

**Global Solar Radiation on a Horizontal Surface**  
**Hourly Integrated and Daily Totals**  
**Watt-Hours per Square Meter**  
**Bluefield State College - March 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	0	0	9	44	109	212	259	142	166	243	226	154	88	3	0	0	0	0	0	1655
2	0	0	0	0	0	0	0	74	275	463	608	730	758	706	631	454	263	62	2	0	0	0	0	0	5027
3	0	0	0	0	0	0	0	11	11	32	35	42	44	31	34	37	30	28	0	0	0	0	0	0	336
4	0	0	0	0	0	0	0	37	107	120	254	396	418	432	358	206	160	58	5	0	0	0	0	0	2549
5	0	0	0	0	0	0	1	63 ?	233 ?	556 ?	642	715	779	715	607	324	164	45	2	0	0	0	0	0	4845
6	0	0	0	0	0	0	0	7	50	75	180	471	511	476	228	256	149	11	0	0	0	0	0	0	2416
7	0	0	0	0	0	0	1	36	101	446	678	799	838	802	699	541	342	128	3	0	0	0	0	0	5415
8	0	0	0	0	0	0	3	129	299	435	573	626	529	501	400	438	187	73	1	0	0	0	0	0	4195
9	0	0	0	0	0	0	0	16	268	511	481	704	374	84	119	91	25	8	0	0	0	0	0	0	2680
10	0	0	0	0	0	0	0	9	38	54	111	99	82	64	55	37	21	12	1	0	0	0	0	0	582
11	0	0	0	0	0	0	3	81	295	536	699	771	842	774	756	398	256	49	13	0	0	0	0	0	5472
12	0	0	0	0	0	0	3	133 ?	382	561	710	818	854	814	708	544	347	136	6	0	0	0	0	0	6015
13	0	0	0	0	0	0	5	67	201	364	312	443	350	251	260	237	131	34	1	0	0	0	0	0	2656
14	0	0	0	0	0	0	0	9	63	140	222	410	366	257	179	27	25	15	1	0	0	0	0	0	1713
15	0	0	0	0	0	0	0	2	4	9	14	27	38	43	34 ?	31	16	8	1	0	0	0	0	0	228
16	0	0	0	0	0	0	1	23 ?	?	?	731	830	864	832	731	567	366	148	9	0	0	0	0	0	5103 ?
17	0	0	0	0	0	0	7	136	356	560	717	819	858	823	701	537	304	112	10	0	0	0	0	0	5940
18	0	0	0	0	0	0	1	29	98	266	493	781	860	836	730	569	373	153	8	0	0	0	0	0	5199
19	0	0	0	0	0	0	7	164	386	576	741	830	834	809	705	483	370	152	13	0	0	0	0	0	6071
20	0	0	0	0	0	0	14	142	379	576	609	842	868	834	697	442	310	97	7	0	0	0	0	0	5816
21	0	0	0	0	0	0	1	12	50	270	316	214	230	74	73	25	182	141	12	0	0	0	0	0	1600
22	0	0	0	0	0	0	11	116	290	456	757	835	888	848	778	501	359	131	10	0	0	0	0	0	5980
23	0	0	0	0	0	0	6	60	108	262	255	313	346	331	235	163	153	58	6	0	0	0	0	0	2297
24	0	0	0	0	0	0	2	58	124	72	51	434	137	123	93	121	87	12	2	0	0	0	0	0	1315
25	0	0	0	0	0	0	10	79	263	381	540	620	547	484	565	490	376	159	16	0	0	0	0	0	4531
26	0	0	0	0	0	0	7	135	367	453	330	740	830	521	403	342	261	36	2	0	0	0	0	0	4426
27	0	0	0	0	0	0	29	206	405	586	751	846	894	847	787	611	190	178	19	0	0	0	0	0	6349
28	0	0	0	0	0	0	29	196	406	604	773	877	916	884	648	562	379	189	15	0	0	0	0	0	6479
29	0	0	0	0	0	0	19	190	192	317	419	341	442	391	498	503	325	170	18	0	0	0	0	0	3825
30	0	0	0	0	0	0	39	197	395	618	786	885	911	880	753	541	377	166	13	0	0	0	0	0	6562
31	0	0	0	0	0	0	26	201	312	520	756	712	631	503	131	93	57	11	0	0	0	0	0	0	3952
Avg	0	0	0	0	0	0	7	85	217	364	476	588	580	520	446	335	217	86	6	0	0	0	0	0	3911
S D	0	0	0	0	0	0	10	68	136	200	251	264	297	301	269	201	126	61	6	0	0	0	0	0	1972
S/A	0	0	0	0	0	0	1.39	0.8	0.63	0.55	0.53	0.45	0.51	0.58	0.6	0.6	0.58	0.71	0.92	0	0	0	0	0	0.5
Min	0	0	0	0	0	0	0	2	4	9	14	27	38	31	34	25	16	8	0	0	0	0	0	0	228
Max	0	0	0	0	0	0	39	206	406	618	786	885	916	884	787	611	379	189	19	0	0	0	0	0	6562

Daylight Data Recovery: 0% missing; 1% exceed the 15% QC threshold -- 4440 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: 8.99 uV/Wm-2  
Serial Number: 25765F3  
Calibration Date: 9/13/96  
Note: Instrument was changed during month.

**Direct Normal Solar Radiation  
Hourly Integrated and Daily Totals  
Watt-Hours per Square Meter  
Bluefield State College - March 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	0	0	0	0	1	2	0	1	7	65	53	188	4	0	0	0	0	0	321	
2	0	0	0	0	0	0	0	361	750	793	846	924	894	820	860	706	476	41	0	0	0	0	0	0	7471	
3	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	
4	0	0	0	0	0	0	0	0	2	0	1	15	41	63	52	9	18	55	25	0	0	0	0	0	280	
5	0	0	0	0	0	0	0	81	?	385	?	697	?	715	666	800	777	567	115	41	0	0	0	0	4845	
6	0	0	0	0	0	0	0	1	1	0	1	130	115	90	10	137	142	0	0	0	0	0	0	0	626	
7	0	0	0	0	0	0	0	0	0	558	835	?	?	?	1018	?	987	874	?	645	24	0	0	0	4942	?
8	0	0	0	0	0	0	0	363	459	388	413	285	98	97	105	499	58	6	0	0	0	0	0	0	2770	
9	0	0	0	0	0	0	0	0	0	346	585	306	662	179	0	0	0	0	0	0	0	0	0	0	2079	
10	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	
11	0	0	0	0	0	0	0	119	479	844	933	857	997	875	846	275	222	1	0	0	0	0	0	0	6449	
12	0	0	0	0	0	0	0	487	?	647	948	1002	1021	?	1020	?	1000	953	878	790	552	24	0	0	9322	
13	0	0	0	0	0	0	0	23	44	135	12	49	10	3	5	3	1	0	0	0	0	0	0	0	285	
14	0	0	0	0	0	0	0	0	0	0	13	25	8	9	2	0	0	0	0	0	0	0	0	0	58	
15	0	0	0	0	0	0	0	0	0	0	1	1	24	19	15	?	38	21	1	0	0	0	0	0	121	
16	0	0	0	0	0	0	8	168	?	?	?	948	968	968	967	958	906	798	551	33	0	0	0	0	7272	?
17	0	0	0	0	0	0	25	482	754	865	905	926	950	944	807	712	354	84	2	0	0	0	0	0	7809	
18	0	0	0	0	0	0	0	0	0	98	314	834	977	989	953	913	832	603	45	0	0	0	0	0	6557	
19	0	0	0	0	0	0	0	257	584	833	955	931	840	887	799	506	517	304	9	0	0	0	0	0	7422	
20	0	0	0	0	0	0	32	395	795	893	565	976	964	986	884	464	429	139	0	0	0	0	0	0	7522	
21	0	0	0	0	0	0	0	0	0	13	10	1	1	0	0	0	140	261	22	0	0	0	0	0	449	
22	0	0	0	0	0	0	2	164	316	373	754	875	976	875	681	501	459	338	26	0	0	0	0	0	6340	
23	0	0	0	0	0	0	0	1	1	4	3	5	16	7	2	1	8	1	0	0	0	0	0	0	47	
24	0	0	0	0	0	0	0	1	2	0	0	165	1	1	0	3	0	0	0	0	0	0	0	0	173	
25	0	0	0	0	0	0	0	4	86	93	184	186	102	110	333	443	622	415	33	0	0	0	0	0	2610	
26	0	0	0	0	0	0	0	239	518	252	4	564	548	232	116	47	226	0	0	0	0	0	0	0	2746	
27	0	0	0	0	0	0	65	370	778	856	903	856	911	866	924	902	247	620	72	0	0	0	0	0	8369	
28	0	0	0	0	0	0	176	632	796	881	932	963	988	966	567	687	575	482	48	0	0	0	0	0	8691	
29	0	0	0	0	0	0	46	371	39	30	16	2	7	4	74	252	318	417	38	0	0	0	0	0	1614	
30	0	0	0	0	0	0	157	613	806	890	928	950	949	962	865	665	590	411	15	0	0	0	0	0	8800	
31	0	0	0	0	0	0	72	443	311	349	691	403	157	171	0	0	0	0	0	0	0	0	0	0	2598	
Avg	0	0	0	0	0	0	19	180	297	379	425	475	451	424	400	346	284	197	14	0	0	0	0	0	3825	
S/D	0	0	0	0	0	0	43	207	314	370	406	410	441	436	409	349	290	231	19	0	0	0	0	0	3345	
S/A	0	0	0	0	0	0	2.29	1.15	1.06	0.98	0.96	0.86	0.98	1.03	1.02	1.01	1.02	1.17	1.36	0	0	0	0	0	0.87	
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	176	632	806	948	1002	1021	1020	1000	1018	987	874	645	72	0	0	0	0	0	9322	

Daylight Data Recovery: 0% missing; 3% exceed the 15% QC threshold -- 4440 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: 8.52 uV/Wm-2  
Serial Number: 19791E6  
Calibration Date: 9/13/96  
Note: Instrument was changed during month.

**Diffuse Solar Radiation on a Horizontal Surface (Shadow Band PSP)**  
**Hourly Integrated and Daily Totals**  
**Watt-Hours per Square Meter**  
**Bluefield State College - March 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	0	0	8	40	101	196	238	132	154	220	182	131	66	2	0	0	0	0	0	1471
2	0	0	0	0	0	0	0	27	58	96	103	104	120	135	106	105	95	52	1	0	0	0	0	0	1002
3	0	0	0	0	0	0	0	10	10	29	32	38	41	28	32	34	28	26	0	0	0	0	0	0	308
4	0	0	0	0	0	0	0	33	100	111	234	367	368	383	330	191	148	50	4	0	0	0	0	0	2319
5	0	0	0	0	0	0	0	39 ?	146 ?	166 ?	195	234	186	158	236	246	148	40	2	0	0	0	0	0	1796
6	0	0	0	0	0	0	0	7	45	68	164	359	409	401	206	188	90	10	0	0	0	0	0	0	1947
7	0	0	0	0	0	0	1	32	90	156	154	74	71	68	64	55	45	27	2	0	0	0	0	0	839
8	0	0	0	0	0	0	2	68	137	227	301	409	452	428	329	177	164	66	1	0	0	0	0	0	2763
9	0	0	0	0	0	0	0	15	139	224	281	222	227	77	112	85	22	7	0	0	0	0	0	0	1410
10	0	0	0	0	0	0	0	7	34	48	99	88	74	58	50	33	19	11	1	0	0	0	0	0	522
11	0	0	0	0	0	0	3	53	123	112	111	149	104	130	212	244	158	46	8	0	0	0	0	0	1452
12	0	0	0	0	0	0	2	39 ?	119	74	79	85	89	92	97	92	66	40	4	0	0	0	0	0	877
13	0	0	0	0	0	0	5	61	181	299	279	412	317	227	236	213	118	30	1	0	0	0	0	0	2378
14	0	0	0	0	0	0	0	8	57	127	207	367	331	237	157	24	22	13	1	0	0	0	0	0	1550
15	0	0	0	0	0	0	0	1	3	8	13	26	37	44	35	26	13	6	1	0	0	0	0	0	215
16	0	0	0	0	0	0	1	22	50	73	124	147	120	116	101	88	70	43	6	0	0	0	0	0	962
17	0	0	0	0	0	0	5	45	74	95	108	116	112	108	143	141	153	90	9	0	0	0	0	0	1199
18	0	0	0	0	0	0	1	26	89	208	277	145	97	91	89	74	59	36	5	0	0	0	0	0	1197
19	0	0	0	0	0	0	7	106	159	122	98	123	161	129	152	191	168	89	12	0	0	0	0	0	1515
20	0	0	0	0	0	0	11	54	75	87	176	98	103	85	90	183	146	57	6	0	0	0	0	0	1170
21	0	0	0	0	0	0	1	11	45	244	286	193	206	67	66	22	123	79	9	0	0	0	0	0	1353
22	0	0	0	0	0	0	10	77	160	238	239	157	111	170	313	213	178	60	8	0	0	0	0	0	1933
23	0	0	0	0	0	0	5	54	97	232	229	277	304	298	212	148	138	52	6	0	0	0	0	0	2052
24	0	0	0	0	0	0	2	51	112	65	46	286	126	110	83	111	81	11	2	0	0	0	0	0	1085
25	0	0	0	0	0	0	9	72	218	330	399	463	464	382	311	245	121	68	13	0	0	0	0	0	3094
26	0	0	0	0	0	0	7	78	149	302	295	280	357	314	295	295	153	32	2	0	0	0	0	0	2560
27	0	0	0	0	0	0	23	118	91	99	111	169	147	165	140	99	87	44	12	0	0	0	0	0	1305
28	0	0	0	0	0	0	16	53	82	99	112	116	109	123	236	165	140	82	11	0	0	0	0	0	1346
29	0	0	0	0	0	0	14	107	162	284	378	307	399	349	411	331	192	76	15	0	0	0	0	0	3025
30	0	0	0	0	0	0	19	66	81	100	118	127	131	120	132	144	128	65	11	0	0	0	0	0	1242
31	0	0	0	0	0	0	20	90	174	300	238	366	498	341	121	85	52	9	0	0	0	0	0	0	2294
Avg	0	0	0	0	0	0	5	46	100	152	183	211	207	180	172	143	105	45	5	0	0	0	0	0	1554
S D	0	0	0	0	0	0	7	32	52	90	97	121	137	118	99	82	52	25	5	0	0	0	0	0	727
S/A	0	0	0	0	0	0	1.25	0.69	0.52	0.59	0.53	0.57	0.66	0.65	0.58	0.57	0.5	0.57	0.9	0	0	0	0	0	0.47
Min	0	0	0	0	0	0	0	1	3	8	13	26	37	28	32	22	13	6	0	0	0	0	0	0	215
Max	0	0	0	0	0	0	23	118	218	330	399	463	498	428	411	331	192	90	15	0	0	0	0	0	3094

Daylight Data Recovery: 0% missing; 1% exceed the 15% QC threshold -- 4440 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: 8.27 uV/Wm-2  
Serial Number: 17880F3  
Calibration Date: 9/13/96  
Note: Instrument was changed during month.