SOLAR RADIATION DATA FOR AUGUST 1949

Explanation of tables 1 and 2 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the MONTHLY WEATHER REVIEW, volume 72, No. 1, January 1944, page 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in table 1 appears in volume 75, No. 3, March 1947, page 47.

TABLE 1.—*Solar radiation intensities during August 1949*

[Gram calories per minute per square centimeter of normal surface]

Date	Sun's zenith distance									Vapor pressure	
	A. M.				0.0°	P. M.					
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	7:30 a. m.[1]	1:30 p. m.[1]
MADISON, WIS.											
	Air mass										
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
August										*mb.*	*mb.*
2	0.79	0.88	0.99	1.15	1.33	1.03				15.3	17.0
3				.98	1.38					15.3	14.8
4	.69	.77	.91	1.04	1.26	1.01				15.3	14.2
5	.35	.48	.58	.76	1.16					15.8	16.5
8	.50	.59	.73	.90	1.14	.92				23.4	25.0
9	.52	.64	.77	.95	1.19	.95				24.2	21.8
15	.30	.36	.49	.66	1.15	.90				21.1	19.6
19	.70	.81	.94	1.10	1.20	1.01				14.2	14.8
22	.74	.83	.94	1.03	1.21	.98				12.3	14.8
24	.44	.54	.69	.90	1.20					16.5	19.0
25		.55	.66	.87	1.10					19.0	19.0
26	.32	.38	.44	.50						19.0	21.1
29	.75	.88	.98	1.14	1.38	1.11				11.0	10.2
30					1.33	1.08				14.8	14.2
Means	.55	.64	.76	.92	1.23	1.00					
Departures	−.09	−.10	−.11	−.13	−.07	−.04					
TABLE MOUNTAIN, CALIF.											
	Air mass										
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
August										*mb.*	*mb.*
8	1.13	1.22	1.32	1.44							
9				1.43							
10				1.44							
11				1.41							
13				1.43							
14				1.42							
15	1.11	1.20	1.30	1.42							
16				1.46							
17				1.44							
18				1.43							
19				1.46							
24				1.46							
29	1.19	1.27	1.36	1.47							
31				1.48							
Means	1.14	1.23	1.33	1.44							
Departures	.00	+.01	+.01	+.03							

TABLE 1.—*Solar radiation intensities during August*—Continued

Date	Sun's zenith distance									Vapor pressure	
	A. M.				0.0°	P. M.					
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	7:30 a. m.[1]	1:30 p. m.
BLUE HILL, MASS.											
	Air mass										
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
August										*mb.*	*mb.*
5						0.77				20.0	20.7
6			0.49							18.7	15.0
7	0.44	0.49	.66	0.82						21.5	17.6
8							0.58	0.43	0.34	19.1	17.5
10	.56	.66	.79	1.04		.91			.51	20.0	13.4
14						1.16	1.01	.88	.80	16.9	15.8
16	.77	.89	1.03							17.6	11.3
17								.53		15.7	13.7
19							.95	.89	.85	15.8	11.1
20	.88	1.00	1.14	1.22		1.22	1.07	.96	.85	10.6	7.7
21	.85	.96	1.08	1.25	1.43	1.22	1.02	.87	.77	10.9	7.9
22	.83	.92	1.06	1.21						11.1	11.2
25	.82	.91	.97	1.03	1.35	1.01	.65			11.3	9.4
26	.29	.62	.75	.94	1.14	.90	.74			13.9	15.4
27	.39	.59	.69			.70	.42	.26	.18	21.1	19.1
28	.39	.46	.77							24.7	20.8
30							.81	.62	.54	15.6	15.8
Means	.62	.75	.86	1.07	1.31	.99	.81	.68	.60		
Departures	−.02	−.02	−.02	+.03	+.01	−.03	−.03	.00	+.01		
LINCOLN, NEBR.											
	Air mass										
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
August										*mb.*	*mb.*
22				0.92	1.20	0.92	0.73	0.60	0.50	14.6	17.7
23				.99	1.26	.99	.79	.67	.56	13.7	17.7
24				.99	1.26	.99	.82	.67	.56	14.2	16.4
25			0.75	.92	1.24					16.4	16.4
30			.88	1.03	1.29	1.12	.97	.84	.71	16.4	13.7
31					1.32	1.10	.94	.79	.67	13.7	8.4
Means			.82	.97	1.26	1.02	.85	.71	.60		
Departures			−.08	−.11	−.04	−.03	−.01	−.02	−.02		

* Extrapolated.
[1] 75th Meridian time.

TABLE 2.—*Daily totals and weekly means of solar radiation (direct + diffuse) received on a horizontal surface during August 1949*

[Gram-calories per square centimeter]

Date	Honolulu, T. H.	Pearl Harbor, T. H.	La Jolla, Calif.	Riverside, Calif.	Nashville, Tenn.	Fresno, Calif.	Davis, Calif.	Washington, D. C.	Columbia, Mo.	Soda Springs, Calif.	Seabrook, N. J.	Grand Lake, Colo.	New York, N. Y.	Salt Lake City, Utah	State College, Pa.	Lincoln, Nebr.	Newport, R. I.	Put-in-Bay, Ohio	East Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Lynn, Mass.	Twin Falls, Idaho	East Lansing, Mich.	Madison, Wis.	Toronto, Canada	Summit, Mont.	Fairbanks, Alaska
1949																												
July 30	548	422	225	402	423	534	607	556	747	432	511	617	466	563	287	716	621	218	578	405	505	508	639	282	592	427	702	162
July 31	635	622	439	580	560	662	509	459	651	591	304	622	244	554	528	682	305	709	500	223	270	240	664	517	682	451	697	371
Aug. 1	740	690	595	575	720	699	631	503	677	741	552	558	504	437	632	665	400	682	493	488	559	490	345	335	357	640	458	458
Aug. 2	737	683	592	562	692	707	706	415	657	763	433	488	305	418	665	672	269	406	312	351	458	438	620	428	686	305	666	340
Aug. 3	599	554	450	583	597	693	717	356	690	774	488	514	173	646	253	601	280	603	390	198	191	196	608	467	407	415	642	560
Aug. 4	568	430	372	570	558	700	695	363	630	772	390	700	147	532	534	685	126	627	135	136	245	179	583	370	625	601	690	537
Aug. 5	458	452	297	470	508	708	645	465	659	765	250	583	333	613	641	644	393	675	506	449	539	427	628	475	619	-----	685	105
Means	612	550	424	535	580	672	644	445	673	691	418	583	310	538	506	666	342	560	416	322	395	354	584	410	610	477	649	362
Departures	−30	−32	−108	−30	+109	+2	−22	−33	+79	−27	-----	0	−135	−19	+38	+140	−153	+9	−62	−167	−32	-----	+15	−18	+123	−21	+72	+17
Aug. 6	740	671	505	566	440	704	696	443	721	760	547	476	567	525	494	641	546	651	421	-----	593	563	573	293	609	566	653	249
Aug. 7	721	710	572	523	453	702	723	553	677	764	591	611	471	495	625	643	611	395	572	577	584	584	632	401	674	488	289	474
Aug. 8	673	621	491	552	513	709	670	585	616	760	580	392	565	456	551	552	606	643	621	621	574	608	639	492	623	557	715	151
Aug. 9	728	680	552	567	449	697	620	580	559	668	554	486	606	398	550	378	625	628	574	592	512	536	534	479	647	572	662	326
Aug. 10	549	629	547	527	656	691	627	584	435	735	557	650	520	616	555	401	621	608	566	620	618	557	636	433	591	554	658	534
Aug. 11	634	605	450	463	539	672	671	537	608	598	513	655	544	558	395	633	517	297	468	495	482	451	644	206	353	275	595	108
Aug. 12	727	690	616	575	389	679	642	523	405	748	472	643	253	595	199	548	163	375	144	135	170	207	615	157	158	508	388	197
Means	682	658	533	539	491	693	664	544	573	719	545	559	504	520	481	542	527	514	481	507	505	501	610	352	522	503	566	291
Departures	+38	+66	+11	−5	+31	+52	+10	+86	+29	+1	-----	−7	+81	−31	+6	+43	+32	+19	+14	+22	+83	-----	+56	−68	+46	−1	−16	−34
Aug. 13	633	626	605	562	400	683	638	452	563	749	357	602	159	641	499	115	147	568	246	156	102	199	609	451	445	594	630	393
Aug. 14	512	417	459	450	325	682	696	209	256	741	317	620	400	624	405	287	534	635	625	673	569	587	570	455	467	610	655	-----
Aug. 15	674	658	544	440	567	688	-----	126	460	733	354	690	304	652	207	391	403	533	402	541	543	588	590	429	615	579	590	524
Aug. 16	702	591	487	550	296	683	-----	504	586	732	490	534	137	631	528	588	645	585	527	544	574	594	590	437	438	547	608	475
Aug. 17	665	507	618	548	429	687	645	266	503	746	519	371	455	595	376	310	590	101	612	606	525	470	568	187	506	238	471	505
Aug. 18	580	365	566	536	572	703	632	177	599	747	203	558	101	634	301	310	280	548	296	297	314	327	555	408	425	519	552	425
Aug. 19	439	352	312	543	246	695	-----	514	311	748	613	558	422	611	542	178	525	655	375	549	576	608	599	451	584	627	331	460
Means	601	502	513	518	405	689	653	321	468	742	408	562	283	627	408	311	446	518	440	481	458	482	583	402	497	531	548	464
Departures	−30	−52	+19	−22	−18	+61	+34	−120	−29	+21	-----	−5	−98	+61	−14	−176	−5	+39	−1	+15	+58	-----	+56	−18	+37	+12	+11	+146
Aug. 20	661	581	428	484	424	-----	-----	445	706	727	525	660	653	591	666	484	650	636	627	656	656	621	600	454	581	619	623	476
Aug. 21	528	503	508	396	220	301	547	616	703	479	616	702	627	544	656	618	653	634	643	667	643	634	538	488	637	586	593	336
Aug. 22	684	549	489	457	131	377	656	558	694	703	526	499	465	432	422	614	574	448	565	636	546	574	376	464	610	520	614	178
Aug. 23	656	560	551	489	369	666	639	233	674	720	297	564	269	290	352	633	445	620	455	514	457	460	213	433	513	544	143	394
Aug. 24	714	569	492	490	470	669	628	417	647	717	284	651	292	398	557	622	248	580	217	316	301	355	444	277	589	376	457	364
Aug. 25	696	629	500	596	599	661	620	512	549	716	604	492	531	598	629	631	605	568	577	616	571	590	586	397	527	515	377	353
Aug. 26	542	499	528	586	525	642	620	492	598	706	496	521	504	576	505	443	564	508	532	579	516	519	585	350	519	419	604	294
Means	640	556	499	500	391	553	618	468	653	681	478	584	477	490	541	578	534	571	517	569	527	536	477	409	568	511	487	342
Departures	+12	+13	−2	−27	−60	−50	+15	+40	+174	+20	-----	+45	+100	−19	+100	+91	+70	+83	+55	+91	+131	-----	−46	−44	+117	+35	−28	+48
Aug. 27	582	409	539	566	583	292	138	508	321	160	492	431	430	473	441	383	520	486	482	532	507	440	428	199	394	317	587	257
Aug. 28	699	623	465	570	331	577	494	343	614	288	414	356	426	431	282	585	447	112	465	471	471	450	184	54	595	246	594	412
Aug. 29	599	550	306	555	506	640	624	552	579	676	301	506	229	502	342	517	216	562	181	154	158	168	561	277	600	263	567	400
Aug. 30	612	424	281	551	548	637	624	485	646	672	509	456	378	527	512	613	527	359	493	466	472	499	563	115	484	395	583	300
Aug. 31	654	666	332	568	542	633	612	232	654	670	187	323	170	382	326	605	444	430	349	322	313	364	556	276	386	317	565	252
Sept. 1	685	649	283	542	657	631	616	550	-----	656	495	555	477	459	554	606	430	603	338	354	361	390	550	384	604	401	548	304
Sept. 2	579	585	263	520	631	633	596	562	-----	655	563	348	548	228	589	553	614	602	578	618	568	608	514	457	586	535	339	254
Means	630	558	353	553	542	578	529	462	563	540	423	425	380	429	435	552	457	450	412	417	407	417	479	252	521	353	539	311
Departures	−7	−4	−124	+48	+81	+1	−37	+34	+4	−52	-----	−66	+21	−47	−3	+107	+35	+9	−6	+11	+32	-----	−13	−88	+103	−37	+28	+60

ACCUMULATED DEPARTURES ON SEPT. 2, 1949

+357	+308	{−9534}	----	{+4739	+8792	+1204	−1967}	----	+658	-----	-----	-----	{−1155	+7091	−3199	+5593	+8806	+3280	+6391	+9611}	----	{+4186	−3374	+8512	+658	+623}	----

TABLE 3.—*Daily totals and weekly means of solar and sky radiation plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass., during August 1949*

Date	30	31	1	2	3	4	5	Mean	6	7	8	9	10	11	12	Mean	13	14	15	16	17	18	19	Mean
Gm cal cm⁻²	201	106	220	178	104	65	219	156	286	270	298	281	284	247	58	246	70	304	284	272	323	154	287	242

Date	20	21	22	23	24	25	26	Mean	27	28	29	30	31	1	2	Mean	-----	-----	-----	-----	-----	-----	-----	-----
Gm cal cm⁻²	329	346	341	276	187	353	339	310	324	291	105	286	201	219	391	260	-----	-----	-----	-----	-----	-----	-----	-----

TABLE 4.—*Daily totals and weekly means of solar and sky radiation plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass., during August 1949*

Date	30	31	1	2	3	4	5	Mean	6	7	8	9	10	11	12	Mean	13	14	15	16	17	18	19	Mean
Gm cal cm⁻²	107	107	138	137	102	67	143	114	-----	127	114	119	106	100	60	104	59	109	112	108	115	95	100	100

Date	20	21	22	23	24	25	26	Mean	27	28	29	30	31	1	2	Mean	-----	-----	-----	-----	-----	-----	-----	-----
Gm. cal cm⁻²	100	86	81	109	81	83	82	89	88	91	58	101	93	89	73	85	-----	-----	-----	-----	-----	-----	-----	-----

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