Jameson, H.
Heavy rainfall in Ceylon. With tables giving the maximum total rainfall on n consecutive days ($n=1, 2, 3$, etc.) for selected stations in Ceylon, over selected periods. Colombo. 1927. 41 p. plates (fold.) tables. 21½ cm. (Trans. engin. assoc. of Ceylon.)

Jardí, Ramón.
Estudis de la intensitat de la pluja a Barcelona. Barcelona. 1927. p. 51–76. figs. 28½ cm. (Institut d'estudis Catalans. Sec. de ciències. Mem. v. 1, fasc. 2.)

Keller, Leo.
Versuch einer statistischen Untersuchung der allgemeinen Zirkulation der Atmosphäre in der nördlichen gemässigten Zone. p. 5–14. figs. 30 cm. [Text in Russian. German abstract at end.]

Keller, L. W., & Kotschin, N. E.
Bedingungen für die Stabilität einer reinzonalen Zirkulation der Atmosphäre. p. 241–264. 26½ cm. (Statîa postupila v redaktaiîû 7 iûnîa 1927.) [Text in Russian. German abstract at end.]

Kisker, H.
Die Geräte für die künstliche Beregnung. p. 30–62. illus. 28 cm. (Kleine Mitteil. für die Mitglieder des Vereins für Wasser-, Boden- und Lufthyg., E. V. 4 Jahrg., Jan./Apr. 1928. Nr. 1/4.)

Koller, L. R.
Daylight recording by means of the photoelectric cell. p. 85–86. illus. 30½ cm. [Gen. elec. rev., v. 31, Feb., 1928.]

Lindenberg. Aeronautische Observatorium vom Höhenwetterdienst.
Wetter-Schlüssel für die Sicherung des Luftverkehrs. Lindenberg. 1928. v. p. 30 cm. (Deutscher Flugwetterdienst.)

Long Island. Chamber of commerce.
Long Island's climate. A five-year record presented by graphic chart 1922–1926. New York. 1928. 15 p. figs. 23 cm.

Macfie, Ronald Campbell.
Sunshine and health. New York. [c1927.] 256 p. 17 cm.

Mahalanobis, P. C.
Report on rainfall and floods in North Bengal 1870–1922. Calcutta. 1927. 90 p. 34 cm.
Maps. 28 maps. 36 cm.

Naval aviation training schools. Pensacola, Fla.
Ground school course. v. 1, 3. Washington. 1925–1926. illus. plate. 27½ cm. [Part D—Aerology.]

New York. Commission on ventilation.
Rural school ventilation study in Cattaraugus county, New York, during the school year 1926–1927. New York. 1928. 37 p. plates. 29 cm.
Work during the school year 1926–27. unp. illus. 26½ cm. (Repr.: Amer. school bd. journ., Jan., 1928.)

Read, Allen Walker.
Word blizzard. p. 191–217. 25½ cm. (Repr.: Amer. speech. v. 3, no. 3, Feb., 1928.)

Sampaio Ferraz, J. de.
A aviação e a meteorologia no Brasil. Conferencia realisada no Club de engenharia em 21 de Dezembro de 1927, perante reunião do seu conselho director . . . Rio de Janeiro. 1928. 19 p. 23½ cm.
O café e os factores meteorologicos. Rio de Janeiro. 1928. 19 p. 23½ cm.

Sverdrup, H. U.
Scientific work of the "Maud" expedition, 1922–1925. Washington. 1927. p. 219–233. figs. 24½ cm. (Smith. report, 1926.)

Theaman, John R.
Precipitation of St. Kitts. Indianapolis. 1928. 23 p. maps. 28½ cm. [Typewritten.]

Vitkevich, V. I.
Self-recording theodolite (Vitkevich's system). Moscow, 1925. 11 p. illus. 25½ cm. [Author, title and text in Russian and English.]
Die wissenschaftliche Erforschung der freien Atmosphäre. Moscou. 1923–1927. Fasc. 1–5. illus. 26½ cm.

SOLAR OBSERVATIONS

SOLAR AND SKY RADIATION MEASUREMENTS DURING APRIL, 1928

By HERBERT H. KIMBALL, Solar Radiation Investigations

For a description of instruments and exposures and an account of the method of obtaining and reducing the measurements, the reader is referred to the Review for January, 1924, **52**: 42, January, 1925, **53**: 29, and July, 1925, **53**: 318.

Table 1 shows that solar radiation intensities averaged slightly above the normal values for April at Lincoln, Nebr., and close to normal at Washington, D. C., and Madison, Wis. At Washington an intensity of 1.50 gram-calories per minute per square centimeter, measured at noon on the 25th, is nearly equal to the absolute maximum for April of 1.51.

Table 2 shows a slight excess in the total solar radiation received on a horizontal surface directly from the sun and diffusely from the sky at Madison and Lincoln, and a slight deficiency at Washington as compared with the April normals for these stations.

Skylight polarization measurements at Washington made on two days give a mean of 57 per cent, with a maximum of 59 per cent on the 25th. These are close to the corresponding normal values for Washington for April. At Madison polarization measurements obtained on three days give a mean of 67 per cent, with a maximum of 72 per cent on the 27th. These are above the corresponding normal values for Madison for April.

TABLE 1.—*Solar radiation intensities during April, 1928*

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

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.*
WASHINGTON, D. C.											
Apr. 2	4.95				0.92						3.99
5	9.83				0.99						9.14
12	5.36				1.09						5.79
13	4.75		0.90	1.01	1.17	1.49					3.30
18	4.37	0.66	0.80	0.97	1.18	1.45	1.04	0.78	0.59		3.00
25	4.17				1.08	1.53	1.20	1.00	0.85	0.64	3.00
26	3.81	0.60	0.74	0.92	1.12						3.99
Means		(0.63)	0.81	0.97	1.08	1.49	(1.12)	(0.89)	(0.72)	(0.64)	
Departures		−0.08	+0.05	+0.07	±0.00		+0.02	−0.02	−0.03	−0.02	
MADISON, WIS.											
Apr. 3	6.27				0.97						7.57
9	3.00			1.15							1.52
12	3.99				1.28	1.56					3.30
17	3.45			0.98	1.14	1.48					3.63
23	4.17				1.30						3.45
27	3.63				1.31	1.48					3.45
28	3.45				1.31						2.49
Means				(1.06)	1.22	1.15					
Departures				−0.03	±0.00						
LINCOLN, NEBR.											
Apr. 9	1.60		0.99	1.11	1.30	1.52	1.20	1.06	0.93	0.82	3.81
19	2.36						1.18	0.93			1.96
22	4.57					1.51	1.25	1.07	0.91	0.81	2.74
23	5.36				1.23	1.46					4.17
24	3.45			1.07	1.21	1.37	1.23	1.05	0.93	0.79	2.49
25	3.30				1.18	1.40					3.15
27	4.17	0.86	0.97	1.06	1.25	1.48	1.21	0.99	0.82	0.66	2.49
28	3.45		0.84	1.01	1.14	1.28					4.57
Means		(0.86)	0.93	1.06	1.22	1.43	1.21	1.02	0.90	0.77	
Departures		+0.12	+0.09	+0.07	+0.01		+0.03	+0.03	+0.05	+0.05	

[1] Extrapolated.

TABLE 2.—*Solar and sky radiation received on a horizontal surface*

[Gram-calories per square centimeter of horizontal surface]

Week beginning—	Average daily radiation						Average daily departure from normal		
	Washington	Madison	Lincoln	Chicago	New York	Twin Falls	Washington	Madison	Lincoln
1928	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Apr. 1	436	237	378	175	407	324	+51	−137	−36
Apr. 8	347	480	475	294	309	377	−59	+75	+51
Apr. 15	415	435	423	390	432	312	−12	+29	−23
Apr. 22	288	528	620	376	237	367	−130	+94	+140
Excess or deficiency since first of year on Apr. 28							−616	+1,092	+259

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. C. S. Freeman, Superintendent, U. S. Naval Observatory]
[Data furnished by Naval Observatory, in cooperation with Harvard, Yerkes, and Mount Wilson observatories]
[The differences of longitude are measured from central meridian, positive west. The north latitudes are plus. Areas are corrected for foreshortening and are expressed in millionths of sun's visible hemisphere. The total area, including spots and groups, is given for each day in the last column]

Date	Eastern standard civil time	Heliographic			Area		Total area for each day
		Diff. long.	Longitude	Latitude	Spot	Group	
1928	*h. m.*	°	°	°			
Apr. 1 (Naval Observatory).	14 16	−72.0	228.5	−8.5	123		
		−58.5	242.0	+20.5	62		
		−28.0	272.5	+10.0	77		
		−23.0	277.5	+8.0	77		
		−12.0	288.5	+22.0		170	
		−5.0	295.5	+9.5		22	
		−4.5	296.0	+6.0	31		
		+48.5	349.0	−11.0	123		685
Apr. 2 (Naval Observatory).	11 42	−83.0	205.7	−17.0		463	
		−60.5	228.2	−9.0	123		
		−45.0	243.7	+20.5	15		
		−17.5	271.2	+10.5	62		
		−11.0	277.7	+8.0		154	
		−2.5	286.2	+6.5		6	
		−1.5	287.2	+22.0	154		
		+7.5	296.2	+10.0		9	
		+8.0	296.7	+6.5	31		
		+60.5	349.2	−11.0	123		1,140
Apr. 3 (Naval Observatory).	11 48	−70.5	204.9	−17.0		494	
		−67.5	207.9	−24.5		62	
		−47.0	228.4	−9.0	93		
		−4.0	271.4	+10.5	37		
		−1.0	274.4	+7.5	139		
		+5.0	280.4	+8.0		62	
		+11.5	286.9	+22.0	139		
		+12.0	287.4	+7.0		46	
		+21.5	296.9	+7.5		25	
		+73.5	348.9	−11.0	123		1,220
Apr. 4 (Naval Observatory).	11 32	−70.0	192.4	−10.0	15		
		−68.0	194.4	−15.0	31		
		−67.0	195.4	+17.0		185	
		−60.0	202.4	−13.5		216	
		−55.0	207.4	−17.0	370		
		−52.0	210.4	−22.5	31		
		−33.0	229.4	−8.5	62		
		+10.0	272.4	+10.5	31		
		+12.5	274.9	+7.5		154	
		+18.0	280.4	+8.0	139		
		+24.5	286.9	+22.0	139		
		+27.0	289.4	+6.0		25	
		+34.5	296.9	+6.0	15		1,413
Apr. 5 (Naval Observatory).	11 39	−56.0	193.1	−10.5	15		
		−52.5	196.6	+17.0		123	
		−49.0	200.1	−14.0		185	
		−42.5	206.6	−17.0	401		
		−40.0	209.1	−23.5		62	
		−19.5	229.6	−8.5	77		
		+4.0	253.1	+14.5	22		
		+22.5	271.6	+11.0	15		
		+29.5	278.6	+8.0		216	
		+38.0	287.1	+21.5	123		
		+48.0	297.1	+6.0	9		1,248
Apr. 6 (Naval Observatory).	11 37	−82.0	153.9	−15.5	154		
		−40.0	195.9	+17.0		154	
		−37.0	198.9	−14.0		247	
		−29.5	206.4	−17.0	463		
		−27.0	208.9	−24.0		62	
		−6.5	229.4	−8.0	77		
		+17.5	253.4	+14.5		31	
		+35.0	270.9	+11.0	15		
		+42.5	278.4	+8.0		154	
		+50.0	285.9	+21.5		123	1,480

Positions and areas of sun spots—Continued

Date	Eastern standard civil time	Heliographic			Area		Total area for each day
		Diff. long.	Longitude	Latitude	Spot	Group	
1928	*h. m.*	°	°	°			
Apr. 7 (Naval Observatory).	11 35	−70.0	152.8	−15.5	139		
		−36.5	186.3	−9.5		22	
		−32.5	190.3	+18.0		15	
		−26.0	196.8	+16.0	139		
		−22.0	200.8	−14.0		432	
		−16.5	206.3	−17.0	370		
		−13.5	209.3	−25.0		93	
		−3.0	219.8	−7.5		46	
		+7.0	229.8	−8.5	77		
		+29.0	251.8	+13.5		18	
		+49.0	271.8	+11.0	31		
		+52.0	274.8	+7.5	123		
		+59.5	282.3	+8.0		62	
		+61.5	284.3	+21.0	93		1,660
Apr. 8 (Naval Observatory).	11 36	−81.0	128.6	+13.0		463	
		−70.5	139.1	−16.0		62	
		−56.0	153.6	−15.5	123		
		−18.0	191.6	+17.5		31	
		−12.5	197.1	+15.5		139	
		−9.0	200.6	−14.0		432	
		−2.5	207.1	−17.0	370		
		−1.0	208.6	−25.0		139	
		+11.5	221.1	−8.0		77	
		+20.5	230.1	−9.0	77		
		+41.5	251.1	+13.0	9		
		+61.0	270.6	+11.0	31		
		+64.5	274.1	+7.5		139	
		+74.0	283.6	+21.0	123		2,215
Apr. 9 (Naval Observatory).	12 56	−66.0	129.6	+13.5		370	
		−59.5	136.1	−17.5		185	
		−41.5	154.1	−15.5		170	
		0.0	195.6	−16.0		93	
		+1.5	197.1	+15.0		93	
		+7.5	203.1	−15.0		401	
		+12.0	207.6	−17.5	247		
		+28.0	223.6	−7.5	46		
		+34.5	230.1	−8.5	77		1,682
Apr. 10 (Harvard)	16 17	−72.0	108.5	−12.0		204	
		−69.5	111.0	+7.0	388		
		−51.5	129.0	+12.0		1,022	
		−42.0	138.5	−19.5		104	
		−25.5	155.0	−16.0	119		
		+17.5	198.0	+15.5		67	
		+25.5	206.0	−14.0		818	
		+51.0	231.5	−7.0	47		2,769
Apr. 11 (Mount Wilson)	19 0	−56.0	109.9	−9.5		725	
		−56.0	109.9	+9.5	251		
		−37.0	128.9	+14.0		456	
		−30.0	135.9	−18.0		65	
		−12.0	153.9	−15.0		138	
		+2.0	167.9	−16.0		25	
		+31.0	196.9	+15.0		145	
		+38.0	203.9	−15.5		799	
		+62.0	227.9	−9.5	30		2,634
Apr. 12 (Naval Observatory).	11 49	−52.5	104.1	−10.5		154	
		−45.0	111.6	+8.5	247		
		−42.5	114.1	−8.0		278	
		−27.0	129.6	+13.0		216	
		−21.5	135.1	−19.5	31		
		−15.5	141.1	−16.0	25		
		−2.5	154.1	−15.5		93	
		+42.0	198.6	+14.5		62	
		+44.0	200.6	−15.0		216	
		+51.0	207.6	−17.0		370	1,692
Apr. 13 (Naval Observatory).	11 45	−40.0	103.5	−10.5	123		
		−31.0	112.5	+9.0		170	
		−29.0	114.5	−8.5		278	
		−12.5	131.0	+13.0		139	
		−8.0	135.5	−19.5	18		
		−2.5	141.0	−16.5	9		
		+10.5	154.0	−16.0		46	
		+55.0	198.5	+14.0	31		
		+57.0	200.5	−15.0		185	
		+63.0	206.5	−16.5		216	1,215
Apr 14 (Mount Wilson)	18 30	−15.0	111.5	−10.0		304	
		−14.0	112.5	+8.5		222	
		+4.0	130.5	+13.0		85	
		+11.0	137.5	−18.0		22	
		+26.5	153.0	−16.0		36	
		+50.5	177.0	+18.0		60	
		+76.0	202.5	−14.0		219	948
Apr. 15 (Naval Observatory).	13 35	−12.0	104.1	−10.5		93	
		−5.0	111.1	−10.0		93	
		−3.5	112.6	+9.0		185	
		+1.0	117.1	−8.5	154		
		+14.5	130.6	+12.5		93	
		+38.5	154.6	−16.5		77	
		+58.0	174.1	+19.0	62		757
Apr. 16 (Naval Observatory).	12 12	+0.5	104.1	+7.0		31	
		+1.5	105.1	−9.5		46	
		+8.0	111.6	−10.0		15	
		+9.0	112.6	+10.0		185	
		+14.5	118.1	−7.5	170		
		+27.5	131.1	+15.0		108	
		+80.0	183.6	+19.0		123	678