SOLAR RADIATION AND SUNSPOT DATA FOR JUNE 1947

[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 MONTHLY WEATHER REVIEW, vol. 72, page 43, January 1944. A list of pyrheliometric stations is given on page 45 of the same REVIEW. An explanation of the formula used in computing the air mass values for each station will be found in vol. 75, No. 3, March 1947, p. 47.

TABLE 1.—*Solar radiation intensities during June 1947*

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

Date	Sun's zenith distance									Vapor pressure	
	A. M.					P. M.					
	78.7°	75.7°	70.7°	60.0°	0.0°	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		
	cal.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
June 3	0.73	0.74	0.69	1.01						8.1	8.7
June 16	.71	.83	.94	1.15	1.38					11.4	9.1
June 20		.38	.49	.84	1.17					11.4	12.7
June 24	.76	.86	.99	1.14	1.36					15.3	12.7
June 26				1.16	1.36					14.2	13.7
Means	.73	.70	.78	1.06	1.32						
Departures	+.08	−.08	−.13	+.02	.00						
LINCOLN, NEBR.											
	Air mass										
	4.77	3.81	2.86	1.91	0.95*	1.91	2.86	3.81	4.77		
June 23					1.41	1.17	1.03	0.92	0.82	12.7	13.7
June 25					1.36	1.12	1.01	.88	.77	17.7	18.3
June 26					1.38	1.08	.92			19.6	21.1
June 27					1.35	1.14	.99			19.0	21.8
June 30					1.35	1.12	1.03	.92	.84	21.1	19.0
Means					1.37	1.13	1.00	.91	.81		
Departures					+.02	+.04	+.10	+.13	+.15		
BLUE HILL, MASS.											
	Air mass										
	4.86	3.89	2.92	1.94	0.97*	1.94	2.92	3.89	4.86		
June 1				0.90						10.0	10.8
June 4	0.75	0.88	1.05		1.48	1.21				7.2	6.5
June 10					1.33	.75	0.61	0.49	0.38	11.2	16.4
June 11							.53	.45	.34	15.9	21.4
June 12					1.39	1.10	.88	.76	.66	22.8	17.1
June 13	.80	.90	1.04	1.21	1.42	1.17	1.00	.88	.79	11.0	8.6
June 15						.94		.47	.34	15.9	15.5
June 16	.44	.60	.74	1.01						12.8	12.2
June 17					1.40		.83	.66	.55	11.9	11.2
June 21			1.05	1.17	1.40	1.24	1.06	.95	.85	12.0	10.3
June 22	.81	.92	1.04	1.22	1.40	1.16	.93			12.4	11.1
June 23	.81	.91	1.04	1.20						14.0	9.5
June 27	.34	.44	.72	.89	1.17	.81	.52	.40	.32	19.3	19.8
June 28	.57	.71	.81	1.00						19.0	21.2
June 30					1.28	1.07	.92	.75	.64	23.8	22.6
Means	.65	.77	.94	1.08	1.36	1.05	.81	.65	.54		
Departures	.00	+.02	+.05	+.04	+.05	+.01	−.03	−.02	−.02		

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TABLE 1.—*Solar radiation intensities during June 1947*—Continued

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

Date	Sun's zenith distance									Vapor pressure	
	A. M.					P. M.					
	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	7:30 a. m.[1]	1:30 p. m.[1]
CLIMAX, COLO.											
	Air mass										
	3.24	2.59	1.94	1.29	0.65*	1.29	1.94	2.59	3.24		
June 1				1.28	1.46						
June 4						1.32	1.20	1.08	0.98		
June 5			1.18		1.50	1.34	1.20				
June 6			1.23	1.36	1.48	1.36	1.13	1.01			
June 8		1.09	1.24	1.38	1.54						
June 9					1.49						
June 10				1.40	1.51	1.35		.97			
June 13			1.32	1.46	1.62	1.42	1.29	1.16	1.08		
June 14			1.30	1.43	1.52						
June 15			1.15	1.35	1.54	1.28	1.12				
June 16				1.34	1.46	1.26					
June 17			1.09	1.24	1.41						
June 19			1.21	1.35	1.53						
June 23			1.29	1.40	1.59						
June 25			1.23	1.37	1.56	1.34	1.22	1.10	1.01		
June 26			1.24	1.42	1.60	1.42	1.28	1.18	1.07		
June 27			1.31	1.44	1.59	1.42	1.28	1.16	1.06		
June 28			1.29	1.42	1.58	1.41	1.37	1.17	1.08		
June 29					1.59	1.38	1.26	1.16	1.09		
June 30			1.28	1.39	1.58	1.42	1.29	1.16	1.08		
Means		(1.09)	1.24	1.38	1.53	1.36	1.24	1.12	1.06		
TABLE MOUNTAIN, CALIF.											
	Air mass										
	3.76	3.01	2.26	1.51	0.75*	1.51	2.26	3.01	3.76		
June 4				1.36							
June 6				1.34							
June 7				1.33							
June 9				1.38							
June 10	1.00	1.09	1.20	1.34	1.50						
June 12				1.34							
June 13				1.35							
June 18				1.36							
June 19				1.35							
June 22				1.32							
June 23				1.26							
June 24				1.28							
June 25				1.31							
June 26				1.35							
June 27				1.37							
June 28	1.06	1.15	1.26	1.37	1.51						
June 29				1.38							
June 30				1.41							
Means	(1.03)	(1.12)	(1.23)	1.34	(1.50)						

[1] 75th meridian time.
* 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.	Salt Lake City, Utah	State College, Pa.	Davis, Calif.	East Wareham, Mass.	Toronto, Canada.	Ithaca, N. Y.	Boulder, Colo.	Soda Springs, Calif.	Honolulu, Hawaii	Pearl Harbor, Hawaii
1947	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
June 4	728	407	145	597	656	575	620	660	701	651	720	550	672	790	777	467	756	555	750	637	489	642	562	703	710
June 5	746	501	676	451	670	509	383	486	600	528	396	639	440	----	774	299	664	477	712	538	439	504	80	549	494
June 6	478	386	390	345	488	724	623	221	552	631	716	643	675	606	568	499	328	297	596	606	466	526	359	621	646
June 7	458	381	635	236	55	470	628	687	300	656	190	505	708	222	110	507	148	372	146	186	265	694	146	685	717
June 8	338	568	754	457	64	665	650	726	30	425	188	548	559	60	48	237	195	628	43	311	208	661	119	627	613
June 9	490	464	576	621	598	780	668	777	310	687	726	624	595	360	450	500	643	798	318	484	401	443	792	646	574
June 10	705	361	566	584	549	776	----	502	567	666	461	479	704	707	715	493	619	799	673	601	417	783	747	634	544
Means	563	438	534	470	440	643	595	580	437	607	485	570	622	457	492	429	479	561	463	480	384	608	400	638	614
Departures	+49	−71	+24	+27	−51	−35	+88	+55	−31	+48	−88	+37	+79	−64	−55	----	−23	−108	−59	+7	−121	+94	----	----	----
June 11	550	303	397	526	533	775	573	714	506	645	260	280	627	640	632	99	643	816	557	510	413	36	831	661	630
June 12	630	85	84	414	668	774	404	623	646	549	719	618	753	712	693	677	704	801	602	495	220	206	822	696	431
June 13	344	100	426	296	544	774	638	422	674	344	672	599	725	746	740	796	252	790	709	632	346	809	802	677	595
June 14	191	132	789	124	262	787	448	769	233	573	724	257	609	315	355	723	276	816	320	132	122	748	819	528	504
June 15	717	585	736	149	562	658	536	802	581	604	698	414	671	636	598	808	253	742	541	233	115	734	782	514	361
June 16	403	733	570	651	518	638	736	701	489	642	357	250	694	577	520	636	432	686	488	681	426	570	636	467	487
June 17	627	254	632	267	452	760	642	168	546	668	401	566	681	639	722	345	560	782	676	538	460	476	806	543	616
Means	494	313	519	346	506	738	568	600	525	575	547	426	680	609	608	583	446	776	556	460	300	511	785	584	517
Departures	−9	−183	−19	−88	+23	+38	+56	+47	+59	+47	−63	−103	+96	+114	+98	----	−3	+44	+36	−62	−185	−19	----	----	----
June 18	139	590	290	607	62	768	657	158	287	594	709	422	696	322	154	779	237	784	206	617	382	130	806	606	579
June 19	657	703	110	553	725	748	750	235	372	441	553	358	529	508	641	729	678	743	446	625	478	700	777	700	692
June 20	626	714	219	639	586	772	630	408	401	433	678	252	214	508	332	355	757	836	237	654	480	480	693	592	456
June 21	425	559	269	671	671	772	407	452	685	231	385	589	712	770	750	347	632	787	680	726	438	134	828	639	565
June 22	722	457	222	646	702	756	541	496	678	81	706	548	695	780	756	605	714	773	727	664	480	491	819	674	655
June 23	575	208	789	615	611	748	474	562	654	686	671	307	675	771	689	787	683	772	682	654	480	611	790	664	619
June 24	533	710	670	266	87	744	466	853	126	126	713	125	522	161	115	547	554	735	143	635	272	608	676	721	559
Means	525	563	367	570	492	758	561	452	458	371	631	371	578	546	491	593	608	776	446	654	430	451	770	657	589
Departures	+21	+26	−205	+27	+3	+44	+22	−130	+4	−183	−31	−193	−21	+8	−55	----	+66	+72	−59	+104	−65	−102	----	----	----
June 25	594	355	760	516	408	740	643	590	430	404	574	393	472	434	523	602	483	751	486	386	218	696	762	511	509
June 26	333	731	635	548	318	774	----	651	597	399	585	587	501	647	467	356	342	766	588	477	234	754	782	423	507
June 27	664	601	738	485	589	791	----	621	561	402	463	418	512	691	647	610	528	767	584	623	484	773	822	551	340
June 28	183	695	560	604	400	805	----	695	605	470	746	648	644	664	652	748	238	788	622	542	327	758	830	670	688
June 29	408	644	358	470	566	798	----	437	593	513	744	676	718	666	450	625	614	776	468	544	453	444	836	584	518
June 30	369	366	594	578	524	782	----	302	579	437	736	546	717	671	599	788	428	779	554	647	237	651	819	636	545
July 1	594	754	788	556	453	778	----	----	557	421	713	511	696	624	490	755	402	781	589	461	364	752	815	531	370
Means	449	592	633	536	466	781	----	----	560	435	652	540	609	628	547	641	434	773	556	526	331	690	809	558	497
Departures	−80	+46	+41	+22	−18	+75	----	----	+79	−103	+20	+3	+15	+120	−3	----	−92	+43	+48	−45	−154	+116	----	----	----

ACCUMULATED DEPARTURES ON JULY 1, 1947

	+5,691	−2,891	−4,823	−238	−2,765	+3,668	----	----	−1,323	−2,646	+154	−5,922	+4,382	−553	−4,151	----	−763	+686	----	−2,562	−12,607	+1,029	----	----	----