

SOLAR OBSERVATIONS.

SOLAR AND SKY RADIATION MEASUREMENTS DURING NOVEMBER, 1923.

By HERBERT H. KIMBALL, In Charge, Solar Radiation Investigations.

For a description of instruments and exposures, and on account of the method of obtaining and reducing the measurements, the reader is referred to this REVIEW for April, 1920, 48:225, and a note in the REVIEW for November, 1922, 50:595.

From Table 1 it is seen that solar-radiation intensities averaged slightly below normal values for November at Washington, D. C., and Lincoln, Nebr., and slightly above normal at Madison, Wis.

Table 2 shows a slight deficiency in the total radiation received on a horizontal surface at Washington and Madison, and a slight excess at Lincoln.

Skylight-polarization measurements obtained at Washington on 10 days give a mean of 60 per cent, with a maximum of 70 per cent on the 9th. These are slightly above average values for November at Washington. At Madison no measurements were obtained on account of the generally cloudy condition of the sky.

TABLE 1.—Solar radiation intensities during November, 1923.

(Gram-calories per minute per square centimeter of normal surface.)

Washington, D. C.

Date.	Sun's zenith distance.										Local mean solar time.	
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.8°		Noon.
	75th mer. time.	Airmass.										
		A. M.					P. M.					
e.	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	e.		
Nov. 1.....	mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.	
2.....	3.81	0.53	0.69	0.93	1.10	.....	1.25	1.05	0.98	0.88	4.95
3.....	3.63	.....	.....	0.64	.....	.....	.....	.....	.....	.....	5.30
4.....	4.57	0.77	0.89	1.03	1.03	.....	1.15	1.01	0.87	0.78	4.76
5.....	2.74	.....	.....	.....	.....	.....	1.31	1.14	0.95	0.86	2.36
6.....	3.63	0.52	0.63	0.78	1.04	.....	1.13	0.96	0.83	0.73	3.45
7.....	5.16	0.54	0.66	0.80	0.97	.....	.....	.....	.....	.....	6.02
8.....	4.95	.....	.....	1.25	.....	.....	1.14	1.03	0.82	0.75	5.16
9.....	4.17	0.92	1.07	1.19	1.36	1.59	1.35	1.09	0.92	0.78	3.30	
10.....	3.45	0.49	0.61	0.73	1.00	.....	1.06	0.83	0.65	0.52	3.63
11.....	5.79	.....	.....	0.73	.....	.....	.....	.....	.....	.....	8.18
12.....	6.76	.....	.....	.....	.....	.....	1.21	.....	.....	.....	4.75
Means.....	.....	0.63	0.76	0.85	1.11	.....	1.20	1.02	0.86	0.76	.....
Departures.....	.....	-0.11	-0.09	-0.15	-0.07	.....	+0.03	+0.04	+0.04	+0.03	.....

TABLE 1.—Solar radiation intensities during November, 1923—Con.

(Gram-calories per minute per square centimeter of normal surface.)

Madison, Wis.

Date.	Sun's zenith distance.										Local mean solar time.	
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.8°		Noon.
	75th mer. time.	Airmass.										
		A. M.					P. M.					
e.	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	e.		
Nov. 6.....	mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.	
8.....	3.15	.....	.....	.....	.....	.....	.....	.....	1.18	.....	4.95
9.....	2.49	.....	.....	.....	.....	.....	.....	.....	1.21	.....	2.87
19.....	3.00	0.91	1.01	1.14	1.23	.....	.....	.....	1.11	.....	3.63
.....	3.81	1.03	1.14	1.26	.....	.....	.....	.....	.....	.....	4.17
Means.....	.....	(0.97)	(1.08)	(1.24)	(1.23)	.....	.....	.....	1.17	.....	.....
Departures.....	.....	+0.10	+0.06	+0.04	-0.06	.....	.....	.....	+0.00	.....	.....

Lincoln, Nebr.

Nov. 5.....	3.30	1.05	1.17	1.29	1.42	1.59	1.41	1.22	1.09	1.04	3.00
6.....	2.87	0.80	0.90	1.04	1.19	.....	.....	.....	.....	.....	4.57
7.....	4.17	.....	.....	.....	.....	.....	1.34	.....	.....	0.81	3.81
8.....	3.81	.....	.....	1.07	1.27	.....	1.29	1.05	0.93	0.84	3.99
9.....	3.15	.....	.....	1.09	1.30	.....	.....	.....	.....	.....	5.16
14.....	4.57	.....	.....	.....	.....	.....	1.26	.....	.....	.....	5.36
15.....	4.95	.....	.....	1.15	1.33	1.53	1.37	1.23	.....	0.99	5.56
17.....	4.17	0.69	0.77	1.04	1.34	.....	.....	.....	.....	.....	4.75
19.....	3.63	.....	.....	.....	.....	.....	1.36	1.19	1.07	0.98	4.75
22.....	2.74	0.82	0.95	.....	.....	.....	.....	.....	.....	.....	3.63
23.....	4.17	.....	1.14	1.28	1.43	1.60	.....	.....	.....	.....	4.37
26.....	2.74	.....	1.20	1.31	1.46	.....	.....	.....	.....	.....	3.06
28.....	2.62	.....	1.03	1.16	.....	.....	.....	1.15	0.98	0.89	3.80
Means.....	.....	0.84	1.02	1.16	1.34	.....	1.34	1.17	1.02	0.92	.....
Departures.....	.....	-0.10	-0.03	-0.04	-0.02	.....	-0.03	-0.03	-0.03	-0.02	.....

1 Extrapolated.

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

Week beginning—	Average daily radiation.				Average daily departure for the week.			Excess or deficiency since first of year.		
	Chi-ago.	Wash-ington.	Mad-ison.	Lin-cola.	Wash-ington.	Mad-ison.	Lin-cola.	Wash-ington.	Mad-ison.	Lin-cola.
	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.
Nov. 5.....	161	161	219	291	-66	+51	+63	-4,837	-795	-2,421
12.....	114	169	105	228	-36	-44	+14	-5,091	-1,103	-2,322
19.....	114	197	131	207	+12	-5	+5	-5,008	-1,138	-2,289
26.....	58	166	82	206	-3	-44	+15	-5,030	-1,446	-2,181

WEATHER OF NORTH AMERICA AND ADJACENT OCEANS.

NORTH ATLANTIC OCEAN.

By F. A. YOUNG.

The average pressure for the month varied considerably, as compared with the normal, as shown by the departures at a number of selected land stations on the coast and islands of the North Atlantic.

The barometric readings are in inches, for 8 a. m. 75th meridian time, and the departures are approximate, as the normals were taken from the Pilot Chart and are based on Greenwich mean noon observations, corresponding to 7 a. m. 75th meridian time.

St. Johns, Newfoundland, mean 30.08 inches, departure, +0.04 inches; Nantucket, 30.06, -0.03; Hatteras, 30.07, -0.07; Key West, 30.05, +0.02; New Orleans, 30.13, +0.02; Swan Island, 29.91, -0.01; Turks Island,

30.03, +0.03; Bermuda, 29.98; -0.16; Horta, Azores, 30.19, +0.08; Lerwick, Shetland Islands, 29.57, -0.13; Valencia, Ireland, 29.86, -0.04; London, 29.78, -0.16.

The number of days on which winds of gale force were reported did not differ materially from the normal over the greater part of the ocean, although in the 5-degree square between the 40th and 45th parallels and the 55th and 60th meridians, where the maximum occurred, gales were observed on 8 days, which is considerably in excess of the percentage shown on the Pilot Chart. The number of disturbances in southern waters was also somewhat greater than usual.

According to reports received, fog was observed on 11 days in the vicinity of the Grand Banks, which is not far from the normal; it was reported on from 4 to 6 days over the middle section of the northern steamer