SOLAR RADIATION AND SUNSPOT DATA FOR AUGUST 1945

[Solar Radiation Investigation Section, I. F. HAND, in charge]

SOLAR RADIATION OBSERVATIONS

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

TABLE 1.—*Solar radiation intensities during August 1945*

[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.											
	mb.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
Aug. 6	19.6	0.54	0.66	0.81	1.07	1.36	------	------	------	------	19.0
Aug. 8	13.2	.80	.90	1.01	1.13	1.37	------	------	------	------	14.8
Aug. 9	13.7	.71	.83	.94	1.06	1.28	------	------	------	------	14.8
Aug. 17	15.8	------	------	.73	------	------	------	------	------	------	22.6
Aug. 22	14.8	------	------	------	1.11	1.36	------	------	------	------	13.2
Aug. 23	11.0	.74	.88	1.02	1.13	1.36	------	------	------	------	12.7
Aug. 24	11.0	------	.66	.88	1.02	------	------	------	------	------	13.5
Aug. 25	12.3	.74	.88	1.01	1.16	1.44	------	------	------	------	9.8
Aug. 30	21.8	.33	.41	.65	.83	1.17	------	------	------	------	27.7
Means	------	.64	.75	.88	1.06	1.33	------	------	------	------	------
Departures	------	−.03	−.02	−.02	−.01	+.02	------	------	------	------	------
LINCOLN, NEBR.											
Aug. 1	23.4	------	------	------	------	1.14	0.88	0.67	0.52	0.41	23.4
Aug. 6	19.0	------	------	------	------	1.36	1.21	1.06	.90	.79	15.3
Aug. 11	23.4	------	------	------	------	1.36	1.12	.94	.82	.73	21.8
Aug. 16	18.3	------	------	------	------	1.29	------	------	------	------	19.0
Aug. 17	21.1	------	------	------	------	1.27	1.08	.86	.71	.58	28.6
Aug. 18	21.8	------	------	------	1.14	1.33	------	------	------	------	19.0
Aug. 24	14.6	------	------	------	.99	1.26	.99	.77	.62	.52	18.3
Aug. 25	15.3	------	------	------	.97	1.20	------	------	------	------	13.2
Aug. 27	16.4	------	------	0.86	1.01	1.25	------	------	------	------	21.1
Aug. 28	19.0	------	------	.92	1.10	1.27	.97	.71	.56	.43	23.4
Aug. 29	20.4	------	------	.90	1.10	1.28	.97	.77	.64	.52	21.8
Aug. 30	19.6	------	------	------	------	1.30	------	------	------	------	21.1
Aug. 31	20.4	------	------	.84	1.01	------	1.08	.90	.77	.67	22.6
Means	------	------	------	.88	1.05	1.28	1.04	.84	.69	.58	------
Departures	------	------	------	−.03	−.04	−.03	−.02	−.03	−.04	−.04	------
ALBUQUERQUE, N. MEX.											
Aug. 1	13.1	------	------	------	------	------	1.07	0.88	0.74	0.61	12.2
Aug. 2	9.8	0.69	0.80	0.92	1.08	------	------	.88	.76	.65	9.8
Aug. 3	11.0	.74	.84	.94	1.10	1.49	------	------	------	------	9.8
Aug. 4	9.5	.80	.88	.99	1.15	1.42	1.25	------	1.04	1.00	9.8
Aug. 5	8.8	------	------	.93	1.08	1.42	1.16	------	1.01	----	8.5
Aug. 6	10.2	------	.84	.96	1.10	1.42	------	------	------	------	9.8
Aug. 7	11.0	.57	.66	.77	.95	------	------	------	------	------	11.0
Aug. 9	12.2	------	------	------	1.02	------	------	------	------	------	13.6
Aug. 10	13.1	.60	.69	.79	1.04	------	------	------	------	------	13.6
Aug. 12	13.6	.71	.82	.92	1.11	------	------	------	------	------	13.1
Aug. 13	12.2	------	.84	.94	1.12	1.48	------	------	------	------	12.7

TABLE 1.—*Solar radiation intensities during August 1945*—Contd.

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.
ALBUQUERQUE, N. MEX.—Continued											
	mb.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
Aug. 14	11.4	.78	.88	.97	1.12	1.44	------	------	------	------	10.2
Aug. 15	11.4	.83	.91	1.02	1.16	------	------	------	------	------	10.6
Aug. 16	11.4	.78	.87	.99	1.14	1.44	------	1.19	1.14	------	10.2
Aug. 17	11.0	------	------	.95	1.14	1.45	1.20	.86	------	------	9.5
Aug. 18	11.0	.75	.85	.95	------	------	------	------	------	------	11.4
Aug. 19	8.5	------	.90	------	1.04	------	------	------	------	------	9.8
Aug. 22	9.1	------	------	------	------	------	1.14	------	------	------	10.2
Aug. 24	9.5	.67	.78	.91	------	------	1.20	------	.97	.87	10.6
Aug. 25	9.1	.71	.80	.91	1.07	1.47	1.20	.98	------	------	7.9
Aug. 26	6.5	.61	.69	.83	1.01	------	------	------	------	------	7.0
Aug. 27	7.9	------	------	------	.98	1.51	1.00	------	------	------	8.5
Aug. 28	8.8	.59	.73	.88	1.06	1.41	1.13	------	------	------	7.9
Aug. 29	8.5	.59	.67	.83	1.02	1.58	------	------	------	------	9.5
Aug. 30	10.2	.61	.71	.84	1.03	1.58	1.11	------	------	------	10.6
Aug. 31	10.6	.57	.67	.80	.99	1.44	------	------	------	------	11.4
Means	------	.68	.79	.90	1.07	1.47	1.15	.96	.94	.78	------
Departures	------	−.08	−.07	−.08	−.06	+.05	−.04	−.07	−.02	−.10	------
BOSTON, MASS.											
Aug. 10	17.7	------	------	------	1.04	1.01	------	------	------	------	19.0
Aug. 11	19.0	------	------	------	.80	------	------	------	------	------	19.6
Aug. 17	14.8	------	------	------	1.13	------	------	------	------	------	16.5
Aug. 20	14.2	0.65	0.66	0.69	.81	------	------	------	------	------	19.6
Means	------	(.65)	(.66)	(.69)	.94	(1.01)	------	------	------	------	------
Departures	------	.00	+.07	−.12	+.05	−.28	------	------	------	------	------
BLUE HILL, MASS.											
Aug. 2	15.9	0.63	0.77	0.94	1.10	------	------	------	------	0.47	19.5
Aug. 4	14.6	.67	.76	.94	1.11	1.46	------	------	------	------	13.3
Aug. 5	11.5	.92	1.02	1.14	1.29	1.47	1.24	1.05	0.94	.86	14.9
Aug. 8	16.8	.79	.87	1.01	------	------	.89	------	------	------	16.2
Aug. 9	17.2	.77	.86	1.00	1.14	------	------	------	------	------	18.3
Aug. 10	15.9	.70	.82	.96	1.11	------	------	.83	------	------	16.6
Aug. 11	18.0	.54	.61	.72	.91	------	.92	.68	.49	.38	17.1
Aug. 12	19.3	.45	.54	.66	.86	------	------	------	------	------	20.4
Aug. 13	17.5	------	------	------	------	------	.95	.69	.57	.51	18.2
Aug. 16	11.0	.89	.98	1.10	1.27	------	1.20	1.04	.92	.80	12.0
Aug. 17	14.9	------	------	------	1.20	------	------	------	.78	.67	14.0
Aug. 18	13.3	.60	.70	.87	------	------	------	------	------	------	16.5
Aug. 19	16.8	------	------	------	------	1.51	1.24	1.06	.94	.87	10.9
Aug. 20	10.5	.65	.76	.88	1.03	------	.70	.44	.32	.25	16.9
Aug. 21	19.8	.30	.38	.51	.70	------	------	------	------	------	22.4
Aug. 27	13.5	------	.86	1.01	------	------	------	1.02	------	------	13.7
Aug. 29	19.0	------	------	------	------	1.40	.93	------	------	.29	20.4
Means	------	.66	.76	.90	1.07	1.46	1.01	.85	.71	.57	------
Departures	------	+.01	−.02	+.02	+.03	+.16	−.02	.00	+.02	−.03	------
RATIO, BOSTON/BLUE HILL, ON COMPARABLE DATES											
	------	1.00	0.87	0.78	0.89	------	------	------	------	------	------

*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	East Wareham, Mass.	Davis, Calif.	Boulder, Colo.	Tooele, Utah	New Orleans, La.
1945	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*
July 30	415	328	624	473	339	674	411	688	600	407	648	543	579	637	558	323	580	578	725	379	743	440
July 31	408	590	656	309	102	668	99	665	556	584	650	301	423	597	540	380	451	634	715	410	762	468
August 1	422	562	610	300	179	675	401	673	320	526	618	220	314	313	400	233	592	455	698	397	671	564
August 2	402	515	397	481	328	397	204	636	537	500	484	535	444	510	650	442	607	551	680	451	700	598
August 3	410	725	260	463	392	629	127	247	431	484	495	608	598	434	286	652	658	198	696	406	425	524
August 4	687	521	495	584	584	663	152	462	479	554	664	594	626	531	602	675	684	504	643	338	668	568
August 5	587	138	441	66	677	642	460	646	678	340	634	606	481	710	658	605	256	686	678	330	550	583
Means	476	483	498	382	372	621	265	574	514	485	599	487	495	533	528	473	547	515	691	387	646	535
Departures	−7	+2	−18	−65	−92	−41	−83	+38	+83	+43	+30	−55	−61	+25	+4	−14	+23	+46	−17	−108	------	+103
August 6	167	697	606	378	26	598	456	368	145	159	230	523	594	173	137	88	426	224	717	142	622	393
August 7	570	399	568	319	408	662	258	620	122	478	427	609	633	102	178	382	264	180	707	344	778	614
August 8	621	730	262	552	297	675	477	612	506	489	352	638	662	601	570	609	677	580	684	416	649	403
August 9	535	688	383	542	612	666	222	549	582	632	614	289	631	584	609	663	639	620	688	463	739	620
August 10	629	374	346	478	575	654	474	182	530	574	485	394	574	619	604	660	587	630	667	638	712	458
August 11	585	505	603	119	508	679	265	567	524	379	598	166	182	608	551	576	238	595	705	522	688	546
August 12	528	661	530	379	431	690	229	566	481	481	409	273	639	545	542	314	459	590	697	349	300	369
Means	519	579	471	395	408	661	340	495	413	456	445	413	559	462	456	470	470	488	695	410	641	486
Departures	+64	+107	−22	−51	−19	+29	+12	−41	−21	+10	−104	−103	+29	−30	−36	−19	−39	+26	0	−76	------	+61
August 13	410	504	418	434	379	679	407	476	547	611	590	424	674	598	604	572	543	617	688	496	749	484
August 14	503	542	571	138	441	663	281	433	469	581	581	604	661	510	528	538	329	559	682	406	610	344
August 15	497	602	473	534	256	652	273	657	213	244	592	505	636	236	254	477	533	235	681	584	746	403
August 16	645	508	538	442	640	642	342	627	614	582	616	409	584	648	638	658	546	668	681	550	752	308
August 17	445	505	565	434	400	529	300	628	464	579	547	443	284	543	481	602	562	511	612	431	530	236
August 18	444	633	564	477	411	378	488	406	548	603	286	126	210	621	554	411	576	582	328	408	532	654
August 19	446	590	535	508	589	569	432	611	481	597	211	420	342	639	371	446	634	474	623	354	505	638
Means	484	555	523	424	445	588	360	548	477	542	489	419	484	542	490	529	532	521	614	461	632	438
Departures	+40	+101	+34	−4	+51	−28	+48	+46	+66	+92	−28	−66	−41	+62	+28	+62	+46	+73	−46	+10	------	+31
August 20	484	606	427	493	366	637	387	592	512	563	590	204	579	581	583	542	538	587	652	79	726	322
August 21	571	304	233	279	411	608	325	436	513	543	584	372	600	514	478	462	529	524	652	73	738	408
August 22	492	646	422	434	502	612	171	482	425	274	576	386	578	380	345	554	546	356	665	278	730	124
August 23	103	642	412	485	143	612	130	675	334	350	477	268	575	291	164	209	368	187	648	569	689	143
August 24	76	604	527	452	30	626	345	627	70	334	509	457	581	65	62	82	397	76	664	508	574	318
August 25	447	676	420	409	154	642	83	615	67	560	568	367	612	80	80	318	441	99	657	368	717	459
August 26	640	601	508	550	246	631	224	603	440	651	582	497	639	461	458	587	623	373	633	421	725	552
Means	402	583	421	443	265	624	238	576	337	468	555	364	595	339	310	393	492	315	653	328	700	332
Departures	−22	+139	−49	+49	−107	+26	−48	+101	−41	+34	+27	−148	+75	−142	−145	−56	+35	−127	+12	−92	------	−64
August 27	641	604	488	470	602	616	104	630	394	615	566	582	630	420	449	546	532	395	608	396	730	550
August 28	609	320	499	267	492	620	112	626	468	552	561	437	553	489	506	558	570	525	502	509	714	559
August 29	564	493	502	226	463	611	79	585	483	558	481	435	412	519	504	498	355	531	599	403	661	541
August 30	512	574	484	451	403	608	149	528	240	513	507	589	620	302	380	408	507	372	619	464	692	480
August 31	523	423	456	297	408	590	93	502	317	539	532	483	558	338	446	505	427	425	611	567	688	508
September 1	551	488	472	140	490	315	228	------	405	538	521	448	497	395	220	448	447	190	591	515	600	457
September 2	387	599	462	466	170	503	259	------	125	546	553	367	225	116	137	385	512	126	613	305	518	584
Means	541	500	480	331	433	552	146	------	347	552	532	477	499	369	377	478	464	366	592	451	658	526
Departures	+118	+89	+40	−35	+81	−18	−97	------	+1	+142	+40	−8	+12	−41	−48	+62	+34	−49	−20	−7	------	+110

ACCUMULATED DEPARTURES ON SEPTEMBER 2, 1945

	+3,276	+8,974	−5,271	−4,403	−6,811	+560	−3,164	------	−2,149	−1,813	−8,239	−14,658	+5,558	−5,929	−7,819	+3,129	+1,736	−840	−854	------	------	------