

**December 2004**

**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	0	0	18	98	87	86	154	159	288	371	206	58	2	0	0	0	0	0	0	1529
2	0	0	0	0	0	0	0	16	185 ?	392 ?	431	488	500	448	345	202	55	0	0	0	0	0	0	0	3063 ?
3	0	0	0	0	0	0	0	14	74	221	417	493	505	455	353	205	55	0	0	0	0	0	0	0	2790
4	0	0	0	0	0	0	0	22	174 ?	383 ?	407	481	491	440	341	201	61	2	0	0	0	0	0	0	3004 ?
5	0	0	0	0	0	0	0	14	71	273	382	460	475	427	331	143	28	0	0	0	0	0	0	0	2604
6	0	0	0	0	0	0	0	7	15	32 ?	77	55	61	43 ?	?	24 ?	3	1	0	0	0	0	0	0	318 ?
7	0	0	0	0	0	0	0	11	23	46	191	171	190	366	366	210	52	3	0	0	0	0	0	0	1628
8	0	0	0	0	0	0	0	8	44	160	388	461	376	359	306	178	34	0	0	0	0	0	0	0	2315
9	0	0	0	0	0	0	0	0	9 ?	?	?	54 ?	58 ?	59 ?	37	22 ?	3	1	0	0	0	0	0	0	243 ?
10	0	0	0	0	0	0	0	5	121	134	187	308	111	108	158	182	7	1	0	0	0	0	0	0	1321
11	0	0	0	0	0	0	0	3	24	41	67	68	92	127	130	53	18	2	0	0	0	0	0	0	625
12	0	0	0	0	0	0	0	2	26	87	236	291	269	196	110	69	24	3	0	0	0	0	0	0	1313
13	0	0	0	0	0	0	0	8	56	78	167	145	114	157	107	50	11	3	0	0	0	0	0	0	895
14	0	0	0	0	0	0	0	3	45	130	191	271	132	251	172	150	21	1	0	0	0	0	0	0	1367
15	0	0	0	0	0	0	0	9	112	268	405	475	493	448	350	208	59	2	0	0	0	0	0	0	2829
16	0	0	0	0	0	0	0	8	?	?	517 ?	504	464	420	350	209	65	3	0	0	0	0	0	0	2540 ?
17	0	0	0	0	0	0	0	7	101	252	379	456	459	420	336	197	54	0	0	0	0	0	0	0	2661
18	0	0	0	0	0	0	0	9	130 ?	?	415	455	475	443	334	193	57	3	0	0	0	0	0	0	2515 ?
19	0	0	0	0	0	0	0	5	37	27 ?	89 ?	108	88	88	71	62	18	3	0	0	0	0	0	0	597
20	0	0	0	0	0	0	0	8	112	264	397	474	492	447	350	212	63	3	0	0	0	0	0	0	2822
21	0	0	0	0	0	0	0	6	21	44	85	215	220	112	66	33	17	3	0	0	0	0	0	0	822
22	0	0	0	0	0	0	0	6	97	249	383	499	423	457	166	69	29	1	0	0	0	0	0	0	2377
23	0	0	0	0	0	0	0	5	26	56 ?	53	154	105	81	56	?	5	1	0	0	0	0	0	0	541 ?
24	0	0	0	0	0	0	0	3	39	75	91	124	170	224	273	143	44	4	0	0	0	0	0	0	1189
25	0	0	0	0	0	0	0	5	54 ?	361	495 ?	451	394	449	351	206	57	1	0	0	0	0	0	0	2824 ?
26	0	0	0	0	0	0	0	5	51	144	262	398	446	119	100	58	21	2	0	0	0	0	0	0	1606
27	0	0	0	0	0	0	0	7	37	118	251	456	473	448	356	216	68	2	0	0	0	0	0	0	2431
28	0	0	0	0	0	0	0	8	121	265	315	435	476	438	346	197	47	1	0	0	0	0	0	0	2649
29	0	0	0	0	0	0	0	6	66	94	95	104	42	46	57	33	17	4	0	0	0	0	0	0	564
30	0	0	0	0	0	0	0	0	9	54	56	66	168	339	313	137	64	7	0	0	0	0	0	0	1212
31	0	0	0	0	0	0	0	4	35	155	327	401	155	93	73	88	24	2	0	0	0	0	0	0	1357
Avg	0	0	0	0	0	0	0	7	67	160	261	312	293	284	236	138	37	2	0	0	0	0	0	0	1760
S D	0	0	0	0	0	0	0	5	48	112	150	169	175	159	125	72	22	2	0	0	0	0	0	0	919
S/A	0	0	0	0	0	0	0	0.67	0.71	0.7	0.57	0.54	0.6	0.56	0.53	0.52	0.59	0.75	0	0	0	0	0	0	0.52
Min	0	0	0	0	0	0	0	0	9	27	53	54	42	43	37	22	3	0	0	0	0	0	0	0	243
Max	0	0	0	0	0	0	0	22	185	392	517	504	505	457	371	216	68	7	0	0	0	0	0	0	3063
n	0	0	0	0	0	0	0	182	327	309	350	365	368	360	358	341	369	43	0	0	0	0	0	0	3374

Daylight Data Recovery: 0.0% missing; 5.6% exceed the 15% QC threshold -- 3574 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.

**December 2004**

**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	0	93	261	0	0	1	10	191	815	777	502	109	0	0	0	0	0	0	2760
2	0	0	0	0	0	0	0	30	455	897	980	996	1002	980	919	809	531	126	0	0	0	0	0	0	7725
3	0	0	0	0	0	0	0	0	11	330	865	978	977	967	920	815	510	74	0	0	0	0	0	0	6448
4	0	0	0	0	0	0	0	61	654	834	903	941	941	902	796	744	448	60	0	0	0	0	0	0	7282
5	0	0	0	0	0	0	0	3	48	513	763	926	911	761	720	316	0	0	0	0	0	0	0	0	4960
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7	0	0	0	0	0	0	0	0	0	0	72	4	18	517	671	721	362	53	0	0	0	0	0	0	2418
8	0	0	0	0	0	0	0	0	1	169	849	748	439	300	490	327	32	7	0	0	0	0	0	0	3362
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	401	22	84	304	1	20	43	271	0	0	0	0	0	0	0	0	1145
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
12	0	0	0	0	0	0	0	0	0	0	134	144	18	2	1	0	0	0	0	0	0	0	0	0	299
13	0	0	0	0	0	0	0	0	13	1	14	12	0	5	0	0	0	0	0	0	0	0	0	0	44
14	0	0	0	0	0	0	0	0	0	3	7	62	6	95	12	69	2	0	0	0	0	0	0	0	256
15	0	0	0	0	0	0	0	0	579	857	943	978	996	983	934	831	537	163	0	0	0	0	0	0	7802
16	0	0	0	0	0	0	0	0	624	896	965 ?	951	839	851	902	773	491	157	0	0	0	0	0	0	7450
17	0	0	0	0	0	0	0	0	543	812	897	937	884	888	879	764	459	103	0	0	0	0	0	0	7167
18	0	0	0	0	0	0	0	0	452 ?	?	847	881	862	891	834	683	418	102	0	0	0	0	0	0	5969 ?
19	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
20	0	0	0	0	0	0	0	0	624	895	977 ?	1001	999	975	920	819	541	188	0	0	0	0	0	0	7939
21	0	0	0	0	0	0	0	0	0	0	102	26	0	0	0	0	0	0	0	0	0	0	0	0	128
22	0	0	0	0	0	0	0	0	575	857	941	974	453	687	73	1	0	0	0	0	0	0	0	0	4561
23	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
24	0	0	0	0	0	0	0	0	0	0	0	0	3	9	292	340	182	0	0	0	0	0	0	0	827
25	0	0	0	0	0	0	0	0	532	875	954 ?	766	702	970	924	735	355	0	0	0	0	0	0	0	6813
26	0	0	0	0	0	0	0	0	17	78	183	466	746	0	0	0	0	0	0	0	0	0	0	0	1490
27	0	0	0	0	0	0	0	0	0	21	192	751	889	956	909	801	531	175	0	0	0	0	0	0	5224
28	0	0	0	0	0	0	0	0	516	710	352	561	899	875	789	566	127	0	0	0	0	0	0	0	5395
29	0	0	0	0	0	0	0	0	49	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64
30	0	0	0	0	0	0	0	0	0	0	0	0	2	236	406	94	44	0	0	0	0	0	0	0	783
31	0	0	0	0	0	0	0	0	21	230	370	360	71	0	0	11	8	0	0	0	0	0	0	0	1072
Avg	0	0	0	0	0	0	0	6	206	300	397	447	409	421	428	363	196	42	0	0	0	0	0	0	3206
S D	0	0	0	0	0	0	0	20	261	383	425	427	438	430	412	357	231	64	0	0	0	0	0	0	3061
S/A	0	0	0	0	0	0	0	3.33	1.27	1.27	1.07	0.96	1.07	1.02	0.96	0.98	1.18	1.5	0	0	0	0	0	0	0.95
Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max	0	0	0	0	0	0	0	93	654	897	980	1001	1002	983	934	831	541	188	0	0	0	0	0	0	7939
n	0	0	0	0	0	0	0	183	364	354	358	372	372	372	372	372	371	43	0	0	0	0	0	0	3533

Daylight Data Recovery: 0.0% missing; 1.1% exceed the 15% QC threshold -- 3574 total daylight measurements.

Instrument: Eppley NIP    Serial Number: 17664E6    Calibration Factor: 8.480  $\mu\text{V}/\text{W}/\text{m}^2$     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.

**December 2004**

**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	0	0	11	62	92	90	161	161	201	86	36	17	2	0	0	0	0	0	0	917
2	0	0	0	0	0	0	0	12	36	46	39	38	41	35	32	26	13	0	0	0	0	0	0	0	316
3	0	0	0	0	0	0	0	15	71	111	73	54	57	48	40	29	13	0	0	0	0	0	0	0	510
4	0	0	0	0	0	0	0	10	38	49	52	59	61	59	67	40	23	2	0	0	0	0	0	0	459
5	0	0	0	0	0	0	0	14	59	119	76	45	59	107	81	61	28	0	0	0	0	0	0	0	648
6	0	0	0	0	0	0	0	7	15	28	82	56	65	39	22	18	4	0	0	0	0	0	0	0	337
7	0	0	0	0	0	0	0	12	25	51	164	176	188	150	135	54	21	3	0	0	0	0	0	0	979
8	0	0	0	0	0	0	0	9	46	100	57	116	141	217	128	94	27	0	0	0	0	0	0	0	935
9	0	0	0	0	0	0	0	0	10	15 ?	25 ?	42	53	46	38	19	2	0	0	0	0	0	0	0	250 ?
10	0	0	0	0	0	0	0	6	53	131	148	168	117	101	143	86	6	0	0	0	0	0	0	0	959
11	0	0	0	0	0	0	0	3	24	42	70	71	97	133	133	56	18	2	0	0	0	0	0	0	647
12	0	0	0	0	0	0	0	2	28	91	183	228	267	203	114	72	25	2	0	0	0	0	0	0	1216
13	0	0	0	0	0	0	0	7	53	81	164	141	120	161	112	53	11	2	0	0	0	0	0	0	904
14	0	0	0	0	0	0	0	2	45	122	171	220	136	213	172	141	21	0	0	0	0	0	0	0	1242
15	0	0	0	0	0	0	0	9	28	46	60	60	59	49	42	31	15	1	0	0	0	0	0	0	401
16	0	0	0	0	0	0	0	8	36	53	65 ?	72	87	67	49	42	21	3	0	0	0	0	0	0	503
17	0	0	0	0	0	0	0	7	26	41	49	55	64	54	42	31	14	0	0	0	0	0	0	0	382
18	0	0	0	0	0	0	0	8	29 ?	?	65	76	92	77	53	42	20	3	0	0	0	0	0	0	466 ?
19	0	0	0	0	0	0	0	5	36	22	76	114	93	93	71	65	18	2	0	0	0	0	0	0	595
20	0	0	0	0	0	0	0	7	26	38	49	55	59	51	44	35	17	3	0	0	0	0	0	0	384
21	0	0	0	0	0	0	0	6	21	46	89	161	209	119	70	34	18	3	0	0	0	0	0	0	776
22	0	0	0	0	0	0	0	6	21	31	40	86	204	162	132	70	30	1	0	0	0	0	0	0	783
23	0	0	0	0	0	0	0	5	27	50	56	159	111	80	58	16	4	0	0	0	0	0	0	0	567
24	0	0	0	0	0	0	0	2	39	78	95	129	173	222	172	64	24	3	0	0	0	0	0	0	1001
25	0	0	0	0	0	0	0	3	38	51	54	66	68	50	37	38	17	1	0	0	0	0	0	0	423
26	0	0	0	0	0	0	0	6	43	107	172	188	113	125	104	61	21	2	0	0	0	0	0	0	940
27	0	0	0	0	0	0	0	7	38	112	165	124	75	53	44	34	17	2	0	0	0	0	0	0	671
28	0	0	0	0	0	0	0	8	28	54	156	162	71	66	65	58	27	1	0	0	0	0	0	0	697
29	0	0	0	0	0	0	0	6	56	93	100	110	43	49	60	34	17	4	0	0	0	0	0	0	574
30	0	0	0	0	0	0	0	0	10	57	59	69	175	221	146	105	57	6	0	0	0	0	0	0	905
31	0	0	0	0	0	0	0	4	28	87	174	237	120	97	75	85	23	2	0	0	0	0	0	0	933
Avg	0	0	0	0	0	0	0	7	35	68	94	113	109	108	83	53	19	2	0	0	0	0	0	0	688
S D	0	0	0	0	0	0	0	4	15	33	50	60	57	63	44	28	10	1	0	0	0	0	0	0	270
S/A	0	0	0	0	0	0	0	0.57	0.43	0.48	0.53	0.53	0.52	0.59	0.53	0.53	0.52	0.9	0	0	0	0	0	0	0.39
Min	0	0	0	0	0	0	0	0	10	15	25	38	41	35	22	16	2	0	0	0	0	0	0	0	250
Max	0	0	0	0	0	0	0	15	71	131	183	237	267	222	172	141	57	6	0	0	0	0	0	0	1242
n	0	0	0	0	0	0	0	170	364	347	359	372	372	371	372	366	370	43	0	0	0	0	0	0	3506

Daylight Data Recovery: 0.0% missing; 1.9% exceed the 15% QC threshold -- 3574 total daylight measurements.

Instrument: Eppley PSP    Serial Number: 17860F3    Calibration Factor: 7.010  $\mu\text{V}/\text{W}/\text{m}^2$     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.