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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SOLAR RADIATIONS

SOLAR RADIATION MEASUREMENTS DURING OCTOBER, 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 slightly above normal values for October at all three stations at which normal incidence measurements are made.

Table 2 shows an excess in the total solar radiation received on a horizontal surface at Lincoln, Chicago, Fresno, Pittsburgh, and Miami, and a deficiency at all other pyrheliometric stations.

Table 3 shows low turbidity values for the month with the exception of October 3, which was an extremely hazy day.

Polarization measurements obtained on four days at Washington give a mean of 60 per cent, with a maximum of 64 per cent on the 29th. At Madison measurements obtained on four days give a mean of 58 per cent, with a maximum of 60 per cent on the 21st. These are average October values for Washington, but for Madison the values are considerably below the October normals.

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

[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	*1.0	2.0	3.0	4.0	5.0	e.
	mm.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm.*
Oct. 3	10.21					1.33					11.38
Oct. 8	7.04	0.75	0.87	1.00	1.18	1.39					4.37
Oct. 10	9.14				0.77						10.97

*Extrapolated.

TABLE 1.—*Solar radiation intensities during October, 1932*—Contd.

Washington, D. C.—Continued

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.*
Oct. 11	6.50				1.30						5.36
Oct. 14	5.36			0.99	1.21	1.47	1.28				4.57
Oct. 22	6.27	0.82	0.90	1.04	1.23	1.53					4.57
Oct. 27	7.29	0.67	0.87	1.03	1.22	1.45					4.75
Oct. 29	6.02				1.31						3.63
Means		**0.75**	**0.88**	**1.02**	**1.17**	**1.43**	**(1.28)**				
Departures		**±0.00**	**+0.04**	**+0.06**	**+0.05**	**+0.02**	**+0.16**				

Madison, Wis.

Oct. 6	3.99			1.04	1.31						4.17
Oct. 7	5.16		0.94	1.08							6.27
Oct. 13	4.75						1.29				4.17
Oct. 20	3.81						1.38				4.17
Oct. 21	3.81		1.29		1.46		1.36				3.81
Oct. 26	4.75			1.14	1.38		1.30				4.17
Means			**(1.12)**	**1.09**	**1.38**		**1.33**				
Departures			**+0.14**	**−0.03**	**+0.10**		**+0.14**				

Lincoln, Nebr.

Oct. 1	9.47		0.91	1.17	1.22	1.36					10.59
Oct. 11	4.57			0.75	1.18						3.99
Oct. 12	6.02						1.27	1.11	0.97	0.81	6.27
Oct. 13	6.27	0.76	0.91		1.10		1.31	1.04			7.57
Oct. 17	6.27	0.86	1.22	1.32	1.43	1.55					8.18
Oct. 18	10.59	0.84	0.93		1.03						10.97
Oct. 19	4.37	0.84	0.98	1.05	1.40		1.40				3.45
Oct. 20	3.45	1.09	1.31	1.38	1.46		1.40				3.45
Means		**0.88**	**1.04**	**1.13**	**1.26**	**1.46**	**1.34**	**(1.08)**	**(0.97)**	**(0.81)**	
Departures		**+0.02**	**+0.10**	**+0.03**	**−0.02**	**−0.02**	**+0.09**	**±0.00**	**+0.03**	**−0.03**	

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. 1	326	267	328	268	280	454	283	112	371	172	209	422	312
Oct. 8	363	194	322	180	312	420	237	95	311	196	290	365	370
Oct. 15	194	189	369	239	98	411	123	58	280	227	183	385	346
Oct. 22	225	139	198	156	154	400	230	43	276	285	185	416	354
	Departures from weekly normals												
Oct. 1	−3	−2	+4	+45	+16	+56	+23	----------	−27	−130	−144	−21	----------
Oct. 8	+57	−48	+22	−16	+69	+32	+23	----------	−25	−80	−68	−38	----------
Oct. 15	−83	−34	+62	+58	−112	+36	−67	----------	−80	−30	−177	+2	----------
Oct. 22	−43	−63	−74	−6	−35	+54	+52	----------	−45	+18	−168	+59	----------
	Accumulated departures on Oct. 28												
	+8,638	+961	−1,419	+16,865	+19,364	+9,356	+6,370	----------	−8,696	−2,028	----------	−3,369	----------

TABLE 3.—*Solar radiation measurements, and determinations of atmospheric turbidity factor (β), Washington, D. C., October, 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.
Oct. 3			*gr. cal.*	*gr. cal.*	*gr. cal.*				
0:27 a	46–36	1.38	1.231	*0.873*	0.690	0.120	5	529	Hazy.
0:24 a	46–41	1.37	1.245	0.878	*0.694*	0.115			Cirri.
Oct. 8									
4:34 a	12–36	4.50	0.809	0.618	*0.525*	0.065	5	674	P=58.0.
4:30 a	13–21	4.26	0.837	*0.621*	0.528	0.065			
3:49 a	20–42	2.81	1.028	*0.734*	0.618	0.065			
3:46 a	21–04	2.76	1.030	0.740	*0.622*	0.070			
3:15 a	26–20	2.25	1.058	0.827	*0.660*	0.075			
3:12 a	26–52	2.21	1.127	*0.830*	0.663	0.075			
Oct. 11									
3:03 a	27–29	2.09	1.283	0.929	*0.737*	0.060		355	
3:00 a	27–53	2.07	1.289	*0.931*	0.740	0.060			
Oct. 14									
3:46 a	19–34	2.96	1.106	0.842	*0.672*	0.060		528	
3:42 a	20–17	2.86	1.100	*0.846*	0.675	0.065			
1:38 a	37–40	1.63	1.306	*0.930*	0.742	0.080	6		P=61.9.
1:35 a	37–56	1.62	1.284	0.934	*0.743*	0.085			
0:24 a	42–31	1.48	1.333	0.912	*0.735*	0.080			
0:21 a	42–36	1.48	1.332	*0.916*	0.737	0.080			
Oct. 22									
3:48 a	17–07	3.37	1.025	0.778	*0.606*	0.045		420	
3:45 a	17–37	3.28	1.034	*0.781*	0.609	0.045			
3:09 a	23–22	2.52	1.100	*0.809*	0.657	0.050			
2:35 a	28–16	2.11	1.248	0.872	*0.703*	0.050			
2:32 a	28–41	2.08	1.242	0.875	*0.714*	0.060	5		P=57.0.
0:16 a	39–49	1.56	1.369	*0.822*	0.720	0.045			
0:12 a	39–52	1.56	1.348	0.825	*0.722*	0.050			
Oct. 27									
0:25 a	37–54	1.63	1.254	*0.905*	0.703	0.080		420	
0:21 a	37–58	1.62	1.310	0.908	*0.705*	0.060			
Oct. 29									
2:17 a	28–40	2.08	1.246	*0.925*	0.728	0.065	4		P=64.3.
0:25 a	37–14	1.65	1.334	0.960	*0.749*	0.065			
0:12 p	37–31	1.64	1.311	0.963	*0.746*	0.075			
0:18 p	37–34	1.64	1.328	*0.963*	0.746	0.070			

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, Yerkes, 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.*	°	°	°			
Oct. 1 (Naval Observatory)	10 11	No spots			------	------	------
Oct. 2 (Naval Observatory)	12 7	No spots			------	------	------
Oct. 3 (Naval Observatory)	10 30	−41.0	132.5	+10.0	6	------	6
Oct. 4 (Mount Wilson)	13 21	−28.0	130.8	+9.0	1	------	1
Oct. 5 (Mount Wilson)	16 30	−13.0	130.8	+10.0	------	16	16
Oct. 6 (Mount Wilson)	11 30	−3.0	130.3	+10.0	------	17	17
Oct. 7 (Naval Observatory)	11 40	+12.0	132.1	+9.0	------	9	9

POSITIONS AND AREA OF SUN SPOTS—Continued

Date	Eastern standard civil time	Heliographic: Diff; long.	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day
1933	*h. m.*	°	°	°			
Oct. 8 (Naval Observatory)	10 51	No spots			------	------	------
Oct. 9 (Perkins Observatory)	13 5	No spots			------	------	------
Oct. 10 (Naval Observatory)	11 47	No spots			------	------	------
Oct. 11 (Naval Observatory)	11 12	No spots			------	------	------
Oct. 12 (Naval Observatory)	14 27	−59.0	353.6	+10.0	6	------	6
Oct. 13 (Perkins Observatory)	15 15	No spots			------	------	------
Oct. 14 (Naval Observatory)	11 41	−74.0	313.7	+8.0	15	------	15
Oct. 15 (Naval Observatory)	11 50	−61.0	313.5	+8.0	46	------	46
Oct. 16 (Perkins Observatory)	12 47	No spots			------	------	------
Oct. 17 (Mount Wilson)	11 5	−33.0	315.5	+8.0	5	------	5
Oct. 18 (Mount Wilson)	12 50	−73.0	261.4	+10.0	206	------	------
		−23.0	311.4	+8.0	7	------	213
Oct. 19 (Mount Wilson)	18 0	−56.0	262.3	+10.0	------	204	------
		−6.0	312.3	+7.0	------	9	213
Oct. 20 (Naval Observatory)	11 49	−49.0	259.5	+9.0	------	278	------
		+3.0	311.5	+7.0	6	------	------
		+61.0	369.5	+5.0	9	------	293
Oct. 21 (Naval Observatory)	10 25	−36.0	260.1	+9.0	------	247	247
Oct. 22 (Naval Observatory)	10 41	−22.0	260.8	+9.0	------	216	216
Oct. 23 (Mount Wilson)	12 20	−13.0	255.7	−5.0	7	------	------
		−7.0	261.7	+10.0	------	110	117
Oct. 24 (Perkins Observatory)	12 55	+5.0	260.1	+7.0	------	94	94
Oct. 25 (Mount Wilson)	12 15	+19.0	261.3	+10.0	------	54	54
Oct. 26 (Naval Observatory)	14 15	+32.0	260.1	+9.0	------	77	77
Oct. 27 (Naval Observatory)	11 3	+43.0	259.6	+9.0	46	------	46
Oct. 28 (Naval Observatory)	11 42	+58.0	261.1	+9.0	46	------	46
Oct. 29 (Naval Observatory)	12 14	+71.0	260.6	+10.0	9	------	9
Oct. 30 (Naval Observatory)	12 55	No spots			------	------	------
Oct. 31 (Naval Observatory)	11 48	No spots			------	------	------
Mean daily area for October	------	------	------	------	------	------	56

PROVISIONAL SUN-SPOT RELATIVE NUMBERS FOR OCTOBER, 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]

October, 1932	Relative numbers	October, 1922	Relative numbers	October, 1932	Relative numbers
1	7	11	0	21	20
2	7	12	7	22	19
3	7	13	8	23	20
4	0	14	7	24	*a* 12
5	0	15	8	25	11
6	8	16	8	26	10
7	7	17	8	27	8
8	0	18	*d* 15	28	8
9	0	19	21	29	7
10	0	20	29	30	------
				31	7

Mean: 30 days=9.0.

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.