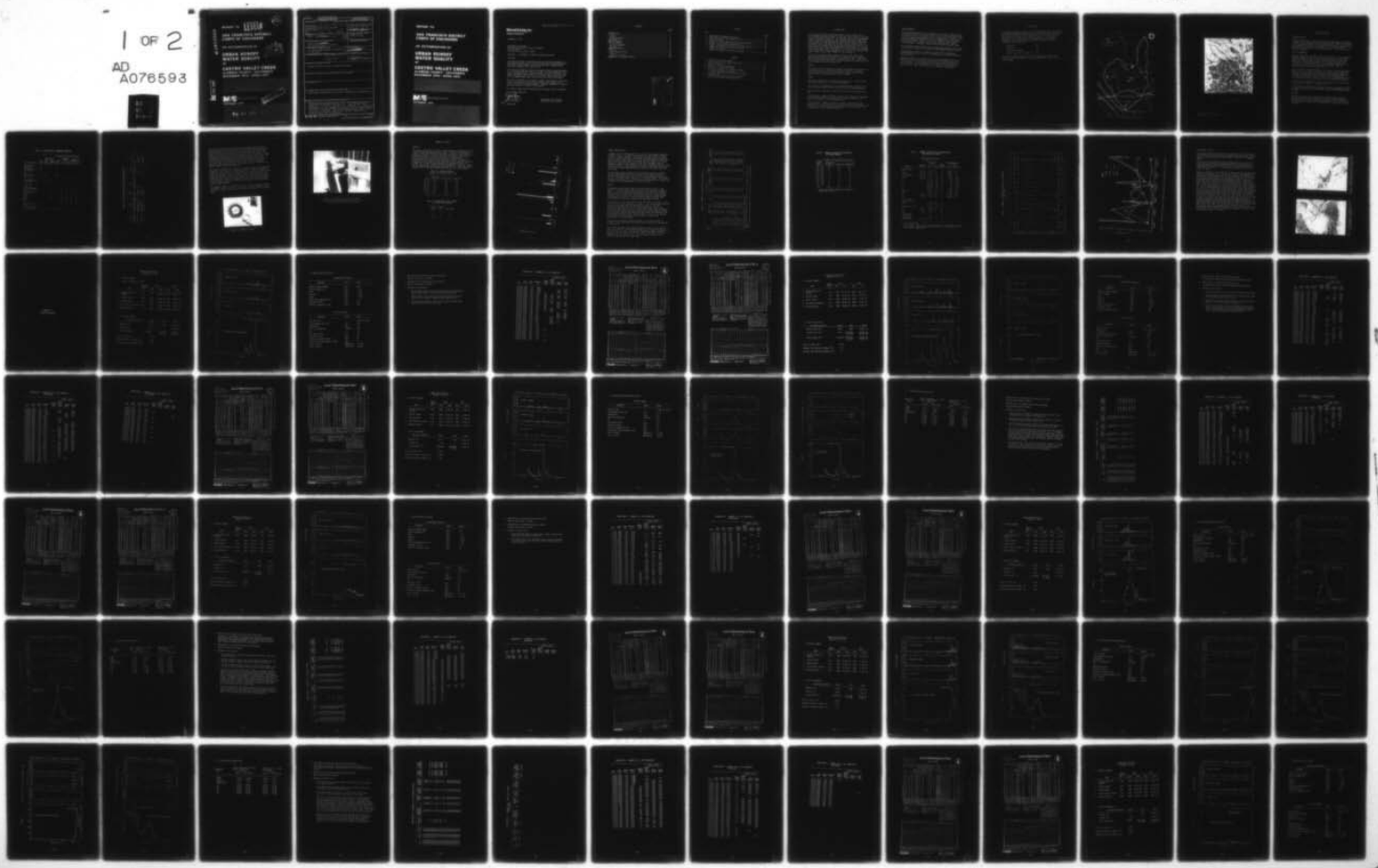
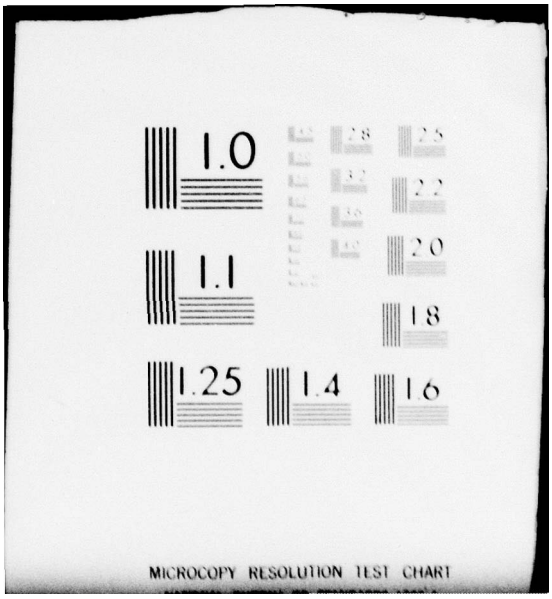
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REPORT TO

LEVEL II

SAN FRANCISCO DISTRICT CORPS OF ENGINEERS

ON DETERMINATION OF

URBAN RUNOFF WATER QUALITY

AT

CASTRO VALLEY CREEK

ALAMEDA COUNTY, CALIFORNIA

NOVEMBER 1978 - APRIL 1979

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The report investigates the contaminant loading carried from urban developed areas by storm runoff and deposited in the bay system. 15 storms with 2 major storms (0.5 in. or more of rain) and 2 minor storms (0.2 in. or more of rain) were sampled at 15 min. intervals for the initial peak and 1 hour intervals for the rest of the storm. Samples were tested for COD, N, ortho P, Pb, Cr, Cu, Cd, Ni, Zn, alkalinity, MBAS, SS, USS, specific conductance, pH, settleable soilds, BOD, and coliforms.

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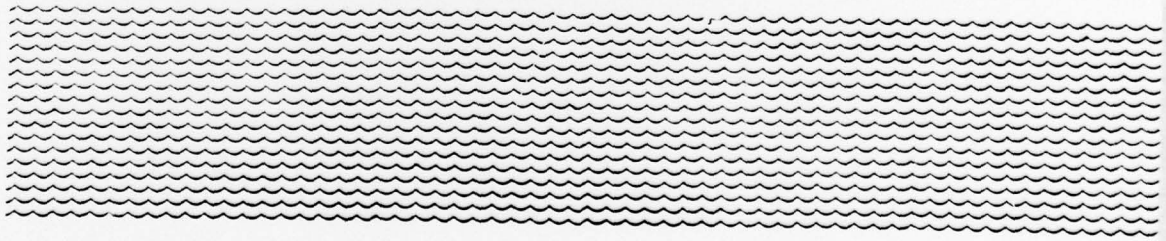
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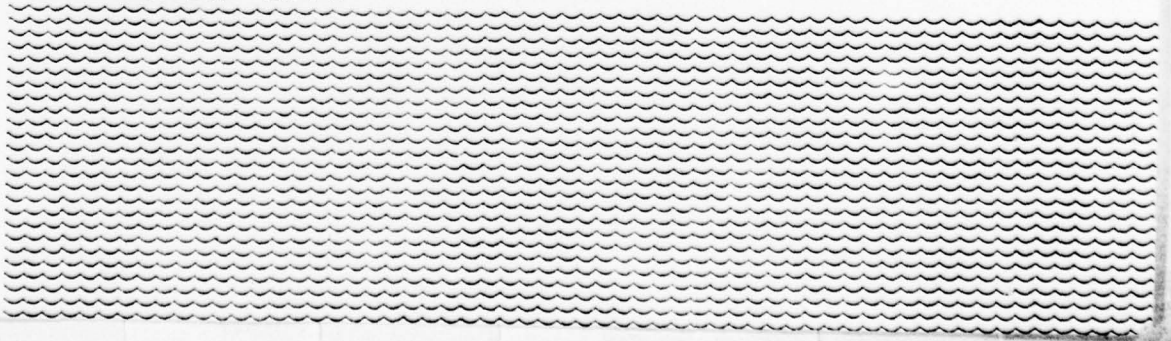
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Metcalf & Eddy, Inc.

Engineers & Planners

September 6, 1979

Department of the Army
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, California 94105

Attention: LTC Raymond F. Jackson, Contracting Officer

Gentlemen:

Transmitted herewith in accordance with our Contract No. DACW07-78-C-0067 Dated 18 October 1978 is our Final Report on the Determination of Urban Runoff Water Quality at Castro Valley Creek, Alameda County, California, November 1978 - April 1979.

This report presents the results of the water quality sampling program for 15 storms during the fiscal year 1979. The data presented in this report supplement data collected previously at the site during fiscal years 1972 through 1976 by the U.S. Geological Survey and fiscal year 1977 by Alameda County under contract with the Corps of Engineers.

Information presented in the report includes a description of the study area, a description of the sampling program, and a summary of the results of the water quality analyses. Detailed information on each of the storm events is included in the appendix.

We sincerely appreciate the opportunity of working on this assignment.

Respectfully submitted,

John A. Lager, PE
Vice President

Registered Civil Engineer
California License 16359

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INTRODUCTION

In 1972, the California State Water Quality Control Board, the U.S. Environmental Protection Agency, and the San Francisco District of the Corps of Engineers entered into an interagency water quality management planning assistance agreement. The agreement specified, among other things, that the Corps would provide planning assistance to the state for preparation of the Comprehensive Water Quality Control Plans for hydrologic basins within the San Francisco Bay and delta region. One aspect of the assistance was determining the feasibility of collecting and treating urban storm runoff from the 12-county study area (Alameda, Contra Costa, Marin, Napa, Sacramento, San Francisco, San Joaquin, San Mateo, Santa Clara, Solano, Sonoma, and Yolo counties).

In 1972, a pilot monitoring program to collect urban storm runoff quality data from the Castro Valley Creek watershed was established. Additional watersheds were added to the program in 1973. Since 1972, the Corps has been responsible for gathering additional quality data for Castro Valley Creek on an annual basis.

PURPOSE

The purpose of this study was to determine the quantity and quality of urban storm runoff at Castro Valley Creek, California. The data collected will be used in the assessment of surface runoff control measures within the Castro Valley Creek watershed.

FORMAT

The report presentation is organized into four parts. The individual storm event reports are located in the Appendix.

The first part, Introduction, includes the background, purpose of the study, the presentation format description, and the acknowledgments.

The second part, Study Area, describes the Castro Valley Creek study area.

The third part, Sampling Program, includes a description of storm event definition along with a discussion of the quality parameters, the analysis procedures, and the equipment used.

The fourth part, Summary of Results, provides a discussion of the characteristics of the storm event, the daily rainfall distribution, the quality of the runoff during the storm event, and an estimate of the pollutant mass loads from the storm event.

ACKNOWLEDGMENTS

This report was submitted in fulfillment of Contract No. DACW07-78-0067 by Metcalf & Eddy, Inc., Western Regional Office, under the sponsorship of the San Francisco District of the U.S. Army Corps of Engineers. Work covers the period from September 1978 to September 1979. This report has been prepared by George B. Otte and Elizabeth M. Gowen under the direction of John A. Lager, Vice President, and William G. Smith, Project Manager. Laboratory analyses were performed by Ronald Ranes.

The cooperation and assistance of Mr. Richard Byers and Mr. Dennis Thuet of the Corps of Engineers is gratefully acknowledged by Metcalf & Eddy.

The assistance of the U.S. Geological Survey (USGS) in providing streamflow and rainfall records is acknowledged, especially the help of John Limerinos.

Additional rainfall records were provided by the Alameda County Flood Control District. The district also provided invaluable service by notifying Metcalf & Eddy personnel of the actual onset of rainfall in the study area. The assistance of Jack Lindley, Garry Shawley, Fred Wolin, and P.E. Baker of the district is gratefully appreciated.

STUDY AREA

The study area shown in Figure 1 is the drainage basin for Castro Valley Creek and Tanglewood Creek above the USGS stream gage just upstream of the junction of Castro Valley Creek and San Lorenzo Creek. An aerial photo view of the study area is shown in Figure 2. The tributary watershed area is approximately 5 square miles and is about 85% urbanized. Recent land use surveys estimate the area to have the following land use compostion:

Residential	40%
Commercial	9%
Streets and highways	21%
Vacant, open, and agricultural	30%

The basin is typically residential and includes more than a dozen schools, some light commercial areas, and automobile traffic from a major highway.

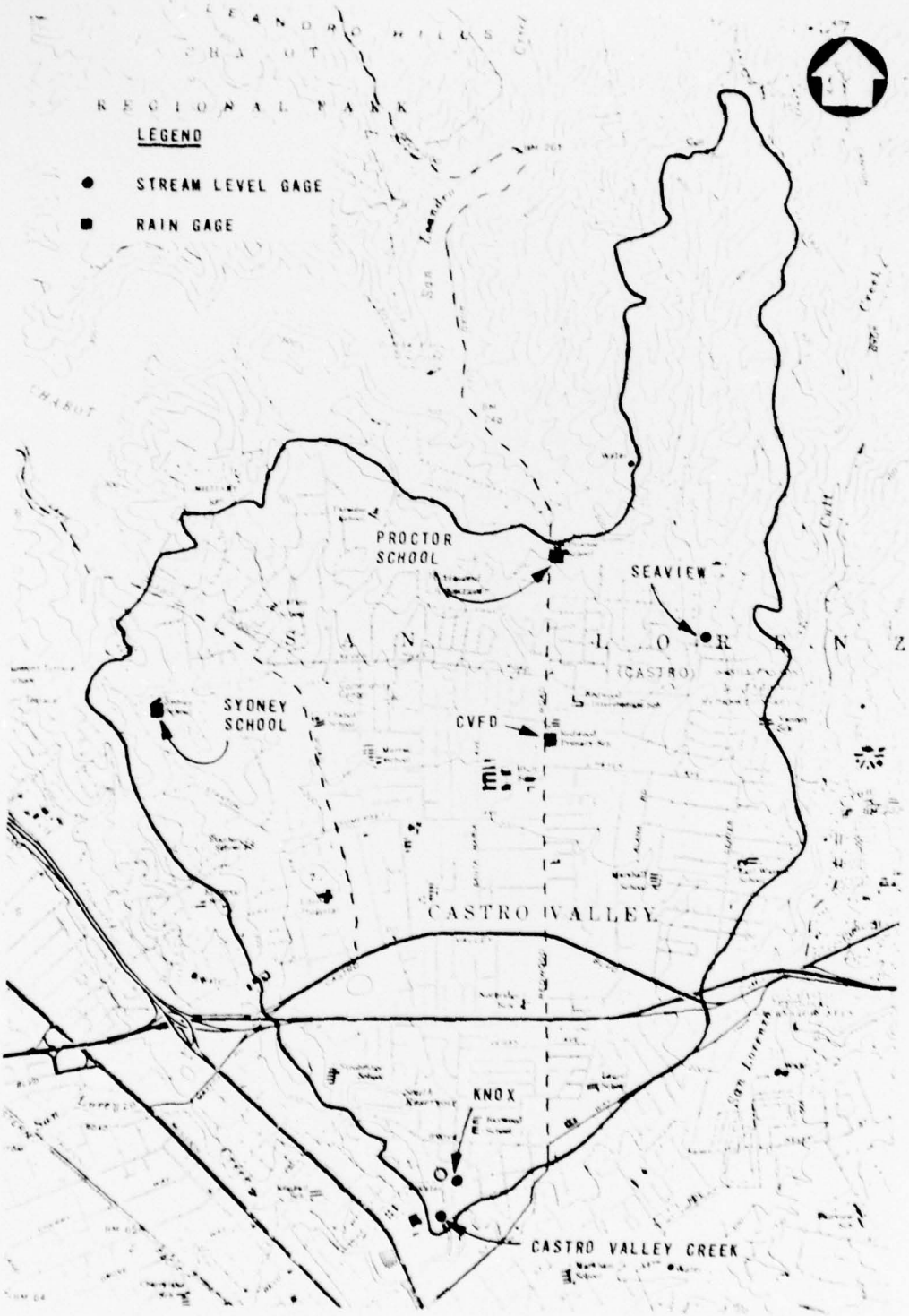


Figure 1. Castro Valley Creek watershed.



Figure 2. Aerial view of
Castro Valley study site.

Photograph furnished by
Alameda County Flood Control District

SAMPLING PROGRAM

STORM DEFINITION

A storm was defined as any period during which measurable precipitation occurred in the Castro Valley Creek watershed and in which at least 1/10 inch of rain was recorded. A storm event was defined as any storm which was preceded and followed by a period of 6 or more hours with no measurable precipitation. The maximum length of a storm event was not to exceed 24 hours.

QUALITY PARAMETERS

Quality samples were obtained during 15 storm events. A flow weighted composite sample was collected and analyzed for each of the storms. With each composite sample a single depth integrated discrete grab sample was collected and analyzed. The discrete grab sample was collected at the same time as one of the individual samples for the composite as a check to ensure that the individual sample was representative of the flow at that time.

Of the 15 storms, 2 major storms (0.5 in. or more of rain) and 2 minor storms (0.2 in. or more of rain) were selected for detailed analysis. Individual discrete samples in addition to the composite sample were collected and analyzed. These individual discrete samples were collected at 15-minute intervals for the initial streamflow peak and at 1 hour intervals for the rest of the storm or a maximum of 24 hours.

The water quality parameters included in the analyses for each of the various types of storms are listed in Table 1.

All analyses were conducted in accordance with the procedures described in Standard Methods for the Examination of Water and Wastewater, 14th Edition.

EQUIPMENT

Rainfall and stream level recorders and mechanical water sampling equipment were used during this study. Three continuously recording rain gages monitor rainfall within the watershed. The location and characteristics of these gages are summarized in Table 2 and are shown in Figure 1.

Table 1. WATER QUALITY PARAMETERS ANALYZED

Water quality parameters	All sample periods	Selected storms		Major and minor storm intensive sampling				
		Discrete grab samples	Flow weighted composite	Discrete grab samples	Flow weighted composite 15 min.		Flow weighted composite - 1 hr	
					Total	Dissolved	Total	Dissolved
Maximum discharge	X							
Average discharge	X	X		X				
Date and time	X							
Graph of flow	X							
Observations and comments	X							
Total discharge	X							
Flow		X		X				
Temperature		X		X				
Specific conductance		X		X				
pH		X		X				
Alkalinity, total					X	X	X	X
Suspended solids		X	X	x				
Volatile suspended solids		X	X					
Settleable solids		X						
Coliform, total		X		X				
Coliform, fecal		X		X				
Nitrogen, total			X	X				
Nitrogen, total nitrate					X	X	X	X
Nitrogen, total Kjeldahl					X	X	X	X
Phosphorus, total				X				
Phosphorus, total ortho			X		X	X	X	X
Cadmium					X	X	X	X
Chromium			X		X	X	X	X
Copper			X		X	X	X	X
Lead			X		X	X	X	X
Mercury					X	X	X	X
Nickel					X	X	X	X
Zinc					X	X	X	X
MBAS (methyl blue active substances)					X	X	X	X
Biochemical oxygen demand		X		X				
Chemical oxygen demand			X					

Table 2. RAIN GAGE LOCATION AND CHARACTERISTICS

Name	Location	Gage type	Owner	Operator	Accuracy
Castro Valley Fire District	Intersection of Redwood Road and Heyer Avenue	Weighing bucket	Alameda County Flood Control District	Castro Valley Fire Department	0.01 in. continuous chart
Proctor School	Redwood Road opposite Hillside Avenue	Digital recorder	USGS	USGS	0.01 in. 15-min increment
Sydney School	Sydney Way opposite Clyda Court	Digital recorder	USGS	USGS	0.01 in. 15-min increment

The stream level at the Castro Valley Creek gage was monitored by a manometer-servo water level sensor and recored on a paper tape digital recorder and also on a continuous strip chart owned and operated by USGS. The USGS provided the stream level data for this study. Two additional stream level recorders, Seaview and Knox (see Figure 1) were installed and operated by USGS during the 1978-1979 storm season. The two additional stream gages were used by the Alameda County Flood Control District for monitoring flow and quality from two subareas in the Castro Valley Creek watershed as part of a separate project. Metcalf & Eddy used these gages only to obtain general information on runoff patterns within the study area.

Water quality samples were collected using both automatic and hand grab techniques. All samples for intensive analysis or for flow weighted composite analysis were collected using an ISCO automatic sampler, Model 1680. The automatic sampler lifted the sample approximately 18 feet through 25 feet of 1/4-in. I.D. vinyl tubing. Discrete samples were collected directly into the sample bottles during periods of low flow. During periods of high flow, personnel safety considerations required using a sampling bucket to collect discrete samples rather than more sophisticated equipment.

The automatic sampler is shown in Figure 3. The streamflow recording equipment is shown in Figure 4. The digital encoder, manometer-servo water level sensor, and strip chart recorder are shown inside the gage house.

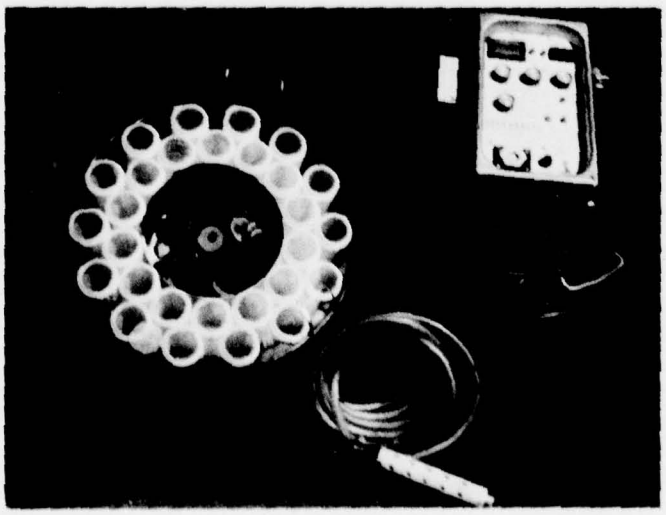


Figure 3. Automatic sampler.

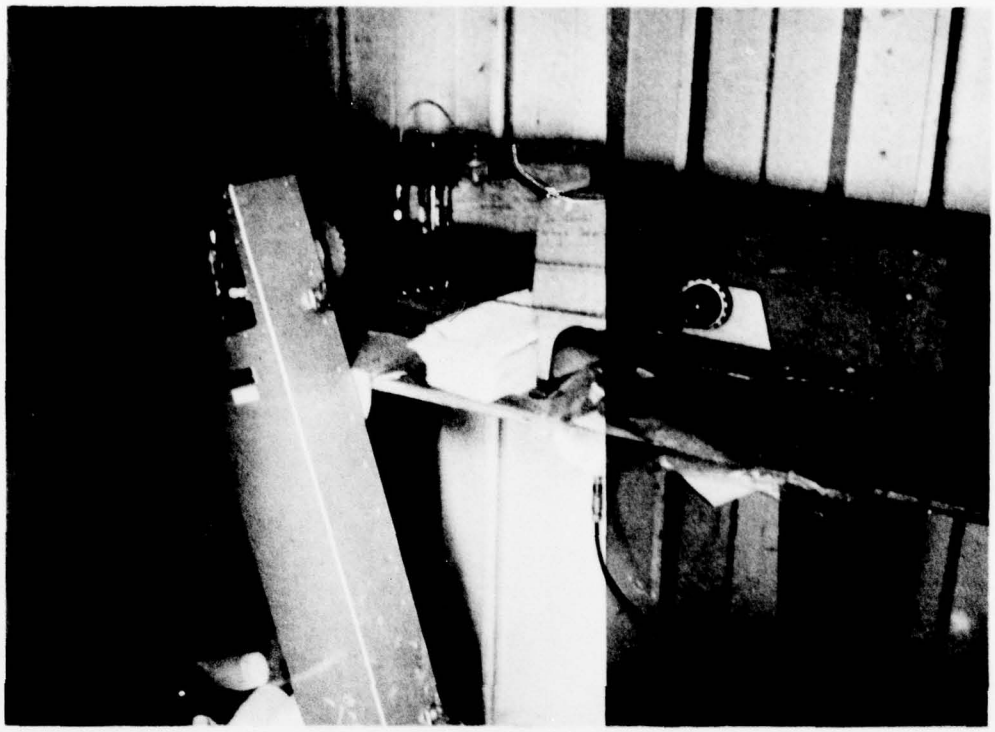


Figure 4. Stream flow recording equipment (left to right--digital encoder, manometer-servo level sensor, and strip chart recorder).

SUMMARY OF RESULTS

RAINFALL

The surface runoff from 15 storms occurring between 1 November 1978 and 1 May 1979 was sampled during this study. A listing of the monthly rainfall during this period for the three raingages in the study area is presented in Table 3. A daily history of the rainfall during this period for the Proctor School gage (the only gage for which uninterrupted daily records were available) is shown in Figure 5. Identified in the figure are the storms during which sampling occurred. A comparison of days during which sampling occurred with days of rainfall for various rainfall amounts is presented in Table 4. Water quality sampling was performed on approximately 40% of the days rainfall occurred; 80% of the major storms (rainfall >0.5 in.) were sampled.

Table 3. MONTHLY RAINFALL
November 1978 through April 1979

Month	Castro Valley Fire Station	Proctor School	Sydney School
Nov 1978	2.30	2.33	2.16
Dec 1978	1.32	0.81	0.81
Jan 1979	6.56	6.44	6.39
Feb 1979	4.89	4.94	5.07
Mar 1979	3.98	2.77	2.69
Apr 1979	0.78	0.65	0.53
Total	19.83	17.94	17.65

Table 4. COMPARISON OF DAYS SAMPLED
WITH DAYS WITH RAINFALL

Rainfall per day	Number of days	Days sampled
>0	53	21
>0.2	22	16
>0.5	10	8

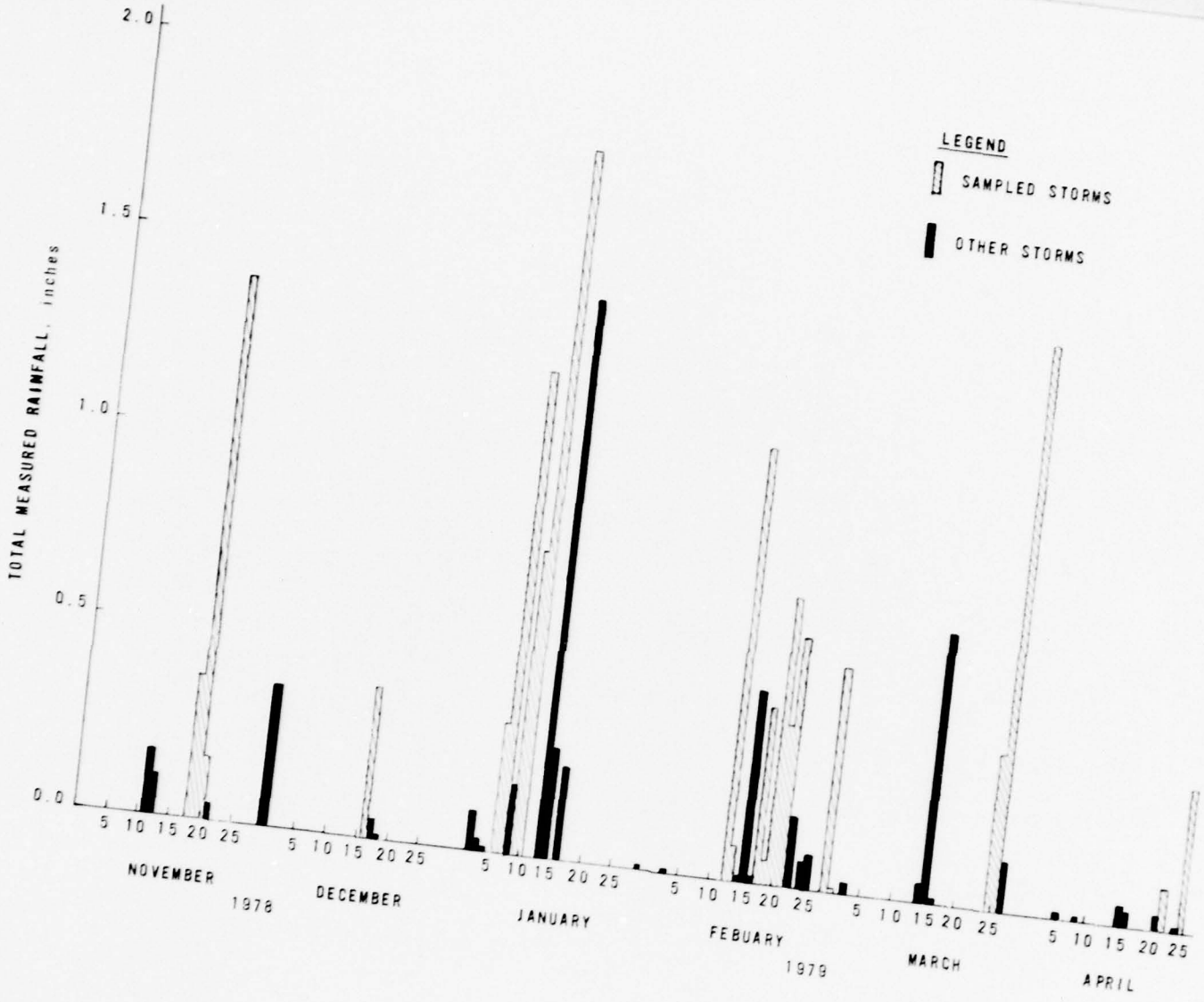


Figure 5. Rainfall at Proctor School gage November 1978 through April 1979.

STORM CHARACTERISTICS

A summary of the storm characteristics for the storm events sampled are listed in Table 5. Included in this table for each storm are: total rainfall, rainfall duration, and maximum 15-minute rainfall intensity for the Proctor School gage. The runoff volume measured at the stream gage, the storm event duration (from the earliest rainfall to 3 hours beyond the latest rainfall at any of the three raingages) and the adjusted rainfall for the study area are also included in Table 5. The adjusted rainfall is the equivalent rainfall for the study area based on the Thiessen Polygon Method using the available rain gage records for each storm.

Of the storms sampled, there were four hundred sixty-seven 15-minute intervals during which rainfall occurred. The largest 15-minute rainfall measurements were 0.40 in. at the Castro Valley Fire Station, 0.25 in. at Proctor School, and 0.18 in. at Sydney School. The rainfall frequency distribution for 15-minute intervals during which rainfall was recorded for the storm sampled is listed in Table 6.

QUALITY

The quality of the surface runoff from Castro Valley Creek is very typical of surface runoff from other parts of the country, as shown in Table 7. All of the measured concentrations are within the range of concentrations for national data with the exception of total Kjeldahl nitrogen; Castro Valley Creek concentrations are only slightly higher. Also summarized in Table 7 are the expected annual pollutant loads extrapolated from the loads computed from the sampled storms.

The variations due to storm and seasonal differences are evident in the normalized mass loads summarized in Table 8. The concentrations that the loads are calculated from are presented in Figure 6. The most interesting characteristic of the concentration variations is the significant drop that often occurs after large storms. This data must be treated with caution because nonstructural, best management practice, surface control measures were being utilized within the watershed with an unquantified impact on the collected data. In fact, it is in part the purpose of this program to collect data to assist in the quantification of those impacts.

The results of the water quality sampling for each storm event are included in the individual storm event reports contained in the appendix to this report.

Stream flow and water quality were monitored at the Knox and Seaview gages (see Figure 1) by the Alameda County Flood Control District during the period of this study. The District expects to submit a progress report to the U.S. EPA on the results of their fiscal year 1978-1979 sampling program in October 1979. A final report on their 2-year program is anticipated in October 1980.

Table 5. SUMMARY OF STORM EVENT CHARACTERISTICS

Storm event No.		Storm type[b]	Analysis type	Rainfall[a]			Adjusted rainfall, in.[c]	Runoff volume, ft^3	Storm event duration, hr
				Total, in.	Duration, hr	Maximum 15 min intensity, in.			
1	19 Nov 1978	Minor	Composite	0.39	6.25	0.04	0.36	783,600	9.50
2	20-21 Nov 1978	Major	Composite	1.38	19.50	0.10	1.41	4,334,800	25.00
3	17 Dec 1978	Minor	Intensive	0.39	12.50	0.05	0.40	1,035,800	21.00
4	7 Jan 1979	Minor	Composite	0.34	14.75	0.02	0.36	682,600	15.25
5	8 Jan 1979	Major	Intensive	1.24	6.00	0.18	1.34	6,225,900	9.50
6	10-11 Jan 1979	Major	Intensive	2.57	18.75	0.13	2.38	17,946,700	26.00
7	30 Jan 1979	--	Composite	0.01	0.25	0.01	0.04	80,300	5.75
8	13-14 Feb 1979	Major	Intensive	1.20	28.25	0.06	1.20	7,765,000	33.00
9	18 Feb 1979	Minor	Composite	0.45	10.00	0.14	0.46	3,561,400	13.75
10	20-21 Feb 1979	Major	Composite	1.15	31.00	0.08	1.35	14,200,600	35.00
11	22 Feb 1979	Major	Composite	0.64	13.75	0.13	0.78	6,513,000	17.25
12	28 Feb-1 Mar 1979	Major	Composite	0.59	9.75	0.09	0.62	2,515,300	13.25
13	26-27 Mar 1979	Major	Composite	1.84	39.00	0.25	2.00	6,922,800	39.50
14	23 Apr 1979	--	Composite	0.09	0.50	0.06	0.09	136,000	4.25
15	26 Apr 1979	Minor	Composite	0.37	12.25	0.06	0.36	971,700	15.25

a. Rainfall data measured at Proctor School rain gage.

b. A major storm event is defined as >0.5 in. of rainfall; a minor storm event is defined as >0.2 in. rainfall.

c. Rainfall adjusted by Thiessen Polygon Method using available rain gage records in drainage areas.

Table 6. RAINFALL FREQUENCY DISTRIBUTION FOR STORMS SAMPLED

15-minute rainfall range, in.	Number of 15-minute intervals with rainfall		
	Castro Valley Fire Station	Proctor School	Sydney School[a]
0.01 - 0.04	344	389	281
0.05 - 0.09	71	75	37
0.10 - 0.14	11	10	10
0.15 - 0.19	1	2	2
0.20 - 0.24	0	0	0
0.25 - 0.29	2	1	0
0.30 - 0.34	0	0	0
0.35 - 0.39	0	0	0
0.40 - 0.44	1	0	0
0.44 - 0.54	0	0	0
Total	430	467	330

a. Sydney School gage was inoperable during portions of February, March, and April.

Table 7. SUMMARY OF CONSTITUENT CONCENTRATIONS AND ANNUAL MASS LOADS

Parameter	Constituent concentration, mg/L[a]			No. of storms analyzed	Castro Valley Creek, mass loads	
	Range for 8 cities[b]	Castro Valley Creek				
		Range	Average		lb/yr	lb/acre·yr
Composite samples						
COD	48-170	45-329	127	11	559,000	160
Total N	0.82-5.80	1.1-9.6	5.0	15	29,700	8
Total Kjeldahl N	0.57-2.09	1.6-2.7	2.3	4	14,800	4
Ortho P	0.15-1.00	0.18-1.30	0.40	15	2,600	0.73
Pb	0.15-0.75	0.1-0.8	0.3	15	1,600	0.46
Cr	--	0.03-0.06	0.06	15	410	0.12
Cu	--	0.03-0.10	0.06	15	16	0.005
Cd	--	0.01-0.01	0.01	4	73	0.02
Ni	--	0.06-0.06	0.06	4	510	0.14
Zn	--	0.04-0.19	0.11	4	610	0.17
Alkalinity	--	26-30	28	3	164,000	45
MBAS	--	0.04-0.13	0.08	4	580	0.16
SS	147-1,223	50-528	254	15	1,772,000	500
VSS	53-122	16-152	68	11	414,000	120
Discrete samples						
Specific conductance, µmho/cm	--	70-700	180	15	--	--
pH	--	6.0-7.5	6.7	15	--	--
Settleable solids, mL/L	--	0.1-5.5	0.9	15	--	--
SS	147-1,223	16-800	211	15	--	--
VSS	53-122	8-206	57	15	--	--
BOD_5	7-56	5-43	12	15	--	--
Total coliforms, 10^5 MPN/100 mL	--	0.2-46	8.4	15	--	--
Fecal coliforms, 10^4 MPN/100 mL	0.02-4.0	0.43-15	3.5	15	--	--

a. Unless otherwise noted.

b. Source: Table 21. Lager, J.A., William G. Smith, William G. Lynard, Robert M. Finn, and E. John Finnemore. Urban Stormwater Management and Technology: Update and User's Guide. EPA-600/8-77-014. September 1977.

Table 8. SUMMARY OF COMPOSITE SAMPLE MASS LOADINGS[a] 1978 - 1979

	Storm number and date																
	1 11/19	2 11/20-21	3 12/17	4 1/7	5 1/8	6 1/10-11	7 1/30	8 2/13-14	9 2/18	10 2/20-21	11 2/22	12 2/28-3/1	13 3/26-27	14 4/23	15 4/26	Range	Average
COD																	
lb/in.	44,700	19,600	--	7,700	--	--	12,500	--	33,300	29,500	35,400	16,700	25,500	28,100	22,400	7,700-44,700	25,040
lb/day	40,600	26,500	--	4,400	--	--	2,100	--	26,800	27,300	38,400	18,800	31,000	14,300	12,700	2,100-40,600	22,080
Total N																	
lb/in.	1,300	690	1,020	130	1,050	1,500	560	1,160	1,800	2,490	3,850	710	800	860	930	130-3,850	1,260
lb/day	1,200	940	960	70	4,500	5,800	90	60	1,510	2,310	4,180	800	970	440	520	60-5,800	1,620
Total Kjeldahl N																	
lb/in.	--	--	410	--	570	700	--	870	--	--	--	--	--	--	--	410-870	640
lb/day	--	--	200	--	2,100	1,600	--	780	--	--	--	--	--	--	--	200-2,100	1,170
Total ortho P																	
lb/in.	177	98	62	31	134	164	26	109	87	184	220	46	76	35	54	26-220	100
lb/day	161	135	30	17	492	372	4	98	70	170	240	51	92	18	30	4-492	132
Pb																	
lb/in.	60	19	82	35	102	52	25	164	97	66	52	51	90	75	120	25-164	73
lb/day	60	26	39	20	375	117	4	147	78	85	57	57	105	38	67	4-375	85
Cr																	
lb/in.	8	12	9	7	7	26	7	23	29	39	37	15	13	6	10	6-39	16
lb/day	7	16	4	4	24	59	1	21	23	36	34	17	16	3	6	1-59	18
Cu																	
lb/in.	11	15	12	1	11	13	4	23	14	26	31	23	13	9	13	1-31	15
lb/day	10	21	6	1	51	29	1	21	12	24	34	26	16	5	8	1-51	18
Cd																	
lb/in.	--	--	2	--	2	4	--	4	--	--	--	--	--	--	--	2-4	3
lb/day	--	--	1	--	8	10	--	4	--	--	--	--	--	--	--	1-10	6
Ni																	
lb/in.	--	--	9	--	24	26	--	23	--	--	--	--	--	--	--	9-26	21
lb/day	--	--	4	--	90	59	--	21	--	--	--	--	--	--	--	4-90	44
Zn																	
lb/in.	--	--	15	--	43	17	--	39	--	--	--	--	--	--	--	15-43	29
lb/day	--	--	7	--	160	39	--	35	--	--	--	--	--	--	--	7-160	60
MBAS																	
lb/in.	--	--	15	--	9	26	--	51	--	--	--	--	--	--	--	9-51	25
lb/day	--	--	7	--	3	59	--	45	--	--	--	--	--	--	--	3-59	29
Alkalinity																	
lb/in.	--	--	4,500	--	6,100	--	--	10,200	--	--	--	--	--	--	--	4,500-10,200	6,930
lb/day	--	--	2,200	--	22,500	--	--	9,100	--	--	--	--	--	--	--	2,200-22,500	11,300
SS																	
lb/in.	69,500	53,300	35,200	5,900	134,000	84,300	14,300	93,200	92,700	133,900	174,500	38,500	29,400	49,800	50,200	5,900-174,500	65,000
lb/day	63,200	72,200	33,000	3,400	410,400	326,500	2,400	106,300	74,500	123,900	189,400	43,200	35,700	25,300	28,400	2,400-410,400	102,500
VSS																	
lb/in.	19,000	11,100	--	1,900	--	--	3,800	--	29,900	36,800	28,700	4,100	15,500	14,300	14,800	1,900-36,800	16,400
lb/day	17,300	15,100	--	1,100	--	--	600	--	24,000	34,000	31,000	4,500	26,800	7,300	8,400	600-34,000	15,500

a. Mass loadings for individual storms have been normalized to present lb/in. of rainfall for equivalent 1 in. storm, and lb/day as 24 hours of actual lb/hr loading rate.

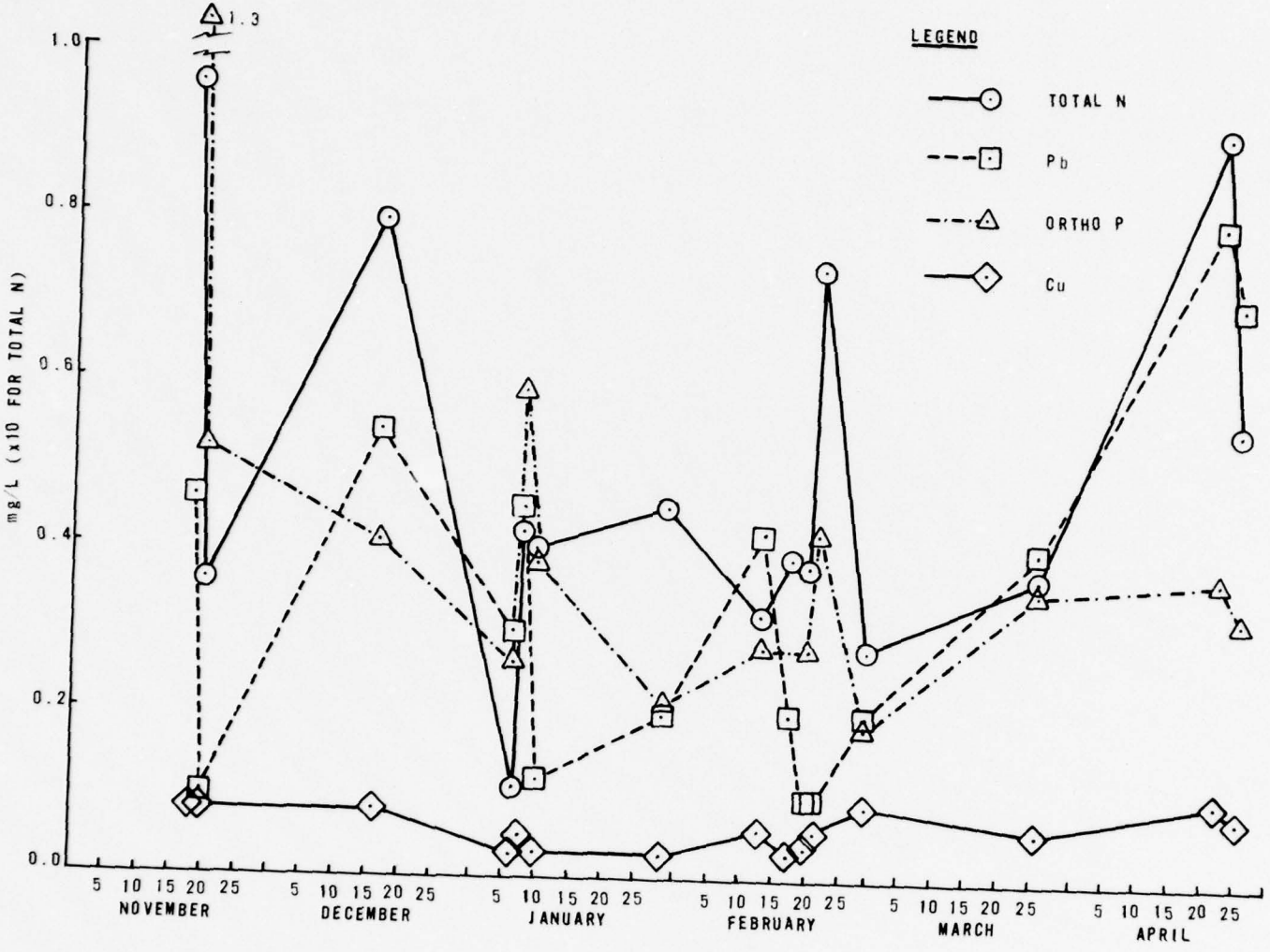


Figure 6. Variations in quality for composite samples for selected quality constituents.

LIMITATIONS ON DATA

The quantity and quality data that are presented in the storm reports are generally within the limitation normally applicable to this type of work. The quality analyses were performed as prescribed in Standard Methods.

Flow data were developed from stage-discharge rating curves for the Castro Valley Creek Station developed by the USGS using velocity measurements that span the entire range of levels recorded during the 1978-1979 rainy seasons. The stream gage and sampling location are shown in Figure 7.

The major limitation on the flow data is that during the period between January 8 and February 22, a car body was lodged in the streambed approximately 100 feet downstream of the gage house and within 25 feet of the level sensing probe, as illustrated in Figure 8. The car body was washed past the gage house at approximately 1245 on January 8. During this storm, the flow level increased more than 3 feet within 1 hour; from 4.03 to 7.06 feet. The flow level actually peaked at 7.19 feet at 1310 on January 8. This level corresponds to a flow of 669.0 cfs. The car body remained at this location until the storm of February 22, 1978, at about 1200 when a peak flow of 556 cfs was sufficient to wash the car to a point out of sight downstream. During the period the car was obstructing the stream, the USGS took two velocity measurements from which they approximated an adjusted rating curve. The adjusted curve would account for a 5% reduction in total volume of flow for a typical 1-in. magnitude storm. The curve was made available at the end of March after most of the sampling was completed for the season. The existing unadjusted rating curve was used for computing flows and compositing samples during the period when the automobile body was just downstream of the gage. These flows were also used in the storm report tables and plots. While the adjusted rating curve is useful in providing an order-of-magnitude estimate as to the impact of the car on the recorded levels, it was not considered dependable in light of the limited data on which it is based.



Figure 7. Stream gage and sampling location during storm--8 January 1979



Figure 8. Automobile body that passed through control section during storm--8 January 1979.

Appendix A
STORM EVENT REPORTS

STORM EVENT REPORT NO. 1
November 19, 1978

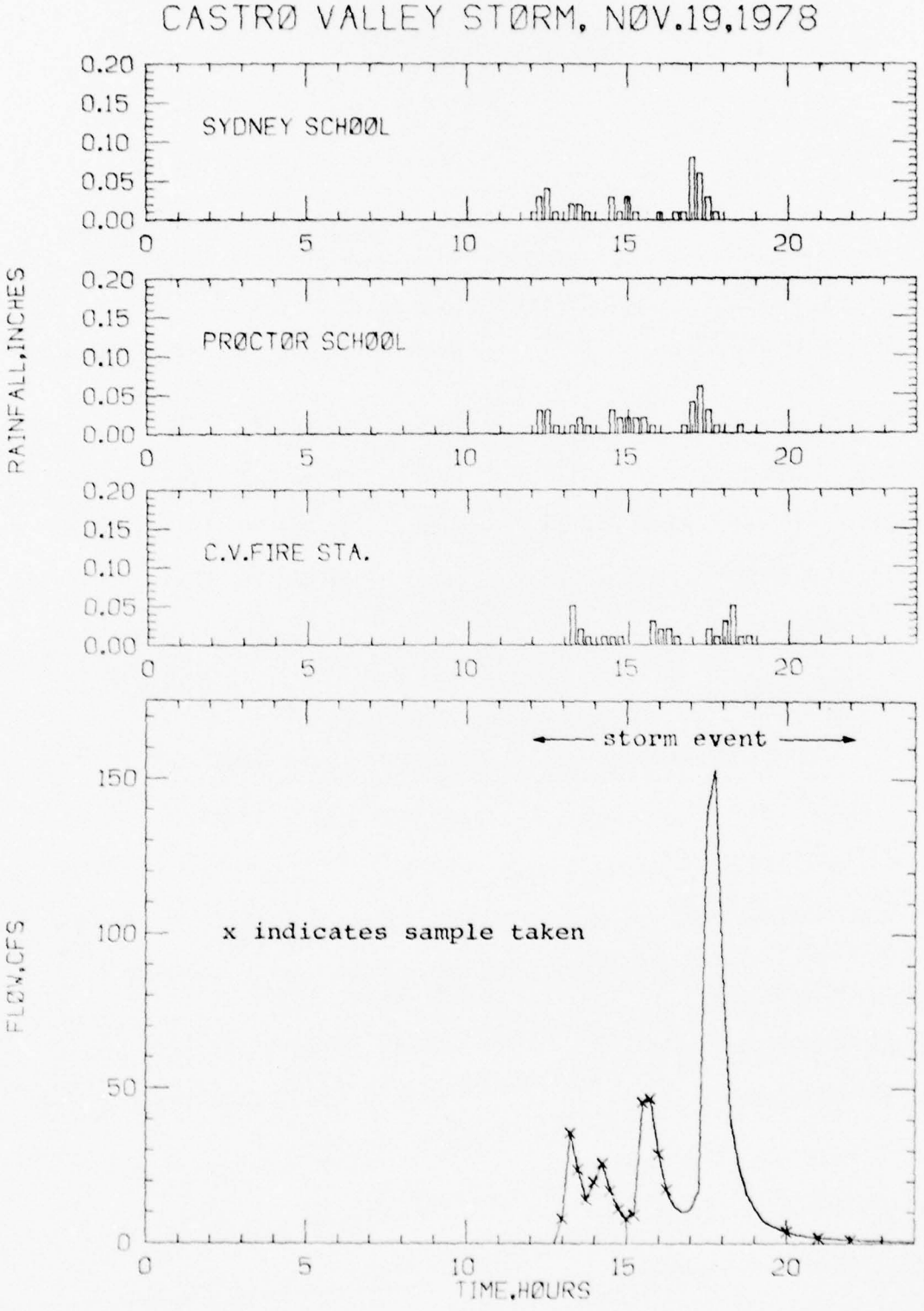
1. Rainfall Summary

Period: November 19, 1978

	Gage	Total Rainfall in.	Start		Stop	
			Hour	Date	Hour	Date
1.	Castro Valley Fire Station	0.32	1315	19 Nov 78	1845	19 Nov 78
2.	Proctor School	0.39	1215	19 Nov 78	1830	19 Nov 78
3.	Sydney School	0.43	1200	19 Nov 78	1745	19 Nov 78
4.	San Francisco Airport	0.08	1300	19 Nov 78	1900	19 Nov 78
5.	Oakland Airport	0.38	0800	19 Nov 78	1800	19 Nov 78

2. Creek Flow Summary

Discharge Condition	Value	Time	Date
Maximum, CFS	153.0	1745	19 Nov 78
Average, CFS	22.9	--	19 Nov 78
Total volume, ft^3	783,600	from 1200 to 2130	19 Nov 78 19 Nov 78
Prior to Storm, CFS	0.129		
Average (Previous 7 days), CFS	0.68		
Average (Previous 30 days), CFS	0.34		


CASTRØ VALLEY STØRM, NØV.19,1978
RAINFALL,INCHES
SYDNEY SCHØØL
PRØCTØR SCHØØL
C.V.FIRE STA.
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
FLØW,CFS
storm event
x indicates sample taken
150
100
50
0
TIME,HØURS

3. Sampling Analysis Results

Flow Weighted Composite

Parameter	Units	Value
Chemical oxygen demand	mg/L	329.0
Total nitrogen as N	mg/L	9.6
Lead	mg/L	0.46
Chromium	mg/L	0.06
Copper	mg/L	0.08
Total ortho phosphorus as P	mg/L	1.3
Suspended solids	mg/L	512.
Volatile suspended solids	mg/L	140.

Discrete Sample

Parameter	Units	Value
Date and time	--	19 Nov 78 1945
Instantaneous flow rate	CFS	4.74
Temperature	Deg C	13.3
Specific conductance	µmhos/cm	300.
pH	--	7.0
Settleable solids	mL/L	<0.5
Suspended solids	mg/L	95.
Volatile suspended solids	mg/L	45.
Biochemical oxygen demand (5 day)	mg/L	5.
Total coliform	MPN/100 mL	1.1×10^5
Fecal coliform	MPN/100 mL	2.4×10^4

4. Observations at Sampling Station During Event.

   Nothing significant to report.

5. Observations in Tributary Area During Event.

   Nothing significant to report.

6. Comments on Storm Event.

   1. The reported rainfall for the Castro Valley Fire Station Gage appears to be offset by one hour from the other gages.

   2. Flow response at the gaging station occurs within about one half an hour following a change in the rainfall rate.

   3. A flow weighted composite sample and a single discrete grab sample were analyzed for this event.

STORM EVENT 1 - NOVEMBER 19, 1978 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
11-19-78	11:00	1.17	0.129				
11-19-78	12:00	1.19	0.161				0.01
11-19-78	12:15	1.19	0.161			0.03	0.03
11-19-78	12:30	1.20	0.178			0.03	0.04
11-19-78	12:45	1.21	0.196			0.01	0.01
11-19-78	13:00	1.92	8.11	YES			
11-19-78	13:15	2.40	35.8	YES	0.05	0.01	0.02
11-19-78	13:30	2.25	23.9	YES	0.02	0.02	0.02
11-19-78	13:45	2.08	14.2	YES	0.01	0.01	0.01
11-19-78	14:00	2.19	20.0	YES			
11-19-78	14:15	2.28	26.0	YES	0.01		
11-19-78	14:30	2.14	17.1	YES	0.01	0.03	0.03
11-19-78	14:45	2.01	11.3	YES	0.01	0.02	0.01
11-19-78	15:00	1.92	8.11	YES		0.02	0.03
11-19-78	15:15	1.96	9.43	YES		0.02	0.01
11-19-78	15:30	2.50	45.7	YES		0.02	
11-19-78	15:45	2.51	46.8	YES	0.03	0.01	
11-19-78	16:00	2.32	29.0	YES	0.02		0.01
11-19-78	16:15	2.15	17.6	YES	0.02		
11-19-78	16:30	2.03	12.1		0.01		0.01
11-19-78	16:45	1.98	10.1			0.01	0.01
11-19-78	17:00	2.00	10.9			0.04	0.08
11-19-78	17:15	2.14	17.1			0.06	0.06
11-19-78	17:30	3.18	138.5		0.02	0.03	0.03
11-19-78	17:45	3.27	153.0		0.01	0.01	0.01
11-19-78	18:00	2.83	86.5		0.03		
11-19-78	18:15	2.45	40.5		0.05		
11-19-78	18:30	2.27	25.3		0.01	0.01	
11-19-78	18:45	2.13	16.6		0.01		
11-19-78	19:00	2.01	11.3				
11-19-78	19:15	1.91	7.80				
11-19-78	19:30	1.84	6.04				
11-19-78	19:45	1.78	4.74				
11-19-78	20:00	1.74	3.98	YES			
11-19-78	20:15	1.69	3.17				
11-19-78	20:30	1.65	2.61				
11-19-78	20:45	1.62	2.25				
11-19-78	21:00	1.60	2.03	YES			
11-19-78	21:15	1.57	1.73				
11-19-78	21:30	1.55	1.57				
11-19-78	21:45	1.53	1.41				
11-19-78	22:00	1.51	1.27	YES			

NOVEMBER 1978
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) 8 FT. STANDARD TIME USED: PACIFIC WBAN 023234

NOVEMBER 1978 SAN FRANCISCO, CALIFORNIA

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING	COOLING	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 DRIFTING 7 BLOWING SNOW 8 DUSTSTORM 9 SMOKE, HAZE	SNOW, ICE PELLETS OR ICE ON GROUND AT 0600 GMT IN	PRECIPITATION WATER EQUIV. IN	SNOW, ICE PELLETS IN	AVG STATION PRESS MEAN SEA LEVEL IN ELEV. 18 FT.	WIND RESULTANT DIR	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIRECTION	SUNSHINE MINUTES	PERCENT OF POSS.	SKY COVER TENTHS SUNRISE TO SUNSET	SUNSET TO SUNRISE	DAY
1	65	46	56	-2	39	9	0	8	0	0	0	30.17	32	9.2	7.8	15	29			2	2	1
2	61	44	53	-5	45	12	0		0	0	0	30.23	30	8.6	10.1	18	28			2	0	2
3	66	44	55	-3	46	10	0		0	0	0	30.24	29	9.1	8.8	20	30			1	3	3
4	66	44	55	-3	48	10	0		0	0	0	30.08	29	8.9	9.1	20	29			1	5	4
5	70	48	60	3	48	5	0	2 8	0	0	0	29.95	31	9.6	7.1	17	31			1	5	5
6	74	48	60	3	47	5	0	8	0	0	0	30.06	34	9.3	3.7	7	29			1	5	6
7	77+	48	63*	6	46	2	0	8	0	0	0	30.13	29	1.0	6.0	10	28			1	5	7
8	74	48	61	4	48	4	0	8	0	0	0	29.99	32	9.8	7.2	20	29			1	5	8
9	80	48	64	7	48	1	0	8	0	0	0	29.78	29	9.2	10.4	25	29			1	5	9
10	69	48	59	2	49	6	0		0	0	0	29.81	05	4.8	8.8	22	02			1	5	10
11	63	45	54	-3	44	11	0		0	0	0	29.72	05	7.6	11.4	23	06			1	5	11
12	57	43	50	-6	38	15	0	1	.15	0	0	29.88	22	8.7	10.4	18	19			1	7	12
13	60	43	52	-4	41	13	0	1	.01	0	0	30.03	04	8.8	7.2	13	06			1	6	13
14	58	36	47	-9	36	18	0	1 8	0	0	0	30.09	28	3.0	6.5	14	29			1	6	14
15	57	35*	46*	-9	37	19	0	8	T	0	0	30.18	31	1.1	4.8	8	30			1	5	15
16	55	48	52	-3	41	13	0	8	T	0	0	30.22	11	2.8	4.8	8	12			1	6	16
17	60	48	50	-5	44	15	0	1 8	0	0	0	30.22	28	7.0	8.8	18	28			1	6	17
18	58	48	52	-3	45	13	0	8	0	0	0	30.19	26	4.0	8.2	15	28			1	6	18
19	61	48	55	0	42	10	0	1	.08	0	0	30.00	31	11.0	12.1	25	19			10	10	19
20	57	50	54	0	52	11	0	1	.90	0	0	29.86	14	2.8	7.2	18	18			10	8	20
21	58	47	53	-1	46	12	0		.38	0	0	29.78	19	4.7	6.8	18	22			10	8	21
22	63	46	55	1	46	10	0		.64	0	0	29.81	08	8.2	8.2	15	13			10	8	22
23	58	46	52	-2	44	13	0		0	0	0	30.10	30	3.6	8.3	13	06			10	5	23
24	60	43	52	-2	45	13	0		0	0	0	29.99	30	8.6	7.8	18	30			1	2	24
25	57	39	48	-6	44	17	0		0	0	0	30.03	29	1.4	6.6	10	31			1	1	25
26	58	41	50	-5	44	15	0	1 8	0	0	0	30.08	26	2.8	5.6	15	31			1	6	26
27	60	41	51	-4	43	14	0	2 8	0	0	0	30.14	14	1.6	4.8	8	30			1	7	27
28	58	41	50	-5	42	15	0	1 8	0	0	0	30.25	04	8.0	8.2	12	32			1	7	28
29	58	44	51	-4	42	14	0	2	T	0	0	30.29	30	5.0	8.2	18	30			1	7	29
30	58	47	53	-1	51	12	0	2	0	0	0	30.21	28	8.2	8.4	21	27			10	7	30
	SUM	SUM				TOTAL	TOTAL			TOTAL	TOTAL		FOR THE MONTH					TOTAL	1	SUM	SUM	
	1820	1325				371	0	NUMBER OF DAYS	1.0	0	30.05	29	1.0	7.7	25	29	FOR		140	143	
	AVG	AVG	AVG	DEP	AVG	DEP	DEP	PRECIPITATION	DEP						DATE	08	YEARS		AVG	AVG	
	60.7	44.2	52.5	-2.8	43	80	0	.01 INCH	-0.62										9.0	4.8	
						SEASON TO DATE		SNOW, ICE PELLETS														
	NUMBER OF DAYS					TOTAL	TOTAL	1.0 INCH	0	GREATEST IN 24 HOURS AND DATES					GREATEST DEPTH ON GROUND OF SNOW							
	MAXIMUM TEMP		MINIMUM TEMP			742	344	THUNDERSTORMS	0	PRECIPITATION		SNOW, ICE PELLETS			ICE PELLETS ON ICE AND DATE							
	≥ 90°	≤ 32°	≤ 32°	≤ 0°		DEP	DEP	HEAVY FOG	4	.78	21-22	0			0							
	0	0	0	0		51	26	CLEAR 13	PARTLY CLOUDY 7	CLOUDY 10												

* ESTIMATED FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT.
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM. DATA IN COLS. 8 AND 17 IS NOT BASED ON 1 OR MORE OBSERVATIONS PER DAY AT 3 HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE ∩ WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

HOUR ENDING	AVERAGES SKY COVER TENTHS	STATION PRESSURE IN.	TEMPERATURE °F DRY BULB	TEMPERATURE °F WET BULB	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	4	30.05	49	46	83	8.9	27	7.7
04	5	30.05	47	45	87	6.3	22	4.8
07	5	30.08	46	45	87	6.8	15	2.0
10	5	30.09	53	48	76	6.4	08	3.2
13	5	30.05	58	50	73	8.8	26	7.4
16	4	30.02	57	50	83	11.2	30	6.4
19	4	30.03	53	48	84	10.0	29	6.4
22	4	30.05	51	48	88	8.8	29	4.3

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																									1
2																									2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12				T	T	.01	T	T						T	.02	.02	.08	.03							12
13																									13
14																									14
15																									15
16												T											T	T	16
17																									17
18	T	T		T					T			T	T	.01	.02	T	.04	T	.01	T	T	T	T	T	18
19	T	.01	.02	.01	.01	.04	T		T	T	T	.08	.08	T	.03	.02	.01	.08	.06	.10	T	T	.19	.08	.03	19
20	T	T		T	.08	.08	.04	T					T												20
21				T	.04	.08	.10	.06	.08	.08	T	.01	.01	.03	.10	.01	T	T	T						21
22																									22
23																									23
24																									24
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27																									27
28																									28
29		T	T			T																			29
30																									30

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA--ASHEVILLE 12/20/78 675

NOVEMBER 1978
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

NOVEMBER 1978 OAKLAND, CALIFORNIA

LATITUDE 37° 44 'N LONGITUDE 122° 12 'W ELEVATION (GROUND) 6 FT. STANDARD TIME USED: PACIFIC LOCAL 823230

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (DAILY)	DEGREE DAYS BASE 65° COOLING (DAILY)	WEATHER TYPES OR DATES OF OCCURRENCE	SNOW, ICE PELLETS OR HAIL ON GROUND AT 0800	PRECIPITATION WATER EQUIV. OR MELTED SNOW OR ICE	PRECIPITATION SNOW, ICE PELLETS	PRECIPITATION SNOW ON GROUND AT 0800	WIND RESULTANT DIR	WIND RESULTANT SPEED M.P.H.	WIND AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIRECTION	SUNSHINE MINUTES	SUNSHINE PERCENT	SKY COVER TENTHS SUNRISE TO SUNSET	SKY COVER TENTHS MIDNIGHT TO MIDNIGHT	AM
1	64	50	57	-1	40	8	0		0	0	0	0	35	3.5	8.2	12	05			1	1	2
2	61	47	54	-4	48	11	0		0	0	0	0	27	1.2	6.5	12	28			1	1	1
3	60	48	54	-4	48	11	0		0	0	0	0	26	1.3	6.5	10	26			1	1	1
4	64	46	55	-3	50	10	0	1	0	0	0	0	29	2.2	6.2	12	26			1	1	1
5	66	52	59	2	51	6	0	2	0	0	0	0	26	2.2	4.7	8	25			8	7	6
6	73	44	59	2	47	6	0		0	0	0	0	13	1.6	3.7	8	10			0	0	0
7	76	48	62	5	47	3	0		0	0	0	0	27	2.2	3.2	8	30			0	0	0
8	78*	48	63*	7	48	2	0		0	0	0	0	30	3.5	6.0	12	31			0	0	0
9	63	46	55	-3	46	10	0		0	0	0	0	27	2.7	6.3	15	27			8	8	8
10	60	43	52	-6	45	13	0		0	0	0	0	27	2.6	7.3	12	27			10	10	10
11	55	44	50	-7	42	15	0		0	0	0	0	03	10.0	10.4	20	03			10	10	10
12	56	42	49	-7	38	16	0		0	0	0	0	18	10.1	12.8	20	18			10	10	10
13	53	42	48	-8	40	17	0	1	0	0	0	0	07	7.5	8.8	12	06			10	10	10
14	58	40	49	-7	37	17	0		0	0	0	0	22	1.8	4.5	8	20			10	10	10
15	57	38*	48*	-7	37	17	0		0	T	0	0	02	1.5	6.0	10	32			10	10	10
16	57	48	53	-2	41	12	0		0	0	0	0	25	2.4	6.2	12	26			10	10	10
17	59	41	50	-5	41	15	0		0	0	0	0	25	2.6	3.8	10	25			9	9	9
18	57	51	54	-1	48	11	0		0	0	0	0	28	8.4	6.8	20	26			10	10	10
19	57	50	54	-1	51	11	0	1	0	.58	0	0	18	11.8	12.7	21	15			10	10	10
20	57	52	55	1	52	10	0	1	0	.84	0	0	18	6.9	7.3	14	15			10	10	10
21	58	50	54	0	47	11	0		0	.20	0	0	18	5.1	6.9	16	16			8	8	8
22	57	48	53	-1	47	12	0		0	.08	0	0	18	3.5	7.6	12	03			9	9	9
23	62	46	54	0	44	11	0		0	0	0	0	12	4.5	8.5	10	03			1	1	1
24	60	41	51	-3	41	14	0		0	0	0	0	26	2.4	6.0	10	28			0	0	0
25	58	43	50	-3	43	15	0		0	0	0	0	13	1.7	6.5	8	11			1	1	1
26	57	44	51	-3	43	14	0	1 2	0	0	0	0	03	1.8	3.8	7	31			0	0	0
27	55	42	49	-5	42	16	0		0	0	0	0	18	1.8	2.8	7	02			0	0	0
28	58	41	50	-3	41	15	0	2	0	0	0	0	20	2.0	3.8	7	31			0	0	0
29	57	48	53	0	50	12	0	2	0	0	0	0	17	2.7	4.8	8	32			7	7	7
30	58	51	54	2	51	11	0	2	0	.02	0	0	18	2.2	3.8	12	27			10	10	10
SUM																						
1813	1371					349	0	NUMBER OF DAYS		1.76	0	0.0	15	.6	6.0	21	15			150	134	
AVG	AVG	AVG	DEP	AVG	DEP	DEP		PRECIPITATION .01 INCH OR MORE		DEP										AVG	AVG	
60.4	45.7	53.1	-2.2	44		98	0		7	-0.81										5.0	4.5	

NUMBER OF DAYS	TOTAL	YEAR TO DATE
MAXIMUM TEMP. 90° OR ABOVE	0	535
MINIMUM TEMP. 32° OR BELOW	0	221
MAXIMUM TEMP. 32° OR BELOW	0	0
MINIMUM TEMP. 0° OR BELOW	0	0

DEPARTURE TO DATE: TOTAL -14, YEAR TO DATE 97

SNOW, ICE PELLETS: .1 INCH OR MORE — TOTAL 0; THUNDERSTORMS — TOTAL 0; HEAVY FOG — TOTAL 0

GREATEST IN 24 HR. PRECIPITATION: DATE(S) —; AMOUNT .64

GREATEST SNOW, ICE PELLETS: DATE(S) —; AMOUNT 0

GREATEST DEPTH OF SNOW, ICE PELLETS ON ICE AND DATE: 0

PEAK WIND SPEED: SPEED 33, DIRECTION 27, DATE(S) 15

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM.
DATA IN COLS. 8 AND 12-15 ARE BASED ON 7:00 AM TO 7:00 PM LOCAL TIME.

HOURLY OBSERVATIONS PER DAY AT 1 HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

HOUR (LST)	SKY COVER TENTHS	STATION PRESSURE IN.	AVERAGES TEMPERATURE DRY BULB °F	TEMPERATURE WET BULB °F	TEMPERATURE DEW POINT °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	PEAK WIND DIRECTION	PEAK WIND SPEED M.P.H.
01	4	30.09	50	47	43	78	6.3	11	28
02	3	30.07	48	45	41	80	6.1	08	30
03	3	30.06	47	44	41	80	6.1	11	34
04	3	30.07	47	44	41	80	6.1	11	34
05	3	30.11	46	44	41	78	6.2	16	30
06	3	30.07	48	45	41	80	6.2	15	40
07	4	30.04	52	48	43	80	7.0	28	38
08	3	30.05	57	49	43	72	8.1	33	37
09	3	30.06	60	51	43	68	9.3	06	44
10	3	30.05	62	52	43	64	9.3	06	44
11	3	30.03	63	52	43	62	9.3	06	44
12	3	30.01	64	52	43	60	9.3	06	44
13	3	29.98	64	52	43	60	9.3	06	44
14	3	29.96	64	52	43	60	9.3	06	44
15	3	29.96	64	52	43	60	9.3	06	44
16	3	29.96	64	52	43	60	9.3	06	44
17	3	29.96	64	52	43	60	9.3	06	44
18	3	29.96	64	52	43	60	9.3	06	44
19	3	29.96	64	52	43	60	9.3	06	44
20	3	29.96	64	52	43	60	9.3	06	44
21	3	29.96	64	52	43	60	9.3	06	44
22	3	29.96	64	52	43	60	9.3	06	44
23	3	29.96	64	52	43	60	9.3	06	44
24	3	29.96	64	52	43	60	9.3	06	44

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																									1
2																									2
3																									3
4									T	T															4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12																									12
13							.09	T				T	T		.01	.02	.06	.04	T	T	T	.04	.01		13
14																									14
15																								T	15
16	T																								16
17																									17
18								T	.01	T	.01	.06	.06	.03	.10	T	.00	.03	T	T		T	T		18
19																									19
20			.03	.03	T	.03	.01	.01	T	.02	.04	.10	.24	.03	.07	.08	.01	.03	.01	.14	T		.08	.04	20
21	T	T			.01	.02	.02	T	T							T	T							.03	21
22	T				.03		.01	T		.01	.04	T		T	T	T									22
23																									23
24																									24
25																									25
26																									26
27																									27
28																									28
29																									29
30					T	.01	T	T	T	.01	T	T	T	T					—						30

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel A. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 12/79-900

STORM EVENT REPORT NO. 2
November 20-21,1978

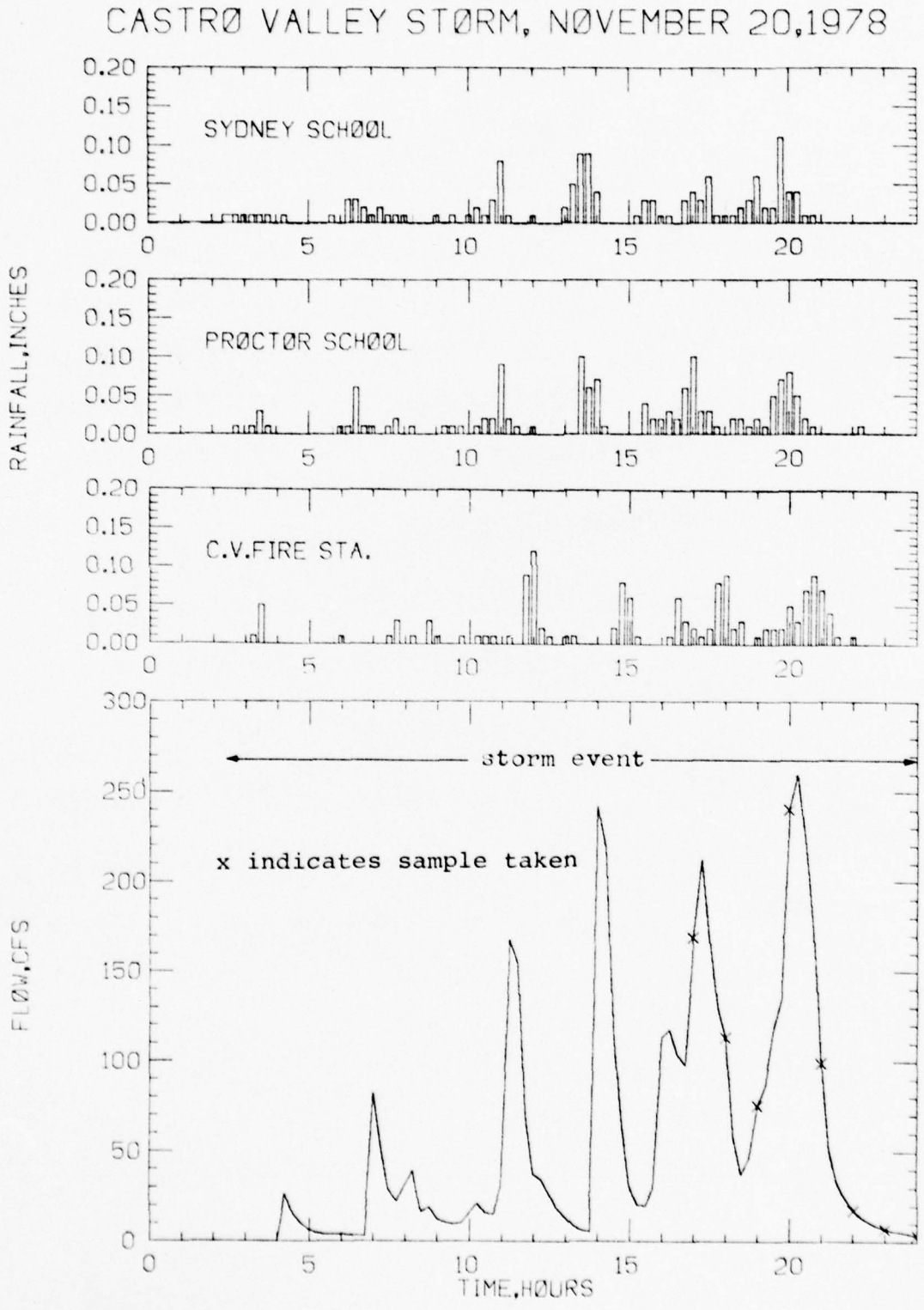
1. Rainfall Summary.

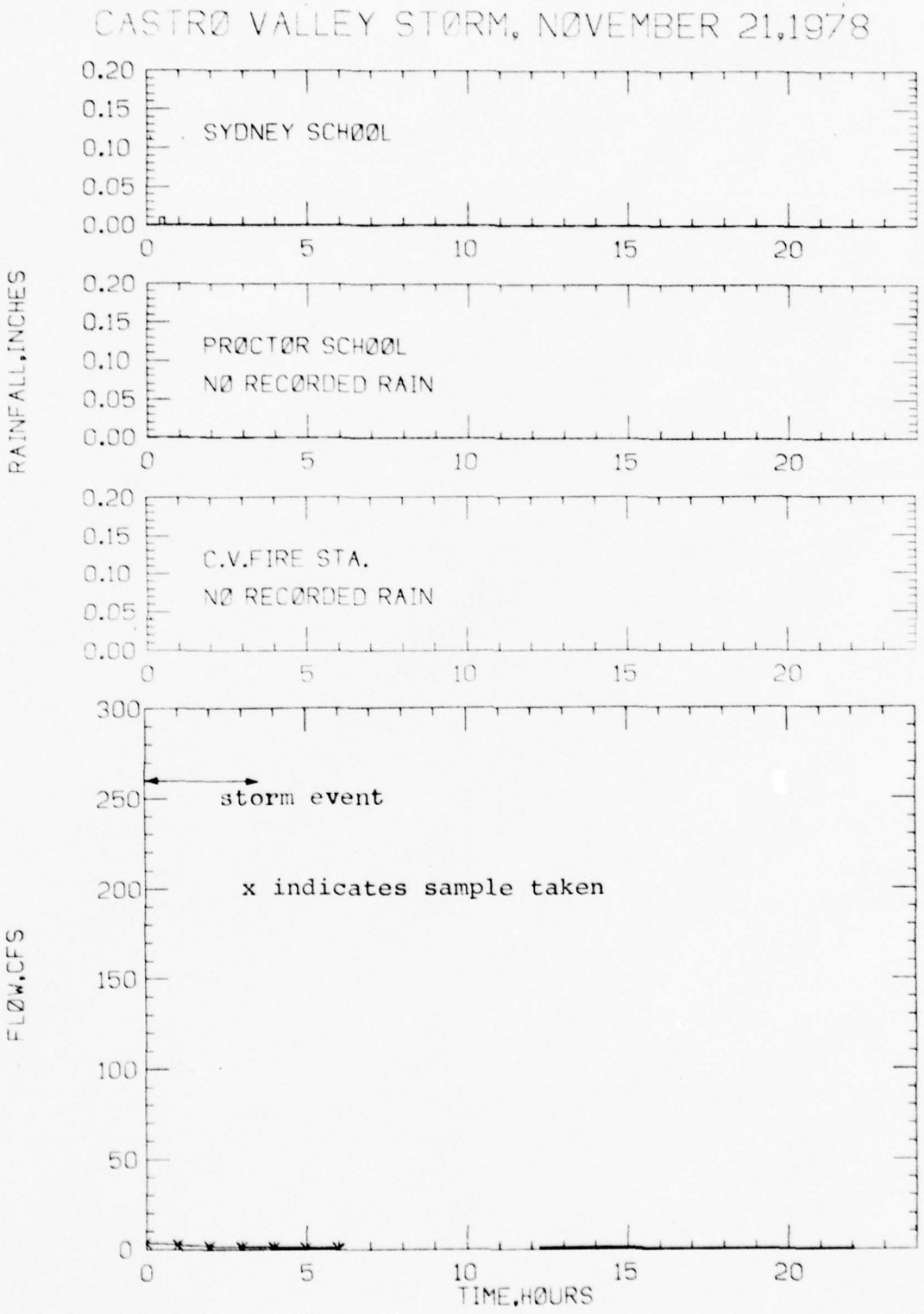
Gage	Total Rainfall In.	Start Hour	Start Date	Stop Hour	Stop Date
1. Castro Valley Fire Station	1.45	0315	20 Nov 78	2200	20 Nov 78
2. Proctor School	1.38	0245	20 Nov 78	2215	20 Nov 78
3. Sydney School	1.35	0230	20 Nov 78	0030	21 Nov 78
4. San Francisco Airport	0.65	0100	20 Nov 78	0700	21 Nov 78
5. Oakland Airport	0.89	0200	20 Nov 78	0700	21 Nov 78

2. Creek Flow Summary.

Discharge Condition	Value	Time	Date
Maximum Flow, CFS	260.1	2015	20 Nov 78
Average Flow, CFS	48.2	from 0230 to 0330	20 Nov 78 to 21 Nov 78
Total Volume, FT^3	4,334,800	from 0230 to 0330	20 Nov 78 to 21 Nov 78

Prior to storm, CFS	0.423
Average Flow (previous 7 days), CFS	1.58
Average Flow (Previous 30 days), CFS	1.17


CASTRØ VALLEY STØRM, NØVEMBER 20,1978
RAINFALL,INCHES
SYDNEY SCHØØL
PRØCTØR SCHØØL
C.V.FIRE STA.
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
FLØW,CFS
storm event
x indicates sample taken
300
250
200
150
100
50
0
TIME,HØURS


CASTRØ VALLEY STØRM, NØVEMBER 21,1978
RAINFALL,INCHES
0.20
0.15
0.10
0.05
0.00
SYDNEY SCHØØL
PRØCTØR SCHØØL
NØ RECØRDED RAIN
C.V.FIRE STA.
NØ RECØRDED RAIN
0
5
10
15
20
FLØW,CFS
300
250
200
150
100
50
0
storm event
x indicates sample taken
TIME,HØURS

3. Sampling Analysis Results.

Flow Weighted Composite

Parameter	Units	Value
Chemical oxygen demand	mg/L	102.
Total nitrogen	mg/L	3.6
Lead	mg/L	<0.1
Chromium	mg/L	<0.06
Copper	mg/L	0.08
Total ortho phosphorus	mg/L	0.52
Suspended solids	mg/L	278.
Volatile suspended solids	mg/L	58.

Discrete Sample

Parameter	Units	Value
Date and time	--	1715 20 Nov 78
Temperature	Deg C	13.7
Instantaneous discharge	CFS	212.5
Specific conductance	µmho/cm	180.
pH	--	7.1
Settleable matter	mL/L	<0.5
Suspended solids	mg/L	152.
Volatile suspended solids	mg/L	43.
BOD	mg/L	5.
Total coliform	MPN/100 mL	2.4×10^4
Fecal coliform	MPN/100 mL	4.6×10^3

4. Observation at Sampling Station During Event.

   No significant events occurred during the sampling period.

5. Observation in Tributary Area During Event.

   No significant events occurred during the sampling period.

6. Comments on Storm Event.

   1. The total rainfall for this event was more than 1.25 inches.

   2. A flow weighted composite sample and a single discrete grab sample were analyzed for this event.

   3. Samples were taken at hourly intervals from 1700 to 2400 on November 20 and 0100 to 0600 on November 21.

   4. Due to a problem with the sampler automatic activator, no samples were obtained prior to 1700 on 20 Nov 78. However, samples were obtained during the period when the majority of the runoff went through the gaging station.

STORM EVENT 2 - NOVEMBER 20-21 1978 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
11-20-78	2:00	1.33	0.479				
11-20-78	2:30	1.33	0.479				0.01
11-20-78	2:45	1.33	0.479			0.01	0.01
11-20-78	3:00	1.31	0.423				0.01
11-20-78	3:15	1.31	0.423		0.01	0.01	0.01
11-20-78	3:30	1.31	0.423		0.05	0.03	0.01
11-20-78	3:45	1.31	0.423			0.01	0.01
11-20-78	4:00	1.31	0.423				
11-20-78	4:15	2.29	26.7				0.01
11-20-78	4:30	2.11	15.6				
11-20-78	4:45	1.98	10.1				
11-20-78	5:00	1.87	6.74				
11-20-78	5:15	1.79	4.95				
11-20-78	5:30	1.74	3.98				
11-20-78	5:45	1.75	4.16				0.01
11-20-78	6:00	1.75	4.16		0.01	0.01	
11-20-78	6:15	1.73	3.81			0.01	0.03
11-20-78	6:30	1.71	3.48			0.06	0.03
11-20-78	6:45	1.69	3.17			0.01	0.02
11-20-78	7:00	2.80	82.4			0.01	0.01
11-20-78	7:15	2.56	52.5				0.02
11-20-78	7:30	2.32	29.0		0.01	0.01	0.01
11-20-78	7:45	2.23	22.6		0.03	0.02	0.01
11-20-78	8:00	2.34	30.6				0.01
11-20-78	8:15	2.44	39.5		0.01	0.01	
11-20-78	8:30	2.13	16.6				
11-20-78	8:45	2.18	19.4		0.03		
11-20-78	9:00	2.05	12.9		0.01		0.01
11-20-78	9:15	1.99	10.5			0.01	
11-20-78	9:30	1.97	9.78			0.01	0.01
11-20-78	9:45	1.99	10.5		0.01	0.01	
11-20-78	10:00	2.13	16.6				0.01
11-20-78	10:15	2.21	21.3		0.01	0.01	0.02
11-20-78	10:30	2.12	16.1		0.01	0.02	0.01
11-20-78	10:45	2.11	15.6		0.01	0.02	0.03
11-20-78	11:00	2.34	30.6			0.09	0.08
11-20-78	11:15	3.36	167.6		0.01	0.02	0.01
11-20-78	11:30	3.28	154.6			0.01	
11-20-78	11:45	2.70	69.1		0.09		
11-20-78	12:00	2.42	37.6		0.12	0.01	0.01
11-20-78	12:15	2.39	34.9		0.02		
11-20-78	12:30	2.29	26.7		0.01		

STORM EVENT 2 - NOVEMBER 20-21 1978 STORM DATA (Continued)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
11-20-78	12:45	2.16	18.3				
11-20-78	13:00	2.06	13.3		0.01		0.02
11-20-78	13:15	1.95	9.09		0.01		0.05
11-20-78	13:30	1.86	6.50			0.10	0.09
11-20-78	13:45	1.82	5.60			0.06	0.09
11-20-78	14:00	3.81	242.1			0.07	0.04
11-20-78	14:15	3.66	218.6			0.01	
11-20-78	14:30	3.03	116.2		0.02		
11-20-78	14:45	2.67	65.5		0.08		
11-20-78	15:00	2.35	31.4		0.06		
11-20-78	15:15	2.20	20.6		0.01		0.01
11-20-78	15:30	2.19	20.0			0.04	0.03
11-20-78	15:45	2.33	29.8			0.02	0.03
11-20-78	16:00	3.01	113.4			0.02	0.01
11-20-78	16:15	3.04	117.6		0.01	0.03	0.01
11-20-78	16:30	2.95	104.0		0.06	0.02	
11-20-78	16:45	2.91	97.9		0.03	0.06	0.03
11-20-78	17:00	3.37	169.3	YES	0.02	0.10	0.04
11-20-78	17:15	3.62	212.5		0.01	0.03	0.03
11-20-78	17:30	3.37	169.3		0.02	0.03	0.06
11-20-78	17:45	3.12	129.3		0.08	0.01	0.01
11-20-78	18:00	3.01	113.4	YES	0.09		0.01
11-20-78	18:15	2.61	58.5		0.02	0.02	0.01
11-20-78	18:30	2.42	37.6		0.03	0.02	0.02
11-20-78	18:45	2.51	46.8			0.01	0.03
11-20-78	19:00	2.75	75.6	YES	0.01	0.02	0.06
11-20-78	19:15	2.83	86.5		0.02	0.01	0.02
11-20-78	19:30	3.04	117.6		0.02	0.05	0.02
11-20-78	19:45	3.16	135.4		0.02	0.07	0.11
11-20-78	20:00	3.80	240.5	YES	0.05	0.08	0.04
11-20-78	20:15	3.92	260.1		0.03	0.05	0.04
11-20-78	20:30	3.69	223.2		0.07	0.02	0.01
11-20-78	20:45	3.40	174.3		0.09	0.01	0.01
11-20-78	21:00	2.92	99.4	YES	0.07		
11-20-78	21:15	2.55	51.3		0.04		
11-20-78	21:30	2.37	33.1		0.01		
11-20-78	21:45	2.26	24.6				
11-20-78	22:00	2.15	17.6	YES	0.01		
11-20-78	22:15	2.07	13.7			0.01	
11-20-78	22:30	2.00	10.9				
11-20-78	22:45	1.94	8.75				
11-20-78	23:00	1.89	7.24	YES			
11-20-78	23:15	1.84	6.04				

STORM EVENT 2 - NOVEMBER 20-21 1978 STORM DATA
(Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
11-20-78	23:30	1.81	5.38				
11-20-78	23:45	1.78	4.74				
11-20-78	24:00	1.75	4.16	YES			
11-21-78	0:15	1.73	3.81				
11-21-78	0:30	1.71	3.48				
11-21-78	0:45	1.69	3.17				0.01
11-21-78	1:00	1.67	2.88	YES			
11-21-78	1:15	1.66	2.74				
11-21-78	1:30	1.64	2.49				
11-21-78	1:45	1.64	2.49				
11-21-78	2:00	1.61	2.14	YES			
11-21-78	2:15	1.60	2.03				
11-21-78	2:30	1.59	1.92				
11-21-78	2:45	1.58	1.82				
11-21-78	3:00	1.57	1.73	YES			
11-21-78	3:15	1.56	1.65				
11-21-78	3:30	1.55	1.57				
11-21-78	3:45	1.55	1.57				
11-21-78	4:00	1.54	1.49	YES			
11-21-78	4:15	1.53	1.41				
11-21-78	4:30	1.52	1.34				
11-21-78	4:45	1.51	1.27				
11-21-78	5:00	1.50	1.21	YES			
11-21-78	5:15	1.50	1.21				
11-21-78	5:30	1.49	1.14				
11-21-78	5:45	1.48	1.08				
11-21-78	6:00	1.48	1.08	YES			

NOVEMBER 1978
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

NOVEMBER 1978 OAKLAND, CALIFORNIA

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT. STANDARD TIME USED: PACIFIC WBAN 023230

DAY	TEMPERATURE °F MAX.	MIN.	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (MONTH/YR)	COOLING (MONTH/YR)	WEATHER TYPES OR CODES OF OCCURRENCE	SNOW, ICE PELLETS SNOW DEPTH	PRECIPITATION WATER EQUIV. RAIN OR MELTED SNOW/ICE	SNOW, ICE PELLETS	SNOW, ICE PELLETS DEPTH	SKY COVER TENTHS	WIND RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST SPEED M.P.H.	FASTEST DIR.	SUNSHINE MINUTES	PERCENT POSSIBLE	SUNRISE LOCAL STANDARD TIME	SUNSET LOCAL STANDARD TIME	DAY
1	64	50	57	-1	40	8	0		0	0	0	0	10	35	3.5	8.2	10	05					1
2	61	47	54	-4	46	11	0		0	0	0	0	2	27	1.2	6.5	12	27					2
3	68	48	58	-1	46	7	0		0	0	0	0	10	28	1.3	6.5	10	28					3
4	64	44	54	-4	50	11	0	1	0	0	0	0	10	25	2.6	6.2	15	26					4
5	66	52	59	2	51	6	0	2	0	T	0	0	10	28	2.2	4.0	8	25					5
6	73	45	59	2	46	6	0		0	0	0	0	10	06	1.8	3.7	8	10					6
7	75	48	62	5	47	3	0		0	0	0	0	10	27	2.2	3.2	8	30					7
8	76*	42	59	2	46	6	0		0	0	0	0	10	01	3.3	5.0	12	31					8
9	63	45	54	-3	46	11	0		0	0	0	0	10	27	2.1	6.3	15	27					9
10	60	43	52	-4	29	13	0		0	0	0	0	10	01	2.6	7.3	12	05					10
11	55	44	50	-6	22	15	0		0	0	0	0	10	03	10.0	10.4	20	03					11
12	55	42	48	-7	38	16	0		0	0	0	0	10	02	10.1	12.9	20	18					12
13	53	42	48	-6	40	17	0	1	0	0	0	0	10	06	7.5	8.8	12	06					13
14	56	40	48	-6	37	17	0		0	0	0	0	10	11	2.2	8.0	4.5	8	29				14
15	57	38*	48*	-6	37	17	0		0	T	0	0	10	22	2.2	1.5	5.0	10	32				15
16	57	48	53	-2	41	12	0		0	T	0	0	10	25	2.5	2.6	5.2	12	05				16
17	58	41	50	-5	44	15	0		0	0	0	0	10	25	2.5	2.6	5.0	10	25				17
18	57	51	54	-1	48	11	0		0	0	0	0	10	26	6.4	6.8	10	25					18
19	57	50	54	-1	48	11	0	1	0	.38	0	0	10	03	11.6	12.7	21	15					19
20	57	52	55	1	52	10	0	1	0	.84	0	0	10	08	6.5	7.3	14	15					20
21	58	50	54	0	47	11	0		0	.20	0	0	10	02	3.1	5.9	15	22					21
22	57	48	53	-1	45	12	0		0	.09	0	0	10	03	3.5	7.8	12	04					22
23	62	45	54	0	44	11	0		0	0	0	0	10	12	4.3	8.3	10	02					23
24	60	41	51	-3	45	14	0		0	0	0	0	10	01	2.4	5.0	10	28					24
25	56	43	50	-3	46	15	0		0	0	0	0	10	05	1.3	1.7	6.5	8	31				25
26	57	44	51	-2	44	14	0	1	0	0	0	0	10	03	8	3.9	7	31					26
27	55	42	48	-4	42	16	0	2	0	0	0	0	10	18	8	2.0	7	02					27
28	58	41	50	-3	44	15	0		0	0	0	0	10	20	3.0	6.0	8	31					28
29	57	48	53	0	50	12	0	2	0	0	0	0	10	29	17	2.7	4.8	8	25				29
30	56	51	54	2	51	11	0	2	0	.02	0	0	10	24	18	7.2	5.8	12	27				30

SUM	SUM				TOTAL	TOTAL		TOTAL	TOTAL									TOTAL		SUM	SUM	
1013	1371				349	0	NUMBER OF DAYS	1.76	0	12.0T	15	1.8	8.0	21	15			150	134	
AVG	AVG		AVG	DEP	DEP	DEP	PRECIPITATION	DEP						21	15			AVG	AVG			
00.4	45.7	53.1	-2.2	44	50	0	.01 INCH OR MORE	-0.61										5.0	4.5			

NUMBER OF DAYS					TOTAL	TOTAL	SNOW, ICE PELLETS	GREATEST IN 24 HOURS AND DATE		GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE RAIN AND DATE
MAX. 90 AND ABOVE	MAX. 32 AND BELOW	MIN. 32 AND BELOW	MIN. 0 AND BELOW		525	241	1.0 INCH OR MORE	PRECIPITATION	SNOW, ICE PELLETS	
0	0	0	0	DEP	DEP		THUNDERSTORMS	0		
				-4	97		HEAVY FOG	.04	20	0
								YEAR 32	PRE 1 CLOUDY 7	CLOUDY 11

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
- MISSING DATA. EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 6 AND 12 IS ARE BASED ON 1.00

HOURLY OBSERVATIONS PER DAY OF 1 HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
MAY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

HOUR P.S.T.	AVERAGES STATION PRESSURE	TEMPERATURE °F DRY BULB	WET BULB	DEW POINT	RELATIVE HUMIDITY	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	30.08	50	47	43	78	5.3	11	2.8
04	30.07	48	46	42	80	5.1	08	3.6
07	30.08	47	44	41	80	5.1	11	3.4
10	30.12	54	49	44	74	6.2	16	3.0
13	30.07	58	51	44	65	7.8	25	4.0
16	30.04	55	52	48	85	7.8	26	3.8
19	30.05	54	49	44	72	8.1	33	1.7
22	30.10	52	48	43	78	5.3	06	1.4

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	P.S.T. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.S.T. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																									1
2																									2
3																									3
4																									4
5									T	T															5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12																									12
13							.05	T				T	T		.01	.02	.06	.04	T	T	T	.04	.01		13
14																									14
15																									15
16	T																								16
17																									17
18							T		.01	T	.01	.05	.06	.03	.10	T	.09	.03	T	T	T	T	T		18
19																									19
20	T	T	.03	.02	T	.03	.01	.01	T	.02	.04	.10	.24	.03	.07	.08	.01	.02	.01	.14	T	T	.08	.04	20
21	T				.01	.02	.02	T	T		.04					T								.05	21
22	T				.03		.01	T		.01		T		T	T	T									22
23																									23
24																									24
25																									25
26																									26
27																									27
28																									28
29																									29
30					T	.01	T	T	T	.01	T	T	T	T											30

SUBSCRIPTION PRICE: $2.55 PER YEAR (INCLUDES ANNUAL SUMMARY, FOREIGN MAILING $1.05 EXTRA. SINGLE COPY: 20 CENTS FOR MONTHLY OR ANNUAL ISSUE. THERE IS A MINIMUM CHARGE OF $2.00 FOR EACH ORDER OF SHELF STOCKED ISSUES OF PUBLICATIONS. MAKE CHECKS PAYABLE TO DEPARTMENT OF COMMERCE. MAIL SUBSCRIPTIONS, ORDERS, AND INQUIRIES TO NATIONAL CLIMATIC CENTER, FEDERAL BUILDING, ASHEVILLE, NORTH CAROLINA 28801.

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel G. McFadden
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 12/78-10 600

NOVEMBER 1978
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) 8 FT. STANDARD TIME USED: PACIFIC WBAN 023234

DAY	TEMPERATURE °F MAX.	MIN.	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING	COOLING	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDER 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW, ICE PELLETS OR SNOW ON GROUND AT 0000 IN	PRECIPITATION WATER EQUIV. OR MELTED SNOW IN	SNOW, ICE PELLETS IN	RESULTANT DIR	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIR.	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS Sum of 6 Sunrises	Sum of 6 Sunsets	PEAK WIND SPEED M.P.H.	DIR.	DAY
1	65	48	56	-2	38	9	0	8	0	0	0	30.17	32	6.2	7.8	13	28			2	2				1
2	61	44	53	-5	45	12	0		0	0	0	30.23	30	8.8	10.1	18	28			0	0				2
3	68	44	56	-2	48	9	0		0	0	0	30.24	28	6.7	8.8	20	30			1	0				3
4	66	44	55	-3	48	10	0		0	0	0	30.08	28	8.8	9.1	20	28			0	5				4
5	70	48	60	3	48	5	0	2 8	0	0	0	29.98	31	3.6	7.1	13	31			3	4				5
6	74	48	60	3	47	5	0	8	0	0	0	30.06	34	3	3.3	7	29			3	4				6
7	77*	48	63*	6	48	2	0	8	0	0	0	30.13	25	1.0	6.0	12	29			8	5				7
8	74	48	61	4	48	4	0	8	0	0	0	29.98	32	4.6	7.2	20	29			1	0				8
9	60	45	53	-4	45	12	0	8	0	0	0	29.78	28	8.2	10.4	25	29			1	3				9
10	58	38	48	-9	35	16	0		0	0	0	29.87	05	4.8	8.6	22	02			1	7				10
11	53	43	48	-9	24	17	0		0	0	0	29.72	05	7.6	11.4	23	06			8	7				11
12	57	43	50	-6	38	15	0	1	.15	0	0	29.88	22	8.7	10.4	18	19			10	8				12
13	60	43	47	-9	41	18	0	1	.01	0	0	30.03	04	6.6	7.2	13	06			10	8				13
14	58	38	47	-9	36	18	0	1 8	0	0	0	30.08	28	3.0	5.3	14	29			10	8				14
15	57	35*	46*	-9	37	19	0	8	T	0	0	30.19	31	1.1	4.8	8	30			1	5				15
16	55	48	52	-3	41	13	0	8	T	0	0	30.22	11	2.8	4.8	8	12			10	8				16
17	60	40	50	-5	44	15	0	1 8	0	0	0	30.22	28	7.0	8.8	18	28			1	3				17
18	58	46	52	-3	45	13	0	8	0	0	0	30.15	26	4.0	8.2	13	28			5	7				18
19	61	48	55	0	49	10	0	1	.08	0	0	30.00	17	11.0	12.7	23	19			10	10				19
20	57	50	54	0	52	11	0	1	.50	0	0	29.88	14	2.8	7.2	16	19			10	10				20
21	58	47	53	-1	45	12	0		.38	0	0	29.78	18	4.7	8.8	16	22			6	8				21
22	53	45	49	-5	48	16	0		.94	0	0	29.91	08	6.2	8.2	15	13			10	8				22
23	58	45	52	-2	44	13	0		0	0	0	30.10	36	3.8	8.3	13	05			0	3				23
24	60	43	52	-2	45	13	0		0	0	0	29.99	30	6.6	7.8	18	30			1	2				24
25	57	38	48	-6	44	17	0		0	0	0	30.03	28	1.4	6.6	10	31			1	1				25
26	59	41	50	-3	44	15	0	1 8	0	0	0	30.08	28	2.8	6.6	15	31			6	4				26
27	60	41	51	-2	41	14	0	2 8	0	0	0	30.14	14	1.6	4.8	8	30			7	7				27
28	58	41	50	-3	42	15	0	1 8	0	0	0	30.25	08	0	0.0	12	30			7	7				28
29	58	48	54	1	52	11	0	2	0	0	0	30.25	30	5.0	8.2	18	30			7	7				29
30	59	47	53	1	51	12	0	2	0	0	0	30.21	28	6.2	8.4	21	27			10	8				30
	SUM 1820	SUM 1325				TOTAL 371	TOTAL 0	NUMBER OF DAYS		TOTAL 1.87	TOTAL 0	30.05	FOR THE MONTH: 29	1.8	7.7	25	29	TOTAL	1	SUM FOR MONTH 1498	SUM FOR MONTH 143				
	AVG 60.7	AVG 44.2	AVG 52.5	DEP -2.8	AVG 43	DEP 80	DEP 0	PRECIPITATION .01 INCH	8	DEP -0.62						DATE 09		POSSIBLE	MONTH	AVG 5.0	AVG 4.8				
						SEASON TO DATE		SNOW, ICE PELLETS																	
						TOTAL 722	TOTAL 144	.1.0 INCH	0																
	NUMBER OF DAYS MAXIMUM TEMP.		MINIMUM TEMP.					THUNDERSTORMS	0	GREATEST IN 24 HOURS AND DATES						GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE									
	≥ 90°	≤ 32°	≤ 32°	≤ 0°		DEP	DEP	HEAVY FOG	4	PRECIPITATION		SNOW, ICE PELLETS				0									
	0	0	0	0		31	36	CLEAR 13	PARTLY CLOUDY 7	CLOUDY 10															

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 6 AND 12-16 ARE BASED ON 7 OB

MORE OBSERVATIONS PER DAY AT 3 HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR ENDING	AVERAGES SKY COVER TENTHS	STATION PRESSURE	TEMPERATURE DEW PT.	WET BULB	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	4	30.05	49	46	83	6.5	27	1.7
04	5	30.05	47	45	92	5.3	22	1.8
07	6	30.06	46	44	92	4.6	15	2.0
10	6	30.09	53	48	74	6.4	08	3.2
13	5	30.05	58	50	63	8.8	36	1.5
16	4	30.02	57	50	63	11.2	30	6.4
19	4	30.03	53	48	75	10.0	29	6.4
22	4	30.05	51	48	79	8.8	29	4.3

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																									1
2																									2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12														Y	.02	.02	.08	.03							12
13				Y	T	.01	T	T																	13
14																									14
15																							Y	T	15
16									Y																16
17																									17
18	T	T			T				T			T	T	.01	.02	T	.04	T	.01	T	T	T	T	T	18
19	T	.01	.02	.01	.03	.04	T		T	T	T	.08	.08	T	.03	.02	.01	.08	.06	.10	T		.15	.06	.03	19
20	T	T		T	.08	.06	.04	T																	20
21				T	.04	.05	.10	.09	.09	.08	T	.01	.01	.03	.10	.01	T	T	T						21
22																									22
23																									23
24																									24
25																									25
26																									26
27																									27
28		T	T			T																			28
29																									29
30																									30

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Daniel R. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 12/28/78 575

NOVEMBER 1978 SAN FRANCISCO, CALIFORNIA

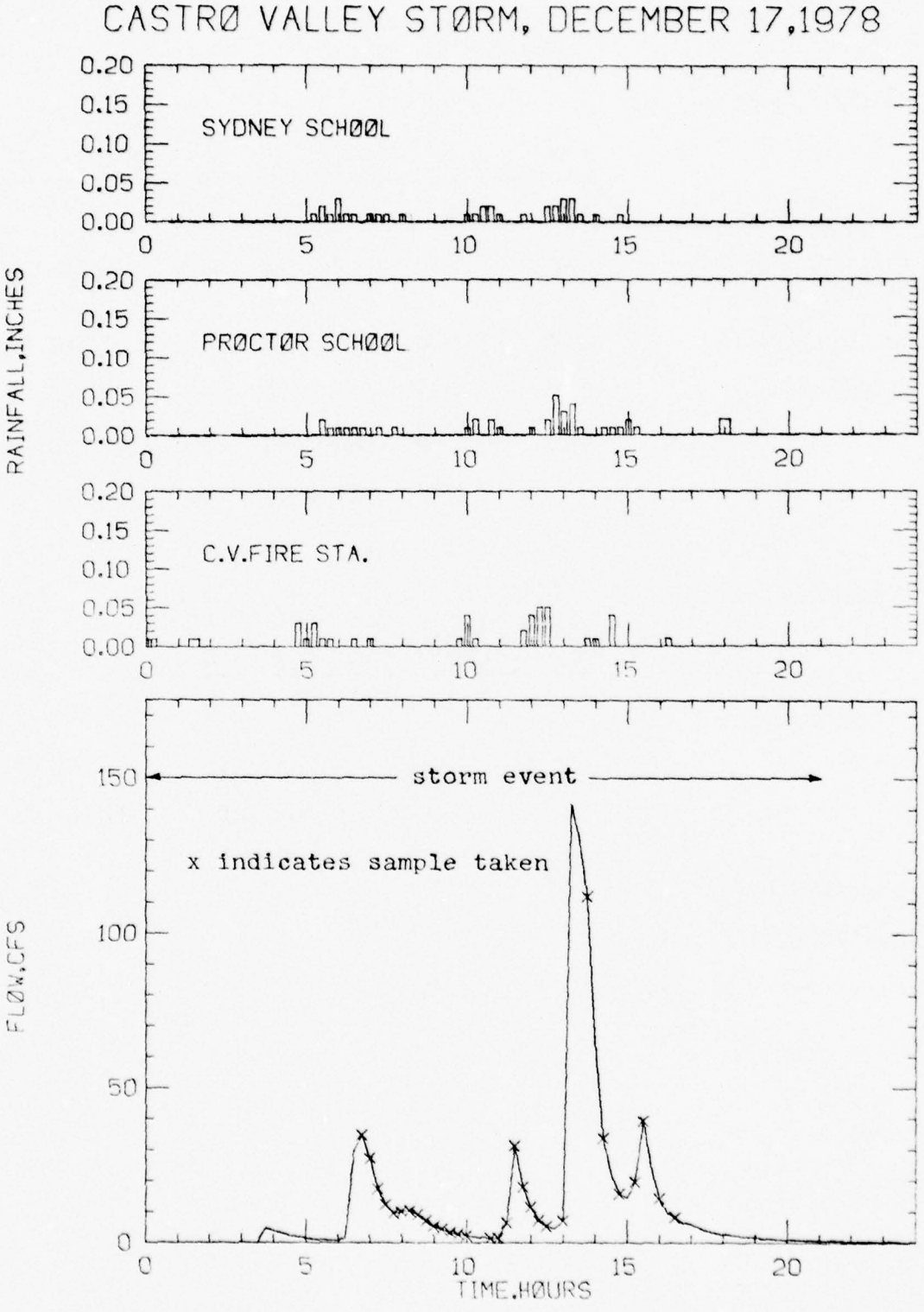
STORM EVENT REPORT NO. 3
December 17, 1978

1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	0.43	0000	17 Dec 78	1615	17 Dec 78
2. Proctor School	0.39	0530	17 Dec 78	1800	17 Dec 78
3. Sydney School	0.34	0515	17 Dec 78	1445	17 Dec 78
4. San Francisco Airport	0.23	0100	17 Dec 78	1300	17 Dec 78
5. Oakland Airport	0.18	0200	17 Dec 78	1400	17 Dec 78

2. Creek Flow Summary

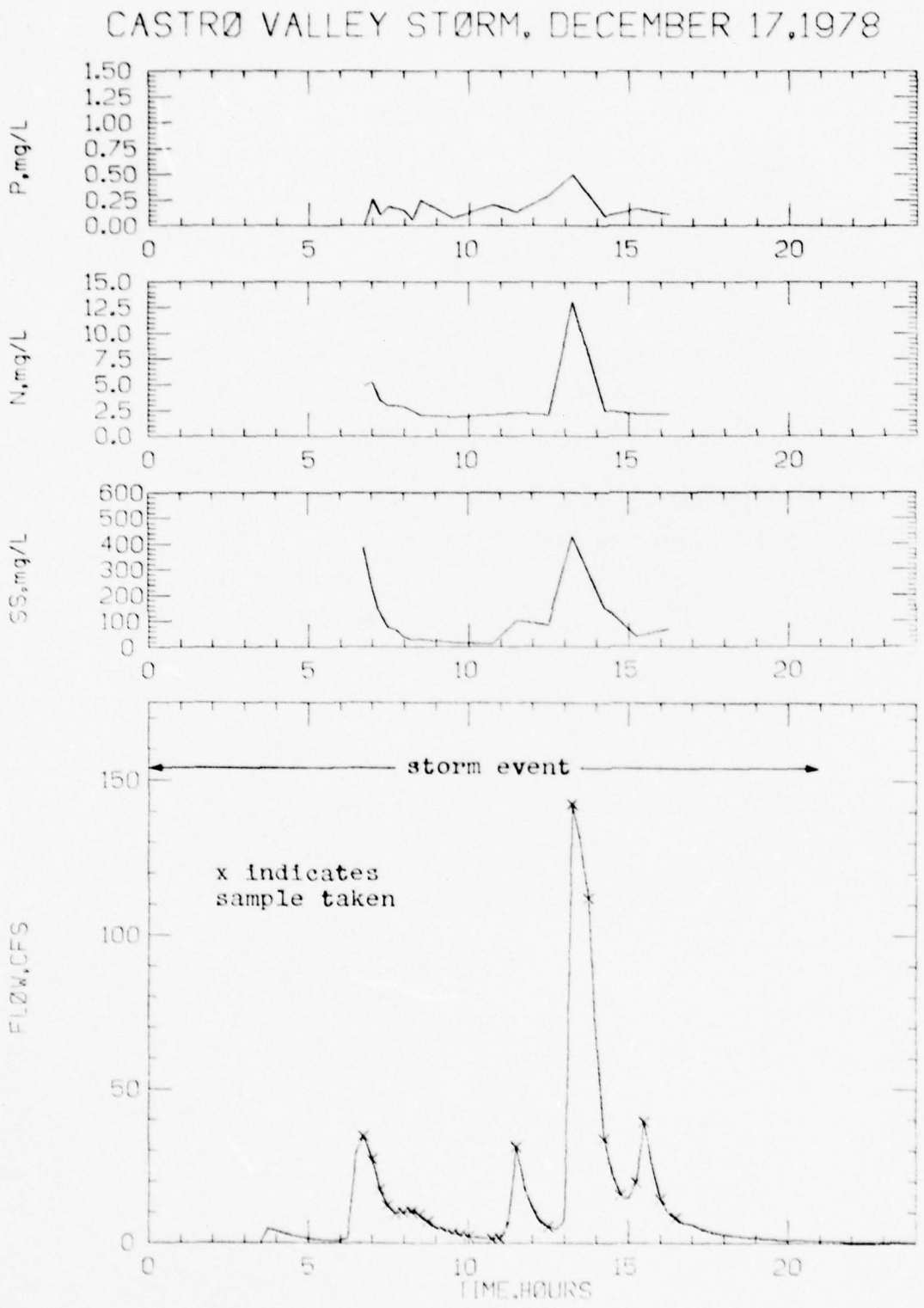
Discharge Condition	Value	Time	Date
Maximum, cfs	141.6	1330	17 Dec 78
Average, cfs	13.7	--	17 Dec 78
Total Volume, ft^3	1,035,800	from 0000 to 2100	17 Dec 78
Prior to storm, cfs	0.161		
Average (previous 7 days), cfs	0.190		
Average (previous 30 days), cfs	2.85		

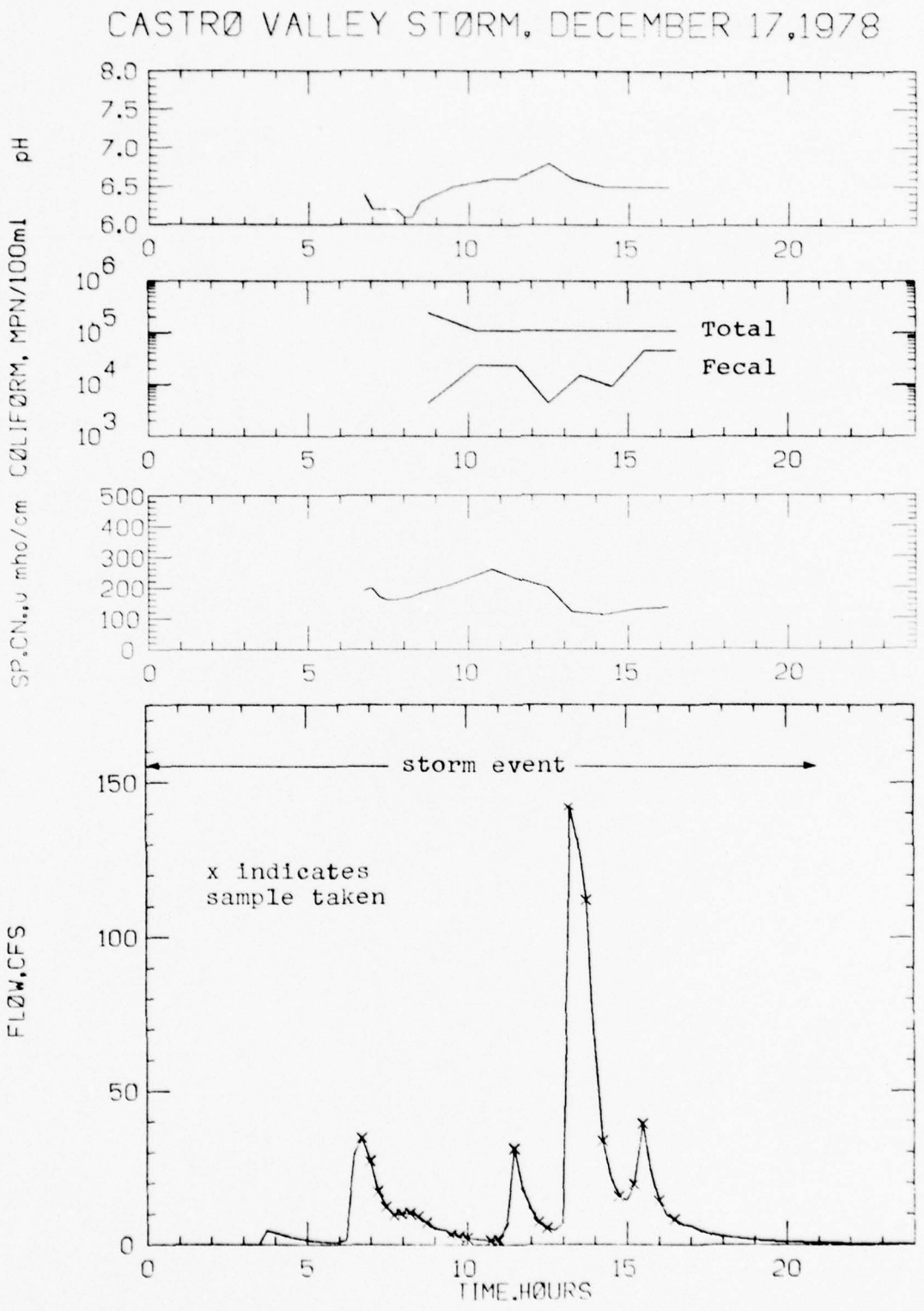

CASTRØ VALLEY STØRM, DECEMBER 17,1978
RAINFALL,INCHES
SYDNEY SCHØØL
PRØCTØR SCHØØL
C.V.FIRE STA.
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
FLØW,CFS
storm event
x indicates sample taken
150
100
50
0
TIME,HØURS

3. Discrete Sampling Analysis Results

Discrete Sample

Parameter	Units	Value
Date and time	--	17 Dec 78 1130
Instantaneous flow rate	CFS	31.4
Temperature	Deg C	11.2
Specific conductance	μmhos/cm	215
pH	--	6.7
Settleable solids	mL/L	1.0
Suspended solids	mg/L	118
Volatile suspended solids	mg/L	46
Biochemical oxygen demand (5 day)	mg/L	17
Total coliform	MPN/100 mL	1.1×10^5
Fecal coliform	MPN/100 mL	2.4×10^4


CASTRØ VALLEY STØRM, DECEMBER 17,1978
P,mg/L
1.50
1.25
1.00
0.75
0.50
0.25
0.00
N,mg/L
15.0
12.5
10.0
7.5
5.0
2.5
0.0
SS,mg/L
600
500
400
300
200
100
0
FLØW,CFS
150
100
50
0
0
5
10
15
20
storm event
x indicates
sample taken
TIME,HØURS


CASTRØ VALLEY STØRM, DECEMBER 17,1978
SP.CN.,μ mho/cm
CØLIFØRM, MPN/100ml
pH
8.0
7.5
7.0
6.5
6.0
10^6
10^5
10^4
10^3
Total
Fecal
500
400
300
200
100
0
storm event
x indicates
sample taken
150
100
50
0
FLØW,CFS
0
5
10
15
20
TIME,HØURS

4. Flow-weighted Composites

Parameter, mg/L	Date: December 17, 1978 Time: 0645-0830 Rising		December 17, 1978 0930-1615 Falling	
	Total	Dissolved	Total	Dissolved
MBAS	0.10	0.08	0.10	0.09
TKN	3.2	1.9	2.6	1.3
Ortho P	0.41	0.20	0.41	0.19
Alkalinity	35	14	28	22
Cr	<0.06	<0.06	<0.06	<0.06
Cu	0.08	<0.03	0.08	<0.03
Cd	<0.01	<0.01	<0.01	<0.01
Pb	0.50	0.20	0.55	0.20
Ni	<0.06	<0.06	<0.06	<0.06
Zn	0.12	0.04	0.10	0.03

5. Observations at Sampling Station During Storm Event.

   Nothing significant to report.

6. Observations in Tributary Area During Storm Event.

   Nothing significant to report.

7. Comments on Storm Event.

   1. This storm was an intensive sampling event for a minor storm (greater than 0.20 inches of recorded rain).

   2. Flow response at the gaging station occurs within a half hour following a change in the rainfall rate.

   3. Two flow weighted composite samples, a discrete grab sample, and a series of discrete samples were analyzed for this event.

   4. The series of discrete samples were analyzed for seven parameters which are plotted with the runoff flow rate. The X's on these quality-flow plots indicate when discrete samples were collected. Suspended solids, nitrogen, and phosphorus values peaked with the peak runoff and decreased sharply afterward. Specific conductance values were generally high with low flowrates and at a minimum with the peak flowrate.

   5. The samples used in the composite samples were taken at 15 minute intervals for the rising portion of the storm runoff and at one hour intervals during the falling portion of the storm flow. Composite samples were analyzed for ten parameters.

STORM EVENT 3 - DECEMBER 17, 1978 QUALITY DATA

DATE	TIME OF DAY	FLOW RATE, CFS	TEMPERATURE, DEG C	SPECIFIC CONDUCTANCE, MICROMHOS/CM	PH	SUSPENDED SOLIDS, MG/L	TOTAL NITROGEN, MG/L AS N	TOTAL PHOSPHORUS, MG/L AS P	TOTAL COLIFORM, MPN/100 ML	FECAL COLIFORM, MPN/100 ML
12-17-78	6:45	34.9		190.	6.4	386.	4.9	0.01		
12-17-78	7:00	27.5		200.	6.2	236.	5.2	0.26		
12-17-78	7:15	17.6		170.	6.2	130.	3.5	0.11		
12-17-78	7:30	12.5		160.	6.2	78.	3.0	0.19		
12-17-78	7:45	9.78		160.	6.2	66.	3.0	0.17		
12-17-78	8:00	10.1		165.	6.1	40.	2.9	0.15		
12-17-78	8:15	10.5		170.	6.1	26.	2.5	0.06		
12-17-78	8:30	9.43		180.	6.3	31.	2.1	0.25		
12-17-78	8:45	7.24	10.6						2.40E 05	4.30E 03
12-17-78	9:30	3.48		210.	6.5	17.	1.9	0.08		
12-17-78	10:15	2.14	10.6						1.10E 05	2.40E 04
12-17-78	10:45	1.65		260.	6.6	12.	2.1	0.21		
12-17-78	11:30	31.4	11.2	230.	6.6	103.	2.3	0.14	1.10E 05	2.40E 04
12-17-78	12:30	5.60	11.1	200.	6.8	85.	2.1	0.30	1.10E 05	4.30E 03
12-17-78	13:15	141.6		120.	6.6	428.	13.0	0.50		
12-17-78	13:30	130.8	11.2						1.10E 05	1.50E 04
12-17-78	14:15	34.0		110.	6.5	154.	2.5	0.10		
12-17-78	14:30	22.6	11.0						1.10E 05	9.30E 03
12-17-78	15:15	20.0		130.	6.5	40.	2.2	0.17		
12-17-78	15:30	39.5	11.1						1.10E 05	4.60E 04
12-17-78	16:15	9.78		135.	6.5	69.	2.2	0.12		
12-17-78	16:30	8.43	11.0						1.10E 05	4.60E 04

STORM EVENT 3 - DECEMBER 17, 1978 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
12-16-78	24:00	1.19	0.161		0.01		
12-17-78	0:15	0.00	0.000		0.01		
12-17-78	1:00	1.19	0.161				
12-17-78	1:30	0.00	0.000		0.01		
12-17-78	2:00	1.19	0.161				
12-17-78	3:00	1.19	0.161				
12-17-78	3:30	1.19	0.161				
12-17-78	3:45	1.78	4.74				
12-17-78	4:00	1.75	4.16				
12-17-78	4:15	1.70	3.32				
12-17-78	4:30	1.65	2.61				
12-17-78	4:45	1.60	2.03		0.03		
12-17-78	5:00	1.56	1.65		0.01		
12-17-78	5:15	1.52	1.34		0.03		0.01
12-17-78	5:30	1.49	1.14		0.01	0.02	0.02
12-17-78	5:45	1.46	0.977		0.01	0.01	0.01
12-17-78	6:00	1.45	0.880			0.01	0.03
12-17-78	6:15	1.58	1.82			0.01	0.01
12-17-78	6:30	2.33	29.8		0.01	0.01	0.01
12-17-78	6:45	2.39	34.9	YES		0.01	
12-17-78	7:00	2.30	27.5	YES	0.01		0.01
12-17-78	7:15	2.15	17.6	YES		0.01	0.01
12-17-78	7:30	2.04	12.5	YES			0.01
12-17-78	7:45	1.97	9.78	YES		0.01	
12-17-78	8:00	1.98	10.1	YES			0.01
12-17-78	8:15	1.99	10.5	YES			
12-17-78	8:30	1.96	9.43	YES			
12-17-78	8:45	1.89	7.24	YES			
12-17-78	9:00	1.82	5.60	YES			
12-17-78	9:15	1.77	4.54	YES			
12-17-78	9:30	1.71	3.48	YES			
12-17-78	9:45	1.67	2.88	YES	0.01		
12-17-78	10:00	1.63	2.36	YES	0.04	0.01	0.01
12-17-78	10:15	1.61	2.14		0.01	0.02	0.01
12-17-78	10:30	1.58	1.82				0.02
12-17-78	10:45	1.56	1.65	YES		0.02	0.02
12-17-78	11:00	1.58	1.82	YES		0.01	0.01
12-17-78	11:15	1.87	6.74	YES			
12-17-78	11:30	2.35	31.4	YES			
12-17-78	11:45	2.16	18.3	YES	0.02		0.01
12-17-78	12:00	2.02	11.7	YES	0.04	0.01	
12-17-78	12:15	1.90	7.50	YES	0.05		

STORM EVENT 3 - DECEMBER 17, 1978 STORM DATA
(Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
12-17-78	12:30	1.82	5.60	YES	0.05	0.02	0.02
12-17-78	12:45	1.78	4.74			0.05	0.02
12-17-78	13:00	1.89	7.24	YES		0.03	0.03
12-17-78	13:15	3.20	141.6			0.04	0.03
12-17-78	13:30	3.13	130.8			0.01	0.01
12-17-78	13:45	3.00	112.0	YES	0.01		
12-17-78	14:00	2.67	65.5		0.01		0.01
12-17-78	14:15	2.38	34.0	YES		0.01	
12-17-78	14:30	2.23	22.6		0.04	0.01	
12-17-78	14:45	2.12	16.1	YES		0.01	0.01
12-17-78	15:00	2.09	14.6			0.02	
12-17-78	15:15	2.19	20.0	YES		0.01	
12-17-78	15:30	2.44	39.5	YES			
12-17-78	15:45	2.26	24.6				
12-17-78	16:00	2.09	14.6	YES			
12-17-78	16:15	1.97	9.78		0.01		
12-17-78	16:30	1.93	8.43	YES			
12-17-78	16:45	1.86	6.50				
12-17-78	17:00	1.85	6.27				
12-17-78	17:15	1.79	4.95				
12-17-78	17:30	1.74	3.98				
12-17-78	18:00	1.67	2.88			0.02	
12-17-78	19:00	1.57	1.73				
12-17-78	20:00	1.49	1.14				
12-17-78	21:00	1.44	0.880				

DECEMBER 1978
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

DECEMBER 1978 SAN FRANCISCO, CALIFORNIA

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND): 011 STANDARD TIME USED: PACIFIC WBAN 023234

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	HEATING	DEGREE DAYS BASE 65° COOLING	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW, ICE PELLETS, SNOW DEPTH	PRECIPITATION WATER EQUIV.	ICE PELLETS	RESULTANT WIND DIRECTION	WIND SPEED	RESULTANT SPEED	FASTEST MILE DIRECTION	FASTEST MILE SPEED	SUNSHINE POSSIBLE	SUNSHINE PERCENT	SKY COVER TENTHS	PEAK WIND SPEED
1	56	48	52	2	13	0		0	0.20	0	29	04	20	15	15	25	29		
2	56	48	52	3	13	0		0	0.00	0	30	01	11	6	7	14	28		
3	56	38	47	3	18	0		0	0.00	0	30	22	28	6	8	16	30		
4	61	41	51	2	14	0		0	0.00	0	30	24	21	4	6	16	28		
5	60	44	52	3	13	0		0	0.00	0	30	01	35	17	18	25	01		
6	60	35	48	0	17	0		0	0.00	0	30	05	35	17	18	24	36		
7	60	36	48	0	17	0		0	0.00	0	30	24	03	9	11	18	02		
8	58	32	45	3	20	0		0	0.00	0	30	52	08	2	8	10	08		
9	58	35	47	1	18	0		0	0.00	0	30	54	14	2	3	6	06		
10	58	37	48	2	17	0		0	0.00	0	30	32	11	1	3	2	21		
11	55	40	48	2	17	0		0	0.00	0	30	28	03	6	4	7	06		
12	57	42	50	4	15	0		0	0.00	0	30	18	14	5	5	10	13		
13	54	41	48	2	17	0		0	0.00	0	30	25	15	2	3	5	15		
14	60	38	49	1	16	0		0	0.00	0	30	26	31	2	8	14	30		
15	58	37	48	2	17	0		0	0.00	0	30	13	16	1	8	11	31		
16	55	34	45	5	20	0		0	0.00	0	29	05	18	4	11	11	18		
17	50	40	45	5	20	0		0	0.21	0	28	15	19	7	11	22	21		
18	47	42	45	5	20	0		0	0.21	0	28	12	36	1	8	12	36		
19	56	36	46	4	19	0		0	0.00	0	30	08	33	2	6	10	02		
20	61	32	47	3	18	0		0	0.00	0	30	41	18	1	6	12	01		
21	61	33	47	3	18	0		0	0.00	0	30	32	11	1	6	10	06		
22	60	37	49	1	16	0		0	0.00	0	30	18	35	1	6	9	30		
23	62	38	50	2	15	0		0	0.00	0	30	18	04	2	6	8	02		
24	61	38	50	3	15	0		0	0.00	0	30	15	07	1	7	11	08		
25	62	38	50	3	15	0		0	0.00	0	30	02	06	1	7	15	08		
26	60	38	49	2	16	0		0	0.00	0	30	01	09	1	6	12	06		
27	62	38	50	3	15	0		0	0.00	0	29	51	05	2	6	10	02		
28	59	37	48	2	17	0		0	0.00	0	29	52	04	2	6	8	01		
29	61	35	48	1	17	0		0	0.00	0	29	52	07	4	5	11	04		
30	61	33	47	2	18	0		0	0.00	0	30	01	15	1	6	7	04		
31	64	29*	47	0	18	0		0	0.00	0	30	22	12	3	6	8	09		
	64	29*																	
	1873	1179			583	0	NUMBER OF DAYS PRECIPITATION .01 INCH	3	3.34										
	MAX	MIN	MAX	DEP	MAX	DEP													
	64.0	38.0	48.0	3.1	101	0	SNOW, ICE PELLETS .1.0 INCH	0											
	SEASON TO DATE																		
	NUMBER OF DAYS				TOTAL	TOTAL	SNOWFALL	0	GREATEST IN 24 HOURS AND DATES				GREATEST DEPTH ON GROUND OF SNOW						
	MAXIMUM TEMP	MINIMUM TEMP			1203	144	PRECIPITATION	0	ICE PELLETS				ICE PELLETS OR ICE AND DATE						
	≥ 90°	≤ 32°	≤ 32°	≤ 0°	DEP	DEP	HEAT FDD	0	45 17 18		0		0						
	0	0	5	0	158	26	CLEAR 12	PARTLY CLOUDY 8	CLOUDY 10										

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
- ALSO ON AN EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 2 AND 12 IS ARE BASED ON 1 OB

MORE OBSERVATIONS PER DAY AT 3 HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (PST)	AVERAGES STATION PRESSURE	TEMPERATURE		WIND SPEED	RESULTANT WIND DIRECTION	RESULTANT SPEED
		DRY BULB	DEW POINT			
01	30.13	49	36	7	21	6
04	30.13	48	35	7	01	6
07	30.16	48	36	7	10	6
10	30.18	47	36	8	06	7
13	30.13	52	38	9	11	8
16	30.11	52	38	9	15	8
19	30.12	47	42	8	33	7
22	30.15	45	41	7	31	6

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1		T		.04	.12	.04	T																		1
2																									2
3																									3
4																									4
5		T																				T	T	T	5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12																									12
13																									13
14																									14
15																									15
16																									16
17	.01	.01		.02		.03	T		T	T	.01	.02	.09	.12	T	T	T					T		T	17
18		.18				T	.01								T										18
19																									19
20																									20
21																									21
22																									22
23																									23
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25																									25
26							T	T																	26
27																									27
28																									28
29																									29
30																									30
31																									31

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Daniel L. McFadden
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 01-25-79 575

DECEMBER 1978
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

DECEMBER 1978 OAKLAND, CALIFORNIA

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (FT/GND): 6FT STANDARD TIME USED: PACIFIC WBAN 023230

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING	COOLING	WEATHER TYPES OR DATES OF OCCURRENCE	SNOW ICE PELLETS (INCHES)	PRECIPITATION WATER EQUIV (IN)	SNOW ICE PELLETS (INCHES)	SNOW DEPTH ON GROUND (INCHES)	WIND MISC FASTEST MILE SPEED	DIRECTION	AVERAGE SPEED	FASTEST 2 MIN SPEED	DIRECTION	SUNSHINE POSSIBLE (MINUTES)	PERCENT	SKY COVER TENTHS 0600	1200	MIN
1	60	50	55*	3	45	10	0	1	0	16	0	0	29	9C	22	8	1	21	26	2	9	0
2	58	43	51	-1	32	14	0		0	0	0	0	30	05	11	5	1	8	10	10	10	10
3	57	37	47	-5	37	18	0		0	0	0	0	30	26	17	1	4	6	8	10	10	10
4	56	38	47	-5	41	17	0		0	0	0	0	30	27	20	2	8	6	8	10	10	10
5	58	46	52	0	47	12	0	1	0	0	0	0	30	08	35	15	4	16	25	30	10	10
6	52	40	46	-6	37	19	0		0	0	0	0	30	07	36	15	7	16	23	01	10	10
7	50	34	42	-10	33	23	0		0	0	0	0	30	27	02	11	2	8	12	05	10	10
8	48	34	41	-10	28	24	0		0	0	0	0	30	27	02	11	2	8	12	06	10	10
9	48	36	42	-9	26	22	0		0	0	0	0	30	56	12	8	3	12	16	11	10	10
10	52	36	44	-7	32	21	0		0	0	0	0	30	35	28	2	2	8	12	10	10	10
11	54	40	47	-4	36	18	0		0	0	0	0	30	28	09	2	2	7	10	11	10	10
12	58	46	52	0	37	12	0		0	0	0	0	30	21	12	6	3	7	12	11	10	10
13	56	43	50	-2	38	15	0		0	0	0	0	30	28	11	5	3	6	9	11	10	10
14	56	37	47	-5	30	17	0		0	0	0	0	30	28	33	10	5	2	6	12	10	10
15	62*	38	50	-2	37	16	0	1	0	0	0	0	30	15	08	10	5	6	12	15	10	10
16	64	38	51	-1	38	20	0		0	0	0	0	29	07	28	13	6	5	6	15	10	10
17	62	48	55	3	44	16	0		0	19	0	0	29	11	18	13	6	10	12	22	10	10
18	60	43	52	0	41	18	0		0	11	0	0	28	74	10	2	1	2	2	04	10	10
19	60	38	49	-3	31	22	0		0	0	0	0	30	07	01	1	1	2	2	20	10	10
20	62	32	47	-5	31	21	0		0	0	0	0	30	33	08	1	1	6	8	10	10	10
21	60	33	47	-5	33	23	0		0	0	0	0	30	34	10	1	1	6	8	10	10	10
22	64	33	49	-3	34	21	0		0	0	0	0	30	21	34	1	1	6	8	10	10	10
23	61	35	48	-4	35	22	0		0	0	0	0	30	20	36	1	1	6	8	10	10	10
24	62	38	50	-2	38	19	0		0	0	0	0	30	16	06	1	1	6	8	10	10	10
25	67	38	53	1	35	22	0		0	0	0	0	30	05	01	1	1	6	8	10	10	10
26	60	37	49	-3	33	21	0		0	0	0	0	30	03	01	1	1	6	8	10	10	10
27	68	41	55	3	38	20	0		0	0	0	0	29	95	36	2	2	6	8	10	10	10
28	62	37	50	-2	38	20	0		0	0	0	0	29	95	01	1	1	6	8	10	10	10
29	60	38	49	-3	35	22	0	1	0	0	0	0	30	02	04	1	1	6	8	10	10	10
30	60	30*	45	-7	31	25	0	2	0	0	0	0	30	08	02	1	1	6	8	10	10	10
31	62	34	48	-4	34	22	0		0	0	0	0	30	22	22	1	1	6	8	10	10	10
SUM	1843	1165				594	0															
AVG	59.5	37.6	49.6	-4.3	34																	
	93 01	30 24				14E	0															

NUMBER OF DAYS: MAX 32 MIN 0 | MAX 0 MIN 0 | MAX 0 MIN 0

NUMBER OF DAYS: PRECIPITATION .01 INCH OR MORE 7 | SNOW, ICE PELLETS 1.0 INCH OR MORE 0 | THUNDERSTORMS 0 | ICE PELLETS 0 | HAIL 0 | FOG 0 | FOG REDUCED VISIBILITY TO 1/4 MILE OR LESS 0 | SMOKE OR HAZE 0

SNOW, ICE PELLETS: MAXIMUM 1.0 | DATE 22 | MAXIMUM 24 HOUR 1.0 | DATE 22

PRECIPITATION: GREATEST IN 24 HOURS 1.18 | DATE 22-23 | SNOW, ICE PELLETS 1.0 | DATE 22

GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS 1 | DATE 22

WIND: HIGHEST SPEED 36 | DIRECTION 27 | DATE 20 | FASTEST MILE SPEED 41 | DIRECTION 27 | DATE 20

NUMBER OF DAYS: MEAN SPEED 12 MPH OR MORE 0 | MAX WIND SPEED 31 MPH OR MORE 0 | MAX WIND SPEED 46 MPH OR MORE 0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ 0.02 ON 08 EARLIER DATE OF DATES
MISSY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 1 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE 2-MIN WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

HOUR (LST)	AVERAGES SEA LEVEL PRESSURE	STATION PRESSURE	TEMPERATURE °F	DEW POINT	WIND SPEED (MPH)	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED (MPH)	SKY COVER (TENTHS)
01	30.16	29.97	52	39	5.3	08	4.8	3.0
04	30.15	29.96	51	38	5.2	07	4.7	3.1
07	30.17	29.98	51	37	5.2	06	4.7	3.2
10	30.20	30.01	54	38	7.0	11	6.4	3.0
13	30.15	29.96	57	38	7.8	11	7.1	3.0
16	30.13	29.94	56	38	7.8	11	7.1	3.0
19	30.14	29.95	53	41	6.1	01	5.5	3.0
22	30.16	29.97	52	40	5.5	05	5.0	3.0

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	DAY TOTAL
1																									0
2																									0
3																									0
4																									0
5																									0
6																									0
7																									0
8																									0
9																									0
10																									0
11																									0
12																									0
13																									0
14																									0
15																									0
16																									0
17				.01	T	.08	.02		.01	.02	T	.01	T								.01	T	.01			0
18																									0
19																									0
20																									0
21																									0
22																									0
23																									0
24																									0
25																									0
26																									0
27																									0
28																									0
29																									0
30																									0
31																									0
TOTAL				.01	T	.08	.02	T	.01	.02	T	.01	T								.01	.10	.02	T	T	.26

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel R. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 01/25/79 500

STORM EVENT REPORT NO. 4
January 7, 1979

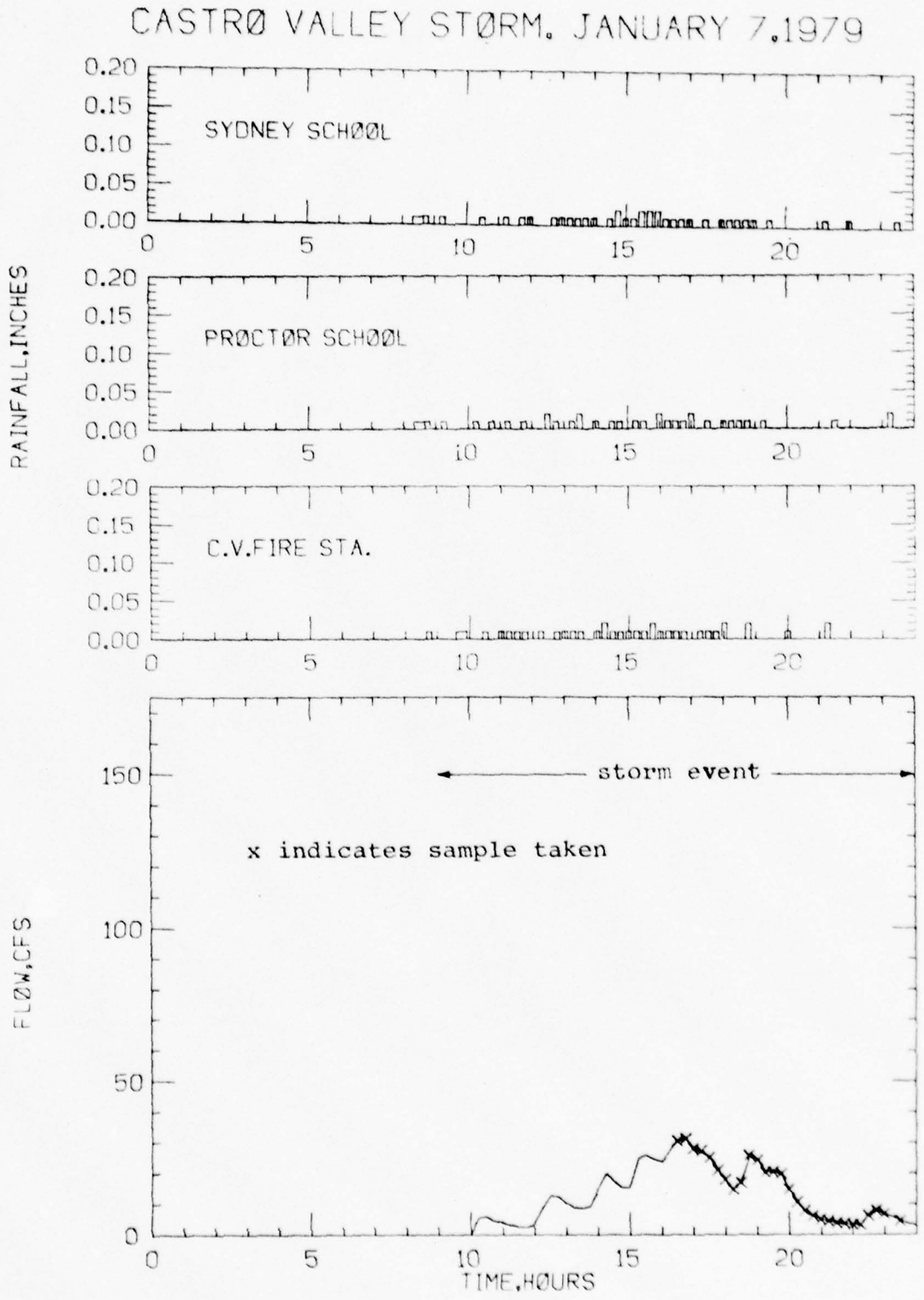
1. Rainfall Summary

Gage	Total Rainfall in.	Start Hour	Start Date	Stop Hour	Stop Date
1. Castro Valley Fire Station	0.36	0845	7 Jan 79	2115	7 Jan 79
2. Proctor School	0.34	0830	7 Jan 79	2315	7 Jan 79
3. Sydney School	0.38	0830	7 Jan 79	2330	7 Jan 79
4. San Francsico Airport	0.40	0700	7 Jan 79	2300	7 Jan 79
5. Oakland Airport	0.36	0700	7 Jan 79	2200	7 Jan 79

2. Creek Flow Summary

Discharge Condition	Value	Time	Date
Maximum, cfs	31.4	1645	7 Jan 79
Average, cfs	12.4	--	7 Jan 79
Total volume, ft^3	682,600	from 0845 to 2400	7 Jan 79

Prior to storm, cfs	0.161
Average (previous 7 days), cfs	0.530
Average (previous 30 days), cfs	0.670


CASTRØ VALLEY STØRM. JANUARY 7,1979
RAINFALL,INCHES
0.20
0.15
0.10
0.05
0.00
SYDNEY SCHØØL
PRØCTØR SCHØØL
C.V.FIRE STA.
0
5
10
15
20
FLØW,CFS
150
100
50
0
storm event
x indicates sample taken
TIME,HOURS

3. Sampling Analysis Results

Flow Weighted Composite

Parameter	Units	Value
Chemical Oxygen Demand	mg/L	65
Total Nitrogen as N	mg/L	1.1
Lead	mg/L	0.3
Chromium	mg/L	<0.06
Copper	mg/L	<0.03
Total Ortho Phosphorus as P	mg/L	0.26
Suspended solids	mg/L	50
Volatile suspended solids	mg/L	16

Discrete Sample

Parameter	Units	Value
Date and time	--	7 Jan 1715
Instantaneous flowrate	cfs	27.5
Temperature	Deg C	11.6
Specific conductance	µmho/cm	70
pH	--	6.0
Settleable solids	ml/L	0.2
Suspended solids	mg/L	87
Volatile suspended solids	mg/L	26
Biochemical oxygen demand (5 day)	mg/L	8
Total coliform	MPN/100 ml	4.6×10^6
Fecal coliform	MPN/100 ml	1.5×10^5

4. Observations at Sampling Station During Event.

   Nothing significant to report.

5. Observations in Tributary Area During Event.

   Nothing significant to report.

6. Comments on Storm Event.

   1. A flow weighted composite sample and a single discrete grab sample were analyzed for this event.

   2. The samples used in the composite sample analysis were taken at 15 minute intervals from 1630 to 2330 as indicated by X's on the flow plot.

STORM EVENT 4 - JANUARY 7-8, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
1- 7-79	8:00	1.19	0.161				
1- 7-79	8:30	1.19	0.161			0.01	0.01
1- 7-79	8:45	1.19	0.161		0.01	0.01	0.01
1- 7-79	9:00	1.19	0.161				
1- 7-79	9:15	1.19	0.161			0.01	0.01
1- 7-79	9:45	1.19	0.161		0.01		
1- 7-79	10:00	1.19	0.161				
1- 7-79	10:15	1.82	5.60			0.01	
1- 7-79	10:30	1.84	6.04		0.01		0.01
1- 7-79	10:45	1.78	4.74			0.01	
1- 7-79	11:00	1.76	4.35		0.01		
1- 7-79	11:15	1.70	3.32		0.01	0.01	0.01
1- 7-79	11:30	1.67	2.88		0.01		
1- 7-79	11:45	1.66	2.74		0.01	0.01	0.01
1- 7-79	12:00	1.71	3.48				0.01
1- 7-79	12:15	1.94	8.75		0.01		
1- 7-79	12:30	2.05	12.9			0.02	
1- 7-79	12:45	2.04	12.5		0.01	0.01	0.01
1- 7-79	13:00	1.99	10.5		0.01		0.01
1- 7-79	13:15	1.95	9.09		0.01	0.01	0.01
1- 7-79	13:30	1.94	8.75		0.01	0.02	0.01
1- 7-79	13:45	1.96	9.43				0.01
1- 7-79	14:00	2.10	15.1		0.01	0.01	0.01
1- 7-79	14:15	2.19	20.0		0.02		
1- 7-79	14:30	2.15	17.6		0.01	0.01	0.01
1- 7-79	14:45	2.11	15.6		0.01	0.01	0.02
1- 7-79	15:00	2.11	15.6		0.01		0.01
1- 7-79	15:15	2.26	24.6		0.01	0.01	0.01
1- 7-79	15:30	2.28	26.0		0.01	0.01	0.02
1- 7-79	15:45	2.26	24.6		0.02		0.02
1- 7-79	16:00	2.25	23.9		0.01	0.02	0.02
1- 7-79	16:15	2.30	27.5		0.01	0.01	0.01
1- 7-79	16:30	2.34	30.6	YES	0.01	0.01	0.01
1- 7-79	16:45	2.35	31.4	YES	0.01	0.01	0.01
1- 7-79	17:00	2.31	28.2	YES		0.02	0.01
1- 7-79	17:15	2.30	27.5	YES	0.01		
1- 7-79	17:30	2.27	25.3	YES	0.01	0.01	0.01
1- 7-79	17:45	2.21	21.3	YES	0.01		
1- 7-79	18:00	2.16	18.3	YES	0.02	0.01	0.01
1- 7-79	18:15	2.10	15.1	YES		0.01	0.01
1- 7-79	18:30	2.14	17.1	YES		0.01	0.01
1- 7-79	18:45	2.28	26.0	YES	0.02	0.01	0.01

STORM EVENT 4 - JANUARY 7-8, 1979 STORM DATA
(Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
1- 7-79	19:00	2.26	24.6	YES			0.01
1- 7-79	19:15	2.20	20.6	YES		0.01	
1- 7-79	19:30	2.20	20.6	YES			0.01
1- 7-79	19:45	2.19	20.0	YES			
1- 7-79	20:00	2.10	15.1	YES	0.01		
1- 7-79	20:15	2.00	10.9	YES			
1- 7-79	20:30	1.92	8.11	YES			
1- 7-79	20:45	1.85	6.27	YES			
1- 7-79	21:00	1.80	5.16	YES			
1- 7-79	21:15	1.78	4.74	YES	0.02		0.01
1- 7-79	21:30	1.75	4.16	YES		0.01	
1- 7-79	21:45	1.73	3.81	YES			
1- 7-79	22:00	1.71	3.48	YES			0.01
1- 7-79	22:15	1.71	3.48	YES			
1- 7-79	22:30	1.86	6.50	YES			
1- 7-79	22:45	1.92	8.11	YES			
1- 7-79	23:00	1.88	6.99	YES			
1- 7-79	23:15	1.84	6.04			0.02	
1- 7-79	23:30	1.78	4.74	YES			0.01
1- 7-79	23:45	1.76	3.98				
1- 7-79	24:00	1.69	3.17				
1- 8-79	0:15	1.66	2.74				
1- 8-79	0:30	1.63	2.36				
1- 8-79	0:45	1.61	2.14				
1- 8-79	1:00	1.60	2.03				
1- 8-79	1:15	1.58	1.82				
1- 8-79	1:30	1.56	1.65				
1- 8-79	1:45	1.55	1.57				
1- 8-79	2:00	1.53	1.41				
1- 8-79	2:15	1.52	1.34				
1- 8-79	2:30	1.50	1.21				

JANUARY 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

JANUARY 1979 SAN FRANCISCO, CALIFORNIA

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) 8 FT STANDARD TIME USED PACIFIC YEAR 73 74

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (WITH)	COOLING (WITH)	WEATHER TYPES OR DEGREES OF OCCURRENCE	SNOW ICE PELLETS OR HAIL ON GROUND AT 0800	PRECIPITATION WATER EQUIV.	SNOW ICE PELLETS	PRESSURE SEA LEVEL AVERAGE	WIND MILES PER HOUR RESULTANT DIR.	RESULTANT SPEED	FASTEST MILE SPEED	DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	PEAK WIND SPEED
1	54	33	44	-4	29	22	0		0	0	0	30.34	09	6.8	8.2	14	07			
2	48	37	43	-5	35	22	0	1 8	0	0	0	30.26	33	5.8	7.3	10	08			
3	53	38	46	-2	35	19	0	1 8	0	.03	0	30.07	03	5.2	5.8	10	31			
4	55	45	50	2	42	15	0	1 8	0	.01	0	30.06	08	5.6	6.5	14	09			
5	52	43	48	0	44	17	0	1 8	0	0	0	29.84	30	3.2	6.0	9	05			
6	51	37	44	-1	42	18	0	1 8	0	0	0	29.88	30	4.6	5.3	12	33			
7	54	46	50	5	48	15	0	1 8	0	.40	0	29.93	30	7.6	8.3	12	33			
8	56	46	51	6	52	12	0	1	0	.33	0	30.05	35	7.5	8.8	13	35			
9	57	46	52	6	52	12	0	1	0	.21	0	30.18	31	7.1	7.8	13	35			
10	58	44	52	6	48	13	0	1 8	0	.22	0	30.21	34	5.2	7.2	15	28			
11	61*	51	56*	8	55	9	0	1	0	.64	0	30.04	24	15.2	16.4	31	22			
12	56	45	51	3	49	14	0	1	0	.41	0	30.26	28	12.1	12.4	18	28			
13	58	43	51	3	45	14	0	1 2	0	.10	0	30.08	11	4.4	9.1	18	14			
14	58	48	52	4	48	13	0	1 3 4	0	.21	0	29.73	08	1.6	6.3	15	22			
15	52	45	48	1	46	16	0		0	.76	0	29.97	36	1.5	6.9	14	03			
16	57	42	50	2	43	15	0		0	.15	0	29.86	27	5.4	7.3	16	28			
17	55	38	47	-1	43	18	0	2	0	.05	0	30.05	30	2.0	6.2	12	01			
18	53	41	47	-1	43	18	0		0	0	0	30.24	30	2.2	5.8	12	30			
19	58	37	48	0	43	17	0	2 8	0	0	0	30.18	09	1.6	4.8	8	02			
20	53	38	46	-3	41	20	0	8	0	0	0	29.99	30	1.5	6.2	10	30			
21	58	42	50	2	43	15	0	1 8	0	0	0	29.88	24	2.2	5.0	8	14			
22	56	39	48	0	42	17	0	1 8	0	0	0	29.88	05	2.5	5.3	12	01			
23	48	40	45	-4	43	20	0	1 8	0	0	0	29.89	30	6.8	10.8	29	30			
24	53	42	48	-1	41	17	0	1 8	0	0	0	29.81	33	6.8	10.8	21	31			
25	54	38	46	-3	33	19	0		0	0	0	30.17	31	7.3	8.6	14	27			
26	54	42	48	-1	27	17	0		0	0	0	30.17	31	11.3	13.4	24	30			
27	55	42	48	-1	37	17	0		0	0	0	29.98	32	8.8	10.5	18	31			
28	52	38	44	-5	29	21	0		0	0	0	30.02	13	3.1	7.1	9	15			
29	49	31*	40	-9	26	25	0		0	.27	0	29.84	13	13.4	15.1	28	32			
30	45	35	40*	-9	37	25	0		0	T	0	29.84	06	6.2	8.9	15	04			
31	48	34	41	-8	37	24	0		0	0	0									
SUM	SUM					TOTAL	TOTAL			TOTAL	TOTAL		FOR THE MONTH				TOTAL	FOR	SUM	SUM
1678	1264					536	0	NUMBER OF DAYS		6.61	T	30.02	19	3	8.9	32	18	MONTH	SUM	SUM
AVG	AVG	AVG	DEP	AVG		DEP	DEP	PRECIPITATION .01 INCH	13	2.24						DATE	14		AVG	AVG
54	40	47	-2.0	41		18	0	SNOW ICE PELLETS .1 INCH	0	GREATEST IN 24 HOURS AND DATES						GREATEST DEPTH ON GROUND OF SNOW ICE PELLETS OR ICE AND DATE			7.5	6.7
NUMBER OF DAYS						SEASON TO DATE		THUNDERSTORMS	1	PRECIPITATION		SNOW ICE PELLETS								
MAX 90° AND ABOVE	MAX 32° AND BELOW	MIN 32° AND BELOW	MIN 0° AND BELOW			TOTAL	TOTAL	HEAVY FOG	4	2.21	14	T	15			0				
0	0	1	0			376	0	CLEAR 6	PARTLY CLOUDY 5	CLOUDY 20										

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
- ALSO ON EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM, 09 = E, 18 = S, 27 = W, 36 = N
PEAK WIND SPEED

MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

HOUR (PST)	STATION PRESSURE	AVERAGES TEMPERATURE °F DRY BULB	WET BULB	DEW POINT	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	PREVAILING WIND DIRECTION	SPEED M.P.H.
01	30.02	45	43	40	85	7.1	21	11
04	30.02	44	42	40	87	7.6	20	11
07	30.03	44	43	40	88	7.6	15	33
10	30.06	48	45	41	81	8.7	09	39
13	30.01	53	47	43	72	8.8	05	18
16	30.00	53	47	42	72	10.8	28	31
19	30.01	48	45	42	80	9.1	29	22
22	30.03	47	44	41	82	7.7	27	15

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																		T	.01	.01	T	.01	T	T	1
2																		T			T	T	T	.02	2
3																									3
4											.01		T	T	T	T									4
5		T	.02	T	T	.01	T																		5
6																									6
7							T	.01	.02	T	.04	.02	.03	.06	.04	.02	.02	.04	.03	.02	.02	.03	.01	T	7
8		T	.02	T				T	.13	.18	.29	.38	.26	.04	.02	T									8
9	.01	.01	T	.04	.04				.08	.03	T	T	T												9
10														T	T			T	T	T	.01	.08	.07	.04	.02	10
11	.09	.21	.05	.12	.13	.06	.02	T	.04	.03	.07	.04	.06	T	.01	.01	T	T	T	T	T	T	T	T	11
12	T			T	T																				12
13																									13
14	.08	.10	.23	.20	.11	.05	.01	.02	T			T	T		.08	.49	.18	.01	.02	.03	.04	.33	.17	T	14
15	.05	.04	.04	.01	.03	T		.03	.06	.37	.06	.06	.02				T	T							15
16														T	T	.03	.09	T	T	.01	.02	T	T	T	16
17																									17
18		.03		.01	.01																				18
19																									19
20																									20
21																									21
22																									22
23																									23
24																									24
25	T																								25
26																									26
27																									27
28				T																					28
29									T	.05		.01	.08	.03	.09	T									29
30				T	T	T							T												30
31																									31

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 03/07/79 575

JANUARY 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) BXT STANDARD TIME USED: PACIFIC WBAN 23230

JANUARY 1979 OAKLAND, CALIFORNIA

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65°F HEATING (HDD)	COOLING (CDD)	WEATHER TYPES ON DATES OF OCCURRENCE (1) FOG (2) HEAVY FOG (3) THUNDERSTORM (4) ICE PELLETS (5) HAIL (6) GLAZE (7) DUSTSTORM (8) SMOKE, HAZE (9) BLOWING SNOW	SNOW, ICE PELLETS OR ICE ON GROUND (DEPTH)	PRECIPITATION WATER EQUIV. (INCH)	SNOW, ICE PELLETS	SNOW DEPTH ON GROUND	WIND AVG SPEED (MPH)	RESULTANT SPEED (MPH)	RESULTANT DIRECTION (TENS OF DEGREES)	FASTEST 2-MIN SPEED (MPH)	FASTEST 2-MIN DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER (TENTHS) SUNRISE TO SUNSET	SUNSET TO SUNRISE
1	56	35*	46	-2	24	19	0		0	0	0	30.37	06	8.9	9.8	20	05	9	6	6	6
2	52	42	47	-1	30	18	0		0	0	0	30.26	09	7.8	8.5	14	08	10	10	10	10
3	53	42	48	0	39	17	0	8	0	.10	0	30.09	07	3.0	6.6	13	06	10	10	10	10
4	58*	48	53	5	41	12	0	8	0	.02	0	30.09	06	8.0	8.3	13	05	10	10	10	10
5	56	45	51	3	42	14	0		0	.03	0	29.86	10	5.2	6.8	13	10	10	10	10	10
6	56	43	50	2	41	15	0	1 8	0		0	30.00	25	1.7	4.4	8	35	10	10	10	10
7	54	48	51	3	47	14	0	1	0	.36	0	30.09	12	5.0	5.8	13	11	10	10	10	10
8	55	51	53	5	46	12	0	1	0	1.14	0	30.08	15	9.9	10.1	18	15	10	9	9	9
9	57	53	54	6	48	11	0	1	0	.28	0	30.20	16	4.7	6.9	12	28	10	9	9	9
10	57	47	52	4	47	13	0	1	0	.89	0	30.25	15	5.6	6.6	16	15	10	9	9	9
11	57	53	55*	7	52	10	0	1	0	1.08	0	30.07	21	9.9	12.1	21	21	10	10	10	10
12	57	47	52	4	46	13	0	1	0	.01	0	30.18	28	1.2	5.5	13	27	10	8	8	8
13	57	45	51	3	44	14	0	1	0	.01	0	30.10	15	4.3	6.5	16	13	10	8	8	8
14	57	48	53	5	46	12	0	3	0	1.40	0	29.73	16	18.0	18.3	25	14	10	8	8	8
15	56	49	53	5	46	12	0	3 5	0	1.18	0	29.75	09	4.6	9.2	20	15	10	8	8	8
16	57	43	50	2	42	15	0		0	.01	0	29.88	32	2.3	5.5	15	33	10	6	6	6
17	52	38	45	-3	41	20	0	8	0	.10	0	29.88	21	1.4	6.5	15	29	10	6	6	6
18	55	45	50	1	43	15	0		0	.01	0	30.07	06	1.3	7.1	10	30	10	4	3	3
19	56	38	47	-2	40	18	0	8	0	.01	0	30.26	22	.9	2.6	7	12	10	2	1	1
20	54	40	47	-2	39	18	0		0	.01	0	30.23	11	1.3	5.5	7	06	10	1	1	1
21	57	43	50	1	42	15	0	8	0	.01	0	30.02	02	1.1	5.2	8	31	10	1	1	1
22	55	45	50	1	43	15	0	8	0	.01	0	30.00	17	3.4	6.5	10	19	10	4	4	4
23	50	43	47	-2	42	18	0	8	0	.01	0	30.01	06	1.6	5.5	8	07	10	4	4	4
24	53	45	49	0	40	16	0	8	0	.01	0	29.82	30	2.3	8.6	21	31	10	7	7	7
25	54	39	47	-2	32	18	0		0	.01	0	29.81	33	8.6	9.9	17	29	0	0	0	0
26	54	40	47	-2	30	18	0		0	.01	0	30.18	33	5.5	9.1	15	01	0	0	0	0
27	55	40	48	-2	33	17	0		0	.01	0	30.20	31	3.8	10.5	17	33	0	0	0	0
28	53	38	46	-4	27	19	0		0	.01	0	29.88	33	11.0	12.1	20	30	4	4	4	4
29	49	36	43*	-7	22	22	0		0	.01	0	30.06	12	3.0	6.5	12	12	4	4	4	4
30	48	41	45	-5	35	20	0		0	.08	0	29.87	14	14.9	15.5	29	14	10	7	8	7
31	50	38	44	-6	36	21	0		0	.01	0	29.86	04	7.6	8.2	14	05	9	7	7	7
SUM	SUM					TOTAL	TOTAL			TOTAL	TOTAL							TOTAL		SUM	SUM
1680	1347					491	0	NUMBER OF DAYS	6	65	0	30.04	12	1.7	8.2	29	14		FOR MONTH	6.5	6.2
AVG	AVG	AVG	DEP	AVG		DEP	DEP	PRECIPITATION	DEP								DATE	30		AVG	AVG
54.5	43.5	49.0	-2.4	39		-3.7	0	.01 OR MORE	2	62										7.3	6.2

NUMBER OF DAYS	TOTAL	TOTAL
MAXIMUM TEMP. 90° OR ABOVE	SEASON TO DATE	
MINIMUM TEMP. 32° OR BELOW	1820	0
MAXIMUM TEMP. 32° OR BELOW	DEP	DEP
MINIMUM TEMP. 0° OR BELOW	5	0

	TOTAL	TOTAL
SNOW, ICE PELLETS		
.01 INCH OR MORE	0	
THUNDERSTORMS	2	
HEAVY FOG	0	
CLEAR 5	PARTLY CLOUDY 4	CLOUDY 22

GREATEST IN 24 HRS AND DATES

PRECIPITATION	SNOW, ICE PELLETS
2.27	14.5
0	0

GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE

0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE OR DATES
HEAVY FOG: VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM.
DATA IN COLS. 6 AND 12 IS ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3 HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR ENDING	AVERAGES SKY COVER (TENTHS)	STATION PRESSURE	TEMPERATURE °F DRY BULB	WET BULB	DEW POINT	RELATIVE HUMIDITY	WIND SPEED (MPH)	WIND DIRECTION	WIND SPEED	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED
01	5	30.05	47	43	38	73	8.4	10	3.3		
04	6	30.04	46	42	38	75	7.2	33	3.8		
07	6	30.05	45	42	37	76	7.1	32	3.5		
10	7	30.08	49	45	40	73	8.4	12	2.1		
13	7	30.04	52	47	41	69	9.5	22	1.8		
16	7	30.01	53	47	41	66	8.3	25	1.8		
19	6	30.03	50	46	40	70	7.4	06	1.2		
22	5	30.04	48	44	40	74	7.1	08	1.9		

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																									1
2																									2
3																		.01	.02	.03	.01	.03	T	T	3
4	T																					T	T	.02	4
5	T		T	.01		T	T				.01	T	.01	T	T	T									5
6																									6
7							T	T	.03	T	.01	.02	.04	.04	.04	.04	.04	.04	.02	.03	T	.03	T		7
8									.04	.10	.21	.28	.41	.08	T	.02	T								8
9	T	T	T	.01	.04	.02	T		.03	.01	.07	T	T	T	T	T	T	T	T	.01	.06	.14	.31	.24	.33	9
10																									10
11	.17	.18	.17	.16	.05	.03	.08	.02	.04	.04	.06	.05	.03	T		T	T	T	T	T	T	T			11
12																									12
13																									13
14	T	T	.13	.13	.09	.06	T	.03	.02							.20	.21	.01	.02	T	.03	.11	.43	.02	14
15		T	.08	.01	.01	T	.05	.03	.04	.14	.24	.01	.28	.29											15
16																									16
17															T	.10	T	T	T	T					17
18																									18
19																									19
20																									20
21																									21
22																									22
23																									23
24																									24
25																									25
26																									26
27																									27
28																									28
29																									29
30								T	T	.05	T	T	.02	T	.01	T									30
31																									31

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM NOAA ASHEVILLE 03/07/79 500

STORM EVENT REPORT NO. 5
January 8, 1979

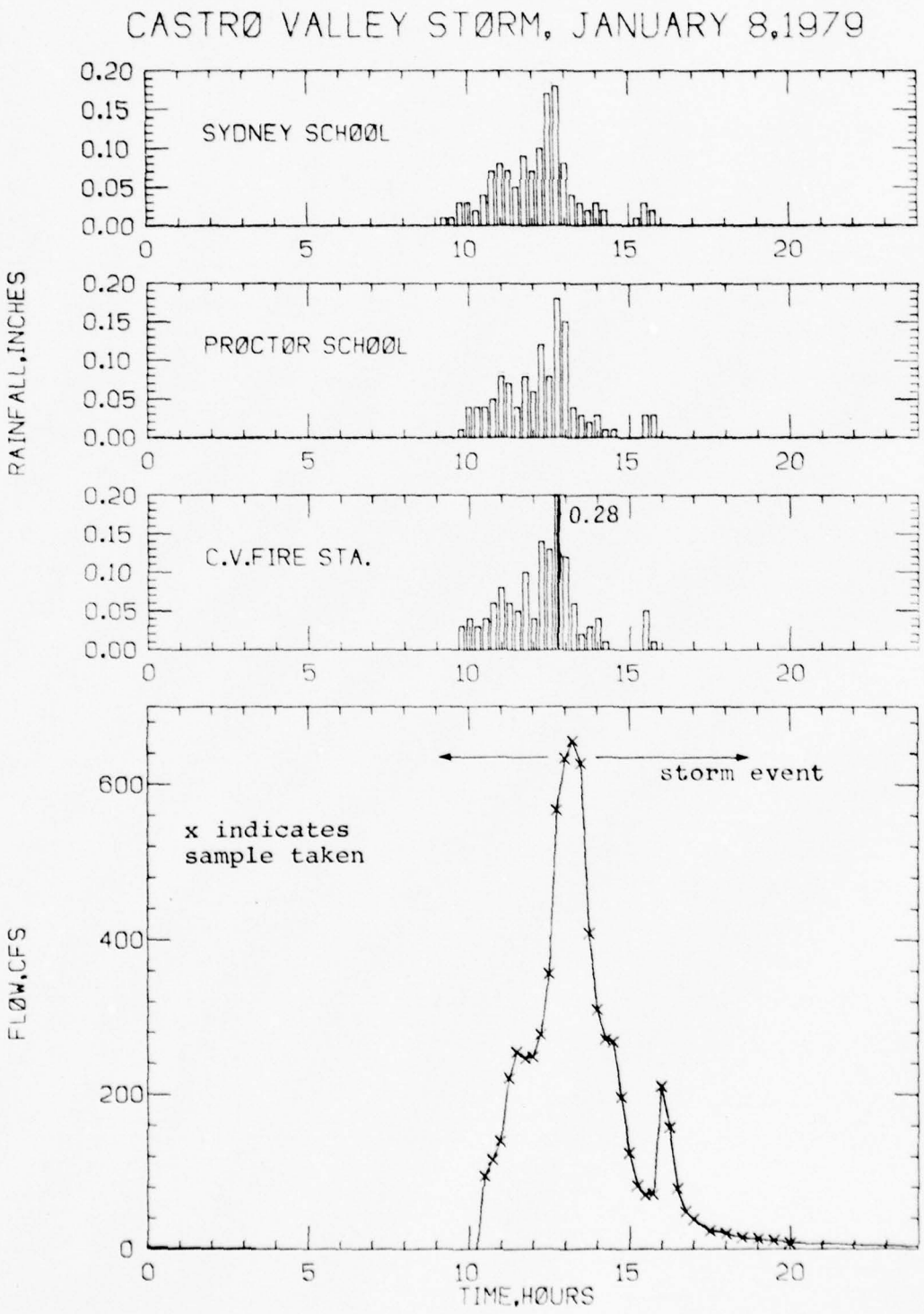
1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	1.42	0945	8 Jan 79	1545	8 Jan 79
2. Proctor School	1.24	0945	8 Jan 79	1545	8 Jan 79
3. Sydney School	1.30	0915	8 Jan 79	1545	8 Jan 79
4. San Francisco Airport	1.31	0800	8 Jan 79	1500	8 Jan 79
5. Oakland Airport	1.14	0900	8 Jan 79	1600	8 Jan 79

2. Creek Flow Summary

Discharge Condition	Value	Time	Date
Maximum, cfs	656.1	1315	8 Jan 79
Average, cfs	182.0	--	8 Jan 79
Total volume, ft^3	6,225,900	from 0915 to 1845	8 Jan 79

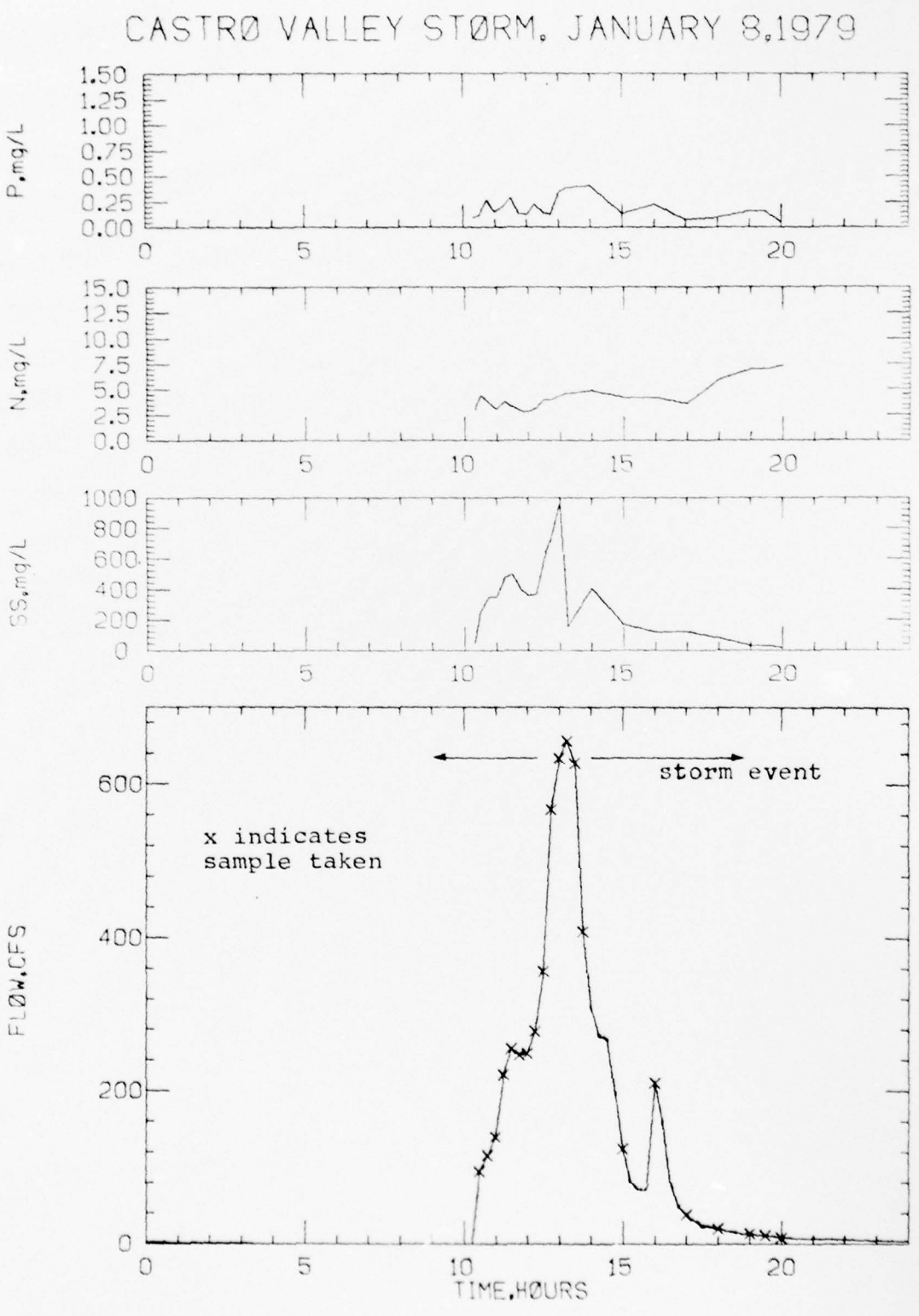
Prior to storm, cfs	0.450
Average (previous 7 days), cfs	1.62
Average (previous 30 days), cfs	0.950

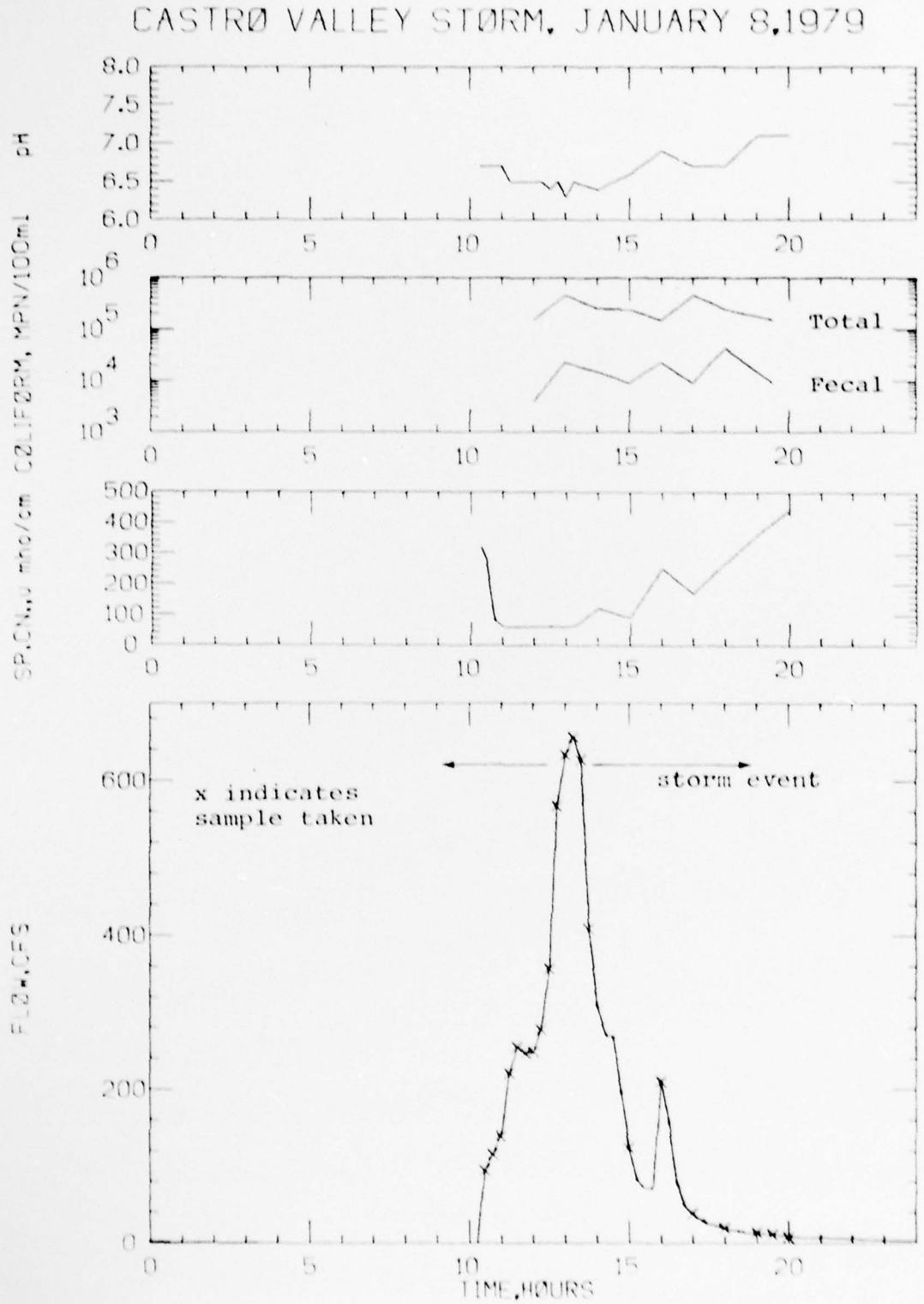

CASTRØ VALLEY STØRM, JANUARY 8,1979
RAINFALL,INCHES
SYDNEY SCHØØL
PRØCTØR SCHØØL
C.V.FIRE STA.
0.28
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
FLØW,CFS
600
400
200
0
x indicates
sample taken
storm event
TIME,HØURS

3. Discrete Sampling Analysis Results

Discrete Sample

Parameter	Units	Value
Date and time	--	8 Jan 79 1300
Instantaneous flow rate	CFS	633.2
Temperature	Deg C	11.3
Specific conductance	µmhos/cm	75
pH	--	7.0
Settleable solids	mL/L	3.4
Suspended solids	mg/L	772
Volatile suspended solids	mg/L	118
Biochemical oxygen demand (5 day)	mg/L	8
Total coliform	MPN/100 mL	4.6×10^5
Fecal coliform	MPN/100 mL	2.3×10^4


CASTRØ VALLEY STØRM, JANUARY 8,1979
P,mg/L
1.50
1.25
1.00
0.75
0.50
0.25
0.00
N,mg/L
15.0
12.5
10.0
7.5
5.0
2.5
0.0
SS,mg/L
1000
800
600
400
200
0
FLØW,CFS
600
400
200
0
0
5
10
15
20
TIME,HØURS
storm event
x indicates
sample taken


CASTRØ VALLEY STØRM, JANUARY 8,1979
8.0
7.5
7.0
6.5
6.0
pH
0
5
10
15
20
10^6
10^5
10^4
10^3
Total
Fecal
500
400
300
200
100
0
600
400
200
0
x indicates
sample taken
storm event
FLOW, CFS
TIME, HOURS

4. Flow-weighted Composites

Parameter, mg/L	Date: January 8, 1979 Time: 1020-1315 Rising		January 8, 1979 1400-2000 Falling	
	Total	Dissolved	Total	Dissolved
MBAS	0.06	0.06	<0.01	<0.01
TKN	2.8	0.75	2.0	1.5
Ortho P	0.56	0.23	0.64	0.44
Alkalinity	26	16	28	25
Cr	<0.03	<0.03	<0.03	<0.03
Cu	0.06	<0.03	<0.03	<0.03
Cd	<0.01	<0.01	<0.01	<0.01
Pb	0.65	<0.10	<0.10	<0.10
Ni	<0.06	<0.06	<0.06	<0.06
Zn	0.23	0.08	0.11	0.30

5. Observations at Sampling Station During Storm Event.

   During this storm event, a car body passed unnoticed through the sampling control section and lodged itself approximately 100 feet downstream. Flow records between this storm event and February 22 were affected slightly due to this obstruction.

6. Observations in Tributary Area During Storm Event.

   Nothing significant to report.

7. Comments on Storm Event.

   1. This storm was an intensive sampling event with over 1.00 inch of recorded rainfall.

   2. Rainfall intensity peaked over 0.50 inches/hour between 1200 and 1300 and produced a peak runoff rate of 656 ft^3/s at 1315.

   3. Two flow weighted composite samples, a discrete grab sample , and a series of discrete samples were analyzed for this storm event.

   4. The series of discrete samples were taken at 15 minute intervals between 1030 and 1315 and at one hour intervals between 1400 and 2000 as indicated by X's on the quality-flow plots. These samples were analyzed for seven parameters. Three parameters had definitive trends. Suspended solids values increased with the runoff flow, peaking just prior to peak runoff flow and decreasing sharply as the runoff flow peaked. Specific conductance, and to a lesser degree, pH, reversed this pattern, increasing with decreasing flow and attaining minimum values with peak flow.

   5. Samples collected for the composite samples were taken at 15 minute intervals during the rising portion of the storm runoff (1020 to 1315) and at one hour intervals during the falling portion (1400 to 2000). These samples were analyzed for ten parameters.

STORM EVENT 5 - JANUARY 8, 1979 QUALITY DATA

DATE	TIME OF DAY	FLOW RATE, CFS	TEMPERATURE, DEG C	SPECIFIC CONDUCTANCE, MICROMHOS/CM	PH	SUSPENDED SOLIDS, MG/L	TOTAL NITROGEN, MG/L AS N	TOTAL PHOSPHORUS, MG/L AS P	TOTAL COLIFORM, MPN/100 ML	FECAL COLIFORM, MPN/100 ML
1- 8-79	10:19	7.50		320.	6.7	43.	3.0	0.10		
1- 8-79	10:30	95.0		280.	6.7	248.	4.4	0.12		
1- 8-79	10:45	116.2		80.	6.7	346.	3.7	0.27		
1- 8-79	11:00	140.0		60.	6.7	346.	3.1	0.15		
1- 8-79	11:15	221.7		60.	6.5	472.	3.8	0.21		
1- 8-79	11:30	255.1		60.	6.5	498.	3.3	0.29		
1- 8-79	11:45	247.0		60.	6.5	400.	2.9	0.14		
1- 8-79	12:00	248.6	11.3	60.	6.5	358.	2.8	0.13	1.50E 05	4.00E 03
1- 8-79	12:15	277.8		60.	6.5	364.	3.2	0.23		
1- 8-79	12:30	356.0		60.	6.4	600.	4.0	0.15		
1- 8-79	12:45	566.5		60.	6.5	748.	4.0	0.13		
1- 8-79	13:00	633.2	11.3	60.	6.3	964.	4.4	0.34	4.60E 05	2.30E 04
1- 8-79	13:15	656.1		62.	6.5	1154.	4.6	0.39		
1- 8-79	14:00	309.8	11.1	120.	6.4	404.	4.9	0.41	2.50E 05	1.50E 04
1- 8-79	15:00	124.8		90.	6.6	168.	4.2	0.14	2.40E 05	9.00E 03
1- 8-79	16:00	211.0	11.6	250.	6.9	118.		0.23	1.50E 05	2.30E 04
1- 8-79	17:00	38.6	11.6	170.	6.7	120.	3.6	0.08	4.60E 05	9.00E 03
1- 8-79	18:00	20.0	11.7	270.	6.7	80.	6.0	0.10	2.40E 05	4.30E 04
1- 8-79	19:00	13.7		360.	7.1	30.	7.0	0.16		
1- 8-79	19:30	11.3	11.7						1.50E 05	9.00E 03
1- 8-79	20:00	8.43		440.	7.1	20.	7.3	0.05		

STORM EVENT 5 - JANUARY 8, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
1- 8-79	9:00	1.31	0.423				
1- 8-79	9:15	1.31	0.423				0.01
1- 8-79	9:30	1.31	0.423				0.01
1- 8-79	9:45	1.31	0.423		0.03	0.01	0.03
1- 8-79	10:00	1.32	0.450		0.04	0.04	0.03
1- 8-79	10:15	1.34	0.508		0.03	0.04	0.02
1- 8-79	10:30	2.89	95.0	YES	0.04	0.04	0.04
1- 8-79	10:45	3.03	116.2	YES	0.06	0.05	0.07
1- 8-79	11:00	3.19	140.0	YES	0.08	0.08	0.08
1- 8-79	11:15	3.68	221.7	YES	0.06	0.07	0.07
1- 8-79	11:30	3.89	255.1	YES	0.05	0.04	0.05
1- 8-79	11:45	3.84	247.0	YES	0.10	0.08	0.09
1- 8-79	12:00	3.85	248.6	YES	0.04	0.06	0.07
1- 8-79	12:15	4.03	277.8	YES	0.14	0.12	0.10
1- 8-79	12:30	4.53	356.0	YES	0.13	0.08	0.17
1- 8-79	12:45	6.17	566.5	YES	0.28	0.18	0.18
1- 8-79	13:00	6.83	633.2	YES	0.12	0.15	0.08
1- 8-79	13:15	7.06	656.1	YES	0.06	0.04	0.04
1- 8-79	13:30	6.77	627.2	YES	0.02	0.03	0.03
1- 8-79	13:45	4.90	408.0	YES	0.03	0.02	0.02
1- 8-79	14:00	4.24	309.8	YES	0.04	0.03	0.03
1- 8-79	14:15	3.99	271.8	YES	0.01	0.01	0.02
1- 8-79	14:30	3.97	268.3	YES		0.01	
1- 8-79	14:45	3.53	196.7	YES			
1- 8-79	15:00	3.09	124.8	YES			
1- 8-79	15:15	2.80	82.4	YES			0.01
1- 8-79	15:30	2.71	70.4	YES	0.05	0.03	0.03
1- 8-79	15:45	2.72	71.7	YES	0.01	0.03	0.02
1- 8-79	16:00	3.61	211.0	YES			
1- 8-79	16:15	3.30	158.0	YES			
1- 8-79	16:30	2.78	79.6	YES			
1- 8-79	16:45	2.53	49.0	YES			
1- 8-79	17:00	2.43	38.6	YES			
1- 8-79	17:15	2.33	29.8				
1- 8-79	17:30	2.25	23.9	YES			
1- 8-79	17:45	2.23	22.6				
1- 8-79	18:00	2.19	20.0	YES			
1- 8-79	18:15	2.14	17.1				
1- 8-79	18:30	2.10	15.1	YES			
1- 8-79	18:45	2.06	13.3				
1- 8-79	19:00	2.07	13.7	YES			
1- 8-79	19:15	2.02	11.7				

STORM EVENT 5 - JANUARY 8, 1979 STORM DATA
(Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
1- 8-79	19:30	2.01	11.3	YES			
1- 8-79	19:45	1.98	10.1				
1- 8-79	20:00	1.93	8.43	YES			

JANUARY 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

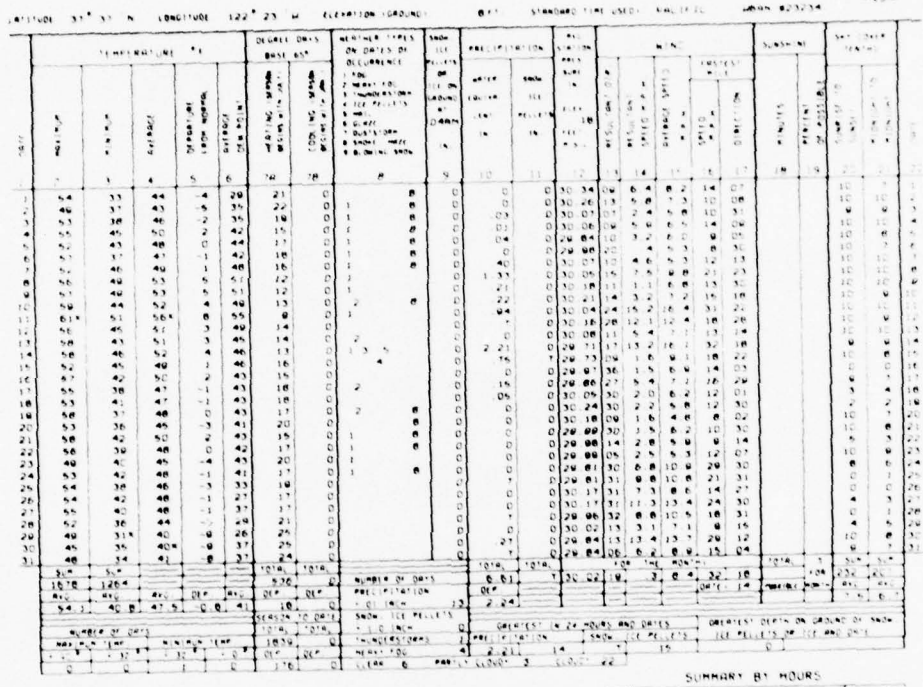
Local Climatological Data

MONTHLY SUMMARY

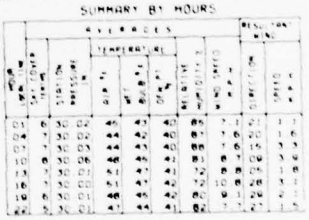


LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) 8 FT STANDARD TIME USED: PACIFIC WBAN 23234

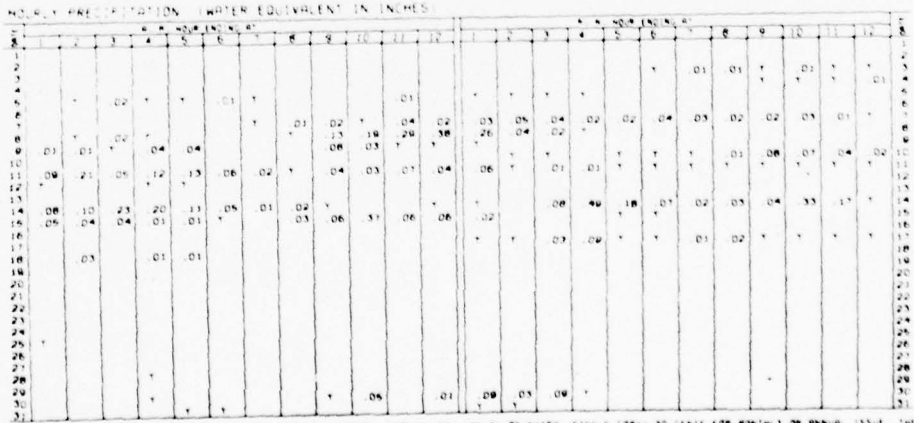
JANUARY 1979 SAN FRANCISCO, CALIFORNIA



SUMMARY BY HOURS



HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)



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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 05-07-79 575

JANUARY 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT STANDARD TIME USED: PACIFIC WBAN 23230

JANUARY 1979 OAKLAND, CALIFORNIA

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65°F HEATING	COOLING	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW ICE PELLETS (IN) ON GROUND	PRECIPITATION WATER EQUIV (IN)	SNOW, ICE PELLETS (IN)	SNOW DEPTH (IN)	WIND MEAN SPEED (MPH)	DIRECTION (TENS OF DEGREES)	FASTEST SPEED (MPH)	DIRECTION (TENS OF DEGREES)	SUNSHINE MINUTES	PERCENT POSSIBLE	SKY COVER (TENTHS) AVERAGE SKY COVER	NUMBER OF CLEAR DAYS	NUMBER OF CLOUDY DAYS
1	56	35R	46	-2	24	19	0		0	0	0	0	3.0	31	08	8	8	8	22	05		
2	52	42	47	-1	30	18	0		0	0	0	0	3.0	26	09	7	8	8	15	06		
3	53	42	48	0	35	17	0	8	0	10	0	0	3.0	09	07	7	8	6	13	06		
4	58R	48	53	5	43	12	0	8	0	02	0	0	3.0	08	06	8	8	6	13	05		
5	56	45	51	3	42	14	0		0	29	0	0	2.9	08	10	5	2	8	13	10		
6	56	43	50	2	41	15	0	8	0	0	0	0	3.0	00	25	7	7	8	8	35		
7	54	48	51	3	43	14	0	1	0	M	M	M	3.0	09	12	6	8	8	13	14		
8	55	51	53	5	48	12	0	1	0	1.14	M	M	3.0	08	16	7	8	10	18	26		
9	57	51	54	6	48	11	0	1	0	.18	0	0	3.0	26	15	6	8	8	18	28		
10	57	47	52	4	41	13	0	1	0	.82	0	0	3.0	25	15	5	8	8	16	25		
11	57	53	55R	7	52	10	0	1	0	1.08	0	0	3.0	07	26	6	8	7	21	21		
12	57	47	52	4	48	13	0	1	0	0	0	0	3.0	18	28	7	7	7	21	22		
13	57	45	51	3	44	14	0	1	0	0	0	0	3.0	10	15	6	7	6	16	13		
14	58	48	53	5	45	12	0		0	0	0	0	3.0	13	16	8	8	8	25	14		
15	56	48	52	4	46	13	0	3 5	0	.49	0	0	2.9	26	14	8	8	8	26	15		
16	57	43	50	2	42	15	0		0	.18	0	0	2.9	08	14	6	8	8	25	15		
17	52	38	45	-3	41	20	0	8	0	0	0	0	2.9	08	22	3	4	8	15	29		
18	55	45	50	1	41	15	0		0	0	0	0	3.0	07	06	3	7	7	10	32		
19	56	38	47	-2	40	18	0	8	0	0	0	0	3.0	26	22	6	8	6	15	30		
20	54	40	47	-2	38	18	0		0	0	0	0	3.0	23	11	3	3	5	7	06		
21	57	43	50	1	42	15	0	8	0	0	0	0	3.0	02	02	3	4	6	9	31		
22	55	45	50	1	43	15	0	8	0	0	0	0	3.0	00	32	3	4	6	10	18		
23	50	43	47	-2	42	18	0	8	0	0	0	0	3.0	06	13	6	8	6	15	18		
24	53	45	49	0	40	16	0	8	0	0	0	0	2.9	32	12	6	8	6	21	31		
25	54	30	42	-7	32	18	0		0	0	0	0	2.9	31	33	6	8	6	21	28		
26	54	40	47	-2	30	18	0		0	0	0	0	3.0	18	33	5	8	6	15	01		
27	55	40	48	-1	33	17	0		0	0	0	0	3.0	20	33	3	8	6	13	33		
28	53	38	46	-3	23	19	0		0	0	0	0	3.0	08	33	11	8	6	13	33		
29	48	36	42	-7	22	22	0		0	0	0	0	2.9	08	33	11	8	6	13	32		
30	48	41	45	-5	35	20	0		0	0	0	0	2.9	8	14	9	8	6	13	32		
31	50	38	44	-6	36	21	0		0	0	0	0	2.9	06	14	9	8	6	14	05		
SUM	SUM					TOTAL	TOTAL			TOTAL	TOTAL										
1690	1347					493	0			6.65	0.0	0	3.0	04	12	7	8	7	20	14		
AVG	AVG	AVG	DEP	AVG		DEP	DEP	NUMBER OF DAYS PRECIPITATION		.21									DEP: 30			
54.5	43.5	49.0	0.4	39		-17	0			2.02												
						SEASON TO DATE		SNOW ICE PELLETS													
NUMBER OF DAYS						TOTAL	TOTAL														
MAXIMUM TEMP		MINIMUM TEMP				1820	0	THUNDERSTORMS													
≥ 90°	≤ 32°	≤ 32°	≤ 0°			DEP	DEP	HEAVY FOG													
0	0	0	0			5	0	SLEET													

GREATEST IN 24 HOURS AND DATES			GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE	
	SNOW, ICE PELLETS			

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 6 AND 12 IS ARE BASED ON 1 OB

MORE OBSERVATIONS PER DAY AT 3 HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. USE WITH THE DIRECTION INDICATED
PEAK GUST SPEED
MAY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

DAY	AVERAGES STATION PRESSURE	SEA LEVEL PRESSURE	TEMPERATURE DRY BULB	WET BULB	DEW POINT	RELATIVE HUMIDITY	WIND SPEED	PRECIPITATION WATER EQUIV (IN)	SNOW, ICE PELLETS (IN)
01	30.05	30.04	48	43	38	77	8	.10	T
04	30.04	30.04	48	43	38	77	7	.12	T
07	30.05	30.04	48	43	38	77	7	.12	T
10	30.08	30.06	49	44	40	77	6	.13	T
13	30.04	30.02	52	47	43	80	8	.25	T
16	30.01	29.99	53	47	43	80	8	.25	T
19	30.03	30.01	50	46	42	80	7	.26	T
22	30.04	30.02	48	44	40	79	7	.26	T

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	DAY
	4	8	12	16	20	24																			
1																			.01	.02	.03	.01	.03	T	1
2																							T		2
3	T			T	.01		T	T					.01	T	T	T								.02	3
4	T										.01	T													4
5								T	T	.03	T	.01	.02	.04	.04	.04	.04	.04	.04	.02	.01	T	.03	T	5
6										.04	.10	.21	.28	.41	.08	T	.02	T							6
7	T	T	T	.01	.04	.02	T			.03	.01	.01	T	T	T	T	T	T	T	.01	.08	.14	.31	.24	.11	7
8																									8
9																									9
10	.17	.18	.17	.18	.05	.03	.08	.02	.04	.04	.06	.05	.03	T	T	T	T	T	T	T	T	T	T	T	10
11																									11
12																									12
13																									13
14	T	T	.13	.13	.09	.06	T	.03	.02							.20	.21	.01	.02	T	.03	.11	.45	.02	14
15		T	.08	.01	.01	T	.05	.03	.04	.14	.24	.01	.28	.29											15
16															T	.10	T	T	T	T					16
17																									17
18																									18
19																									19
20																									20
21																									21
22																									22
23																									23
24																									24
25																									25
26																									26
27																									27
28																									28
29																									29
30							T	T	.05	T	T		.02	T	.01	T							-		30
31																									31

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DIRECTOR, NATIONAL CLIMATIC CENTER

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

STORM EVENT REPORT NO. 6
January 10-11, 1979

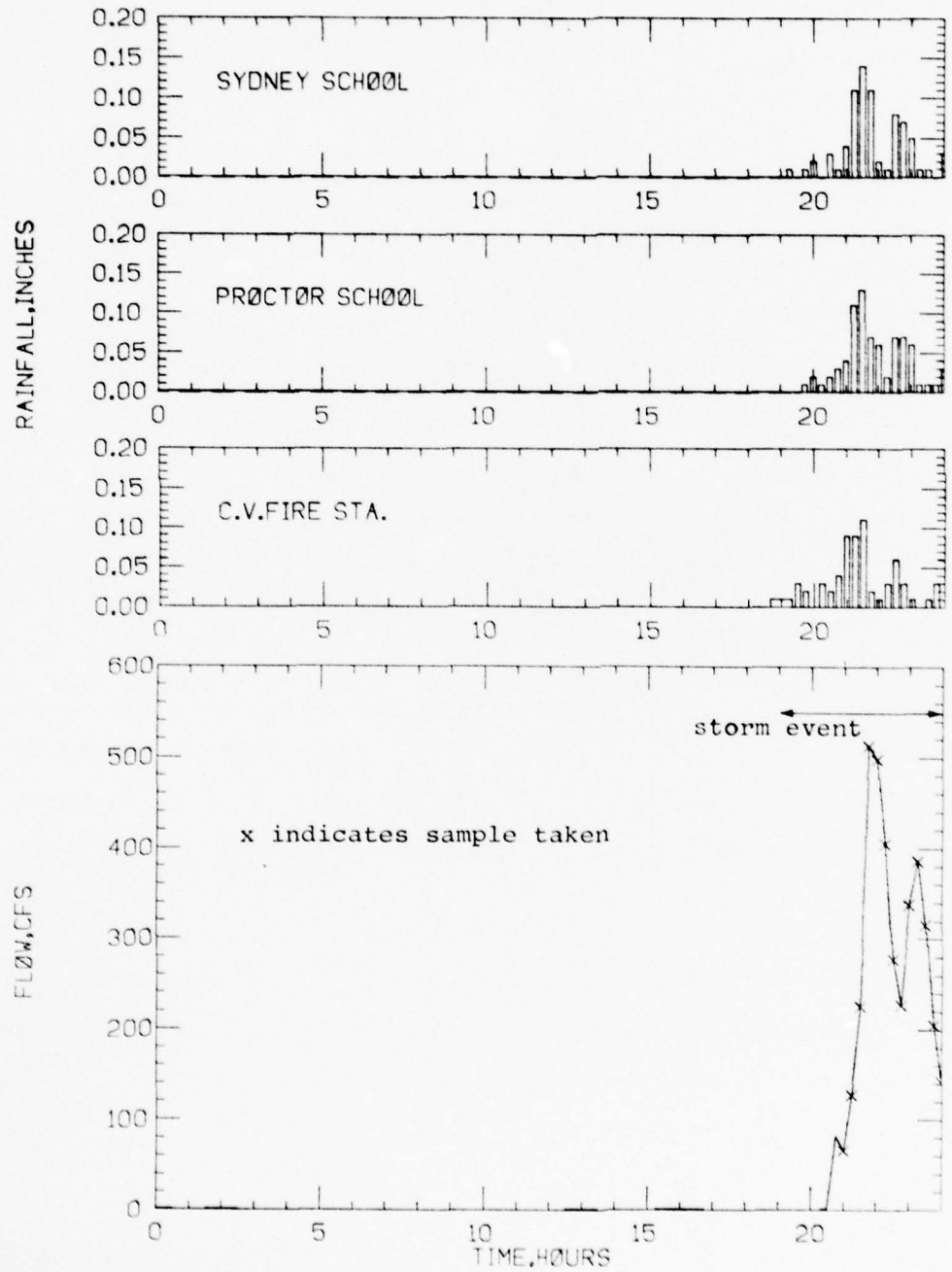
1. Rainfall Summary

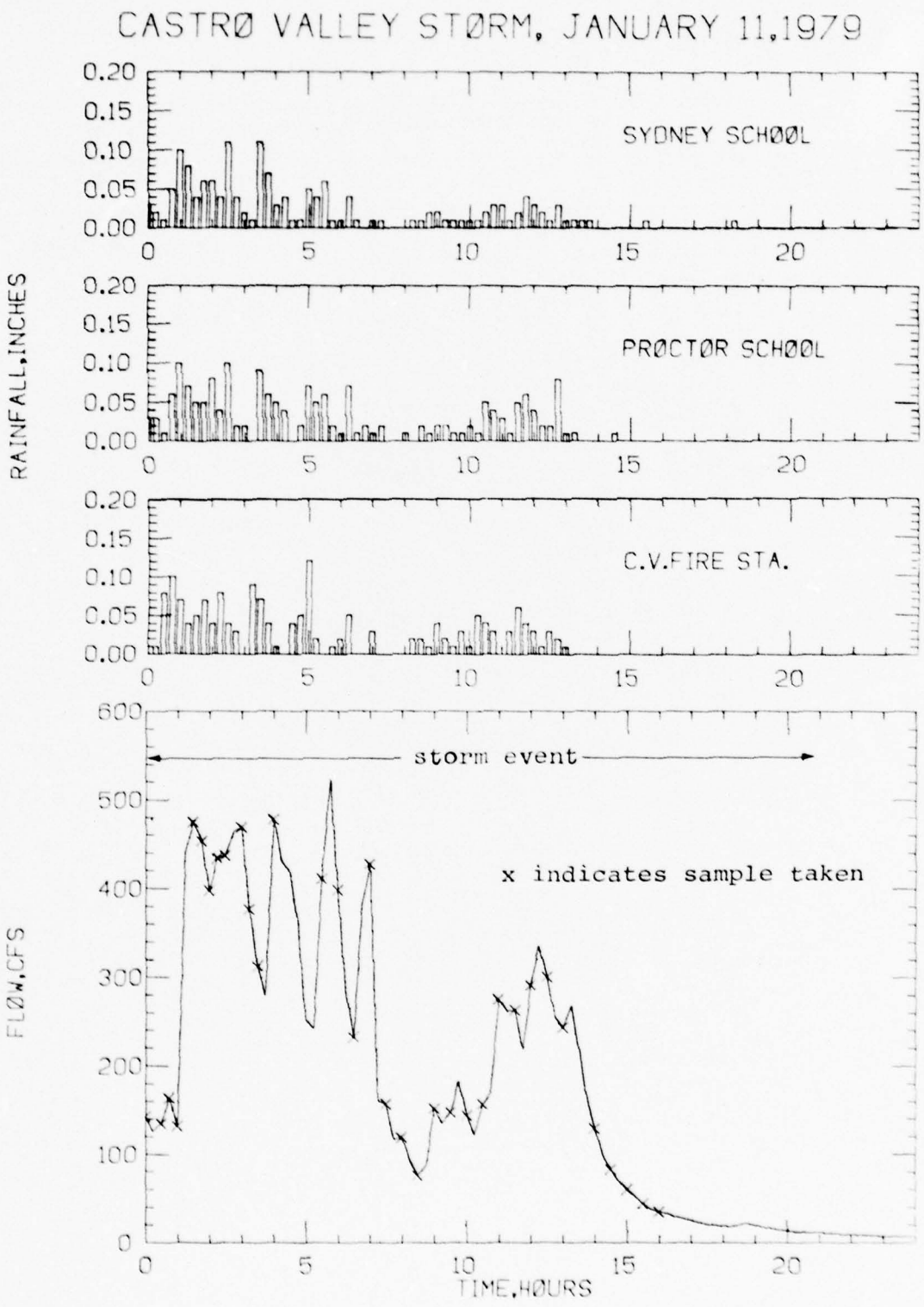
Gage	Total Rainfall in.	Start Hour	Start Date	Stop Hour	Stop Date
1. Castro Valley Fire Station	2.30	1900	10 Jan 79	1300	11 Jan 79
2. Proctor School	2.57	1945	10 Jan 79	1430	11 Jan 79
3. Sydney School	2.31	1915	10 Jan 79	1815	11 Jan 79
4. San Francisco Airport	1.16	1900	10 Jan 79	1600	11 Jan 79
5. Oakland Airport	1.97	1800	10 Jan 79	1300	11 Jan 79

2. Creek Flow Summary

Discharge Condition	Value	Time	Date
Maximum, cfs	522.5	0545	11 Jan 79
Average, cfs	192.0	--	10 Jan 79
Total volume, ft^3	17,946,700	from 1900 to 2100	10 Jan 79 11 Jan 79
Prior to storm, cfs	0.880		
Average (previous 7 days), cfs	13.0		
Average (previous 30 days), cfs	3.70		

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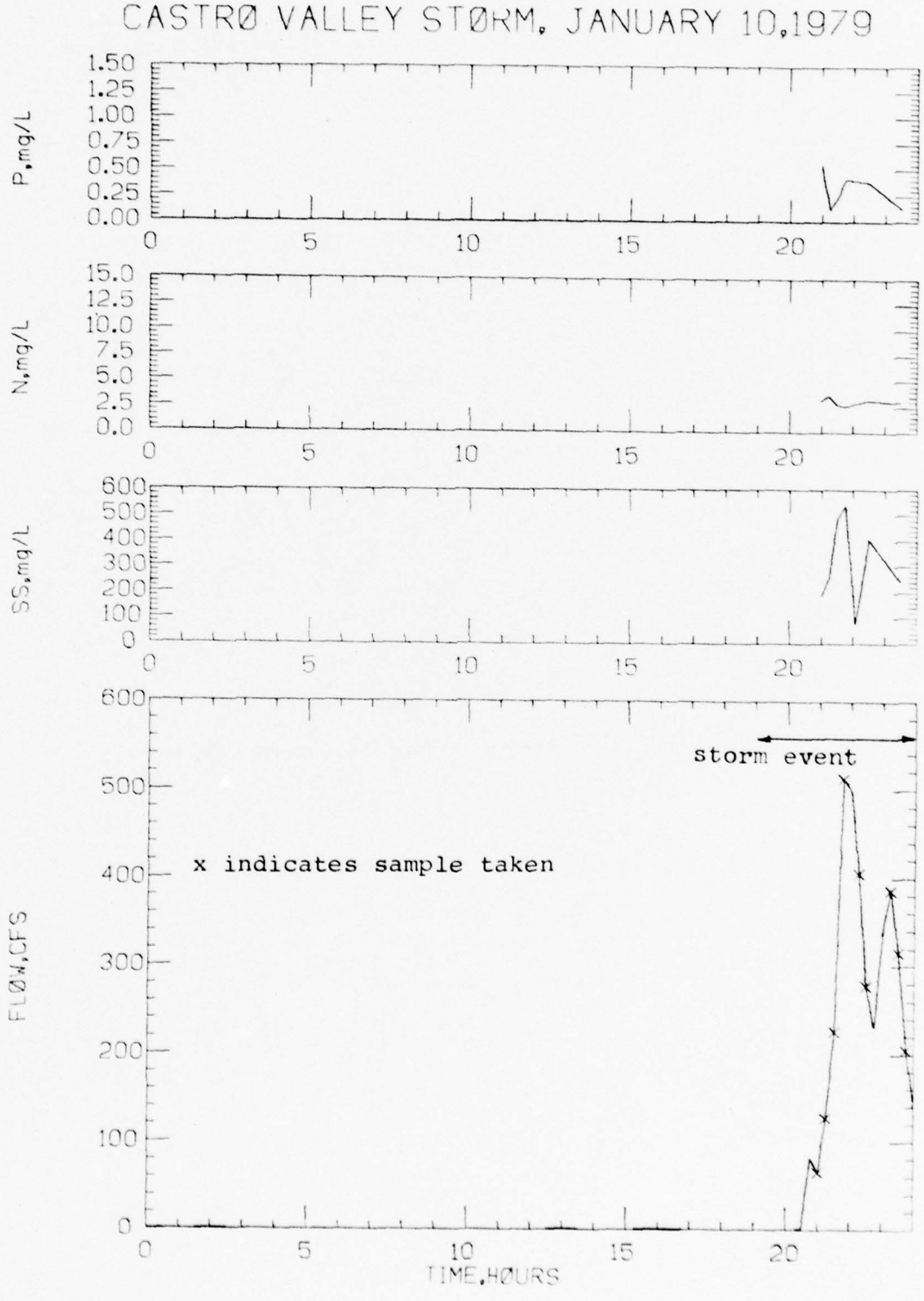


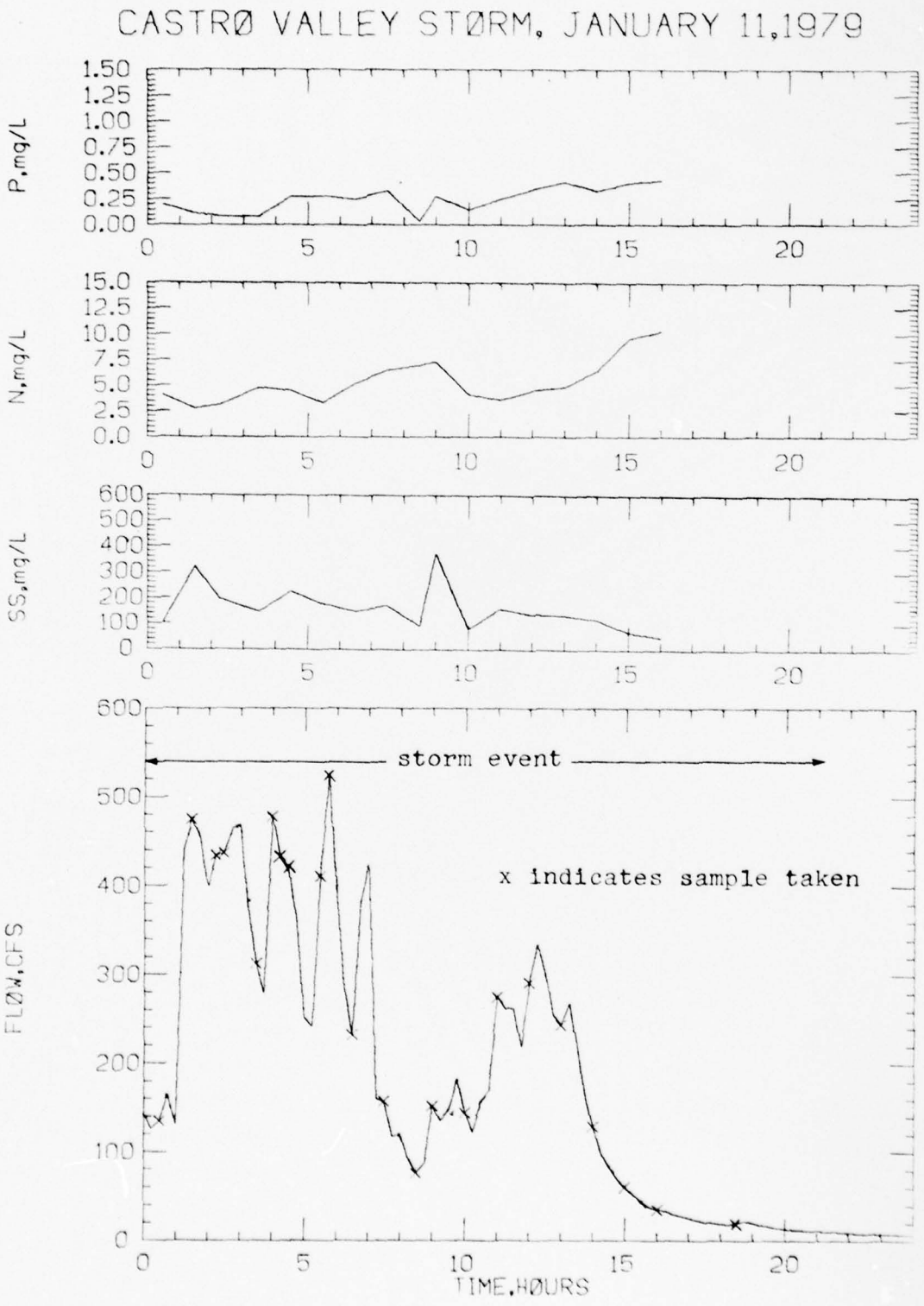

CASTRØ VALLEY STØRM, JANUARY 11,1979
RAINFALL,INCHES
0.20
0.15
0.10
0.05
0.00
SYDNEY SCHØØL
PRØCTØR SCHØØL
C.V.FIRE STA.
0
5
10
15
20
FLØW,CFS
600
500
400
300
200
100
0
storm event
x indicates sample taken
TIME,HØURS

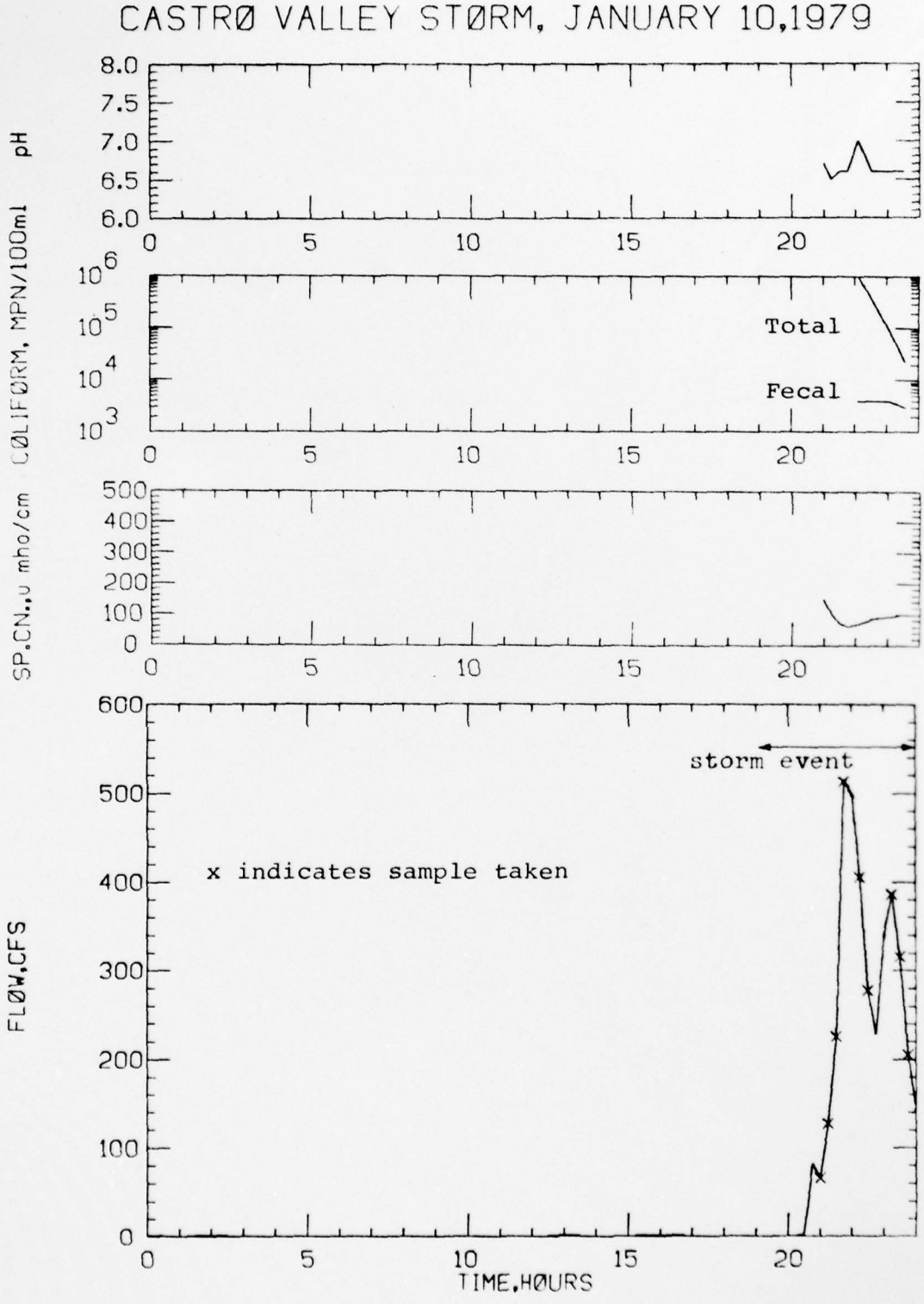
3. Discrete Sampling Analysis Results

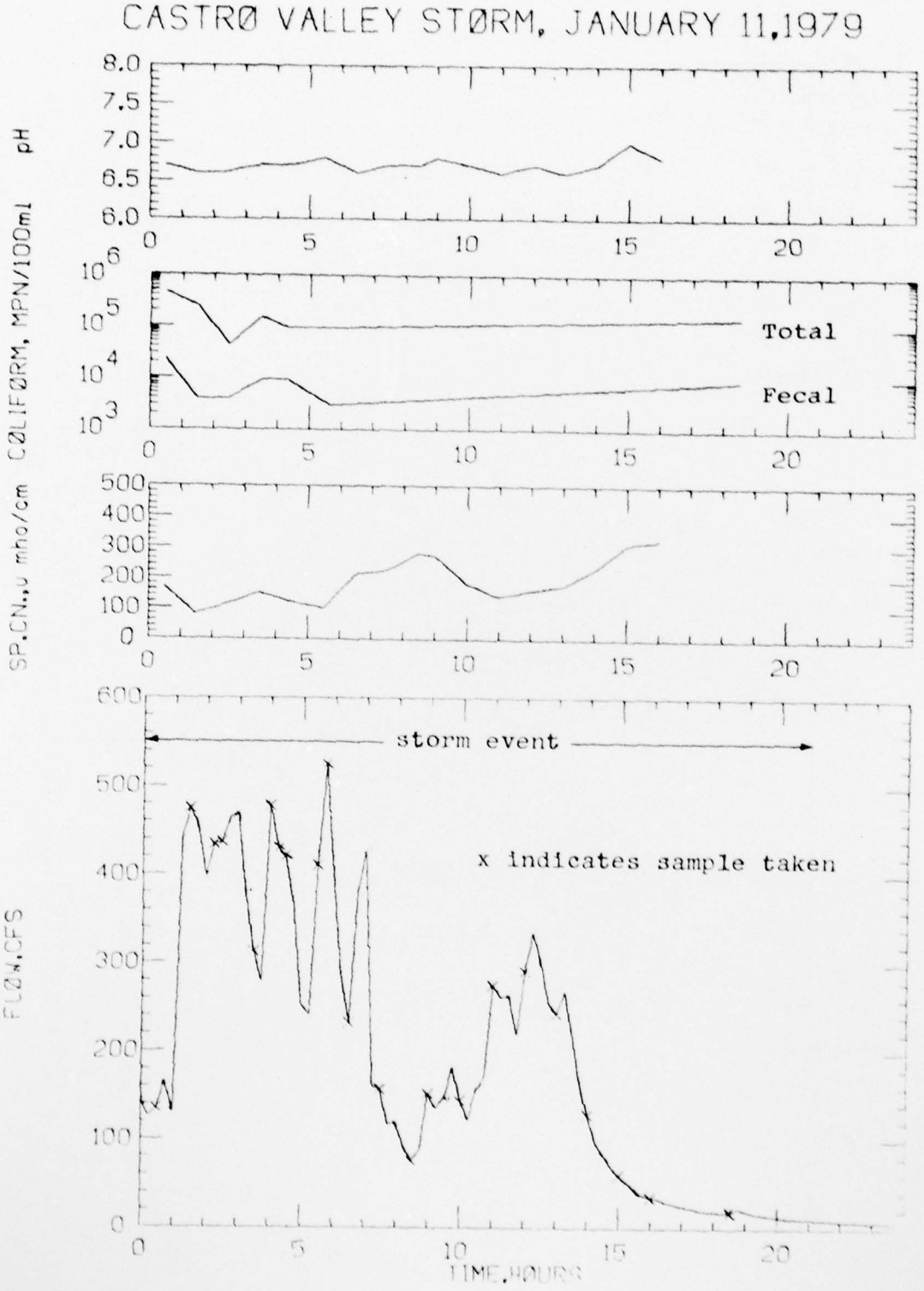
Discrete Sample

Parameter	Units	Value
Date and time	--	10 Jan 79 2205
Instantaneous flow rate	CFS	470.4
Temperature	Deg C	11.6
Specific conductance	µmhos/cm	70
pH	--	7.0
Settleable solids	mL/L	0.3
Suspended solids	mg/L	76
Volatile suspended solids	mg/L	17
Biochemical oxygen demand (5 day)	mg/L	12
Total coliform	MPN/100 mL	11×10^5
Fecal coliform	MPN/100 mL	0.4×10^4


CASTRØ VALLEY STØRM, JANUARY 10,1979
P,mg/L
1.50
1.25
1.00
0.75
0.50
0.25
0.00
N,mg/L
15.0
12.5
10.0
7.5
5.0
2.5
0.0
SS,mg/L
600
500
400
300
200
100
0
FLØW,CFS
storm event
x indicates sample taken
0
5
10
15
20
TIME,HØURS


CASTRØ VALLEY STØRM, JANUARY 11,1979
P,mg/L
1.50
1.25
1.00
0.75
0.50
0.25
0.00
N,mg/L
15.0
12.5
10.0
7.5
5.0
2.5
0.0
SS,mg/L
600
500
400
300
200
100
0
FLØW,CFS
storm event
x indicates sample taken
0
5
10
15
20
TIME,HØURS


CASTRØ VALLEY STØRM, JANUARY 10,1979
pH
8.0
7.5
7.0
6.5
6.0
0
5
10
15
20
CØLIFØRM, MPN/100ml
10^6
10^5
10^4
10^3
Total
Fecal
SP.CN.,u mho/cm
500
400
300
200
100
0
FLØW,CFS
600
500
400
300
200
100
0
storm event
x indicates sample taken
TIME,HØURS


CASTRØ VALLEY STØRM, JANUARY 11,1979
pH
8.0
7.5
7.0
6.5
6.0
0
5
10
15
20
SP.CN.,μ mho/cm
CØLIFØRM, MPN/100ml
10^6
10^5
10^4
10^3
Total
Fecal
500
400
300
200
100
0
storm event
x indicates sample taken
FLØW,CFS
600
500
400
300
200
100
0
TIME,HOURS

4. Flow-weighted Composites

Parameter, mg/L	Date: January 10, 1979 Time: 2100-2145 Rising		January 10-11, 1979 2230-1600 Falling	
	Total	Dissolved	Total	Dissolved
MBAS	0.075	0.045	0.06	<0.01
TKN	2.2	1.5	1.6	1.1
Ortho P	0.20	0.07	0.39	0.36
Alkalinity	--	--	--	--
Cr	<0.06	<0.06	<0.06	<0.06
Cu	0.05	<0.03	<0.03	<0.03
Cd	<0.01	<0.01	<0.01	<0.01
Pb	0.50	<0.10	<0.10	<0.10
Ni	<0.06	<0.06	<0.06	<0.06
Zn	0.09	<0.008	0.04	0.04

5. Observations at Sampling Station During Storm Event.

   Flow records during this storm event are affected slightly by a car body lodged approximately 100 feet downstream of the sampling control section.

6. Observations in Tributary Area During Storm Event.

   Nothing significant to report.

7. Comments on Storm Event.

   1. This storm was an intensive sampling event with over 2.00 inches of recorded rainfall.

   2. Flow response at the gaging station occurs within one half hour following a change in the rainfall rate.

   3. Two weighted composite samples, a discrete grab sample, and a series of discrete samples were analyzed for this event.

   4. The series of discrete samples were analyzed for seven parameters and are plotted with the runoff rates. The X's on these plots indicate when discrete samples were collected. Suspended solids, nitrogen, and phosphorus generally peaked and attained high values with maximum flowrates. Specific conductance values minimized with high flowrates and maximized with low flowrates. Total and fecal coliform values paralleled each other with fecal values approximately one order of magnitude lower than total coliform values. Both coliform values rose steadily during the last half of the storm event.

   5. Samples used in the composite sample analysis were collected at 15 minute intervals during the rising portion of the storm flow (2100-2145 on January 10) and at one hour intervals during the falling portion of the storm (2230 on January 10 to 1600 on January 11). Composite samples were analyzed for the parameters.

STORM EVENT 6 - JANUARY 10-11, 1979 QUALITY DATA

DATE	TIME OF DAY	FLOW RATE, CFS	TEMPERATURE, DEG C	SPECIFIC CONDUCTANCE, MICROMHOS/CM	PH	SUSPENDED SOLIDS, MG/L	TOTAL NITROGEN, MG/L AS N	TOTAL PHOSPHORUS, MG/L AS P	TOTAL COLIFORM, MPN/100 ML	FECAL COLIFORM, MPN/100 ML
1-10-79	21:00	66.7		150.	6.7	186.	3.2	0.55		
1-10-79	21:15	127.8		100.	6.5	254.	3.6	0.13		
1-10-79	21:30	226.3		70.	6.6	488.	2.8	0.25		
1-10-79	21:45	513.2		62.	6.6	538.	2.6	0.42		
1-10-79	22:04	470.4	11.6	70.	7.0	76.			1.10E 06	4.00E 03
1-10-79	22:30	277.8		85.	6.6	404.	3.2	0.39		
1-10-79	23:04	359.3	11.7						9.30E 04	4.00E 03
1-10-79	23:30	316.0		100.	6.6	242.	3.0	0.13		
1-10-79	23:34	280.8	11.6						2.30E 04	3.00E 03
1-10-79	0:30	135.4	11.7	170.	6.7	101.	4.1	0.20	4.60E 05	2.30E 04
1-10-79	1:30	474.7	12.0	80.	6.6	321.	2.8	0.12	2.40E 05	4.00E 03
1-10-79	2:15	434.1		105.	6.6	198.	3.1	0.09		
1-10-79	2:30	436.9	11.9						4.30E 04	4.00E 03
1-10-79	3:30	312.9	12.0	150.	6.7	146.	4.8	0.09	1.50E 05	9.00E 03
1-10-79	4:19	427.2	12.1						9.30E 04	9.00E 03
1-10-79	4:30	418.9		120.	6.7	225.	4.5	0.28		
1-10-79	5:30	410.7		100.	6.8	177.	3.3			
1-10-79	5:40	477.5	12.6						9.30E 04	3.00E 03
1-10-79	6:30	232.6		210.	6.6	148.	5.2	0.25		
1-10-79	7:30	158.0		225.	6.7	170.	6.5	0.33		
1-10-79	8:30	76.9		280.	6.7	92.	7.0	0.04		
1-10-79	9:00	153.0		270.	6.8	373.	7.3	0.28		
1-10-79	10:00	144.8		180.	6.7	79.	4.2	0.15		
1-10-79	11:00	275.0		140.	6.6	158.	3.6	0.25		
1-10-79	12:00	291.3		160.	6.7	137.	4.5	0.34		
1-10-79	13:00	243.7		175.	6.6	133.	4.9	0.42		
1-10-79	14:00	129.3		230.	6.7	116.	6.4	0.33		
1-10-79	15:00	60.8		310.	7.0	69.	9.6	0.41		
1-10-79	16:00	35.8		325.	6.8	49.	10.3	0.43		

STORM EVENT 6 - JANUARY 10-11, 1979 QUALITY DATA
(Concluded)

DATE	TIME OF DAY	FLOW RATE, CFS	TEMPERATURE, DEG C	SPECIFIC CONDUCTANCE, MICROMHOS/CM	PH	SUSPENDED SOLIDS, MG/L	TOTAL NITROGEN, MG/L AS N	TOTAL PHOSPHORUS, MG/L AS P	TOTAL COLIFORM, MPN/100 ML	FECAL COLIFORM, MPN/100 ML
1-10-79	18:30	232.6	12.6						1.50E 05	9.00E 03

STORM EVENT 6 - JANUARY 10-11, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
1-10-79	18:00	1.40	0.700				
1-10-79	19:00	1.44	0.880		0.01		
1-10-79	19:15	1.44	0.880				0.01
1-10-79	19:30	1.44	0.880		0.03		
1-10-79	19:45	1.44	0.880		0.02	0.01	0.01
1-10-79	20:00	1.44	0.880			0.02	0.02
1-10-79	20:15	1.44	0.880		0.03	0.01	
1-10-79	20:30	1.59	1.92		0.02	0.02	0.03
1-10-79	20:45	2.80	82.4		0.04	0.03	0.01
1-10-79	21:00	2.68	66.7	YES	0.09	0.04	0.04
1-10-79	21:15	3.11	127.8	YES	0.09	0.11	0.11
1-10-79	21:30	3.71	226.3	YES	0.11	0.13	0.14
1-10-79	21:45	5.71	513.2	YES	0.02	0.07	0.11
1-10-79	22:00	5.58	498.2	YES	0.01	0.06	0.02
1-10-79	22:15	4.88	405.1	YES	0.03	0.02	0.01
1-10-79	22:30	4.03	277.8	YES	0.06	0.07	0.08
1-10-79	22:45	3.72	227.9	YES	0.03	0.07	0.07
1-10-79	23:00	4.42	338.1	YES	0.01	0.06	0.05
1-10-79	23:15	4.74	386.3	YES		0.01	0.01
1-10-79	23:30	4.28	316.0	YES	0.01	0.01	0.01
1-10-79	23:45	3.58	205.8	YES	0.03	0.01	
1-10-79	24:00	3.21	143.2	YES		0.03	0.03
1-11-79	0:15	3.10	126.3		0.01	0.03	0.02
1-11-79	0:30	3.16	135.4	YES	0.08	0.01	0.01
1-11-79	0:45	3.34	164.4	YES	0.10	0.06	0.05
1-11-79	1:00	3.14	132.3	YES	0.07	0.10	0.10
1-11-79	1:15	5.14	441.0		0.04	0.07	0.08
1-11-79	1:30	5.38	474.7	YES	0.05	0.05	0.04
1-11-79	1:45	5.23	453.6	YES	0.07	0.05	0.06
1-11-79	2:00	4.83	398.4	YES	0.04	0.08	0.06
1-11-79	2:15	5.09	434.1	YES	0.08	0.04	0.04
1-11-79	2:30	5.11	436.9	YES	0.04	0.10	0.11
1-11-79	2:45	5.31	464.8		0.03	0.02	0.04
1-11-79	3:00	5.34	469.0	YES		0.02	0.02
1-11-79	3:15	4.67	376.9	YES	0.09		0.01
1-11-79	3:30	4.26	312.9	YES	0.07	0.09	0.11
1-11-79	3:45	4.04	279.3		0.04	0.06	0.07
1-11-79	4:00	5.40	477.5	YES	0.01	0.05	0.03
1-11-79	4:15	5.07	431.3			0.04	0.04
1-11-79	4:30	4.98	418.9	YES	0.04		0.01
1-11-79	4:45	4.58	364.1		0.05	0.02	0.01
1-11-79	5:00	3.87	251.8	YES	0.12	0.07	0.05

STORM EVENT 6 - JANUARY 10-17, 1979 STORM DATA
(Continued)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
1-11-79	5:15	3.81	242.1		0.02	0.05	0.04
1-11-79	5:30	4.92	410.7	YES		0.06	0.06
1-11-79	5:45	5.79	522.5		0.01	0.02	0.01
1-11-79	6:00	4.83	398.4	YES	0.02	0.01	0.01
1-11-79	6:15	4.08	285.3		0.05	0.07	0.04
1-11-79	6:30	3.75	232.6	YES		0.01	0.01
1-11-79	6:45	4.68	378.1			0.02	
1-11-79	7:00	5.04	427.2	YES	0.03	0.01	0.01
1-11-79	7:15	3.32	161.2			0.02	0.01
1-11-79	7:30	3.30	158.0	YES			
1-11-79	7:45	3.04	117.6				
1-11-79	8:00	3.05	119.0	YES		0.01	
1-11-79	8:15	2.87	92.1		0.02		0.01
1-11-79	8:30	2.76	76.9	YES	0.02	0.02	0.01
1-11-79	8:45	2.84	87.8		0.01	0.01	0.02
1-11-79	9:00	3.27	153.0	YES	0.04	0.02	0.02
1-11-79	9:15	3.16	135.4		0.02	0.02	0.01
1-11-79	9:30	3.24	148.0	YES	0.01	0.01	0.01
1-11-79	9:45	3.45	182.7		0.03	0.01	0.01
1-11-79	10:00	3.22	144.8	YES	0.01	0.02	0.01
1-11-79	10:15	3.07	121.9		0.05	0.01	0.01
1-11-79	10:30	3.30	158.0	YES	0.04	0.05	0.02
1-11-79	10:45	3.38	170.9		0.03	0.04	0.03
1-11-79	11:00	4.01	275.0	YES		0.03	0.03
1-11-79	11:15	3.93	261.6		0.03	0.01	0.01
1-11-79	11:30	3.94	263.3	YES	0.06	0.05	0.02
1-11-79	11:45	3.66	218.6		0.04	0.06	0.04
1-11-79	12:00	4.12	291.3	YES	0.03	0.04	0.03
1-11-79	12:15	4.40	335.0		0.01	0.02	0.02
1-11-79	12:30	4.18	300.6	YES	0.03	0.02	0.01
1-11-79	12:45	3.89	255.1		0.02	0.08	0.03
1-11-79	13:00	3.82	243.7	YES	0.01	0.01	0.01
1-11-79	13:15	3.97	268.3			0.01	0.01
1-11-79	13:30	3.67	220.1				0.01
1-11-79	13:45	3.33	162.8				0.01
1-11-79	14:00	3.12	129.3	YES			
1-11-79	14:15	2.91	97.9				
1-11-79	14:30	2.81	83.7	YES		0.01	
1-11-79	14:45	2.71	70.4				
1-11-79	15:00	2.63	60.8	YES			
1-11-79	15:15	2.56	52.5				
1-11-79	15:30	2.49	44.6	YES			0.01
1-11-79	15:45	2.43	38.6				

STORM EVENT 6 - JANUARY 10-11, 1979 STORM DATA
(Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
1-11-79	16:00	2.40	35.8	YES			
1-11-79	16:15	2.38	34.0				
1-11-79	16:30	2.34	30.6				
1-11-79	16:45	2.31	28.2				
1-11-79	17:00	2.28	26.0				
1-11-79	17:15	2.25	23.9				
1-11-79	17:30	2.22	21.9				
1-11-79	17:45	2.20	20.6				
1-11-79	18:00	2.18	19.4				
1-11-79	18:15	2.17	18.8				0.01
1-11-79	18:30	2.20	20.6				
1-11-79	18:45	2.23	22.6				
1-11-79	19:00	2.20	20.6				
1-11-79	19:15	2.16	18.3				
1-11-79	19:30	2.14	17.1				
1-11-79	19:45	2.10	15.1				
1-11-79	20:00	2.09	14.6				
1-11-79	20:15	2.06	13.3				
1-11-79	20:30	2.06	13.3				
1-11-79	20:45	2.03	12.1				
1-11-79	21:00	2.02	11.7				
1-11-79	22:00	1.97	9.78				

JANUARY 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) 8 FT STANDARD TIME USED: PACIFIC WBAN 23234

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (DAILY)	COOLING (DAILY)	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW ICE PELLETS OR ICE ON GROUND AT 0400	PRECIPITATION WATER EQUIVALENT IN.	SNOW ICE PELLETS IN.	AVG STATION PRESS IN.	WIND RESULTANT DIR	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	SUNSET TO SUNRISE	
1	54	33	44	-4	29	21	0	8	0	0	0	30.34	09	6.4	8.2	14	07			10	7	
2	49	37	43	-5	35	22	0	8	0	0	0	30.26	13	5.8	7.3	10	08			10	10	
3	53	38	46	-2	35	19	0	8	0	.03	0	30.07	07	2.4	5.8	10	31			9	9	
4	55	45	50	2	42	15	0	8	0	.03	0	30.06	09	5.9	6.5	14	09			10	10	
5	52	43	48	0	44	17	0	8	0	.04	0	29.84	10	3.2	6.0	9	05			10	8	
6	57	37	47	-1	42	18	0	8	0	0	0	29.98	20	4	5.3	8	30			10	7	
7	52	46	49	1	48	16	0	8	0	.40	0	30.07	10	4.6	6.8	13	32			10	10	
8	56	46	51	3	51	14	0	8	0	1.33	0	30.05	15	7.5	9.8	23	23			10	10	
9	57	48	53	5	51	12	0	8	0	.21	0	30.18	13	3.1	6.8	13	30			10	10	
10	58	48	53	4	49	12	0	2 8	0	.22	0	30.23	14	3.2	7.2	15	18			10	9	
11	61*	51	56*	8	55	9	0	2	0	.94	0	30.04	24	15.2	16.3	31	22			10	10	
12	56	45	51	3	49	14	0		0	T	0	30.16	28	12.1	12.4	18	28			10	9	
13	58	43	51	3	45	14	0	2	0	0	0	30.06	11	5.4	7.1	13	14			10	10	
14	58	46	52	4	46	13	0	1 3 5	0	2.23	0	29.73	17	13.2	15.1	32	18			9	9	
15	52	45	49	1	46	16	0	4	0	.76	T	29.73	09	1.6	9.1	18	22			10	9	
16	57	42	50	2	43	15	0		0	0	0	29.97	36	1.5	6.9	14	03			9	8	
17	55	38	47	-1	43	18	0	2	0	.15	0	29.86	27	6.4	7.1	16	28			9	7	
18	53	41	47	-1	43	18	0		0	.09	0	30.05	30	2.0	6.2	12	01			3	4	
19	58	37	48	0	43	17	0	2 8	0	0	0	30.24	30	2.2	5.8	12	30			2	2	
20	53	36	45	-3	41	20	0	8	0	0	0	30.18	09	1.6	4.8	8	02			10	7	
21	58	42	50	2	43	15	0	1 8	0	0	0	29.99	30	1.5	6.2	10	30			10	8	
22	56	39	48	0	42	17	0	1 8	0	0	0	29.98	14	2.8	5.9	9	14			6	5	
23	49	40	45	-4	43	20	0	1	0	0	0	29.99	05	2.5	5.3	12	07			10	9	
24	53	42	48	-1	41	17	0	1 8	0	0	0	29.81	30	6.8	10.9	29	30			8	6	
25	54	38	46	-3	33	19	0		0	T	0	29.81	31	9.8	10.8	21	31			0	1	
26	54	42	48	-1	27	17	0		0	0	0	30.17	31	7.3	8.6	14	27			0	0	
27	55	40	48	-1	37	17	0		0	0	0	30.17	31	11.3	13.4	24	30			4	3	
28	52	36	44	-2	29	21	0		0	0	0	29.86	32	8.8	10.5	18	31			0	1	
29	48	31*	40	-8	26	25	0		0	0	0	30.02	13	3.1	7.1	9	15			4	3	
30	45	35	40*	-8	37	25	0		0	.27	0	29.84	15	13.4	13.7	29	12			10	8	
31	48	34	41	-8	37	24	0		0	T	0	29.84	06	6.2	8.8	15	04			9	7	
	SUM	SUM				TOTAL	TOTAL			TOTAL	TOTAL		FOR THE MONTH:					TOTAL		SUM	SUM	
	1678	1264				535	0	NUMBER OF DAYS		6 6	T	30.02	19	3	8 4	32	18	234	25			
	AVG	AVG	AVG	DEP	AVG	DEP	DEP	PRECIPITATION		DEP						DATE	14	MONTHLY	MONTH	AVG	AVG	
	54.1	40.8	47.5	-0.8	41	18	0	.01 INCH	13	2.24										7.5	6.1	
						SEASON TO DATE		SNOW ICE PELLETS														
	NUMBER OF DAYS					TOTAL	TOTAL	1.0 INCH	0	GREATEST IN 24 HOURS AND DATES						GREATEST DEPTH ON GROUND OF SNOW ICE PELLETS OR ICE AND DATE						
MAX 90°	MAX 32°	MIN 32°	MIN 0°		DEP	DEP	THUNDERSTORMS		1	PRECIPITATION		SNOW ICE PELLETS										
0	0	1	0		376	0	HEAVY FOG		4	2.23	14	T	15			0						
							CLEAR 6	PARTLY CLOUDY 3		CLOUDY 22												

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
- ALSO ON AN EARLIER DATE, OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM.
DATA IN COLS. 6 AND 12 IS ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

HOUR (LST)	AVERAGES SKY COVER TENTHS	STATION PRESSURE IN.	TEMPERATURE °F DRY BULB	WET BULB	DEW POINT	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	6	30.02	46	43	40	85	7.1	21	1.1
04	7	30.02	44	42	40	87	7.6	20	1.6
07	7	30.03	44	43	40	88	7.6	15	3.3
10	6	30.06	48	45	41	85	8.1	09	3.9
13	7	30.01	51	47	41	72	8.8	05	1.8
16	7	30.00	51	47	42	72	10.8	28	3.1
19	6	30.01	48	45	42	80	9.1	29	2.1
22	6	30.01	47	44	41	82	7.7	27	1.6

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																		T	.01	.01	T	.01	T	T	1
2																					T	T		.01	2
3																									3
4		T	.02	T	T	.01	T				.01		T	T	T	T									4
5																									5
6							T	.01	.02	T	.04	.02	.03	.05	.04	.02	.02	.04	.03	.02	.02	.05	.03	T	6
7		T	.02	T				T	.13	.19	.29	.38	.26	.04	.02	T									7
8	.01	.01	T	.04	.04				.08	.03	T	T	T		T		T	T	T	T	.01	.08	.07	.04	.02	8
9	.09	.21	.05	.12	.13	.06	.02	T	.04	.03	.07	.04	.06	T	.01	.01	T	T	T	T	T	T	T	T	T	9
10	T			T	T																				10
11																									11
12	.08	.10	.23	.20	.11	.05	.01	.02	T			T	T		.08	.49	.18	.07	.02	.03	.04	.33	.17	T	12
13	.09	.04	.04	.01	.01	T		.03	.06	.37	.06	.06	.02				T	T							13
14													T	T	.03	.09	T	T	.01	.02	T	T	T	T	14
15		.03		.01	.01																				15
16																									16
17																									17
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28				T																					28
29																					*				29
30				T					T	.05		.01	.09	.03	.08	T									30
31					T	T	T						T												31

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 03/07/79 575

JANUARY 1979 SAN FRANCISCO, CALIFORNIA

JANUARY 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT STANDARD TIME USED: PACIFIC WBAN 023230

JANUARY 1979 OAKLAND, CALIFORNIA

DAY	TEMPERATURE °F MAX	MIN	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (WITH SEASON TO DATE)	COOLING (WITH SEASON TO DATE)	WEATHER TYPES ON DATES OF OCCURRENCE (SEE BELOW)	SNOW, ICE PELLETS ON GROUND AT 0400 LST IN	PRECIPITATION WATER EQUIV IN	SNOW, ICE PELLETS IN	RESULTANT SPEED MPH	RESULTANT DIR	AVERAGE SPEED MPH	FASTEST MPH SPEED	FASTEST MPH DIR	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER SUNRISE TO SUNSET	SUNSET TO SUNRISE
1	58	35	46	-2	24	19	0		0	0	0	30.37	06	8.9	9.8	20	05	9	6
2	52	42	47	-1	30	18	0	8	0	0	0	30.28	09	7.8	8.6	14	06	10	9
3	53	42	48	0	35	17	0	8	0	.10	0	30.09	01	3.0	6.6	13	06	10	10
4	58	48	53	5	41	12	0	8	0	.02	0	30.09	06	8.0	8.3	13	05	10	10
5	56	45	51	3	42	14	0		0	.03	0	29.86	10	5.2	6.8	13	10	10	7
6	56	43	50	2	41	15	0	8	0	.01	0	30.00	25	1.7	4.9	8	35	10	7
7	54	48	51	3	47	14	0		0	.36	0	30.09	12	5.0	5.8	13	11	10	10
8	55	51	53	5	48	12	0		0	1.14	0	30.08	25	9.9	10.1	18	15	10	9
9	57	51	54	6	48	11	0		0	.18	0	30.20	16	4.7	6.9	12	28	9	9
10	57	47	52	4	47	13	0		0	.89	0	30.25	15	5.6	6.8	16	15	9	8
11	57	53	55	7	52	10	0		0	1.08	0	30.07	21	9.9	12.4	21	21	10	10
12	57	47	52	4	48	13	0		0	.01	0	30.18	28	7.2	7.5	13	27	8	9
13	57	45	51	3	44	14	0		0	0	0	30.10	15	4.3	6.5	16	13	10	9
14	57	49	53	5	45	12	0	3	0	.49	0	29.73	18	10.0	10.3	25	14	8	8
15	56	49	53	5	45	12	0	3 5	0	1.18	0	29.75	09	4.6	9.2	20	15	9	8
16	51	43	50	2	42	15	0		0	0	0	29.98	32	2.3	5.5	15	33	9	10
17	52	38	45	-3	41	20	0	8	0	.10	0	29.88	21	1.4	6.5	15	29	9	6
18	55	45	50	1	41	15	0		0	0	0	30.07	06	1.3	7.1	10	30	4	3
19	56	38	47	-2	40	18	0	8	0	0	0	30.26	22	0	2.6	7	12	2	1
20	54	40	47	-2	39	18	0		0	0	0	30.23	11	1.3	3.5	7	06	10	7
21	57	43	50	1	42	15	0	8	0	0	0	30.02	02	1.1	5.2	8	31	9	7
22	55	45	50	1	43	15	0	8	0	0	0	30.00	17	3.4	6.5	10	18	4	7
23	50	43	47	-2	42	18	0	8	0	0	0	30.01	06	1.6	5.6	9	07	10	7
24	53	45	49	0	40	16	0	8	0	0	0	29.82	30	2.3	8.6	21	31	8	6
25	54	39	47	-2	32	18	0		0	0	0	29.81	33	8.6	9.9	17	29	0	0
26	54	40	47	-2	30	18	0		0	0	0	30.18	33	5.5	9.1	15	01	0	0
27	55	40	48	-2	33	17	0		0	0	0	30.20	31	3.9	10.5	17	33	0	4
28	53	38	46	-4	23	19	0		0	0	0	29.98	33	11.0	12.1	20	30	0	2
29	49	36	43	-7	22	22	0		0	0	0	30.05	12	3.0	8.5	12	12	0	4
30	48	41	45	-5	35	20	0		0	.08	0	29.87	14	14.9	15.5	29	14	10	8
31	50	38	44	-6	36	21	0		0	0	0	29.86	04	7.6	8.2	14	05	9	7
	SUM	SUM				TOTAL	TOTAL			TOTAL	TOTAL	FOR THE MONTH						TOTAL	%	SUM	SUM
	1690	1347				491	0	NUMBER OF DAYS		6.65	0	30.04	12	7.7	8.1	29	14	408	66	225	194
	AVG	AVG	AVG	DEP	AVG	DEP	DEP	PRECIPITATION		DEP						DATE	30	POSSIBLE	MON	AVG	AVG
	54.5	43.5	49.0	0.4	39	SEASON TO DATE		.01 INCH	12	2.62										7.5	6.2
						TOTAL	TOTAL	SNOW, ICE PELLETS													
	NUMBER OF DAYS					1620	0	.1.0 INCH	0												
	MAX 90° F	MINIMUM TEMP				DEP	DEP	THUNDERSTORMS	2	PRECIPITATION		GREATEST IN 24 HOURS AND DATES SNOW, ICE PELLETS						GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE			
	32° F	32° F		0° F		5	0	HEAVY FOG	0	2.21	14-15	0						0			
	0	0	0	0				CLEAR 5	PARTLY CLOUDY 4	CLOUDY 22											

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE OR DATES.
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM.
DEP IN COLS 6 AND 12 IS ARE BASED ON 1 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

HOUR (PST)	AVERAGES SKY COVER (TENTHS)	STATION PRESSURE IN	TEMPERATURE °F DEW PT	WET BULB °F	DRY BULB °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	5	30.05	47	43	38	73	6.4	10	3.7
04	6	30.04	46	42	38	75	7.2	11	3.8
07	6	30.05	45	42	37	76	7.7	12	3.6
10	7	30.08	49	44	40	73	8.4	12	2.1
13	7	30.04	52	47	43	69	8.5	22	1.8
16	7	30.01	53	47	41	66	8.3	25	1.8
19	6	30.03	50	46	40	70	7.4	08	2.2
22	5	30.04	48	44	40	74	7.1	08	1.9

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																		.01	.02	.03	.01	.03	T	T	1
2																						T	T	.02	2
3	T																								3
4	T		T		.01		T	T			.01	T	.01	T	T	T									4
5																									5
6																									6
7							T	T	.03	T	.01	.02	.04	.04	.04	.04	.04	.04	.02	.01	T	.03	T		7
8									.04	.10	.21	.26	.41	.08	T	.02	T								8
9	T	T	T		.01	.04	.02	T		.03	.01	.07	T	T	T										9
10																T	T	T	T	.01	.08	.14	.31	.24	10
11	.17	.18	.17	.16	.05	.03	.08	.02	.04	.04	.06	.05	.03	T	T	T	T	T	T	T	T	T	T	T	11
12																									12
13																									13
14	T	T	.13	.13	.09	.06	T	.03	.02							.20	.21	.01	.02	T	.03	.11	.43	.02	14
15		T	.08	.01	.01	T	.05	.03	.04	.14	.24	.01	.28	.29											15
16																									16
17															T	.10	T	T	T	T					17
18																									18
19																									19
20																									20
21																									21
22																									22
23																									23
24																									24
25																									25
26																									26
27																									27
28																									28
29																									29
30							T	T	.05	T	T		.02	T	.01	T					-				30
31																									31

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 03-01-79 500

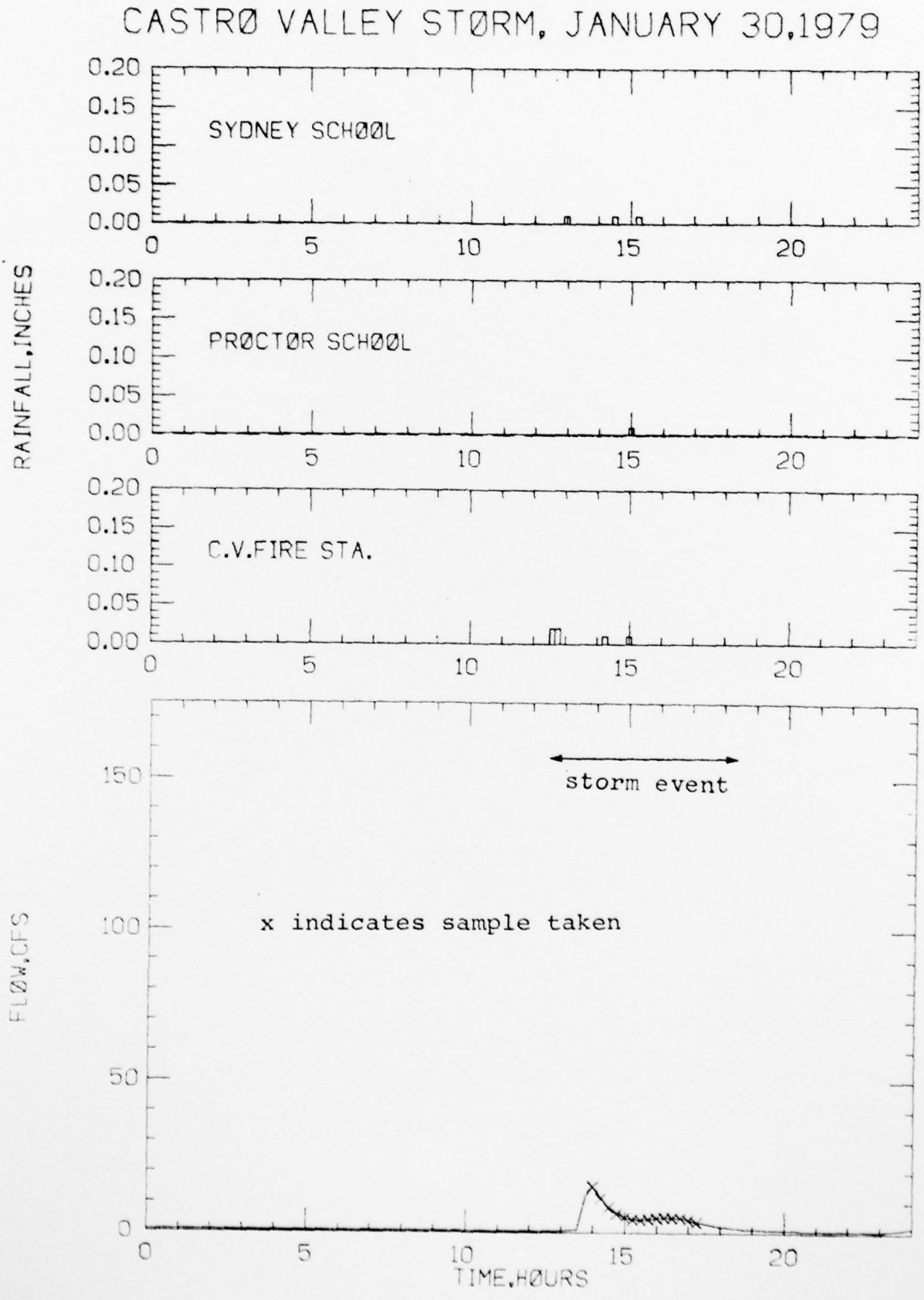
STORM EVENT REPORT NO. 7
January 30, 1979

1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	0.06	1230	30 Jan 79	1500	30 Jan 79
2. Proctor School	0.01	1500	30 Jan 79	1515	30 Jan 79
3. Sydney School	0.03	1300	30 Jan 79	1515	30 Jan 79
4. San Francisco Airport	0.27	0800	30 Jan 79	1500	30 Jan 79
5. Oakland Airport	0.08	0900	30 Jan 79	1500	30 Jan 79

2. Creek Flow Summary

Discharge Condition	Value	Time	Date
Maximum, cfs	11.7	1415	30 Jan 79
Average, cfs	3.88	--	30 Jan 79
Total volume, ft^3	80,300	from 1230 to 1815	30 Jan 79 30 Jan 79
Prior to storm, cfs	0.633		
Average (previous 7 days), cfs	0.440		
Average (previous 30 days), cfs	15.9		


CASTRØ VALLEY STØRM, JANUARY 30,1979
RAINFALL,INCHES
0.20
0.15
0.10
0.05
0.00
SYDNEY SCHØØL
PRØCTØR SCHØØL
C.V.FIRE STA.
0
5
10
15
20
FLØW,CFS
150
100
50
0
storm event
x indicates sample taken
TIME,HØURS

3. Sampling Analysis Results

Flow Weighted Composite

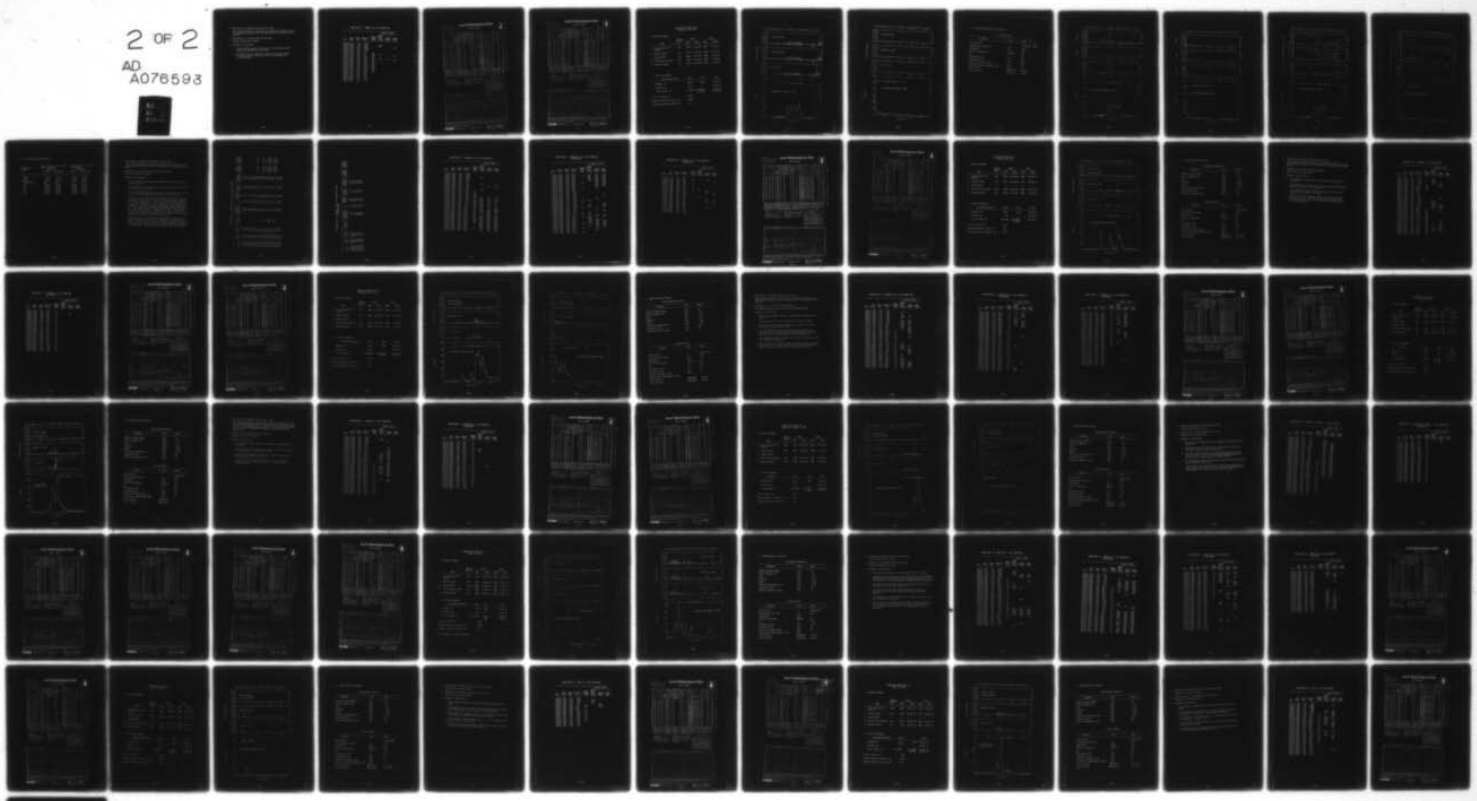
Parameter	Units	Value
Chemical oxygen demand	mg/L	100
Total nitrogen as N	mg/L	4.5
Lead	mg/L	0.2
Chromium	mg/L	<0.06
Copper	mg/L	0.03
Total Ortho Phosphorus as P	mg/L	0.21
Suspended solids	mg/L	114
Volatile suspended solids	mg/L	30

Discrete Sample

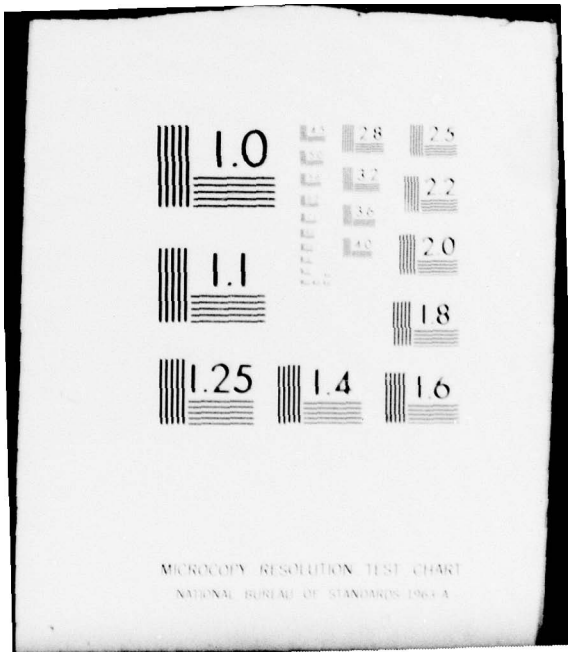
Parameter	Units	Value
Date and time	--	30 Jan 1450
Instantaneous flowrate	cfs	7.24
Temperature	Deg C	--
Specific conductance	μmho/cm	700
pH	--	7.5
Settleable solids	ml/L	<0.1
Suspended solids	mg/L	231
Volatile suspended solids	mg/L	206
Biochemical oxygen demand (5 day)	mg/L	22
Total coliform	MPN/100 ml	4.6×10^5
Fecal coliform	MPN/100 ml	4.3×10^4

AD-A076 593 METCALF AND EDDY INC PALO ALTO CA F/G 13/2
URBAN RUNOFF WATER QUALITY AT CASTRO VALLEY CREEK, ALAMEDA COUN--ETC(U)
SEP 79 DACW07-78-C-0067
UNCLASSIFIED NL

2 OF 2
AD
A076593



END
DATE
FILMED
12-79
DDC


1.0
1.1
1.25
1.4
1.6
2.8
3.2
3.6
4.0
2.5
2.2
2.0
1.8
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

4. Observations at Sampling Station During Event.

   Flow records during this storm event are affected slightly by a car body lodged approximately 100 feet downstream of the sampling control section.

5. Observations in Tributary Area During Event.

   Nothing significant to report.

6. Comments on Storm Event.

   1. A flow weighted composite sample and a single discrete grab sample were analyzed for this event.

   2. The samples for the composite sample analysis were taken at 15 minute intervals from 1400 to 1715 as indicated by X's on the flow plot.

STORM EVENT 7 - JANUARY 30, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
1-30-79	12:00	1.38	0.633				
1-30-79	12:30	1.38	0.633		0.02		
1-30-79	12:45	1.39	0.666		0.02		
1-30-79	13:00	1.42	0.787				0.01
1-30-79	13:15	1.44	0.880				
1-30-79	13:30	1.48	1.08				
1-30-79	13:45	2.03	12.1				
1-30-79	14:00	2.11	15.6	YES			
1-30-79	14:15	2.02	11.7	YES	0.01		
1-30-79	14:30	1.94	8.75	YES			0.01
1-30-79	14:45	1.87	6.74	YES			
1-30-79	15:00	1.81	5.38	YES	0.01	0.01	
1-30-79	15:15	1.78	4.74	YES			0.01
1-30-79	15:30	1.77	4.54	YES			
1-30-79	15:45	1.79	4.95	YES			
1-30-79	16:00	1.80	5.16	YES			
1-30-79	16:15	1.81	5.38	YES			
1-30-79	16:30	1.81	5.38	YES			
1-30-79	16:45	1.80	5.16	YES			
1-30-79	17:00	1.77	4.54	YES			
1-30-79	17:15	1.73	3.81	YES			
1-30-79	17:30	1.70	3.32				
1-30-79	17:45	1.67	2.88				
1-30-79	18:00	1.63	2.36				
1-30-79	18:15	1.60	2.03				
1-30-79	18:30	1.59	1.92				
1-30-79	18:45	1.56	1.65				
1-30-79	19:00	1.54	1.49				

JANUARY 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY



JANUARY 1979 SAN FRANCISCO, CALIFORNIA

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) 8 FT STANDARD TIME USED PACIFIC USAF 23/34

DAY	TEMPERATURE °F MAX.	MIN.	MEAN	DEPARTURE FROM NORMAL	DEGREE DAYS BASE 65° HEATING	COOLING	WEATHER TYPES OR DATES OF OCCURRENCE	SNOW ICE PELLETS	PRECIPITATION WATER EQUIV. IN.	SNOW ICE PELLETS IN.	SNOW DEPTH INCHES	WIND MILES PER HOUR RESULTANT SPEED	RESULTANT DIR.	MAX. SPEED	DATE	SUNSHINE POSSIBLE	SUNRISE	SUNSET
1	56	33	44	-4	21	0		0	0	0	0	30	34	08	6	8	2	14
2	48	37	43	-5	22	0		0	0	0	0	30	26	17	5	8	1	18
3	52	38	46	-2	19	0	1	0	0	0	0	30	01	17	5	8	1	18
4	55	45	50	+2	15	0	1	0	0	0	0	30	08	17	5	8	1	18
5	57	43	50	+2	15	0	1	0	0	0	0	29	84	20	3	8	1	18
6	57	37	47	-1	18	0	1	0	0	0	0	29	99	20	3	8	1	18
7	52	46	49	+1	16	0	1	0	40	0	0	30	07	10	4	8	1	18
8	56	48	52	+4	13	0	1	0	1.33	0	0	30	05	15	5	8	1	18
9	57	42	50	+2	15	0	1	0	21	0	0	30	18	11	2	8	1	18
10	59	44	52	+4	13	0	1	0	22	0	0	30	21	14	1	8	1	18
11	61*	51	56*	+8	9	0	1	0	64	0	0	30	04	24	15	2	16	4
12	58	45	52	+4	13	0		0	0	0	0	30	16	28	12	1	12	4
13	58	41	50	+2	15	0	2	0	0	0	0	30	08	11	4	8	1	18
14	58	46	52	+4	13	0	1 3 4	0	21	0	0	29	71	17	13	2	1	18
15	52	46	49	+1	16	0	4	1	0	0	0	29	73	09	1	8	1	18
16	57	42	50	+2	15	0		0	0	0	0	29	97	36	1	8	1	18
17	55	38	47	-1	18	0	2	0	15	0	0	29	86	21	5	8	1	18
18	53	41	47	-1	18	0		0	05	0	0	30	05	30	2	8	1	18
19	58	37	48	0	17	0	2	0	0	0	0	30	24	33	2	8	1	18
20	53	36	45	-3	20	0		0	0	0	0	30	18	09	1	8	1	18
21	58	42	50	+2	15	0	1	0	0	0	0	29	88	30	1	8	1	18
22	56	39	48	0	17	0	1	0	0	0	0	29	88	24	2	8	1	18
23	48	40	44	-4	21	0	1	0	0	0	0	29	88	05	2	8	1	18
24	53	42	48	-1	17	0	1	0	0	0	0	29	81	30	6	8	1	18
25	54	36	45	-3	20	0		0	0	0	0	29	81	31	7	8	1	18
26	54	42	48	-1	17	0		0	0	0	0	30	17	31	7	8	1	18
27	55	40	48	-1	17	0		0	0	0	0	30	17	31	11	3	1	18
28	52	36	44	-5	21	0		0	0	0	0	29	86	32	8	8	1	18
29	49	31*	40*	-9	25	0		0	0	0	0	30	02	13	3	8	1	18
30	45	35	40*	-9	25	0		0	27	0	0	29	84	13	4	7	1	18
31	48	34	41	-8	24	0		0	0	0	0	29	84	06	6	8	1	18
	56*	80*			1018	1018			1018	1018	0	1	30	32	18	3	8	4
	1618	1284			536	0	NUMBER OF DAYS		6.81			30	02	18	3	8	4	32
	AVG	AVG	AVG	DEP	AVG	DEP	PRECIPITATION		DEP						DATE			
	54.1	40.0	47.5	-2.0	18	0	.01 INCH	13	4.24									
	SEASON TO DATE				1018	1018	SNOW ICE PELLETS											
	NUMBER OF DAYS				1018	1018	1.0 INCH	0	GREATEST IN 24 HOURS AND DATES						GREATEST DEPTH ON GROUND OF SNOW			
	MAX 90 OR ABOVE		MINIMUM TEMP		1018	0	THUNDERSTORMS	11	PRECIPITATION		SNOW ICE PELLETS				ICE PELLETS OR ICE AND SNOW			
	2	32	32	0	DEP	DEP	HEAVY FOG	4	2.21	14	1	15			0			
	0	0	1	0	176	0	CLEAR 6	PARTLY CLOUDY 3	CLOUDY 22									

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T (TRACE AMOUNT)
- MISSING OR AN EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
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ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR	OBSERVATIONS SKY COVER	WEATHER*	TEMPERATURE °F	WET BULB	DEW POINT	RELATIVE HUMIDITY	WIND SPEED	WIND DIR.	PRESSURE MB	CLOUD
01	6	30	02	46	43	40	88	7	1	1
04	7	30	02	44	42	40	87	7	20	1
07	7	30	03	44	43	40	86	7	15	1
10	6	30	06	48	45	41	81	7	09	1
13	7	30	01	51	47	42	72	8	05	1
16	7	30	00	51	47	42	72	10	28	1
19	6	30	01	48	45	42	80	9	20	1
22	6	30	01	47	44	41	84	7	27	1

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	0 A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	1 P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																		T	.01	.01	T	.01	T	T	1
2																						T			2
3																								.01	3
4		T	.02	T	T	.03	T					.03	T	T	T	T									4
5																									5
6							T	.03	.02	T	.04	.02	.03	.05	.04	.02	.02	.04	.03	.02	.02	.03	.01	T	6
7		T	.02	T				T	.13	.18	.29	.38	.26	.04	.02	T									7
8	.01	.01	T	.04	.04			.08	.03	T	T		T												8
9														T	T	T	T	T	T	.01	.08	.01	.04	.02	9
10	.08	.21	.05	.12	.13	.06	.02	T	.04	.03	.07	.04	.06	T	.01	.01	T	T	T	T	T	T	T	T	10
11	T			T	T																				11
12																									12
13	.08	.10	.23	.20	.11	.05	.01	.02	T			T			.08	.49	.18	.01	.02	.03	.04	.33	.17	T	13
14	.05	.04	.04	.01	.01	T		.03	.06	.37	.08	.06	.02				T								14
15																									15
16													T	T	.03	.08	T	T	.01	.02	T	T	T	T	16
17		.03		.01	.01																				17
18																									18
19																									19
20																									20
21																									21
22																									22
23																									23
24																									24
25	T																								25
26																									26
27																									27
28				T																					28
29				T	T	T			T	.05		.01	.08	.03	.08	T									29
30													T		T										30
31																									31

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 09-07-79 535

JANUARY 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT STANDARD TIME USED: PACIFIC WBAN 23230

JANUARY 1979 OAKLAND, CALIFORNIA

DAY	TEMPERATURE °F MAX.	MIN.	AVERAGE	DEPART. FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING	COOLING	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW ICE PELLETS DEPTH ON GROUND AT 0AM IN.	PRECIPITATION WATER EQUIV. IN.	SNOW ICE PELLETS IN.	RESULTANT SPEED MPH	RESULTANT DIR. TENS OF DEGREES	AVERAGE SPEED MPH	FASTEST MILE SPEED	DIR. TENS OF DEGREES	SUNSHINE MINUTES	PERCENT POSSIBLE	SKY COVER TENTHS	PEAK GUST SPEED MPH	DIR. TENS OF DEGREES
1	56	35	46	-2	24	19	0		0	0	0	30	31	06	08	08	20	05			
2	52	42	47	-1	30	18	0	8	0	0	0	30	28	09	11	08	14	09			
3	51	42	46	-2	35	19	0	8	0	.10	0	30	09	07	13	08	13	09			
4	56	48	52	4	41	13	0	8	0	.02	0	30	09	06	08	07	13	09			
5	56	46	51	3	42	14	0		0	.03	0	29	28	10	15	08	13	10			
6	56	43	50	2	41	15	0	8	0	0	0	30	00	25	17	08	13	10			
7	54	48	51	3	47	14	0	8	0	.36	0	30	09	13	15	08	13	11			
8	55	51	53	5	48	12	0	8	0	1.14	0	30	08	15	18	10	16	15			
9	57	51	54	6	48	11	0	8	0	.28	0	30	20	18	17	08	12	28			
10	57	47	52	4	47	13	0	8	0	.80	0	30	25	15	15	08	16	15			
11	57	53	55	7	52	10	0	8	0	1.08	0	30	07	21	19	12	21	21			
12	57	47	52	4	48	13	0		0	0	0	30	18	28	12	10	13	22			
13	57	45	51	3	44	14	0	8	0	0	0	30	10	15	11	09	16	23			
14	57	49	53	5	45	12	0	3	0	1.46	0	29	13	18	18	08	25	14			
15	56	49	53	5	45	12	0	3 5	0	1.18	0	29	15	08	16	09	22	15			
16	57	43	50	2	42	15	0		0	0	0	29	08	21	11	08	15	29			
17	52	38	45	-3	41	20	0	8	0	.10	0	29	88	21	11	08	15	29			
18	55	45	50	1	41	15	0		0	0	0	30	07	16	13	11	10	11			
19	56	38	47	-2	40	18	0	8	0	0	0	30	26	22	09	26	7	12			
20	54	40	47	-2	39	18	0		0	0	0	30	23	11	13	35	7	06			
21	57	43	50	1	42	15	0	8	0	0	0	30	02	02	12	09	9	31			
22	55	45	50	1	43	15	0	8	0	0	0	30	00	17	14	06	10	10			
23	50	43	47	-2	42	18	0	8	0	0	0	30	01	06	16	05	9	07			
24	53	45	49	0	40	16	0	8	0	0	0	29	82	30	23	08	21	31			
25	54	39	47	-2	32	18	0		0	0	0	29	81	33	08	09	11	29			
26	54	40	47	-2	30	18	0		0	0	0	30	18	33	05	09	15	01			
27	55	40	48	-2	33	17	0		0	0	0	30	20	31	09	10	11	33			
28	53	38	46	-4	23	19	0		0	0	0	29	88	33	11	12	20	30			
29	48	36	43	-7	22	22	0		0	0	0	30	05	12	10	06	12	12			
30	48	41	45	-6	35	20	0		0	0	0	29	81	14	14	09	20	14			
31	50	38	44	-8	36	21	0		0	0	0	29	86	04	10	08	14	09			
SUM	1692	1347				TOTAL 491	TOTAL 0			9.02	0.0	30.04	12	1	11	08	20	14	TOTAL 1	1	TOTAL 6.2
AVG.	AVG.		DEP.	AVG.	DEP.	DEP.		NUMBER OF DAYS PRECIPITATION		DEP.						DATE: 30			RESULTANT		AVG. 1.9
	54.5	43.5	49.0	0.4	39	-17	0	.01 INCH	12	2.02											

SEASON TO DATE

NUMBER OF DAYS																					
MAX. 90° OR ABOVE			MINIMUM TEMP. 32° OR BELOW																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SNOW ICE PELLETS																					
TOTAL																					
0																					
NUMBER OF DAYS																					
1.0 INCH																					
0																					
THUNDER																					
0																					
HEAVY FOG																					
0																					
CLEAR 5																					

GREATEST IN 24 HOURS AND DATES																					
PRECIPITATION																					
2.21 14-15																					
SNOW ICE PELLETS																					
0																					

GREATEST DEPTH ON GROUND OF SNOW ICE PELLETS OR ICE AND DATE																					
0																					

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
\- ALSO ON AN EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM, 09 = E, 18 = S, 27 = W, 36 = N. RESULTANT DIR. IS ARC BASED ON 7:00 AM AND 7:00 PM OBSERVATIONS.

MORE OBSERVATIONS PER DAY AT 3 HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE ↑ WITH THE DIRECTION INDICATES PEAK GUST SPEED.
AND ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

DAY	HOUR ENDING	SUNSHINE MINUTES	SUNSHINE PERCENT POSSIBLE	SKY COVER TENTHS	WIND SPEED MPH	WIND DIR. TENS OF DEGREES	TEMPERATURE °F			RELATIVE HUMIDITY %		PRECIPITATION WATER EQUIV. IN.	SNOW ICE PELLETS IN.
							WET BULB	DRY BULB	DEW POINT				
01	5	30	05	07	03	33	38	47	33	73	04	.10	3.7
04	5	30	04	06	02	36	42	46	38	75	12	.11	3.8
07	5	30	05	05	02	36	42	45	37	76	12	.12	3.9
10	7	30	08	04	02	36	45	49	40	73	08	.12	3.1
13	7	30	04	05	02	36	47	52	41	69	05	.12	3.1
16	7	30	01	05	02	36	41	53	41	66	03	.12	3.6
19	6	30	03	05	02	36	46	50	40	70	04	.08	3.9
22	5	30	04	05	02	36	44	48	40	76	07	.08	3.9

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																		.01	.02	.03	.01	.03	T	T	1
2																						T		.02	2
3																									3
4	T																								4
5	T		T	.01		T	T				.01	T	.01	T	T	T									5
6																									6
7							T	T	.03	T	.01	.02	.04	.04	.04	.04	.04	.04	.02	.01	T	.03	T		7
8									.04	.10	.21	.28	.41	.08	T	.02	T								8
9	T	T	T	.01	.04	.02	T		.03	.01	.07	T	T	T		T	T	T	T	T	.01	.08	.14	.31	9
10															T		T	T	T	T	T	T	T		10
11	.17	.18	.17	.16	.05	.03	.08	.02	.04	.04	.06	.05	.03	T		T	T	T	T	T	T	T	T		11
12																									12
13																									13
14	T	T	.13	.13	.09	.06	T	.03	.02							.20	.21	.01	.02	T	.03	.11	.43	.02	14
15		T	.08	.01	.01	T	.05	.03	.04	.14	.24	.01	.28	.29											15
16															T	.10	T	T	T	T					16
17																									17
18																									18
19																									19
20																									20
21																									21
22																									22
23																									23
24																									24
25																									25
26																									26
27																									27
28																									28
29																									29
30							T	T	.05	T	T		.02	T	.01	T									30
31																									31

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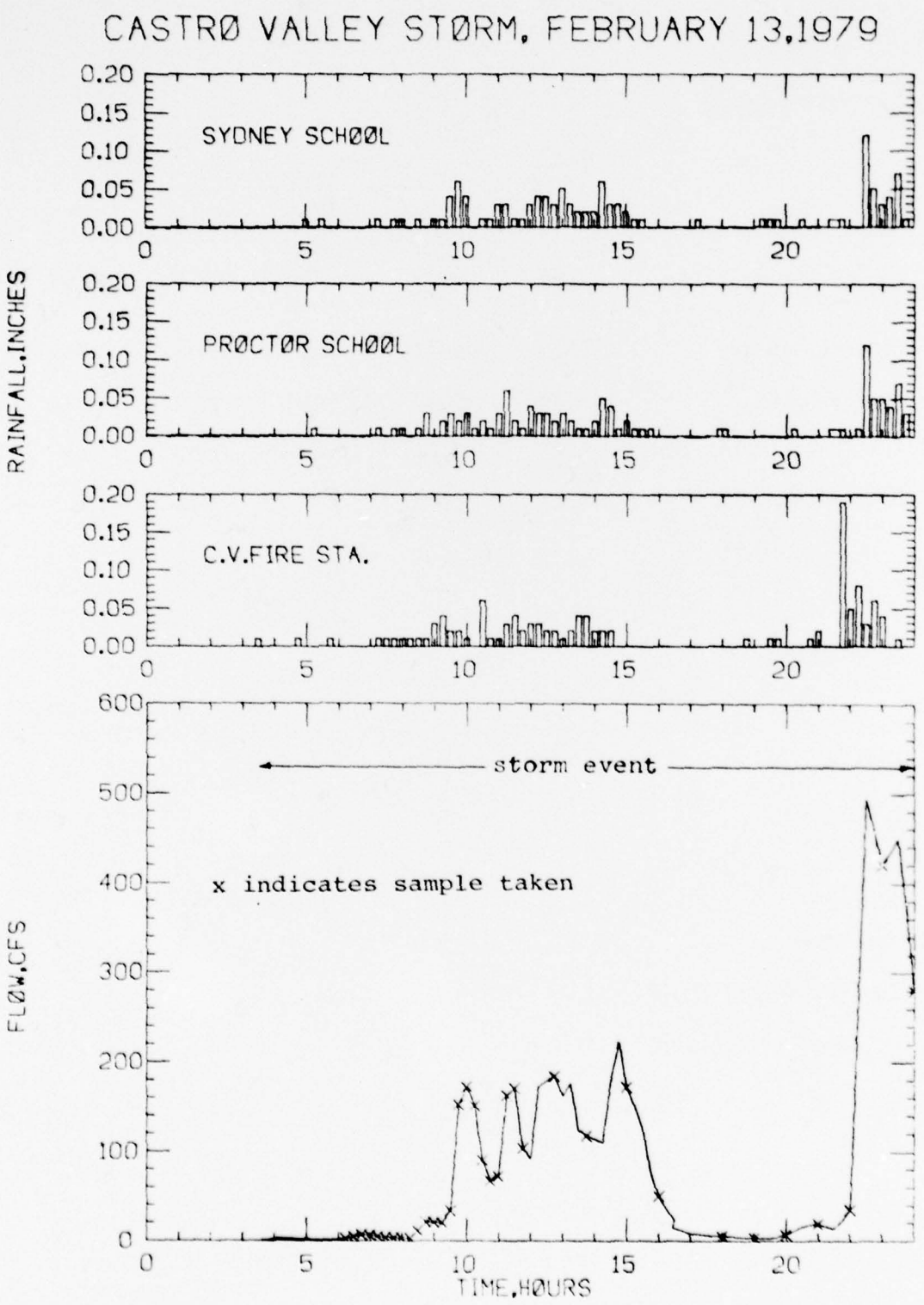
STORM EVENT REPORT NO. 8
February 13-14, 1979

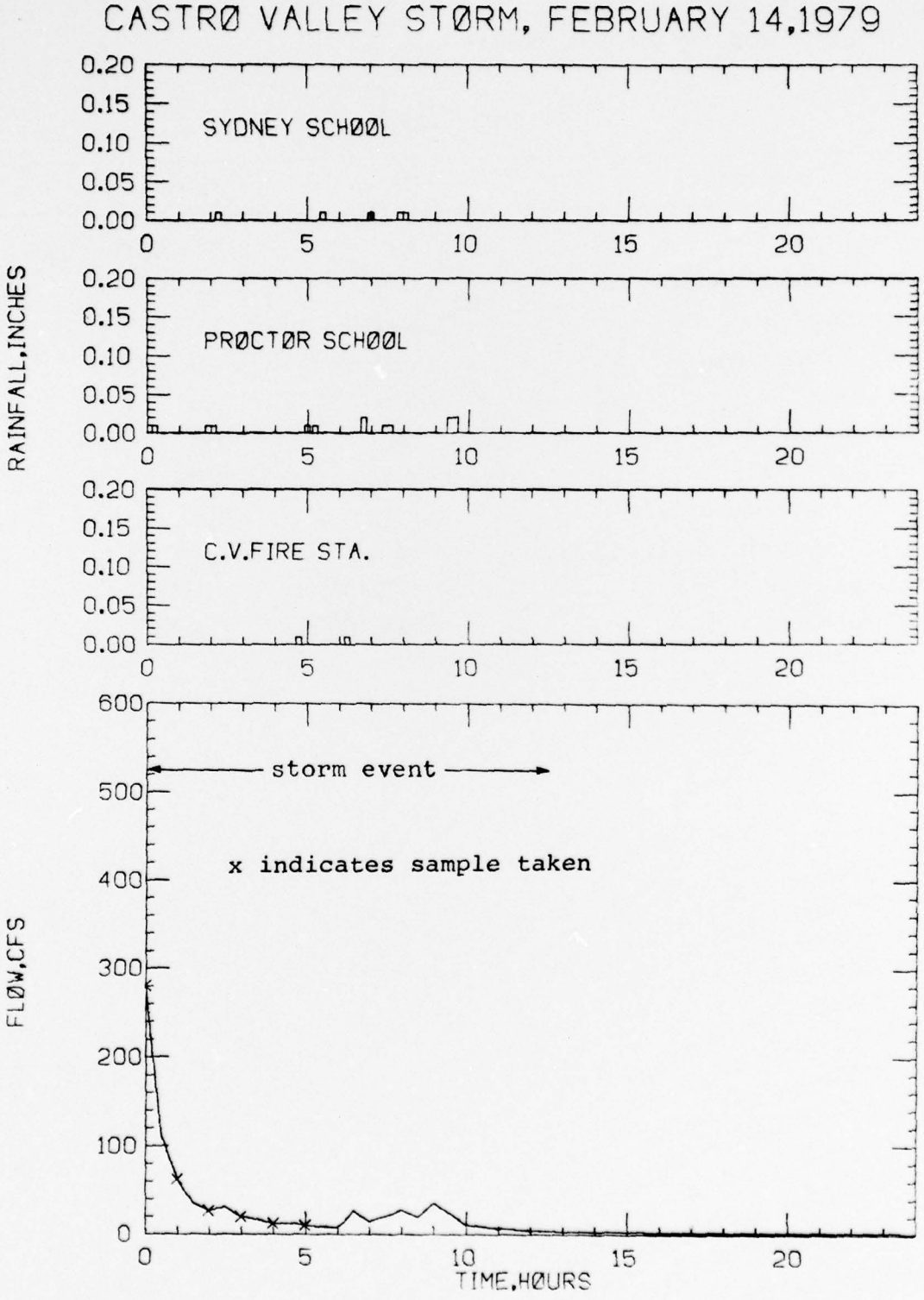
1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	1.20	0330	13 Feb 79	0615	14 Feb 79
2. Proctor School	1.20	0515	13 Feb 79	0930	14 Feb 79
3. Sydney School	1.19	0500	13 Feb 79	0800	14 Feb 79
4. San Francisco Airport	2.27	0100	13 Feb 79	0800	14 Feb 79
5. Oakland Airport	1.27	0100	13 Feb 79	0800	14 Feb 79

2. Creek Flow Summary

Discharge Condition	Value	Time	Date
Maximum, cfs	493.6	2230	13 Feb 79
Average, cfs	65.4	--	13 Feb 79
Total volume, ft^3	7,765,000	from 0330 to 1230	13 Feb 79 14 Feb 79
Prior to storm, cfs	0.540		
Average (previous 7 days), cfs	0.290		
Average (previous 30 days), cfs	11.8		

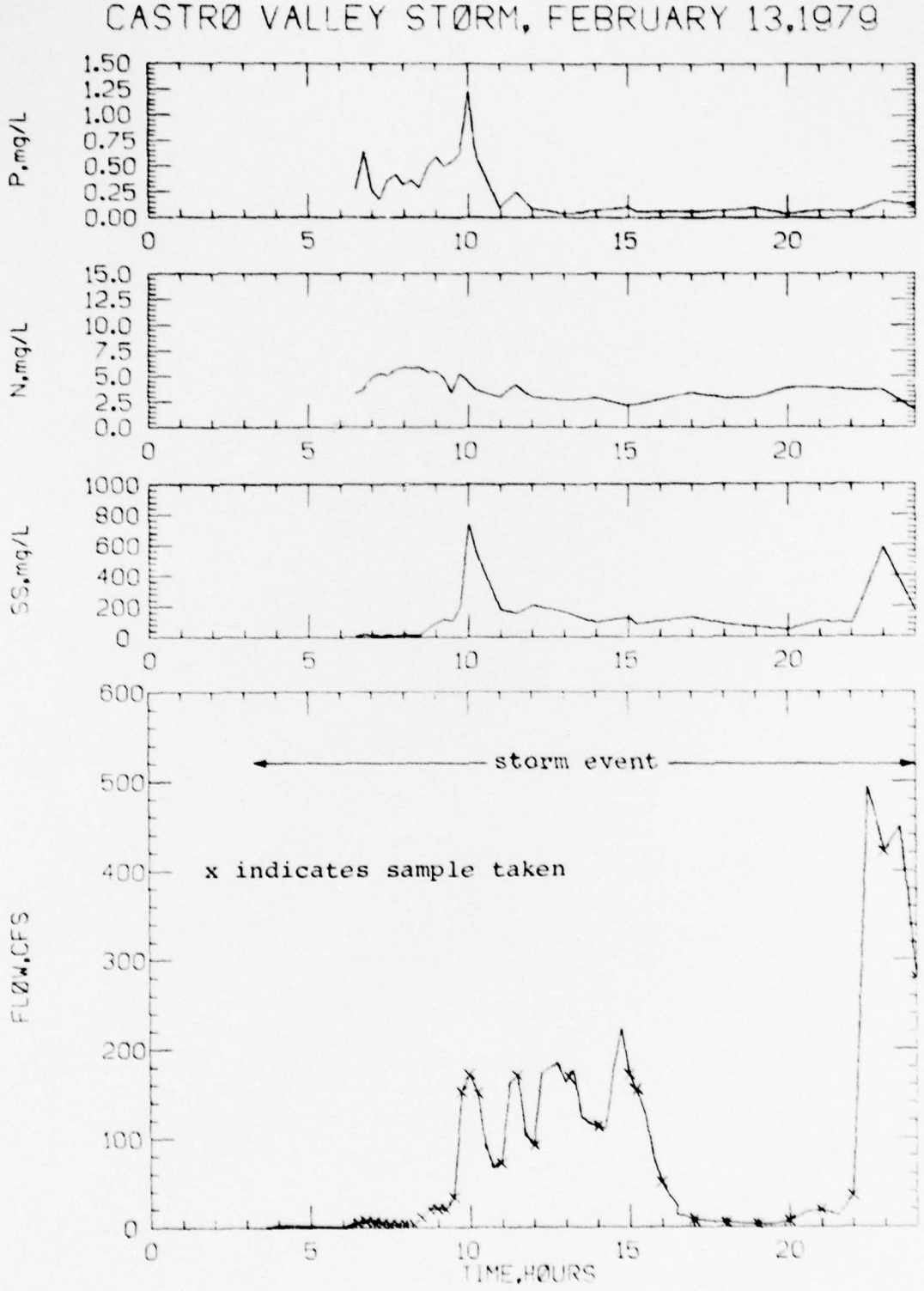

CASTRØ VALLEY STØRM, FEBRUARY 13,1979
RAINFALL,INCHES
SYDNEY SCHØØL
PRØCTØR SCHØØL
C.V.FIRE STA.
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
FLØW,CFS
storm event
x indicates sample taken
600
500
400
300
200
100
0
TIME,HØURS

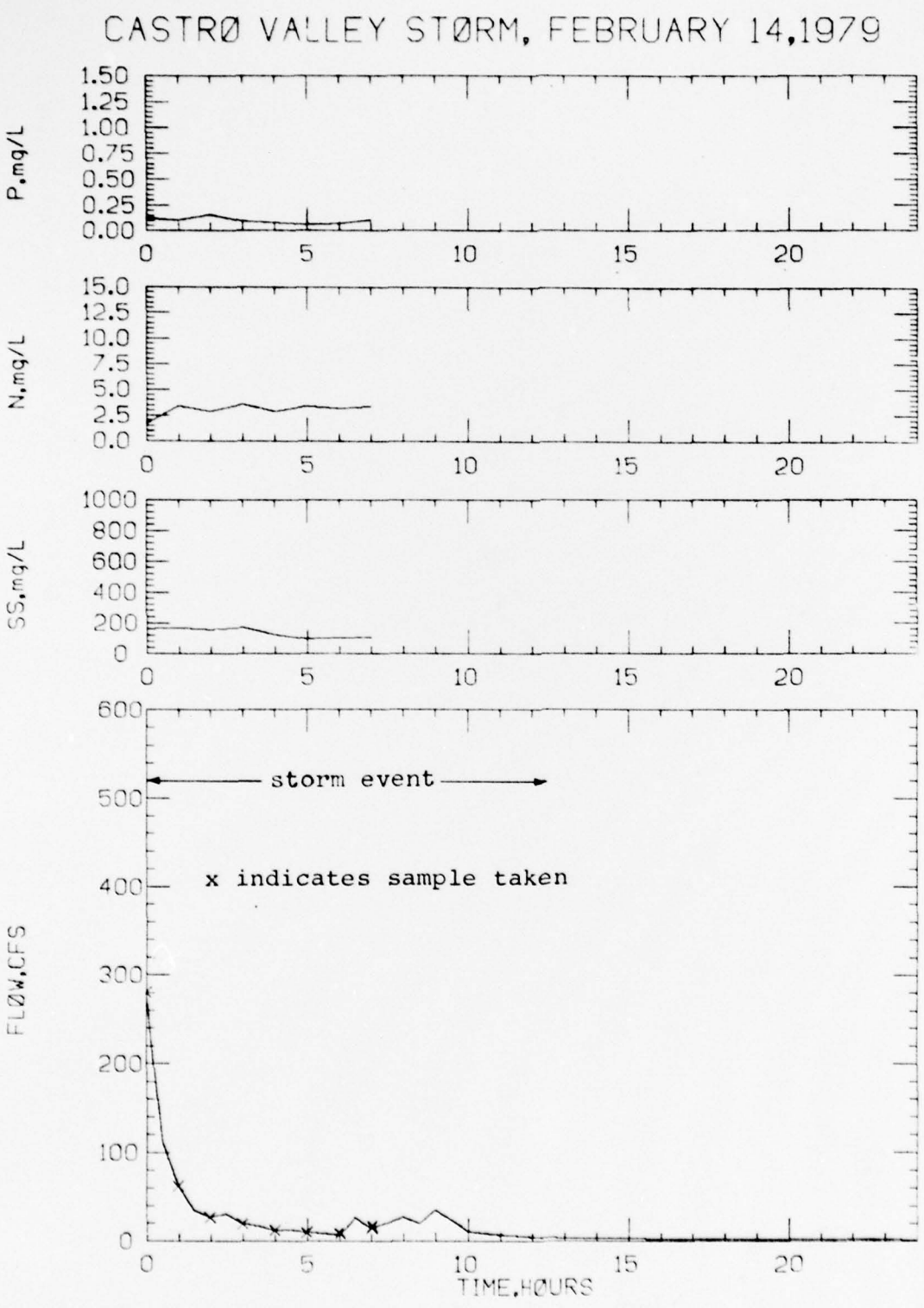

CASTRØ VALLEY STØRM, FEBRUARY 14,1979
RAINFALL,INCHES
SYDNEY SCHØØL
PRØCTØR SCHØØL
C.V.FIRE STA.
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
FLØW,CFS
600
500
400
300
200
100
0
storm event
x indicates sample taken
TIME,HØURS

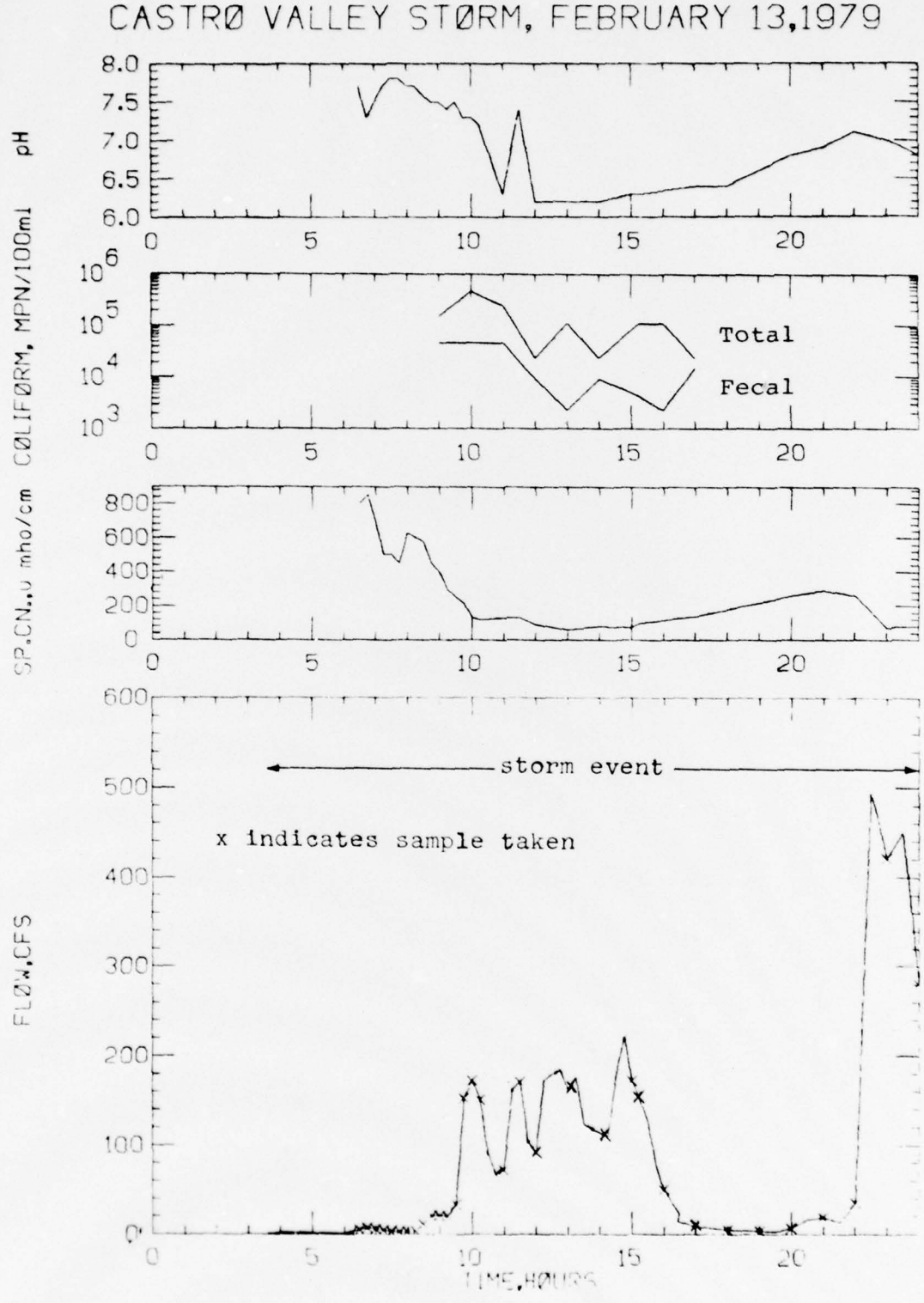
3. Discrete Sampling Analysis Results

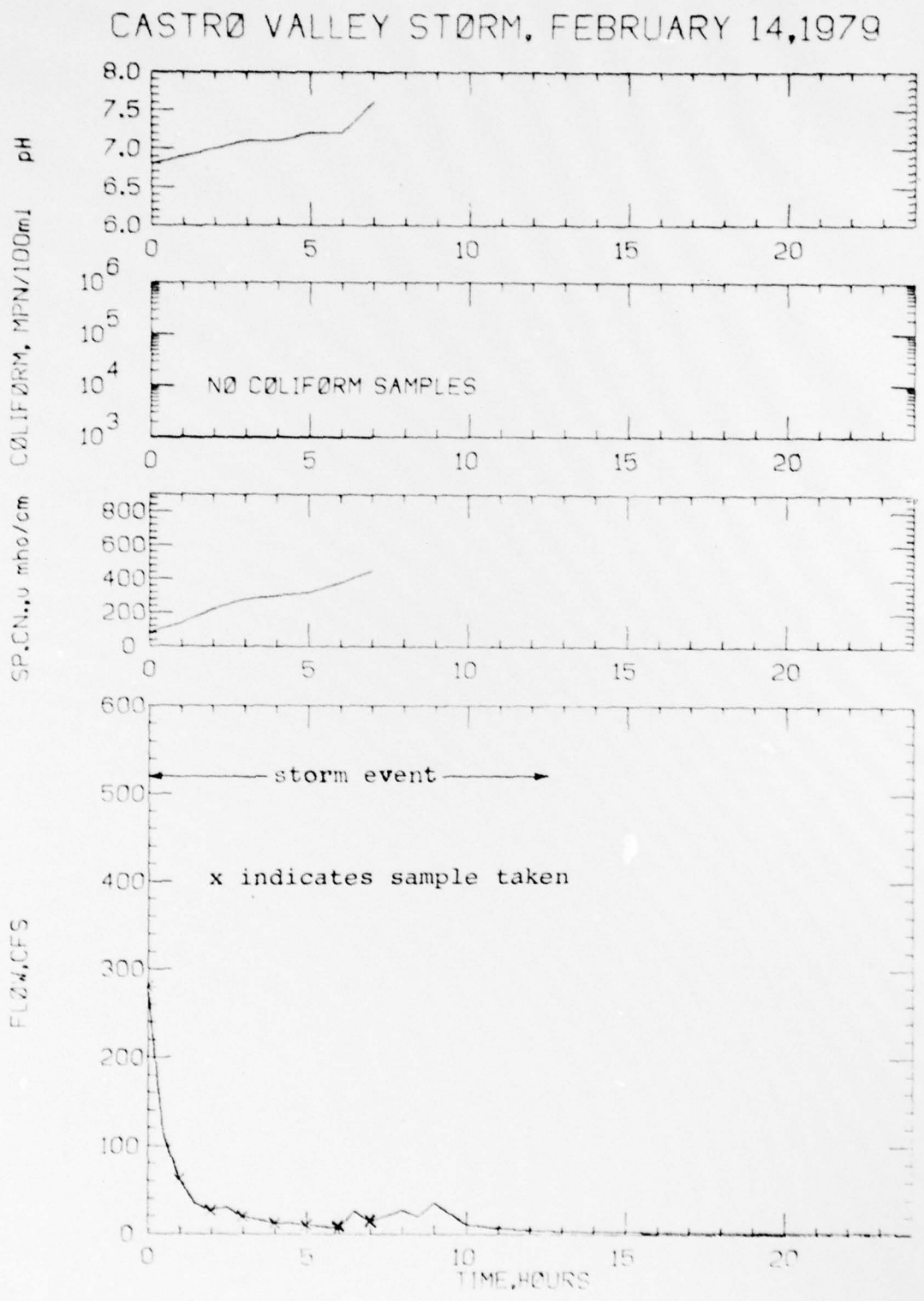
Discrete Sample

Parameter	Units	Value
Date and time	--	13 Feb 79 0945
Instantaneous flow rate	CFS	153.0
Temperature	Deg C	12.1
Specific conductance	µmhos/cm	160
pH	--	6.5
Settleable solids	mL/L	5.5
Suspended solids	mg/L	800
Volatile suspended solids	mg/L	166
Biochemical oxygen demand (5 day)	mg/L	43
Total coliform	MPN/100 mL	4.6×10^5
Fecal coliform	MPN/100 mL	4.6×10^4


CASTRØ VALLEY STØRM, FEBRUARY 13,1979
P,mg/L
1.50
1.25
1.00
0.75
0.50
0.25
0.00
N,mg/L
15.0
12.5
10.0
7.5
5.0
2.5
0.0
SS,mg/L
1000
800
600
400
200
0
FLØW,CFS
600
500
400
300
200
100
0
storm event
x indicates sample taken
0
5
10
15
20
TIME,HOURS


CASTRØ VALLEY STØRM, FEBRUARY 14,1979
P,mg/L
1.50
1.25
1.00
0.75
0.50
0.25
0.00
N,mg/L
15.0
12.5
10.0
7.5
5.0
2.5
0.0
SS,mg/L
1000
800
600
400
200
0
FLØW,CFS
600
500
400
300
200
100
0
storm event
x indicates sample taken
0
5
10
15
20
TIME,HØURS


CASTRØ VALLEY STØRM, FEBRUARY 13,1979
pH
8.0
7.5
7.0
6.5
6.0
0
5
10
15
20
CØLIFØRM, MPN/100ml
10^6
10^5
10^4
10^3
Total
Fecal
SP.CN.,μ mho/cm
800
600
400
200
0
FLØW,CFS
600
500
400
300
200
100
0
storm event
x indicates sample taken
TIME,HØURS


CASTRØ VALLEY STØRM, FEBRUARY 14,1979
pH
8.0
7.5
7.0
6.5
6.0
0
5
10
15
20
CØLIFØRM, MPN/100ml
10^6
10^5
10^4
10^3
NØ CØLIFØRM SAMPLES
SP.CN.,μ mho/cm
800
600
400
200
0
FLØW,CFS
storm event
x indicates sample taken
TIME,HOURS

4. Flow-weighted Composites

Parameter, mg/L	Date: February 13, 1979 Time: 0630-1015 Rising		February 13-14, 1979 1100-0700 Falling	
	Total	Dissolved	Total	Dissolved
MBAS	0.76	3.8	0.08	0.76
TKN	4.67	2.05	2.05	1.40
Ortho P	0.24	0.06	0.28	0.24
Alkalinity	96	82	21	18
Cr	<0.06	<0.06	<0.06	<0.06
Cu	<0.03	<0.03	0.06	<0.03
Cd	<0.01	<0.01	<0.01	<0.01
Pb	0.76	<0.10	0.39	<0.10
Ni	<0.06	<0.06	<0.06	<0.06
Zn	0.21	0.03	0.09	0.02

5. Observations at Sampling Station During Storm Event.

   Flow records during this storm event are affected slightly by a car body lodged approximately 100 feet downstream of the sampling control section.

6. Observations in Tributary Area During Storm Event.

   Nothing significant to report.

7. Comments on Storm Event.

   1. This storm was an intensive sampling event with over 1.00 inch of recorded rainfall.

   2. Flow response at the gaging station occurs within a half hour of a change in the rainfall rate.

   3. Two flow weighted composite samples, a discrete grab sample, and a series of discrete samples were analyzed for this event.

   4. The series of discrete samples were taken at 15 minute intervals during the rising portion of the runoff and at one hour intervals during the falling portion of the storm runoff as indicated by X's on the quality-flow plots. These samples were analyzed for seven parameters. Suspended solids and phosphorus values peaked with the first runoff peak; suspended solids later peaked again when the storm runoff reached its maximum peak flow. Both parameters decreased sharply after attaining maximum values. Specific conductance and pH values were generally at a minimum with high runoff rates and increased as the flowrate decreased.

   5. The samples used in the composite samples were collected at 15 minute intervals during the rising portion of the runoff period (0630 to 1015 on February 13) and at one hour intervals during the falling portion of the runoff event (1100 on February 13 to 0700 on February 14). These samples were analyzed for ten parameters.

STORM EVENT 8 - FEBRUARY 13-14, 1979 QUALITY DATA

DATE	TIME OF DAY	FLOW RATE, CFS	TEMPERATURE, DEG C	SPECIFIC CONDUCTANCE, MICROMHOS/CM	PH	SUSPENDED SOLIDS, MG/L	TOTAL NITROGEN, MG/L AS N	TOTAL PHOSPHORUS, MG/L AS P	TOTAL COLIFORM, MPN/100 ML	FECAL COLIFORM, MPN/100 ML
2-13-79	6:30	3.02		800.	7.7	5.	3.3	0.27		
2-13-79	6:45	5.38		850.	7.3	18.	3.7	0.64		
2-13-79	7:00	7.50		700.	7.5	15.	4.9	0.27		
2-13-79	7:15	6.50		500.	7.7	9.	5.3	0.17		
2-13-79	7:30	5.38		500.	7.8	12.	5.1	0.36		
2-13-79	7:45	4.35		450.	7.8	8.	5.7	0.42		
2-13-79	8:00	3.98		625.	7.7	20.	5.9	0.32		
2-13-79	8:15	3.81		600.	7.7	14.	5.8	0.36		
2-13-79	8:30	3.98		575.	7.6	14.	5.9	0.29		
2-13-79	8:45	11.7		450.	7.5	59.	5.4	0.50		
2-13-79	9:00	21.3	12.2	400.	7.5	92.	5.5	0.59	1.50E 05	4.60E 04
2-13-79	9:15	21.3		300.	7.4	116.	4.9	0.50		
2-13-79	9:30	20.6		250.	7.5	109.	3.4	0.55		
2-13-79	9:45	34.0		220.	7.3	207.	5.3	0.63		
2-13-79	10:00	153.0	12.1	130.	7.3	735.		1.23	4.60E 05	4.60E 04
2-13-79	10:15	172.6		120.	7.2	554.	3.7	0.59		
2-13-79	11:00	67.9	12.2	130.	6.3	182.	3.0	0.10	2.40E 05	4.60E 04
2-13-79	11:30	162.8		130.	7.4	154.	4.2	0.25		
2-13-79	12:00	104.0	12.6	90.	6.2	209.	3.0	0.09	2.40E 04	9.30E 03
2-13-79	13:00	184.4	12.8	60.	6.2	165.	2.7	0.04	1.10E 05	2.30E 03
2-13-79	14:00	117.6	13.0	80.	6.2	95.	2.9	0.07	2.40E 04	9.30E 03
2-13-79	15:00	172.6		75.	6.3	131.	2.2	0.11		
2-13-79	15:15	151.3	13.0	100.	6.3	84.	2.3	0.06	1.10E 05	4.30E 03
2-13-79	16:00	51.3	13.3						1.10E 05	2.30E 03
2-13-79	17:00	13.3		140.	6.4	131.	3.4	0.06	2.40E 04	1.50E 04
2-13-79	18:00	5.82		180.	6.4	84.	2.9	0.07		
2-13-79	19:00	4.16		220.	6.6	66.	3.0	0.10		
2-13-79	20:00	7.50		260.	6.8	49.	3.9	0.04		
2-13-79	21:00	19.4		290.	6.9	103.	4.0	0.08		

STORM EVENT 8 - FEBRUARY 13-14, 1979 QUALITY DATA
(Concluded)

DATE	TIME OF DAY	FLOW RATE, CFS	TEMPERATURE, DEG C	SPECIFIC CONDUCTANCE, MICROMHOS/CM	PH	SUSPENDED SOLIDS, MG/L	TOTAL NITROGEN, MG/L AS N	TOTAL PHOSPHORUS, MG/L AS P	TOTAL COLIFORM, MPN/100 ML	FECAL COLIFORM, MPN/100 ML
2-13-79	22:00	35.8		260.	7.1	89.	3.7	0.06		
2-13-79	23:00	421.7		75.	7.0	581.	3.7	0.17		
2-13-79	24:00	280.8		80.	6.8	162.	1.7	0.13		
2-13-79	1:00	63.1		140.	6.9	167.	3.4	0.11		
2-13-79	2:00	27.5		220.	7.0	154.	2.9	0.16		
2-13-79	3:00	20.6		280.	7.1	170.	3.6	0.10		
2-13-79	4:00	12.9		300.	7.1	124.	2.9	0.08		
2-13-79	5:00	10.9		320.	7.2	97.	3.4	0.06		
2-13-79	6:00	8.11		375.	7.2	105.	3.2	0.07		
2-13-79	7:00	15.1		450.	7.6	107.	3.4	0.11		

STORM EVENT 8 - FEBRUARY 13-14, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-13-79	3:00	1.35	0.539				
2-13-79	3:15	1.35	0.539				
2-13-79	3:30	1.35	0.539		0.01		
2-13-79	3:45	1.45	0.928				
2-13-79	4:00	1.64	2.49				
2-13-79	4:15	1.66	2.74				
2-13-79	4:30	1.65	2.61				
2-13-79	4:45	1.62	2.25		0.01		
2-13-79	5:00	1.60	2.03				0.01
2-13-79	5:15	1.57	1.73			0.01	
2-13-79	5:30	1.55	1.57				0.01
2-13-79	5:45	1.54	1.49		0.01		
2-13-79	6:00	1.53	1.41				
2-13-79	6:15	1.68	3.02	YES			
2-13-79	6:30	1.81	5.38	YES			
2-13-79	6:45	1.90	7.50	YES			
2-13-79	7:00	1.86	6.50	YES			
2-13-79	7:15	1.81	5.38	YES	0.01	0.01	0.01
2-13-79	7:30	1.77	4.35	YES	0.01		
2-13-79	7:45	1.74	3.98	YES	0.01	0.01	0.01
2-13-79	8:00	1.73	3.81	YES	0.01	0.01	0.01
2-13-79	8:15	1.74	3.98	YES	0.01		
2-13-79	8:30	2.02	11.7	YES	0.01	0.01	0.01
2-13-79	8:45	2.21	21.3	YES	0.01	0.03	
2-13-79	9:00	2.21	21.3	YES	0.03		0.01
2-13-79	9:15	2.20	20.6	YES	0.04	0.02	0.01
2-13-79	9:30	2.38	34.0	YES	0.02	0.03	0.04
2-13-79	9:45	3.27	153.0	YES	0.02	0.02	0.06
2-13-79	10:00	3.39	172.6	YES	0.01	0.03	0.04
2-13-79	10:15	3.26	151.3	YES		0.01	
2-13-79	10:30	2.86	90.7	YES	0.06	0.02	0.01
2-13-79	10:45	2.69	67.9	YES	0.01	0.01	0.01
2-13-79	11:00	2.73	73.0	YES	0.01	0.03	0.03
2-13-79	11:15	3.33	162.8	YES	0.03	0.06	0.03
2-13-79	11:30	3.38	170.9	YES	0.04	0.02	0.01
2-13-79	11:45	2.95	104.0	YES	0.02	0.01	0.01
2-13-79	12:00	2.87	92.1		0.03	0.04	0.03
2-13-79	12:15	3.39	172.6		0.03	0.03	0.04
2-13-79	12:30	3.43	179.3		0.02	0.03	0.04
2-13-79	12:45	3.46	184.4	YES	0.02	0.02	0.03
2-13-79	13:00	3.33	162.8		0.01	0.03	0.05
2-13-79	13:15	3.41	175.9		0.02	0.02	0.03

STORM EVENT 8 - FEBRUARY 13-14, 1979 STORM DATA (Continued)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-13-79	13:30	3.09	124.8		0.04	0.01	0.02
2-13-79	13:45	3.04	117.6	YES	0.04	0.01	0.02
2-13-79	14:00	3.01	114.0		0.02	0.02	0.02
2-13-79	14:15	2.99	110.4		0.02	0.05	0.06
2-13-79	14:30	3.42	177.6		0.02	0.04	0.03
2-13-79	14:45	3.69	223.2			0.01	0.03
2-13-79	15:00	3.39	172.6	YES		0.02	0.02
2-13-79	15:15	3.26	151.3			0.01	0.01
2-13-79	15:30	3.10	126.3			0.01	0.01
2-13-79	15:45	2.78	79.6			0.01	
2-13-79	16:00	2.55	51.3	YES			
2-13-79	16:15	2.40	35.8				
2-13-79	16:30	2.25	23.9				
2-13-79	16:45	2.10	15.1				
2-13-79	17:00	1.95	9.09				
2-13-79	17:15	1.92	8.11				0.01
2-13-79	17:30	1.88	6.99				
2-13-79	18:00	1.83	5.82	YES		0.01	
2-13-79	18:30	1.78	4.74				
2-13-79	18:45	1.77	4.54		0.01		
2-13-79	19:00	1.75	4.16	YES			
2-13-79	19:15	1.73	3.81				0.01
2-13-79	19:30	1.72	3.64		0.01		0.01
2-13-79	19:45	1.81	5.38		0.01		0.01
2-13-79	20:00	1.90	7.50	YES			
2-13-79	20:15	2.02	11.7			0.01	
2-13-79	20:30	2.13	16.6				0.01
2-13-79	20:45	2.16	18.3		0.01		
2-13-79	21:00	2.18	19.4	YES	0.02		
2-13-79	21:30	2.08	14.2			0.01	0.01
2-13-79	21:45	2.24	23.1		0.19	0.01	0.01
2-13-79	22:00	2.40	35.8	YES	0.05		
2-13-79	22:15	3.97	268.3		0.08	0.01	
2-13-79	22:30	5.54	493.6		0.03	0.12	0.12
2-13-79	22:45	5.27	459.2		0.06	0.05	0.05
2-13-79	23:00	5.00	421.7	YES	0.04	0.05	0.03
2-13-79	23:15	5.10	435.5			0.04	0.04
2-13-79	23:30	5.20	449.4		0.01	0.07	0.07
2-13-79	23:45	4.63	371.5			0.03	0.01
2-13-79	24:00	4.05	280.8	YES			
2-14-79	0:15	3.53	196.7			0.01	
2-14-79	0:30	3.00	112.0				
2-14-79	1:00	2.65	63.1	YES			

STORM EVENT 8 - FEBRUARY 13-14, 1979 STORM DATA (Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-14-79	1:30	2.40	35.8				
2-14-79	2:00	2.30	27.5	YES		0.01	
2-14-79	2:15	2.33	29.8				0.01
2-14-79	2:30	2.35	31.4				
2-14-79	3:00	2.20	20.6	YES			
2-14-79	3:30	2.15	17.6				
2-14-79	4:00	2.05	12.9	YES			
2-14-79	4:30	2.07	13.7				
2-14-79	4:45	2.04	12.5		0.01		
2-14-79	5:00	2.00	10.9	YES		0.01	
2-14-79	5:15	1.98	10.1			0.01	
2-14-79	5:30	1.95	9.09				0.01
2-14-79	6:00	1.92	8.11				
2-14-79	6:15	2.11	15.6		0.01		
2-14-79	6:30	2.30	27.5				
2-14-79	6:45	2.20	20.6			0.02	
2-14-79	7:00	2.10	15.1				0.01
2-14-79	7:30	2.21	21.3			0.01	
2-14-79	8:00	2.30	27.5				0.01
2-14-79	8:30	2.20	20.6				
2-14-79	9:00	2.40	35.8				
2-14-79	9:30	2.25	23.9			0.02	
2-14-79	10:00	2.01	11.3				
2-14-79	11:00	1.90	7.50				
2-14-79	12:00	1.79	4.95				
2-14-79	13:00	1.74	3.98				

FEBRUARY 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37 'N LONGITUDE 122° 23 'W ELEVATION (GROUND) 8 FT STANDARD TIME USED: PACIFIC WBAN 023234

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (MONTHLY TOTAL BEGINS 7-1)	COOLING (MONTHLY TOTAL BEGINS 1-1)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW, ICE PELLETS OR ICE ON GROUND AT 0400 LST IN	PRECIPITATION WATER EQUIV. INCH	PRECIPITATION SNOW, ICE PELLETS INCH	AVG STATION PRESSURE IN CLEV. + 1000 FEET MSL	WIND RESULTANT DIR	WIND RESULTANT SPEED M.P.H.	WIND AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIRECTION	SUNSHINE MINUTES	SUNSHINE PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	SKY COVER TENTHS MIDNIGHT TO MIDNIGHT	DAY
1	51	35	43*	-7	36	22	0		0	.01	0	29.84	27	5.7	9.2	15	30			8	7	1
2	53	38	46	-4	32	19	0		0	T	0	30.05	02	6.3	10.1	18	04			2	2	2
3	58	32*	45	-5	28	20	0		0	0	0	30.26	26	2.6	6.0	10	31			5	3	3
4	61	36	48	-1	35	16	0		0	0	0	30.22	32	3.1	5.2	8	29			1	3	4
5	60	40	50	0	45	15	0	8	0	0	0	30.21	30	6.6	8.3	16	28			8	6	5
6	60	44	52	2	47	13	0		0	0	0	30.25	29	8.9	10.6	18	29			8	5	6
7	59	41	50	-1	45	15	0	1 8	0	0	0	30.24	34	4.0	6.3	14	29			10	10	7
8	55	40	48	-3	43	17	0	1 8	0	0	0	30.25	27	3.6	6.6	12	29			10	8	8
9	63*	41	52	1	44	13	0	1	0	0	0	30.26	32	3.0	6.5	15	30			6	7	9
10	61	45	53	2	48	12	0	2 8	0	0	0	30.17	36	1.8	6.6	14	30			10	10	10
11	60	48	54	3	50	11	0	1 8	0	0	0	30.12	01	1.7	4.8	8	02			10	10	11
12	61	51	56*	5	48	9	0	1 8	0	T	0	30.01	17	7.9	10.6	22	20			10	10	12
13	59	48	54	3	51	11	0	1	0	2.21	0	29.79	17	8.2	11.5	31	29			10	10	13
14	58	42	49	-2	42	16	0		0	.06	0	30.01	28	12.3	13.7	25	29			3	4	14
15	61	38	50	-1	42	15	0	1	0	.19	0	30.06	17	8.5	11.5	18	20			6	6	15
16	58	44	51	0	44	14	0		0	.10	0	30.13	25	7.4	8.8	21	29			3	5	16
17	59	38	49	-3	40	16	0		0	0	0	30.23	12	2.1	5.2	10	03			10	9	17
18	57	46	52	0	47	13	0	1	0	.26	0	30.09	19	4.0	7.5	14	26			10	10	18
19	58	46	52	0	46	13	0		0	.01	0	30.08	32	5.4	5.6	12	28			4	7	19
20	53	48	51	-1	46	14	0	1	0	.88	0	29.87	17	6.8	10.5	23	14			10	9	20
21	55	45	50	-2	44	15	0	1	0	.54	0	29.76	27	17.1	18.0	23	27			7	7	21
22	56	46	51	-1	45	14	0	1	0	.61	0	29.80	23	10.2	11.2	24	21			7	7	22
23	58	42	50	-2	42	15	0		0	.09	0	30.08	25	6.9	8.1	15	31			7	6	23
24	59	39	49	-3	41	16	0		0	0	0	30.22	29	1.1	5.8	9	30			10	8	24
25	60	45	53	1	44	12	0	1	0	.18	0	30.13	18	2.9	6.3	21	28			10	10	25
26	57	48	53	1	44	12	0		0	0	0	30.17	30	16.2	16.5	26	30			2	3	26
27	57	42	50	-2	42	15	0		0	0	0	30.22	29	13.8	14.0	23	30			7	4	27
28	57	46	52	0	46	13	0	1	0	.62	0	29.95	21	7.7	11.5	18	29			10	10	28

SUM	SUM				TOTAL	TOTAL			TOTAL	TOTAL	FOR THE MONTH					TOTAL		SUM	SUM	
1622	1193				406	0	NUMBER OF DAYS		5.87	0	30.09	26	5.9	9.2	31	29		204	196	
AVG	AVG	AVG	DEP	AVG	DEP	DEP	PRECIPITATION		DEP						DATE	13	FOR POSSIBLE MONTH	AVG	AVG	
57.9	42.6	50.3	-0.8	43	20	0	+ .01 INCH	13	2.83									7.3	7.0	
					SEASON TO DATE		SNOW, ICE PELLETS													
NUMBER OF DAYS					TOTAL	TOTAL	+ 1.0 INCH	0	GREATEST IN 24 HOURS AND DATES							GREATEST DEPTH ON GROUND OF SNOW				
MAXIMUM TEMP.		MINIMUM TEMP.			2245	0	THUNDERSTORMS	0	PRECIPITATION		SNOW, ICE PELLETS					ICE PELLETS OR ICE AND DATE				
+ 90° F	+ 32° F	+ 32° F	+ 0° F		DEP	DEP	HEAVY FOG	1	2.21	13	0					0				
0	0	1	0		196	0	CLEAR 5	PARTLY CLOUDY 8	CLOUDY 15											

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

HOUR (LST)	AVERAGES SKY COVER TENTHS	STATION PRESSURE IN	TEMPERATURE AIR °F	TEMPERATURE WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	7	30.10	47	45	42	84	7.6	27	3.5
04	7	30.09	46	44	42	87	6.5	26	3.1
07	8	30.10	46	44	42	87	8.9	23	2.0
10	8	30.13	52	48	44	77	10.0	17	.9
13	7	30.10	55	50	44	67	11.8	27	4.2
16	7	30.07	56	50	44	66	11.9	28	6.7
19	6	30.08	52	48	44	76	10.4	26	7.8
22	6	30.09	50	47	43	80	8.7	26	5.0

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1														.01											1
2						T																			2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12																								T	12
13	.09	.10	T	.01	.05	.05	.05	.18	.13	.20	.31	.23	.11	.14	.12	T	T	.03	.05	.07	.01	.09	.07	.03	13
14	.03	T		.01	T	T	T	.02									T	T			T	T	.06	.13	14
15																									15
16	.08	T	T	T	.01		.01		T	T															16
17																									17
18					T	T	.08	.01		T	.11	.02		.01	.02	.01	T								18
19		T	T	T	.01	T																			19
20				T	.03	.03	.03	.03	T	.02	.06	.02	.18	.36	.05	.11				.05				.01	20
21	.25	.03	.10	.02	.07	T	.05		T	T	T	.02		T											21
22	T	.01		T		T	.02	.05	.15	.05	.17	.12	T		T			.02		.02	T				22
23	T				.01	.01	T	.05	.02								T								23
24																			T	.08	.05	.01	.04	T	24
25																									25
26																									26
27																									27
28															.01	.04	.06	.09	.14	.28	T*	T			28

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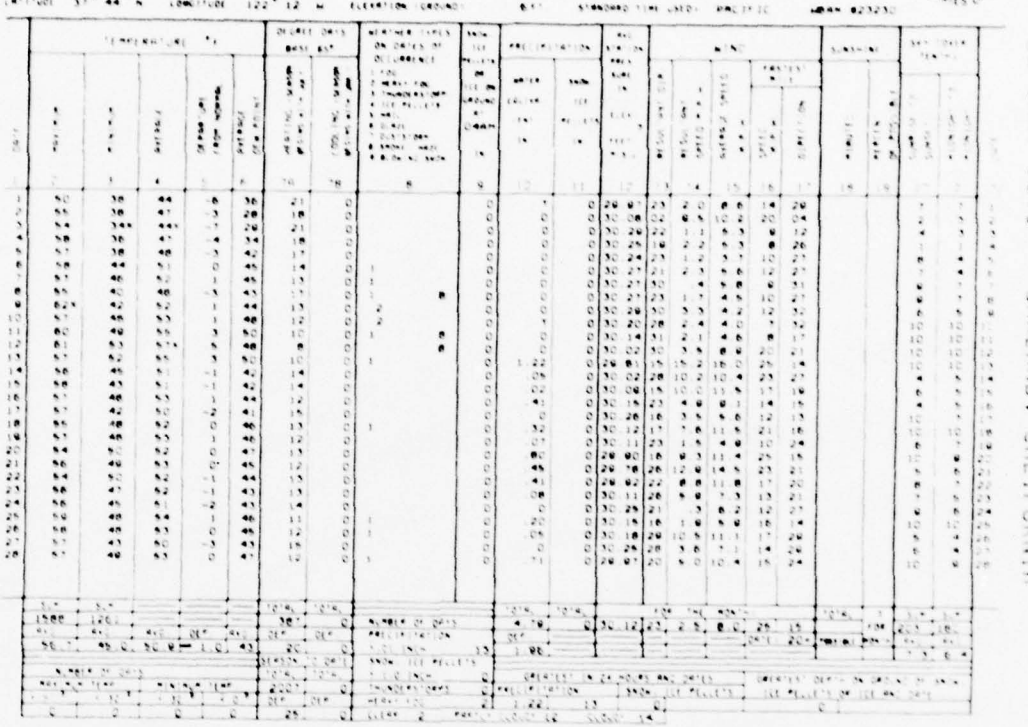
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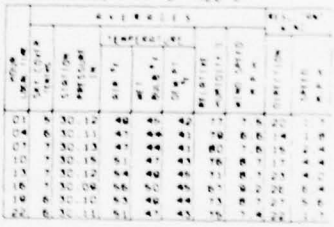
FEBRUARY 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

FEBRUARY 1979 OAKLAND, CALIFORNIA







SUBSCRIPTION PRICE: $7.55 PER YEAR (INCLUDING ANNUAL SUMMARY; FOREIGN MAILING $9.85 EXTRA). SINGLE COPY, 20 CENTS FOR MONTHLY OR ANNUAL ISSUE. THERE IS A MINIMUM CHARGE OF $2.00 FOR EACH ORDER OF SHELF STOCKED ISSUES OF PUBLICATIONS. MAKE CHECKS PAYABLE TO DEPARTMENT OF COMMERCE; NOAA. SEND PAYMENTS, ORDERS, AND INQUIRIES TO NATIONAL CLIMATIC CENTER, FEDERAL BUILDING, ASHEVILLE, NORTH CAROLINA 28801.

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel C. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 01-80-79 500

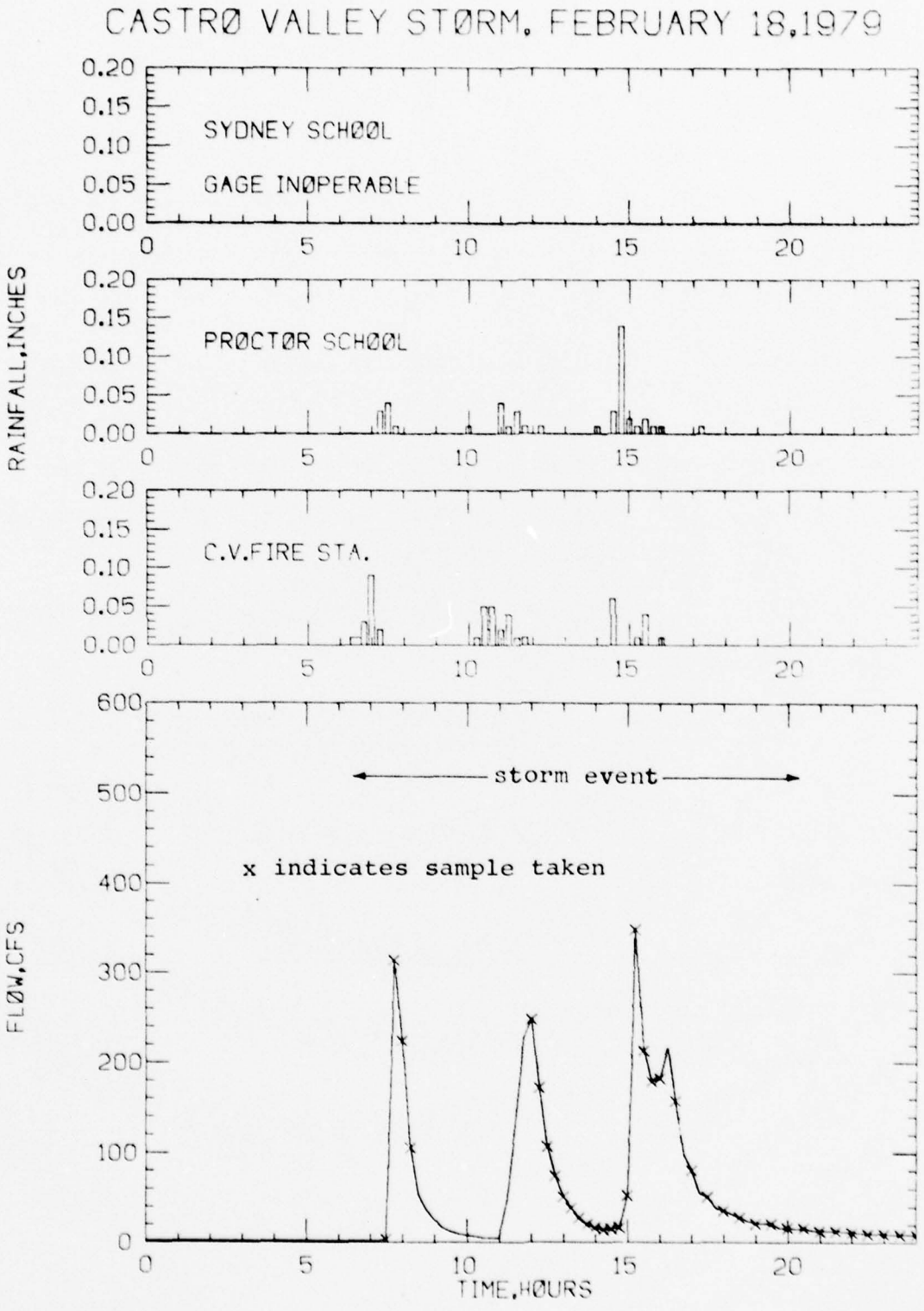
STORM EVENT REPORT NO. 9
February 18, 1979

1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	0.46	0630	18 Feb 79	1600	18 Feb 79
2. Proctor School	0.45	0715	18 Feb 79	1715	18 Feb 79
3. Sydney School	--	--	--	--	--
4. San Francisco Airport	0.26	0600	18 Feb 79	1600	18 Feb 79
5. Oakland Airport	0.32	0700	18 Feb 79	1600	18 Feb 79

2. Creek Flow Summary

Discharge Condition	Value	Time	Date
Maximum, cfs	349.5	1515	18 Feb 79
Average, cfs	71.9	--	18 Feb 79
Total volume, ft^3	3,561,400	from 0630 to 2015	18 Feb 79
Prior to storm, cfs	2.03		
Average (previous 7 days), cfs	16.5		
Average (previous 30 days), cfs	4.21		


CASTRØ VALLEY STØRM, FEBRUARY 18,1979
RAINFALL,INCHES
SYDNEY SCHØØL
GAGE INØPERABLE
PRØCTØR SCHØØL
C.V.FIRE STA.
FLØW,CFS
storm event
x indicates sample taken
TIME,HØURS

3. Sampling Analysis Results

Flow Weighted Composite

Parameter	Unit	Value
Chemical oxygen demand	mg/L	69
Total nitrogen as N	mg/L	3.9
Lead	mg/L	0.2
Chromium	mg/L	<0.06
Copper	mg/L	<0.03
Total Ortho Phosphorus as P	mg/L	0.18
Suspended solids	mg/L	192
Volatile suspended solids	mg/L	62

Discrete Sample

Parameter	Unit	Value
Date and time	--	18 Feb 1200
Instantaneous flowrate	cfs	248.6
Temperature	Deg C	11.3
Specific conductance	μ mho/cm	90
pH	--	6.4
Settleable solids	ml/L	0.5
Suspended solids	mg/L	146
Volatile suspended solids	mg/L	34
Biochemical oxygen demand (5 day)	mg/L	--
Total coliform	MPN/100 ml	4.6×10^4
Fecal coliform	MPN/100 ml	4.3×10^3

4. Observations at Sampling Station During Event.

   Flow records during this storm event are affected slightly by a car body lodged approximately 100 feet downstream of the sampling control section.

5. Observation in Tributary Area During Event.

   Nothing significant to report.

6. Comments on Storm Event.

   1. The raingage at Sydney School was inoperable from February 17 to March 8.

   2. Flow response at the gaging station occurs within one half hour following a change in the rainfall rate.

   3. A flow weighted composite sample and a single discrete grab sample were analyzed for this event.

   4. Samples used in the composite sample analysis were taken at 15 minute intervals from 0730 to 0815 and from 1200 to 1600 and at half hour intervals from 1630 to 2400 as indicated by X's on the flow plot.

STORM EVENT 9 - FEBRUARY 18, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-18-79	6:00	1.60	2.03				
2-18-79	6:30	1.60	2.03		0.01		
2-18-79	6:45	1.60	2.03		0.03		
2-18-79	7:00	1.59	1.92		0.09		
2-18-79	7:15	1.60	2.03		0.02	0.03	
2-18-79	7:30	1.74	3.98	YES		0.04	
2-18-79	7:45	4.27	314.5	YES		0.01	
2-18-79	8:00	3.70	224.8	YES			
2-18-79	8:15	2.96	105.6	YES			
2-18-79	8:30	2.57	53.7				
2-18-79	8:45	2.41	36.7				
2-18-79	9:00	2.28	26.0				
2-18-79	9:15	2.14	17.1				
2-18-79	9:30	2.04	12.5				
2-18-79	9:45	1.97	9.78				
2-18-79	10:00	1.92	8.11			0.01	
2-18-79	10:15	1.88	6.99		0.01		
2-18-79	10:30	1.81	5.38		0.05		
2-18-79	10:45	1.81	5.38		0.05		
2-18-79	11:00	1.81	5.38		0.02	0.04	
2-18-79	11:15	2.52	47.9		0.04	0.01	
2-18-79	11:30	3.12	129.3		0.01	0.03	
2-18-79	11:45	3.72	227.9		0.01	0.01	
2-18-79	12:00	3.85	248.6	YES			
2-18-79	12:15	3.39	172.6	YES		0.01	
2-18-79	12:30	2.97	107.2	YES			
2-18-79	12:45	2.74	74.3	YES			
2-18-79	13:00	2.55	51.3	YES			
2-18-79	13:15	2.43	38.6	YES			
2-18-79	13:30	2.30	27.5	YES			
2-18-79	13:45	2.20	20.6	YES			
2-18-79	14:00	2.14	17.1	YES		0.01	
2-18-79	14:15	2.09	14.6	YES			
2-18-79	14:30	2.11	15.6	YES	0.06	0.03	
2-18-79	14:45	2.14	17.1	YES		0.14	
2-18-79	15:00	2.56	52.5	YES		0.02	
2-18-79	15:15	4.49	349.5	YES	0.01	0.01	
2-18-79	15:30	3.63	214.0	YES	0.04	0.02	
2-18-79	15:45	3.43	179.3	YES		0.01	
2-18-79	16:00	3.45	182.7	YES	0.01	0.01	
2-18-79	16:15	3.65	217.1				
2-18-79	16:30	3.30	158.0	YES			

STORM EVENT 9 - FEBRUARY 18, 1979 STORM DATA
(Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-18-79	16:45	2.91	97.9				
2-18-79	17:00	2.79	81.0	YES			
2-18-79	17:15	2.58	54.9			0.01	
2-18-79	17:30	2.55	51.3	YES			
2-18-79	17:45	2.43	38.6				
2-18-79	18:00	2.40	35.8	YES			
2-18-79	18:15	2.36	32.3				
2-18-79	18:30	2.31	28.2	YES			
2-18-79	18:45	2.26	24.6				
2-18-79	19:00	2.22	21.9	YES			
2-18-79	19:15	2.22	21.9				
2-18-79	19:30	2.21	21.3	YES			
2-18-79	19:45	2.14	17.1				
2-18-79	20:00	2.13	16.6	YES			
2-18-79	20:15	2.10	15.1				
2-18-79	20:30	2.12	16.1	YES			
2-18-79	20:45	2.07	13.7				
2-18-79	21:00	2.06	13.3	YES			
2-18-79	21:15	2.06	13.3				
2-18-79	21:30	2.05	12.9	YES			
2-18-79	21:45	2.04	12.5				
2-18-79	22:00	2.02	11.7	YES			
2-18-79	22:15	2.01	11.3				
2-18-79	22:30	1.99	10.5	YES			
2-18-79	22:45	1.99	10.5				
2-18-79	23:00	1.97	9.78	YES			
2-18-79	23:15	1.96	9.43				
2-18-79	23:30	1.96	9.43	YES			
2-18-79	23:45	1.95	9.09				
2-18-79	24:00	1.96	9.43	YES			

FEBRUARY 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) 8 FT STANDARD TIME USED: PACIFIC WBAN 023234

FEBRUARY 1979 SAN FRANCISCO, CALIFORNIA

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (MONTH TO DATE)	COOLING (MONTH TO DATE)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDER 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUST/SAND 8 SMOKE/HAZE 9 BLOWING SNOW	SNOW ICE PELLETS OR ICE ON GROUND AT 0700 GMT IN	PRECIPITATION WATER EQUIV IN	SNOW ICE PELLETS IN	RES SUBMSN PRES SURF IN FEET MSL -30	WIND RESULTANT DIR	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIR	SUNSHINE MINUTES	PERCENT POSSIBLE	SKY COVER (TENTHS) SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	
1	53	35	43*	-7	36	22	0		0	.01	0	29.84	27	5.7	8.2	15	30			8	7	1
2	53	38	46	-4	32	19	0		0	T	0	30.05	02	6.3	10.1	18	04			2	2	2
3	58	32*	45	-5	28	20	0		0	0	0	30.26	26	2.6	6.0	10	31			5	3	3
4	61	36	49	-1	35	16	0		0	0	0	30.22	32	3.1	5.2	9	28			1	3	4
5	60	41	50	0	45	15	0	8	0	0	0	30.21	30	6.6	8.3	16	28			8	6	5
6	60	44	52	2	47	13	0		0	0	0	30.25	29	8.9	10.6	18	29			8	6	6
7	59	41	50	-1	46	15	0	1 8	0	0	0	30.24	34	4.0	6.3	14	28			10	8	7
8	55	40	48	-3	43	17	0	1 8	0	0	0	30.25	27	3.6	6.6	12	29			10	8	8
9	63*	41	52	1	44	13	0	1 8	0	0	0	30.26	32	3.9	6.5	15	30			6	7	9
10	61	45	53	2	49	12	0	2 8	0	0	0	30.17	36	1.8	6.6	14	30			10	10	10
11	60	48	54	3	50	11	0	8	0	0	0	30.12	01	1.7	4.8	8	02			10	10	11
12	61	51	56*	5	48	9	0	1 8	0	T	0	30.01	17	7.9	10.6	22	20			10	10	12
13	59	48	54	3	51	11	0	1	0	.21	0	29.78	17	8.2	11.5	31	29			10	10	13
14	58	42	50	-2	42	15	0		0	.06	0	30.01	28	12.3	13.7	25	29			7	6	14
15	61	38	50	-1	42	15	0	1	0	.19	0	30.06	17	9.5	11.5	18	20			6	5	15
16	58	44	51	0	44	14	0		0	.10	0	30.13	25	7.4	9.9	21	29			3	5	16
17	59	38	49	-3	40	16	0		0	0	0	30.23	12	2.1	5.2	10	03			10	9	17
18	57	46	52	0	47	13	0	1	0	.26	0	30.09	19	4.0	7.5	14	28			10	10	18
19	58	46	52	0	46	13	0		0	.01	0	30.08	32	3.4	5.8	12	28			4	7	19
20	53	48	51	-1	46	14	0	1	0	.89	0	29.87	17	6.8	10.5	23	14			10	9	20
21	55	45	50	-2	44	15	0	1	0	.54	0	29.76	27	17.1	19.0	23	27			7	7	21
22	56	45	51	-1	44	14	0	1	0	.61	0	29.80	23	10.2	11.2	24	21			7	7	22
23	58	42	50	-2	42	15	0		0	.09	0	30.08	25	6.8	8.1	15	31			7	6	23
24	58	39	49	-3	41	16	0		0	0	0	30.22	28	1.1	5.9	9	30			10	8	24
25	60	45	53	1	44	12	0	1	0	.18	0	30.13	18	2.8	6.3	21	28			10	10	25
26	57	48	53	1	44	12	0		0	0	0	30.17	30	16.2	16.5	25	30			2	3	26
27	57	42	50	-2	42	15	0		0	0	0	30.22	29	13.8	14.0	23	30			7	4	27
28	57	46	52	0	46	13	0	1	0	.62	0	29.95	21	7.7	11.5	18	29			10	10	28

SUM	SUM					TOTAL	TOTAL			TOTAL	TOTAL	FOR THE MONTH						TOTAL	T	SUM	SUM	
1622	1193					406	0	NUMBER OF DAYS		5.87	0	30.09	26	3.9	8.2	31	29		*08	264	196	
AVG	AVG	AVG	DEP	AVG		DEP	DEP	PRECIPITATION		DEP						DATE	13	FROM RECORD	2004	AVG	AVG	
57.9	42.6	50.3	-0.9	43		20	0	* .01 INCH	13	2.83										7.5	7.0	
						SEASON TO DATE		SNOW ICE PELLETS														
NUMBER OF DAYS						TOTAL	TOTAL	* 1.0 INCH	0	GREATEST IN 24 HOURS AND DATES						GREATEST DEPTH ON GROUND OF SNOW ICE PELLETS OR ICE AND DATE						
MAX MIN TEMP		MIN MIN TEMP				2245	0	THUNDERSTORMS	0	PRECIPITATION		SNOW ICE PELLETS										
*	*	* 32	* 32	* 0		DEP	DEP	HEAVY FOG	1	2.21	13	0				0						
0	0	1	1	0		196	0	CLEAR 5	PRTLY CLOUDY 8	CLOUDY 15												

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
- ALSO ON AN EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 6 AND 12 IS ARE BASED ON 7 OB

MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LST)	SKY COVER (TENTHS)	STATION PRESSURE	AVERAGES TEMPERATURE DRY BULB °F	WET BULB °F	DEW POINT °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RES. WIND DIRECTION	RES. WIND SPEED M.P.H.
01	7	30.10	47	45	42	84	7.6	27	3.5
04	7	30.09	46	44	42	87	6.5	26	3.1
07	8	30.10	46	44	42	87	6.9	23	2.0
10	8	30.13	52	48	44	77	10.0	17	9
13	7	30.10	55	50	44	67	11.8	27	4.2
16	7	30.07	56	50	44	66	11.9	28	6.7
19	6	30.08	52	48	44	76	10.4	26	7.8
22	6	30.09	50	47	43	80	8.7	26	5.5

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1														01											1
2						T																			2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12																								T	12
13	.09	.10	T	.01	.05	.05	.05	.18	.13	.20	.31	.23	.11	.14	.12	T	T	.03	.05	.01	.01	.09	.07	.03	13
14	.03	T		.01	T	T	T	.02																	14
15																	T	T			T	T	.06	.13	15
16	.08	T	T	T	.01		.01		T	T															16
17																									17
18					T	T	.08	.01		T	.11	.02		.01	.02	.01	T								18
19		T	T	T	.01	T																			19
20				T	.03	.03	.03	.03	T	.02	.06	.02	.19	.36	.05	.11				.05				.01	20
21	.25	.03	.10	.02	.07	T	.05		T	T	T	.02		T											21
22	T	.01		T		T	.02	.05	.15	.05	.17	.12	T		T			.02		.02	T				22
23	T				.01	.01	T	.05	.02								T								23
24																									24
25																			T	.08	.05	.01	.04	T	25
26																									26
27																									27
28															.01	.04	.06	.09	.14	.28	T	T			28

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel R. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA--ASHEVILLE 03/30/79 575

FEBRUARY 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT STANDARD TIME USED: PACIFIC WBAN 23230

FEBRUARY 1979 OAKLAND, CALIFORNIA

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON TO DATE)	COOLING (SEASON TO DATE)	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW, ICE PELLETS MAXIMUM DEPTH ON GROUND	PRECIPITATION WATER EQUIVALENT	SNOW, ICE PELLETS	RESULTANT SPEED	RESULTANT DIRECTION	WIND FASTEST MILE SPEED	WIND FASTEST MILE DIRECTION	SUNSHINE TOTAL	SUNSHINE PERCENT POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	SKY COVER TENTHS MIDNIGHT TO MIDNIGHT
1	60	38	44	-6	36	21	0		0	T	0	29.97	23	20	06	14	29		
2	55	38	47	-3	28	18	0		0	0	0	30.08	02	05	10	20	04		
3	54	34R	44R	-7	28	21	0		0	0	0	30.29	22	11	03	08	12		
4	58	36	47	-4	34	18	0		0	0	0	30.25	19	22	03	08	26		
5	57	38	48	-3	42	17	0		0	0	0	30.24	21	12	03	10	21		
6	58	44	51	0	44	14	0	1	0	0	0	30.27	21	21	05	12	21		
7	58	46	52	1	45	13	0	1	0	0	0	30.27	21	10	04	08	31		
8	55	48	52	-3	43	13	0	1 B	0	0	0	30.27	23	11	04	05	32		
9	62X	42	52	1	44	13	0	2	0	0	0	30.29	30	33	04	12	32		
10	57	46	52	1	48	12	0	2	0	T	0	30.20	28	24	04	07	32		
11	60	49	55	3	50	10	0	1 B	0	0	0	30.14	31	21	06	08	31		
12	61	53	57X	5	48	8	0	B	0	0	0	30.02	30	36	08	09	21		
13	57	52	55	3	50	10	0	1	0	1.22	0	29.81	15	15	26	16	25	14	
14	56	45	51	-1	42	14	0		0	.05	0	30.02	28	10	20	04	27	21	
15	58	43	51	-1	42	14	0		0	.02	0	30.09	15	10	03	05	17	19	
16	57	48	53	1	44	12	0		0	.41	0	30.15	23	49	08	01	14	15	
17	57	42	50	-2	41	15	0		0	0	0	30.26	16	35	05	06	12	13	
18	55	48	52	0	46	13	0	1	0	.32	0	30.12	17	16	11	05	21	16	
19	57	48	53	1	46	12	0		0	.07	0	30.11	23	15	04	09	10	24	
20	54	50	52	0	47	13	0		0	.80	0	29.90	18	09	13	04	25	15	
21	56	49	53	0	45	12	0		0	.45	0	29.78	26	12	09	14	27	21	
22	54	50	52	-1	44	13	0		0	.41	0	29.92	22	08	08	11	08	27	20
23	56	47	52	-1	43	13	0		0	.08	0	30.11	26	15	09	05	13	27	21
24	56	45	51	-2	43	14	0		0	0	0	30.25	21	33	06	02	12	27	23
25	59	48	54	1	48	11	0	1	0	.20	0	30.15	16	19	09	09	16	14	10
26	58	48	53	0	46	12	0	1	0	.05	0	30.18	20	30	13	11	17	20	5
27	57	47	52	-1	45	13	0		0	0	0	30.25	28	36	07	11	14	26	5
28	57	48	53	0	47	12	0	1	0	.11	0	29.97	20	50	10	04	15	24	10

SUM	SUM				TOTAL	TOTAL	NUMBER OF DAYS		TOTAL	TOTAL	FOR THE MONTH					TOTAL		SUM	SUM
1508	1261				387	0	PRECIPITATION		4.79	0	30.12	23	25	08	09	25	15	201	210
AVG	AVG	AVG	DEP	AVG	DEP	DEP	.01 INCH	13	DEP							DATE	20	MINUTES	AVG
56.7	45.0	50.9	1.0	43	20	0	SNOW, ICE PELLETS		1.96										3.6
					SEASON TO DATE		1.0 INCH	0	GREATEST IN 24 HOURS AND DATES			GREATEST DEPTH ON GROUND AT 9AM							
NUMBER OF DAYS					TOTAL	TOTAL	THUNDERSTORMS	0	PRECIPITATION		SNOW, ICE PELLETS	ICE PELLETS ON ICE ON DATE							
MAXIMUM TEMP		MINIMUM TEMP			2207	0	HEAVY FOG	2	1.22	13	0	0							
90	32	30	1	0	DEP	DEP	CLEAR 2		FAIR 7	CLOUDY 22		CLOUDY 14							
0	0	0	1	0	25	0													

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
- 8:50 PM ON EARLIER DATE, OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 5 AND 12-15 ARE BASED ON 7 OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR ENDING	SUNRISE (PST)	SUNSET (PST)	TEMPERATURE AVG	TEMPERATURE DEP	TEMPERATURE DEW POINT	RELATIVE HUMIDITY	WIND SPEED	RESULTANT DIRECTION	RESULTANT SPEED
01	6	30	49	46	42	77	5	20	1.7
04	6	30	47	44	41	78	6	14	1.8
07	7	30	47	44	41	80	7	15	2.4
10	7	30	51	47	43	76	8	17	4.4
13	7	30	54	49	45	71	8	23	4.0
16	7	30	56	50	46	67	9	22	5.4
19	6	30	53	49	44	71	8	21	5.1
22	6	30	51	47	43	75	7	22	3.7

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	21 - 22	22 - 23	23 - 24	DAY
1																									1
2																									2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10			T	T																					10
11																									11
12																									12
13	T	.01	T	T	.02	.02	.01	.02	.04	.15	.14	.13	.12	.09	.13	.01	T	T	.01	.02	T	.03	.18	.03	13
14	T	T			.01		.02	.02										T			T	T	.02		14
15																									15
16	.24	.05	.01	.01	T	.01	.07				.02											T			16
17																									17
18							.11	.05	T	T	.01	.03	.03	.01	.07	.01									18
19	T	T	.01	T																					19
20				T	.02	.02	.04	.03	T	.01	.08	T	.07	.20	.18	.11	.02							.02	20
21	.14	.04	.10	.03	.05	T	.06	.01	T	.01		.01	T										.01	T	21
22	.05							.03	.16	.10	.02	.08	T	.02											22
23							T	.02	.01																23
24																									24
25																	.02	.10	.01	.08	.02				25
26	.05																								26
27																									27
28													.03	.03	.05	.15	.08	.21	.10	T					28

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 03-30-79 500

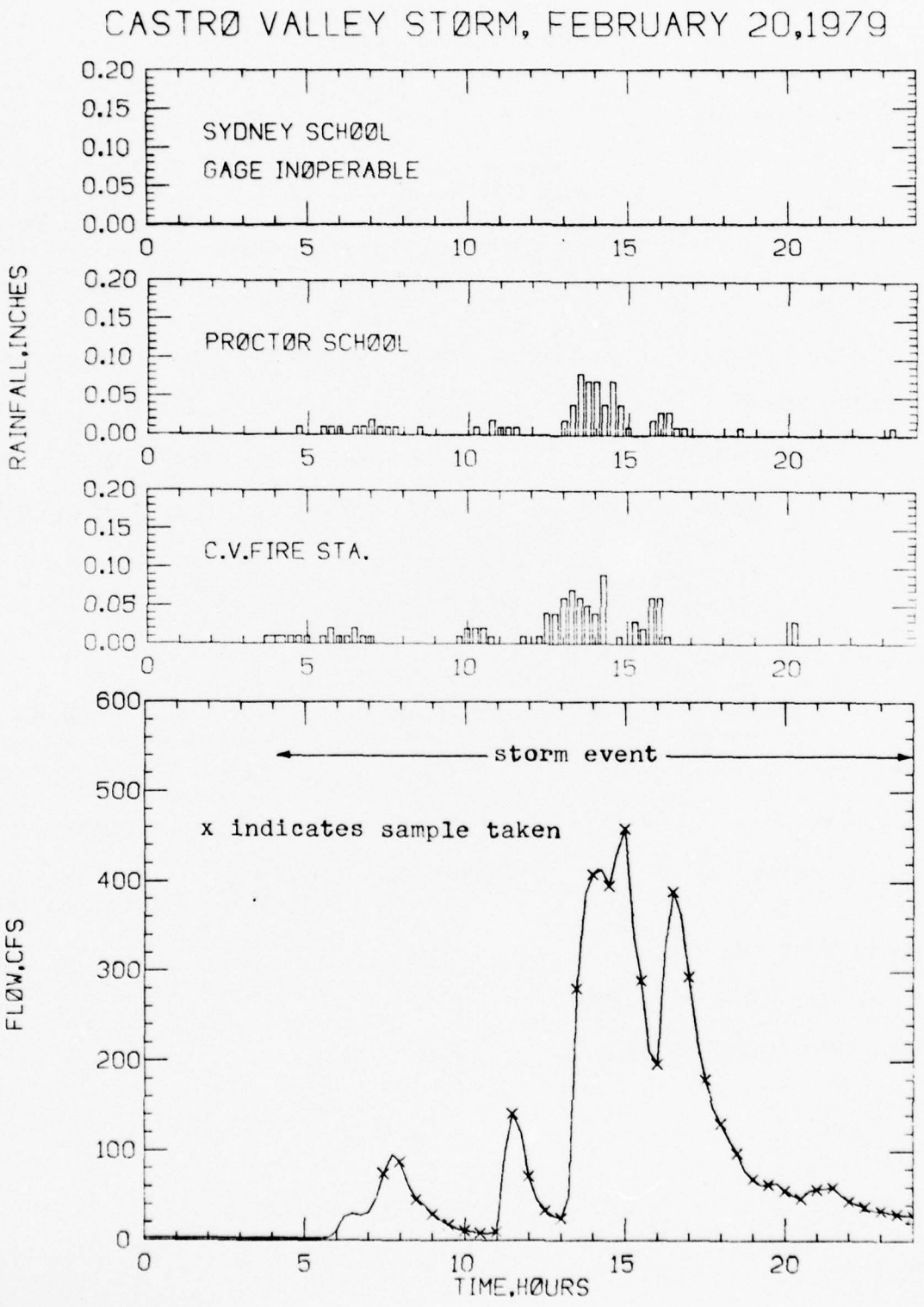
STORM EVENT REPORT NO. 10
February 20-21, 1979

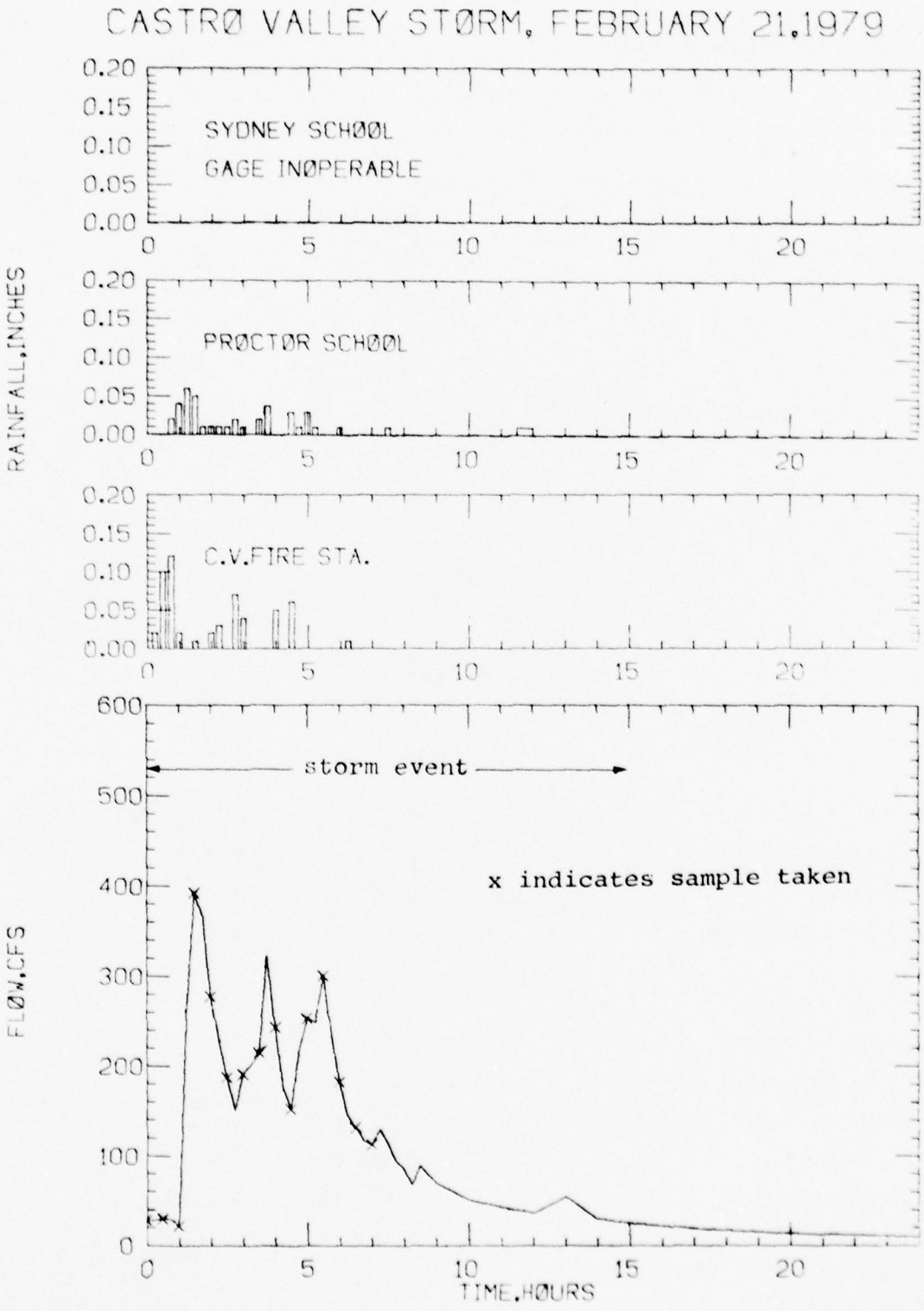
1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	1.45	0400	20 Feb 79	0615	21 Feb 79
2. Proctor School	1.15	0445	20 Feb 79	1145	21 Feb 79
3. Sydney School	--	--	--	--	--
4. San Francisco Airport	1.53	0400	20 Feb 79	1200	21 Feb 79
5. Oakland Airport	1.25	0400	20 Feb 79	1200	21 Feb 79

2. Creek Flow Summary

Discharge Condition	Value	Time	Date
Maximum, cfs	459.2	1500	20 Feb 79
Average, cfs	113.0	--	20 Feb 79
Total volume, ft^3	14,200,600	from 0400 to 1500	20 Feb 79 21 Feb 79
Prior to storm, cfs	2.90		
Average (previous 7 days), cfs	23.7		
Average (previous 30 days), cfs	5.86		


CASTRØ VALLEY STØRM, FEBRUARY 20,1979
RAINFALL,INCHES
SYDNEY SCHØØL
GAGE INØPERABLE
PRØCTØR SCHØØL
C.V.FIRE STA.
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
FLØW,CFS
600
500
400
300
200
100
0
storm event
x indicates sample taken
TIME,HØURS


CASTRØ VALLEY STØRM, FEBRUARY 21,1979
RAINFALL,INCHES
SYDNEY SCHØØL
GAGE INØPERABLE
PRØCTØR SCHØØL
C.V.FIRE STA.
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
FLØW,CFS
storm event
x indicates sample taken
600
500
400
300
200
100
0
TIME,HOURS

3. Sampling Analysis Results

Flow Weighted Composite

Parameter	Unit	Value
Chemical oxygen demand	mg/l	45
Total nitrogen as N	mg/l	3.8
Lead	mg/l	<0.1
Chromium	mg/l	<0.6
Copper	mg/l	0.04
Total ortho phosphorus as P	mg/l	0.28
Suspended Solids	mg/l	204
Volatile suspended solids	mg/l	56

Discrete Sample

Parameter	Unit	Value
Date and Time	--	20 Feb 1700
Instantaneous flowrate	cfs	294.5
Temperature	DegC	--
Specific Conductance	µmho/cm	160
pH	--	6.4
Settleable solids	ml/l	0.1
Suspended Solids	mg/l	43
Volatile Suspended solids	mg/l	8
Biochemical oxygen demand (5 day)	--	--
Total coliform	MPN/100ml	4.6×10^4
Fecal coliform	MPN/100ml	9.3×10^3

4. Observations at Sampling Station During Event.

   Flow records during this storm event are affected slightly by a car body lodged approximately 100 feet downstream of the sampling control section.

5. Observations in Tributary Area During Event.

   No significant events occurred during the sampling period.

6. Comments on Storm Event.

   1. The raingage at Sydney School was inoperable from February 17 to March 8.

   2. The total rainfall for this event was more than 1.00 inch.

   3. Flow response at the gaging station occurs within a half hour following a change in the rainfall.

   4. The runoff period for this storm event began with the first recorded rainfall at 0400 on February 20 and ended three hours after the last recorded rainfall at 1500 on February 21.

   5. A flow-weighted composite sample and a single discrete grab sample were analyzed for this event.

   6. Samples used in the composite sample analysis were taken at half hour intervals from 0730 to 2400 on February 20 and from 0030 to 0700 on February 21 as indicated by X's on the flow plot.

STORM EVENT 10 - FEBRUARY 20-21, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-20-79	3:00	1.68	3.02				
2-20-79	4:00	1.68	3.02		0.01		
2-20-79	4:15	1.68	3.02				
2-20-79	4:30	1.67	2.88		0.01		
2-20-79	4:45	1.67	2.88		0.01	0.01	
2-20-79	5:00	1.67	2.88		0.01		
2-20-79	5:15	1.67	2.88				
2-20-79	5:30	1.67	2.88		0.01	0.01	
2-20-79	5:45	1.70	3.32		0.02	0.01	
2-20-79	6:00	1.97	9.78		0.01	0.01	
2-20-79	6:15	2.29	26.7		0.01		
2-20-79	6:30	2.33	29.8		0.02	0.01	
2-20-79	6:45	2.31	28.2		0.01	0.01	
2-20-79	7:00	2.35	31.4		0.01	0.02	
2-20-79	7:15	2.51	46.8			0.01	
2-20-79	7:30	2.74	74.3	YES		0.01	
2-20-79	7:45	2.89	95.0			0.01	
2-20-79	8:00	2.84	87.8	YES			
2-20-79	8:15	2.64	61.9				
2-20-79	8:30	2.50	45.7	YES		0.01	
2-20-79	8:45	2.44	39.5				
2-20-79	9:00	2.33	29.8	YES			
2-20-79	9:15	2.24	23.1				
2-20-79	9:30	2.16	18.3	YES			
2-20-79	9:45	2.07	13.7		0.01		
2-20-79	10:00	2.01	11.3	YES	0.02		
2-20-79	10:15	1.97	9.78		0.02	0.01	
2-20-79	10:30	1.94	8.75	YES	0.02		
2-20-79	10:45	1.92	8.11		0.01	0.02	
2-20-79	11:00	1.99	10.5	YES		0.01	
2-20-79	11:15	2.91	97.9			0.01	
2-20-79	11:30	3.20	141.6	YES		0.01	
2-20-79	11:45	3.06	120.5		0.01		
2-20-79	12:00	2.72	71.7	YES			
2-20-79	12:15	2.50	45.7		0.01		
2-20-79	12:30	2.38	34.0	YES	0.04		
2-20-79	12:45	2.30	27.5		0.04		
2-20-79	13:00	2.27	25.3	YES	0.06	0.02	
2-20-79	13:15	2.54	50.1		0.07	0.04	
2-20-79	13:30	4.05	280.8	YES	0.06	0.08	
2-20-79	13:45	4.74	386.3		0.05	0.07	
2-20-79	14:00	4.90	408.0	YES	0.04	0.07	

STORM EVENT 10 - FEBRUARY 20-21, 1979 STORM DATA
(Continued)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-20-79	14:15	4.94	413.4		0.09	0.04	
2-20-79	14:30	4.81	395.6	YES		0.07	
2-20-79	14:45	5.09	434.1		0.01	0.04	
2-20-79	15:00	5.27	459.2	YES		0.01	
2-20-79	15:15	4.47	346.1		0.03		
2-20-79	15:30	4.11	289.8	YES	0.02		
2-20-79	15:45	3.61	211.0		0.06	0.02	
2-20-79	16:00	3.53	196.7	YES	0.06	0.03	
2-20-79	16:15	4.34	325.5		0.01	0.03	
2-20-79	16:30	4.76	389.0	YES		0.01	
2-20-79	16:45	4.56	360.9			0.01	
2-20-79	17:00	4.14	294.5	YES			
2-20-79	17:15	3.70	224.8				
2-20-79	17:30	3.43	179.3	YES			
2-20-79	17:45	3.24	148.0				
2-20-79	18:00	3.13	130.8	YES			
2-20-79	18:15	3.01	113.4				
2-20-79	18:30	2.91	97.9	YES		0.01	
2-20-79	18:45	2.77	78.3				
2-20-79	19:00	2.70	69.1	YES			
2-20-79	19:15	2.64	61.9				
2-20-79	19:30	2.65	63.1	YES			
2-20-79	19:45	2.66	64.3				
2-20-79	20:00	2.59	56.1	YES			
2-20-79	20:15	2.55	51.3		0.03		
2-20-79	20:30	2.52	47.9	YES			
2-20-79	20:45	2.59	56.1				
2-20-79	21:00	2.60	57.4	YES			
2-20-79	21:15	2.61	58.5				
2-20-79	21:30	2.62	59.6	YES			
2-20-79	21:45	2.55	51.3				
2-20-79	22:00	2.49	44.6	YES			
2-20-79	22:15	2.46	41.5				
2-20-79	22:30	2.43	38.6	YES			
2-20-79	22:45	2.39	34.9				
2-20-79	23:00	2.38	34.0	YES			
2-20-79	23:15	2.36	32.3			0.01	
2-20-79	23:30	2.34	30.6	YES			
2-20-79	23:45	2.32	29.0				
2-20-79	24:00	2.32	29.0	YES			
2-21-79	0:15	2.32	29.0		0.02		
2-21-79	0:30	2.34	30.6	YES	0.10		
2-21-79	0:45	2.33	29.8		0.12	0.02	

STORM EVENT 10 - FEBRUARY 20-21, 1979 STORM DATA
(Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-21-79	1:00	2.23	22.6	YES	0.02	0.04	
2-21-79	1:15	3.92	260.1			0.06	
2-21-79	1:30	4.79	393.0	YES	0.01	0.05	
2-21-79	1:45	4.59	365.8			0.01	
2-21-79	2:00	4.03	277.8	YES	0.02	0.01	
2-21-79	2:15	3.73	229.4		0.03	0.01	
2-21-79	2:30	3.48	187.9	YES		0.01	
2-21-79	2:45	3.26	151.3		0.07	0.02	
2-21-79	3:00	3.50	191.4	YES	0.04	0.01	
2-21-79	3:15	3.69	223.2			0.04	
2-21-79	3:30	3.64	215.5	YES		0.02	
2-21-79	3:45	4.32	322.3				
2-21-79	4:00	3.82	243.7	YES	0.05		
2-21-79	4:15	3.41	175.9				
2-21-79	4:30	3.27	153.0	YES	0.06	0.03	
2-21-79	4:45	3.65	217.1			0.01	
2-21-79	5:00	3.88	253.5	YES		0.03	
2-21-79	5:15	3.85	248.6			0.01	
2-21-79	5:30	4.18	300.6	YES			
2-21-79	5:45	3.76	234.2				
2-21-79	6:00	3.45	182.7	YES		0.01	
2-21-79	6:15	3.23	146.4		0.01		
2-21-79	6:30	3.14	132.3	YES			
2-21-79	6:45	3.04	117.6				
2-21-79	7:00	3.01	113.4	YES			
2-21-79	7:15	3.12	129.3				
2-21-79	7:30	3.02	114.8			0.01	
2-21-79	7:45	2.89	95.0				
2-21-79	8:00	2.83	86.5				
2-21-79	8:15	2.79	67.9				
2-21-79	8:30	2.85	89.2				
2-21-79	9:00	2.71	70.4				
2-21-79	10:00	2.55	51.3				
2-21-79	11:00	2.48	43.6				
2-21-79	11:45	2.43	38.6			0.01	
2-21-79	12:00	2.41	36.7				
2-21-79	13:00	2.58	54.9				
2-21-79	14:00	2.34	30.6				
2-21-79	15:00	2.27	25.3				

FEBRUARY 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) BAR. STANDARD TIME USED: PACIFIC WBAN 023234

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (MONTHLY TOTALS IN PARENTHESES)	COOLING (MONTHLY TOTALS IN PARENTHESES)	WEATHER TYPES OR DATES OF OCCURRENCE 1: FOG 2: HEAVY FOG 3: THUNDERSTORM 4: ICE PELLETS 5: HAIL 6: GLAZE 7: DUSTSTORM 8: SMOKE, HAZE 9: BLOWING SNOW	SNOW ICE PELLETS DEPTH ON GROUND AT 0AM IN.	PRECIPITATION WATER EQUIV. IN.	SNOW ICE PELLETS IN.	RAIN STATION PRESS SURF IN. ELEV. 10 FEET MSL	WIND RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	SUNSET TO SUNRISE	WX
1	51	35	43*	-7	36	22	0		0	0	0	29.94	27	5.7	9.2	15	30			8	7	
2	53	38	46	-4	32	19	0		0	T	0	30.05	02	6.3	10.1	18	04			2	2	
3	58	32*	45	-5	28	20	0		0	0	0	30.26	26	2.6	6.0	10	31			5	3	
4	61	36	49	-1	35	16	0		0	0	0	30.22	32	3.1	5.2	9	29			1	6	
5	60	40	50	0	45	15	0	8	0	0	0	30.21	30	6.6	8.3	16	28			8	6	
6	60	44	52	2	47	13	0		0	0	0	30.25	29	8.9	10.6	18	29			8	5	
7	59	41	50	-1	45	15	0	1 8	0	0	0	30.24	34	4.0	6.3	14	28			10	10	
8	55	40	48	-3	43	17	0	1 8	0	0	0	30.25	27	3.6	6.6	12	29			10	8	
9	63*	41	52	1	44	13	0	1 8	0	0	0	30.26	32	3.9	6.5	15	30			6	7	
10	61	45	53	2	48	12	0	2 8	0	0	0	30.17	36	1.8	6.6	14	30			10	10	
11	60	48	54	3	50	11	0	1 8	0	0	0	30.12	01	1.7	4.8	9	02			10	10	
12	61	51	56*	5	48	9	0	1 8	0	T	0	30.01	17	7.9	10.6	22	20			10	10	
13	59	48	54	3	51	11	0	1	0	2.21	0	29.78	27	8.2	11.5	31	29			10	10	
14	58	42	49	-2	41	16	0		0	.06	0	30.01	28	12.3	13.7	25	29			3	4	
15	61	38	50	-1	42	15	0	1	0	.19	0	30.06	17	9.5	11.5	18	29			6	6	
16	58	44	51	0	44	14	0		0	.10	0	30.13	25	7.4	8.8	21	29			3	6	
17	59	38	49	-3	40	16	0		0	0	0	30.23	12	2.1	5.2	10	03			10	9	
18	57	46	52	0	47	13	0	1	0	.26	0	30.09	18	4.0	7.5	14	26			10	10	
19	58	46	52	0	46	13	0		0	.01	0	30.08	32	3.4	5.6	12	28			4	7	
20	53	48	51	-1	46	14	0	1	0	.99	0	29.87	17	6.8	10.5	23	14			10	9	
21	55	45	50	-2	44	15	0	1	0	.54	0	29.76	27	17.1	19.0	23	27			7	7	
22	58	45	51	-1	45	14	0	1	0	.61	0	29.90	23	10.2	11.2	24	21			7	7	
23	58	42	50	-2	42	15	0		0	.09	0	30.08	25	6.9	8.1	15	31			7	6	
24	59	39	49	-3	41	16	0		0	0	0	30.22	29	1.1	5.8	9	30			10	8	
25	60	45	53	1	44	12	0	1	0	.18	0	30.13	18	2.9	6.3	21	28			10	10	
26	57	48	53	1	44	12	0		0	0	0	30.17	30	16.2	18.5	25	30			2	3	
27	57	42	50	-2	42	15	0		0	0	0	30.22	29	13.8	14.0	23	30			7	4	
28	57	46	52	0	46	13	0	1	0	.62	0	29.95	21	7.7	11.5	18	29			10	10	

SUM	SUM					TOTAL	TOTAL			TOTAL	TOTAL								TOTAL		SUM	SUM		
1622	1193					406	0	NUMBER OF DAYS		5.87	0	30.09	26	3.9	9.2	31	29				454	196		
AVG		AVG	DEP	AVG		DEP	DEP	PRECIPITATION		DEP							DATE	13		MIN	AVG	MAX		
57.9	42.6	50.3	-0.9	43		20	0	.01 INCH	13	2.83											7.3	7.0		
SEASON TO DATE								SNOW ICE PELLETS																
NUMBER OF DAYS						TOTAL	TOTAL	.1 INCH	0	GREATEST IN 24 HOURS AND DATES									GREATEST DEPTH ON GROUND OF SNOW					
MAXIMUM TEMP		MINIMUM TEMP				2245	0	THUNDERSTORMS	0	PRECIPITATION			SNOW ICE PELLETS						ICE PELLETS OR ICE AND DATE					
90°	32°	32°	0°			DEP	DEP	HEAVY FOG	1	2.21	13		0						0					
0	0	1	0			196	0	CLEAR 5	PARTLY CLOUDY 8		CLOUDY 15													

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON EARLIER DATE, OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 6 AND 12 ARE BASED ON 7 OB

MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LST)	SKY COVER TENTHS	STATION PRESSURE IN.	AVERAGES TEMPERATURE DRY BULB °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	7	30.10	47	45	42	84	7.6	27	3.5
04	7	30.09	46	44	42	87	6.5	26	3.1
07	8	30.10	46	44	42	87	6.8	23	2.0
10	8	30.13	52	48	44	77	10.0	17	9
13	7	30.10	55	50	44	67	11.8	27	4.2
16	7	30.07	56	50	44	66	11.9	28	6.7
19	6	30.08	52	48	44	76	10.4	26	7.8
22	6	30.09	50	47	43	80	8.7	26	5.0

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DY
1						T								.01											1
2																									2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12																								T	12
13	.08	.10	T	.01	.05	.05	.05	.18	.13	.28	.31	.23	.11	.14	.12	T	T	.03	.05	.07	.01	.08	.07	.03	13
14	.03	T		.01	T	T	T	.02									T	T			T	T	.06	.13	14
15																									15
16	.08	T	T	T	.01		.01		T	T															16
17																									17
18					T	T	.08	.01		T	.11	.02		.01	.02	.01	T								18
19		T	T	T	.01	T																			19
20				T	.03	T	.03	.03	T	.02	.06	.02	.19	.36	.05	.11				.05				.01	20
21	.25	.03	.10	.02	.07	T	.05	T	T	T	T	.02		T											21
22	T	.01		T		T	.02	.05	.15	.05	.17	.12	T		T			.02		.02	T				22
23	T				.01	.01	T	.05	.02								T								23
24																									24
25																			T	.08	.05	.01	.04	T	25
26																									26
27																									27
28															.01	.04	.06	.09	.14	.28	T	T			28

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 09/30/79 575

FEBRUARY 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT STANDARD TIME USED: PACIFIC WBAN 023230

DY	TEMPERATURE °F MAX	MIN	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON TO DATE)	COOLING (SEASON TO DATE)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUST/SAND 8 SMOKE/HAZE 9 BLOWING SNOW	SNOW ICE PELLETS ON ICE ON GROUND AT 0600 GMT IN	PRECIPITATION WATER EQUIV IN	SNOW ICE PELLETS IN	ATM PRESS SEA LEVEL AVG FOR HOUR IN MB	WIND DIR AVG FOR HOUR	SPEED AVG FOR HOUR	SPEED AVG FOR DAY	FASTEST MI SPEED	DIR	SUNSHINE POSSIBLE	PERCENT OF POSSIBLE	SKY COVER TENTHS	
1	50	38	44	-6	36	21	0		0	T	0	29.97	23	2.0	8.6	14	28				
2	55	38	47	-3	28	18	0		0	0	0	30.08	02	9.5	10.2	20	04				
3	54	34R	44R	-7	26	21	0		0	0	0	30.29	22	1.2	5.3	9	32				
4	58	36	47	-4	34	18	0		0	0	0	30.25	16	2.2	5.3	8	26				
5	57	38	48	-3	42	17	0		0	0	0	30.24	23	1.2	3.7	10	27				
6	58	44	51	0	35	14	0	1	0	0	0	30.27	21	2.3	5.6	12	27				
7	57	46	52	1	35	13	0	1	0	0	0	30.27	30	0.4	5.8	9	31				
8	55	40	48	-3	43	17	0	1 8	0	0	0	30.27	23	1.7	4.5	10	27				
9	62X	42	52	1	44	13	0	2	0	0	0	30.29	30	3.3	4.2	12	32				
10	57	48	53	1	48	12	0	2	0	T	0	30.20	28	2.4	4.0	7	32				
11	60	49	55	3	50	10	0	1 8	0	0	0	30.14	31	2.1	4.6	8	17				
12	61	53	57X	5	48	8	0	8	0	0	0	30.02	30	3.5	8.9	20	22				
13	57	52	55	3	50	10	0	1	0	1.22	0	29.81	15	25.2	38.0	25	14				
14	56	45	51	-1	42	14	0		0	.05	0	30.02	28	10.2	10.4	23	27				
15	58	43	51	-1	42	14	0		0	.02	0	30.09	15	10.0	11.5	17	18				
16	57	48	53	1	44	12	0		0	.41	0	30.15	23	4.9	8.1	14	15				
17	57	42	50	-2	41	15	0		0	0	0	30.26	16	3.5	5.6	12	13				
18	55	48	52	0	46	13	0	1	0	.32	0	30.12	17	7.6	11.5	23	28				
19	57	48	53	1	46	12	0		0	.07	0	30.11	23	1.5	4.9	10	24				
20	54	50	52	0	47	13	0		0	.80	0	29.80	16	9.3	11.4	25	35				
21	56	48	53	0	45	12	0		0	.45	0	29.78	28	12.8	14.5	23	22				
22	54	50	52	-1	44	13	0		0	.41	0	29.92	22	8.8	11.8	17	20				
23	56	47	52	-1	43	13	0		0	.08	0	30.11	26	5.9	7.3	13	21				
24	56	45	51	-2	43	14	0		0	0	0	30.25	21	3	6.2	12	27				
25	58	48	54	1	48	11	0	1	0	.20	0	30.15	16	1.9	5.9	16	14				
26	58	48	53	0	45	12	0	1	0	.05	0	30.18	29	10.5	11.1	17	28				
27	57	43	50	-3	43	15	0		0	0	0	30.25	28	3.6	7.1	14	25				
28	57	49	53	0	47	12	0	1	0	.71	0	29.97	20	5.0	10.4	15	24				
	SUM	SUM				TOTAL	TOTAL			TOTAL	TOTAL		FOR THE MONTH					TOTAL		SUM	SUM
	1588	1261				387	0	NUMBER OF DAYS		4.79	0	30.12	23	2.5	8.0	25	15	FOR		403	18
	AVG	AVG	AVG	DEP	AVG	DEP	DEP	PRECIPITATION .01 INCH OR MORE	13	DEP						DATE	20	THIS MONTH		AVG	AVG
	56.7	45.0	50.9	-1.0	43	20	0			1.96										3.7	6.4
	SEASON TO DATE					TOTAL	TOTAL	SNOW ICE PELLETS 1.0 INCH OR MORE	0	GREATEST IN 24 HOURS AND DATES						GREATEST DEPTH ON GROUND OF SNOW					
	NUMBER OF DAYS					2207	0	THUNDERSTORMS	0	PRECIPITATION		SNOW ICE PELLETS				ICE PELLETS ON ICE ENC DATE					
	MAXIMUM TEMP		MINIMUM TEMP			DEP	DEP	HEAVY FOG	2	1.22	13	0				0					
	0	0	0	0		25	0	CLEAR 2 PARTLY CLOUDY 12 CLOUDY 14													

FEBRUARY 1979 OAKLAND, CALIFORNIA

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ OR - IN AN ERR..EP DATE, OR DATES
HEAVY FOG VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM DATA IN COLS 8 AND 12-15 ARE BASED ON 7 OB

MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (PST)	SKY COVER TENTHS	STATION PRESSURE	TEMPERATURE °F DRY BULB	WET BULB	DEW POINT	RELATIVE HUMIDITY	WIND SPEED	WIND DIRECTION	PRECIP WATER EQUIV IN
01	5	30.12	49	45	42	77	7.5	20	.17
04	6	30.11	47	44	41	78	6.6	24	1.18
07	7	30.13	47	44	41	80	7.6	15	2.44
10	7	30.15	51	47	43	76	8.7	17	4.44
13	7	30.12	54	49	45	73	8.7	23	4.10
16	7	30.09	56	50	45	67	9.2	26	5.44
19	6	30.10	53	49	44	73	8.7	27	5.66
22	6	30.13	51	47	43	76	7.4	22	3.77

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DY
1												T													1
2																									2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10		T	T																						10
11																									11
12																									12
13	T	.07	T	T	.02	.02	.01	.02	.04	.16	.14	.13	.12	.09	.13	.01	T	T	.01	.02	T	.03	.18	.03	13
14	T	T			.01		.02	.02										T				T	T	.02	14
15																									15
16	.24	.05	.01	.01	T	.01	.07				.02														16
17																									17
18							.11	.05	T	T	.01	.03	.03	.01	.07	.01						T			18
19	T	T	.07	T																					19
20				T	.02	.02	.04	.03	T	.01	.08	T	.07	.20	.18	.11	.02							.02	20
21	.14	.04	.10	.03	.05	T	.06	.01	T	.01		.01		T											21
22								.03	.15	.10	.02	.08	T	.02									.01	T	22
23	.05						T	.02	.01																23
24																									24
25																			.02	.10	.01	.05	.02		25
26	.05																								26
27																									27
28															.03	.03	.05	.15	.08	.27	.10	T			28

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 03-30-79 500

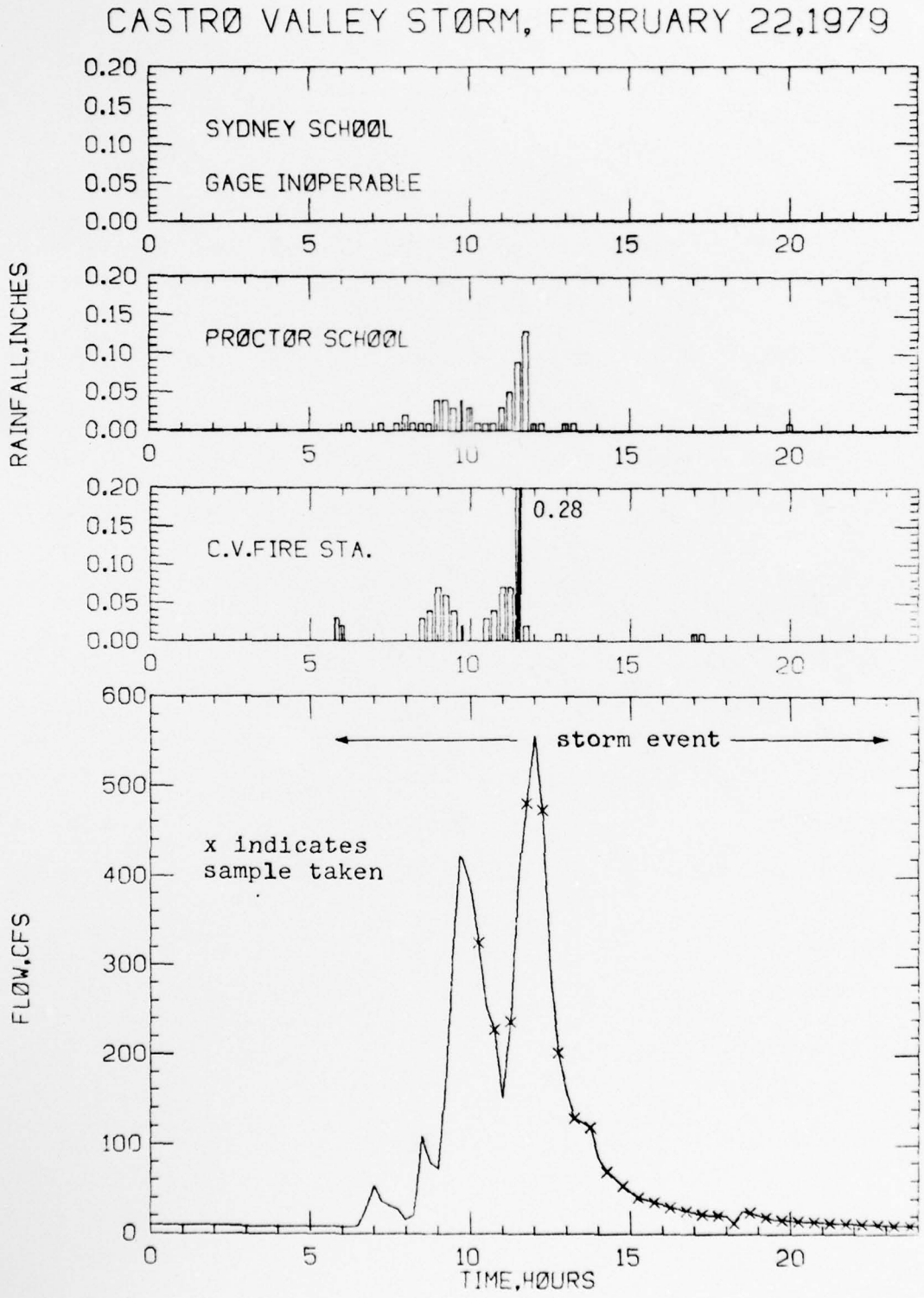
STORM EVENT REPORT NO. 11
February 22, 1979

1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	0.85	0545	22 Feb 79	1715	22 Feb 79
2. Proctor School	0.64	0615	22 Feb 79	2000	22 Feb 79
3. Sydney School	--	--	--	--	--
4. San Francisco Airport	0.62	0000	22 Feb 79	2000	22 Feb 79
5. Oakland Airport	0.41	0800	22 Feb 79	1400	22 Feb 79

2. Creek Flow Summary

Discharge	Value	Time	Date
Maximum, cfs	556.1	1200	22 Feb 79
Average, cfs	105.0	--	22 Feb 79
Total volume, ft^3	6,513,000	from 0545 to 2300	22 Feb 79
Prior to storm, cfs	10.5		
Average (previous 7 days), cfs	36.9		
Average (previous 30 days), cfs	11.1		


CASTRØ VALLEY STØRM, FEBRUARY 22,1979
RAINFALL,INCHES
SYDNEY SCHØØL
GAGE INØPERABLE
PRØCTØR SCHØØL
C.V.FIRE STA.
0.28
FLØW,CFS
storm event
x indicates
sample taken
TIME,HØURS

3. Sampling Analysis Results

Flow Weighted Composite

Parameter	Unit	Value
Chemical oxygen demand	mg/L	68
Total nitrogen as N	mg/L	7.4
Lead	mg/L	0.1
Chromium	mg/L	<0.06
Copper	mg/L	0.06
Total ortho phosphorus as P	mg/L	0.42
Suspended solids	mg/L	335
Volatile suspended solids	mg/L	55

Discrete Sample

Parameter	Unit	Value
Date and time	--	22 Feb 1010
Instantaneous flow rate	cfs	341.4
Temperature	DegC	9.0
Specific conductance	µmho/cm	110
pH	--	6.8
Settleable solids	ml/L	0.2
Suspended solids	mg/L	212
Volatile suspended solids	mg/L	35
Biochemical oxygen demand (BOD)	mg/L	5
Total coliform	MPN/100 mL	--
Fecal coliform	MPN/100 mL	--

4. Observations at Sampling Station During Event.

   Flow records during this storm event are affected slightly by a car body lodged approximately 100 feet downstream of the sampling control section. At approximately noon, the high stream flow was sufficient to carry the car body downstream beyond the confluence with San Lorenzo Creek.

5. Observations in Tributary Area During Event.

   Nothing significant to report.

6. Comments on Storm Event.

   1. The raingage at Sydney School was inoperable from February 17 to March 8.

   2. Flow response at the gaging station occurs within one half hour following a change in the rainfall rate.

   3. A flow weighted composite sample and a single discrete grab sample were analyzed for this event.

   4. Samples used in the composite sample analysis were taken at half hour intervals from 1015 to 2345 as indicated by X's on the flow plot.

STORM EVENT 11 - FEBRUARY 22, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-22-79	5:00	1.94	8.75				
2-22-79	5:45	1.93	8.43		0.03		
2-22-79	6:00	1.93	8.43		0.02		
2-22-79	6:15	1.93	8.43			0.01	
2-22-79	6:30	1.95	9.09				
2-22-79	6:45	2.28	26.0				
2-22-79	7:00	2.57	53.7				
2-22-79	7:15	2.41	36.7			0.01	
2-22-79	7:30	2.35	31.4				
2-22-79	7:45	2.30	27.5			0.01	
2-22-79	8:00	2.12	16.1			0.02	
2-22-79	8:15	2.21	21.3			0.01	
2-22-79	8:30	2.98	108.8		0.03	0.01	
2-22-79	8:45	2.78	79.6		0.04	0.01	
2-22-79	9:00	2.73	73.0		0.07	0.04	
2-22-79	9:15	3.41	175.9		0.06	0.04	
2-22-79	9:30	4.47	346.1		0.04	0.03	
2-22-79	9:40	5.00	421.7				
2-22-79	9:45	4.98	418.9		0.02	0.04	
2-22-79	10:00	4.74	386.3			0.03	
2-22-79	10:15	4.34	325.5	YES		0.01	
2-22-79	10:30	3.87	251.8		0.03	0.01	
2-22-79	10:45	3.72	227.9	YES	0.04	0.01	
2-22-79	11:00	3.26	151.3		0.07	0.03	
2-22-79	11:15	3.78	237.3	YES	0.07	0.05	
2-22-79	11:30	4.84	399.8		0.28	0.09	
2-22-79	11:45	5.43	481.0	YES	0.02	0.13	
2-22-79	12:00	6.08	556.1			0.01	
2-22-79	12:15	5.37	473.3	YES		0.01	
2-22-79	12:30	4.11	289.8				
2-22-79	12:45	3.56	202.2	YES	0.01		
2-22-79	13:00	3.29	156.3			0.01	
2-22-79	13:15	3.12	129.3	YES		0.01	
2-22-79	13:30	3.09	124.8				
2-22-79	13:45	3.05	119.0	YES			
2-22-79	14:00	2.82	85.1				
2-22-79	14:15	2.71	70.4	YES			
2-22-79	14:30	2.65	63.1				
2-22-79	14:45	2.57	53.7	YES			
2-22-79	15:00	2.51	46.8				
2-22-79	15:15	2.46	41.5	YES			
2-22-79	15:30	2.43	38.6				

STORM EVENT 11 - FEBRUARY 22, 1979 STORM DATA
(Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-22-79	15:45	2.40	35.8	YES			
2-22-79	16:00	2.37	33.1				
2-22-79	16:15	2.34	30.6	YES			
2-22-79	16:30	2.31	28.2				
2-22-79	16:45	2.28	26.0	YES			
2-22-79	17:00	2.26	24.6		0.01		
2-22-79	17:15	2.23	22.6	YES	0.01		
2-22-79	17:30	2.21	21.3				
2-22-79	17:45	2.21	21.3	YES			
2-22-79	18:00	2.20	20.6				
2-22-79	18:15	2.06	13.3	YES			
2-22-79	18:30	2.28	26.0				
2-22-79	18:45	2.26	24.6	YES			
2-22-79	19:00	2.21	21.3				
2-22-79	19:15	2.18	19.4	YES			
2-22-79	19:30	2.14	17.1				
2-22-79	19:45	2.12	16.1	YES			
2-22-79	20:00	2.11	15.6			0.01	
2-22-79	20:15	2.10	15.1	YES			
2-22-79	20:30	2.09	14.6				
2-22-79	20:45	2.08	14.2	YES			
2-22-79	21:00	2.07	13.7				
2-22-79	21:15	2.06	13.3	YES			
2-22-79	21:30	2.04	12.5				
2-22-79	21:45	2.03	12.1	YES			
2-22-79	22:00	2.02	11.7				
2-22-79	22:15	2.02	11.7	YES			
2-22-79	22:30	2.01	11.3				
2-22-79	22:45	2.00	10.9	YES			
2-22-79	23:00	1.99	10.5				
2-22-79	23:15	1.99	10.5	YES			
2-22-79	23:30	1.98	10.1				
2-22-79	23:45	1.97	9.78	YES			
2-22-79	24:00	1.97	9.78				

FEBRUARY 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) BY STANDARD TIME USED: PACIFIC WBAN 23234

FEBRUARY 1979 SAN FRANCISCO, CALIFORNIA

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON TO DATE)	COOLING (SEASON TO DATE)	WEATHER TYPES OR DATES OF OCCURRENCE	SNOW ICE PELLETS ON GROUND DEPTH IN	PRECIPITATION WATER EQUIV. IN.	SNOW ICE PELLETS IN.	AVG STATION PRESS SEA LVL IN.	WIND DIR.	RESULTANT SPEED	AVERAGE SPEED	FASTEST MI. SPEED	FASTEST MI. DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	SUNSET TO SUNRISE	
1	53	35	44*	-7	36	22	0		0	.01	0	29.84	27	5.7	9.2	15	30			8	7	1
2	53	38	46	-4	32	19	0		0	T	0	30.05	02	6.3	10.1	18	04			8	2	2
3	58	32*	45	-5	28	20	0		0	0	0	30.26	26	2.6	6.0	10	31			5	3	3
4	61	36	49	-1	35	16	0		0	0	0	30.22	32	3.1	5.2	9	29			1	3	4
5	60	40	50	0	45	15	0	8	0	0	0	30.21	30	6.6	8.3	16	28			8	6	5
6	60	44	52	2	47	13	0		0	0	0	30.25	29	8.9	10.6	18	29			8	5	6
7	59	41	50	1	45	15	0	8	0	0	0	30.24	34	4.0	6.3	14	29			10	10	7
8	55	40	48	-1	43	17	0	8	0	0	0	30.25	27	5.6	6.6	12	29			10	8	8
9	63*	41	52	3	44	13	0	8	0	0	0	30.26	32	3.0	6.5	15	32			10	7	9
10	61	45	53	2	48	12	0	2 8	0	0	0	30.17	36	1.8	6.6	14	32			10	10	10
11	60	48	54	3	50	11	0	8	0	0	0	30.12	01	1.7	4.8	9	02			10	10	11
12	61	51	56*	5	48	9	0	8	0	T	0	30.01	17	7.8	10.6	22	28			10	10	12
13	59	48	54	3	51	11	0	8	0	2.23	0	29.78	17	8.2	11.5	31	29			10	10	13
14	56	42	49	-2	42	16	0		0	.06	0	30.01	28	12.3	13.7	25	28			9	4	14
15	61	38	50	-1	42	15	0	8	0	.19	0	30.06	17	9.5	11.5	18	20			8	5	15
16	58	44	51	0	44	14	0		0	.10	0	30.13	25	7.4	8.9	21	28			9	5	16
17	59	38	49	-3	40	16	0		0	0	0	30.23	12	2.1	5.2	10	03			10	9	17
18	57	46	52	0	47	13	0	8	0	.26	0	30.08	19	4.0	7.5	14	26			10	10	18
19	58	46	52	0	46	13	0		0	.01	0	30.08	32	3.4	5.6	12	28			4	7	19
20	53	48	51	-1	46	14	0	8	0	.98	0	29.87	17	6.8	10.5	23	14			10	9	20
21	55	45	50	-2	44	15	0	8	0	.54	0	29.76	27	17.1	19.0	23	27			7	7	21
22	56	45	51	-1	45	14	0	8	0	.61	0	29.80	23	10.2	11.2	24	21			7	7	22
23	58	42	50	-2	42	15	0		0	.09	0	30.08	25	8.8	8.1	15	31			7	6	23
24	59	39	49	-3	41	16	0		0	0	0	30.22	28	1.1	5.8	9	30			10	8	24
25	60	45	53	1	44	12	0	8	0	.18	0	30.13	18	2.8	6.3	21	28			10	10	25
26	57	48	53	1	44	12	0		0	0	0	30.17	30	16.2	18.5	25	30			2	3	26
27	57	42	50	-2	42	15	0		0	0	0	30.22	28	13.8	14.0	23	30			7	4	27
28	57	48	52	0	46	13	0	8	0	.62	0	29.95	21	7.7	11.5	18	29			10	10	28
	SUM 1622	SUM 1193				TOTAL 406	TOTAL 0	NUMBER OF DAYS PRECIPITATION .01 INCH	13	TOTAL 5.87	TOTAL 0	30.09	FOR THE MONTH: 26	3.9	9.2	31	29	TOTAL		SUM 224	SUM 195	
	AVG 57.9	AVG 42.6	AVG 50.3	DEP -0.8	AVG 43	DEP 20	DEP 0	SNOW, ICE PELLETS .1 INCH	0	2.93			DEP			DATE	13	FOR MONTH		AVG 7.3	AVG 7.0	
	NUMBER OF DAYS MAX 90 OR ABOVE		MIN 32 OR BELOW			SEASON TO DATE TOTAL 2295	TOTAL 0	THUNDER, DAYS	0	GREATEST IN 24 HOURS AND DATES PRECIPITATION 2.23	13	SNOW, ICE PELLETS 0				GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE 0					
	3	0	1	0		DEP 196	DEP 0	HEAVY FOG	1													
	0	0	1	0				CLEAR 5	PARTLY CLOUDY 8	CLOUDY 15												

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 6 AND 12 IS ARE BASED ON 1 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LST)	AVERAGES STATION PRESSURE	TEMPERATURES DEW PT	TEMPERATURES WET BULB °F	RELATIVE HUMIDITY %	WIND SPEED MPH	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED MPH
01	30.10	47	45	92	6.4	27	3.5
04	30.09	46	44	92	6.7	26	3.1
07	30.10	46	44	92	6.9	23	2.0
10	30.13	52	48	77	10.0	17	9
13	30.10	55	50	67	11.8	27	4.2
16	30.07	56	50	66	11.9	28	6.7
19	30.08	52	48	78	10.4	26	7.8
22	30.09	50	47	83	8.7	28	5.0

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1						T								.01											1
2																									2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12																									12
13	.09	.10	T	.01	.05	.05	.05	.18	.13	.29	.31	.23	.11	.14	.12	T	T	.03	.05	.07	.01	.09	.07	.03	13
14	.03	T		.01	T	T	T	.02																T	14
15																	T	T			T	T	.06	.13	15
16	.08	T	T	T	.01		.01		T	T															16
17																									17
18					T	T	.08	.01		T	.11	.02		.01	.02	.01	T								18
19		T	T	T	.01	T																			19
20				T	.03	.03	.03	.03	T	.02	.06	.02	.10	.36	.05	.11				.05				.01	20
21	.25	.03	.10	.02	.07	T	.05		T	T	T	.02		T											21
22	T	.01		T		T	.02	.05	.15	.05	.17	.12	T		T			.02		.02	T				22
23	T				.01	.01	T	.05	.02								T								23
24																									24
25																			T	.08	.05	.01	.04	T	25
26																									26
27																									27
28															.01	.04	.06	.08	.14	.28	T	T			28

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 09/30/79 575

FEBRUARY 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT STANDARD TIME USED: PACIFIC WBAN 23230

FEBRUARY 1979 OAKLAND, CALIFORNIA

DAY	TEMPERATURE °F MAX.	MIN.	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON TO DATE)	COOLING (SEASON TO DATE)	WEATHER TYPES ON DATES OF OCCURRENCE (1) FOG (2) HEAVY FOG (3) THUNDER (4) ICE PELLETS (5) HAIL (6) GLAZE (7) DUST/SAND (8) SMOKE/HAZE (9) BLOWING SNOW	SNOW ICE PELLETS OR ICE ON GROUND AT 0900 LST IN	PRECIPITATION WATER EQUIV. IN	SNOW ICE PELLETS IN	RESULTANT SURFACE WIND MILES PER HOUR DIRECTION	RESULTANT SPEED	RESULTANT DIRECTION	FASTEST 2-MIN SPEED	FASTEST 2-MIN DIRECTION	SUNSHINE MINUTES	PERCENT POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	SUNSET TO SUNRISE
1	60	38	44	-6	36	21	0		0	T	0	28 01	23	2.0	8 6	14	28			7
2	55	38	47	-3	28	18	0		0	0	0	30 08	02	0.5	10 2	20	04			2
3	64	348	49*	-1	28	21	0		0	0	0	30 29	22	1.1	5 3	9	12			1
4	58	36	47	-4	34	18	0		0	0	0	30 25	18	2.2	5 3	8	26			1
5	57	38	48	-3	42	17	0		0	0	0	30 24	23	1.2	3 7	10	27			4
6	58	44	51	0	45	14	0	1	0	0	0	30 27	23	2.3	5 6	12	27			7
7	57	46	52	1	45	13	0	1	0	0	0	30 27	30	4	5 8	9	31			6
8	55	40	48	-3	43	17	0	1 8	0	0	0	30 27	23	1.7	4 5	10	27			6
9	62*	42	52	1	44	13	0	2	0	0	0	30 29	30	3.3	4 2	12	32			5
10	57	48	53	1	48	12	0	2	1	0	0	30 20	28	2.4	4 0	7	32			10
11	60	48	55	3	50	10	0	1 8	0	0	0	30 14	31	2.1	4 6	8	17			10
12	61	53	57*	5	48	8	0	1 8	0	0	0	30 02	30	3.5	8 9	20	21			10
13	57	52	55	3	50	10	0	1	T	.22	0	29 81	15	2.2	16 0	25	14			10
14	56	45	51	-1	42	14	0		0	.06	0	30 02	28	1.0	10 4	23	27			4
15	58	43	51	-1	42	14	0		0	.02	0	30 08	15	1.0	11 5	17	19			6
16	57	48	53	1	44	12	0		0	.41	0	30 15	23	4.9	8 1	14	15			10
17	57	42	50	-2	41	15	0		0	0	0	30 26	16	3.5	5 6	12	13			10
18	55	48	52	0	46	13	0	3	0	.32	0	30 12	11	7.6	11 5	20	16			10
19	57	48	53	1	46	12	0		0	.07	0	30 11	23	1.5	4 8	10	24			6
20	64	50	57	5	47	8	0		0	.80	0	29 90	18	9.3	11 4	25	15			5
21	58	49	53	0	45	12	0		0	.45	0	29 78	26	12.9	14 5	23	21			8
22	54	50	52	-1	44	13	0		0	.41	0	29 92	22	8.8	11 8	17	20			9
23	56	47	52	-1	43	13	0		0	.08	0	30 11	26	5.9	7 3	13	21			6
24	58	45	52	-2	43	13	0		0	0	0	30 25	21	3	8 2	12	27			4
25	58	48	54	1	48	11	0	1	0	.20	0	30 15	16	1.9	5 9	16	14			10
26	58	48	53	0	45	12	0	1	0	.05	0	30 18	29	10.5	11 1	17	29			10
27	57	43	50	-3	43	15	0		0	0	0	30 25	28	3.6	7 1	14	29			5
28	57	48	53	0	47	12	0	1	0	.71	0	29 97	20	6.0	10 4	15	24			10

SUM	SUM					TOTAL	TOTAL		TOTAL	TOTAL		FOR THE MONTH					TOTAL		SUM	SUM
1566	1261					387	0	NUMBER OF DAYS	4	7.8	0	30 12	23	2.5	8 0	25 15	223	70	31	30
AVG	AVG	AVG	DEP	AVG		DEP	DEP	PRECIPITATION	DEP							DATE 20	MONTH	DATE	AVG	AVG
56	45	50	1.0	43		20	0	1.00 INCH OR MORE	13	1.86									4.5	4.4

NUMBER OF DAYS				TOTAL	TOTAL
MAXIMUM TEMP	MINIMUM TEMP			SEASON TO DATE	
90° OR ABOVE	32° OR BELOW	32° OR BELOW	0° OR BELOW	2207	0
0	0	0	0	DEP	DEP
				25	0

SNOW ICE PELLETS	TOTAL	TOTAL
1.0 INCH OR MORE	0	
THUNDERSTORMS	0	
HEAVY FOG	0	
CLEAR 2	PARTLY CLOUDY 12	CLOUDY 14

GREATEST IN 24 HOURS AND DATES			GREATEST DEPTH ON GROUND OF SNOW
PRECIPITATION	SNOW ICE PELLETS	ICE PELLETS OF ICE AND DATE	
3.22	13	0	

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM. DATA IN COLS. 6 AND 12 IS BASED ON 1 OB

MORE OBSERVATIONS PER DAY AT 3 HOUR INTERVALS. FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE + WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

DAY	HOUR ENDING	AVERAGES STATION PRESSURE	TEMPERATURE °F			WET BULB	DEW POINT	RELATIVE HUMIDITY	WIND SPEED	WIND DIRECTION	RESULTANT WIND SPEED	RESULTANT WIND DIRECTION
			DRY BULB	MAX	MIN							
01	5	30.12	49	49	42	37	25	62	3	27	1.8	28
04	8	30.11	47	49	41	38	26	66	3	26	1.4	24
07	11	30.13	47	49	41	40	28	70	3	25	1.4	24
10	14	30.15	51	51	43	43	30	70	3	27	1.4	24
13	17	30.12	54	54	49	45	33	68	3	23	1.4	24
16	20	30.09	50	56	50	45	34	71	3	26	1.4	24
19	23	30.10	47	53	46	44	33	73	3	21	1.4	24
22	26	30.11	45	51	45	43	33	75	3	22	1.4	24

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																									1
2																									2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10		T	T																						10
11																									11
12																									12
13	T	.07	T	T	.02	.02	.01	.02	.04	.15	.14	.13	.12	.09	.13	.01	T	T	.01	.02	T	.03	.18	.03	13
14	T	T			.01		.02	.02										T				T	T	.02	14
15																									15
16	.24	.05	.01	.01	T	.01	.07				.02											T			16
17																									17
18							.11	.05	T	T	.01	.03	.03	.01	.07	.01									18
19	T	T	.07	T																					19
20				T	.02	.02	.04	.03	T	.01	.08	T	.07	.20	.16	.11	.02							.02	20
21	.14	.04	.10	.03	.05	T	.06	.01	T	.01		.01		T											21
22	.05						T	.03	.15	.10	.02	.08	T	.02									.01	T	22
23								.02	.01																23
24																									24
25																				.02	.10	.01	.05	.02	25
26	.05																								26
27																									27
28															.03	.03	.05	.15	.08	.27	.10	T			28

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

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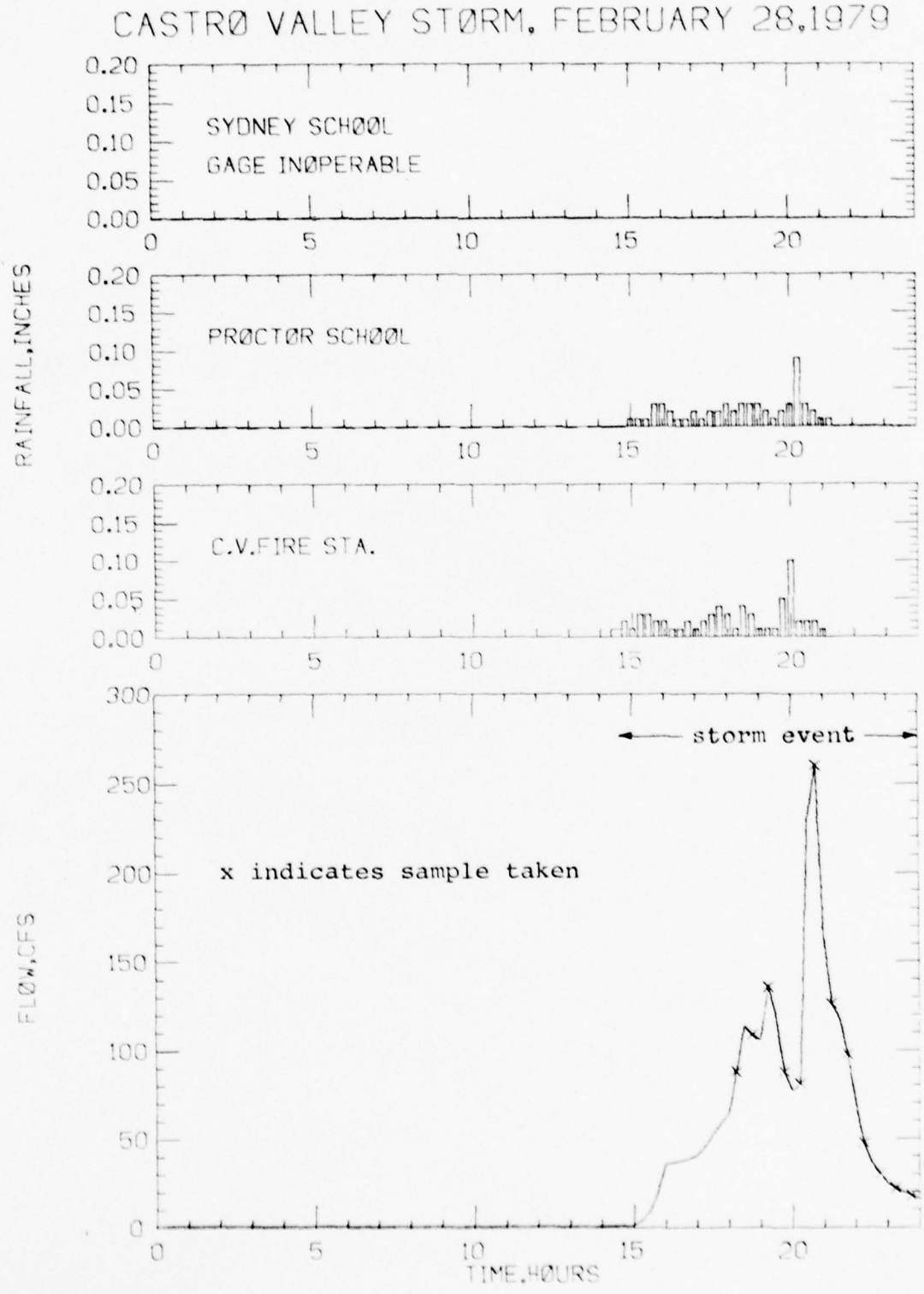
STORM EVENT REPORT NO. 12
February 28 - March 1, 1979

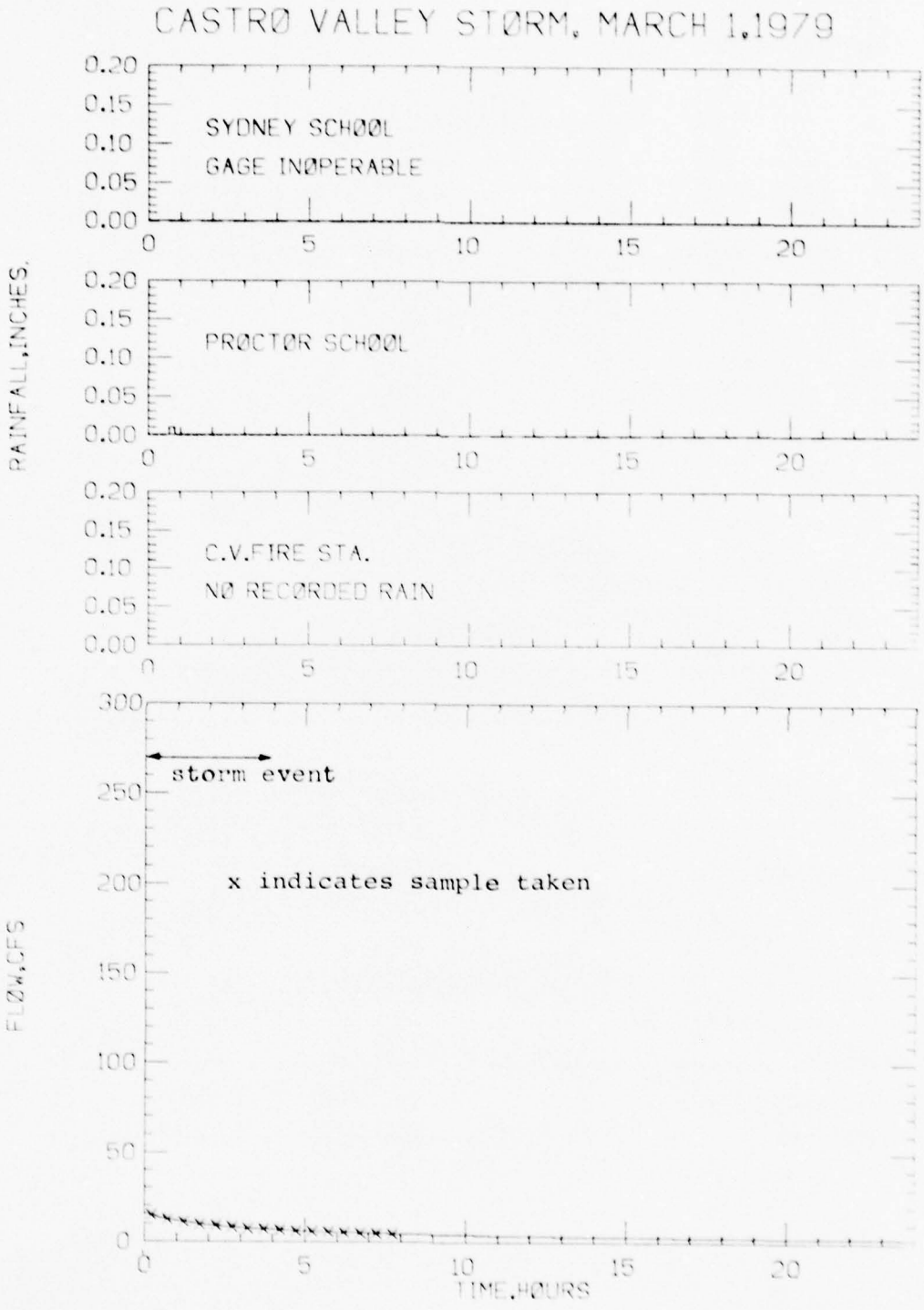
1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	0.64	1430	28 Feb 79	2100	28 Feb 79
2. Proctor School	0.59	1500	28 Feb 79	0045	1 Mar 79
3. Sydney School	--	--	--	--	--
4. San Francisco Airport	0.62	1500	28 Feb 79	2000	28 Feb 79
5. Oakland Airport	0.71	1500	28 Feb 79	2100	28 Feb 79

2. Creek Flow Summary

Discharge	Value	Time	Date
Maximum, cfs	260.1	2045	28 Feb 79
Average, cfs	52.7	--	28 Feb 79
Total volume, ft^3	2,515,300	from 1430 to 0345	28 Feb 79 1 Mar 79
Prior to storm, cfs	1.34		
Average (previous 7 days), cfs	24.5		
Average (previous 30 days), cfs	14.3		


CASTRØ VALLEY STØRM, FEBRUARY 28,1979
RAINFALL,INCHES
SYDNEY SCHØØL
GAGE INØPERABLE
PRØCTØR SCHØØL
C.V.FIRE STA.
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
FLØW,CFS
300
250
200
150
100
50
0
storm event
x indicates sample taken
TIME,HØURS


CASTRØ VALLEY STØRM, MARCH 1,1979
RAINFALL,INCHES
0.20
0.15
0.10
0.05
0.00
SYDNEY SCHØØL
GAGE INØPERABLE
PRØCTØR SCHØØL
C.V.FIRE STA.
NØ RECØRDED RAIN
0
5
10
15
20
FLØW,CFS
300
250
200
150
100
50
0
storm event
x indicates sample taken
TIME,HOURS

3. Sampling Analysis Results

Flow Weighted Composite

Parameter	Units	Value
Chemical oxygen demand	mg/L	66
Total Nitrogen as N	mg/L	2.8
Lead	mg/L	0.2
Chromium	mg/L	<0.06
Copper	mg/L	0.09
Total ortho phosphorus as P	mg/L	0.18
Suspended Solids	mg/L	152
Volatile suspended solids	mg/L	16

Discrete Sample

Parameter	Units	Value
Date and time	--	28 Feb 1815
Instantaneous flow rate	cfs	87.8
Temperature	DegC	12.2
Specific conductance	µmho/cm	120
pH	--	6.5
Settleable solids	ml/L	0.4
Suspended solids	mg/L	148
Volatile suspended solids	mg/L	12
Biochemical oxygen demand (5 day)	mg/L	8
Total coliform	MPN/100ml	1.1×10^2
Fecal coliform	MPN/100ml	1.5×10^1

4. Observation at Sampling Station During Event.

   Nothing significant to report.

5. Observation in Tributary Area During Event.

   Nothing significant to report.

6. Comments on Storm Event.

   1. The raingage at Sydney School was inoperable from February 17 to March 8.

   2. Flow response at the gaging station occurs within a half hour following a change in the rainfall rate.

   3. The runoff period during this storm event began with the first recorded rainfall at 1430 on February 28 and ended three hours after the last recorded rainfall at 0345 on March 1.

   4. A flow weighted composite sample and a single discrete grab sample were analyzed for this event.

   5. Samples used in the composite sample analysis were taken at half hour intervals from 1815 to 2345 on February 28 and from 0015 to 0745 on March 1 as indicated by X's on the flow plot.

STORM EVENT 12 - FEBRUARY 28 to MARCH 1, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
2-28-79	14:00	1.52	1.34				
2-28-79	14:30	1.52	1.34		0.01		
2-28-79	14:45	1.52	1.34		0.02		
2-28-79	15:00	1.52	1.34		0.01	0.01	
2-28-79	15:15	1.74	3.98		0.03	0.01	
2-28-79	15:30	1.96	9.43		0.03	0.01	
2-28-79	15:45	2.18	19.4		0.02	0.03	
2-28-79	16:00	2.40	35.8		0.02	0.03	
2-28-79	16:15	2.41	36.7		0.01	0.02	
2-28-79	16:30	2.42	37.6		0.01	0.01	
2-28-79	16:45	2.43	38.6		0.02	0.01	
2-28-79	17:00	2.45	40.5		0.01	0.02	
2-28-79	17:15	2.50	45.7		0.02	0.01	
2-28-79	17:30	2.56	52.5		0.03	0.02	
2-28-79	17:45	2.61	58.5		0.04	0.02	
2-28-79	18:00	2.66	64.3		0.03	0.03	
2-28-79	18:15	2.84	87.8	YES	0.01	0.02	
2-28-79	18:30	3.01	113.4		0.04	0.03	
2-28-79	18:45	2.98	108.8	YES	0.03	0.03	
2-28-79	19:00	2.96	105.6		0.01	0.03	
2-28-79	19:15	3.16	135.4	YES	0.01	0.02	
2-28-79	19:30	3.05	119.0		0.01	0.01	
2-28-79	19:45	2.84	87.8	YES	0.05	0.02	
2-28-79	20:00	2.76	76.9		0.10	0.03	
2-28-79	20:15	2.79	81.0	YES	0.02	0.09	
2-28-79	20:30	3.73	229.4		0.02	0.03	
2-28-79	20:45	3.92	260.1	YES	0.02	0.02	
2-28-79	21:00	3.35	166.0		0.01	0.01	
2-28-79	21:15	3.10	126.3	YES		0.01	
2-28-79	21:30	3.04	117.6				
2-28-79	21:45	2.91	97.9	YES			
2-28-79	22:00	2.69	67.9				
2-28-79	22:15	2.52	47.9	YES			
2-28-79	22:30	2.41	36.7				
2-28-79	22:45	2.34	30.6	YES			
2-28-79	23:00	2.27	25.3				
2-28-79	23:15	2.23	22.6	YES			
2-28-79	23:30	2.19	20.0				
2-28-79	23:45	2.16	18.3	YES			
2-28-79	24:00	2.12	16.1				
3- 1-79	0:15	2.10	15.1	YES			
3- 1-79	0:30	2.07	13.7				

STORM EVENT 12 - FEBRUARY 28 to MARCH 1, 1979 STORM DATA
(Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
3- 1-79	0:45	2.05	12.9	YES		0.01	
3- 1-79	1:00	2.03	12.1				
3- 1-79	1:15	2.01	11.3	YES			
3- 1-79	1:30	2.00	10.9				
3- 1-79	1:45	1.98	10.1	YES			
3- 1-79	2:00	1.97	9.78				
3- 1-79	2:15	1.96	9.43	YES			
3- 1-79	2:30	1.94	8.75				
3- 1-79	2:45	1.94	8.75	YES			
3- 1-79	3:00	1.92	8.11				
3- 1-79	3:15	1.91	7.80	YES			
3- 1-79	3:30	1.90	7.50				
3- 1-79	3:45	1.90	7.50	YES			
3- 1-79	4:00	1.89	7.24				
3- 1-79	4:15	1.88	6.99	YES			
3- 1-79	4:30	1.87	6.74				
3- 1-79	4:45	1.86	6.50	YES			
3- 1-79	5:00	1.85	6.27				
3- 1-79	5:15	1.85	6.27	YES			
3- 1-79	5:30	1.84	6.04				
3- 1-79	5:45	1.84	6.04	YES			
3- 1-79	6:00	1.83	5.82				
3- 1-79	6:15	1.83	5.82	YES			
3- 1-79	6:30	1.83	5.82				
3- 1-79	6:45	1.81	5.38	YES			
3- 1-79	7:00	1.81	5.38				
3- 1-79	7:15	1.80	5.16	YES			
3- 1-79	7:30	1.80	5.16				
3- 1-79	7:45	1.79	4.95	YES			
3- 1-79	8:00	1.79	4.95				

FEBRUARY 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) 8 FT STANDARD TIME USED: PACIFIC WBAN 23234

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (MONTH TO DATE)	COOLING (MONTH TO DATE)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDER 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUST/SAND 8 SMOKE/HAZE 9 BLOWING SNOW	SNOW ICE PELLETS OR ICE ON GROUND (AM)	PRECIPITATION WATER EQUIV IN	SNOW ICE PELLETS IN	STATION PRESS MSL IN	WIND RESULTANT DIR	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER SUNRISE TO SUNSET	SUNSET TO SUNRISE	
1	51	35	43*	-7	36	22	0		0	.01	0	29.84	27	5.7	9.2	15	30			8	7	
2	53	38	46	-4	32	19	0		0	T	0	30.05	02	6.3	10.1	18	04			8	2	
3	58	32*	45	-6	28	20	0		0	0	0	30.26	26	2.6	6.0	10	31			5	3	
4	61	36	49	-1	35	16	0		0	0	0	30.22	32	3.1	5.2	9	28			1	3	
5	60	40	50	0	45	15	0	8	0	0	0	30.21	30	6.6	8.3	16	28			8	5	
6	60	44	52	2	47	13	0		0	0	0	30.25	28	8.9	10.6	18	29			8	6	
7	59	41	50	-1	45	15	0	1 8	0	0	0	30.24	34	4.0	6.3	14	28			10	10	
8	55	40	48	-3	43	17	0	1 8	0	0	0	30.25	27	3.6	6.6	12	29			10	8	
9	63*	41	52	1	44	13	0	1 8	0	0	0	30.26	32	3.9	6.5	15	30			10	7	
10	61	45	53	2	40	12	0	2 8	0	0	0	30.17	36	1.8	6.6	14	30			10	10	
11	60	48	54	3	50	11	0	2 8	0	T	0	30.12	01	1.7	4.8	9	02			10	10	
12	61	51	56*	5	48	9	0	1 8	0	T	0	30.03	17	7.0	10.6	22	20			10	10	
13	58	48	54	3	51	11	0	1	0	2.21	0	29.79	17	8.2	11.5	31	29			10	10	
14	56	42	49	-2	42	16	0		0	.06	0	30.01	28	12.3	13.7	25	26			9	4	
15	61	38	50	-1	42	15	0	1	0	.19	0	30.06	17	8.5	11.5	18	28			6	6	
16	58	44	51	0	44	14	0		0	.10	0	30.13	25	7.4	9.8	21	29			5	5	
17	59	38	49	-3	40	16	0		0	0	0	30.23	12	2.1	5.2	10	01			10	9	
18	57	46	52	0	47	13	0	1	0	.26	0	30.09	19	4.0	7.5	14	26			10	10	
19	58	46	52	0	46	13	0		0	.01	0	30.08	32	3.4	5.6	12	28			4	7	
20	53	48	51	-1	46	14	0	1	0	.90	0	29.87	17	6.8	10.5	23	14			10	9	
21	55	45	50	-2	44	15	0	1	0	.54	0	29.76	27	17.1	18.0	23	27			7	7	
22	56	45	51	-1	45	14	0	1	0	.61	0	29.90	23	10.2	11.2	24	21			7	7	
23	58	42	50	-2	42	15	0		0	.09	0	30.08	25	6.9	8.1	15	31			7	6	
24	59	38	49	-3	41	16	0		0	0	0	30.22	29	1.1	5.9	9	30			10	8	
25	60	45	53	1	44	12	0	1	0	.18	0	30.13	18	2.8	6.3	21	28			10	10	
26	57	48	53	1	44	12	0		0	0	0	30.17	30	16.2	16.5	25	30			3	3	
27	57	42	50	-2	42	15	0		0	0	0	30.22	29	13.8	14.0	23	30			7	4	
28	57	46	52	0	46	13	0	1	0	.82	0	29.95	21	7.7	11.5	18	29			10	10	

SUM	SUP					TOTAL	TOTAL			TOTAL	TOTAL		FOR THE MONTH:					TOTAL		SUM	SUP	
1622	1193					406	0	NUMBER OF DAYS		5.87	0	30.09	26	3.9	9.2	31	29	FOR		404	195	
AVG	AVG		AVG	DEP	AVG	DEP	DEP	PRECIPITATION		DEP						DATE	13	YEAR	MONTH	AVG	AVG	
57.9	42.6	50.3	-0.9	43		20	0	.01 INCH	13	2.03										7.1	7.0	
						SEASON TO DATE		SNOW ICE PELLETS														
NUMBER OF DAYS						TOTAL	TOTAL	.1 INCH	0	GREATEST IN 24 HOURS AND DATES						GREATEST DEPTH ON GROUND OF SNOW ICE PELLETS OR ICE AND DATE						
MAXIMUM TEMP.		MINIMUM TEMP.				2245	0	THUNDERSTORMS	0	PRECIPITATION		SNOW ICE PELLETS										
90° OR ABOVE	32° OR BELOW	32° OR BELOW	0° OR BELOW			DEP	DEP	HEAVY FOG	1	2.21	13	0										
0	0	1	0			196	0	CLEAR 5	PARTLY CLOUDY 8	CLOUDY 15												

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
- 0.57 OR 6R FOR ER DATE, OR DATES HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 6 AND 12 IS ARE BASED ON 1 OR MORE OBSERVATIONS PER DAY AT 3 HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LST) ENDING AT	SKY COVER (TENTHS)	STATION PRESSURE IN	AVERAGES TEMPERATURE °F DRY BULB	WET BULB	DEW POINT	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT DIRECTION	RESULTANT SPEED M.P.H.
01	7	30.10	47	45	42	84	7.6	27	3.5
04	7	30.09	46	44	42	87	6.5	26	3.1
07	8	30.10	46	44	42	87	6.9	23	2.0
10	8	30.13	52	48	44	77	10.0	17	9
13	7	30.10	55	50	44	67	11.8	27	4.2
16	7	30.07	56	50	44	66	11.9	28	6.7
19	6	30.08	52	48	44	76	10.4	26	7.8
22	6	30.09	50	47	43	80	8.7	26	5.0

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1						T								.01											1
2																								T	2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12																								T	12
13	.09	.10	T	.01	.05	.05	.05	.10	.13	.20	.31	.23	.11	.14	.12	T	T	.03	.05	.07	.01	.09	.07	.03	13
14	.03	T		.01	T	T	T	.02																	14
15																	T	T			T	T	.06	.13	15
16	.08	T	T	T	.01		.01		T	T															16
17																									17
18					T	T	.08	.01		T	.11	.02		.01	.02	.01	T								18
19		T	T	T	.01	T																			19
20				T	.03	.03	.03	.03	T	.02	.06	.02	.19	.36	.05	.11				.05				.01	20
21	.25	.03	.10	.02	.07	T	.05		T	T	T	.02	T		T			.02		.02	T				21
22	T	.01		T		T	.02	.05	.15	.05	.17	.12	T				T								22
23	T				.01	.01	T	.05	.02																23
24																									24
25																			T	.08	.05	.01	.04	T	25
26																									26
27																									27
28														.01	.04	.06	.09	.14	.28	T*	T				28

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 03-30-79 535

FEBRUARY 1979 SAN FRANCISCO, CALIFORNIA

MARCH 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) FT STANDARD TIME USED: PACIFIC LOCAL STATION

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE	DEGREE DAYS BASE 65° HEATING	COOLING	WEATHER TYPES ON DATES OF OCCURRENCE (1 FOG 2 HEAVY FOG 3 THUNDER 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW)	SNOW ICE ON GROUND (INCHES)	PRECIPITATION WATER EQUIV. (INCHES)	SNOW, ICE PELLETS (INCHES)	RESULTANT SPEED (MPH)	RESULTANT DIRECTION (TENS OF DEGREES)	AVERAGE SPEED (MPH)	FASTEST 2 MINUTE SPEED (MPH)	DIRECTION (TENS OF DEGREES)	SUNSHINE TOTAL (MINUTES)	PERCENT POSSIBLE	SKY COVER (TENTHS) AVERAGE	PEAK WIND SPEED (MPH)	DIRECTION (TENS OF DEGREES)	SEA LEVEL PRESSURE (MILLIBARS) AVERAGE
1	54	41	48	-1	11	16	0		0		0	20	02	30	10	5	10	6	25	30			1		
2	55	43	50	-2	13	15	0	1	0	.01	0	10	01	11	1	4	1	2	12	10			10		
3	58	46	52	0	15	13	0	1	0	.04	0	10	24	04	1	1	6	8	13	10			10		
4	61	48	55	2	18	10	0	1	0	.05	0	10	20	14	1	1	6	8	13	10			10		
5	66	48	57	4	20	8	0		0		0	10	31	31	6	5	1	8	15	30			0		
6	73	50	62	10	25	3	0		0		0	10	25	31	6	5	1	8	18	30			0		
7	72	48	60	8	23	5	0	1	0		0	10	11	31	6	5	1	8	22	20			0		
8	144	48	62*	10	25	3	0		0		0	20	01	32	5	4	0	5	18	30			0		
9	57	51	54	1	17	11	0	1	0		0	20	01	20	5	5	0	9	24	30			10		
10	60	51	56	3	19	9	0		0		0	10	14	24	6	6	6	8	24	20			10		
11	61	46	54	1	17	11	0		0		0	10	17	10	6	6	6	8	16	20			10		
12	71	43	57	4	20	8	0		0		0	20	07	32	6	6	6	8	16	20			8		
13	61	50	56	3	19	9	0	1	0		0	10	04	25	1	4	6	8	15	24			8		
14	64	54	59	6	22	6	0		0		0	10	15	18	10	0	10	2	17	20			10		
15	57	50	54	1	17	11	0	1	0	.02	0	20	05	26	8	8	12	6	20	30			10		
16	52	48	50	-3	13	15	0	1	0	.11	0	20	02	15	4	8	1	2	12	20			10		
17	59	46	53	0	16	12	0	1	0	.01	0	30	01	30	1	0	0	0	11	20			10		
18	55	48	52	-1	15	13	0	1	0	.18	0	20	01	20	1	0	10	2	20	20			10		
19	61	48	55	2	18	10	0		0		0	20	18	32	8	8	8	8	18	20			10		
20	61	48	55	2	18	10	0		0		0	20	18	28	8	8	1	8	15	20			10		
21	58	46	52	-1	15	13	0		0		0	20	80	23	8	8	1	8	12	21			10		
22	60	48	54	1	17	11	0	1	0	.25	0	30	05	16	2	5	1	1	14	21			10		
23	65	42*	54	1	17	11	0		0		0	10	20	21	1	2	1	6	12	20			8		
24	66	44	55	2	18	10	0		0		0	10	20	28	1	2	1	6	11	20			8		
25	61	45	53	1	16	12	0		0		0	10	04	20	10	2	11	2	20	21			8		
26	61	48	55	1	18	10	0	1	0	.65	0	20	14	16	6	8	11	2	22	15			10		
27	60	48	54	1	17	11	0	1	0	1.02	0	20	04	10	17	0	18	8	11	21			10		
28	54	41	48*	-5	11	16	0		0	.20	0	20	13	15	6	4	10	2	16	16			6		
29	50	41	51	-2	14	14	0		0		0	10	06	20	11	1	11	2	20	20			8		
30	51	48	50	-3	13	15	0		0		0	10	21	30	11	1	14	0	20	20			1		
31	65	43	54	0	15	11	0		0		0	30	25	29	5	6	1	1	20	28			1		
	50*	50*				TOTAL	TOTAL			TOTAL	TOTAL										TOTAL					
	1906	1968				339	0	NUMBER OF DAYS		2.14	0	30	03	27	4.3	8		33	27		210				
	MO.	MO.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION		DEP.								DATE	27		MISSING DAYS				
	61.9	47.4	54.6	1.5	46	53	0	0.01 INCH	0	0.20													7.0	6.6	

NUMBER OF DAYS MAXIMUM 32°	MINIMUM 32°	MINIMUM 0°	MAXIMUM 90°	SEASON TO DATE HEATING	COOLING	SNOW, ICE PELLETS 1.0 INCH	THUNDERSTORMS	GREATEST IN 24 HOURS AND DATES PRECIPITATION	SNOW, ICE PELLETS	GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
0	0	0	0	1431	0	0	11	1.37 28	0	0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
- ALSO ON AN EARLIER DATE - SEE DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 8 AND 12 IS ARE BASED ON 1-00

NOAA HOURLY OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR ENDING	OVERCAST SUNRISE-SUNSET	OVERCAST MIDNIGHT-MIDNIGHT	TEMPERATURE					RESULTANT WIND SPEED	RESULTANT WIND DIRECTION
			AVG.	DEP.	HDD	CDD	AVG. WET BULB		
01	6	30.02	51	40	45	0	8.6	28	1.0
04	1	30.01	50	41	45	0	7.5	26	1.0
07	1	30.03	50	40	45	0	6.6	20	1.0
10	1	30.06	55	51	46	0	9.0	10	1.0
13	1	30.03	58	53	48	0	10.6	11	2.0
16	1	30.01	58	51	47	0	11.4	28	1.0
19	1	30.01	53	50	46	0	12.5	28	1.0
22	5	30.03	52	49	46	0	9.8	28	1.0

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																									1
2	T	.01	T	.01	T	.02	T	T	T	T	T	T	.01	T	T			T	.01	T	.02	.01	T	T	T	2
3																									3
4																									4
5																									5
6																									6
7							T	T	T	T	T	T													7
8																									8
9																									9
10																									10
11																									11
12																									12
13																									13
14	T	T						T	T																14
15											.02	T													15
16	T	T	.06	.06	.06	.01	.01	T	T	T	.05	.04	T	.04	.02	T	T	T	T	T	T	T	T	T	16
17	T																								17
18					T	T	T	T	T	T	T	.08	.08	.01	T										18
19																									19
20																									20
21																									21
22	T	.06	.02	.05	.01	.01	.02						T	.08		T	T						T	T	22
23																									23
24																									24
25																									25
26								T		.08	.01		T			.02	.01	T	.03	.05	.14	.23	.08	T	26
27	.02	.24	.10	.05	.01	T	.08	.06	.14	T	.03		.05	.02			.01	T	.01	T	T	.05	.12	.03	27
28				T	T			T		T			.01	.01	.04	.01	.01	T	T						28
29																									29
30																									30
31																									31

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I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel C. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 04-25-79 K/S

MARCH 1979 SAN FRANCISCO, CALIFORNIA

FEBRUARY 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT STANDARD TIME USED: PACIFIC WBAN 23230

DAY	TEMPERATURE °F MAX.	MIN.	AVG.	DEPARTURE FROM NORMAL	DEPARTURE DAILY PRECIP.	DEGREE DAYS BASE 65° HEATING SEASON	COOLING SEASON	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW ICE PELLETS DEPTH ON GROUND	PRECIPITATION WATER (INCHES)	SNOW, ICE PELLETS (INCHES)	AVG. STATION PRESS.	WIND RESULTANT DIR.	RESULTANT SPEED	AVG. SPEED	FASTEST MILE SPEED	FASTEST MILE DIR.	SUNSHINE MINUTES	PERCENT POSSIBLE	SKY COVER (TENTHS) SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT
1	50	38	44	-6	36	21	0		0	T	0	29.87	23	2.0	8.6	14	29			7	7
2	55	38	47	-3	28	18	0		0	0	0	30.08	02	0.5	10.2	20	04			4	2
3	54	34S	44S	-7	28	21	0		0	0	0	30.28	22	1.1	5.3	8	12			4	1
4	58	36	47	-4	34	18	0		0	0	0	30.25	19	2.2	5.3	8	26			2	1
5	57	38	48	-3	42	17	0		0	0	0	30.24	23	1.2	3.7	10	27			8	4
6	58	44	51	0	45	14	0	1	0	0	0	30.27	21	2.3	5.6	12	27			4	4
7	57	46	52	1	45	13	0	1	0	0	0	30.27	30	.4	5.8	9	31			6	7
8	55	40	48	-3	43	17	0	1 8	0	0	0	30.27	23	1.7	4.5	10	27			6	7
9	62R	42	52	1	44	13	0	2	0	0	0	30.20	30	3.3	4.2	12	32			6	6
10	57	48	53	1	48	12	0	2	0	T	0	30.20	28	2.4	4.0	7	32			10	10
11	60	49	55	3	50	10	0	1 8	0	0	0	30.14	31	2.1	4.6	8	17			10	10
12	61	53	57R	5	48	8	0	8	0	0	0	30.02	30	3.5	8.8	20	21			10	10
13	57	52	55	3	50	10	0	1	0	1.22	0	29.81	15	15.2	16.0	25	14			10	10
14	56	46	51	-1	42	14	0		0	.05	0	30.02	28	10.2	10.4	23	27			10	10
15	58	43	51	-1	42	14	0		0	.02	0	30.08	15	10.0	11.5	17	18			6	5
16	57	48	53	1	44	12	0		0	.41	0	30.15	23	4.8	9.1	14	15			6	5
17	57	42	50	-2	41	15	0		0	0	0	30.26	18	3.5	5.6	12	13			10	10
18	55	48	52	0	46	13	0	1	0	.52	0	30.12	17	7.8	11.5	23	16			10	10
19	57	48	53	1	46	12	0		0	.07	0	30.11	23	1.5	4.8	10	24			6	7
20	54	50	52	0	47	13	0		0	.80	0	29.90	16	9.3	11.4	25	15			10	8
21	56	49	53	0	45	12	0		0	.45	0	29.78	26	12.9	14.5	23	21			6	7
22	54	50	52	-1	44	13	0		0	.41	0	29.92	22	8.8	11.8	17	20			8	7
23	56	47	52	-1	43	13	0		0	.08	0	30.11	26	5.9	7.3	13	21			7	6
24	56	45	51	-2	43	14	0		0	0	0	30.25	21	.3	6.2	12	27			8	6
25	59	48	54	1	46	11	0	1	0	.20	0	30.15	16	1.9	6.9	16	14			10	10
26	58	48	53	0	45	12	0	1	0	.05	0	30.18	29	10.5	11.1	17	28			5	4
27	57	43	50	-3	43	15	0		0	0	0	30.25	28	3.6	7.1	14	26			6	4
28	57	49	53	0	41	12	0	1	0	.11	0	29.97	20	5.0	10.4	15	24			10	9
	5/M	5/M				TOTAL	TOTAL			TOTAL	TOTAL		FOR THE MONTH					TOTAL	%	5/M	5/M
	1588	1261				387	0	NUMBER OF DAYS		4.79	0	30.12	23	2.5	8.0	25	15		73%	223	181
	AVG	AVG	AVG	DEP	AVG	DEP	DEP	PRECIPITATION		DEP						DEPT	20+	FASTEST	DIR	AVG	AVG
	56.7	45.2	50.9	-1.0	43	20	0	.01 INCH OR MORE	13	1.96										7.9	6.4
						SEASON TO DATE		SNOW, ICE PELLETS													
	NUMBER OF DAYS					TOTAL	TOTAL	1.0 INCH OR MORE	0	GREATEST IN 24 HOURS AND DATES						GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OF ICE AND DATE					
MAX 90° OR ABOVE		MIN 32° OR BELOW		MIN BELOW ZERO		2207	0	THUNDERSTORMS	0	PRECIPITATION		SNOW, ICE PELLETS									
32°	DEP	32°	DEP	0°	DEP	DEP		HEAVY FOG	2	1.22	13	0				0					
0		0		0		25	0	CLEAR 2	PARTLY CLOUDY 12		CLOUDY 14										

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN 13'S, E AND 12'S ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE 1 WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LST)	SKY COVER (TENTHS)	STATION PRESSURE	TEMPERATURE °F DRY BULB	WET BULB	DEW POINT	RELATIVE HUMIDITY %	WIND SPEED MPH	WIND DIRECTION
01	6	30.12	49	45	42	77	1.5	22
04	6	30.11	47	44	41	79	6.5	14
07	7	30.13	47	44	41	80	7.6	15
10	7	30.15	51	47	43	76	8.7	17
13	7	30.12	54	49	45	71	8.7	23
16	7	30.09	56	50	45	67	9.2	25
19	6	30.10	53	48	44	73	8.7	27
22	6	30.11	51	47	43	75	7.4	23

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	6 P.M. - 7 P.M.	7 P.M. - 8 P.M.	8 P.M. - 9 P.M.	9 P.M. - 10 P.M.	10 P.M. - 11 P.M.	11 P.M. - MIDNIGHT	MIDNIGHT - 1 A.M.	1 A.M. - 2 A.M.	2 A.M. - 3 A.M.	3 A.M. - 4 A.M.	4 A.M. - 5 A.M.	5 A.M. - 6 A.M.	6 A.M. - 7 A.M.	7 A.M. - 8 A.M.	8 A.M. - 9 A.M.	9 A.M. - 10 A.M.	10 A.M. - 11 A.M.	11 A.M. - NOON
1																		
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8																		
9																		
10		T	T															
11																		
12																		
13	T	.07	T	T	.02	.02	.01	.02	.04	.15	.14	.13	.12	.09	.15	.01	T	T
14	T	T			.01		.02	.02										
15																T		
16	.24	.05	.01	.01	T	.01	.07				.02							
17																		
18							.11	.05	T	T	.01	.03	.03	.01	.07	.01		
19	T	T	.07	T														
20				T	.02	.02	.04	.03	T	.01	.08	T	.07	.20	.18	.11	.02	
21	.14	.04	.10	.03	.05	T	.06	.01	T	.01		.01		T				
22							.03	.15	.10	.02	.08	T	T	.02				
23	.05					T	.02	.01										
24																		
25																		
26	.05																	
27																		
28															.03	.03	.05	.15

DAY	6 P.M. - 7 P.M.	7 P.M. - 8 P.M.	8 P.M. - 9 P.M.	9 P.M. - 10 P.M.	10 P.M. - 11 P.M.	11 P.M. - MIDNIGHT	MIDNIGHT - 1 A.M.	1 A.M. - 2 A.M.	2 A.M. - 3 A.M.	3 A.M. - 4 A.M.	4 A.M. - 5 A.M.	5 A.M. - 6 A.M.	6 A.M. - 7 A.M.	7 A.M. - 8 A.M.	8 A.M. - 9 A.M.	9 A.M. - 10 A.M.	10 A.M. - 11 A.M.	11 A.M. - NOON
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22																		
23																		
24																		
25																		
26																		
27																		
28																		

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 05-80-76 600

FEBRUARY 1979 OAKLAND, CALIFORNIA

MARCH 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 44 'N LONGITUDE 122° 12 'W ELEVATION (GROUND) 6.1 STANDARD TIME USED: PACIFIC WBAN 23230

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING	COOLING	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW ICE PELLETS DEPTH ON GROUND	PRECIPITATION WATER EQUIVALENT IN.	SNOW, ICE PELLETS IN.	AVG STATION PRESS MB	WIND RESULTANT DIR	RESULTANT SPEED	AVERAGE SPEED	FASTEST MI DIR	FASTEST MI SPEED	SUNSHINE MINUTES	PERCENT	SKY COVER TENTHS MIDNIGHT	NOON
1	55	46	50	-3	36	15	0		0	0	0	29.83	31	11	5	11	7	21	31		7	7
2	55	43R	49R	-4	41	16	0	1	0	0.01	0	30.10	12	2	8	4	2	12	14		10	10
3	57	51	54	1	50	11	0	1	0	0.03	0	30.27	03	2	8	6	3	12	08		10	10
4	60	50	55	2	48	10	0		0	0	0	30.31	33	2	1	5	3	16	30		10	10
5	65	50	58	5	53	7	0	2 6	0	0	0	30.33	25	4	0	5	3	8	25		10	10
6	67	50	59	6	53	6	0	2 6	0	0	0	30.27	29	4	1	5	3	10	29		10	10
7	71R	52	62R	9	53	3	0	2 6	0	0	0	30.13	30	3	6	7	3	14	31		10	10
8	70	51	61	8	52	4	0	2 6	0	0	0	29.82	31	3	6	5	6	13	31		10	10
9	67	53	55	2	50	10	0	1 6	0	0	0	29.85	31	3	2	5	6	10	26		10	10
10	60	55	58	5	48	7	0		0	0	0	29.95	31	3	2	5	6	10	26		10	10
11	61	51	56	3	48	9	0		0	0	0	30.18	28	6	4	7	2	10	21		10	10
12	65	46	56	3	50	9	0	6	0	0	0	30.08	26	2	6	4	0	10	12		8	7
13	62	53	58	4	51	7	0	6	0	0	0	30.05	27	8	6	10	3	16	24		10	10
14	60	56	58	4	46	7	0		0	0	0	30.18	22	5	5	8	2	11	24		10	10
15	58	52	55	1	46	10	0		0	0	0	29.97	24	7	3	14	2	25	29		10	10
16	53	48	51	-3	44	14	0		0	0.10	0	29.84	15	4	8	10	3	16	28		10	10
17	58	48	54	0	46	11	0		0	0.20	0	29.84	15	4	5	7	3	16	28		10	10
18	55	51	53	-1	43	12	0		0	0.16	0	30.03	28	5	3	8	3	15	27		10	10
19	60	50	55	-1	44	10	0		0	0.16	0	29.99	28	5	3	8	3	15	27		10	10
20	61	53	57	1	48	8	0		0	0	0	29.79	30	5	2	6	3	12	28		10	10
21	58	52	56	2	48	9	0		0	0	0	29.80	26	5	1	7	3	12	28		10	10
22	60	52	56	2	48	9	0		0	0	0	29.90	24	7	0	8	2	12	25		10	10
23	64	48	56	2	48	9	0		0	0	0	30.09	28	2	6	5	6	14	25		10	10
24	66	50	58	4	48	7	0		0	0	0	30.21	28	3	4	5	2	12	27		10	10
25	60	53	57	3	48	8	0		0	0	0	30.23	28	3	4	5	2	12	27		10	10
26	62	52	57	3	48	8	0		0	0	0	30.06	28	3	0	5	2	14	28		10	10
27	58	51	55	1	48	10	0	1 6	0	0.41	0	29.77	15	11	7	14	3	20	28		10	10
28	57	48	53	-2	45	12	0		0	0.08	0	29.51	18	17	3	19	3	28	21		10	10
29	58	46	52	-3	44	13	0		0	0.06	0	29.75	14	7	3	11	3	16	16		10	10
30	59	48	54	-1	42	11	0		0	0	0	30.10	28	6	1	10	2	17	29		10	10
31	61	44	53	-2	45	12	0		0	0	0	30.28	27	3	6	5	3	15	27		10	10
SUM	SUP					TOTAL	TOTAL			TOTAL	TOTAL									TOTAL	
1977	1552					294	0	NUMBER OF DAYS		2.04	0.30		28	3.5	8	3	20	15			
AVG	AVG	AVG	DEP	AVG		DEP	DEP	PRECIPITATION		DEP											
60.5	50.1	55.3	1.6	47		-56	0	.01 INCH	0	0.32											
						SEASON TO DATE		SNOW ICE PELLETS													
NUMBER OF DAYS						TOTAL	TOTAL	1.0 INCH	0												
MAXIMUM TEMP		MINIMUM TEMP				230	0	THUNDERSTORMS	1	PRECIPITATION		SNOW ICE PELLETS									
90	32	32	0			DEP	DEP	HEAVY FOG	3	1.13	26.0										
0	0	0	0			-31	0	CLEAR 6	PARTLY CLOUDY 7	CLOUDY 18											

GREATEST IN 24 HOURS AND DATES — GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 6 AND 12-15 ARE BASED ON 1 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE DIR WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

NOTE: FEB. 78 MONTHLY TEMP. DEPARTURE FROM NORMAL SHOULD BE -1.0

SUMMARY BY HOURS

HOUR (LST)	AVERAGES TEMPERATURE DRY BULB	WET BULB	DEW POINT	RELATIVE HUMIDITY	WIND SPEED	GUST	RESULTANT WIND DIR	SPEED
01	6	50	04	53	40	76	7	8
04	7	50	03	51	40	76	7	7
07	7	50	05	51	40	80	7	8
10	7	50	07	55	51	76	7	10
13	6	50	05	58	53	78	11	10
16	7	50	02	52	44	69	10	9
19	6	50	03	56	51	74	6	8
22	5	50	06	54	50	76	4	9

SEE NOTES FOR FEB. 1979 ERRATA.

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DY
1																									1
2																									2
3			.01	.01	T		.01	T	T	T	T	T	T	T	T	T	T	T	T	.01	T	T			3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12																									12
13																									13
14																									14
15																									15
16		.08	.05	.06	.02	.03	.06	T	T	T	T	.07	.02	.01	T	T									16
17												.03	.01	.01	.04	.05	.01	.05	.35	T	T	T	.01		17
18							T			T	T		.01	14	.01	T	T								18
19																									19
20																									20
21																		T	T	T					21
22									T			T	T												22
23																									23
24																									24
25																									25
26									.02	.06		.01	T	T		.04	.01			.01	.04	.10	.11	T	26
27	.01	.08	.34	.07	.09	T	T	T	.04	.04	.03	.08	T	T	.02	T	.02					.01	.06	.07	27
28													T	T	.02	.03	T	.01		T	T	T			28
29																									29
30																									30
31																									31

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel R. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 04-25-79 500

MARCH 1979 OAKLAND, CALIFORNIA

STORM EVENT REPORT NO. 13
March 26, 1979

1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	2.08	0830	26 Mar 79	2330	27 Mar 79
2. Proctor School	1.84	0900	26 Mar 79	2400	27 Mar 79
3. Sydney School	1.45(a)	0900	26 Mar 79	1700	27 Mar 79
4. San Francisco Airport	1.67	0900	26 Mar 79	2400	27 Mar 79
5. Oakland Airport	1.39	0900	26 Mar 79	2400	27 Mar 79

2. Creek Flow Summary

Discharge Condition	Value	Time	Date
Maximum, CFS	513.2	0500	27 Mar 79
Average, CFS	48.7	--	27 Mar 79
Total volume, ft^3	6,922,800	0830 2400	26 Mar 79 27 Mar 79
Prior to Storm, CFS	0.539		
Average (Previous 7 days), CFS	0.889		
Average (Previous 30 days), CFS	3.26		

(a) Complete record not available

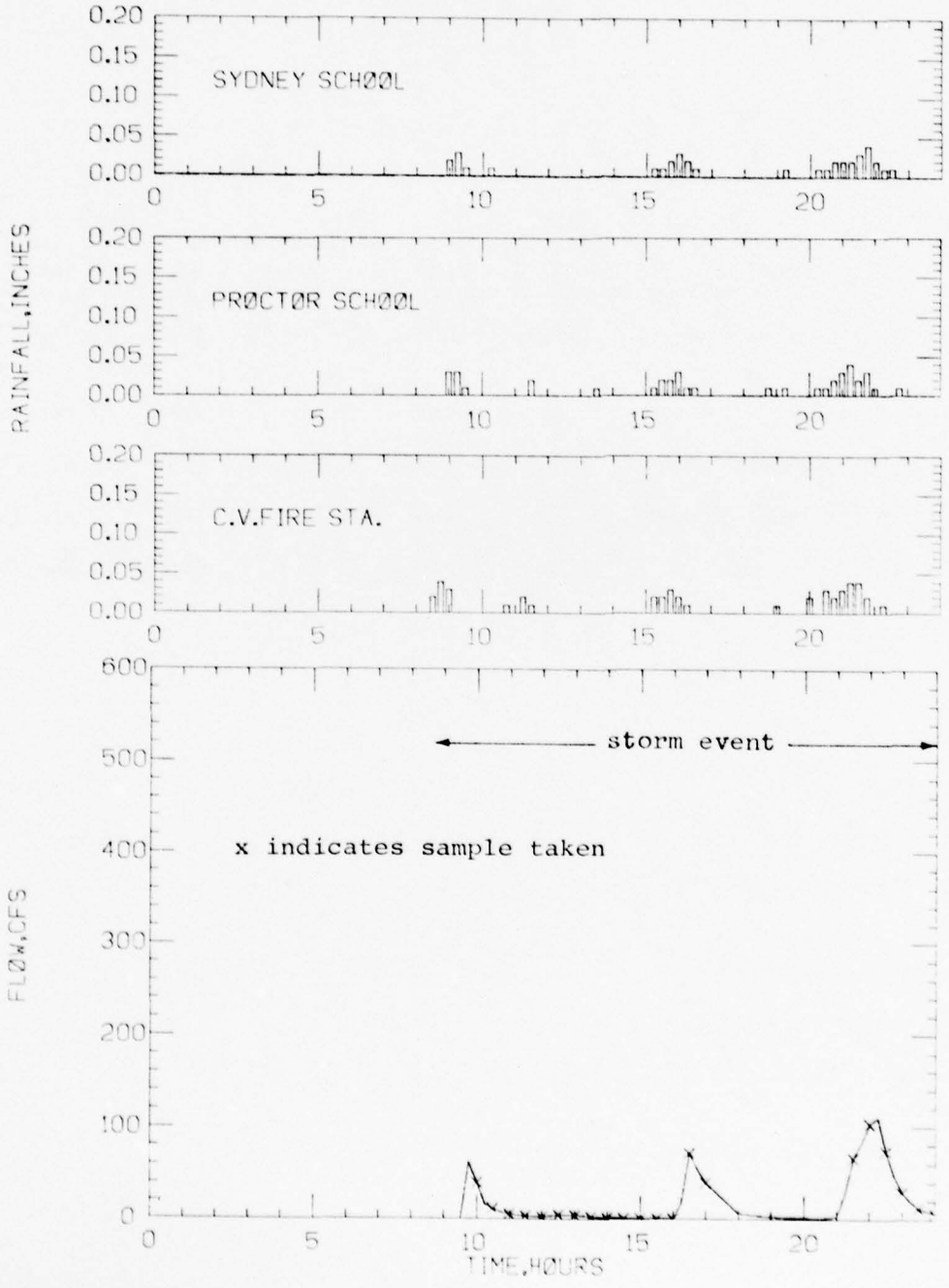
PAYMENTS, ORDERS, AND INQUIRIES TO NATIONAL CLIMATIC CENTER, FEDERAL BUILDING, ASHEVILLE, NORTH CAROLINA 28801.

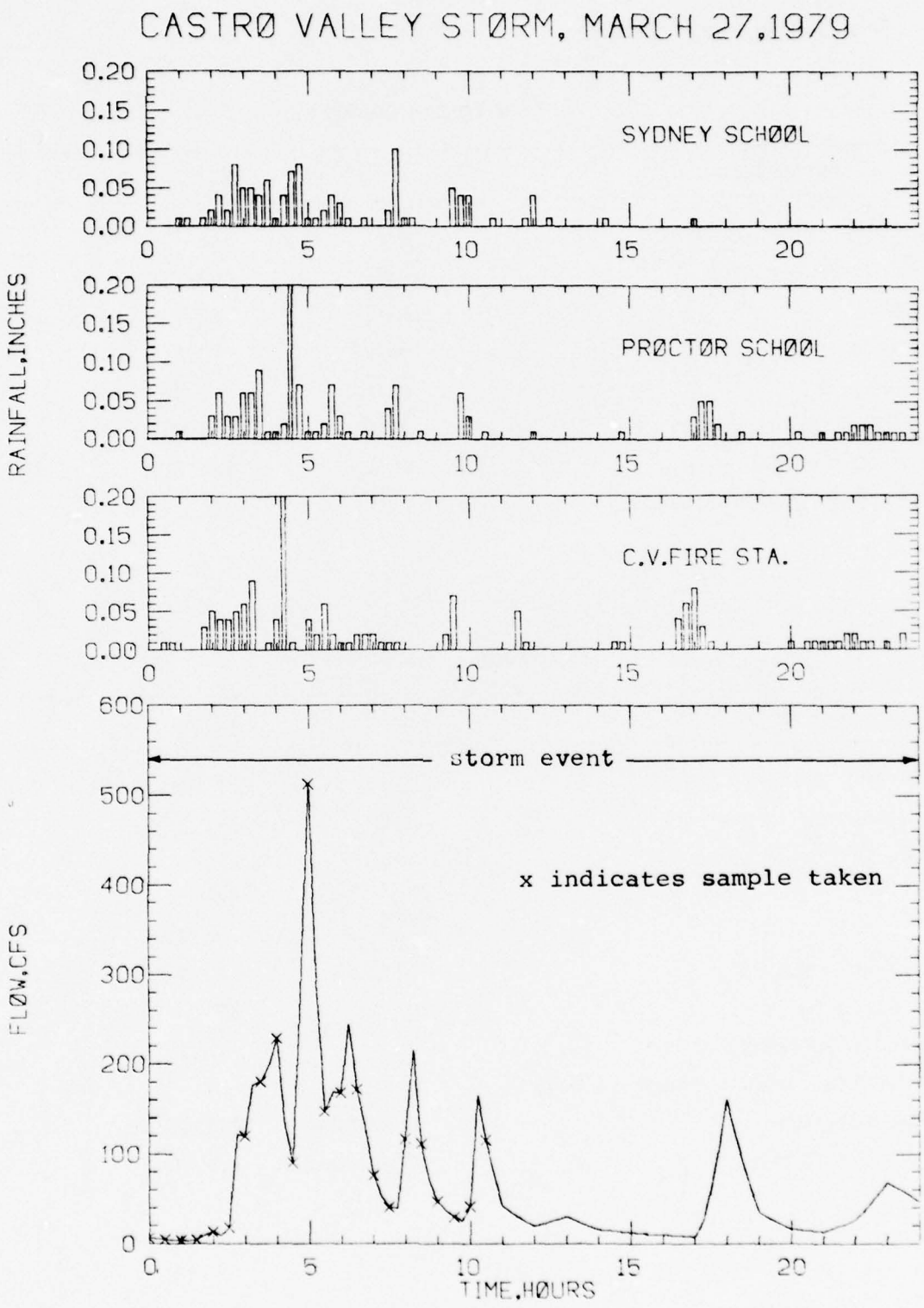
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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 03/30/79 575




CASTRØ VALLEY STØRM, MARCH 27,1979
RAINFALL,INCHES
0.20
0.15
0.10
0.05
0.00
SYDNEY SCHØØL
PRØCTØR SCHØØL
C.V.FIRE STA.
0
5
10
15
20
FLØW,CFS
600
500
400
300
200
100
0
storm event
x indicates sample taken
TIME,HØURS

3. Sampling Analysis Results

Flow Weighted Composite

Parameter	Units	Value
Chemical oxygen demand	mg/L	118
Total nitrogen as N	mg/L	3.7
Lead	mg/L	0.4
Chromium	mg/L	<0.06
Copper	mg/L	0.06
Total ortho phosphorus as P	mg/L	0.35
Suspended solids	mg/L	136
Volatile suspended solids	mg/L	72

Discrete Sample

Parameter	Units	Value
Date and time	--	27 Mar 0815
Instantaneous flow rate	cfs	215.5
Temperature	DegC	--
Specific Conductance	µmho/cm	120
pH	--	6.4
Settleable solids	ml/L	0.4
Suspended solids	mg/L	216
Volatile suspended solids	mg/L	62
Biochemical oxygen demand (5 day)	mg/L	9
Total coliform	MPN/100ml	1.1×10^6
Fecal coliform	MPN/100ml	4.6×10^4

4. Observation at Sampling Station During Event.

   Nothing significant to report.

5. Observation in Tributary Area During Event.

   Nothing significant to report.

6. Comments on Storm Event.

   1. The total rainfall for this event was more than 1.25 inches.

   2. Complete rainfall records for this storm event for the raingage at Sydney School are unavailable due to raingage malfunction. Rainfall records for this raingage are available through 1700 March 27.

   3. Flow response at the gaging station occurs within one half hour following a change in the rainfall rate.

   4. The runoff period for this storm event began at the first recorded rainfall at 0830 on March 26 and ended at 2400 on March 27.

   5. A flow weighted composite sample and a single discrete grab sample were analyzed for this event.

   6. Samples used in the composite sample analysis were taken at half hour intervals from 1000 to 1700 and 2130 to 2400 on March 26 and from 0030 to 1030 on March 27 as indicated by X's on the flow plot.

STORM EVENT 13 - MARCH 26-27, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
3-26-79	8:00	1.35	0.539				
3-26-79	8:15	1.36	0.570				
3-26-79	8:30	1.37	0.601		0.02		
3-26-79	8:45	1.38	0.633		0.04		
3-26-79	9:00	1.39	0.666		0.03	0.03	0.02
3-26-79	9:15	1.37	0.601			0.03	0.03
3-26-79	9:30	1.37	0.601			0.01	0.01
3-26-79	9:45	2.64	61.9				
3-26-79	10:00	2.45	40.5	YES			
3-26-79	10:15	2.13	16.6				0.01
3-26-79	10:30	2.04	12.5	YES			
3-26-79	10:45	1.92	8.11		0.01		
3-26-79	11:00	1.86	6.50	YES			
3-26-79	11:15	1.80	5.16		0.02		
3-26-79	11:30	1.77	4.54	YES	0.01	0.02	
3-26-79	11:45	1.71	3.48				
3-26-79	12:00	1.71	3.48	YES			
3-26-79	12:15	1.77	4.54				
3-26-79	12:30	1.81	5.38	YES			
3-26-79	12:45	1.80	5.16				
3-26-79	13:00	1.80	5.16	YES			
3-26-79	13:15	1.76	4.35				
3-26-79	13:30	1.71	3.48	YES		0.01	
3-26-79	13:45	1.66	2.74				
3-26-79	14:00	1.62	2.25	YES			
3-26-79	14:15	1.60	2.03				
3-26-79	14:30	1.58	1.82	YES			
3-26-79	14:45	1.56	1.65				
3-26-79	15:00	1.53	1.41	YES			
3-26-79	15:15	1.52	1.34		0.02	0.01	0.01
3-26-79	15:30	1.49	1.14	YES	0.02	0.02	0.01
3-26-79	15:45	1.49	1.14		0.03	0.02	0.02
3-26-79	16:00	1.49	1.14	YES	0.02	0.03	0.03
3-26-79	16:15	2.16	18.3		0.01	0.01	0.02
3-26-79	16:30	2.72	71.7	YES		0.01	0.01
3-26-79	16:45	2.57	53.7				
3-26-79	17:00	2.45	40.5	YES			
3-26-79	18:00	1.88	6.99				
3-26-79	18:15	1.83	5.82				
3-26-79	18:30	1.79	4.95				
3-26-79	18:45	1.74	3.98			0.01	
3-26-79	19:00	1.69	3.17		0.01		

STORM EVENT 13 - MARCH 26-27, 1979 STORM DATA (Continued)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
3-26-79	19:15	1.66	2.74			0.01	0.01
3-26-79	19:30	1.62	2.25				
3-26-79	19:45	1.60	2.03				
3-26-79	20:00	1.59	1.92		0.02		
3-26-79	20:15	1.58	1.82			0.01	0.01
3-26-79	20:30	1.58	1.82		0.03	0.01	0.01
3-26-79	20:45	1.62	2.25		0.02	0.02	0.02
3-26-79	21:00	1.73	3.81		0.03	0.03	0.02
3-26-79	21:15	2.32	29.0		0.04	0.04	0.02
3-26-79	21:30	2.68	66.7	YES	0.04	0.02	0.03
3-26-79	21:45	2.81	83.7		0.02	0.03	0.04
3-26-79	22:00	2.95	104.0	YES		0.01	0.02
3-26-79	22:15	2.99	110.4		0.01		0.01
3-26-79	22:30	2.74	74.3	YES			0.01
3-26-79	22:45	2.52	47.9			0.01	
3-26-79	23:00	2.34	30.6	YES			
3-26-79	23:15	2.19	20.0				
3-26-79	23:30	2.05	12.9	YES			
3-26-79	23:45	1.97	9.78				
3-26-79	24:00	1.89	7.24	YES			
3-27-79	0:15	1.84	6.00				
3-27-79	0:30	1.80	5.18	YES	0.01		
3-27-79	0:45	1.76	4.48		0.01		
3-27-79	1:00	1.74	4.19	YES		0.01	0.01
3-27-79	1:15	1.71	3.78				0.01
3-27-79	1:30	1.78	4.82	YES			
3-27-79	1:45	1.99	10.5		0.03		0.01
3-27-79	2:00	2.09	14.2	YES	0.05	0.03	0.02
3-27-79	2:15	1.97	9.78		0.04	0.06	0.04
3-27-79	2:30	2.17	18.8	YES	0.04	0.03	0.02
3-27-79	2:45	3.07	121.9		0.05	0.03	0.08
3-27-79	3:00	3.06	120.4	YES	0.06	0.06	0.05
3-27-79	3:15	3.42	177.6		0.09	0.06	0.05
3-27-79	3:30	3.44	181.0	YES		0.09	0.04
3-27-79	3:45	3.54	198.5		0.01	0.01	0.06
3-27-79	4:00	3.73	229.4	YES	0.04	0.01	0.01
3-27-79	4:15	3.14	132.3		0.40	0.02	0.04
3-27-79	4:30	2.86	90.6	YES	0.01	0.25	0.07
3-27-79	4:45	4.08	285.3			0.07	0.08
3-27-79	5:00	5.71	513.2	YES	0.04	0.01	0.01
3-27-79	5:15	4.04	279.3		0.02	0.01	0.01
3-27-79	5:30	3.24	148.0	YES	0.06	0.02	0.02
3-27-79	5:45	3.37	169.3		0.02	0.07	0.04

STORM EVENT 13 - MARCH 26-27, 1979 STORM DATA (Continued)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
3-27-79	6:00	3.37	169.3	YES	0.01	0.03	0.03
3-27-79	6:15	3.83	245.3		0.01	0.01	0.01
3-27-79	6:30	3.39	172.6	YES	0.02		
3-27-79	6:45	3.14	132.3		0.02	0.01	0.01
3-27-79	7:00	2.76	76.9	YES	0.02		
3-27-79	7:15	2.57	53.7		0.01		
3-27-79	7:30	2.46	41.5	YES	0.01	0.04	0.02
3-27-79	7:45	2.44	39.5		0.01	0.07	0.10
3-27-79	8:00	3.04	117.6	YES			0.01
3-27-79	8:15	3.64	215.5				0.01
3-27-79	8:30	3.00	112.0	YES		0.01	
3-27-79	8:45	2.70	69.1				
3-27-79	9:00	2.52	47.9	YES			
3-27-79	9:15	2.42	37.6		0.02		
3-27-79	9:30	2.34	30.6	YES	0.07		0.05
3-27-79	9:45	2.28	26.0			0.06	0.04
3-27-79	10:00	2.47	42.5	YES		0.03	0.04
3-27-79	10:15	3.35	166.0				
3-27-79	10:30	3.03	116.2	YES		0.01	
3-27-79	10:45	2.76	76.9				0.01
3-27-79	11:00	2.48	43.6				
3-27-79	11:15	2.41	36.7				
3-27-79	11:30	2.34	30.6		0.05		
3-27-79	11:45	2.26	24.6		0.01		0.01
3-27-79	12:00	2.19	20.0			0.01	0.04
3-27-79	12:15	2.23	22.5				
3-27-79	12:30	2.27	25.3				0.01
3-27-79	12:45	2.30	27.5				
3-27-79	13:00	2.34	30.6				
3-27-79	13:15	2.29	26.7				
3-27-79	13:30	2.23	22.5				
3-27-79	13:45	2.18	19.4				
3-27-79	14:00	2.12	16.1				
3-27-79	14:15	2.10	15.1				0.01
3-27-79	14:30	2.09	14.6		0.01		
3-27-79	14:45	2.07	13.7		0.01	0.01	
3-27-79	15:00	2.06	13.3				
3-27-79	15:15	2.04	12.5				
3-27-79	15:30	2.02	11.7				
3-27-79	15:45	2.00	10.9				
3-27-79	16:00	1.99	10.5				
3-27-79	16:15	1.97	9.78				
3-27-79	16:30	1.96	9.43		0.04		

STORM EVENT 13 - MARCH 26-27, 1979 STORM DATA
(Concluded)

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
3-27-79	16:45	1.94	8.75		0.06		
3-27-79	17:00	1.92	8.11		0.08	0.03	0.01
3-27-79	17:15	2.27	25.3		0.03	0.05	
3-27-79	17:30	2.62	59.6		0.01	0.05	
3-27-79	17:45	2.97	107.2			0.02	
3-27-79	18:00	3.32	161.2				
3-27-79	18:15	3.09	124.8				
3-27-79	18:30	2.86	90.6			0.01	
3-27-79	18:45	2.63	60.8				
3-27-79	19:00	2.40	35.8				
3-27-79	19:15	2.33	29.8				
3-27-79	19:30	2.27	25.3				
3-27-79	19:45	2.20	20.6				
3-27-79	20:00	2.13	16.6		0.01		
3-27-79	20:15	2.12	16.1			0.01	
3-27-79	20:30	2.10	15.1		0.01		
3-27-79	20:45	2.09	14.6		0.01		
3-27-79	21:00	2.07	13.7		0.01	0.01	
3-27-79	21:15	2.13	16.6		0.01		
3-27-79	21:30	2.19	20.0		0.01	0.01	
3-27-79	21:45	2.24	23.1		0.02	0.01	
3-27-79	22:00	2.30	27.5		0.02	0.02	
3-27-79	22:15	2.40	35.8		0.01	0.02	
3-27-79	22:30	2.50	45.7		0.01	0.02	
3-27-79	22:45	2.60	57.4			0.01	
3-27-79	23:00	2.70	69.1		0.01	0.01	
3-27-79	23:15	2.65	63.1			0.01	
3-27-79	23:30	2.61	58.5		0.02	0.01	
3-27-79	23:45	2.56	52.5				
3-27-79	24:00	2.51	46.8			0.01	

MARCH 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND) FT STANDARD TIME USED: PACIFIC WBAN 23234

MARCH 1979 SAN FRANCISCO, CALIFORNIA

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPAR FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (WITH BASE 65)	COOLING (WITH BASE 65)	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW ICE PELLETS DEPTH ON GROUND	PRECIPITATION WATER (OR MELTED)	SNOW ICE MELTED	STA PRESS MEAN	WIND RESULTANT DIR	RESULTANT SPEED	AVERAGE SPEED	FASTEST M.P.H. SPEED	FASTEST M.P.H. DIRECTION	SUNSHINE MINUTES	PERCENT	SKY COVER TENTHS SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT
1	64	43	54	-3	37	11	0		0	T	0	29.82	30	10.5	13.6	25	30			10	8
2	55	44	50	-7	37	15	0	1	0	.04	0	30.07	11	1.4	7.2	12	10			10	8
3	58	42	50	-7	35	15	0	1	0	.06	0	30.24	04	3.3	8.8	16	30			10	8
4	61	46	54	-3	37	11	0	1	0	0	0	30.29	34	3.3	7.8	15	30			10	8
5	68	46	57	0	39	8	0	1	0	0	0	30.31	31	6.2	7.8	15	30			10	8
6	73	50	62	10	43	3	0	1	0	0	0	30.26	31	6.5	8.8	18	30			10	8
7	72	48	60	8	43	5	0	1	0	0	0	30.11	31	8.5	11.1	22	30			10	8
8	74*	48	61*	9	43	4	0	1 2	0	0	0	29.90	32	5.4	9.6	18	30			10	8
9	57	51	54	1	46	11	0	2	0	T	0	29.93	26	5.6	9.6	19	24			10	8
10	60	51	56	3	46	9	0		0	T	0	30.14	24	5.6	8.8	14	23			10	8
11	61	46	54	1	44	11	0		0	0	0	30.17	30	6.6	8.8	16	29			10	8
12	71	43	57	4	41	8	0		0	0	0	29.97	30	6.2	8.8	16	30			10	8
13	65	50	58	5	44	7	0	1	0	0	0	30.04	25	7.4	9.8	17	24			10	8
14	64	54	59	6	48	6	0		0	0	0	30.15	26	10.0	12.2	23	30			10	8
15	57	50	54	1	46	11	0	2	0	.02	0	29.95	28	8.8	12.1	20	30			10	8
16	57	46	52	-1	44	13	0	1	0	.33	0	29.82	15	4.8	9.2	17	28			10	8
17	60	46	53	0	43	12	0		0	T	0	30.01	30	7.9	9.6	17	28			10	8
18	61	48	55	2	43	10	0	1	0	.18	0	29.97	29	7.9	9.8	17	29			10	8
19	61	48	55	2	43	10	0		0	0	0	29.78	32	5.8	8.8	18	29			10	8
20	61	48	55	2	43	10	0		0	0	0	29.78	28	6.8	8.8	15	28			10	8
21	58	48	54	1	43	11	0		0	T	0	29.88	23	8.1	8.8	12	21			10	8
22	65	48	57	4	43	8	0	1	0	.26	0	30.07	15	2.6	7.1	14	21			10	8
23	65	44	55	2	41	10	0		0	0	0	30.20	27	3.2	7.5	12	29			10	8
24	68	44	56	3	41	9	0		0	0	0	30.20	28	3.2	7.5	12	29			10	8
25	61	45	53	0	41	12	0		0	0	0	30.04	28	10.3	13.2	20	27			10	8
26	61	48	55	1	43	10	0	1	0	.61	0	29.74	18	9.8	13.1	22	15			10	8
27	60	48	54	0	43	10	0	1	0	1.02	0	29.54	19	17.0	18.8	33	17			10	8
28	61	48	55	1	43	10	0		0	.20	0	29.73	16	6.4	10.2	16	16			10	8
29	62	47	55	1	43	10	0		0	T	0	30.09	29	13.1	15.2	20	28			10	8
30	61	49	55	1	43	10	0		0	0	0	30.21	30	11.1	13.2	20	28			10	8
31	66	45	56	2	43	9	0		0	0	0	30.25	29	5.6	7.1	20	28			10	8
SUM	2026	1469				319	0			2.74	0	30.03	27	4.3	9.7	33	17	728	23	9.7	8.0
AVG	65.4	47.4	56.5	1.5	42.6																
DEP FROM NORMAL						53		NUMBER OF DAYS PRECIPITATION		DEF						DATE	27	PEAK WIND		AVG	6.0
HIGHEST	74	62																			
DATE	8	8																			
LOWEST	55	43																			
DATE	31	31																			

NUMBER OF DAYS	FOR THE MONTH	TOTAL
MAXIMUM TEMP. 90° OR ABOVE	0	0
MINIMUM TEMP. 32° OR BELOW	0	0
MAXIMUM TEMP. 32° OR BELOW	0	0
MINIMUM TEMP. 0° OR BELOW	0	0
SEASON TO DATE		
SNOW, ICE PELLETS	0	0
.10 INCH	0	0
THUNDERSTORMS	0	0
HEAVY FOG	1	1
CLEAR 6	PARTLY CLOUDY 6	CLOUDY 19

GREATEST IN 24 HOURS AND DATES	
PRECIPITATION	1.37 26-27
SNOW, ICE PELLETS	0

GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
- MISS ON AN EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS. FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

HOUR (LST)	SKY COVER TENTHS	STATION PRESSURE IN.	TEMPERATURE °F DRY BULB	TEMPERATURE °F WET BULB	HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	6	30.02	51	48	85	8.6	28	4.8
04	7	30.01	50	47	85	7.5	26	3.6
07	7	30.03	50	48	84	6.6	20	2.2
10	7	30.05	55	51	76	8.9	10	1.2
13	7	30.03	58	53	68	10.6	33	5.0
16	7	30.01	58	53	67	13.4	28	8.3
19	7	30.01	53	50	86	12.5	28	9.1
22	5	30.03	52	49	86	9.8	28	7.0

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1			T																						1
2	T	.01	T	.01	T	.02	T	T	T	T	T	T	.01	T	T		T	.01	T	.02	.01	T	T	T	2
3																									3
4																									4
5																									5
6																									6
7																									7
8							T	T	T	T	T	T													8
9																									9
10																									10
11																									11
12																									12
13																									13
14	T							T	T																14
15										.02	T		T		T				T						15
16	T	T	.06	.06	.06	.01	.01	T	T	T	.03	.04	T	.04	.02	T	T	T	T	T	T	T	T	T	16
17																									17
18	T				T	T	T	T	T		T	.09	.08	.01	T									T	18
19						T																			19
20																									20
21																	T	T	T						21
22	T	.06	.02	.05	.01	.01	.02						T	.08		T	T						T	T	22
23																									23
24																									24
25																									25
26									T	.08	.01		T		.02	.01	T	.03	.05	.14	.23	.08	T	T	26
27	.02	.24	.10	.05	.01	T	.09	.06	.14	T	.03		.05	.02			.01	T			.05	.12	.03		27
28					T			T			T		.01	.01	.04	.07	.07	T	T		-				28
29																									29
30																									30
31																									31

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 04-25-79 535

MARCH 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

MARCH 1979 OAKLAND, CALIFORNIA

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT STANDARD TIME USED: PACIFIC WBAN 23230

DAY	TEMPERATURE °F MAX	MIN	AVG	DEP FROM NORMAL	HEATING	COOLING	PRECIPITATION WATER (INCHES)	SNOW, ICE (INCHES)	WIND MEAN SPEED (MPH)	RESULTANT SPEED (MPH)	RESULTANT DIR (TENS OF DEGREES)	FASTEST MILE SPEED (MPH)	FASTEST MILE DIR (TENS OF DEGREES)	SUNSHINE PERCENT POSSIBLE	SKY COVER (TENTHS) AVG
1	55	45	50	-3	15	0	0	0	20	03	31	31	31	21	31
2	55	43R	49R	-4	16	0	0	0	20	10	32	29	32	12	8
3	61	51	56	3	9	0	01	0	20	03	32	29	32	12	10
4	60	50	55	2	10	0	0	0	20	11	32	29	32	16	7
5	65	50	58	5	7	0	0	0	20	11	25	29	32	18	6
6	61	50	56	3	9	0	0	0	20	13	26	29	32	18	7
7	71R	52	62R	9	3	0	0	0	20	13	32	29	32	14	7
8	70	51	61	8	4	0	0	0	20	02	31	29	32	14	7
9	67	53	60	7	5	0	0	0	20	05	31	29	32	10	10
10	60	55	58	5	7	0	0	0	20	16	26	29	32	10	10
11	61	51	56	3	9	0	0	0	20	16	32	29	32	11	9
12	65	46	56	3	9	0	0	0	20	09	26	29	32	10	6
13	62	53	58	5	7	0	0	0	20	05	27	29	32	10	10
14	60	56	58	5	7	0	0	0	20	18	32	29	32	10	10
15	58	52	55	2	10	0	0	0	20	07	24	29	32	10	10
16	53	46	50	-3	14	0	80	0	20	04	19	29	32	10	10
17	58	46	52	-1	13	0	0	0	20	03	29	29	32	10	10
18	55	51	53	-1	12	0	0	0	20	08	29	29	32	10	10
19	60	50	55	1	10	0	0	0	20	08	29	29	32	10	10
20	61	53	57	3	8	0	0	0	20	08	29	29	32	10	10
21	58	52	55	2	10	0	0	0	20	08	29	29	32	10	10
22	60	52	56	2	9	0	0	0	20	08	29	29	32	10	10
23	64	46	55	1	10	0	0	0	20	08	29	29	32	10	10
24	65	50	58	4	7	0	0	0	20	08	29	29	32	10	10
25	60	53	57	3	8	0	0	0	20	08	29	29	32	10	10
26	62	52	57	3	8	0	0	0	20	08	29	29	32	10	10
27	58	51	55	1	10	0	05	0	20	08	29	29	32	10	10
28	57	48	53	-2	12	0	06	0	20	08	29	29	32	10	10
29	58	48	53	-2	12	0	0	0	20	10	29	29	32	10	10
30	58	48	53	-2	12	0	0	0	20	09	29	29	32	10	10
31	61	44	53	-2	12	0	0	0	20	11	29	29	32	10	10
	58*	50*			374	0	2.64	0	20.05	3.5	8.3	29	32	10	9
	18**	1952			29**	0	0.80	0	12	26	32	26	32	31	31
	41	41	AVG	DEP	AVG		DEP	DEP							
	60.2	50.1	55.2	1.0	4	0	-.56	0	0.32					6.8	7.1

| | | | | | | |

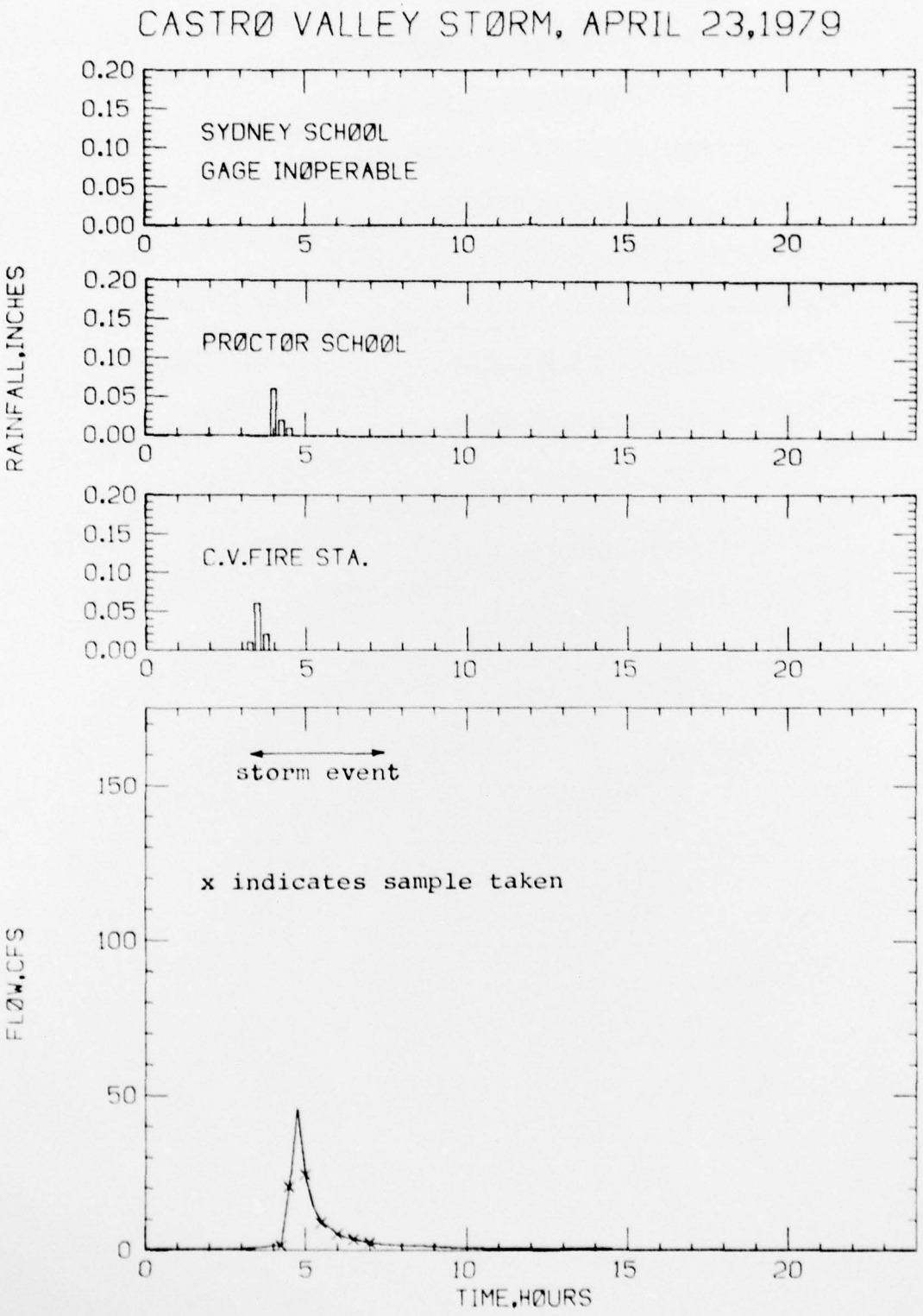
STORM EVENT REPORT NO. 14
April 23, 1979

1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	0.09	0315	23 Apr 79	0345	23 Apr 79
2. Proctor School	0.09	0400	23 Apr 79	0430	23 Apr 79
3. Sydney School	--	--	--	--	--
4. San Francisco Airport	0.21	0300	23 Apr 79	0500	23 Apr 79
5. Oakland Airport	0.14	0400	23 Apr 79	1000	23 Apr 79

2. Creek Flow Summary

Discharge Condition	Value	Time	Date
Maximum, CFS	45.7	0445	23 Apr 79
Average, CFS	8.89	--	23 Apr 79
Total volume, ft^3	136,000	from 0315 to 0730	23 Apr 79 23 Apr 79
Prior to Storm, CFS	0.552		
Average (Previous 7 days), CFS	0.850		
Average (Previous 30 days), CFS	4.02		


CASTRØ VALLEY STØRM, APRIL 23,1979
RAINFALL,INCHES
0.20
0.15
0.10
0.05
0.00
SYDNEY SCHØØL
GAGE INØPERABLE
PRØCTØR SCHØØL
C.V.FIRE STA.
0
5
10
15
20
FLØW,CFS
150
100
50
0
storm event
x indicates sample taken
TIME,HØURS

3. Sampling Analysis Results

Flow Weighted Composite

Parameter	Units	Value
Chemical oxygen demand	mg/L	298
Total nitrogen as N	mg/L	9.1
Lead	mg/L	0.8
Chromium	mg/L	<0.06
Copper	mg/L	0.10
Total ortho phosphorus as P	mg/L	0.37
Suspended solids	mg/L	528
Volatile suspended solids	mg/L	152

Discrete Sample

Parameter	Units	Value
Date and time	--	23 Apr 0800
Instantaneous flow rate	cfs	1.41
Temperature	DegC	13.3
Specific conductance	µmho/cm	180
pH	--	6.3
Settleable solids	mL/L	<0.1
Suspended solids	mg/L	16
Volatile suspended solids	mg/L	12
Biochemical oxygen demand (5-day)	mg/L	7
Total coliform	MPN/100 mL	$>2.4 \times 10^6$
Fecal coliform	MPN/100 mL	4.3×10^4

4. Observations at Sampling Station During Storm Event.

   Nothing significant to report.

5. Observations in Tributary Area During Storm Event.

   Nothing significant to report.

6. Comments on Storm Event.

   1. The raingage at Sydney School was inoperable during this storm event.

   2. The raingage at Castro Valley Fire Station appears to be offset one half hour ahead of the raingage at Proctor School.

   3. Flow response at the gaging station occurred within one half hour of the start of recorded rainfall at Proctor School.

   4. A flow weighted composite sample and a discrete grab sample were analyzed for this storm event.

   5. The samples used in the composite sample analysis were collected at half hour intervals from 0430 to 0700.

STORM EVENT 14 - APRIL 23, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
4-23-79	3:00	1.33	0.552				
4-23-79	3:15	1.38	0.769		0.01		
4-23-79	3:30	1.43	1.05		0.06		
4-23-79	3:45	1.47	1.31		0.02		
4-23-79	4:00	1.52	1.70			0.06	
4-23-79	4:15	1.53	1.78	YES		0.02	
4-23-79	4:30	2.20	20.6	YES		0.01	
4-23-79	4:45	2.50	45.7				
4-23-79	5:00	2.26	24.6	YES			
4-23-79	5:15	2.08	14.2				
4-23-79	5:30	1.95	9.08	YES			
4-23-79	5:45	1.90	7.50				
4-23-79	6:00	1.81	5.36	YES			
4-23-79	6:15	1.76	4.48				
4-23-79	6:30	1.71	3.78	YES			
4-23-79	6:45	1.67	3.26				
4-23-79	7:00	1.63	2.77	YES			
4-23-79	7:15	1.60	2.44				
4-23-79	7:30	1.57	2.14				
4-23-79	7:45	1.54	1.87				
4-23-79	8:00	1.53	1.78				

APRIL 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (GROUND): 8 FT STANDARD TIME USED: PACIFIC WBAN 023234

APRIL 1979 SAN FRANCISCO, CALIFORNIA

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (MONTH)	HEATING (SEASON)	COOLING (MONTH)	COOLING (SEASON)	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW ICE PELLETS DEPTH ON GROUND	PRECIPITATION WATER EQUIV.	SNOW ICE PELLETS	AVG STATION PRESS	WIND RESULTANT DIR	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION	SUNSHINE MINUTES	PERCENT POSSIBLE	SKY COVER TENTHS SUNRISE-SUNSET	SUNRISE-MIDNIGHT	MIDNIGHT-SUNRISE
1	66	43	55	1	44	10		0			0	0	0	30.14	28	6.3	8.8	23	28			1	0	1
2	62	45	54	0	44	11		0			0	0	0	30.12	28	12.8	14.0	26	28			0	0	0
3	66	48	58	2	48	9		0			0	0	0	30.15	30	6.0	8.5	18	30			2	0	2
4	68	44	56	2	48	9		0			0	0	0	30.12	31	6.7	9.4	21	30			1	1	1
5	58	48	53	-1	47	12		0			0	T	0	30.00	29	7.3	7.9	17	29			7	2	6
6	62	52	57	3	48	8		0			0	.01	0	30.02	25	8.2	10.5	16	21			8	2	7
7	65	47	56	1	48	9		0			0	0	0	30.08	29	8.7	10.9	22	27			8	1	8
8	58	50	54	0	48	10		0	1		0	T	0	30.11	28	14.6	14.8	25	30			9	1	8
9	60	48	54	0	43	10		0	1		0	.01	0	30.04	30	21.8	22.0	32	28			9	2	7
10	58	48	53	-2	43	12		0	1		0	T	0	30.06	30	17.6	17.8	29	28			9	2	7
11	60	51	56	1	48	9		0			0	T	0	30.03	29	21.1	21.1	30	29			6	4	5
12	61	48	55	0	47	10		0			0	0	0	30.10	29	16.4	16.5	26	28			5	3	5
13	61	48	55	0	47	10		0			0	0	0	30.08	29	13.8	14.2	21	28			3	2	3
14	67	44	56	1	46	9		0			0	0	0	29.88	29	11.8	13.2	26	28			3	2	3
15	66	50	58	3	48	7		0			0	0	0	29.97	30	11.7	12.7	20	30			3	2	3
16	61	51	56	1	48	9		0		3	0	.04	0	29.88	23	10.5	11.5	18	24			9	2	7
17	57	47	52	-3	40	13		0			0	.03	0	29.88	28	18.5	18.7	26	28			9	2	7
18	58	44	51*	-5	37	14		0			0	0	0	30.14	28	16.3	16.5	25	28			5	0	5
19	61	43	52	-4	38	13		0			0	0	0	30.18	29	13.0	13.2	22	29			0	0	0
20	61	42*	52	-4	42	13		0			0	0	0	30.14	29	8.4	11.1	22	29			8	2	6
21	65	48	57	1	47	8		0			0	0	0	30.02	28	11.5	13.1	21	29			8	2	6
22	62	48	55	0	48	9		0			0	.02	0	29.86	20	8.5	9.8	17	21			8	2	6
23	64	51	58	2	48	7		0			0	.26	0	29.86	19	11.1	13.7	20	22			10	7	3
24	64	47	56	0	47	9		0			0	0	0	30.05	30	3.7	7.3	14	30			7	3	4
25	68*	52	61*	5	48	4		0			0	.01	0	29.88	19	1.3	6.3	9	22			10	4	6
26	61	55	58	2	53	7		0		3	0	.31	0	29.97	14	4.0	6.5	16	21			10	4	6
27	68	51	60	4	51	5		0			0	T	0	30.12	24	8.4	10.6	17	26			4	1	3
28	65	52	59	3	50	6		0			0	0	0	30.12	29	14.1	14.4	23	27			4	2	2
29	63	52	58	1	48	7		0			0	0	0	30.01	29	14.5	14.7	22	28			8	3	5
30	62	51	57	0	47	8		0			0	T	0	29.98	27	11.6	11.9	18	28			8	3	5
	SUM	SUM				TOTAL	TOTAL					TOTAL	TOTAL	TOP THE MONTH						TOTAL		SUM	SUM	
	1882	1447				217	0			NUMBER OF DAYS		.69	0	30.05	28	10.1	12.8	32	28					
	AVG	AVG	AVG	DEP	AVG	DEP	DEP			PRECIPITATION		DEP							DATE	09		AVG	AVG	
	62.7	48.2	55.5	0.2	46	-14	0			.01 INCH	8	-0.90										5.6	5.4	
	NUMBER OF DAYS					SEASON TO DATE				SNOW ICE PELLETS		GREATEST IN 24 HOURS AND DATES			GREATEST DEPTH ON GROUND OF SNOW ICE PELLETS OR ICE AND DATE									
	MAXIMUM TEMP		MINIMUM TEMP			TOTAL	TOTAL			T OR MORE	0	PRECIPITATION		SNOW ICE PELLETS										
	≥ 90°	≤ 32°	≤ 32°	≤ 0°		DEP	DEP			THUNDERSTORMS	0													
	0	0	0	0		129	0			HEAVY FOG	0	32	25-26	0										
										CLEAR 0		PCT CLOUDY 10		CLOUDY 11										

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE(S) OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 6 AND 12 IS ARE BASED ON 1 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LST)	AVERAGES SKY COVER TENTHS	STATION PRESSURE IN	TEMPERATURE °F	DEW POINT °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	5	30.06	52	49	86	8.8	28	7.6
04	5	30.05	50	48	88	9.4	27	7.4
07	7	30.06	52	48	88	8.5	28	6.6
10	6	30.08	58	52	77	10.7	29	8.7
13	5	30.06	61	54	77	12.4	29	11.1
16	5	30.03	59	53	77	14.0	28	12.5
19	4	30.03	54	50	86	11.4	28	10.5
22	5	30.05	52	49	90	10.2	28	9.6

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																									1
2																									2
3																									3
4																									4
5																							T		5
6							.01	T	T	T			T												6
7																								T	7
8	T	.01																							8
9		T	T		T	T	T												T	T	T	T	T		9
10																									10
11																									11
12																									12
13																									13
14																									14
15																									15
16							T	T	T	T		.01	.01									.01	.01		16
17		.03			T	T																			17
18																									18
19																									19
20																									20
21																									21
22	T		.20	.01			T	T	T	T	T	T	.01	T					T	T		T	T	.01	22
23							T														.05				23
24															T	T	T	T	T	T					24
25			T	T	T	T	T	.02	.02	.02	.10	.06	.03	.01	.05	T	T	T	T	T	T	.01	T		25
26					T			T																	26
27																									27
28																									28
29					T	T	T	T	T		T	T													29
30																									30

SUBSCRIPTION PRICE: $2.55 PER YEAR (INCLUDING ANNUAL SUMMARY; FOREIGN MAILING $1.05 EXTRA. SINGLE COPY: 20 CENTS FOR MONTHLY OR ANNUAL ISSUE. THERE IS A MINIMUM CHARGE OF $3.00 FOR EACH ORDER OF SHELF-STOCKED ISSUES OF PUBLICATIONS. MAKE CHECKS PAYABLE TO DEPARTMENT OF COMMERCE - NOAA. SEND PAYMENTS, ORDERS, AND INQUIRIES TO NATIONAL CLIMATIC CENTER, FEDERAL BUILDING, ASHEVILLE, NORTH CAROLINA 28801.

I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801.

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 06-21-79 575

APRIL 1979
OAKLAND, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

METCALF & EDDY
PALO ALTO
JUN 1979

APR 1979 OAKLAND, CALIFORNIA

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT STANDARD TIME USED: PACIFIC

DAY	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING	COOLING	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW ICE PELLETS DEPTH ON GROUND 0600 GMT	PRECIPITATION WATER EQUIV.	SNOW ICE PELLETS	RESULTANT WIND SPEED	RESULTANT WIND DIR.	WIND AVERAGE SPEED	FASTEST OBSERVED 1-MIN SPEED	FASTEST OBSERVED 1-MIN DIR.	FASTEST OBSERVED 1-MIN TIME	FASTEST OBSERVED 1-MIN DATE	SUNSHINE TOTAL	SUNSHINE PERCENT POSSIBLE	SKY COVER SUNRISE-SUNSET	SKY COVER MIDNIGHT-MIDNIGHT
1	62	44	53	0	45	12	0			0	0	0.0	30	15	26	2.4	7	16	27			7	7
2	62	46	54	1	47	11	0			0	0	0.0	30	13	28	3.1	8	17	30			7	7
3	65	46	56	3	47	9	0			0	0	0.0	30	14	28	3.1	8	17	30			7	7
4	68	48	58	5	48	7	0			0	0	0.0	30	18	26	3.1	8	17	30			7	7
5	68	52	60	7	50	5	0			0	0	0.0	30	02	28	4.2	10	18	30			7	7
6	68	51	60	7	50	5	0			0	0	0.0	30	03	23	4.8	10	18	30			7	7
7	64	47	56	3	46	9	0			0	0	0.0	30	11	28	6.6	15	21	28			7	7
8	64	53	59	6	47	6	0			0	0	0.0	30	13	27	6.6	15	21	28			7	7
9	63	52	58	2	43	7	0	1		0	0	0.0	30	06	30	6.7	15	21	27			7	7
10	60	52	56	-2	42	11	0			0	0	0.0	30	01	31	5.4	12	20	28			7	7
11	61	54	58	0	42	7	0			0	0	0.0	30	04	28	5.6	13	21	28			7	7
12	61	48	55	-3	47	10	0			0	0	0.0	30	12	26	6.0	13	21	28			7	7
13	61	51	57	-1	48	8	0			0	0	0.0	30	10	26	7.3	16	21	28			7	7
14	63	46	55	-3	48	10	0			0	0	0.0	30	00	25	6.1	13	21	28			7	7
15	65	52	59	1	50	6	0			0	0	0.0	29	99	28	5.7	13	22	30			7	7
16	60	49	55	-3	48	10	0			.01	0	0.0	29	91	25	10.0	15	21	24			7	7
17	61	48	55	-3	41	10	0			.01	0	0.0	30	00	28	10.8	17	25	28			7	7
18	58	44	51	-6	37	14	0			0	0	0.0	30	15	30	10.8	17	25	28			7	7
19	58	46	52	-5	41	13	0			0	0	0.0	30	22	25	6.9	11	22	28			7	7
20	62	48	55	-2	44	10	0			0	0	0.0	30	16	25	4.4	8	15	28			7	7
21	65	51	58	1	48	7	0			0	0	0.0	30	04	26	7.1	14	22	29			7	7
22	61	53	57	0	48	8	0			.14	0	0.0	29	98	20	8.7	18	24	28			7	7
23	62	55	59	2	50	6	0			.27	0	0.0	29	88	20	14.7	25	29	28			7	7
24	64	50	57	0	50	8	0			.01	0	0.0	30	01	30	11.4	23	31	28			7	7
25	68	53	61	4	53	4	0			.02	0	0.0	30	00	31	7.6	15	22	28			7	7
26	64	58	61	4	53	4	0	1		.11	0	0.0	30	00	18	4.7	9	14	25			7	7
27	67	57	62	5	52	3	0			0	0	0.0	30	15	24	5.7	11	17	28			7	7
28	66	54	60	3	52	5	0			0	0	0.0	30	14	27	7.6	15	22	28			7	7
29	63	50	57	0	50	8	0			0	0	0.0	30	03	27	7.6	13	22	28			7	7
30	60	54	57	0	48	8	0			.10	0	0.0	30	00	26	11.0	17	25	27			7	7

SUM	1872	SUM	1527			TOTAL	244	TOTAL	0	NUMBER OF DAYS PRECIPITATION .01 INCH	6	TOTAL	.50	TOTAL	0.0	FOR THE MONTH	30.07	27	6.9	10.3	25	28	TOTAL	195	SUM	143	SUM	5.2	4.6
AVG	62.4	AVG	50.9	AVG	56.7	DEP	0.6	DEP	-.47	SNOW ICE PELLETS .1 INCH	0	SEASON TO DATE	-26	SEASON TO DATE	0	GREATEST IN 24 HOURS AND DATES	1.00						DATE	17	PERCENT POSS.	44	AVG		
NUMBER OF DAYS MAXIMUM TEMP. ≥ 90°	0	MINIMUM TEMP. ≤ 32°	0	MINIMUM TEMP. ≤ 32°	0	TOTAL	2545	TOTAL	0	THUNDERSTORMS	0	PRECIPITATION		SNOW ICE PELLETS		GREATEST DEPTH ON GROUND OF SNOW ICE PELLETS OR ICE AND DATE													
MINIMUM TEMP. ≤ 0°	0					DEP	57	DEP	0	HEAVY FOG	0	28	22-23	0															
										CLEAR 11	PARTLY CLOUDY 13	CLOUDY 6																	

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE OR DATES
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH: 00 = CALM
DATA IN COLS. 8 AND 12 ARE BASED ON * OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LST)	AVERAGES STATION PRESSURE	TEMPERATURE °F	DEW POINT °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	30.08	54	50	87	7.7	27	3.6
04	30.06	52	48	86	7.8	27	3.8
07	30.09	53	48	86	7.7	21	3.0
10	30.10	57	52	84	8.6	24	4.0
13	30.07	60	53	78	8.3	27	3.6
16	30.05	61	55	80	11.8	28	10.6
19	30.04	57	52	84	11.5	28	10.3
22	30.07	55	51	87	9.6	28	7.6

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12
1																								
2																								
3																								
4																								
5																								
6	T	T		T				T				T												
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16		.01						T				.05	.02	T								T	T	T
17																								
18																								
19																								
20																								
21																								
22								T	T															
23		T	T					.02	.01	T	T	.01	.06	.06	T	.01				T	.07	.01	.01	
24																								
25		T	T	T	T	T	T	.03	.01	.02	T	.03	.04	T		T	T	T	T	T	T	.02	T	
26																								
27																								
28																								
29						T			T	T														
30																								

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 05-21-79 600

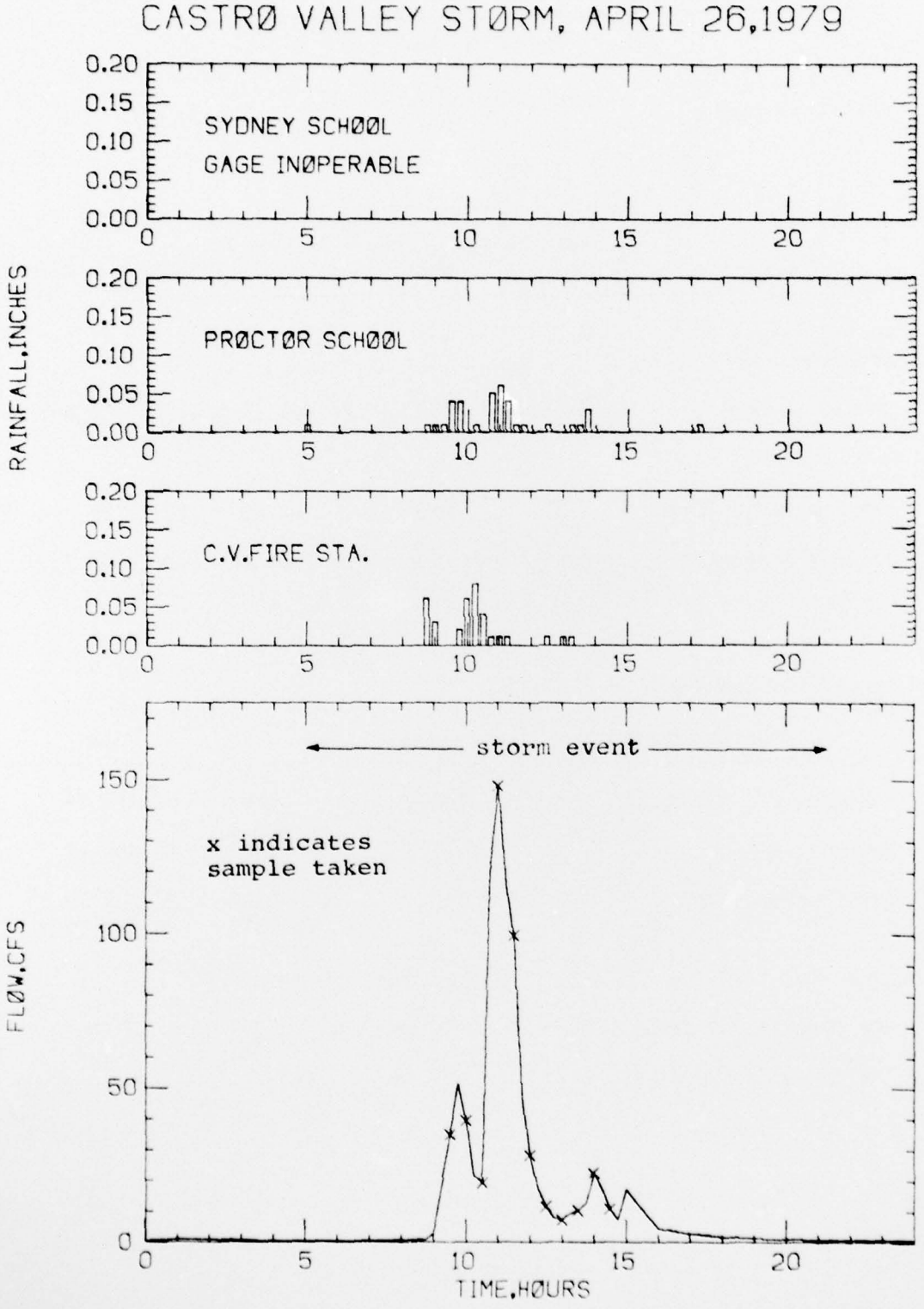
STORM EVENT REPORT NO. 15
April 26, 1979

1. Rainfall Summary

Gage	Total Rainfall in.	Start		Stop	
		Hour	Date	Hour	Date
1. Castro Valley Fire Station	0.35	0845	26 Apr 79	1315	26 Apr 79
2. Proctor School	0.37	0500	26 Apr 79	1715	26 Apr 79
3. Sydney School	--	--	--	--	--
4. San Francisco Airport	0.31	0800	26 Apr 79	1600	26 Apr 79
5. Oakland Airport	0.11	0800	26 Apr 79	1400	26 Apr 79

2. Creek Flow Summary

Discharge Condition	Value		Date
Maximum, CFS	148.0	1100	26 Apr 79
Average, CFS	17.7	--	26 Apr 79
Total volume, ft^3	971,700	from 0500	26 Apr 79
		to 2015	26 Apr 79
Prior to Storm, CFS	0.552		
Average (Previous 7 days), CFS	0.867		
Average (Previous 30 days), CFS	3.68		


CASTRØ VALLEY STØRM, APRIL 26,1979
RAINFALL,INCHES
0.20
0.15
0.10
0.05
0.00
SYDNEY SCHØØL
GAGE INØPERABLE
PRØCTØR SCHØØL
C.V.FIRE STA.
0
5
10
15
20
storm event
x indicates
sample taken
FLØW,CFS
150
100
50
0
TIME,HØURS

3. Sampling Analysis Results

Flow Weighted Composite

Parameter	Units	Value
Chemical oxygen demand	mg/L	133
Total nitrogen as N	mg/L	5.5
Lead	mg/L	0.70
Chromium	mg/L	<0.06
Copper	mg/L	0.08
Total ortho phosphorus as P	mg/L	0.32
Suspended solids	mg/L	298
Volatile suspended solids	mg/L	88

Discrete Sample

Parameter	Units	Value
Date and Time	--	26 Apr 1430
Instantaneous flow rate	cfs	2.00
Temperature	DegC	17.5
Specific conductance	µmho/cm	140
pH	--	6.6
Settleable solids	mL/L	<0.1
Suspended solids	mg/L	49
Volatile suspended solids	mg/L	20
Biochemical oxygen demand (5-day)	mg/L	8
Total coliform	MPN/100 mL	2.0×10^4
Fecal coliform	MPN/100 mL	3.0×10^2

4. Observations at Sampling Station During Storm Event.

   Nothing significant to report.

5. Observations in Tributary Area During Storm Event.

   Nothing significant to report.

6. Comments on Storm Event.

   1. The raingage at Sydney School was inoperable during this storm event.

   2. The raingage at Castro Valley Fire Station appears to lead the raingage at Proctor School by approximately 45 minutes.

   3. Flow response at the gaging station occurs within one half hour of the change in rainfall rate.

   4. A flow weighted composite sample and a discrete grab sample were analyzed for this event.

   5. The samples used in the composite sample analysis were collected at half hour intervals from 0930 to 1430.

STORM EVENT 15 - APRIL 26, 1979 STORM DATA

DATE	TIME OF DAY	STAGE, FEET	FLOW RATE, CFS	QUALITY SAMPLE TAKEN	RAINFALL, INCHES		
					CASTRO VALLEY FIRE STATION	PROCTOR SCHOOL	SIDNEY SCHOOL
4-26-79	4:00	1.33	0.552				
4-26-79	5:00	1.33	0.552			0.01	
4-26-79	6:00	1.32	0.515				
4-26-79	7:00	1.33	0.552				
4-26-79	8:00	1.38	0.769				
4-26-79	8:45	1.43	0.833		0.06	0.01	
4-26-79	9:00	1.67	2.88		0.03	0.01	
4-26-79	9:15	2.17	18.8			0.01	
4-26-79	9:30	2.39	34.9	YES		0.04	
4-26-79	9:45	2.55	51.3		0.02	0.04	
4-26-79	10:00	2.44	39.5	YES	0.06		
4-26-79	10:15	2.22	21.9		0.08	0.01	
4-26-79	10:30	2.18	19.4	YES	0.04		
4-26-79	10:45	3.06	120.5		0.01	0.05	
4-26-79	11:00	3.24	148.0	YES	0.01	0.06	
4-26-79	11:15	3.03	116.2		0.01	0.04	
4-26-79	11:30	2.92	99.4	YES		0.01	
4-26-79	11:45	2.51	46.8			0.01	
4-26-79	12:00	2.31	28.2	YES			
4-26-79	12:15	2.15	17.6				
4-26-79	12:30	2.02	11.7	YES	0.01	0.01	
4-26-79	12:45	1.92	8.11				
4-26-79	13:00	1.89	7.24	YES	0.01		
4-26-79	13:15	1.96	9.43		0.01	0.01	
4-26-79	13:30	1.99	10.5	YES		0.01	
4-26-79	13:45	2.05	12.9			0.03	
4-26-79	14:00	2.23	22.6	YES			
4-26-79	14:15	2.14	17.1				
4-26-79	14:30	2.00	10.9	YES			
4-26-79	14:45	1.90	7.50				
4-26-79	15:00	2.14	17.1				
4-26-79	16:00	1.77	4.65				
4-26-79	17:00	1.64	2.89				
4-26-79	17:15	1.62	2.66			0.01	
4-26-79	18:00	1.55	1.96				
4-26-79	19:00	1.49	1.46				
4-26-79	20:00	1.45	1.17				
4-26-79	21:00	1.42	0.985				

APRIL 1979
SAN FRANCISCO, CALIFORNIA
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 37° 37' N LONGITUDE 122° 23' W ELEVATION (FT) GRND 8 BY STANDARD TIME USED: PACIFIC WBAN 23234

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (DAILY)	COOLING (DAILY)	WEATHER TYPES OR DATES OF OCCURRENCE	SNOW ICE PELLETS ON GROUND AT 8 A.M. (INCHES)	PRECIPITATION WATER EQUIV. (INCHES)	SNOW ICE PELLETS (INCHES)	AVG STATION PRESS (FT MSL)	WIND RESULTANT DIR	WIND RESULTANT SPEED M.P.H.	WIND GUST SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIRECTION	SUNSHINE MINUTES	SUNSHINE PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	SKY COVER TENTHS MIDNIGHT TO MIDNIGHT
1	66	43	55	1	44	10	0		0	0	0	30.14	28	6.3	8.8	23	29			3	3
2	62	46	54	0	46	11	0		0	0	0	30.12	28	12.8	14.0	26	28			10	10
3	68	46	58	2	46	9	0		0	0	0	30.16	30	6.0	9.5	18	30			2	2
4	68	44	56	2	48	9	0		0	0	0	30.12	31	6.7	8.4	21	30			2	2
5	59	46	53	-1	47	12	0		0	T	0	30.00	28	7.3	7.9	17	29			8	7
6	62	52	57	3	48	8	0		0	.01	0	30.02	25	9.2	10.5	15	21			9	9
7	65	47	56	1	48	9	0		0	0	0	30.08	28	9.7	10.9	22	27			3	3
8	59	50	55	0	48	10	0	1	0	T	0	30.11	28	14.5	14.8	23	30			9	9
9	60	48	55	0	43	10	0	1	0	.01	0	30.04	30	21.8	22.0	32	28			9	9
10	59	46	53	-2	43	12	0	1	0	T	0	30.06	30	17.8	17.8	28	28			4	5
11	60	51	56	1	48	9	0		0	T	0	30.03	28	21.1	21.1	30	29			5	5
12	61	49	55	0	47	10	0		0	0	0	30.10	28	16.4	16.5	26	29			5	5
13	61	49	55	0	47	10	0		0	0	0	30.08	28	13.9	14.2	21	29			3	2
14	67	44	56	1	46	9	0		0	0	0	29.99	28	11.8	13.2	25	29			3	3
15	68	50	59	3	49	7	0		0	0	0	29.97	30	11.7	12.7	20	30			6	6
16	61	51	56	1	48	9	0	1	0	.04	0	29.89	23	10.5	11.5	18	24			9	9
17	57	47	52	-3	40	13	0		0	.03	0	29.99	28	18.5	18.7	26	28			3	3
18	58	44	51*	-5	37	14	0		0	0	0	30.14	28	16.3	16.5	25	28			0	0
19	61	43	52	-4	38	13	0		0	0	0	30.18	28	13.0	13.2	22	28			2	2
20	61	42R	52	-4	42	13	0		0	0	0	30.14	28	9.4	11.1	22	28			10	8
21	65	48	57	1	47	8	0		0	0	0	30.02	28	11.5	13.1	21	28			7	8
22	62	48	55	0	48	9	0		0	.02	0	29.98	20	8.5	9.8	17	21			8	7
23	64	51	58	2	48	7	0		0	.26	0	29.96	19	11.1	13.7	24	22			7	8
24	64	47	56	0	47	9	0		0	0	0	30.05	30	3.7	7.3	14	30			6	4
25	69R	52	61*	5	48	4	0		0	.01	0	29.98	19	1.3	6.3	9	22			10	9
26	61	55	58	2	53	7	0	1	0	.41	0	29.87	14	4.0	8.5	16	21			9	8
27	68	51	60	4	51	5	0		0	0	0	30.12	24	8.4	10.6	17	26			4	4
28	65	52	59	3	50	6	0		0	0	0	30.12	28	14.1	14.4	23	27			4	4
29	63	52	58	1	48	7	0		0	0	0	30.01	28	14.5	14.7	22	28			8	8
30	62	51	57	0	47	8	0		0	T	0	29.98	27	11.6	11.9	18	28			8	8
	SUM	SUM				TOTAL	TOTAL			TOTAL	TOTAL		FOR THE MONTH					TOTAL	%	SUM	SUM
	1882	1447				277	0	NUMBER OF DAYS		6.9	0	30.05	28	10.1	12.8	32	29	168	FOR PSBL	157	
	AVG	AVG	AVG	DEP	AVG	DEP	DEP	PRECIPITATION		DEP						DATE	09	MINUTES	PSBL	AVG	AVG
	62.7	48.2	55.5	0.2	46	-3.9	0	.01 INCH		-0.90										5.6	5.2
						SEASON TO DATE		SNOW ICE PELLETS													
	NUMBER OF DAYS					TOTAL	TOTAL	T	0 INCH	GREATEST IN 24 HOURS AND DATES						GREATEST DEPTH ON GROUND OF SNOW					
	MAXIMUM TEMP	MINIMUM TEMP				284	0	THUNDERSTORMS	0	PRECIPITATION		SNOW ICE PELLETS				ICE PELLETS OR ICE AND DATE					
	90	32	32	0		DEP	DEP	HEAVY FOG	0	.32	25-26										
	0	0	0	0		128	0	CLEAR 0	PARTLY CLOUDY 10	CLOUDY 11											

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
R ALSO ON AN EARLIER DATE(S) OR DATE(S)
HEAVY FOG - VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM
DATA IN COLS. 6 AND 12 IS ARE BASED ON 1 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE # WITH THE DIRECTION INDICATES PEAK GUST SPEED
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LST) ENDING	SKY COVER TENTHS	STATION PRESSURE IN.	AVERAGES TEMPERATURE °F DRY BULB	WET BULB	DEW POINT	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED M.P.H.
01	5	30.08	52	49	46	82	9.8	28	7.8
04	5	30.05	50	48	45	83	9.4	27	7.4
07	7	30.08	52	49	46	80	8.5	28	5.6
10	8	30.08	58	52	47	68	10.7	29	4.7
13	5	30.06	61	54	47	62	15.4	29	11.7
16	5	30.03	59	53	47	64	18.9	28	17.6
19	4	30.03	54	50	46	74	16.3	28	14.5
22	5	30.05	52	49	46	79	13.2	28	11.6

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DAY
1																									1
2																									2
3																									3
4																									4
5																							T		5
6							.01	T	T	T			T												6
7																								T	7
8	T	.01																							8
9																									9
10		T	T		T	T	T												T	T	T	T	T		10
11																									11
12																									12
13																									13
14																									14
15																									15
16		.03			T	T	T	T	T	T		.01	.01									.01	.01		16
17																									17
18																									18
19																									19
20																									20
21																									21
22							T	T	T	T	T	T	.01	T					T	T	.06	T	T	.01	22
23	T		.20	.01			T	T			T														23
24																T	T	T	T	T					24
25																									25
26			T	T	T	T	T	.02	.02	.02	.10	.06	.03	.01	.05	T	T	T	T	T	T	T	.01	T	26
27					T			T																	27
28																									28
29																									29
30					T	T	T	T	T		T	T													30

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Daniel R. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM-NOAA-ASHEVILLE 06-21-79 675

APRIL 1979 SAN FRANCISCO, CALIFORNIA

APRIL 1979

OAKLAND, CALIFORNIA

NATIONAL WEATHER SERVICE OFC

INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

METCALF & EDDY
PALO ALTO
JUN 1979
FILED
APR 1979
ANS BY

OAKLAND, CALIFORNIA

LATITUDE 37° 44' N LONGITUDE 122° 12' W ELEVATION (GROUND) 6 FT STANDARD TIME USED: PACIFIC

DAY	TEMPERATURE °F MAX.	MIN.	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING	COOLING	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW ICE PELLETS (INCHES)	PRECIPITATION WATER EQUIVALENT (INCHES)	SNOW, ICE PELLETS (INCHES)	SNOW DEPTH (INCHES)	WIND MILES PER HOUR	FASTEST MILE WIND SPEED	DIRECTION (TENS OF DEGREES)	FASTEST OBSERVED 1-MINUTE WIND SPEED	DIRECTION (TENS OF DEGREES)	SUNSHINE MINUTES	PERCENT POSSIBLE	SUNRISE PST	SUNSET PST
1	62	48	55	0	44	10	0		0	0	0	0	30	15	26	24	7	24	7	16	27	30
2	62	44	53	-1	44	12	0		0	0	0	0	30	13	28	21	7	21	7	17	27	30
3	65	48	56	2	45	9	0		0	0	0	0	30	18	28	27	7	27	7	14	27	30
4	58	48	53	-1	46	12	0		0	0	0	0	30	02	28	31	7	31	7	16	28	30
5	61	45	53	-1	46	12	0		0	0	0	0	30	01	28	28	7	28	7	18	28	30
6	58	45	52	-2	46	13	0		0	0	0	0	30	11	28	27	7	27	7	21	28	30
7	58	44	51	-3	46	14	0		0	0	0	0	30	15	28	24	7	24	7	21	28	30
8	58	46	52	-2	46	13	0		0	0	0	0	30	06	30	17	08	25	7	21	28	30
9	60	44	52	-2	46	13	0	1	0	0	0	0	30	07	30	14	7	18	7	25	28	30
10	60	46	53	-1	46	12	0		0	0	0	0	30	04	26	15	7	21	7	25	28	30
11	61	46	54	0	46	11	0		0	0	0	0	30	12	26	28	7	28	7	26	28	30
12	63	46	55	1	46	10	0		0	0	0	0	30	10	26	28	7	28	7	26	28	30
13	63	46	55	1	46	10	0		0	0	0	0	30	00	26	26	7	26	7	26	28	30
14	63	48	56	2	46	9	0		0	0	0	0	30	00	26	26	7	26	7	26	28	30
15	65	50	58	4	46	7	0		0	0	0	0	30	00	28	26	7	26	7	26	28	30
16	65	51	58	4	46	7	0		0	0	0	0	30	00	28	26	7	26	7	26	28	30
17	63	50	57	3	46	8	0		0	0	0	0	30	00	28	26	7	26	7	26	28	30
18	64	48	56	2	46	9	0		0	0	0	0	30	15	30	26	7	26	7	26	28	30
19	65	48	57	3	46	8	0		0	0	0	0	30	22	26	28	7	28	7	26	28	30
20	66	48	57	3	46	8	0		0	0	0	0	30	00	26	28	7	28	7	26	28	30
21	65	48	57	3	46	8	0		0	0	0	0	30	00	26	28	7	28	7	26	28	30
22	61	48	55	1	46	10	0		0	0	0	0	30	14	26	28	7	28	7	26	28	30
23	62	48	55	1	46	10	0		0	0	0	0	30	00	26	28	7	28	7	26	28	30
24	64	48	56	2	46	9	0		0	0	0	0	30	07	30	21	7	21	7	25	28	30
25	64	48	56	2	46	9	0		0	0	0	0	30	00	30	24	7	24	7	25	28	30
26	66	48	57	3	46	8	0		0	0	0	0	30	00	31	24	7	24	7	25	28	30
27	67	48	58	4	46	7	0		0	0	0	0	30	18	31	24	7	24	7	25	28	30
28	66	50	58	4	46	7	0		0	0	0	0	30	14	27	24	7	24	7	25	28	30
29	63	50	57	3	46	8	0		0	0	0	0	30	05	27	24	7	24	7	25	28	30
30	60	54	57	3	46	8	0		0	0	0	0	30	00	26	11	0	11	7	25	28	30
	3CR	3CR				TOTAL	TOTAL			TOTAL	TOTAL									3CR	3CR
	1872	1327				244	0	NUMBER OF DAYS		30	0	30	27	0	9	10	5	20	20		
	AVG	AVG		DEP	AVG	DEP	AVG	PRECIPITATION		DEP											
	62.4	50.9	56.7	0.6	45.7	20	0	.01 INCH	6	3.00											
						SEASON TO DATE		SNOW ICE PELLETS	0												
	NUMBER OF DAYS					TOTAL	TOTAL	.1 INCH	0	GREATEST IN 24 HOURS AND DATES											
	MAXIMUM TEMP		MINIMUM TEMP			2595	0	THUNDERSTORMS	0	PRECIPITATION											
90	32	32	0			DEP	DEP	HEAVY FOG	0	1.00	22	23									
0	0	0	0			57	0	CLEAR 11	PARTLY CLOUDY 11	CLOUDY 8											

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE

T TRACE AMOUNT

◇ ALSO ON AN EARLIER DATE OR DATES

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SUMMARY BY HOURS

DAY	AVERAGES TEMPERATURE								RESULTANT WIND	
	SKY COVER	SUNSHINE	TEMPERATURE				RELATIVE HUMIDITY		DIRECTION	SPEED
			01	07	13	19	01	07		
01	5	30	08	54	50	41	77	91	27	3.0
04	5	30	06	52	48	39	77	91	27	2.6
07	6	30	08	51	48	39	77	91	21	1.0
10	6	30	10	51	48	40	77	91	24	1.4
13	5	30	11	60	54	46	77	91	27	10.1
16	4	30	11	61	55	47	77	91	28	13.1
19	4	30	04	57	52	44	77	91	27	12.4
22	4	30	07	55	51	43	77	91	28	7.6

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DAY	A.M. HOUR ENDING AT												P.M. HOUR ENDING AT											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
1		T		T				T				T												
2																								
3																								
4																								
5																								
6		.01						T				.05	.02	T							T	T	T	
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21																								
22		T		T				T	T	T	T	.01	.06	.06	T	.01								
23		T	T					.02	.01	T										T	.07	.01	.01	
24		T	T	T	T	T		.01	.01	.02	T	.03	.04	T		T	T		T	T	T	T	.02	T
25						T			T	T														
26																								
27																								
28																								
29																								
30																								

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