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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Meteorology of yesterday, to-day and to-morrow. p. 393–404. 24½ cm. (Scientia v. 51. 1, 6, 1932.)

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SOLAR OBSERVATIONS

SOLAR RADIATION MEASUREMENTS DURING NOVEMBER, 1932

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 well above normal values at Washington and Madison and slightly below at Lincoln.

Table 2 shows an excess in the total solar radiation received on a horizontal surface at Washington, Lincoln, Chicago, New York, Fresno, and Pittsburgh and a deficiency at all other stations for which normals have been computed.

Table 3 shows low turbidity values for the month as a whole, while the values of November 10 are the lowest recorded in Washington since observations began in February, 1932.

Polarization measurements made at Washington on six days give a mean of 58 per cent with a maximum of 66 per cent on the 10th. At Madison one observation of 67 per cent on the 26th is the only value that may be accepted, due to misadjustment of the polarimeter during the fore part of the month. The Washington values are about normal for November, while the single reading for Madison is about normal for the mean but below the average November maximum.

TABLE 1.—*Solar radiation intensities during November, 1932*

[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	*1.0	2.0	3.0	4.0	5.0	e.
	mm.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm.*
Washington, D. C.											
Nov. 3	4.95	0.79	0.92	1.07							4.17
Nov. 10	4.95	.92	1.07	1.19	1.27	1.37	1.36	1.24	1.08	0.91	4.37
Nov. 14	3.45							1.12	.98	.76	3.81
Nov. 15	4.57	.76	.92	1.04							4.75
Nov. 22	2.74	.64	.77	.97							2.74
Nov. 23	3.45	.42	.74	.97	1.32						3.45
Nov. 28	1.60		1.00	1.17	1.40			1.05	1.02	.88	1.52
Nov. 29	2.06	1.02	1.16	1.33							1.52
Means		.76	.94	1.11	1.20	(1.37)	(1.36)	1.14	1.03	.85	
Departures		±.00	+.08	+.11	+.02		+.19	+.15	+.19	+.11	
Madison, Wis.											
Nov. 2	4.17	0.77	0.88								4.17
Nov. 3	4.17			1.05							4.57
Nov. 5	4.57	.78	.96	1.17	1.35						4.17
Nov. 16	1.78		1.13	1.28	1.45			1.25			2.36
Nov. 19	1.32				1.34						1.32
Nov. 21	1.60		1.12	1.27	1.40			1.19			1.45
Nov. 26	1.68	1.10	1.21	1.35	1.50						1.45
Means		.88	1.06	1.24	1.41			1.22			
Departures		±.00	+.05	+.09	+.11			+.08			
Lincoln, Nebr.											
Nov. 2	4.75				1.27		1.46	1.15	1.07		5.16
Nov. 4	7.04							1.10			6.76
Nov. 12	2.36	0.90	1.04	1.23	1.44		1.33				3.45
Nov. 23	3.00						1.34	1.13	.98		3.81
Nov. 30	3.15		.92	1.17							3.99
Means		(.90)	(.98)	(1.20)	(1.36)		1.38	1.13	(1.02)		
Departures		±.00	−.04	+.03	+.02		+.03	−.05	−.02		

*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	Pittsburgh	Fairbanks	Twin Falls	La Jolla	Gainesville	Miami	New Orleans
	Gram calories per square centimeter												
1932	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*
Oct. 29	309	125	251	121	236	353	167	46	209	244	149	319	240
Nov. 5	142	103	185	88	90	329	141	39	184	292	148	304	272
Nov. 12	237	137	206	98	190	307	114	38	172	266	----------	338	234
Nov. 19	204	144	228	147	155	260	120	18	200	202	193	314	221
Nov. 26	244	153	206	130	204	202	118	12	138	188	168	294	265
	Departures from weekly normals												
Oct. 29	+72	−60	+12	−17	+60	+35	+6	----------	−61	−40	−149	−49	----------
Nov. 5	−80	−63	−55	−30	−60	+42	−7	----------	−38	−13	−99	−115	----------
Nov. 12	+50	+1	−6	−5	+62	+48	−10	----------	−13	−53	----------	−124	----------
Nov. 19	+24	+15	+23	+50	+39	+24	+2	----------	+30	−120	−47	−120	----------
Nov. 26	+84	+26	+11	+44	+100	−3	+15	----------	−19	−117	−42	−82	----------
	Accumulated departures on Dec. 2												
	+9,688	+394	+1,524	+17,479	+20,771	+10,378	+6,412	----------	−9,403	−4,429	----------	−6,799	----------

TABLE 3.—*Solar radiation measurements, and determinations of atmospheric turbidity factor, β, Washington, D. C., November, 1932*

Date and solar hour angle	Solar altitude, *h*.	Air mass, *m*.	I_m	I_y	I_r	β	Blueness of sky	Atmospheric dust particles per cubic centimeter	Notes: (skylight polarization, P.) clouds, etc.
Nov. 3			*gr. cal.*	*gr. cal.*	*gr. cal.*				
3:49 a	14-00	4.08	0.906	*0.702*	0.581	0.060		727	
3:45 a	14-39	3.92	.932	.705	*.588*	.060			
3:41 a	15-17	3.77	.947	*.728*	.607	.065			
3:36 a	16-06	3.57	.970	.733	*.612*	.065			
3:10 a	20-11	2.88	1.028	.808	*.657*	.080			
3:04 a	20-59	2.77	1.019	*.715*	.662	.105			
1:47 a	30-26	1.97	.990	.754	*.629*	.160	4		P=54.5
1:43 a	30-48	1.95	.990	*.754*	.629	.160			
Nov. 10									
3:07 a	18-58	3.05	1.200	.876	*.690*	.030		321	
3:03 a	19-23	2.99	1.203	*.875*	.693	.030			
2:11 a	26-01	2.28	1.346	.942	*.748*	.040			
2:08 a	26-23	2.25	1.359	*.946*	.751	.040			
1:27 a	30-10	1.98	1.352	*.970*	.766	.045	6		P=66.0.
1:23 a	30-38	1.96	1.339	.973	*.769*	.055			
0:02 a	33-51	1.79	1.391	*.973*	.754	.035			
0:01 p	33-52	1.79	1.385	.948	*.755*	.040			
1:43 a	28-54	2.06	1.335	.832	*.726*	.030			
1:46 p	28-38	2.08	1.334	*.831*	.721	.030			
2:57 p	20-16	2.87	1.241	.826	*.671*	.030			
3:00 p	19-50	2.93	1.236	*.825*	.673	.030			
3:26 p	16-03	3.59	1.113	.827	*.650*	.030			
3:32 p	15-07	3.78	1.080	*.822*	.643	.020			
3:36 p	14-30	3.94	1.089	.791	*.635*	.020			
3:40 p	13-52	4.10	1.054	*.788*	.637	.020			
Nov. 14									
2:34 p	22-23	2.60	1.153	.799	*.647*	.040		930	
2:37 p	22-00	2.65	1.167	*.797*	.643	.040			
2:46 p	20-50	2.81	1.140	*.773*	.639	.040			
2:50 p	20-18	2.88	1.105	.776	*.635*	.040			
3:21 p	16-05	3.57	1.028	*.728*	.613	.040			
3:24 p	15-29	3.70	1.030	.724	*.611*	.040			
Nov. 15									
3:22 a	15-32	3.70	.934	*.761*	.620	.060		701	
3:16 a	16-33	3.49	.991	.763	*.627*	.045			
2:49 a	20-19	2.87	1.149	.839	*.702*	.035			
2:42 a	21-10	2.75	1.156	*.846*	.705	.040			
2:09 a	25-10	2.34	1.216	*.902*	.721	.040			
2:05 a	25-36	2.32	1.226	.903	*.727*	.040			
0:06 a	32-32	1.86	1.290	.964	*.767*	.050	4		P=55.8.
0:00 noon	32-32	1.86	1.298	*.967*	.766	.045			
Nov. 22									
3:24 a	14-03	4.08	.769	*.630*	.516	.075		926	
3:20 a	14-08	4.02	.769	.632	*.521*	.075			
2:49 a	18-54	3.06	.960	.717	*.612*	.065			
2:41 a	19-55	2.92	.924	*.725*	.614	.080			
2:29 a	21-21	2.74	1.061	*.776*	.638	.050			
2:23 a	22-06	2.64	1.111	.781	*.636*	.035			

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, Superintendent United States Naval Observatory. Data furnished by Naval Observatory, in cooperation with Harvard, Perkins, 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: Diff. long.	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day
1932	*h.*	*m.*	°	°	°			
Nov. 1 (Naval Observatory)	11	49	−16.0	134.3	−10.0	------	25	25
Nov. 2 (Naval Observatory)	11	36	−1.0	136.2	−10.0	------	25	25
Nov. 3 (Naval Observatory)	11	48	+13.0	136.9	−10.0	------	25	25
Nov. 4 (Naval Observatory)	11	4	+28.0	139.1	−9.0	------	37	37
Nov. 5 (Perkins Observatory)	12	30	No spots			------	------	------
Nov. 6 (Perkins Observatory)	13	50	No spots			------	------	------
Nov. 7 (Mount Wilson)	12	0	No spots			------	------	------
Nov. 8 (Perkins Observatory)	10	20	No spots			------	------	------
Nov. 9 (Mount Wilson)	12	30	No spots			------	------	------
Nov. 10 (Naval Observatory)	11	39	No spots			------	------	------
Nov. 11 (Naval Observatory)	10	52	No spots			------	------	------
Nov. 12 (Naval Observatory)	12	27	No spots			------	------	------
Nov. 13 (Naval Observatory)	10	41	−8.0	344.7	.0	------	15	15
Nov. 14 (Naval Observatory)	10	24	+7.0	346.6	.0	------	9	9
Nov. 15 (Naval Observatory)	11	8	No spots			------	------	------
Nov. 16 (Naval Observatory)	11	42	No spots			------	------	------
Nov. 17 (Naval Observatory)	11	2	+15.0	314.8	+9.0	------	81	81
Nov. 18 (Mount Wilson)	12	35	+30.0	315.8	+9.0	------	306	306
Nov. 19 (Mount Wilson)	14	30	+45.0	316.5	+9.0	------	418	418
Nov. 20 (Naval Observatory)	11	32	+59.0	318.9	+8.0	------	833	833
Nov. 21 (Naval Observatory)	11	48	+72.0	318.6	+8.0	------	864	864
Nov. 22 (Naval Observatory)	10	17	+85.0	319.3	+8.0	------	926	926
Nov. 23 (Naval Observatory)	10	21	No spots			------	------	------
Nov. 24 (Naval Observatory)	11	8	No spots			------	------	------
Nov. 25 (Naval Observatory)	11	24	No spots			------	------	------
Nov. 26 (Naval Observatory)	11	59	No spots			------	------	------
Nov. 27 (Naval Observatory)	11	15	No spots			------	------	------
Nov. 28 (Naval Observatory)	10	48	No spots			------	------	------
Nov. 29 (Naval Observatory)	13	18	−73.0	67.3	+6.0	------	123	123
Nov. 30 (Naval Observatory)	10	23	−61.0	67.8	+5.0	------	185	185
Mean daily area for November								129

PROVISIONAL SUN-SPOT RELATIVE NUMBERS FOR NOVEMBER, 1932

(Dependent alone on observations at Zurich and its station at Arosa)

[Data furnished through the courtesy of Prof. W. Brunner, University of Zurich, Switzerland]

November, 1932	Relative numbers	November, 1932	Relative numbers	November, 1932	Relative numbers
1	7	11	9	21	25
2	10	12	9	22	--------
3	13	13	9	23	0
4	12	14	10	24	--------
5	0	15	10	25	--------
6	0	16	0	26	0
7	0	17	*Mc*14	27	0
8	0	18	24	28	*d*
9	0	19	27	29	8
10	7	20	31	30	12

Mean: 26 days=9.1.

a=Passage of an average-sized group through the central meridian.
b=Passage of a large group or spot through the central meridian.
c=New formation of a center of activity: E, on the eastern part of the sun's disk; W, on the western part; M, in the central zone.
d=Entrance of a large or average-sized center of activity on the east limb.