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Biological and Climatic Effects Research (BACER) program.
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MIDDLE ULTRAVIOLET IRRADIANCE MEASUREMENTS AT THE OCEAN SURFACE

INTRODUCTION

Downward spectral middle ultraviolet (MUV) irradiance (280-380nm) data, measured just above the ocean surface in the central equatorial Pacific, have been obtained as a function of sun zenith angle (20° - 70°). These data comprise a unique set of observational data (for the UV region and a marine atmosphere) and are presented in detail in this report.

Analytic models already have been fit to these data (Baker *et al.*, 1980.) In addition, results based upon bio-optical research on the same cruise, which utilize these models, have been published (Smith and Baker, 1979a, 1980a; b; c). Further research such as a modeling of the diffuse attenuation coefficient as a function of chlorophyll, and the effects of clouds on surface UV irradiance, are in preparation.

The R/V Knorr cruise (July-August, 1978) crossed the Central Equatorial Pacific starting at Kwajelain (9°N, 168°E) and ending at Samoa (14°S, 171°W) having spent more than one week at the equator (Fig.1). Optical and biological measurements made on this cruise were carried out in order to investigate the ultraviolet irradiance present in marine equatorial regions and to investigate the

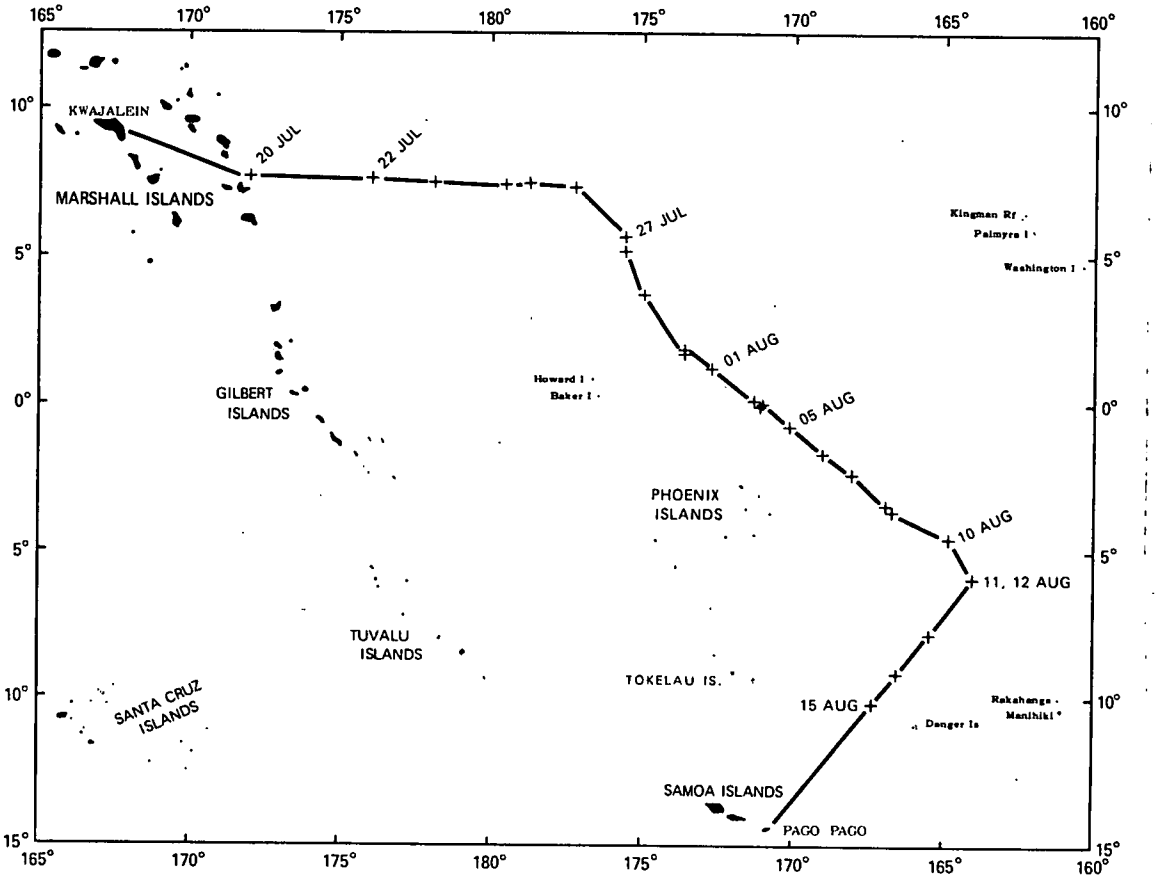


Fig.1. Cruise track of the R/V Knorr from Kwajalein to Samoa (July/August 1978).

possible effects of UV on primary productivity in the oceans. This research was sponsored by EPA (Grant #R806489010, R806489020) as a part of a program to investigate quantitatively present effects of UV in natural waters and to estimate quantitatively possible effects on the marine environment due to an anthropogenic diminishment of the ozone layer. Shiptime on the R/V Knorr was made available on a no-cost-not-to-interfere basis by chief scientists Frederick Sayles and Oliver Zafiriou from Woods Hole Oceanographic Institute. During this cruise our work was also part of a collaborative effort with Dr. O. Zafiriou who was studying photochemical reactions in sea water (other than photosynthesis) with respect to the penetration of MUV irradiance into ocean waters.

Optical measurements included spectral irradiance, particularly in the MUV region, both above the water surface and throughout the water column. Biological measurements included the chlorophyll concentration and primary productivity of the water. Bio-optic experiments were made to simulate "altered" ultraviolet environment effects (Smith and Baker, 1980a,c; Smith *et al.*, 1980b).

A complete summary of bio-optical data is given in Table 1. All of the data were recorded and analyzed using an HP9825 minicomputer. The total irradiance and along track chlorophyll measurements were recorded by the computer system every one minute. This was done with the aid of an HP9835A clock, an HP59306A switch relay, and an HP3438A DVM. The first few columns in the table give the designation, date and location of the station. The sixth column gives the surface value of the chlorophyll concentration. The next column indicates the depths (in meters) from which water was taken for productivity work. These depths were chosen to correspond to the surface, 57%, 34% and 11% total irradiance levels. There were four integrating surface irradiance instruments on board which were in use at various times as indicated by a code of 1 to 4 in column eight. The ninth column indicates the data taken with the underwater UV spectroradiometer (Smith et al., 1979b). The 0^+ refers to above water measurements, the depths are given in meters. These measurements were generally made at local apparent noon with sun zenith angles near 20°. As indicated ($E_d(0^+)$ *vs. sun*) on three days, measurements were repeated throughout the day as a function of sun zenith angle. The UV instrument was also used to make depth profiles holding the wavelength constant in order to be able to calculate the most accurate possible measurements of the diffuse attenuation coefficient for irradiance, K:

$$K(\lambda)[m^{-1}] = \frac{1}{z_2 - z_1} \ln \frac{E_1(\lambda)}{E_2(\lambda)} \qquad (1)$$

where the depth is z and downwelling spectral irradiance is $E(\lambda)$. The last column of the table indicates the days on which chlorophyll fluorescence was measured along the ship track and recorded every 5 seconds for chlorophyll variance analysis.

Table 1.

Bio-optical Measurements R/V Knorr Cruise (July-August 1978)

STATION WHOI	STATION SIO	1978 DATE	LATITUDE	LONGITUDE	Chl a ($mg \cdot m^{-3}$)	PRODUCTIVITY	SURFACE IRRADIANCE	UNDERWATER IRRADIANCE	IRRADIANCE $K(m^{-1})$ AT $\lambda(nm)$	CHLOROPHYLL VARIANCE SPECTRA
*B	2	Jul 20	7°42.0'N	172°0.0'E	0.015					
D	4	22	7°38.8'N	176°1.8'E	0.015			$E_d(0^+, 1, 5)$	305, 320	
E	5	23	7°26.5'N	178°9.2'E	0.013	0	3	$E_d(0^+)$ *vs. sun*		
F	6	24	7°23.0'N	179°33.6'W	0.05			$E_d(0^+)$ – *noon*		
F	6	25	7°27.0'N	178°42.9'W	0.06			$E_d(1.5, 6.5, 11.5, 16.5)$	305, 320, 335	
G	7	26	7°19.1'N	177°12.7'W	0.09	0, 15, 30, 45	3			*F10726* *F20726*
H	8	27	5°7.5'N	175°34.0'W	0.10		2, 3	$E_d(1.5, 3.5)$ *vs. sun*	305, 320	
*H	8	28	5°37.5'N	175°34.0'W	0.15		2	$E_d(0^+)$		*F10728*
I	9	29	3°39.4'N	174°57.2'W	0.12	0, 15, 35, 55	2, 3	$E_d(0^+, 1.5, 6.5)$	305, 320, 335, 350, 365, 380	
J	10	30	1°48.5'N	173°34.0'W	0.15		1, 2, 3, 4	$E_d(1.5, 3.5, 10, 15)$	305	
J	10	31	1°45.2'N	173°34.5'W	0.25	0, 8, 16, 32	1, 2, 3, 4	$E_d(0^+, 5, 10, 15, 20)$	305, 320, 350	*F10731*
J	10	Aug 1	1°10.2'N	172°44.1'W	0.25	0, 8, 16, 32	1, 2, 3, 4	$E_d(0^+, 5, 10, 15)$	305, 360	
*K	11	2	0°5.0'N	171°15.0'W	0.30	0	1, 2, 3, 4	$E_d(0^+)$ *overcast*		
K	11	3	0°1.3'S	171°5.4'W			1, 2, 3, 4	$E_d(0^+)$		
K	11	4	0°1.1'S	171°4.9'W	0.20	0, 8, 16, 32	1, 2, 3, 4	$E_d(5, 10, 15, 20)$	305, 320, 335, 350, 365, 380, 410	*F10804*
K	11	5	0°47.6'S	170°7.9'W	0.25	0, 8, 16, 32	1, 2, 3, 4	$E_d(0^+, 1.5, 5, 10)$	305, 320, 335, 350, 365, 380, 410	*F10805*
*K	11	6	1°41.2'S	169°1.5'W			1, 2, 3, 4	$E_d(0^+)$		
L	12	7	2°25.4'S	168°3.0'W	0.18		1, 2, 3, 4			
*L	12	8	3°27.5'S	166°55.0'W	0.25	0, 10, 20, 40	1, 2, 3, 4	$E_d(0^+)$		
M	13	9	3°39.1'S	166°40.1'W	0.15	0, 9, 18, 36	1, 2, 3, 4	$E_d(0^+, 3, 5, 10)$	305, 320, 350, 365, 410	
N	14	10	4°33.2'S	164°50.9'W	0.16		1, 2, 3, 4	$E_d(0^+, 20, 15, 10, 5)$	305, 320, 350, 365, 380, 410, 450	
P	15	11	5°55.0'S	164°0.0'W	0.17		1, 2, 3, 4	$E_d(0^+, 5)$	305, 320, 335, 350, 365, 380, 410, 450	
*P	16	12	5°55.0'S	164°0.0'W			1, 2, 3	$E_d(0^+)$ *vs. sun*		
*Q	17	13	7°51.1'S	165°28.0'W	0.15	0, 9, 18, 36	1, 2, 3, 4			
R	18	14	9°10.1'S	166°32.9'W	0.12	0, 10, 20, 40	1, 2, 4	$E_d(5, 10, 15, 20)$		
S	19	15	10°11.0'S	167°22.0'W	0.04		1, 2		305, 320, 335, 350, 365, 380, 410, 450	*F10815*

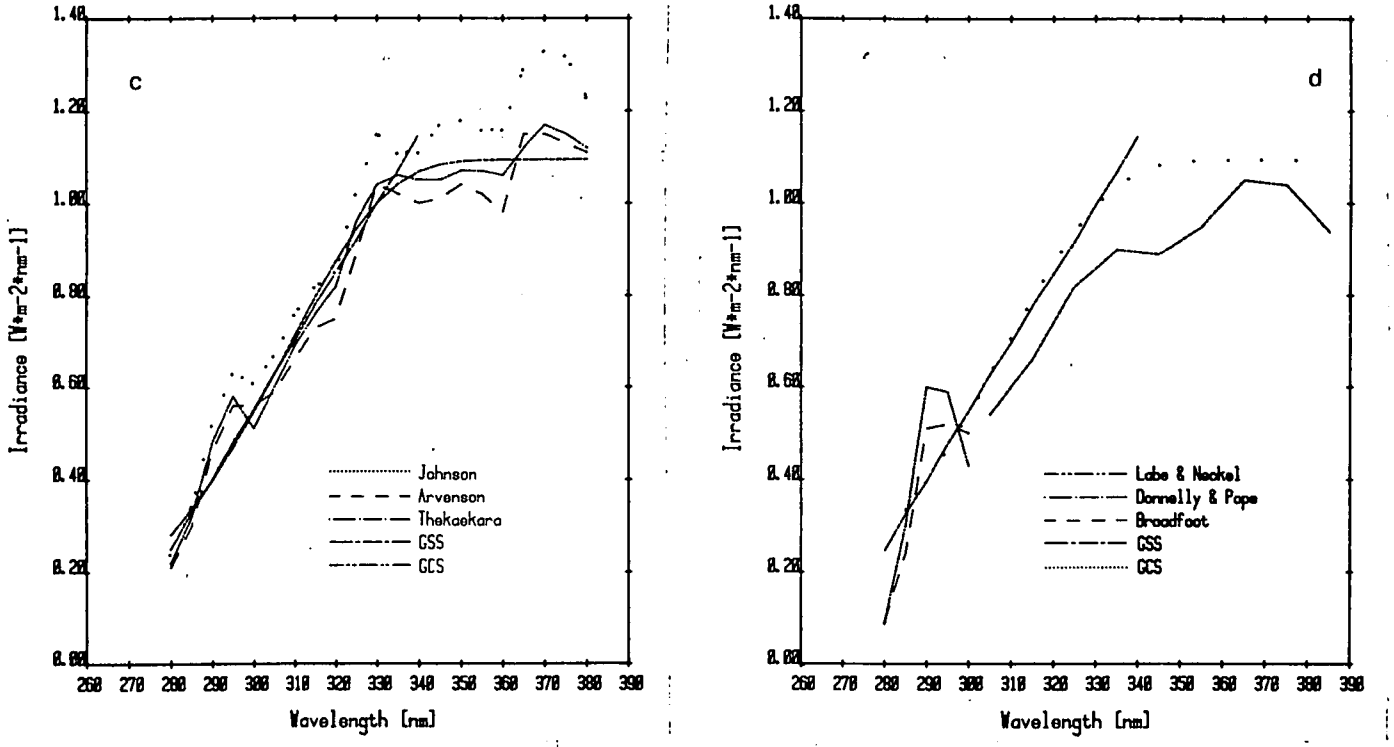


Fig.2.(con't).

Table 2.

Extraterrestrial Solar Irradiance

Wavelength	J	A	T	B	D&P	L&N	GSS	GCS
280	0.24	0.21	0.22	0.09	0.09	-	0.25	0.28
285	0.34	0.30	0.32	0.30	0.24	-	0.33	0.34
290	0.52	0.46	0.48	0.60	0.51	-	0.40	0.40
295	0.63	0.56	0.58	0.59	0.52	-	0.48	0.47
300	0.61	0.56	0.51	0.43	0.50	-	0.55	0.55
305	0.67	0.59	0.60	-	-	0.54	0.63	0.63
310	0.76	0.66	0.69	-	-	-	0.70	0.71
315	0.82	0.73	0.76	-	-	0.66	0.78	0.80
320	0.85	0.75	0.82	-	-	-	0.85	0.87
325	1.02	0.89	0.96	-	-	0.82	0.92	0.94
330	1.15	1.04	1.04	-	-	-	1.00	1.00
335	1.11	1.02	1.06	-	-	0.90	1.07	1.04
340	1.11	1.00	1.05	-	-	-	1.15	1.07
345	1.17	1.01	1.05	-	-	0.89	-	1.08
350	1.18	1.04	1.07	-	-	-	-	1.09
355	1.16	1.02	1.07	-	-	0.95	-	1.09
360	1.16	0.98	1.06	-	-	-	-	1.09
365	1.29	1.15	1.12	-	-	1.05	-	1.09
370	1.33	1.15	1.17	-	-	-	-	1.09
375	1.32	1.13	1.15	-	-	1.04	-	1.09
380	1.23	1.11	1.12	-	-	-	-	1.09
385	-	-	-	-	-	0.94	-	-

The calibrated Eppley ultraviolet radiometer, with a 60nm (FWHM) bandwidth and a spectral response centered at 340nm, measured

$$E_{uv}(0^+,\theta)\,[W\cdot m^{-2}] = \int_{290}^{420} R(\lambda)\cdot E(0^+,\theta,\lambda)\cdot d\lambda \qquad (3)$$

where $R(\lambda)$ is the relative spectral response of the Eppley UV radiometer (Fig.3).

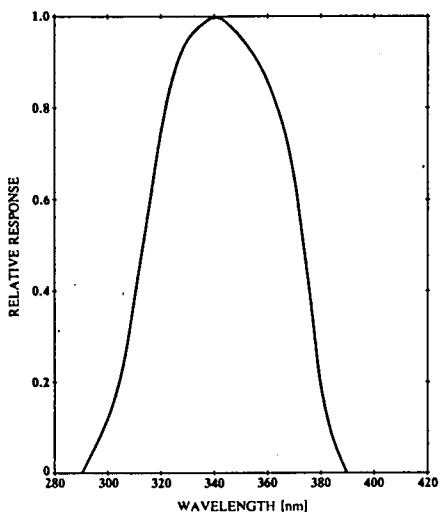


Fig.3. Eppley UV radiometer response vs. wavelength [nm].

Measurements from the two uncalibrated daily irradiance instruments could be calibrated against the calibrated instruments during the intervals that all four readings were being recorded. The information from the two calibrated instruments is presented in Fig.4(a-v) where the solid curve is the E_{TOT} and the broken curve is E_{uv}. It should be noted all times are referenced to time zone +12. During the infrequent intervals that the recording of either of the two calibrated instruments failed, the results from the other two instruments (which were calibrated in the field) are included in the reported data.

This report is limited to presenting the above water downward spectral irradiance data in detail. First, the extraterrestrial solar spectral irradiance is discussed. Second, the total daily irradiance and the ultraviolet daily irradiance measured at the ocean surface is presented. Finally, the downwelling spectral irradiance data is discussed and presented.

It should be noted that all times mentioned herein are with reference to time zone +12. On the second of August and thereafter, time zone +11 was entered but ship time and all recorded measurements continued to be designated as if in time zone +12.

EXTRATERRESTRIAL SOLAR IRRADIANCE

The extraterrestrial solar irradiance, E_Θ, is the spectral irradiance reaching the top of the earth's atmosphere. It is regarded as a constant although it is known to vary somewhat depending upon (as yet) unpredictable events such as sun spots (White, 1977) and to have a predictable, cyclical, variation (±3.4%) due to the eccentricity of the earth in its orbit (see eg. Austin *et al.*, 1980). Several researchers have determined values for E_Θ. A summary of their results in the MUV region is presented in Fig.2(a-d). The measurements of Johnson (1954), Arvenson (1969), and Thekaekara (1971) are plotted in Fig.2(a,c). Also shown on these graphs are analytic fits made to the E_Θ data in the 280-340nm region (Green *et al.*, 1974; hereafter referred to as GSS) and an extended fit in the 280-340nm region (Green *et al.*, 1980; hereafter referred to as GCS). The results are shown on both linear (fig.2a) and log (fig.2c) scales. More recent measurements by Broadfoot (1972), Donnelly and Pope (1973), and Labs and Neckel (1970) are shown in Fig.2(b,d) again with the GSS and GCS analytic fits for comparison. All data is summarized in Table 2.

The data for the extraterrestrial solar spectral irradiance vary by about 8% but can disagree as much as 15% in the middle ultraviolet region of the spectrum. In utilizing the spectral irradiance data presented below, especially when analytically modeling these data, it is important to recognize this uncertainty in our knowledge of E_Θ.

DAILY IRRADIANCE

Four irradiance instruments for measuring downwelling irradiance were used almost continuously during this cruise: (1) a calibrated Eppley pyranometer (0.3–3μ) (M. MacFarland-NCAR); (2) a calibrated Eppley ultraviolet radiometer (290-420nm) (0. Zafiriou - WHOI); (3) an uncalibrated pyranometer (S.I.O.); (4) an uncalibrated UV dosimeter (O. Zafiriou - WHOI).

The calibrated Eppley pyranometer measured the total downwelling irradiance between 0.3 and 3.0μ,

$$E_{TOT}(0^+,\theta)[W\cdot m^{-2}] = \int_{.3\mu}^{3\mu} E(0^+,\theta,\lambda)\cdot d\lambda \qquad (2)$$

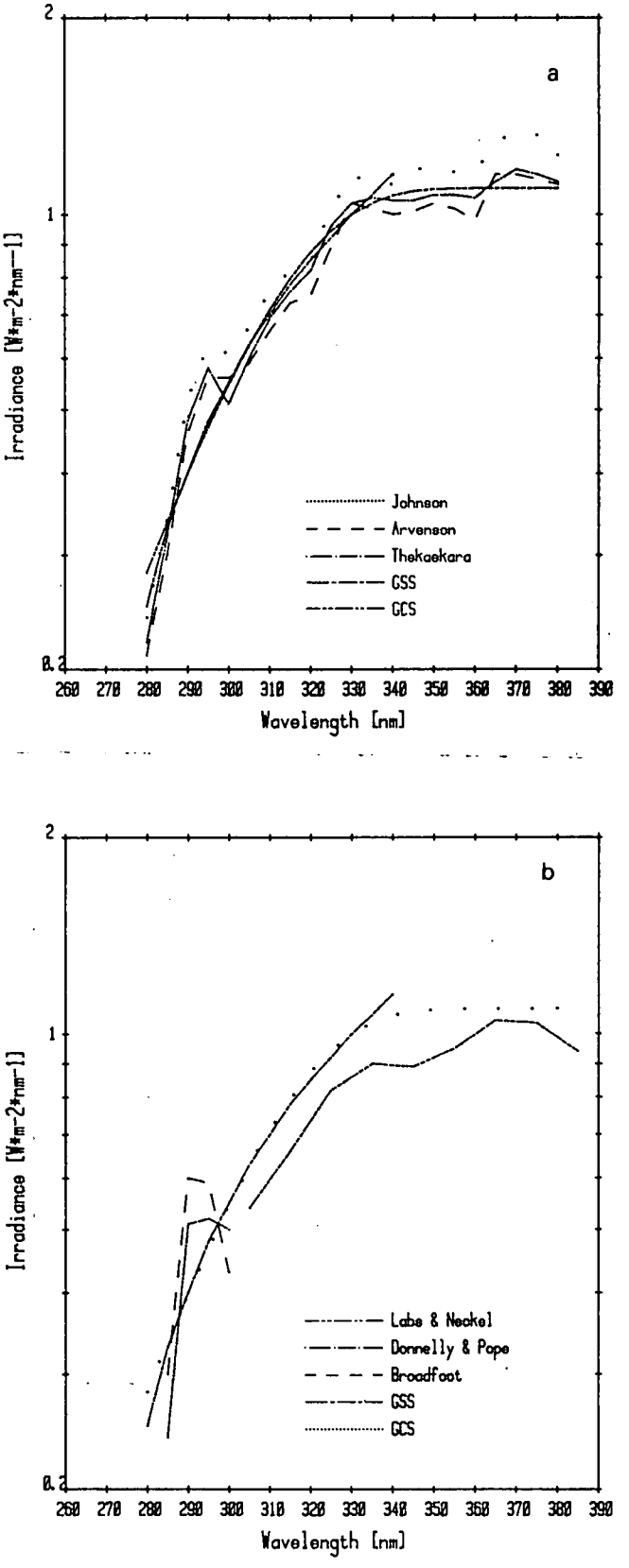


Fig.2(a-d). Extraterrestrial solar irradiance $[W\cdot m^{-2}\cdot nm^{-1}]$ vs. wavelength [nm] as measured by several investigators (see Table 2). Note that Fig.2(a,b) have log y scales whereas Fig.2(c,d) have linear y scales.

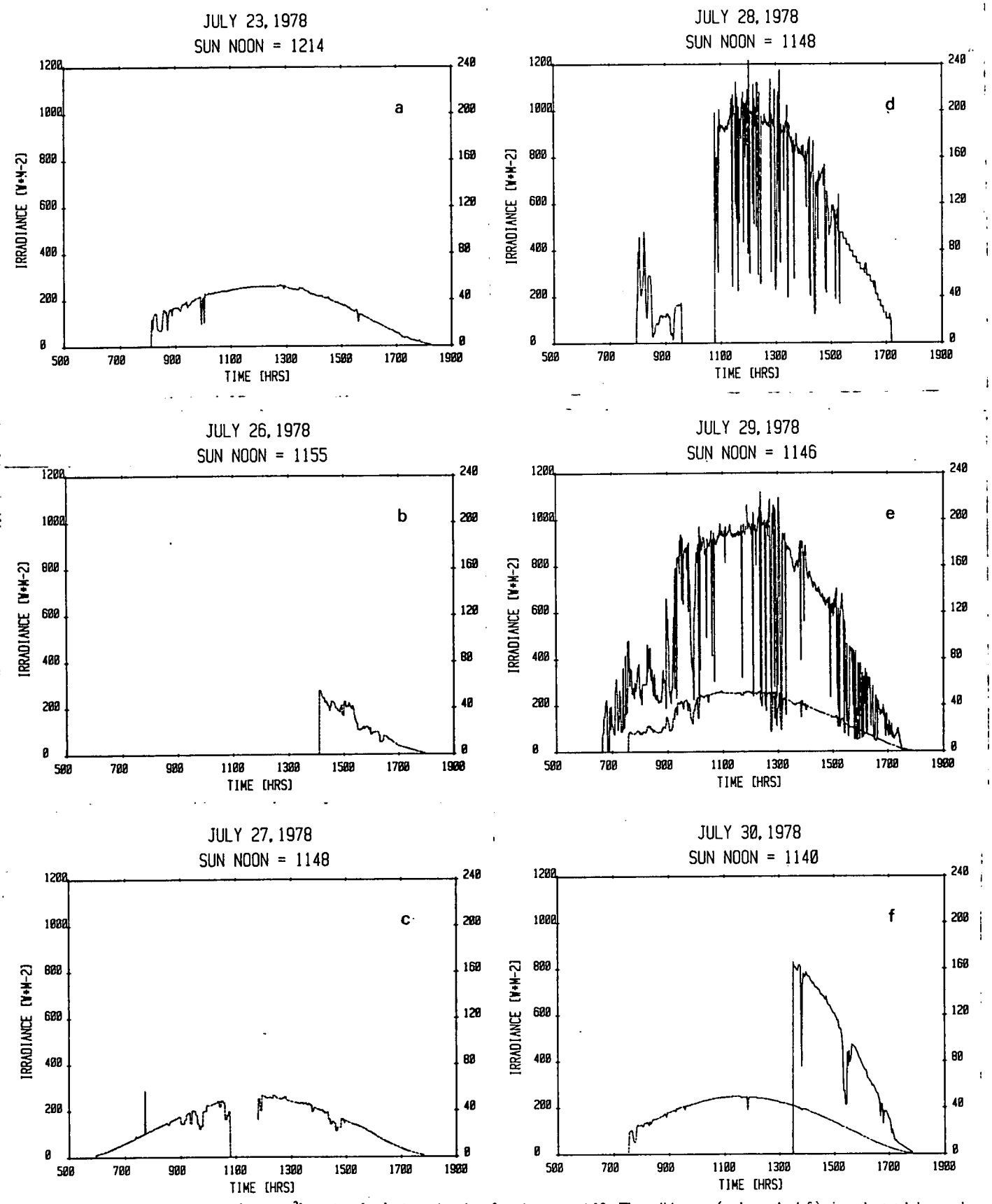


Fig.4(a-p). Downwelling irradiance [$W \cdot m^{-2}$] vs. time [hrs] where time is referred to zone +12. The solid curve (scale on the left) gives the total downwelling irradiance [$0.3\mu - 3\mu$]. The broken curve (scale on the right) gives the downwelling irradiance in the ultraviolet region of the spectrum (290-420nm). Sun noon, or local apparent noon, refers to the smallest sun zenith angle of the day.

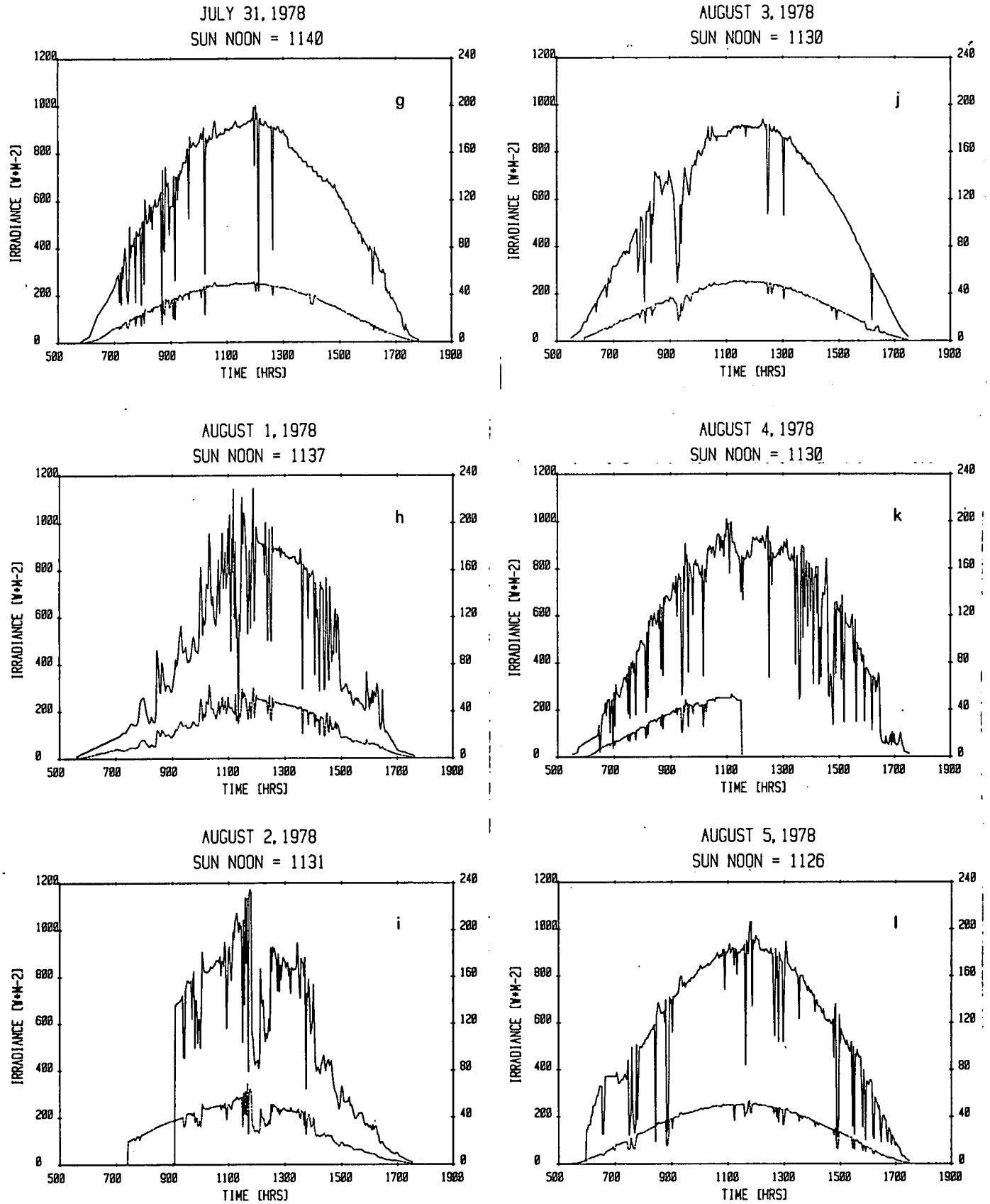

JULY 31, 1978
SUN NOON = 1140
g
AUGUST 3, 1978
SUN NOON = 1130
j
AUGUST 1, 1978
SUN NOON = 1137
h
AUGUST 4, 1978
SUN NOON = 1130
k
AUGUST 2, 1978
SUN NOON = 1131
i
AUGUST 5, 1978
SUN NOON = 1126
l
IRRADIANCE [W*M-2]
TIME [HRS]
0
200
400
600
800
1000
1200
0
40
80
120
160
200
240
500
700
900
1100
1300
1500
1700
1900

Fig.4.(con't).

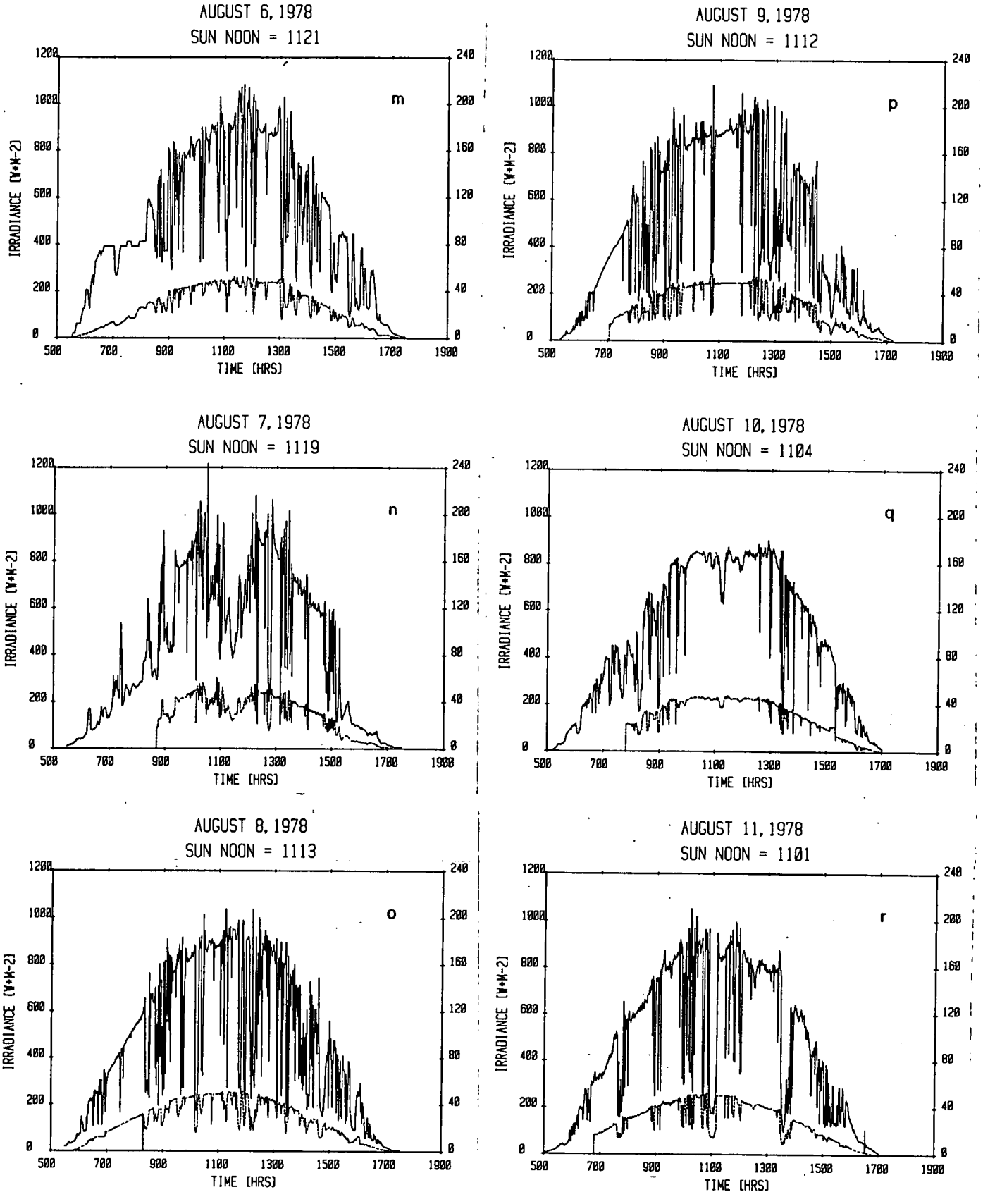

AUGUST 6, 1978
SUN NOON = 1121
m
AUGUST 9, 1978
SUN NOON = 1112
p
AUGUST 7, 1978
SUN NOON = 1119
n
AUGUST 10, 1978
SUN NOON = 1104
q
AUGUST 8, 1978
SUN NOON = 1113
o
AUGUST 11, 1978
SUN NOON = 1101
r
IRRADIANCE [W*M-2]
TIME [HRS]
500
700
900
1100
1300
1500
1700
1900
0
200
400
600
800
1000
1200
40
80
120
160
200
240

Fig.4.(con't).

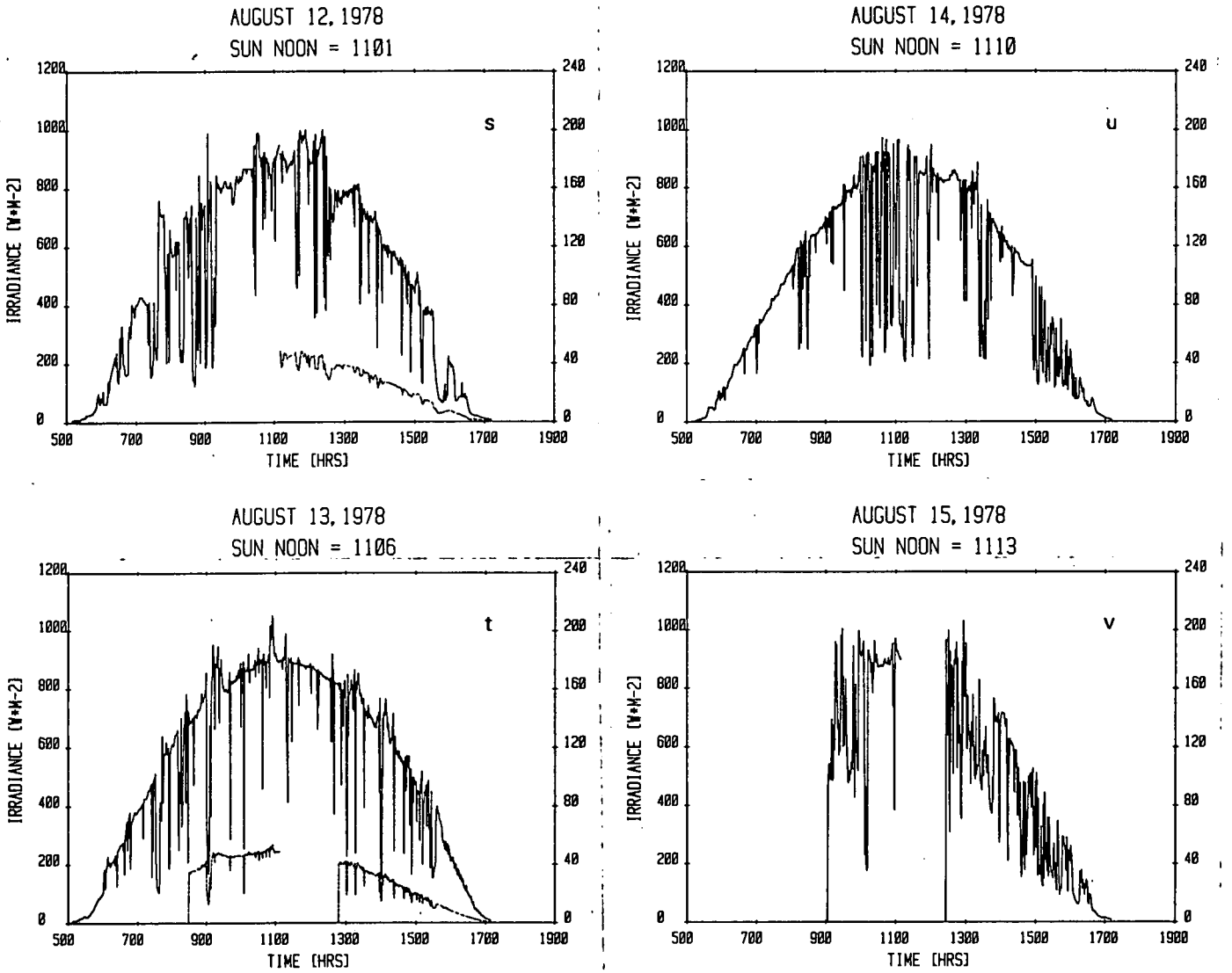


Fig.4.(con't).

The instruments for measuring above water irradiance were mounted above the deck of the R/V Knorr so as to avoid shadowing or reflected irradiance from the ship. Instruments were also mounted so that stack gasses from the ship would not contaminate the atmosphere above them. All optical instruments viewed a full 2π solid angle which included, because of practical constraints, some portion of the ship's superstructure. However, the ship influence was negligible since these instruments measure irradiance *(i.e.* are weighted by cos θ). The effect of ship motion is accounted for by averaging continuous measurements over several periods of ship roll and pitch.

From the several exceptionally clear days of data (31 Jul, 03 Aug, 05 Aug) produced by these instruments, it is possible to deduce an "envelope" curve appropriate for a theoretical average "clear atmosphere" day in the following manner. Local apparent noon for each day's station can be calculated based upon knowledge of the latitude, the longitude, and the date. Table 3 gives a summary of the local apparent noons as well as the corresponding sun zenith angles. Each daily irradiance curve can then be shifted in order to renormalize all data to local apparent noon. Since many of the days on this summer cruise were predominantly clear, a composite of all the days will indicate an envelope of data appropriate for a theoretical clear day which is shown in Fig.5. It is known that clouds can cause both temporary increases as well as decreases in solar irradiance (Franceschini, 1964). Thus in comparing Fig.4 with Fig.5 there are some temporary increases above the clear day irradiance values of Fig.5 due to reflection and multiple scattering of the irradiance.

In comparing the total pyranometer results with the MUV radiometer results, note that the total energy scale (solid curve) is on the left while the MUV energy scale (broken curve) is on the right. Integrating the MUV curve over hourly intervals shows that over 50% of the MUV irradiance reaches the ocean surface in the four

Table 3.

R/V Knorr Cruise Sun Zenith Angles

DATE	LATITUDE	LONGITUDE	LOCAL APPARENT NOON	SUN ZENITH ANGLE
20 JUL	7°42.0'N	172°00.0'E	1138	13°
22 JUL	7°38.8'N	176°01.8'E	1222	12°
23 JUL	7°26.5'N	178°09.2'E	1214	13°
24 JUL	7°23.0'N	179°33.6'W	1204	12°
25 JUL	7°27.0'N	178°42.9'W	1201	12°
26 JUL	7°19.1'N	177°12.7'W	1155	12°
27 JUL	5°07.5'N	175°34.0'W	1148	12°
28 JUL	5°37.5'N	175°34.0'W	1148	13°
29 JUL	3°39.4'N	174°57.2'W	1146	15°
30 JUL	1°48.5'N	173°34.0'W	1140	16°
31 JUL	1°45.2'N	173°34.5'W	1140	16°
01 AUG	1°10.2'N	172°44.1'W	1137	17°
02 AUG	0°05.0'N	171°15.0'W	1231	18°
03 AUG	0°01.3'S	171°05.4'W	1230	17°
04 AUG	0°01.1'S	171°04.9'W	1230	17°
05 AUG	0°47.6'S	170°07.9'W	1226	18°
06 AUG	1°41.2'S	169°01.5'W	1221	18°
07 AUG	2°25.4'S	168°03.0'W	1219	18°
08 AUG	3°27.5'S	166°55.0'W	1213	19°
09 AUG	3°39.1'S	166°40.1'W	1212	19°
10 AUG	4°33.2'S	164°50.9'W	1204	20°
11 AUG	5°55.0'S	164°00.0'W	1201	21°
12 AUG	5°55.0'S	164°00.0'W	1202	21°
13 AUG	7°51.1'S	165°28.0'W	1206	22°
14 AUG	9°10.1'S	166°32.9'W	1210	23°
15 AUG	10°11.0'S	167°22.0'W	1213	24°

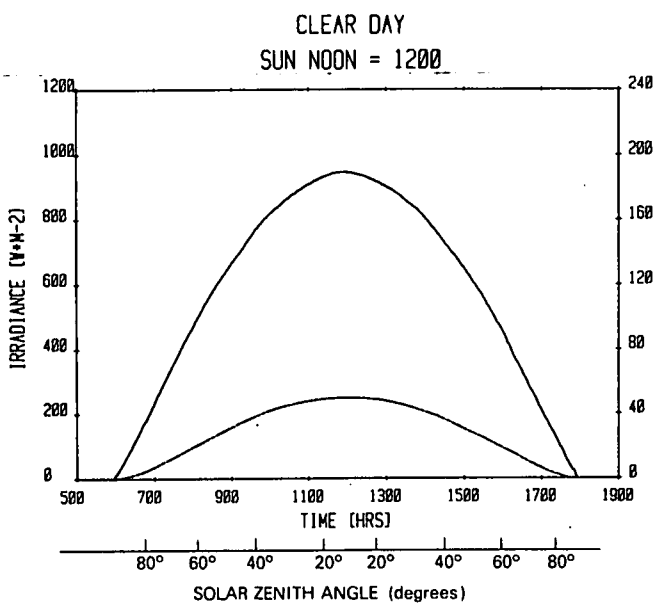


Fig.5. Downwelling irradiance $[W \cdot m^{-2}]$ on a theoretical clear atmosphere day as a function of time [hrs]. The solid curve (scale on the left) is the total downwelling irradiance $[0.3\mu - 3\mu]$. The broken curve (scale on the right) is the downwelling irradiance in the ultraviolet region of the spectrum (290-420nm).

hours spanning local apparent noon. Fig.6 shows the ratio of the MUV to the total downwelling irradiance for the theoretical cloud free day. This figure illustrates that the MUV contribution to the total light remains relatively constant over six hours spanning local apparent noon. Ratioing the integral of the clear day total curve and the MUV curve gives a rough estimate of the total amount of MUV contributed to the total energy during one day

$$\frac{\int_{1day} E_{uv}(0^+,\theta)\cdot d\theta}{\int_{1day} E_{TOT}(0^+,\theta)\cdot d\theta} = 0.05. \qquad (4)$$

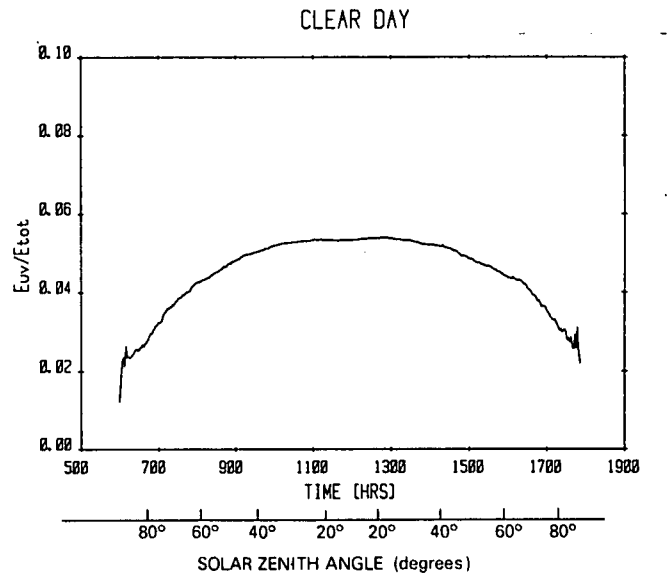


Fig.6. Ratio of the ultraviolet (290-420nm) to the total $[0.3\mu - 3\mu]$ downwelling irradiance for the theoretical clear day as a function of time [hrs] and sun zenith angle [degrees].

The effects of clouds will be pointed out briefly here although more thorough work is in preparation. On a day such as the 3 August (Fig.4) a cloud passed overhead about 0930 causing the total pyranometer to drop from the clear day value of 737 to a value of 268 while the MUV radiometer dropped from the clear day value of 37 to a value of 24. Thus while this cloud decreased total irradiance by 66%, the MUV was decreased by only 32%. This is a specific example of the well known fact that clouds reduce MUV proportionally less than visible radiation.

DOWNWELLING SPECTRAL IRRADIANCE

Downward spectral irradiance, $E(0^+,\lambda,\theta)$, measurements were made at various times (that is, sun zenith angles 20° to 70°) during the day just above the surface of the ocean. These data were obtained using an underwater spectroradiometer (Smith *et al.*, 1979b) designed specifically to obtain accurate data in the MUV portion of the spectrum although it has the capability of obtaining data between 200nm and 800nm (Fig.7).

The measurements obtained with the MUV instrument require several calibrations. Since the irradiance in the UV region of the spectrum decreases by an order of magnitude within a few nanometers, it is important that

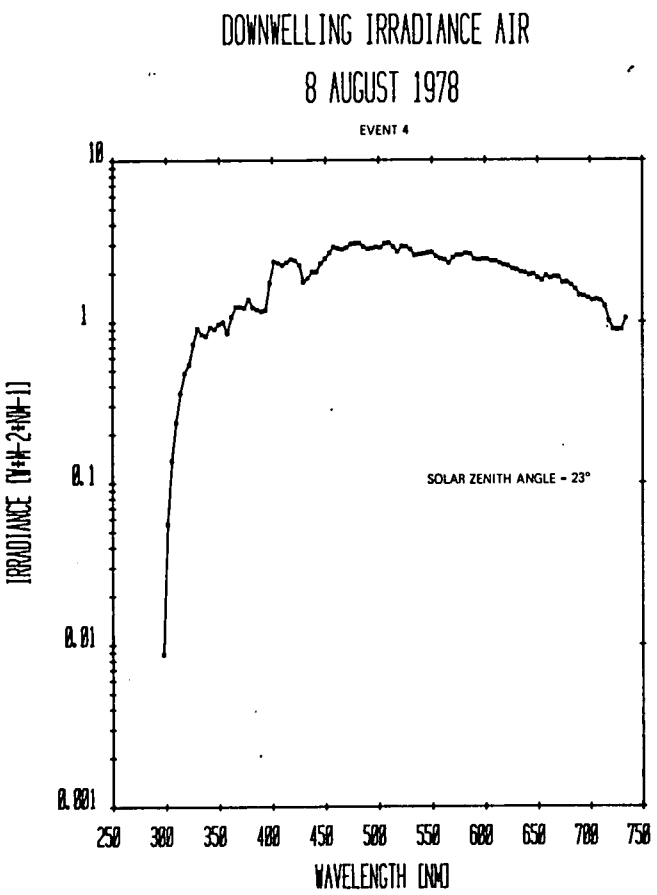


Fig.7. Downwelling irradiance $[W \cdot m^{-2} \cdot nm^{-1}]$ at the ocean surface (station 12) as a function of wavelength [nm] throughout both the ultraviolet and visible region of the spectrum.

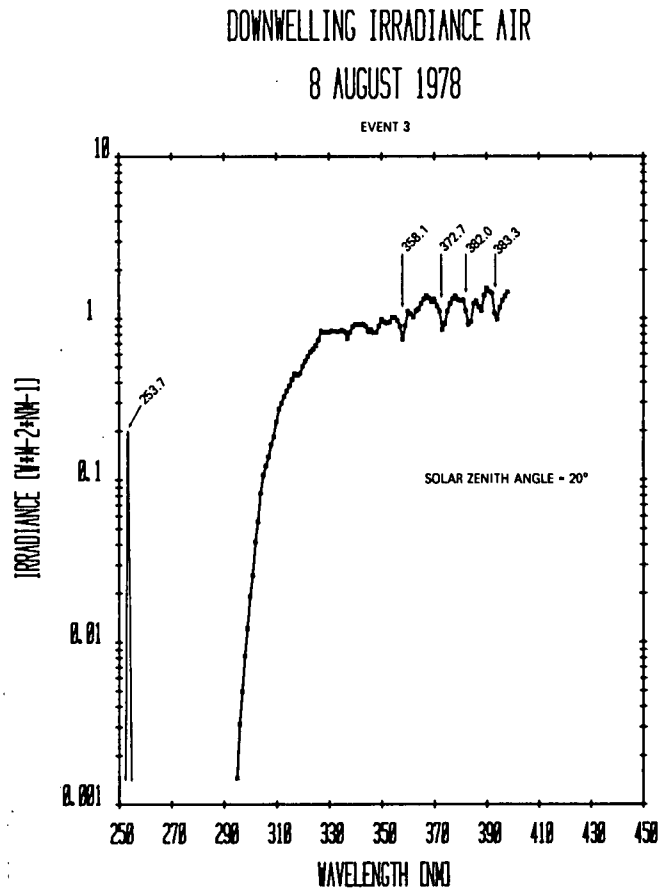


Fig.8. Downwelling irradiance $[W \cdot m^{-2} \cdot nm^{-1}]$ at the ocean surface (station 12) as a function of wavelength [nm] with the Fraunhofer lines denoted by arrows. A line from a mercury lamp used for wavelength calibration of the instrument is also shown at 253.7nm.

the wavelength calibration of the instrument be exact. A small mercury lamp inside the instrument was used frequently during the day to identify the nominal wavelengths of the instrument compared to the known mercury lines of the lamp. Wavelength shifts were found to be less than ±0.3nm. Each data set was corrected for these shifts to within about ±0.1nm. An independent check on the wavelength calibration is made by observing the Fraunhofer lines that appear distinctly in the MUV region of the spectrum (Fig.8).

A slit function correction (Saunders, 1978) was investigated in order to account for the finite slitwidth (2nm) of the instrument. Such a correction was found to be unnecessary.

The cosine response of UV submersible spectroradiometer collector (after a design by Norris, 1977) was measured in air and found to be within ±5% of normalization for all input zenith angles.

It was possible to make only a rough absolute calibration of the UV instrument before this cruise. However, given a fixed temperature as well as time to reach equilibrium, the relative precision of the measurements was ±5%. In order to obtain an absolute calibration of the UV spectroradiometer use was made of the simultaneous measurements from the calibrated Eppley UV radiometer. Data from the UV radiometer were used to normalize our spectral irradiance data as follows. The calculated quantity $E(0^+,\theta)$ simulates the response of the UV radiometer using our measured spectral irradiance, $E(0^+,\theta,\lambda)$, data as follows:

$$E(0^+,\theta) = \int_{290}^{420} E(0^+,\theta,\lambda)\cdot R(\lambda)\cdot d\lambda \qquad (5)$$

where $R(\lambda)$ is the response function of the UV Eppley radiometer. The ratio of Eq.(3), where $E_{uv}(0^+,\theta)$ is measured by the UV radiometer, and Eq.(5) where $E(0^+,\theta,\lambda)$ is calculated based upon the spectroradiometer measurements, $E(0^+,\theta,\lambda)$, gives

$$M_f = \frac{E_{uv}(0^+,\theta)}{\int_{290}^{420} E(0^+,\theta,\lambda)\cdot R(\lambda)\, d\lambda}. \qquad (6)$$

This ratio can be used to normalize the spectral UV spectroradiometer data by the factor M_f, which is no longer spectral in nature (Table 4),

$$E'(0^+,\theta,\lambda) = E(0^+,\theta,\lambda)\cdot M_f. \tag{7}$$

Here $E'(0^+,\theta,\lambda)$ is the renormalized (absolute) value of the downward spectral irradiance above the surface for a sun zenith angle of θ. This procedure gives an absolute calibration to our spectral data which was verified by the excellent agreement of data for various sun angles taken over a three week period in time, over 15° in latitude, and with a variety of atmospheric conditions.

While we could not avoid taking data under changing atmospheric conditions, every effort was made to obtain data during time periods when the downwelling irradiance was relatively constant. A "clear factor" to correct for lack of full sun was obtained by ratioing the known UV pyranometer reading ($E_{uv}(0^+,\theta)$) with that which would have been obtained on a hypothetical clear atmosphere day, ($E_{uv-clear}(0^+,\theta)$),

$$C_f = \frac{E_{uv-clear}(0^+,\theta)}{E_{uv}(0^+,\theta)}. \tag{8}$$

This ratio applied to the spectral data

$$E''(0^+,\theta,\lambda) = E'(0^+,\theta,\lambda)\cdot C_f \tag{9}$$

renormalizes the data to our hypothetical clear day. That is, $E''(0^+,\theta,\lambda)$ is the absolute value of the measured downward spectral irradiance corrected to a clear marine atmosphere. It should be noted that this ("clear factor") correction, which actually adjusts the data to a uniform atmospheric transmittance, is generally less than a 10% correction (Table 4). Thus renormalized, all the spectral data are given in absolute irradiance units and can be directly intercompared. Such a non-spectral correction has been shown to be reasonable (Spinhirne and Green, 1978; Green and Spinhirne, 1978) for wavelengths greater than 300nm. For wavelengths less than 300nm, some error is introduced.

The estimated overall absolute accuracy of the corrected spectral irradiance data is ±20%. In principal the overall accuracy of our spectral data could be as good as the calibrated UV radiometer, since a renormalization of the spectral data corrects these data for possible errors discussed above. In practice the imprecision due to wavelength determination was calculated to be about

Table 4.

Spectral Irradiance Events and Calibration Corrections

EVENT	TIME	SUN ZENITH ANGLE	A $E_{uvcl.}[W\cdot m^{-2}]$	B $E_{uv}[W\cdot m^{-2}]$	B/A C_f^{-1}	C $E\cdot R\cdot\Delta\lambda[W\cdot m^{-2}]$	B/C M_f	$M_f\cdot C_f$
E23701	1335-1348	23	46.02	45.52	0.989	14.77	3.08	3.12
E23702	1352-1404	27	44.16	43.22	0.979	17.33	2.49	2.55
E23703	1452-1501	40	35.25	34.90	0.990	18.03	1.94	1.96
E23704	1502-1507	43	33.60	33.17	0.987	18.82	1.76	1.78
E23705	1507-1515	44	32.60	31.59	0.969	18.13	1.74	1.80
E23706	1555-1601	55	23.26	21.33	0.917	13.15	1.62	1.77
E23707	1602-1611	57	21.76	19.82	0.911	13.09	1.51	1.66
E23709	1655-1709	69	10.05	7.68	0.764	6.07	1.27	1.66
E23710	1710-1718	73	7.83	6.32	0.807	4.00	1.58	1.96
E31720	1350-1358	36	40.06	40.50	1.000	16.82	2.41	2.39
E31721	1410-1415	40	37.12	36.47	0.982	15.81	2.31	2.35
E31722	1450-1457	49	29.15	28.72	0.986	11.22	2.56	2.60
E31723	1500-1505	52	27.50	27.07	0.985	10.91	2.48	2.52
E31724	1536-1547	60	19.75	18.81	0.954	11.64	1.62	1.70
E31725	1550-1558	63	17.38	17.09	0.983	5.51	3.10	3.15
E01835	1418-1428	43	34.61	34.54	0.998	17.96	1.92	1.92
E02802	1159-1209	19	50.04	31.38	0.627	9.87	3.18	5.07
E02803	1210-1222	20	49.47	36.19	0.731	15.63	2.32	3.17
E03805	1204-1212	19	49.83	49.83	1.000	20.57	2.42	2.42
E03807	1228-1245	22	48.11	46.10	0.958	21.74	2.12	2.21
E03818	1537-1552	63	17.16	16.73	0.973	10.48	1.60	1.64
E04820	0917-0936	31	42.58	42.94	1.000	12.30	3.49	3.46
E05836	0845-0910	44	37.70	37.19	0.987	12.52	2.97	3.01
E08803	1100-1120	20	50.48	43.44	0.861	24.14	1.80	2.09
E08804	1202-1210	23	49.18	47.32	0.962	24.60	1.92	2.00
E09801	0953-1002	28	47.32	46.81	0.990	16.47	2.84	2.87
E09802	1004-1012	26	48.11	46.60	0.969	17.59	2.65	2.73
E10802	1056-1104	20	50.48	45.31	0.898	16.74	2.71	3.01
E10803	1110-1128	20	50.40	42.79	0.848	18.43	2.32	2.74
E11801	1029-1036	23	49.90	49.18	0.985	19.37	2.54	2.58
E11802	1040-1050	22	50.33	49.61	0.986	20.90	2.37	2.41
E12803	1144-1202	23	49.11	44.80	0.912	22.69	1.98	2.17
E12804	1202-1222	26	47.68	43.80	0.919	22.54	1.94	2.11
E12806	1355-1401	48	32.38	26.35	0.813	15.12	1.74	2.14
E12807	1403-1413	50	30.52	26.71	0.876	14.21	1.88	2.15
E12808	1518-1525	67	15.87	14.00	0.884	6.50	2.15	2.44
E12810	1555-1602	76	8.40	7.25	0.863	3.27	2.22	2.57

±10% at shortest wavelength. Due to difficulties caused by the uncooperative environment at sea, we raise the overall estimate of absolute accuracy to ±20% as a worst case estimate.

Table 4 gives a summary of the spectral irradiance data. Each event is a wavelength package of data taken either from 280-450nm in 1nm steps or from 250-750nm in 4nm steps. Each event is labeled by the date on which it was taken and the event number:

E 23 7 01

where 23 is the day, 7 is the month, and 01 is the event. The time interval, referenced to time zone +12, during which the data was taken is in the second column. The average sun zenith angle corresponding to this time is in the next column. The $E_{uv}[W \cdot m^{-2}]$ readings for the clear day (during this time interval) and the actual $E_{uv}[W \cdot m^{-2}]$ during this time interval are in columns 4 and 5. As explained above in Eq.(8), the ratio of these two data gives the correction factor, C_f^{-1}, as listed in the next column. The next columns deal with the factors necessary to absolutely calibrate the data. Column seven contains $E(0^+, \theta)$ as defined by Eq.(5). The eighth column contains the ratio correction M_f as defined by Eq.(6). The last column of Table 4 lists the product of $M_f * C_f$ which represents the correction factor applied to the data to permit presentation in terms of absolute units of $watts \cdot m^{-2} \cdot nm^{-1}$. The corrected data are plotted in Fig.9(a-l), where the curves for each day are labeled by their event number and the corresponding sun zenith angle is listed on the graph. In the appendix are tables listing the corrected absolute spectral irradiance values. As a summary of the spectral irradiance data, all the data near sun zenith angles of 20°, 40°, 60° and 70° have been plotted onto a composite Fig.10.

Researchers using these data should note that the UV irradiance reaching the earth's surface is influenced by several environmental factors such as atmospheric ozone and aerosol thicknesses, surface albedo and cloudiness. In forming these composite data we have assumed that the variability in these factors (save for atmospheric transmittance as corrected by C_f) for this large ocean region and thirty day time period, is small compared to our measurement accuracy. This assumption is justified primarily by the paucity of data such as ours. Further, we know that the total ozone thickness, as measured by the NOAA-ARL station at Samoa (Ozone Data for the World, 1978) during our cruise, was 0.269± 0.006 [atm-cm]. Thus, there is some justification for treating these data as a composite set until more extensive and detailed data become available.

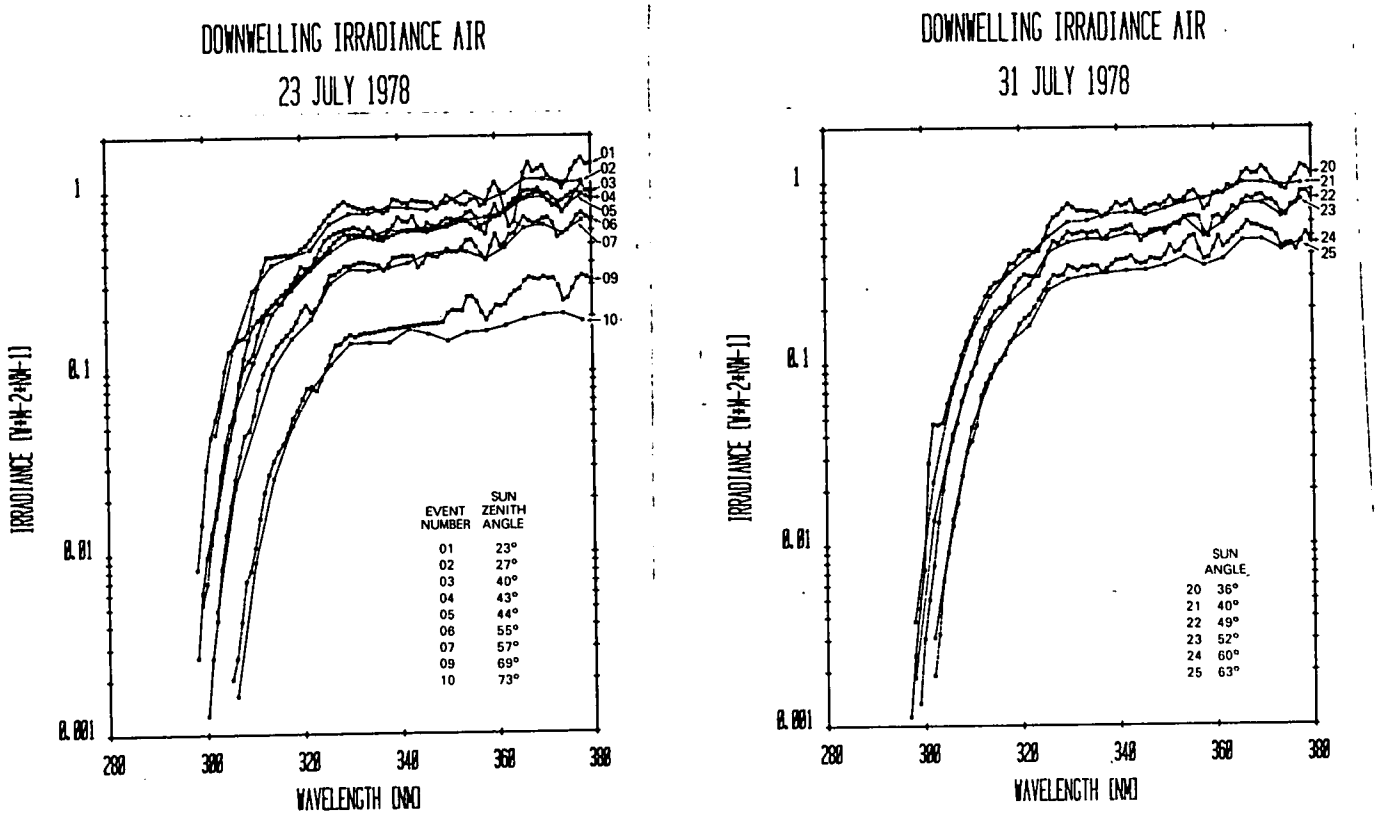
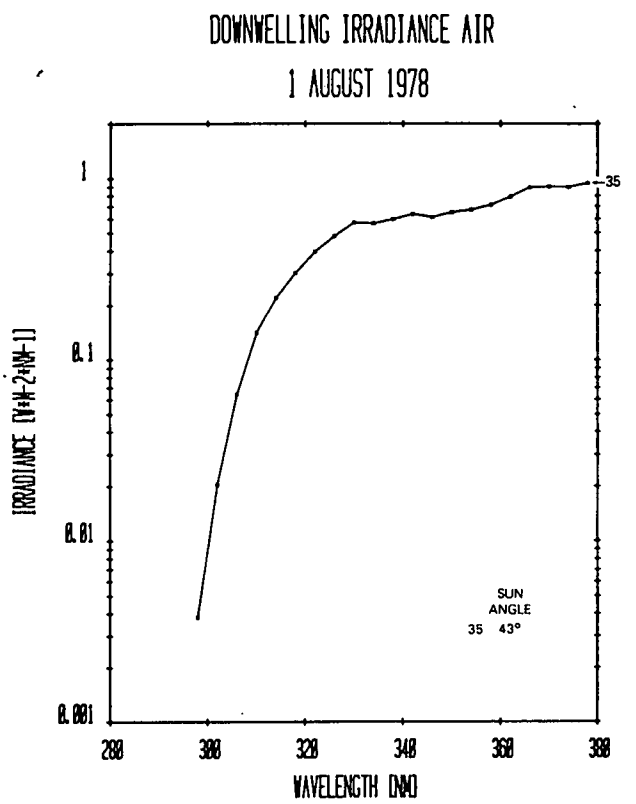
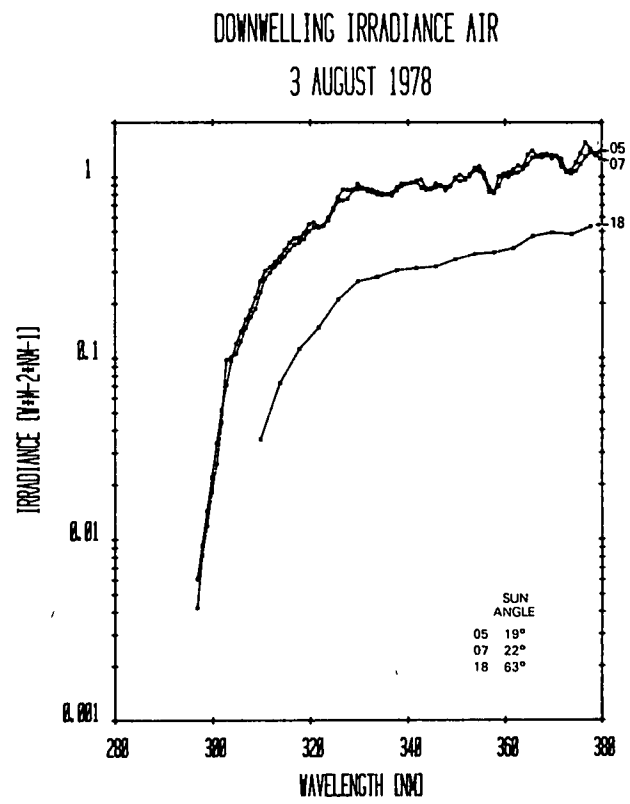
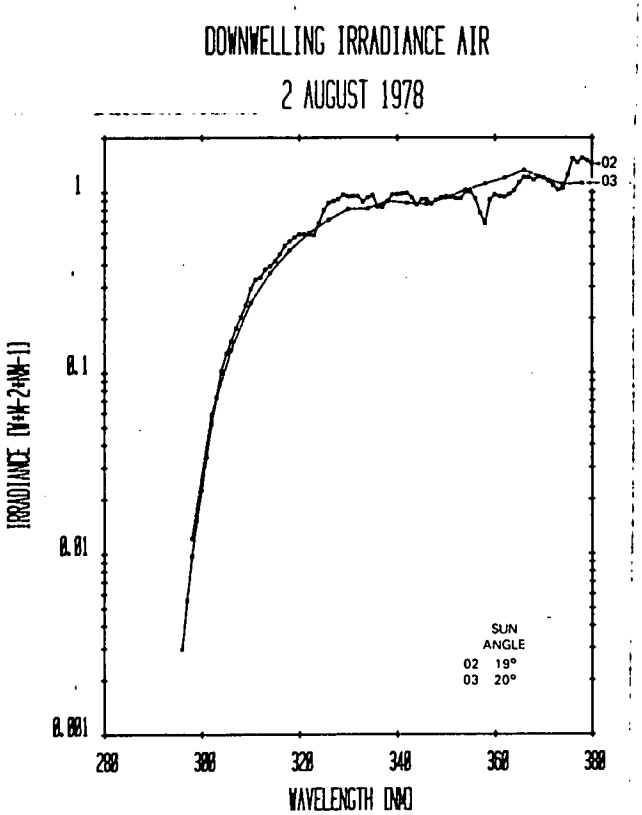


Fig.9(a-l). Corrected absolute downwelling irradiance $[W \cdot m^{-2} \cdot nm^{-1}]$ at the ocean surface $[0^+]$ as a function of wavelength [nm]. Each curve is denoted by its event number (see text and Table 4) and its corresponding sun zenith angle.


DOWNWELLING IRRADIANCE AIR
1 AUGUST 1978
IRRADIANCE [W*M-2*NM-1]
1
0.1
0.01
0.001
280
300
320
340
360
380
WAVELENGTH [NM]
35
SUN
ANGLE
35 43°


DOWNWELLING IRRADIANCE AIR
3 AUGUST 1978
IRRADIANCE [W*M-2*NM-1]
1
0.1
0.01
0.001
280
300
320
340
360
380
WAVELENGTH [NM]
05
07
18
SUN
ANGLE
05 19°
07 22°
18 63°


DOWNWELLING IRRADIANCE AIR
2 AUGUST 1978
IRRADIANCE [W*M-2*NM-1]
1
0.1
0.01
0.001
280
300
320
340
360
380
WAVELENGTH [NM]
02
03
SUN
ANGLE
02 19°
03 20°

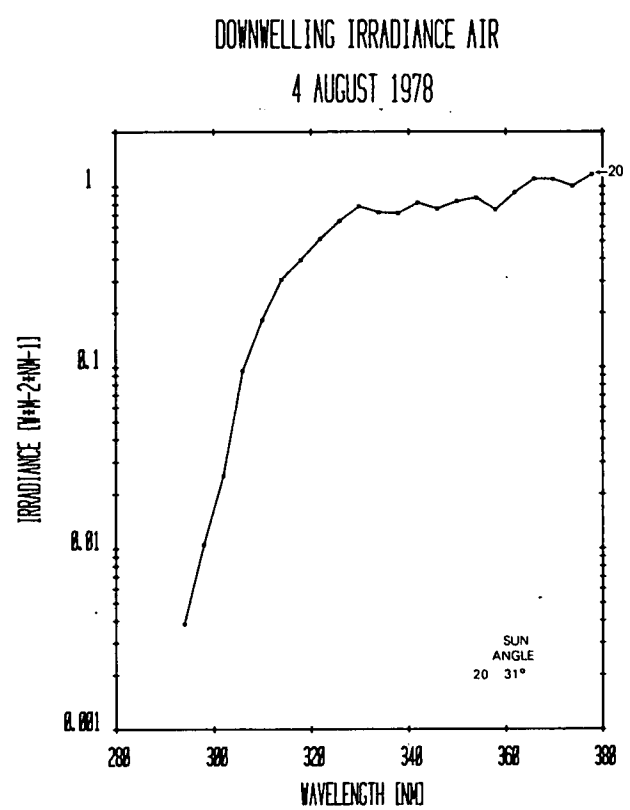
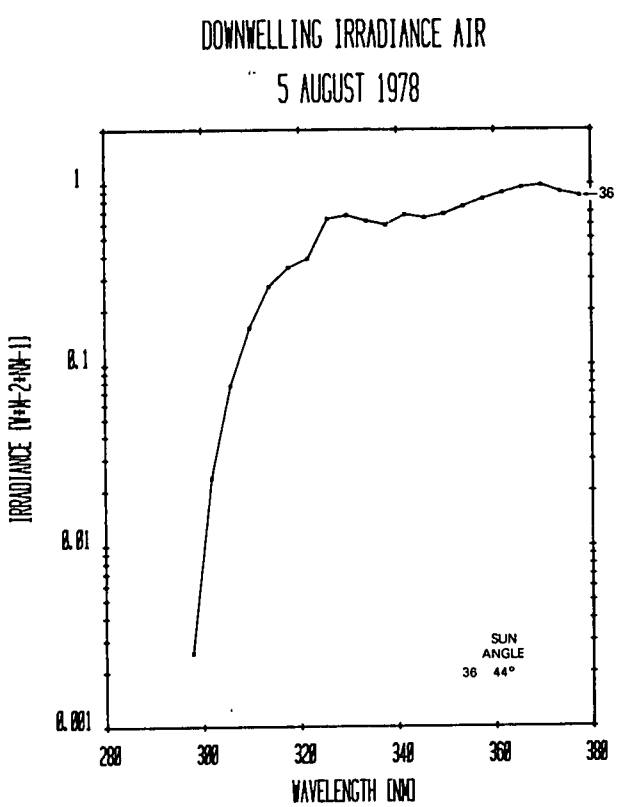
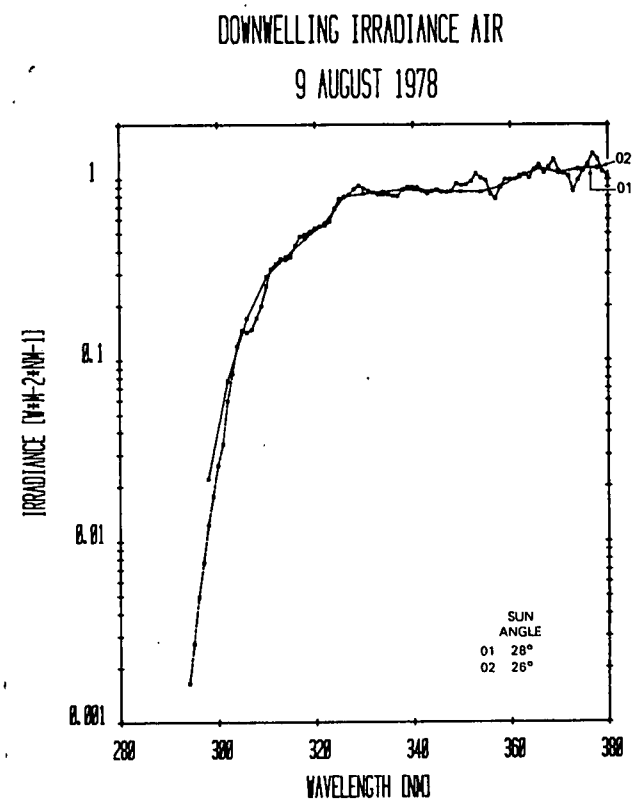
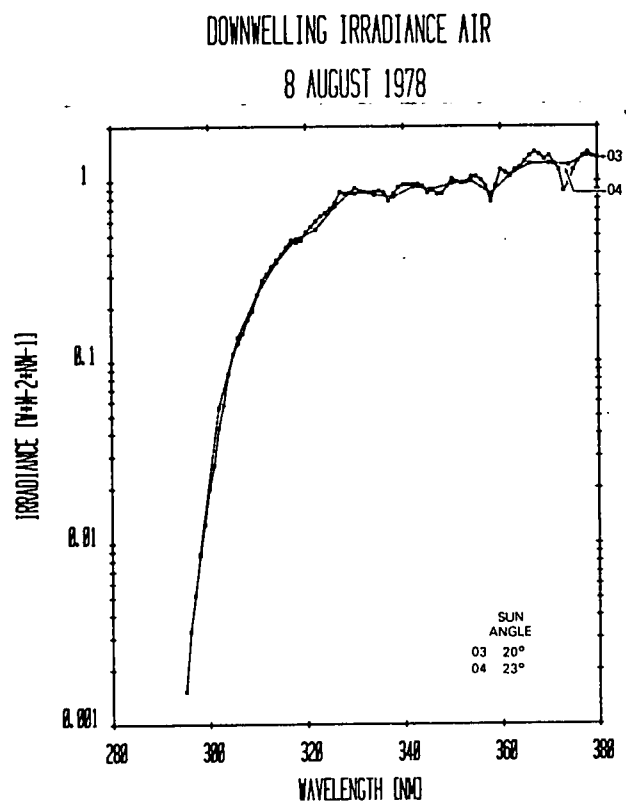

DOWNWELLING IRRADIANCE AIR
4 AUGUST 1978
IRRADIANCE [W*M-2*NM-1]
1
0.1
0.01
0.001
280
300
320
340
360
380
WAVELENGTH [NM]
20
SUN
ANGLE
20 31°

Fig.9.(con't).


DOWNWELLING IRRADIANCE AIR
5 AUGUST 1978
IRRADIANCE [W*M-2*NM-1]
1
0.1
0.01
0.001
36
SUN
ANGLE
36 44°
280
300
320
340
360
380
WAVELENGTH [NM]


DOWNWELLING IRRADIANCE AIR
9 AUGUST 1978
IRRADIANCE [W*M-2*NM-1]
1
0.1
0.01
0.001
02
01
SUN
ANGLE
01 28°
02 26°
280
300
320
340
360
380
WAVELENGTH [NM]


DOWNWELLING IRRADIANCE AIR
8 AUGUST 1978
IRRADIANCE [W*M-2*NM-1]
1
0.1
0.01
0.001
03
04
SUN
ANGLE
03 20°
04 23°
280
300
320
340
360
380
WAVELENGTH [NM]

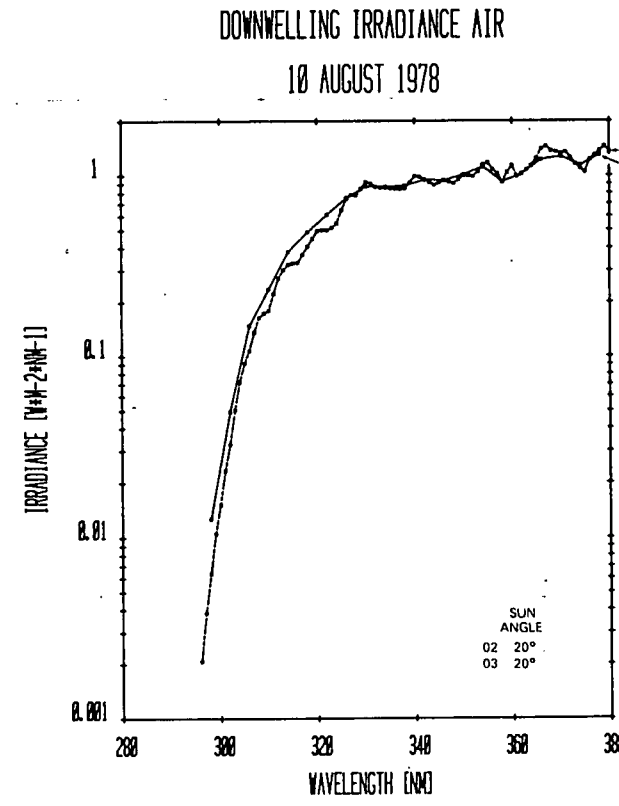
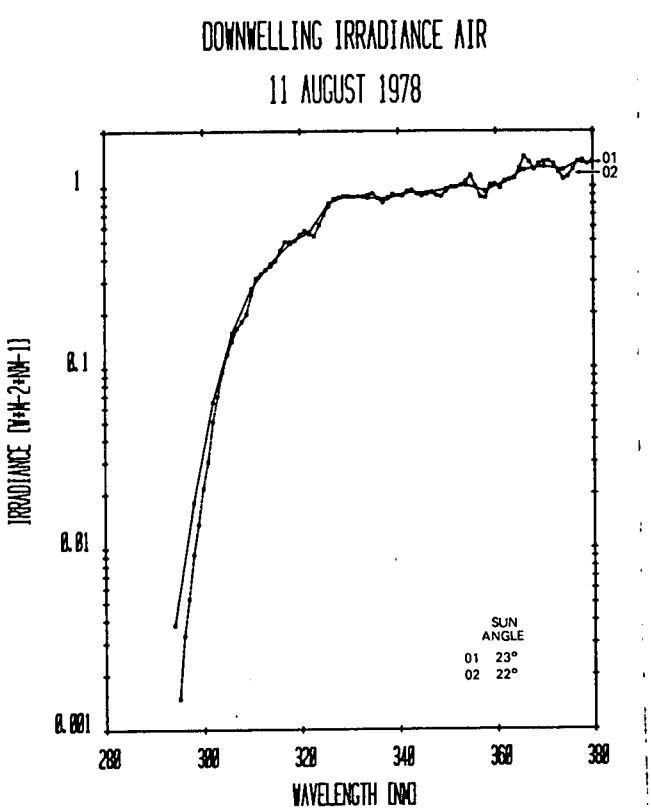

DOWNWELLING IRRADIANCE AIR
10 AUGUST 1978
IRRADIANCE [W*M-2*NM-1]
1
0.1
0.01
0.001
03
02
SUN
ANGLE
02 20°
03 20°
280
300
320
340
360
380
WAVELENGTH [NM]

Fig.9.(con't).



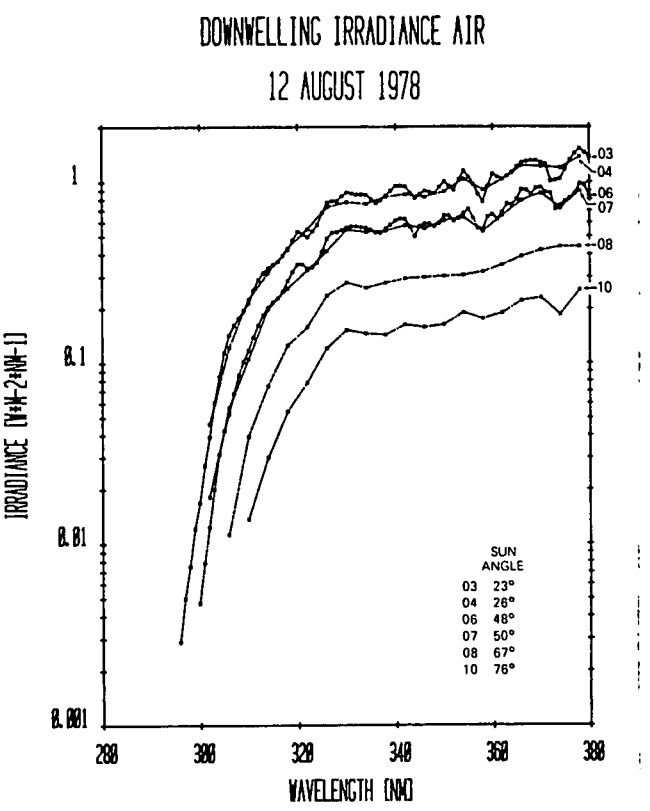


Fig.9.(con't).

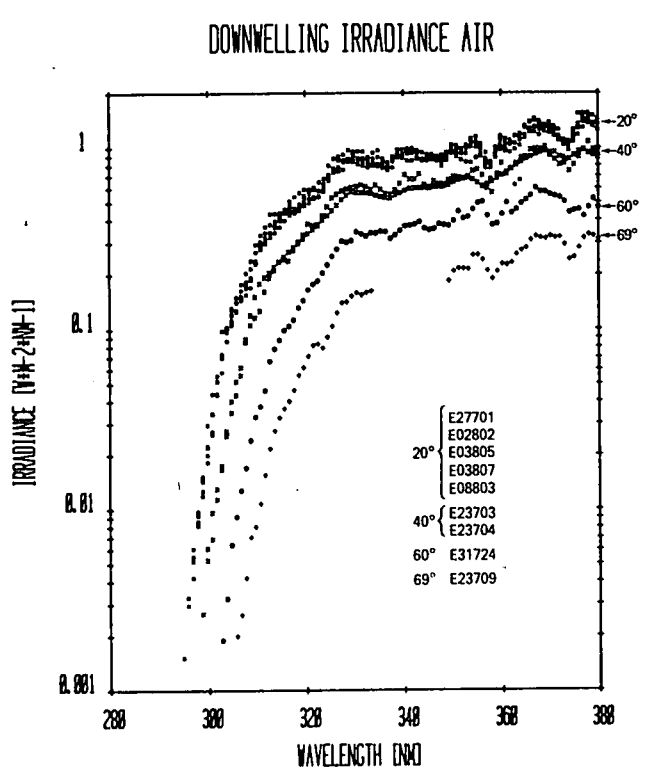


Fig.10. Downwelling spectral irradiance [$W \cdot m^{-2} \cdot nm^{-1}$] as a function of wavelength [nm] for selected data from Fig.8(a-l) to show the change in irradiance as a function of sun zenith angle.

CONCLUSIONS

This is the only complete set of spectral irradiance data available, which includes the middle ultraviolet region of the spectrum, for a marine atmosphere. To extend these data (which are location, time, and condition specific) as well as to put the data into analytic rather than tabular form, two models have been fit to the data (Baker, *et al.*, 1980). This analytic representation permits the solar middle ultraviolet radiation (280-380nm) reaching the ocean surface to be calculated. Thus the results comprise a valuable data set which can be used by photobiologists and oceanographers to assess quantitatively the influence of MUV in aquatic ecosystems. The formulae accomodate variation in wavelength, solar zenith angle, ozone thickness, aerosol thickness and surface albedo thus generalizing our data set to other marine circumstances. Given the spectral irradiance at the ocean surface, the data of Smith and Baker (1979a) can be used to calculate the penetration of UV into natural waters as well as to calculate the biologically effective dose rates.

ACKNOWLEDGEMENT

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APPENDIX

Each spectral irradiance event graphed in Figures 9(a-l) is listed on the following pages. Title information includes: on the first line the event name (E, day xx, month x, event number xx); on the third line the date, station, and event number; on the fourth line the depth and time interval referenced to time zone +12; on the fifth line the correction factor ($macfac = M_f \cdot C_f$). Following the title is the tabular output of the downwelling irradiance [$W \cdot m^{-2} \cdot nm^{-1}$] given either in the region 270-421nm every 1nm or the region 330-750nm every 4nm.

E23702 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 23/07/78 station=05 event=02
zavg= 0.0 time= 1404 - 1446

macfac= 2.55

WL	E	WL	E	WL	E	WL	E
1 330	7.4620E-01	39 482	2.1904E 00	77 634	2.1387E 00	115 786	0.0000E 00
2 334	7.4282E-01	40 486	2.2499E 00	78 638	2.1184E 00	116 790	0.0000E 00
3 338	8.0485E-01	41 490	2.7596E 00	79 642	2.1198E 00	117 794	0.0000E 00
4 342	7.9948E-01	42 494	2.8247E 00	80 646	1.8788E 00	118 798	0.0000E 00
5 346	7.7250E-01	43 498	2.7354E 00	81 650	2.0373E 00	119 802	0.0000E 00
6 350	8.4787E-01	44 502	2.8258E 00	82 654	1.9134E 00	120 806	0.0000E 00
7 354	9.7305E-01	45 506	2.9704E 00	83 658	1.9995E 00	121 810	0.0000E 00
8 358	8.6266E-01	46 510	2.9011E 00	84 662	2.0181E 00	122 814	0.0000E 00
9 362	9.5517E-01	47 514	2.4562E 00	85 666	2.0346E 00	123 818	0.0000E 00
10 366	1.1412E 00	48 518	2.2473E 00	86 670	2.0187E 00	124 822	0.0000E 00
11 370	1.1409E 00	49 522	2.4513E 00	87 674	1.9212E 00	125 826	0.0000E 00
12 374	1.0871E 00	50 526	2.7018E 00	88 678	1.8846E 00	126 830	0.0000E 00
13 378	1.1097E 00	51 530	2.9152E 00	89 682	1.8027E 00	127 834	0.0000E 00
14 382	8.2397E-01	52 534	2.9798E 00	90 686	1.4528E 00	128 838	0.0000E 00
15 386	9.7970E-01	53 538	2.8723E 00	91 690	1.5107E 00	129 842	0.0000E 00
16 390	1.3016E 00	54 542	2.8593E 00	92 694	1.4261E 00	130 846	0.0000E 00
17 394	1.3513E 00	55 546	2.6839E 00	93 698	1.4186E 00	131 850	0.0000E 00
18 398	1.6200E 00	56 550	2.8455E 00	94 702	1.3231E 00	132 854	0.0000E 00
19 402	1.9881E 00	57 554	2.7856E 00	95 706	1.3748E 00	133 858	0.0000E 00
20 406	1.9025E 00	58 558	2.7297E 00	96 710	1.3709E 00	134 862	0.0000E 00
21 410	2.0802E 00	59 562	2.6384E 00	97 714	1.2978E 00	135 866	0.0000E 00
22 414	2.1033E 00	60 566	2.8011E 00	98 718	9.2800E-01	136 870	0.0000E 00
23 418	2.1618E 00	61 570	2.6252E 00	99 722	1.0763E 00	137 874	0.0000E 00
24 422	2.1944E 00	62 574	2.6727E 00	100 726	9.1535E-01	138 878	0.0000E 00
25 426	2.1226E 00	63 578	2.7116E 00	101 730	9.4099E-01	139 882	0.0000E 00
26 430	1.6605E 00	64 582	2.7695E 00	102 734	1.0603E 00	140 886	0.0000E 00
27 434	2.0804E 00	65 586	2.5819E 00	103 738	1.0525E 00	141 890	0.0000E 00
28 438	2.1583E 00	66 590	2.3341E 00	104 742	0.0000E 00	142 894	0.0000E 00
29 442	2.4607E 00	67 594	2.4919E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	2.4859E 00	68 598	2.4858E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	2.8436E 00	69 602	2.5228E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	2.7177E 00	70 606	2.5894E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	2.7327E 00	71 610	2.4451E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	2.7634E 00	72 614	2.4588E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	2.7890E 00	73 618	2.4842E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	2.7503E 00	74 622	2.3510E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	2.7841E 00	75 626	2.3167E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	2.7767E 00	76 630	2.1995E 00	114 782	0.0000E 00	152 934	0.0000E 00

E23701 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 23/07/78 station=05 event=01
zavg= 0.0 time= 1333 - 1348

macfac= 3.12

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	1.5463E-01	77 346	8.5793E-01	115 384	1.0611E 00
2 271	0.0000E 00	40 309	1.6929E-01	78 347	8.4633E-01	116 385	1.1059E 00
3 272	0.0000E 00	41 310	2.2847E-01	79 348	7.9069E-01	117 386	1.1284E 00
4 273	0.0000E 00	42 311	2.9354E-01	80 349	8.5100E-01	118 387	1.1208E 00
5 274	0.0000E 00	43 312	3.6634E-01	81 350	9.3212E-01	119 388	0.0000E 00
6 275	0.0000E 00	44 313	4.3176E-01	82 351	8.9156E-01	120 389	0.0000E 00
7 276	0.0000E 00	45 314	4.3252E-01	83 352	8.5540E-01	121 390	0.0000E 00
8 277	0.0000E 00	46 315	4.3686E-01	84 353	8.3249E-01	122 391	0.0000E 00
9 278	0.0000E 00	47 316	4.4135E-01	85 354	8.2662E-01	123 392	0.0000E 00
10 279	0.0000E 00	48 317	4.4424E-01	86 355	8.8010E-01	124 393	0.0000E 00
11 280	0.0000E 00	49 318	4.4303E-01	87 356	9.0053E-01	125 394	0.0000E 00
12 281	0.0000E 00	50 319	4.4975E-01	88 357	8.1380E-01	126 395	0.0000E 00
13 282	0.0000E 00	51 320	4.7807E-01	89 358	8.3250E-01	127 396	0.0000E 00
14 283	0.0000E 00	52 321	4.9727E-01	90 359	9.9558E-01	128 397	0.0000E 00
15 284	0.0000E 00	53 322	5.3652E-01	91 360	1.1010E 00	129 398	0.0000E 00
16 285	0.0000E 00	54 323	5.7983E-01	92 361	9.8730E-01	130 399	0.0000E 00
17 286	0.0000E 00	55 324	6.3074E-01	93 362	7.6901E-01	131 400	0.0000E 00
18 287	0.0000E 00	56 325	6.8713E-01	94 363	6.2269E-01	132 401	0.0000E 00
19 288	0.0000E 00	57 326	7.3473E-01	95 364	6.6247E-01	133 402	0.0000E 00
20 289	0.0000E 00	58 327	7.8362E-01	96 365	9.0173E-01	134 403	0.0000E 00
21 290	0.0000E 00	59 328	8.3239E-01	97 366	1.2349E 00	135 404	0.0000E 00
22 291	0.0000E 00	60 329	8.6919E-01	98 367	1.4095E 00	136 405	0.0000E 00
23 292	0.0000E 00	61 330	8.3515E-01	99 368	1.2544E 00	137 406	0.0000E 00
24 293	0.0000E 00	62 331	8.1043E-01	100 369	1.2925E 00	138 407	0.0000E 00
25 294	0.0000E 00	63 332	7.9457E-01	101 370	1.3487E 00	139 408	0.0000E 00
26 295	0.0000E 00	64 333	7.7839E-01	102 371	1.1923E 00	140 409	0.0000E 00
27 296	0.0000E 00	65 334	7.9272E-01	103 372	1.1349E 00	141 410	0.0000E 00
28 297	0.0000E 00	66 335	8.0134E-01	104 373	1.1078E 00	142 411	0.0000E 00
29 298	8.1665E-03	67 336	7.7265E-01	105 374	1.0127E 00	143 412	0.0000E 00
30 299	1.4539E-02	68 337	7.5123E-01	106 375	1.1042E 00	144 413	0.0000E 00
31 300	2.9373E-02	69 338	7.7760E-01	107 376	1.2727E 00	145 414	0.0000E 00
32 301	4.3899E-02	70 339	8.9387E-01	108 377	1.4017E 00	146 415	0.0000E 00
33 302	5.5385E-02	71 340	8.7950E-01	109 378	1.4898E 00	147 416	0.0000E 00
34 303	6.9473E-02	72 341	8.4814E-01	110 379	1.3677E 00	148 417	0.0000E 00
35 304	1.0250E-01	73 342	8.4911E-01	111 380	1.3898E 00	149 418	0.0000E 00
36 305	1.3048E-01	74 343	8.7910E-01	112 381	1.1494E 00	150 419	0.0000E 00
37 306	1.4002E-01	75 344	8.6740E-01	113 382	9.2858E-01	151 420	0.0000E 00
38 307	1.5154E-01	76 345	8.6105E-01	114 383	9.9660E-01	152 421	0.0000E 00

E23703 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 23/07/78 station=05 event=03
zavg= 0.0 time= 1452 - 1501

macfac= 1.96

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	1.0568E-01	77 346	6.5755E-01	115 384	7.1158E-01
2 271	0.0000E 00	40 309	1.1598E-01	78 347	6.3101E-01	116 385	7.8156E-01
3 272	0.0000E 00	41 310	1.2632E-01	79 348	6.2844E-01	117 386	8.5845E-01
4 273	0.0000E 00	42 311	1.6152E-01	80 349	6.6624E-01	118 387	8.7904E-01
5 274	0.0000E 00	43 312	1.9208E-01	81 350	6.9409E-01	119 388	8.9965E-01
6 275	0.0000E 00	44 313	2.1129E-01	82 351	6.8880E-01	120 389	9.9741E-01
7 276	0.0000E 00	45 314	2.3508E-01	83 352	6.7467E-01	121 390	1.0902E 00
8 277	0.0000E 00	46 315	2.4361E-01	84 353	6.8355E-01	122 391	1.1691E 00
9 278	0.0000E 00	47 316	2.3836E-01	85 354	7.4539E-01	123 392	9.5852E-01
10 279	0.0000E 00	48 317	2.7231E-01	86 355	7.5964E-01	124 393	7.5501E-01
11 280	0.0000E 00	49 318	3.0433E-01	87 356	7.0509E-01	125 394	9.6858E-01
12 281	0.0000E 00	50 319	3.3172E-01	88 357	6.0081E-01	126 395	1.1334E 00
13 282	0.0000E 00	51 320	3.8291E-01	89 358	5.6823E-01	127 396	1.0293E 00
14 283	0.0000E 00	52 321	3.7355E-01	90 359	7.1675E-01	128 397	0.0000E 00
15 284	0.0000E 00	53 322	3.7175E-01	91 360	8.2426E-01	129 398	0.0000E 00
16 285	0.0000E 00	54 323	4.2387E-01	92 361	7.1629E-01	130 399	0.0000E 00
17 286	0.0000E 00	55 324	4.7492E-01	93 362	7.6725E-01	131 400	0.0000E 00
18 287	0.0000E 00	56 325	5.3164E-01	94 363	8.2047E-01	132 401	0.0000E 00
19 288	0.0000E 00	57 326	5.5730E-01	95 364	8.8130E-01	133 402	0.0000E 00
20 289	0.0000E 00	58 327	5.8039E-01	96 365	8.8458E-01	134 403	0.0000E 00
21 290	0.0000E 00	59 328	5.9331E-01	97 366	9.7646E-01	135 404	0.0000E 00
22 291	0.0000E 00	60 329	6.0668E-01	98 367	9.8744E-01	136 405	0.0000E 00
23 292	0.0000E 00	61 330	6.1236E-01	99 368	9.8157E-01	137 406	0.0000E 00
24 293	0.0000E 00	62 331	6.2681E-01	100 369	1.0116E 00	138 407	0.0000E 00
25 294	0.0000E 00	63 332	6.1188E-01	101 370	9.4155E-01	139 408	0.0000E 00
26 295	0.0000E 00	64 333	5.9125E-01	102 371	9.4657E-01	140 409	0.0000E 00
27 296	0.0000E 00	65 334	6.2440E-01	103 372	8.9422E-01	141 410	0.0000E 00
28 297	0.0000E 00	66 335	5.9085E-01	104 373	8.5296E-01	142 411	0.0000E 00
29 298	0.0000E 00	67 336	5.5823E-01	105 374	7.4320E-01	143 412	0.0000E 00
30 299	5.2407E-03	68 337	5.5379E-01	106 375	8.0567E-01	144 413	0.0000E 00
31 300	6.8533E-03	69 338	5.8713E-01	107 376	8.8654E-01	145 414	0.0000E 00
32 301	1.1363E-02	70 339	6.3743E-01	108 377	9.7697E-01	146 415	0.0000E 00
33 302	1.6702E-02	71 340	7.1038E-01	109 378	1.0756E 00	147 416	0.0000E 00
34 303	2.7304E-02	72 341	6.7115E-01	110 379	9.7754E-01	148 417	0.0000E 00
35 304	3.9995E-02	73 342	6.6901E-01	111 380	9.4639E-01	149 418	0.0000E 00
36 305	5.1424E-02	74 343	7.1756E-01	112 381	1.0463E 00	150 419	0.0000E 00
37 306	6.1768E-02	75 344	6.2697E-01	113 382	7.5644E-01	151 420	0.0000E 00
38 307	8.5020E-02	76 345	5.9836E-01	114 383	6.7935E-01	152 421	0.0000E 00

E23704 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 23/07/78 station=05 event=04
zavg= 0.0 time= 1502 - 1507

macfac= 1.78

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	1.1975E-01	77 346	6.0935E-01	115 384	8.8814E-01
2 271	0.0000E 00	40 309	1.5127E-01	78 347	6.1097E-01	116 385	8.9757E-01
3 272	0.0000E 00	41 310	1.7915E-01	79 348	6.1153E-01	117 386	9.0219E-01
4 273	0.0000E 00	42 311	1.9345E-01	80 349	6.2281E-01	118 387	9.1141E-01
5 274	0.0000E 00	43 312	2.0543E-01	81 350	6.4582E-01	119 388	9.1814E-01
6 275	0.0000E 00	44 313	2.2134E-01	82 351	6.6370E-01	120 389	9.1430E-01
7 276	0.0000E 00	45 314	2.3499E-01	83 352	6.8159E-01	121 390	8.4121E-01
8 277	0.0000E 00	46 315	2.5083E-01	84 353	6.9508E-01	122 391	7.5716E-01
9 278	0.0000E 00	47 316	2.6711E-01	85 354	6.6978E-01	123 392	6.9307E-01
10 279	0.0000E 00	48 317	2.8307E-01	86 355	6.4380E-01	124 393	6.5678E-01
11 280	0.0000E 00	49 318	2.9793E-01	87 356	6.1400E-01	125 394	6.8634E-01
12 281	0.0000E 00	50 319	3.1571E-01	88 357	6.3146E-01	126 395	7.1912E-01
13 282	0.0000E 00	51 320	3.3769E-01	89 358	6.5162E-01	127 396	7.3999E-01
14 283	0.0000E 00	52 321	3.5472E-01	90 359	6.7797E-01	128 397	0.0000E 00
15 284	0.0000E 00	53 322	3.7775E-01	91 360	7.0747E-01	129 398	0.0000E 00
16 285	0.0000E 00	54 323	4.0045E-01	92 361	7.3447E-01	130 399	0.0000E 00
17 286	0.0000E 00	55 324	4.2208E-01	93 362	7.6666E-01	131 400	0.0000E 00
18 287	0.0000E 00	56 325	4.5014E-01	94 363	8.0265E-01	132 401	0.0000E 00
19 288	0.0000E 00	57 326	4.8378E-01	95 364	8.3705E-01	133 402	0.0000E 00
20 289	0.0000E 00	58 327	5.1830E-01	96 365	8.6910E-01	134 403	0.0000E 00
21 290	0.0000E 00	59 328	5.4866E-01	97 366	8.9490E-01	135 404	0.0000E 00
22 291	0.0000E 00	60 329	5.7443E-01	98 367	9.2130E-01	136 405	0.0000E 00
23 292	0.0000E 00	61 330	5.6859E-01	99 368	9.4343E-01	137 406	0.0000E 00
24 293	0.0000E 00	62 331	5.6781E-01	100 369	9.6264E-01	138 407	0.0000E 00
25 294	0.0000E 00	63 332	5.6765E-01	101 370	9.0971E-01	139 408	0.0000E 00
26 295	0.0000E 00	64 333	5.6052E-01	102 371	8.6332E-01	140 409	0.0000E 00
27 296	0.0000E 00	65 334	5.4782E-01	103 372	8.0793E-01	141 410	0.0000E 00
28 297	0.0000E 00	66 335	5.3808E-01	104 373	8.2031E-01	142 411	0.0000E 00
29 298	2.6483E-03	67 336	5.3070E-01	105 374	8.6609E-01	143 412	0.0000E 00
30 299	6.0890E-03	68 337	5.2683E-01	106 375	9.0901E-01	144 413	0.0000E 00
31 300	9.6046E-03	69 338	5.4918E-01	107 376	9.5252E-01	145 414	0.0000E 00
32 301	1.3014E-02	70 339	5.6444E-01	108 377	9.7561E-01	146 415	0.0000E 00
33 302	1.7510E-02	71 340	5.8179E-01	109 378	9.3571E-01	147 416	0.0000E 00
34 303	2.5577E-02	72 341	5.9708E-01	110 379	9.1105E-01	148 417	0.0000E 00
35 304	3.4626E-02	73 342	5.9993E-01	111 380	8.8288E-01	149 418	0.0000E 00
36 305	4.3282E-02	74 343	6.0078E-01	112 381	8.7077E-01	150 419	0.0000E 00
37 306	5.5761E-02	75 344	6.0398E-01	113 382	8.7037E-01	151 420	0.0000E 00
38 307	8.8407E-02	76 345	6.0924E-01	114 383	8.7907E-01	152 421	0.0000E 00

E23705 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 23/07/78 station=05 event=05
zavg= 0.0 time= 1507 - 1515

macfac= 1.80

	WL	E		WL	E		WL	E		WL	E
1	330	5.3771E-01	39	482	1.9963E 00	77	634	1.2765E 00	115	786	0.0000E 00
2	334	5.5336E-01	40	486	2.0168E 00	78	638	1.1615E 00	116	790	0.0000E 00
3	338	6.0122E-01	41	490	2.0408E 00	79	642	1.5453E 00	117	794	0.0000E 00
4	342	5.8911E-01	42	494	2.0887E 00	80	646	1.7458E 00	118	798	0.0000E 00
5	346	5.8348E-01	43	498	2.1376E 00	81	650	1.7935E 00	119	802	0.0000E 00
6	350	6.2235E-01	44	502	2.1753E 00	82	654	1.8451E 00	120	806	0.0000E 00
7	354	6.7631E-01	45	506	2.1695E 00	83	658	1.9046E 00	121	810	0.0000E 00
8	358	7.0450E-01	46	510	2.0489E 00	84	662	1.9693E 00	122	814	0.0000E 00
9	362	7.4424E-01	47	514	1.7338E 00	85	666	1.7277E 00	123	818	0.0000E 00
10	366	8.8168E-01	48	518	1.5877E 00	86	670	1.7051E 00	124	822	0.0000E 00
11	370	9.1499E-01	49	522	1.7348E 00	87	674	1.6291E 00	125	826	0.0000E 00
12	374	7.5574E-01	50	526	1.8727E 00	88	678	1.5835E 00	126	830	0.0000E 00
13	378	9.4427E-01	51	530	1.8882E 00	89	682	1.5398E 00	127	834	0.0000E 00
14	382	6.3763E-01	52	534	1.8609E 00	90	686	1.4281E 00	128	838	0.0000E 00
15	386	7.7952E-01	53	538	1.8149E 00	91	690	1.2372E 00	129	842	0.0000E 00
16	390	9.9939E-01	54	542	1.8229E 00	92	694	1.2247E 00	130	846	0.0000E 00
17	394	9.3765E-01	55	546	1.9740E 00	93	698	1.2094E 00	131	850	0.0000E 00
18	398	1.2956E 00	56	550	2.2594E 00	94	702	1.0582E 00	132	854	0.0000E 00
19	402	1.5341E 00	57	554	2.2749E 00	95	706	1.0803E 00	133	858	0.0000E 00
20	406	1.5303E 00	58	558	2.1731E 00	96	710	1.2431E 00	134	862	0.0000E 00
21	410	1.6786E 00	59	562	2.2269E 00	97	714	1.1117E 00	135	866	0.0000E 00
22	414	1.7046E 00	60	566	2.1391E 00	98	718	8.3446E-01	136	870	0.0000E 00
23	418	1.7257E 00	61	570	2.1720E 00	99	722	6.5964E-01	137	874	0.0000E 00
24	422	1.8103E 00	62	574	2.1023E 00	100	726	5.2778E-01	138	878	0.0000E 00
25	426	1.6733E 00	63	578	2.1744E 00	101	730	3.1789E-01	139	882	0.0000E 00
26	430	1.5600E 00	64	582	2.1788E 00	102	734	4.2425E-01	140	886	0.0000E 00
27	434	1.7562E 00	65	586	2.0978E 00	103	738	8.0632E-01	141	890	0.0000E 00
28	438	1.8606E 00	66	590	1.8144E 00	104	742	0.0000E 00	142	894	0.0000E 00
29	442	2.0308E 00	67	594	1.8583E 00	105	746	0.0000E 00	143	898	0.0000E 00
30	446	2.0015E 00	68	598	1.9690E 00	106	750	0.0000E 00	144	902	0.0000E 00
31	450	2.0214E 00	69	602	2.0233E 00	107	754	0.0000E 00	145	906	0.0000E 00
32	454	1.9977E 00	70	606	2.0252E 00	108	758	0.0000E 00	146	910	0.0000E 00
33	458	1.9376E 00	71	610	2.0510E 00	109	762	0.0000E 00	147	914	0.0000E 00
34	462	1.8852E 00	72	614	1.9865E 00	110	766	0.0000E 00	148	918	0.0000E 00
35	466	1.8351E 00	73	618	2.0057E 00	111	770	0.0000E 00	149	922	0.0000E 00
36	470	1.7974E 00	74	622	1.9976E 00	112	774	0.0000E 00	150	926	0.0000E 00
37	474	1.6652E 00	75	626	1.7639E 00	113	778	0.0000E 00	151	930	0.0000E 00
38	478	1.2822E 00	76	630	1.4375E 00	114	782	0.0000E 00	152	934	0.0000E 00

E23706 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 23/07/78 station=05 event=06
zavg= 0.0 time= 1555 - 1601

macfac= 1.77

	WL	E		WL	E		WL	E		WL	E
1	270	0.0000E 00	39	308	4.5055E-02	77	346	4.3759E-01	115	384	6.6230E-01
2	271	0.0000E 00	40	309	4.7706E-02	78	347	4.3111E-01	116	385	6.5717E-01
3	272	0.0000E 00	41	310	5.8665E-02	79	348	4.2520E-01	117	386	6.3957E-01
4	273	0.0000E 00	42	311	8.0576E-02	80	349	4.4758E-01	118	387	6.2830E-01
5	274	0.0000E 00	43	312	9.8900E-02	81	350	4.7042E-01	119	388	6.2503E-01
6	275	0.0000E 00	44	313	1.1201E-01	82	351	4.5585E-01	120	389	6.8343E-01
7	276	0.0000E 00	45	314	1.2576E-01	83	352	4.5328E-01	121	390	7.5054E-01
8	277	0.0000E 00	46	315	1.4023E-01	84	353	4.7818E-01	122	391	7.6721E-01
9	278	0.0000E 00	47	316	1.4996E-01	85	354	5.2401E-01	123	392	7.5187E-01
10	279	0.0000E 00	48	317	1.6007E-01	86	355	5.2860E-01	124	393	5.8371E-01
11	280	0.0000E 00	49	318	1.7183E-01	87	356	4.8356E-01	125	394	4.8202E-01
12	281	0.0000E 00	50	319	1.8980E-01	88	357	4.4015E-01	126	395	6.4584E-01
13	282	0.0000E 00	51	320	2.1777E-01	89	358	4.0820E-01	127	396	7.5424E-01
14	283	0.0000E 00	52	321	2.3341E-01	90	359	4.8230E-01	128	397	7.3057E-01
15	284	0.0000E 00	53	322	2.1454E-01	91	360	5.6663E-01	129	398	7.6553E-01
16	285	0.0000E 00	54	323	2.2235E-01	92	361	4.8772E-01	130	399	9.5354E-01
17	286	0.0000E 00	55	324	2.4599E-01	93	362	5.0129E-01	131	400	1.0969E 00
18	287	0.0000E 00	56	325	2.9217E-01	94	363	5.6173E-01	132	401	1.1381E 00
19	288	0.0000E 00	57	326	3.3990E-01	95	364	5.7090E-01	133	402	0.0000E 00
20	289	0.0000E 00	58	327	3.4302E-01	96	365	6.3856E-01	134	403	0.0000E 00
21	290	0.0000E 00	59	328	3.6049E-01	97	366	7.0409E-01	135	404	0.0000E 00
22	291	0.0000E 00	60	329	3.8184E-01	98	367	6.7036E-01	136	405	0.0000E 00
23	292	0.0000E 00	61	330	3.8031E-01	99	368	6.4696E-01	137	406	0.0000E 00
24	293	0.0000E 00	62	331	3.8829E-01	100	369	6.5967E-01	138	407	0.0000E 00
25	294	0.0000E 00	63	332	3.9865E-01	101	370	6.8872E-01	139	408	0.0000E 00
26	295	0.0000E 00	64	333	4.0002E-01	102	371	6.9684E-01	140	409	0.0000E 00
27	296	0.0000E 00	65	334	3.9344E-01	103	372	6.4983E-01	141	410	0.0000E 00
28	297	0.0000E 00	66	335	3.8914E-01	104	373	5.4072E-01	142	411	0.0000E 00
29	298	0.0000E 00	67	336	3.8294E-01	105	374	5.6543E-01	143	412	0.0000E 00
30	299	4.5574E-04	68	337	3.6039E-01	106	375	5.8816E-01	144	413	0.0000E 00
31	300	1.2581E-03	69	338	3.8854E-01	107	376	6.3499E-01	145	414	0.0000E 00
32	301	2.6144E-03	70	339	4.2405E-01	108	377	7.0912E-01	146	415	0.0000E 00
33	302	4.2627E-03	71	340	4.2669E-01	109	378	7.3843E-01	147	416	0.0000E 00
34	303	8.2514E-03	72	341	4.3098E-01	110	379	7.0044E-01	148	417	0.0000E 00
35	304	1.2701E-02	73	342	4.3241E-01	111	380	6.6970E-01	149	418	0.0000E 00
36	305	1.8431E-02	74	343	4.3226E-01	112	381	6.4972E-01	150	419	0.0000E 00
37	306	2.5780E-02	75	344	3.7476E-01	113	382	5.6591E-01	151	420	0.0000E 00
38	307	3.4640E-02	76	345	3.9454E-01	114	383	6.1695E-01	152	421	0.0000E 00

E23707 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 23/07/78 station=05 event=07
zavg= 0.0 time= 1602 - 1611

macfac= 1.66

WL	E	WL	E	WL	E	WL	E
1 330	3.6598E-01	39 482	1.7057E 00	77 634	1.3642E 00	115 786	0.0000E 00
2 334	3.5929E-01	40 486	1.6699E 00	78 638	1.3574E 00	116 790	0.0000E 00
3 338	3.7283E-01	41 490	1.6593E 00	79 642	1.3655E 00	117 794	0.0000E 00
4 342	3.9626E-01	42 494	1.6760E 00	80 646	1.3179E 00	118 798	0.0000E 00
5 346	4.4172E-01	43 498	1.6987E 00	81 650	1.1950E 00	119 802	0.0000E 00
6 350	4.5648E-01	44 502	1.6534E 00	82 654	1.1471E 00	120 806	0.0000E 00
7 354	4.5420E-01	45 506	1.6834E 00	83 658	1.1474E 00	121 810	0.0000E 00
8 358	4.1318E-01	46 510	1.7740E 00	84 662	1.2098E 00	122 814	0.0000E 00
9 362	4.7732E-01	47 514	1.6021E 00	85 666	1.2755E 00	123 818	0.0000E 00
10 366	6.0944E-01	48 518	1.4642E 00	86 670	1.2746E 00	124 822	0.0000E 00
11 370	6.3668E-01	49 522	1.5828E 00	87 674	1.2529E 00	125 826	0.0000E 00
12 374	5.6680E-01	50 526	1.7033E 00	88 678	1.2366E 00	126 830	0.0000E 00
13 378	6.7249E-01	51 530	1.7769E 00	89 682	1.1755E 00	127 834	0.0000E 00
14 382	5.9791E-01	52 534	1.7647E 00	90 686	1.0738E 00	128 838	0.0000E 00
15 386	6.4770E-01	53 538	1.6915E 00	91 690	8.9560E-01	129 842	0.0000E 00
16 390	7.9218E-01	54 542	1.6756E 00	92 694	8.8685E-01	130 846	0.0000E 00
17 394	5.0686E-01	55 546	1.6516E 00	93 698	8.8444E-01	131 850	0.0000E 00
18 398	8.7410E-01	56 550	1.6334E 00	94 702	8.3267E-01	132 854	0.0000E 00
19 402	1.0630E 00	57 554	1.6597E 00	95 706	8.7240E-01	133 858	0.0000E 00
20 406	1.1271E 00	58 558	1.6442E 00	96 710	8.8566E-01	134 862	0.0000E 00
21 410	1.1811E 00	59 562	1.5953E 00	97 714	8.2238E-01	135 866	0.0000E 00
22 414	1.2302E 00	60 566	1.6245E 00	98 718	5.9806E-01	136 870	0.0000E 00
23 418	1.2446E 00	61 570	1.5703E 00	99 722	4.7882E-01	137 874	0.0000E 00
24 422	1.2269E 00	62 574	1.5362E 00	100 726	5.1429E-01	138 878	0.0000E 00
25 426	1.2041E 00	63 578	1.5815E 00	101 730	5.2976E-01	139 882	0.0000E 00
26 430	1.2331E 00	64 582	1.6525E 00	102 734	6.4952E-01	140 886	0.0000E 00
27 434	1.3029E 00	65 586	1.5441E 00	103 738	6.6824E-01	141 890	0.0000E 00
28 438	1.3388E 00	66 590	1.3565E 00	104 742	0.0000E 00	142 894	0.0000E 00
29 442	1.3937E 00	67 594	1.3576E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	1.4922E 00	68 598	1.4722E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	1.5681E 00	69 602	1.4958E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	1.6197E 00	70 606	1.5443E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	1.6436E 00	71 610	1.5142E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	1.6503E 00	72 614	1.4953E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	1.6456E 00	73 618	1.4690E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	1.6391E 00	74 622	1.4394E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	1.6510E 00	75 626	1.4037E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	1.7071E 00	76 630	1.3525E 00	114 782	0.0000E 00	152 934	0.0000E 00

E23709 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 23/07/78 station=05 event=09
zavg= 0.0 time= 1655 - 0

macfac= 1.66

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	7.0248E-03	77 346	1.8168E-01	115 384	2.6785E-01
2 271	0.0000E 00	40 309	8.0316E-03	78 347	1.8262E-01	116 385	2.6359E-01
3 272	0.0000E 00	41 310	1.0756E-02	79 348	1.8324E-01	117 386	2.6790E-01
4 273	0.0000E 00	42 311	1.5582E-02	80 349	1.8482E-01	118 387	2.7573E-01
5 274	0.0000E 00	43 312	2.1738E-02	81 350	2.0839E-01	119 388	2.8596E-01
6 275	0.0000E 00	44 313	2.7391E-02	82 351	2.1619E-01	120 389	3.0371E-01
7 276	0.0000E 00	45 314	3.2416E-02	83 352	2.1541E-01	121 390	3.5760E-01
8 277	0.0000E 00	46 315	3.6506E-02	84 353	2.1433E-01	122 391	3.6570E-01
9 278	0.0000E 00	47 316	4.0060E-02	85 354	2.5510E-01	123 392	3.4347E-01
10 279	0.0000E 00	48 317	4.6117E-02	86 355	2.5692E-01	124 393	3.2722E-01
11 280	0.0000E 00	49 318	5.5780E-02	87 356	2.4038E-01	125 394	3.0983E-01
12 281	0.0000E 00	50 319	6.1559E-02	88 357	2.1013E-01	126 395	2.9982E-01
13 282	0.0000E 00	51 320	7.1226E-02	89 358	1.9010E-01	127 396	2.9195E-01
14 283	0.0000E 00	52 321	8.1539E-02	90 359	2.0811E-01	128 397	3.4221E-01
15 284	0.0000E 00	53 322	8.3175E-02	91 360	2.2882E-01	129 398	4.6975E-01
16 285	0.0000E 00	54 323	7.8875E-02	92 361	2.2620E-01	130 399	5.4926E-01
17 286	0.0000E 00	55 324	9.0716E-02	93 362	2.3251E-01	131 400	5.5478E-01
18 287	0.0000E 00	56 325	1.0404E-01	94 363	2.5842E-01	132 401	5.7473E-01
19 288	0.0000E 00	57 326	1.2323E-01	95 364	2.7255E-01	133 402	6.0797E-01
20 289	0.0000E 00	58 327	1.3992E-01	96 365	2.8108E-01	134 403	6.2510E-01
21 290	0.0000E 00	59 328	1.4157E-01	97 366	3.1047E-01	135 404	6.0909E-01
22 291	0.0000E 00	60 329	1.5212E-01	98 367	3.2572E-01	136 405	5.9980E-01
23 292	0.0000E 00	61 330	1.5926E-01	99 368	3.1887E-01	137 406	6.0485E-01
24 293	0.0000E 00	62 331	1.5455E-01	100 369	3.1524E-01	138 407	6.0005E-01
25 294	0.0000E 00	63 332	1.5917E-01	101 370	3.2665E-01	139 408	6.2911E-01
26 295	0.0000E 00	64 333	1.6203E-01	102 371	3.1914E-01	140 409	6.3841E-01
27 296	0.0000E 00	65 334	1.6274E-01	103 372	3.2177E-01	141 410	6.2353E-01
28 297	0.0000E 00	66 335	1.6411E-01	104 373	2.9263E-01	142 411	6.2897E-01
29 298	0.0000E 00	67 336	1.6626E-01	105 374	2.4154E-01	143 412	6.6738E-01
30 299	0.0000E 00	68 337	1.6786E-01	106 375	2.4817E-01	144 413	6.8644E-01
31 300	0.0000E 00	69 338	1.7074E-01	107 376	2.8097E-01	145 414	6.7803E-01
32 301	0.0000E 00	70 339	1.7135E-01	108 377	3.1712E-01	146 415	6.8012E-01
33 302	0.0000E 00	71 340	1.7257E-01	109 378	3.3233E-01	147 416	6.8595E-01
34 303	0.0000E 00	72 341	1.7498E-01	110 379	3.2540E-01	148 417	6.7752E-01
35 304	7.6637E-04	73 342	1.7648E-01	111 380	3.1322E-01	149 418	6.3758E-01
36 305	1.9985E-03	74 343	1.7740E-01	112 381	3.0353E-01	150 419	0.0000E 00
37 306	2.6124E-03	75 344	1.7901E-01	113 382	2.9312E-01	151 420	0.0000E 00
38 307	4.1832E-03	76 345	1.8120E-01	114 383	2.8045E-01	152 421	0.0000E 00

E23710 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 23/07/78 station=05 event=10
zavg= 0.0 time= 1710 - 1718

macfac= 1.96

WL	E	WL	E	WL	E	WL	E
1 330	1.4258E-01	39 482	1.3923E 00	77 634	2.2657E-01	115 786	0.0000E 00
2 334	1.4392E-01	40 486	1.1099E 00	78 638	2.2839E-01	116 790	0.0000E 00
3 338	1.4382E-01	41 490	1.2276E 00	79 642	2.3286E-01	117 794	0.0000E 00
4 342	1.7001E-01	42 494	1.3122E 00	80 646	2.0428E-01	118 798	0.0000E 00
5 346	1.6019E-01	43 498	1.2775E 00	81 650	2.1693E-01	119 802	0.0000E 00
6 350	1.4628E-01	44 502	1.2775E 00	82 654	2.1949E-01	120 806	0.0000E 00
7 354	1.6245E-01	45 506	1.3559E 00	83 658	2.2900E-01	121 810	0.0000E 00
8 358	1.6534E-01	46 510	1.3578E 00	84 662	2.7567E-01	122 814	0.0000E 00
9 362	1.7638E-01	47 514	1.2062E 00	85 666	3.0630E-01	123 818	0.0000E 00
10 366	1.9126E-01	48 518	1.1210E 00	86 670	3.6209E-01	124 822	0.0000E 00
11 370	2.0187E-01	49 522	1.1717E 00	87 674	3.2261E-01	125 826	0.0000E 00
12 374	2.0517E-01	50 526	8.4993E-01	88 678	2.6369E-01	126 830	0.0000E 00
13 378	1.8693E-01	51 530	5.0866E-01	89 682	2.4230E-01	127 834	0.0000E 00
14 382	1.5881E-01	52 534	3.9465E-01	90 686	1.8829E-01	128 838	0.0000E 00
15 386	1.5966E-01	53 538	3.7362E-01	91 690	2.0899E-01	129 842	0.0000E 00
16 390	1.7431E-01	54 542	3.5932E-01	92 694	1.8306E-01	130 846	0.0000E 00
17 394	1.1480E-01	55 546	3.2392E-01	93 698	2.3099E-01	131 850	0.0000E 00
18 398	2.1075E-01	56 550	3.1877E-01	94 702	4.0530E-01	132 854	0.0000E 00
19 402	2.8106E-01	57 554	3.0995E-01	95 706	6.3140E-01	133 858	0.0000E 00
20 406	2.7994E-01	58 558	2.6506E-01	96 710	7.6343E-01	134 862	0.0000E 00
21 410	2.9183E-01	59 562	2.5106E-01	97 714	7.0501E-01	135 866	0.0000E 00
22 414	2.9618E-01	60 566	2.5347E-01	98 718	4.3423E-01	136 870	0.0000E 00
23 418	2.9661E-01	61 570	2.5420E-01	99 722	2.7804E-01	137 874	0.0000E 00
24 422	2.8992E-01	62 574	2.4698E-01	100 726	2.7263E-01	138 878	0.0000E 00
25 426	2.9158E-01	63 578	2.5494E-01	101 730	2.0964E-01	139 882	0.0000E 00
26 430	2.3911E-01	64 582	2.5346E-01	102 734	2.2165E-01	140 886	0.0000E 00
27 434	2.9424E-01	65 586	2.5389E-01	103 738	2.0528E-01	141 890	0.0000E 00
28 438	3.0051E-01	66 590	1.8256E-01	104 742	2.0134E-01	142 894	0.0000E 00
29 442	3.5392E-01	67 594	2.2298E-01	105 746	0.0000E 00	143 898	0.0000E 00
30 446	5.4787E-01	68 598	2.2935E-01	106 750	0.0000E 00	144 902	0.0000E 00
31 450	9.6167E-01	69 602	2.5166E-01	107 754	0.0000E 00	145 906	0.0000E 00
32 454	1.1298E 00	70 606	2.5857E-01	108 758	0.0000E 00	146 910	0.0000E 00
33 458	1.1858E 00	71 610	2.5689E-01	109 762	0.0000E 00	147 914	0.0000E 00
34 462	1.1524E 00	72 614	2.4735E-01	110 766	0.0000E 00	148 918	0.0000E 00
35 466	1.2630E 00	73 618	2.4987E-01	111 770	0.0000E 00	149 922	0.0000E 00
36 470	1.1543E 00	74 622	2.4603E-01	112 774	0.0000E 00	150 926	0.0000E 00
37 474	1.2693E 00	75 626	2.3056E-01	113 778	0.0000E 00	151 930	0.0000E 00
38 478	1.2545E 00	76 630	2.2186E-01	114 782	0.0000E 00	152 934	0.0000E 00

E31720 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 31/07/78 station=10 event=20
zavg= 0.0 time= 1350 - 1358

macfac= 2.39

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	1.1168E-01	77 346	7.0960E-01	115 384	1.0019E 00
2 271	0.0000E 00	40 309	1.3328E-01	78 347	7.3626E-01	116 385	1.0653E 00
3 272	0.0000E 00	41 310	1.5178E-01	79 348	7.5117E-01	117 386	1.0264E 00
4 273	0.0000E 00	42 311	1.8059E-01	80 349	7.4047E-01	118 387	9.9585E-01
5 274	0.0000E 00	43 312	2.0348E-01	81 350	7.6857E-01	119 388	1.0502E 00
6 275	0.0000E 00	44 313	2.3529E-01	82 351	8.2569E-01	120 389	1.0814E 00
7 276	0.0000E 00	45 314	2.6254E-01	83 352	7.7695E-01	121 390	1.2473E 00
8 277	0.0000E 00	46 315	2.7896E-01	84 353	7.7866E-01	122 391	1.0499E 00
9 278	0.0000E 00	47 316	2.8415E-01	85 354	8.1018E-01	123 392	9.1943E-01
10 279	0.0000E 00	48 317	3.0773E-01	86 355	8.7571E-01	124 393	8.4802E-01
11 280	0.0000E 00	49 318	3.5620E-01	87 356	8.9332E-01	125 394	7.8557E-01
12 281	0.0000E 00	50 319	3.5727E-01	88 357	8.1293E-01	126 395	7.3376E-01
13 282	0.0000E 00	51 320	3.9373E-01	89 358	7.0227E-01	127 396	5.6962E-01
14 283	0.0000E 00	52 321	4.1801E-01	90 359	7.3485E-01	128 397	3.8349E-01
15 284	0.0000E 00	53 322	4.2281E-01	91 360	8.6104E-01	129 398	4.6504E-01
16 285	0.0000E 00	54 323	4.0928E-01	92 361	8.7430E-01	130 399	6.0999E-01
17 286	0.0000E 00	55 324	4.1756E-01	93 362	8.6374E-01	131 400	7.4152E-01
18 287	0.0000E 00	56 325	4.7947E-01	94 363	9.5187E-01	132 401	8.8399E-01
19 288	0.0000E 00	57 326	5.7014E-01	95 364	9.3154E-01	133 402	8.6459E-01
20 289	0.0000E 00	58 327	6.3852E-01	96 365	9.6462E-01	134 403	1.1360E 00
21 290	0.0000E 00	59 328	6.6257E-01	97 366	1.1109E 00	135 404	1.3813E 00
22 291	0.0000E 00	60 329	7.1224E-01	98 367	1.1629E 00	136 405	1.3123E 00
23 292	0.0000E 00	61 330	7.5864E-01	99 368	1.1077E 00	137 406	0.0000E 00
24 293	0.0000E 00	62 331	7.2754E-01	100 369	1.1135E 00	138 407	0.0000E 00
25 294	0.0000E 00	63 332	6.9377E-01	101 370	1.2097E 00	139 408	0.0000E 00
26 295	0.0000E 00	64 333	6.9769E-01	102 371	1.1506E 00	140 409	0.0000E 00
27 296	0.0000E 00	65 334	6.9001E-01	103 372	1.0369E 00	141 410	0.0000E 00
28 297	1.1182E-03	66 335	6.9297E-01	104 373	9.7228E-01	142 411	0.0000E 00
29 298	2.4364E-03	67 336	6.8370E-01	105 374	9.2508E-01	143 412	0.0000E 00
30 299	4.5054E-03	68 337	6.4288E-01	106 375	9.0355E-01	144 413	0.0000E 00
31 300	7.3399E-03	69 338	6.6244E-01	107 376	1.0251E 00	145 414	0.0000E 00
32 301	2.8462E-02	70 339	7.1135E-01	108 377	1.0887E 00	146 415	0.0000E 00
33 302	4.6677E-02	71 340	7.7151E-01	109 378	1.2310E 00	147 416	0.0000E 00
34 303	4.6282E-02	72 341	7.3907E-01	110 379	1.1980E 00	148 417	0.0000E 00
35 304	4.7530E-02	73 342	7.5505E-01	111 380	1.1219E 00	149 418	0.0000E 00
36 305	6.0537E-02	74 343	7.9190E-01	112 381	1.1239E 00	150 419	0.0000E 00
37 306	7.4301E-02	75 344	6.9704E-01	113 382	9.7656E-01	151 420	0.0000E 00
38 307	8.8328E-02	76 345	6.8503E-01	114 383	8.2115E-01	152 421	0.0000E 00

E31721 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 31/07/78 station=10 event=21
zavg= 0.0 time= 1410 - 1415

macfac= 2.35

WL	E	WL	E	WL	E	WL	E
1 330	6.0399E-01	39 482	2.4153E 00	77 634	1.8885E 00	115 786	0.0000E 00
2 334	6.1366E-01	40 486	2.3658E 00	78 638	1.8510E 00	116 790	0.0000E 00
3 338	6.6669E-01	41 490	2.2823E 00	79 642	1.7635E 00	117 794	0.0000E 00
4 342	6.8038E-01	42 494	2.3438E 00	80 646	1.7734E 00	118 798	0.0000E 00
5 346	6.5918E-01	43 498	2.3664E 00	81 650	1.6177E 00	119 802	0.0000E 00
6 350	7.1357E-01	44 502	2.3223E 00	82 654	1.7041E 00	120 806	0.0000E 00
7 354	7.6856E-01	45 506	2.3261E 00	83 658	1.6235E 00	121 810	0.0000E 00
8 358	8.1014E-01	46 510	2.3543E 00	84 662	1.7568E 00	122 814	0.0000E 00
9 362	8.6443E-01	47 514	2.3058E 00	85 666	1.6728E 00	123 818	0.0000E 00
10 366	9.9741E-01	48 518	2.1314E 00	86 670	1.6742E 00	124 822	0.0000E 00
11 370	9.9281E-01	49 522	2.2616E 00	87 674	1.6223E 00	125 826	0.0000E 00
12 374	9.5619E-01	50 526	2.2116E 00	88 678	1.5578E 00	126 830	0.0000E 00
13 378	9.8219E-01	51 530	2.3559E 00	89 682	1.5332E 00	127 834	0.0000E 00
14 382	8.4913E-01	52 534	2.4250E 00	90 686	1.4099E 00	128 838	0.0000E 00
15 386	7.9859E-01	53 538	2.3206E 00	91 690	1.2767E 00	129 842	0.0000E 00
16 390	1.1356E 00	54 542	2.3099E 00	92 694	1.2165E 00	130 846	0.0000E 00
17 394	1.0952E 00	55 546	2.1860E 00	93 698	1.3061E 00	131 850	0.0000E 00
18 398	1.1489E 00	56 550	2.3349E 00	94 702	1.2077E 00	132 854	0.0000E 00
19 402	1.7017E 00	57 554	2.3054E 00	95 706	1.2718E 00	133 858	0.0000E 00
20 406	1.6712E 00	58 558	2.1800E 00	96 710	1.2331E 00	134 862	0.0000E 00
21 410	1.7499E 00	59 562	2.2669E 00	97 714	1.1017E 00	135 866	0.0000E 00
22 414	1.8548E 00	60 566	2.1675E 00	98 718	9.1063E-01	136 870	0.0000E 00
23 418	1.8869E 00	61 570	2.1342E 00	99 722	8.8396E-01	137 874	0.0000E 00
24 422	1.8653E 00	62 574	2.2610E 00	100 726	8.0588E-01	138 878	0.0000E 00
25 426	1.7397E 00	63 578	2.0988E 00	101 730	8.5593E-01	139 882	0.0000E 00
26 430	1.6968E 00	64 582	2.1779E 00	102 734	8.9903E-01	140 886	0.0000E 00
27 434	1.8209E 00	65 586	2.1811E 00	103 738	9.0815E-01	141 890	0.0000E 00
28 438	1.9666E 00	66 590	2.0566E 00	104 742	0.0000E 00	142 894	0.0000E 00
29 442	1.9968E 00	67 594	2.0270E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	2.0884E 00	68 598	2.0368E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	2.2445E 00	69 602	2.1105E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	2.2041E 00	70 606	2.0898E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	2.3491E 00	71 610	2.1107E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	2.3774E 00	72 614	1.9873E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	2.2378E 00	73 618	2.0303E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	2.3616E 00	74 622	2.0033E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	2.3311E 00	75 626	1.9521E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	2.3502E 00	76 630	1.8348E 00	114 782	0.0000E 00	152 934	0.0000E 00

E31722 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 31/07/78 station=10 event=22
zavg= 0.0 time= 1450 - 1457

macfac= 2.60

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	6.2671E-02	77 346	5.0482E-01	115 384	5.9201E-01
2 271	0.0000E 00	40 309	7.6045E-02	78 347	5.3805E-01	116 385	6.4120E-01
3 272	0.0000E 00	41 310	8.6641E-02	79 348	5.4328E-01	117 386	7.3905E-01
4 273	0.0000E 00	42 311	1.0167E-01	80 349	5.4644E-01	118 387	7.2011E-01
5 274	0.0000E 00	43 312	1.3418E-01	81 350	5.1687E-01	119 388	7.0078E-01
6 275	0.0000E 00	44 313	1.5737E-01	82 351	5.6367E-01	120 389	7.2288E-01
7 276	0.0000E 00	45 314	1.7319E-01	83 352	5.8609E-01	121 390	7.7603E-01
8 277	0.0000E 00	46 315	1.9416E-01	84 353	5.8029E-01	122 391	8.2797E-01
9 278	0.0000E 00	47 316	2.0339E-01	85 354	6.3725E-01	123 392	9.5095E-01
10 279	0.0000E 00	48 317	2.0550E-01	86 355	6.4638E-01	124 393	7.2223E-01
11 280	0.0000E 00	49 318	2.3489E-01	87 356	6.4887E-01	125 394	5.0917E-01
12 281	0.0000E 00	50 319	2.6676E-01	88 357	6.4006E-01	126 395	7.1467E-01
13 282	0.0000E 00	51 320	2.9281E-01	89 358	5.3180E-01	127 396	7.0753E-01
14 283	0.0000E 00	52 321	3.0972E-01	90 359	4.9686E-01	128 397	6.5583E-01
15 284	0.0000E 00	53 322	3.0519E-01	91 360	6.3577E-01	129 398	6.8575E-01
16 285	0.0000E 00	54 323	3.0113E-01	92 361	6.4976E-01	130 399	1.0839E 00
17 286	0.0000E 00	55 324	3.0355E-01	93 362	6.1647E-01	131 400	1.1776E 00
18 287	0.0000E 00	56 325	3.4854E-01	94 363	6.5389E-01	132 401	1.2340E 00
19 288	0.0000E 00	57 326	4.1398E-01	95 364	7.2598E-01	133 402	1.3059E 00
20 289	0.0000E 00	58 327	4.7224E-01	96 365	7.0254E-01	134 403	1.3418E 00
21 290	0.0000E 00	59 328	4.5781E-01	97 366	7.7749E-01	135 404	1.3271E 00
22 291	0.0000E 00	60 329	4.8926E-01	98 367	8.2037E-01	136 405	1.3002E 00
23 292	0.0000E 00	61 330	5.3079E-01	99 368	8.0185E-01	137 406	1.2687E 00
24 293	0.0000E 00	62 331	5.1322E-01	100 369	8.3875E-01	138 407	1.2328E 00
25 294	0.0000E 00	63 332	5.2068E-01	101 370	8.4852E-01	139 408	1.2829E 00
26 295	0.0000E 00	64 333	5.3220E-01	102 371	7.8911E-01	140 409	1.3563E 00
27 296	0.0000E 00	65 334	5.1969E-01	103 372	7.8604E-01	141 410	1.3102E 00
28 297	5.0087E-04	66 335	5.2709E-01	104 373	7.4677E-01	142 411	1.2284E 00
29 298	8.9545E-04	67 336	5.3579E-01	105 374	6.7537E-01	143 412	1.3105E 00
30 299	1.3269E-03	68 337	4.8242E-01	106 375	6.5419E-01	144 413	0.0000E 00
31 300	3.0252E-03	69 338	4.9860E-01	107 376	7.4099E-01	145 414	0.0000E 00
32 301	5.0045E-03	70 339	5.3753E-01	108 377	7.5553E-01	146 415	0.0000E 00
33 302	7.7366E-03	71 340	5.3917E-01	109 378	8.8402E-01	147 416	0.0000E 00
34 303	1.3378E-02	72 341	5.4643E-01	110 379	8.8652E-01	148 417	0.0000E 00
35 304	2.0296E-02	73 342	5.6420E-01	111 380	8.1753E-01	149 418	0.0000E 00
36 305	2.9269E-02	74 343	5.7765E-01	112 381	8.2113E-01	150 419	0.0000E 00
37 306	3.7812E-02	75 344	5.1874E-01	113 382	7.4158E-01	151 420	0.0000E 00
38 307	4.7597E-02	76 345	4.7224E-01	114 383	6.0476E-01	152 421	0.0000E 00

E31723 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 31/07/78 station=10 event=23
zavg= 0.0 time= 1500 - 1505

macfac= 2.52

	WL	E		WL	E		WL	E		WL	E
1	330	4.6414E-01	39	482	1.8016E 00	77	634	1.3828E 00	115	786	0.0000E 00
2	334	4.8617E-01	40	486	1.7147E 00	78	638	1.5459E 00	116	790	0.0000E 00
3	338	4.8118E-01	41	490	1.6598E 00	79	642	1.4095E 00	117	794	0.0000E 00
4	342	5.1624E-01	42	494	1.7367E 00	80	646	1.3999E 00	118	798	0.0000E 00
5	346	5.0113E-01	43	498	1.7317E 00	81	650	1.3521E 00	119	802	0.0000E 00
6	350	5.4882E-01	44	502	1.7357E 00	82	654	1.3201E 00	120	806	0.0000E 00
7	354	6.3090E-01	45	506	1.8151E 00	83	658	1.2344E 00	121	810	0.0000E 00
8	358	5.0155E-01	46	510	1.8235E 00	84	662	1.3684E 00	122	814	0.0000E 00
9	362	5.9281E-01	47	514	1.6867E 00	85	666	1.4983E 00	123	818	0.0000E 00
10	366	7.5483E-01	48	518	1.6583E 00	86	670	1.3302E 00	124	822	0.0000E 00
11	370	7.6239E-01	49	522	1.7644E 00	87	674	1.4017E 00	125	826	0.0000E 00
12	374	6.4360E-01	50	526	1.6367E 00	88	678	1.2772E 00	126	830	0.0000E 00
13	378	7.9667E-01	51	530	1.8322E 00	89	682	1.3823E 00	127	834	0.0000E 00
14	382	5.8388E-01	52	534	1.7795E 00	90	686	1.1040E 00	128	838	0.0000E 00
15	386	6.5210E-01	53	538	1.7725E 00	91	690	1.1106E 00	129	842	0.0000E 00
16	390	8.2277E-01	54	542	1.7339E 00	92	694	9.8517E-01	130	846	0.0000E 00
17	394	7.7068E-01	55	546	1.7135E 00	93	698	1.0903E 00	131	850	0.0000E 00
18	398	1.0120E 00	56	550	1.7209E 00	94	702	1.0237E 00	132	854	0.0000E 00
19	402	1.1691E 00	57	554	1.7608E 00	95	706	1.0176E 00	133	858	0.0000E 00
20	406	1.2376E 00	58	558	1.7022E 00	96	710	1.1059E 00	134	862	0.0000E 00
21	410	1.2438E 00	59	562	1.6395E 00	97	714	1.0705E 00	135	866	0.0000E 00
22	414	1.3167E 00	60	566	1.7289E 00	98	718	6.1357E-01	136	870	0.0000E 00
23	418	1.3214E 00	61	570	1.5975E 00	99	722	9.2403E-01	137	874	0.0000E 00
24	422	1.2940E 00	62	574	1.6884E 00	100	726	1.4299E-01	138	878	0.0000E 00
25	426	1.2522E 00	63	578	1.5869E 00	101	730	6.8712E-01	139	882	0.0000E 00
26	430	1.2290E 00	64	582	1.7011E 00	102	734	0.0000E 00	140	886	0.0000E 00
27	434	1.3493E 00	65	586	1.6543E 00	103	738	0.0000E 00	141	890	0.0000E 00
28	438	1.3876E 00	66	590	1.5634E 00	104	742	0.0000E 00	142	894	0.0000E 00
29	442	1.5019E 00	67	594	1.5033E 00	105	746	0.0000E 00	143	898	0.0000E 00
30	446	1.5639E 00	68	598	1.6048E 00	106	750	0.0000E 00	144	902	0.0000E 00
31	450	1.6840E 00	69	602	1.5838E 00	107	754	0.0000E 00	145	906	0.0000E 00
32	454	1.6947E 00	70	606	1.5809E 00	108	758	0.0000E 00	146	910	0.0000E 00
33	458	1.6907E 00	71	610	1.6644E 00	109	762	0.0000E 00	147	914	0.0000E 00
34	462	1.6994E 00	72	614	1.5052E 00	110	766	0.0000E 00	148	918	0.0000E 00
35	466	1.7151E 00	73	618	1.5899E 00	111	770	0.0000E 00	149	922	0.0000E 00
36	470	1.7075E 00	74	622	1.5674E 00	112	774	0.0000E 00	150	926	0.0000E 00
37	474	1.7121E 00	75	626	1.4766E 00	113	778	0.0000E 00	151	930	0.0000E 00
38	478	1.7602E 00	76	630	1.5320E 00	114	782	0.0000E 00	152	934	0.0000E 00

E31724 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 31/07/78 station=10 event=24
zavg= 0.0 time= 1536 - 1547

macfac= 1.70

	WL	E		WL	E		WL	E		WL	E
1	270	0.0000E 00	39	308	2.4159E-02	77	346	3.5791E-01	115	384	3.2053E-01
2	271	0.0000E 00	40	309	3.2705E-02	78	347	3.8033E-01	116	385	3.2697E-01
3	272	0.0000E 00	41	310	3.7451E-02	79	348	3.7518E-01	117	386	3.8172E-01
4	273	0.0000E 00	42	311	4.5809E-02	80	349	3.7218E-01	118	387	3.7579E-01
5	274	0.0000E 00	43	312	6.6707E-02	81	350	3.9480E-01	119	388	3.6274E-01
6	275	0.0000E 00	44	313	7.7899E-02	82	351	4.4499E-01	120	389	3.5884E-01
7	276	0.0000E 00	45	314	8.7165E-02	83	352	4.0657E-01	121	390	3.8869E-01
8	277	0.0000E 00	46	315	9.8714E-02	84	353	4.1550E-01	122	391	3.9109E-01
9	278	0.0000E 00	47	316	1.0426E-01	85	354	4.5707E-01	123	392	3.5705E-01
10	279	0.0000E 00	48	317	1.1256E-01	86	355	4.9484E-01	124	393	3.6465E-01
11	280	2.5889E-04	49	318	1.3159E-01	87	356	5.0481E-01	125	394	3.6862E-01
12	281	0.0000E 00	50	319	1.4401E-01	88	357	4.2147E-01	126	395	3.5829E-01
13	282	0.0000E 00	51	320	1.6531E-01	89	358	3.7458E-01	127	396	3.3735E-01
14	283	0.0000E 00	52	321	1.7774E-01	90	359	3.8121E-01	128	397	3.1377E-01
15	284	0.0000E 00	53	322	1.8549E-01	91	360	4.2857E-01	129	398	3.3471E-01
16	285	0.0000E 00	54	323	2.0483E-01	92	361	4.9744E-01	130	399	5.0948E-01
17	286	0.0000E 00	55	324	2.2643E-01	93	362	4.3651E-01	131	400	5.5779E-01
18	287	0.0000E 00	56	325	2.5203E-01	94	363	4.5725E-01	132	401	5.8928E-01
19	288	0.0000E 00	57	326	2.7723E-01	95	364	4.9209E-01	133	402	6.2666E-01
20	289	0.0000E 00	58	327	3.0634E-01	96	365	5.1664E-01	134	403	6.5385E-01
21	290	0.0000E 00	59	328	3.0188E-01	97	366	5.4629E-01	135	404	6.3321E-01
22	291	0.0000E 00	60	329	3.0782E-01	98	367	6.0118E-01	136	405	5.9940E-01
23	292	0.0000E 00	61	330	3.4544E-01	99	368	5.7273E-01	137	406	5.8368E-01
24	293	0.0000E 00	62	331	3.3648E-01	100	369	5.7181E-01	138	407	5.8757E-01
25	294	0.0000E 00	63	332	3.2551E-01	101	370	5.5274E-01	139	408	5.3978E-01
26	295	0.0000E 00	64	333	3.4019E-01	102	371	5.4062E-01	140	409	4.8233E-01
27	296	0.0000E 00	65	334	3.3833E-01	103	372	5.3299E-01	141	410	4.5434E-01
28	297	0.0000E 00	66	335	3.4692E-01	104	373	5.0339E-01	142	411	4.3141E-01
29	298	0.0000E 00	67	336	3.4504E-01	105	374	4.3878E-01	143	412	4.6879E-01
30	299	0.0000E 00	68	337	3.1619E-01	106	375	4.5006E-01	144	413	5.0496E-01
31	300	2.2065E-04	69	338	3.3170E-01	107	376	4.5485E-01	145	414	4.8378E-01
32	301	8.4747E-04	70	339	3.5055E-01	108	377	4.1815E-01	146	415	4.7561E-01
33	302	1.8896E-03	71	340	3.7088E-01	109	378	4.6816E-01	147	416	5.0364E-01
34	303	3.2166E-03	72	341	3.7337E-01	110	379	5.2264E-01	148	417	5.0593E-01
35	304	6.3534E-03	73	342	3.7827E-01	111	380	4.6856E-01	149	418	4.9546E-01
36	305	9.0903E-03	74	343	3.8961E-01	112	381	4.5716E-01	150	419	4.8057E-01
37	306	1.2747E-02	75	344	3.6064E-01	113	382	4.4139E-01	151	420	4.6752E-01
38	307	1.7001E-02	76	345	3.5325E-01	114	383	3.5300E-01	152	421	4.9163E-01

E31725 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 31/07/78 station=10 event=25
zavg= 0.0 time= 1550 - 1558

macfac= 3.15

WL	E	WL	E	WL	E	WL	E
1 330	2.907dE-01	39 482	1.1340E 00	77 634	8.4398E-01	115 786	0.0000E 00
2 334	3.0563E-01	40 486	8.5547E-01	78 638	8.7642E-01	116 790	0.0000E 00
3 338	3.1583E-01	41 490	1.0865E 00	79 642	8.4514E-01	117 794	0.0000E 00
4 342	3.2363E-01	42 494	1.0360E 00	80 646	7.7433E-01	118 798	0.0000E 00
5 346	3.2719E-01	43 498	1.0621E 00	81 650	8.1058E-01	119 802	0.0000E 00
6 350	3.4620E-01	44 502	9.5578E-01	82 654	7.5717E-01	120 806	0.0000E 00
7 354	3.4532E-01	45 506	1.1079E 00	83 658	7.0328E-01	121 810	0.0000E 00
8 358	3.4460E-01	46 510	1.0373E 00	84 662	8.1941E-01	122 814	0.0000E 00
9 362	3.7464E-01	47 514	1.0048E 00	85 666	8.0408E-01	123 818	0.0000E 00
10 366	4.7482E-01	48 518	9.7429E-01	86 670	7.6497E-01	124 822	0.0000E 00
11 370	4.7930E-01	49 522	9.8518E-01	87 674	7.7453E-01	125 826	0.0000E 00
12 374	4.2108E-01	50 526	1.1014E 00	88 678	7.5289E-01	126 830	0.0000E 00
13 378	4.6387E-01	51 530	1.0412E 00	89 682	7.1017E-01	127 834	0.0000E 00
14 382	3.6413E-01	52 534	1.1353E 00	90 686	7.1043E-01	128 838	0.0000E 00
15 386	3.8703E-01	53 538	1.0197E 00	91 690	5.5335E-01	129 842	0.0000E 00
16 390	4.8857E-01	54 542	1.0517E 00	92 694	5.2635E-01	130 846	0.0000E 00
17 394	5.0107E-01	55 546	1.0006E 00	93 698	5.8744E-01	131 850	0.0000E 00
18 398	6.2703E-01	56 550	1.0374E 00	94 702	5.2618E-01	132 854	0.0000E 00
19 402	6.9261E-01	57 554	1.0586E 00	95 706	5.9163E-01	133 858	0.0000E 00
20 406	7.3513E-01	58 558	1.0439E 00	96 710	5.7144E-01	134 862	0.0000E 00
21 410	7.7175E-01	59 562	1.0380E 00	97 714	5.0787E-01	135 866	0.0000E 00
22 414	8.1173E-01	60 566	9.7593E-01	98 718	4.0107E-01	136 870	0.0000E 00
23 418	7.9337E-01	61 570	9.3318E-01	99 722	3.2660E-01	137 874	0.0000E 00
24 422	7.8450E-01	62 574	9.7583E-01	100 726	3.4443E-01	138 878	0.0000E 00
25 426	7.3639E-01	63 578	1.0011E 00	101 730	3.5342E-01	139 882	0.0000E 00
26 430	6.7193E-01	64 582	9.9885E-01	102 734	4.3266E-01	140 886	0.0000E 00
27 434	7.d712E-01	65 586	9.3872E-01	103 738	0.0000E 00	141 890	0.0000E 00
28 438	8.4035E-01	66 590	8.6834E-01	104 742	0.0000E 00	142 894	0.0000E 00
29 442	8.9335E-01	67 594	9.1708E-01	105 746	0.0000E 00	143 898	0.0000E 00
30 446	1.0538E 00	68 598	9.1874E-01	106 750	0.0000E 00	144 902	0.0000E 00
31 450	1.0421E 00	69 602	8.6371E-01	107 754	0.0000E 00	145 906	0.0000E 00
32 454	1.0183E 00	70 606	1.0067E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	1.0141E 00	71 610	9.0765E-01	109 762	0.0000E 00	147 914	0.0000E 00
34 462	1.0733E 00	72 614	9.1808E-01	110 766	0.0000E 00	148 918	0.0000E 00
35 466	1.0475E 00	73 618	8.9200E-01	111 770	0.0000E 00	149 922	0.0000E 00
36 470	1.0016E 00	74 622	8.6724E-01	112 774	0.0000E 00	150 926	0.0000E 00
37 474	1.0565E 00	75 626	9.2957E-01	113 778	0.0000E 00	151 930	0.0000E 00
38 478	1.0191E 00	76 630	8.1903E-01	114 782	0.0000E 00	152 934	0.0000E 00

E01835 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 01/08/78 station=10 event=35
zavg= 0.0 time= 1418 - 1428

macfac= 1.92

WL	E	WL	E	WL	E	WL	E
1 330	5.7645E-01	39 482	2.3413E 00	77 634	1.8380E 00	115 786	0.0000E 00
2 334	5.6888E-01	40 486	2.2533E 00	78 638	1.7859E 00	116 790	0.0000E 00
3 338	6.0125E-01	41 490	2.2160E 00	79 642	1.7487E 00	117 794	0.0000E 00
4 342	6.4131E-01	42 494	2.3005E 00	80 646	1.6525E 00	118 798	0.0000E 00
5 346	6.1762E-01	43 498	2.2985E 00	81 650	1.5937E 00	119 802	0.0000E 00
6 350	6.5560E-01	44 502	2.3040E 00	82 654	1.5577E 00	120 806	0.0000E 00
7 354	6.7671E-01	45 506	2.2681E 00	83 658	1.5918E 00	121 810	0.0000E 00
8 358	7.1835E-01	46 510	2.3889E 00	84 662	1.7476E 00	122 814	0.0000E 00
9 362	7.9809E-01	47 514	2.2723E 00	85 666	1.6700E 00	123 818	0.0000E 00
10 366	8.9843E-01	48 518	2.2413E 00	86 670	1.5239E 00	124 822	0.0000E 00
11 370	9.0879E-01	49 522	2.2575E 00	87 674	1.4615E 00	125 826	0.0000E 00
12 374	9.0359E-01	50 526	2.1875E 00	88 678	1.4961E 00	126 830	0.0000E 00
13 378	9.5196E-01	51 530	2.2780E 00	89 682	1.1353E 00	127 834	0.0000E 00
14 382	8.9286E-01	52 534	2.3913E 00	90 686	6.3421E-01	128 838	0.0000E 00
15 386	8.5371E-01	53 538	2.2670E 00	91 690	5.0883E-01	129 842	0.0000E 00
16 390	8.6511E-01	54 542	2.2332E 00	92 694	4.1818E-01	130 846	0.0000E 00
17 394	7.9799E-01	55 546	2.1988E 00	93 698	5.1902E-01	131 850	0.0000E 00
18 398	1.1059E 00	56 550	2.2028E 00	94 702	1.0099E 00	132 854	0.0000E 00
19 402	1.5262E 00	57 554	2.0691E 00	95 706	1.2345E 00	133 858	0.0000E 00
20 406	1.6005E 00	58 558	1.1119E 00	96 710	1.2133E 00	134 862	0.0000E 00
21 410	1.6886E 00	59 562	1.2085E 00	97 714	9.8373E-01	135 866	0.0000E 00
22 414	1.7096E 00	60 566	7.6874E-01	98 718	5.1455E-01	136 870	0.0000E 00
23 418	1.7281E 00	61 570	5.0673E-01	99 722	2.4528E-01	137 874	0.0000E 00
24 422	1.7071E 00	62 574	4.9377E-01	100 726	1.8006E-01	138 878	0.0000E 00
25 426	1.6214E 00	63 578	6.6655E-01	101 730	1.7952E-01	139 882	0.0000E 00
26 430	1.6292E 00	64 582	1.1824E 00	102 734	8.8057E-02	140 886	0.0000E 00
27 434	1.7681E 00	65 586	1.4021E 00	103 738	0.0000E 00	141 890	0.0000E 00
28 438	1.8379E 00	66 590	1.4114E 00	104 742	0.0000E 00	142 894	0.0000E 00
29 442	1.8975E 00	67 594	1.5768E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	2.0702E 00	68 598	2.0186E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	2.1129E 00	69 602	2.1077E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	2.1988E 00	70 606	2.1166E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	2.2687E 00	71 610	2.0468E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	2.2299E 00	72 614	1.9968E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	2.2476E 00	73 618	1.9712E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	2.2619E 00	74 622	1.9772E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	2.2535E 00	75 626	1.9080E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	2.3265E 00	76 630	1.8227E 00	114 782	0.0000E 00	152 934	0.0000E 00

E02802 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 02/08/78 station=11 event=02
zavg= 0.0 time= 1159 - 1209

macfac= 5.07

	WL	E		WL	E		WL	E		WL	E
1	270	0.0000E 00	39	308	2.0353E-01	77	346	9.1832E-01	115	384	1.5090E 00
2	271	0.0000E 00	40	309	2.3743E-01	78	347	8.6531E-01	116	385	1.7296E 00
3	272	0.0000E 00	41	310	2.9331E-01	79	348	9.0947E-01	117	386	2.3777E 00
4	273	0.0000E 00	42	311	3.3048E-01	80	349	9.4139E-01	118	387	2.1369E 00
5	274	0.0000E 00	43	312	3.3942E-01	81	350	9.5088E-01	119	388	2.1502E 00
6	275	0.0000E 00	44	313	3.7638E-01	82	351	9.4312E-01	120	389	2.3928E 00
7	276	0.0000E 00	45	314	3.9181E-01	83	352	9.2525E-01	121	390	2.6607E 00
8	277	0.0000E 00	46	315	4.1868E-01	84	353	9.2618E-01	122	391	2.9336E 00
9	278	0.0000E 00	47	316	4.5730E-01	85	354	1.0093E 00	123	392	2.7804E 00
10	279	0.0000E 00	48	317	5.0723E-01	86	355	1.0098E 00	124	393	2.1742E 00
11	280	0.0000E 00	49	318	5.3762E-01	87	356	9.2335E-01	125	394	2.0657E 00
12	281	0.0000E 00	50	319	5.6535E-01	88	357	7.7193E-01	126	395	2.5013E 00
13	282	0.0000E 00	51	320	5.8919E-01	89	358	6.7577E-01	127	396	2.7496E 00
14	283	0.0000E 00	52	321	5.8928E-01	90	359	9.1244E-01	128	397	2.4791E 00
15	284	0.0000E 00	53	322	5.8727E-01	91	360	9.7364E-01	129	398	2.5637E 00
16	285	0.0000E 00	54	323	5.8212E-01	92	361	9.5544E-01	130	399	3.0042E 00
17	286	0.0000E 00	55	324	6.7551E-01	93	362	9.4571E-01	131	400	3.1928E 00
18	287	0.0000E 00	56	325	7.9821E-01	94	363	9.7954E-01	132	401	3.1762E 00
19	288	0.0000E 00	57	326	8.7185E-01	95	364	1.0277E 00	133	402	0.0000E 00
20	289	0.0000E 00	58	327	8.9483E-01	96	365	1.1373E 00	134	403	0.0000E 00
21	290	0.0000E 00	59	328	9.1686E-01	97	366	1.2165E 00	135	404	0.0000E 00
22	291	0.0000E 00	60	329	9.7302E-01	98	367	1.2175E 00	136	405	0.0000E 00
23	292	0.0000E 00	61	330	9.5098E-01	99	368	1.1728E 00	137	406	0.0000E 00
24	293	0.0000E 00	62	331	9.5595E-01	100	369	1.2301E 00	138	407	0.0000E 00
25	294	0.0000E 00	63	332	9.5213E-01	101	370	1.2111E 00	139	408	0.0000E 00
26	295	0.0000E 00	64	333	8.8866E-01	102	371	1.1655E 00	140	409	0.0000E 00
27	296	2.9468E-03	65	334	9.3744E-01	103	372	1.0936E 00	141	410	0.0000E 00
28	297	5.4974E-03	66	335	9.6674E-01	104	373	1.0363E 00	142	411	0.0000E 00
29	298	9.6945E-03	67	336	8.3469E-01	105	374	1.0553E 00	143	412	0.0000E 00
30	299	1.5245E-02	68	337	8.3062E-01	106	375	1.2529E 00	144	413	0.0000E 00
31	300	2.2421E-02	69	338	8.9196E-01	107	376	1.5419E 00	145	414	0.0000E 00
32	301	3.4233E-02	70	339	9.7392E-01	108	377	1.4630E 00	146	415	0.0000E 00
33	302	5.1606E-02	71	340	9.7667E-01	109	378	1.5513E 00	147	416	0.0000E 00
34	303	7.2797E-02	72	341	9.8643E-01	110	379	1.5028E 00	148	417	0.0000E 00
35	304	1.0212E-01	73	342	9.9359E-01	111	380	1.4461E 00	149	418	0.0000E 00
36	305	1.2813E-01	74	343	9.3703E-01	112	381	1.3752E 00	150	419	0.0000E 00
37	306	1.4932E-01	75	344	8.5501E-01	113	382	1.1771E 00	151	420	0.0000E 00
38	307	1.7656E-01	76	345	9.1589E-01	114	383	1.2231E 00	152	421	0.0000E 00

E02803 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 02/08/78 station=11 event=01
zavg= 0.0 time= 1210 - 1222

macfac= 3.17

	WL	E		WL	E		WL	E		WL	E
1	330	8.1016E-01	39	482	2.1034E 00	77	634	1.5361E 00	115	786	0.0000E 00
2	334	8.1555E-01	40	486	2.0254E 00	78	638	1.4684E 00	116	790	0.0000E 00
3	338	8.9699E-01	41	490	1.9764E 00	79	642	1.4446E 00	117	794	0.0000E 00
4	342	8.7637E-01	42	494	2.0011E 00	80	646	1.3844E 00	118	798	0.0000E 00
5	346	8.6410E-01	43	498	1.9482E 00	81	650	1.3697E 00	119	802	0.0000E 00
6	350	9.3517E-01	44	502	1.8820E 00	82	654	1.4003E 00	120	806	0.0000E 00
7	354	1.0321E 00	45	506	2.0386E 00	83	658	1.4040E 00	121	810	0.0000E 00
8	358	1.1194E 00	46	510	1.9989E 00	84	662	1.5375E 00	122	814	0.0000E 00
9	362	1.2065E 00	47	514	1.9307E 00	85	666	1.5856E 00	123	818	0.0000E 00
10	366	1.3306E 00	48	518	1.8028E 00	86	670	1.5170E 00	124	822	0.0000E 00
11	370	1.2045E 00	49	522	2.0081E 00	87	674	1.4239E 00	125	826	0.0000E 00
12	374	1.1112E 00	50	526	2.1077E 00	88	678	1.3623E 00	126	830	0.0000E 00
13	378	1.1270E 00	51	530	2.0657E 00	89	682	1.2930E 00	127	834	0.0000E 00
14	382	9.6356E-01	52	534	2.0702E 00	90	686	1.1858E 00	128	838	0.0000E 00
15	386	9.6241E-01	53	538	2.0549E 00	91	690	1.0406E 00	129	842	0.0000E 00
16	390	1.2751E 00	54	542	1.8961E 00	92	694	9.8215E-01	130	846	0.0000E 00
17	394	8.8539E-01	55	546	1.9611E 00	93	698	1.0349E 00	131	850	0.0000E 00
18	398	1.2015E 00	56	550	2.0556E 00	94	702	9.8908E-01	132	854	0.0000E 00
19	402	1.7576E 00	57	554	2.1232E 00	95	706	1.0558E 00	133	858	0.0000E 00
20	406	1.7138E 00	58	558	2.0027E 00	96	710	1.0408E 00	134	862	0.0000E 00
21	410	1.7470E 00	59	562	2.0495E 00	97	714	9.1971E-01	135	866	0.0000E 00
22	414	1.7945E 00	60	566	1.9431E 00	98	718	7.5008E-01	136	870	0.0000E 00
23	418	1.7311E 00	61	570	1.8746E 00	99	722	8.8460E-01	137	874	0.0000E 00
24	422	1.6871E 00	62	574	1.9099E 00	100	726	8.0423E-01	138	878	0.0000E 00
25	426	1.6457E 00	63	578	1.9908E 00	101	730	7.9221E-01	139	882	0.0000E 00
26	430	1.7025E 00	64	582	2.0486E 00	102	734	0.0000E 00	140	886	0.0000E 00
27	434	1.7377E 00	65	586	1.9148E 00	103	738	0.0000E 00	141	890	0.0000E 00
28	438	1.6818E 00	66	590	1.6609E 00	104	742	0.0000E 00	142	894	0.0000E 00
29	442	1.7303E 00	67	594	1.6467E 00	105	746	0.0000E 00	143	898	0.0000E 00
30	446	1.8288E 00	68	598	1.7184E 00	106	750	0.0000E 00	144	902	0.0000E 00
31	450	1.9038E 00	69	602	1.7296E 00	107	754	0.0000E 00	145	906	0.0000E 00
32	454	1.9351E 00	70	606	1.7688E 00	108	758	0.0000E 00	146	910	0.0000E 00
33	458	1.9476E 00	71	610	1.7317E 00	109	762	0.0000E 00	147	914	0.0000E 00
34	462	1.9470E 00	72	614	1.7094E 00	110	766	0.0000E 00	148	918	0.0000E 00
35	466	1.9279E 00	73	618	1.6975E 00	111	770	0.0000E 00	149	922	0.0000E 00
36	470	1.9299E 00	74	622	1.6767E 00	112	774	0.0000E 00	150	926	0.0000E 00
37	474	1.9886E 00	75	626	1.6053E 00	113	778	0.0000E 00	151	930	0.0000E 00
38	478	2.1237E 00	76	630	1.5451E 00	114	782	0.0000E 00	152	934	0.0000E 00

E03805 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 03/08/78 station=11 event=05
zavg= 0.0 time= 1204 - 1212

macfac= 2.42

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	1.8259E-01	77 346	9.1806E-01	115 384	1.1036E 00
2 271	0.0000E 00	40 309	2.1562E-01	78 347	8.8867E-01	116 385	1.2079E 00
3 272	0.0000E 00	41 310	2.6559E-01	79 348	8.7520E-01	117 386	1.1794E 00
4 273	0.0000E 00	42 311	3.0347E-01	80 349	8.8878E-01	118 387	1.1756E 00
5 274	0.0000E 00	43 312	3.1810E-01	81 350	9.9051E-01	119 388	1.1910E 00
6 275	0.0000E 00	44 313	3.4143E-01	82 351	1.0251E 00	120 389	1.2982E 00
7 276	0.0000E 00	45 314	3.6466E-01	83 352	9.8387E-01	121 390	1.4842E 00
8 277	0.0000E 00	46 315	3.9620E-01	84 353	1.0010E 00	122 391	1.3931E 00
9 278	0.0000E 00	47 316	4.3493E-01	85 354	1.0874E 00	123 392	1.0479E 00
10 279	0.0000E 00	48 317	4.5896E-01	86 355	1.0765E 00	124 393	1.0132E 00
11 280	0.0000E 00	49 318	4.6205E-01	87 356	9.8741E-01	125 394	1.3096E 00
12 281	0.0000E 00	50 319	4.8870E-01	88 357	8.2306E-01	126 395	0.0000E 00
13 282	0.0000E 00	51 320	5.4705E-01	89 358	8.0609E-01	127 396	0.0000E 00
14 283	0.0000E 00	52 321	5.6153E-01	90 359	1.0021E 00	128 397	0.0000E 00
15 284	0.0000E 00	53 322	5.3261E-01	91 360	1.0341E 00	129 398	0.0000E 00
16 285	0.0000E 00	54 323	5.4131E-01	92 361	1.0549E 00	130 399	0.0000E 00
17 286	0.0000E 00	55 324	5.9744E-01	93 362	1.0976E 00	131 400	0.0000E 00
18 287	0.0000E 00	56 325	6.7459E-01	94 363	1.1562E 00	132 401	0.0000E 00
19 288	0.0000E 00	57 326	7.6874E-01	95 364	1.1300E 00	133 402	0.0000E 00
20 289	0.0000E 00	58 327	8.5168E-01	96 365	1.3194E 00	134 403	0.0000E 00
21 290	0.0000E 00	59 328	8.4671E-01	97 366	1.3952E 00	135 404	0.0000E 00
22 291	0.0000E 00	60 329	8.4954E-01	98 367	1.3029E 00	136 405	0.0000E 00
23 292	0.0000E 00	61 330	8.5326E-01	99 368	1.3287E 00	137 406	0.0000E 00
24 293	0.0000E 00	62 331	8.5922E-01	100 369	1.3355E 00	138 407	0.0000E 00
25 294	0.0000E 00	63 332	8.5923E-01	101 370	1.2606E 00	139 408	0.0000E 00
26 295	0.0000E 00	64 333	8.4581E-01	102 371	1.3087E 00	140 409	0.0000E 00
27 296	0.0000E 00	65 334	8.2618E-01	103 372	1.2555E 00	141 410	0.0000E 00
28 297	6.0539E-03	66 335	8.1100E-01	104 373	1.0756E 00	142 411	0.0000E 00
29 298	9.2280E-03	67 336	7.9934E-01	105 374	1.0884E 00	143 412	0.0000E 00
30 299	1.4320E-02	68 337	8.1446E-01	106 375	1.1971E 00	144 413	0.0000E 00
31 300	2.2010E-02	69 338	8.7445E-01	107 376	1.3491E 00	145 414	0.0000E 00
32 301	3.3806E-02	70 339	9.1572E-01	108 377	1.5445E 00	146 415	0.0000E 00
33 302	5.1404E-02	71 340	9.1238E-01	109 378	1.4272E 00	147 416	0.0000E 00
34 303	7.0755E-02	72 341	9.2559E-01	110 379	1.3148E 00	148 417	0.0000E 00
35 304	9.6403E-02	73 342	9.4735E-01	111 380	1.3711E 00	149 418	0.0000E 00
36 305	1.2000E-01	74 343	9.6589E-01	112 381	1.2610E 00	150 419	0.0000E 00
37 306	1.4009E-01	75 344	8.6143E-01	113 382	9.4983E-01	151 420	0.0000E 00
38 307	1.6303E-01	76 345	8.6189E-01	114 383	9.0980E-01	152 421	0.0000E 00

E03807 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 03/08/78 station=11 event=07
zavg= 0.0 time= 1228 - 1245

macfac= 2.21

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	1.6840E-01	77 346	8.7064E-01	115 384	9.1916E-01
2 271	0.0000E 00	40 309	1.8618E-01	78 347	8.9681E-01	116 385	1.0407E 00
3 272	0.0000E 00	41 310	2.3089E-01	79 348	8.3979E-01	117 386	1.1084E 00
4 273	0.0000E 00	42 311	2.7526E-01	80 349	8.8271E-01	118 387	1.1206E 00
5 274	0.0000E 00	43 312	2.9600E-01	81 350	9.6507E-01	119 388	1.1430E 00
6 275	0.0000E 00	44 313	3.2077E-01	82 351	9.4351E-01	120 389	1.3153E 00
7 276	0.0000E 00	45 314	3.4012E-01	83 352	9.5596E-01	121 390	1.4238E 00
8 277	0.0000E 00	46 315	3.6590E-01	84 353	1.0303E 00	122 391	1.3779E 00
9 278	0.0000E 00	47 316	3.9664E-01	85 354	1.1212E 00	123 392	1.3108E 00
10 279	0.0000E 00	48 317	4.2447E-01	86 355	1.1474E 00	124 393	9.9374E-01
11 280	0.0000E 00	49 318	4.3532E-01	87 356	1.0495E 00	125 394	9.4385E-01
12 281	0.0000E 00	50 319	4.5604E-01	88 357	8.6812E-01	126 395	1.1396E 00
13 282	0.0000E 00	51 320	5.0053E-01	89 358	8.2259E-01	127 396	1.2916E 00
14 283	0.0000E 00	52 321	5.2594E-01	90 359	8.8286E-01	128 397	1.3669E 00
15 284	0.0000E 00	53 322	5.2383E-01	91 360	1.0122E 00	129 398	1.4412E 00
16 285	0.0000E 00	54 323	5.3638E-01	92 361	9.9449E-01	130 399	1.4984E 00
17 286	0.0000E 00	55 324	5.7353E-01	93 362	1.0389E 00	131 400	0.0000E 00
18 287	0.0000E 00	56 325	6.5829E-01	94 363	1.0556E 00	132 401	0.0000E 00
19 288	0.0000E 00	57 326	7.3174E-01	95 364	1.1016E 00	133 402	0.0000E 00
20 289	0.0000E 00	58 327	7.4120E-01	96 365	1.1685E 00	134 403	0.0000E 00
21 290	0.0000E 00	59 328	7.5659E-01	97 366	1.2742E 00	135 404	0.0000E 00
22 291	0.0000E 00	60 329	8.3803E-01	98 367	1.2904E 00	136 405	0.0000E 00
23 292	0.0000E 00	61 330	9.1048E-01	99 368	1.2768E 00	137 406	0.0000E 00
24 293	0.0000E 00	62 331	8.6990E-01	100 369	1.3151E 00	138 407	0.0000E 00
25 294	0.0000E 00	63 332	8.3462E-01	101 370	1.3146E 00	139 408	0.0000E 00
26 295	0.0000E 00	64 333	8.2203E-01	102 371	1.2978E 00	140 409	0.0000E 00
27 296	0.0000E 00	65 334	7.9916E-01	103 372	1.1387E 00	141 410	0.0000E 00
28 297	4.2002E-03	66 335	7.9047E-01	104 373	1.0661E 00	142 411	0.0000E 00
29 298	8.1450E-03	67 336	7.9633E-01	105 374	1.0410E 00	143 412	0.0000E 00
30 299	1.1849E-02	68 337	7.8559E-01	106 375	1.0760E 00	144 413	0.0000E 00
31 300	1.8247E-02	69 338	8.3785E-01	107 376	1.1745E 00	145 414	0.0000E 00
32 301	2.6059E-02	70 339	8.8543E-01	108 377	1.2869E 00	146 415	0.0000E 00
33 302	4.4028E-02	71 340	9.1151E-01	109 378	1.3618E 00	147 416	0.0000E 00
34 303	9.7741E-02	72 341	9.2540E-01	110 379	1.3467E 00	148 417	0.0000E 00
35 304	1.0115E-01	73 342	9.3161E-01	111 380	1.2586E 00	149 418	0.0000E 00
36 305	1.0552E-01	74 343	8.7064E-01	112 381	1.1255E 00	150 419	0.0000E 00
37 306	1.2453E-01	75 344	8.4579E-01	113 382	9.7975E-01	151 420	0.0000E 00
38 307	1.4687E-01	76 345	8.4700E-01	114 383	9.1439E-01	152 421	0.0000E 00

E03818 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 03/08/78 station=11 event=18
zavg= 0.0 time= 1537 - 1552

macfac= 1.64

WL	E	WL	E	WL	E	WL	E
1 330	2.6536E-01	39 482	1.4668E 00	77 634	1.1271E 00	115 786	0.0000E 00
2 334	2.8072E-01	40 486	1.2733E 00	78 638	1.1684E 00	116 790	0.0000E 00
3 338	3.0507E-01	41 490	1.3539E 00	79 642	1.1194E 00	117 794	0.0000E 00
4 342	3.1311E-01	42 494	1.3665E 00	80 646	1.0315E 00	118 798	0.0000E 00
5 346	3.1959E-01	43 498	1.3769E 00	81 650	1.0122E 00	119 802	0.0000E 00
6 350	3.5180E-01	44 502	1.3443E 00	82 654	9.8128E-01	120 806	0.0000E 00
7 354	3.7586E-01	45 506	1.3989E 00	83 658	1.0295E 00	121 810	0.0000E 00
8 358	3.8345E-01	46 510	1.3945E 00	84 662	1.0954E 00	122 814	0.0000E 00
9 362	4.0464E-01	47 514	1.3027E 00	85 666	1.0933E 00	123 818	0.0000E 00
10 366	4.7045E-01	48 518	1.2410E 00	86 670	1.0530E 00	124 822	0.0000E 00
11 370	4.9280E-01	49 522	1.4000E 00	87 674	1.0413E 00	125 826	0.0000E 00
12 374	4.8057E-01	50 526	1.3404E 00	88 678	1.0257E 00	126 830	0.0000E 00
13 378	5.3080E-01	51 530	1.3429E 00	89 682	9.8568E-01	127 834	0.0000E 00
14 382	4.5031E-01	52 534	1.3609E 00	90 686	8.2825E-01	128 838	0.0000E 00
15 386	4.3443E-01	53 538	1.4342E 00	91 690	7.6721E-01	129 842	0.0000E 00
16 390	5.8153E-01	54 542	1.3379E 00	92 694	7.9412E-01	130 846	0.0000E 00
17 394	6.1095E-01	55 546	1.2955E 00	93 698	7.8529E-01	131 850	0.0000E 00
18 398	7.4227E-01	56 550	1.3882E 00	94 702	8.1165E-01	132 854	0.0000E 00
19 402	8.7439E-01	57 554	1.4436E 00	95 706	8.2123E-01	133 858	0.0000E 00
20 406	8.8059E-01	58 558	1.4111E 00	96 710	7.6862E-01	134 862	0.0000E 00
21 410	8.7884E-01	59 562	1.3655E 00	97 714	7.3543E-01	135 866	0.0000E 00
22 414	1.0365E 00	60 566	1.3085E 00	98 718	4.9074E-01	136 870	0.0000E 00
23 418	1.0569E 00	61 570	1.2922E 00	99 722	5.2469E-01	137 874	0.0000E 00
24 422	1.0335E 00	62 574	1.2881E 00	100 726	4.7066E-01	138 878	0.0000E 00
25 426	9.3438E-01	63 578	1.2517E 00	101 730	4.6660E-01	139 882	0.0000E 00
26 430	8.6052E-01	64 582	1.3253E 00	102 734	4.1339E-01	140 886	0.0000E 00
27 434	1.0372E 00	65 586	1.3094E 00	103 738	0.0000E 00	141 890	0.0000E 00
28 438	1.0735E 00	66 590	1.1029E 00	104 742	0.0000E 00	142 894	0.0000E 00
29 442	1.1864E 00	67 594	1.1280E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	1.2375E 00	68 598	1.1740E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	1.3293E 00	69 602	1.3085E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	1.3185E 00	70 606	1.3548E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	1.3454E 00	71 610	1.3214E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	1.3394E 00	72 614	1.2823E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	1.3591E 00	73 618	1.2582E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	1.3518E 00	74 622	1.2314E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	1.3572E 00	75 626	1.1469E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	1.4529E 00	76 630	1.0808E 00	114 782	0.0000E 00	152 934	0.0000E 00

E04820 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 04/08/78 station=11 event=20
zavg= 0.0 time= 917 - 936

macfac= 3.46

WL	E	WL	E	WL	E	WL	E
1 330	7.8455E-01	39 482	2.7361E 00	77 634	2.2834E 00	115 786	0.0000E 00
2 334	7.2646E-01	40 486	2.7186E 00	78 638	2.2545E 00	116 790	0.0000E 00
3 338	7.1881E-01	41 490	2.8068E 00	79 642	2.0051E 00	117 794	0.0000E 00
4 342	8.2136E-01	42 494	2.9994E 00	80 646	2.0851E 00	118 798	0.0000E 00
5 346	7.5958E-01	43 498	2.9537E 00	81 650	2.1653E 00	119 802	0.0000E 00
6 350	8.3364E-01	44 502	2.8761E 00	82 654	2.0954E 00	120 806	0.0000E 00
7 354	8.7359E-01	45 506	3.1363E 00	83 658	2.1113E 00	121 810	0.0000E 00
8 358	7.5130E-01	46 510	3.1396E 00	84 662	2.2068E 00	122 814	0.0000E 00
9 362	9.3080E-01	47 514	2.9346E 00	85 666	2.1146E 00	123 818	0.0000E 00
10 366	1.1055E 00	48 518	2.7578E 00	86 670	2.2601E 00	124 822	0.0000E 00
11 370	1.0999E 00	49 522	2.9593E 00	87 674	2.0287E 00	125 826	0.0000E 00
12 374	1.0098E 00	50 526	2.4057E 00	88 678	2.0779E 00	126 830	0.0000E 00
13 378	1.1711E 00	51 530	2.9163E 00	89 682	1.8570E 00	127 834	0.0000E 00
14 382	1.0333E 00	52 534	2.8298E 00	90 686	1.6239E 00	128 838	0.0000E 00
15 386	1.0812E 00	53 538	2.8190E 00	91 690	1.6258E 00	129 842	0.0000E 00
16 390	1.2615E 00	54 542	3.0430E 00	92 694	1.5666E 00	130 846	0.0000E 00
17 394	1.2688E 00	55 546	2.7437E 00	93 698	1.6900E 00	131 850	0.0000E 00
18 398	1.6641E 00	56 550	2.8080E 00	94 702	1.6182E 00	132 854	0.0000E 00
19 402	1.8446E 00	57 554	2.9756E 00	95 706	1.6483E 00	133 858	0.0000E 00
20 406	2.2657E 00	58 558	2.7960E 00	96 710	1.6366E 00	134 862	0.0000E 00
21 410	2.1266E 00	59 562	2.7552E 00	97 714	3.6508E-01	135 866	0.0000E 00
22 414	2.0704E 00	60 566	2.9041E 00	98 718	0.0000E 00	136 870	0.0000E 00
23 418	1.9615E 00	61 570	2.7897E 00	99 722	0.0000E 00	137 874	0.0000E 00
24 422	2.0043E 00	62 574	2.7577E 00	100 726	0.0000E 00	138 878	0.0000E 00
25 426	1.9599E 00	63 578	2.7632E 00	101 730	0.0000E 00	139 882	0.0000E 00
26 430	1.7420E 00	64 582	2.8103E 00	102 734	0.0000E 00	140 886	0.0000E 00
27 434	2.0728E 00	65 586	2.8276E 00	103 738	0.0000E 00	141 890	0.0000E 00
28 438	2.0451E 00	66 590	2.5534E 00	104 742	0.0000E 00	142 894	0.0000E 00
29 442	2.3272E 00	67 594	2.6703E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	2.3342E 00	68 598	2.6032E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	2.5282E 00	69 602	2.8313E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	2.5185E 00	70 606	2.7247E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	2.5714E 00	71 610	2.6395E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	2.6446E 00	72 614	2.6347E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	2.6012E 00	73 618	2.6229E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	2.5872E 00	74 622	2.5052E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	2.5447E 00	75 626	2.5323E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	2.6417E 00	76 630	2.2848E 00	114 782	0.0000E 00	152 934	0.0000E 00

E05836 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 05/08/78 station=11 event=36
zavg= 0.0 time= 845 - 910

macfac= 3.01

WL	E	WL	E	WL	E	WL	E
1 330	6.7668E-01	39 482	2.4603E 00	77 634	1.9709E 00	115 786	0.0000E 00
2 334	6.2936E-01	40 486	2.1399E 00	78 638	1.9396E 00	116 790	0.0000E 00
3 338	5.9769E-01	41 490	2.3489E 00	79 642	1.9380E 00	117 794	0.0000E 00
4 342	6.8159E-01	42 494	2.3835E 00	80 646	1.8274E 00	118 798	0.0000E 00
5 346	6.5352E-01	43 498	2.2675E 00	81 650	1.8048E 00	119 802	0.0000E 00
6 350	6.8663E-01	44 502	2.3250E 00	82 654	1.8114E 00	120 806	0.0000E 00
7 354	7.5266E-01	45 506	2.4961E 00	83 658	1.7489E 00	121 810	0.0000E 00
8 358	8.2576E-01	46 510	2.5520E 00	84 662	1.8069E 00	122 814	0.0000E 00
9 362	8.9192E-01	47 514	2.4045E 00	85 666	1.7399E 00	123 818	0.0000E 00
10 366	9.5662E-01	48 518	2.3474E 00	86 670	1.7797E 00	124 822	0.0000E 00
11 370	9.8421E-01	49 522	2.3749E 00	87 674	1.7161E 00	125 826	0.0000E 00
12 374	9.0226E-01	50 526	2.3913E 00	88 678	1.6708E 00	126 830	0.0000E 00
13 378	8.5554E-01	51 530	2.5118E 00	89 682	1.6251E 00	127 834	0.0000E 00
14 382	8.3304E-01	52 534	2.5594E 00	90 686	1.4157E 00	128 838	0.0000E 00
15 386	8.6720E-01	53 538	2.5089E 00	91 690	1.3649E 00	129 842	0.0000E 00
16 390	1.0995E 00	54 542	2.4528E 00	92 694	1.2991E 00	130 846	0.0000E 00
17 394	8.4178E-01	55 546	2.4160E 00	93 698	1.3468E 00	131 850	0.0000E 00
18 398	1.3198E 00	56 550	2.3274E 00	94 702	1.3136E 00	132 854	0.0000E 00
19 402	1.7489E 00	57 554	2.2227E 00	95 706	1.3243E 00	133 858	0.0000E 00
20 406	1.6298E 00	58 558	2.2579E 00	96 710	1.2750E 00	134 862	0.0000E 00
21 410	1.8369E 00	59 562	2.1326E 00	97 714	1.1744E 00	135 866	0.0000E 00
22 414	1.8778E 00	60 566	2.1360E 00	98 718	8.8375E-01	136 870	0.0000E 00
23 418	1.8896E 00	61 570	2.3068E 00	99 722	9.1588E-01	137 874	0.0000E 00
24 422	1.9082E 00	62 574	2.4017E 00	100 726	8.6609E-01	138 878	0.0000E 00
25 426	1.7952E 00	63 578	2.3500E 00	101 730	9.0057E-01	139 882	0.0000E 00
26 430	1.7938E 00	64 582	2.4192E 00	102 734	9.7697E-01	140 886	0.0000E 00
27 434	1.9222E 00	65 586	2.3900E 00	103 738	9.6691E-01	141 890	0.0000E 00
28 438	2.0096E 00	66 590	2.2765E 00	104 742	9.6234E-01	142 894	0.0000E 00
29 442	2.0941E 00	67 594	2.2604E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	2.1703E 00	68 598	2.2549E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	2.2018E 00	69 602	2.2814E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	2.2013E 00	70 606	2.2340E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	2.3364E 00	71 610	2.1766E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	2.3860E 00	72 614	2.1032E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	2.3217E 00	73 618	2.1102E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	2.3903E 00	74 622	2.1020E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	2.4187E 00	75 626	2.0546E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	2.4486E 00	76 630	1.9999E 00	114 782	0.0000E 00	152 934	0.0000E 00

E08803 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 08/08/78 station=12 event=03
zavg= 0.0 time= 1100 - 1120

macfac= 2.09

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	1.7215E-01	77 346	8.9518E-01	115 384	9.9910E-01
2 271	0.0000E 00	40 309	1.9230E-01	78 347	8.5232E-01	116 385	1.2915E 00
3 272	0.0000E 00	41 310	2.3720E-01	79 348	8.5748E-01	117 386	1.3438E 00
4 273	0.0000E 00	42 311	2.8520E-01	80 349	9.3815E-01	118 387	1.2266E 00
5 274	0.0000E 00	43 312	3.0984E-01	81 350	1.0356E 00	119 388	1.1657E 00
6 275	0.0000E 00	44 313	3.4053E-01	82 351	9.9747E-01	120 389	1.4471E 00
7 276	0.0000E 00	45 314	3.6993E-01	83 352	9.7922E-01	121 390	1.6139E 00
8 277	0.0000E 00	46 315	3.9741E-01	84 353	9.8881E-01	122 391	1.5416E 00
9 278	0.0000E 00	47 316	4.3434E-01	85 354	1.0641E 00	123 392	1.4955E 00
10 279	0.0000E 00	48 317	4.7624E-01	86 355	1.0631E 00	124 393	1.1245E 00
11 280	0.0000E 00	49 318	4.6101E-01	87 356	1.0178E 00	125 394	1.0288E 00
12 281	0.0000E 00	50 319	4.7382E-01	88 357	9.3829E-01	126 395	1.2158E 00
13 282	0.0000E 00	51 320	5.2608E-01	89 358	7.7176E-01	127 396	1.3482E 00
14 283	0.0000E 00	52 321	5.6519E-01	90 359	9.4491E-01	128 397	1.4340E 00
15 284	0.0000E 00	53 322	6.0650E-01	91 360	1.1569E 00	129 398	1.5217E 00
16 285	0.0000E 00	54 323	6.4562E-01	92 361	1.1176E 00	130 399	0.0000E 00
17 286	0.0000E 00	55 324	6.7293E-01	93 362	1.0629E 00	131 400	0.0000E 00
18 287	0.0000E 00	56 325	7.0781E-01	94 363	1.1595E 00	132 401	0.0000E 00
19 288	0.0000E 00	57 326	7.6468E-01	95 364	1.1923E 00	133 402	0.0000E 00
20 289	0.0000E 00	58 327	8.7888E-01	96 365	1.2859E 00	134 403	0.0000E 00
21 290	0.0000E 00	59 328	8.5516E-01	97 366	1.3779E 00	135 404	0.0000E 00
22 291	0.0000E 00	60 329	8.6526E-01	98 367	1.4511E 00	136 405	0.0000E 00
23 292	0.0000E 00	61 330	8.5833E-01	99 368	1.3999E 00	137 406	0.0000E 00
24 293	0.0000E 00	62 331	8.7796E-01	100 369	1.3244E 00	138 407	0.0000E 00
25 294	6.7449E-04	63 332	8.7601E-01	101 370	1.3827E 00	139 408	0.0000E 00
26 295	1.5177E-03	64 333	8.6904E-01	102 371	1.2507E 00	140 409	0.0000E 00
27 296	3.2624E-03	65 334	8.7058E-01	103 372	1.1613E 00	141 410	0.0000E 00
28 297	5.1766E-03	66 335	8.8737E-01	104 373	8.8821E-01	142 411	0.0000E 00
29 298	8.5699E-03	67 336	8.6866E-01	105 374	9.6845E-01	143 412	0.0000E 00
30 299	1.2685E-02	68 337	7.8173E-01	106 375	1.1558E 00	144 413	0.0000E 00
31 300	1.9969E-02	69 338	8.5723E-01	107 376	1.2885E 00	145 414	0.0000E 00
32 301	2.6973E-02	70 339	9.2728E-01	108 377	1.3821E 00	146 415	0.0000E 00
33 302	4.3325E-02	71 340	9.6236E-01	109 378	1.4464E 00	147 416	0.0000E 00
34 303	5.7886E-02	72 341	9.6417E-01	110 379	1.3667E 00	148 417	0.0000E 00
35 304	8.6047E-02	73 342	9.6096E-01	111 380	1.3495E 00	149 418	0.0000E 00
36 305	1.1164E-01	74 343	9.6531E-01	112 381	1.3614E 00	150 419	0.0000E 00
37 306	1.2699E-01	75 344	9.4298E-01	113 382	1.1661E 00	151 420	0.0000E 00
38 307	1.4443E-01	76 345	8.6673E-01	114 383	9.5615E-01	152 421	0.0000E 00

E08804 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 08/08/78 station=12 event=04
zavg= 0.0 time= 1202 - 1240

macfac= 2.00

WL	E	WL	E	WL	E	WL	E
1 330	9.1939E-01	39 482	3.0748E 00	77 634	2.0381E 00	115 786	0.0000E 00
2 334	8.4174E-01	40 486	2.9237E 00	78 638	2.0230E 00	116 790	0.0000E 00
3 338	8.2226E-01	41 490	2.8269E 00	79 642	1.9477E 00	117 794	0.0000E 00
4 342	9.3312E-01	42 494	2.8592E 00	80 646	1.9749E 00	118 798	0.0000E 00
5 346	9.0519E-01	43 498	2.9091E 00	81 650	1.8759E 00	119 802	0.0000E 00
6 350	9.7403E-01	44 502	2.8877E 00	82 654	1.8041E 00	120 806	0.0000E 00
7 354	1.0044E 00	45 506	3.0544E 00	83 658	1.9357E 00	121 810	0.0000E 00
8 358	8.5481E-01	46 510	3.0841E 00	84 662	1.8629E 00	122 814	0.0000E 00
9 362	1.0818E 00	47 514	2.9184E 00	85 666	1.8990E 00	123 818	0.0000E 00
10 366	1.2472E 00	48 518	2.7241E 00	86 670	1.8920E 00	124 822	0.0000E 00
11 370	1.2537E 00	49 522	2.9384E 00	87 674	1.7520E 00	125 826	0.0000E 00
12 374	1.2284E 00	50 526	2.9400E 00	88 678	1.7637E 00	126 830	0.0000E 00
13 378	1.3903E 00	51 530	2.8217E 00	89 682	1.6998E 00	127 834	0.0000E 00
14 382	1.2381E 00	52 534	2.5832E 00	90 686	1.5989E 00	128 838	0.0000E 00
15 386	1.2024E 00	53 538	2.6127E 00	91 690	1.4612E 00	129 842	0.0000E 00
16 390	1.1684E 00	54 542	2.6387E 00	92 694	1.4520E 00	130 846	0.0000E 00
17 394	1.1893E 00	55 546	2.6785E 00	93 698	1.4148E 00	131 850	0.0000E 00
18 398	1.7474E 00	56 550	2.7032E 00	94 702	1.3621E 00	132 854	0.0000E 00
19 402	2.3731E 00	57 554	2.5517E 00	95 706	1.3795E 00	133 858	0.0000E 00
20 406	2.3113E 00	58 558	2.4711E 00	96 710	1.3579E 00	134 862	0.0000E 00
21 410	2.2403E 00	59 562	2.4358E 00	97 714	1.2549E 00	135 866	0.0000E 00
22 414	2.3327E 00	60 566	2.3103E 00	98 718	1.0135E 00	136 870	0.0000E 00
23 418	2.4456E 00	61 570	2.5003E 00	99 722	9.0042E-01	137 874	0.0000E 00
24 422	2.4033E 00	62 574	2.5905E 00	100 726	8.9632E-01	138 878	0.0000E 00
25 426	2.2536E 00	63 578	2.5899E 00	101 730	8.9758E-01	139 882	0.0000E 00
26 430	1.7660E 00	64 532	2.6673E 00	102 734	1.0531E 00	140 886	0.0000E 00
27 434	1.8654E 00	65 586	2.6431E 00	103 738	0.0000E 00	141 890	0.0000E 00
28 438	2.0446E 00	66 590	2.4491E 00	104 742	0.0000E 00	142 894	0.0000E 00
29 442	2.0431E 00	67 594	2.4186E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	2.3040E 00	68 598	2.4502E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	2.4643E 00	69 602	2.4465E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	2.6707E 00	70 606	2.3860E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	2.9198E 00	71 610	2.3893E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	2.8604E 00	72 614	2.3122E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	2.8113E 00	73 618	2.2547E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	2.8755E 00	74 622	2.2275E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	3.0247E 00	75 626	2.1428E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	3.0571E 00	76 630	2.1120E 00	114 782	0.0000E 00	152 934	0.0000E 00

E09801 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 09/08/78 station=13 event=01
zavg= 0.0 time= 953 - 1002

macfac= 2.87

WL	E	WL	E	WL	E	WL	E
1 330	8.3408E-01	39 482	2.7134E 00	77 634	1.9260E 00	115 786	0.0000E 00
2 334	8.5352E-01	40 486	2.6014E 00	78 638	1.9688E 00	116 790	0.0000E 00
3 338	8.7578E-01	41 490	2.5720E 00	79 642	1.6303E 00	117 794	0.0000E 00
4 342	8.6576E-01	42 494	2.5983E 00	80 646	1.7788E 00	118 798	0.0000E 00
5 346	8.5411E-01	43 498	2.6534E 00	81 650	1.6911E 00	119 802	0.0000E 00
6 350	8.5427E-01	44 502	2.6698E 00	82 654	1.5677E 00	120 806	0.0000E 00
7 354	8.5027E-01	45 506	2.7987E 00	83 658	1.7822E 00	121 810	0.0000E 00
8 358	9.0840E-01	46 510	2.9434E 00	84 662	1.7922E 00	122 814	0.0000E 00
9 362	1.0329E 00	47 514	2.8833E 00	85 666	1.7119E 00	123 818	0.0000E 00
10 366	1.1582E 00	48 518	2.5510E 00	86 670	1.7421E 00	124 822	0.0000E 00
11 370	1.0949E 00	49 522	2.6896E 00	87 674	1.7194E 00	125 826	0.0000E 00
12 374	1.1433E 00	50 526	2.6539E 00	88 678	1.6580E 00	126 830	0.0000E 00
13 378	1.1587E 00	51 530	2.7965E 00	89 682	1.5921E 00	127 834	0.0000E 00
14 382	1.0263E 00	52 534	2.7899E 00	90 686	1.4289E 00	128 838	0.0000E 00
15 386	1.1176E 00	53 538	2.6302E 00	91 690	1.3465E 00	129 842	0.0000E 00
16 390	1.3262E 00	54 542	2.5539E 00	92 694	1.3695E 00	130 846	0.0000E 00
17 394	1.3149E 00	55 546	2.6180E 00	93 698	1.3243E 00	131 850	0.0000E 00
18 398	1.8559E 00	56 550	2.5856E 00	94 702	1.2870E 00	132 854	0.0000E 00
19 402	1.9217E 00	57 554	2.5079E 00	95 706	1.2912E 00	133 858	0.0000E 00
20 406	1.9472E 00	58 558	2.3504E 00	96 710	1.2406E 00	134 862	0.0000E 00
21 410	2.0314E 00	59 562	2.3835E 00	97 714	1.1433E 00	135 866	0.0000E 00
22 414	2.1284E 00	60 566	2.3644E 00	98 718	8.0434E-01	136 870	0.0000E 00
23 418	2.0116E 00	61 570	2.3835E 00	99 722	8.9271E-01	137 874	0.0000E 00
24 422	2.0352E 00	62 574	2.2545E 00	100 726	8.6156E-01	138 878	0.0000E 00
25 426	1.9311E 00	63 578	2.3542E 00	101 730	9.1235E-01	139 882	0.0000E 00
26 430	1.9322E 00	64 582	2.5161E 00	102 734	1.0129E 00	140 886	0.0000E 00
27 434	2.1519E 00	65 586	2.4758E 00	103 738	9.4890E-01	141 890	0.0000E 00
28 438	2.2733E 00	66 590	2.2590E 00	104 742	0.0000E 00	142 894	0.0000E 00
29 442	2.3983E 00	67 594	2.3100E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	2.4303E 00	68 598	2.3129E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	2.6423E 00	69 602	2.3743E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	2.5731E 00	70 606	2.3074E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	2.5423E 00	71 610	2.2507E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	2.6578E 00	72 614	2.1723E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	2.5177E 00	73 618	2.1675E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	2.6245E 00	74 622	2.0678E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	2.7336E 00	75 626	1.9917E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	2.8650E 00	76 630	1.9891E 00	114 782	0.0000E 00	152 934	0.0000E 00

E10803 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 10/08/78 station=14 event=03
zavg= 0.0 time= 1110 - 1128

macfac= 2.74

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	1.6500E-01	77 346	9.4992E-01	115 384	9.3188E-01
2 271	0.0000E 00	40 309	1.7467E-01	78 347	9.3296E-01	116 385	1.0315E 00
3 272	0.0000E 00	41 310	1.8081E-01	79 348	9.1333E-01	117 386	1.1501E 00
4 273	0.0000E 00	42 311	2.2473E-01	80 349	9.5691E-01	118 387	1.1791E 00
5 274	0.0000E 00	43 312	2.7350E-01	81 350	1.0063E 00	119 388	1.1858E 00
6 275	0.0000E 00	44 313	3.0408E-01	82 351	1.0093E 00	120 389	1.3285E 00
7 276	0.0000E 00	45 314	3.2683E-01	83 352	9.9809E-01	121 390	1.4651E 00
8 277	0.0000E 00	46 315	3.3266E-01	84 353	1.0570E 00	122 391	1.4923E 00
9 278	0.0000E 00	47 316	3.3450E-01	85 354	1.1544E 00	123 392	1.5294E 00
10 279	0.0000E 00	48 317	3.6990E-01	86 355	1.1833E 00	124 393	1.3049E 00
11 280	0.0000E 00	49 318	4.1038E-01	87 356	1.0873E 00	125 394	9.2015E-01
12 281	0.0000E 00	50 319	4.5244E-01	88 357	1.0316E 00	126 395	1.1166E 00
13 282	0.0000E 00	51 320	5.0056E-01	89 358	9.2706E-01	127 396	1.3907E 00
14 283	0.0000E 00	52 321	5.0618E-01	90 359	1.0466E 00	128 397	1.5006E 00
15 284	0.0000E 00	53 322	5.0506E-01	91 360	1.1420E 00	129 398	1.5175E 00
16 285	0.0000E 00	54 323	5.2217E-01	92 361	9.9721E-01	130 399	1.4964E 00
17 286	0.0000E 00	55 324	5.5129E-01	93 362	1.0316E 00	131 400	1.4521E 00
18 287	0.0000E 00	56 325	6.5149E-01	94 363	1.0821E 00	132 401	1.4171E 00
19 288	0.0000E 00	57 326	7.5129E-01	95 364	1.1383E 00	133 402	1.3760E 00
20 289	0.0000E 00	58 327	7.8973E-01	96 365	1.2483E 00	134 403	1.3520E 00
21 290	0.0000E 00	59 328	7.8446E-01	97 366	1.4097E 00	135 404	1.3263E 00
22 291	0.0000E 00	60 329	8.5147E-01	98 367	1.4621E 00	136 405	1.2964E 00
23 292	0.0000E 00	61 330	9.2864E-01	99 368	1.3806E 00	137 406	1.2709E 00
24 293	0.0000E 00	62 331	9.1141E-01	100 369	1.3638E 00	138 407	1.2471E 00
25 294	0.0000E 00	63 332	8.7352E-01	101 370	1.3342E 00	139 408	1.2285E 00
26 295	0.0000E 00	64 333	8.6463E-01	102 371	1.3558E 00	140 409	1.2061E 00
27 296	2.0739E-03	65 334	8.6374E-01	103 372	1.2620E 00	141 410	1.1854E 00
28 297	3.8457E-03	66 335	8.5656E-01	104 373	1.1693E 00	142 411	1.1638E 00
29 298	6.3666E-03	67 336	8.5097E-01	105 374	1.1066E 00	143 412	1.1478E 00
30 299	1.0567E-02	68 337	8.4970E-01	106 375	1.0518E 00	144 413	1.1318E 00
31 300	1.5227E-02	69 338	8.5624E-01	107 376	1.2300E 00	145 414	1.1158E 00
32 301	2.3494E-02	70 339	9.1986E-01	108 377	1.3003E 00	146 415	1.1059E 00
33 302	3.2709E-02	71 340	1.0012E 00	109 378	1.3815E 00	147 416	1.0861E 00
34 303	5.0650E-02	72 341	9.9292E-01	110 379	1.4592E 00	148 417	1.0748E 00
35 304	7.2509E-02	73 342	9.5827E-01	111 380	1.3613E 00	149 418	1.0585E 00
36 305	9.1383E-02	74 343	9.2528E-01	112 381	1.4325E 00	150 419	1.0440E 00
37 306	1.0806E-01	75 344	8.9651E-01	113 382	1.2535E 00	151 420	1.0323E 00
38 307	1.3666E-01	76 345	9.2210E-01	114 383	1.0332E 00	152 421	1.0193E 00

E11801 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 11/08/78 station=16 event=01
zavg= 0.0 time= 1029 - 1036

macfac= 2.58

WL	E	WL	E	WL	E	WL	E
1 330	8.8533E-01	39 482	2.8446E 00	77 634	2.1075E 00	115 786	0.0000E 00
2 334	8.6611E-01	40 486	2.4994E 00	78 638	2.0680E 00	116 790	0.0000E 00
3 338	8.5545E-01	41 490	2.7103E 00	79 642	2.0625E 00	117 794	0.0000E 00
4 342	9.3211E-01	42 494	2.7560E 00	80 646	2.0017E 00	118 798	0.0000E 00
5 346	9.2360E-01	43 498	2.3994E 00	81 650	1.9851E 00	119 802	0.0000E 00
6 350	9.6614E-01	44 502	2.6625E 00	82 654	1.8914E 00	120 806	0.0000E 00
7 354	1.0164E 00	45 506	2.7299E 00	83 658	1.9195E 00	121 810	0.0000E 00
8 358	9.4003E-01	46 510	2.9349E 00	84 662	1.9421E 00	122 814	0.0000E 00
9 362	1.0615E 00	47 514	2.8483E 00	85 666	1.9369E 00	123 818	0.0000E 00
10 366	1.2276E 00	48 518	2.5482E 00	86 670	1.9482E 00	124 822	0.0000E 00
11 370	1.2772E 00	49 522	2.8337E 00	87 674	1.9142E 00	125 826	0.0000E 00
12 374	1.2279E 00	50 526	2.7269E 00	88 678	1.8655E 00	126 830	0.0000E 00
13 378	1.4030E 00	51 530	2.9484E 00	89 682	1.7634E 00	127 834	0.0000E 00
14 382	8.7866E-01	52 534	2.8866E 00	90 686	1.5256E 00	128 838	0.0000E 00
15 386	1.1575E 00	53 538	2.7423E 00	91 690	1.5038E 00	129 842	0.0000E 00
16 390	1.2612E 00	54 542	2.7383E 00	92 694	1.4167E 00	130 846	0.0000E 00
17 394	1.2536E 00	55 546	2.6805E 00	93 698	1.4769E 00	131 850	0.0000E 00
18 398	1.6998E 00	56 550	2.6922E 00	94 702	1.3917E 00	132 854	0.0000E 00
19 402	2.0415E 00	57 554	2.6156E 00	95 706	1.4208E 00	133 858	0.0000E 00
20 406	2.1229E 00	58 558	2.5434E 00	96 710	1.4027E 00	134 862	0.0000E 00
21 410	2.2344E 00	59 562	2.6690E 00	97 714	1.2574E 00	135 866	0.0000E 00
22 414	2.2949E 00	60 566	2.6575E 00	98 718	9.7330E-01	136 870	0.0000E 00
23 418	2.2089E 00	61 570	2.6299E 00	99 722	1.0498E 00	137 874	0.0000E 00
24 422	2.1345E 00	62 574	2.6835E 00	100 726	9.8744E-01	138 878	0.0000E 00
25 426	2.0965E 00	63 578	2.5467E 00	101 730	1.0131E 00	139 882	0.0000E 00
26 430	2.0479E 00	64 582	2.6445E 00	102 734	1.0654E 00	140 886	0.0000E 00
27 434	2.3096E 00	65 586	2.6539E 00	103 738	1.0723E 00	141 890	0.0000E 00
28 438	2.4441E 00	66 590	2.3197E 00	104 742	1.0952E 00	142 894	0.0000E 00
29 442	2.5330E 00	67 594	2.4623E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	2.6904E 00	68 598	2.4594E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	2.7493E 00	69 602	2.4726E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	2.8389E 00	70 606	2.4372E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	2.8270E 00	71 610	2.4111E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	2.9069E 00	72 614	2.2894E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	2.7833E 00	73 618	2.3011E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	2.8731E 00	74 622	2.2774E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	2.8968E 00	75 626	2.1486E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	2.9532E 00	76 630	2.1311E 00	114 782	0.0000E 00	152 934	0.0000E 00

E11802 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 11/08/78 station=16 event=02
zavg= 0.0 time= 1040 - 1050

macfac= 2.41

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	1.8016E-01	77 346	9.1009E-01	115 384	9.9009E-01
2 271	0.0000E 00	40 309	1.9777E-01	78 347	9.3205E-01	116 385	1.1207E 00
3 272	0.0000E 00	41 310	2.5370E-01	79 348	8.9688E-01	117 386	1.1432E 00
4 273	0.0000E 00	42 311	3.1302E-01	80 349	8.8421E-01	118 387	1.1709E 00
5 274	0.0000E 00	43 312	3.3128E-01	81 350	9.4509E-01	119 388	1.2153E 00
6 275	0.0000E 00	44 313	3.5029E-01	82 351	9.9481E-01	120 389	1.2715E 00
7 276	0.0000E 00	45 314	3.6724E-01	83 352	9.9444E-01	121 390	1.3806E 00
8 277	0.0000E 00	46 315	3.8990E-01	84 353	1.0177E 00	122 391	1.4528E 00
9 278	0.0000E 00	47 316	4.4512E-01	85 354	1.0709E 00	123 392	1.1565E 00
10 279	0.0000E 00	48 317	4.9655E-01	86 355	1.1496E 00	124 393	8.6727E-01
11 280	0.0000E 00	49 318	4.9633E-01	87 356	1.0015E 00	125 394	1.0784E 00
12 281	0.0000E 00	50 319	5.0271E-01	88 357	8.7616E-01	126 395	1.2826E 00
13 282	0.0000E 00	51 320	5.4401E-01	89 358	8.6596E-01	127 396	0.0000E 00
14 283	0.0000E 00	52 321	5.7142E-01	90 359	1.0214E 00	128 397	0.0000E 00
15 284	0.0000E 00	53 322	5.4906E-01	91 360	1.0306E 00	129 398	0.0000E 00
16 285	0.0000E 00	54 323	5.3328E-01	92 361	9.7908E-01	130 399	0.0000E 00
17 286	0.0000E 00	55 324	6.1411E-01	93 362	1.0751E 00	131 400	0.0000E 00
18 287	0.0000E 00	56 325	7.0173E-01	94 363	1.0909E 00	132 401	0.0000E 00
19 288	0.0000E 00	57 326	7.7945E-01	95 364	1.1136E 00	133 402	0.0000E 00
20 289	0.0000E 00	58 327	8.5499E-01	96 365	1.2533E 00	134 403	0.0000E 00
21 290	0.0000E 00	59 328	8.7104E-01	97 366	1.4575E 00	135 404	0.0000E 00
22 291	0.0000E 00	60 329	8.8936E-01	98 367	1.3640E 00	136 405	0.0000E 00
23 292	0.0000E 00	61 330	8.7924E-01	99 368	1.2341E 00	137 406	0.0000E 00
24 293	0.0000E 00	62 331	8.7741E-01	100 369	1.3311E 00	138 407	0.0000E 00
25 294	7.0737E-04	63 332	8.8277E-01	101 370	1.3637E 00	139 408	0.0000E 00
26 295	1.4758E-03	64 333	8.8097E-01	102 371	1.3770E 00	140 409	0.0000E 00
27 296	3.2812E-03	65 334	8.9797E-01	103 372	1.3277E 00	141 410	0.0000E 00
28 297	5.2529E-03	66 335	9.1464E-01	104 373	1.1979E 00	142 411	0.0000E 00
29 298	9.2430E-03	67 336	8.6317E-01	105 374	1.0994E 00	143 412	0.0000E 00
30 299	1.3511E-02	68 337	8.1502E-01	106 375	1.1326E 00	144 413	0.0000E 00
31 300	2.1498E-02	69 338	8.6973E-01	107 376	1.2351E 00	145 414	0.0000E 00
32 301	3.0102E-02	70 339	9.0923E-01	108 377	1.3714E 00	146 415	0.0000E 00
33 302	5.0294E-02	71 340	8.9524E-01	109 378	1.3563E 00	147 416	0.0000E 00
34 303	6.9690E-02	72 341	8.9139E-01	110 379	1.3289E 00	148 417	0.0000E 00
35 304	9.4877E-02	73 342	9.4018E-01	111 380	1.3614E 00	149 418	0.0000E 00
36 305	1.1896E-01	74 343	9.5405E-01	112 381	1.3430E 00	150 419	0.0000E 00
37 306	1.4020E-01	75 344	9.1667E-01	113 382	1.0760E 00	151 420	0.0000E 00
38 307	1.6490E-01	76 345	8.8627E-01	114 383	8.4986E-01	152 421	0.0000E 00

E12803 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 12/08/78 station=16 event=03
zavg= 0.0 time= 1144 - 1202

macfac= 2.17

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	1.7775E-01	77 346	9.0541E-01	115 384	1.0781E 00
2 271	0.0000E 00	40 309	1.9637E-01	78 347	8.9283E-01	116 385	1.1464E 00
3 272	0.0000E 00	41 310	2.1538E-01	79 348	8.7731E-01	117 386	1.1880E 00
4 273	0.0000E 00	42 311	2.5396E-01	80 349	9.5190E-01	118 387	1.1922E 00
5 274	0.0000E 00	43 312	2.9095E-01	81 350	1.0189E 00	119 388	1.2040E 00
6 275	0.0000E 00	44 313	3.1703E-01	82 351	9.5941E-01	120 389	1.3590E 00
7 276	0.0000E 00	45 314	3.3909E-01	83 352	9.1307E-01	121 390	1.4805E 00
8 277	0.0000E 00	46 315	3.5305E-01	84 353	1.0455E 00	122 391	1.3961E 00
9 278	0.0000E 00	47 316	3.6741E-01	85 354	1.1678E 00	123 392	1.3187E 00
10 279	0.0000E 00	48 317	3.9687E-01	86 355	1.0827E 00	124 393	1.2667E 00
11 280	0.0000E 00	49 318	4.2780E-01	87 356	9.8781E-01	125 394	1.2045E 00
12 281	0.0000E 00	50 319	4.8153E-01	88 357	8.6695E-01	126 395	1.2433E 00
13 282	0.0000E 00	51 320	5.3778E-01	89 358	7.8638E-01	127 396	1.2699E 00
14 283	0.0000E 00	52 321	5.1953E-01	90 359	9.5853E-01	128 397	1.4040E 00
15 284	0.0000E 00	53 322	5.0127E-01	91 360	1.1260E 00	129 398	0.0000E 00
16 285	0.0000E 00	54 323	5.3967E-01	92 361	1.0852E 00	130 399	0.0000E 00
17 286	0.0000E 00	55 324	5.8815E-01	93 362	1.0535E 00	131 400	0.0000E 00
18 287	0.0000E 00	56 325	6.8288E-01	94 363	1.0961E 00	132 401	0.0000E 00
19 288	0.0000E 00	57 326	7.7701E-01	95 364	1.1464E 00	133 402	0.0000E 00
20 289	0.0000E 00	58 327	7.9295E-01	96 365	1.2222E 00	134 403	0.0000E 00
21 290	0.0000E 00	59 328	7.9355E-01	97 366	1.2919E 00	135 404	0.0000E 00
22 291	0.0000E 00	60 329	8.4188E-01	98 367	1.3131E 00	136 405	0.0000E 00
23 292	0.0000E 00	61 330	8.8632E-01	99 368	1.3274E 00	137 406	0.0000E 00
24 293	0.0000E 00	62 331	8.7741E-01	100 369	1.3297E 00	138 407	0.0000E 00
25 294	0.0000E 00	63 332	8.6183E-01	101 370	1.2953E 00	139 408	0.0000E 00
26 295	0.0000E 00	64 333	8.6178E-01	102 371	1.2713E 00	140 409	0.0000E 00
27 296	2.8828E-03	65 334	8.5850E-01	103 372	1.0276E 00	141 410	0.0000E 00
28 297	5.0065E-03	66 335	8.1363E-01	104 373	1.0405E 00	142 411	0.0000E 00
29 298	7.4980E-03	67 336	7.7183E-01	105 374	1.0580E 00	143 412	0.0000E 00
30 299	1.2133E-02	68 337	8.0007E-01	106 375	1.1923E 00	144 413	0.0000E 00
31 300	1.6897E-02	69 338	8.4755E-01	107 376	1.3394E 00	145 414	0.0000E 00
32 301	2.7159E-02	70 339	9.0511E-01	108 377	1.4639E 00	146 415	0.0000E 00
33 302	3.9228E-02	71 340	9.6167E-01	109 378	1.5561E 00	147 416	0.0000E 00
34 303	6.0432E-02	72 341	9.6469E-01	110 379	1.4842E 00	148 417	0.0000E 00
35 304	8.4517E-02	73 342	9.5785E-01	111 380	1.3995E 00	149 418	0.0000E 00
36 305	1.1498E-01	74 343	8.8560E-01	112 381	1.2073E 00	150 419	0.0000E 00
37 306	1.4318E-01	75 344	8.2397E-01	113 382	1.0335E 00	151 420	0.0000E 00
38 307	1.6259E-01	76 345	8.6862E-01	114 383	1.0538E 00	152 421	0.0000E 00

b12804 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 12/08/78 station=16 event=04
zavg= 0.0 time= 1202 - 1222

macfac= 2.11

WL	E	WL	E	WL	E	WL	E
1 330	7.8193E-01	39 482	3.4351E 00	77 634	2.6731E 00	115 786	0.0000E 00
2 334	7.6518E-01	40 486	3.0937E 00	78 638	2.5893E 00	116 790	0.0000E 00
3 338	8.3819E-01	41 490	3.0781E 00	79 642	2.4700E 00	117 794	0.0000E 00
4 342	8.6607E-01	42 494	3.2127E 00	80 646	2.3807E 00	118 798	0.0000E 00
5 346	8.3648E-01	43 498	3.1877E 00	81 650	2.3530E 00	119 802	0.0000E 00
6 350	8.9835E-01	44 502	3.0851E 00	82 654	2.1737E 00	120 806	0.0000E 00
7 354	1.0527E 00	45 506	3.3067E 00	83 658	2.4355E 00	121 810	0.0000E 00
8 358	9.1929E-01	46 510	3.3707E 00	84 662	2.4498E 00	122 814	0.0000E 00
9 362	1.0488E 00	47 514	3.2312E 00	85 666	2.4362E 00	123 818	0.0000E 00
10 366	1.2450E 00	48 518	3.0002E 00	86 670	2.3921E 00	124 822	0.0000E 00
11 370	1.2353E 00	49 522	3.0855E 00	87 674	2.3407E 00	125 826	0.0000E 00
12 374	1.2170E 00	50 526	3.1732E 00	88 678	2.2760E 00	126 830	0.0000E 00
13 378	1.4005E 00	51 530	3.2731E 00	89 682	2.2403E 00	127 834	0.0000E 00
14 382	1.1048E 00	52 534	3.3055E 00	90 686	2.0097E 00	128 838	0.0000E 00
15 386	1.3306E 00	53 538	3.1884E 00	91 690	1.8352E 00	129 842	0.0000E 00
16 390	1.3410E 00	54 542	3.1787E 00	92 694	1.8193E 00	130 846	0.0000E 00
17 394	1.2802E 00	55 546	3.0967E 00	93 698	1.7763E 00	131 850	0.0000E 00
18 398	1.9138E 00	56 550	3.0951E 00	94 702	1.7997E 00	132 854	0.0000E 00
19 402	2.3282E 00	57 554	3.2111E 00	95 706	1.8394E 00	133 858	0.0000E 00
20 406	2.2770E 00	58 558	2.9531E 00	96 710	1.8149E 00	134 862	0.0000E 00
21 410	2.4764E 00	59 562	2.9225E 00	97 714	1.6088E 00	135 866	0.0000E 00
22 414	2.6185E 00	60 566	2.9811E 00	98 718	1.2642E 00	136 870	0.0000E 00
23 418	2.6417E 00	61 570	2.9469E 00	99 722	1.1810E 00	137 874	0.0000E 00
24 422	2.6192E 00	62 574	2.9391E 00	100 726	1.1778E 00	138 878	0.0000E 00
25 426	2.5273E 00	63 578	2.9991E 00	101 730	1.3020E 00	139 882	0.0000E 00
26 430	2.2150E 00	64 582	3.0575E 00	102 734	1.3838E 00	140 886	0.0000E 00
27 434	2.6964E 00	65 586	2.8100E 00	103 738	1.4634E 00	141 890	0.0000E 00
28 438	2.5974E 00	66 590	2.6698E 00	104 742	0.0000E 00	142 894	0.0000E 00
29 442	2.8977E 00	67 594	2.7353E 00	105 746	0.0000E 00	143 898	0.0000E 00
30 446	2.9271E 00	68 598	2.8424E 00	106 750	0.0000E 00	144 902	0.0000E 00
31 450	3.0585E 00	69 602	2.9016E 00	107 754	0.0000E 00	145 906	0.0000E 00
32 454	3.2647E 00	70 606	2.9259E 00	108 758	0.0000E 00	146 910	0.0000E 00
33 458	3.1519E 00	71 610	2.8961E 00	109 762	0.0000E 00	147 914	0.0000E 00
34 462	3.1996E 00	72 614	2.8366E 00	110 766	0.0000E 00	148 918	0.0000E 00
35 466	3.1353E 00	73 618	2.8169E 00	111 770	0.0000E 00	149 922	0.0000E 00
36 470	3.1331E 00	74 622	2.8090E 00	112 774	0.0000E 00	150 926	0.0000E 00
37 474	3.2462E 00	75 626	2.7282E 00	113 778	0.0000E 00	151 930	0.0000E 00
38 478	3.3861E 00	76 630	2.6538E 00	114 782	0.0000E 00	152 934	0.0000E 00

b12806 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 12/08/78 station=16 event=06
zavg= 0.0 time= 1355 - 1401

macfac= 2.14

WL	E	WL	E	WL	E	WL	E
1 270	0.0000E 00	39 308	8.5790E-02	77 346	5.9442E-01	115 384	6.4687E-01
2 271	0.0000E 00	40 309	1.0239E-01	78 347	5.9623E-01	116 385	7.5971E-01
3 272	0.0000E 00	41 310	1.1822E-01	79 348	5.7603E-01	117 386	7.9487E-01
4 273	0.0000E 00	42 311	1.3964E-01	80 349	5.9983E-01	118 387	7.8795E-01
5 274	0.0000E 00	43 312	1.6258E-01	81 350	6.6060E-01	119 388	8.2425E-01
6 275	0.0000E 00	44 313	1.8544E-01	82 351	6.5992E-01	120 389	8.9551E-01
7 276	0.0000E 00	45 314	2.0403E-01	83 352	6.1686E-01	121 390	9.6819E-01
8 277	0.0000E 00	46 315	2.1903E-01	84 353	6.3904E-01	122 391	1.0311E 00
9 278	0.0000E 00	47 316	2.3016E-01	85 354	6.8004E-01	123 392	9.5336E-01
10 279	0.0000E 00	48 317	2.5081E-01	86 355	7.1874E-01	124 393	6.3174E-01
11 280	0.0000E 00	49 318	2.8711E-01	87 356	6.4157E-01	125 394	6.3335E-01
12 281	0.0000E 00	50 319	3.2093E-01	88 357	5.6554E-01	126 395	8.6853E-01
13 282	0.0000E 00	51 320	3.5524E-01	89 358	5.5487E-01	127 396	9.5912E-01
14 283	0.0000E 00	52 321	3.5578E-01	90 359	6.5069E-01	128 397	8.6542E-01
15 284	0.0000E 00	53 322	3.3570E-01	91 360	6.7244E-01	129 398	9.7580E-01
16 285	0.0000E 00	54 323	3.4022E-01	92 361	6.2959E-01	130 399	1.2294E 00
17 286	0.0000E 00	55 324	3.6274E-01	93 362	6.9308E-01	131 400	1.3510E 00
18 287	0.0000E 00	56 325	4.1695E-01	94 363	7.6646E-01	132 401	1.3939E 00
19 288	0.0000E 00	57 326	4.9163E-01	95 364	7.5756E-01	133 402	0.0000E 00
20 289	0.0000E 00	58 327	5.2951E-01	96 365	8.1394E-01	134 403	0.0000E 00
21 290	0.0000E 00	59 328	5.3424E-01	97 366	9.2352E-01	135 404	0.0000E 00
22 291	0.0000E 00	60 329	5.4885E-01	98 367	9.1596E-01	136 405	0.0000E 00
23 292	0.0000E 00	61 330	5.6642E-01	99 368	8.6688E-01	137 406	0.0000E 00
24 293	0.0000E 00	62 331	5.7563E-01	100 369	9.4054E-01	138 407	0.0000E 00
25 294	0.0000E 00	63 332	5.7530E-01	101 370	9.5172E-01	139 408	0.0000E 00
26 295	0.0000E 00	64 333	5.6985E-01	102 371	8.9376E-01	140 409	0.0000E 00
27 296	0.0000E 00	65 334	5.6494E-01	103 372	8.8381E-01	141 410	0.0000E 00
28 297	0.0000E 00	66 335	5.5177E-01	104 373	7.1983E-01	142 411	0.0000E 00
29 298	0.0000E 00	67 336	5.3231E-01	105 374	7.5392E-01	143 412	0.0000E 00
30 299	0.0000E 00	68 337	5.2839E-01	106 375	7.9573E-01	144 413	0.0000E 00
31 300	4.7170E-03	69 338	5.5901E-01	107 376	8.2923E-01	145 414	0.0000E 00
32 301	7.8677E-03	70 339	5.8598E-01	108 377	8.7495E-01	146 415	0.0000E 00
33 302	1.2354E-02	71 340	6.1781E-01	109 378	9.9980E-01	147 416	0.0000E 00
34 303	2.0105E-02	72 341	6.3383E-01	110 379	9.7994E-01	148 417	0.0000E 00
35 304	3.1348E-02	73 342	6.3113E-01	111 380	8.4660E-01	149 418	0.0000E 00
36 305	4.2316E-02	74 343	5.7191E-01	112 381	8.4814E-01	150 419	0.0000E 00
37 306	5.2454E-02	75 344	5.0623E-01	113 382	7.5748E-01	151 420	0.0000E 00
38 307	6.8078E-02	76 345	5.7742E-01	114 383	6.0530E-01	152 421	0.0000E 00

e12807 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 12/08/78 station=16 event=07
zavg= 0.0 time= 1403 - 1413

macfac= 2.15

	WL	E		WL	E		WL	E		WL	E
1	330	5.5176E-01	39	482	1.8426E 00	77	634	1.3589E 00	115	786	0.0000E 00
2	334	5.3451E-01	40	486	1.6768E 00	78	638	1.4842E 00	116	790	0.0000E 00
3	338	5.4365E-01	41	490	1.7973E 00	79	642	1.3021E 00	117	794	0.0000E 00
4	342	5.8354E-01	42	494	1.8370E 00	80	646	1.2334E 00	118	798	0.0000E 00
5	346	5.6044E-01	43	498	1.7937E 00	81	650	1.3240E 00	119	802	0.0000E 00
6	350	6.2125E-01	44	502	1.8228E 00	82	654	1.2279E 00	120	806	0.0000E 00
7	354	6.4619E-01	45	506	1.7675E 00	83	658	1.1893E 00	121	810	0.0000E 00
8	358	5.4244E-01	46	510	1.8876E 00	84	662	1.4086E 00	122	814	0.0000E 00
9	362	6.6146E-01	47	514	1.7724E 00	85	666	1.3128E 00	123	818	0.0000E 00
10	366	8.0028E-01	48	518	1.6161E 00	86	670	1.2396E 00	124	822	0.0000E 00
11	370	8.8121E-01	49	522	1.7413E 00	87	674	1.3211E 00	125	826	0.0000E 00
12	374	7.2751E-01	50	526	1.7495E 00	88	678	1.2276E 00	126	830	0.0000E 00
13	378	9.1083E-01	51	530	1.7974E 00	89	682	1.1577E 00	127	834	0.0000E 00
14	382	7.2031E-01	52	534	1.7034E 00	90	686	1.0786E 00	128	838	0.0000E 00
15	386	7.1226E-01	53	538	1.7443E 00	91	690	1.0345E 00	129	842	0.0000E 00
16	390	9.2256E-01	54	542	1.7639E 00	92	694	8.2426E-01	130	846	0.0000E 00
17	394	6.5492E-01	55	546	1.6454E 00	93	698	1.0456E 00	131	850	0.0000E 00
18	398	1.0746E 00	56	550	1.6576E 00	94	702	8.7696E-01	132	854	0.0000E 00
19	402	1.3535E 00	57	554	1.6370E 00	95	706	9.6337E-01	133	858	0.0000E 00
20	406	1.3140E 00	58	558	1.6403E 00	96	710	9.5074E-01	134	862	0.0000E 00
21	410	1.4088E 00	59	562	1.6402E 00	97	714	7.3417E-01	135	866	0.0000E 00
22	414	1.4726E 00	60	566	1.6480E 00	98	718	6.5994E-01	136	870	0.0000E 00
23	418	1.4669E 00	61	570	1.5337E 00	99	722	6.4674E-01	137	874	0.0000E 00
24	422	1.4480E 00	62	574	1.6932E 00	100	726	5.7150E-01	138	878	0.0000E 00
25	426	1.3892E 00	63	578	1.5889E 00	101	730	6.2185E-01	139	882	0.0000E 00
26	430	1.2963E 00	64	582	1.5866E 00	102	734	6.9315E-01	140	886	0.0000E 00
27	434	1.5142E 00	65	586	1.6462E 00	103	738	7.2700E-01	141	890	0.0000E 00
28	438	1.4431E 00	66	590	1.3453E 00	104	742	0.0000E 00	142	894	0.0000E 00
29	442	1.6450E 00	67	594	1.4196E 00	105	746	0.0000E 00	143	898	0.0000E 00
30	446	1.6403E 00	68	598	1.5246E 00	106	750	0.0000E 00	144	902	0.0000E 00
31	450	1.7510E 00	69	602	1.5613E 00	107	754	0.0000E 00	145	906	0.0000E 00
32	454	1.8017E 00	70	606	1.5337E 00	108	758	0.0000E 00	146	910	0.0000E 00
33	458	1.7134E 00	71	610	1.5927E 00	109	762	0.0000E 00	147	914	0.0000E 00
34	462	1.8789E 00	72	614	1.4940E 00	110	766	0.0000E 00	148	918	0.0000E 00
35	466	1.7597E 00	73	618	1.5087E 00	111	770	0.0000E 00	149	922	0.0000E 00
36	470	1.8133E 00	74	622	1.4658E 00	112	774	0.0000E 00	150	926	0.0000E 00
37	474	1.8920E 00	75	626	1.5688E 00	113	778	0.0000E 00	151	930	0.0000E 00
38	478	1.8431E 00	76	630	1.3308E 00	114	782	0.0000E 00	152	934	0.0000E 00

e12808 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 12/08/78 station=16 event=08
zavg= 0.0 time= 1518 - 1525

macfac= 2.44

	WL	E		WL	E		WL	E		WL	E
1	330	2.8141E-01	39	482	1.5891E-01	77	634	4.9139E-01	115	786	0.0000E 00
2	334	2.6310E-01	40	486	1.6037E-01	78	638	5.1046E-01	116	790	0.0000E 00
3	338	2.8025E-01	41	490	1.6211E-01	79	642	5.3450E-01	117	794	0.0000E 00
4	342	2.9687E-01	42	494	1.6575E-01	80	646	6.5210E-01	118	798	0.0000E 00
5	346	3.0196E-01	43	498	1.6945E-01	81	650	7.0006E-01	119	802	0.0000E 00
6	350	3.0630E-01	44	502	1.7227E-01	82	654	6.3867E-01	120	806	0.0000E 00
7	354	3.1006E-01	45	506	1.7162E-01	83	658	6.8904E-01	121	810	0.0000E 00
8	358	3.2354E-01	46	510	1.6192E-01	84	662	7.1820E-01	122	814	0.0000E 00
9	362	3.5411E-01	47	514	1.3687E-01	85	666	6.9041E-01	123	818	0.0000E 00
10	366	3.9424E-01	48	518	1.2521E-01	86	670	7.4579E-01	124	822	0.0000E 00
11	370	4.2757E-01	49	522	1.3667E-01	87	674	6.6930E-01	125	826	0.0000E 00
12	374	4.4688E-01	50	526	1.5074E-01	88	678	6.8600E-01	126	830	0.0000E 00
13	378	4.4824E-01	51	530	1.6241E-01	89	682	6.7973E-01	127	834	0.0000E 00
14	382	4.4130E-01	52	534	1.7186E-01	90	686	5.4133E-01	128	838	0.0000E 00
15	386	4.3221E-01	53	538	1.8100E-01	91	690	5.4854E-01	129	842	0.0000E 00
16	390	3.9860E-01	54	542	1.8905E-01	92	694	4.6662E-01	130	846	0.0000E 00
17	394	3.4175E-01	55	546	1.9649E-01	93	698	5.0047E-01	131	850	0.0000E 00
18	398	2.9955E-01	56	550	2.0352E-01	94	702	4.5375E-01	132	854	0.0000E 00
19	402	2.6972E-01	57	554	2.1085E-01	95	706	5.1134E-01	133	858	0.0000E 00
20	406	2.4884E-01	58	558	2.1859E-01	96	710	4.9494E-01	134	862	0.0000E 00
21	410	2.3182E-01	59	562	2.2678E-01	97	714	4.0360E-01	135	866	0.0000E 00
22	414	2.1797E-01	60	566	2.3553E-01	98	718	3.0764E-01	136	870	0.0000E 00
23	418	2.0653E-01	61	570	2.4499E-01	99	722	2.6775E-01	137	874	0.0000E 00
24	422	1.9663E-01	62	574	2.5298E-01	100	726	2.8350E-01	138	878	0.0000E 00
25	426	1.8854E-01	63	578	2.6233E-01	101	730	3.1939E-01	139	882	0.0000E 00
26	430	1.8262E-01	64	582	2.7474E-01	102	734	3.9763E-01	140	886	0.0000E 00
27	434	1.7636E-01	65	586	2.8669E-01	103	738	3.9934E-01	141	890	0.0000E 00
28	438	1.7142E-01	66	590	2.9810E-01	104	742	4.0226E-01	142	894	0.0000E 00
29	442	1.6767E-01	67	594	3.1080E-01	105	746	0.0000E 00	143	898	0.0000E 00
30	446	1.6475E-01	68	598	3.2309E-01	106	750	0.0000E 00	144	902	0.0000E 00
31	450	1.6223E-01	69	602	3.3868E-01	107	754	0.0000E 00	145	906	0.0000E 00
32	454	1.6075E-01	70	606	3.5234E-01	108	758	0.0000E 00	146	910	0.0000E 00
33	458	1.5904E-01	71	610	3.6847E-01	109	762	0.0000E 00	147	914	0.0000E 00
34	462	1.5792E-01	72	614	3.8579E-01	110	766	0.0000E 00	148	918	0.0000E 00
35	466	1.5695E-01	73	618	4.0520E-01	111	770	0.0000E 00	149	922	0.0000E 00
36	470	1.5703E-01	74	622	4.2711E-01	112	774	0.0000E 00	150	926	0.0000E 00
37	474	1.5622E-01	75	626	4.5206E-01	113	778	0.0000E 00	151	930	0.0000E 00
38	478	1.5745E-01	76	630	4.7107E-01	114	782	0.0000E 00	152	934	0.0000E 00

E12810 E/uvwlr3
DOWNWELLING IRRADIANCE AIR

date 12/08/7d station=16 event=10
zavg= 0.0 time= 1555 - 1602

mactac= 2.57

	WL	E		WL	E		WL	E		WL	E
1	330	1.5357E-01	39	482	5.0004E-01	77	634	3.4514E-01	115	786	0.0000E 00
2	334	1.4718E-01	40	486	4.2989E-01	78	638	3.5865E-01	116	790	0.0000E 00
3	338	1.4461E-01	41	490	4.9909E-01	79	642	2.5299E-01	117	794	0.0000E 00
4	342	1.6442E-01	42	494	4.4511E-01	80	646	3.6113E-01	118	798	0.0000E 00
5	346	1.5924E-01	43	498	4.6948E-01	81	650	2.3755E-01	119	802	0.0000E 00
6	350	1.6510E-01	44	502	4.1421E-01	82	654	3.0203E-01	120	806	0.0000E 00
7	354	1.9259E-01	45	506	4.8544E-01	83	658	2.6840E-01	121	810	0.0000E 00
8	358	1.7816E-01	46	510	4.3974E-01	84	662	2.9344E-01	122	814	0.0000E 00
9	362	1.9178E-01	47	514	4.6815E-01	85	666	3.4321E-01	123	818	0.0000E 00
10	366	2.2453E-01	48	518	3.8966E-01	86	670	2.9004E-01	124	822	0.0000E 00
11	370	2.3430E-01	49	522	3.8360E-01	87	674	2.8236E-01	125	826	0.0000E 00
12	374	1.8823E-01	50	526	4.0865E-01	88	678	3.1865E-01	126	830	0.0000E 00
13	378	2.5837E-01	51	530	3.8254E-01	89	682	2.5129E-01	127	834	0.0000E 00
14	382	1.6653E-01	52	534	4.5335E-01	90	686	2.2635E-01	128	838	0.0000E 00
15	386	2.0095E-01	53	538	4.0129E-01	91	690	2.0407E-01	129	842	0.0000E 00
16	390	2.6778E-01	54	542	4.1253E-01	92	694	2.0063E-01	130	846	0.0000E 00
17	394	2.2285E-01	55	546	4.2017E-01	93	698	2.0400E-01	131	850	0.0000E 00
18	398	3.2735E-01	56	550	4.1660E-01	94	702	2.0124E-01	132	854	0.0000E 00
19	402	3.6523E-01	57	554	4.1478E-01	95	706	2.0678E-01	133	858	0.0000E 00
20	406	3.5211E-01	58	558	3.9742E-01	96	710	2.1097E-01	134	862	0.0000E 00
21	410	3.6840E-01	59	562	3.8646E-01	97	714	1.8048E-01	135	866	0.0000E 00
22	414	3.8483E-01	60	566	3.8033E-01	98	718	1.2952E-01	136	870	0.0000E 00
23	418	3.8491E-01	61	570	3.7787E-01	99	722	1.1420E-01	137	874	0.0000E 00
24	422	3.7411E-01	62	574	3.5272E-01	100	726	1.2797E-01	138	878	0.0000E 00
25	426	3.9012E-01	63	578	3.4763E-01	101	730	0.0000E 00	139	882	0.0000E 00
26	430	3.2713E-01	64	582	4.2704E-01	102	734	0.0000E 00	140	886	0.0000E 00
27	434	3.7416E-01	65	586	3.3866E-01	103	738	0.0000E 00	141	890	0.0000E 00
28	438	4.0454E-01	66	590	3.2026E-01	104	742	0.0000E 00	142	894	0.0000E 00
29	442	4.1445E-01	67	594	2.9254E-01	105	746	0.0000E 00	143	898	0.0000E 00
30	446	4.1430E-01	68	598	3.2214E-01	106	750	0.0000E 00	144	902	0.0000E 00
31	450	5.0499E-01	69	602	3.9738E-01	107	754	0.0000E 00	145	906	0.0000E 00
32	454	4.6203E-01	70	606	3.2532E-01	108	758	0.0000E 00	146	910	0.0000E 00
33	458	4.6292E-01	71	610	3.5345E-01	109	762	0.0000E 00	147	914	0.0000E 00
34	462	4.8122E-01	72	614	3.8730E-01	110	766	0.0000E 00	148	918	0.0000E 00
35	466	4.6813E-01	73	618	3.2647E-01	111	770	0.0000E 00	149	922	0.0000E 00
36	470	4.7056E-01	74	622	3.4538E-01	112	774	0.0000E 00	150	926	0.0000E 00
37	474	4.7332E-01	75	626	3.7255E-01	113	778	0.0000E 00	151	930	0.0000E 00
38	478	4.7342E-01	76	630	2.8011E-01	114	782	0.0000E 00	152	934	0.0000E 00