SOLAR RADIATION AND SUNSPOT DATA FOR MAY 1944

[Solar Radiation Investigations Section, I. F. Hand in charge]

SOLAR RADIATION OBSERVATIONS FOR MAY 1944

EXPLANATIONS of the tables and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, and also a list of pyrheliometric stations are given in the REVIEW for January 1944, page 43.

Publication of normal-incidence values for Blue Hill from December 1943 to May 1944, inclusive, held up pending a thorough restandardization of the Eppley normal-incidence pyrheliometer, follows:

LATE DATA FOR BLUE HILL, MASS.

TABLE 1.—*Solar radiation intensities during the period December 1943–April 1944, inclusive*

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

BLUE HILL, MASS.

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									Local mean solar time
		A. M.					P. M.				
	e	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e
1943	*mb.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
Dec. 1	3.5	0.76	0.93								3.6
Dec. 5	4.8	.88	.99	1.19	1.36			1.13	1.05	0.98	4.4
Dec. 8	3.6	.88	.97	1.08							4.4
Dec. 11	.9						1.41	1.23	1.10	1.02	.8
Dec. 13	2.0			1.25	1.38			1.29	1.16	1.02	1.1
Dec. 15	1.2	1.02	1.11	1.19					1.04	.98	.9
Dec. 16	1.0							1.20	1.11	1.00	1.7
Dec. 17	1.3	.93	1.00	1.09					.86	.72	3.0
Dec. 18	2.5	.69	.80	.95				.86			3.8
Dec. 19	3.5	.42	.57	.69				.74	.57		4.0
Dec. 23	1.1	.69	.82	.94					.93	.85	.8
Dec. 24	.6	1.00	1.09	1.25			1.36	1.17	1.07	.97	1.1
Dec. 28	3.5	.91	.96				1.36	1.22	1.12	1.03	1.2
Dec. 29	.7	1.07	1.15	1.28	1.48			1.30	1.16	1.06	.8
Dec. 30	.8									.78	1.2
Dec. 31	3.6							1.10	.97	.82	2.5
Means		**.84**	**.94**	**1.09**	**1.41**		**1.38**	**1.12**	**1.01**	**.94**	
Departures		**−.06**	**−.10**	**−.08**	**+.07**		**+.08**	**−.02**	**−.03**	**−.03**	
1944											
Jan. 1	3.8	.51	.60	.71				1.26	1.12	1.02	2.1
Jan. 2	1.3	.91	1.02	1.12							2.5
Jan. 7	4.0							1.21	1.07	.92	2.9
Jan. 8	1.7	.88	.99	1.11							1.9
Jan. 9	1.1	.99	1.06	1.11				1.17	1.04	.92	1.5
Jan. 10	2.6								.99	.92	3.0
Jan. 11	3.0	.88	.98	1.06							3.8
Jan. 12	4.0							1.18	1.07	.94	2.1
Jan. 13	1.8	.98	1.08	1.22			1.37	1.25	1.13	1.05	2.2
Jan. 16	1.9							1.14	1.03	.91	1.3
Jan. 17	.8	1.12	1.18	1.26							3.6
Jan. 18	4.0	.61	.73	.93				.54	.42	.31	4.0
Jan. 20	6.0							.35	.24	.21	5.6
Jan. 21	5.1	.45		.79							5.3
Jan. 22	4.6	.75	.93	1.08							4.0
Jan. 24	4.2						1.38	1.28	1.17	1.07	3.6
Jan. 28	4.0	1.06									4.2
Jan. 30	1.8	1.05						1.30	1.16	1.07	1.3
Jan. 31	1.3	1.10	1.20	1.33	1.41						1.6
Means		**.87**	**.98**	**1.07**	**(1.41)**		**(1.38)**	**1.07**	**.95**	**.85**	
Departures		**−.07**	**−.05**	**−.08**	**+.09**		**+.05**	**−.09**	**−.08**	**−.07**	
Feb. 1	3.6							1.09	1.09	1.06	1.7
Feb. 2	.9	1.00	1.17	1.28					1.10	.99	1.7
Feb. 3	2.7	.93	1.04						1.15	1.01	3.2
Feb. 4	1.9	1.03	1.24								2.2
Feb. 8	1.0	1.06	1.18	1.31	1.45		1.44	1.27	1.12	1.04	.9
Feb. 9	.8			1.21							1.9
Feb. 10	2.6						1.33	1.14			1.4
Feb. 13	1.3	.95	1.01	1.16	1.40		1.42	1.27	1.16	1.07	1.5
Feb. 18	6.4								.95		4.4
Feb. 19	.7	1.11	1.20	1.32	1.46		1.44	1.26	1.10	.99	.9
Feb. 20	1.3						1.11	.81	.71		2.2
Feb. 21	2.9	.65	.78	1.00			1.26	1.12		.87	3.3
Feb. 24	4.8	.67	.81	.89	.97			.69	.50	.36	6.6
Feb. 25	2.7	1.01	1.10	1.22	1.37		1.36	1.21	1.06	.96	2.7
Feb. 26	2.4	.94	1.05	1.14							2.9
Means		**.94**	**1.06**	**1.05**	**1.33**		**1.34**	**1.10**	**.99**	**.93**	
Departures		**+.01**	**+.01**	**−.06**	**+.03**		**+.05**	**−.05**	**−.03**	**+.01**	
Mar. 1	2.7		.78	.99	1.27		1.35	1.24	1.13	1.02	2.5
Mar. 2	.7	1.04	1.13	1.26	1.43		1.37	1.15	1.03	.93	.7
Mar. 5	.7							1.31	1.20	1.12	1.1
Mar. 6	.8	1.13	1.22	1.29	1.46						.8
Mar. 8	3.6	.73	.82	1.01	1.15						3.6
Mar. 9	1.9	.78	.88	1.00	1.21						2.1

*Extrapolated.

TABLE 1.—*Solar radiation intensities during the period December 1943–April 1944, inclusive*—Continued

BLUE HILL, MASS.—Continued

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									Local mean solar time
		A. M.					P. M.				
	e	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e
	mb.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
Mar. 10	1.9	.91	1.02	1.22	1.34						2.0
Mar. 11	2.0	.91	1.02	1.15	1.33						2.0
Mar. 12	4.8	.62	.70	.87	1.08						5.3
Mar. 14	2.6	.92	1.02	1.16	1.31		1.22		.88	.81	3.3
Mar. 21	2.6								1.01	.87	3.5
Mar. 22	2.0	.91	1.01	1.12							3.2
Mar. 24	6.4						1.18	1.03	.92	.80	4.6
Mar. 25	4.6	.92	1.04	1.16	1.32					.60	4.8
Mar. 26	8.1						1.37	1.19	1.09	.96	3.3
Mar. 31	5.8		.67	.75						.56	3.5
Means		**.89**	**.94**	**1.08**	**1.29**		**1.30**	**1.18**	**1.04**	**.85**	
Departures		**.00**	**−.04**	**−.02**	**+.04**		**+.06**	**+.10**	**+.07**	**−.01**	
Apr. 1	3.6	.83	.96	1.10	1.26						3.3
Apr. 3	3.0						1.27	1.02	.88		2.5
Apr. 4	3.3	.75	.88	1.03							2.7
Apr. 6	3.8			.80			1.26				2.9
Apr. 7	5.1						1.20				3.6
Apr. 11	4.6	.89	.99	1.09							4.8
Apr. 13	4.6			1.16				1.16			2.7
Apr. 14	2.7	.99	1.08	1.18	1.33	1.52	1.23	1.02	.89	.78	2.4
Apr. 18	5.6	.91	1.00	1.12	1.26						3.6
Apr. 19	4.4	.77	.91	1.05	1.22	1.46	1.03	.87	.75	.63	3.6
Apr. 20	4.8	.75	.87	.92	1.18	1.41	1.10				4.8
Apr. 22	6.6				1.16						4.4
Apr. 28	4.4				1.17		1.16	1.01	.88	.82	4.6
Apr. 29	4.2	.72	.82	.85	1.05			.91	.78	.68	4.6
Means		**.83**	**.94**	**1.03**	**1.20**	**1.46**	**1.18**	**1.00**	**.84**	**.73**	
Departures		**+.04**	**+.05**	**.00**	**+.02**	**+.08**	**+.06**	**+.05**	**+.03**	**+.06**	
MADISON, WIS.											
May 5	5.6	0.49	0.52	0.76	1.02	1.18					5.6
May 29	13.7		.34	.42	.60	.94					15.3
Means		**(.49)**	**(.43)**	**(.59)**	**(.81)**	**(1.06)**					
Departures		**−.12**	**−.34**	**−.37**	**−.30**	**−.31**					
LINCOLN, NEBR.											
May 13	16.4					1.38	1.17	0.99	0.86		14.2
May 21	15.8					1.31	1.08	.86	.75	0.69	18.3
Means						**(1.34)**	**(1.12)**	**(.92)**	**(.80)**	**(.69)**	
Departures						**−.04**	**−.01**	**+.01**	**.00**	**+.02**	
BLUE HILL, MASS.											
May 3	10.2			0.53	0.70		0.77	0.57	0.43		13.7
May 4	13.2	0.41	0.52	.67	.90		.75	.59	.48	0.38	12.7
May 5	14.2	.36	.50	.65	.89						14.7
May 8	9.1						.90	.72	.62	.54	8.1
May 9	9.1	.52	.61	.72	.93						8.1
May 10	9.4	.39	.46		.84						7.5
May 12	11.8					1.40					7.5
May 13	14.7				.78						15.3
May 14	13.7			.73	.91						8.4
May 15	7.8	.76	.85	.94	1.08						9.4
May 17	13.2				1.00						11.8
May 19	3.5						1.09	.89	.75		3.8
May 20	6.9		.72	.90		1.40					4.0
May 21	6.1	.72	.80	.96	1.15	1.37					4.8
May 27	17.6						.66				22.6
May 29	11.0	.63	.72	.84	1.09	1.40					7.8
Means		**.54**	**.65**	**.77**	**.93**	**1.39**	**.83**	**.69**	**.57**	**(.46)**	
Departures		**−.09**	**−.13**	**−.18**	**−.16**	**+.03**	**−.23**	**−.18**	**−.15**	**−.17**	
ALBUQUERQUE, N. MEX.											
May 4	5.3				1.28		1.19				4.8
May 5	4.0				1.29						4.4
May 6	5.1				1.27						5.3
May 9	8.0				1.20						7.7
May 11	9.0				1.28						9.0
May 12	8.7				1.29	1.46	1.23				6.6
May 13	11.3				1.16						10.1
May 18	6.3				1.09	1.51					5.8
May 19	4.6				1.07	1.48					5.6
May 20	5.1				1.15	1.50					6.1
May 22	7.4				1.13	1.47					4.6
May 23	6.1				1.17	1.47	1.20				4.6
May 24	5.3						1.21				4.8
May 25	7.7				1.15						8.0
May 28	11.3	0.87	0.94	1.05	1.19	1.47	1.14		0.88	0.80	13.6
May 29	12.2					1.44					14.1
May 30	14.6				1.10	1.42	1.21	1.05	.91	.82	13.6
May 31	9.7	.86	.95	1.08	1.05	1.46	1.25	1.06			4.4
Means		**(.86)**	**(.94)**	**(1.06)**	**1.18**	**1.47**	**1.20**	**(1.06)**	**(.90)**	**(.81)**	
Departures		**−.01**	**−.02**	**−.03**	**−.04**	**−.05**	**−.03**	**−.04**	**−.07**	**−.08**	

*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.	Blue Hill, Mass.	Ithaca, N. Y.	Newport, R. I.	State College, Pa.	Put-in-Bay, Ohio	East Wareham, Mass.	Davis, Calif.
1944	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Apr. 29	682	597	21	612	650	590	528	599	572	635	586	649	676	692	675	697	684	624	463
Apr. 30	665	184	284	456	607	676	609	457	468	297	612	376	532	636	534	637	566	546	655
May 1	517	468	480	171	552	656	500	446	512	323	607	386	592	536	580	520	322	549	713
May 2	389	136	107	325	239	661	291	304	376	557	666	180	433	319	480	373	480	553	733
May 3	618	340	51	354	464	661	413	412	499	479	667	529	602	581	574	590	555	586	748
May 4	597	220	298	288	528	675	516	392	527	74	667	580	615	493	649	527	221	610	709
May 5	616	485	80	59	572	659	485	257	504	439	672	684	590	601	641	560	69	604	702
Mean	**584**	**347**	**189**	**324**	**516**	**654**	**477**	**410**	**494**	**400**	**640**	**484**	**577**	**551**	**590**	**558**	**414**	**582**	**675**
Departure	**+105**	**−94**	**−260**	**−14**	**+59**	**+35**	**+53**	.....	.....	**−68**	**+111**	**−80**	**+99**	**+125**	**+90**	**+84**	**+17**	**+99**	**+36**
May 6	273	398	467	511	524	385	487	258	384	293	622	593	558	339	646	139	598	610	653
May 7	488	461	2	250	92	671	248	272	280	590	557	571	326	80	386	224	485	532	713
May 8	619	87	193	68	655	680	570	168	594	532	519	637	673	641	681	608	269	660	742
May 9	523	220	571	81	504	671	306	528	547	325	153	491	625	193	620	352	82	613	720
May 10	557	596	449	592	500	670	408	456	515	626	154	312	601	276	647	424	655	616	771
May 11	561	510	394	510	404	712	225	557	519	639	.....	637	577	.....	537	472	612	548	749
May 12	525	497	651	446	367	697	235	590	564	385	.....	662	623	.....	494	627	496	560	736
Mean	**507**	**395**	**389**	**353**	**435**	**641**	**354**	**404**	**486**	**484**	**401**	**558**	**569**	**306**	**573**	**407**	**457**	**592**	**726**
Departure	**+41**	**−55**	**−61**	**+16**	**−7**	**+3**	**−94**	.....	.....	**−6**	**−169**	**−27**	**+90**	**−139**	**+88**	**−47**	**+63**	**+97**	**+25**
May 13	526	451	694	282	402	713	297	586	457	612	.....	554	573	.....	548	460	610	612	820
May 14	667	627	543	638	699	676	491	683	546	626	.....	673	619	.....	658	705	708	615	324
May 15	623	520	545	534	526	465	358	605	484	630	.....	501	602	.....	658	493	596	641	638
May 16	594	517	600	292	307	640	526	603	462	658	.....	638	496	165	448	383	332	424	642
May 17	540	314	622	262	497	347	556	748	551	630	.....	574	638	560	674	534	408	655	366
May 18	388	289	624	321	553	578	480	631	668	532	.....	550	721	698	604	613	590	614	676
May 19	202	571	641	204	601	682	335	687	711	564	.....	584	775	718	749	595	432	724	718
Mean	**506**	**470**	**610**	**362**	**512**	**586**	**435**	**649**	**554**	**607**	.....	**582**	**632**	**535**	**620**	**541**	**525**	**612**	**598**
Departure	**+31**	**0**	**+100**	**+22**	**+46**	**−62**	**−10**	.....	.....	**+108**	.....	**+20**	**+120**	**+62**	**+86**	**+97**	**+109**	**+118**	**−109**
May 20	486	658	181	377	573	712	459	429	721	631	.....	298	754	698	726	411	497	683	773
May 21	349	128	656	246	612	690	321	433	728	506	.....	268	748	.....	738	300	394	666	755
May 22	540	455	628	158	362	729	506	561	104	606	.....	200	162	93	322	369	512	206	775
May 23	422	415	586	279	119	734	370	243	191	396	.....	346	142	179	306	281	420	218	779
May 24	190	200	597	394	72	732	295	365	394	631	.....	604	405	129	110	189	540	306	790
May 25	115	507	379	406	88	711	233	659	530	522	.....	425	402	453	530	369	612	502	770
May 26	270	519	464	554	179	700	251	571	608	679	.....	401	675	526	695	484	649	705	737
Mean	**339**	**412**	**499**	**345**	**287**	**715**	**348**	**466**	**468**	**567**	.....	**363**	**470**	**346**	**490**	**343**	**518**	**469**	**768**
Departure	**−154**	**−80**	**−43**	**−21**	**−176**	**+49**	**−106**	.....	.....	**+56**	.....	**−133**	**+16**	**−137**	**+56**	**−96**	**+51**	**−23**	**+82**
May 27	403	614	348	587	361	607	661	.....	624	389	.....	454	602	618	513	450	575	556	552
May 28	550	697	540	643	667	682	558	.....	637	478	.....	392	650	704	662	672	752	626	651
May 29	659	635	571	638	634	551	661	.....	647	668	.....	447	714	629	683	689	697	737	763
May 30	608	578	482	547	497	737	531	.....	617	454	.....	508	644	581	655	670	680	664	694
May 30	628	543	597	310	505	511	588	.....	616	414	.....	348	618	628	573	606	570	606	165
June 1	441	455	720	376	281	629	363	.....	322	629	.....	421	332	384	359	373	440	363	660
June 2	582	687	648	529	318	638	705	.....	606	450	.....	494	618	612	518	445	448	499	505
Mean	**553**	**601**	**558**	**579**	**466**	**622**	**581**	.....	**581**	**497**	.....	**438**	**597**	**594**	**566**	**558**	**595**	**578**	**570**
Departure	**+44**	**+109**	**+32**	**+104**	**−35**	**−52**	**+92**	.....	.....	**−36**	.....	**−109**	**+53**	**+92**	**−6**	**+104**	**+81**	**+46**	**−92**

ACCUMULATED DEPARTURES ON JUNE 2, 1944

	−2,485	**−3,612**	**−8,701**	**−4,963**	**−4,851**	**+2,149**	.....	.....	.....	**−427**	.....	**−2,338**	**+2,317**	.....	**−406**	**+308**	**−14**	**+2,282**	**+679**