Georgii, W.
Gliding in convection currents. (Luftfahrtforschung. v. II, no. 5, Oct. 25, 1934.) Washington, D. C. 1935. 7 p. pl. 26½ cm. (Nat. adv. comm. for aeron. Techn. memorandums. No. 761.)

Guyot, Edmond
Taches solaires et précipitations. Neuchâtel. n. d. p. 300–305; tables, chart. 24 cm. (Extrait des Annales Guebhard-Séverine. 9me année, 1933.)

Guyot, Edmond, & Godet, Charles
Le climat et al vigne. Berne. 1935. p. 17–68. tables, diagrs. 25 cm. (Tirage à part de l'Annuaire agricole de la Suisse.)

India. Meteorological department
Functions and organisations of the India meteorological department (1935). Simla. 1935. 25 p. 25 cm.

Jemison, George M.
Beaufort scale of wind force as adapted for use on forested areas of the northern Rocky mountains. Washington, D. C. 1934. p. 77–82. tables. 23½ cm. (Journal of agricultural research. v. 49, no. 1. July 1, 1934.)

Kidson, E.
The circulation of the atmosphere in the Australia-New Zealand region. n. p. n. d. p. 661–666. diagrs. 23½ cm.

Koschmieder, H.
Die Meteorologie und ihre Nachbarwissenschaften. Milano. 1934. pp. 118–192. 24 cm. (Extrait de "Scientia"—Février 1934.)

Lagaye, Jean de.
De la visibilité du Mont Blanc, au sommet du Puy de Dôme. Clermont-Ferrand. 1933. 7 p. 24 cm.

Mörikofer, W.
Die klimatischen Voraussetzungen für Kur und Sport in Davoser Winter. Basel. n. d. 5 p. 23 cm. (Sonderabdruck aus der Schwerizerischen medizinischen Wochenschrift. 62. Jahrgang, 1932, Nr. 51, Seite 1196.)

New England Water Works Association
Journal. v. 38, no. 1. March, 1934. Boston. c1924. 102 p. figs. plates (fold.) port. 23½ cm. (p. 1–47: Horton, Robert E.: Determining the mean precipitation on a drainage basin.)

Puppo, Agostino
Radiazione e nebulosità a Conegliano [Venezia.] Tentativo di definizione del clima solare. Venezia. 1934. pp. 515–526. tables. 24½ cm.

Ramdas, L. A.
Micro-climatology. n. p. n. d. 3 p. 25 cm. (Reprint: Current science, v. II, no. 11, May 1934, pp. 445–447.)

Sohoni, V. V.
Weather types associated with nor'-westers in Bengal. Alipore. 1933. pp. 349–357. plates, tables. 24½ cm. (From: Journal & proc., Asiatic socy. of Bengal (new ser.) vol. XXVIII, 1932, no. 1.)

Webb, Gerald B.
The lure of climate. Colorado . . . n. d. 7 p. illus. 25½ cm. (Repr.: Journal of the outdoor life. Special Colorado number, June, 1932.)

Wertheimer, Eduard
Über den natürlichen Ablauf des atmosphärischen Vorgänge und die Möglichkeit einer künstlichen Beeinflussung. Braunschweig. 1933. 16 p. 23 cm.

SOLAR OBSERVATIONS

SOLAR RADIATION MEASUREMENTS DURING APRIL 1935

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 1935 REVIEW, page 24.

Table 1 shows that solar radiation intensities averaged close to normal for April at both Washington and Madison, and slightly above normal at Lincoln.

Table 2 shows a deficiency in the amount of solar and sky radiation received on a horizontal surface at all stations except Chicago, New York, Fairbanks, and Twin Falls.

Polarization measurements obtained on 6 days at Washington give a mean of 59 percent with a maximum of 64 percent on the 22d and 26th. At Madison the single observation obtained of 51 percent on the 13th is below both the average and the maximum normal for that month at that station. The Washington values are close to the April normals.

Owing to change of personnel at Twin Falls, total solar and sky radiation data were received too late to include in any of the first three issues of the REVIEW for 1935. The values for the first 13 weeks of 1935, expressed in gram calories, are as follows: 180, 142, 175, 199, 264, 106, 306, 294, 305, 306, 405, 388, and 409 with an excess at the end of April of 651.

TABLE 1.—*Solar radiation intensities during April, 1935*

[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*
Apr. 2	7.29	------	------	------	------	1.05	------	------	------	------	9.47
Apr. 17	3.99	------	------	0.79	------	------	------	------	------	------	4.75
Apr. 18	4.37	0.55	0.66	.80	1.00	1.33	------	------	------	------	4.57
Apr. 22	6.50	------	------	.76	1.05	1.44	------	------	------	------	5.79
Apr. 23	5.36	.52	.66	.84	1.02	1.38	------	------	------	------	4.75
Apr. 25	6.27	.76	.94	1.06	1.18	1.45	1.12	.95	------	------	3.99
Apr. 26	3.81	.90	.97	1.10	1.29	1.45	------	------	------	------	4.37
Means	------	.68	.81	.89	1.11	1.35	(1.12)	(.95)	------	------	------
Departures	------	−.02	+.03	.00	+.04	−.01	+.02	+.05	------	------	------

[1] Extrapolated.

TABLE 1.—*Solar radiation intensities during April, 1935*—Contd.

MADISON, WIS.

Date	Sun's zenith distance										
	8 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	08.7°	Noon
	75th mer. time	Air mass									Local mean solar time
		A. M.					P. M.				
	x	5.0	4.0	3.0	2.0	[1] 1.0	.0	3.0	4.0	5.0	e
	mm	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm*
Apr. 2	3.99	------	.84	1.02	------	------	------	------	------	------	2.90
Apr. 3	2.26	------	.99	1.19	1.31	------	------	------	------	------	2.49
Apr. 9	4.37	------	.81	------	------	------	------	------	------	------	4.57
Apr. 13	3.81	------	------	1.15	1.33	------	------	------	------	------	4.57
Apr. 16	2.62	------	------	------	------	1.45	.98	------	------	------	3.45
Apr. 20	5.56	------	------	.70	------	------	------	------	------	------	6.50
Apr. 22	4.75	------	------	------	------	1.44	1.08	------	------	------	5.16
Apr. 24	8.18	------	------	------	------	------	1.02	------	------	------	8.81
Apr. 30	4.57	------	------	------	------	1.55	------	------	------	------	3.99
Means	------	------	.88	1.02	(1.32)	1.48	1.03	------	------	------	------
Departures	------	------	−.02	.00	+.13	+.04	−.16	------	------	------	------

LINCOLN, NEBR.

Apr. 3	2.87	------	------	------	------	1.40	1.13	.91	0.76	0.60	2.62
Apr. 15	2.16	.81	.95	1.13	1.32	1.57	1.35	1.14	.92	------	2.16
Apr. 19	3.99	.64	.80	.99	1.20	1.42	1.20	.94	.75	.60	4.95
Apr. 20	5.36	------	------	------	1.14	------	------	------	------	------	4.95
Apr. 29	5.36	------	1.03	1.16	------	------	------	------	------	------	4.37
Means	------	(.72)	.93	1.09	1.22	1.45	1.23	1.00	.81	(.60)	------
Departures	------	+.01	+.12	+.13	+.03	+.01	+.07	+.04	−.01	−.08	------

TABLE 1.—*Solar radiation intensities during April, 1935*—Contd.

BLUE HILL METEOROLOGICAL OBSERVATORY OF HARVARD UNIVERSITY

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.				
	x	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*
Apr. 3	3.2	------	.79	.96	1.16	1.45	1.32	1.14	.98	.85	2.9
Apr. 4	2.3	------	------	------	------	1.42	------	------	------	------	1.8
Apr. 5	2.0	------	------	1.09	1.29	1.52	1.14	------	------	------	1.0
Apr. 7	1.5	------	------	------	------	1.55	1.23	1.07	------	------	1.5
Apr. 15	5.0	------	------	------	1.23	1.53	------	------	------	------	4.2
Apr. 16	------	------	------	1.05	1.27	1.48	------	------	------	------	------
Apr. 18	3.8	------	------	1.18	1.24	1.42	------	------	------	------	3.8
Apr. 20	4.2	------	------	------	1.36	1.53	1.23	------	------	------	4.4
Apr. 21	5.6	------	------	------	1.21	------	------	------	------	------	5.0
Apr. 25	5.2	------	------	------	1.11	------	------	------	------	------	2.3
Apr. 26	3.0	------	------	1.15	1.31	1.50	------	------	------	------	1.4
Apr. 27	4.2	------	------	------	1.04	------	------	------	------	------	2.6
Apr. 28	10.3	------	------	------	------	1.40	.79	------	------	------	6.8
Apr. 29	5.2	------	------	------	1.22	1.47	1.06	------	------	------	7.4
Averages	------	------	.79	1.09	1.22	1.48	1.13	1.10	.98	.85	------

[1] Extrapolated.

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

Week beginning—	Washington	Madison	Lincoln	Chicago	New York	Fresno	Fairbanks	Twin Falls	Miami	New Orleans	Riverside	Blue Hill	Mount Washington	Friday Harbor	Ithaca
	Gram-calories per square centimeter														
1935	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Apr. 2	177	400	264	290	366	417	322	316	473	308	398	452	------	445	322
Apr. 9	280	318	381	276	156	510	405	455	498	424	511	192	------	474	226
Apr. 16	448	429	562	408	451	637	461	492	481	348	534	422	------	262	383
Apr. 23	578	377	421	447	527	559	419	623	403	315	345	[1] 371	------	596	534
	Departures from weekly normals														
Apr. 2	−200	+28	−150	−10	+30	−100	−12	−113	+5	−50	−64	------	------	------	------
Apr. 9	−114	−83	−49	−60	−166	−59	+27	−7	+24	+84	+25	------	------	------	------
Apr. 16	+26	+30	+121	+48	+89	+43	+63	+34	+22	−24	+33	------	------	------	------
Apr. 23	+131	−62	−36	+91	+125	−3	+24	+115	−77	−55	−177	------	------	------	------
	Accumulated departures on Apr. 29														
	−1,533	−4,445	−987	+889	+1,568	−931	+1,407	+854	−1,022	−1,099	−2,891	------	------	------	------

[1] Bulb burned out by lightning—record incomplete.

TABLE 3.—*Total, I_m, and screened, I_y, I_r, solar radiation intensity measurements, obtained during April 1935, and determinations of the atmospheric turbidity factor, β, and water-vapor content, w=depth in millimeters, if precipitated*

BLUE HILL METEOROLOGICAL OBSERVATORY OF HARVARD UNIVERSITY

Date and hour angle	Solar altitude	Air mass	I_m	I_y	I_r	β_{Im-r}	β_{Iy-r}	β_{mean}	$\frac{I_{w=0}}{1.94}$ (Percentage of solar constant)	$\frac{I_{w=0}-I_m}{1.94}$ (Percentage of solar constant)	w	Air-mass type
Apr. 3, 1935	° ′	*m*	*gr. cal.*	*gr. cal.*	*gr. cal.*						*mm*	
3:19 a. m.	32 29	1.86	1.200	0.827	0.691	0.063	0.116	0.090	68.0	6.1	6.9	P_c
3:00 p. m.	35 35	1.75	1.365	.966	.760	.026	.024	.025	82.2	11.8	8.1	
4:49 p. m.	16 33	3.49	1.061	.775	.652	.036	.071	.054	60.5	5.8	3.6	P_c
Apr. 6												
2:57 a. m.	36 52	1.66	1.270	.898	.713	.049	.080	.064	70.9	5.2	7.4	P_c
2:37 a. m.	40 03	1.55	1.316	.913	.744	.054	.088	.071	74.7	6.8	8.5	
0:16 p. m.	54 00	1.24	1.442	.992	.799	.054	.075	.064	79.7	5.3	10.0	P_c
Apr. 7												
0:33 a. m.	53 42	1.24	1.457	1.007	.810	.041	.067	.054	81.2	5.9	10.2	P_c, T_A aloft
1:05 p. m.	51 39	1.27	1.385	.965	.772	.058	.075	.066	79.1	6.6	10.3	
3:23 p. m.	32 54	1.84	1.255	.905	.731	.058	.077	.068	72.1	7.3	7.2	
3:46 p. m.	28 57	2.06	1.189	.862	.690	.056	.058	.057	71.8	10.4	6.8	P_c
Apr. 15												
3:03 a. m.	38 20	1.61	1.331	.914	.720	.027	.041	.034	81.0	11.9	8.9	
2:44 a. m.	42 18	1.48	1.357	.925	.725	.024	.044	.034	82.1	11.7	9.6	NP_c, T_M aloft
0:40 a. m.	56 14	1.20	1.364	.931	.738	.049	.076	.062	80.7	9.9	13.1	
0:08 a. m.	57 21	1.19	1.442	.968	.769	.035	.065	.050	82.4	7.6	11.1	
Apr. 18												
3:18 a. m.	36 40	1.67	1.250	.907	.701	.077	.075	.076	72.2	7.3	7.9	P_c, NP_c aloft
2:43 a. m.	42 34	1.48	1.335	.917	.743	.042	.072	.057	78.0	8.4	9.1	
Apr. 20												
0:32 a. m.	58 23	1.18	1.500	1.011	.803	.019	.025	.022	86.9	8.8	11.9	NP_c
April 21												
3:31 a. m.	35 32	1.72	1.330	.952	.755	.041	.036	.038	79.4	10.2	7.5	NP_A
Apr 25												
2:58 p. m.	41 46	1.50	1.273	.890	.725	.067	.088	.078	74.4	8.0	9.0	NP_c
Apr. 26												
3:14 a. m.	35 14	1.58	1.416	.968	.786	.025	.069	.046	78.8	4.9	7.7	NP_c
1:44 a. m.	53 24	1.25	1.445	.980	.785	.027	.040	.034	84.3	8.9	11.4	
Apr. 27												
2:26 a. m.	47 59	1.34	1.173	.809	.653	.096	.144	.120	70.6	9.3	10.3	NP_c
Apr. 28												
1:28 p. m.	56 59	1.19	1.257	.839	.669	.065	.125	.095	76.1	10.4	11.7	NP_r
3:30 p. m.	36 52	1.66	.957	.698	.567	.147	.164	.156	61.0	11.0	8.4	P_c
Apr. 29												
3:16 a. m.	39 35	1.57	1.285	.884	.708	.042	.075	.058	76.3	9.2	8.7	NP_c
2:46 a. m.	44 38	1.42	1.344	.918	.729	.039	.064	.052	79.6	9.3	9.6	
0:02 p. m.	62 06	1.13	1.400	.950	.750	.050	.060	.055	82.3	9.1	13.1	
0:35 p. m.	61 06	1.14	1.405	.950	.750	.036	.075	.056	81.9	8.4	11.8	
2:39 p. m.	45 54	1.39	1.273	.889	.702	.061	.067	.064	77.8	11.3	10.2	P_A, T_c aloft

Atmospheric conditions during solar radiation measurements. Blue Hill Observatory of Harvard University

Date and time from apparent noon	Air temperature	Wind (Beaufort scale)	Visibility (scale 0–10)	Sky blueness	Cloudiness and remarks
April 1935	°C.				
3; 2:45 a. m.	3.9	NW 5	8–9	8	Few Acu, 5 Cu, light haze.
3; 0:14 p. m.	4.4	NW 6	8–9	9	3 Cu, Stcu, light haze.
3; 2:45 p. m.	6.1	NW 7	9	9	6 Cu, Stcu, no haze. Gusty. Wind variable.
4; 0:28 p. m.	6.1	W 3	8–9	8	3 Acu, 2 Cu, light haze.
6; 2:54 a. m.	1.7	NNW 5	7–9	9	Few Ci, moderate haze. Wind steady. Varying smoke.
6; 0:09 a. m.	3.9	NxW 5	9	9	Few Ci, light haze. Wind rising gusty.
6; 0:03 p. m.	3.9	NxW 5	9	9	Do.
6; 1:41 p. m.	5.0	NW 5	9	10	4 Ci, light haze.
7; 0:50 a. m.	2.8	N 3	9	12	4 Ci, no haze. Smoke from N. Audibility good.
7; 1:18 p. m.	5.6	NE 3	9	12	1 Ci, light smoke N.
7; 3:29 p. m.	6.1	ESE 1	9	[1] 5	Few Ci.
15; 3:00 a. m.	7.8	WNW 3	8	11	3 Acu, few Stcu, moderate water haze.
15; 0:31 a. m.	12.8	SSW 4	8	10	Few Ci, Dist, 2 Cu, light haze.
18; 3:01 a. m.	3.3	NW 5	7–8	9	Few Cicu, 4 Acu, few Cu, moderate haze.
20; 1:14 a. m.	13.3	NW 5	9	[1] 5	4 Ci, 5 Cu.
20; 0:20 a. m.	13.9	NW 5	9	[1] 5	Do.
26; 3:30 a. m.	10.0	NW 5	8–9	11	Few Ci. Wind gusty. Light haze.
26; 1:09 a. m.	12.2	NW 5–6	9	11	2 Ci, light haze. Gusty.
28; 3:13 a. m.	18.3	WSW 5	7	7	Few Frcu, heavy haze. Gusty, wind rising.
28; 1:25 p. m.	23.6	W 7	8	3	2 Ci, 1 Cu, heavy haze.
29; 3:14 a. m.	12.2	E 4	8–9	10	1 Ci, no haze.
29; 0:17 p. m.	15.6	NE 4	8–9	10	Few Ci, few Frcu, no haze.
29; 2:42 p. m.	18.3	S 5	8–9	11	Few Ci, few Cu, no haze.

[1] Observation by Towle; others by E. M. H.

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
1935	*h m*	°	°	°				
Apr. 1	11 30	(1)	(1)	(1)				Mt. Wilson.
Apr. 2	11 34	(1)	(1)	(1)				U. S. Naval.
Apr. 3	13 29	(1)	(1)	(1)				Do.
Apr. 4	9 40	(1)	(1)	(1)				Mt. Wilson.
Apr. 5	9 15	(1)	(1)	(1)				Do.
Apr. 6	11 15	(1)	(1)	(1)				Do.
Apr. 9	13 35	+5.0	304.2	+25.0		24		Do.
		+27.0	326.2	−21.0		12	36	
Apr. 10	13 15	+18.0	304.2	+25.0		21		Do.
		+40.0	326.2	−21.0	3		24	
Apr. 11	13 21	+36.0	308.9	+24.0		15	15	U. S. Naval.
Apr. 12	13 10	−64.0	195.8	−28.0		8		Mt. Wilson.
		−39.0	220.8	−36.0		23		
		+50.0	309.8	+25.0		12	43	
Apr. 13	12 30	−54.0	193.0	−27.0	10			U. S. Naval.
		−26.5	220.5	−35.0		123		
		+64.0	311.0	+24.0		15	148	
Apr. 14	13 47	−14.0	219.0	−36.0		231	231	Do.
Apr. 15	11 40	−2.0	219.0	−36.0		293	293	Do.
Apr. 16	13 7	+10.0	217.0	−35.0		231	231	Do.
Apr. 17	11 1	+22.0	217.0	−35.0		216	216	Do.
Apr. 18	11 24	+34.0	215.5	−35.0		170	170	Do.
Apr. 19	11 10	+50.0	218.5	−35.0		154	154	Do.

[1] No spots.