loop in the southwestern Gulf of Mexico and then began to move slowly north-northeastward. On the afternoon of the 15th the first vessel report from the vicinity of the center was received, the S.S. *Belfast Maru*, about 240 miles south of the Louisiana coast, reporting a wind velocity of 70 miles from the south-southeast and a barometer reading of 28.76 inches. The following warning was immediately issued:

Hoist northeast storm warnings 4 p.m. Pensacola, Fla., to Morgan City, La. Tropical disturbance central 1 p.m. about 26° N. and 96° 40 minutes W. moving slowly north-northeastward attended by shifting gales and probably by winds of hurricane force near center. Caution advised vessels in path. Present indications are that center will reach eastern Louisiana coastline Saturday afternoon or night.

Hurricane warnings were ordered the next morning between Grand Isle and Vermilion Bay, La. As the storm approached the Louisiana coast, its rate of movement increased and Dr. I. M. Cline, of the Weather Bureau at New Orleans, reports that between Jeanerette and Baton Rouge, La., it traveled about 27 miles per hour—an unusually rapid rate. It crossed the coastline a short distance west of Morgan City, which reported a barometer reading of 28.9 inches and a wind velocity of 68 miles from the southeast at 2 p.m. The center passed over Jeanerette, Iberia Parish, where a calm and a barometer reading of 28.58 inches occurred from 2 p.m. to 2:45 p.m. The center passed slightly to the west of Baton Rouge about 4:10 p.m. with a barometer reading there of 28.8 inches. Six persons in Louisiana were killed and damage to property amounted to about $2,605,000.

The storm, slowly decreasing in intensity, moved northeastward during the next few days, giving needed rainfall to the North and Middle Atlantic States, and passed over central Maryland on the 19th. A maximum wind velocity of 50 miles per hour was recorded at Atlantic City, N.J. It passed beyond the field of observation over northern Greenland on the 23d.

BIBLIOGRAPHY

C. FITZHUGH TALMAN, *in charge of Library*

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

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Sand fulgurites from Nebraska. Their structure and formative factors. 1925. p. 49–86. illus. 22½ cm. (Nebraska state museum. Bulletin 7, v. 1, June 1925.)

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SOLAR OBSERVATIONS

SOLAR AND SKY RADIATION MEASUREMENTS DURING JUNE 1934

By IRVING F. HAND, *Assistant in Solar Radiation Investigations*

For a description of instruments employed and their exposures, the reader is referred to the January 1932 REVIEW, page 26.

Table 1 shows that solar radiation intensities averaged above normal for June at Madison and close to normal at Washington and Lincoln.

Beginning with this issue, summaries of the total radiation (direct + diffuse) received on a horizontal surface at the University of Washington Oceanographic Laboratory, Friday Harbor, Washigton (latitude 48° 32′ N., longitude 123° 01′ W.; height above sea level 4.37 meters), will be regularly included in table 2 through the kind cooperation of Dr. C. L. Utterback. The radiation equipment at that station comprises an Eppley pyrheliometer (no. 262) recording on an Engelhard microammeter (no. 30737). Table 2–A gives the radiation values from this station for the International Polar Year, July 30, 1932, to August 19, 1933, inclusive.

Table 2 shows an excess in the total solar radiation received on a horizontal surface at all stations with the exception of Pittsburgh and Miami.

Beginning with this month, *air mass* types will be indicated with screened radiation measurements, as shown in the last column of table 3.

Polarization measurements made on 4 days at Washington give a mean of 56 percent with a maximum of 57 percent on the 28th. At Madison, measurements made on 7 days give a mean of 65 percent with a maximum of 70 percent on the 21st. The values for Washington are slightly below normal for June, while those at Madison are above normal.

TABLE 1.—*Solar radiation intensities during June 1934*

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

WASHINGTON, D.C.

Date	Sun's zenith distance										
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon
	75th mer. time	Air mass									Local mean solar time
		A.M.					P.M.				
	e	5.0	4.0	3.0	2.0	[1] 1.0	2.0	3.0	4.0	5.0	e
	mm	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm*
June 13	9.47				1.00	1.37					8.81
June 14	10.21				1.11	1.39					9.47
June 15	12.68			0.70	.94	1.33					11.35
June 21	17.37					1.28					18.59
June 25	17.37				.98	1.33					15.11
June 28	17.96			.43	.63	1.12					19.23
June 29	21.28				.88	1.26					19.89
Means				.56	.92	1.30					
Departures				−.21	−.02	+.06					

MADISON, WIS.

June 1	11.38					1.30					12.68
June 8	8.81					1.22					15.11
June 9	13.61					1.34					17.37
June 11	9.83			1.10	1.24	1.37					9.83
June 12	8.18		0.94	1.07	1.25	1.46					8.81
June 13	9.83		.92	1.05	1.22	1.46					9.14
June 16	7.87				1.14	1.43					7.57
June 18	13.13				1.24	1.53					9.83
June 19	9.83		.84	1.00	1.18	1.39					10.59
June 20	14.60					1.21					16.20
June 21	11.81		.94	1.10	1.27	1.46					10.97
June 23	16.79		.82	.91	1.14	1.41					15.65
June 26	16.20					1.31					18.59
June 28	13.61					1.32					16.20
Means			.89	1.04	1.21	1.37					
Departures			+.04	+.08	+.19	+.05					

LINCOLN, NEBR.

June 5	16.79			0.97	1.14	1.41					11.35
June 7	15.11		0.78	.92	1.09	1.39					14.60
June 9	12.68						1.01	0.84	0.68		10.97
June 11	12.24					1.21	1.03	.88	.75		10.59
June 13	8.18		.73	.88	1.07	1.41					9.14
June 18	10.59					1.42	1.25	1.08			7.57
June 20	13.13			.55	.80	1.24	1.03	.77	.65	0.54	12.24
June 21	10.21		.95	1.08	1.22	1.40	1.17	1.00	.88	.76	7.87
June 22	14.60					1.36	1.21	1.02	.83	.70	15.11
June 23	18.59		.75	.90	1.10						17.37
June 24	16.20					1.30					13.13
June 25	14.60						1.09	.91	.70		13.13
June 26	13.61	0.66	.77	.90	1.10	1.34					11.38
June 27	11.38					1.34	1.11	.90	.76		9.83
June 28	12.24		.83	.98	1.17	1.36	1.08				10.59
Means		0.66	.80	.91	1.09	1.35	1.11	.92	.75	.67	
Departures			+.03	−.02	−.01	+.00	+.01	+.01	−.03	+.02	

[1] Extrapolated.

TABLE 1.—*Solar radiation intensities during June 1934*—Continued

BLUE HILL, MASS.

Date	Sun's zenith distance										
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon
	75th mer. time	Air mass									Local mean solar time
		A.M.					P.M.				
	e	5.0	4.0	3.0	2.0	[1] 1.0	2.0	3.0	4.0	5.0	e
	mm	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm*
June 2	14.6				0.91	1.21					11.4
June 6	16.2					1.26					13.8
June 7	9.1					1.30	1.12	0.99			8.0
June 8	5.0					1.39	1.12	1.03	0.95		4.0
June 10	14.0				.96	1.29					9.0
June 11	14.6					1.34	1.03				11.5
June 12	10.2					1.20					10.0
June 14	10.2					1.29					10.5
June 15	9.8				1.19	1.38					8.5
June 16	13.1				.98	1.21					11.2
June 17	11.0				1.09	1.36	1.14	.87			8.0
June 18	9.1			1.00	1.19	1.41	1.14				7.7
June 20	9.1				1.22	1.44	1.05				7.8
June 22	10.2				1.22	1.45	1.06				9.1
June 23	11.0					1.19	1.03	.85			11.7
June 24	14.6					1.25					12.2
June 25	7.6				1.14	1.35	1.13	1.01			6.8
June 26	7.0					1.43					8.2
June 29	9.8					1.04					12.7
June 30	13.0					1.26	1.12				13.8
Means				1.00	1.10	1.30	1.09	.95	.95		

LATE REPORT (BLUE HILL, MASS.)

May 1	5.8				1.15	1.45					4.6
May 5	12.7				1.03	1.20					7.0
May 6	4.6				1.33	1.47					5.2
May 8	5.4				1.19	1.48	1.25				2.5
May 9	3.3				1.19	1.35					4.2
May 12	4.8				1.04	1.31					3.9
May 13	4.0				1.11	1.40					2.8
May 16	3.9					1.48	1.15	0.88			1.9
May 18	6.0				.73	1.39					5.6
May 19	4.0				1.12	1.42					2.9
May 22	11.4				1.00	1.27					9.5
May 23	7.3					1.46	1.09				3.3
May 24	5.4				1.03	1.49	1.03	.79			5.0
May 27	6.5				.99	1.37					5.6
May 30	13.6					1.18					9.9
May 31	13.6				.77	1.21					10.5
Means					1.05	1.37	1.13	.84			

TABLE 2.—*Average daily totals of solar radiation (direct+diffuse) received on a horizontal surface*

Week beginning—	Washington	Madison	Lincoln	Chicago	New York	Fresno	Pittsburgh	Fairbanks	Twin Falls	La Jolla	Miami	New Orleans	Riverside	Blue Hill	Mount Washington	Friday Harbor
	Gram calories per square centimeter															
1934	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
June 4	479	549	597	515	466	587	479	492	556	508	409	446	485	559		671
June 11	551	488	576	526	573	745	460	538	666	462	427	460	523	588		685
June 18	551	630	667	537	522	748	470	543	640	475	526	520	598	570		689
June 19	595	593	595	452	560	734	483	515	683	562	462	484	577	601		622
	Departures from weekly normals															
June 4	−18	+35	+46	+78	+39	−97	+2	+44	−37	+72	−93	−34				
June 11	+55	−16	+35	+95	+137	+57	−24	+48	+26	+70	−69	+10				
June 18	+57	+102	+97	+76	+87	+38	−20	+21	−40	+17	+12	+102				
June 25	+66	+55	−5	+20	+113	+28	+5	+28	+44	−4	−88	+71				
	Accumulated departures on July 1															
	+553	+3,122	+5,999	+6,671	+9,863	+4,396	−1,918	+581	+3,171	+10,248	−2,842	+5,509				

NOTE.—The pyrheliometer in use at Mount Washington was damaged by lightning. Plans are now being made for its replacement.

TABLE 2-A.—*Average daily totals of solar radiation (direct+diffuse) received on a horizontal surface at Friday Harbor, Wash.*

Week beginning—	Gram calories per cm²	Week beginning—	Gram calories per cm²	Week beginning—	Gram calories per cm²
1932	*cal.*	1932	*cal.*	1933	*cal.*
July 30	[1] 633	Dec. 3	91	Apr. 23	516
Aug. 6	438	Dec. 10	111	Apr. 30	411
Aug. 13	506	Dec. 17	68	May 7	589
Aug. 20	[1] 565	Dec. 24 [2]	[2] 73	May 14	437
Aug. 27	460			May 21	472
Sept. 3	444	1933		May 28	589
Sept. 10	411	Jan. 1	37	June 4	701
Sept. 17	347	Jan. 8	71	June 11	680
Sept. 24	373	Jan. 15	111	June 18	548
Oct. 1	338	Jan. 22	76	June 25	448
Oct. 8	140	Jan. 29	152	July 2	644
Oct. 15	136	Feb. 5	176	July 9	615
Oct. 22	169	Feb. 12	126	July 16	625
Oct. 29	108	Feb. 19	204	July 23	667
Nov. 5	106	Instrument defective during this interim		July 30	489
Nov. 12	85			Aug. 6	588
Nov. 19	103			Aug. 13	571
Nov. 26	40				

[1] Incomplete record.
[2] 8-day mean.

TABLE 3.—*Total, I_m and screened, I_y, I_r, solar radiation intensity measurements, obtained during June 1934, and determinations of the atmospheric turbidity factor, β, and water-vapor content, w=depth in millimeters, if precipitated*

AMERICAN UNIVERSITY, WASHINGTON, D.C.

Date and hour angle	Solar altitude	Air mass	I_m	I_y	I_r	βI_{m-r}	βI_{y-r}	β_{mean}	$\frac{I_{w=o}}{1.94}$ (Percentage of solar constant)	$\frac{I_{w=o}-I_m{}^1}{1.94}$ (Percentage of solar constant)	w	Air mass type
June 13	° ′	*m*	*Gr. cal.*	*Gr. cal.*	*Gr. cal.*						*mm*	
3:18a	45 22	1.40	1.170	0.815	0.630	0.072	0.067	0.070	75.8	14.7	50	P_p.
3:14a	46 08	1.39	1.204	.816	.630	.056	.068	.062	78.5	15.7	60	
1:01a	69 38	1.06	1.341	.880	.678	.036	.052	.044	84.6	14.6	65	
0:57a	70 08	1.06	1.272	.880	.678	.078	.052	.065	82.2	15.8	80	
June 14												
3:59a	37 27	1.64	1.200	.838	.712	.056	.155	.106	67.6	4.9	2	P_p.
3:56a	38 02	1.62	1.153	.838	.712	.076	.148	.112	66.8	6.6	3	

Atmospheric conditions. June 13, temp. 25° C., wind, 15-NW. Cu.p.m.; June 14, temp. 27° C. wind, 14-NW. Cu.p.m.

BLUE HILL METEOROLOGICAL OBSERVATORY OF HARVARD UNIVERSITY

Date and hour angle	Solar altitude	Air mass	I_m	I_y	I_r	βI_{m-r}	βI_{y-r}	β mean	$\frac{I_{w=o}}{1.94}$ (Percent of solar constant)	$\frac{I_{w=o}-I_m{}^1}{1.94}$ (Percent of solar constant)	w	Air mass type
1934 June 2	° ′	*m*	*Gr. cal.*	*Gr. cal.*	*Gr. cal.*						*mm*	
3:23 a	43 26	1.45	1.066	0.756	0.594	0.100	0.100	0.100	71.7	15.2	60.0	N_{PC}.
2:28 a	53 17	1.25	1.125	.788	.616	.112	.100	.106	72.2	17.7	60.+	N_{PC}–T_A.
2:12 p	56 39	1.19	.976	.727	.551	-----	.098	.098	75.7	13.9	48.0	
June 6												
2:04 a	57 29	1.09	1.261	.850	.661	.057	.050	.054	81.7	14.7	50.0	T_A, T_A aloft.
0:23 a	70 02	1.06	1.261	.845	.647	.062	.060	.061	82.8	15.8	60.+	
June 7												
4:04 p	36 14	1.69	1.179	.849	.678	.076	.068	.072	72.9	10.3	9.7	P_C.
4:29 p	31 37	1.90	1.133	.794	.644	.063	-----	.063	73.5	13.3	29.5	
5:10 p	24 08	2.44	1.101	.780	.623	.039	0.56	.048	70.6	12.2	11.6	
June 8												
1:57 p	67 17	1.09	1.357	.911	.734	.058	-----	.058	82.4	10.3	13.2	P_C.
3:36 p	41 28	1.51	1.202	.841	.663	.076	.067	.072	75.0	11.1	15.0	
4:30 p	31 39	1.90	1.088	.764	.613	.069	-----	.069	71.3	13.5	31.0	
June 10												
0:25 a	70 06	1.06	1.270	.873	.695	.089	.112	.100	78.6	11.1	24.0	T_G.

TABLE 3.—*Total, I_m and screened, I_y, I_r, solar radiation intensity measurements, obtained during June 1934, and determinations of the atmospheric turbidity factor, β, and water-vapor content, w=depth in millimeters, if precipitated*—Continued

BLUE HILL METEOROLOGICAL OBSERVATORY OF HARVARD UNIVERSITY—Continued

Date and hour angle	Solar altitude	Air mass	I_m	I_y	I_r	βI_{m-r}	βI_{y-r}	βmean	$\frac{I_{w=o}}{1.94}$ (Percent of solar constant)	$\frac{I_{w=o}-I_m{}^1}{1.94}$ (Percent of solar constant)	w	Air mass type
1934 June 11	° ′	*m*	*Gr. cal.*	*Gr. cal.*	*Gr. cal.*						*mm*	
1:28 a	63 33	1.11	1.235	0.840	0.686	0.109	0.179	0.144	71.7	6.1	2.7	P_A, T_A aloft.
2:00 p	58 36	1.17	1.315	.907	.708	.058	.050	.054	81.9	12.0	29.0	N_{PC}, T_A
3:28 p	43 05	1.46	1.228	.849	.667	.056	.063	.060	77.6	12.3	25.0	
4:25 p	32 35	1.86	1.072	.773	.612	.081	.078	.080	69.7	12.7	24.0	
June 12												
1:01 a	67 07	1.09	1.067	.765	.605	.175	.160	.168	69.4	12.7	40.0	P_A, T_A aloft.
June 14												
3:16 a	45 28	1.40	1.148	.831	.661	.115	.096	.106	71.8	10.7	14.0	N_{PC}.
June 15												
1:47 a	61 08	1.14	1.372	.932	.739	.048	.064	.056	81.7	8.7	7.3	N_{PC}.
0:15 a	70 51	1.06	1.391	.955	.744	.047	.031	.039	85.6	11.6	30.0	
June 16												
3:53 a	38 38	1.60	.983	.729	.595	.159	.143	.151	62.3	10.0	9.0	P_C.
3:22 a	45 00	1.41	1.029	.755	.619	.173	.175	.174	63.4	8.7	5.7	
0:43 a	69 08	1.07	1.167	.840	.665	.153	.124	.138	73.0	10.9	22.0	
0:12 a	70 59	1.06	1.173	.841	.663	.149	.112	.130	74.3	11.9	33.0	
0:38 p	69 34	1.06	1.200	.830	.658	.118	.130	.124	75.1	11.2	26.0	N_{PC}.
2:10 p	57 08	1.19	1.133	.80[illegible]	.638	.134	.114	.124	72.7	12.4	33.0	
June 17												
3:59 a	37 32	1.64	1.182	.850	.6[illegible]	.087	.098	.092	70.3	7.4	3.2	N_{PC}.
0:45 a	70 00	1.06	1.308	-----	.710	.082	-----	.082	79.8	10.2	17.0	
0:52 p	68 18	1.08	1.330	.924	.714	.064	.031	.048	83.1	12.3	36.0	N_{PC}.
4:06 p	36 14	1.69	1.200	.843	.665	.054	.056	.055	77.1	13.2	30.0	
5:11 p	24 16	2.42	1.058	.767	.607	.050	.050	.050	70.1	13.8	29.0	
June 18												
5:12 a	24 05	2.44	1.104	.796	.646	.049	.065	.057	68.5	9.7	6.0	N_{PC}.
3:26 a	43 37	1.45	1.304	.920	.732	.057	.051	.054	79.7	10.7	11.5	
2:58 a	48 41	1.33	1.347	.936	.750	.053	.067	.060	79.3	7.6	3.1	
1:00 a	67 26	1.09	1.392	.967	.750	.048	.013	.030	86.5	12.1	33.0	
3:25 p	43 48	1.44	1.360	.937	.742	.031	.041	.036	82.0	9.7	9.0	N_{PC}.
3:58 p	37 43	1.63	1.295	.914	.696	.027	-----	.027	83.2	14.4	45.0	
June 20												
3:27 a	43 28	1.45	1.325	.920	.731	.043	.051	.047	80.0	9.6	7.1	N_{PP}.
2:28 a	54 06	1.24	1.380	.943	.736	.027	.027	.027	85.5	12.0	27.0	
0:17 a	70 55	1.05	1.347	.926	.725	.065	.054	.060	83.8	12.1	35.0	
0:50 p	68 33	1.07	1.342	.881	.692	.045	.059	.052	83.4	12.0	33.0	P_C.
3:28 p	43 17	1.46	1.239	.854	.668	.051	.056	.054	78.7	12.7	20.0	
June 22												
4:06 a	36 16	1.69	1.034	.928	.733	.039	.031	.035	80.0	10.6	11.2	P_C.
3:28 a	43 17	1.46	1.378	.960	.747	.025	.009	.017	85.2	11.8	20.0	
2:04 a	58 11	1.18	1.434	.965	.759	.028	.037	.032	85.5	9.3	9.0	
1:45 a	61 13	1.14	1.429	.971	.752	.032	.023	.028	85.7	9.6	11.0	
1:31 a	63 24	1.12	1.424	.981	.759	.031	.002	.016	88.2	12.4	35.0	
1:00 p	67 28	1.09	1.373	.942	.728	.043	.019	.031	86.2	13.1	43.6	N_{PC}.
3:28 p	43 17	1.46	1.295	.896	.682	.029	.002	.016	85.4	16.4	60.+	
June 23												
4:23 p	32 00	1.88	1.054	.763	.622	.096	.106	.101	66.0	9.6	7.1	N_P.
June 24												
3:29 a	43 05	1.46	1.163	.809	.643	.081	.093	.087	73.4	11.1	14.0	N_{PC}, T_P & T_C aloft.
3:08 a	46 56	1.37	1.168	.809	.643	.076	.102	.089	74.4	11.9	24.0	
2:38 a	52 19	1.26	1.172	.820	.639	.060	.079	.070	78.6	15.9	60.+	
1:38 a	69 28	1.07	1.235	.854	.665	.092	.081	.086	79.2	13.1	44.0	
June 25												
3:29 a	43 04	1.46	1.259	.854	.672	.050	.063	.056	78.2	10.8	14.0	P_C.
3:07 a	47 06	1.37	1.264	.857	.676	.048	.071	.060	78.6	10.9	16.0	
2:43 a	51 25	1.28	1.295	.876	.678	.040	.044	.042	82.8	13.5	42.0	
1:19 a	65 01	1.10	1.318	.882	.687	.048	.065	.056	82.6	12.0	32.0	
0:52 a	68 18	1.08	1.332	.896	.698	.049	.058	.054	83.1	11.8	31.0	
2:54 p	49 27	1.31	1.267	.840	.666	.045	.075	.060	79.5	11.7	23.0	P_C.
4:16 p	34 25	1.77	1.171	.843	.696	.086	.103	.094	68.6	6.4	2.4	

[1] Reduced to mean solar distance.

TABLE 3.—*Total, I_m and screened, I_y, I_r, solar radiation intensity measurements, obtained during June 1934, and determinations of the atmospheric turbidity factor, β, and water-vapor content, w=depth in millimeters, if precipitated*—Continued

BLUE HILL METEOROLOGICAL OBSERVATORY OF HARVARD UNIVERSITY—Continued

Date and hour angle	Solar altitude	Air mass	I_m	I_y	I_r	βI_{m-r}	βI_{y-r}	βmean	$\frac{I_{w=o}}{1.94}$ (Percent of solar constant)	$\frac{I_{w=o}-I_m'}{1.94}$ (Percent of solar constant)	w	Air mass type
1934												
June 28	′ °	m	Gr. cal.	Gr. cal.	Gr. cal.						mm	
2:17 a.	55 57	1.20	1.395	0.944	0.749	0.040	0.058	0.049	82.4	8.1	4.8	P_C, T_G approaching aloft.
2:00 a.	58 47	1.17	1.395	.961	.753	.040	.012	.026	86.2	11.9	28.5	
1:29 a.	63 36	1.11	1.425	.958	.740	.026	.012	.019	87.9	12.0	32.0	
June 29												
2:28 a.	54 00	1.24	1.002	.688	.550	.150	.190	.170	66.0	13.6	43.0	T_C.
2:06 a.	58 22	1.18	.993	.688	.550	.167	.200	.184	65.8	12.9	38.0	
June 30												
3:18 a.	44 57	1.41	1.291	.880	.681	.033	.050	.042	81.4	12.2	25.0	N_{PC}, T_G aloft.
2:49 p.	50 53	1.28	1.220	.836	.654	.071	.075	.073	77.8	12.5	30.0	
3:57 p.	37 46	1.63	1.078	.758	.586	.077	.070	.074	73.3	14.2	42.5	

NOTE.—For the significance of the symbols in column headed "Air mass types, see Willett, H. C., American Air Mass Properties. Papers on Physical Oceanography and Meteorology. Published by the Massachusetts Institute of Technology and Woods Hole Oceanographic Institution. Vol. 2, Cambridge, Mass., June 1933.

Atmospheric conditions during solar radiation measurements

BLUE HILL METEOROLOGICAL OBSERVATORY OF HARVARD UNIVERSITY

Date and time from apparent noon	Air temperature °C.	Wind (Beaufort scale)	Visibility	Sky blueness	Clouds and remarks
June 1934					
2, 3:23 a.m.	24.4	SW 5	6-7	5	1 Ci, 1 Acu; gusty.
2, 2:28 a.m.	25.6	SW 6	6-7	5	1 Ci; 1 Acu; gusty.
2, 2:12 p.m.	28.9	SW 5		5	1 Ci; dense haze.
6, 2:04 a.m.	25.6	WSW 5	7	6	2 Ci, few Frcu; haze.
6, 0:23 a.m.	26.7	SW 6	7	6	1 Ci, 1 Cu; light haze, very gusty.
7, 4:04 p.m.	17.8	NNW 1	8	6	1 Cu; light haze.
7, 5:10 p.m.	18.3	NW 3	8-9	7	1 Ci, few Cu.
8, 1:57 p.m.	19.4	W&N 1	8-9	6	3 Ci; very clear.
8, 3:36 p.m.	20.0	SW&W 3		7	Few Cicu; sea breeze.
8, 4:30 p.m.	17.8	SW 4		7	4 Cist.
10, 0:25 a.m.	25.0	W 3	8	6	3 Ci, Cicu, few Cu; Cicu 10° from sun, apparently changing.
11, 1:28 a.m.	21.7	W&N 3	8	6	2 Acu, 2 Cu 10° from sun.
11, 2:00 p.m.	23.9	W&N 3	9	7	3 Cu, 1 Acu; gusty.
11, 3:28 p.m.	23.9	W&N 2	8-9	7	1 Ci, 2 Cu.
12, 1:01 a.m.	15.6	E&N 1			3 Cicu, few Cu; dense haze.
14, 4:00 a.m.	15.6	NW 4		7	2 Acu; light haze, gusty.
14, 2:35 a.m.	18.3	NW 1		7	1 Acu, 3 Cu, Stcu; thin Frcu over sun spoiled one reading.
15, 4:20 a.m.	16.7	WNW 2	8		3 Ci, Cist, Cicu; Cist layer over sun before last reading completed.
15, 0:45 a.m.	18.3	NW 2	8-9		1 Ci, 2 Acu, few Cu, 5 Frcu; thin Acu over sun during last cooling.
15, 1:30 p.m.	16.7	WNW 5	7-8		Few Cist; Cu, Frcu near sun.
16, 3:33 a.m.	18.9	NW 2	8	6	2 Acu, 1 Cu.
16, 0:50 a.m.	17.2	NE 4			2 Cu, Frcu, Acu; sun clear; haze on all horizon.
16, 0:12 a.m.	17.2	NE 4	7-8		
16, 2:10 p.m.	16.1	NE 4	7-8		Few Cu, Frcu; 1 Acu 10° from sun.
17, 3:00 a.m.	13.3	NW 1	7	7	4 Cu.
17, 0:45 a.m.	18.3	NE 1	8	7	3 Cu.
17, 0:52 p.m.	20.6	NE 1	9	8	Few Acu, 3 Cu; light haze.
17, 5:11 p.m.	21.1	ESE 1	9	7	1 Ci, few Cu.
18, 5:12 a.m.	16.1	W 2	9	8	Few Ci.
18, 2:58 a.m.	18.9	WSW 1	9	8	Few Ci.
18, 1:00 a.m.	23.9	S&W 1	9	8	Few Ci, 3 Cu.
18, 3:25 p.m.	23.9	S&W 4	9	8	1 Ci, few Cu.
20, 3:37 a.m.	16.1	NNW 5	10	8	6 Cu, Stcu.
20, 0:50 p.m.	22.2	NW 6	9	7	5 Cu.
20, 3:28 p.m.	23.3	NW 4	9		2 Cu.
22, 4:06 a.m.	22.2	WNW 4	9		2 Ci, few Acu.
22, 3:28 a.m.	21.7	WNW 4	8-9		Few Ci, Cist on horizon.
22, 2:04 a.m.	21.1	WNW 4			2 Ci, Cist, Cicu.
22, 1:00 p.m.	23.9	WSW 2	9		2 Ci, Cist near sun.
22, 3:28 p.m.	25.0	WNW 3	9		Few Cu, 1 Ci.
23, 4:23 p.m.	18.3	NE 0		6	1 Frcu; fumulus 4° from sun.

Atmospheric conditions during solar radiation measurements—Con.

BLUE HILL METEOROLOGICAL OBSERVATORY OF HARVARD UNIVERSITY—Continued

Date and time from apparent noon	Air temperature ° C.	Wind (Beaufort scale)	Visibility	Sky blueness	Clouds and remarks
June 1934					
24, 1:45 a.m.	22.2	SW 3	7	7	5 Ci; dense haze.
25, 3:20 a.m.	21.7	W 2	8	7	Few Ci; light haze.
25, 2:43 a.m.	22.2	W 2	8		Light haze.
25, 1:00 a.m.	23.3	WNW 3	8		Few Cu, increasing; light haze.
25, 2:54 p.m.	24.4	WNW 4	8-9		5 Stcu, St, Frcu; light haze.
25, 4:16 p.m.	24.4	WNW 4-5	9		5 Stcu, St, Frcu.
26, 2:17 a.m.	22.2	NW 3	9	7	4 Ci, 2 Acu.
26, 1:29 a.m.	22.8	NW 2	9	7	4 Ci, few Acu.
29, 2:28 a.m.	27.8	SW 3	5	5	7 Ci; dense haze.
30, 2:49 a.m.	28.9	W 1	8	8	5 Ci.
30, 2:49 p.m.	29.4	WSW 2	8-9		1 Cu.
30, 3:57 p.m.	28.9	WSW 2	8-9		3 Cu, 1 Ci, Cist approaching sun.

POSITIONS AND AREAS OF SUN-SPOTS

[Communicated by Capt. J. F. Hellweg, U.S. Navy, Superintendent U.S. Naval Observatory. Data furnished by the U.S. Naval Observatory in cooperation with Harvard and Mount Wilson Observatories. The difference in longitude is measured from the central meridian, positive west. The north latitude is positive. Areas are corrected for foreshortening and are expressed in millionths of the sun's visible hemisphere. The total area for each day includes spots and groups]

Date	Eastern standard time		Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day	Observatory
1934	h.	m.	°	°	°				
May 1	11	14	No spots						U.S. Naval.
May 2	11	3	Do.						Mount Wilson.
May 3	10	58	Do.						Do.
May 4	13	44	−19.5	86.9	−20.5		46	46	U.S. Naval.
May 5	11	11	−6.0	88.6	−20.5		62	62	Do.
May 6	13	15	+9.0	89.2	−21.0		225	225	Mount Wilson.
May 7	11	12	+23.0	91.1	−20.5		62	62	U.S. Naval.
May 8	11	12	−27.0	27.9	+7.0	15			Do.
			+36.0	90.9	−20.5		93	108	
May 9	11	25	+51.0	92.6	−20.5		93	93	Do.
May 10	11	25	+65.0	93.3	−20.0		77	77	Do.
May 11	11	30	+75.0	90.0	−20.0		89	89	Mount Wilson.
May 12	11	34	No spots						U.S. Naval.
May 13	13	12	−78.0	269.7	−30.0		463	463	Do.
May 14	11	9	−65.0	270.6	−30.5		556	556	Do.
May 15	9	0	−57.0	266.6	−30.0	146			Mount Wilson.
			−53.0	270.6	−33.0		458	604	
May 16	11	40	−38.0	270.9	−30.5		494	494	U.S. Naval.
May 17	11	10	−75.0	220.9	+29.0		123		Do.
			−25.0	270.9	−30.5		494	617	
May 18	11	8	−60.0	222.7	+28.0		154		Do.
			−12.0	270.7	−30.5		491	555	
May 19	11	7	−46.0	223.5	+28.0		185		Do.
			+1.0	270.5	−31.0		278	463	
May 20	12	1	−31.0	224.8	+28.0	154			Do.
			+14.0	269.8	−31.0		216	370	
May 21	10	59	−18.0	225.1	+28.0	154			Do.
			+26.0	239.1	−31.0		185	339	
May 22	11	13	−39.5	199.2	+12.5	15			Do.
			−5.5	224.2	+28.0	154			
			+39.0	268.7	−31.0		154	323	
May 23	11	23	+8.0	224.4	+28.0	123			Do.
			+53.0	269.4	−31.0		93	216	
May 24	11	25	+20.0	223.2	+28.0	93			Do.
			+65.0	268.2	−31.0		77	170	
May 26	12	18	+44.8	221.0	+28.0	1,070		1,070	Harvard.
May 27	11	15	+58.0	221.5	+26.0	194		194	Mount Wilson.
May 28	11	47	+70.0	220.0	+28.0	62		62	U.S.Naval.
May 29	12	0	No spots						Mount Wilson.
May 30	13	27	Do.						U.S. Naval.
May 31	10	35	Do.						Do.
Mean daily area for 30 days								242	
June 1	11	22	No spots						Do.
June 2	11	13	Do.						Do.
June 3	11	44	Do.						Do.
June 4	11	25	Do.						Do.
June 5	13	20	Do.						Do.
June 6	11	15	Do.						Do.
June 7	13	26	Do.						Do.
June 8			Do.						Harvard.
June 9			Do.						Do
June 10	10	18	Do.						U.S. Naval.
June 11	13	36	Do.						Do.
June 12	9	15	Do.						Mount Wilson.
June 13	11	15	Do.						U.S. Naval.
June 14	11	17	Do.						Do.
June 15	13	15	−71.0	200.0	+3.0		185	185	Do.
June 16	11	56	−58.0	200.5	+3.0		185		Do.
			−10.0	248.5	−30.0		39	224	