

Global Solar Radiation on a Horizontal Surface
Hourly Integrated and Daily Totals
Watt-Hours per Square Meter
Bluefield State College - August 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	4	54	238	431 ?	648	756	733	672	561	352	266	185	152	46	4	0	0	0	0	5102
2	0	0	0	0	0	8	51	112	237	519	715	831	824	801	772	702	503	221	99	2	0	0	0	0	6397
3	0	0	0	0	0	6	54	237 ?	515	706	758	797	910	764	845	574	411	291	90	3	0	0	0	0	6962
4	0	0	0	0	0	8	123	315	508	696	873	908	605	566	896	599	463	260	69	5	0	0	0	0	6895
5	0	0	0	0	0	4	92	260 ?	492	686	760	849	783	721	515	426	436	257	87	3	0	0	0	0	6373
6	0	0	0	0	0	9	107 ?	? 517	708	863	953	985	918	860	553	269	224	61	4	0	0	0	0	0	7031
7	0	0	0	0	0	6	102	290 ?	497	567	848	913	829	847	795	676	472	275	79	2	0	0	0	0	7197
8	0	0	0	0	0	7	61	79	273	125	457	823	527	280	144	192	65	88	17	1	0	0	0	0	3138
9	0	0	0	0	0	2	32	136	162	477	547	844	879	812	858	675	509	299	81	1	0	0	0	0	6313
10	0	0	0	0	0	7	77 ?	? 299	? 505	691	832	930	953	923	821	667	489	282	81	2	0	0	0	0	7558
11	0	0	0	0	0	5	66	283	416	605	526	768	863	853	605	426	434	231	78	1	0	0	0	0	6160
12	0	0	0	0	0	7	62	167	536 ?	672	803	906	828	712	451	522	324	273	64	1	0	0	0	0	6328
13	0	0	0	0	0	6	73	264	434	425	658	582	587	698	586	481	496	230	64	0	0	0	0	0	5584
14	0	0	0	0	0	1	24	188	237	477	796	733	594	814	384	187	171	159	61	2	0	0	0	0	4828
15	0	0	0	0	0	3	92	224	401	677	497	591	506	450	498	482	337	136	34	1	0	0	0	0	4928
16	0	0	0	0	0	2	38	171	417	661	825	864	729	777	809	668	453	246	42	1	0	0	0	0	6703
17	0	0	0	0	0	3	75	220 ?	487 ?	659	730	838	690	918	787	618	434	237	56	0	0	0	0	0	6750
18	0	0	0	0	0	2	62	200	415	661	836	871	905	911	805	662	471	271	60	0	0	0	0	0	7133
19	0	0	0	0	0	2	99	275	472	670	803	672	526	704	636	590	467	244	47	0	0	0	0	0	6209
20	0	0	0	0	0	1	45	201	430	616	616	608	303	673	497	481	231	126	51	1	0	0	0	0	4879
21	0	0	0	0	0	2	41	115	199	404	609	724	811	619	654	584	329	179	26	0	0	0	0	0	5296
22	0	0	0	0	0	1	65 ?	333 ?	447 ?	658	825	896	928	896	793	634	443	242	36	0	0	0	0	0	7197
23	0	0	0	0	0	1	50	141	378	553	645	481	670	403	748	470	231	126	66	0	0	0	0	0	4962
24	0	0	0	0	0	1	36	119	208	451	864	764	782	560	313	279	215	124	43	0	0	0	0	0	4759
25	0	0	0	0	0	0	18	60	327 ?	506	319	356	330	536	706	291	388	173	20	0	0	0	0	0	4030
26	0	0	0	0	0	0	67	145	344	343	417	572	465	397	511	205	187	68	21	0	0	0	0	0	3742
27	0	0	0	0	0	1	64	223	405	521	582	516	563	615	656	400	126	111	35	0	0	0	0	0	4818
28	0	0	0	0	0	1	53	183	405	678	659	590	650	707	359	189	279	168	28	0	0	0	0	0	4949
29	0	0	0	0	0	0	26	155 ?	443 ?	555	576	706	600	729	578	428	379	117	22	0	0	0	0	0	5315
30	0	0	0	0	0	0	25	201	463	689	824	921	950	905	803	639	431	215	26	0	0	0	0	0	7092
31	0	0	0	0	0	0	81	284	495	689	836	923	942	903	800	637	439	220	24	0	0	0	0	0	7272
Avg	0	0	0	0	0	3	62	204	403	580	699	757	716	709	640	490	357	201	52	1	0	0	0	0	5868
S D	0	0	0	0	0	3	26	71	103	131	148	152	183	172	192	164	125	65	23	1	0	0	0	0	1154
S/A	0	0	0	0	0	0.86	0.42	0.35	0.26	0.23	0.21	0.2	0.26	0.24	0.3	0.34	0.35	0.32	0.45	1.31	0	0	0	0	0.2
Min	0	0	0	0	0	0	18	60	162	125	319	356	303	280	144	187	65	68	17	0	0	0	0	0	3138
Max	0	0	0	0	0	9	123	333	536	708	873	953	985	923	896	702	509	299	99	5	0	0	0	0	7558

Daylight Data Recovery: 0% missing; 2% exceed the 15% QC threshold -- 5059 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 - August 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	0	3	148	416 ?	553	552	359	158	97	37	36	36	2	0	0	0	0	0	0	2396
2	0	0	0	0	0	0	1	2	11	206	493	609	571	586	695	652	526	276	217	0	0	0	0	0	4846
3	0	0	0	0	0	1	0	448 ?	673	728	373	502	627	544	694	477	455	477	195	0	0	0	0	0	6193
4	0	0	0	0	0	36	427	666	755	810	853	640	203	277	683	445	408	243	24	0	0	0	0	0	6470
5	0	0	0	0	0	2	137	491 ?	547	693	577	598	480	482	280	233	467	415	219	0	0	0	0	0	5621
6	0	0	0	0	0	18	364 ?	689 ?	849	900	930	940	948	867	908	327	6	117	4	0	0	0	0	0	7867
7	0	0	0	0	0	13	282	484 ?	462	256	734	745	525	586	653	719	577	458	178	0	0	0	0	0	6673
8	0	0	0	0	0	0	13	0	37	1	65	278	43	8	1	1	0	1	0	0	0	0	0	0	449
9	0	0	0	0	0	0	1	8	10	199	260	583	649	661	912	832	836	713	277	0	0	0	0	0	5941
10	0	0	0	0	0	15	216 ?	505 ?	793	857	870	890	887	882	834	784	746	594	223	0	0	0	0	0	9094
11	0	0	0	0	0	6	14	310	257	405	158	442	553	601	336	221	396	298	85	0	0	0	0	0	4082
12	0	0	0	0	0	12	10	142	784 ?	805	778	785	609	515	113	201	259	556	175	0	0	0	0	0	5742
13	0	0	0	0	0	9	69	242	325	157	216	137	143	266	270	305	577	316	59	0	0	0	0	0	3090
14	0	0	0	0	0	0	0	121	11	188	356	263	213	397	73	4	14	79	63	0	0	0	0	0	1782
15	0	0	0	0	0	3	194	162	201	619	182	87	44	19	159	180	215	10	0	0	0	0	0	0	2076
16	0	0	0	0	0	0	0	32	361	654	731	591	426	527	696	741	665	496	46	0	0	0	0	0	5966
17	0	0	0	0	0	4	81	356 ?	598 ?	669	529	602	404	751	753	656	606	477	128	0	0	0	0	0	6613
18	0	0	0	0	0	2	61	154	333	631	844	782	829	905	876	882	829	706	212	0	0	0	0	0	8046
19	0	0	0	0	0	6	350	601	725	780	797	247	73	320	377	648	679	535	129	0	0	0	0	0	6266
20	0	0	0	0	0	0	9	270	511	543	243	192	6	222	137	291	83	74	56	0	0	0	0	0	2637
21	0	0	0	0	0	0	0	7	44	218	430	539	589	415	552	594	387	357	72	0	0	0	0	0	4205
22	0	0	0	0	0	1	198 ?	746 ?	807 ?	869	893	901	911	911	885	833	760	640	130	0	0	0	0	0	9487
23	0	0	0	0	0	0	9	15	232	350	300	135	228	61	483	271	52	18	31	0	0	0	0	0	2185
24	0	0	0	0	0	0	0	2	1	129	530	318	247	148	12	10	12	2	0	0	0	0	0	0	1410
25	0	0	0	0	0	0	1	1	165 ?	248	30	31	9	115	432	101	487	324	1	0	0	0	0	0	1947
26	0	0	0	0	0	0	86	104	205	110	157	242	123	143	175	26	26	0	0	0	0	0	0	0	1398
27	0	0	0	0	0	0	94	318	515	429	332	252	301	309	418	214	1	28	32	0	0	0	0	0	3244
28	0	0	0	0	0	0	38	140	414	616	427	278	274	377	143	35	185	205	27	0	0	0	0	0	3157
29	0	0	0	0	0	0	0	75 ?	558 ?	493	313	427	275	449	343	275	350	43	0	0	0	0	0	0	3603
30	0	0	0	0	0	0	53	437	600	868	934	971	996	989	984 ?	923 ?	801	557	93	0	0	0	0	0	9203
31	0	0	0	0	0	0	492	788 ?	917 ?	?	?	?	981 ?	999	994 ?	938 ?	905	734 ?	120	0	0	0	0	0	7869 ?
Avg	0	0	0	0	0	4	103	273	423	499	496	479	430	465	481	415	398	315	90	0	0	0	0	0	4824
S D	0	0	0	0	0	8	140	245	281	270	276	268	309	295	318	309	295	245	83	0	0	0	0	0	2548
S/A	0	0	0	0	0	1.84	1.35	0.9	0.66	0.54	0.56	0.56	0.72	0.63	0.66	0.75	0.74	0.78	0.92	5.48	0	0	0	0	0.53
Min	0	0	0	0	0	0	0	0	1	1	30	31	6	8	1	1	0	0	0	0	0	0	0	0	449
Max	0	0	0	0	0	36	492	788	917	900	934	971	996	999	994	938	905	734	277	0	0	0	0	0	9487

Daylight Data Recovery: 0% missing; 4% exceed the 15% QC threshold -- 5059 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 - August 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	4	47	193	249 ?	247	284	392	501	454	297	231	153	132	40	4	0	0	0	0	3230
2	0	0	0	0	0	7	45	97	214	367	294	268	281	261	184	232	190	106	49	2	0	0	0	0	2597
3	0	0	0	0	0	6	47	112 ?	145	192	430	330	314	265	263	231	151	93	45	2	0	0	0	0	2627
4	0	0	0	0	0	7	54	82	108	134	174	331	405	309	334	286	240	176	59	5	0	0	0	0	2703
5	0	0	0	0	0	4	63	102 ?	204	203	289	316	341	290	283	262	209	119	50	2	0	0	0	0	2737
6	0	0	0	0	0	8	46 ?	66	67	76	91	99	99	127	112	293	246	179	54	3	0	0	0	0	1564
7	0	0	0	0	0	5	62	134 ?	252	369	252	246	335	331	265	184	182	127	46	1	0	0	0	0	2793
8	0	0	0	0	0	6	55	70	237	109	384	581	469	247	126	168	56	75	15	0	0	0	0	0	2599
9	0	0	0	0	0	2	27	121	143	333	315	309	268	211	110	99	77	64	33	1	0	0	0	0	2113
10	0	0	0	0	0	5	43 ?	97 ?	86	100	118	131	134	134	142	134	106	89	44	2	0	0	0	0	1365
11	0	0	0	0	0	4	59	178	282	337	382	380	359	324	342	268	239	136	64	1	0	0	0	0	3354
12	0	0	0	0	0	7	54	125	102 ?	120	165	198	255	239	343	381	195	96	36	1	0	0	0	0	2318
13	0	0	0	0	0	6	64	191	268	306	487	466	458	460	377	277	212	123	53	0	0	0	0	0	3748
14	0	0	0	0	0	1	20	145	211	335	505	495	393	465	308	169	153	128	51	2	0	0	0	0	3381
15	0	0	0	0	0	3	65	161	282	236	337	490	432	394	344	355	231	120	30	0	0	0	0	0	3479
16	0	0	0	0	0	2	34	150	218	216	235	343	352	317	260	183	131	93	33	1	0	0	0	0	2567
17	0	0	0	0	0	3	62	124 ?	157 ?	208	303	309	319	267	189	183	136	93	36	0	0	0	0	0	2388
18	0	0	0	0	0	2	55	140	244	229	156	176	146	115	106	77	61	58	28	0	0	0	0	0	1592
19	0	0	0	0	0	2	57	84	106	145	164	427	435	397	317	157	139	88	28	0	0	0	0	0	2546
20	0	0	0	0	0	0	41	116	185	248	412	429	266	476	384	281	187	103	42	0	0	0	0	0	3172
21	0	0	0	0	0	2	36	99	168	256	261	252	285	258	214	199	137	72	17	0	0	0	0	0	2254
22	0	0	0	0	0	1	36 ?	73 ?	71 ?	80	109	107	109	105	99	93	82	60	18	0	0	0	0	0	1044
23	0	0	0	0	0	1	45	126	260	323	390	350	465	330	386	307	191	109	61	0	0	0	0	0	3345
24	0	0	0	0	0	0	31	105	183	337	455	504	550	416	278	253	191	108	37	0	0	0	0	0	3447
25	0	0	0	0	0	0	16	53	249 ?	327	279	302	299	418	374	206	169	72	18	0	0	0	0	0	2782
26	0	0	0	0	0	0	49	106	233	260	291	359	351	267	375	176	162	60	18	0	0	0	0	0	2707
27	0	0	0	0	0	1	47	149	171	242	321	301	295	346	343	257	111	98	30	0	0	0	0	0	2711
28	0	0	0	0	0	1	45	151	221	273	326	337	393	391	244	156	198	120	24	0	0	0	0	0	2880
29	0	0	0	0	0	0	22	129 ?	169 ?	239	336	334	352	347	316	262	217	101	20	0	0	0	0	0	2844
30	0	0	0	0	0	0	18	72	171	123	99	93	81	77	68	61	75	76	15	0	0	0	0	0	1030
31	0	0	0	0	0	0	29	46	51	57	61	65	72	70	72	55	44	34	9	0	0	0	0	0	666
Avg	0	0	0	0	0	3	44	116	184	227	281	313	317	294	253	209	157	100	36	1	0	0	0	0	2535
S D	0	0	0	0	0	2	14	38	66	92	119	129	125	117	102	81	57	32	15	1	0	0	0	0	765
S/A	0	0	0	0	0	0.85	0.32	0.33	0.36	0.4	0.42	0.41	0.4	0.4	0.4	0.39	0.37	0.32	0.42	1.31	0	0	0	0	0.3
Min	0	0	0	0	0	0	16	46	51	57	61	65	72	70	68	55	44	34	9	0	0	0	0	0	666
Max	0	0	0	0	0	8	65	193	282	369	505	581	550	476	386	381	246	179	64	5	0	0	0	0	3748

Daylight Data Recovery: 0% missing; 2% exceed the 15% QC threshold -- 5059 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