | 21.09   | 25.13   | 28.13   | 31.11    | 34.07    | 37.99    | 40.95     | HRM3-GFDL (future)           |
| 2                             | 92.31             | 12.62                                                                           | 17.2   | 20.24   | 24.08   | 26.92   | 29.75    | 32.56    | 36.28    | 39.72     | RCM3-GFDL (historical)       |
| 3                             | 88.46             | 11.53                                                                           | 16.2   | 19.29   | 23.19   | 26.09   | 28.96    | 31.83    | 36.23    | 39.09     | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 11.02                                                                           | 13.96  | 16.46   | 21.04   | 24.59   | 28.1     | 31.61    | 35.6     | 38.46     | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 10.42                                                                           | 13.61  | 16.33   | 20.31   | 23.26   | 26.19    | 29.1     | 32.95    | 35.86     | RCM3-CGCM3 (future)          |
| 6                             | 76.92             | 10.18                                                                           | 13.34  | 16.27   | 19.63   | 21.98   | 24.31    | 26.96    | 30.59    | 33.33     | RCM3-GFDL (future)           |
| 7                             | 73.08             | 9.33                                                                            | 13.18  | 15.32   | 18.67   | 21.45   | 24.21    | 26.63    | 29.69    | 32.28     | RCM3-CGCM3 (historical)      |
| 8                             | 69.23             | 9.3                                                                             | 12.49  | 15.28   | 18.25   | 20.91   | 23.55    | 26.18    | 29.65    | 32        | HRM3-GFDL (historical)       |
| 9                             | 65.38             | 9.27                                                                            | 12.49  | 14.92   | 17.73   | 19.54   | 21.34    | 23.14    | 25.61    | 27.54     | WRF3-CGCM3 (historical)      |
| 10                            | 61.54             | 8.43                                                                            | 12.39  | 14.67   | 17.49   | 19.17   | 21.12    | 23.05    | 25.51    | 27.3      | WRF3-CGCM3 (future)          |
| 11                            | 57.69             | 8.26                                                                            | 12.15  | 14.58   | 17.22   | 19.1    | 20.92    | 22.84    | 25.36    | 27.27     | WRF3-CCSM (future)           |
| 12                            | 53.85             | 7.81                                                                            | 11.96  | 14.46   | 17.06   | 19      | 20.69    | 22.28    | 24.38    | 25.96     | MM5I-HadCM3 (future)         |
| 13                            | 50.00             | 7.59                                                                            | 11.83  | 14.04   | 16.43   | 18.2    | 19.96    | 21.71    | 24.03    | 25.77     | MM5I-HadCM3 (historical)     |
| 14                            | 46.15             | 7.56                                                                            | 11.2   | 13.14   | 15.6    | 17.42   | 19.22    | 21.02    | 23.4     | 25.2      | WRF3-CCSM (historical)       |
| 15                            | 42.31             | 7.54                                                                            | 10.67  | 12.57   | 14.96   | 16.74   | 18.5     | 20.26    | 22.58    | 24.33     | MM5I-CCSM (future)           |
| 16                            | 38.46             | 7.48                                                                            | 10     | 11.79   | 14.3    | 16.16   | 18.01    | 19.86    | 22.29    | 24.13     | MM5I-CCSM (historical)       |
| 17                            | 34.62             | 7.22                                                                            | 9.96   | 11.59   | 13.6    | 15.09   | 16.57    | 18.05    | 19.99    | 21.46     | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 6.79                                                                            | 9.8    | 11.55   | 13.55   | 15.04   | 16.51    | 17.98    | 19.92    | 21.39     | ECP2-GFDL (future)           |
| 19                            | 26.92             | 6.78                                                                            | 9.15   | 10.42   | 12.04   | 13.23   | 14.46    | 15.78    | 17.54    | 18.86     | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 6.37                                                                            | 8.53   | 9.97    | 11.78   | 13.12   | 14.42    | 15.6     | 17.16    | 18.34     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 4.42                                                                            | 5.84   | 6.78    | 7.97    | 8.85    | 9.73     | 10.6     | 11.76    | 12.63     | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 3.25                                                                            | 4.6    | 5.5     | 6.63    | 7.47    | 8.3      | 9.13     | 10.22    | 11.05     | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 3.22                                                                            | 4.26   | 4.95    | 5.82    | 6.47    | 7.11     | 7.75     | 8.6      | 9.23      | CRCM-CCSM (future)           |
| 24                            | 7.69              | 2.74                                                                            | 3.7    | 4.33    | 5.13    | 5.72    | 6.31     | 6.89     | 7.67     | 8.25      | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 2.05                                                                            | 2.87   | 3.41    | 4.1     | 4.61    | 5.12     | 5.62     | 6.29     | 6.79      | Observed                     |
| HUC: 2080202; Duration: 48 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |

| Rank                          | Pr ( $x \leq X$ ) | Intensity (mm h <sup>-1</sup> ) for the Return Period or Exceedance Probability |        |         |         |         |          |          |          |           | Data Source<br>for 1000-year |
|-------------------------------|-------------------|---------------------------------------------------------------------------------|--------|---------|---------|---------|----------|----------|----------|-----------|------------------------------|
|                               | Non-exceedance    | 2                                                                               | 5      | 10      | 25      | 50      | 100      | 200      | 500      | 1000      |                              |
|                               | Probability (%)   | 0.5                                                                             | 0.2    | 0.1     | 0.04    | 0.02    | 0.01     | 0.005    | 0.002    | 0.001     |                              |
| 1                             | 96.15             | 8.56                                                                            | 11.69  | 13.77   | 16.4    | 18.34   | 20.28    | 22.2     | 24.74    | 26.66     | HRM3-GFDL (future)           |
| 2                             | 92.31             | 8.28                                                                            | 11.25  | 13.23   | 15.72   | 17.57   | 19.4     | 21.23    | 23.64    | 25.86     | RCM3-GFDL (historical)       |
| 3                             | 88.46             | 7.57                                                                            | 10.59  | 12.59   | 15.12   | 17      | 18.86    | 20.71    | 23.59    | 25.46     | HRM3-HadCM3 (future)         |
| 4                             | 84.62             | 7.24                                                                            | 9.14   | 10.76   | 13.74   | 16.04   | 18.32    | 20.6     | 23.16    | 25.01     | HRM3-HadCM3 (historical)     |
| 5                             | 80.77             | 6.85                                                                            | 8.92   | 10.69   | 13.27   | 15.19   | 17.09    | 18.98    | 21.48    | 23.37     | RCM3-CGCM3 (future)          |
| 6                             | 76.92             | 6.7                                                                             | 8.75   | 10.65   | 12.81   | 14.33   | 15.84    | 17.58    | 19.94    | 21.72     | RCM3-GFDL (future)           |
| 7                             | 73.08             | 6.15                                                                            | 8.65   | 10.03   | 12.2    | 14.01   | 15.8     | 17.34    | 19.34    | 21.05     | RCM3-CGCM3 (historical)      |
| 8                             | 69.23             | 6.13                                                                            | 8.19   | 10      | 11.94   | 13.67   | 15.38    | 17.09    | 19.32    | 20.82     | HRM3-GFDL (historical)       |
| 9                             | 65.38             | 6.1                                                                             | 8.19   | 9.77    | 11.59   | 12.77   | 13.94    | 15.11    | 16.68    | 17.93     | WRFG-CGCM3 (historical)      |
| 10                            | 61.54             | 5.57                                                                            | 8.13   | 9.61    | 11.43   | 12.52   | 13.78    | 15.03    | 16.65    | 17.81     | WRFG-CGCM3 (future)          |
| 11                            | 57.69             | 5.46                                                                            | 7.97   | 9.54    | 11.25   | 12.48   | 13.66    | 14.91    | 16.54    | 17.78     | WRFG-CCSM (future)           |
| 12                            | 53.85             | 5.16                                                                            | 7.85   | 9.47    | 11.16   | 12.42   | 13.51    | 14.54    | 15.9     | 16.93     | MM5I-HadCM3 (future)         |
| 13                            | 50.00             | 5.02                                                                            | 7.77   | 9.2     | 10.74   | 11.89   | 13.03    | 14.16    | 15.66    | 16.79     | MM5I-HadCM3 (historical)     |
| 14                            | 46.15             | 5                                                                               | 7.36   | 8.61    | 10.2    | 11.38   | 12.55    | 13.72    | 15.26    | 16.42     | WRFG-CCSM (historical)       |
| 15                            | 42.31             | 4.98                                                                            | 7.01   | 8.24    | 9.79    | 10.94   | 12.09    | 13.23    | 14.73    | 15.86     | MM5I-CCSM (future)           |
| 16                            | 38.46             | 4.94                                                                            | 6.58   | 7.74    | 9.38    | 10.59   | 11.79    | 12.99    | 14.57    | 15.77     | MM5I-CCSM (historical)       |
| 17                            | 34.62             | 4.78                                                                            | 6.56   | 7.61    | 8.91    | 9.87    | 10.83    | 11.79    | 13.04    | 14        | ECP2-HadCM3 (future)         |
| 18                            | 30.77             | 4.5                                                                             | 6.45   | 7.59    | 8.89    | 9.85    | 10.81    | 11.77    | 13.02    | 13.98     | ECP2-GFDL (future)           |
| 19                            | 26.92             | 4.49                                                                            | 6.02   | 6.85    | 7.89    | 8.67    | 9.47     | 10.33    | 11.47    | 12.33     | ECP2-GFDL (historical)       |
| 20                            | 23.08             | 4.22                                                                            | 5.62   | 6.55    | 7.73    | 8.6     | 9.43     | 10.2     | 11.21    | 11.97     | ECP2-HadCM3 (historical)     |
| 21                            | 19.23             | 2.96                                                                            | 3.88   | 4.49    | 5.26    | 5.83    | 6.39     | 6.96     | 7.7      | 8.26      | CRCM-CGCM3 (future)          |
| 22                            | 15.38             | 2.21                                                                            | 3.08   | 3.66    | 4.39    | 4.94    | 5.48     | 6.01     | 6.72     | 7.26      | CRCM-CGCM3 (historical)      |
| 23                            | 11.54             | 2.19                                                                            | 2.86   | 3.3     | 3.86    | 4.28    | 4.69     | 5.11     | 5.65     | 6.06      | CRCM-CCSM (future)           |
| 24                            | 7.69              | 1.88                                                                            | 2.49   | 2.9     | 3.42    | 3.8     | 4.19     | 4.57     | 5.07     | 5.44      | CRCM-CCSM (historical)       |
| 25                            | 3.85              | 1.45                                                                            | 2.03   | 2.42    | 2.91    | 3.27    | 3.63     | 3.99     | 4.46     | 4.82      | Observed                     |
| HUC: 2080202; Duration: 72 hr |                   | 2-year                                                                          | 5-year | 10-year | 25-year | 50-year | 100-year | 200-year | 500-year | 1000-year |                              |