

UNIVERSITY OF BERGEN
GEOPHYSICAL INSTITUTE

**THE RADIATION OBSERVATORY
RADIATION YEARBOOK No.36**

**RADIATION OBSERVATIONS IN BERGEN, NORWAY
($\Phi = 60^{\circ}24' N$, $\lambda = 5^{\circ}19' E$, $H = 45 m.$)**

2000



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Radiation Yearbook No. 36

Radiation Observations in Bergen, Norway

($\Phi = 60^{\circ} 24' N$, $\lambda = 5^{\circ} 19' E$, $H = 45$ m.)

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INTRODUCTION

The present issue of the Radiation Yearbook from the Geophysical Institute is volume No. 36.

The datalogging system used consists of a Fluke Helios I Computer Front End, a Personal Computer and a Star LC- 10 Printer. The Helios I CFE is equipped with scanner cards that can handle dc-voltages in four ranges with a resolution of 0.5 μV for the best range of sensitivity (64 mV full scale). A Basic-program controls the Helios I CFE from the PC. Each sensor is scanned every 20 s, and the momentary values are displayed on a screen. Hourly values are accumulated and stored in the PC for subsequent processing and they are also printed on paper.

The GLOBAL RADIATION was measured by means of CMI 1 pyranometer No. 913438. The sensitivity of this pyranometer was checked against EPAC 13617 (sun/shade method) on the cloudless days May 8. and 12. 2000. On May 8., the sensitivity was found to be $4.824\mu\text{V}/\text{Wm}^{-2}$ as an average for 5 ten minute periods with solar elevation in the range 45 - 47°. No single of these ten minute values was outside the range 4.812-4.842 $\mu\text{V}/\text{Wm}^{-2}$. On May 12., the sensitivity was found to be $4.802\mu\text{V}/\text{Wm}^{-2}$ as an average for 18 ten minute periods with solar elevation in the range 13 - 48°. No single of these ten minute values was outside the range 4.785-4.828 $\mu\text{V}/\text{Wm}^{-2}$. From this it was decided to use CM11₉₁₃₄₃₈ with sensitivity $4.818\mu\text{V}/\text{Wm}^{-2}$ (= 1.0165 times the original K&Z sensitivity from 1991) as was done in previous years.

The DIFFUSE (SKY) RADIATION was measured by the pyranometer CM11₉₂₄₄₁₉. When measuring the sky radiation, the direct solar radiation is constantly shadowed off by means of a 6 cm diameter circular disc mounted on a 30 cm long rotating arm. No kind of shade-ring correction is therefore applied to the measured diffuse radiation. From 17. October 1992 to 25. August 1993, CM11 pyranometers No. 924419 and No. 913438 were run in parallel. Using the original K&Z sensitivities, we found that for 10 cloudless days (April - June 1993) the average noon hour ratio was $\text{CM11}_{924419}:\text{CM11}_{913438} = 1.003$ (with all individual hourly ratios confined within a ± 0.010 interval). Furthermore, for the 15 completely overcast days during February - August 1993 with noon hour diffuse irradiance exceeding 0.42 MJm^{-2} , the average noon hour ratio was $\text{CM11}_{924419}:\text{CM11}_{913438} = 1.007$ (with all individual hourly ratios confined within a ± 0.008 interval). The ratio between these two pyranometers is thus pretty independent of the angular distribution of the incident irradiance. From this it was decided to use CM11₉₂₄₄₁₉ with a sensitivity $4.430\mu\text{V}/\text{Wm}^{-2}$ (1.0216 times the original K&Z sensitivity from 1992). Note that the ratio 1.005 (=1.0216/1.0165) between the two sensitivity correction factors are chosen to make the average overcast/cloudless noon hour ratio $\text{CM11}_{924419}:\text{CM11}_{913438}$ (= 1.005) equal to unity. During the 5 overcast days (zero beam irradiance) in May - July 2000, the daily $\text{CM11}_{924419}:\text{CM11}_{913438}$ ratio ranged from 0.984 to 0.998. The average $\text{CM11}_{924419}:\text{CM11}_{913438}$ ratio was 0.987 for all (19 hours) with hourly irradiance exceeding 100 Wm^{-2} (average = 163 Wm^{-2}), while the corresponding average ratio was 0.992 for all hours with irradiance less than 100 Wm^{-2} . Moreover, on the cloudless day May 8., the $\text{CM11}_{924419}:\text{CM11}_{913438}$ ratio was 0.984, as an average

for the last 4 minutes of 6 shading periods (10 minutes) with solar elevation $45 - 47^\circ$ and average diffuse irradiance = 144 Wm^{-2} . On the cloudless day May 12., however, the $\text{CM11}_{924419}:\text{CM11}_{913438}$ ratio was 0.945, as an average for the last 4 minutes of 20 shading periods (10 minutes) with solar elevation $14 - 48^\circ$ and average diffuse irradiance = 51 Wm^{-2} . Although we have no explanation of this latter discrepancy, we decided to keep the CM11_{924419} sensitivity $4.430 \mu\text{V}/\text{Wm}^{-2}$ fixed in 1998.

As will be seen on Fig. 1, the anemometer mast sticks rather high up into the sky. The mast is, however, not compact, and it is estimated to screen off at most 0.7% of the sky radiation, an amount considered to be negligible. Further, the mountains surrounding Bergen (mean altitude ca 6°) screen off sky radiation on horizontal surface. Assuming Lambertian albedo in the range 0.15 - 0.25, we have estimated (as outlined in [11]) that the hillsides reduce the daily horizontal diffuse irradiation by $\leq 1\%$, except for cloudless winter days (November - January) when the estimated reduction is some 3-4%. However, since the albedo of the hillsides varies in the course of the year, no screening correction is applied to the measured diffuse radiation.

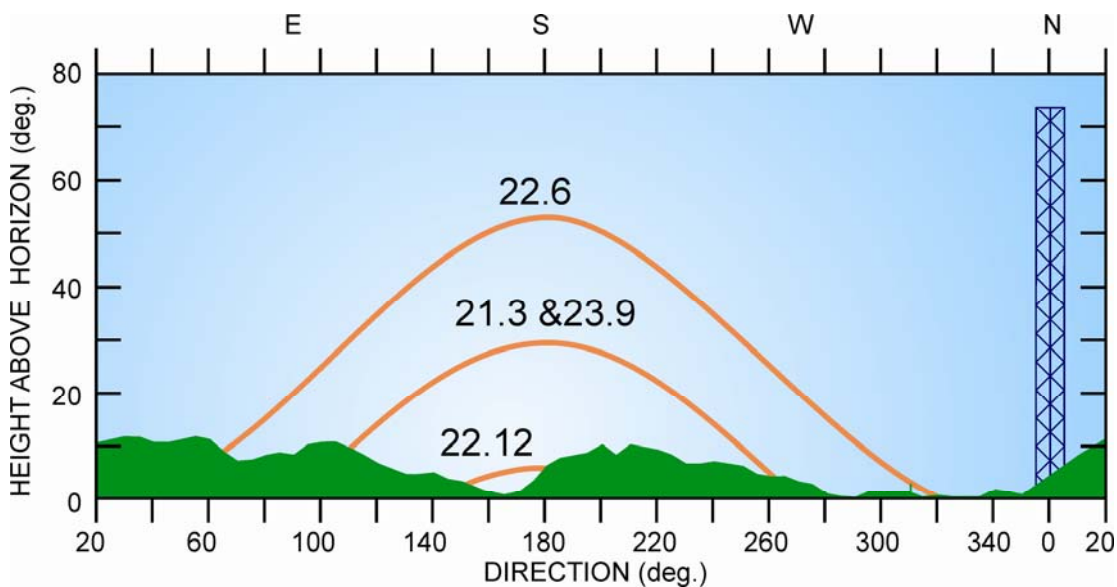


Figure 1. Panorama of the horizon with sun paths, as viewed from the observation tower of the Geophysical institute.

However, the estimated percentage reduction caused by the hillsides covers a substantially wider range for other solar resources under cloudless sky: For maximum sunshine duration the monthly reduction ranges from 54% in December to 5 - 8% in April - August, for normal incidence beam irradiation from 52% in December to 1 - 3% in April - August, for horizontal beam irradiation from 48% in December to 0.3 - 0.6% in April - August, and for global irradiation from 18% in December to 0.2 - 0.5% in April - August (Table 1). These screening effects, which are maximum under cloudless sky, are not corrected for in our tables.

Table 1.

Calculated monthly factors (unity = 1000) by which the elevated horizon (Fig. 1) reduces monthly maximum sunshine duration (N), normal incidence beam irradiation (B), horizontal beam irradiation (I), and global irradiation (G) under cloudless sky. Beam irradiation and sunshine duration at solar elevation < 2° is ignored during these calculations.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
N:	535	779	852	934	934	917	925	948	885	833	611	456
B:	638	894	944	976	978	973	978	985	962	939	740	484
I:	713	954	984	995	996	994	995	997	989	979	820	520
G:	850	968	988	996	997	995	996	998	991	984	895	818

The global radiation and the diffuse radiation are equalized in the computer for hours when the mean solar altitude is so low that the apparent position of the sun will be behind the mountains surrounding Bergen (Fig. 1). For the summer half year (March to September) this equalizing of global and diffuse radiation is done for hourly mean solar altitudes less than 6° in the morning and less than 2° in the afternoon. In the winter half year the limiting solar altitudes are 2° and 7° for the morning and afternoon, respectively. It should be mentioned that the pyranometers for global and diffuse (sky) radiation are ventilated [1], in order to prevent the hemisphere from being covered by snow or dew, and to minimise zero-point deviations.

The NORMAL INCIDENCE BEAM RADIATION was measured by an Eppley Normal Incidence Pyrheliometer, Model NIP No. 29019, with sensitivity 8.15 $\mu\text{V}/\text{Wm}^{-2}$ given by Eppley in 1992. The NIP is mounted on an Eppley Automatic Solar Tracker Model SMT-3. On the cloudless days May 8. And 12. 2000, NIP₂₉₀₁₉ was run in parallel with EPAC 13617, and an average sensitivity 8.21 $\mu\text{V}/\text{Wm}^{-2}$ (range 8.15 - 8.28) was obtained for 23 four minute periods at solar elevations between 14 and 48°. This sensitivity was considered a verification of the original sensitivity, which was therefore kept unchanged.

ULTRAVIOLET RADIATION on a horizontal surface is measured by means of an Eppley Total Ultra Violet Radiometer TUV_{R30072} [2] with wavelength response .290 - .385 μm . Ignoring a temperature response of +0.1% per °C between -40 and +25°C, we run this TUV_R with the sensitivity 202 $\mu\text{V}/\text{Wm}^{-2}$ (10°C) given by Eppley upon delivery in November 1994. During June 7. 1995 TUV_{R30072} was mounted outdoor in parallel with the spectroradiometer SR991 from Macam Photometrics (owned by the Norwegian Radiation Protection Authority). The average TUV_{R30072}:SR991 ratio was 0.9 with an uncertainty of approximately 10% [14].

The (erythemal) UV-B RADIATION is measured in MED (Minimum Erythemal Dose) by the Solar Light UV Biometer 501A No. 1489. During June 7 - 8 1995, this SL501A₁₄₈₉ was mounted outdoor in parallel with the multichannel filter instrument GUV₉₂₇₃ (Ground based UV Radiometer, owned by NRPA). The daily SL501A₁₄₈₉:GUV₉₂₇₃ ratios were 1.06 ± 0.01 and 1.04 ± 0.02 [14].

During May 13. 2000, readings from the UV Biometer (SL501A₁₄₈₉) under cloudless sky are compared both to TUV_{R30072} readings and to CIE-weighted hourly UV-doses calculated [12] from the co-located GUV₉₂₇₀ (owned by NRPA). For hourly solar elevations 16, 37, 48°, the observed TUV_R irradiances were 8.1 (7.2), 24.9 (24.6), 33.1 (33.3) Wm⁻², the observed Biometer irradiances were 0.12 (0.17), 0.87 (1.17), 1.49 (2.07) MED/hr, the observed UV doses from GUV were 10.6 (10.1), 67.1 (68.2), 113.6 (120.8) mWm⁻², while the observed all-wave global irradiances were 228 (226), 593 (606), 742 (770) Wm⁻². The numbers in parentheses are values modelled by SMARTS2 [13] under a SubArctic Summer Atmosphere with ozone = 303 DU, water vapour = 1.0 cm, surface pressure = 1013 hPa, surface albedo = 0.15, and 0.5µm urban aerosol optical depth = 0.10. Except for the Biometer data, the observed irradiances are pretty well corroborated by the modelled data. The Biometer were shipped for maintenance and recalibration in November 2000.

For the measurement of long-wave radiation, a ventilated Eppley pyrgeometer No. 30376 with coated silicon hemisphere was used. This makes it possible to compute the DOWNWARD ATMOSPHERIC RADIATION, since the temperature of the instrument is also recorded. The calibration factor used for this pyrgeometer in 2000 was $K_L = 4.14 \mu\text{V}/\text{Wm}^{-2}$. During May - November 2000, the pyrgeometer was run in parallel with pyrgeometer No. 27704, and only minor differences were observed between these two sensors. Thus, the average 27704:30376 ratios were 1.010, 1.004, 1.000 and 0.999 for, respectively, cloudfree days, cloudfree nights, overcast days and overcast nights. It should be mentioned here that the 27704:13176 ratios reported from similar comparisons in 1995 - 1997, are unreliable since No. 27704 was then by mistake connected to a channel with too low resolution.

The equations used for the evaluation of the long-wave radiation components are:

$$A = \sigma T_i^4 + \frac{U}{K_L} \quad (1)$$

$$Q_e^L = \sigma T_L^4 - A \quad (2)$$

where U is the voltage output of the pyrgeometer, K_L is the calibration factor, and T_i is the pyrgeometer temperature. Moreover, from the downward atmospheric radiation A, obtained from (1), and the measured air temperature T_L , the EFFECTIVE OUTGOING RADIATION, Q_e^L , from a black surface at air temperature is readily obtained from (2).

The DURATION OF SUNSHINE is measured by a Campbell-Stoke sunshine recorder with blue paper strips. The strips are read according to the rules of WMO [3]. Maximum possible duration gives the number of hours the sun is above the natural horizon, as found from the records on days with clear skies at sunrise or sunset. The DURATION OF SUNSHINE is also given as the number of minutes during which the Eppley Normal Incidence Pyrheliometer (NIP No. 29019) recorded irradiance above 120 Wm^{-2} (with one instantaneous recording counted as 20 seconds). (Missing Campbell-Stoke data are, in a few indicated cases, replaced by NIP durations above 200 Wm^{-2}). Since 120 Wm^{-2} is lower than the reported [4] threshold ($205 \pm 35 \text{ Wm}^{-2}$) for burning on our CampbellStoke paper strips, the NIP sunshine duration slightly exceeds that from Campbell-Stoke. Thus, during March - October the sunshine duration was 806 and 884 hours recorded simultaneously by Campbell-Stoke and by NIP. During the 4 remaining winter months the corresponding figures were 92 and 101 hours. These duration differences are reasonably consistent with a modelled [9,10] long-term average difference of 13.5% between durations above 205 and 120 Wm^{-2} .

The necessary routine calibrations of the pyranometers and the NIP pyrheliometer are carried out by means of the absolute self-calibrating cavity pyrheliometer, EPAC 13617. This pyrheliometer was compared to the World Radiation Reference Scale (WRR) during the IV, V, VI and VII International Pyrheliometer Comparisons at the World Radiation Centre, Davos [5-8]. Table 2 shows that the ratio between our EPAC 13617 and WRR has been extremely stable from 1975 to 1990, varying within a range of less than 0.1%. Moreover, during IPC IV the central 84% of the individual ratios was contained within an interval of width 0.0035, while during IPC VII the central 83% of the ratios was contained within an interval of width 0.005.

Table 2. Average ratios between our EPAC 13617 (with manufacturers calibration factor 10024 m^{-2}) and, respectively, the working reference instrument PMO2 (or PACRAD III) and the World Radiation Reference Scale (WRR) during 4 International Pyrheliometer Comparisons. Number N of individual ratios and their standard deviations are also given.

Comparison	N	EPAC-13617/PMO2	std.dev.	EPAC-13617/WRR
IPC IV (1975)	01610	0.9987 *)	0.0019	0.9968
IPC V (1980)	77	0.9962	0.0093	0.9976
IPC VI (1985)	233	0.9962	0.0020	0.9972
IPC VII (1990)	246	0.9972	0.0019	0.9977

*) EPAC-13617/ PACRAD III

On the cloudless day 15. April 1994, Eppley AHF 29224 (purchased by the Norwegian Polar Institute in 1994, and run with manufacturer's calibration factor 19986m^{-2}) and our EPAC 13617 (with the IPC VII calibration factor 10047m^{-2}) were operated side by side during 10 runs. Each run was scheduled in the same way as at IPC VII, and yielded 8 individual parallel readings 90s apart. For these 10 runs the average AHF/EPAC ratio was 1.0029, with standard deviation 0.0007 and range 0.0021.

REFERENCES

1. H. Schieldrup Paulsen: Über die Anwendung von kunstlichen Belüftungseinrichtungen bei Strahlungsmessgeräten. Ann. d. Met. 8, 1957/58.
2. A.J. Drummond, H.W. Greer, and J.J. Roche: The Measurements of the Components of Solar Short-Wave and Terrestrial Long-Wave Radiation. Solar Energy. Vol. IX. 1965.
3. World Meteorological Organization: Guide to meteorological instruments and methods of observation. Fifth edition. Geneva (1983).
4. L. Helmes, and R. Jaenicke: Experimental verification of the determination of atmospheric turbidity from sunshine recorders. J. ClimateAppl. Meteor. 23, 1350 (1984).
5. Fourth International Pyrheliometer Comparisons. Davos, October 1975. Results. Working Rep. No. 58, Swiss Met. Inst. Zurich 1976.
6. Fifth International Pyrheliometer Comparisons and Absolute Radiometer Comparisons, Sept.-Oct. 1980. Results. Working Rep. No. 94, Swiss Met. Inst. Zurich 1981.
7. Sixth International Pyrheliometer Comparisons. Davos, October 1985. Results and Symposium. Working Rep. No. 137, Swiss Met. Inst. Zurich 1985.
8. Seventh International Pyrheliometer Comparisons. Davos, Sept.-Oct. 1990. Results and Symposium. Working Rep. No. 162, Swiss Met. Inst. Davos and Zurich 1991.
9. J. A. Olseth, and A. Skartveit: Duration tables for hourly solar irradiance on 11 surfaces at 16 Norwegian stations (in Norwegian). Met. Rep. Series, Univ. of Bergen, No. I - 1987.
10. J. A. Olseth, and A. Skartveit: A probability density model for hourly total and beam irradiance on arbitrarily orientated planes. Solar Energy, 39, 343-351 (1987).

11. J. A. Olseth, and A. Skartveit: Spatial distribution of photosynthetically active radiation over complex topography. *Agricultural and Forest Meteorology*, 86, 205-214 (1997).
12. A. Dahlback: Measurements of biologically effective UV-doses, total ozone abundances, and cloud effects with multichannel, moderate bandwidth filter instruments, *Appl. Opt.*, Vol. 35, 6514-6521.
13. C. Gueymard: SMARTS2, A Simple Model of the Atmospheric Radiative Transfer of Sunshine: Algorithms and performance assessment. Florida Solar EnergyCenter Report PF-270-95 (1995).
14. B. Johnsen, and M. Hannevik (eds.): The 1995 intercomparison of UV- and PAR instruments at the University of Oslo. *StrålevernRapport 1997:7*. Østerås: Norwegian Radiation Protection Authority, 1997.

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LEGEND TO THE TABLES

The tables consist of 4 groups.

A. Hourly values.

The tables, pp. 1 - 55, contain the hourly (and daily) values of the following elements:
 GLOBAL RADIATION (total solar radiation from sun and sky on a horizontal surface).
 DIFFUSE (sky) RADIATION (solar) on a horizontal surface.
 ULTRAVIOLET RADIATION from sun and sky on a horizontal surface.
 UV-B RADIATION (erythemal radiation from sun and sky on a horizontal surface) NORMAL
 INCIDENCE BEAM RADIATION (solar).
 DOWNWARD (INCOMING) ATMOSPHERIC RADIATION on a horizontal surface.
 EFFECTIVE OUTGOING RADIATION from a horizontal black surface at air temperature.
 DURATION OF SUNSHINE (MIN.) from Campbell-Stoke sunshine recorder (with TOTAL given
 in 0.1 hr). This sunshine duration is the one occurring in the Tables B - C.
 DURATION OF SUNSHINE (MIN. NIP>120 W/SQM) from Normal Incidence Pyrheliometer (with
 TOTAL given in min).

The tables are listed in the order mentioned separately for each month.
 The other groups of tables represent summaries for the year of the values given in Tables A.

B. Daily values.

C. Mean diurnal variation.

In groups B and C each element is listed separately in monthly succession.

D. Monthly and annual means.

This is one table which gives a summary of all measured radiation components (including the duration of sunshine expressed as percentages of the maximum possible duration), for the months and for the year.

In the tables the hourly values are valid for the hours centred at exact hours LAT (solar time).

Radiation values are given in 10^{-2} - or 10^{-3} MJ/m² referred to the WRR-scale. The UV-B radiation is given in 0.01 MED (Minimum Erythemal Dose).

The duration of sunshine is given in minutes (min), except for totals and for the maximum possible duration (with completely clear skies). These latter values are given in tenths of an hour.

In the tables a dash (-) indicates missing observations, an A in the row for mean values stands for an approximate mean value, based on more than 25 (325) values, but less than a complete month (year). M indicates an average value based on less than 25 (325) days, but more than 10 (250) days.

A. HOURLY VALUES JANUARY

JAN 2000 HOURLY SUMS OF NORMAL INCIDENCE BEAM RADIATION (0.01 MJ/SQM)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	6	.	.	.	.	.	.	.	.	.	.	.	.	.	6
2	10	.	.	.	.	.	.	.	.	.	.	.	.	.	10
3	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	3
4	5	.	.	.	.	.	.	.	.	.	.	.	.	.	5
5
6
7
8
9	7	16	.	.	.	.	.	.	.	.	.	.	.	.	23
10
11
12
13	96	169	.	.	.	.	.	.	.	.	.	.	.	.	265
14	155	205	206	.	.	.	.	.	.	.	.	.	.	.	.	566
15
16
17
18	88	119	135	13	.	.	.	.	.	.	.	.	.	.	355
19	1	.	.	.	.	.	.	.	.	.	.	.	.	1
20
21
22	16	193	193	208	49	.	.	.	.	.	.	.	.	.	.	.	659
23	36	2	.	.	.	.	.	.	.	.	.	.	.	.	.	38
24
25	1	.	.	.	.	.	.	.	.	.	.	.	.	1
26
27	1	.	.	.	.	.	.	.	.	.	.	.	.	.	1
28
29	17	.	.	.	.	.	.	.	.	.	.	.	.	17
30	1	10	67	23	.	.	.	.	.	.	.	.	.	.	.	101
31	1	85	51	1	.	.	.	.	.	.	.	.	.	.	138
MEAN	0	0	0	0	0	0	0	0	1	15	22	29	4	0	0	0	0	0	0	0	0	0	0	0	71

JAN 2000 HOURLY SUMS OF DOWNWARD ATMOSPHERIC RADIATION (0.01 MJ/SQM)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
1	119	119	120	121	123	121	120	112	116	115	102	108	106	112	116	119	116	118	119	120	121	121	121	121	2806	
2	122	123	123	123	123	123	123	121	116	115	111	113	108	113	107	105	112	99	107	104	103	106	103	111	2714	
3	109	109	111	114	116	116	117	119	123	118	116	119	118	118	117	117	117	117	118	111	113	113	114	113	2773	
4	114	113	113	111	108	107	104	113	112	109	112	111	99	99	107	105	104	100	105	114	115	116	116	115	2622	
5	114	114	108	105	109	108	107	111	110	114	115	115	117	117	118	119	119	120	121	123	123	123	123	123	2776	
6	123	122	123	124	123	125	124	122	123	121	123	123	120	116	111	108	108	96	109	106	104	102	105	107	2768	
7	104	107	110	112	113	112	116	117	118	120	121	122	123	124	124	125	125	125	125	124	125	125	125	124	2866	
8	123	121	118	115	105	110	116	118	119	119	119	118	118	118	117	116	117	116	117	116	111	114	116	111	2788	
9	111	112	106	103	111	108	111	110	108	112	112	107	111	113	113	113	108	110	101	109	109	105	107	105	2615	
10	100	105	110	110	103	106	111	112	113	113	115	118	118	118	119	120	121	122	123	123	122	121	118	117	2758	
11	113	115	96	103	104	116	116	116	113	113	112	117	118	119	120	120	121	121	121	121	121	121	121	121	2778	
12	118	111	109	111	115	113	115	112	113	107	112	115	116	117	118	119	119	117	115	114	112	104	110	96	2708	
13	104	100	109	98	100	102	97	92	87	87	86	85	83	83	82	82	81	81	80	80	80	80	80	80	2119	
14	79	79	79	79	80	80	78	78	79	80	81	81	79	80	80	79	79	79	80	80	79	80	80	82	1910	
15	85	104	108	109	111	113	113	113	114	115	115	115	116	116	116	116	117	117	118	117	118	118	119	118	2721	
16	119	119	120	120	120	121	121	121	121	122	123	124	125	125	125	125	124	124	124	124	125	124	124	124	2945	
17	124	124	123	123	123	123	122	122	123	123	122	122	121	122	122	122	121	120	120	121	121	120	118	115	2917	
18	113	102	85	90	92	86	84	85	90	85	87	87	86	87	84	85	82	82	82	85	88	108	99	107	2161	
19	106	100	96	99	107	110	112	113	113	114	115	115	116	117	116	117	117	116	118	117	117	119	119	119	2708	
20	118	119	118	118	118	116	113	116	117	117	116	116	113	107	112	113	112	107	103	88	91	93	85	82	2608	
21	82	80	81	87	80	86	91	82	96	104	102	100	100	104	104	105	106	107	107	108	109	110	112	111	2354	
22	112	112	112	112	112	103	85	83	84	86	86	85	100	103	101	93	95	86	80	80	80	79	79	78	2226	
23	78	77	76	76	75	78	79	76	81	93	98	104	106	107	107	108	107	107	105	103	107	101	94	103	2246	
24	105	108	109	110	111	111	110	109	107	111	112	111	113	112	98	92	86	83	83	83	84	89	87	87	2411	
25	88	108	113	113	113	113	114	115	116	116	116	115	116	115	114	114	109	109	112	113	105	101	104	117	2669	
26	118	117	117	118	118	118	117	118	118	119	119	120	119	119	119	118	116	118	119	119	118	119	113	115	2829	
27	112	113	110	112	116	117	118	120	117	116	113	114	114	111	100	101	106	109	97	99	100	112	106	104	2637	
28	98	102	105	106	109	105	105	110	110	112	113	113	113	113	112	112	111	113	114	115	116	116	118	121	2662	
29	122	121	121	120	121	121	121	123	118	112	107	114	116	116	116	114	113	115	112	114	113	112	115	113	2790	
30	112	111	108	107	104	87	90	85	93	99	92	88	79	82	80	82	88	93	96	100	104	106	107	109	2302	
31	109	110	108	107	103	82	99	108	110	110	107	96	96	99	93	100	103	106	105	91	98	99	98	87	2424	
MEAN	108	109	108	108	109	108	108	108	109	110	109	109	109	110	109	108	108	108	108	107	107	108	108	108	108	2600

A. HOURLY VALUES JANUARY

JAN 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	2	2	2	1	1	4	4	13	8	8	21	15	18	12	8	5	8	7	4	3	2	2	3	2	155
2	1	1	1	2	1	1	3	6	10	9	13	12	14	10	14	17	11	21	15	19	18	15	18	10	242
3	12	12	12	9	7	5	3	1	3	10	12	8	9	9	9	10	10	8	8	10	9	9	9	10	204
4	8	9	7	11	15	16	18	8	9	11	9	9	21	20	12	13	15	21	15	8	5	4	4	3	271
5	1	3	10	15	10	11	11	8	10	7	7	7	5	5	3	2	2	2	1	1	3	3	1	2	130
6	3	2	2	1	3	3	5	6	5	3	3	3	4	5	11	12	10	23	10	9	13	17	13	12	178
7	15	13	11	9	9	10	5	2	2	1	1	.	.	.	1	1	1	1	1	1	1	1	1	3	90
8	5	6	6	9	20	15	9	7	5	6	7	7	7	8	7	8	4	4	4	6	13	9	6	10	188
9	10	10	15	18	10	13	10	11	13	9	10	16	9	8	6	5	10	8	17	9	9	12	11	13	262
10	18	13	8	9	16	14	10	10	9	10	8	5	3	2	1	1	1	1	1	2	4	4	8	8	166
11	12	9	26	19	18	7	5	4	8	9	12	8	6	5	5	4	4	4	4	3	3	3	2	2	182
12	3	10	13	11	7	10	8	10	9	15	10	8	6	3	2	3	3	2	4	6	8	15	9	22	197
13	13	18	8	19	17	15	19	24	28	28	32	34	35	36	36	36	36	38	37	37	36	35	34	34	685
14	34	34	33	33	34	35	34	33	33	34	35	36	35	34	33	34	33	33	32	32	32	31	30	27	794
15	24	5	3	2	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	36
16	.	.	.	1	.	.	.	1	1	.	.	.	.	1	1	1	1	1	1	1	1	1	1	1	14
17	2	1	2	2	2	2	3	3	2	2	3	3	4	3	3	3	3	3	2	2	1	3	3	6	63
18	7	18	33	29	27	32	33	33	28	34	33	33	33	31	35	33	35	35	35	32	28	10	19	10	676
19	10	16	21	18	11	7	4	3	1	.	1	1	1	3	4	3	4	6	5	6	6	5	4	5	144
20	4	3	3	3	5	7	9	7	5	3	5	6	8	13	8	6	7	11	15	29	26	24	31	33	271
21	33	35	33	28	35	28	23	32	17	10	13	14	14	10	9	8	6	5	4	3	3	3	2	3	371
22	3	3	2	3	4	13	30	31	30	33	33	33	17	13	14	21	19	27	33	34	35	35	35	36	537
23	36	36	36	36	36	32	31	33	28	18	13	8	8	6	4	4	4	5	7	9	5	11	20	11	437
24	8	6	5	4	3	3	5	5	8	5	4	5	4	5	19	24	29	31	31	29	29	23	24	24	333
25	23	3	.	.	.	.	.	.	-1	.	.	2	1	2	3	3	7	7	3	3	10	14	11	.	91
26	.	.	.	1	1	1	2	1	.	.	.	.	1	1	1	3	5	2	2	2	3	2	8	6	42
27	9	7	9	7	4	2	1	2	5	6	8	8	7	11	19	18	13	9	21	20	16	5	9	11	227
28	16	13	9	8	5	9	10	5	6	3	3	3	2	3	4	4	5	4	4	4	3	3	1	1	128
29	1	2	2	2	1	2	1	1	5	11	17	6	4	4	3	3	4	4	7	4	5	8	3	4	104
30	5	5	7	8	10	28	23	28	20	14	21	26	34	31	31	28	23	18	15	12	9	7	3	2	408
31	3	3	4	5	10	31	13	5	3	3	6	21	22	18	23	15	12	9	10	21	14	13	14	25	303
MEAN	10	10	10	10	10	11	11	11	10	10	11	11	11	10	11	11	10	11	11	12	11	11	11	11	256

A. HOURLY VALUES JANUARY

JAN 2000		DURATION OF SUNSHINE (MIN. NIP>120 W/SQM)																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
1
2	6	.	.	.	.	.	.	.	.	.	.	.	.	.	6
3
4
5
6
7
8
9
10
11
12
13	43	55	.	.	.	.	.	.	.	.	.	.	.	98
14	56	60	59	.	.	.	.	.	.	.	.	.	.	175
15
16
17
18	53	57	57	6	.	.	.	.	.	.	.	.	.	173
19
20
21
22
23	7	60	55	60	20	.	.	.	.	.	.	.	.	.	.	.	202
24	16	.	.	.	.	.	.	.	.	.	.	.	.	16
25
26
27
28
29	10
30	1	3	24	13	.	.	.	.	.	.	.	.	.	41
31	31	21	.	.	.	.	.	.	.	.	.	.	52
MEAN	0	0	0	0	0	0	0	0	0	0	6	8	9	2	0	0	0	0	0	0	0	0	0	0	0	25

JAN 2000		DURATION OF SUNSHINE (MIN.)																								TOTAL*	MAX*	PCT/
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL*	MAX*	PCT/	
1	0	22	0
2	0	22	0
3	0	22	0	
4	0	22	0	
5	0	23	0	
6	0	23	0	
7	0	23	0	
8	0	24	0	
9	6	.	.	.	.	.	.	.	.	.	.	.	.	1	25	4	
10	0	26	0	
11	0	26	0	
12	0	27	0	
13	30	54	.	.	.	.	.	.	.	.	.	.	14	27	52	
14	54	60	60	.	.	.	.	.	.	.	.	.	29	28	100	
15	0	29	0	
16	0	30	0	
17	0	31	0	
18	42	54	54	6	.	.	.	.	.	.	.	.	26	32	81	
19	0	32	0	
20	0	33	0	
21	0	34	0	
22	6	60	54	42	.	.	.	.	.	.	.	.	29	35	83	
23	12	.	.	.	.	.	.	.	.	.	.	.	2	36	6	
24	0	37	0	
25	0	38	0	
26	0	39	0	
27	0	39	0	
28	0	40	0	
29	2	41	5	
30	6	24	6	.	.	.	.	.	.	.	.	6	42	14	
31	24	24	8	44	18
MEAN	0	0	0	0	0	0	0	0	0	5	7	9	2	0	0	0	0	0	0	0	0	0	0	0	4	31	12	

* TOTALS AND MAX ARE GIVEN IN 0.1 HR

A. HOURLY VALUES FEBRUARY

FEB 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	25	31	32	31	26	22	19	14	8	5	5	4	3	1	1	.	.	6	5	8	15	16	12	23	312
2	23	21	14	20	18	14	7	6	5	3	3	4	3	4	5	5	5	5	8	6	10	28	36	38	291
3	38	36	35	29	30	30	25	24	20	12	9	9	18	21	10	6	5	3	3	3	2	2	1	2	373
4	2	1	1	1	1	1	1	1	1	.	1	1	.	.	1	1	1	1	1	1	1	1	1	1	22
5	1	1	1	1	1	1	1	.	1	.	1	.	.	.	1	1	1	1	1	1	1	1	1	1	19
6	1	1	1	3	7	8	11	8	7	7	7	13	15	9	10	10	16	18	15	20	8	4	3	3	205
7	2	2	2	2	3	2	2	1	1	2	2	3	4	5	8	13	17	17	18	16	11	13	15	15	176
8	15	17	23	25	34	34	34	34	34	37	37	37	37	37	36	34	31	24	18	12	7	5	5	10	617
9	9	7	17	29	33	36	35	35	35	36	36	36	37	36	32	26	8	5	3	2	1	1	1	3	499
10	4	4	5	5	5	5	4	3	3	2	2	1	4	5	5	4	7	12	20	14	18	16	26	17	191
11	9	4	7	8	14	10	6	15	7	5	13	12	6	5	4	3	4	4	5	9	8	3	4	5	170
12	5	5	5	5	3	2	2	2	2	3	3	4	5	4	4	10	14	14	18	6	8	5	8	9	146
13	5	7	5	3	10	6	6	9	16	7	5	11	5	5	9	8	4	5	19	9	8	8	11	15	196
14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	5	6	8	9	10	7	11	12	11	6	8	4	3	2	5	17	7	2	7	18	22	23	24	23	250
16	23	18	18	20	24	28	25	30	29	26	24	26	26	25	26	26	28	27	25	25	24	23	24	11	581
17	19	27	26	28	29	30	30	30	32	33	34	29	13	10	9	10	17	22	19	23	22	13	27	30	562
18	31	26	30	31	32	33	33	32	37	39	38	37	38	38	39	39	38	36	34	32	21	30	33	32	809
19	32	32	33	33	31	30	24	17	34	36	35	35	34	34	34	32	34	33	28	29	18	31	32	33	744
20	32	32	31	31	31	31	31	32	35	36	36	39	38	37	38	37	37	36	35	34	34	33	31	29	816
21	31	34	35	35	35	30	15	9	9	11	8	9	9	7	7	7	6	6	7	4	3	2	1	2	322
22	2	2	2	2	2	2	2	2	2	2	6	13	15	8	5	5	5	5	5	5	14	30	19	18	173
23	23	26	31	14	9	18	28	10	10	10	10	10	9	8	8	8	10	9	7	5	3	3	3	3	275
24	3	6	11	9	10	11	12	16	18	21	14	10	13	13	11	10	7	5	4	5	5	7	14	8	243
25	7	12	10	11	8	14	16	8	8	6	6	8	10	10	17	5	8	7	22	17	8	10	3	2	233
26	2	2	3	3	4	3	3	4	3	3	2	2	3	4	7	5	4	5	4	5	7	6	7	9	100
27	10	9	8	6	4	2	2	1	1	1	1	1	1	1	1	3	3	8	8	7	7	5	4	4	98
28	3	3	3	5	6	9	13	8	11	7	7	7	8	9	13	11	11	7	5	7	6	6	5	6	176
29	6	7	8	7	7	7	7	8	7	9	12	11	13	16	8	6	5	2	3	4	13	16	23	27	232
MEAN A	13	14	14	15	15	15	14	13	14	13	13	13	13	13	13	12	12	12	12	12	11	12	13	14	315

A. HOURLY VALUES FEBRUARY

FEB 2000	DURATION OF SUNSHINE (MIN. NIP>120 W/SQM)																								TOTAL	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
1
2
3	7	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	22
4
5
6
7
8	47	60	60	60	60	42	.	.	.	.	.	.	.	.	.	.	329
9	49	60	60	60	60	42	.	.	.	.	.	.	.	.	.	.	331
10
11	6	.	.	.	.	.	.	.	.	.	.	.	.	.	6
12
13	2	18	.	.	.	.	.	.	.	.	.	.	.	.	.	20
14
15
16	14	.	13	.	.	.	.	.	.	.	.	.	.	.	27
17	2	60	60	60	41	3	.	.	.	.	.	.	.	.	.	.	.	.	226
18	15	60	60	60	60	60	60	50	.	.	.	.	.	.	.	.	.	.	425
19	19	60	60	60	60	60	60	54	.	.	.	.	.	.	.	.	.	.	433
20	23	60	60	60	60	60	60	60	.	.	.	.	.	.	.	.	.	.	443
21
22	2	27	45	.	.	.	.	.	.	.	.	.	.	.	.	74
23
24	4	8	9	7	20	11	.	.	.	.	.	.	.	.	.	.	.	59
25	2	36	17	28	.	.	.	.	.	.	.	.	.	.	83
26
27
28	6	4	.	2	12	6	.	.	.	.	.	.	.	.	30
29	1	.	1	.	.	.	.	.	.	.	.	.	.	.	2
MEAN A	0	0	0	0	0	0	0	2	12	14	14	15	14	11	7	0	0	0	0	0	0	0	0	0	0	90

FEB 2000	DURATION OF SUNSHINE (MIN.)																								TOTAL*	MAX*	PCT/	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL*	MAX*	PCT/	
1	0	46	0
2	0	48	0
3	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	49	4
4	0	50	0
5	0	51	0
6	0	52	0
7	0	53	0
8	42	60	60	60	60	42	.	.	.	.	.	.	.	.	.	.	.	.	54	54	100
9	48	60	60	60	60	36	.	.	.	.	.	.	.	.	.	.	.	.	54	56	96
10	0	58	0
11	0	60	0
12	0	61	0
13	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	62	3
14	42	.	.	.	.	18	18	.	.	.	.	.	.	.	.	.	.	.	13	63	21
15	0	65	0
16	0	66	0
17	48	60	60	36	.	.	.	.	.	.	.	.	.	.	.	.	.	.	34	68	50
18	12	60	60	60	60	60	48	.	.	.	.	.	.	.	.	.	.	.	70	71	99
19	18	60	60	60	60	60	48	.	.	.	.	.	.	.	.	.	.	.	71	72	99
20	24	60	60	60	60	60	60	.	.	.	.	.	.	.	.	.	.	.	74	74	100
21	0	76	0
22	18	36	6	.	.	.	.	.	.	.	.	.	.	.	.	10	77	13
23	0	78	0
24	6	6	.	18	12	.	.	.	.	.	.	.	.	.	.	.	.	7	79	9
25	30	12	30	.	.	.	.	.	.	.	.	.	.	.	12	79	15
26	0	80	0
27	0	80	0
28	6	.	6	6	.	.	.	.	.	.	.	.	.	.	.	.	3	81	4
29	0	82	0
MEAN	0	0	0	0	0	0	0	2	12	13	13	13	14	11	7	0	0	0	0	0	0	0	0	0	0	14	65	21

* TOTALS AND MAX ARE GIVEN IN 0.1 HR

A. HOURLY VALUES MARCH

MAR 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
1	17	5	5	3	1	8	21	8	8	9	11	10	12	18	15	16	18	29	26	18	10	12	9	14	303	
2	9	26	19	20	10	23	6	12	22	9	23	16	10	10	6	4	2	1	1	.	.	3	3	3	238	
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7	5	6	5	3	4	5	6	3	6	18	13	12	15	19	23	32	31	22	24	19	18	15	9	13	326	
8	12	8	5	3	3	3	2	2	2	1	.	.	.	1	2	3	3	3	8	7	18	34	35	35	190	
9	36	37	37	36	36	36	34	29	29	26	20	21	28	25	33	34	34	36	36	35	26	33	35	36	768	
10	34	33	31	31	27	22	19	17	15	14	14	13	12	10	8	7	6	5	5	3	2	2	3	2	335	
11	3	3	3	3	3	3	5	9	8	8	8	8	8	10	8	10	7	6	6	5	5	4	3	2	138	
12	3	4	3	2	2	1	2	1	2	4	8	4	3	5	5	5	5	3	3	3	3	3	2	1	77	
13	1	1	1	1	.	.	.	.	1	2	3	6	8	11	10	11	10	8	8	6	5	5	5	13	116
14	5	15	12	15	8	3	5	13	5	3	5	14	9	6	4	7	5	19	11	23	19	15	21	25	267	
15	24	13	5	.	-1	.	1	8	9	5	1	.	1	2	4	5	5	9	15	19	31	24	29	28	237	
16	19	8	6	5	5	5	4	3	2	1	1	.	.	.	.	.	.	.	.	.	-1	-1	-1	-1	55
17	.	-1	-1	.	-1	-1	-1	-1	-1	-1	.	.	.	.	1	1	1	1	.	1	1	3	11	9	19
18	6	32	31	33	34	34	33	33	34	33	33	33	35	35	36	36	35	33	26	22	29	31	31	27	745	
19	17	13	7	6	9	4	2	1	1	1	1	.	.	1	1	1	1	1	1	1	2	3	1	2	76	
20	1	2	2	2	2	2	2	1	1	1	1	2	5	4	3	5	7	10	9	10	9	7	8	5	4	104
21	3	3	1	2	2	2	2	1	2	2	2	2	2	3	10	12	9	27	29	28	28	29	32	32	265	
22	30	22	7	3	9	4	4	2	6	6	7	5	10	16	13	21	29	18	24	31	31	33	33	32	396	
23	32	18	11	14	8	5	3	2	3	7	24	30	26	21	21	20	26	36	36	36	36	36	36	36	523	
24	36	34	33	32	32	32	33	34	28	22	26	29	35	32	34	36	33	38	35	25	29	29	21	18	736	
25	10	12	11	8	8	7	6	6	6	7	4	3	3	5	6	6	5	3	3	3	2	3	4	4	135	
26	4	4	5	5	4	5	7	5	5	5	6	10	10	10	12	12	10	8	5	4	4	4	3	4	151	
27	4	6	9	9	12	13	18	20	30	33	35	35	32	33	33	36	38	36	36	35	33	33	32	26	627	
28	26	16	8	8	8	10	15	16	20	15	11	10	10	9	8	8	6	6	8	8	6	5	5	5	247	
29	5	5	5	4	3	3	3	3	4	5	7	12	8	12	6	6	8	8	28	22	3	2	2	5	169	
30	3	2	1	1	1	1	8	13	10	5	10	5	5	4	6	6	5	5	6	6	8	6	7	6	130	
31	4	4	4	6	5	4	5	4	3	3	8	13	9	10	13	9	13	16	23	21	17	18	20	21	253	
MEAN A	13	12	10	9	9	9	9	9	10	9	10	11	11	12	12	13	13	14	15	14	14	15	15	15	282	

A. HOURLY VALUES MARCH

MAR 2000		DURATION OF SUNSHINE (MIN. NIP>120 W/SQM)																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	3	4	16	1	.	23	39	18	.	.	.	.	.	.	.	.	104
2	2	35	.	19	.	.	.	.	.	.	.	.	.	.	.	.	.	56
3
4
5
6
7	136
8
9	12	36	31	.	15	35	58	55	59	3	.	.	.	.	.	.	.	304
10
11	2	1	.	4	.	.	.	.	.	.	.	.	.	.	.	.	.	7
12	5	3	.	1	.	.	.	.	.	.	.	.	.	9
13	4	.	11	.	.	.	.	.	.	.	.	.	15
14	11	.	5	.	.	.	.	.	.	.	.	.	17
15	2	1	.	.	.	.	.	.	.	3
16
17
18	6	60	60	60	60	60	60	60	60	34	.	.	.	.	.	.	.	580
19
20
21
22	34	28	4	43	27	.	.	.	.	.	.	136
23	31	60	50	53	25	39	38	.	.	.	.	.	.	296
24	15	60	21	.	39	46	60	54	55	32	33	6	.	.	.	.	.	421
25
26	7	2	.	.	.	.	.	.	.	9
27	3	6	39	60	60	47	27	54	60	60	44	.	.	.	.	.	.	460
28	2	55	23	15	.	.	.	.	.	.	.	.	.	.	.	.	.	95
29	1	26	.	.	.	.	.	.	.	.	.	.	.	27
30	17	45	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	64
31	1	.	.	.	9	.	.	.	.	.	.	.	.	10
MEAN A	0	0	0	0	0	0	1	6	11	7	10	11	11	13	13	12	7	0	0	0	0	0	0	0	102

MAR 2000		DURATION OF SUNSHINE (MIN.)																								TOTAL*	MAX*	PCT/
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL*	MAX*	PCT/	
1	12	12	.	.	24	36	24	.	.	.	.	.	.	.	.	.	.	18	82	22
2	30	.	.	.	60	30	18	18	.	.	.	.	.	.	.	.	.	5	83	6
3	30	48	60	.	60	30	18	18	.	.	.	.	.	.	.	.	.	44	83	53
4	30	42	12	18	.	18	6	12	.	.	.	.	.	.	.	.	.	.	23	84	27
5	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	85	5
6	0	86	0
7	6	18	30	.	12	30	24	18	.	.	.	.	.	.	.	.	.	23	86	27
8	0	87	0
9	6	24	18	6	.	24	60	60	60	6	.	.	.	.	.	.	.	.	44	88	50
10	0	89	0
11	0	90	0
12	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	91	1
13	6	.	12	.	.	.	.	.	.	.	.	.	.	.	3	92	3
14	6	.	6	.	.	.	.	.	.	.	.	.	.	.	2	93	2
15	0	94	0
16	0	95	0
17	0	96	0
18	6	60	60	60	60	60	60	60	36	.	.	.	.	.	.	.	.	.	97	97	100
19	0	98	0
20	0	99	0
21	0	100	0
22	24	30	6	42	24	.	.	.	.	.	.	.	.	21	100	21
23	30	60	.	48	54	18	36	30	.	.	.	.	.	.	.	.	46	101	46
24	18	60	6	30	42	60	42	24	18	24	6	.	.	.	.	.	.	.	55	102	54
25	0	103	0
26	6	.	.	.	.	.	.	.	.	.	.	1	104	1
27	6	42	60	60	48	24	48	60	60	36	.	.	.	.	.	.	.	.	74	105	70
28	42	18	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	12	106	11
29	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	107	3
30	18	36	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	108	8
31	6	.	.	.	.	.	.	.	.	.	.	.	.	1	109	1
MEAN	0	0	0	0	0	0	1	6	9	7	10	11	11	13	10	11	5	0	0	0	0	0	0	0	0	16	95	16

* TOTALS AND MAX ARE GIVEN IN 0.1 HR

A. HOURLY VALUES APRIL

APR 2000 HOURLY SUMS OF ULTRAVIOLET RADIATION ON A HORIZONTAL SURFACE (KJ/SQM)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	5	15	30	46	63	67	62	62	54	36	24	12	4	.	.	.	.	.	.	480
2	4	13	26	39	36	44	57	48	55	46	29	13	4	.	.	.	.	.	.	414
3	5	15	30	49	68	74	67	59	49	48	35	20	6	.	.	.	.	.	.	525
4	1	8	18	39	59	75	85	80	81	75	55	38	21	7	1	.	.	.	.	.	643
5	1	8	16	33	54	69	65	94	89	62	41	27	13	4	.	.	.	.	.	.	576
6	2	4	7	12	12	17	18	16	10	10	19	10	4	.	.	.	.	.	.	141
7	2	4	5	18	24	40	82	67	57	47	31	18	6	1	.	.	.	.	.	402
8	3	8	14	21	40	57	56	91	57	36	19	9	5	1	.	.	.	.	.	417
9	1	10	23	35	49	68	72	71	67	43	48	29	10	5	1	.	.	.	.	.	532
10	2	9	21	41	49	46	27	49	47	38	39	20	9	3	.	.	.	.	.	.	400
11	1	5	10	11	13	23	30	44	31	39	33	23	15	7	1	.	.	.	.	.	286
12	2	11	28	47	58	66	74	100	98	85	61	41	28	12	2	.	.	.	.	.	713
13	2	11	26	44	61	77	87	90	87	78	62	45	27	12	3	.	.	.	.	.	712
14	2	10	16	18	23	31	30	34	34	50	27	15	9	4	1	.	.	.	.	.	304
15	2	7	18	31	50	35	37	49	41	37	39	36	22	12	3	.	.	.	.	.	419
16	3	11	20	29	43	54	50	56	34	36	42	30	18	8	2	.	.	.	.	.	436
17	3	13	27	33	58	66	68	58	52	30	36	27	19	5	.	.	.	.	.	.	495
18	1	9	11	12	8	13	8	17	12	6	7	7	5	3	.	.	.	.	.	.	119
19	2	10	18	16	28	25	48	57	57	63	54	32	24	10	1	.	.	.	.	.	445
20	2	8	21	31	46	41	32	26	28	15	18	15	9	4	2	.	.	.	.	.	298
21	1	4	6	9	12	13	18	22	18	14	13	8	5	3	1	.	.	.	.	.	147
22	4	6	8	13	22	43	33	46	52	46	26	26	16	4	2	.	.	.	.	.	347
23	1	3	6	8	12	26	30	20	33	36	12	25	6	7	4	.	.	.	.	.	229
24	5	14	27	36	39	46	55	64	74	71	77	59	38	17	6	.	.	.	.	.	628
25	4	8	19	52	74	89	115	111	104	100	74	39	26	14	5	.	.	.	.	.	834
26	5	17	30	47	71	56	55	36	18	14	9	8	8	5	2	.	.	.	.	.	381
27	2	3	5	10	13	27	26	33	34	63	75	41	31	13	5	1	.	.	.	.	382
28	1	7	6	31	63	69	87	93	82	60	52	42	33	18	7	1	.	.	.	.	652
29	1	7	30	46	64	64	80	103	85	78	73	54	37	20	8	1	.	.	.	.	769
30	1	8	31	36	52	67	87	98	94	55	57	37	24	15	6	.	.	.	.	.	686
MEAN	0	0	0	0	2	8	17	27	40	48	53	60	57	49	42	29	18	8	2	0	0	0	0	0	460

APR 2000 HOURLY DOSES OF UV-B RADIATION ON A HORIZONTAL SURFACE (0.01 MED/HR)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	1	5	15	30	47	56	54	52	40	22	11	4	1	.	.	.	.	.	.	338
2	1	4	13	24	29	37	49	39	40	27	14	5	1	.	.	.	.	.	.	283
3	1	5	15	30	49	60	58	48	36	28	16	6	2	.	.	.	.	.	.	354
4	2	7	18	35	52	66	64	61	50	31	16	6	2	.	.	.	.	.	.	410
5	2	6	16	34	52	54	80	74	49	27	13	5	1	.	.	.	.	.	.	413
6	1	1	3	7	9	14	15	13	8	6	10	4	1	.	.	.	.	.	.	92
7	1	2	3	14	23	40	80	67	51	36	18	7	2	.	.	.	.	.	.	344
8	1	3	7	14	32	49	51	80	48	26	11	4	1	.	.	.	.	.	.	327
9	3	12	26	46	73	82	78	72	43	40	23	6	2	.	.	.	.	.	.	506
10	1	3	11	30	46	50	34	61	57	41	36	14	5	1	.	.	.	.	.	.	390
11	2	5	7	11	24	34	50	35	38	27	14	7	2	.	.	.	.	.	.	256
12	1	3	12	30	49	67	81	108	101	78	47	25	11	3	1	.	.	.	.	.	617
13	1	6	11	26	47	69	84	88	81	64	42	23	12	3	1	.	.	.	.	.	558
14	2	6	9	15	23	26	29	28	38	18	7	3	1	.	.	.	.	.	.	205
15	2	7	16	30	26	31	41	33	27	24	19	7	3	1	.	.	.	.	.	267
16	1	3	8	15	27	39	40	45	26	26	26	14	6	2	.	.	.	.	.	.	278
17	1	3	9	18	35	46	53	46	40	21	22	13	7	1	.	.	.	.	.	.	315
18	2	4	6	5	10	7	14	9	4	4	3	2	1	.	.	.	.	.	.	71
19	3	8	9	20	22	45	55	52	52	36	17	9	3	.	.	.	.	.	.	331
20	3	9	19	34	37	32	26	27	13	14	9	4	1	1	.	.	.	.	.	229
21	1	3	5	9	11	18	21	19	11	8	6	2	3	.	.	.	.	.	.	117
22	3	2	6	7	16	37	31	44	48	38	18	14	7	1	.	.	.	.	.	.	272
23	1	3	4	9	24	29	20	32	31	9	15	3	2	1	.	.	.	.	.	183
24	1	4	12	23	31	42	55	65	72	61	54	32	15	5	1	.	.	.	.	.	473
25	1	3	9	32	55	76	108	107	98	86	54	23	11	4	1	.	.	.	.	.	668
26	1	5	14	30	54	51	56	37	17	13	7	6	4	2	1	.	.	.	.	.	298
27	1	3	7	11	26	27	35	33	55	54	26	14	4	1	.	.	.	.	.	297
28	3	3	23	54	68	92	98	83	56	42	25	15	6	1	.	.	.	.	.	569
29	2	6	15	30	52	60	82	108	88	74	58	35	18	7	2	.	.	.	.	.	637
30	2	6	15	23	42	60	82	97	93	51	44	23	12	5	1	.	.	.	.	.	556
MEAN	0	0	0	0	1	3	7	16	30	41	50	57	53	41	30	17	7	2	0	0	0	0	0	0	355

A. HOURLY VALUES APRIL

APR 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	19	15	19	23	18	16	19	22	23	21	21	19	20	20	17	17	16	16	17	15	13	10	11	10	417
2	12	10	8	8	8	10	11	14	15	12	12	18	14	19	20	21	19	17	19	19	18	21	18	20	363
3	26	28	29	31	26	21	21	28	33	34	33	29	23	19	23	29	31	27	23	24	28	28	22	25	641
4	22	24	25	24	26	31	36	36	36	36	36	28	23	26	31	31	31	31	33	13	11	16	30	34	670
5	33	33	34	34	33	26	12	10	22	23	15	31	29	24	15	11	8	6	5	3	3	2	2	1	415
6	1	1	.	1	3	3	3	3	2	2	2	2	1	1	1	3	4	4	2	2	2	1	2	1	47
7	1	1	.	.	.	.	.	.	.	1	3	15	23	18	23	21	21	19	17	15	16	13	8	6	221
8	5	3	3	3	3	3	4	4	4	6	7	8	20	17	11	10	9	11	15	26	25	29	30	28	284
9	28	28	22	25	17	28	28	19	16	31	17	13	12	11	14	16	11	10	10	9	10	19	27	28	449
10	26	28	28	27	25	24	19	19	10	11	6	7	7	6	8	7	7	6	5	6	5	4	3	3	297
11	3	3	3	3	3	3	3	5	6	6	7	10	10	10	9	10	13	15	17	13	11	13	13	16	205
12	14	13	22	26	26	22	23	29	26	23	23	26	32	34	31	35	38	36	36	34	33	35	36	36	689
13	36	36	33	31	32	31	30	31	32	32	33	34	34	33	34	35	34	36	36	36	34	33	33	31	800
14	31	23	16	14	12	15	13	8	6	5	5	5	5	8	6	5	5	4	6	7	6	5	4	3	217
15	2	2	1	2	5	6	10	12	10	6	6	11	8	8	10	16	14	26	27	28	33	32	31	30	336
16	27	31	32	28	24	19	18	13	14	14	14	15	13	10	11	13	13	13	13	14	18	15	18	14	414
17	13	30	20	8	10	16	26	14	23	26	19	15	15	12	13	13	17	12	8	5	4	4	4	7	334
18	10	18	24	21	9	12	9	7	4	4	5	5	5	5	4	4	5	5	4	4	5	3	3	3	178
19	10	7	8	6	8	10	11	6	8	8	10	13	15	22	20	20	25	17	10	9	8	8	7	7	273
20	7	6	6	6	7	8	10	9	9	8	9	10	11	8	5	7	6	5	6	6	6	5	5	4	169
21	4	5	4	4	5	7	7	7	4	4	3	3	3	3	2	3	3	2	2	2	1	2	3	2	85
22	3	3	5	16	13	4	4	3	3	6	5	6	9	9	8	9	11	8	11	9	10	9	8	7	179
23	7	6	4	2	3	3	3	3	2	1	.	1	1	2	2	3	2	4	16	10	31	13	13	3	135
24	7	6	5	10	23	18	19	18	15	15	15	16	16	18	23	29	29	25	32	31	24	20	27	28	469
25	29	22	18	12	7	6	6	17	21	20	25	20	22	26	25	19	19	20	26	25	19	13	10	8	435
26	8	8	7	6	13	16	21	22	23	14	11	11	9	8	8	7	6	5	5	5	5	5	8	8	239
27	8	9	7	5	5	4	3	3	3	2	3	4	4	10	11	19	23	14	25	29	25	27	20	15	278
28	12	9	7	5	5	6	7	8	18	17	28	28	29	29	25	25	33	36	37	39	37	36	36	36	548
29	33	33	33	32	30	28	29	28	27	21	23	28	26	26	30	33	34	35	35	36	36	36	36	35	743
30	34	31	31	29	28	30	27	16	26	22	25	26	26	19	18	13	14	17	19	23	15	17	10	14	530
MEAN	16	16	15	15	14	14	14	14	15	14	14	15	16	15	15	16	17	16	17	17	16	16	16	15	369

A. HOURLY VALUES APRIL

APR 2000	DURATION OF SUNSHINE (MIN. NIP>120 W/SQM)																								TOTAL
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	14	48	60	60	14	23	24	.	.	.	.	.	.	.	.	.	.	243
2	5	3	1	.	29	24	5	.	.	.	.	.	.	.	.	67
3	11	60	60	53	36	43	20	51	60	22	22	.	.	.	.	.	.	438
4	17	60	60	60	60	46	53	59	52	51	50	20	.	.	.	.	.	.	588
5	4	14	31	45	21	60	60	34	4	.	.	.	.	.	.	.	.	.	273
6
7	2	47	39	23	13	.	.	.	.	.	.	.	.	124
8	1	2	2	54	23	.	.	.	.	.	.	.	.	.	82
9	13	42	22	3	49	43	53	52	24	49	19	.	.	.	.	.	.	.	.	369
10	36	15	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	59
11
12	12	46	57	50	35	24	57	60	60	39	40	60	60	6	.	.	.	.	.	606
13	13	60	60	60	60	60	60	60	60	60	60	60	60	18	.	.	.	.	.	751
14
15	9	2	1	7	4	4	1	11	23	44	1	.	.	.	.	.	107
16
17	15	38	.	36	34	22	19	.	.	1	.	.	.	.	.	.	.	.	.	165
18
19	1	1	.	.	.	.	.	14	11	7	.	.	.	.	.	.	.	.	.	34
20	1	.	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6
21
22	1	.	.	.	2	.	.	.	.	.	.	.	.	.	3
23
24	4	1	.	.	.	.	6	29	26	59	60	60	59	49	.	.	.	.	.	353
25	23	42	45	60	58	48	60	45	.	.	.	.	.	.	.	.	.	.	381
26	1	20	2	15	41	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	79
27	20	51	10	16	.	.	.	.	.	.	.	97
28	1	35	20	59	58	57	23	26	20	60	60	31	.	.	.	.	.	450
29	7	47	47	36	49	18	31	56	45	46	60	60	60	60	36	.	.	.	.	.	658
30	21	56	48	14	12	18	43	57	51	8	12	.	1	.	.	.	.	.	.	.	341
MEAN	0	0	0	0	1	6	10	12	19	17	18	21	23	19	18	13	14	13	5	0	0	0	0	0	209

APR 2000	DURATION OF SUNSHINE (MIN.)																								TOTAL*	MAX*	PCT/
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	6	36	48	18	6	12	12	.	.	.	.	.	.	.	.	.	.	.	23	112	21
2	6	6	.	.	.	.	.	.	.	.	.	.	2	113	2
3	12	60	60	60	30	18	6	42	54	18	12	.	.	.	.	.	.	.	62	114	54
4	6	54	60	60	42	54	60	54	54	48	18	.	.	.	.	.	.	.	95	115	83
5	6	30	36	18	60	60	30	.	.	.	.	.	.	.	.	.	.	.	40	117	34
6	0	118	0
7	42	30	12	.	.	.	.	.	.	.	.	.	.	.	14	119	12
8	6	.	48	18	.	.	.	.	.	.	.	.	.	.	.	12	121	10
9	6	30	12	42	24	48	48	18	48	18	.	.	.	.	.	.	.	.	.	49	125	39
10	12	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	126	2
11	0	127	0
12	12	.	42	48	36	30	24	54	60	60	36	36	60	60	.	.	.	.	.	.	93	128	73
13	6	.	48	60	60	60	60	60	60	60	60	60	60	60	.	.	.	.	.	.	119	129	92
14	0	130	0
15	6	.	.	6	.	6	.	6	18	42	.	.	.	.	.	.	.	14	131	11
16	0	132	0
17	12	.	36	.	24	30	12	12	.	.	.	.	.	.	.	.	.	.	.	.	21	133	16
18	0	134	0
19	12	12	6	.	.	.	.	.	.	.	.	.	5	135	4
20	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	136	1
21	0	136	0
22	0	137	0
23	0	138	0
24	12	18	54	60	60	48	36	.	.	.	.	.	48	138	35
25	18	30	36	60	54	42	60	42	.	.	.	.	.	.	.	.	.	.	57	139	41
26	12	.	6	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8	140	6
27	30	48	12	12	.	.	.	.	.	.	.	.	17	141	12
28	30	18	60	54	42	12	6	12	60	60	.	.	.	.	.	.	.	59	142	42
29	18	.	24	24	42	12	24	48	36	42	60	60	60	60	18	.	.	.	.	.	88	143	62
30	.	.	.	6	48	.	42	12	6	12	42	54	42	6	6	.	.	.	.	.	.	.	.	.	46	144	32
MEAN	0	0	0	0	4	8	9	15	15	16	19	19	15	16	12	13	12	2	0	0	0	0	0	0	29	130	23

* TOTALS AND MAX ARE GIVEN IN 0.1 HR

A. HOURLY VALUES MAY

MAY 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	21	22	21	19	19	8	11	15	10	10	14	27	26	25	18	10	18	12	10	11	15	5	2	1	350
2	2	3	2	2	2	2	3	3	2	1	1	2	3	3	2	2	2	2	3	2	3	2	3	4	56
3	3	3	3	3	3	3	4	4	4	5	14	15	21	23	31	33	34	36	36	36	34	33	33	32	446
4	31	31	18	26	25	32	33	34	35	35	33	31	31	32	32	32	34	26	13	9	9	8	13	10	613
5	11	11	10	9	5	6	11	18	26	28	30	30	31	32	33	34	36	36	36	37	36	36	35	34	611
6	34	33	33	33	33	35	36	35	39	37	35	31	29	30	30	31	31	32	33	31	28	15	3	4	711
7	2	2	2	2	3	12	10	10	15	18	26	17	24	28	31	30	29	30	30	29	28	28	27	26	459
8	26	26	25	26	26	30	31	32	33	33	33	33	33	34	34	35	36	37	36	34	33	32	31	30	759
9	29	28	28	27	27	30	29	30	30	30	31	31	31	32	33	37	39	39	39	35	32	33	32	31	763
10	30	26	10	5	10	5	5	5	9	9	14	12	23	28	31	33	34	35	33	33	33	33	33	31	520
11	26	28	31	28	30	30	29	28	30	30	32	32	33	34	34	33	34	34	35	36	35	34	34	34	764
12	33	33	32	30	29	29	30	31	31	29	29	29	30	30	30	31	32	33	33	33	31	30	29	28	735
13	28	27	28	27	28	29	32	33	33	32	31	30	30	31	32	33	34	36	36	35	31	30	29	29	744
14	28	28	27	28	28	30	31	31	31	30	31	31	32	36	34	35	36	37	36	36	34	32	31	31	764
15	30	30	29	28	28	30	32	31	28	29	29	29	29	23	21	29	31	23	32	31	25	23	28	30	678
16	28	25	21	11	22	20	22	21	17	15	9	10	8	15	16	10	11	15	10	6	5	11	4	5	337
17	11	15	9	6	5	14	10	8	8	10	9	3	5	5	7	7	10	11	8	10	6	3	2	2	184
18	3	3	4	9	13	10	6	4	5	5	5	5	8	12	8	9	24	22	12	7	12	18	21	13	238
19	12	15	17	14	6	5	6	8	8	7	5	5	4	3	4	5	5	6	5	3	3	5	5	6	162
20	5	5	6	9	13	10	5	5	5	6	4	4	7	8	8	9	25	31	25	27	24	21	20	24	306
21	31	31	28	28	29	34	31	24	19	22	24	28	29	31	31	32	31	33	32	29	27	28	30	23	685
22	22	23	15	13	26	23	29	23	24	26	27	23	20	17	10	10	12	8	7	5	3	4	5	4	379
23	7	5	14	18	31	34	32	24	27	24	25	25	26	29	28	30	28	14	17	12	10	9	7	5	481
24	5	4	3	2	2	4	7	7	7	7	13	18	11	7	13	17	15	19	23	23	19	31	13	15	285
25	21	28	16	21	21	26	30	18	11	11	12	12	15	21	26	26	31	33	33	33	32	30	29	23	559
26	25	27	11	21	16	25	12	25	22	12	9	13	14	9	22	20	18	21	24	22	14	18	10	19	429
27	28	28	28	23	20	19	15	20	20	18	16	14	10	10	10	15	18	24	31	14	15	12	10	5	423
28	4	4	3	3	5	5	5	5	3	3	3	2	1	1	3	3	4	3	4	10	11	13	19	27	144
29	25	20	25	21	18	22	15	13	9	9	9	10	12	13	12	12	9	8	7	7	7	7	8	10	308
30	13	9	7	5	11	8	7	8	10	8	11	18	22	21	27	24	26	26	30	27	22	15	8	8	371
31	6	7	4	5	6	14	15	8	6	12	6	11	11	9	9	9	8	13	7	12	13	8	8	13	220
MEAN	19	19	16	16	17	19	19	18	18	18	18	19	20	20	21	22	24	24	23	22	20	20	18	18	467

A. HOURLY VALUES JUNE

JUN 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	18	11	13	11	17	8	6	13	9	8	7	8	8	10	9	6	5	5	3	3	4	4	3	4	193
2	3	3	1	1	1	1	1	3	4	3	3	3	4	3	4	4	5	7	10	12	10	10	10	13	119
3	8	12	8	4	5	12	10	10	6	14	22	15	24	26	23	25	26	22	25	32	35	34	34	35	467
4	35	35	34	35	36	37	39	38	37	37	37	36	35	36	36	36	38	39	41	41	40	37	36	35	886
5	34	34	33	33	35	38	37	39	40	39	39	36	36	37	38	39	39	41	42	41	40	36	36	34	896
6	33	33	32	31	33	34	37	37	33	33	30	28	28	28	28	27	28	32	33	29	19	13	12	11	682
7	11	11	12	12	11	10	11	8	5	5	7	6	5	6	5	6	12	14	10	6	4	5	7	7	196
8	6	21	14	10	12	6	7	8	10	17	14	13	10	17	26	24	28	21	16	13	11	11	10	8	333
9	11	9	17	24	27	28	28	32	31	22	24	30	31	32	30	32	32	31	35	35	30	16	10	10	607
10	9	10	9	9	8	9	5	3	3	2	1	1	2	5	6	7	5	13	26	15	15	22	23	28	236
11	24	14	28	29	30	23	20	9	5	3	2	3	5	7	5	5	6	7	6	6	8	8	7	4	264
12	3	3	3	5	8	5	5	6	5	7	3	3	8	7	5	8	8	8	9	4	2	2	1	1	119
13	.	1	1	3	3	5	10	11	6	15	9	6	6	6	6	8	8	7	7	6	7	9	16	10	166
14	5	6	6	6	6	5	6	6	7	3	4	4	5	5	5	5	4	6	7	7	8	6	6	7	135
15	8	8	5	5	4	5	6	8	9	12	9	10	7	8	8	11	8	8	11	5	5	4	6	6	176
16	7	11	25	15	6	4	3	2	3	4	9	20	17	13	13	17	22	23	22	28	34	33	32	31	394
17	31	31	30	29	28	29	26	15	18	20	13	11	11	16	12	8	9	7	5	5	2	2	4	5	367
18	4	4	4	3	3	1	1	.	.	.	.	-1	.	-1	.	.	1	1	1	10	6	17	22	19	95
19	18	21	18	8	5	5	6	5	5	3	2	1	1	1	1	1	3	15	21	22	13	20	28	25	248
20	16	11	1	1	.	1	3	12	30	31	30	30	30	31	31	32	31	19	16	15	16	12	10	9	418
21	5	5	10	10	9	8	10	8	4	2	2	3	3	3	1	2	4	6	11	8	5	5	6	10	140
22	25	21	8	13	10	25	20	17	7	8	3	5	10	7	5	7	5	4	10	5	8	8	13	21	265
23	20	10	9	5	6	5	5	5	5	4	2	6	6	5	7	8	6	7	7	10	6	5	6	5	160
24	4	3	2	2	5	3	5	6	13	18	17	16	20	20	18	14	24	32	30	29	31	30	29	29	400
25	28	28	28	28	23	3	9	16	10	12	10	9	18	27	29	28	30	30	31	30	28	26	17	10	508
26	8	14	6	7	8	15	15	15	17	15	12	21	24	25	24	20	26	22	26	18	13	20	21	25	417
27	23	28	30	31	24	18	17	16	19	22	19	17	18	21	16	14	13	10	11	14	10	8	8	6	413
28	5	4	4	4	3	3	3	2	2	2	4	5	5	5	6	7	13	14	15	15	15	30	29	28	223
29	26	22	21	11	22	31	32	33	32	25	24	20	21	19	28	29	27	28	27	26	27	20	14	18	583
30	18	16	9	12	14	10	9	8	10	9	10	18	24	24	25	25	17	18	21	23	27	24	19	13	403
MEAN	15	15	14	13	13	13	13	13	13	13	12	13	14	15	15	15	16	17	18	17	16	16	16	16	350

A. HOURLY VALUES JUNE

JUN 2000	DURATION OF SUNSHINE (MIN. NIP>120 W/SQM)																								TOTAL
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	. . . 28 3 . 20 5	56																							
2																							
3	. . . . . . 14 2 17 1 18 34 8 39 45 26 31 24 20 37 49 9	374																						
4 50 60	983																							
5 50 60	982																							
6	. . . . . . 50 60 60 60 60 60 60 60 58 53 60 53 38 22 25 60 24	803																						
7	. 4 2	6																							
8	. .	293																							
9	. . . . . . 26 18 60 60 60 27 46 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60	781																						
10	. 2 3 3 3 32 3 37 13	96																							
11	. . . . . . 30 47 39 5 3 3 9 1	137																						
12	. 1 2 17 6 7	33																							
13	. 12 5 40 9	71																							
14	. 2 1	3																							
15	. . . . . . . . . . . . 1 4 16 16 9 5 9 9 4 14 5 6 3 7	108																						
16	. . . . . . . 5 4 . . . 10 15 43 11 3 4 3 47 57 51 60 26	339																						
17	. . . . . . 32 60 60 23 59 56 38 20 22 5 1	376																						
18																							
19																							
20	. . . . . . . . . . . . 18 60 60 60 60 60 60 60 60 60 60 60 39	46 537																						
21																							
22	. . . . . . . 9 60 29 27 . . . 1 . 13 1 . . 3 11	154																						
23	. . . . . . . . . . . . 1 . . . 4	6																						
24	. . . . . . . . . . . . . . . . . 21 15 10 28 37 41 55 31 52 36 45 60 24	455																						
25	. . . . . . . 24 3 . 8 6 1 31 54 59 58 43 47 1 40 27	402																						
26	. . . . . . . 5 17 14 8 19 26 42 44 50 36 49 58 59 60 60 13	560																						
27	. . . . . . 14 20 16 19 30 34 44 32 31 34 41 1 . . . 2 . 1	319																						
28	. 3	4																							
29	. . . . . . 53 60 60 60 60 51 44 29 20 38 56 60 40 51 . . . 23	705																						
30	. . . . . . 2 5 2 10 56 60 59 49 39 . . . 15 50 2	349																						
MEAN	0 0 0 0 0 12 16 16 15 17 18 19 21 22 24 23 20 19 16 18 18 6 0 0 0 0	299																							

JUN 2000	DURATION OF SUNSHINE (MIN.)																								TOTAL*	MAX*	PCT/
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	. . . . 24 . . . 12 6	7	160	4																						
2	. .	0	160	0																							
3	. . . . . . 12 . . 18 . 18 36 6 36 42 24 30 24 18 36 42	57	161	35																						
4 48 60	158	161	98																							
5 48 60	160	161	99																							
6	. . . . . . 48 60 60 60 60 54 54 54 42 54 30 18 6 12 48 6	111	161	69																						
7	. .	0	162	0																							
8	. . . . . . . . . . . . . . . . . 6 48 36 42 60 42 6 24	44	162	27																						
9	. . . . . . 6 12 54 60 60 24 42 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60	125	163	77																						
10	. .	14	163	9																							
11	. . . . . . 30 42 30 6 6 . 6	20	163	12																						
12	. . . . . . . . . . . . . . . . . 24 . 6 6	6	163	4																						
13	. . . . . . . . . . . . . 6 6 36 12	11	163	7																						
14	. .	0	164	0																							
15	. . . . . . . . . . . . . 6 12 18 6 6 6 6 6 12	14	164	9																						
16	. . . . . . 6 . . . 6 12 30 6 6 6 . 42 60 42 54	45	164	27																						
17	. . . . . . 24 54 60 12 42 48 24 . 6	45	164	27																						
18	. .	0	164	0																							
19	. .	3	164	2																							
20	. . . . . . . . . . . . 12 60 60 60 60 60 60 60 60 60 30	87	164	53																						
21	. .	0	164	0																							
22	. . . . . . 6 60 30 24 6	22	164	13																						
23	. .	0	164	0																							
24	. . . . . . . . . . . . . . 12 12 6 24 18 36 48 30 42 36 36 60 6	61	164	37																						
25	. . . . . . 18 . . 6 . 6 30 48 60 54 36 42 6 12 6	54	164	33																						
26	. . . . . . 6 12 12 12 18 18 48 48 54 36 48 60 60 60 54 6	92	164	56																						
27	. . . . . . 18 18 12 18 24 36 48 30 30 30 36	50	164	30																						
28	. .	0	164	0																							
29	. . . . . . 54 60 60 60 60 42 48 30 18 36 48 54 18 36 . . . 12	106	164	65																						
30	. . . . . . . . . . . . . . . 12 54 60 60 48 36 12 18	50	163	31																						
MEAN	0 0 0 0 11 15 15 14 16 17 18 19 20 23 21 18 16 15 16 13 2 0 0 0 0	45	163	27																							

* TOTALS AND MAX ARE GIVEN IN 0.1 HR

A. HOURLY VALUES JULY

JUL 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	11	10	12	10	10	11	19	18	23	27	27	19	18	15	7	3	2	2	3	2	2	2	1	1	255
2	1	1	1	.	.	.	.	-1	.	.	.	2	4	6	6	5	5	6	11	19	22	23	23	5	139
3	7	9	6	3	2	3	5	5	10	13	7	7	7	7	7	7	11	22	28	21	12	5	3	3	210
4	3	2	3	3	3	3	3	3	3	7	8	6	9	9	24	28	28	30	30	29	20	5	3	3	265
5	3	3	2	2	2	2	1	2	3	3	4	3	3	4	3	4	3	4	4	3	4	4	4	3	73
6	3	4	4	5	6	8	8	5	5	5	8	9	9	13	11	7	6	6	5	5	5	5	6	6	154
7	6	6	5	5	5	5	5	6	7	8	8	10	12	19	19	13	11	14	19	13	12	8	7	6	229
8	16	14	8	12	12	24	30	29	29	26	22	22	28	32	33	34	33	30	29	25	23	23	16	14	564
9	10	8	10	11	12	9	10	21	26	26	28	28	29	23	21	32	33	34	34	31	27	19	21	15	518
10	14	13	24	32	33	33	33	34	32	23	26	21	22	21	16	14	18	25	27	19	12	10	11	13	526
11	12	10	10	10	9	8	8	8	12	13	10	8	8	14	15	13	13	10	11	13	16	8	4	4	247
12	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	2	3	3	3	4	4	5	4	5	55
13	6	8	23	23	10	13	19	16	21	12	10	9	12	21	32	33	34	35	34	33	33	31	30	29	527
14	29	29	29	23	32	34	32	31	30	32	30	30	29	20	17	15	10	13	10	9	7	5	6	8	510
15	20	24	20	8	8	8	9	9	22	18	11	13	15	21	25	28	29	30	30	30	29	27	12	14	460
16	27	27	26	24	25	29	28	28	30	29	31	31	31	31	33	33	33	34	34	33	31	29	29	28	714
17	27	27	27	26	28	26	26	19	13	21	22	22	26	26	21	15	23	13	13	12	17	12	8	3	473
18	15	18	5	2	2	2	2	2	2	2	4	3	4	3	4	4	4	4	4	3	3	3	3	3	101
19	3	3	2	1	1	1	1	2	2	3	3	3	3	4	4	5	5	5	5	5	5	5	5	5	81
20	6	6	8	9	7	17	11	6	5	4	5	5	8	15	17	21	29	32	27	26	15	24	28	26	357
21	25	23	26	17	12	16	23	28	29	29	29	30	31	31	32	32	33	31	31	31	27	23	25	17	631
22	7	3	2	2	3	3	11	24	28	28	28	29	29	31	31	31	27	22	22	23	25	26	27	26	488
23	26	26	26	22	18	21	28	29	30	28	30	31	31	33	32	31	30	32	35	34	31	30	27	26	687
24	26	25	25	23	18	23	21	25	29	28	25	24	18	14	12	12	18	27	28	24	17	10	9	10	491
25	10	15	20	13	19	25	28	27	21	15	15	17	18	21	18	20	24	23	21	25	26	26	21	13	481
26	13	11	14	10	12	11	10	11	11	11	15	17	15	14	11	9	8	7	7	8	8	8	8	5	254
27	3	2	2	2	2	4	5	7	7	8	8	9	7	6	5	3	3	3	3	5	6	3	4	4	111
28	2	5	5	4	5	6	6	7	6	6	7	8	7	6	5	7	7	10	10	11	18	7	3	3	161
29	2	3	3	4	2	2	2	3	3	3	5	11	19	26	26	27	23	16	4	3	3	2	2	2	196
30	1	1	2	2	2	1	2	2	3	2	3	2	3	4	5	5	5	5	5	5	5	5	5	5	80
31	5	5	5	4	3	1	1	1	.	.	2	3	6	13	11	14	12	8	6	5	5	5	8	8	131
MEAN	11	11	12	10	10	11	13	13	14	14	14	14	15	16	16	16	17	17	17	16	15	13	12	10	328

A. HOURLY VALUES AUGUST

AUG 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	6	8	6	7	7	9	12	18	23	24	23	26	20	26	27	22	16	14	12	10	8	9	8	8	349
2	6	5	5	7	5	6	13	26	23	10	10	7	9	9	9	5	3	7	9	11	20	18	6	5	234
3	3	4	13	6	3	10	26	28	25	15	17	16	15	26	27	21	22	23	27	8	5	5	5	6	356
4	5	5	5	5	6	7	7	6	6	5	5	7	5	6	6	5	2	2	2	1	1	.	.	.	99
5	1	2	2	1	1	2	1	1	3	3	2	1	3	4	6	4	5	5	3	1	1	1	1	1	55
6	1	1	1	.	.	.	.	1	4	5	4	5	8	13	8	5	7	6	7	5	9	3	2	2	97
7	3	2	3	5	5	4	2	2	3	3	2	5	4	5	7	7	6	6	4	2	3	4	3	4	94
8	4	3	3	3	4	5	7	8	21	20	21	15	13	14	16	12	12	9	17	10	16	31	27	22	313
9	21	19	17	22	28	30	30	28	25	23	28	30	30	31	30	31	32	32	33	29	25	26	23	25	648
10	16	10	11	11	7	4	4	3	3	5	10	10	7	7	5	2	1	1	1	1	1	1	1	1	123
11	.	.	1	.	.	1	.	.	.	.	1	2	4	4	15	7	17	16	15	8	6	5	5	6	113
12	24	28	28	12	13	3	3	3	3	3	3	5	18	26	21	26	32	29	22	26	28	25	24	16	421
13	20	20	15	15	15	11	16	19	21	21	23	18	14	8	8	4	2	3	4	5	5	7	6	10	290
14	10	14	13	14	12	18	10	4	4	3	2	3	3	2	2	3	2	1	.	.	1	2	2	2	127
15	2	2	2	2	1	1	1	.	.	.	5	21	23	26	28	26	13	11	5	5	6	6	9	10	205
16	5	2	2	2	3	5	12	10	5	5	10	8	12	26	30	29	25	26	24	24	19	18	21	23	346
17	13	11	4	6	6	5	10	8	8	12	17	10	6	5	6	13	21	29	23	17	9	4	4	3	250
18	5	7	8	6	3	8	3	5	3	3	5	3	6	4	8	12	10	10	10	7	13	8	6	8	161
19	8	7	8	19	18	21	18	19	29	24	20	18	17	18	27	27	25	24	23	21	14	14	11	10	440
20	7	8	9	9	16	11	5	6	9	11	11	10	10	9	12	24	18	9	5	5	2	3	3	3	215
21	2	2	2	2	2	1	2	3	3	4	12	12	13	18	23	20	13	28	19	8	8	5	17	20	239
22	11	21	15	18	25	15	17	28	29	30	27	23	21	31	35	36	36	36	35	33	31	31	29	17	630
23	11	8	21	18	16	9	8	8	6	6	6	3	4	7	8	6	5	3	4	3	3	3	3	4	173
24	3	2	1	1	1	1	.	.	-1	1	5	5	6	8	5	6	9	11	13	25	4	3	4	6	119
25	5	5	3	2	3	3	4	5	5	3	4	6	3	6	9	24	28	29	28	21	23	13	13	8	253
26	8	18	25	25	19	24	23	13	18	27	23	26	23	26	18	24	28	29	28	29	28	29	31	30	572
27	30	30	30	30	30	29	21	24	27	22	12	11	12	10	8	7	8	6	3	5	5	4	3	3	370
28	3	3	3	2	3	3	3	3	4	3	4	5	6	6	4	5	6	6	5	6	5	5	4	5	102
29	4	4	5	5	5	5	4	4	3	2	2	3	4	4	4	4	3	3	2	2	1	1	1	2	77
30	2	2	2	2	2	2	3	3	3	3	3	3	4	6	6	16	16	10	7	9	8	5	14	15	146
31	10	3	3	3	4	4	4	4	3	5	5	5	5	5	5	6	8	10	15	19	15	15	14	14	184
MEAN	8	8	9	8	8	8	9	9	10	10	10	10	11	13	14	14	14	14	13	11	10	10	10	9	252

A. HOURLY VALUES AUGUST

AUG 2000		DURATION OF SUNSHINE (MIN. NIP>120 W/SQM)																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	5	.	37	47	27	38	40	33	57	28	24	5	.	.	27	.	.	.	.	368
2	15	47	22	.	.	16	7	4	3	.	.	.	.	.	.	.	.	.	114
3	21	58	56	44	11	10	31	17	57	60	55	50	9	4	.	.	.	.	.	483
4
5	2	.	.	.	.	.	.	.	.	.	.	.	.	.	2
6	18	10	27	.	4	.	.	.	.	.	.	.	.	59
7	2	.	1	8	7	11	.	6	.	.	.	.	.	.	.	.	35
8	1	39	27	41	.	.	.	9	9	21	.	.	.	.	.	.	.	147
9	26	58	54	24	34	37	54	60	60	60	60	60	60	60	39	.	.	.	.	.	746
10	12	1	.	.	.	.	.	.	.	.	.	.	.	.	13
11	2	.	6	11	3	45	28	31	.	.	.	.	.	126
12	11	.	.	.	.	.	.	.	17	48	55	56	60	52	9	.	.	.	.	.	308
13	27	45	35	59	24	25	.	.	.	.	.	.	.	.	.	.	.	215
14	27	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	28
15	6	31	34	36	58	24	.	.	.	.	.	.	.	.	189
16	4	1	.	32	30	10	56	39	45	15	2	15	.	.	.	.	.	249
17	17	2	13	42	15	.	.	1	.	16	54	7	.	.	.	.	.	.	167
18	1	.	.	.	.	2	.	3	.	12	1	12	1	.	.	.	.	.	.	32
19	10	26	22	50	30	21	14	10	33	44	23	.	.	.	.	.	.	.	.	.	283
20	2	.	.	.	15	31	24	.	.	.	.	.	.	.	.	72
21	20	15	11	15	29	27	1	24	19	.	.	.	.	.	161
22	13	37	58	60	49	58	45	55	60	60	60	60	31	.	.	.	.	.	646
23
24	1	4	2	2	.	.	.	2	37	16	.	.	.	.	.	64
25	1	.	.	1	15	20	41	40	54	39	14	.	.	.	.	.	.	225
26	35	20	31	37	45	56	60	57	60	60	59	53	25	.	.	.	.	.	.	598
27	40	54	46	53	26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	219
28
29
30	16	.	1	2	.	.	.	.	.	.	.	19
31
MEAN	0	0	0	0	1	6	8	11	14	11	13	13	12	18	19	17	15	13	6	1	0	0	0	0	180

AUG 2000		DURATION OF SUNSHINE (MIN.)																									
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL*	MAX*	PCT/
1	6	24	42	18	30	30	24	54	24	24	6	.	.	18	50	151	33
2	12	42	12	.	12	6	14	151	9
3	12	54	48	24	6	6	24	6	60	60	48	48	6	.	.	.	.	.	.	67	150	45	
4	0	150	0
5	0	149	0
6	12	6	18	6	148	4
7	6	6	6	6	6	18	4	148	3
8	36	24	36	.	.	.	6	6	18	21	147	14
9	.	.	.	24	60	54	30	48	60	60	60	60	60	60	60	60	60	30	.	.	.	.	.	131	146	90
10	6	1	146	1
11	6	12	.	36	24	30	18	145	12
12	6	48	54	54	60	42	6	45	145	31
13	24	36	30	60	18	18	.	.	.	.	.	.	.	.	.	.	.	31	144	22	
14	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	143	1	
15	6	24	30	30	60	24	.	.	.	.	.	.	.	.	29	142	20	
16	6	.	.	24	24	12	54	36	42	12	.	.	.	.	.	.	.	35	141	25	
17	12	42	12	.	.	.	.	12	48	.	.	6	.	.	.	.	22	140	16	
18	12	.	12	.	.	.	.	.	.	.	4	139	3	
19	6	24	18	48	18	12	12	6	24	30	6	.	.	.	.	.	.	.	.	34	138	25	
20	12	30	24	.	.	.	.	.	.	.	.	11	138	8	
21	12	18	18	24	.	18	12	.	.	.	.	.	.	.	22	137	16	
22	12	36	60	60	48	60	48	60	60	60	60	60	24	.	.	.	.	.	108	136	79	
23	0	136	0	
24	30	6	.	.	.	.	.	.	6	135	4	
25	6	18	36	36	54	36	12	.	.	.	.	.	33	134	25	
26	30	24	24	30	36	48	54	60	54	54	60	42	12	.	.	.	.	.	.	88	133	66	
27	.	.	.	36	48	36	48	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	32	132	24
28	0	131	0	
29	0	130	0	
30	12	.	.	.	.	.	.	.	.	.	.	.	.	2	129	2	
31	0	128	0	
MEAN	0	0	0	0	1	5	7	9	13	10	12	11	10	17	17	15	14	11	4	1	0	0	0	0	26	141	19

* TOTALS AND MAX ARE GIVEN IN 0.1 HR

A. HOURLY VALUES SEPTEMBER

SEP 2000 HOURLY SUMS OF GLOBAL RADIATION (0.01 MJ/SQM)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	.	.	.	.	3	14	40	82	138	184	205	127	116	129	138	87	32	11	1	.	.	.	.	.	1307
2	.	.	.	.	2	20	74	121	155	189	195	210	209	188	156	115	68	25	2	.	.	.	.	.	1729
3	.	.	.	.	2	20	74	123	155	189	208	214	206	185	151	110	65	23	1	.	.	.	.	.	1726
4	.	.	.	.	3	15	69	115	156	197	120	69	111	64	54	42	25	6	.	.	.	.	.	.	1046
5	.	.	.	.	2	10	18	32	42	65	70	136	123	48	23	26	12	8	.	.	.	.	.	.	615
6	.	.	.	.	.	3	11	10	28	41	28	26	58	62	15	15	15	4	.	.	.	.	.	.	316
7	.	.	.	.	.	3	15	40	74	37	36	32	28	27	25	21	10	1	.	.	.	.	.	.	349
8	.	.	.	.	.	7	19	28	57	67	91	98	85	97	80	48	14	4	.	.	.	.	.	.	695
9	.	.	.	.	.	3	7	21	28	22	31	27	25	28	13	18	7	2	.	.	.	.	.	.	232
10	.	.	.	.	.	5	18	35	62	80	99	112	60	82	57	31	26	5	.	.	.	.	.	.	672
11	.	.	.	.	.	11	46	105	123	108	112	195	172	180	121	108	54	12	.	.	.	.	.	.	1347
12	.	.	.	.	.	6	43	101	141	173	188	200	115	126	137	92	45	7	.	.	.	.	.	.	1374
13	.	.	.	.	.	8	42	59	135	170	194	172	137	122	109	81	45	7	.	.	.	.	.	.	1281
14	.	.	.	.	.	7	19	45	83	116	150	153	160	161	100	61	17	3	.	.	.	.	.	.	1075
15	.	.	.	.	.	5	13	29	43	83	84	75	95	76	28	16	8	3	.	.	.	.	.	.	558
16	.	.	.	.	.	1	7	17	22	28	19	20	22	13	8	6	3	.	.	.	.	.	.	.	166
17	.	.	.	.	.	1	4	12	20	38	31	34	24	26	22	11	4	1	.	.	.	.	.	.	228
18	.	.	.	.	.	1	7	13	21	36	31	21	16	21	30	10	3	.	.	.	.	.	.	.	210
19	.	.	.	.	.	.	6	18	53	68	85	104	167	101	77	84	44	6	.	.	.	.	.	.	813
20	.	.	.	.	.	3	15	67	118	137	159	173	116	111	91	69	32	5	.	.	.	.	.	.	1096
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MEAN M	0	0	0	0	1	7	27	54	83	101	107	110	102	92	72	53	26	7	0	0	0	0	0	0	842

SEP 2000 HOURLY SUMS OF SKY RADIATION ON A HORIZONTAL SURFACE (0.01 MJ/SQM)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	.	.	.	.	3	14	40	68	63	49	49	77	92	82	80	43	31	10	1	.	.	.	.	.	702
2	.	.	.	.	2	10	17	18	34	29	28	24	21	20	19	17	14	8	2	.	.	.	.	.	263
3	.	.	.	.	2	10	17	28	25	22	23	23	23	23	22	21	15	8	1	.	.	.	.	.	263
4	.	.	.	.	3	15	17	20	23	37	81	67	102	63	54	42	25	6	.	.	.	.	.	.	555
5	.	.	.	.	2	10	18	32	42	64	69	114	98	46	23	26	12	8	.	.	.	.	.	.	564
6	.	.	.	.	.	3	11	10	28	41	28	26	58	62	15	15	15	4	.	.	.	.	.	.	316
7	.	.	.	.	.	3	15	40	74	37	36	32	28	27	25	21	10	1	.	.	.	.	.	.	349
8	.	.	.	.	.	7	19	28	52	62	74	77	73	77	64	41	14	4	.	.	.	.	.	.	592
9	.	.	.	.	.	3	7	21	28	22	31	27	25	28	13	18	7	2	.	.	.	.	.	.	232
10	.	.	.	.	.	5	18	35	53	68	75	78	60	79	56	31	23	5	.	.	.	.	.	.	586
11	.	.	.	.	.	11	18	20	26	51	69	51	70	45	57	32	13	5	.	.	.	.	.	.	468
12	.	.	.	.	.	6	12	15	17	18	22	22	33	30	20	15	12	4	.	.	.	.	.	.	226
13	.	.	.	.	.	8	35	45	22	24	27	36	42	35	41	46	27	5	.	.	.	.	.	.	393
14	.	.	.	.	.	7	19	45	81	105	102	91	43	35	46	34	15	3	.	.	.	.	.	.	626
15	.	.	.	.	.	5	13	29	43	83	84	75	88	67	28	16	8	3	.	.	.	.	.	.	542
16	.	.	.	.	.	1	7	17	22	28	19	20	22	13	8	6	3	.	.	.	.	.	.	.	166
17	.	.	.	.	.	1	4	12	20	38	31	34	24	26	22	11	4	1	.	.	.	.	.	.	228
18	.	.	.	.	.	1	7	13	21	36	31	21	16	21	30	10	3	.	.	.	.	.	.	.	210
19	.	.	.	.	.	.	6	18	44	59	61	77	75	58	59	50	24	6	.	.	.	.	.	.	537
20	.	.	.	.	.	3	14	21	21	26	32	28	34	54	59	47	23	5	.	.	.	.	.	.	367
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MEAN M	0	0	0	0	1	6	16	27	37	45	49	50	51	45	37	27	15	4	0	0	0	0	0	0	409

A. HOURLY VALUES SEPTEMBER

SEP 2000		HOURLY SUMS OF ULTRAVIOLET RADIATION ON A HORIZONTAL SURFACE (KJ/SQM)																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	.	.	.	.	1	6	18	36	57	77	87	67	62	62	57	38	18	6	1	.	.	.	.	.	593
2	.	.	.	.	2	11	27	46	64	80	86	92	90	78	62	43	23	9	1	.	.	.	.	.	714
3	.	.	.	.	2	10	26	45	63	79	89	92	88	77	59	41	23	8	1	.	.	.	.	.	703
4	.	.	.	.	2	10	25	44	64	81	54	38	57	35	29	22	12	4	.	.	.	.	.	.	477
5	.	.	.	.	1	5	11	18	25	37	39	67	64	28	15	14	7	3	.	.	.	.	.	.	334
6	.	.	.	.	.	2	6	6	15	24	18	17	35	37	10	9	8	2	.	.	.	.	.	.	189
7	.	.	.	.	.	3	13	23	41	23	23	22	19	18	17	14	6	1	.	.	.	.	.	.	223
8	.	.	.	.	.	5	11	15	32	35	44	51	46	49	39	26	9	3	.	.	.	.	.	.	365
9	.	.	.	.	.	3	5	13	18	15	20	18	17	18	9	11	4	1	.	.	.	.	.	.	152
10	.	.	.	.	.	4	11	21	35	40	52	57	34	42	28	18	12	3	.	.	.	.	.	.	357
11	.	.	.	.	.	4	18	36	51	54	57	82	71	70	44	35	18	5	.	.	.	.	.	.	545
12	.	.	.	.	.	6	20	36	54	70	79	82	60	57	51	33	16	4	.	.	.	.	.	.	568
13	.	.	.	.	.	5	18	30	52	67	77	72	62	55	43	29	14	3	.	.	.	.	.	.	527
14	.	.	.	.	.	3	11	24	41	54	68	71	70	66	45	28	12	3	.	.	.	.	.	.	496
15	.	.	.	.	.	3	7	15	24	44	46	45	50	40	18	10	5	1	.	.	.	.	.	.	308
16	.	.	.	.	.	2	6	11	14	18	14	14	15	10	6	4	2	.	.	.	.	.	.	.	116
17	.	.	.	.	.	1	3	8	12	22	20	21	15	16	13	7	3	1	.	.	.	.	.	.	142
18	.	.	.	.	.	1	4	8	13	21	20	14	11	13	18	7	2	.	.	.	.	.	.	.	132
19	.	.	.	.	.	.	5	11	25	39	43	51	68	49	36	28	13	3	.	.	.	.	.	.	371
20	.	.	.	.	.	3	11	26	42	53	62	67	53	48	37	23	10	2	.	.	.	.	.	.	437
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MEAN M	0	0	0	0	0	4	13	24	37	47	50	52	49	43	32	22	11	3	0	0	0	0	0	0	387

SEP 2000		HOURLY DOSES OF UV-B RADIATION ON A HORIZONTAL SURFACE (0.01 MED/HR)																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	.	.	.	.	.	2	8	21	43	68	84	69	60	55	39	21	7	2	.	.	.	.	.	.	479
2	.	.	.	.	.	3	11	25	45	66	78	85	78	62	41	21	8	2	.	.	.	.	.	.	525
3	.	.	.	.	.	3	10	26	47	71	88	93	85	66	42	22	8	2	.	.	.	.	.	.	563
4	.	.	.	.	.	3	10	25	48	72	53	40	58	33	23	13	5	3	.	.	.	.	.	.	386
5	.	.	.	.	.	1	5	12	21	37	42	71	66	28	12	8	3	1	.	.	.	.	.	.	307
6	.	.	.	.	.	1	3	4	13	24	19	17	36	34	7	5	3	1	.	.	.	.	.	.	167
7	.	.	.	.	.	1	6	15	33	22	24	23	20	17	13	9	3	.	.	.	.	.	.	.	186
8	.	.	.	.	.	1	4	9	24	29	39	47	41	38	25	13	3	1	.	.	.	.	.	.	274
9	.	.	.	.	.	1	2	6	12	12	18	17	15	14	6	5	1	.	.	.	.	.	.	.	109
10	.	.	.	.	.	1	4	11	24	31	44	48	28	31	17	8	4	1	.	.	.	.	.	.	252
11	.	.	.	.	.	1	7	19	35	47	54	74	61	53	26	15	5	1	.	.	.	.	.	.	398
12	.	.	.	.	.	2	7	18	36	56	70	76	57	46	32	15	5	1	.	.	.	.	.	.	421
13	.	.	.	.	.	1	6	15	34	52	66	64	53	43	26	13	4	1	.	.	.	.	.	.	378
14	.	.	.	.	.	1	4	13	29	47	65	70	65	53	30	14	4	1	.	.	.	.	.	.	396
15	.	.	.	.	.	1	2	8	17	36	42	43	44	32	12	5	2	.	.	.	.	.	.	.	244
16	.	.	.	.	.	1	3	7	12	18	14	15	17	9	4	2	1	.	.	.	.	.	.	.	103
17	.	.	.	.	.	.	1	5	10	22	22	24	17	15	10	5	1	.	.	.	.	.	.	.	132
18	.	.	.	.	.	.	2	5	9	20	21	13	10	11	13	4	1	.	.	.	.	.	.	.	109
19	.	.	.	.	.	.	2	6	19	36	42	51	62	43	25	13	4	1	.	.	.	.	.	.	304
20	.	.	.	.	.	1	4	14	29	46	59	66	52	41	25	12	3	.	.	.	.	.	.	.	352
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MEAN M	0	0	0	0	0	1	5	13	27	41	47	50	46	36	21	11	4	1	0	0	0	0	0	0	304

A. HOURLY VALUES SEPTEMBER

SEP 2000 HOURLY SUMS OF NORMAL INCIDENCE BEAM RADIATION (0.01 MJ/SQM)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	.	.	.	.	1	1	3	34	149	242	260	76	37	78	120	105	.	3	.	.	.	.	.	.	1109
2	.	.	.	.	.	59	224	278	258	296	278	309	326	317	303	278	220	134	13	.	.	.	.	.	3293
3	.	.	.	.	.	62	229	261	280	311	318	321	319	309	287	258	210	123	4	.	.	.	.	.	3292
4	.	.	.	.	.	6	214	266	290	301	64	.	10	.	.	.	.	.	.	.	.	.	.	.	1151
5	.	.	.	.	.	.	.	.	.	.	.	29	38	.	.	.	.	.	.	.	.	.	.	.	67
6	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	1
7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	1	8	8	23	30	16	36	31	15	.	.	.	.	.	.	.	.	168
9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	.	.	.	.	.	.	.	.	18	20	41	58	.	4	2	.	12	3	.	.	.	.	.	.	158
11	.	.	.	.	.	1	118	261	231	115	75	258	186	277	154	249	215	68	.	.	.	.	.	.	2208
12	.	.	.	.	.	.	139	277	302	318	311	325	147	206	296	255	169	14	.	.	.	.	.	.	2759
13	.	.	.	.	.	.	28	35	274	302	314	249	178	180	163	118	87	2	.	.	.	.	.	.	1930
14	.	.	.	.	.	.	1	1	4	13	72	97	221	267	125	82	.	.	.	.	.	.	.	.	883
15	.	.	.	.	.	.	1	2	.	2	.	.	12	15	.	.	.	.	.	.	.	.	.	.	32
16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	.	.	.	.	.	.	.	.	20	16	47	51	185	88	48	129	123	1	.	.	.	.	.	.	708
20	.	.	.	.	.	.	8	170	270	254	260	290	160	121	78	76	50	.	.	.	.	.	.	.	1737
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MEAN M	0	0	0	0	0	6	48	79	105	110	103	105	92	95	80	78	54	17	1	0	0	0	0	0	975

SEP 2000 HOURLY SUMS OF DOWNWARD ATMOSPHERIC RADIATION (0.01 MJ/SQM)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	118	118	118	119	126	128	127	124	119	116	117	120	125	122	126	116	120	121	120	120	118	114	109	108	2869
2	110	117	109	106	103	104	106	107	111	112	113	113	112	111	111	109	107	105	103	103	101	100	100	100	2573
3	100	99	99	98	98	99	102	104	105	106	107	107	107	106	106	105	103	102	100	100	99	100	101	99	2452
4	99	98	99	98	98	100	103	104	106	112	127	128	127	128	128	127	126	126	126	126	123	121	121	124	2775
5	125	124	124	121	116	124	126	126	127	128	129	128	123	129	129	129	127	128	128	126	130	131	132	132	3042
6	132	132	132	133	133	134	134	134	135	135	135	135	136	133	134	133	132	131	130	129	129	130	131	132	3184
7	131	132	133	132	131	131	130	131	127	132	134	133	131	128	129	130	130	131	131	132	134	135	131	130	3149
8	129	128	130	130	125	124	126	130	127	131	131	127	128	127	125	123	128	127	130	132	124	115	121	123	3041
9	123	123	121	123	127	128	129	129	130	130	131	131	131	131	131	131	130	129	130	129	128	127	129	128	3079
10	127	126	125	123	126	126	127	128	126	129	126	123	127	129	127	127	119	122	120	115	98	104	113	121	2934
11	119	120	123	123	115	123	109	104	102	107	114	111	116	112	119	109	100	98	96	95	95	94	93	93	2590
12	92	93	93	94	94	94	98	102	104	105	106	108	108	110	109	106	104	102	102	103	103	103	103	105	2441
13	104	105	108	109	108	105	109	111	107	109	111	112	114	111	114	111	110	108	109	112	116	114	123	124	2664
14	123	123	123	123	123	122	122	123	124	125	120	117	111	112	111	110	114	124	122	125	126	126	126	126	2901
15	127	128	128	128	129	128	130	131	130	129	130	131	132	129	131	132	133	134	133	133	133	133	133	133	3138
16	133	132	132	132	131	131	131	131	133	133	134	134	134	133	133	132	132	132	132	131	131	131	130	130	3168
17	129	129	129	128	128	129	129	128	129	129	129	129	129	129	128	128	127	128	127	128	129	129	129	130	3086
18	130	130	131	131	131	132	133	133	134	134	135	136	135	135	135	135	134	132	132	132	133	133	133	134	3192
19	134	134	134	134	134	133	132	132	132	126	129	129	124	118	117	119	114	113	108	104	101	102	106	106	2915
20	103	99	97	94	94	94	96	101	105	108	110	111	108	112	112	113	110	109	108	105	103	103	101	103	2499
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MEAN M	119	120	119	119	119	119	120	121	121	122	123	123	123	122	123	121	120	120	119	119	118	117	118	119	2885

A. HOURLY VALUES SEPTEMBER

SEP 2000 HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																									
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	13	13	13	12	6	5	8	14	24	29	30	26	20	22	19	28	21	18	18	18	18	21	26	26	448
2	23	15	24	26	28	29	31	31	29	31	32	33	34	35	36	36	36	37	36	36	35	34	34	34	755
3	33	33	32	32	32	32	33	31	33	33	34	34	35	36	36	36	36	36	35	34	34	33	31	32	806
4	32	32	30	30	29	29	31	31	31	28	10	8	10	8	8	8	8	8	7	8	10	10	10	8	424
5	7	7	7	10	14	7	6	6	6	6	6	8	14	8	8	8	8	8	7	8	5	4	4	4	176
6	3	3	3	3	3	3	3	2	1	3	3	3	3	8	5	5	6	6	6	6	6	4	3	3	94
7	3	2	1	2	3	3	5	5	10	5	4	5	7	10	8	7	5	1	1	1	1	3	7	7	105
8	8	8	6	6	11	12	11	5	10	7	8	12	10	12	14	15	10	11	6	3	7	17	11	10	230
9	10	11	13	13	8	7	5	5	5	3	4	5	5	4	4	3	5	3	4	5	6	6	5	5	144
10	5	7	7	9	6	7	7	7	8	7	11	13	8	5	6	4	13	9	10	15	30	23	13	6	236
11	8	7	5	4	11	4	21	30	33	27	21	26	20	26	18	28	36	36	35	34	33	33	32	31	559
12	31	30	29	29	29	28	29	34	36	35	35	35	35	33	36	38	38	36	33	31	29	28	26	25	768
13	24	23	19	19	19	23	22	24	33	36	36	34	30	33	31	32	32	30	27	22	18	19	13	11	610
14	10	10	11	10	10	10	11	13	15	18	23	28	33	33	34	33	27	15	15	11	9	9	10	8	406
15	6	4	4	4	3	5	5	9	10	12	13	12	11	14	12	10	8	8	8	8	8	7	7	6	194
16	5	5	4	5	5	5	6	6	5	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	110
17	6	7	6	6	7	6	5	5	4	5	5	4	5	3	4	4	4	4	5	7	8	7	6	5	128
18	4	5	7	8	8	8	5	4	5	8	8	8	9	9	10	10	7	5	3	4	6	9	9	8	167
19	10	10	10	9	10	10	11	12	13	21	18	18	25	31	29	28	32	31	33	36	34	31	26	25	513
20	27	30	31	33	33	32	31	32	34	36	37	39	39	37	36	35	35	34	32	30	32	34	34	35	808
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MEAN M	13	13	13	14	14	13	14	15	17	18	17	18	18	19	18	19	19	17	16	16	17	17	16	15	384

A. HOURLY VALUES SEPTEMBER

SEP 2000	DURATION OF SUNSHINE (MIN. NIP>120 W/SQM)																								TOTAL
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	.	.	.	.	.	.	.	16	49	60	60	26	23	46	57	32	.	.	.	.	.	.	.	.	369
2	.	.	.	.	.	23	60	60	55	59	55	58	60	60	60	60	60	60	12	.	.	.	.	.	742
3	.	.	.	.	.	22	60	60	60	60	60	60	60	60	60	60	60	60	.	.	.	.	.	.	742
4	.	.	.	.	.	.	59	60	60	60	13	.	3	.	.	.	.	.	.	.	.	.	.	.	255
5	.	.	.	.	.	.	.	.	.	.	.	9	10	.	.	.	.	.	.	.	.	.	.	.	19
6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	3	4	9	10	7	12	11	6	.	.	.	.	.	.	.	.	62
9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	.	.	.	.	.	.	.	.	5	7	14	16	1	1	1	.	6	1	.	.	.	.	.	.	52
11	.	.	.	.	.	.	33	60	52	26	19	51	42	59	38	59	60	28	.	.	.	.	.	.	527
12	.	.	.	.	.	.	36	60	60	60	60	60	31	42	60	60	60	6	.	.	.	.	.	.	595
13	.	.	.	.	.	.	17	10	60	60	60	50	38	43	52	51	50	.	.	.	.	.	.	.	491
14	.	.	.	.	.	.	.	.	.	1	43	56	59	60	44	45	.	.	.	.	.	.	.	.	308
15	.	.	.	.	.	.	.	.	.	.	.	.	6	8	.	.	.	.	.	.	.	.	.	.	14
16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	.	.	.	.	.	.	.	.	9	9	15	23	59	26	33	53	60	.	.	.	.	.	.	.	287
20	.	.	.	.	.	.	.	47	60	60	60	60	51	60	39	48	29	.	.	.	.	.	.	.	514
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MEAN M	0	0	0	0	0	2	13	19	24	23	23	24	23	24	23	24	19	8	1	0	0	0	0	0	249

SEP 2000	DURATION OF SUNSHINE (MIN.)																								TOTAL*	MAX*	PCT/
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	6	42	60	60	24	12	30	48	30	.	.	.	.	.	.	.	.	52	127	41
2	18	60	60	60	60	60	60	60	60	60	60	60	60	48	.	.	.	.	.	.	121	126	96
3	18	60	60	60	60	60	60	60	60	60	60	60	48	.	.	.	.	.	.	.	121	125	97
4	54	60	60	60	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	42	121	35
5	6	.	12	.	.	.	.	.	.	.	.	.	.	.	3	119	3
6	0	118	0
7	0	117	0
8	6	.	12	6	6	12	12	6	.	.	.	.	.	.	.	.	.	10	115	9
9	0	114	0
10	6	12	18	12	.	.	.	.	.	.	.	.	.	.	.	.	.	9	113	8
11	30	60	60	36	18	54	48	54	36	60	60	24	.	.	.	.	.	.	90	112	80
12	30	60	60	60	60	60	30	48	60	60	60	12	.	.	.	.	.	.	100	110	91
13	6	6	60	60	60	48	36	42	48	42	24	.	.	.	.	.	.	.	72	109	66
14	12	24	48	60	24	36	.	.	.	.	.	.	.	.	.	34	108	31
15	6	.	.	.	.	.	.	.	.	.	.	.	1	107	1
16	0	106	0
17	0	105	0
18	0	104	0
19	6	6	12	18	60	24	18	48	54	.	.	.	.	.	.	.	.	41	103	40
20	42	60	60	60	60	42	42	24	30	12	.	.	.	.	.	.	.	.	72	102	71
21	12	36	60	42	36	18	24	18	.	.	.	.	.	.	.	.	.	.	41	101	41
22	6	48	48	.	12	.	.	.	.	.	.	.	.	.	.	.	.	.	19	100	19
23	6	12	6	6	.	.	.	.	.	.	.	.	.	.	.	.	.	5	100	5
24	12	60	60	60	60	60	60	60	60	60	42	.	.	.	.	.	.	.	109	99	100
25	60	60	60	60	60	60	60	60	60	42	.	.	.	.	.	.	.	.	97	98	99
26	6	60	60	60	60	60	48	60	60	60	42	.	.	.	.	.	.	.	96	97	99
27	0	96	0
28	0	95	0
29	0	94	0
30	12	60	42	54	42	42	36	6	12	6	.	.	.	.	.	.	.	.	52	93	56
MEAN	0	0	0	0	0	1	9	21	28	25	24	23	22	22	19	21	16	6	0	0	0	0	0	0	40	108	36

* TOTALS AND MAX ARE GIVEN IN 0.1 HR

A. HOURLY VALUES OCTOBER

OCT 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	8	5	5	2	2	3	3	3	5	5	4	6	11	9	9	8	10	10	8	8	7	6	7	6	150
4	6	6	4	4	5	5	6	7	7	8	8	8	6	3	3	3	1	1	1	1	1	3	4	14	115
5	23	13	8	8	8	8	10	11	9	15	20	27	15	18	12	19	11	10	7	6	4	4	4	3	273
6	3	3	4	3	4	4	4	5	5	9	10	16	21	19	11	12	15	11	12	20	23	20	16	15	265
7	16	16	5	8	17	14	26	28	29	27	25	27	27	33	34	33	33	25	26	26	19	19	10	9	532
8	14	23	23	23	17	14	10	12	10	10	8	8	5	3	3	4	5	3	3	5	4	3	3	4	217
9	4	5	6	5	7	8	8	7	5	4	5	4	4	4	4	4	6	21	28	32	30	27	25	18	271
10	16	15	13	8	8	5	7	11	26	19	24	20	18	23	25	21	19	18	23	21	21	21	18	24	424
11	14	22	25	31	38	34	26	18	23	32	33	37	35	29	26	19	21	21	21	22	23	21	26	21	618
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	15	13	11	10	11	10	18	20	30	25	19	21	11	11	10	21	15	9	9	9	8	8	7	7	328
14	8	6	8	6	5	4	3	5	10	9	8	6	6	5	3	4	3	2	1	1	1	1	1	2	108
15	4	6	6	5	13	32	26	12	12	10	10	4	3	2	2	3	4	5	5	8	23	17	28	26	266
16	24	23	21	15	13	14	6	7	7	14	27	32	32	31	33	32	31	23	6	5	4	4	5	13	422
17	17	13	11	10	9	6	5	5	3	2	3	4	3	3	2	3	5	7	6	5	7	13	5	5	152
18	4	4	3	3	9	27	20	18	10	10	8	7	7	5	5	5	5	5	4	3	4	4	5	5	180
19	8	9	9	18	19	19	15	8	4	5	5	5	5	4	4	4	4	6	16	10	10	16	17	11	231
20	12	10	17	26	28	26	32	31	32	33	32	33	34	35	36	35	29	19	20	33	33	31	28	18	663
21	10	9	8	8	8	6	5	4	3	5	4	3	3	3	3	2	1	2	7	8	5	3	5	11	126
22	10	14	7	10	15	17	23	21	21	26	28	28	23	23	18	28	31	28	31	18	19	22	20	13	494
23	21	10	14	8	8	7	5	5	14	28	16	9	6	6	2	3	3	3	2	2	3	3	4	3	185
24	5	3	3	1	2	2	2	5	2	2	3	4	3	4	6	5	5	4	3	6	5	5	6	4	90
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	16	17	16	6	13	17	25	30	28	26	17	31	28	28	23	22	22	20	18	15	14	13	11	4	460
29	3	8	10	8	7	5	7	9	8	18	11	21	9	7	5	3	1	2	3	4	7	16	17	31	220
30	33	34	33	25	21	18	18	24	13	16	34	35	21	14	11	4	4	5	15	31	31	16	11	8	475
31	3	3	1	3	5	2	3	5	4	3	2	3	3	5	5	5	5	2	5	3	4	9	5	6	94
MEAN M	12	12	11	10	12	12	13	12	13	14	15	16	14	13	12	12	12	10	11	12	12	12	12	11	294

A. HOURLY VALUES OCTOBER

OCT 2000	DURATION OF SUNSHINE (MIN. NIP>120 W/SQM)																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1
2
3
4
5	1	9	18	.	.	.	.	.	.	.	.	.	.	.	.	61
6	3	2	2	5	10	7	.	.	.	.	.	.	.	.	.	29
7	32	60	60	51	40	44	60	60	49	.	.	.	.	.	.	.	.	456
8
9
10	20	35	12	47	10	2	5	.	.	.	.	.	.	.	.	.	.	131
11	11	42	51	60	46	8	.	.	.	.	.	.	.	.	.	218
12
13	57	20	31	10	.	.	.	.	.	.	.	.	.	.	.	118
14	1	1	.	.	.	.	.	.	.	.	.	.	.	.	2
15	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
16	17	53	59	53	54	60	22	.	.	.	.	.	.	.	318
17
18
19
20	3	60	60	60	60	60	60	52	2	.	.	.	.	.	.	.	.	417
21
22
23	17	43	48	38	52	35	10	.	.	.	.	.	.	.	.	.	.	243
24	11	49	19	.	.	.	.	.	.	.	.	.	.	.	.	.	79
25
26
27	7	.	.	.	.	.	.	.	.	.	.	7
28	1	38	15	.	.	.	.	.	.	.	.	.	.	.	54
29	42	44	.	8	3	1	.	.	.	.	.	.	.	.	.	.	98
30	1	1	2	32	.	.	.	.	.	.	.	.	.	.	.	.	36
31	3	40	29	.	.	.	.	.	.	.	.	.	.	.	.	72
MEAN A	0	0	0	0	0	0	0	2	11	12	15	14	9	8	6	3	0	0	0	0	0	0	0	0	81

OCT 2000	DURATION OF SUNSHINE (MIN.)																								TOTAL*	MAX*	PCT/
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL*	MAX*	PCT/
1	48	60	60	60	60	60	60	60	36	.	.	.	.	.	.	.	.	84	92	91
2	0	91	0
3	0	90	0
4	0	89	0
5	12	18	.	.	.	.	.	.	.	.	.	.	.	.	.	9	88	10
6	6	.	.	.	.	.	.	.	.	.	.	.	.	.	3	87	3
7	18	60	60	54	42	42	60	54	48	.	.	.	.	.	.	.	.	73	86	85
8	0	86	0
9	0	85	0
10	12	30	6	42	12	.	6	.	.	.	.	.	.	.	.	.	.	18	84	21
11	6	36	48	60	30	.	.	.	.	.	.	.	.	.	.	.	30	83	36
12	12	54	36	60	60	60	18	.	.	.	.	.	.	.	.	.	50	83	60
13	60	18	30	12	.	.	.	.	.	.	.	.	.	.	.	.	20	82	24
14	0	81	0
15	0	80	0
16	12	48	60	54	54	60	24	.	.	.	.	.	.	.	.	52	80	65
17	0	79	0
18	0	79	0
19	0	78	0
20	6	60	60	60	60	60	60	48	.	.	.	.	.	.	.	.	.	69	77	90
21	0	76	0
22	6	30	42	30	48	36	6	.	.	.	.	.	.	.	.	.	.	33	74	45
23	6	48	24	.	.	.	.	.	.	.	.	.	.	.	.	.	13	72	18
24	0	71	0
25	0	68	0
26	6	.	.	.	.	.	.	.	.	.	.	1	66	2
27	36	24	.	.	.	.	.	.	.	.	.	.	.	.	10	65	15
28	36	42	.	6	.	.	.	.	.	.	.	.	.	.	.	.	.	14	63	22
29	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	62	8
30	12	60	6	36	24	.	.	.	.	.	.	.	.	.	.	.	.	23	61	38
31	0	60	0
MEAN	0	0	0	0	0	0	0	3	14	14	17	17	11	11	8	3	0	0	0	0	0	0	0	0	16	78	20

* TOTALS AND MAX ARE GIVEN IN 0.1 HR

A. HOURLY VALUES NOVEMBER

NOV 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	11	8	6	8	10	8	4	6	5	9	21	17	28	19	18	10	6	4	3	5	12	7	7	5	237
2	5	3	2	2	2	5	3	6	5	8	9	19	26	32	32	32	31	29	27	33	34	30	21	16	412
3	20	13	9	9	11	12	10	19	29	31	24	15	23	26	14	16	14	14	15	29	15	10	10	7	395
4	13	19	30	33	33	31	17	14	13	15	8	8	7	5	3	5	5	8	9	8	10	16	15	13	338
5	14	22	32	28	32	33	33	34	33	33	27	22	13	29	28	28	17	19	23	21	10	16	8	6	561
6	13	7	9	17	18	31	31	31	31	27	25	26	33	35	37	35	31	25	23	21	18	21	20	21	586
7	23	27	24	26	26	24	27	28	36	37	33	28	15	13	11	11	11	13	12	11	10	10	13	12	481
8	12	25	18	23	18	27	21	20	29	14	15	17	16	13	11	13	16	15	21	14	19	28	27	21	453
9	16	11	25	24	20	13	5	5	5	5	12	15	23	23	18	21	23	10	8	11	9	11	13	17	343
10	29	28	27	28	26	28	28	28	26	22	29	32	35	33	31	31	30	22	18	15	13	12	14	18	603
11	7	7	11	10	22	20	24	21	18	22	33	34	35	30	21	13	10	16	9	9	8	9	8	8	405
12	7	8	7	7	8	6	5	4	4	3	3	6	6	5	7	9	6	4	8	5	6	12	30	33	199
13	31	20	19	12	11	16	14	10	7	16	26	33	18	26	23	12	10	8	13	18	15	12	15	7	392
14	8	10	13	24	26	34	33	19	21	33	34	33	32	23	31	33	33	33	33	33	32	32	26	31	660
15	32	33	33	33	33	28	31	33	33	15	35	36	36	36	31	23	26	35	36	35	34	24	23	23	746
16	31	19	22	33	34	32	34	35	36	35	37	37	37	38	33	35	23	13	12	10	8	10	12	15	631
17	15	15	13	11	10	8	8	7	6	6	9	14	11	21	25	27	31	23	27	18	12	28	28	27	400
18	14	30	31	21	28	30	22	33	15	10	24	31	33	31	23	21	19	10	10	8	4	3	2	4	457
19	18	27	31	33	30	28	28	26	26	31	35	37	36	19	13	11	13	17	10	5	3	4	3	3	487
20	2	3	5	4	6	4	3	3	5	13	8	13	12	8	12	14	15	16	20	22	18	15	15	14	250
21	14	14	13	13	13	18	13	18	28	26	24	15	11	11	13	18	29	25	33	31	23	21	23	19	466
22	12	13	13	14	13	17	18	14	17	19	21	27	26	21	11	19	29	27	12	23	18	9	11	26	430
23	13	10	10	8	14	16	16	14	24	15	10	7	9	9	25	27	35	15	17	7	10	22	16	11	360
24	17	12	10	7	5	4	4	5	8	8	7	6	9	9	7	3	4	9	10	5	5	10	7	7	178
25	7	8	5	3	10	20	26	15	15	26	27	12	12	13	7	6	8	8	9	8	24	32	31	36	368
26	34	29	23	19	25	24	20	22	26	23	31	34	33	30	33	37	21	27	27	32	34	38	30	18	670
27	13	13	11	9	8	7	6	4	3	3	1	5	11	19	31	23	23	21	29	32	19	6	4	6	307
28	14	26	22	15	16	25	27	28	20	15	13	10	9	8	8	8	8	9	8	7	5	5	5	8	319
29	8	8	5	3	3	4	4	3	6	10	4	5	8	10	10	10	8	6	5	6	8	7	8	8	157
30	6	6	5	3	3	4	6	3	2	2	1	3	5	7	7	10	16	24	28	23	20	20	11	19	234
MEAN	15	16	16	16	17	19	17	17	18	18	20	20	20	20	19	19	18	17	17	17	15	16	16	15	418

A. HOURLY VALUES NOVEMBER

NOV 2000		DURATION OF SUNSHINE (MIN. NIP>120 W/SQM)																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
1	1	.	13	.	.	.	.	.	.	.	.	.	.	.	14	
2	5	14	4	32	41	.	.	.	.	.	.	.	.	.	.	96	
3	6	25	.	.	16	5	.	.	.	.	.	.	.	.	.	.	52	
4	
5	41	55	47	15	9	6	.	.	.	.	.	.	.	.	.	.	173	
6	7	.	.	31	58	28	.	.	.	.	.	.	.	.	.	124	
7	2	40	7	.	.	.	.	.	.	.	.	.	.	.	.	49	
8	4	1	11	.	.	.	.	.	.	.	.	.	.	.	.	16	
9	11	18	.	.	.	.	.	.	.	.	.	.	.	29	
10	9	20	25	58	60	8	.	.	.	.	.	.	.	.	.	.	180	
11	2	28	56	60	38	.	.	.	.	.	.	.	.	.	.	.	184	
12	
13	52	31	.	.	.	.	.	.	.	.	.	.	.	.	83	
14	51	60	60	43	.	.	.	.	.	.	.	.	.	.	.	214	
15	11	60	60	36	.	.	.	.	.	.	.	.	.	.	.	167	
16	1	48	60	60	39	.	.	.	.	.	.	.	.	.	.	.	208	
17	6	13	.	.	.	.	.	.	.	.	.	.	.	19	
18	1	42	52	23	.	.	.	.	.	.	.	.	.	.	.	118	
19	9	57	58	31	.	.	.	.	.	.	.	.	.	.	.	155	
20	
21	13	6	.	.	.	.	.	.	.	.	.	.	.	.	19	
22	4	.	.	.	.	.	.	.	.	.	.	.	.	4	
23	
24	
25	
26	24	60	51	.	.	.	.	.	.	.	.	.	.	.	.	135	
27	
28	
29	
30	
MEAN	0	0	0	0	0	0	0	0	0	2	10	19	19	14	3	0	0	0	0	0	0	0	0	0	0	68

NOV 2000		DURATION OF SUNSHINE (MIN.)																										
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL*	MAX*	PCT/	
1	6	.	.	.	.	.	.	.	.	.	.	.	.	1	58	2
2	6	.	.	6	24	42	.	.	.	.	.	.	.	.	.	.	.	13	56	23
3	6	18	.	.	12	6	.	.	.	.	.	.	.	.	.	.	.	7	54	13
4	0	53	0
5	42	48	42	18	6	6	.	.	.	.	.	.	.	.	.	.	.	27	52	52
6	42	30	.	.	.	.	.	.	.	.	.	.	.	12	51	24
7	0	50	0
8	6	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	49	6
9	6	18	.	.	.	.	.	.	.	.	.	.	.	.	.	4	48	8
10	6	6	18	54	60	.	.	.	.	.	.	.	.	.	.	.	.	24	46	52
11	24	54	60	30	.	.	.	.	.	.	.	.	.	.	.	.	28	44	64
12	0	42	0
13	36	24	.	.	.	.	.	.	.	.	.	.	.	.	.	10	41	24
14	48	60	60	36	.	.	.	.	.	.	.	.	.	.	.	.	34	40	85
15	6	60	60	36	.	.	.	.	.	.	.	.	.	.	.	.	27	39	69
16	48	60	60	36	.	.	.	.	.	.	.	.	.	.	.	.	34	39	87
17	12	.	.	.	.	.	.	.	.	.	.	.	.	2	38	5
18	42	60	18	.	.	.	.	.	.	.	.	.	.	.	.	20	37	54
19	42	54	30	.	.	.	.	.	.	.	.	.	.	.	.	21	36	58
20	0	35	0
21	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	34	6
22	0	33	0
23	0	32	0
24	0	32	0
25	0	31	0
26	12	54	48	.	.	.	.	.	.	.	.	.	.	.	.	.	19	30	63
27	0	29	0
28	0	28	0
29	0	27	0
30	0	27	0
MEAN	0	0	0	0	0	0	0	0	2	8	16	17	12	3	0	0	0	0	0	0	0	0	0	0	0	10	40	23

* TOTALS AND MAX ARE GIVEN IN 0.1 HR

A. HOURLY VALUES DECEMBER

DEC 2000 HOURLY SUMS OF NORMAL INCIDENCE BEAM RADIATION (0.01 MJ/SQM)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
1
2	3	.	.	.	.	.	.	.	.	.	.	.	.	3
3
4
5
6
7
8	1	1	.	.	.	.	.	.	.	.	.	.	2
9	4
10
11
12
13
14	1
15
16	121	85	.	.	.	.	.	.	.	.	.	.	.	.	.	206
17	33	177	83	.	.	.	.	.	.	.	.	.	.	.	.	.	293
18	24	129	69	.	.	.	.	.	.	.	.	.	.	.	.	.	222
19	23	157	31	.	.	.	.	.	.	.	.	.	.	.	.	.	211
20
21
22
23
24	31	187	90	.	.	.	.	.	.	.	.	.	.	.	.	308
25	3	112	8	.	.	.	.	.	.	.	.	.	.	.	.	123
26
27
28	1	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	4
29	16	143	72	.	.	.	.	.	.	.	.	.	.	.	.	.	231
30	338
31	51	189	98	.	.	.	.	.	.	.	.	.	.	.	.	.	62
MEAN	0	0	0	0	0	0	0	0	0	0	6	40	19	0	0	0	0	0	0	0	0	0	0	0	0	65

DEC 2000 HOURLY SUMS OF DOWNWARD ATMOSPHERIC RADIATION (0.01 MJ/SQM)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
1	107	107	116	114	118	118	116	109	116	121	125	127	128	126	128	128	127	125	125	126	127	127	127	128	2916	
2	128	128	128	129	129	130	129	128	125	123	126	123	123	124	124	125	125	126	126	125	126	126	125	123	3023	
3	124	124	124	123	123	124	124	124	124	124	124	125	124	124	124	123	121	123	121	121	123	123	121	122	2957	
4	120	119	117	119	116	117	113	117	118	120	122	123	123	121	117	121	123	123	121	121	123	123	125	126	2888	
5	126	126	127	129	129	129	129	129	129	128	123	123	122	122	128	128	127	128	129	129	131	130	129	129	3072	
6	128	127	126	127	127	128	129	129	129	128	129	129	129	129	129	128	127	126	122	126	125	123	125	123	119	3038
7	125	123	118	123	119	117	115	113	116	118	119	118	118	118	121	118	105	111	108	116	121	121	122	108	2811	
8	94	93	93	93	91	90	90	91	90	95	100	107	113	121	122	121	122	123	123	122	123	115	121	123	2576	
9	123	121	113	111	117	119	121	115	118	112	119	111	116	106	114	119	119	119	118	120	121	122	122	123	2819	
10	123	123	124	124	124	124	124	124	123	123	122	122	123	121	107	113	106	113	121	120	121	122	122	123	2892	
11	123	123	121	121	114	118	120	118	112	118	116	119	121	113	119	121	121	120	121	119	120	121	118	111	2848	
12	107	104	117	113	105	99	98	102	111	118	119	121	123	124	126	126	126	127	128	128	127	126	125	126	2826	
13	126	126	126	125	125	124	125	125	125	122	121	123	123	123	121	121	122	122	123	122	122	122	121	121	2956	
14	121	121	121	121	121	121	121	118	119	120	119	114	115	118	112	102	96	92	95	92	91	93	90	90	2623	
15	100	116	121	120	111	115	116	115	114	114	114	113	113	113	109	106	107	99	100	87	85	86	90	87	2551	
16	86	86	86	86	96	100	100	101	95	90	87	86	85	85	85	84	84	83	83	83	82	82	82	82	2099	
17	81	81	81	81	81	81	81	81	81	82	83	82	82	82	81	81	81	81	81	81	81	81	82	84	1958	
18	82	82	82	83	83	82	82	82	83	87	89	87	93	92	89	87	85	84	84	84	84	106	101	83	2076	
19	83	91	106	111	110	108	92	83	82	82	83	82	82	80	80	80	80	80	80	80	80	80	82	84	2081	
20	88	90	85	84	87	88	87	96	94	94	98	95	106	104	103	103	106	108	102	100	100	105	108	109	2340	
21	109	109	111	112	108	104	102	98	100	92	89	90	87	87	88	93	93	89	89	85	85	89	84	85	2278	
22	91	94	99	109	113	113	113	113	113	113	113	113	113	114	112	113	114	114	113	114	110	116	116	116	2662	
23	114	116	112	112	110	100	110	112	107	105	98	88	92	84	82	82	81	81	78	77	77	77	77	77	2249	
24	77	77	77	77	77	77	77	77	77	78	79	78	77	77	77	77	77	76	76	77	77	77	78	78	1852	
25	78	79	78	79	79	79	79	81	82	80	86	88	90	94	96	99	96	101	109	104	110	106	107	105	2185	
26	107	98	101	104	110	111	111	112	112	109	108	111	89	87	105	106	110	103	90	94	92	91	101	102	2464	
27	99	90	90	83	79	80	85	88	92	96	98	110	108	104	103	107	107	106	104	93	82	80	80	80	2244	
28	79	80	80	80	80	78	76	77	75	72	73	72	73	77	77	80	81	81	80	78	87	87	90	94	1907	
29	91	85	91	96	95	97	100	100	100	102	103	105	107	107	106	104	100	90	88	88	83	80	77	76	2271	
30	76	75	74	73	73	72	71	71	71	72	73	72	72	73	73	73	73	75	74	73	74	75	76	75	1759	
31	75	80	75	76	77	77	80	83	92	106	97	98	105	112	110	111	111	111	113	112	105	92	103	108	2309	
MEAN	103	103	104	104	104	104	104	104	104	105	105	105	106	105	105	106	105	104	104	103	103	103	104	103	2501	

A. HOURLY VALUES DECEMBER

DEC 2000		HOURLY SUMS OF EFFECTIVE OUTGOING RADIATION (FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM))																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	20	20	11	14	10	11	14	22	14	10	6	7	8	8	8	7	8	10	9	5	5	5	4	5	241
2	4	4	5	4	4	3	3	3	6	8	6	9	9	6	4	4	3	4	5	5	5	5	5	8	122
3	7	7	7	8	7	5	3	4	4	4	5	3	3	3	3	6	5	7	6	5	4	6	5	120	
4	7	8	10	8	11	10	14	11	10	9	8	8	8	11	14	10	10	9	6	5	7	5	5	4	208
5	4	3	1	2	2	2	3	2	1	3	4	9	10	5	5	5	4	5	5	4	4	2	2	5	92
6	5	4	4	3	3	2	1	1	1	3	3	2	3	4	5	6	7	10	7	6	9	7	8	13	117
7	7	8	13	8	11	13	14	15	13	11	10	10	10	11	8	10	22	16	18	8	5	5	6	18	270
8	31	31	31	30	31	31	31	29	30	25	20	15	12	8	11	10	6	7	8	10	10	18	13	11	459
9	10	10	18	22	15	13	10	17	13	18	10	18	13	23	14	8	7	6	9	5	5	4	4	3	275
10	3	2	2	3	4	4	3	4	3	5	5	4	3	6	20	15	23	16	9	6	5	4	4	3	156
11	4	5	8	8	14	10	8	10	15	8	10	5	3	12	7	4	4	3	3	5	4	4	8	15	177
12	18	22	9	13	21	26	28	24	16	10	7	4	3	1	1	2	3	2	2	2	2	5	5	7	233
13	8	8	7	6	7	6	4	2	3	7	8	5	3	3	5	4	3	3	4	3	4	4	5	3	115
14	3	3	3	3	3	3	3	6	6	5	6	13	13	8	16	26	32	35	31	33	34	33	34	34	386
15	25	8	5	13	8	8	6	6	7	6	6	6	7	8	11	15	14	21	21	33	34	33	29	32	359
16	33	34	34	33	24	19	19	19	24	30	35	36	34	33	33	32	32	32	31	31	31	30	31	31	721
17	31	31	31	31	31	31	30	31	31	31	33	33	31	31	31	31	31	30	30	30	30	29	27	26	732
18	28	28	28	27	27	28	28	28	28	26	28	31	22	23	25	27	29	28	29	28	28	6	12	29	621
19	28	21	6	3	3	6	21	29	31	31	33	33	32	33	33	32	32	31	31	31	31	30	27	27	615
20	26	26	30	32	29	29	30	21	25	25	21	25	15	16	17	17	14	13	19	21	22	18	14	14	519
21	14	14	13	12	15	20	21	24	22	28	30	29	31	31	28	23	23	26	26	29	29	26	31	28	573
22	22	21	17	8	6	5	5	6	7	7	8	7	6	6	5	5	4	4	5	3	8	2	3	2	172
23	4	2	6	6	8	17	8	4	9	10	18	27	24	32	33	33	34	36	38	39	39	38	39	38	542
24	38	37	36	36	35	35	35	34	35	36	37	38	37	36	37	36	37	37	36	36	36	35	34	34	863
25	33	33	33	32	31	31	31	29	27	29	26	23	21	17	15	13	16	11	4	8	3	6	4	6	482
26	5	14	11	8	3	1	2	1	1	5	5	3	23	24	7	5	2	9	21	16	18	18	9	8	219
27	11	19	20	26	29	28	23	20	16	13	12	2	5	9	10	6	7	9	11	23	33	34	31	30	427
28	31	29	29	29	29	32	33	31	31	33	35	35	34	31	29	32	30	30	32	34	26	25	23	18	721
29	22	28	22	17	18	16	14	15	15	13	12	10	9	8	8	10	14	24	26	26	31	33	36	36	463
30	36	36	36	37	37	36	36	35	34	34	36	36	34	34	34	33	33	31	31	32	31	30	30	31	813
31	31	28	31	31	32	32	31	31	23	10	19	19	12	5	6	6	6	7	5	8	15	28	18	13	447
MEAN	18	18	17	16	17	17	17	17	16	16	16	16	15	16	16	15	16	16	17	17	18	17	16	17	395

A. HOURLY VALUES DECEMBER

DEC 2000		DURATION OF SUNSHINE (MIN. NIP>120 W/SQM)																										
DAY		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL		
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	.	.	.	.	.	.	.	.	.	.	.	.	48	28	.	.	.	.	.	.	.	.	.	.	.	.	.
17	.	.	.	.	.	.	.	.	.	.	.	17	60	27	.	.	.	.	.	.	.	.	.	.	.	.	.
18	.	.	.	.	.	.	.	.	.	.	.	13	52	27	.	.	.	.	.	.	.	.	.	.	.	.	.
19	.	.	.	.	.	.	.	.	.	.	.	13	60	12	.	.	.	.	.	.	.	.	.	.	.	.	.
20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	.	.	.	.	.	.	.	.	.	.	.	15	60	28	.	.	.	.	.	.	.	.	.	.	.	.	.
25	.	.	.	.	.	.	.	.	.	.	.	48	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	.	.	.	.	.	.	.	.	.	.	.	9	60	28	.	.	.	.	.	.	.	.	.	.	.	.	.
29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	.	.	.	.	.	.	.	.	.	.	.	24	60	29	.	.	.	.	.	.	.	.	.	.	.	.	.
31	.	.	.	.	.	.	.	.	.	.	.	4	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.
MEAN	0	0	0	0	0	0	0	0	0	0	3	15	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24

DEC 2000		DURATION OF SUNSHINE (MIN.)																								TOTAL*	MAX*	PCT/		
DAY		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1	0	26	0
2	0	26	0
3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	25	0
4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	24	0
5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	23	0
6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	23	0
7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	23	0
8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	22	0
9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	22	0
10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	22	0
11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	22	0
12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	21	0
13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	21	0
14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	21	0
15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	21	0
16	.	.	.	.	.	.	.	.	.	.	.	.	48	30	.	.	.	.	.	.	.	.	.	.	.	.	13	21	62
17	.	.	.	.	.	.	.	.	.	.	.	30	60	30	.	.	.	.	.	.	.	.	.	.	.	.	20	21	95
18 +	.	.	.	.	.	.	.	.	.	.	.	12	48	24	.	.	.	.	.	.	.	.	.	.	.	.	14	20	70
19 +	.	.	.	.	.	.	.	.	.	.	.	6	60	12	.	.	.	.	.	.	.	.	.	.	.	.	13	20	65
20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	20	0
21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	20	0
22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	20	0
23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	20	0
24	.	.	.	.	.	.	.	.	.	.	.	30	60	30	.	.	.	.	.	.	.	.	.	.	.	.	20	20	100
25	.	.	.	.	.	.	.	.	.	.	.	36	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6	20	30
26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	21	0
27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	21	0
28	.	.	.	.	.	.	.	.	.	.	.	6	54	30	.	.	.	.	.	.	.	.	.	.	.	.	15	21	71
29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	21	0
30	.	.	.	.	.	.	.	.	.	.	.	36	60	30	.	.	.	.	.	.	.	.	.	.	.	.	21	21	100
31	.	.	.	.	.	.	.	.	.	.	.	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	21	14
MEAN	0	0	0	0	0	0	0	0	0	4	14	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	22	20	

* TOTALS AND MAX ARE GIVEN IN 0.1 HR

+ R.M., RECORDED BY THE INSTITUTES'S EPPLEY NIP INSTRUMENT

B. DAILY VALUES

2000 DAILY TOTALS OF GLOBAL RADIATION (0.01 MJ/SQM)												
DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	61	58	471	1040	1301	895	1554	1774	1307	-	192	28
2	47	63	381	845	201	490	609	1096	1729	155	208	33
3	35	196	-	1212	1521	1795	1084	1965	1726	311	155	15
4	55	35	-	1661	2355	2998	1787	344	1046	95	91	25
5	28	36	-	1289	2211	2930	560	861	615	442	253	23
6	19	110	-	208	2429	2473	1243	829	316	380	216	12
7	3	48	584	881	1786	771	1627	875	349	774	141	34
8	20	376	111	865	2302	1980	2681	1225	695	87	121	42
9	75	407	783	1412	2388	2705	2620	2083	232	118	155	41
10	16	38	309	781	1733	796	1881	598	672	462	206	21
11	39	119	536	516	2455	968	1357	733	1347	540	216	29
12	34	60	568	1702	2538	987	357	1371	1374	-	31	16
13	88	180	347	1809	2565	989	1982	1230	1281	363	165	18
14	122	-	332	549	2579	795	2488	283	1075	146	193	29
15	25	156	476	851	2379	1305	1865	1108	558	167	185	21
16	14	280	156	826	911	1574	2702	1295	166	502	195	58
17	32	394	131	1010	517	1793	1817	829	228	67	81	67
18	140	579	1205	171	1068	508	727	656	210	101	153	72
19	40	604	214	832	694	343	335	1357	813	68	160	60
20	60	629	295	523	1089	2412	1519	819	1096	580	54	45
21	86	245	313	216	2424	473	2501	919	-	52	76	51
22	185	375	759	576	1967	1010	2307	1942	-	444	78	19
23	85	231	996	368	2547	877	2224	461	-	211	51	43
24	71	303	1123	1454	1174	2122	1649	598	-	173	11	69
25	99	313	206	1860	1685	2108	1355	1201	-	164	66	75
26	71	157	547	745	1814	2349	988	1683	-	186	143	34
27	73	30	1193	770	1025	2081	990	706	-	257	51	41
28	77	238	781	1473	398	945	746	269	-	273	31	71
29	59	273	726	1779	1363	2521	1495	223	-	155	41	25
30	145	-	612	1488	1988	1737	544	445	-	187	14	75
31	165	-	531	-	1341	-	940	362	-	70	-	44
MEAN	67	233 A	544 A	990	1702	1524	1501	972	842 M	260 A	124	40

2000 DAILY TOTALS OF SKY RADIATION ON A HORIZONTAL SURFACE (0.01 MJ/SQM)												
DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	59	58	383	833	928	812	737	1014	702	-	178	28
2	46	63	338	771	201	485	609	902	263	155	138	33
3	35	184	-	608	761	970	1017	995	263	311	128	15
4	54	35	-	435	317	304	1169	344	555	95	91	25
5	28	36	-	630	526	318	553	853	564	384	142	23
6	19	110	-	208	325	990	1101	689	316	350	169	12
7	3	48	422	635	1076	750	1231	798	349	257	122	34
8	20	85	111	631	582	1081	707	848	592	87	111	42
9	72	102	454	814	488	722	800	508	232	118	140	41
10	16	38	308	718	922	674	1058	567	586	337	96	21
11	39	115	519	516	455	773	1114	614	468	246	99	29
12	34	60	545	602	299	890	357	859	226	-	31	16
13	51	163	328	488	295	790	1060	776	393	234	124	18
14	48	-	291	541	281	777	741	274	626	146	87	29
15	25	156	463	743	902	1050	913	627	542	166	77	21
16	14	265	156	806	811	1085	360	754	166	255	68	34
17	32	225	131	816	491	1194	1074	577	228	67	74	34
18	86	106	288	171	743	508	724	603	210	101	84	46
19	40	135	214	769	669	322	335	896	537	68	78	36
20	60	129	295	514	926	754	1020	699	367	155	54	45
21	86	245	312	216	723	473	405	717	-	52	70	50
22	84	284	596	566	965	777	609	525	-	257	77	19
23	81	231	466	367	794	864	744	457	-	143	51	43
24	71	246	641	990	873	1290	799	565	-	173	11	35
25	99	233	206	866	960	1253	1040	927	-	164	66	60
26	71	157	530	623	971	1130	926	693	-	177	97	28
27	73	30	419	591	854	1158	904	491	-	206	51	33
28	77	216	671	889	398	924	739	269	-	215	31	43
29	56	263	677	940	1225	925	812	223	-	121	41	25
30	122	-	533	978	1074	815	540	414	-	126	14	36
31	134	-	508	-	901	-	893	361	-	70	-	37
MEAN	56	144 A	400 A	643	701	829	809	640	409 M	181 A	87	32

B. DAILY VALUES

2000 DAILY TOTALS OF ULTRAVIOLET RADIATION ON A HORIZONTAL SURFACE (0.001 MJ/SQM)												
DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	30	36	204	480	565	479	777	843	593	-	103	17
2	22	37	209	414	138	306	375	573	714	82	108	21
3	16	97	-	525	686	876	600	903	703	167	92	12
4	28	23	-	643	992	1249	862	225	477	59	53	17
5	18	26	-	576	953	1215	347	485	334	216	113	13
6	9	69	-	141	1020	1081	669	444	189	184	105	7
7	4	30	271	402	794	425	769	465	223	278	69	21
8	12	141	74	417	950	917	1205	617	365	55	62	25
9	28	146	330	532	988	1203	1173	943	152	60	74	29
10	13	24	178	400	777	409	937	348	357	187	96	14
11	25	71	272	286	1044	510	697	375	545	212	92	18
12	21	35	283	713	1069	547	238	658	568	-	19	10
13	53	85	181	712	1066	529	974	605	527	155	73	14
14	54	-	179	304	1089	466	1110	168	496	79	86	18
15	16	77	267	419	1001	664	906	570	308	97	86	13
16	11	131	112	436	474	771	1222	624	116	187	81	38
17	19	167	80	495	288	876	902	416	142	44	44	34
18	64	210	464	119	493	332	437	348	132	62	67	34
19	23	215	141	445	388	191	225	657	371	43	72	35
20	33	219	172	298	549	1036	734	407	437	217	33	28
21	46	140	174	147	1066	277	1125	501	-	34	43	32
22	70	159	330	347	895	516	1068	829	-	173	48	14
23	45	134	413	229	956	505	1040	272	-	91	34	29
24	45	152	472	628	596	976	836	332	-	86	6	38
25	52	154	128	834	776	1038	717	573	-	91	35	32
26	38	92	285	381	809	1063	564	744	-	95	48	26
27	47	24	500	382	521	1007	555	340	-	132	28	17
28	49	124	383	652	258	533	421	160	-	138	23	42
29	34	150	364	769	699	1121	734	142	-	82	26	18
30	84	-	297	686	907	857	332	264	-	94	10	43
31	83	-	282	-	668	-	514	211	-	42	-	35
MEAN	35	106 A	261 A	460	757	733	744	485	387 M	119 A	61	24

2000 DAILY DOSES OF UV-B RADIATION ON A HORIZONTAL SURFACE (0.01 MED)												
DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	10	14	110	338	466	406	815	793	479	-	-	-
2	8	14	136	283	105	254	365	525	525	52	-	-
3	5	41	-	354	534	804	553	838	563	133	-	-
4	8	18	-	410	890	1100	806	195	386	48	-	-
5	6	15	-	413	826	990	326	466	307	147	-	-
6	1	31	-	92	809	915	609	422	167	126	-	-
7	7	11	157	344	634	369	701	416	186	174	-	-
8	4	50	43	327	744	883	1129	562	274	35	-	-
9	8	48	179	506	772	1279	1084	888	109	36	-	-
10	3	8	121	390	623	331	796	351	252	110	-	-
11	10	30	191	256	930	422	621	341	398	113	-	-
12	6	11	228	617	1020	490	208	621	421	-	-	-
13	16	25	137	558	1041	481	869	566	378	77	-	-
14	16	-	88	205	1002	392	1040	124	396	53	-	-
15	7	22	166	267	878	543	823	527	244	62	-	-
16	4	40	73	278	379	687	1132	524	103	109	-	-
17	7	57	47	315	209	872	862	328	132	25	-	-
18	20	-	245	71	360	298	449	281	109	33	-	-
19	7	-	102	331	309	111	225	512	304	23	-	-
20	10	-	109	229	448	1092	702	301	352	92	-	-
21	19	-	111	117	911	213	1118	416	-	16	-	-
22	22	-	177	272	825	432	1073	642	-	90	-	-
23	15	68	243	183	908	446	985	232	-	52	-	-
24	22	48	288	473	500	926	772	298	-	40	-	-
25	23	58	80	668	562	950	637	559	-	40	-	-
26	16	43	153	298	603	922	570	686	-	44	-	-
27	20	13	282	297	403	868	582	272	-	69	-	-
28	21	59	255	569	174	486	400	145	-	60	-	-
29	14	87	280	637	563	1024	747	118	-	34	-	-
30	32	-	207	556	735	868	331	217	-	37	-	-
31	31	-	227	-	561	-	515	175	-	15	-	-
MEAN	13	35 A	164 A	355	636	662	705	430	304 M	67 A	-	-

B. DAILY VALUES

2000 DAILY TOTALS OF NORMAL INCIDENCE BEAM RADIATION (0.01 MJ/SQM)												
DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6	3	283	359	572	155	1169	1148	1109	-	49	.
2	10	1	132	133	.	2	1	285	3293	2	287	3
3	3	50	-	1227	1596	1384	110	1726	3292	1	115	.
4	5	.	-	2595	3726	4822	1337	2	1151	.	1	.
5	.	.	-	1179	2976	4712	.	4	67	163	566	.
6	.	1	-	.	4020	2532	153	189	1	77	204	.
7	.	.	413	407	1240	23	822	100	.	1643	81	.
8	.	1336	1	385	3134	1196	3174	595	168	.	45	2
9	23	1364	1009	1113	3451	3234	2969	3017	.	.	66	4
10	.	1	.	109	1582	320	1434	35	158	416	535	.
11	.	11	30	.	3592	434	332	336	2208	811	575	.
12	.	.	32	2386	4203	114	.	1051	2759	-	.	.
13	265	48	36	2747	4288	259	1915	689	1930	438	211	.
14	566	-	59	10	4295	6	2868	45	883	5	584	1
15	.	1	6	302	2549	339	1965	783	32	7	584	.
16	.	47	.	20	183	1051	4229	940	.	849	737	206
17	.	639	.	373	62	1015	1285	570	.	.	38	293
18	355	1872	2378	1	691	1	.	97	.	.	386	222
19	1	1816	.	92	19	86	.	831	708	.	478	211
20	.	1957	3	16	324	2282	1056	275	1737	1576	2	.
21	.	.	3	.	2939	3	3561	388	-	.	34	.
22	659	239	412	11	1540	528	2534	2815	-	672	13	.
23	38	.	1116	.	2874	12	2586	5	-	266	1	.
24	.	152	1166	1099	425	1478	1560	132	-	2	2	308
25	1	223	.	1508	1583	1446	620	679	-	.	.	123
26	.	.	23	236	1592	2179	57	1935	-	22	312	.
27	1	.	1684	329	349	1296	97	542	-	171	.	4
28	.	62	207	1046	.	26	5	.	-	249	.	231
29	17	14	61	1641	205	2808	1110	.	-	118	1	.
30	101	.	179	852	1553	1356	2	54	-	225	.	338
31	138	.	36	.	535	.	50	.	-	.	.	62
MEAN	71	351 A	343 A	673	1810	1170	1194	622	975 M	266 A	197	65

2000 DAILY TOTALS OF DOWNWARD ATMOSPHERIC RADIATION (0.01 MJ/SQM)												
DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2806	2463	2530	2518	3001	2923	3301	3029	2869	-	2754	2916
2	2714	2529	2494	2508	3076	2962	3177	3180	2573	-	2574	3023
3	2773	2435	-	2184	2676	2562	3156	3052	2452	3148	2724	2957
4	2622	2980	-	2088	2567	2281	3096	3164	2775	3194	2703	2888
5	2776	3017	-	2355	2597	2370	3229	3226	3042	2945	2476	3072
6	2768	2789	-	2901	2534	2620	3113	3124	3184	2945	2455	3038
7	2866	2751	2532	2784	2785	2969	2936	3069	3149	2734	2664	2811
8	2788	2238	2638	2680	2704	2884	2638	2869	3041	2939	2703	2576
9	2615	2359	2016	2538	2661	2887	2803	2626	3079	2781	2672	2819
10	2758	2755	2383	2638	2673	3088	2905	3202	2934	2785	2368	2892
11	2778	2762	2712	2750	2416	2915	3113	3194	2590	2687	2667	2848
12	2708	2713	2787	2384	2527	3072	3128	2862	2441	-	2880	2826
13	2119	2559	2813	2303	2621	3039	2691	3114	2664	2963	2665	2956
14	1910	-	2493	2718	2640	3007	2757	3255	2901	3058	2372	2623
15	2721	2567	2480	2560	2738	2906	2879	3136	3138	2947	2285	2551
16	2945	2256	2706	2538	3127	2690	2783	2987	3168	2866	2471	2099
17	2917	2221	2880	2704	3132	2778	2888	3020	3086	3079	2654	1958
18	2161	1948	2194	2821	2880	3099	3140	3097	3192	2982	2511	2076
19	2708	1963	2843	2866	2914	3015	3111	2924	2915	2912	2364	2081
20	2608	1861	2869	3021	2750	2981	2922	3097	2499	2519	2811	2340
21	2354	2426	2584	3017	2461	3280	2711	3033	-	3036	2627	2278
22	2226	2641	2430	2963	2776	3035	2926	2662	-	2618	2657	2662
23	2246	2573	2241	2888	2734	3111	2883	3015	-	2995	2721	2249
24	2411	2626	2083	2607	2834	2973	3097	3132	-	3017	2884	1852
25	2669	2603	2693	2608	2610	2760	3170	3074	-	-	2678	2185
26	2829	2865	2750	2857	2708	2785	3257	2828	-	-	2455	2464
27	2637	2833	2311	2876	2784	2753	3297	3039	-	-	2729	2244
28	2662	2746	2639	2888	2940	2913	3247	3233	-	2652	2723	1907
29	2790	2692	2797	2964	2838	2827	3183	3241	-	2847	3023	2271
30	2302	.	2823	2915	2709	3154	3199	3147	-	2653	2864	1759
31	2424	.	2703	.	2828	.	3141	3064	-	2914	.	2309
MEAN	2600	2542 A	2571 A	2681	2750	2888	3028	3055	2885 M	2889 A	2638	2501

B. DAILY VALUES

2000 DAILY TOTALS OF EFFECTIVE OUTGOING RADIATION FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM)												
DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	155	312	303	417	350	193	255	349	448	-	237	241
2	242	291	238	363	56	119	139	234	755	-	412	122
3	204	373	-	641	446	467	210	356	806	150	395	120
4	271	22	-	670	613	886	265	99	424	115	338	208
5	130	19	-	415	611	896	73	55	176	273	561	92
6	178	205	-	47	711	682	154	97	94	265	586	117
7	90	176	326	221	459	196	229	94	105	532	481	270
8	188	617	190	284	759	333	564	313	230	217	453	459
9	262	499	768	449	763	607	518	648	144	271	343	275
10	166	191	335	297	520	236	526	123	236	424	603	156
11	182	170	138	205	764	264	247	113	559	618	405	177
12	197	146	77	689	735	119	55	421	768	-	199	233
13	685	196	116	800	744	166	527	290	610	328	392	115
14	794	-	267	217	764	135	510	127	406	108	660	386
15	36	250	237	336	678	176	460	205	194	266	746	359
16	14	581	55	414	337	394	714	346	110	422	631	721
17	63	562	19	334	184	367	473	250	128	152	400	732
18	676	809	745	178	238	95	101	161	167	180	457	621
19	144	744	76	273	162	248	81	440	513	231	487	615
20	271	816	104	169	306	418	357	215	808	663	250	519
21	371	322	265	85	685	140	631	239	-	126	466	573
22	537	173	396	179	379	265	488	630	-	494	430	172
23	437	275	523	135	481	160	687	173	-	185	360	542
24	333	243	736	469	285	400	491	119	-	90	178	863
25	91	233	135	435	559	508	481	253	-	-	368	482
26	42	100	151	239	429	417	254	572	-	-	670	219
27	227	98	627	278	423	413	111	370	-	-	307	427
28	128	176	247	548	144	223	161	102	-	460	319	721
29	104	232	169	743	308	583	196	77	-	220	157	463
30	408		130	530	371	403	80	146	-	475	234	813
31	303		253		220		131	184		94		447
MEAN	256	315 A	282 A	369	467	350	328	252	384 M	294 A	418	395

2000 DAILY TOTALS OF SUNSHINE DURATION (0.1 HR AND IN PCT OF MAXIMUM POSSIBLE)																								
DAY	JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC	
	HR	PCT	HR	PCT	HR	PCT	HR	PCT	HR	PCT	HR	PCT	HR	PCT	HR	PCT	HR	PCT	HR	PCT	HR	PCT	HR	PCT
1	.	.	.	.	18	22	23	21	32	22	7	4	46	28	50	33	52	41	84	91	1	2	.	.
2	.	.	.	.	2	2	2	2	.	.	.	.	.	.	14	9	121	96	.	.	13	23	.	.
3	.	.	2	4	44	53	62	54	69	47	57	35	2	1	67	45	121	97	.	.	7	13	.	.
4	.	.	.	.	23	27	95	83	127	87	158	98	57	35	.	.	42	35	.	.	.	.	.	.
5	.	.	.	.	4	5	40	34	112	76	160	99	.	.	.	.	3	3	9	10	27	52	.	.
6	.	.	.	.	.	.	.	.	144	97	111	69	7	4	6	4	.	.	3	3	12	24	.	.
7	.	.	.	.	23	27	14	12	65	44	.	.	35	22	4	3	.	.	73	85	.	.	.	.
8	.	.	54	100	.	.	12	10	140	94	44	27	112	70	21	14	10	9	.	.	3	6	.	.
9	1	4	54	96	44	50	49	39	138	92	125	77	111	69	131	90	.	.	18	21	4	8	.	.
10	.	.	.	.	.	.	3	2	73	49	14	9	61	38	1	1	9	8	.	.	24	52	.	.
11	.	.	.	.	.	.	.	.	142	94	20	12	17	11	18	12	90	80	30	36	28	64	.	.
12	.	.	.	.	1	1	93	73	150	99	6	4	.	.	45	31	100	91	50	60	.	.	.	.
13	14	52	2	3	3	3	119	92	152	100	11	7	72	45	31	22	72	66	20	24	10	24	.	.
14	29	100	13	21	2	2	.	.	149	97	.	.	98	62	1	1	34	31	.	.	34	85	.	.
15	.	.	.	.	.	.	14	11	120	78	14	9	77	48	29	20	1	1	.	.	27	69	.	.
16	.	.	.	.	.	.	.	.	11	7	45	27	152	96	35	25	.	.	52	65	34	87	13	62
17	.	.	34	50	.	.	21	16	2	1	45	27	55	35	22	16	.	.	.	.	2	5	20	95
18	26	81	70	99	97	100	.	.	31	20	.	.	.	.	4	3	.	.	.	.	20	54	14	70
19	.	.	71	99	.	.	5	4	1	1	3	2	.	.	34	25	41	40	.	.	21	58	13	65
20	.	.	74	100	.	.	1	1	14	9	87	53	42	27	11	8	72	71	69	90	.	.	.	.
21	.	.	.	.	.	.	.	.	118	76	.	.	127	81	22	16	41	41	.	.	2	6	.	.
22	29	83	10	13	21	21	.	.	67	43	22	13	91	59	108	79	19	19	33	45	.	.	.	.
23	2	6	.	.	46	46	.	.	117	75	.	.	120	77	.	.	5	5	13	18	.	.	.	.
24	.	.	7	9	55	54	48	35	20	13	61	37	71	46	6	4	109	100	.	.	.	.	20	100
25	.	.	12	15	.	.	57	41	71	45	54	33	33	21	33	25	97	99	.	.	.	.	6	30
26	.	.	.	.	1	1	8	6	69	44	92	56	1	1	88	66	96	99	1	2	19	63	.	.
27	.	.	.	.	74	70	17	12	19	12	50	30	4	3	32	24	.	.	10	15	.	.	.	.
28	.	.	3	4	12	11	59	42	.	.	.	.	.	.	.	.	.	.	14	22	.	.	15	71
29	2	5	.	.	3	3	88	62	9	6	106	65	42	27	.	.	.	.	5	8	.	.	.	.
30	6	14	6	14	9	8	46	32	65	41	50	31	.	.	2	2	52	56	23	38	.	.	21	100
31	8	18	.	.	1	1	1	1	23	14	23	14	1	1	.	.	.	.	.	.	.	.	3	14
MEAN	4	12	14	21	16	16	29	23	73	48	45	27	46	29	26	19	40	36	16	20	10	23	4	20

C. MEAN DIURNAL VARIATION

2000 MEAN DIURNAL VARIATION OF GLOBAL RADIATION (0.01 MJ/SQM)																									
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
JAN	2	9	16	17	13	7	3	.	.	.	.	.	.	.	.	.	67
FEB A	5	18	31	39	43	44	30	18	5	.	.	.	.	.	.	.	.	233
MAR A	2	10	27	46	58	73	82	76	71	51	33	13	2	.	.	.	.	.	.	544
APR	4	17	35	58	86	99	112	127	122	106	94	65	41	19	4	.	.	.	.	.	990
MAY	.	.	.	5	22	52	84	113	132	151	171	181	177	161	146	121	95	56	27	7	.	.	.	.	1702
JUN	.	.	2	8	29	51	72	92	109	129	146	159	156	149	132	107	78	54	34	15	3	.	.	.	1524
JUL	.	.	1	6	20	41	64	91	121	140	153	158	156	152	131	100	76	51	27	10	1	.	.	.	1501
AUG	.	.	.	1	7	20	39	58	80	90	110	115	104	107	91	70	49	25	7	1	.	.	.	.	972
SEP M	1	7	27	54	83	101	107	110	102	92	72	53	26	7	.	.	.	.	.	.	842
OCT A	2	9	24	38	47	44	37	31	19	8	1	.	.	.	.	.	.	.	260
NOV	1	7	17	28	31	23	12	5	.	.	.	.	.	.	.	.	.	124
DEC	1	5	11	11	7	4	.	.	.	.	.	.	.	.	.	.	40
MEAN A	0	0	0	2	7	16	28	43	59	72	84	90	85	77	64	47	32	19	9	3	0	0	0	0	738

2000 MEAN DIURNAL VARIATION OF SKY RADIATION ON A HORIZONTAL SURFACE (0.01 MJ/SQM)																									
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
JAN	2	7	13	12	12	7	3	.	.	.	.	.	.	.	.	.	56
FEB A	5	12	18	22	25	26	19	13	5	.	.	.	.	.	.	.	.	144
MAR A	2	10	21	34	45	54	59	53	49	38	23	10	2	.	.	.	.	.	.	400
APR	4	15	28	44	57	66	70	74	70	66	59	45	28	14	3	.	.	.	.	.	643
MAY	.	.	.	5	16	28	39	53	63	65	66	67	63	60	50	43	36	26	15	5	.	.	.	.	701
JUN	.	.	2	8	19	29	43	53	58	71	76	82	78	69	67	60	45	33	22	11	3	.	.	.	829
JUL	.	.	1	6	16	27	41	51	60	75	84	87	88	74	63	48	39	26	15	7	1	.	.	.	809
AUG	.	.	.	1	7	20	30	42	52	62	73	78	73	60	50	41	30	17	6	1	.	.	.	.	640
SEP M	1	6	16	27	37	45	49	50	51	45	37	27	15	4	.	.	.	.	.	.	409
OCT A	2	8	17	26	29	26	28	22	15	7	1	.	.	.	.	.	.	.	181
NOV	1	6	13	17	19	16	11	5	.	.	.	.	.	.	.	.	.	87
DEC	1	4	7	8	7	4	.	.	.	.	.	.	.	.	.	.	32
MEAN A	0	0	0	2	5	11	18	26	33	41	47	49	47	40	33	25	17	11	5	2	0	0	0	0	414

2000 MEAN DIURNAL VARIATION OF ULTRAVIOLET RADIATION ON A HORIZONTAL SURFACE (0.001 MJ/SQM)																									
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
JAN	2	5	8	8	7	4	2	.	.	.	.	.	.	.	.	.	35
FEB A	3	8	14	17	20	19	14	8	3	.	.	.	.	.	.	.	.	106
MAR A	1	6	13	22	29	36	40	37	33	23	15	6	1	.	.	.	.	.	.	261
APR	2	8	17	27	40	48	53	60	57	49	42	29	18	8	2	.	.	.	.	.	460
MAY	.	.	.	3	10	22	35	49	61	67	79	85	82	74	65	51	38	22	10	3	.	.	.	.	757
JUN	.	.	2	6	13	23	34	45	53	65	72	79	77	72	63	50	36	24	14	6	2	.	.	.	733
JUL	.	.	1	4	10	20	32	45	60	71	78	81	80	75	63	47	35	22	12	5	1	.	.	.	744
AUG	.	.	.	1	4	10	19	30	40	47	57	59	54	53	43	33	21	11	4	.	.	.	.	.	485
SEP M	4	13	24	37	47	50	52	49	43	32	22	11	3	.	.	.	.	.	.	387
OCT A	1	5	10	17	21	21	18	14	8	4	1	.	.	.	.	.	.	.	119
NOV	1	4	8	12	13	11	8	3	.	.	.	.	.	.	.	.	.	61
DEC	1	3	5	6	5	3	.	.	.	.	.	.	.	.	.	.	24
MEAN A	0	0	0	1	3	8	13	20	28	35	41	44	41	37	30	21	14	8	4	1	0	0	0	0	350

C. MEAN DIURNAL VARIATION

2000 MEAN DIURNAL VARIATION OF EFFECTIVE OUTGOING RADIATION FROM A BLACK SURFACE AT AIR TEMPERATURE (0.01 MJ/SQM)																									
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
JAN	10	10	10	10	10	11	11	11	10	10	11	11	11	10	11	11	10	11	11	12	11	11	11	11	256
FEB A	13	14	14	15	15	15	14	13	14	13	13	13	13	13	13	12	12	12	12	12	11	12	13	14	315
MAR A	13	12	10	9	9	9	9	9	10	9	10	11	11	12	12	13	13	14	15	14	14	15	15	15	282
APR	16	16	15	15	14	14	14	14	15	14	14	15	16	15	15	16	17	16	17	17	16	16	16	15	369
MAY	19	19	16	16	17	19	19	18	18	18	18	19	20	20	21	22	24	24	23	22	20	20	18	18	467
JUN	15	15	14	13	13	13	13	13	13	13	12	13	14	15	15	15	16	17	18	17	16	16	16	16	350
JUL	11	11	12	10	10	11	13	13	14	14	14	14	15	16	16	16	17	17	17	16	15	13	12	10	328
AUG	8	8	9	8	8	8	9	9	10	10	10	10	11	13	14	14	14	14	13	11	10	10	10	9	252
SEP M	13	13	13	14	14	13	14	15	17	18	17	18	18	19	18	19	19	17	16	16	17	17	16	15	384
OCT A	12	12	11	10	12	12	13	12	13	14	15	16	14	13	12	12	12	10	11	12	12	12	12	11	294
NOV	15	16	16	16	17	19	17	17	18	18	20	20	20	20	19	19	18	17	17	17	15	16	16	15	418
DEC	18	18	17	16	17	17	17	17	16	16	16	16	15	16	16	15	16	16	17	17	18	17	16	17	395
MEAN A	14	14	13	13	13	13	14	13	14	14	14	15	15	15	15	16	15	16	15	15	15	15	14	14	342

2000 MEAN DIURNAL VARIATION OF SUNSHINE DURATION (MIN)																											
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL*	MAX*	PCT
JAN	5	7	9	2	.	.	.	.	.	.	.	.	.	.	.	.	4	31	12
FEB	2	12	13	13	13	14	11	7	.	.	.	.	.	.	.	.	.	.	14	65	21
MAR	1	6	9	7	10	11	11	13	10	11	5	.	.	.	.	.	.	.	.	16	95	16
APR	4	8	9	15	15	16	19	19	15	16	12	13	12	2	.	.	.	.	.	.	29	130	23
MAY	.	.	.	12	25	27	28	26	26	30	31	34	32	33	34	35	31	25	7	.	.	.	.	.	73	153	48
JUN	.	.	.	11	15	15	14	16	17	18	19	20	23	21	18	16	15	16	13	2	.	.	.	.	45	163	27
JUL	.	.	.	6	12	13	17	20	19	20	19	18	21	22	20	19	19	18	13	1	.	.	.	.	46	158	29
AUG	.	.	.	1	5	7	9	13	10	12	11	10	17	17	15	14	11	4	1	.	.	.	.	.	26	141	19
SEP	.	.	.	1	9	21	28	25	24	23	22	22	19	21	16	6	.	.	.	.	.	.	.	.	40	108	36
OCT	3	14	14	17	17	11	11	8	3	.	.	.	.	.	.	.	.	.	.	16	78	20
NOV	2	8	16	17	12	3	.	.	.	.	.	.	.	.	.	.	.	.	.	10	40	23
DEC	4	14	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	22	20
MEAN	0	0	0	0	3	5	7	9	13	14	16	16	14	14	13	11	10	8	5	3	0	0	0	0	27	99	24

*TOTALS AND MAX ARE GIVEN IN 0.1 H

D. MONTHLY AND ANNUAL MEANS

2000 MONTHLY AND ANNUAL MEANS OF RADIATION COMPONENTS IN BERGEN													
UNITS	RADIATION VALUES: 0.01 MJM ⁻² DAY ⁻¹ (UV:KMJ ⁻² DAY ⁻¹ ; UV-B : 0.01 MED/DAY), SUNSHINE DURATION : 0.1 HR												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
GLOBAL RADIATION	67	233 A	544 A	990	1702	1524	1501	972	842 M	260 A	124	40	738 A
SKY RADIATION	56	144 A	400 A	643	701	829	809	640	409 M	181 A	87	32	414 A
ULTRAVIOLET RADIATION	35	106 A	261 A	460	757	733	744	485	387 M	119 A	61	24	350 A
UV-B RADIATION	13	35 A	164 A	355	636	662	705	430	304 M	67 A	-	-	-
NORMAL INCIDENCE BEAM	71	351 A	343 A	673	1810	1170	1194	622	975 M	266 A	197	65	642 A
ATMOSPHERIC RADIATION	2600	2542 A	2571 A	2681	2750	2888	3028	3055	2885 M	2889 A	2638	2501	2751 A
EFFECTIVE RADIATION	256	315 A	282 A	369	467	350	328	252	384 M	294 A	418	395	342 A
DURATION OF SUNSHINE	4	14	16	29	73	45	46	26	40	16	10	4	27
DURATION OF SUNSHINE (PCT)	12	21	16	23	48	27	29	19	36	20	23	20	24