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UNIVERSITY OF WASHINGTON  
DEPARTMENT OF METEOROLOGY AND CLIMATOLOGY

SCIENTIFIC REPORT

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THE RADIATION REGIME OF DRIFTING STATION CHARLIE  
FOR AUGUST - OCTOBER 1959

by  
A. HANSON AND B. LIESKE

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## THE RADIATION REGIME OF DRIFTING STATION CHARLIE

FOR AUGUST - OCTOBER 1959

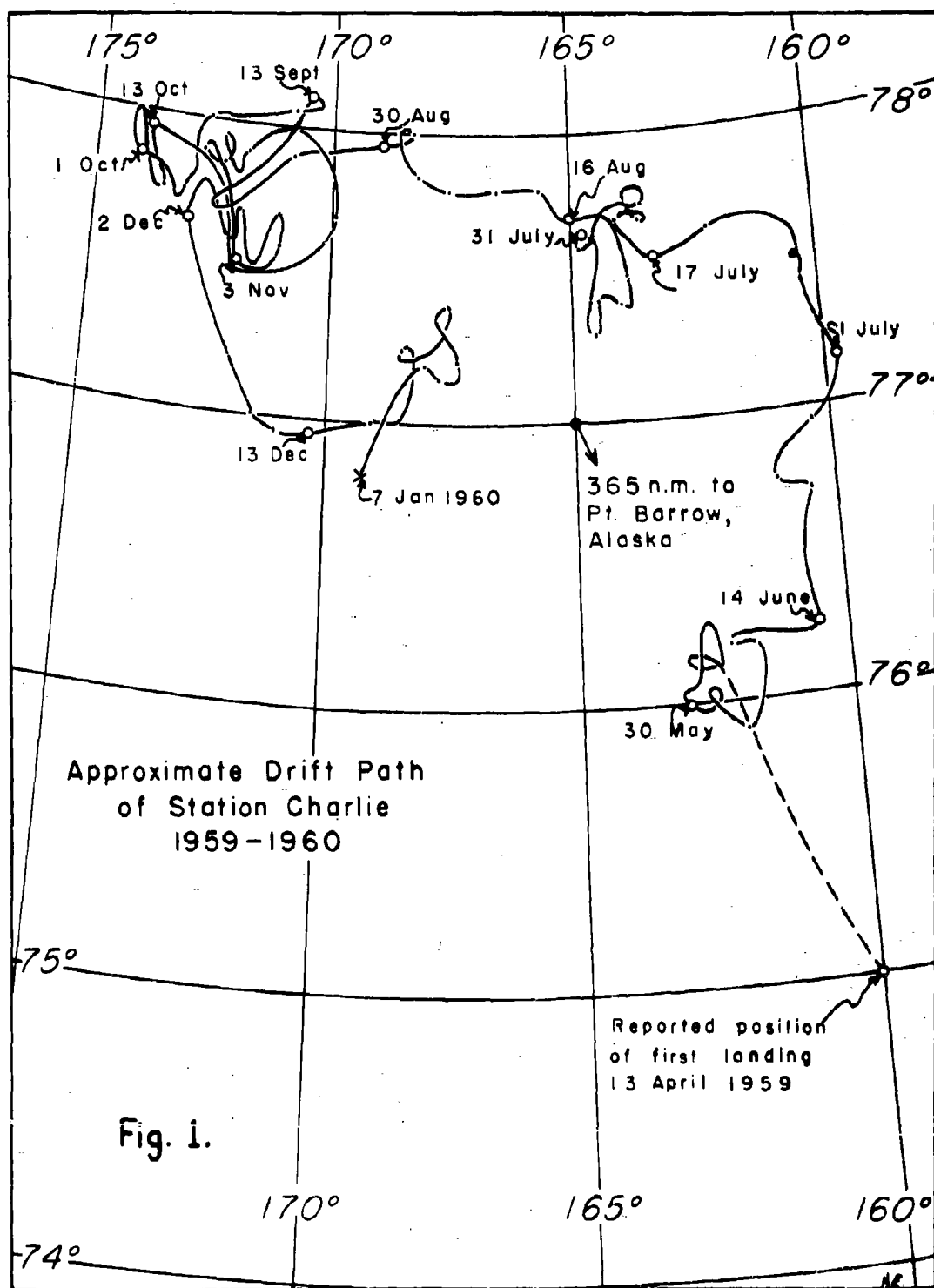
A. HANSON AND B. LIESKE

**Abstract:** Radiation observations that have been reduced for Drifting Station Charlie for the months of August through October 1959 are included. These data show the effect of fog, low clouds and clear sky on the radiation balance.

Drift Station Charlie was established on a large ice floe by the Office of Naval Research with United States Air Force logistical support in the spring of 1959. The position of the floe at this time and its subsequent drift are shown in Figure 1. The navigation was carried out first by A. Hanson and R. Sommerfeld who were followed by D. Hale and A. Post. The approximate size and shape of the floe at the end of summer is given in Figure 2. The area of the floe was approximately 77 square kilometres in September, 1959.

The area for micrometeorological research was selected on the probability that it would remain as free from contamination as possible. The part of this area set aside for the radiation instrument "farm" was approximately 100 meters from the main camp and about 30 meters from the micrometeorology laboratory. The laboratory building was painted white on the outside.

The radiation instruments consisted of two Kipp and Zonen hemispherical short-wave solarimeters, a Beckman and Whitley net total radiometer and an Agmet net total radiometer. The Kipp and Zonen solarimeters were used to measure the incident and reflected short-wave (visible) radiation from which the albedo may be calculated. The two net total radiometers were used alternately to measure the net total radiation. All net radiation data appended to this report were taken with the Beckman and Whitley instrument. The instruments were mounted on booms supported by tripods painted white.



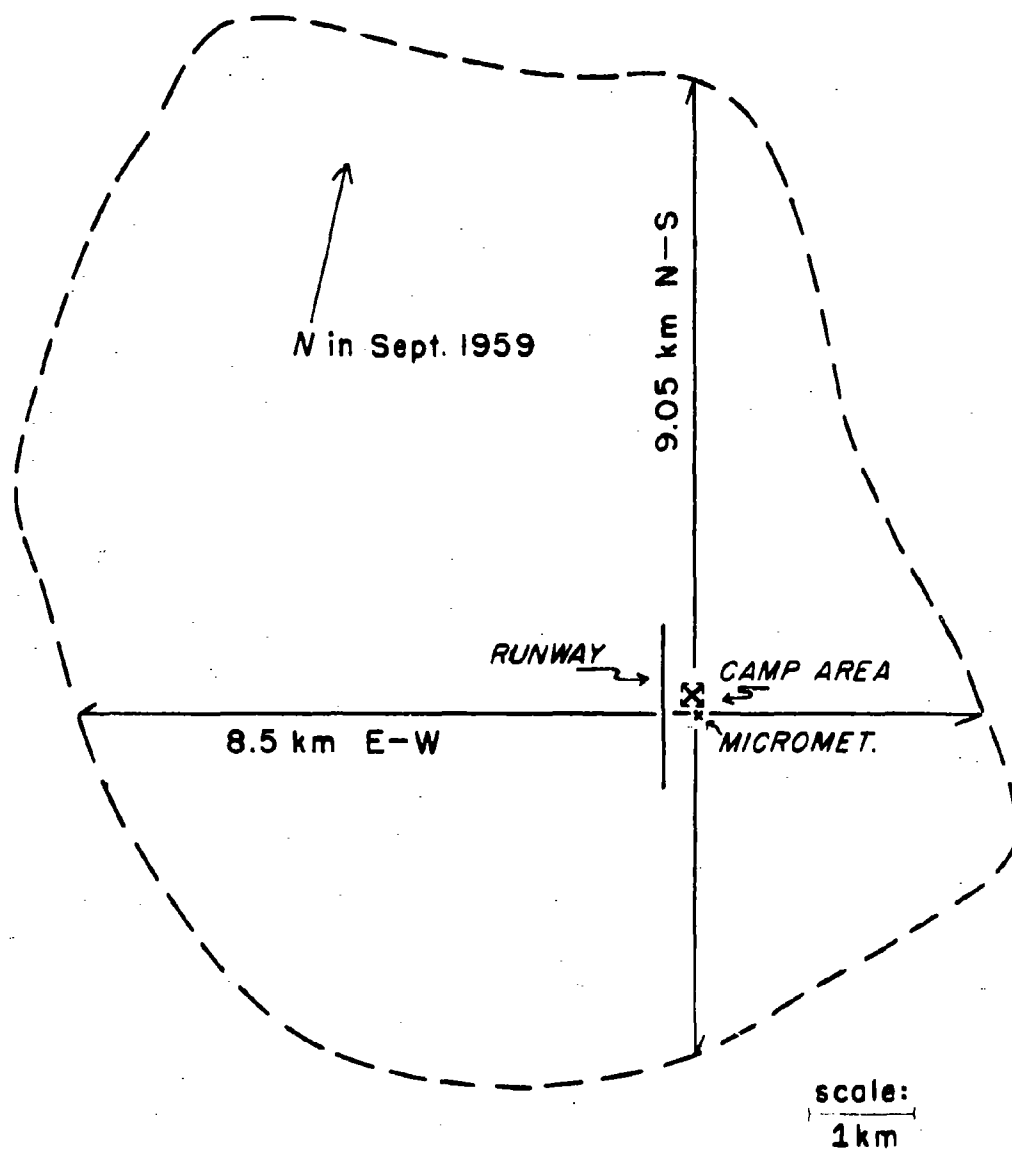


Fig. 2.  
STATION ALPHA II (CHARLIE)

The mountings and locations of the instruments were such as to minimize the disturbance to the areas under study. Indeed, the only obstruction affecting the radiation instruments was the micrometeorology tower which produced a short duration shadow on sunny days, and sunny days were uncommon.

The calibrations of the net radiometers were supplied by the instrument makers. The solarimeters were calibrated as follows: Kipp and Zonen No. 1069 was compared with an Eppley pyrheliometer (owned by the Department of Meteorology and Climatology) shortly before being taken to the field and Kipp and Zonen No. 1059 was later compared in the field with No. 1069. The results of the comparison are given in Table 1.

TABLE 1

| Radiometer Calibrations |                                                 |              |                 |               |              |
|-------------------------|-------------------------------------------------|--------------|-----------------|---------------|--------------|
| No.                     | Mv/gm-cal<br>cm <sup>-2</sup> min <sup>-1</sup> | Date         | Solar Elevation | by            | Location     |
| 1069                    | 7.4 02                                          | April 1959   | --              | M. Miyake     | U. of Wash.  |
| 1059                    | 6.9 87                                          | 14 June 1959 | Approx. 23°     | R. Sommerfeld | Sta. Charlie |
| 1059                    | 6.9 78                                          | 15 June 1959 | Approx. 35°     | A. Hanson     | Sta. Charlie |

Frosting of the glass hemispheres both inner (rare) and outer (common) hemisphere was the most common trouble with solarimeters. The frost was removed by melting with a few drops of isopropyl alcohol or heating by hand and wiping the glass dry with tissue or cheesecloth. Occasionally a solarimeter was brought into the lab and dried in a box of dessicant. The effect of frost on the glass hemisphere depends on the amount and location with respect to the sun's direction; frost can also act as a reflector, thus either adding to or subtracting from the flux which reaches the thermopile. The solarimeter facing up (global) was much more subject to frost deposition. Frost was a problem with the net radiometers only in so far as the ventilating system was inhibited by frost deposits. A more common trouble was a strong cross-wind over the thermopile, because a change of ventilation such as this could result in a change of the calibration constant. The net radiometers were kept facing nearly downwind as much of the time as possible.

The outputs of the various instruments were recorded on a Weston dual range, multipoint, strip chart, recording potentiometer. Several difficulties were encountered with the recorder which, together with frost and drizzle on the sensors, resulted in the necessity of discarding some data.

#### PRELIMINARY DATA ANALYSIS

The data are presented in milliwatts  $\text{cm}^{-2}$  units for ease of computation in dealing with heat budget problems. Because data were reduced from the charts to the nearest  $0.01 \text{ cal cm}^{-2} \text{ min}^{-1}$ , it will be noted that the values of radiation change by 0.7 milliwatt. Table 2 gives conversion factors.

TABLE 2

#### Conversion Factors

$$\begin{aligned} 1 \text{ JOULE CM}^{-2} &= 0.239 \text{ CAL CM}^{-2} \\ 1 \text{ JOULE CM}^{-2} \text{ SEC}^{-1} &= 1 \text{ WATT CM}^{-2} \\ 1 \text{ MILLIWATT CM}^{-2} &= 0.0143 \text{ CAL CM}^{-2} \text{ MIN}^{-1} \\ 1 \text{ ERG SEC}^{-1} &= 10^{-7} \text{ WATT} \end{aligned}$$

During the three month period covered in this report Station Charlie was located between longitudes  $164^{\circ}\text{W}$  and  $174^{\circ}\text{W}$ , and local apparent noon was approximately between 2300 and 2325 GMT. The local apparent time can be determined by use of Figure 1 which shows approximate positions. Three-hourly USWB observations of temperature (150 cm above snow), total sky cover, and weather are presented with the radiation data. Table 3 gives the meaning of weather symbols. The data are summarized for each month at the end of the report.

TABLE 3

Weather Symbols

|     |                        |      |                         |
|-----|------------------------|------|-------------------------|
| R   | rain                   | S    | snow                    |
| R-  | light rain             | S-   | light snow              |
| R-- | very light rain        | S--  | very light snow         |
| F   | fog                    | SW   | snow showers            |
| L   | drizzle                | SW-  | light snow showers      |
| L-  | light drizzle          | SW-- | very light snow showers |
| L-- | very light drizzle     | BS   | blowing snow            |
| ZL- | light freezing drizzle | IC   | ice crystals            |
| ZR- | light freezing rain    | E--  | very light sleet        |

Figures 3 and 4 show mean hourly global short wave and net total radiation for each month. The sun disappeared for the winter about October 26, hence the hourly averages for October (Figure 4) apply to the sunlight period only.

One phenomenon which is brought out clearly by the data is the importance of the cloud cover to the radiation balance during the summer and early autumn. Averages of net radiation for the hours ending at 0000, 0300, 0600, 0900, 1200, 1500, 1800 and 2100Z were computed for the period August 10 to September 10 for three classes of weather and cloudiness. The results are given in Table 4 and show that summer cloud cover causes the radiation balance to be positive.

TABLE 4

Mean Net Radiation in MW Cm<sup>-2</sup>  
August 10 - September 10, 1959

| fog with<br>cloudiness $\geq 5/10$ | cloudiness $< 5/10$ | precipitation with<br>or without fog |
|------------------------------------|---------------------|--------------------------------------|
| 2.0                                | -1.6                | 2.2                                  |

STATION CHARLIE MEAN HOURLY RADIATION 10-31 AUG., 1959

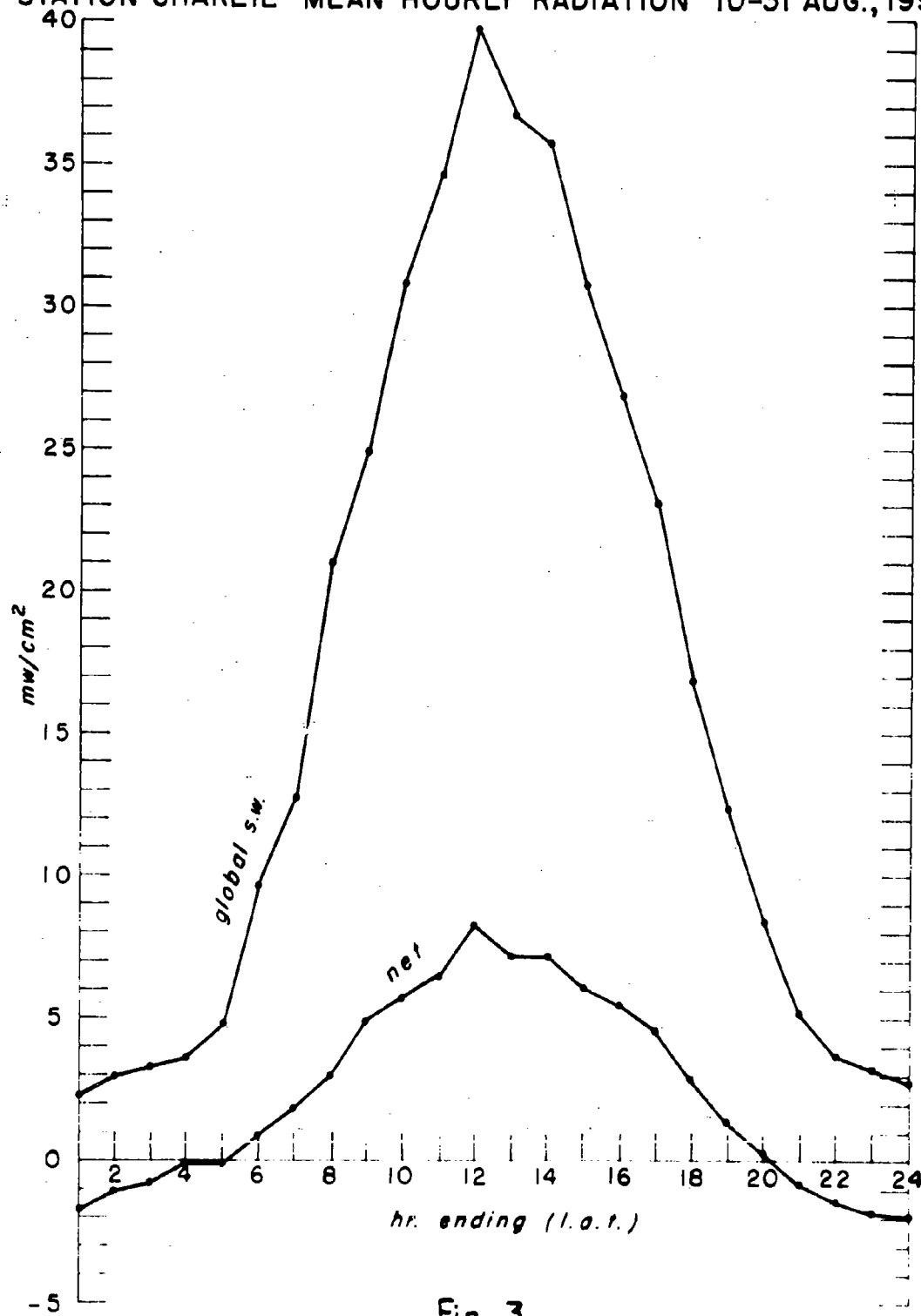


Fig. 3.

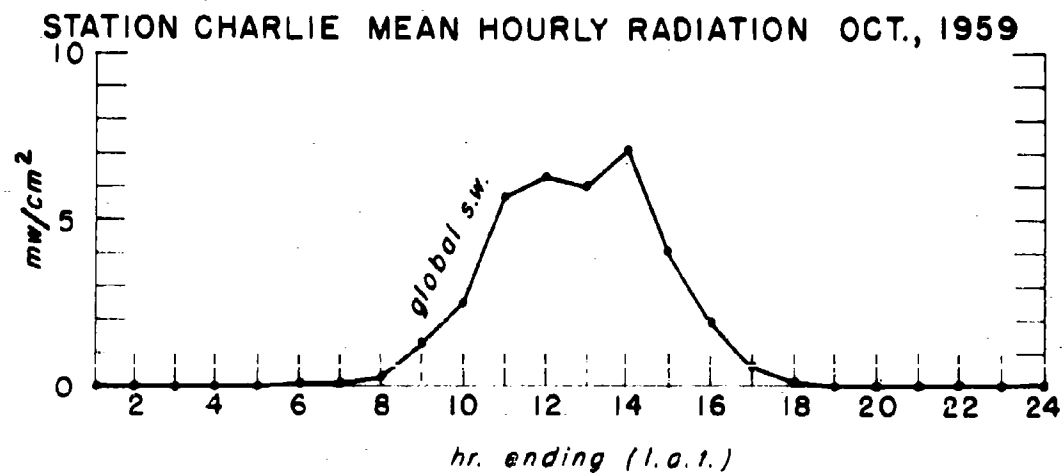
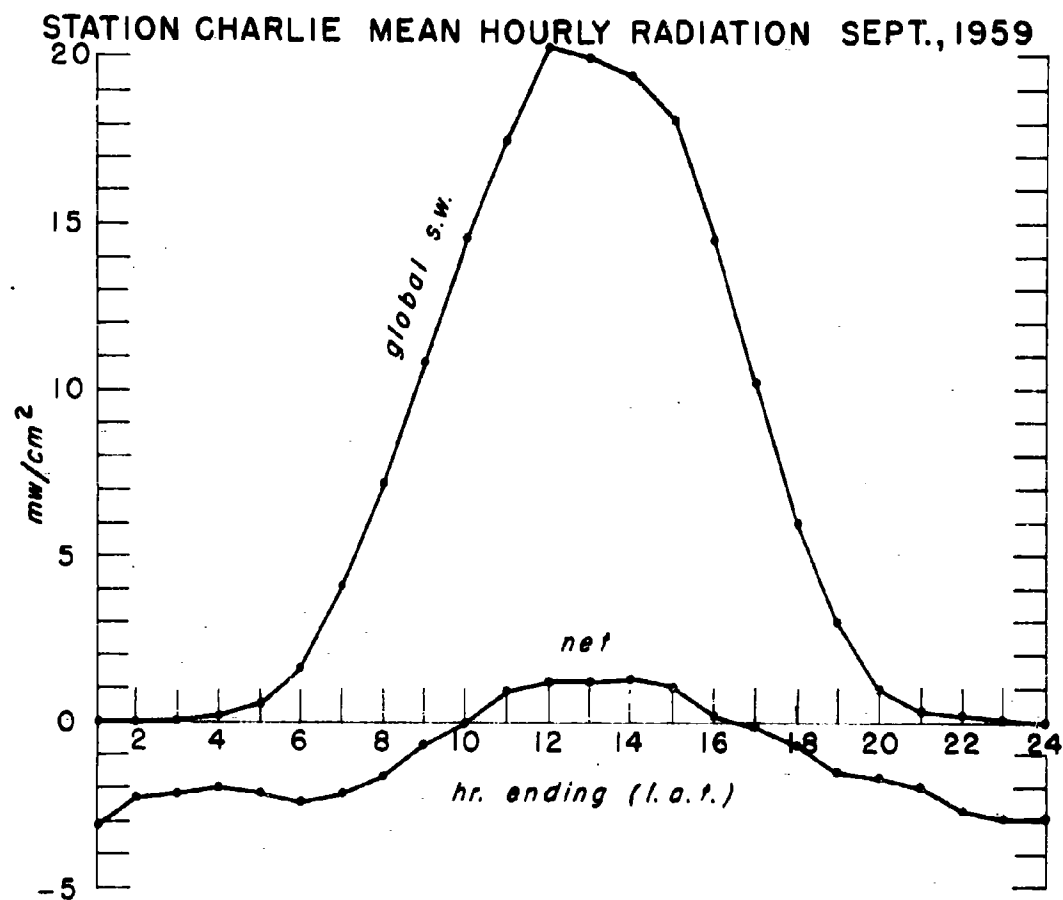


Fig. 4

An extreme example of this effect is shown on August 15 which was an extraordinary day with pressure reaching 1030.5 millibars and the sky almost completely clear. For the day an estimated 2306 joules (552 calories) of short wave radiation were incident per  $\text{cm}^2$ . Perhaps 60-65% of this sum was reflected. Clear skies permitted a greater net long wave radiative loss and the net radiation for the day was  $-68 \text{ joules}/\text{cm}^2$  ( $-16 \text{ langley}$ s).

Nine years of radiation data from USSR stations NP-4, NP-5, NP-6, and NP-7 show that in all years the monthly net radiation balance was positive for the months May-August.<sup>1</sup> The August 15 case serves to point out the importance of cloudiness in establishing this positive net radiation balance.

The authors are indebted to the patient work of the data technicians of Station Husky for their work in data reduction, and to Dr. Joost A. Businger for his counsel and encouragement.

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<sup>1</sup> Andreeva, N. N., and Piatnonkov, B. A., Certain Characteristics of the Radiation Balance in the Central Arctic, Problemy Arktiki, No. 7: 79-89, 1959 (USAF GRD translation)

Table 5 lists the number of hours of data for global short wave (G) reflected short wave (R), and net (N) radiation. The table should be used in conjunction with the monthly summaries since the summaries include only the measured data, and no estimates of radiation for missing hours have been included. The asterisk which appears on the monthly summaries denotes that sums are incomplete.

TABLE 5

Number of Hours Data

| Hour<br>Ending<br>(GMT) | Hourly |    |    |       |    |    |      |    |   |        |    |    |       |    |    |      |        |    |    |
|-------------------------|--------|----|----|-------|----|----|------|----|---|--------|----|----|-------|----|----|------|--------|----|----|
|                         | August |    |    | Sept. |    |    | Oct. |    |   | August |    |    | Sept. |    |    | Oct. |        |    |    |
|                         | G      | R  | N  | G     | R  | N  | G    | R  | N | Day    | G  | R  | N     | G  | R  | N    | G      | R  | N  |
| 1                       | 20     | 21 | 21 | 27    | 27 | 28 | 21   | 21 | 3 | 1      | 0  | 0  | 0     | 18 | 14 | 17   | 20     | 24 | 24 |
| 2                       | 20     | 21 | 21 | 28    | 27 | 28 | 21   | 21 | 3 | 2      | 0  | 0  | 0     | 24 | 23 | 24   | 24     | 24 | 24 |
| 3                       | 21     | 21 | 21 | 28    | 27 | 28 | 21   | 21 | 3 | 3      | 0  | 0  | 0     | 24 | 24 | 24   | 24     | 24 | 19 |
| 4                       | 21     | 21 | 21 | 29    | 29 | 29 | 20   | 20 | 3 | 4      | 0  | 0  | 0     | 24 | 24 | 24   | 23     | 23 | 0  |
| 5                       | 21     | 21 | 21 | 30    | 29 | 30 | 19   | 20 | 3 | 5      | 0  | 0  | 0     | 23 | 23 | 24   | 24     | 24 | 0  |
| 6                       | 20     | 20 | 20 | 29    | 29 | 30 | 19   | 19 | 3 | 6      | 0  | 0  | 0     | 18 | 19 | 24   | 24     | 24 | 0  |
| 7                       | 20     | 20 | 19 | 28    | 28 | 30 | 19   | 19 | 3 | 7      | 0  | 0  | 0     | 20 | 19 | 24   | 21     | 24 | 0  |
| 8                       | 19     | 19 | 20 | 26    | 27 | 30 | 20   | 20 | 3 | 8      | 0  | 0  | 0     | 21 | 24 | 24   | 22     | 24 | 0  |
| 9                       | 20     | 19 | 20 | 26    | 26 | 29 | 20   | 20 | 3 | 9      | 0  | 0  | 0     | 22 | 22 | 24   | 24     | 24 | 0  |
| 10                      | 20     | 19 | 20 | 28    | 28 | 29 | 20   | 20 | 3 | 10     | 21 | 24 | 24    | 21 | 20 | 24   | 24     | 24 | 0  |
| 11                      | 19     | 18 | 19 | 28    | 26 | 29 | 20   | 20 | 3 | 11     | 20 | 9  | 21    | 22 | 23 | 23   | 24     | 24 | 0  |
| 12                      | 19     | 18 | 19 | 30    | 30 | 29 | 20   | 20 | 3 | 12     | 24 | 24 | 21    | 24 | 24 | 24   | 24     | 24 | 0  |
| 13                      | 19     | 18 | 19 | 29    | 29 | 30 | 20   | 20 | 3 | 13     | 24 | 24 | 24    | 24 | 24 | 24   | 3      | 3  | 0  |
| 14                      | 18     | 18 | 19 | 27    | 27 | 30 | 20   | 20 | 3 | 14     | 18 | 23 | 23    | 24 | 24 | 24   | 0      | 0  | 0  |
| 15                      | 14     | 16 | 19 | 26    | 25 | 30 | 20   | 20 | 3 | 15     | 20 | 20 | 24    | 21 | 16 | 24   | 24     | 24 | 0  |
| 16                      | 13     | 15 | 18 | 24    | 23 | 30 | 20   | 20 | 3 | 16     | 20 | 24 | 24    | 23 | 23 | 23   | 24     | 22 | 0  |
| 17                      | 11     | 15 | 17 | 22    | 23 | 30 | 20   | 20 | 3 | 17     | 22 | 24 | 22    | 22 | 22 | 24   | 24     | 24 | 0  |
| 18                      | 12     | 15 | 18 | 19    | 19 | 30 | 19   | 20 | 3 | 18     | 18 | 18 | 24    | 24 | 24 | 24   | 24     | 24 | 0  |
| 19                      | 15     | 15 | 18 | 15    | 18 | 28 | 18   | 20 | 3 | 19     | 19 | 24 | 24    | 21 | 21 | 24   | 24     | 24 | 0  |
| 20                      | 19     | 17 | 21 | 25    | 24 | 28 | 18   | 20 | 2 | 20     | 24 | 18 | 24    | 18 | 18 | 19   | 24     | 24 | 0  |
| 21                      | 21     | 20 | 22 | 27    | 27 | 28 | 18   | 20 | 2 | 21     | 14 | 14 | 13    | 14 | 14 | 21   | 19     | 24 | 0  |
| 22                      | 21     | 21 | 22 | 27    | 27 | 27 | 18   | 20 | 2 | 22     | 24 | 24 | 24    | 21 | 21 | 24   | 24     | 24 | 0  |
| 23                      | 19     | 19 | 20 | 28    | 28 | 29 | 18   | 20 | 2 | 23     | 24 | 24 | 24    | 15 | 18 | 24   | 0      | 0  | 0  |
| 24                      | 21     | 21 | 22 | 28    | 28 | 29 | 19   | 19 | 2 | 24     | 21 | 24 | 24    | 23 | 24 | 24   | 0      | 0  | 0  |
|                         |        |    |    |       |    |    |      |    |   | 25     | 6  | 6  | 11    | 20 | 20 | 24   | 0      | 0  | 0  |
|                         |        |    |    |       |    |    |      |    |   | 26     | 5  | 5  | 7     | 22 | 22 | 23   |        |    |    |
|                         |        |    |    |       |    |    |      |    |   | 27     | 24 | 24 | 24    | 17 | 16 | 20   | SUNSET |    |    |
|                         |        |    |    |       |    |    |      |    |   | 28     | 24 | 24 | 24    | 23 | 24 | 24   |        |    |    |
|                         |        |    |    |       |    |    |      |    |   | 29     | 24 | 24 | 24    | 23 | 23 | 24   |        |    |    |
|                         |        |    |    |       |    |    |      |    |   | 30     | 24 | 24 | 24    | 18 | 18 | 24   |        |    |    |
|                         |        |    |    |       |    |    |      |    |   | 31     | 23 | 23 | 23    |    |    |      |        |    |    |

per cent complete 60 60 64 88 88 97 78 80 11

MILLIWATTS/CM<sup>2</sup>

Hour Ending  
at (GMT)

1 2 3 4 5 6 7 8 9 10 11 12

## Weather

0.1

8

10

10

4

Hour Ending  
at (GMT)

13 14 15 16 17 18 19 20 21 22 23 24

## Weather

## 1.8

3

2.

8

9

Hour Ending  
at (GMT):

1 2 3 4 5 6 7 8 9 10 11 12

## Weather

### 1.3

6

4

8

8

Hour Ending  
at (GMT)

13 14 15 16 17 18 19 20 21 22 23 24

## Weather

### 1.3

2

9

10

10

## STATION CHARLEY RELATION

AUGUST 3

[illegible][illegible]

AUGUST 4

[illegible][illegible]

## STATION CHARLEY RADIATION

AUGUST 5

| Hour Ending<br>at (GMT) | 1 | 2 | 3    | 4 | 5 | 6    | 7 | 8 | 9    | 10 | 11 | 12   |
|-------------------------|---|---|------|---|---|------|---|---|------|----|----|------|
| Global SW               |   |   |      |   |   |      |   |   |      |    |    |      |
| Reflected SW            |   |   |      |   |   |      |   |   |      |    |    |      |
| Net Radiation           |   |   |      |   |   |      |   |   |      |    |    |      |
| Temp °C                 |   |   | -0.3 |   |   | -0.9 |   |   | -1.9 |    |    | -2.7 |
| Tenths Cloudiness       |   |   | 8    |   |   | 8    |   |   | 8    |    |    | 8    |
| Weather                 |   |   | F    |   |   | F    |   |   | F    |    |    | F    |

| Hour Ending<br>at (GMT) | 13 | 14 | 15   | 16 | 17 | 18   | 19 | 20 | 21   | 22 | 23 | 24  |
|-------------------------|----|----|------|----|----|------|----|----|------|----|----|-----|
| Global SW               |    |    |      |    |    |      |    |    |      |    |    |     |
| Reflected SW            |    |    |      |    |    |      |    |    |      |    |    |     |
| Net Radiation           |    |    |      |    |    |      |    |    |      |    |    |     |
| Temp °C                 |    |    | -2.6 |    |    | -1.6 |    |    | -0.7 |    |    | 0.1 |
| Tenths Cloudiness       |    |    | 10   |    |    | 10   |    |    | 10   |    |    | 10  |
| Weather                 |    |    | F    |    |    | F    |    |    | F    |    |    | F   |

**AUGUST 6**

| Hour Ending<br>at (G.M.T) | 1 | 2 | 3   | 4 | 5 | 6   | 7 | 8 | 9   | 10 | 11 | 12  |
|---------------------------|---|---|-----|---|---|-----|---|---|-----|----|----|-----|
| Global SW                 |   |   |     |   |   |     |   |   |     |    |    |     |
| Reflected SW              |   |   |     |   |   |     |   |   |     |    |    |     |
| Net Radiation             |   |   |     |   |   |     |   |   |     |    |    |     |
| Temp °C                   |   |   | 0.3 |   |   | 0.5 |   |   | 0.2 |    |    | 0.2 |
| Tenths Cloudiness         |   |   | 10  |   |   | 10  |   |   | 10  |    |    | 10  |
| Weather                   |   |   | F   |   |   | F   |   |   |     |    |    |     |

[illegible]

**AUGUST 7**

| Hour Ending<br>at (GMT) | 1 | 2    | 3 | 4 | 5    | 6 | 7 | 8    | 9 | 10 | 11 | 12   |
|-------------------------|---|------|---|---|------|---|---|------|---|----|----|------|
| Global SW               |   |      |   |   |      |   |   |      |   |    |    |      |
| Reflected SW            |   |      |   |   |      |   |   |      |   |    |    |      |
| Net Radiation           |   |      |   |   |      |   |   |      |   |    |    |      |
| Temp °C                 |   | 0.6  |   |   | 0.5  |   |   | 0.3  |   |    |    | 0.1  |
| Tenths Cloudiness       |   | 10   |   |   | 10   |   |   | 10   |   |    |    | 10   |
| Weather                 |   | R--F |   |   | R--F |   |   | R--F |   |    |    | L--F |

| Hour Ending<br>at (GMT) | 13 | 14 | 15   | 16 | 17 | 18  | 19 | 20 | 21  | 22 | 23 | 24  |
|-------------------------|----|----|------|----|----|-----|----|----|-----|----|----|-----|
| Global SW               |    |    |      |    |    |     |    |    |     |    |    |     |
| Reflected SW            |    |    |      |    |    |     |    |    |     |    |    |     |
| Net Radiation           |    |    |      |    |    |     |    |    |     |    |    |     |
| Temp °C                 |    |    | 0.4  |    |    | 0.6 |    |    | 0.7 |    |    | 1.1 |
| Tenths Cloudiness       |    |    | 10   |    |    | 10  |    |    | 10  |    |    | 10  |
| Weather                 |    |    | L--F |    |    | F   |    |    | F   |    |    |     |

**AUGUST 8**

| Hour ending<br>at (G.T) | 1 | 2 | 3   | 4 | 5 | 6   | 7 | 8 | 9   | 10 | 11 | 12   |
|-------------------------|---|---|-----|---|---|-----|---|---|-----|----|----|------|
| Global SW               |   |   |     |   |   |     |   |   |     |    |    |      |
| Reflected SW            |   |   |     |   |   |     |   |   |     |    |    |      |
| Net Radiation           |   |   |     |   |   |     |   |   |     |    |    |      |
| Temp °C                 |   |   | 1.4 |   |   | 0.8 |   |   | 0.5 |    |    | -1.0 |
| Tenths Cloudiness       |   |   | 10  |   |   | 10  |   |   | 8   |    |    | 3    |
| Weather                 |   |   |     |   |   | L   |   |   |     |    |    |      |

[illegible]

## STATION CHARLEY RADIATION

AUGUST 9

| Hour Ending<br>at (GMT) | 1 | 2 | 3   | 4 | 5 | 6   | 7 | 8 | 9   | 10 | 11 | 12   |
|-------------------------|---|---|-----|---|---|-----|---|---|-----|----|----|------|
| Global SW               |   |   |     |   |   |     |   |   |     |    |    |      |
| Reflected SW            |   |   |     |   |   |     |   |   |     |    |    |      |
| Net Radiation           |   |   |     |   |   |     |   |   |     |    |    |      |
| Temp °C                 |   |   | 1.2 |   |   | 0.7 |   |   | 0.2 |    |    | -1.2 |
| Tenths Cloudiness       |   |   | 10  |   |   | 10  |   |   | 10  |    |    | 4    |
| Weather                 |   |   | F   |   |   | F   |   |   | F   |    |    | F    |

| Hour Ending<br>at (GMT) | 13 | 14 | 15   | 16 | 17 | 18   | 19 | 20 | 21   | 22 | 23 | 24   |
|-------------------------|----|----|------|----|----|------|----|----|------|----|----|------|
| Global SW               |    |    |      |    |    |      |    |    |      |    |    |      |
| Reflected SW            |    |    |      |    |    |      |    |    |      |    |    |      |
| Net Radiation           |    |    |      |    |    |      |    |    |      |    |    |      |
| Temp °C                 |    |    | -1.2 |    |    | -1.1 |    |    | -1.2 |    |    | -1.0 |
| Tenths Cloudiness       |    |    | 2    |    |    | 8    |    |    | 8    |    |    | 8    |
| Weather                 |    |    | F    |    |    | F    |    |    | F    |    |    | F    |

AUGUST 10

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11  | 12   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|-----|------|
| Global SW               | 59.7 | 39.8 | 23.7 | 32.1 | 17.4 | 18.1 | 20.9 | 14.7 | 9.1  | 10.5 | 6.3 | 6.3  |
| Reflected SW            | 34.9 | 27.9 | 14.7 | 23.0 | 10.4 | 11.2 | 11.2 | 7.0  | 6.3  | 6.3  | 6.3 | 6.3  |
| Net Radiation           | 14.0 | 9.8  | 5.6  | 9.1  | 0.7  | 2.1  | 2.8  | 0    | -1.4 | 0.7  | 0   | -0.7 |
| Temp °C                 |      |      | -1.1 |      |      | -1.2 |      |      | -1.2 |      |     | -1.6 |
| Tenths Cloudiness       |      |      | 8    |      |      | 7    |      |      | 8    |      |     | 10   |
| Weather                 |      |      | F    |      |      | F    |      |      | F    |      |     | F    |

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16  | 17  | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|-------------------------|------|------|------|-----|-----|------|------|------|------|------|------|------|
| Global SW               | 7.0  | 6.3  | 7.0  | 9.8 | -   | -    | -    | 26.5 | 34.9 | 37.7 | 48.1 | 39.1 |
| Reflected SW            | 6.3  | 6.3  | 6.3  | 6.3 | 9.1 | 11.2 | 14.7 | 18.1 | 21.6 | 25.1 | 29.3 | 25.1 |
| Net Radiation           | -0.7 | -0.7 | -0.7 | 0   | 1.4 | 2.1  | 3.9  | 5.6  | 6.3  | 8.4  | 15.3 | 12.6 |
| Temp °C                 |      |      | -1.6 |     |     | -1.1 |      |      | -0.3 |      |      | 0.4  |
| Tenths Cloudiness       |      |      | 9    |     |     | 10   |      |      | 8    |      |      | 10   |
| Weather                 |      |      | F    |     |     | F    |      |      | F    |      |      | F    |

## STATION CHARLEY IRRADIATION

AUGUST 11

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7   | 8   | 9    | 10  | 11  | 12   |
|-------------------------|------|------|------|------|------|------|-----|-----|------|-----|-----|------|
| Global SW               | 27.2 | 30.7 | 29.3 | 24.2 | 21.6 | 17.4 | 9.8 | -   | 6.3  | 6.3 | 6.3 | 6.3  |
| Reflected SW            | 18.8 | 18.8 | 18.1 | 16.8 | 14.7 | 10.5 | 7.1 | -   | -    | -   | -   | -    |
| Net Radiation           | 9.1  | 9.1  | 9.1  | 7.0  | 4.9  | 2.8  | 0.7 | 0.7 | 0    | 0   | 0   | -0.7 |
| Temp. °C                |      |      | 0.7  |      |      | 0.1  |     |     | -0.1 |     |     | -0.1 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |     |     | 10   |     |     | 10   |
| Weather                 |      |      | F    |      |      | F    |     |     |      |     |     | L--F |

| Hour Ending<br>at (GMT) | 13   | 14  | 15   | 16 | 17 | 18   | 19   | 20   | 21   | 22   | 23 | 24   |
|-------------------------|------|-----|------|----|----|------|------|------|------|------|----|------|
| Global SW               | 6.3  | 6.3 | 6.3  | -  | -  | 12.6 | 15.3 | 20.2 | 24.4 | 26.5 | -  | 25.1 |
| Reflected SW            | -    | -   | -    | -  | -  | -    | -    | -    | -    | 16.7 | -  | 16.0 |
| Net Radiation           | -1.4 | 0   | 0.7  | -  | -  | 5.6  | 7.0  | 7.0  | 7.7  | 8.4  | -  | 7.7  |
| Temp. °C                |      |     | -0.1 |    |    | 0.4  |      |      | 0.5  |      |    | 0.6  |
| Tenths Cloudiness       |      |     | 10   |    |    | 10   |      |      | 10   |      |    | 10   |
| Weather                 |      |     | L--F |    |    | F    |      |      | F    |      |    |      |

AUGUST 12

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Global SW               | 27.2 | 26.5 | 24.4 | 15.3 | 15.3 | 10.5 | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  |
| Reflected SW            | 18.1 | 18.1 | 15.3 | 10.5 | 10.5 | 6.3  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  |
| Net Radiation           | 8.4  | 8.4  | 7.7  | 5.6  | 4.9  | 0.7  | 0.7  | 0.7  | 0    | 0.7  | 0.7  | 7.7  |
| Temp. °C                |      |      | 0.5  |      |      | -0.4 |      |      | -0.6 |      |      | -0.1 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |      |      | 10   |      |      | 10   |
| Weather                 |      |      |      |      |      |      |      |      |      |      |      | 2K-  |
| Hour Ending (GMT)       | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
| Global SW               | 5.6  | 5.6  | 5.6  | 5.6  | 8.4  | 11.9 | 17.4 | 22.3 | 32.8 | 36.2 | 40.5 | 40.5 |
| Reflected SW            | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 8.4  | 11.9 | 16.0 | 21.0 | 22.3 | 26.5 | 26.5 |
| Net Radiation           | 7.7  | 7.7  | 7.7  | 6.3  | -    | -    | -    | 7.7  | 11.9 | 12.6 | 14.7 | 15.3 |
| Temp. °C                |      |      | 0.0  |      |      | 0.3  |      |      | 0.5  |      |      | 1.1  |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |      |      | 10   |      |      | 10   |
| Weather                 |      |      | 2R-  |      |      | L--  |      |      | F    |      |      | F    |

## STATION CHARLEY RADIATION

**AUGUST 13**

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7   | 8   | 9   | 10  | 11  | 12  |
|-------------------------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|
| Global SW               | 36.3 | 35.6 | 29.3 | 22.3 | 16.7 | 10.5 | 6.3 | 5.6 | 5.6 | 5.6 | 6.3 | 6.3 |
| Reflected SW            | 23.7 | 23.7 | 18.8 | 10.5 | 7.7  | 5.6  | 5.6 | 5.6 | 5.6 | 6.3 | 6.3 | 6.3 |
| Net Radiation           | 14.0 | 14.6 | 11.9 | 9.1  | 7.0  | 4.1  | 2.1 | 1.4 | 0.7 | 0   | 0.7 | 0   |
| Temp °C                 |      |      | 0.7  |      |      | 0.3  |     |     | 0.2 |     |     | 0.3 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |     |     | 10  |     |     | 10  |
| Weather                 |      |      | F    |      |      | F    |     |     | L-F |     |     | L-F |

| Hour Ending<br>at GMT | 13  | 14  | 15  | 16  | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|-----------------------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|
| Global SW             | 6.3 | 6.3 | 6.3 | 7.7 | 11.9 | 16.0 | 20.2 | 23.7 | 23.7 | 32.1 | 30.7 | 27.2 |
| Reflected SW          | 6.3 | 6.3 | 6.3 | 6.3 | 8.4  | 10.5 | 12.6 | 15.3 | 16.0 | 20.2 | 18.8 | 17.4 |
| Net Radiation         | 0.7 | 0.7 | 0.7 | 2.1 | 4.9  | 7.0  | 7.7  | 9.1  | 10.5 | 12.6 | 11.9 | 9.1  |
| Temp °C               |     |     | 0.3 |     |      | 0.4  |      |      | 0.5  |      |      | 0.6  |
| Tenths Cloudiness     |     |     | 10  |     |      | 10   |      |      | 10   |      |      | 10   |
| Weather               |     |     | F   |     |      | F    |      |      | F    |      |      | F    |

**AUGUST 14**

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6   | 7   | 8   | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|-----|-----|-----|------|------|------|------|
| Global SW               | 21.6 | 14.7 | 30.0 | 30.7 | 11.9 | -   | 9.1 | 5.6 | 6.3  | 6.3  | 6.3  | 6.3  |
| Reflected SW            | 15.3 | 10.5 | 13.2 | 9.8  | 9.1  | -   | 7.0 | 5.6 | 6.3  | 6.3  | 6.3  | 6.3  |
| Net Radiation           | 5.6  | 1.4  | 4.9  | 7.0  | 5.6  | -   | 0.7 | 0   | -0.7 | -2.8 | -7.0 | -7.7 |
| Temp °C                 |      |      | 0.6  |      |      | 0.1 |     |     | -1.2 |      |      | -2.1 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10  |     |     | 10   |      |      | 4    |
| Weather                 |      |      | L--F |      |      |     |     |     | F    |      |      |      |

[illegible]

STATION CHARLEY RADIATION

**AUGUST 15**

[illegible][illegible]

**AUGUST 16**

[illegible][illegible]

## STATION CHARLEY RADIATION

AUGUST 17

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7   | 8    | 9    | 10   | 11  | 12   |
|-------------------------|------|------|------|------|------|------|-----|------|------|------|-----|------|
| Global SW               | -    | -    | 18.8 | 19.5 | 15.3 | 11.9 | 8.4 | 5.6  | 4.2  | 4.2  | 3.5 | 2.1  |
| Reflected SW            | 14.0 | 13.3 | 11.2 | 8.4  | 6.3  | 5.6  | 5.6 | 5.6  | 4.2  | 4.2  | 3.5 | 2.1  |
| Net Radiation           | -    | -    | 7.0  | 7.0  | 5.6  | 2.8  | 0.7 | -0.7 | -0.7 | -0.7 | 0   | -1.4 |
| Temp °C                 |      |      | -1.0 |      |      | -1.1 |     |      | -1.4 |      |     | -2.1 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |     |      | 10   |      |     | 10   |
| Weather                 |      |      |      |      |      | L--F |     |      | F    |      |     | F    |

| Hour Ending<br>at (GMT) | 13  | 14  | 15   | 16  | 17  | 18   | 19   | 20   | 21   | 22   | 23   | 24    |
|-------------------------|-----|-----|------|-----|-----|------|------|------|------|------|------|-------|
| Global SW               | 3.5 | 6.3 | 4.2  | 5.6 | 7.7 | 9.8  | 11.9 | 15.3 | 33.8 | 37.0 | 39.8 | 35.6  |
| Reflected SW            | 3.5 | 4.2 | 4.2  | 5.6 | 7.0 | 7.7  | 10.5 | 13.3 | 25.8 | 26.5 | 27.9 | 25.1  |
| Net Radiation           | 0   | 0   | 1.4  | 2.8 | 2.8 | 3.5  | 3.5  | 4.9  | 7.0  | 9.8  | 17.4 | 11.2  |
| Temp °C                 |     |     | -1.8 |     |     | -1.7 |      |      | -1.7 |      |      | -1.2  |
| Tenths Cloudiness       |     |     | 10   |     |     | 10   |      |      | 10   |      |      | 10    |
| Weather                 |     |     | F    |     |     | SW-F |      |      | F    |      |      | ZL--F |

AUGUST 18

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Global SW               | 35.6 | 33.5 | 31.4 | 27.9 | 23.0 | 16.0 | 10.5 | 6.3  | 4.2  | 3.5  | 2.8  | 2.1  |
| Reflected SW            | 26.5 | 24.4 | 21.6 | 18.8 | 15.3 | 10.5 | 7.7  | 5.6  | 4.2  | 3.5  | 2.8  | 2.1  |
| Net Radiation           | 11.9 | 8.4  | 7.0  | 4.9  | 3.5  | 0.7  | -0.7 | -2.1 | -3.5 | -4.9 | -4.9 | -4.9 |
| Temp °C                 |      |      | -1.3 |      |      | -2.1 |      |      | -3.1 |      |      | -3.8 |
| Tenths Cloudiness       |      |      | 8    |      |      | 8    |      |      | 8    |      |      | 10   |
| Weather                 |      |      | F    |      |      | F    |      |      | F    |      |      | F    |

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17 | 18   | 19  | 20  | 21   | 22   | 23   | 24   |
|-------------------------|------|------|------|------|----|------|-----|-----|------|------|------|------|
| Global SW               | 2.8  | 3.5  | -    | -    | -  | -    | -   | -   | 33.5 | 37.7 | 39.8 | 38.4 |
| Reflected SW            | 2.8  | 3.5  | -    | -    | -  | -    | -   | -   | 24.4 | 27.2 | 29.3 | 30.0 |
| Net Radiation           | -4.9 | -4.2 | -1.4 | -1.4 | 0  | 0.7  | 2.1 | 7.0 | 7.7  | 8.4  | 9.1  | 9.1  |
| Temp °C                 |      |      | -3.8 |      |    | -3.9 |     |     | -3.8 |      |      | -3.0 |
| Tenths Cloudiness       |      |      | 8    |      |    | 8    |     |     | 10   |      |      | 10   |
| Weather                 |      |      | F    |      |    | F    |     |     | F    |      |      | F    |

# STATION CHARLEY RADIATION

AUGUST 19

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Global SW               | 38.4 | 33.5 | 31.4 | 26.5 | 21.6 | 15.3 | 7.7  | 5.6  | 4.2  | 3.5  | 2.8  | 1.4  |
| Reflected SW            | 27.9 | 31.4 | 22.3 | 18.8 | 15.4 | 11.2 | 6.3  | 5.6  | 4.2  | 3.5  | 2.8  | 1.4  |
| Net Radiation           | 8.4  | 7.7  | 7.7  | 7.0  | 4.9  | 2.1  | -1.4 | -2.1 | -2.8 | -4.9 | -5.6 | -5.6 |
| Temp °C                 |      |      | -2.4 |      |      | -2.9 |      |      | -3.8 |      |      | -3.9 |
| Tenths Cloudiness       |      |      | 9    |      |      | 10   |      |      | 10   |      |      | 8    |
| Weather                 |      |      | F    |      |      | F    |      |      | F    |      |      | F    |

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Global SW               | 2.8  | 3.5  | -    | -    | -    | -    | -    | 28.6 | 38.4 | 35.6 | 43.3 | 42.6 |
| Reflected SW            | 2.8  | 3.5  | 4.9  | 11.9 | 14.0 | 18.1 | 19.5 | 24.4 | 30.0 | 27.2 | 32.8 | 32.8 |
| Net Radiation           | -3.5 | -3.5 | -2.8 | -7.0 | -2.8 | 0    | 1.4  | 5.6  | 6.3  | 5.6  | 8.4  | 7.0  |
| Temp °C                 |      |      | -4.2 |      |      | -4.8 |      |      | -4.0 |      |      | -2.7 |
| Tenths Cloudiness       |      |      | 8    |      |      | 8    |      |      | 8    |      |      | 9    |
| Weather                 |      |      | F    |      |      | F    |      |      | F    |      |      | F    |

AUGUST 20

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7   | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|------|-----|------|------|------|------|------|
| Global SW               | 42.6 | 38.4 | 34.2 | 28.6 | 20.2 | 16.7 | 9.8 | 6.3  | 3.5  | 2.8  | 2.1  | 1.4  |
| Reflected SW            | 32.8 | 29.3 | 26.5 | 20.9 | 15.3 | 11.2 | 7.7 | 5.6  | 3.5  | 2.8  | 2.1  | 1.4  |
| Net Radiation           | 6.3  | 6.3  | 4.9  | 2.8  | 0.7  | -0.7 | 0   | -2.8 | -6.3 | -6.3 | -5.6 | -2.1 |
| Temp °C                 |      |      | -3.3 |      |      | -4.0 |     |      | -5.1 |      |      | -5.1 |
| Tenths Cloudiness       |      |      | 9    |      |      | 9    |     |      | 7    |      |      | 10   |
| Weather                 |      |      | F    |      |      | F    |     |      | F    |      |      | F    |

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Global SW               | 2.1  | 2.8  | 4.2  | 48.8 | 13.3 | 13.3 | 23.7 | 31.4 | 34.2 | 39.8 | 38.4 | 39.8 |
| Reflected SW            | 2.8  | 3.5  | -    | -    | -    | -    | -    | -    | 24.4 | 27.2 | 29.3 | 30.0 |
| Net Radiation           | -2.1 | -1.4 | -6.7 | 0    | 2.8  | 2.1  | 3.5  | 0.7  | 4.9  | 3.5  | 8.4  | 7.7  |
| Temp °C                 |      |      | -5.3 |      |      | -4.6 |      |      | -4.0 |      |      | -3.1 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |      |      | 9    |      |      | 10   |
| Weather                 |      |      | F    |      |      | F    |      |      | F    |      |      | F    |

# STATION CUMLEY RADIATION

AUGUST 21

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Global SW               | 36.3 | 29.3 | 25.8 | 21.6 | 19.5 | 10.5 | 15.4 | 5.6  | 3.5  | 2.8  | -    | -    |
| Reflected SW            | 27.9 | 24.4 | 20.9 | 18.1 | 14.7 | 9.1  | 7.0  | 5.6  | 3.5  | 2.8  | -    | -    |
| Net Radiation           | 7.7  | 5.3  | 4.9  | 4.9  | 2.8  | 0.7  | -    | -0.7 | -0.7 | -1.4 | -    | -    |
| Temp °C                 |      |      | -4.4 |      |      | -4.9 |      |      | -4.5 |      |      | -5.4 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |      |      | 10   |      |      | 10   |
| Weather                 |      |      | F    |      |      | F    |      |      | F    |      |      |      |
| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
| Global SW               | -    | -    | -    | -    | -    | -    | -    | -    | 28.6 | 28.6 | 29.3 | 26.5 |
| Reflected SW            | -    | -    | -    | -    | -    | -    | -    | -    | 23.7 | 23.7 | 23.0 | 21.6 |
| Net Radiation           | -    | -    | -    | -    | -    | -    | -    | -    | 4.2  | 4.9  | 4.9  | 4.2  |
| Temp °C                 |      |      | -4.2 |      |      | -3.1 |      |      | -4.7 |      |      | -4.4 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |      |      | 10   |      |      | 10   |
| Weather                 |      |      |      |      |      |      |      |      |      |      |      | SW-- |

AUGUST 22

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Global SW               | 26.5 | 22.3 | 18.8 | 19.5 | 14.0 | 7.7  | 7.7  | 3.8  | 3.5  | 2.1  | 1.4  | 0.7  |
| Reflected SW            | 21.6 | 18.8 | 16.0 | 16.0 | 11.2 | 7.7  | 7.0  | 4.8  | 3.5  | 2.1  | 1.4  | 0.7  |
| Net Radiation           | 4.2  | 3.5  | 2.1  | 3.5  | 2.1  | 1.4  | 0.7  | 0    | 0    | 0    | 0    | -0.7 |
| Temp °C                 |      |      | -3.9 |      |      | -4.0 |      |      | -4.0 |      |      | -4.7 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |      |      | 10   |      |      | 10   |
| Weather                 |      |      | S--  |      |      | S--  |      |      | --   |      |      | --   |
| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
| Global SW               | 1.4  | 2.8  | 3.8  | 4.9  | 7.7  | 13.3 | 18.8 | 28.6 | 29.3 | 37.0 | 35.6 | 30.7 |
| Reflected SW            | 1.4  | 2.8  | 4.2  | 4.9  | 7.7  | 11.9 | 16.7 | 22.3 | 23.7 | 30.0 | 28.7 | 24.4 |
| Net Radiation           | 0    | 0    | 0    | 0.7  | 0.7  | 2.1  | 4.2  | 4.2  | 4.9  | 7.0  | 9.1  | 8.5  |
| Temp °C                 |      |      | -4.8 |      |      | -3.9 |      |      | -3.4 |      |      | -1.0 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |      |      | 9    |      |      | 10   |
| Weather                 |      |      |      |      |      | S--F |      |      | F    |      |      | F    |

## STATION CHADLEY RADIATION

AUGUST 23

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7   | 8   | 9    | 10  | 11  | 12   |
|-------------------------|------|------|------|------|------|------|-----|-----|------|-----|-----|------|
| Global SW               | 32.8 | 33.5 | 24.4 | 20.9 | 12.6 | 6.3  | 5.6 | 4.2 | 3.5  | 2.1 | 1.4 | 0    |
| Reflected SW            | 26.5 | 26.5 | 20.2 | 16.7 | 12.6 | 12.6 | 5.6 | 4.2 | 2.8  | 2.1 | 1.4 | 0    |
| Net Radiation           | 7.0  | 7.0  | 3.5  | 4.2  | 2.8  | 1.4  | 0.7 | 0.7 | 0    | 0   | 0   | 0    |
| Temp °C                 |      |      | -1.8 |      |      | -1.7 |     |     | -1.3 |     |     | -0.6 |
| Tenths Cloudiness       |      |      | 9    |      |      | 10   |     |     | 10   |     |     | 10   |
| Weather                 |      |      | F    |      |      | F    |     |     |      |     |     | F    |

| Hour Ending<br>at (GMT) | 13  | 14  | 15   | 16  | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|-------------------------|-----|-----|------|-----|------|------|------|------|------|------|------|------|
| Global SW               | 1.4 | 3.5 | 4.2  | 7.7 | 16.7 | 13.3 | 20.2 | 21.6 | 20.2 | 28.6 | 44.7 | 40.5 |
| Reflected SW            | 1.4 | 2.8 | 4.2  | 7.7 | 14.0 | 11.2 | 18.1 | 18.8 | 18.1 | 23.7 | 35.6 | 39.8 |
| Net Radiation           | 0   | 0.7 | 1.4  | 1.4 | 3.5  | 1.4  | 3.5  | 4.2  | 4.2  | 5.6  | 7.7  | 2.8  |
| Temp °C                 |     |     | -0.6 |     |      | -0.1 |      |      | -0.1 |      |      | -0.5 |
| Tenths Cloudiness       |     |     | 10   |     |      | 10   |      |      | 9    |      |      | ?    |
| Weather                 |     |     |      |     |      |      |      |      |      |      |      |      |

AUGUST 24

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Global SW               | 46.8 | 43.3 | 35.6 | 32.8 | 20.2 | 25.1 | 5.6  | 4.2  | 2.5  | 1.4  | 0.7  | 0    |
| Reflected SW            | 37.0 | 34.2 | 27.2 | 23.7 | 15.3 | 15.3 | 5.6  | 14.0 | 11.2 | 1.4  | 0.7  | 0    |
| Net Radiation           | 12.6 | 1.4  | 0    | 0.7  | 0.7  | 0.7  | -0.7 | 0    | -2.1 | -2.8 | -2.1 | -1.4 |
| Temp °C                 |      |      | -1.9 |      |      | -3.9 |      |      | -6.0 |      |      | -6.6 |
| Tenths Cloudiness       |      |      | 3    |      |      | 10   |      |      | 10   |      |      | 10   |
| Weather                 |      |      |      |      |      | S--F |      |      | F    |      |      | F    |

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17  | 18   | 19  | 20   | 21   | 22   | 23   | 24   |
|-------------------------|------|------|------|------|-----|------|-----|------|------|------|------|------|
| Global SW               | 1.4  | 2.8  | 4.2  | 5.6  | -   | -    | -   | 24.4 | 34.2 | 36.3 | 38.4 | 32.8 |
| Reflected SW            | 1.4  | 2.8  | 4.2  | 5.6  | 5.6 | 5.6  | 5.6 | 22.3 | 30.0 | 30.0 | 32.1 | 26.5 |
| Net Radiation           | -7.0 | -0.7 | 0    | -0.7 | 1.4 | 3.5  | 4.2 | 4.9  | 5.6  | 5.9  | 8.4  | 7.7  |
| Temp °C                 |      |      | -7.2 |      |     | -6.7 |     |      | -4.7 |      |      | -3.1 |
| Tenths Cloudiness       |      |      | 10   |      |     | 10   |     |      | 8    |      |      | 10   |
| Weather                 |      |      | S--F |      |     | S--F |     |      | F    |      |      | S--F |

# STATION CHARLEY RADIATION

AUGUST 25

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5   | 6    | 7 | 8 | 9    | 10 | 11 | 12   |
|-------------------------|------|------|------|------|-----|------|---|---|------|----|----|------|
| Global SW               | 30.7 | 20.2 | 18.8 | 16.7 | 9.8 | 6.3  | - | - | -    | -  | -  | -    |
| Reflected SW            | 25.1 | 22.3 | 16.0 | 11.2 | 8.4 | 6.3  | - | - | -    | -  | -  | -    |
| Net Radiation           | 7.7  | 7.7  | 4.9  | 2.1  | 0.7 | 0.7  | - | - | -    | -  | -  | -    |
| Temp °C                 |      |      | -0.9 |      |     | -0.8 |   |   | -1.1 |    |    | -1.3 |
| Tenths Cloudiness       |      |      | 10   |      |     | 10   |   |   | 10   |    |    | 9    |
| Weather                 |      |      |      |      |     |      |   |   |      |    |    |      |

| Hour Ending<br>at (GMT) | 13 | 14 | 15   | 16 | 17 | 18   | 19 | 20  | 21   | 22 | 23  | 24   |
|-------------------------|----|----|------|----|----|------|----|-----|------|----|-----|------|
| Global SW               | -  | -  | -    | -  | -  | -    | -  | -   | -    | -  | -   | -    |
| Reflected SW            | -  | -  | -    | -  | -  | -    | -  | -   | -    | -  | -   | -    |
| Net Radiation           | -  | -  | -    | -  | -  | -    | -  | 0.7 | 0.7  | 0  | 0.7 | 4.9  |
| Temp °C                 |    |    | -1.2 |    |    | -2.7 |    |     | -1.9 |    |     | -0.8 |
| Tenths Cloudiness       |    |    | 8    |    |    | 7    |    |     | 5    |    |     | 8    |
| Weather                 |    |    |      |    |    |      |    |     |      |    |     |      |

AUGUST 26

| Hour Ending<br>at (GMT) | 1 | 2   | 3    | 4 | 5 | 6    | 7 | 8 | 9    | 10 | 11 | 12   |
|-------------------------|---|-----|------|---|---|------|---|---|------|----|----|------|
| Global SW               | - | -   | -    | - | - | -    | - | - | -    | -  | -  | -    |
| Reflected SW            | - | -   | -    | - | - | -    | - | - | -    | -  | -  | -    |
| Net Radiation           | 0 | 0.7 | -    | - | - | -    | - | - | -    | -  | -  | -    |
| Temp °C                 |   |     | -1.2 |   |   | -1.2 |   |   | -0.8 |    |    | -0.8 |
| Tenths Cloudiness       |   |     | 8    |   |   | 10   |   |   | 10   |    |    | 10   |
| Weather                 |   |     |      |   |   |      |   |   | F    |    |    |      |

| Hour Ending<br>at (GMT) | 13 | 14 | 15   | 16 | 17 | 18   | 19 | 20  | 21   | 22   | 23   | 24   |
|-------------------------|----|----|------|----|----|------|----|-----|------|------|------|------|
| Global SW               | -  | -  | -    | -  | -  | -    | -  | 9.8 | 18.8 | 23.0 | 30.7 | 34.9 |
| Reflected SW            | -  | -  | -    | -  | -  | -    | -  | 8.4 | 14.0 | 18.8 | 15.3 | 29.3 |
| Net Radiation           | -  | -  | -    | -  | -  | -    | -  | 2.8 | 3.5  | 4.9  | 7.7  | 3.5  |
| Temp °C                 |    |    | -0.9 |    |    | -1.0 |    |     | -0.7 |      |      | -3.7 |
| Tenths Cloudiness       |    |    | 10   |    |    | 10   |    |     | 10   |      |      | 9    |
| Weather                 |    |    | F    |    |    | L-F  |    |     | F    |      |      | SW-F |

## STATION CHARLEY RADIATION

**AUGUST 27**

[illegible]

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Global SW               | 0    | 0.7  | 0.7  | 3.5  | 11.9 | 11.9 | 20.9 | 32.8 | 48.1 | 55.1 | 60.7 | 60.7 |
| Reflected SW            | 0    | 0.7  | 0.7  | 2.8  | 8.4  | 9.8  | 15.4 | 25.1 | 31.4 | 34.2 | 37.0 | 37.0 |
| Net Radiation           | -0.7 | -0.7 | -0.7 | -0.7 | -2.8 | 0.7  | -1.4 | -5.6 | -7.0 | -5.6 | -3.5 | -2.1 |
| Temp °C                 |      |      | -3.7 |      |      | -5.8 |      |      | -5.8 |      |      | -4.6 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |      |      | 3    |      |      | 1    |
| Weather                 |      |      | SW—  |      |      | SW—F |      |      |      |      |      |      |

AUGUST 28

[illegible][illegible]

## STATION CHARLEY RADIATION

AUGUST 29

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5   | 6    | 7   | 8   | 9    | 10 | 11 | 12   |
|-------------------------|------|------|------|------|-----|------|-----|-----|------|----|----|------|
| Global SW               | 21.6 | 18.8 | 18.8 | 13.3 | 9.8 | 4.2  | 4.2 | 0.7 | 0    | 0  | 0  | 0    |
| Reflected SW            | 20.9 | 18.8 | 18.8 | 12.6 | 9.1 | 3.5  | 2.1 | 0.7 | 0    | 0  | 0  | 0    |
| Net Radiation           | 5.6  | 3.5  | 5.6  | 2.1  | 2.1 | 1.4  | 0.7 | 0   | 0    | 0  | 0  | 0    |
| Temp °C                 |      |      | -1.2 |      |     | -2.9 |     |     | -2.3 |    |    | -2.1 |
| Tenths Cloudiness       |      |      | 10   |      |     | 10   |     |     | 10   |    |    | 10   |
| Weather                 |      |      |      |      |     | SW—  |     |     |      |    |    |      |

| Hour Ending<br>at (GMT) | 13 | 14 | 15   | 16  | 17  | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|-------------------------|----|----|------|-----|-----|------|------|------|------|------|------|------|
| Global SW               | 0  | 0  | 0.7  | 2.1 | 4.9 | 7.0  | 11.9 | 18.1 | 18.8 | 18.8 | 16.1 | 16.7 |
| Reflected SW            | 0  | 0  | 0.7  | 2.1 | 3.5 | 5.6  | 9.8  | 14.0 | 14.7 | 14.7 | 16.1 | 16.1 |
| Net Radiation           | 0  | 0  | 0.7  | 0   | 0.7 | 0.7  | 2.1  | 6.3  | 3.5  | 3.5  | 4.9  | 4.9  |
| Temp °C                 |    |    | -2.2 |     |     | -1.7 |      |      | -1.3 |      |      | -1.1 |
| Tenths Cloudiness       |    |    | 10   |     |     | 10   |      |      | 10   |      |      | 10   |
| Weather                 |    |    |      |     |     | SW—  |      |      | SW—  |      |      | SW—  |

AUGUST 30

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7   | 8   | 9    | 10 | 11 | 12   |
|-------------------------|------|------|------|------|------|------|-----|-----|------|----|----|------|
| Global SW               | 16.7 | 18.1 | 19.5 | 15.4 | 13.3 | 8.4  | 2.8 | 2.8 | 0.7  | 0  | 0  | 0    |
| Reflected SW            | 14.0 | 14.7 | 16.7 | 13.3 | 11.9 | 7.7  | 2.8 | 2.8 | 0.7  | 0  | 0  | 0    |
| Net Radiation           | 3.5  | 3.5  | 4.9  | 3.5  | 2.8  | 1.4  | 0   | 0   | 0    | 0  | 0  | 0    |
| Temp °C                 |      |      | -1.1 |      |      | -1.5 |     |     | -1.9 |    |    | -2.2 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |     |     | 10   |    |    | 10   |
| Weather                 |      |      |      |      |      | S—   |     |     |      |    |    | F    |

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16  | 17  | 18   | 19  | 20   | 21   | 22   | 23   | 24   |
|-------------------------|------|------|------|-----|-----|------|-----|------|------|------|------|------|
| Global SW               | 0    | 0    | 0.7  | 0.7 | 2.8 | 9.8  | 8.4 | 13.3 | 18.8 | 22.3 | 27.2 | 18.8 |
| Reflected SW            | 0    | 0    | 0.7  | 0.7 | 2.8 | 7.7  | 7.7 | 11.9 | 16.1 | 18.8 | 20.2 | 16.7 |
| Net Radiation           | -0.7 | -0.7 | 0    | 0.7 | 0.7 | 1.4  | 1.4 | 1.4  | 2.8  | 4.9  | 5.6  | 3.5  |
| Temp °C                 |      |      | -2.7 |     |     | -1.7 |     |      | -1.7 |      |      | -1.6 |
| Tenths Cloudiness       |      |      | 10   |     |     | 10   |     |      | 10   |      |      | 10   |
| Weather                 |      |      |      |     |     |      |     |      | S—F  |      |      | SW—F |

STATION CHARLEY RADIATION

**AUGUST 31**

[illegible]

# STATION CLIMATOLOGY

MILLIWATTS/CM<sup>2</sup>

SEPTEMBER 1

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7   | 8   | 9    | 10  | 11 | 12   |
|-------------------------|------|------|------|------|------|------|-----|-----|------|-----|----|------|
| Global SW               | 23.0 | 21.0 | 16.7 | 11.9 | 11.9 | 7.7  | 4.2 | 0.7 | 0.7  | 0.7 | 0  | 0    |
| Reflected SW            | 19.5 | 16.7 | 13.3 | 10.5 | 10.5 | 6.3  | 2.8 | 0.7 | 0.7  | 0.7 | 0  | 0    |
| Net Radiation           | 5.6  | 5.6  | 3.5  | 2.8  | 2.8  | 1.4  | 0   | 0   | -    | -   | -  | -    |
| Temp °C                 |      |      | -3.0 |      |      | -2.3 |     |     | -2.1 |     |    | -1.6 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |     |     | 10   |     |    | 10   |
| Weather                 |      |      |      |      |      |      |     |     | ZR-- |     |    | E--  |

| Hour Ending<br>at (GMT) | 13  | 14  | 15   | 16  | 17  | 18   | 19  | 20  | 21   | 22 | 23 | 24   |
|-------------------------|-----|-----|------|-----|-----|------|-----|-----|------|----|----|------|
| Global SW               | 0.7 | 0.7 | 2.1  | 2.8 | 7.0 | 9.8  | -   | -   | -    | -  | -  | -    |
| Reflected SW            | 0.7 | 0.7 | -    | -   | -   | -    | -   | -   | -    | -  | -  | -    |
| Net Radiation           | 0   | 0   | 0.7  | 1.4 | 2.1 | 2.8  | 2.1 | 2.8 | 2.1  | -  | -  | -    |
| Temp °C                 |     |     | -1.6 |     |     | -1.1 |     |     | -0.4 |    |    | -0.2 |
| Tenths Cloudiness       |     |     | 10   |     |     | 10   |     |     | 10   |    |    | 10   |
| Weather                 |     |     |      |     |     |      |     |     |      |    |    |      |

SEPTEMBER 2

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5   | 6    | 7   | 8   | 9    | 10 | 11 | 12   |
|-------------------------|------|------|------|------|-----|------|-----|-----|------|----|----|------|
| Global SW               | 16.0 | 16.7 | 16.7 | 11.9 | 7.7 | 4.2  | 0.7 | 0.7 | 0    | 0  | 0  | 0    |
| Reflected SW            | 12.6 | 13.3 | 13.3 | 7.0  | 5.6 | 2.8  | 0.7 | 0.7 | 0    | 0  | 0  | 0    |
| Net Radiation           | 4.2  | 4.2  | 5.6  | 3.5  | 2.1 | 0.7  | 0   | 0   | 0    | 0  | 0  | 0    |
| Temp °C                 |      |      | -1.2 |      |     | -1.8 |     |     | -2.7 |    |    | -2.8 |
| Tenths Cloudiness       |      |      | 10   |      |     | 10   |     |     | 10   |    |    | 10   |
| Weather                 |      |      |      |      |     | ZL-- |     |     | ZL-- |    |    | F    |

| Hour Ending<br>at (GMT) | 13   | 14 | 15   | 16  | 17  | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|-------------------------|------|----|------|-----|-----|------|------|------|------|------|------|------|
| Global SW               | 0    | 0  | 0    | 0   | 4.2 | 7.0  | 14.0 | 20.2 | 23.7 | 27.9 | 30.0 | 21.6 |
| Reflected SW            | 0    | 0  | 0    | 0.7 | 2.1 | -    | 11.2 | 16.7 | 19.5 | 20.9 | 22.3 | 18.1 |
| Net Radiation           | -0.7 | 0  | -0.7 | 0   | 0   | +0.7 | 0    | 1.4  | 4.9  | 6.3  | 7.0  | 6.3  |
| Temp °C                 |      |    | -3.5 |     |     | -0.3 |      |      | -4.9 |      |      | -4.8 |
| Tenths Cloudiness       |      |    | 10   |     |     | 0    |      |      | 0    |      |      | 10   |
| Weather                 |      |    | S--F |     |     | F    |      |      | F    |      |      | 3W-F |

## STATION CHARLEY RADIATION

SEPTEMBER 3

| Hour Ending<br>at (GMT) | 1    | 2    | 3     | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|-------|------|------|------|------|------|------|------|------|------|
| Global SW               | 21.6 | 20.2 | 18.8  | 14.7 | 11.9 | 11.9 | 4.9  | 0.7  | 0.7  | 0    | 0    | 0.   |
| Reflected SW            | 16.7 | 16.0 | 14.0  | 12.6 | 9.8  | 6.3  | 2.8  | 0.7  | 0.7  | 0    | 0    | 0.   |
| Net Radiation           | 6.3  | 5.6  | 3.5   | 2.8  | 0.7  | -2.1 | -1.4 | -1.4 | -3.5 | -6.3 | -7.0 | -7.7 |
| Temp °C                 |      |      | -4.3  |      |      | -6.1 |      |      | -7.8 |      |      | -9.7 |
| Tenths Cloudiness       |      |      | 10    |      |      | 8    |      |      | 7    |      |      | 1    |
| Weather                 |      |      | SW--F |      |      |      |      |      |      |      |      |      |

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24    |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Global SW               | 0    | 0    | 0.7  | 4.2  | 7.0  | 11.2 | 14.7 | 18.1 | 27.2 | 20.2 | 23.7 | 21.6  |
| Reflected SW            | 0.7  | 0.7  | 0.7  | 2.8  | 6.3  | 9.8  | 13.3 | 14.0 | 22.3 | 16.0 | 19.5 | 18.1  |
| Net Radiation           | -7.0 | -7.0 | -6.3 | -5.6 | -6.3 | -6.3 | -2.8 | -0.7 | 0    | 4.9  | 5.6  | 5.6   |
| Temp °C                 |      |      | -9.5 |      |      | -8.1 |      |      | -7.1 |      |      | -3.7  |
| Tenths Cloudiness       |      |      | 3    |      |      | 4    |      |      | 4    |      |      | 10    |
| Weather                 |      |      |      |      |      |      |      |      |      |      |      | SW--F |

SEPTEMBER 4

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5   | 6    | 7   | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|-----|------|-----|------|------|------|------|------|
| Global SW               | 23.0 | 18.8 | 18.8 | 11.9 | 6.3 | 6.3  | 2.1 | 0    | 0.7  | 0    | 0.7  | 0    |
| Reflected SW            | 18.1 | 16.0 | 15.3 | 10.5 | 6.3 | 4.9  | 2.1 | 0    | 0.7  | 0    | 0    | 0    |
| Net Radiation           | 5.6  | 3.5  | 3.5  | 2.1  | 0.7 | 0    | 0   | -0.7 | -0.7 | 0    | -0.7 | -0.7 |
| Temp °C                 |      |      | -2.3 |      |     | -1.7 |     |      | -2.3 | -0.7 |      | -3.9 |
| Tenths Cloudiness       |      |      | 10   |      |     | 10   |     |      | 10   |      |      | 10   |
| Weather                 |      |      |      |      |     |      |     |      |      |      |      | SW-- |

| Hour Ending<br>at (GMT) | 13   | 14   | 15    | 16   | 17   | 18    | 19  | 20   | 21   | 22   | 23   | 24   |
|-------------------------|------|------|-------|------|------|-------|-----|------|------|------|------|------|
| Global SW               | 0    | 0.7  | 0.7   | 2.1  | 7.0  | 7.7   | 7.7 | 14.0 | 28.0 | 18.8 | 23.7 | 23.0 |
| Reflected SW            | 0    | 0.7  | 0.7   | 0.7  | 5.6  | 6.3   | 6.3 | 12.6 | 18.1 | 15.3 | 19.5 | 18.1 |
| Net Radiation           | -1.4 | -1.4 | -0.7  | -4.9 | -2.1 | 0.7   | 0   | 2.8  | 5.6  | 2.8  | 3.5  | 3.5  |
| Temp °C                 |      |      | -5.4  |      |      | -7.0  |     |      | -4.8 |      |      | -4.0 |
| Tenths Cloudiness       |      |      | 9     |      |      | 10    |     |      | 10   |      |      | 10   |
| Weather                 |      |      | SW--F |      |      | SW--F |     |      | SW-- |      |      |      |

## STATION CHARLEY RADIATION

SEPTEMBER 5

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4   | 5   | 6    | 7   | 8   | 9    | 10  | 11  | 12   |
|-------------------------|------|------|------|-----|-----|------|-----|-----|------|-----|-----|------|
| Global SW               | 18.1 | 16.7 | 14.0 | 9.1 | 9.1 | 4.9  | 2.1 | 2.1 | 0.7  | 0.7 | 0.7 | 0    |
| Reflected SW            | 15.3 | 14.0 | 12.6 | 7.7 | 7.7 | 4.9  | 2.1 | 2.1 | 0.7  | 0.7 | 0.7 | 0    |
| Net Radiation           | 2.8  | 2.8  | 2.1  | 0.7 | 0.7 | 0.7  | 0   | 0   | 0    | 0   | 0   | -0.7 |
| Temp °C                 |      |      | -3.8 |     |     | -4.4 |     |     | -5.3 |     |     | -5.7 |
| Tenths Cloudiness       |      |      | 10   |     |     | 10   |     |     | 10   |     |     | 10   |
| Weather                 |      |      | SW-- |     |     | SW-- |     |     | SW-- |     |     |      |

| Hour Ending<br>at (GMT) | 13   | 14   | 15    | 16   | 17   | 18    | 19   | 20   | 21   | 22   | 23   | 24    |
|-------------------------|------|------|-------|------|------|-------|------|------|------|------|------|-------|
| Global SW               | 0    | 0    | 0.7   | 2.1  | 4.9  | 14.7  | --   | 32.1 | 34.9 | 32.1 | 25.1 | 22.3  |
| Reflected SW            | 0    | 0    | 0.7   | 0.7  | 3.5  | 13.3  | --   | 25.1 | 27.2 | 24.4 | 20.9 | 18.8  |
| Net Radiation           | -0.7 | -2.8 | -1.4  | -1.4 | -1.4 | -6.3  | -8.4 | -3.5 | -0.7 | 1.4  | 6.3  | 5.6   |
| Temp °C                 |      |      | -6.6  |      |      | -6.7  |      |      | -7.6 |      |      | -6.2  |
| Tenths Cloudiness       |      |      | 10    |      |      | 18    |      |      | 5    |      |      | 10    |
| Weather                 |      |      | SW--F |      |      | SW--F |      |      |      |      |      | SW--F |

SEPTEMBER 6

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12    |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Global SW               | 25.1 | 23.7 | 20.2 | --   | 18.8 | 14.0 | 6.3  | 2.1  | 0    | 0    | 0    | 0     |
| Reflected SW            | 20.9 | 18.8 | 15.3 | 16.0 | 12.6 | 6.3  | 2.8  | 0.7  | 0    | 0    | 0    | 0     |
| Net Radiation           | 5.6  | 4.9  | 2.8  | 0    | 0.7  | -2.8 | -5.6 | -6.3 | -7.0 | -6.3 | -6.3 | -6.3  |
| Temp °C                 |      |      | -6.2 |      |      | -7.8 |      |      | -9.6 |      |      | -10.7 |
| Tenths Cloudiness       |      |      | 8    |      |      | 3    |      |      | 2    |      |      | 1     |
| Weather                 |      |      | F    |      |      |      |      |      |      |      |      |       |

| Hour Ending<br>at (GMT) | 13   | 14   | 15    | 16   | 17   | 18   | 19   | 20  | 21   | 22   | 23   | 24   |
|-------------------------|------|------|-------|------|------|------|------|-----|------|------|------|------|
| Global SW               | 0    | 0    | 0     | --   | --   | --   | --   | --  | 16.0 | 21.6 | 25.1 | 25.8 |
| Reflected SW            | 0    | 0    | 0     | --   | --   | --   | --   | --  | 14.0 | 18.8 | 20.9 | 21.6 |
| Net Radiation           | -6.3 | -6.3 | -5.6  | -4.9 | -5.6 | 0    | -0.7 | 2.8 | 3.5  | 4.9  | 6.3  | 6.3  |
| Temp °C                 |      |      | -12.1 |      |      | -9.9 |      |     | -7.6 |      |      | -6.2 |
| Tenths Cloudiness       |      |      | 3     |      |      | 8    |      |     | 10   |      |      | 10   |
| Weather                 |      |      |       |      |      |      |      |     | F    |      |      |      |

STATION CHARLEY RADIATION

SEPTEMBER 7

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5   | 6    | 7   | 8   | 9    | 10   | 11  | 12    |
|-------------------------|------|------|------|------|-----|------|-----|-----|------|------|-----|-------|
| Global SW               | 23.0 | 20.2 | 16.7 | 14.7 | 9.1 | 4.9  | 2.1 | 0.7 | 0    | 0    | 0   | 0     |
| Reflected SW            | 18.8 | 16.0 | 14.0 | 11.2 | 7.7 | 4.9  | 2.1 | 0.7 | 0    | 0    | 0   | 0     |
| Net Radiation           | 5.6  | 3.5  | 1.4  | 0.7  | 0.7 | 0    | 0   | 0   | -0.7 | -4.9 | 7.0 | -6.3  |
| Temp °C                 |      |      | -5.4 |      |     | -5.3 |     |     | -7.4 |      |     | -11.5 |
| Tenths Cloudiness       |      |      | 10   |      |     | 10   |     |     | 10   |      |     | 1     |
| Weather                 |      |      | F    |      |     | F    |     |     | F    |      |     |       |

[illegible]**SEPTEMBER 8**[illegible][illegible]

## STATION CHARLEY RADIATION

SEPTEMBER 9

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4   | 5   | 6    | 7   | 8 | 9    | 10   | 11 | 12    |
|-------------------------|------|------|------|-----|-----|------|-----|---|------|------|----|-------|
| Global SW               | 14.7 | 14.0 | 11.9 | 9.1 | 4.9 | 2.1  | 0.7 | 0 | 0    | 0    | 0  | 0     |
| Reflected SW            | 12.6 | 11.2 | 9.8  | 6.3 | 3.5 | 2.1  | 0.7 | 0 | 0    | 0    | 0  | 0     |
| Net Radiation           | 0.7  | 1.4  | 0.7  | 0   | 0   | 0    | 0   | 0 | 0    | -0.7 | 0  | 0     |
| Temp °C                 |      |      | -2.7 |     |     | -3.0 |     |   | -3.1 |      |    | -5.1  |
| Tenths Cloudiness       |      |      | 10   |     |     | 10   |     |   | 10   |      |    | 10    |
| Weather                 |      |      |      |     |     |      |     |   |      |      |    | SW--F |

| Hour Ending<br>at (GMT) | 13   | 14   | 15    | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23  | 24   |
|-------------------------|------|------|-------|------|------|------|------|------|------|------|-----|------|
| Global SW               | 0    | 0    | 0     | 0    | 0.7  | 4.9  | 9.8  | 20.2 | 25.8 | 28.6 | --  | --   |
| Reflected SW            | 0    | 0    | 0     | 0    | 0.7  | 3.5  | 8.4  | 15.3 | 20.9 | 22.3 | --  | --   |
| Net Radiation           | -0.7 | -0.7 | -2.1  | -2.8 | -3.5 | -0.7 | -1.4 | -1.4 | 0    | 0    | 0.7 | -0.7 |
| Temp °C                 |      |      | -7.6  |      |      | -7.9 |      |      | -7.3 |      |     | -6.4 |
| Tenths Cloudiness       |      |      | 10    |      |      | 8    |      |      | 8    |      |     | 8    |
| Weather                 |      |      | SW--F |      |      | F    |      |      | F    |      |     | F    |

SEPTEMBER 10

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7   | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|------|-----|------|------|------|------|------|
| Global SW               | 37.0 | 39.8 | 30.0 | 25.8 | 18.1 | 4.9  | 0.7 | 0    | 0.7  | 0    | 0    | 0    |
| Reflected SW            | 28.6 | 24.4 | 16.7 | 18.1 | 8.4  | 2.8  | 0.7 | 0    | 0.7  | 0    | 0    | 0    |
| Net Radiation           | -2.8 | -3.5 | -2.1 | -2.8 | -3.5 | -1.4 | 0   | -0.7 | 0    | -3.5 | -2.1 | -3.5 |
| Temp °C                 |      |      | -6.8 |      |      | -9.0 |     |      | -6.4 |      |      | -8.7 |
| Tenths Cloudiness       |      |      | 8    |      |      | 9    |     |      | 10   |      |      | 10   |
| Weather                 |      |      |      |      |      | F    |     |      | F    |      |      |      |

| Hour Ending<br>at (GMT) | 13  | 14  | 15   | 16  | 17 | 18   | 19  | 20   | 21   | 22   | 23   | 24   |
|-------------------------|-----|-----|------|-----|----|------|-----|------|------|------|------|------|
| Global SW               | 0.7 | 0.7 | 0.7  | 0.7 | -- | --   | --  | 11.2 | 11.9 | 14.7 | 20.9 | 30.0 |
| Reflected SW            | 0.7 | 0.7 | 0.7  | 0.7 | -- | --   | --  | --   | 10.5 | 12.6 | 16.0 | 26.5 |
| Net Radiation           | 0   | 0   | 0    | 0   | 0  | 0    | 1.4 | 2.1  | 2.1  | 2.8  | 3.5  | 3.5  |
| Temp °C                 |     |     | -4.8 |     |    | -3.9 |     |      | -2.9 |      |      | -3.8 |
| Tenths Cloudiness       |     |     | 10   |     |    | 10   |     |      | 10   |      |      | 8    |
| Weather                 |     |     | SW-- |     |    | SW-- |     |      | SW-- |      |      | SW-- |

## STATION CHARLEY RADIATION

SEPTEMBER 11

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5   | 6    | 7   | 8 | 9     | 10  | 11  | 12    |
|-------------------------|------|------|------|------|-----|------|-----|---|-------|-----|-----|-------|
| Global SW               | --   | 20.2 | --   | 11.2 | 7.0 | 2.8  | 0.7 | 0 | 0.7   | 0.7 | 0.7 | 0     |
| Reflected SW            | 18.8 | 16.7 | --   | 8.4  | 6.3 | 0.7  | 0.7 | 0 | 0.7   | 0.7 | 0.7 | 0     |
| Net Radiation           | 2.8  | 3.5  | --   | 1.4  | 0.7 | 0    | 0   | 0 | 0     | 0   | 0   | -0.7  |
| Temp °C                 |      |      | -3.8 |      |     | -2.1 |     |   | -1.1  |     |     | -1.1  |
| Tenths Cloudiness       |      |      | 10   |      |     | 10   |     |   | 10    |     |     | 10    |
| Weather                 |      |      | SW-- |      |     | SW-- |     |   | SW--F |     |     | SW--f |

| Hour Ending<br>at (GMT) | 13   | 14  | 15    | 16  | 17  | 18    | 19  | 20  | 21   | 22   | 23   | 24    |
|-------------------------|------|-----|-------|-----|-----|-------|-----|-----|------|------|------|-------|
| Global SW               | 0    | 0.7 | 0     | 0.7 | 0.7 | 4.2   | 7.0 | 9.8 | 13.3 | 16.0 | 18.0 | 16.7  |
| Reflected SW            | 0    | 0.7 | 0     | 0.7 | 0.7 | 3.5   | 5.6 | 8.4 | 9.8  | 13.3 | 15.3 | 14.0  |
| Net Radiation           | -0.7 | 0   | -0.7  | 0   | 0   | 0     | 0.7 | 1.4 | 2.8  | 3.5  | 3.5  | 3.5   |
| Temp °C                 |      |     | -1.2  |     |     | -1.4  |     |     | 0.1  |      |      | -0.9  |
| Tenths Cloudiness       |      |     | 10    |     |     | 10    |     |     | 10   |      |      | 10    |
| Weather                 |      |     | SW--F |     |     | SW--F |     |     | L--F |      |      | ZL--F |

SEPTEMBER 12

| Hour Ending<br>at (GMT) | 1    | 2    | 3     | 4   | 5   | 6    | 7   | 8 | 9    | 10   | 11   | 12   |
|-------------------------|------|------|-------|-----|-----|------|-----|---|------|------|------|------|
| Global SW               | 18.8 | 16.0 | 14.0  | 7.7 | 4.9 | 2.8  | 0.7 | 0 | 0    | 0    | 0    | 0    |
| Reflected SW            | 15.3 | 13.3 | 11.2  | 6.3 | 3.5 | 2.1  | 0   | 0 | 0    | 0    | 0    | 0    |
| Net Radiation           | 3.5  | 3.5  | 3.5   | 1.4 | .7  | 0    | 0   | 0 | -4.9 | -6.3 | -7.0 | -7.0 |
| Temp °C                 |      |      | -0.6  |     |     | 0.3  |     |   | 0.4  |      |      | 0.7  |
| Tenths Cloudiness       |      |      | 10    |     |     | 10   |     |   | 10   |      |      | 10   |
| Weather                 |      |      | ZL--F |     |     | L--F |     |   | R--F |      |      | R-S- |

| Hour Ending<br>at (GMT) | 13   | 14   | 15  | 16   | 17  | 18   | 19  | 20  | 21   | 22   | 23   | 24   |
|-------------------------|------|------|-----|------|-----|------|-----|-----|------|------|------|------|
| Global SW               | 0    | 0    | 0   | 0    | 0.7 | 2.8  | 7.0 | 7.7 | 7.7  | 11.2 | 11.9 | 14.0 |
| Reflected SW            | 0    | 0    | 0   | 0    | 0.7 | 2.1  | 5.6 | 6.3 | 5.6  | 8.4  | 8.4  | 10.5 |
| Net Radiation           | -2.8 | -2.1 | -.7 | -1.4 | 0   | 0    | 1.4 | 1.4 | -2.1 | 1.4  | 4.9  | 4.9  |
| Temp °C                 |      |      | 0.2 |      |     | 0.2  |     |     | 0.3  |      |      | 0.6  |
| Tenths Cloudiness       |      |      | 10  |      |     | 10   |     |     | 10   |      |      | 10   |
| Weather                 |      |      | SF  |      |     | L--F |     |     | R--F |      |      | L--F |

# STATION CHARLEY RADIATION

SEPTEMBER 13

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4   | 5   | 6    | 7 | 8 | 9    | 10 | 11 | 12   |
|-------------------------|------|------|------|-----|-----|------|---|---|------|----|----|------|
| Global SW               | 11.9 | 11.2 | 9.1  | 7.0 | 2.8 | 0.7  | 0 | 0 | 0    | 0  | 0  | 0    |
| Reflected SW            | 8.4  | 7.7  | 5.6  | 4.9 | 2.1 | 0    | 0 | 0 | 0    | 0  | 0  | 0    |
| Net Radiation           | 4.9  | 3.5  | 2.8  | 2.1 | 0.7 | 0.7  | 0 | 0 | 0    | 0  | 0  | 0    |
| Temp °C                 |      |      | 0.0  |     |     | -0.4 |   |   | -0.4 |    |    | -0.3 |
| Tenths Cloudiness       |      |      | 10   |     |     | 10   |   |   | 10   |    |    | 10   |
| Weather                 |      |      | L--F |     |     | F    |   |   | SW-- |    |    | SW-- |

| Hour Ending<br>at (GMT) | 13 | 14   | 15    | 16 | 17  | 18    | 19  | 20   | 21   | 22   | 23   | 24   |
|-------------------------|----|------|-------|----|-----|-------|-----|------|------|------|------|------|
| Global SW               | 0  | 0    | 0     | 0  | 0.7 | 2.8   | 7.0 | 14.0 | 18.1 | 21.6 | 27.9 | 27.9 |
| Reflected SW            | 0  | 0    | 0     | 0  | 0.7 | 2.1   | 4.9 | 12.6 | 16.0 | 16.7 | 20.9 | 19.5 |
| Net Radiation           | 0  | -0.7 | 0     | 0  | 0   | 0     | 0   | -1.4 | -0.7 | 0    | -0.7 | 1.4  |
| Temp °C                 |    |      | -0.9  |    |     | -1.2  |     |      | -2.0 |      |      | -1.7 |
| Tenths Cloudiness       |    |      | 10    |    |     | 10    |     |      | 8    |      |      | 7    |
| Weather                 |    |      | SW--F |    |     | ZL--F |     |      | F    |      |      | F    |

SEPTEMBER 14

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Global SW               | 25.8 | 23.9 | 20.9 | 14.0 | 9.1  | 2.8  | 0.7  | 0.7  | 0    | 0.7  | 0    | 0    |
| Reflected SW            | 18.1 | 16.7 | 14.0 | 7.7  | 4.9  | 2.1  | 0    | 0.7  | 0    | 0.7  | 0    | 0    |
| Net Radiation           | 1.4  | -2.1 | -2.1 | -4.9 | -3.5 | -4.9 | -3.5 | -5.6 | -3.5 | -2.1 | -2.1 | -2.1 |
| Temp °C                 |      |      | -1.7 |      |      | -2.9 |      |      | -3.8 |      |      | -3.1 |
| Tenths Cloudiness       |      |      | 6    |      |      | 6    |      |      | 10   |      |      | 9    |
| Weather                 |      |      | F    |      |      | F    |      |      | SW-- |      |      | SW-- |

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17   | 18   | 19  | 20  | 21   | 22   | 23   | 24   |
|-------------------------|------|------|------|------|------|------|-----|-----|------|------|------|------|
| Global SW               | 0    | 0    | 0    | 0    | 0.7  | 2.8  | 4.9 | 6.3 | 9.8  | 11.2 | 14.7 | 14.0 |
| Reflected SW            | 0    | 0    | 0    | 0    | 0.7  | 1.4  | 3.5 | 4.9 | 7.7  | 8.4  | 12.6 | 11.2 |
| Net Radiation           | -0.7 | -0.7 | -0.7 | -0.7 | -0.7 | 0    | 0   | 0.7 | 1.4  | 1.4  | 2.1  | 2.1  |
| Temp °C                 |      |      | -2.3 |      |      | -2.2 |     |     | -2.2 |      |      | -1.1 |
| Tenths Cloudiness       |      |      | 10   |      |      | 10   |     |     | 10   |      |      | 10   |
| Weather                 |      |      |      |      |      | SW-- |     |     | SW-- |      |      | S-F- |

## STATION CHARLEY RADIATION

SEPTEMBER 15

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4   | 5   | 6    | 7    | 8 | 9    | 10 | 11 | 12   |
|-------------------------|------|------|------|-----|-----|------|------|---|------|----|----|------|
| Global SW               | 11.9 | 11.2 | 9.1  | 7.0 | 4.2 | 2.1  | 0    | 0 | 0    | 0  | 0  | 0    |
| Reflected SW            | -    | -    | -    | -   | -   | 0.7  | 0    | 0 | 0    | 0  | 0  | 0    |
| Net Radiation           | 1.4  | 1.4  | 0.7  | 0   | 0   | 0    | -0.7 | 0 | 0    | 0  | 0  | 0    |
| Temp °C                 |      |      | -1.9 |     |     | -2.3 |      |   | -2.8 |    |    | -3.2 |
| Tenths Cloudiness       |      |      | 10   |     |     | 10   |      |   | 10   |    |    | 10   |
| Weather                 |      |      | S-F  |     |     | S-F  |      |   | S-F  |    |    | S-   |

| Hour Ending<br>at (GMT) | 13   | 14   | 15    | 16   | 17   | 18   | 19   | 20  | 21   | 22   | 23   | 24   |
|-------------------------|------|------|-------|------|------|------|------|-----|------|------|------|------|
| Global SW               | 0    | 0    | 0     | 0    | --   | --   | --   | 9.1 | 13.3 | 14.7 | 18.1 | 16.0 |
| Reflected SW            | 0    | 0    | 0     | 0    | --   | --   | --   | 7.7 | 10.5 | 13.3 | 14.0 | 14.0 |
| Net Radiation           | -0.7 | -0.7 | -0.7  | -0.7 | -1.4 | -0.7 | -0.7 | 0   | 0    | 0    | 0    | -0.7 |
| Temp °C                 |      |      | -3.9  |      |      | -4.2 |      |     | -4.1 |      |      | -4.3 |
| Tenths Cloudiness       |      |      | 10    |      |      | 9    |      |     | 8    |      |      | 7    |
| Weather                 |      |      | SW--F |      |      |      |      |     |      |      |      |      |

SEPTEMBER 16

| Hour Ending<br>at (GMT) | 1    | 2    | 3     | 4    | 5    | 6     | 7    | 8    | 9     | 10   | 11   | 12    |
|-------------------------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|
| Global SW               | --   | 20.2 | 21.6  | 16.7 | 4.9  | 2.1   | 0    | 0    | 0     | 0    | 0    | 0     |
| Reflected SW            | --   | 15.3 | 16.0  | 10.7 | 3.5  | 0.7   | 0    | 0    | 0     | 0    | 0    | 0     |
| Net Radiation           | -8.4 | -9.8 | -11.2 | --   | -2.8 | -4.9  | -5.6 | -7.7 | -11.9 | -7.0 | -7.7 | -7.0  |
| Temp °C                 |      |      | -7.7  |      |      | -10.3 |      |      | -11.0 |      |      | -12.2 |
| Tenths Cloudiness       |      |      | 4     |      |      | 4     |      |      | 6     |      |      | 6     |
| Weather                 |      |      | F     |      |      |       |      |      | F     |      |      |       |

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17  | 18   | 19   | 20  | 21   | 22   | 23   | 24   |
|-------------------------|------|------|------|------|-----|------|------|-----|------|------|------|------|
| Global SW               | 0    | 0    | 0    | 0    | 0.7 | 0.7  | 4.9  | 7.0 | 9.8  | 13.3 | 14.0 | 10.8 |
| Reflected SW            | 0    | 0    | 0    | 0    | 0.7 | 0.7  | 4.9  | 6.3 | 8.4  | 10.5 | 7.7  | 14.0 |
| Net Radiation           | -6.3 | -4.9 | -2.8 | -2.8 | 0   | -1.4 | -0.7 | 0   | 0.7  | 0.7  | 0.7  | 0.7  |
| Temp °C                 |      |      | -9.8 |      |     | -8.1 |      |     | -6.8 |      |      | -5.4 |
| Tenths Cloudiness       |      |      | 7    |      |     | 9    |      |     | 10   |      |      | 10   |
| Weather                 |      |      |      |      |     |      |      |     | F    |      |      | F    |

## STATION CHARLEY RADIATION

SEPTEMBER 17

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9     | 10   | 11   | 12   |
|-------------------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Global SW               | 14.7 | 13.3 | 11.2 | 7.7  | 2.8  | 2.1  | 0    | 0    | 0     | 0    | 0    | 0    |
| Reflected SW            | 11.2 | 10.5 | 8.4  | 6.3  | 2.1  | 2.1  | 0    | 0    | 0     | 0    | 0    | 0    |
| Net Radiation           | 0.7  | 0.7  | -0.7 | -1.4 | -1.4 | -3.5 | -2.1 | -2.1 | -1.4  | -0.7 | -0.7 | -1.4 |
| Temp °C                 |      |      | -7.3 |      |      | -8.9 |      |      | -10.3 |      |      | -8.9 |
| Tenths Cloudiness       |      |      | 9    |      |      | 8    |      |      | 10    |      |      | 10   |
| Weather                 |      |      |      |      |      |      |      |      |       |      |      | F    |

| Hour Ending<br>at (GMT) | 13   | 14   | 15   | 16   | 17   | 18   | 19 | 20  | 21   | 22   | 23   | 24   |
|-------------------------|------|------|------|------|------|------|----|-----|------|------|------|------|
| Global SW               | 0    | 0    | 0    | 0    | 0    | --   | -- | 9.1 | 11.2 | 18.1 | 14.0 | 14.7 |
| Reflected SW            | 0    | 0    | 0    | 0    | 0    | --   | -- | 7.7 | 8.4  | 15.3 | 12.6 | 13.3 |
| Net Radiation           | -2.1 | -2.8 | -2.1 | -1.4 | -3.5 | -1.4 | 0  | 0.7 | 0.7  | 1.4  | 0    | 0.7  |
| Temp °C                 |      |      | -9.2 |      |      | -9.8 |    |     | -8.8 |      |      | -8.2 |
| Tenths Cloudiness       |      |      | 10   |      |      | 8    |    |     | 9    |      |      | 10   |
| Weather                 |      |      |      |      |      |      |    |     |      |      |      | S-F  |

SEPTEMBER 18

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4   | 5   | 6    | 7 | 8 | 9     | 10 | 11 | 12   |
|-------------------------|------|------|------|-----|-----|------|---|---|-------|----|----|------|
| Global SW               | 16.7 | 18.8 | 14.0 | 7.0 | 4.2 | 0.7  | 0 | 0 | 0     | 0  | 0  | 0    |
| Reflected SW            | 14.0 | 16.0 | 12.6 | 5.6 | 2.8 | 0.7  | 0 | 0 | 0     | 0  | 0  | 0    |
| Net Radiation           | 1.4  | 0.7  | -0.7 | 0.7 | 0   | 0    | 0 | 0 | 0     | 0  | 0  | 0    |
| Temp °C                 |      |      | -8.3 |     |     | -9.8 |   |   | -10.0 |    |    | -8.9 |
| Tenths Cloudiness       |      |      | 9    |     |     | 10   |   |   | 10    |    |    | 10   |
| Weather                 |      |      | S--  |     |     | S-   |   |   | S-BS  |    |    | S-BS |

| Hour Ending<br>at (GMT) | 13 | 14 | 15   | 16 | 17 | 18    | 19  | 20  | 21    | 22  | 23   | 24   |
|-------------------------|----|----|------|----|----|-------|-----|-----|-------|-----|------|------|
| Global SW               | 0  | 0  | 0    | 0  | 0  | 0.7   | 2.1 | 4.9 | 7.7   | 9.8 | 11.9 | 13.3 |
| Reflected SW            | 0  | 0  | 0    | 0  | 0  | 0.7   | 2.1 | 4.9 | 6.3   | 8.4 | 9.8  | 10.5 |
| Net Radiation           | 0  | 0  | 0    | 0  | 0  | 0     | 0   | 0.7 | 1.4   | 2.1 | 2.8  | 3.5  |
| Temp °C                 |    |    | -8.3 |    |    | -7.3  |     |     | -6.7  |     |      | -5.4 |
| Tenths Cloudiness       |    |    | 10   |    |    | 10    |     |     | 10    |     |      | 10   |
| Weather                 |    |    | S-BS |    |    | S-FBS |     |     | S-FBS |     |      | BSF  |

**STATION CHARLEY RADIATION**

SEPTEMBER 19

| Hour Ending<br>at (GMT) | 1    | 2    | 3    | 4   | 5   | 6    | 7   | 8   | 9    | 10 | 11   | 12   |
|-------------------------|------|------|------|-----|-----|------|-----|-----|------|----|------|------|
| Global SW               | 16.7 | 13.3 | 11.2 | 6.3 | 2.8 | 0.7  | 0.7 | 0.7 | --   | -- | 0    | 0    |
| Reflected SW            | 14.0 | 10.5 | 9.8  | 5.6 | 2.8 | 0.7  | 0.7 | 0.7 | --   | -- | 0    | 0    |
| Net Radiation           | 2.8  | 2.8  | 2.8  | 1.4 | 0.7 | 0    | 0   | 0   | 0    | 0  | -0.7 | -0.7 |
| Temp °C                 |      |      | -3.9 |     |     | -2.2 |     |     | -3.8 |    |      | -3.3 |
| Tenths Cloudiness       |      |      | 10   |     |     | 10   |     |     | 10   |    |      | 10   |
| Weather                 |      |      | BSF  |     |     | F    |     |     | S--  |    |      | S-   |

[illegible]

**SEPTEMBER 20**

[illegible][illegible]

STATION CHARLEY RADIATION

SEPTEMBER 21

| Hour Ending<br>at (GMT) | 1    | 2  | 3    | 4   | 5   | 6     | 7    | 8    | 9     | 10   | 11   | 12    |
|-------------------------|------|----|------|-----|-----|-------|------|------|-------|------|------|-------|
| Global SW               | 14.7 | -- | --   | 7.7 | 4.2 | 2.8   | 0.7  | 0    | --    | 0    | --   | 0     |
| Reflected SW            | 12.6 | -- | --   | 6.3 | 2.8 | 2.8   | 0.7  | 0    | --    | 0    | --   | 0     |
| Net Radiation           | --   | -- | --   | 0   | 0   | 0     | -0.7 | -2.1 | -4.9  | -4.9 | -4.9 | -5.6  |
| Temp °C                 |      |    | -9.6 |     |     | -10.6 |      |      | -13.8 |      |      | -16.2 |
| Tenths Cloudiness       |      |    | 9    |     |     | 9     |      |      | 7     |      |      | 4     |
| Weather                 |      |    |      |     |     | 8--   |      |      | 8--   |      |      |       |

| Hour Ending<br>at (GMT) | 13   | 14   | 15    | 16 | 17 | 18    | 19   | 20  | 21    | 22   | 23   | 24    |
|-------------------------|------|------|-------|----|----|-------|------|-----|-------|------|------|-------|
| Global SW               | 0    | --   | --    | -- | -- | --    | --   | 7.0 | 11.2  | 18.8 | 25.1 | 30.7  |
| Reflected SW            | 0    | --   | --    | -- | -- | --    | --   | 6.3 | 10.5  | 13.3 | 18.1 | 20.9  |
| Net Radiation           | -2.8 | -0.7 | 0     | 0  | 0  | 0     | -0.7 | 0   | 0     | -4.2 | -2.8 | -1.4  |
| Temp °C                 |      |      | -13.4 |    |    | -11.8 |      |     | -12.1 |      |      | -12.9 |
| Tenths Cloudiness       |      |      | 10    |    |    | 8     |      |     | 7     |      |      | 3     |
| Weather                 |      |      | SW--  |    |    | SW--  |      |     |       |      |      |       |

**SEPTEMBER 22**

[illegible][illegible]

**STATION CHARLEY RADIATION**

**SEPTEMBER 23**

[illegible][illegible]

**SEPTEMBER 24**

| Hour Ending<br>at (GMT) | 1   | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10 | 11 | 12   |
|-------------------------|-----|------|------|------|------|------|------|------|------|----|----|------|
| Global SW               | 9.8 | 9.1  | 7.7  | 2.6  | 0.7  | 0    | 0    | 0    | 0    | 0  | 0  | 0    |
| Reflected SW            | 8.4 | 7.7  | 5.6  | 2.8  | 0.7  | 0    | 0    | 0    | 0    | 0  | 0  | 0    |
| Net Radiation           | 0   | -1.4 | 0    | -0.7 | -0.7 | -1.4 | -1.4 | -1.4 | -1.4 | 0  | 0  | 0    |
| Temp °C                 |     |      | -7.8 |      |      | -6.8 |      |      | -6.7 |    |    | -7.8 |
| Tenths Cloudiness       |     |      | 10   |      |      | 10   |      |      | 10   |    |    | 10   |
| Weather                 |     |      |      |      |      | S--  |      |      | S--  |    |    |      |

[illegible]

## STATION CHARLEY RADIATION

SEPTEMBER 25

| Hour Ending<br>at (GMT) | 1    | 2   | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12    |
|-------------------------|------|-----|------|------|------|------|------|------|------|------|------|-------|
| Global SW               | 11.9 | 9.8 | 7.0  | 4.2  | 2.1  | 0.7  | --   | --   | 0    | --   | 0    | 0     |
| Reflected SW            | 9.8  | 7.7 | 5.6  | 3.5  | 2.1  | 0.7  | --   | --   | 0    | --   | --   | 0     |
| Net Radiation           | 0.7  | 0.7 | 0    | -0.7 | -0.7 | -0.7 | -0.7 | -0.7 | -1.4 | -0.7 | -3.5 | -7.0  |
| Temp °C                 |      |     | -8.3 |      |      | -7.9 |      |      | -7.7 |      |      | -10.1 |
| Tenths Cloudiness       |      |     | 10   |      |      | 10   |      |      | 10   |      |      | 2     |
| Weather                 |      |     | 8--  |      |      |      |      |      |      |      |      |       |

| Hour Ending<br>at (GMT) | 13   | 14   | 15    | 16   | 17   | 18    | 19   | 20   | 21    | 22   | 23   | 24    |
|-------------------------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|
| Global SW               | 0    | 0    | 0     | 0    | 0.7  | 2.1   | 7.7  | --   | 11.9  | 16.0 | 30.0 | 30.7  |
| Reflected SW            | 0    | 0    | 0     | 0    | 0.7  | 2.1   | 6.3  | 10.5 | 9.8   | 12.6 | 18.1 | 18.8  |
| Net Radiation           | -6.3 | -7.0 | -6.3  | -6.3 | -6.3 | -6.3  | -7.7 | -7.7 | -2.8  | -2.8 | -7.7 | -7.7  |
| Temp °C                 |      |      | -12.7 |      |      | -13.3 |      |      | -13.1 |      |      | -13.9 |
| Tenths Cloudiness       |      |      | 2     |      |      | 3     |      |      | 8     |      |      | 4     |
| Weather                 |      |      |       |      |      |       |      |      |       |      |      |       |

SEPTEMBER 26

| Hour Ending<br>at (GMT) | 1    | 2  | 3     | 4    | 5    | 6     | 7    | 8    | 9     | 10   | 11   | 12    |
|-------------------------|------|----|-------|------|------|-------|------|------|-------|------|------|-------|
| Global SW               | 18.8 | -- | 18.8  | 9.1  | 2.1  | 0     | 0    | 0    | 0     | 0    | 0    | 0     |
| Reflected SW            | 16.0 | -- | 8.4   | 4.9  | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0     |
| Net Radiation           | -7.7 | -- | -6.3  | -6.3 | -7.0 | -7.0  | -6.3 | -6.3 | -6.3  | -6.3 | -6.3 | -5.6  |
| Temp °C                 |      |    | -14.4 |      |      | -17.1 |      |      | -18.4 |      |      | -19.2 |
| Tenths Cloudiness       |      |    | 2     |      |      | 3     |      |      | 3     |      |      | 1     |
| Weather                 |      |    |       |      |      |       |      |      |       |      |      |       |

| Hour Ending<br>at (GMT) | 13   | 14   | 15    | 16   | 17   | 18    | 19   | 20  | 21    | 22   | 23   | 24    |
|-------------------------|------|------|-------|------|------|-------|------|-----|-------|------|------|-------|
| Global SW               | 0    | 0    | 0     | 0    | 0    | 0     | --   | 4.2 | 9.2   | 18.8 | 11.9 | 11.9  |
| Reflected SW            | 0    | 0    | 0     | 0    | 0    | 0     | --   | 2.8 | 6.3   | 16.7 | 11.2 | 9.8   |
| Net Radiation           | -6.3 | -5.6 | -5.6  | -5.6 | -5.6 | -4.9  | -2.1 | 0.7 | 1.4   | 6.3  | 1.4  | 0.7   |
| Temp °C                 |      |      | -20.1 |      |      | -20.6 |      |     | -16.4 |      |      | -13.4 |
| Tenths Cloudiness       |      |      | 2     |      |      | 0     |      |     | 10    |      |      | 10    |
| Weather                 |      |      |       |      |      | SW--F |      |     | SW--F |      |      | SW--F |

STATION CHARLEY RADIATION

**SEPTEMBER 27**[illegible][illegible]

SEPTEMBER 28

[illegible][illegible]

STATION CHARLEY RADIATION

**SEPTEMBER 29**

[illegible][illegible]

**SEPTEMBER 30**

[illegible][illegible]

STATION CHARLEY RADIATION

**OCTOBER 1**

[illegible][illegible]

**OCTOBER 2**

[illegible][illegible]

## STATION CHARLEY RADIATION

OCTOBER 3.

[illegible]

OCTOBER 4

[illegible]

## OCTOBER 5

OCTOBER 6

[illegible]

## STATION CHARLEY RADIATION

OCTOBER 7

| Hour Ending<br>at (GMT) | 1   | 2   | 3    | 4   | 5  | 6    | 7  | 8  | 9    | 10  | 11  | 12   |
|-------------------------|-----|-----|------|-----|----|------|----|----|------|-----|-----|------|
| Global SW               | 6.3 | 2.8 | 0.7  | 0.7 | -- | --   | -- | 0  | 0    | 0   | 0   | 0    |
| Reflected SW            | 4.9 | 2.1 | 0    | 0   | 0  | 0    | 0  | 0  | 0    | 0   | 0   | 0    |
| Net Radiation           |     |     |      |     |    |      |    |    |      |     |     |      |
| Temp °C                 |     |     | -0.4 |     |    | -1.1 |    |    | -1.7 |     |     | -1.4 |
| Tenths Cloudiness       |     |     | 10   |     |    | 10   |    |    | 10   |     |     | 10   |
| Weather                 |     |     | F    |     |    | SE   |    |    | S    |     |     | S    |
| Hour Ending<br>at (GMT) | 13  | 14  | 15   | 16  | 17 | 18   | 19 | 20 | 21   | 22  | 23  | 24   |
| Global SW               | 0   | 0   | 0    | 0   | 0  | 0    | 0  | 0  | 2.8  | 4.2 | 0.3 | 6.3  |
| Reflected SW            | 0   | 0   | 0    | 0   | 0  | 0    | 0  | 0  | 2.1  | 2.8 | 3.5 | 4.9  |
| Net Radiation           |     |     |      |     |    |      |    |    |      |     |     |      |
| Temp °C                 |     |     | -2.0 |     |    | -5.4 |    |    | -4.9 |     |     | -3.7 |
| Tenths Cloudiness       |     |     | 10   |     |    | 10   |    |    | 9    |     |     | 10   |
| Weather                 |     |     | SBS  |     |    | SBS  |    |    | BS   |     |     | BS   |

OCT 3ER 8

[illegible]

## STATION CHARLEY RADIATION

OCTOBER 9

| Hour Ending<br>at (GMT) | 1    | 2   | 3     | 4  | 5  | 6     | 7  | 8   | 9    | 10  | 11  | 12   |
|-------------------------|------|-----|-------|----|----|-------|----|-----|------|-----|-----|------|
| Global SW               | 11.9 | 2.8 | 2.8   | 0  | 0  | 0     | 0  | 0   | 0    | 0   | 0   | 0    |
| Reflected SW            | 8.4  | 0.7 | 2.1   | 0  | 0  | 0     | 0  | 0   | 0    | 0   | 0   | 0    |
| Net Radiation           |      |     |       |    |    |       |    |     |      |     |     |      |
| Temp °C                 |      |     | -13.9 |    |    | -11.3 |    |     | -7.8 |     |     | -5.2 |
| Tenths Cloudiness       |      |     | 8     |    |    | 10    |    |     | 10   |     |     | 10   |
| Weather                 |      |     |       |    |    |       |    |     |      |     |     | S-   |
| Hour Ending<br>at (GMT) | 13   | 14  | 15    | 16 | 17 | 18    | 19 | 20  | 21   | 22  | 23  | 24   |
| Global SW               | 0    | 0   | 0     | 0  | 0  | 0     | 0  | 0.7 | 2.1  | 4.2 | 4.9 | 4.9  |
| Reflected SW            | 0    | 0   | 0     | 0  | 0  | 0     | 0  | 0.7 | 2.1  | 3.5 | 4.9 | 4.9  |
| Net Radiation           |      |     |       |    |    |       |    |     |      |     |     |      |
| Temp °C                 |      |     | -5.4  |    |    | -6.8  |    |     | -7.7 |     |     | -8.0 |
| Tenths Cloudiness       |      |     | 10    |    |    | 10    |    |     | 10   |     |     | 10   |
| Weather                 |      |     | S-    |    |    | S-    |    |     | S-   |     |     | S-   |

OCTOBER 10

| Hour Ending<br>at (GMT) | 1   | 2   | 3     | 4   | 5   | 6     | 7   | 8   | 9     | 10  | 11  | 12    |
|-------------------------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|
| Global SW               | 7.3 | 4.2 | 2.8   | 2.1 | 0.7 | 0     | 0   | 0   | 0     | 0   | 0   | 0     |
| Reflected SW            | 6.7 | 2.8 | 1.4   | 0.7 | 0.7 | 0     | 0   | 0   | 0     | 0   | 0   | 0     |
| Net Radiation           |     |     |       |     |     |       |     |     |       |     |     |       |
| Temp °C                 |     |     | -8.6  |     |     | -6.9  |     |     | -13.1 |     |     | -10.8 |
| Tenths Cloudiness       |     |     | 10    |     |     | 10    |     |     | 10    |     |     | 5     |
| Weather                 |     |     | S-    |     |     |       |     |     | S-    |     |     |       |
| Hour Ending<br>at (GMT) | 13  | 14  | 15    | 16  | 17  | 18    | 19  | 20  | 21    | 22  | 23  | 24    |
| Global SW               | 0   | 0   | 0     | 0   | 0.7 | 0.7   | 0.7 | 2.1 | 2.1   | 4.9 | 6.3 | 6.3   |
| Reflected SW            | 0   | 0   | 0     | 0   | 0   | 0     | 0   | 0.7 | 2.1   | 3.5 | 4.9 | 5.6   |
| Net Radiation           |     |     |       |     |     |       |     |     |       |     |     |       |
| Temp °C                 |     |     | -10.7 |     |     | -15.6 |     |     | -10.4 |     |     | -17.2 |
| Tenths Cloudiness       |     |     | 10    |     |     | 10    |     |     | 10    |     |     | 10    |
| Weather                 |     |     | S--   |     |     | S--   |     |     | F     |     |     | F     |

## STATION CHARLEY RADIATION

OCTOBER 11

| Hour Ending<br>at (GMT) | 1   | 2     | 3   | 4 | 5     | 6 | 7 | 8     | 9 | 10 | 11 | 12    |
|-------------------------|-----|-------|-----|---|-------|---|---|-------|---|----|----|-------|
| Global SW               | 4.2 | 2.1   | 2.1 | 0 | 0     | 0 | 0 | 0     | 0 | 0  | 0  | 0     |
| Reflected SW            | 3.5 | 2.1   | 2.1 | 0 | 0     | 0 | 0 | 0     | 0 | 0  | 0  | 0     |
| Net Radiation           |     |       |     |   |       |   |   |       |   |    |    |       |
| Temp °C                 |     | -14.4 |     |   | -14.1 |   |   | -16.1 |   |    |    | -12.2 |
| Tenths Cloudiness       |     | 10    |     |   | 10    |   |   | 10    |   |    |    | 10    |
| Weather                 |     | S-F   |     |   | S--   |   |   |       |   |    |    | S--   |

| Hour Ending<br>at (GMT) | 13 | 14    | 15 | 16 | 17    | 18 | 19 | 20    | 21  | 22  | 23  | 24    |
|-------------------------|----|-------|----|----|-------|----|----|-------|-----|-----|-----|-------|
| Global SW               | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0.7   | 2.1 | 4.9 | 4.9 | 4.9   |
| Reflected SW            | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0.7   | 1.4 | 4.9 | 4.9 | 4.9   |
| Net Radiation           |    |       |    |    |       |    |    |       |     |     |     |       |
| Temp °C                 |    | -11.6 |    |    | -11.8 |    |    | -12.5 |     |     |     | -11.4 |
| Tenths Cloudiness       |    | 10    |    |    | 10    |    |    | 10    |     |     |     | 10    |
| Weather                 |    |       |    |    |       |    |    |       |     |     |     |       |

OCTOBER 12

| Hour Ending<br>at (GMT) | 1   | 2     | 3   | 4 | 5     | 6 | 7 | 8     | 9 | 10 | 11 | 12    |
|-------------------------|-----|-------|-----|---|-------|---|---|-------|---|----|----|-------|
| Global SW               | 4.9 | 2.8   | 0.7 | 0 | 0     | 0 | 0 | 0     | 0 | 0  | 0  | 0     |
| Reflected SW            | 4.9 | 2.8   | 0.7 | 0 | 0     | 0 | 0 | 0     | 0 | 0  | 0  | 0     |
| Net Radiation           |     |       |     |   |       |   |   |       |   |    |    |       |
| Temp °C                 |     | -17.9 |     |   | -14.4 |   |   | -12.8 |   |    |    | -12.9 |
| Tenths Cloudiness       |     | 5     |     |   | 10    |   |   | 10    |   |    |    | 6     |
| Weather                 |     |       |     |   |       |   |   | S--   |   |    |    | S--   |

| Hour Ending<br>at (GMT) | 13 | 14    | 15 | 16 | 17    | 18 | 19 | 20    | 21  | 22  | 23  | 24    |
|-------------------------|----|-------|----|----|-------|----|----|-------|-----|-----|-----|-------|
| Global SW               | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 2.1 | 2.8 | 4.2 | 4.2   |
| Reflected SW            | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 2.1 | 2.8 | 3.5 | 3.5   |
| Net Radiation           |    |       |    |    |       |    |    |       |     |     |     |       |
| Temp °C                 |    | -14.7 |    |    | -15.2 |    |    | -14.3 |     |     |     | -15.4 |
| Tenths Cloudiness       |    | 4     |    |    | 10    |    |    | 10    |     |     |     | 3     |
| Weather                 |    | S--   |    |    | S-    |    |    | S-    |     |     |     | S-    |

## STATION CHARLEY RADIATION

OCTOBER 13

| Hour Ending<br>at (GMT) | 1   | 2   | 3     | 4  | 5  | 6     | 7  | 8  | 9     | 10 | 11 | 12    |
|-------------------------|-----|-----|-------|----|----|-------|----|----|-------|----|----|-------|
| Global SW               | 2.8 | 0.7 | 0.7   | -- | -- | --    | -- | -- | --    | -- | -- | --    |
| Reflected SW            | 3.5 | 2.9 | 0.7   | -- | -- | --    | -- | -- | --    | -- | -- | --    |
| Net Radiation           |     |     |       |    |    |       |    |    |       |    |    |       |
| Temp °C                 |     |     | -19.9 |    |    | -22.3 |    |    | -22.2 |    |    | -19.0 |
| Tenths Cloudiness       |     |     | 2     |    |    | 2     |    |    | 1     |    |    | 6     |
| Weather                 |     |     |       |    |    |       |    |    |       |    |    | 8--   |
| Hour Ending<br>at (GMT) | 13  | 14  | 15    | 16 | 17 | 18    | 19 | 20 | 21    | 22 | 23 | 24    |
| Global SW               | --  | --  | --    | -- | -- | --    | -- | -- | --    | -- | -- | --    |
| Reflected SW            | --  | --  | --    | -- | -- | --    | -- | -- | --    | -- | -- | --    |
| Net Radiation           |     |     |       |    |    |       |    |    |       |    |    |       |
| Temp °C                 |     |     | -15.2 |    |    | -14.4 |    |    | -16.9 |    |    | -15.0 |
| Tenths Cloudiness       |     |     | 8     |    |    | 10    |    |    | 7     |    |    | 10    |
| Weather                 |     |     | 8--   |    |    | 8--   |    |    |       |    |    | 8--BS |

OCTOBER 14

| Hour Ending<br>at (GMT) | 1  | 2  | 3     | 4  | 5  | 6     | 7  | 8  | 9     | 10 | 11 | 12    |
|-------------------------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|
| Global SW               | -- | -- | --    | -- | -- | --    | -- | -- | --    | -- | -- | --    |
| Reflected SW            | -- | -- | --    | -- | -- | --    | -- | -- | --    | -- | -- | --    |
| Net Radiation           |    |    |       |    |    |       |    |    |       |    |    |       |
| Temp °C                 |    |    | -17.1 |    |    | -16.1 |    |    | -14.9 |    |    | -16.6 |
| Tenths Cloudiness       |    |    | 10    |    |    | 10    |    |    | 10    |    |    | 6     |
| Weather                 |    |    |       |    |    | 8-B8  |    |    | 8-B8  |    |    | IC    |
| Hour Ending<br>at (GMT) | 13 | 14 | 15    | 16 | 17 | 18    | 19 | 20 | 21    | 22 | 23 | 24    |
| Global SW               | -- | -- | --    | -- | -- | --    | -- | -- | --    | -- | -- | --    |
| Reflected SW            | -- | -- | --    | -- | -- | --    | -- | -- | --    | -- | -- | --    |
| Net Radiation           |    |    |       |    |    |       |    |    |       |    |    |       |
| Temp °C                 |    |    | -14.3 |    |    | -12.6 |    |    | -13.7 |    |    | -13.8 |
| Tenths Cloudiness       |    |    | 10    |    |    | 5     |    |    | 10    |    |    | 10    |
| Weather                 |    |    | IC    |    |    | 8--   |    |    | 88    |    |    |       |

## STATION CHARLEY RADIATION

OCTOBER 15

| Hour Ending<br>at (GMT) | 1   | 2   | 3     | 4 | 5 | 6     | 7 | 8 | 9     | 10 | 11 | 12    |
|-------------------------|-----|-----|-------|---|---|-------|---|---|-------|----|----|-------|
| Global SW               | 4.2 | 4.2 | 0.7   | 0 | 0 | 0     | 0 | 0 | 0     | 0  | 0  | 0     |
| Reflected SW            | 2.8 | 3.5 | 0.7   | 0 | 0 | 0     | 0 | 0 | 0     | 0  | 0  | 0     |
| Net Radiation           |     |     |       |   |   |       |   |   |       |    |    |       |
| Temp °C                 |     |     | -14.7 |   |   | -14.7 |   |   | -15.2 |    |    | -17.6 |
| Tenths Cloudiness       |     |     | 10    |   |   | 7     |   |   | 10    |    |    | 10    |
| Weather                 |     |     | F     |   |   | BS    |   |   | BS    |    |    | BS    |

| Hour Ending<br>at (GMT) | 13 | 14 | 15    | 16 | 17 | 18    | 19 | 20 | 21    | 22  | 23  | 24    |
|-------------------------|----|----|-------|----|----|-------|----|----|-------|-----|-----|-------|
| Global SW               | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0.7   | 2.1 | 2.8 | 2.8   |
| Reflected SW            | 0  | 0  | 0     | 0  | 0  | 0.7   | 0  | 0  | 0.7   | 2.1 | 2.8 | 2.8   |
| Net Radiation           |    |    |       |    |    |       |    |    |       |     |     |       |
| Temp °C                 |    |    | -16.5 |    |    | -17.0 |    |    | -10.6 |     |     | -15.7 |
| Tenths Cloudiness       |    |    | 10    |    |    | 10    |    |    | 10    |     |     | 10    |
| Weather                 |    |    | S-    |    |    | S     |    |    | S     |     |     | S-    |

OCTOBER 16

| Hour Ending<br>at (GMT) | 1   | 2   | 3     | 4   | 5   | 6     | 7  | 8 | 9     | 10 | 11 | 12    |
|-------------------------|-----|-----|-------|-----|-----|-------|----|---|-------|----|----|-------|
| Global SW               | 7.0 | 4.9 | 0.7   | 0   | 0   | 0     | 0  | 0 | 0     | 0  | 0  | 0     |
| Reflected SW            | 5.6 | 3.5 | 0.7   | 0.7 | 0.7 | --    | -- | 0 | 0     | 0  | 0  | 0     |
| Net Radiation           |     |     |       |     |     |       |    |   |       |    |    |       |
| Temp °C                 |     |     | -23.7 |     |     | -26.9 |    |   | -28.8 |    |    | -30.8 |
| Tenths Cloudiness       |     |     | 0     |     |     | 0     |    |   | 0     |    |    | 0     |
| Weather                 |     |     |       |     |     | .     |    |   |       |    |    |       |

| Hour Ending<br>at (GMT) | 13 | 14 | 15    | 16 | 17 | 18    | 19  | 20  | 21    | 22  | 23  | 24    |
|-------------------------|----|----|-------|----|----|-------|-----|-----|-------|-----|-----|-------|
| Global SW               | 0  | 0  | 0     | 0  | 0  | 0     | 0   | 0   | 0.7   | 2.8 | 6.3 | 2.8   |
| Reflected SW            | 0  | 0  | 0     | 0  | 0  | 0     | 0.7 | 0.7 | 2.1   | 2.8 | 4.9 | 2.8   |
| Net Radiation           |    |    |       |    |    |       |     |     |       |     |     |       |
| Temp °C                 |    |    | -32.1 |    |    | -31.3 |     |     | -29.2 |     |     | -27.1 |
| Tenths Cloudiness       |    |    | 0     |    |    | 0     |     |     | 4     |     |     | 7     |
| Weather                 |    |    |       |    |    | BS    |     |     | BS    |     |     | BS    |

STATION CHARLEY RADIATION

OCTOBER 17

| Hour Ending<br>at (GMT) | 1   | 2   | 3     | 4   | 5     | 6  | 7  | 8     | 9   | 10  | 11    | 12  |
|-------------------------|-----|-----|-------|-----|-------|----|----|-------|-----|-----|-------|-----|
| Global SW               | 2.1 | 0.7 | 0     | 0.7 | 0     | 0  | 0  | 0     | 0   | 0   | 0     | 0   |
| Reflected SW            | 2.1 | 0.7 | 0     | 0.7 | 0     | 0  | 0  | 0     | 0   | 0   | 0     | 0   |
| Net Radiation           |     |     |       |     |       |    |    |       |     |     |       |     |
| Temp °C                 |     |     | -26.0 |     | -25.7 |    |    | -26.7 |     |     | -26.1 |     |
| Tenths Cloudiness       |     |     | 10    |     | 10    |    |    | 0     |     |     | 6     |     |
| Weather                 |     |     | BS    |     | BS    |    |    | BS    |     |     | BS    |     |
| Hour Ending<br>at (GMT) | 13  | 14  | 15    | 16  | 17    | 18 | 19 | 20    | 21  | 22  | 23    | 24  |
| Global SW               | 0   | 0   | 0     | 0   | 0     | 0  | 0  | 0     | 0.7 | 2.1 | 2.1   | 2.1 |
| Reflected SW            | 0   | 0   | 0     | 0   | 0     | 0  | 0  | 0     | 0.7 | 2.1 | 2.8   | 2.8 |
| Net Radiation           |     |     |       |     |       |    |    |       |     |     |       |     |
| Temp °C                 |     |     | -25.8 |     | -24.4 |    |    | -22.7 |     |     | -21.9 |     |
| Tenths Cloudiness       |     |     | 10    |     | 5     |    |    | 10    |     |     | 10    |     |
| Weather                 |     |     | BS    |     | BS    |    |    |       |     |     | F     |     |

**OCTOBER 18**

[illegible]

STATION CHARLEY RADIATION

OCTOBER 19

[illegible][illegible]

OCTOBER 20

[illegible][illegible]

# STATION CHARLEY RADIATION

OCTOBER 21

| Hour Ending<br>at (GMT) | 1   | 2   | 3     | 4 | 5 | 6     | 7 | 8 | 9     | 10 | 11 | 12    |
|-------------------------|-----|-----|-------|---|---|-------|---|---|-------|----|----|-------|
| Global SW               | 2.8 | 0.7 | 0.7   | 0 | 0 | 0     | 0 | 0 | 0     | 0  | 0  | 0     |
| Reflected SW            | 2.1 | 0.7 | 0     | 0 | 0 | 0     | 0 | 0 | 0     | 0  | 0  | 0     |
| Net Radiation           |     |     |       |   |   |       |   |   |       |    |    |       |
| Temp °C                 |     |     | -19.2 |   |   | -18.3 |   |   | -18.6 |    |    | -18.4 |
| Tenths Cloudiness       |     |     | 10    |   |   | 10    |   |   | 10    |    |    | 10    |
| Weather                 |     |     | F     |   |   | BS    |   |   | BS    |    |    | BS    |

| Hour Ending<br>at (GMT) | 13 | 14 | 15    | 16 | 17 | 18    | 19 | 20 | 21    | 22 | 23 | 24    |
|-------------------------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|
| Global SW               | 0  | 0  | 0     | 0  | 0  | 0     | -- | -- | --    | -- | -- | 1.4   |
| Reflected SW            | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0.7   |
| Net Radiation           |    |    |       |    |    |       |    |    |       |    |    |       |
| Temp °C                 |    |    | -18.6 |    |    | -14.7 |    |    | -13.9 |    |    | -15.0 |
| Tenths Cloudiness       |    |    | 7     |    |    | 10    |    |    | 10    |    |    | 5     |
| Weather                 |    |    | BS    |    |    | BS    |    |    | BS    |    |    | S-    |

OCTOBER 22

| Hour Ending<br>at (GMT) | 1   | 2   | 3     | 4 | 5 | 6     | 7 | 8 | 9     | 10 | 11 | 12    |
|-------------------------|-----|-----|-------|---|---|-------|---|---|-------|----|----|-------|
| Global SW               | 2.1 | 0.7 | 0     | 0 | 0 | 0     | 0 | 0 | 0     | 0  | 0  | 0     |
| Reflected SW            | 0.7 | 0   | 0     | 0 | 0 | 0     | 0 | 0 | 0     | 0  | 0  | 0     |
| Net Radiation           |     |     |       |   |   |       |   |   |       |    |    |       |
| Temp °C                 |     |     | -18.2 |   |   | -17.7 |   |   | -18.7 |    |    | -18.2 |
| Tenths Cloudiness       |     |     | 4     |   |   | 10    |   |   | 10    |    |    | 10    |
| Weather                 |     |     |       |   |   |       |   |   | S-    |    |    | S-    |

| Hour Ending<br>at (GMT) | 13 | 14 | 15    | 16 | 17 | 18    | 19 | 20  | 21    | 22  | 23  | 24    |
|-------------------------|----|----|-------|----|----|-------|----|-----|-------|-----|-----|-------|
| Global SW               | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0.7 | 0.7   | 0.7 | 2.1 | 2.1   |
| Reflected SW            | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0   | 0     | 0   | 0.7 | 0.7   |
| Net Radiation           |    |    |       |    |    |       |    |     |       |     |     |       |
| Temp °C                 |    |    | -17.8 |    |    | -17.6 |    |     | -17.7 |     |     | -18.8 |
| Tenths Cloudiness       |    |    | 10    |    |    | 10    |    |     | 10    |     |     | 10    |
| Weather                 |    |    | S-    |    |    | S-    |    |     | S-    |     |     | S-    |

OCTOBER 23

|   |   |   |   |   |   |   |   |   |    |    |    |
|---|---|---|---|---|---|---|---|---|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|----|----|----|

END OF SW RADIATION DATA

## Weather

**-22.8**

2

13 14 15 16 17 18 19 20 21 22 23 24

1

## Weather

-17.3

10

AUGUST 1959

STATION CHARLIE RADIATION SUMMARY

| Hr. End.<br>at (GMT) | MONTHLY SUMS FOR EACH HOUR *            |                                        |                                   | HOURLY MEANS                    |                                |                           |        |
|----------------------|-----------------------------------------|----------------------------------------|-----------------------------------|---------------------------------|--------------------------------|---------------------------|--------|
|                      | Global SW<br>Joules/<br>CM <sup>2</sup> | Ref1. SW<br>Joules/<br>CM <sup>2</sup> | Net<br>Joules/<br>CM <sup>2</sup> | Global SW<br>MW/CM <sup>2</sup> | Ref1. SW<br>MW/CM <sup>2</sup> | Net<br>MW/CM <sup>2</sup> | Albedo |
| 1                    | 2502                                    | 1906                                   | 546                               | 35.7                            | 26.0                           | 7.2                       | .73    |
| 2                    | 2220                                    | 1743                                   | 460                               | 30.8                            | 23.1                           | 6.1                       | .75    |
| 3                    | 2034                                    | 1462                                   | 418                               | 26.9                            | 19.2                           | 5.5                       | .72    |
| 4                    | 1743                                    | 1211                                   | 347                               | 23.1                            | 16.0                           | 4.6                       | .69    |
| 5                    | 1276                                    | 932                                    | 223                               | 16.9                            | 12.3                           | 2.9                       | .73    |
| 6                    | 895                                     | 641                                    | 100                               | 12.4                            | 8.9                            | 1.4                       | .72    |
| 7                    | 605                                     | 450                                    | 23                                | 8.4                             | 6.3                            | 0.3                       | .75    |
| 8                    | 357                                     | 342                                    | -55                               | 5.2                             | 5.0                            | -0.8                      | .96    |
| 9                    | 269                                     | 264                                    | -103                              | 3.7                             | 3.9                            | -1.4                      | --     |
| 10                   | 238                                     | 201                                    | -128                              | 3.3                             | 2.9                            | -1.8                      | .88    |
| 11                   | 191                                     | 168                                    | -131                              | 2.8                             | 2.6                            | -1.9                      | .93    |
| 12                   | 158                                     | 136                                    | -116                              | 2.3                             | 2.1                            | -1.7                      | .91    |
| 13                   | 196                                     | 168                                    | -73                               | 2.9                             | 2.6                            | -1.1                      | .90    |
| 14                   | 213                                     | 201                                    | -53                               | 3.3                             | 3.1                            | -0.8                      | .94    |
| 15                   | 193                                     | 208                                    | -10                               | 3.6                             | 3.6                            | -0.1                      | 1.00   |
| 16                   | 244                                     | 317                                    | -8                                | 4.8                             | 5.5                            | -0.1                      | --     |
| 17                   | 420                                     | 498                                    | 55                                | 9.7                             | 8.6                            | 0.9                       | .89    |
| 18                   | 595                                     | 619                                    | 116                               | 12.7                            | 10.7                           | 1.8                       | .84    |
| 19                   | 1138                                    | 837                                    | 193                               | 21.0                            | 14.5                           | 3.0                       | .69    |
| 20                   | 1706                                    | 1279                                   | 355                               | 24.9                            | 19.7                           | 4.9                       | .79    |
| 21                   | 2331                                    | 1703                                   | 450                               | 30.8                            | 23.7                           | 5.7                       | .77    |
| 22                   | 2613                                    | 1929                                   | 516                               | 34.6                            | 25.5                           | 6.5                       | .74    |
| 23                   | 2718                                    | 1957                                   | 596                               | 39.7                            | 28.6                           | 8.3                       | .72    |
| 24                   | 2773                                    | 2048                                   | 571                               | 36.7                            | 27.1                           | 7.2                       | .74    |

AUGUST 1959

STATION CHARLIE RADIATION SUMMARY

DAILY SUMS \*

| <u>Day</u> | <u>Global SW<br/>Joules/CM<sup>2</sup></u> | <u>Reflected SW<br/>Joules/CM<sup>2</sup></u> | <u>Net<br/>Joules/CM<sup>2</sup></u> |
|------------|--------------------------------------------|-----------------------------------------------|--------------------------------------|
| 1          |                                            |                                               |                                      |
| 2          |                                            |                                               |                                      |
| 3          |                                            |                                               |                                      |
| 4          |                                            |                                               |                                      |
| 5          |                                            |                                               |                                      |
| 6          |                                            |                                               |                                      |
| 7          |                                            |                                               |                                      |
| 8          |                                            |                                               |                                      |
| 9          |                                            |                                               |                                      |
| 10         | 1688                                       | 1241                                          | 345                                  |
| 11         | 1183                                       | 496                                           | 307                                  |
| 12         | 1379                                       | 985                                           | 493                                  |
| 13         | 1432                                       | 998                                           | 513                                  |
| 14         | 1645                                       | 1347                                          | 118                                  |
| 15         | 2014                                       | 1332                                          | -68                                  |
| 16         | 2160                                       | 1565                                          | 143                                  |
| 17         | 1091                                       | 882                                           | 301                                  |
| 18         | 1269                                       | 937                                           | 171                                  |
| 19         | 1392                                       | 1342                                          | 108                                  |
| 20         | 1635                                       | 1324                                          | 95                                   |
| 21         | 1020                                       | 814                                           | 153                                  |
| 22         | 1234                                       | 1040                                          | 208                                  |
| 23         | 1326                                       | 1176                                          | 231                                  |
| 24         | 1434                                       | 1286                                          | 166                                  |
| 25         | 370                                        | 322                                           | 110                                  |
| 26         | 423                                        | 310                                           | 83                                   |
| 27         | 1562                                       | 1093                                          | 216                                  |
| 28         | 1096                                       | 814                                           | 108                                  |
| 29         | 736                                        | 661                                           | 173                                  |
| 30         | 794                                        | 676                                           | 143                                  |
| 31         | 747                                        | 583                                           | 171                                  |
| TOTAL      | 27,630                                     | 21,223                                        | 5,025                                |

SEPTEMBER 1959

STATION CHARLIE RADIATION SUMMARY

| MONTHLY SUMS FOR EACH HOUR * |                                         |                                       |                                   | HOURLY MEANS                    |                               |                           |        |
|------------------------------|-----------------------------------------|---------------------------------------|-----------------------------------|---------------------------------|-------------------------------|---------------------------|--------|
| Br. End.<br>at (GMT)         | Global SW<br>Joules/<br>CM <sup>2</sup> | Ref. SW<br>Joules/<br>CM <sup>2</sup> | Net<br>Joules/<br>CM <sup>2</sup> | Global SW<br>MW/CM <sup>2</sup> | Ref. SW<br>MW/CM <sup>2</sup> | Net<br>MW/CM <sup>2</sup> | Albedo |
| 1                            | 1844                                    | 1429                                  | 126                               | 19.0                            | 14.7                          | 1.3                       | .77    |
| 2                            | 1771                                    | 1321                                  | 108                               | 17.6                            | 13.6                          | 1.1                       | .77    |
| 3                            | 1414                                    | 1042                                  | 20                                | 14.0                            | 10.7                          | 0.2                       | .76    |
| 4                            | 1015                                    | 772                                   | -12                               | 9.7                             | 7.4                           | -0.1                      | .76    |
| 5                            | 643                                     | 458                                   | -73                               | 6.0                             | 4.4                           | -0.7                      | .73    |
| 6                            | 312                                     | 213                                   | -166                              | 3.0                             | 2.0                           | -1.5                      | .67    |
| 7                            | 103                                     | 73                                    | -181                              | 1.0                             | 0.7                           | -1.7                      | .70    |
| 8                            | 30                                      | 25                                    | -203                              | 0.3                             | 0.3                           | -1.9                      | 1.00   |
| 9                            | 15                                      | 15                                    | -281                              | 0.2                             | 0.2                           | -2.7                      | 1.00   |
| 10                           | 10                                      | 10                                    | -306                              | 0.1                             | 0.1                           | -2.9                      | 1.00   |
| 11                           | 8                                       | 5                                     | -312                              | 0                               | 0.1                           | -2.9                      | --     |
| 12                           | 0                                       | 0                                     | -327                              | 0                               | 0                             | -3.1                      | --     |
| 13                           | 5                                       | 8                                     | -249                              | 0                               | 0.1                           | -2.3                      | --     |
| 14                           | 10                                      | 13                                    | -233                              | 0.1                             | 0.1                           | -2.2                      | 1.00   |
| 15                           | 18                                      | 10                                    | -211                              | 0.2                             | 0.1                           | -2.0                      | .05    |
| 16                           | 53                                      | 23                                    | -241                              | 0.6                             | 0.3                           | -2.2                      | .05    |
| 17                           | 126                                     | 85                                    | -259                              | 1.6                             | 1.0                           | -2.4                      | .63    |
| 18                           | 279                                     | 181                                   | -234                              | 4.1                             | 2.6                           | -2.2                      | .63    |
| 19                           | 388                                     | 373                                   | -173                              | 7.2                             | 5.8                           | -1.7                      | .81    |
| 20                           | 975                                     | 744                                   | -70                               | 10.8                            | 8.6                           | -0.7                      | .80    |
| 21                           | 1417                                    | 1151                                  | 0                                 | 14.6                            | 11.8                          | 0                         | .81    |
| 22                           | 1701                                    | 1367                                  | 88                                | 17.5                            | 14.1                          | 0.9                       | .81    |
| 23                           | 1997                                    | 1537                                  | 126                               | 19.8                            | 15.2                          | 1.2                       | .77    |
| 24                           | 1970                                    | 1515                                  | 123                               | 19.5                            | 15.0                          | 1.2                       | .77    |

SEPTEMBER 1959  
STATION CHARLIE RADIATION SUMMARY

DAILY SUMS \*

| Day   | Global SW<br>Joules/CM <sup>2</sup> | Reflected SW<br>Joules/CM <sup>2</sup> | Net<br>Joules/CM <sup>2</sup> |
|-------|-------------------------------------|----------------------------------------|-------------------------------|
| 1     | 440                                 | 299                                    | 153                           |
| 2     | 812                                 | 603                                    | 163                           |
| 3     | 915                                 | 734                                    | -131                          |
| 4     | 782                                 | 641                                    | 73                            |
| 5     | 890                                 | 732                                    | -15                           |
| 6     | 716                                 | 609                                    | -115                          |
| 7     | 940                                 | 667                                    | -213                          |
| 8     | 611                                 | 513                                    | -53                           |
| 9     | 531                                 | 423                                    | -40                           |
| 10    | 895                                 | 609                                    | -38                           |
| 11    | 473                                 | 453                                    | 78                            |
| 12    | 460                                 | 357                                    | -28                           |
| 13    | 586                                 | 440                                    | 45                            |
| 14    | 583                                 | 415                                    | -108                          |
| 15    | 413                                 | 216                                    | -13                           |
| 16    | 486                                 | 357                                    | -360                          |
| 17    | 428                                 | 352                                    | -85                           |
| 18    | 403                                 | 340                                    | 45                            |
| 19    | 395                                 | 345                                    | -70                           |
| 20    | 193                                 | 178                                    | -18                           |
| 21    | 443                                 | 340                                    | -128                          |
| 22    | 870                                 | 541                                    | -435                          |
| 23    | 596                                 | 458                                    | -156                          |
| 24    | 286                                 | 226                                    | -80                           |
| 25    | 486                                 | 390                                    | -321                          |
| 26    | 378                                 | 274                                    | -347                          |
| 27    | 279                                 | 183                                    | -239                          |
| 28    | 283                                 | 244                                    | -63                           |
| 29    | 276                                 | 231                                    | -68                           |
| 30    | 266                                 | 211                                    | -352                          |
| TOTAL | 16,115                              | 12,381                                 | -2,394                        |

OCTOBER 1959

STATION CHARLIE RADIATION SUMMARY

MONTHLY SUMS FOR EACH HOUR \*

HOURLY MEANS

| Hr. End.<br>at (GMT) | Global SW<br>Joules/cm <sup>2</sup> | Refl. SW<br>Joules/cm <sup>2</sup> | Net<br>Joules/cm <sup>2</sup> | Global SW<br>MW/cm <sup>2</sup> | Refl. SW<br>MW/cm <sup>2</sup> | Net<br>MW/cm <sup>2</sup> | Albedo |
|----------------------|-------------------------------------|------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------|--------|
| 1                    | 533                                 | 390                                | -8                            | 7.1                             | 5.2                            | -0.7                      | .73    |
| 2                    | 312                                 | 231                                | -18                           | 4.1                             | 3.1                            | -1.7                      | .76    |
| 3                    | 143                                 | 108                                | -10                           | 1.9                             | 1.4                            | -0.9                      | .74    |
| 4                    | 42                                  | 35                                 | -10                           | 0.6                             | 0.5                            | -0.9                      | .83    |
| 5                    | 8                                   | 8                                  | -23                           | 0.1                             | 0.1                            | -2.1                      | 1.00   |
| 6                    | 0                                   | 0                                  | -30                           | 0                               | 0                              | -2.8                      | --     |
| 7                    | 0                                   | 0                                  | -28                           | 0                               | 0                              | -2.6                      | --     |
| 8                    | 0                                   | 0                                  | -20                           | 0                               | 0                              | -1.9                      | --     |
| 9                    | 0                                   | 0                                  | -28                           | 0                               | 0                              | -2.6                      | --     |
| 10                   | 0                                   | 0                                  | -33                           | 0                               | 0                              | -3.1                      | --     |
| 11                   | 0                                   | 0                                  | -33                           | 0                               | 0                              | -3.1                      | --     |
| 12                   | 0                                   | 0                                  | -23                           | 0                               | 0                              | -2.1                      | --     |
| 13                   | 0                                   | 0                                  | -25                           | 0                               | 0                              | -2.3                      | --     |
| 14                   | 0                                   | 0                                  | -13                           | 0                               | 0                              | -1.2                      | --     |
| 15                   | 0                                   | 0                                  | -15                           | 0                               | 0                              | -1.4                      | --     |
| 16                   | 0                                   | 0                                  | -28                           | 0                               | 0                              | -2.6                      | --     |
| 17                   | 5                                   | 0                                  | -30                           | 0.1                             | 0                              | -2.8                      | --     |
| 18                   | 5                                   | 3                                  | -33                           | 0.1                             | 0                              | -3.1                      | --     |
| 19                   | 15                                  | 18                                 | -30                           | 0.3                             | 0.3                            | -2.8                      | 1.00   |
| 20                   | 78                                  | 82                                 | -35                           | 1.3                             | 1.3                            | -4.9                      | 1.00   |
| 21                   | 188                                 | 191                                | -40                           | 2.5                             | 2.9                            | -5.6                      | --     |
| 22                   | 370                                 | 335                                | -25                           | 5.7                             | 4.9                            | -3.5                      | .86    |
| 23                   | 408                                 | 352                                | -5                            | 6.3                             | 5.1                            | -0.7                      | .81    |
| 24                   | 408                                 | 327                                | -3                            | 6.0                             | 4.8                            | -0.4                      | .80    |

OCTOBER 1959

STATION CHARLIE RADIATION SUMMARY

DAILY SUMS \*

| Day   | Global SW<br>Joules/CM <sup>2</sup> | Reflected SW<br>Joules/CM <sup>2</sup> | Net<br>Joules/CM <sup>2</sup> |
|-------|-------------------------------------|----------------------------------------|-------------------------------|
| 1     | 309                                 | 286                                    | -355                          |
| 2     | 345                                 | 271                                    | -168                          |
| 3     | 228                                 | 193                                    | -20                           |
| 4     | 158                                 | 128                                    |                               |
| 5     | 156                                 | 103                                    |                               |
| 6     | 143                                 | 93                                     |                               |
| 7     | 103                                 | 73                                     |                               |
| 8     | 143                                 | 103                                    |                               |
| 9     | 123                                 | 98                                     |                               |
| 10    | 151                                 | 103                                    |                               |
| 11    | 93                                  | 88                                     |                               |
| 12    | 78                                  | 73                                     |                               |
| 13    | 15                                  | 23                                     |                               |
| 14    | —                                   | —                                      |                               |
| 15    | 63                                  | 58                                     |                               |
| 16    | 90                                  | 90                                     |                               |
| 17    | 38                                  | 43                                     |                               |
| 18    | 98                                  | 70                                     |                               |
| 19    | 73                                  | 43                                     |                               |
| 20    | 50                                  | 30                                     |                               |
| 21    | 20                                  | 13                                     |                               |
| 22    | 33                                  | 8                                      |                               |
| 23    |                                     |                                        |                               |
| 24    | SUNDOWN                             |                                        |                               |
| 25    |                                     |                                        |                               |
| 26    |                                     |                                        |                               |
| 27    |                                     |                                        |                               |
| 28    |                                     |                                        |                               |
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| 31    |                                     |                                        |                               |
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