

**July 2003**

**Global Solar Radiation on a Horizontal Surface**  
**Hourly Integrated and Daily Totals**  
**Instrument: Eppley PSP**  
**Watt-Hours per Square Meter**

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily	
1	0	0	0	0	0	11	42	74	67	105	134	320	279	368	195	282	197	102	49	12	0	0	0	0	2237	
2	0	0	0	0	0	3	15 ?	80	145	144	133	147	232	224	207	87	60 ?	67	32	8	0	0	0	0	1583	
3	0	0	0	0	0	8	23	66	115	187	344	423	552	698	515	544	380	319	130	16	0	0	0	0	4318	
4	0	0	0	0	0	29	119	335 ?	466	575	752	848	932	869	815	660	448	293	122	16	0	0	0	0	7279	
5	0	0	0	0	0	27	114	316	462	654	751	592	663	605	609	727	375	278	118	13	0	0	0	0	6303	
6	0	0	0	0	0	24	73	204	175	340	708	829	757	817	344	199	132	232	137	7	0	0	0	0	4979	
7	0	0	0	0	0	10	50	142	227	325	569	676	876	910	724	506	313	322	107	16	0	0	0	0	5774	
8	0	0	0	0	0	8	44	106	242	429	554	727	884	740	614	572	171	314	111	15	0	0	0	0	5531	
9	0	0	0	0	0	12	54	142	299	410	466	866	619 ?	?	80 ?	170	81	65	62	13	0	0	0	0	3341 ?	
10	0	0	0	0	0	8	76	282	385	690	644	561	746	770	841	565	401	178	84	20	0	0	0	0	6251	
11	0	0	0	0	0	19	52	63 ?	168	441	400	693	876	665	691	567	574	363	142	13	0	0	0	0	5725	
12	0	0	0	0	0	37	167	358	314	514	572	630	406	870	370 ?	75 ?	232 ?	164	136	26	0	0	0	0	4870 ?	
13	0	0	0	0	0	17	70	235 ?	532	711	895	810	528	788	583	408	400	224	123	19	0	0	0	0	6343	
14	0	0	0	0	0	29	151	334	525	585	489	990	852	371	573	451	341	266	70	7	0	0	0	0	6035	
15	0	0	0	0	0	19	119	319	481	597	888	966	797	707	785	397	388	282	123	18	0	0	0	0	6885	
16	0	0	0	0	0	2	28 ?	40	113	238	411	129	234	570	185	551	452	323	104	19	0	0	0	0	3399	
17	0	0	0	0	0	24	106 ?	?	481	492	663	957	901	832	849	713	534	325	123	9	0	0	0	0	7011	
18	0	0	0	0	0	22	102 ?	315 ?	450	674	770	795	669	638	557	327	119	127	88	37	0	0	0	0	5690	
19	0	0	0	0	0	11	69	287	416	523	550	782	744	831	678	594	427	267	117	24	0	0	0	0	6319	
20	0	0	0	0	0	11	64	224	489	690	874	953	893	839	816	640	471	313	112	12	0	0	0	0	7400	
21	0	0	0	0	0	24	121	300	508	708	679	608	944	930	643	349	287	171	65	13	0	0	0	0	6349	
22	0	0	0	0	0	1	32	69	218	494	461	559	676	588	376 ?	?	97 ?	69	55	26	0	0	0	0	3720 ?	
23	0	0	0	0	0	20	128	279	189	350	412	417	931	803	626	458	162 ?	294	110	8	0	0	0	0	5189	
24	0	0	0	0	0	6	64	119	364	595	571	815	756	915	876	715	365	288	113	12	0	0	0	0	6576	
25	0	0	0	0	0	23	107	267	524	701	747	619	611	814	893	591	407	190	106	12	0	0	0	0	6612	
26	0	0	0	0	0	18	120	310	505	685	840	810	731	836	862	630	495	298	89	13	0	0	0	0	7242	
27	0	0	0	0	0	18	106	304	501	541	569	719	801	913	792	608	450	184	69	18	0	0	0	0	6592	
28	0	0	0	0	0	13	47	191	154	353	369	802	756	290	515	534	414	293	101	11	0	0	0	0	4842	
29	0	0	0	0	0	2	33	94	199	164	176	93	168	95	192	309	251	79	48	8	0	0	0	0	1912	
30	0	0	0	0	0	1	18	44	60	129	191	145	323	218	464	645	456	260	80	8	0	0	0	0	3044	
31	0	0	0	0	0	8	51	102	127	193	223	159	155	166	103 ?	132	204	139	23	1	0	0	0	0	1786	
Avg	0	0	0	0	0	15	76	200	319	459	542	627	655	656	560	467	325	229	95	14	0	0	0	0	5198	
S D	0	0	0	0	0	9	41	108	163	198	226	272	247	253	250	194	144	91	32	7	0	0	0	0	1752	
S/A	0	0	0	0	0	0.63	0.54	0.54	0.51	0.43	0.42	0.43	0.38	0.39	0.45	0.41	0.44	0.4	0.34	0.48	0	0	0	0	0.34	
Min	0	0	0	0	0	1	15	40	60	105	133	93	155	95	80	75	60	65	23	1	0	0	0	0	1583	
Max	0	0	0	0	0	37	167	358	532	711	895	990	944	930	893	727	574	363	142	37	0	0	0	0	7400	
n	0	0	0	0	0	270	350	334	369	372	372	368	369	360	346	353	355	369	370	246	0	0	0	0	0	5203

Daylight Data Recovery: 0.0% missing; 2.8% exceed the 15% QC threshold -- 5352 total daylight measurements.

Instrument: Eppley PSP    Serial Number: 25821F3    Calibration Factor: 9.020 μV/W/m<sup>2</sup>    Calibration Date: 05/1998

Data & Flag	Hour Column	Day Column
<value> *	> 20% Missing	> 10% Missing
<value> ?	> 20% Fail QC	> 10% Fail QC
<blank> *	> 90% Missing	> 90% Missing
<blank> ?	> 90% Fail QC	> 90% Fail QC

Note: Daily values with a missing flag (\*) are not used in monthly statistics.

**July 2003**

**Direct Normal Solar Radiation**  
**Hourly Integrated and Daily Totals**  
**Instrument: Eppley NIP**  
**Watt-Hours per Square Meter**

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily
1	0	0	0	0	0	0	1	1	0	0	0	2	1	4	0	3	1	1	1	1	0	0	0	0	17
2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	4
3	0	0	0	0	0	0	0	0	1	2	16	27	96	185	103	218	225	386	255	0	0	0	0	0	1516
4	0	0	0	0	0	24	124	382 ?	468	324	494	529	619	571	599	555	420	353	217	0	0	0	0	0	5679
5	0	0	0	0	0	63	198	407	328	470	433	309	307	292	332	593	260	259	209	0	0	0	0	0	4459
6	0	0	0	0	0	12	2	50	2	39	218	466	265	501	98	9	0	182 ?	280	0	0	0	0	0	2125
7	0	0	0	0	0	0	1	3	15	24	297	405	627	677	477	323	282	549	129	0	0	0	0	0	3809
8	0	0	0	0	0	0	0	1	25	148	260	360	557	396	350	488	26	413	147	0	0	0	0	0	3172
9	0	0	0	0	0	0	0	7	71	204	225	619	259	0	0	1	0	0	1	0	0	0	0	0	1387
10	0	0	0	0	0	0	66	263	224	505	317	202	445	575	725	373	309	177	97	0	0	0	0	0	4277
11	0	0	0	0	0	2	1	1	13	198	112	400	615	415	516	494	801	713	371	0	0	0	0	0	4652
12	0	0	0	0	0	214	560	681	194	182	126	134	30	642	48	0	47	80	342	0	0	0	0	0	3278
13	0	0	0	0	0	2	2	155 ?	715	720	724	556	257	525	169	56	286	210	114	0	0	0	0	0	4490
14	0	0	0	0	0	91	365	564	664	510	267	790	599	79	264	341	334	390	63	0	0	0	0	0	5322
15	0	0	0	0	0	21	158	468	504	441	711	783	500	408	559	224	206	289	156	0	0	0	0	0	5428
16	0	0	0	0	0	0	0	0	1	10	165	1	2	79	4	318	252	381	257	0	0	0	0	0	1471
17	0	0	0	0	0	47	292 ?	?	714	365	501	887	758	690	870	844	771	623	361	0	0	0	0	0	7723
18	0	0	0	0	0	65	290 ?	544 ?	626 ?	598	582	439	179	177	78	12	0	0	28	0	0	0	0	0	3618
19	0	0	0	0	0	0	9	357	321	334	291	516	475	536	488	464	406	292	187	0	0	0	0	0	4676
20	0	0	0	0	0	0	0	17	530	656	782	828	684	615	710	625	552	583	272	0	0	0	0	0	6854
21	0	0	0	0	0	66	228	458	577	658	382	179	668	717	312	32	66	29	1	0	0	0	0	0	4372
22	0	0	0	0	0	0	0	1	43	135	87	83	136	117	19	0	0	1	6	0	0	0	0	0	629
23	0	0	0	0	0	64	225	341	2	37	26	108	572	495	424	266	15	283	140	0	0	0	0	0	2998
24	0	0	0	0	0	0	5	3	161	388	267	495	486	723	826	759	329	457	296	0	0	0	0	0	5195
25	0	0	0	0	0	33	249	551	664	721	596	320	305	595	839	465	387	213	257	0	0	0	0	0	6196
26	0	0	0	0	0	56	291	496	594	655	695	555	386	550	682	567	664	571	139	0	0	0	0	0	6900
27	0	0	0	0	0	27	187	445	512	301	261	396	537	668	592	502	409	87	27	0	0	0	0	0	4952
28	0	0	0	0	0	1	1	32	4	79	34	396	308	26	191	246	364	339	190	0	0	0	0	0	2212
29	0	0	0	0	0	0	0	1	3	2	1	0	1	1	2	13	19	0	0	0	0	0	0	0	43
30	0	0	0	0	0	0	0	0	0	0	1	1	13	1	44	475	388	263	42	0	0	0	0	0	1228
31	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	0	14	34	0	0	0	0	0	0	54
Avg	0	0	0	0	0	25	105	208	257	281	286	348	345	363	333	299	253	263	148	0	0	0	0	0	3508
S D	0	0	0	0	0	44	146	236	275	253	246	273	248	268	296	257	235	211	121	0	0	0	0	0	2227
S/A	0	0	0	0	0	1.74	1.39	1.14	1.07	0.9	0.86	0.78	0.72	0.74	0.89	0.86	0.93	0.8	0.82	4.42	0	0	0	0	0.63
Min	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4
Max	0	0	0	0	0	214	560	681	715	721	782	887	758	723	870	844	801	713	371	1	0	0	0	0	7723
n	0	0	0	0	0	270	365	338	366	372	372	372	372	372	372	372	372	372	368	371	246	0	0	0	5300

Daylight Data Recovery: 0.0% missing; 1.0% exceed the 15% QC threshold -- 5352 total daylight measurements.

Instrument: Eppley NIP    Serial Number: 17664E6    Calibration Factor: 8.480 μV/W/m<sup>2</sup>    Calibration Date: 05/1998

Data & Flag	Hour Column	Day Column
<value> *	> 20% Missing	> 10% Missing
<value> ?	> 20% Fail QC	> 10% Fail QC
<blank> *	> 90% Missing	> 90% Missing
<blank> ?	> 90% Fail QC	> 90% Fail QC

Note: Daily values with a missing flag (\*) are not used in monthly statistics.

**July 2003**

**Diffuse Solar Radiation (Shadow Band) on a Horizontal Surface**  
**Hourly Integrated and Daily Totals**  
**Instrument: Eppley PSP**  
**Watt-Hours per Square Meter**

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily
1	0	0	0	0	0	13	45	79	68	112	143	342	296	384	205	298	207	106	51	11	0	0	0	0	2359
2	0	0	0	0	0	3	15 ?	85	156	155	142	141	247	238	219	89	55	71	32	8	0	0	0	0	1654
3	0	0	0	0	0	9	24	70	122	198	344	418	479	551	444	411	268	183	85	17	0	0	0	0	3624
4	0	0	0	0	0	30	98	176 ?	253	347	346	372	363	359	328	265	227	174	84	17	0	0	0	0	3439
5	0	0	0	0	0	26	78	165	285	318	395	323	380	354	341	320	235	191	80	14	0	0	0	0	3504
6	0	0	0	0	0	26	76	197	188	322	523	412	506	362	264	205	142	186 ?	87	8	0	0	0	0	3506
7	0	0	0	0	0	11	50	147	227	317	316	294	287	281	326	276	177	118	86	17	0	0	0	0	2931
8	0	0	0	0	0	9	46	113	237	336	342	401	357	379	328	214	164	164	85	15	0	0	0	0	3189
9	0	0	0	0	0	14	54	147	268	257	277	299	302 ?	?	59	181	87	69	65	14	0	0	0	0	2094
10	0	0	0	0	0	8	61	180	258	323	378	387	325	240	230	290	231	114	57	20	0	0	0	0	3103
11	0	0	0	0	0	19	48	52	168	296	311	324	294	289	254	219	130	97	69	13	0	0	0	0	2584
12	0	0	0	0	0	26	60	92	185	381	469	511	394	292	149	62	144	147	73	26	0	0	0	0	3012
13	0	0	0	0	0	20	72	178 ?	127	187	281	296	288	314	436	377	250	145	103	20	0	0	0	0	3092
14	0	0	0	0	0	28	85	120	145	216	269	273	310	319	364	208	166	120	59	8	0	0	0	0	2692
15	0	0	0	0	0	21	88	143	198	269	285	247	330	340	326	235	289	177	95	18	0	0	0	0	3060
16	0	0	0	0	0	1	26	40	121	244	272	137	249	513	195	332	315	190	58	20	0	0	0	0	2714
17	0	0	0	0	0	22	69 ?	?	106	213	222	138	190	203	119	108	107	98	54	11	0	0	0	0	1660
18	0	0	0	0	0	22	67 ?	131 ?	154 ?	225	259	377	493	474	500	336	128	135	88	38	0	0	0	0	3427
19	0	0	0	0	0	11	71	163	241	275	298	304	303	349	280	274	216	162	87	25	0	0	0	0	3059
20	0	0	0	0	0	11	67	216	199	188	189	182	249	280	229	200	179	103	62	13	0	0	0	0	2367
21	0	0	0	0	0	23	77	134	173	210	346	445	322	294	383	340	258	172	68	13	0	0	0	0	3258
22	0	0	0	0	0	0	34	72	197	391	392	495	558	494	321 ?	?	88 ?	73	56	27	0	0	0	0	3198 ?
23	0	0	0	0	0	22	104	153	199	331	401	322	399	359	286	279	145	194	85	8	0	0	0	0	3286
24	0	0	0	0	0	7	67	125	253	280	329	338	297	261	200	188	204	137	62	13	0	0	0	0	2759
25	0	0	0	0	0	20	64	99	103	116	196	309	312	275	213	273	192	121	64	13	0	0	0	0	2368
26	0	0	0	0	0	18	68	106	128	148	193	263	364	344	312	248	143	96	62	14	0	0	0	0	2505
27	0	0	0	0	0	17	76	115	164	298	325	320	283	314	319	269	241	158	68	19	0	0	0	0	2985
28	0	0	0	0	0	14	50	186	160	301	353	392	445	273	353	363	202	173	67	11	0	0	0	0	3342
29	0	0	0	0	0	2	35	99	211	178	189	93	179	102	190	317	250	83	51	8	0	0	0	0	1987
30	0	0	0	0	0	1	19	48	64	140	206	156	329	232	443	321	256	174	74	8	0	0	0	0	2472
31	0	0	0	0	0	9	54	108	136	206	241	174	167	179	97	141	209	129	24	1	0	0	0	0	1876
Avg	0	0	0	0	0	15	60	125	177	251	298	306	332	322	281	255	190	137	69	15	0	0	0	0	2810
S D	0	0	0	0	0	9	22	46	58	77	90	108	93	97	105	85	64	39	18	7	0	0	0	0	559
S/A	0	0	0	0	0	0.59	0.37	0.37	0.33	0.31	0.3	0.35	0.28	0.3	0.37	0.33	0.33	0.29	0.25	0.48	0	0	0	0	0.2
Min	0	0	0	0	0	0	15	40	64	112	142	93	167	102	59	62	55	69	24	1	0	0	0	0	1654
Max	0	0	0	0	0	30	104	216	285	391	523	511	558	551	500	411	315	194	103	38	0	0	0	0	3624
n	0	0	0	0	0	257	359	337	366	372	372	372	369	360	366	358	365	368	371	246	0	0	0	0	5240

Daylight Data Recovery: 0.0% missing; 2.1% exceed the 15% QC threshold -- 5352 total daylight measurements.

Instrument: Eppley PSP    Serial Number: 17860F3    Calibration Factor: 7.010 μV/W/m<sup>2</sup>    Calibration Date: 05/1998

Data & Flag	Hour Column	Day Column
<value> *	> 20% Missing	> 10% Missing
<value> ?	> 20% Fail QC	> 10% Fail QC
<blank> *	> 90% Missing	> 90% Missing
<blank> ?	> 90% Fail QC	> 90% Fail QC

Note: Daily values with a missing flag (\*) are not used in monthly statistics.