SOLAR RADIATION DATA FOR JUNE 1948

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

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, vol. 72, No. 1, January 1944, p. 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 vol. 75, No. 3, March 1947, p. 47.

TABLE 1.—*Solar radiation intensities during June 1948*

[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		
June	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
1	0.42	0.58	0.66	0.99	1.14					12.7	9.8
2	.57	.68	.80	.99	1.24	0.96				14.2	13.2
3				.83	1.08					16.5	14.8
4	.42	.55	.68	.84	1.09					15.3	15.3
7				.96	1.25					14.2	11.4
8	.69	.81	.96							12.3	12.7
9	.40	.50	.66	.84	1.03					12.7	12.3
11	.40	.48	.61	.87	1.34					17.0	12.3
16					1.17					9.4	10.2
24			.91	1.08	1.30	.98	0.77			17.7	17.0
25	.28	.33	.41	.50	.83					16.5	19.0
26			.74							15.3	21.8
29				.87						19.6	16.7
30	.75	.81	.98	1.16	1.36					13.2	13.2
Means	.49	.59	.74	.90	1.17	(.97)	(.77)				
Departures	−.15	−.18	−.16	−.14	−.16	.00	.00				
LINCOLN, NEBR.											
	Air mass										
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
June	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
4					1.20	1.06	0.92	0.82		16.9	19.6
8					1.40					15.3	11.0
9					1.27	1.03	.77			12.3	11.8
29					1.34	1.08	.86	.67	0.54	17.7	16.4
Means					1.30	1.06	.85	(.74)	(.54)		
Departures					−.05	−.03	−.05	−.04	−.12		
CLIMAX, COLO.											
	Air mass										
	3.24	2.59	1.94	1.29	*0.65	1.29	1.94	2.59	3.24		
June	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
2		1.07	1.21	1.34							
3		1.06					1.15	1.04	0.96		
4				1.36	1.51						
6				1.40	1.51						
10			1.16	1.30							
30			1.24	1.39							
Means		(1.06)	1.20	1.36	(1.51)		(1.15)	(1.04)	(.96)		
Departures		−.01	−.03	−.01	−.02		−.08	−.07	−.09		
TABLE MOUNTAIN, CALIF.											
	Air mass										
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
June	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
3				1.31							
5				1.38							
6				1.43							
8				1.35							
11				1.41							
12				1.38							
13				1.41							
14				1.42							
15				1.40							
17				1.43							
21				1.37							
22				1.37							
23				1.34							
Means				1.38							
Departures				+.02							
BLUE HILL, MASS.											
	Air mass										
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
June	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
4						1.11	0.94			11.5	11.5
6	0.90	1.00	1.13	1.28	1.49					6.6	7.4
14					1.44		.86			14.0	11.2
17	.62	.74	.91	1.15						11.9	9.1
18	.79	.92	1.05	1.20	1.38					12.1	9.3
20				1.16		1.20				12.5	8.6
21	.37	.44	.56	.74						12.2	11.1
22	.81									12.0	12.4
25				1.00		1.01	.82	0.67	0.55	23.2	19.0
26	.47	.59	.78			1.10	.96	.85	.73	15.5	13.7
30						.68	.44			26.3	27.8
Means	.66	.74	.89	1.09	1.44	1.02	.80	(.76)	(.64)		
Departures	+.01	−.01	.00	+.05	+.13	−.02	−.04	+.08	+.08		

See footnotes at end of table.

*Extrapolated.

[1] 75th Meridian time.

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.	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	Put-in-Bay, Ohio	State College, Pa.	Davis, Calif.	Toronto, Canada	Ithaca, N. Y.	Boulder, Colo.	East Wareham, Mass.	Honolulu, T. H.	Pearl Harbor, T. H.	East Lansing, Mich.	Summit, Mont.	Soda Springs, Calif.	Grand Lake, Colo.
1948	*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.*	*cal.*	*cal.*	*cal.*
June 3	232	695	712	368	748	661	743	528	518	461	563	676	547	442	538	563	521	380	545	446	644	450	738	705	548	99	584	838
June 4	624	548	724	398	793	458	714	501	509	521	281	516	578	595	662	644	561	418	389	428	718	505	763	661	546	164	322	822
June 5	353	214	275	226	626	616	620	102	484	574	705	766	105	116	738	782	414	495	762	386	726	110	683	626	667	591	321	845
June 6	698	271	696	674	782	345	307	739	360	691	570	644	772	804	752	223	655	548	552	464	688	733	715	469	324	777	748	748
June 7	503	599	711	206	722	248	722	92	537	408	606	578	86	154	264	284	225	557	223	53	548	160	581	479	283	747	571	552
June 8	665	354	782	565	752	396	811	92	471	695	554	734	150	411	716	195	527	705	555	336	673	254	427	422	134	718	676	651
June 9	472	670	759	70	700	680	782	97	634	559	713	742	100	166	653	534	350	691	564	109	536	183	570	488	466	189	673	600
Means	507	479	666	358	732	486	671	307	502	558	570	666	334	384	617	461	465	542	513	317	648	342	640	550	424	469	557	722
Departures	−7	−29	+150	−128	+52	−20	+115	−131	−49	−14	+34	+117	−175	−150	+87	−75	−32	−106	+12	−171	+88	−145	+9	−28	−16	-----	+21	-----
June 10	635	823	659	204	730	444	760	183	592	523	604	682	222	161	542	552	633	614	466	433	451	276	612	544	552	228	358	738
June 11	569	678	656	454	780	419	743	313	588	532	604	762	374	407	735	308	478	746	585	263	283	397	701	572	232	66	729	375
June 12	456	224	293	446	772	657	430	182	576	634	575	729	169	261	754	303	426	641	394	375	541	213	539	497	113	544	376	683
June 13	352	778	771	125	811	453	760	51	555	702	512	725	74	81	727	716	510	757	712	414	748	74	631	624	542	358	864	762
June 14	672	493	522	522	805	416	578	637	446	384	644	760	687	741	674	559	675	746	541	458	533	638	708	595	376	544	833	778
June 15	633	666	589	312	818	665	262	396	482	547	674	742	443	351	711	613	497	742	693	325	650	312	728	695	482	261	858	809
June 16	126	729	609	152	808	693	590	438	379	641	638	735	526	410	690	745	502	737	624	460	612	479	731	692	649	124	852	842
Means	492	599	585	316	789	535	589	314	517	566	607	733	356	345	691	542	532	712	574	390	545	341	664	603	421	303	696	712
Departures	−11	+101	+45	−160	+85	+22	+29	−132	−11	−42	+72	+140	−129	−152	+119	+5	−28	−17	+48	−86	+26	−153	+22	+21	−9	-----	+19	-----
June 17	756	263	394	697	809	662	236	589	496	680	641	728	646	697	681	678	666	732	620	398	748	633	678	646	560	282	822	846
June 18	358	208	621	408	821	636	485	595	190	353	617	729	687	775	448	400	469	765	481	409	168	721	718	693	294	204	804	829
June 19	466	351	650	264	794	126	735	74	514	635	667	674	93	168	310	475	270	739	455	402	171	143	670	646	68	452	800	443
June 20	280	476	136	661	775	187	351	662	641	366	528	666	707	732	409	754	709	482	695	507	499	661	719	556	600	607	154	560
June 21	647	263	322	469	797	293	-----	571	446	341	311	628	694	681	153	253	504	784	352	330	343	625	742	695	180	375	868	395
June 22	435	461	300	95	814	493	-----	508	469	329	473	496	494	472	314	567	199	770	109	86	360	463	745	705	259	446	859	251
June 23	430	581	725	64	793	542	-----	95	641	731	336	529	144	144	404	681	336	743	540	255	168	171	680	721	428	424	819	277
Means	482	372	450	380	800	420	452	442	485	491	510	636	495	524	388	544	450	717	465	341	351	488	707	666	341	398	732	514
Departures	−21	−161	−118	−105	+82	−112	−110	+6	−59	−163	−50	+34	−40	−20	−176	−39	−81	+11	−63	−140	−165	−3	+61	+83	−162	-----	−28	-----
June 24	610	672	632	505	775	561	-----	445	458	718	355	638	480	432	630	367	490	721	255	304	562	374	681	610	345	342	797	470
June 25	693	549	699	663	781	611	-----	596	522	656	310	565	726	727	647	669	479	705	506	338	394	681	739	707	567	442	794	447
June 26	461	461	500	483	763	369	-----	565	486	633	204	542	652	568	468	322	319	713	619	332	436	669	654	691	465	709	795	350
June 27	626	481	468	137	759	115	-----	264	507	702	460	624	299	214	650	368	545	697	212	182	275	219	747	369	219	484	802	263
June 28	661	356	428	349	747	113	-----	457	417	703	258	674	552	509	721	639	554	690	335	347	560	478	593	405	410	643	727	405
June 29	646	475	616	551	732	150	-----	484	568	694	218	657	537	658	726	483	649	699	463	369	565	602	388	356	189	780	811	703
June 30	577	760	745	620	706	344	-----	568	599	402	356	671	642	643	635	596	439	706	512	322	657	614	663	619	526	660	740	820
July 1	458	670	-----	574	-----	698	-----	271	726	412	359	678	238	330	-----	628	713	737	519	419	342	233	581	506	663	562	797	703
Means	592	553	584	485	752	370	-----	456	535	615	315	631	516	510	640	509	524	708	428	327	474	484	631	533	423	578	783	520
Departures	+61	+7	−8	+1	+43	−89	-----	−10	−2	−16	−203	+35	−8	−37	−22	−77	−2	−18	−93	−144	−87	−15	+7	−31	−73	-----	+2	-----
ACCUMULATED DEPARTURES ON JULY 1, 1948																												
	− 2324	+ 2723	+ 3717	− 7119	+ 7364	} ----	-----	{ − 5257	+ 910	− 2800	− 980	+ 7721	− 6090	− 4543	− 1113	+ 4333	− 3493	− 3703	+ 2191	− 12320	− 175	− 4592	} ----	-----	{ + 1575	} ----	{ − 2646	} ----

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 June 1948*

VERTICAL SURFACE MEASUREMENTS FOR BLUE HILL, MASS., FOR JUNE, 1948

Date	3	4	5	6	7	8	9	Mean	10	11	12	13	14	15	16	Mean	17
Gm. cal/cm²	255	254	52	270	43	90	56	146	111	186	88	40	254	202	215	157	238
Date	18	19	20	21	22	23	Mean	24	25	26	27	28	29	30	1	Mean	
Gm. cal/cm²	251	51	255	264	226	67	193	214	258	252	139	237	230*	230	118	210	

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