

TOTAL AND DIFFUSE INSOLATION DATA FOR RIO PIEDRAS

REPORT NO. 1

JULY 1 TO OCTOBER 31

1978

PREPARED BY:

CENTER FOR ENERGY AND ENVIRONMENTAL RESEARCH

USERDA - UPR
CENTER FOR ENERGY
AND ENVIRONMENT RESEARCH
CONTRACT NO. E (40-1) 1883
READING ROOM

This report includes the insolation data collected at the CEER, Rio Piedras Station during the period July 1 to October 31, 1978. The following Eppley instruments were used to gather this information:

Total Insolation

Integrator, Model 411-6140 Serial 411-5583
(Fig. 1, Lower Shelf, Right)

Used with Precision Spectral Pyranometer,
Model PSP, Serial 16704F3 (Fig. 2)

Sensitivity = 36.72 BTU - Ft.⁻² - Hour/Millivolt

Counter Output:

1 Count = 0.1 BTU/Ft.²

10 mv Input = 367.2 Counts/Hour

Recorder Output:

10 mv = 400 BTU/Ft.² - Hour⁻¹

10 mv Input = 9.18 mv Output

Diffuse Insolation

Integrator Model 411-6140 Serial 411-5819
(Fig. 1, Upper Shelf, Center)

Used with Precision Spectral Pyranometer,
Model PSP, Serial 15390F3 with Shadow Band (Fig. 3)

Sensitivity = 30.10 BTU - Ft.⁻² - Hour/Millivolt

Counter Output:

1 Count = 0.1 BTU/Ft.²

10 mv Input = 301 Counts/Hour

Recorder Output:

10 mv = 400 BTU/Ft.² - Hour⁻¹

10 mv Input = 7.53 mv Output

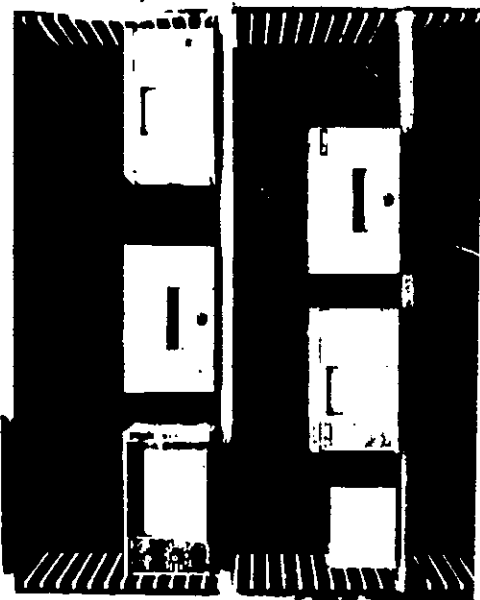


Fig. 1: Recording Instrumentation



Fig. 2: Precision Spectral Pyranometer
for Measuring Total Insolation



Fig. 3: Precision Spectral Pyranometer
with Shadow Band for
Measuring Diffuse Insolation

MONTH: JUL 1978

MONTHLY WEATHER DATA

LOCATION: PIO PIEDRAS

TOTAL INSOLATION IN BTU/FT**2

HOUR

DAY	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	TOTAL
1	23.10	87.20	152.20	217.40	229.00	125.30	61.20	76.70	167.20	127.60	124.00	68.40	22.20	1470.5
2	18.60	90.10	159.80	223.40	231.10	273.50	321.30	302.30	264.80	225.00	150.40	85.80	12.90	2359.0
3	21.40	64.10	160.50	208.50	169.60	47.10	296.50	242.60	251.90	141.30	122.90	63.60	17.00	1807.0
4	19.20	77.20	145.20	209.90	233.90	274.10	298.70	267.90	230.10	180.20	144.10	57.50	6.30	2144.3
5	12.20	74.60	130.60	135.20	163.00	295.30	129.00	88.90	117.10	123.80	*****	54.70	10.40	*****
6	10.40	66.30	89.80	141.30	164.60	99.10	40.50	94.90	142.40	82.80	72.70	36.10	10.20	1051.1
7	16.60	69.60	159.00	*****	*****	138.80	260.00	271.80	250.70	132.70	40.60	20.00	6.90	*****
8	8.40	47.40	85.10	175.40	171.10	158.30	174.20	135.10	142.10	90.80	50.60	25.60	5.10	1269.2
9	19.40	76.10	140.10	158.20	255.90	285.80	109.30	266.80	242.50	166.70	36.90	13.30	4.40	1766.4
10	27.80	72.90	119.70	173.60	213.50	202.20	298.00	303.10	229.90	221.30	106.20	45.80	11.80	2025.8
11	20.20	75.60	162.00	193.00	175.10	185.00	246.70	149.50	249.70	197.20	111.80	52.90	8.60	1827.3
12	21.50	58.60	145.00	200.40	274.60	273.00	297.90	252.00	262.80	175.10	91.10	38.70	10.20	2100.9
13	8.60	13.10	14.60	18.80	49.90	87.70	135.10	204.40	204.20	173.30	93.40	47.40	11.70	1056.7
14	19.00	59.80	127.80	144.50	226.20	297.10	265.60	283.10	233.90	*****	*****	47.00	11.40	*****
15	25.60	82.10	142.20	200.50	269.40	296.10	304.60	305.80	108.80	23.90	105.40	58.80	6.40	1951.6
16	12.60	56.20	68.90	138.90	153.70	250.30	262.30	290.10	257.20	170.60	83.80	71.50	11.50	1627.6
17	18.50	78.90	96.20	129.00	184.40	183.90	217.90	210.00	203.10	191.80	92.70	70.90	45.20	1692.5
18	4.70	76.60	111.10	125.70	220.40	276.70	257.90	259.20	170.30	80.60	106.20	55.00	9.80	1774.2
19	16.10	60.80	157.80	184.10	270.00	294.90	314.20	299.30	263.90	185.00	92.40	19.60	4.70	2199.0
20	20.50	56.50	105.40	134.60	147.90	175.40	164.60	127.70	119.40	100.70	*****	24.40	4.30	*****
21	*****	*****	*****	*****	257.90	*****	263.00	303.50	*****	*****	*****	55.40	5.30	*****
22	14.10	63.20	112.00	132.10	218.80	279.60	295.50	254.50	235.00	191.70	*****	53.30	6.90	*****
23	17.60	74.10	96.00	128.10	193.60	188.60	262.70	300.20	223.40	56.00	*****	32.10	9.60	*****
24	15.60	71.20	141.90	*****	258.30	271.10	294.70	267.30	250.90	203.60	125.10	65.60	14.00	*****
25	17.50	65.80	133.00	214.90	256.90	405.10	311.20	294.70	253.10	205.50	142.80	54.40	11.70	2261.6
26	13.60	*****	*****	205.90	265.30	300.30	314.10	299.10	*****	*****	139.50	77.00	15.50	*****
27	12.30	50.90	134.30	155.80	164.30	224.40	233.60	234.30	264.10	207.80	142.20	76.60	15.40	1965.6
28	10.00	35.30	99.40	143.60	234.90	255.00	241.90	246.10	259.00	183.40	131.00	21.50	12.40	1952.5
29	12.50	52.70	119.40	183.30	224.50	284.30	265.10	272.70	176.10	188.80	129.50	46.00	11.30	1970.2
30	13.40	63.50	100.90	193.40	237.00	245.80	253.10	253.10	263.20	165.10	119.50	45.20	15.50	1918.7
31	8.60	27.70	111.80	150.60	175.20	181.90	272.90	226.00	260.20	207.60	149.30	67.20	10.20	1850.6

MEAN	16.65	62.09	121.41	167.49	207.36	218.84	238.45	234.17	221.21	166.04	109.04	52.55	11.10	1830.0
STD D	5.27	19.32	36.08	45.16	52.45	76.09	83.49	67.27	48.77	45.55	30.72	18.46	4.20	171.9
STD	6.40	13.10	14.60	15.63	49.90	47.10	40.50	74.70	104.80	80.60	30.40	13.30	4.40	515.1
RAY	27.40	40.10	167.00	223.40	274.50	305.10	321.30	305.40	274.80	225.00	150.40	55.80	77.70	2458.3

MONTHLY TOTAL SOLAR IRRADIATION IN FTU/FT**2 VS. HOUR

MONTH: JUL 1976		LOCATION: RIO PIEDRAS						
U.T.C.	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
350.00								
341.03								
332.05								
323.08			S					
314.10								
305.13			S					
296.15				S				
287.18								
278.21								
269.23					S			
260.26			S					
251.28								
242.31			M	M				
233.33								
224.36				M				
215.38			S	M	S			
206.41				M				
197.44								
188.46								
179.49								
170.51			M	S	M			
161.54								
152.56			S	S	S			
143.59				S				
134.62								
125.64			M	S				
116.67								
107.69					S	M		
98.72								
89.74			S	S				
80.77						S		
71.79							S	
62.82			M					
53.85						M		
44.87			S					
35.90							S	
26.92			S					
17.95			M				S	
8.97			S					M
0.00								

0.00 3.00 6.00 9.00 12.00 15.00 18.00 21.00 24.00
 (S) MEAN VALUE PLUS OR MINUS STD U (M) MEAN VALUE
 ATL STD TIME

MONTHLY WEATHER DATA

MONTH: JUL 1978

LOCATION: RIO PIEDRAS

TOTAL / EXTRATERRESTIAL INSOLATION

DAY	HOUR (CODE)												DAILY VALUE	
	0-7 (A)	7-8 (B)	8-9 (C)	9-10 (D)	10-11 (E)	11-12 (F)	12-1 (G)	1-2 (H)	2-3 (I)	3-4 (J)	4-5 (K)	5-6 (L)		
1	0.412	0.385	0.646	0.687	0.626	0.313	0.149	0.198	0.463	0.422	0.546	0.469	0.478	0.435
2	0.334	0.606	0.679	0.723	0.632	0.683	0.781	0.760	0.734	0.743	0.661	0.613	0.277	0.693
3	0.388	0.432	0.683	0.678	0.464	0.118	0.721	0.609	0.698	0.466	0.540	0.454	0.363	0.531
4	0.351	0.522	0.619	0.680	0.640	0.685	0.726	0.673	0.637	0.594	0.633	0.410	0.134	0.631
5	0.225	0.505	0.557	0.438	0.446	0.738	0.313	0.223	0.324	0.408	*****	0.389	0.221	*****
6	0.193	0.480	0.384	0.458	0.451	0.248	0.098	0.238	0.394	0.273	0.319	0.257	0.217	0.309
7	0.308	0.474	0.680	*****	*****	0.347	0.680	0.582	0.693	0.437	0.179	0.142	0.147	*****
8	0.159	0.324	0.365	0.570	0.469	0.395	0.423	0.339	0.393	0.299	0.222	0.182	0.108	0.373
9	0.370	0.521	0.501	0.514	0.702	0.714	0.243	0.869	0.670	0.546	0.161	0.094	0.093	0.520
10	0.536	0.501	0.514	0.564	0.585	0.505	0.723	0.760	0.635	0.728	0.464	0.325	0.251	0.596
11	0.393	0.520	0.697	0.628	0.480	0.462	0.599	0.374	0.689	0.648	0.489	0.375	0.183	0.538
12	0.422	0.404	0.624	0.652	0.753	0.682	0.723	0.631	0.725	0.575	0.398	0.274	0.217	0.619
13	0.171	0.091	0.063	0.061	0.137	0.219	0.328	0.512	0.563	0.569	0.408	0.301	0.239	0.311
14	0.381	0.415	0.551	0.471	0.621	0.742	0.644	0.708	0.645	*****	*****	0.333	0.244	*****
15	0.518	0.571	0.614	0.653	0.739	0.739	0.738	0.765	0.300	0.275	0.460	0.417	0.191	0.587
16	0.257	0.392	0.298	0.453	0.422	0.625	0.636	0.725	0.708	0.560	0.366	0.504	0.248	0.539
17	0.382	0.552	0.416	0.421	0.506	0.459	0.528	0.525	0.559	0.629	0.405	0.504	0.330	0.499
18	0.515	0.537	0.481	0.410	0.605	0.690	0.625	0.648	0.469	0.264	0.464	0.391	0.214	0.523
19	0.382	0.427	0.664	0.601	0.741	0.748	0.762	0.748	0.726	0.506	0.404	0.140	0.103	0.640
20	0.436	0.398	0.457	0.440	0.406	0.437	0.409	0.319	0.328	0.330	*****	0.174	0.095	*****
21	*****	*****	*****	*****	0.708	*****	0.636	0.758	*****	*****	*****	0.395	0.073	*****
22	0.306	0.447	0.487	0.431	0.600	0.697	0.715	0.635	0.646	0.628	*****	0.381	0.155	*****
23	0.254	0.626	0.418	0.418	0.531	0.420	0.635	0.749	0.614	0.184	*****	0.230	0.217	*****
24	0.346	0.506	0.618	*****	0.708	0.670	0.712	0.667	0.689	0.667	0.547	0.471	0.319	*****
25	0.280	0.469	0.580	0.702	0.705	0.760	0.752	0.735	0.695	0.674	0.625	0.391	0.269	0.669
26	0.312	*****	*****	0.673	0.727	0.748	0.759	0.746	*****	*****	0.611	0.555	0.361	*****
27	0.281	0.364	0.586	0.509	0.450	0.559	0.569	0.708	0.725	0.661	0.624	0.549	0.362	0.692
28	0.231	0.253	0.434	0.470	0.641	0.635	0.681	0.613	0.711	0.602	0.575	0.446	0.295	0.578
29	0.291	0.379	0.522	0.599	0.626	0.707	0.640	0.679	0.484	0.619	0.569	0.334	0.272	0.584
30	0.315	0.458	0.441	0.469	0.649	0.611	0.611	0.630	0.723	0.542	0.526	0.329	0.372	0.569
31	0.209	0.200	0.489	0.493	0.480	0.452	0.658	0.563	0.715	0.688	0.658	0.491	0.252	0.549

EFFICIENCY CHARTS FOR TOTAL / EXTRA-PRESSURE INSULATION

DATE: JUL 1978

LOCATION: MIU PLEKAS

BASED ON HOURLY VALUES

REGULAR

RANGE	0	20	40	60	80	100	120	NO. OF VALUES	% OF TOTAL
0-.1	XXXX							8	2.09
.1-.2	XXXXXXXXXX							21	5.50
.2-.3	XXXXXXXXXXXXXXXXXXXX							39	10.27
.3-.4	XXXXXXXXXXXXXXXXXXXX							53	14.27
.4-.5	XXXXXXXXXXXXXXXXXXXX							70	19.32
.5-.6	XXXXXXXXXXXXXXXXXXXX							54	14.14
.6-.7	XXXXXXXXXXXXXXXXXXXX							87	22.77
.7-.8	XXXXXXXXXXXXXXXXXXXX							50	13.09
.8-.9								0	0.00
.9-1.								0	0.00

CUMULATIVE

RANGE	0	80	60	240	320	400	480	NO. OF VALUES	% OF TOTAL
0-.1	X							8	2.09
.1-.2	XXX							29	7.59
.2-.3	XXXXXXXXXX							68	17.80
.3-.4	XXXXXXXXXXXXXXXX							121	31.68
.4-.5	XXXXXXXXXXXXXXXXXXXX							191	50.00
.5-.6	XXXXXXXXXXXXXXXXXXXX							245	64.11
.6-.7	XXXXXXXXXXXXXXXXXXXX							332	87.91
.7-.8	XXXXXXXXXXXXXXXXXXXX							382	100.00
.8-.9	XXXXXXXXXXXXXXXXXXXX							382	100.00
.9-1.	XXXXXXXXXXXXXXXXXXXX							382	100.00

BASED ON DAILY VALUES

REGULAR

RANGE	0	5	10	15	NO. OF VALUES	% OF TOTAL	0	10	20	30	NO. OF VALUES	% OF TOTAL
0-.1					0	0.00					0	0.00
.1-.2					0	0.00					0	0.00
.2-.3					0	0.00					0	0.00
.3-.4	XXX				3	13.64	XXX				3	13.64
.4-.5	XX				2	9.09	XXXX				5	22.73
.5-.6	XXXXXXXXXXXX				12	54.55	XXXXXXXXXXXXXXXXXX				17	77.77
.6-.7	XXXXX				5	22.73	XXXXXXXXXXXXXXXXXX				22	100.00
.7-.8					0	0.00	XXXXXXXXXXXXXXXXXX				22	100.00
.8-.9					0	0.00	XXXXXXXXXXXXXXXXXX				22	100.00
.9-1.					0	0.00	XXXXXXXXXXXXXXXXXX				22	100.00

MONTHLY WEATHER DATA

MONTH: JUL 1978

LOCATION: RIO PIEDRAS

DIFFUSE INSOLATION IN BTU/FT**2

DAY	HOUR												TOTAL	
	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6		6-7
1	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
2	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
3	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
4	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
6	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
7	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
8	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
9	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
10	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
11	*****	*****	*****	*****	*****	97.20	119.48	113.04	73.08	57.12	53.40	34.80	10.08	*****
12	19.44	41.40	63.96	82.20	97.08	97.08	97.56	102.00	109.44	105.84	77.04	41.16	12.24	*****
13	*****	15.72	18.56	*****	54.80	95.84	140.32	152.80	139.80	113.24	73.56	37.92	4.92	*****
14	0.84	18.24	36.60	53.28	91.56	*****	81.24	83.76	87.84	75.84	48.00	35.16	12.00	*****
15	23.84	44.28	59.88	79.32	93.96	105.36	101.04	103.44	85.20	79.32	76.56	46.20	3.84	908.0
16	13.80	43.92	54.24	97.56	103.20	105.00	132.36	99.00	83.28	105.24	74.52	54.96	*****	*****
17	18.24	50.76	85.08	109.20	138.60	146.16	155.64	145.08	132.48	108.96	74.48	44.16	13.68	1226.5
18	20.16	34.08	65.76	87.64	87.24	90.48	93.24	98.40	98.88	75.00	78.12	41.28	11.28	862.6
19	15.48	28.44	39.84	55.68	57.36	71.52	60.80	53.80	45.72	46.48	42.60	18.12	*****	*****
20	18.12	39.36	72.00	124.56	140.16	166.08	161.80	135.12	121.32	59.96	*****	*****	*****	*****
21	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
22	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
23	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
24	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
26	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
27	11.88	36.60	61.92	99.84	119.52	129.60	115.80	84.24	69.24	63.60	52.56	40.44	15.36	900.6
28	11.52	36.00	76.20	103.44	135.96	129.60	123.72	115.08	106.56	101.16	76.24	46.20	13.44	1083.1
29	13.44	47.04	81.48	118.68	140.88	139.68	129.12	105.84	79.92	42.44	12.84	1150.3	*****	*****
30	13.92	48.48	80.28	98.76	110.28	121.08	129.24	122.04	94.68	90.96	75.24	41.40	15.84	1057.2
31	9.96	28.32	69.84	104.96	123.72	141.60	127.20	92.12	61.20	47.52	39.72	39.72	11.28	908.2
MEAN	15.35	40.70	72.56	99.11	116.00	123.09	123.35	113.31	97.17	84.65	64.60	42.74	17.75	1010.2
STD D	4.81	8.02	9.54	16.94	18.26	18.31	20.22	21.31	25.58	21.69	15.10	2.52	2.88	57.9
MIN	9.96	28.32	59.88	84.64	87.24	90.48	93.24	84.24	61.20	47.52	39.72	39.72	15.84	720.0
MAX	23.84	50.76	85.08	118.08	138.60	146.16	155.64	145.08	132.48	108.96	74.48	44.20	15.84	1247.0

CITY DEGREE INSULATION IN AT/FT*2 VS. TIME

TIME	0.00	3.00	9.00	12.00	15.00	18.00	21.00	24.00
35.00								
341.03								
332.05								
323.08								
314.10								
305.13								
296.15								
287.19								
278.21								
269.23								
260.26								
251.28								
242.31								
233.33								
224.36								
215.38								
206.41								
197.44								
188.46								
179.49								
170.51								
161.54								
152.56								
143.59								
134.62								
125.64								
116.67								
107.69								
98.72								
89.74								
80.77								
71.79								
62.82								
53.85								
44.87								
35.90								
26.92								
17.95								
8.97								
0.00								

0.00 3.00 9.00 12.00 15.00 18.00 21.00 24.00
 (+) MAXIMUM VALUE (M) MEAN VALUE (-) MINIMUM VALUE
 ATL STD TIME

MONTHLY WEATHER DATA

MONTH: JUL 1978

LOCATION: FIU PIEDRAS

DIFFUSE / TOTAL INSOLATION

DAY	HOUR (CODE)											6-7 (U)	5-6 (T)	6-7 (U)	DAILY VALUE		
	6-7 (F)	7-8 (E)	8-9 (C)	9-10 (D)	10-11 (F)	11-12 (F)	12-1 (E)	1-2 (G)	2-3 (H)	3-4 (J)	4-5 (U)						
1	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
2	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
3	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
4	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
6	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
7	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
8	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
9	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
10	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
11	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
12	0.904	0.706	0.441	0.410	*****	0.525	0.464	0.756	0.293	0.290	0.478	0.658	1.172	*****	*****	*****	*****
13	*****	1.200	1.134	*****	0.356	0.327	0.405	0.416	0.416	0.604	0.646	1.064	1.200	*****	*****	*****	*****
14	0.044	0.305	0.285	0.369	1.094	1.091	1.040	0.795	0.685	0.654	0.788	0.906	0.800	*****	*****	*****	*****
15	0.923	0.539	0.421	0.396	0.349	0.350	0.332	0.336	0.783	0.945	0.720	0.748	1.053	*****	*****	*****	*****
16	1.095	0.781	0.787	0.702	0.671	0.419	0.505	0.341	0.324	0.617	0.885	1.769	1.171	0.450	*****	*****	*****
17	0.985	0.643	0.884	0.647	0.752	0.795	0.714	0.691	0.652	0.508	0.847	0.623	0.900	0.725	*****	*****	*****
18	0.816	0.445	0.592	0.546	0.396	0.327	0.302	0.360	0.581	0.931	0.736	0.751	1.151	0.480	*****	*****	*****
19	0.927	0.468	0.252	0.302	0.212	0.238	0.193	0.178	0.173	0.262	0.401	0.524	*****	*****	*****	*****	*****
20	0.884	0.697	0.683	0.924	0.948	0.947	0.951	1.058	1.016	0.993	*****	*****	*****	*****	*****	*****	*****
21	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
22	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
23	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
24	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
26	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
27	0.968	0.719	0.461	0.641	0.727	0.570	0.495	0.296	0.267	0.366	0.365	0.400	0.821	*****	*****	*****	*****
28	1.152	1.020	0.767	0.762	0.581	0.508	0.439	0.468	0.411	0.552	0.597	0.532	0.997	0.458	*****	*****	*****
29	1.075	0.893	0.682	0.547	0.519	0.425	0.531	0.510	0.733	0.581	0.617	0.923	1.064	0.555	*****	*****	*****
30	1.039	0.763	0.796	0.689	0.465	0.493	0.511	0.482	0.360	0.551	0.630	0.916	1.130	0.584	*****	*****	*****
31	1.132	1.022	0.775	0.724	0.706	0.778	0.466	0.439	0.235	0.227	0.260	0.551	1.106	1.491	*****	*****	*****

FREQUENCY CHARTS FOR DIFFUSE / TOTAL INSOLATION

MONTH: JUN 1978

LOCATION: K10 PLEIKAS

BASED ON HOURLY VALUES

RANGE	0	20	40	60	80	100	120	NO. OF VALUES	% OF TOTAL
.0-.1								1	0.55
.1-.2	X							3	1.65
.2-.3	XXXXX							13	7.14
.3-.4	XXXXXXXXXX							22	12.09
.4-.5	XXXXXXXXXXXX							24	13.19
.5-.6	XXXXXXXXXXXX							20	10.99
.6-.7	XXXXXXXXXX							19	10.44
.7-.8	XXXXXXXXXXXX							25	15.38
.8-.9	XXXXX							11	6.04
.9-1.	XXXXXXXXXX							17	9.34

THERE ARE 24 VALUES ABOVE 1.0 (13.19%)

RANGE	0	80	160	240	320	400	480	NO. OF VALUES	% OF TOTAL
.0-.1								1	0.55
.1-.2								4	2.20
.2-.3	XX							17	9.34
.3-.4	XXXX							39	21.03
.4-.5	XXXXXXXXXX							63	34.62
.5-.6	XXXXXXXXXXXX							83	45.40
.6-.7	XXXXXXXXXXXX							102	56.04
.7-.8	XXXXXXXXXXXX							130	71.43
.8-.9	XXXXXXXXXXXX							141	77.47
.9-1.	XXXXXXXXXXXX							158	86.61

BASED ON DAILY VALUES

RANGE	0	5	10	15	20	25	30	NO. OF VALUES	% OF TOTAL
.0-.1								0	0.00
.1-.2								0	0.00
.2-.3								0	0.00
.3-.4								0	0.00
.4-.5	XXXX							4	50.00
.5-.6	XXX							3	37.50
.6-.7								0	0.00
.7-.8	X							1	12.50
.8-.9								0	0.00
.9-1.								0	0.00

MONTHLY WEATHER DATA

MONTH: AUG 1978

LOCATION: RIO PIEURAS

TOTAL INSOLATION IN BTU/FT**2

DAY	HOUR												TOTAL	
	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6		6-7
1	10.40	81.40	120.50	107.20	133.60	86.50	42.90	65.20	61.00	123.40	61.70	35.20	19.60	958.6
2	14.50	73.60	100.90	182.00	218.80	237.60	258.40	261.70	209.50	206.20	116.60	29.80	15.10	1963.9
3	4.20	10.90	62.30	89.80	126.80	144.20	148.00	159.20	135.30	98.10	43.20	26.00	15.00	1073.4
4	9.80	59.20	98.60	118.70	154.30	203.50	214.60	229.30	220.40	209.60	119.90	42.10	7.70	1687.7
5	14.00	70.80	138.70	195.30	262.60	294.90	250.50	233.50	247.00	227.30	106.60	57.80	8.00	2189.8
6	14.70	73.10	111.70	184.10	250.20	270.20	291.20	230.30	243.80	208.40	155.60	52.80	5.60	2099.7
7	14.30	76.90	146.80	150.90	96.90	98.30	110.90	35.90	23.10	71.80	53.50	25.90	6.10	919.3
8	14.20	79.50	142.50	227.10	281.70	305.50	308.90	283.90	179.20	165.20	96.90	44.80	3.70	2134.8
9	14.50	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	4.30	*****
10	11.00	77.90	135.40	157.80	229.20	257.80	267.70	284.10	252.80	206.40	139.10	59.90	8.00	2086.3
11	11.70	57.70	107.00	206.80	230.80	297.10	303.20	292.30	259.80	218.80	150.20	70.80	12.00	2224.6
12	14.80	80.50	75.30	165.50	251.10	287.70	314.90	296.50	247.60	213.60	148.60	41.50	12.80	2148.2
13	10.80	74.60	143.80	116.20	237.90	276.20	267.80	306.30	240.40	175.80	155.10	72.60	10.50	2196.0
14	7.90	30.10	127.70	194.20	257.70	163.20	187.60	83.10	71.20	35.10	20.60	23.30	3.40	1213.1
15	10.40	88.30	106.90	100.30	209.80	267.80	270.50	253.20	218.40	175.00	76.40	29.10	4.20	1906.1
16	5.20	41.40	28.40	51.40	20.90	9.50	8.20	19.70	23.30	32.40	20.90	8.20	1.30	270.8
17	19.60	30.90	57.80	117.40	75.70	98.80	205.20	126.20	37.70	36.80	42.20	25.10	7.30	881.9
18	14.50	71.80	125.80	147.30	237.70	114.80	155.30	137.70	51.10	30.10	55.20	26.60	3.10	1171.8
19	16.80	81.10	145.90	109.40	287.90	111.70	63.70	159.10	142.20	94.10	104.90	13.30	4.60	1254.7
20	12.40	64.80	137.20	164.80	255.10	281.20	295.10	266.50	247.10	195.00	91.50	26.80	6.90	2084.2
21	11.30	44.20	89.80	93.80	126.40	216.80	214.70	240.00	199.20	129.10	57.00	43.30	3.40	1468.2
22	10.60	64.70	135.80	150.10	156.90	102.40	213.80	287.90	256.80	191.70	129.80	60.30	7.80	1828.8
23	10.80	64.90	134.70	172.50	154.80	199.50	234.50	159.70	153.60	151.00	84.40	37.50	8.40	1566.1
24	10.80	66.90	142.10	196.50	249.80	284.70	298.40	267.90	245.70	197.00	131.20	60.20	6.30	2180.7
25	12.60	73.20	131.20	185.40	220.70	202.10	291.80	302.40	267.70	230.30	94.20	42.40	3.70	2137.7
26	11.80	49.90	149.20	200.70	239.80	274.20	303.80	285.40	233.00	101.00	124.00	15.20	2.10	2069.3
27	11.70	75.40	111.10	83.10	103.70	136.10	149.60	190.20	167.00	189.10	130.60	31.00	5.60	1384.2
28	10.50	65.20	137.50	210.90	263.30	299.90	284.40	220.40	174.40	125.80	87.20	47.80	5.60	1932.9
29	10.80	62.90	135.20	176.40	173.30	282.10	302.10	286.20	249.60	194.70	113.70	43.70	5.50	2035.4
30	10.40	66.60	139.10	199.50	194.00	236.20	276.20	102.20	17.40	26.60	*****	*****	*****	*****
31	11.60	73.70	147.70	194.80	110.40	181.90	263.60	260.20	247.00	100.10	52.70	34.30	3.60	1680.6

MEAN	12.13	64.18	119.79	152.89	192.13	209.39	227.23	214.62	183.89	152.21	95.35	38.91	7.11	1676.8
STD D	3.39	16.34	30.92	45.42	69.43	84.78	85.73	84.48	81.81	64.41	40.61	16.60	4.27	206.3
MIN	4.20	18.90	28.40	51.40	20.90	9.50	8.20	19.70	23.10	30.10	20.60	8.20	1.30	244.5
MAX	19.60	88.30	149.20	227.10	281.70	305.50	314.90	306.30	267.70	230.30	155.60	72.60	19.60	2438.4

MONTHLY TOTAL SOLAR INSOLATION IN BTU/FT**2 VS. HOUR

MONTH: AUG 1978		LOCATION: RIO PIEDRAS						
0.00	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
350.00								
341.03								
332.05								
323.06								
314.10								
305.13								
296.15								
287.16								
278.21								
269.23								
260.26								
251.28								
242.31								
233.33								
224.36								
215.38								
206.41								
197.44								
188.46								
179.49								
170.51								
161.54								
152.56								
143.59								
134.62								
125.64								
116.67								
107.69								
98.72								
89.74								
80.77								
71.79								
62.82								
53.85								
44.87								
35.90								
26.92								
17.95								
8.97								
0.00								

0.00 3.00 6.00 9.00 12.00 15.00 18.00 21.00 24.00
 (+) MAXIMUM VALUE (M) MEAN VALUE (-) MINIMUM VALUE

MONTHLY WEATHER DATA

MONTH: AUG. 1970

LOCATION: RIO PIEDRAS

TOTAL / EXTRATERRESTRIAL INSOLATION

DAY	HOUR (CODE)												DAILY VALUE	
	6m7 (A)	7m8 (B)	8m9 (C)	9m10 (D)	10m11 (E)	11m12 (F)	12m1 (N)	1m2 (G)	2m3 (H)	3m4 (I)	4m5 (J)	5m6 (K)		6m7 (L)
1	0.250	0.589	0.563	0.351	0.366	0.220	0.103	0.162	0.168	0.405	0.272	0.258	0.492	0.285
2	0.352	0.534	0.617	0.595	0.599	0.591	0.623	0.651	0.576	0.670	0.515	0.214	0.385	0.583
3	0.103	0.137	0.273	0.294	0.347	0.358	0.350	0.396	0.372	0.323	0.191	0.207	0.388	0.319
4	0.242	0.431	0.432	0.368	0.422	0.517	0.517	0.571	0.606	0.690	0.531	0.313	0.203	0.502
5	0.349	0.516	0.609	0.639	0.719	0.732	0.604	0.581	0.679	0.749	0.402	0.431	0.214	0.620
6	0.370	0.534	0.490	0.602	0.707	0.671	0.701	0.573	0.670	0.687	0.692	0.395	0.153	0.625
7	0.364	0.563	0.645	0.520	0.265	0.244	0.267	0.009	0.064	0.237	0.230	0.195	0.169	0.274
8	0.416	0.583	0.626	0.743	0.771	0.758	0.744	0.707	0.493	0.546	0.431	0.339	0.105	0.637
9	0.376	0.574	0.596	0.514	0.627	0.640	0.645	0.707	0.696	0.683	0.624	0.458	0.236	0.620
10	0.288	0.426	0.471	0.676	0.651	0.737	0.730	0.728	0.716	0.722	0.675	0.544	0.362	0.666
11	0.309	0.447	0.332	0.541	0.607	0.714	0.758	0.738	0.738	0.709	0.670	0.321	0.370	0.644
12	0.291	0.552	0.634	0.707	0.650	0.685	0.645	0.763	0.685	0.584	0.701	0.564	0.332	0.658
13	0.215	0.203	0.563	0.635	0.704	0.405	0.452	0.207	0.197	0.117	0.093	0.182	0.110	0.364
14	0.505	0.656	0.471	0.590	0.573	0.664	0.671	0.631	0.603	0.583	0.347	0.229	0.139	0.573
15	0.144	0.388	0.125	0.168	0.057	0.024	0.020	0.049	0.064	0.108	0.095	0.065	0.044	0.081
16	0.540	0.231	0.252	0.304	0.207	0.245	0.494	0.315	0.104	0.130	0.193	0.200	0.256	0.266
17	0.410	0.537	0.556	0.402	0.650	0.285	0.374	0.344	0.142	0.101	0.253	0.214	0.112	0.353
18	0.479	0.607	0.645	0.358	0.568	0.277	0.153	0.397	0.394	0.316	0.483	0.100	0.170	0.379
19	0.357	0.405	0.607	0.539	0.697	0.697	0.711	0.666	0.606	0.655	0.422	0.219	0.263	0.610
20	0.329	0.332	0.394	0.307	0.345	0.530	0.517	0.600	0.553	0.434	0.264	0.356	0.134	0.444
21	0.311	0.407	0.601	0.492	0.429	0.254	0.668	0.720	0.714	0.646	0.603	0.499	0.316	0.554
22	0.320	0.490	0.597	0.565	0.423	0.495	0.566	0.400	0.428	0.510	0.394	0.313	0.352	0.476
23	0.323	0.506	0.638	0.644	0.736	0.716	0.720	0.671	0.685	0.667	0.615	0.507	0.273	0.663
24	0.301	0.555	0.502	0.600	0.604	0.700	0.704	0.758	0.747	0.781	0.443	0.360	0.166	0.651
25	0.336	0.379	0.463	0.650	0.656	0.681	0.734	0.716	0.651	0.615	0.585	0.130	0.097	0.631
26	0.361	0.574	0.494	0.273	0.284	0.338	0.361	0.477	0.467	0.644	0.619	0.260	0.269	0.423
27	0.320	0.490	0.612	0.692	0.721	0.745	0.688	0.554	0.489	0.430	0.415	0.417	0.279	0.592
28	0.315	0.481	0.602	0.579	0.475	0.701	0.731	0.720	0.700	0.667	0.543	0.385	0.285	0.624
29	0.332	0.511	0.620	0.655	0.531	0.587	0.669	0.257	0.049	0.091	0.091	0.091	0.091	0.091
30	0.306	0.572	0.662	0.640	0.303	0.453	0.638	0.655	0.694	0.343	0.253	0.305	0.194	0.517
31														
MEAN	0.337	0.470	0.529	0.524	0.526	0.520	0.540	0.536	0.510	0.509	0.436	0.310	0.237	0.505
STD D	0.094	0.121	0.137	0.149	0.190	0.210	0.207	0.211	0.227	0.215	0.185	0.131	0.109	0.156
MIN	0.103	0.137	0.125	0.160	0.057	0.024	0.020	0.049	0.064	0.101	0.093	0.065	0.044	0.081
MAX	0.548	0.656	0.663	0.743	0.771	0.758	0.758	0.763	0.747	0.781	0.701	0.564	0.492	0.666

FREQUENCY CHARTS FOR TOTAL / EXTRA TERRESTIAL INSULATION

MONTH: AUG 1978

LOCATION: RIO PIEDRAS

BASED ON HOURLY VALUES

REGULAR

RANGE	0	20	40	60	80	100	120	NO. OF VALUES	% OF TOTAL
0-.1	XXXXXXXX							14	3.59
1-.2	XXXXXXXXXXXXXXXXXXXX							34	8.72
2-.3	XXXXXXXXXXXXXXXXXXXX							46	11.79
3-.4	XXXXXXXXXXXXXXXXXXXX							66	16.92
4-.5	XXXXXXXXXXXXXXXXXXXX							46	11.79
5-.6	XXXXXXXXXXXXXXXXXXXX							59	15.13
6-.7	XXXXXXXXXXXXXXXXXXXX							81	20.77
7-.8	XXXXXXXXXXXXXXXXXXXX							44	11.28
8-.9								0	0.00
9-1.								0	0.00

CUMULATIVE

RANGE	0	80	160	240	320	400	480	NO. OF VALUES	% OF TOTAL
0-.1	X							14	3.59
1-.2	XXXXXX							48	12.31
2-.3	XXXXXXXXXX							94	24.10
3-.4	XXXXXXXXXXXXXXXXXXXX							160	41.03
4-.5	XXXXXXXXXXXXXXXXXXXX							206	52.82
5-.6	XXXXXXXXXXXXXXXXXXXX							265	67.95
6-.7	XXXXXXXXXXXXXXXXXXXX							346	88.72
7-.8	XXXXXXXXXXXXXXXXXXXX							390	100.00
8-.9	XXXXXXXXXXXXXXXXXXXX							390	100.00
9-1.	XXXXXXXXXXXXXXXXXXXX							390	100.00

BASED ON DAILY VALUES

REGULAR

CUMULATIVE

RANGE	0	5	10	15	20	30	NO. OF VALUES	% OF TOTAL
0-.1	X						1	3.45
1-.2							0	0.00
2-.3	XXX						3	10.34
3-.4	XXXX						4	13.79
4-.5	XXX						3	10.34
5-.6	XXXXXX						6	20.69
6-.7	XXXXXXXXXXXX						12	41.38
7-.8							0	0.00
8-.9							0	0.00
9-1.							0	0.00

MONTHLY WEATHER DATA

MONTH: AUG 1978

LOCATION: RIO PIEDRAS

DIFFUSE INSOLATION IN BTU/FT**2

DAY	HOUR												TOTAL	
	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6		6-7
1	11.01	51.55	62.80	91.60	120.27	90.27	47.19	71.51	66.07	88.81	55.05	37.39	19.12	812.6
2	*****	*****	*****	95.95	111.56	131.16	127.53	118.82	91.84	67.40	47.67	32.07	17.30	*****
3	*****	21.05	63.77	87.60	103.70	130.56	150.77	155.97	125.36	99.58	47.67	28.19	16.82	*****
4	10.65	50.94	88.57	121.36	158.63	185.25	198.92	194.81	165.53	110.59	97.16	36.66	*****	*****
5	13.91	40.90	66.19	80.95	88.45	114.34	109.14	117.25	110.59	106.36	73.57	45.01	*****	*****
6	13.31	35.82	68.74	88.21	88.09	85.79	85.67	100.67	57.23	46.58	39.81	30.81	*****	*****
7	10.89	23.35	45.01	76.96	60.02	62.64	87.24	39.32	26.14	71.99	53.97	29.28	*****	*****
8	13.31	27.10	39.32	69.33	53.84	50.89	64.37	91.84	100.07	108.05	76.71	42.71	*****	*****
9	11.06	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	21.17	*****	*****
10	12.10	37.15	50.34	75.02	107.21	107.21	116.16	100.19	89.66	63.28	52.03	33.88	9.20	853.4
11	12.70	39.69	68.97	89.54	106.24	78.66	64.73	66.55	66.43	64.73	55.05	36.78	11.25	753.3
12	14.28	37.27	68.98	89.78	77.92	65.70	53.12	48.52	45.13	40.17	52.15	38.13	9.48	628.6
13	9.56	26.98	44.89	54.09	74.41	71.15	64.01	52.03	59.41	125.60	35.33	45.50	11.86	674.8
14	9.20	32.91	49.97	79.50	112.65	107.81	106.36	89.54	75.75	38.11	22.51	23.47	*****	*****
15	10.75	65.58	88.45	97.28	92.56	93.65	94.50	102.97	101.76	101.40	61.95	25.29	*****	*****
16	*****	*****	*****	*****	23.35	*****	*****	22.02	25.45	35.33	23.23	*****	*****	*****
17	10.15	38.31	60.98	110.22	76.96	104.79	170.23	128.74	40.41	41.62	*****	28.19	*****	*****
18	13.07	27.71	41.74	94.50	118.58	101.03	150.52	130.56	56.99	33.52	53.97	29.28	*****	*****
19	13.67	34.73	34.48	71.27	113.26	68.97	58.93	94.14	*****	*****	*****	*****	*****	*****
20	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
21	*****	*****	*****	*****	122.81	182.35	168.55	115.43	143.63	93.90	50.81	32.91	*****	*****
22	10.53	38.94	56.07	83.61	93.63	83.13	112.29	107.08	97.89	72.48	58.84	38.48	8.83	862.2
23	10.77	38.60	56.39	80.83	99.22	119.55	130.07	109.38	108.78	97.16	66.07	31.46	9.32	957.6
24	10.28	37.15	51.79	72.48	89.38	98.51	86.15	81.43	72.24	57.23	46.10	29.77	6.53	731.0
25	9.80	27.10	55.30	74.05	82.16	73.20	55.42	37.27	37.63	56.75	50.21	36.06	*****	*****
26	9.92	26.01	39.69	59.41	81.80	83.97	85.91	86.03	81.80	54.33	44.53	15.25	*****	*****
27	10.77	34.00	63.16	79.25	102.73	134.31	146.77	159.60	140.24	115.19	63.77	26.26	6.41	1082.5
28	10.41	39.08	58.32	75.87	76.23	87.97	108.66	109.02	100.31	80.95	58.32	33.52	*****	*****
29	10.28	38.48	64.61	82.16	101.28	87.85	77.92	73.57	68.36	57.84	49.25	28.92	*****	*****
30	9.56	32.67	55.66	77.80	105.27	102.24	87.24	51.18	19.48	29.04	*****	*****	*****	*****
31	7.86	21.17	26.86	38.36	82.76	84.09	84.82	67.52	56.14	47.31	32.07	20.69	*****	*****

MEAN	11.33	37.93	57.80	79.58	96.77	92.50	91.17	88.48	82.87	80.52	53.78	34.40	10.22	817.3
STD D	1.45	6.39	7.84	11.66	14.63	23.57	36.26	34.86	29.31	28.20	9.22	5.80	3.80	73.0
MIN	9.56	26.98	44.89	54.09	74.41	65.70	47.19	48.52	45.13	40.17	35.33	26.26	6.41	524.7
MAX	14.28	51.55	68.97	91.60	120.27	134.31	146.77	159.60	140.24	125.60	66.07	45.50	19.12	1183.9

MONTHLY DIFFUSE INSOLATION IN 8TU/FT*2 VS. HOUR

MONTH: AUG 1976	0.00	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
350.00									
341.03									
332.05									
323.08									
314.10									
305.13									
296.15									
287.18									
278.21									
269.23									
260.26									
251.28									
242.31									
233.33									
224.36									
215.38									
206.41									
197.44									
188.46									
179.49									
170.51									
161.54									
152.56									
143.59									
134.62									
125.64									
116.67									
107.69									
98.72									
89.74									
80.77									
71.79									
62.82									
53.85									
44.87									
35.90									
26.92									
17.95									
8.97									
0.00									

LOCATION: RIO PIEDRAS

0.00 3.00 6.00 9.00 12.00 15.00 18.00 21.00 24.00
 (+) MAXIMUM VALUE (M) MEAN VALUE (-) MINIMUM VALUE
 ATL STD TIME

MONTHLY WEATHER DATA

MONTHLY AUG 1978

LOCATION: RIO PIEURAS

DIFFUSE / TOTAL INSOLATION

DAY	HOUR (CODE)												DAILY VALUE	
	6=7 (A)	7=8 (B)	8=9 (C)	9=10 (D)	10=11 (E)	11=12 (F)	12=1 (N)	1=2 (G)	2=3 (H)	3=4 (I)	4=5 (J)	5=6 (K)		6=7 (L)
1	1.059	0.633	0.489	0.854	0.900	1.020	1.100	1.097	1.003	0.720	0.892	1.062	0.975	0.848
2	*****	*****	*****	0.527	0.510	0.552	0.494	0.454	0.438	0.327	0.409	1.106	1.146	*****
3	*****	1.114	1.024	0.976	0.818	0.905	1.016	0.980	0.927	1.015	1.104	1.007	1.121	*****
4	1.087	0.860	0.898	1.022	1.028	0.910	0.927	0.850	0.751	0.528	0.810	0.871	*****	*****
5	0.994	0.578	0.477	0.414	0.337	0.388	0.436	0.502	0.448	0.468	0.677	0.779	*****	*****
6	0.905	0.490	0.544	0.479	0.341	0.318	0.294	0.437	0.235	0.224	0.256	0.568	*****	*****
7	0.762	0.304	0.307	0.484	0.619	0.841	0.787	1.095	1.131	1.003	1.009	1.131	*****	*****
8	0.822	0.341	0.276	0.305	0.191	0.164	0.208	0.323	0.558	0.654	0.794	0.983	*****	*****
9	0.818	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	1.138	*****	*****
10	1.100	0.477	0.372	0.478	0.468	0.416	0.434	0.353	0.355	0.307	0.374	0.566	1.149	0.409
11	1.086	0.600	0.645	0.433	0.446	0.238	0.214	0.228	0.256	0.297	0.367	0.520	0.938	0.339
12	0.992	0.816	0.863	0.542	0.310	0.228	0.169	0.164	0.169	0.188	0.351	0.726	0.786	0.292
13	0.885	0.362	0.312	0.250	0.313	0.258	0.239	0.170	0.239	0.714	0.228	0.627	1.129	0.307
14	1.164	0.864	0.391	0.409	0.437	0.661	0.567	1.077	1.064	1.086	1.093	1.007	*****	*****
15	1.019	0.743	0.827	0.540	0.442	0.350	0.339	0.407	0.466	0.579	0.811	0.869	*****	*****
16	*****	*****	*****	*****	1.117	*****	*****	1.118	1.101	1.090	1.112	*****	*****	*****
17	0.926	1.046	1.070	1.007	1.017	1.061	0.869	1.020	1.072	1.073	*****	1.123	*****	*****
18	0.901	0.306	0.332	0.642	0.499	0.880	0.969	0.948	1.115	1.114	0.978	1.101	*****	*****
19	0.814	0.428	0.236	0.651	0.545	0.617	0.925	0.592	*****	*****	*****	*****	*****	*****
20	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
21	*****	*****	*****	*****	0.972	0.841	0.785	0.481	0.721	0.727	1.032	0.760	*****	*****
22	0.993	0.602	0.419	0.537	0.597	0.812	0.410	0.372	0.381	0.378	0.450	0.638	1.132	0.472
23	0.997	0.595	0.419	0.469	0.642	0.599	0.555	0.685	0.708	0.643	0.783	0.839	1.109	0.611
24	0.932	0.555	0.364	0.369	0.332	0.314	0.289	0.304	0.294	0.291	0.351	0.494	1.037	0.335
25	0.778	0.370	0.421	0.399	0.372	0.260	0.190	0.123	0.141	0.246	0.533	0.850	*****	*****
26	0.902	0.521	0.266	0.296	0.341	0.306	0.283	0.301	0.351	0.300	0.359	1.003	*****	*****
27	0.920	0.451	0.569	0.954	0.991	0.987	0.981	0.839	0.840	0.609	0.488	0.847	1.145	0.782
28	0.991	0.599	0.424	0.360	0.290	0.293	0.382	0.495	0.575	0.643	0.669	0.701	*****	*****
29	1.028	0.612	0.478	0.466	0.584	0.311	0.258	0.257	0.274	0.297	0.433	0.662	*****	*****
30	0.919	0.491	0.400	0.390	0.543	0.433	0.316	0.501	1.120	1.092	*****	*****	*****	*****
31	0.670	0.287	0.182	0.198	0.750	0.462	0.322	0.259	0.227	0.473	0.608	0.603	*****	*****
MEAN	0.998	0.553	0.494	0.545	0.555	0.541	0.488	0.468	0.480	0.461	0.476	0.702	1.045	0.480
STD D	0.073	0.103	0.173	0.225	0.251	0.324	0.337	0.330	0.318	0.208	0.219	0.185	0.124	0.210
MIN	0.605	0.362	0.312	0.250	0.310	0.228	0.169	0.164	0.169	0.188	0.228	0.494	0.786	0.292
MAX	1.100	0.688	0.863	0.954	0.991	1.020	1.100	1.097	1.083	0.720	0.892	1.062	1.149	0.840

FREQUENCY CHARTS FOR DIFFUSE / TOTAL INSOLATION

MONTH: AUG 1978

LOCATION: RIO PIEDRAS

BASED ON HOURLY VALUES

RANGE	0	20	40	60	80	100	120	NO. OF VALUES	% OF TOTAL
0-1								0	0.00
1-2	XXXXX							12	3.54
2-3	XXXXXXXXXXXXXXXXXX							35	10.32
3-4	XXXXXXXXXXXXXXXXXX							50	14.75
4-5	XXXXXXXXXXXXXXXXXX							48	14.16
5-6	XXXXXXXXXXXXXXXXXX							31	9.14
6-7	XXXXXXXXXXXXXXXXXX							25	7.37
7-8	XXXXXXXXXXXX							19	5.60
8-9	XXXXXXXXXXXXXXXXXX							27	7.96
9-10	XXXXXXXXXXXXXXXXXX							31	9.14

THERE ARE 61 VALUES ABOVE 1.0 (17.99%)

RANGE	0	80	160	240	320	400	480	NO. OF VALUES	% OF TOTAL
0-1								0	0.00
1-2	X							12	3.54
2-3	XXXXX							47	13.86
3-4	XXXXXXXXXXXX							97	28.61
4-5	XXXXXXXXXXXXXXXXXX							145	42.17
5-6	XXXXXXXXXXXXXXXXXX							176	51.92
6-7	XXXXXXXXXXXXXXXXXX							281	83.29
7-8	XXXXXXXXXXXXXXXXXX							220	64.90
8-9	XXXXXXXXXXXXXXXXXX							247	72.86
9-10	XXXXXXXXXXXXXXXXXX							278	82.01

BASED ON DAILY VALUES

RANGE	0	5	10	15	20	30	40	50	60	70	80	90	100	NO. OF VALUES	% OF TOTAL
0-1														0	0.00
1-2														0	0.00
2-3	X													1	11.11
3-4	XXX													4	44.44
4-5	XX													6	66.67
5-6														6	66.67
6-7	X													7	77.78
7-8	X													8	88.89
8-9	X													9	100.00
9-10														9	100.00

CEER R.P. Sept 78
 checked 6 Nov 78
 K.S.L.

MONTHLY WEATHER DATA

MONTH: SEP 1978

LOCATION: FIO PIEURAS

TOTAL INSULATION IN H10/FT**2

DAY	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	TOTAL
1	10.10	70.50	131.70	136.30	253.90	313.90	325.40	309.60	152.30	132.80	55.30	48.80	2.60	1946.2
2	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
3	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
4	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
6	10.00	67.40	102.10	202.00	270.90	299.10	305.20	287.40	239.30	107.90	54.90	15.40	2.60	1964.2
7	13.00	60.50	117.80	212.30	231.70	219.40	321.10	286.50	253.90	203.10	124.80	26.60	2.90	2075.8
8	11.10	71.10	147.30	176.50	183.70	289.30	133.10	274.20	138.10	5.60	7.60	11.00	1.50	1450.1
9	10.20	70.60	142.20	212.30	266.50	175.70	241.00	282.50	244.50	191.50	113.00	17.20	0.30	1967.5
10	11.40	71.80	146.70	213.20	262.50	291.80	303.60	205.00	182.40	118.30	32.30	16.30	1.00	1856.3
11	10.80	67.00	147.10	214.90	198.10	206.40	175.00	50.30	37.30	18.20	29.40	21.50	1.90	1177.9
12	6.60	20.50	142.00	168.00	160.90	231.70	23.00	63.40	121.70	108.10	79.60	27.60	1.80	1154.9
13	9.90	55.60	141.60	135.20	195.20	271.50	268.70	267.10	234.90	182.20	116.30	36.90	0.50	1923.6
14	8.30	48.30	108.60	169.70	175.50	242.20	220.90	242.00	227.70	140.50	55.70	22.70	1.60	1663.7
15	12.90	65.70	142.10	198.60	212.60	179.70	251.40	235.90	186.10	141.30	111.70	34.80	1.40	1753.8
16	3.90	49.00	82.10	207.40	235.20	219.10	153.60	182.80	67.60	45.00	95.60	45.60	1.50	1388.4
17	11.10	69.00	142.30	204.90	135.10	175.20	273.10	259.60	225.80	186.20	117.10	34.00	0.40	1833.8
18	10.00	70.20	145.40	199.60	239.60	47.40	15.30	53.70	33.00	29.30	82.90	21.90	0.60	948.9
19	4.70	32.70	128.10	119.20	224.20	230.90	115.60	154.40	102.90	65.30	59.40	22.90	0.40	1260.7
20	9.70	23.40	128.10	185.80	259.00	131.10	93.40	66.20	162.10	153.10	75.00	16.60	0.70	1304.2
21	4.60	59.50	62.60	109.30	175.00	201.50	252.20	198.40	100.90	79.10	93.50	32.80	1.50	1370.9
22	13.50	73.70	128.30	123.60	189.40	172.80	90.60	119.50	56.20	111.60	16.40	9.70	0.60	1105.9
23	9.40	64.60	125.10	211.40	92.50	26.90	37.70	*****	16.00	11.50	8.70	5.40	0.30	*****
24	2.70	44.80	143.40	180.00	218.90	92.20	*****	*****	88.80	39.00	22.40	9.00	0.20	*****
25	6.80	54.10	109.60	151.90	*****	112.70	179.30	233.20	67.40	14.20	12.40	7.30	0.70	*****
26	7.90	67.80	137.80	143.50	85.70	55.00	146.20	175.40	102.00	80.10	72.90	10.70	*****	*****
27	2.50	11.60	53.30	134.40	261.40	238.80	211.90	262.20	177.10	63.80	43.60	17.30	0.40	1478.3
28	6.80	65.30	139.70	141.10	260.70	288.00	272.30	273.00	216.50	123.60	32.70	15.40	0.40	1835.5
29	10.80	59.40	126.80	148.30	154.30	231.00	266.60	141.40	59.20	40.70	32.70	19.70	*****	*****
30	10.00	49.10	130.40	194.20	243.30	197.70	40.00	31.80	173.20	40.10	5.40	8.80	0.20	1124.7

MEAN	9.10	56.31	124.26	174.71	220.73	220.15	194.50	195.50	157.79	106.98	66.80	24.08	1.18	1551.6
STD D	3.11	18.88	27.71	36.17	40.05	63.23	100.74	94.04	70.75	59.47	34.09	11.27	0.84	192.8
MIN	2.50	11.60	53.30	109.30	135.10	47.40	15.30	31.80	33.00	5.60	5.00	8.80	0.20	459.8
MAX	13.50	73.70	147.30	214.90	270.90	313.90	325.40	309.60	253.90	203.10	124.80	48.80	2.90	2302.7

MONTHLY TOTAL SOLAR INSULATION IN BTU/FT**2 U.S. HEAT

MONTH: SEP 1978	0.00	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
	350.00	341.03	332.05	323.08	314.10	305.13	296.15	287.18	278.21
	269.23	260.26	251.28	242.31	233.33	224.36	215.38	206.41	197.44
	186.46	179.49	170.51	161.54	152.56	143.59	134.62	125.64	116.67
	107.69	98.72	89.74	80.77	71.79	62.82	53.85	44.87	35.90
	26.92	17.95	8.97	0.00					

LOCATION: PJO PIEDRAS

(S) MEAN VALUE PLUS OR MINUS STD. D. (M) MEAN VALUE

MONTHLY WEATHER DATA

MONTH: SEP 1978

LOCATION: 410 PIPHAS

TOTAL / EXTRATERRESTIAL INSULATION

Hour
(CODE)

DAY	6-7 (A)	7-8 (B)	8-9 (C)	9-10 (D)	10-11 (E)	11-12 (F)	12-1 (N)	1-2 (G)	2-3 (H)	3-4 (J)	4-5 (U)	5-6 (K)	6-7 (L)	DAILY VALUE
1	0.336	0.547	0.590	0.449	0.700	0.782	0.789	0.780	0.429	0.457	0.267	0.439	0.148	0.600
2	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
3	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
4	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	*****	*****	*****	*****	*****	0.705	0.692	0.468	0.760	0.448	0.099	0.098	0.122	*****
6	0.335	0.522	0.457	0.665	0.744	0.747	0.743	0.730	0.682	0.379	0.274	0.149	0.199	0.612
7	0.436	0.468	0.527	0.699	0.637	0.548	0.783	0.729	0.726	0.716	0.627	0.283	0.237	0.649
8	0.373	0.550	0.659	0.581	0.505	0.723	0.325	0.699	0.396	0.020	0.038	0.110	0.131	0.454
9	0.343	0.547	0.636	0.699	0.733	0.440	0.589	0.722	0.703	0.681	0.576	0.174	0.028	0.618
10	0.384	0.556	0.656	0.702	0.722	0.731	0.743	0.525	0.526	0.422	0.166	0.168	0.101	0.584
11	0.365	0.519	0.658	0.708	0.585	0.517	0.429	0.129	0.108	0.065	0.152	0.225	0.207	0.372
12	0.224	0.159	0.635	0.554	0.443	0.581	0.056	0.163	0.353	0.389	0.415	0.294	0.213	0.365
13	0.337	0.509	0.634	0.446	0.538	0.682	0.655	0.688	0.683	0.659	0.510	0.400	0.064	0.610
14	0.283	0.375	0.486	0.560	0.484	0.609	0.544	0.624	0.664	0.511	0.295	0.251	0.224	0.529
15	0.447	0.510	0.636	0.655	0.587	0.452	0.620	0.610	0.486	0.516	0.595	0.387	0.214	0.559
16	0.134	0.381	0.368	0.685	0.650	0.552	0.379	0.474	0.198	0.165	0.514	0.522	0.251	0.444
17	0.383	0.537	0.638	0.677	0.373	0.442	0.675	0.674	0.665	0.686	0.634	0.397	0.074	0.588
18	0.347	0.547	0.652	0.660	0.663	0.170	0.038	0.140	0.097	0.109	0.453	0.260	0.123	0.305
19	0.164	0.255	0.575	0.395	0.621	0.584	0.287	0.403	0.305	0.243	0.327	0.278	0.091	0.407
20	0.340	0.183	0.576	0.616	0.718	0.332	0.732	0.173	0.482	0.573	0.416	0.205	0.178	0.422
21	0.162	0.465	0.282	0.363	0.486	0.511	0.628	0.520	0.301	0.297	0.523	0.414	0.430	0.445
22	0.478	0.578	0.578	0.410	0.527	0.439	0.226	0.314	0.168	0.422	0.093	0.125	0.195	0.360
23	0.335	0.507	0.564	0.703	0.257	0.074	0.144	*****	0.048	0.044	0.049	0.071	0.111	*****
24	0.097	0.352	0.648	0.599	0.610	0.235	*****	*****	0.268	0.149	0.129	0.121	0.085	*****
25	0.246	0.426	0.497	0.506	*****	0.288	0.450	0.618	0.204	0.054	0.074	0.100	0.050	*****
26	0.288	0.536	0.624	0.479	0.240	0.141	0.368	0.466	0.310	0.309	0.425	0.150	*****	*****
27	0.092	0.092	0.242	0.449	0.732	0.612	0.534	0.699	0.540	0.247	0.257	0.248	0.276	0.490
28	0.252	0.519	0.635	0.472	0.731	0.739	0.688	0.730	0.663	0.482	0.194	0.226	0.334	0.610
29	0.403	0.473	0.577	0.497	0.434	0.594	0.676	0.379	0.182	0.160	0.196	0.298	*****	*****
30	0.377	0.392	0.595	0.652	0.685	0.510	0.102	0.085	0.534	0.158	0.036	0.135	0.257	0.377

MEAN	0.314	0.439	0.558	0.576	0.611	0.555	0.479	0.505	0.462	0.390	0.355	0.271	0.189	0.495
STD D	0.105	0.146	0.124	0.119	0.112	0.158	0.247	0.241	0.206	0.213	0.200	0.116	0.095	0.106
MIN	0.092	0.092	0.242	0.363	0.373	0.120	0.038	0.085	0.097	0.070	0.036	0.110	0.028	0.305
MAX	0.478	0.578	0.659	0.708	0.744	0.782	0.789	0.780	0.726	0.716	0.634	0.522	0.430	0.649

FREQUENCY CHARTS FOR TOTAL / EXTRATERRESTRIAL INSULATION

MONTH: SEP 1978

LOCATION: RFD FIELDS

BASED ON HOURLY VALUES

RANGE	0	20	40	60	80	100	120	NO. OF VALUES	% OF TOTAL
0-.1	XXXXXX	XXXXXXXXXX	XXXXXXXXXX					40	11.33
.1-.2	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX					45	12.75
.2-.3	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX					42	11.90
.3-.4	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX					38	10.76
.4-.5	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX					48	13.60
.5-.6	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX					56	15.86
.6-.7	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX					56	15.86
.7-.8	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX					28	7.93
.8-.9								0	0.00
.9-1.								0	0.00

CUMULATIVE

RANGE	0	80	160	240	320	400	480	NO. OF VALUES	% OF TOTAL
0-.1	XXXXX							40	11.33
.1-.2	XXXXXXXXXX							85	24.08
.2-.3	XXXXXXXXXX	XXXXXXXXXX						127	35.98
.3-.4	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX					165	46.74
.4-.5	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX				213	60.34
.5-.6	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX			269	76.20
.6-.7	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX		325	92.07
.7-.8	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	353	100.00
.8-.9	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	353	100.00
.9-1.	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	353	100.00

BASED ON DAILY VALUES

RANGE	0	5	10	15	VALUES	% OF TOTAL	0	10	20	30	NO. OF VALUES	% OF TOTAL
0-.1					0	0.00					0	0.00
.1-.2					0	0.00					0	0.00
.2-.3					0	0.00	XXXXX				5	23.81
.3-.4	XXXXX				5	23.81	XXXXXXXXXX				11	52.38
.4-.5	XXXXXX				6	28.57	XXXXXXXXXX				16	76.19
.5-.6	XXXXX				5	23.81	XXXXXXXXXX				21	100.00
.6-.7	XXXXX				5	23.81	XXXXXXXXXX				21	100.00
.7-.8					0	0.00	XXXXXXXXXX				21	100.00
.8-.9					0	0.00	XXXXXXXXXX				21	100.00
.9-1.					0	0.00	XXXXXXXXXX				21	100.00

MONTHLY WEATHER DATA

MONTH: SEP 1978

LOCATION: RIO FIEDRAS

DIFFUSE INSOLATION IN HTU/FT**2

DAY	HOUR												TOTAL	
	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6		6-7
1	8.05	25.13	41.97	74.54	81.86	78.32	56.36	61.85	55.27	55.39	36.48	33.55	3.17	612.0
2	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
3	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
4	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
6	8.78	26.96	47.09	67.59	52.34	44.77	41.24	44.41	56.97	57.34	40.75	13.30	3.17	504.7
7	9.03	29.16	62.95	66.00	70.76	61.61	48.56	54.78	43.04	43.19	44.10	23.42	3.29	561.0
8	8.30	21.72	32.09	88.33	110.65	101.63	89.91	172.39	97.84	*****	9.03	17.93	1.83	*****
9	7.20	22.94	26.47	29.89	40.87	80.52	66.86	55.14	53.14	49.65	46.24	17.57	0.37	496.9
10	8.30	22.69	25.50	28.55	30.99	31.60	42.46	67.34	63.07	71.00	36.84	17.69	1.22	447.3
11	8.17	25.38	34.65	67.83	102.48	95.28	67.10	50.51	41.72	20.74	33.06	24.40	2.32	573.6
12	6.10	16.23	41.72	63.68	86.13	82.96	27.21	65.15	110.90	96.75	61.49	29.40	2.20	689.9
13	6.78	29.28	41.60	61.85	96.82	87.60	98.40	71.86	60.51	50.87	39.41	22.20	0.91	666.6
14	9.52	40.50	66.86	79.06	109.56	107.85	122.98	107.36	82.23	89.14	54.05	25.25	1.95	906.3
15	11.83	33.18	45.51	57.22	98.09	111.51	100.77	69.78	69.91	59.41	36.23	19.03	1.71	714.2
16	*****	33.79	58.68	67.47	73.93	68.08	76.01	52.09	56.73	39.65	38.06	20.62	1.83	*****
17	7.69	22.69	29.89	56.97	86.01	101.75	89.79	54.66	44.29	34.77	24.64	13.54	0.49	567.2
18	7.56	25.62	30.50	68.44	79.18	51.36	17.69	48.56	36.72	32.21	56.36	24.28	0.73	479.2
19	5.61	26.43	58.68	83.20	119.93	119.56	87.50	76.82	70.27	60.63	58.51	20.25	0.49	788.8
20	9.39	21.72	70.76	74.79	95.65	95.65	96.75	71.49	129.32	96.62	64.90	19.28	0.65	847.2
21	*****	47.46	65.15	100.77	129.20	174.98	168.60	145.18	100.53	85.40	66.98	35.14	*****	*****
22	11.71	31.35	44.90	77.59	95.28	107.97	75.15	74.30	61.85	83.45	*****	*****	0.73	*****
23	8.05	28.91	40.63	45.63	82.96	33.06	41.85	20.86	*****	*****	*****	*****	0.37	*****
24	*****	21.84	67.47	85.40	85.64	53.44	40.87	*****	*****	*****	*****	*****	0.24	*****
25	6.71	32.43	56.85	90.28	*****	105.16	159.70	134.20	62.22	16.71	14.64	8.60	0.12	*****
26	7.56	37.82	79.67	59.54	73.32	59.90	123.34	133.10	89.55	70.52	59.54	12.81	*****	*****
27	*****	*****	56.61	97.48	66.86	96.26	101.26	75.52	78.08	56.85	48.19	20.01	*****	*****
28	5.73	22.45	29.04	71.74	46.36	47.46	51.36	34.40	34.28	37.21	34.89	17.69	*****	*****
29	10.61	39.65	44.65	51.73	71.74	76.62	79.67	76.37	63.81	44.16	36.23	22.45	*****	*****
30	10.13	35.50	45.75	65.51	75.27	96.62	39.65	33.18	46.73	38.06	*****	9.52	0.24	*****

MEAN	8.29	26.42	44.58	62.83	82.18	82.17	68.63	64.25	66.32	58.41	45.01	21.66	1.61	632.3
STD D	1.53	5.77	15.07	16.11	25.75	26.36	31.14	15.84	27.10	23.34	11.91	5.65	1.08	67.5
MIN	5.61	16.23	25.50	28.55	30.99	31.60	17.69	44.41	36.72	20.74	24.64	13.30	0.37	296.3
MAX	11.83	40.50	70.76	83.20	119.93	119.56	122.98	107.36	129.32	96.75	64.90	33.55	3.29	1003.9

MONTHLY DIFFUSE INSOLATION IN BTU/FT**2 VS. HOUR

MONTH: SEP 1978	0.00	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
350.00									
341.03									
332.05									
323.08									
314.10									
305.13									
296.15									
287.18									
278.21									
269.23									
260.26									
251.28									
242.31									
233.33									
224.36									
215.38									
206.41									
197.44									
188.46									
179.49									
170.51									
161.54									
152.56									
143.59									
134.62									
125.64									
116.67									
107.69									
98.72									
89.74									
80.77									
71.79									
62.82									
53.85									
44.87									
35.90									
26.92									
17.95									
8.97									
0.00									

0.00 3.00 6.00 9.00 12.00 15.00 18.00 21.00 24.00
 (S) MEAN VALUE PLUS OR MINUS STD D (M) MEAN VALUE
 ATL STD TIME

MONTHLY WEATHER DATA

MONTH: SEP 1978

LOCATION: RIO PIEDRES

DIFFUSE / TOTAL INSOLATION

DAY	HOUR (CODE)												DAILY VALUE	
	6-7 (A)	7-8 (B)	8-9 (C)	9-10 (D)	10-11 (E)	11-12 (F)	12-1 (G)	1-2 (H)	2-3 (I)	3-4 (J)	4-5 (K)	5-6 (L)		6-7 (L)
1	0.797	0.356	0.319	0.547	0.321	0.250	0.173	0.200	0.363	0.417	0.660	0.688	1.220	0.315
2	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
3	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
4	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
6	0.878	0.400	0.461	0.335	0.193	0.150	0.135	0.155	0.238	0.531	0.742	0.864	1.220	0.257
7	0.694	0.482	0.534	0.311	0.305	0.281	0.151	0.191	0.173	0.213	0.354	0.813	1.136	0.270
8	0.747	0.305	0.218	0.500	0.602	0.351	0.676	0.629	0.709	*****	1.188	1.176	1.220	*****
9	0.706	0.325	0.186	0.141	0.153	0.458	0.277	0.195	0.218	0.259	0.409	1.021	1.220	0.253
10	0.728	0.316	0.174	0.134	0.118	0.108	0.140	0.329	0.346	0.600	1.141	1.085	1.220	0.241
11	0.757	0.379	0.236	0.316	0.517	0.462	0.383	1.004	1.119	1.140	1.122	1.135	1.220	0.487
12	0.924	0.792	0.294	0.379	0.535	0.358	1.183	1.028	0.911	0.895	0.772	1.065	1.220	0.597
13	0.887	0.445	0.294	0.457	0.495	0.323	0.358	0.269	0.258	0.279	0.339	0.602	1.220	0.347
14	1.147	0.839	0.616	0.466	0.624	0.445	0.557	0.444	0.405	0.635	0.970	1.113	1.220	0.545
15	0.917	0.505	0.320	0.288	0.461	0.621	0.401	0.296	0.421	0.420	0.324	0.553	1.220	0.407
16	*****	0.690	0.715	0.325	0.311	0.495	0.495	0.285	0.839	0.881	0.398	0.452	1.220	*****
17	0.692	0.329	0.210	0.278	0.637	0.581	0.329	0.211	0.196	0.187	0.210	0.398	1.220	0.309
18	0.756	0.365	0.210	0.343	0.330	1.064	1.156	0.904	1.113	1.099	0.680	1.109	1.220	0.505
19	1.194	0.869	0.458	0.698	0.535	0.518	0.758	0.496	0.683	0.929	0.935	0.884	1.220	0.824
20	0.968	0.928	0.552	0.403	0.369	0.730	1.036	1.080	0.798	0.631	0.865	1.161	1.220	0.650
21	*****	0.798	1.041	0.922	0.738	0.866	0.669	0.732	0.996	1.080	0.716	1.071	*****	*****
22	0.868	0.425	0.350	0.628	0.503	0.625	0.829	0.622	1.101	0.746	*****	*****	1.220	*****
23	0.897	0.448	0.325	0.216	0.897	1.144	0.725	*****	*****	*****	*****	*****	1.220	*****
24	*****	0.487	0.470	0.474	0.391	0.580	*****	*****	*****	1.142	1.182	*****	1.220	*****
25	0.987	0.600	0.518	0.594	*****	0.933	0.891	0.575	0.923	1.177	1.134	1.187	1.220	*****
26	0.957	0.558	0.578	0.415	0.856	1.089	0.944	0.759	0.878	0.880	0.817	1.197	*****	*****
27	*****	*****	1.062	0.725	0.256	0.403	0.478	0.288	0.441	0.891	1.105	1.157	*****	*****
28	0.943	0.344	0.208	0.508	0.178	0.165	0.189	0.126	0.158	0.301	1.067	1.149	*****	*****
29	0.983	0.668	0.352	0.349	0.465	0.332	0.299	0.540	1.078	1.095	1.108	1.139	*****	*****
30	1.013	0.723	0.351	0.337	0.309	0.489	0.991	1.044	0.385	0.949	*****	1.061	1.220	*****

MEAN	0.861	0.524	0.347	0.364	0.400	0.455	0.503	0.486	0.517	0.544	0.680	0.892	1.214	0.415
STD D	0.161	0.227	0.149	0.149	0.169	0.253	0.379	0.355	0.341	0.322	0.310	0.248	0.022	0.150
MIN	0.692	0.316	0.174	0.134	0.118	0.108	0.135	0.155	0.173	0.187	0.210	0.398	1.136	0.241
MAX	1.194	0.928	0.616	0.698	0.637	1.084	1.183	1.080	1.119	1.140	1.141	1.161	1.220	0.650

FREQUENCY CHARTS FOR DIFFUSE / TOTAL INSOLATION

MONTH: SEP 1974

LOCATION: PJO PIERRES

RANGE OF HOURLY VALUES

RANGE	0	20	40	60	80	100	120	NO. OF VALUES	% OF TOTAL
0-.1	X							13	3.89
.1-.2	XXXXXXXXXX							26	7.78
.2-.3	XXXXXXXXXX							29	8.68
.3-.4	XXXXXXXXXX							42	14.37
.4-.5	XXXXXXXXXX							34	10.18
.5-.6	XXXXXXXXXX							23	6.84
.6-.7	XXXXXXXXXX							24	7.19
.7-.8	XXXXXXXXXX							24	7.19
.8-.9	XXXXXXXXXX							24	7.19
.9-1.	XXXXXXXXXX							18	5.30

RANGE OF 71 VALUES ABOVE 1.0 (21.26%)

RANGE	0	80	160	240	320	400	480	NO. OF VALUES	% OF TOTAL
0-.1	X							13	3.89
.1-.2	XXXX							39	11.68
.2-.3	XXXXXXXXXX							68	20.36
.3-.4	XXXXXXXXXX							116	34.73
.4-.5	XXXXXXXXXX							150	44.91
.5-.6	XXXXXXXXXX							173	51.80
.6-.7	XXXXXXXXXX							197	58.98
.7-.8	XXXXXXXXXX							221	66.17
.8-.9	XXXXXXXXXX							245	73.35
.9-1.	XXXXXXXXXX							263	78.74

BASED ON DAILY VALUES

RANGE	0	5	10	15	20	30	NO. OF VALUES	% OF TOTAL
0-.1							0	0.00
.1-.2							0	0.00
.2-.3	XXXX						4	28.57
.3-.4	XXX						3	21.43
.4-.5	XX						2	14.29
.5-.6	XXX						3	21.43
.6-.7	XX						2	14.29
.7-.8							0	0.00
.8-.9							0	0.00
.9-1.							0	0.00

TOTAL / EXTRATERRESTRIAL INSULATION (HORIZONTAL AXIS)
VS. DIFFUSE / TOTAL INSULATION (VERTICAL AXIS)

MONTH: SEP 1978	0.00	0.19	0.38	0.56	0.75	0.94	1.13	1.31	1.50
1.50									
1.46									
1.42									
1.38									
1.35									
1.31									
1.27									
1.23									
1.19									
1.15									
1.12									
1.08									
1.04									
1.00									
0.96									
0.92									
0.88									
0.85									
0.81									
0.77									
0.73									
0.69									
0.65									
0.62									
0.58									
0.54									
0.50									
0.46									
0.42									
0.38									
0.35									
0.31									
0.27									
0.23									
0.19									
0.15									
0.12									
0.09									
0.04									
0.00									

LOCATION: RIO PIEDRAS

FOR LETTER CURVES SEE TOTAL / EXTRATERRESTRIAL INSULATION TABLE OR DIFFUSE / TOTAL INSULATION TABLE
(+) MAXIMUM VALUE CURVE POINTS (-) MINIMUM VALUE CURVE POINTS

KT: TOTAL / EXTRATERRESTRIAL *** 50 VALUES ABOVE 1.5 *** 50 VALUES WITHOUT DATA
KB: DIFFUSE / TOTAL *** 50 VALUES ABOVE 1.5 *** 69 VALUES WITHOUT DATA

MONTH: OCT 1978

MONTHLY WEATHER DATA

LOCATION: KIL BIEDRAS

TOTAL INSOLATION IN FT/FT**2

DAY	HOUR												TOTAL	
	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6		6-7
1	9.40	65.80	140.70	193.40	161.50	253.20	260.60	252.00	218.20	145.00	87.90	20.40	0.00	1808.6
2	9.00	64.50	141.00	159.90	201.50	213.80	194.70	216.30	232.10	139.70	50.00	5.20	0.10	1677.8
3	9.10	67.40	108.30	149.60	169.30	245.40	272.70	231.80	204.50	92.60	5.20	6.40	0.10	1542.4
4	13.30	62.10	138.50	203.30	240.30	230.80	71.20	270.00	224.60	104.60	60.60	14.70	0.10	1654.1
5	9.10	67.30	139.70	206.40	254.40	124.40	40.90	122.60	220.50	126.70	10.30	1.50	0.10	1323.9
6	5.70	56.30	140.90	202.80	257.00	194.10	226.70	111.70	153.30	147.10	92.90	17.80	0.00	1666.3
7	5.70	48.10	139.30	207.00	251.50	227.90	208.10	207.60	142.00	105.20	62.00	9.00	0.00	1611.5
8	8.20	65.50	136.00	208.00	167.10	238.40	191.60	203.20	168.20	132.20	62.10	3.70	0.00	1584.2
9	11.30	47.50	141.00	134.40	104.10	105.20	58.60	139.70	245.50	54.90	5.10	7.20	0.00	1055.0
10	1.00	4.50	7.20	89.40	169.00	171.60	101.50	102.90	157.50	106.50	45.80	22.50	0.00	979.8
11	9.10	26.70	105.80	162.90	122.90	228.40	259.80	245.30	186.30	98.40	77.70	18.90	0.00	1542.2
12	5.50	49.70	80.00	73.40	114.30	209.80	215.00	146.00	172.40	132.20	79.20	29.10	0.00	1306.6
13	4.00	12.50	102.20	81.60	90.40	97.70	264.00	229.80	155.60	151.90	104.40	14.00	0.00	1308.1
14	5.60	30.40	46.00	180.00	252.70	207.40	149.60	94.30	120.90	78.80	41.10	10.80	0.00	1217.8
15	8.00	64.10	145.40	144.80	159.70	257.10	226.50	163.10	81.20	89.20	21.50	6.60	0.00	1367.2
16	8.00	60.20	130.90	190.20	189.40	159.30	204.90	116.70	165.70	124.40	14.30	2.20	0.00	1366.7
17	7.50	63.00	134.60	196.90	228.00	274.00	131.30	126.20	149.80	70.00	77.60	5.70	0.00	1414.6
18	7.60	63.90	134.80	177.50	237.10	216.40	298.10	229.40	158.00	120.00	84.40	21.00	0.00	1757.2
19	8.10	63.90	131.80	180.80	178.00	266.80	274.70	254.00	209.90	132.30	79.60	16.60	0.00	1800.5
20	6.70	63.50	128.40	170.00	220.50	267.00	266.30	223.10	201.30	130.00	74.50	13.70	0.00	1760.0
21	6.30	57.20	126.10	147.60	212.40	241.40	275.20	253.40	209.80	139.90	64.30	18.30	0.00	1751.9
22	3.80	35.80	51.60	100.80	178.30	130.40	175.90	145.00	149.80	91.50	57.00	9.70	0.00	1129.6
23	4.40	20.10	26.70	81.00	109.80	143.30	94.60	71.90	53.50	10.50	6.90	2.20	0.00	624.9
24	5.30	40.00	74.30	96.90	107.30	148.20	102.20	71.20	62.70	66.20	35.00	7.40	0.00	816.7
25	2.30	13.20	60.20	50.40	52.80	49.70	63.00	64.80	66.70	61.20	35.50	5.50	0.00	525.3
26	0.00	0.80	4.70	19.00	42.40	49.90	59.10	37.40	40.20	11.90	1.80	0.10	0.00	277.3
27	2.00	15.30	31.70	60.70	62.30	42.50	59.60	29.60	44.50	21.30	19.60	3.30	0.00	392.6
28	2.30	16.40	55.40	90.70	67.80	168.60	262.00	192.40	86.90	63.40	34.90	10.10	0.00	1050.9
29	3.80	62.00	97.20	195.00	139.70	159.80	165.70	110.90	10.50	30.00	42.10	5.30	0.00	962.0
30	5.70	55.50	124.90	180.70	252.10	240.70	85.40	73.40	47.60	51.90	28.80	5.80	0.00	1152.5
31	7.00	44.00	85.60	28.50	24.00	174.60	63.30	78.40	127.40	103.10	44.40	1.50	0.00	781.8
MEAN	6.28	45.40	100.35	140.76	162.51	183.38	169.84	155.62	144.10	94.83	48.60	10.23	0.01	1261.9
STD D	3.02	21.49	44.38	58.46	71.44	65.35	85.45	72.59	66.44	41.72	29.42	7.45	0.03	186.8
MIN	0.00	0.80	4.70	19.00	24.00	42.50	40.00	29.80	10.50	10.50	1.80	0.10	0.00	144.6
MAX	13.30	67.40	145.40	208.00	260.30	266.80	298.10	270.00	245.50	151.90	104.40	29.10	0.10	2080.3

MONTHLY TOTAL SOLAR INSOLATION FOR STATION#2 VS. HOUR

MONTH: OCT 1978	0.00	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
350.00									
341.03									
332.05									
323.08									
314.10									
305.13									
296.15									
287.18									
278.21									
269.23									
260.26									
251.28									
242.31									
233.33									
224.36									
215.38									
206.41									
197.44									
188.46									
179.49									
170.51									
161.54									
152.56									
143.59									
134.62									
125.64									
116.67									
107.69									
98.72									
89.74									
80.77									
71.79									
62.82									
53.85									
44.87									
35.90									
26.92									
17.95									
8.97									
0.00									

(+) MAXIMUM VALUE (M) MEAN VALUE (-) MINIMUM VALUE
 ATL STD TIME 12.00 15.00 18.00 21.00 24.00

MONTHLY TOTAL SOLAR INSULATION IN BTU/FT**2 VS. HOUR

MONTH: OCT 1978	0.00	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
350.00									
341.03									
332.05									
323.08									
314.10									
305.13									
296.15									
287.18									
278.21									
269.23									
260.26									
251.28									
242.31									
233.33									
224.36									
215.38									
206.41									
197.44									
188.46									
179.49									
170.51									
161.54									
152.56									
143.59									
134.62									
125.64									
116.67									
107.69									
98.72									
89.74									
80.77									
71.79									
62.82									
53.85									
44.87									
35.90									
26.92									
17.95									
8.97									
0.00									

0.00 3.00 6.00 9.00 12.00 15.00 18.00 21.00 24.00
 (S) MEAN VALUE PLUS OR MINUS STD D (M) MEAN VALUE
 ATL STD TIME

MONTHLY TOTAL SOLAR INSOLATION IN ATU/FT**2 VS. HOUR

MONTH: OCT 1978	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
350.00								
341.03								
332.05								
323.08								
314.10								
305.13								
296.15								
287.18								
278.21								
269.23								
260.26								
251.28								
242.31								
233.33								
224.36								
215.38								
206.41								
197.44								
188.46								
179.49								
170.51								
161.54								
152.56								
143.59								
134.62								
125.64								
116.67								
107.69								
98.72								
89.74								
80.77								
71.79								
62.82								
53.85								
44.87								
35.90								
26.92								
17.95								
8.97								
0.00								

=====
 0.00 3.00 6.00 9.00 12.00 15.00 18.00 21.00 24.00
 (S) MEAN VALUE PLUS OR MINUS STD D (M) MEAN VALUE
 ATU/FT**2 VS. HOUR

MONTHLY WEATHER DATA

MONTH: OCT 1978

LOCATION: FJO PIEPPAS

TOTAL / EXTRATERRESTIAL INSULATION

DAY	HOUR (C.O.F.)												DAILY VALUE	
	6-7 (A)	7-8 (B)	8-9 (C)	9-10 (D)	10-11 (E)	11-12 (F)	12-1 (N)	1-2 (G)	2-3 (H)	3-4 (J)	4-5 (M)	5-6 (K)		6-7 (L)
1	0.358	0.527	0.643	0.651	0.455	0.654	0.664	0.680	0.676	0.574	0.536	0.326	0.000	0.668
2	0.346	0.518	0.646	0.539	0.569	0.553	0.497	0.585	0.721	0.556	0.308	0.084	0.220	0.549
3	0.353	0.543	0.497	0.505	0.479	0.636	0.698	0.629	0.638	0.371	0.032	0.105	0.495	0.529
4	0.522	0.503	0.637	0.684	0.738	0.600	0.144	0.735	0.704	0.421	0.379	0.248	0.845	0.542
5	0.361	0.547	0.644	0.700	0.723	0.324	0.105	0.335	0.693	0.513	0.065	0.026	0.720	0.452
6	0.229	0.459	0.652	0.689	0.732	0.507	0.585	0.306	0.484	0.599	0.592	0.315	0.000	0.550
7	0.232	0.394	0.646	0.705	0.718	0.597	0.570	0.570	0.450	0.431	0.399	0.164	0.000	0.554
8	0.338	0.538	0.632	0.710	0.478	0.626	0.497	0.560	0.535	0.544	0.403	0.069	0.000	0.547
9	0.472	0.395	0.657	0.460	0.299	0.277	0.153	0.386	0.785	0.227	0.033	0.138		0.366
10	0.042	0.037	0.034	0.307	0.486	0.453	0.265	0.285	0.505	0.443	0.302	0.450		0.341
11	0.392	0.223	0.496	0.561	0.354	0.604	0.679	0.683	0.600	0.412	0.518	0.381		0.539
12	0.240	0.416	0.376	0.253	0.330	0.556	0.564	0.408	0.558	0.556	0.532	0.602		0.458
13	0.178	0.105	0.482	0.282	0.262	0.260	0.694	0.644	0.505	0.642	0.706	0.297		0.461
14	0.253	0.257	0.218	0.625	0.734	0.553	0.395	0.205	0.394	0.335	0.281	0.235		0.431
15	0.367	0.545	0.691	0.504	0.465	0.687	0.599	0.460	0.266	0.381	0.148	0.147		0.486
16	0.374	0.515	0.624	0.664	0.553	0.427	0.544	0.330	0.545	0.535	0.100	0.050		0.487
17	0.357	0.542	0.644	0.689	0.668	0.602	0.349	0.358	0.494	0.303	0.545	0.134		0.507
18	0.369	0.553	0.648	0.623	0.697	0.589	0.796	0.654	0.324	0.552	0.598	0.506		0.632
19	0.401	0.557	0.636	0.637	0.525	0.721	0.746	0.726	0.694	0.578	0.568	0.410		0.650
20	0.338	0.557	0.622	0.601	0.652	0.710	0.715	0.640	0.673	0.571	0.537	0.347		0.638
21	0.325	0.505	0.613	0.523	0.630	0.656	0.741	0.729	0.704	0.617	0.467	0.474		0.638
22	0.200	0.318	0.252	0.359	0.530	0.356	0.475	0.419	0.504	0.406	0.417	0.258		0.313
23	0.237	0.180	0.131	0.289	0.327	0.392	0.256	0.208	0.181	0.047	0.051	0.060		0.230
24	0.292	0.360	0.366	0.347	0.321	0.407	0.278	0.207	0.713	0.297	0.260	0.206		0.301
25	0.130	0.120	0.298	0.181	0.158	0.137	0.172	0.189	0.227	0.274	0.266	0.157		0.195
26	0.000	0.007	0.023	0.069	0.128	0.138	0.162	0.134	0.134	0.054	0.014	0.003		0.103
27	0.119	0.141	0.158	0.220	0.188	0.118	0.164	0.088	0.153	0.097	0.145	0.098		0.147
28	0.140	0.152	0.278	0.330	0.205	0.468	0.721	0.567	0.300	0.290	0.268	0.307		0.395
29	0.238	0.580	0.490	0.711	0.425	0.445	0.292	0.328	0.036	0.138	0.325	0.165		0.363
30	0.366	0.523	0.632	0.661	0.769	0.673	0.218	0.218	0.165	0.239	0.224	0.154		0.438
31	0.463	0.418	0.436	0.105	0.073	0.490	0.176	0.233	0.444	0.478	0.348	0.049		0.297
MEAN	0.291	0.388	0.478	0.490	0.473	0.401	0.449	0.438	0.468	0.403	0.335	0.226		0.447
STD D	0.123	0.180	0.206	0.200	0.206	0.173	0.224	0.200	0.209	0.172	0.196	0.156		0.147
MIN	0.000	0.007	0.023	0.069	0.073	0.118	0.105	0.088	0.036	0.047	0.014	0.003		0.103
MAX	0.522	0.580	0.691	0.711	0.769	0.721	0.796	0.735	0.785	0.642	0.708	0.602		0.650

FREQUENCY CHARTS FOR TOTAL / EXTRA-TERRESTRIAL IRRADIATION

MONTH: OCT 1978

LOCATIONS: SIO PIRCHAS

BASED ON HOURLY VALUES

REGULAR

RANGE	0	20	40	60	80	100	120	NO. OF VALUES	% OF TOTAL
0-.1	XXXXXXXXXXXXXXX							31	8.16
.1-.2	XXXXXXXXXXXXXXX							43	11.32
.2-.3	XXXXXXXXXXXXXXX							54	14.21
.3-.4	XXXXXXXXXXXXXXX							55	14.47
.4-.5	XXXXXXXXXXXXXXX							47	12.37
.5-.6	XXXXXXXXXXXXXXX							67	17.53
.6-.7	XXXXXXXXXXXXXXX							57	15.00
.7-.8	XXXXXXXXXXXXXXX							26	6.84
.8-.9	XXXXXXXXXXXXXXX							0	0.00
.9-1.	XXXXXXXXXXXXXXX							0	0.00

CUMULATIVE

RANGE	0	80	160	240	320	400	480	NO. OF VALUES	% OF TOTAL
0-.1	XXX							31	8.16
.1-.2	XXXXXXXXXX							74	19.47
.2-.3	XXXXXXXXXXXXXXX							128	33.68
.3-.4	XXXXXXXXXXXXXXX							183	48.14
.4-.5	XXXXXXXXXXXXXXX							230	60.53
.5-.6	XXXXXXXXXXXXXXX							297	78.16
.6-.7	XXXXXXXXXXXXXXX							354	93.16
.7-.8	XXXXXXXXXXXXXXX							380	100.00
.8-.9	XXXXXXXXXXXXXXX							380	100.00
.9-1.	XXXXXXXXXXXXXXX							380	100.00

BASED ON DAILY VALUES

REGULAR

RANGE	0	5	10	15	NO. OF VALUES	% OF TOTAL
0-.1					0	0.00
.1-.2	XXX				3	9.68
.2-.3	XX				2	6.45
.3-.4	XXXXX				5	16.13
.4-.5	XXXXXXXXXX				8	25.81
.5-.6	XXXXXXXXXX				8	25.81
.6-.7	XXXXX				5	16.13
.7-.8					0	0.00
.8-.9					0	0.00
.9-1.					0	0.00

CUMULATIVE

RANGE	0	20	30	NO. OF VALUES	% OF TOTAL
0				0	0.00
3	XXX			3	9.68
5	XXXXX			5	16.13
10	XXXXXXXXXX			10	32.25
18	XXXXXXXXXXXXXXX			18	56.06
26	XXXXXXXXXXXXXXX			26	83.67
31	XXXXXXXXXXXXXXX			31	100.00
31	XXXXXXXXXXXXXXX			31	100.00
31	XXXXXXXXXXXXXXX			31	100.00
31	XXXXXXXXXXXXXXX			31	100.00

MONTHLY WEATHER DATA

MONTH: OCT 1974

LOCATION: RUI PLAINS

DIFFUSE INSOLATION IN MM/FT**2

DAY	HOUR												5-7	TOTAL
	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6		
1	6.84	21.48	26.08	35.28	69.03	69.27	84.02	83.74	53.93	55.58	25.72	10.27	6.00	541.3
2	6.49	19.82	27.97	59.71	73.16	76.70	85.90	82.66	34.10	43.78	30.44	6.14	0.12	527.0
3	6.61	19.82	31.27	51.45	71.27	57.11	55.46	59.94	57.70	44.49	*****	*****	*****	*****
4	6.49	19.59	24.07	27.14	38.11	62.54	67.73	97.70	38.11	36.93	29.03	14.99	0.12	469.6
5	6.37	18.29	22.66	29.74	65.49	69.86	77.38	50.15	55.22	54.87	*****	*****	*****	*****
6	5.43	23.13	30.44	30.09	47.20	90.51	75.17	84.90	40.95	31.98	20.89	4.02	0.12	402.8
7	6.49	30.92	28.67	40.24	44.49	67.97	92.98	82.36	86.61	55.22	32.10	10.62	0.00	578.7
8	6.37	19.00	24.90	38.23	71.27	76.70	108.80	78.12	53.45	45.55	21.95	4.37	0.00	535.7
9	11.56	42.13	78.00	54.52	68.91	73.51	62.07	53.34	56.64	37.88	*****	*****	*****	*****
10	1.18	5.31	8.50	75.76	101.01	131.22	109.27	99.12	89.09	61.12	45.14	21.95	0.00	749.7
11	8.38	20.65	58.65	81.30	77.53	87.44	63.96	54.04	65.25	38.59	27.73	11.80	0.00	595.3
12	6.25	26.31	45.19	76.23	91.21	91.33	80.00	101.01	72.69	47.55	39.65	21.36	0.00	698.8
13	*****	14.40	50.27	80.12	95.58	94.52	106.91	71.63	78.23	75.52	53.45	16.52	*****	*****
14	6.14	32.45	44.60	59.71	106.32	150.69	142.07	98.88	107.14	77.88	44.25	12.63	0.00	882.8
15	6.14	19.71	40.24	63.37	77.53	81.54	87.32	91.33	65.02	55.22	23.60	*****	*****	*****
16	5.90	20.53	30.56	56.40	77.76	75.87	90.86	90.62	85.90	54.04	16.64	2.60	0.00	607.7
17	5.90	20.06	23.60	26.43	50.74	75.52	81.89	92.98	75.28	46.02	29.97	6.25	*****	*****
18	5.55	18.53	22.42	40.83	51.92	79.30	67.50	69.03	47.55	26.90	18.74	12.74	0.00	461.0
19	6.73	23.01	28.91	39.29	59.35	40.24	29.15	30.33	31.15	26.79	19.59	9.09	0.00	343.6
20	6.49	27.61	40.12	52.75	61.12	55.11	60.65	54.75	43.90	39.41	28.37	10.03	0.00	480.3
21	5.90	26.20	38.11	57.47	71.98	55.46	50.39	42.83	39.41	52.51	38.70	17.46	*****	*****
22	4.01	23.95	54.87	97.11	146.08	110.57	105.73	75.76	66.67	61.45	42.01	11.45	0.00	799.7
23	*****	22.18	29.15	84.96	115.29	136.76	100.89	78.47	59.35	*****	*****	*****	*****	*****
24	6.25	38.59	69.86	98.88	113.75	150.80	110.57	78.00	65.84	69.50	38.70	8.73	0.00	847.5
25	*****	15.22	63.96	54.28	56.88	53.81	68.68	70.09	71.27	66.91	39.18	*****	*****	*****
26	*****	*****	*****	21.00	46.02	49.68	63.96	52.27	44.72	*****	3.07	*****	*****	*****
27	2.36	16.99	34.10	65.49	67.50	46.85	64.19	32.80	48.50	24.07	22.30	3.89	0.00	429.0
28	*****	18.53	56.05	90.86	73.87	143.72	145.91	132.87	93.93	65.73	38.35	*****	*****	*****
29	4.37	35.05	36.46	35.75	67.14	70.21	65.14	58.41	12.51	28.08	28.91	5.78	*****	*****
30	4.72	20.06	27.73	55.81	75.76	72.57	62.30	60.18	44.25	42.72	31.03	6.84	0.00	506.0
31	6.37	33.51	39.41	32.92	26.43	128.86	56.91	85.20	78.94	73.51	45.78	*****	*****	*****
MEAN	5.67	22.66	34.87	57.13	76.25	95.31	83.38	73.00	59.73	45.73	29.74	10.42	0.02	584.9
STD D	1.69	7.09	14.90	21.58	27.23	31.91	25.87	21.42	23.60	15.09	9.17	5.25	0.05	81.6
MIN	1.19	5.31	8.50	27.14	38.11	40.24	29.15	30.33	31.15	24.07	16.64	2.60	0.00	254.4
MAX	8.38	38.59	69.86	97.11	146.08	150.80	142.07	101.01	107.14	77.88	46.14	21.95	0.12	1007.1

DAY	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	5-7	TOTAL
1	6.84	21.48	26.08	35.28	69.03	69.27	84.02	83.74	53.93	55.58	25.72	10.27	6.00	541.3
2	6.49	19.82	27.97	59.71	73.16	76.70	85.90	82.66	34.10	43.78	30.44	6.14	0.12	527.0
3	6.61	19.82	31.27	51.45	71.27	57.11	55.46	59.94	57.70	44.49	*****	*****	*****	*****
4	6.49	19.59	24.07	27.14	38.11	62.54	67.73	97.70	38.11	36.93	29.03	14.99	0.12	469.6
5	6.37	18.29	22.66	29.74	65.49	69.86	77.38	50.15	55.22	54.87	*****	*****	*****	*****
6	5.43	23.13	30.44	30.09	47.20	90.51	75.17	84.90	40.95	31.98	20.89	4.02	0.12	402.8
7	6.49	30.92	28.67	40.24	44.49	67.97	92.98	82.36	86.61	55.22	32.10	10.62	0.00	578.7
8	6.37	19.00	24.90	38.23	71.27	76.70	108.80	78.12	53.45	45.55	21.95	4.37	0.00	535.7
9	11.56	42.13	78.00	54.52	68.91	73.51	62.07	53.34	56.64	37.88	*****	*****	*****	*****
10	1.18	5.31	8.50	75.76	101.01	131.22	109.27	99.12	89.09	61.12	45.14	21.95	0.00	749.7
11	8.38	20.65	58.65	81.30	77.53	87.44	63.96	54.04	65.25	38.59	27.73	11.80	0.00	595.3
12	6.25	26.31	45.19	76.23	91.21	91.33	80.00	101.01	72.69	47.55	39.65	21.36	0.00	698.8
13	*****	14.40	50.27	80.12	95.58	94.52	106.91	71.63	78.23	75.52	53.45	16.52	*****	*****
14	6.14	32.45	44.60	59.71	106.32	150.69	142.07	98.88	107.14	77.88	44.25	12.63	0.00	882.8
15	6.14	19.71	40.24	63.37	77.53	81.54	87.32	91.33	65.02	55.22	23.60	*****	*****	*****
16	5.90	20.53	30.56	56.40	77.76	75.87	90.86	90.62	85.90	54.04	16.64	2.60	0.00	607.7
17	5.90	20.06	23.60	26.43	50.74	75.52	81.89	92.98	75.28	46.02	29.97	6.25	*****	*****
18	5.55	18.53	22.42	40.83	51.92	79.30	67.50	69.03	47.55	26.90	18.74	12.74	0.00	461.0
19	6.73	23.01	28.91	39.29	59.35	40.24	29.15	30.33	31.15	26.79	19.59	9.09	0.00	343.6
20	6.49	27.61	40.12	52.75	61.12	55.11	60.65	54.75	43.90	39.41	28.37	10.03	0.00	480.3
21	5.90	26.20	38.11	57.47	71.98	55.46	50.39	42.83	39.41	52.51	38.70	17.46	*****	*****
22	4.01	23.95	54.87	97.11	146.08	110.57	105.73	75.76	66.67	61.45	42.01	11.45	0.00	799.7
23	*****	22.18	29.15	84.96	115.29	136.76	100.89	78.47	59.35	*****	*****	*****	*****	*****
24	6.25	38.59	69.86	98.88	113.75	150.80	110.57	78.00	65.84	69.50	38.70	8.73	0.00	847.5
25	*****	15.22	63.96	54.28	56.88	53.81	68.68	70.09	71.27	66.91	39.18	*****	*****	*****
26	*****	*****	*****	21.00	46.02	49.68	63.96	52.27	44.72	*****	3.07	*****	*****	*****
27	2.36	16.99	34.10	65.49	67.50	46.85	64.19	32.80	48.50	24.07	22.30	3.89	0.00	429.0
28	*****	18.53	56.05	90.86	73.87	143.72	145.91	132.87	93.93	65.73	38.35	*****	*****	*****
29	4.37	35.05	36.46	35.75	67.14	70.21	65.14	58.41	12.51	28.08	28.91	5.78	*****	*****
30	4.72	20.06	27.73	55.81	75.76	72.57	62.30	60.18	44.25	42.72	31.03	6.84	0.00	506.0
31	6.37	33.51	39.41	32.92	26.43	128.86	56.91	85.20	78.94	73.51	45.78	*****	*****	*****

MONTHLY DIFFUSE INSULATION IN HOU/PI**2 VS. HOUR

MONTH: OCT 1978	0.00	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
350.00									
341.63									
332.05									
323.08									
314.10									
305.13									
296.15									
287.18									
278.21									
269.23									
260.26									
251.28									
242.31									
233.33									
224.36									
215.38									
206.41									
197.44									
188.46									
179.49									
170.51									
161.54									
152.56									
143.59									
134.62									
125.64									
116.67									
107.69									
98.72									
89.74									
80.77									
71.79									
62.82									
53.85									
44.87									
35.90									
26.92									
17.95									
8.97									
0.00									

(+) MAXIMUM VALUE (-) MINIMUM VALUE
 (N) MEAN VALUE (M) STD TIME
 0.00 3.00 6.00 9.00 12.00 15.00 18.00 21.00 24.00

MONTHLY DIFFUSE INSOLATION, 19 ATU/RT**2 VS. HOUR

MONTH: OCT 1978	0.00	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
350.00									
341.03									
332.05									
323.08									
314.10									
305.13									
296.15									
287.18									
278.21									
269.23									
260.26									
251.28									
242.31									
233.33									
224.36									
215.38									
206.41									
197.44									
188.46									
179.49									
170.51									
161.54									
152.56									
143.59									
134.62									
125.64									
116.67									
107.69									
98.72									
89.74									
80.77									
71.79									
62.82									
53.85									
44.87									
35.90									
26.92									
17.95									
8.97									
0.00									

0.00 3.00 6.00 9.00 12.00 15.00 18.00 21.00 24.00
 (S) MEAN VALUE PLUS OR MINUS STD (**) MEAN VALUE

MONTHLY WEATHER DATA

MONTH: OCT 1978

LOCATION: WILMINGTON

DIFFUSE / TOTAL INSOLATION

DAY	HOUR											DAILY VALUE	
	6-7 (A)	7-8 (B)	8-9 (C)	9-10 (D)	10-11 (E)	11-12 (F)	12-1 (N)	1-2 (G)	2-3 (H)	3-4 (I)	4-5 (J)		5-6 (K)
1	0.728	0.326	0.185	0.162	0.427	0.274	0.322	0.332	0.247	0.343	0.293	0.491	0.292
2	0.721	0.307	0.198	0.373	0.363	0.359	0.441	0.290	0.147	0.313	0.509	1.180	0.324
3	0.726	0.294	0.289	0.344	0.421	0.233	0.293	0.259	0.282	0.480	*****	*****	*****
4	0.488	0.315	0.174	0.133	0.146	0.271	0.951	0.362	0.170	0.353	0.475	1.019	0.280
5	0.700	0.272	0.162	0.144	0.257	0.562	0.669	0.409	0.250	0.433	*****	*****	*****
6	0.952	0.411	0.216	0.148	0.184	0.466	0.332	0.581	0.267	0.217	0.225	0.451	0.292
7	1.139	0.643	0.206	0.194	0.177	0.298	0.451	0.397	0.610	0.525	0.518	1.180	0.359
8	0.777	0.290	0.183	0.184	0.427	0.322	0.568	0.384	0.319	0.345	0.353	1.180	0.346
9	1.023	0.881	0.553	0.406	0.662	0.699	1.056	0.382	0.231	0.690	*****	*****	*****
10	1.180	1.180	1.180	0.847	0.598	0.765	1.077	0.963	0.566	0.574	1.007	0.958	0.765
11	0.921	0.773	0.554	0.499	0.631	0.383	0.246	0.220	0.350	0.392	0.357	0.624	0.386
12	1.137	0.529	0.565	1.039	0.798	0.435	0.372	0.692	0.422	0.360	0.501	0.734	0.535
13	*****	1.152	0.492	0.982	1.057	0.967	0.405	0.312	0.503	0.497	0.512	1.180	*****
14	1.096	1.067	0.970	0.332	0.421	0.727	0.950	1.049	0.886	0.988	1.077	1.165	0.725
15	0.767	0.307	0.277	0.438	0.485	0.317	0.386	0.560	0.801	0.610	1.098	*****	*****
16	0.738	0.341	0.233	0.297	0.411	0.476	0.483	0.777	0.518	0.434	1.163	1.180	0.435
17	0.787	0.318	0.175	0.134	0.223	0.337	0.624	0.737	0.503	0.657	0.386	1.097	*****
18	0.730	0.290	0.166	0.230	0.219	0.363	0.226	0.301	0.301	0.212	0.222	0.607	0.262
19	0.830	0.360	0.219	0.217	0.333	0.151	0.105	0.119	0.148	0.202	0.240	0.547	0.191
20	0.969	0.435	0.312	0.310	0.277	0.210	0.228	0.245	0.218	0.303	0.380	0.732	0.273
21	0.937	0.458	0.302	0.389	0.339	0.230	0.193	0.169	0.188	0.375	0.602	0.954	*****
22	1.056	0.669	1.063	0.963	0.819	0.848	0.601	0.522	0.445	0.672	0.737	1.180	0.708
23	*****	1.104	1.092	1.049	1.050	0.954	1.066	1.091	1.109	*****	*****	*****	*****
24	1.180	0.965	0.940	1.000	1.060	1.018	1.062	1.095	1.050	1.050	1.105	1.180	1.038
25	*****	1.153	1.062	1.077	1.077	1.083	1.090	1.082	1.069	1.093	1.104	*****	*****
26	*****	*****	*****	1.105	1.085	0.996	1.082	1.103	1.112	*****	1.704	*****	*****
27	1.180	1.111	1.076	1.079	1.083	1.102	1.077	1.101	1.090	1.130	1.138	1.180	1.093
28	*****	1.130	1.012	1.002	1.089	0.852	0.633	0.691	1.081	1.037	1.099	*****	*****
29	1.149	0.565	0.375	0.183	0.481	0.439	0.516	0.527	1.191	0.936	0.687	1.091	*****
30	0.828	0.361	0.222	0.309	0.300	0.301	0.730	0.220	0.930	0.862	1.075	1.180	0.439
31	0.910	0.762	0.460	1.155	1.101	0.738	1.057	1.087	0.620	0.713	1.031	*****	*****
MEAN	0.930	0.558	0.453	0.431	0.463	0.465	0.554	0.556	0.503	0.537	0.627	0.948	*****
STD D	0.194	0.294	0.359	0.333	0.275	0.267	0.316	0.316	0.334	0.294	0.335	0.270	*****
MIN	0.488	0.290	0.166	0.133	0.146	0.151	0.105	0.119	0.147	0.202	0.222	0.451	0.191
MAX	1.180	1.190	1.180	1.079	1.083	1.102	1.082	1.101	1.191	1.130	1.163	1.180	*****

FREQUENCY CHARTS FOR GIFFUSE / TITAL INSULATION

NOV 14 OCT 1978

LOCATION: 410 PIPERS

BASED ON HOURLY VALUES

RANGE	0	20	40	60	80	100	120	NO. OF VALUES	% OF TOTAL
0-.1								0	0.00
.1-.2	XXXXXXXXXXXXXX							27	7.67
.2-.3	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX						45	12.78
.3-.4	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX					54	15.34
.4-.5	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX				34	9.66
.5-.6	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX			22	6.25
.6-.7	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX		23	6.53
.7-.8	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	22	6.25
.8-.9	XXXXX							11	3.13
.9-1.	XXXXXXXXXXXXXX							22	6.25

THERE ARE 92 VALUES ABOVE 1.0 (26.14%)

RANGE	0	90	160	240	320	400	480	NO. OF VALUES	% OF TOTAL
0-.1								0	0.00
.1-.2	XXX							27	7.67
.2-.3	XXXXXXXXXX							72	20.45
.3-.4	XXXXXXXXXX	XXXXXXXXXX						126	35.40
.4-.5	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX					180	45.45
.5-.6	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX				182	51.70
.6-.7	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX			205	58.24
.7-.8	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX		227	64.49
.8-.9	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	236	67.61
.9-1.	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	260	73.86

BASED ON DAILY VALUES

RANGE	0	5	10	15	NO. OF VALUES	% OF TOTAL	0	10	20	30	NO. OF VALUES	% OF TOTAL
0-.1					0	0.00					0	0.00
.1-.2	X				1	5.56	X				1	5.56
.2-.3	XXXXX				5	27.78	XXXXXXXXXX				6	33.33
.3-.4	XXXXX				4	22.22	XXXXXXXXXXXXXX				10	55.56
.4-.5	XX				2	11.11	XXXXXXXXXXXXXX				12	66.67
.5-.6	X				1	5.56	XXXXXXXXXXXXXX				13	72.22
.6-.7					0	0.00	XXXXXXXXXXXXXX				13	72.22
.7-.8	XXX				3	16.67	XXXXXXXXXXXXXX				16	88.89
.8-.9					0	0.00	XXXXXXXXXXXXXX				16	88.89
.9-1.					0	0.00	XXXXXXXXXXXXXX				16	88.89

THERE ARE 2 VALUES ABOVE 1.0 (11.11%)

