

Global Solar Radiation on a Horizontal Surface
Hourly Integrated and Daily Totals
Watt-Hours per Square Meter
Bluefield State College - July 1999

Field: GHI

Hour 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	17	55	252	399	294	475	806	838	929	695	690	398	289	163	15	0	0	0	0	6315
2	0	0	0	0	0	24	134	207	111	115	192	373	388	406	310	493	415	169	86	13	0	0	0	0	3437
3	0	0	0	0	0	31	178	326	478	600	697	541	694	773	816	690	497	146	161	26	0	0	0	0	6654
4	0	0	0	0	0	23	121	245	439	491	729	752	800	590	714	732	541	339	124	11	0	0	0	0	6651
5	0	0	0	0	0	22	131	287	421	638	756	801	838	658	792	697	508	282	115	11	0	0	0	0	6958
6	0	0	0	0	0	16	99	240	325	550	740	835	913	845	772	703	425	315	116	10	0	0	0	0	6904
7	0	0	0	0	0	21	132	298	500	671	753	833	930	822	712	583	545	315	147	20	0	0	0	0	7282
8	0	0	0	0	0	29	91 ?	413 ?	566	750	662	826	948	928	848	694	480	327	129	11	0	0	0	0	7702
9	0	0	0	0	0	23	140	331	548	594	768	695	778	852	728	622	484	318	123	16	0	0	0	0	7021
10	0	0	0	0	0	10	29	100	225	332 ?	404 ?	169	330	297	65	45	34	15	4	0	0	0	0	0	2378
11	0	0	0	0	0	4	48	112	347	208	168	201	122	432	403	436 ?	314 ?	164	97	14	0	0	0	0	3070
12	0	0	0	0	0	1	11	24	42	45	135	219	68	73	47	60	129	82	9	0	0	0	0	0	945
13	0	0	0	0	0	6	51	139	253 ?	159	287	301	215	184	176	116	71	85	65	11	0	0	0	0	2119
14	0	0	0	0	0	9	91	196	577 ?	562	740	685	820	306	478	304	368	270	158	12	0	0	0	0	5577
15	0	0	0	0	0	22	114	312	525	711	948	830	737	450	521	452	494	106	90	8	0	0	0	0	6320
16	0	0	0	0	0	17	110	298	472	679	543	449	152	266	335	490	471	280	56	9	0	0	0	0	4628
17	0	0	0	0	0	15	43	126	200	314	357	428	422	562	785	575	483	160	73	10	0	0	0	0	4555
18	0	0	0	0	0	15	107	283 ?	506	684	828	758	617	889	743	112	269	196	98	17	0	0	0	0	6120
19	0	0	0	0	0	15	104 ?	330 ?	441	565	885	954	964	945	829	700	534	314	108	5	0	0	0	0	7692
20	0	0	0	0	0	3	51	97	87	138	223	147	608	553	223	188	193	82	18	8	0	0	0	0	2618
21	0	0	0	0	0	3	22	141	185	96	155	398	746	620	621	569	393	133	47	12	0	0	0	0	4142
22	0	0	0	0	0	9	36	133	168	216	316	593	790	885	757	568	451	201	58	11	0	0	0	0	5192
23	0	0	0	0	0	10	123	141	293	424	617	689	733	911	800	522	410	130	49	5	0	0	0	0	5857
24	0	0	0	0	0	14	116	292	434	515	526	114	544	890	268	241	19	59	81	16	0	0	0	0	4130
25	0	0	0	0	0	4	21	42	75	135	421	859	993	908	859	586	205	316	112	6	0	0	0	0	5542
26	0	0	0	0	0	13	95 ?	332 ?	519	694	824	882	964	706	606	572	474	302	119	6	0	0	0	0	7109
27	0	0	0	0	0	3	92	111	180	326	602	860	778	732	834	585	387	313	90	8	0	0	0	0	5901
28	0	0	0	0	0	16	89	256	430	625	583	754	879	877	477	278	112	138	26	2	0	0	0	0	5540
29	0	0	0	0	0	6	86	165	160	180	201	379	506	487	410	572	433	304	103	4	0	0	0	0	3996
30	0	0	0	0	0	0	3	8	342	494	281	153	474	915	826	681	484	93	32	2	0	0	0	0	4786
31	0	0	0	0	0	23 ?	99	193	331	560	845	918	949	888	831	562	350	318	107	7	0	0	0	0	6981
Avg	0	0	0	0	0	14	85	207	341	431	537	592	657	665	597	488	367	212	90	10	0	0	0	0	5294
S D	0	0	0	0	0	8	43	103	159	218	247	263	276	252	235	206	155	98	43	5	0	0	0	0	1760
S/A	0	0	0	0	0	0.61	0.51	0.49	0.47	0.51	0.46	0.44	0.42	0.38	0.39	0.42	0.42	0.46	0.48	0.55	0	0	0	0	0.33
Min	0	0	0	0	0	0	3	8	42	45	135	114	68	73	47	60	19	34	9	0	0	0	0	0	945
Max	0	0	0	0	0	31	178	413	577	750	948	954	993	945	859	732	545	339	163	26	0	0	0	0	7702

Daylight Data Recovery: 0% missing; 2% exceed the 15% QC threshold -- 5379 total daylight 5-minute measurements.

Note: Fractional values that do not appear in the hour columns are included in the calculation for daily values.

Data and Flag	Hour Column	Day Column
<value>*	20% < Missing < 100%	10% < Missing < 100%
<value>?	20% < Fail QC < 100%	10% < Fail QC < 100%
<blank>*	100% Missing	100% Missing
<blank>?	100% Fail QC	100% Fail QC

Station:	BS
Latitude:	37.27° N
Longitude:	81.24° W
Elevation:	803 Meters AMSL
Time Zone:	-5

Instrument:	PSP
Calibration Constant:	9.02 uV/Wm-2
Serial Number:	25821F3
Calibration Date:	5/21/98

**Direct Normal Solar Radiation
Hourly Integrated and Daily Totals
Watt-Hours per Square Meter
Bluefield State College - July 1999**

Field: DNI

Hour 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	2	1	168	206	43	190	504	409	669	423	562	178	204	188	0	0	0	0	0	3747
2	0	0	0	0	0	37	157	77	0	1	1	17	35	24	5	150	188	42	3	0	0	0	0	0	738
3	0	0	0	0	0	96	389	376	355	279	395	222	299	388	551	564	530	10	167	0	0	0	0	0	4619
4	0	0	0	0	0	16	70	82	231	180	363	361	416	247	447	726	660	516	276	0	0	0	0	0	4591
5	0	0	0	0	0	16	79	138	164	335	460	452	486	381	578	584	529	324	171	0	0	0	0	0	4696
6	0	0	0	0	0	5	32	62	83	344	452	496	623	557	530	598	364	452	195	0	0	0	0	0	4794
7	0	0	0	0	0	26	149	304	425	521	441	414	584	562	424	289	519	280	179	0	0	0	0	0	5115
8	0	0	0	0	0	72	381	? 777	? 830	839	192	399	684	706	768	697	523	540	311	0	0	0	0	0	7721
9	0	0	0	0	0	40	211	301	414	290	354	225	313	505	479	472	417	426	199	0	0	0	0	0	4647
10	0	0	0	0	0	0	0	1	2	3	? 3	? 2	? 0	1	2	0	0	0	0	0	0	0	0	0	13
11	0	0	0	0	0	0	1	1	4	1	1	1	1	4	3	4	? 2	? 0	0	0	0	0	0	0	22
12	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
13	0	0	0	0	0	0	0	1	4	1	2	2	2	1	1	0	0	0	0	0	0	0	0	0	15
14	0	0	0	0	0	0	1	4	519	? 366	493	298	362	45	48	24	100	175	276	0	0	0	0	0	2711
15	0	0	0	0	0	54	201	474	602	643	740	549	432	176	270	304	547	26	88	0	0	0	0	0	5105
16	0	0	0	0	0	20	125	348	409	444	66	120	0	2	15	205	371	264	27	0	0	0	0	0	2417
17	0	0	0	0	0	1	2	4	2	7	4	7	13	78	415	299	355	71	29	0	0	0	0	0	1288
18	0	0	0	0	0	10	139	266	? 425	481	511	395	283	544	447	38	22	67	31	0	0	0	0	0	3658
19	0	0	0	0	0	40	248	? 491	? 319	395	836	862	844	827	743	759	700	525	226	0	0	0	0	0	7815
20	0	0	0	0	0	0	0	0	0	1	6	1	106	42	1	1	2	0	0	0	0	0	0	0	161
21	0	0	0	0	0	0	0	11	5	1	1	22	190	241	308	364	249	4	0	0	0	0	0	0	1397
22	0	0	0	0	0	0	1	2	2	3	12	195	471	663	557	431	287	93	5	0	0	0	0	0	2722
23	0	0	0	0	0	3	171	17	27	129	209	326	402	649	586	378	371	61	5	0	0	0	0	0	3335
24	0	0	0	0	0	22	184	381	299	182	164	0	228	505	13	26	0	1	3	0	0	0	0	0	2010
25	0	0	0	0	0	0	0	0	1	1	91	519	836	744	799	484	54	525	275	0	0	0	0	0	4329
26	0	0	0	0	0	16	234	? 565	? 708	722	732	688	725	357	288	378	392	336	201	0	0	0	0	0	6342
27	0	0	0	0	0	3	41	1	2	33	296	607	460	341	637	431	353	440	150	0	0	0	0	0	3794
28	0	0	0	0	0	8	14	189	349	430	205	359	555	581	218	65	23	20	0	0	0	0	0	0	3017
29	0	0	0	0	0	0	3	4	2	3	2	66	126	167	162	448	327	450	205	0	0	0	0	0	1966
30	0	0	0	0	0	0	0	1	237	244	17	1	209	755	775	725	574	11	0	0	0	0	0	0	3550
31	0	0	0	0	0	17	64	15	58	244	684	723	668	684	687	469	283	342	114	0	0	0	0	0	5053
Avg	0	0	0	0	0	16	94	163	216	231	256	285	347	369	361	338	288	200	107	0	0	0	0	0	3271
S/D	0	0	0	0	0	23	112	207	235	238	257	252	258	276	272	248	219	199	106	0	0	0	0	0	2141
S/A	0	0	0	0	0	1.42	1.2	1.27	1.09	1.03	1	0.88	0.74	0.75	0.75	0.74	0.76	0.99	0.99	4.12	0	0	0	0	0.65
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	2
Max	0	0	0	0	0	96	389	777	830	839	836	862	844	827	799	759	700	540	311	0	0	0	0	0	7815

Daylight Data Recovery: 0% missing; 2% exceed the 15% QC threshold -- 5379 total daylight 5-minute measurements.

Note: Fractional values that do not appear in the hour columns are included in the calculation for daily values.

Data and Flag	Hour Column	Day Column
<value>*	20% < Missing < 100%	10% < Missing < 100%
<value>?	20% < Fail QC < 100%	10% < Fail QC < 100%
<blank>*	100% Missing	100% Missing
<blank>?	100% Fail QC	100% Fail QC

Station: BS
 Latitude: 37.27° N
 Longitude: 81.24° W
 Elevation: 803 Meters AMSL
 Time Zone: -5

Instrument: NIP
 Calibration Constant: 8.48 uV/Wm-2
 Serial Number: 17664E6
 Calibration Date: 5/21/98

Diffuse Solar Radiation on a Horizontal Surface (Shadow Band PSP)
Hourly Integrated and Daily Totals
Watt-Hours per Square Meter
Bluefield State College - July 1999

Field: DHI

Hour 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	15	49	171	284	247	292	330	439	295	331	268	283	213	123	13	0	0	0	0	3352
2	0	0	0	0	0	22	103	169	99	101	169	327	335	369	281	375	303	141	74	11	0	0	0	0	2881
3	0	0	0	0	0	23	87	169	269	375	345	319	393	403	335	264	189	131	130	23	0	0	0	0	3455
4	0	0	0	0	0	22	109	211	283	349	408	406	395	354	323	200	164	144	69	10	0	0	0	0	3447
5	0	0	0	0	0	22	117	239	334	394	360	375	375	304	301	278	213	163	84	10	0	0	0	0	3570
6	0	0	0	0	0	14	89	217	276	293	353	374	309	332	325	274	230	147	80	9	0	0	0	0	3322
7	0	0	0	0	0	20	108	184	260	293	382	447	374	300	349	377	257	221	114	17	0	0	0	0	3702
8	0	0	0	0	0	21	54 ?	81 ?	79	118	489	438	271	248	173	167	167	132	66	9	0	0	0	0	2513
9	0	0	0	0	0	21	99	218	303	382	459	483	470	375	312	279	245	158	76	14	0	0	0	0	3894
10	0	0	0	0	0	9	25	88	196	285 ?	364 ?	270 ?	149	291	268	57	40	29	13	3	0	0	0	0	2086
11	0	0	0	0	0	4	42	97	315	180	147	175	108	380	360	393 ?	266 ?	146	86	13	0	0	0	0	2711
12	0	0	0	0	0	1	10	21	36	40	119	194	60	64	42	54	112	71	8	0	0	0	0	0	831
13	0	0	0	0	0	6	44	120	265	140	253	264	190	162	155	102	62	75	57	10	0	0	0	0	1905
14	0	0	0	0	0	8	80	171	231 ?	325	298	389	461	246	420	261	283	209	104	11	0	0	0	0	3497
15	0	0	0	0	0	18	83	148	197	238	316	316	315	279	278	237	185	93	73	7	0	0	0	0	2783
16	0	0	0	0	0	16	90	174	251	365	489	336	134	233	288	359	276	192	50	8	0	0	0	0	3261
17	0	0	0	0	0	13	37	111	179	272	314	383	375	482	446	363	293	134	63	9	0	0	0	0	3474
18	0	0	0	0	0	15	94	176 ?	271	344	409	401	335	396	370	78	242	165	82	15	0	0	0	0	3393
19	0	0	0	0	0	15	75 ?	153 ?	270	265	161	154	169	178	190	150	139	111	61	4	0	0	0	0	2095
20	0	0	0	0	0	3	45	85	76	121	197	129	478	480	195	166	169	71	17	7	0	0	0	0	2239
21	0	0	0	0	0	3	19	123	163	84	137	360	565	393	361	316	241	114	41	11	0	0	0	0	2931
22	0	0	0	0	0	8	31	116	147	188	283	409	345	265	279	267	292	161	52	10	0	0	0	0	2852
23	0	0	0	0	0	9	91	124	264	324	437	400	363	319	306	252	200	103	45	4	0	0	0	0	3241
24	0	0	0	0	0	14	87	159	283	395	387	101	316	436	234	215	17	51	70	15	0	0	0	0	2780
25	0	0	0	0	0	3	18	37	66	119	329	375	208	213	180	229	158	120	54	6	0	0	0	0	2115
26	0	0	0	0	0	11	63 ?	96 ?	132	171	202	252	287	374	353	295	251	177	77	5	0	0	0	0	2746
27	0	0	0	0	0	3	81	96	158	290	349	305	352	420	298	279	195	150	57	7	0	0	0	0	3041
28	0	0	0	0	0	15	78	180	227	311	408	426	372	357	284	214	92	123	22	1	0	0	0	0	3110
29	0	0	0	0	0	5	74	142	138	157	175	308	380	330	276	257	254	132	60	4	0	0	0	0	2692
30	0	0	0	0	0	0	3	7	188	318	247	135	257	219	172	155	151	79	28	2	0	0	0	0	1961
31	0	0	0	0	0	19 ?	88	173	301	376	262	251	316	261	255	225	192	187	81	6	0	0	0	0	2993
Avg	0	0	0	0	0	12	67	137	211	254	308	317	319	315	282	239	199	134	65	9	0	0	0	0	2867
S/D	0	0	0	0	0	7	32	56	81	103	105	101	115	93	83	90	75	47	29	5	0	0	0	0	650
S/A	0	0	0	0	0	0.59	0.47	0.41	0.39	0.41	0.34	0.32	0.36	0.3	0.29	0.38	0.38	0.35	0.45	0.55	0	0	0	0	0.23
Min	0	0	0	0	0	0	3	7	36	40	119	101	60	64	42	54	17	29	8	0	0	0	0	0	831
Max	0	0	0	0	0	23	117	239	334	395	489	483	565	482	446	393	303	221	130	23	0	0	0	0	3894

Daylight Data Recovery: 0% missing; 2% exceed the 15% QC threshold -- 5379 total daylight 5-minute measurements.

Note: Fractional values that do not appear in the hour columns are included in the calculation for daily values.

Data and Flag	Hour Column	Day Column
<value>*	20% < Missing < 100%	10% < Missing < 100%
<value>?	20% < Fail QC < 100%	10% < Fail QC < 100%
<blank>*	100% Missing	100% Missing
<blank>?	100% Fail QC	100% Fail QC

Station: BS
Latitude: 37.27° N
Longitude: 81.24° W
Elevation: 803 Meters AMSL
Time Zone: -5

Instrument: PSP
Calibration Constant: 7.01 uV/Wm-2
Serial Number: 17860F3
Calibration Date: 5/21/98