SOLAR RADIATION AND SUNSPOT DATA FOR AUGUST 1946

[Solar Radiation Investigations Section, I. F. HAND in Charge]

SOLAR RADIATION OBSERVATIONS

Explanations of the tables and references to descriptions of instruments, stations, and methods of observations and to summaries of data, are given in the MONTHLY WEATHER REVIEW, vol. 72, page 43, January 1944. A list of pyrheliometric stations is given on page 45 of the same REVIEW.

TABLE 1.—*Solar radiation intensities during August 1946*

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

Date	Sun's zenith distance										
	7:30 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p.m.
	75th mer. time	Air mass									75th mer. time
		A. M.				*1.0	P. M.				
	e.	5.0	4.0	3.0	2.0		2.0	3.0	4.0	5.0	e.
MADISON, WIS.											
1946	*mb.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
Aug. 1	13.7	0.40	0.48	0.64	0.70	------	------	------	------	------	15.3
Aug. 3	17.7	.30	.35	.47	.60	0.98	------	------	------	------	22.6
Aug. 6	14.8	.64	.74	.84	1.02	1.24	------	------	------	------	14.2
Aug. 7	13.2	.52	.64	.76	.96	1.21	------	------	------	------	13.7
Aug. 9	20.3	.45	.55	.74	.94	1.36	------	------	------	------	15.3
Aug. 13	12.3	.41	.44	.53	.75	1.12	------	------	------	------	13.7
Aug. 19	12.7	.74	.87	.98	1.18	1.36	------	------	------	------	13.7
Aug. 21	16.5	.73	.88	1.03	------	------	------	------	------	------	15.8
Aug. 22	12.7	.66	.77	.91	1.08	1.29	------	------	------	------	13.3
Aug. 24	11.8	.39	.47	.62	.73	1.01	------	------	------	------	12.7
Aug. 26	13.2	.45	.57	.70	.84	1.18	------	------	------	------	14.2
Aug. 29	8.1	.86	.98	1.10	1.24	1.43	------	------	------	------	7.8
Aug. 31	11.4	.59	.73	.88	1.06	1.30	------	------	------	------	11.0
Means	------	.55	.65	.78	.92	1.23	------	------	------	------	------
Departures	------	−.10	−.11	−.12	−.15	−.08	------	------	------	------	------
LINCOLN, NEBR.											
Aug. 10	15.3	------	------	------	------	1.31	------	------	------	------	16.4
Aug. 15	22.6	------	------	------	------	1.26	1.01	0.84	0.69	------	22.6
Aug. 19	13.7	------	------	------	0.97	1.34	1.10	.95	.84	0.73	16.9
Aug. 20	15.3	------	------	------	1.08	1.25	------	------	------	------	17.7
Aug. 21	16.9	------	------	------	------	1.27	------	------	------	------	19.6
Means	------	------	------	------	(1.02)	1.29	(1.06)	(.90)	(.76)	(.73)	------
Departures	------	------	------	------	−.07	−.02	.00	+.03	+.03	+.11	------
CLIMAX, COLO.											
Aug. 1	------	------	------	1.14	1.31	------	------	------	------	------	------
Aug. 2	------	------	------	1.12	1.30	------	------	------	------	------	------
Aug. 3	------	------	------	------	------	------	1.24	1.02	0.92	0.82	------
Aug. 4	------	------	1.08	1.18	1.32	1.52	1.28	1.10	.94	.80	------
Aug. 6	------	------	------	1.10	1.26	------	------	------	------	------	------
Aug. 8	------	------	------	------	1.34	1.47	1.29	1.12	1.00	.92	------
Aug. 9	------	------	------	------	1.32	1.68	1.32	1.12	1.00	.92	------
Aug. 10	------	------	------	------	1.32	------	------	------	------	------	------
Aug. 15	------	------	------	------	1.34	1.52	------	------	------	------	------
Aug. 16	------	------	------	------	1.37	1.52	1.36	------	1.04	.94	------
Aug. 17	------	------	------	1.20	1.31	------	------	------	------	------	------
Aug. 18	------	------	------	------	1.26	------	------	------	------	------	------
Aug. 19	------	------	------	------	1.30	1.51	------	1.14	1.04	.90	------
Aug. 20	------	------	------	1.14	1.30	------	------	------	------	------	------
Aug. 24	------	------	------	------	------	1.52	------	1.14	------	------	------
Aug. 25	------	------	------	------	------	1.51	1.31	1.06	.84	.82	------
Aug. 26	------	------	------	------	1.35	------	------	1.14	1.02	.91	------
Aug. 28	------	------	------	------	1.31	1.42	------	1.19	1.10	------	------
Aug. 29	------	------	------	------	------	1.55	1.37	1.18	1.12	------	------
Aug. 30	------	------	------	------	1.37	1.51	1.32	------	------	------	------
Aug. 31	------	------	------	------	1.33	------	------	------	------	------	------
Means	------	------	(1.08)	1.15	1.32	1.52	1.31	1.12	1.00	.88	------

TABLE 1.—*Solar radiation intensities during August 1946*—Con.

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

Date	Sun's zenith distance										
	7:30 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p.m.
	75th mer. time	Air mass									75th mer. time
		A. M.				*1.0	P. M.				
	e.	5.0	4.0	3.0	2.0		2.0	3.0	4.0	5.0	e.
TABLE MOUNTAIN, CALIF.											
1946	*mb.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
Aug. 2	------	------	------	------	1.32	------	------	------	------	------	------
Aug. 3	------	------	------	------	1.27	------	------	------	------	------	------
Aug. 7	------	------	------	------	1.30	------	------	------	------	------	------
Aug. 8	------	------	------	------	1.27	------	------	------	------	------	------
Aug. 12	------	------	------	------	1.30	------	------	------	------	------	------
Aug. 13	------	1.05	1.14	1.24	1.36	1.49	------	------	------	------	------
Aug. 14	------	------	------	------	1.42	------	------	------	------	------	------
Aug. 16	------	------	------	------	1.42	------	------	------	------	------	------
Aug. 17	------	------	------	------	1.41	------	------	------	------	------	------
Aug. 18	------	------	------	------	1.30	------	------	------	------	------	------
Aug. 23	------	------	------	------	1.34	------	------	------	------	------	------
Aug. 24	------	------	------	------	1.45	------	------	------	------	------	------
Aug. 25	------	------	------	------	1.44	------	------	------	------	------	------
Aug. 26	------	1.15	1.24	1.33	1.44	1.56	------	------	------	------	------
Aug. 27	------	------	------	------	1.44	------	------	------	------	------	------
Aug. 28	------	------	------	------	1.45	------	------	------	------	------	------
Aug. 29	------	------	------	------	1.42	------	------	------	------	------	------
Aug. 30	------	------	------	------	1.40	------	------	------	------	------	------
Aug. 31	------	------	------	------	1.45	------	------	------	------	------	------
Means	------	(1.10)	(1.19)	(1.28)	1.38	(1.52)	------	------	------	------	------
BLUE HILL, MASS.											
Aug. 3	13.1	0.68	0.79	0.96	1.12	1.35	------	0.90	0.76	0.63	15.1
Aug. 8	18.0	------	------	------	------	------	1.01	.81	.66	.55	21.0
Aug. 9	18.9	.51	.61	.71	.78	1.18	.86	------	.33	.29	18.3
Aug. 11	17.7	.60	.71	.81	.98	------	1.20	1.06	.94	.85	16.5
Aug. 15	14.4	------	------	------	.99	------	------	------	.40	.31	17.3
Aug. 18	18.4	------	------	------	.93	1.30	1.14	.98	.83	.73	16.9
Aug. 24	16.0	------	------	------	1.01	------	1.06	.81	.68	.58	13.7
Aug. 25	13.6	.80	.92	1.02	1.18	------	------	------	------	------	16.0
Aug. 28	15.3	.61	.73	.82	1.02	------	------	------	------	------	14.7
Aug. 30	9.1	------	------	------	------	------	------	.92	------	.79	10.6
Aug. 31	9.4	------	------	------	------	1.40	1.07	.88	.75	------	10.7
Means	------	.64	.75	.86	1.00	1.31	1.06	.91	.67	.59	------
Departures	------	−.01	−.03	−.02	−.04	+.01	+.03	+.05	−.02	.00	------
BOSTON, MASS.											
Aug. 9	19.0	------	------	------	0.83	------	------	------	------	------	16.5
Aug. 28	15.3	------	------	------	.95	------	------	------	------	------	15.3
Means	------	------	------	------	(0.89)	------	------	------	------	------	------
Departures	------	------	------	------	.00	------	------	------	------	------	------
RATIO, BOSTON/BLUE HILL, ON COMPARABLE DATES											
	------	------	------	------	(0.99)	------	------	------	------	------	------

* Extrapolated.

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

[Gram calories per square centimeter]

Date	Washington, D. C.	Madison, Wis.	Lincoln, Nebr.	East Lansing, Mich.	New York, N. Y.	Fresno, Calif.	Fairbanks, Alaska	Columbia, Mo.	Boston, Mass.	Nashville, Tenn.	Twin Falls, Idaho	La Jolla, Calif.	Riverside, Calif.	Blue Hill, Mass.	Newport, R. I.	State College, Pa.	Put-in-Bay, Ohio	Davis, Calif.	Tooele, Utah	New Orleans, La.	Toronto, Canada	Boulder, Colo.
1946	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
July 30	675	298	673	221	508	752	479	588	364	601	288	619	636	444	589	497	504	718	574	326	195	443
July 31	484	648	670	560	363	732	292	649	358	348	656	636	630	382	394	206	654	722	742	251	519	355
Aug. 1	324	488	449	553	264	709	------	645	6	518	647	462	606	28	102	149	654	694	744	367	115	553
Aug. 2	295	287	595	494	325	709	254	501	78	192	636	467	620	119	157	149	609	717	740	465	418	548
Aug. 3	528	589	643	403	360	678	172	549	610	202	640	571	596	608	611	246	602	664	746	506	------	550
Aug. 4	639	688	603	493	475	674	154	599	434	521	507	576	596	476	458	406	405	722	628	443	------	576
Aug. 5	555	147	360	409	212	714	496	444	361	575	620	536	614	428	402	507	580	720	471	440	------	628
Means	500	449	570	448	358	709	308	568	316	427	570	552	614	355	388	309	572	708	664	400	312	522
Departures	+17	−31	+52	−1	−102	+45	−38	+28	−95	−20	+1	+9	+54	−141	−122	−157	+45	+54	+41	−30	------	+22
Aug. 6	384	644	538	429	213	730	483	645	470	339	619	604	614	529	385	71	440	690	598	533	407	411
Aug. 7	236	586	608	571	49	707	258	416	15	374	648	453	503	31	38	173	652	692	730	638	537	450
Aug. 8	660	396	536	174	610	685	285	420	305	493	633	501	524	495	422	572	244	692	730	585	553	613
Aug. 9	566	599	581	393	363	645	509	476	538	534	626	522	517	594	576	493	433	679	704	589	384	679
Aug. 10	439	423	668	314	208	651	516	716	247	502	589	332	580	271	357	468	350	632	516	548	536	634
Aug. 11	531	550	466	298	621	649	462	646	553	576	177	571	470	544	612	327	537	655	329	404	395	317
Aug. 12	405	500	82	530	295	649	223	215	386	547	569	589	592	354	528	414	338	677	676	557	375	243
Means	460	528	497	387	337	674	391	505	372	481	552	510	551	402	417	360	428	674	612	551	455	478
Departures	+5	+54	+4	−50	−86	+40	+59	−19	−29	+38	+3	−5	+20	−83	−67	−114	−72	+33	+9	+117	------	−8
Aug. 13	386	615	235	464	122	693	100	88	157	96	628	561	596	189	141	274	636	670	584	278	329	412
Aug. 14	659	311	307	521	339	687	127	201	33	134	618	577	590	81	150	624	614	656	450	329	587	448
Aug. 15	579	247	641	364	327	679	161	354	480	320	600	626	586	622	549	496	279	656	624	473	361	422
Aug. 16	96	514	562	411	245	678	167	519	375	352	601	596	592	375	529	80	375	670	691	417	294	531
Aug. 17	524	593	646	400	380	686	353	591	346	521	602	585	586	393	428	343	172	640	662	603	159	392
Aug. 18	272	557	667	406	200	670	463	561	559	262	600	474	559	596	477	178	424	552	680	410	559	514
Aug. 19	488	546	662	399	70	602	433	695	17	593	484	569	505	54	46	406	576	630	651	439	562	600
Means	429	483	532	424	240	670	258	430	281	325	590	570	574	330	332	343	439	639	620	421	407	474
Departures	−15	+28	+41	0	−147	+51	−51	−47	−101	−119	+69	+78	+45	−139	−117	−101	−45	+24	+27	+13	------	+22
Aug. 20	638	573	599	396	470	600	331	680	462	587	313	432	403	499	448	502	534	623	526	591	268	538
Aug. 21	463	372	547	276	224	534	189	440	428	591	486	304	522	446	493	586	502	618	501	621	390	284
Aug. 22	564	591	188	423	403	634	199	155	264	512	417	472	536	394	462	481	655	620	403	------	410	283
Aug. 23	438	490	428	486	254	644	332	134	35	524	384	498	547	62	47	466	630	590	578	388	296	233
Aug. 24	612	543	415	355	575	647	308	53	430	421	460	475	561	567	567	432	570	605	452	430	429	492
Aug. 25	431	538	153	505	589	637	414	440	516	530	384	349	559	585	603	564	656	623	637	313	495	416
Aug. 26	640	445	422	476	545	643	223	540	408	570	523	568	558	500	517	480	629	602	643	284	474	503
Means	541	507	393	417	437	620	285	349	363	534	424	442	526	436	448	502	597	612	534	438	395	393
Departures	+113	+61	−75	+22	+63	+21	−1	−119	−2	+93	−99	−64	+5	−42	−6	+52	+127	+19	−58	+39	------	−19
Aug. 27	584	500	231	375	453	637	280	552	16	550	484	530	552	28	60	563	564	612	654	338	551	142
Aug. 28	535	298	198	102	450	651	414	240	473	218	345	574	484	540	535	490	454	556	580	261	181	158
Aug. 29	245	470	516	368	222	654	407	659	260	392	446	584	572	230	256	133	131	601	675	578	374	178
Aug. 30	511	531	528	360	541	652	388	563	385	554	537	532	589	366	148	451	536	585	651	448	366	469
Aug. 31	559	570	478	466	485	654	338	607	477	568	524	547	594	536	486	474	568	576	638	584	405	490
Sept. 1	575	597	586	213	458	627	228	------	489	543	466	551	581	531	525	432	274	553	524	560	250	------
Sept. 2	584	450	410	427	303	276	118	------	331	471	519	574	580	380	460	279	593	557	630	564	436	526
Means	513	488	421	330	416	593	310	------	347	471	474	556	565	373	353	403	446	577	622	476	366	327
Departures	+88	+75	−18	−39	+61	+22	+63	------	−14	+43	−17	+65	+72	−34	−65	−40	+1	+12	+29	+56	------	−107

ACCUMULATED DEPARTURES ON SEPT. 2, 1946

+2,569	+3,731	−1,169	+1,974	−8,372	+3,983	------	------	+98	0	−1,603	------	−259	−2,408	−2,254	+3,815	------	+10,248	−1,820	------	------	+2,415

ADDITIONAL DATA FOR TWIN FALLS, IDAHO, JULY 1946

Week beginning—	Means	Departures
July 2	537	−71
July 9	639	+23
July 16	641	+23
July 23	519	−54