SOLAR RADIATION DATA FOR MAY 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 May 1948*

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

MADISON, WIS.

Date	Sun's zenith distance: A. M. 78.7°	75.7°	70.7°	60.0°	0.0°	P. M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure 7:30 a.m.[1]	1:30 p.m.[1]
	Air mass 4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
May	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
1				0.94	1.20					11.0	10.6
3	0.74	0.87	0.96	1.06	1.31					7.4	9.1
5	.64	.74								10.6	11.4
6	.87	.96	1.08	1.25	1.44					11.4	9.8
8	.90	1.01	1.13	1.25	1.36					4.8	6.1
14	.71	.81	.96	1.14	1.37					9.4	9.8
17	.43	.55	.70	.92	1.30					10.2	10.6
18	.41	.60	.75	.94	1.43					11.0	11.0
19				1.04	1.32					7.4	9.4
20	.60	.74	.87	1.03	1.29					10.2	16.5
21	.83	.90	1.04	1.19	1.40					11.0	8.1
22	.76	.84	98	1 13	1 35					8.4	11.0
24	.77	.90	1.01	1.14	1.38					7.2	7.2
25	.62	.74	.90	1.06	1.36					9.8	7.2
26	.65	.79	.91	1.08	1.36					9.8	8.4
27	.55	.68	.81	1.02	1.23					8.7	10.6
29			.92	1.11	1.33					7.2	7.8
Means	.68	.80	.93	1.08	1.34						
Departures	−.05	−.03	−.02	−.02	−.02						

LINCOLN, NEBR.

	Air mass 4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
May	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
5					1.40	1.22	1.07	0.94	0.81	11.0	14.2
17					1.31	1.10	.94	.82	.73	8.7	11.0
18					1.34	1.10	.90	.79	.71	10.6	14.2
19					1.34	1.10	.90	.82	.75	12.7	13.7
20					1.34	1.08	.86	.73	.58	14.2	15.8
26					1.27	1.03	.84	.73	.62	18.4	11.0
Means					1.33	1.10	.92	.80	.70		
Departures					−.04	−.02	+.02	.00	+.03		

TABLE 1.—*Solar radiation intensities during May 1948*—Con.

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

CLIMAX, COLO.

Date	Sun's zenith distance: A. M. 78.7°	75.7°	70.7°	60.0°	0.0°	P. M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure 7:30 a.m.[1]	1:30 p.m.[1]
	Air mass 3.24	2.59	1.94	1.29	*0.65	1.29	1.94	2.59	3.24		
May	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
7				1.39							
8				1.34							
13						1.41					
15		1.18	1.28	1.42	1.51			1.15	1.06		
20		1.15	1.26	1.39							
21				1.37				1.14	1.07		
22		1.14	1.28	1.42		1.40	1.27	1.16			
23		1.19	1.29	1.43							
Means		1.16	1.28	1.39	(1.51)	(1.40)	(1.27)	1.15	(1.06)		
Departures		.00	+.07	+.04	−.02	+.06	+.08	+.02	+.02		

TABLE MOUNTAIN, CALIF.

	Air mass 3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
May	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
1				1.45							
2				1.37							
3				1.40							
5				1.38							
6				1.34							
7				1.40							
9				1.38							
10					1.51						
11					1.52						
12					1.49						
14	1.11	1.20	1.31	1.42							
22				1.41							
23				1.38							
24				1.37							
28				1.43							
29				1.37							
Means	(1.11)	(1.20)	(1.31)	1.39	1.51						
Departures	+.03	+.02	+.03	+.01	+.01						

BLUE HILL, MASS.

	Air mass 4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
May	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*	*mb.*
1		1.04	1.16							6.1	5.1
2	0.81	.91	1.04	1.22	1.50	1.25				6.3	5.7
4	.85	.93	1.05	1.18	1.43					6.2	7.1
6						1.20	1.03			8.6	7.9
19				1.23	1.48					6.3	5.1
23	.76	.81	.91	1.01						9.1	10.5
24				1.01		1.18				12.4	9.4
28							.87	.72		18.0	18.1
Means	.81	.92	1.04	1.13	1.47	1.21	(.95)	(.72)			
Departures	+.15	+.13	+.09	+.04	+.10	+.14	+.06	−.02			

* 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.	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.*
Apr. 29	439	629	607	206	420	596	755	263	528	299	646	728	369	376	387	497	369	186	490	244	651	352	694	666	451	480	685
Apr. 30	683	439	333	391	633	532	454	309	596	521	644	641	355	495	440	687	372	508	483	124	668	503	698	613	587	425	755
May 1	320	593	258	637	744	574	793	465	538	404	641	715	529	621	458	656	392	607	566	425	299	612	603	536	458	360	561
May 2	321	188	563	551	762	596	466	622	538	677	605	602	725	721	694	216	448	687	583	483	473	687	473	480	232	522	530
May 3	120	623	134	187	719	256	634	640	401	468	658	698	678	412	656	676	53	587	631	343	662	500	629	368	571	445	793
May 4	374	336	628	442	748	642	494	592	430	660	619	619	730	699	603	252	385	700	494	457	660	672	730	694	186	205	392
May 5	225	381	220	75	725	636	148	344	647	678	639	679	407	240	728	662	61	701	345	77	701	295	586	552	510	673	776
Means	355	456	392	355	679	548	535	462	526	530	636	669	542	509	567	521	297	568	513	307	588	517	630	558	428	444	642
Departures	−112	+14	−55	−74	+51	+116	+73	+83	+70	−10	+72	+119	+85	+43	+17	+98	−123	−65	+115	−83	+81	+79	+34	+2	+94	----	----
May 6	508	184	746	616	747	-----	195	612	129	545	435	------	677	658	577	192	400	662	348	455	619	504	476	584	65	221	723
May 7	203	661	688	58	782	-----	754	73	689	140	396	------	122	92	152	73	77	682	81	82	498	125	735	764	116	154	621
May 8	729	590	483	133	747	-----	530	155	681	411	582	------	217	563	438	654	257	698	197	19	602	444	698	770	560	351	621
May 9	636	92	486	611	787	591	438	512	649	430	622	731	661	672	382	196	536	700	76	166	188	654	625	624	163	263	286
May 10	624	170	164	495	770	569	182	222	586	593	635	730	306	452	564	319	296	710	183	114	292	329	662	600	157	319	662
May 11	657	184	259	557	772	388	83	450	444	596	594	700	547	636	491	522	583	704	345	441	284	575	699	507	74	437	320
May 12	514	149	574	502	768	-----	230	315	391	494	654	700	424	476	609	163	432	663	272	115	471	494	706	683	206	793	567
Means	553	290	486	425	768	-----	345	334	510	458	560	715	422	507	459	303	368	688	215	199	422	446	657	648	191	363	543
Departures	+73	−162	+36	−17	+121	-----	−129	−65	+32	−90	−2	+167	−43	+31	−81	−104	−66	+20	−174	−211	−58	−21	+47	+73	−181	----	----
May 13	204	250	548	45	786	634	467	39	216	548	618	704	82	75	562	406	36	734	205	27	602	97	666	614	271	467	780
May 14	299	632	554	100	781	548	542	63	708	699	675	720	103	198	696	404	122	755	148	52	652	148	655	632	439	304	702
May 15	643	414	703	474	767	550	152	237	428	657	636	691	257	334	690	336	605	719	612	464	657	249	759	732	155	810	810
May 16	168	435	752	45	757	580	739	220	222	568	589	689	290	341	589	676	151	712	508	114	704	376	562	418	485	546	743
May 17	456	606	708	338	710	537	780	144	716	665	549	720	164	203	685	429	455	458	301	297	450	148	594	418	375	688	642
May 18	479	726	681	391	398	546	762	225	617	335	661	645	295	293	118	670	270	245	576	44	501	316	669	596	480	575	460
May 19	693	711	730	758	404	429	763	529	693	611	537	377	645	705	652	712	722	239	686	538	526	596	743	642	505	180	590
Means	420	539	668	307	657	546	601	208	514	583	609	650	262	307	570	519	338	552	434	219	584	276	664	579	387	510	675
Departures	−50	+69	+157	−141	+4	+82	+108	−142	+55	−15	+60	+111	−210	−170	−23	+135	−72	−83	−34	−189	+124	−152	+37	−2	+49	----	----
May 20	490	682	719	724	389	600	779	149	689	656	680	726	212	392	684	659	420	182	190	372	651	282	710	605	515	130	546
May 21	638	756	634	461	734	608	629	28	694	518	698	776	66	210	703	686	562	642	440	279	395	114	731	711	576	615	788
May 22	733	723	540	266	772	351	794	157	731	527	694	753	142	346	697	724	498	748	423	180	651	229	615	682	554	199	829
May 23	668	736	236	614	795	441	468	602	664	698	582	732	659	672	746	466	578	710	380	70	570	646	644	557	566	353	811
May 24	613	737	733	624	726	512	736	610	298	698	463	527	695	703	710	752	590	657	432	254	387	696	753	634	523	636	530
May 25	271	762	677	56	786	439	772	242	611	691	377	361	415	476	592	711	713	690	703	508	243	436	716	691	557	760	452
May 26	86	727	750	229	791	518	708	116	576	668	383	412	205	174	639	731	597	736	653	517	-----	178	732	675	623	555	491
Means	500	732	613	425	713	496	698	272	609	636	554	612	342	425	682	676	566	624	461	312	483	369	700	651	559	508	635
Departures	+3	+235	+72	−33	+52	+47	+164	−134	+95	+36	+52	+70	−111	−20	+86	+170	+90	−8	+31	−142	+25	−94	+65	+63	+165	----	----
May 27	229	712	738	480	717	339	660	405	351	381	395	208	388	370	522	670	406	521	598	472	-----	346	506	453	613	50	445
May 28	470	398	651	564	788	659	617	539	168	503	642	602	667	585	537	649	250	658	516	362	249	588	615	614	554	147	390
May 29	301	732	259	488	757	533	636	513	350	476	676	757	573	640	651	737	315	402	703	283	498	574	718	608	651	140	608
May 30	166	653	379	164	229	437	320	78	706	434	576	388	90	194	646	678	586	157	586	495	422	187	712	659	606	703	652
May 31	384	734	629	83	687	618	626	66	714	632	289	132	106	66	677	716	524	544	652	456	251	78	681	618	613	711	626
June 1	538	718	727	263	782	197	------	325	705	596	184	209	297	209	329	649	710	721	569	486	475	202	642	608	576	729	624
June 2	476	737	590	657	613	586	------	529	621	369	480	214	555	613	350	526	733	725	672	588	642	583	624	617	527	724	770
Means	366	669	568	386	653	481	572	351	516	484	463	358	382	382	530	661	503	533	627	438	423	365	643	597	591	526	588
Departures	−147	+173	+46	−104	−15	−11	+173	−80	+12	−86	−12	2−168	−133	−133	+40	+119	+27	−33	+160	−32	−55	−111	+11	−2	+175	----	----

ACCUMULATED DEPARTURES ON JUNE 2, 1948

−2478	+3297	+3234	−4375	+5530	-----	+5873	−3388	+1757	−1155	+49	+5439	−3738	−2030	−1477	+5635	−2492	−2793	+2863	−8533	+791	−2380	----	----	+3395	----	----

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 May 1948*

Date	29	30	1	2	3	4	5	Mean	6	7	8	9	10	11	12	Mean	13	14	15	16
Gm. cal/cm²	167	168	245	322	329	318	217	252	314	50	94	294	148	258	225	198	51	57	134	124

Date	17	18	19	Mean	20	21	22	23	24	25	26	Mean	27	28	29	30	31	1	2	Mean
Gm. cal/cm²	82	150	269	124	93	28	79	278	261	217	114	153	207	295	286	47	59	160	260	188

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