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:

American Paulin system, *inc.*
Origin and development of the barometer and altimeter. [Los Angeles. c1929.] unp. illus. 28½ cm.
Paulin system precision instruments. Los Angeles. 1929. v. p. illus. 29½ cm.

Argentina. Dirección de meteorología. Sección aerología.
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Results of rainfall observations made in western Australia . . . up to 1927 . . . Melbourne. 1929. xiv, 387 p. plates (part fold.) 31 cm.

Bristol company.
Bristol's recording psychrometers. [Waterbury. c1929.] 15 p. illus. 27 cm.

Calhoun, Guy K.
Altimeters and the Paulin system level flight indicator. Function of ordinary altimeters and Paulin type described and contrasted. unp. illus. 30½ cm. [Airway age, May, 1929.]

Entwistle, F.
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Gherzi, E.
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Effective use of the Paulin altimeter. Los Angeles. c1929. 12 p. figs. 28 cm.

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Anleitung zu genauen technischen Temperaturmessungen. 2te . . . Aufl. München. 1926. xv, 174 p. figs. 22 cm.

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Die Zirkulation des Indischen Ozeans auf Grund von Temperatur- und Salzgehaltstiefenmessungen und Oberflächenstrombeobachtungen. Berlin. n. d. 48 p. figs. 26½ cm. (Veröffent. Inst. für Meeresk., Berlin. Neue Folge. A. Geogr.-naturw. Reihe. H. 21. Apr., 1929.)

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Die Intensität der Sonnenstrahlung in verschiedenen Spektralbereichen in Davos. p. 33–64. figs. 22 cm. (Sonderab.: Festschr. 110. Jahresversamm. Schweiz. naturforsch. Gesellsch. Davos. 1929.)

Mortensen, Hans.
Litauen. Grundzüge einer Landeskunde. Hamburg. 1926. xiv, 321 p. figs. plates. 24 cm. (Osteuropa-institut in Breslau. Quellen und Studien. 5te. Abt. Geogr. und Landeskunde. H. 1.)

Müller, Aloys.
Die Referenzflächen des Himmels und der Gestirne. Braunschweig. 1918. viii, 162 p. tables. diagrs. 23 cm. (Die Wissenschaft. Bd. 62.)

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SOLAR OBSERVATIONS

SOLAR AND SKY RADIATION MEASUREMENTS DURING NOVEMBER, 1929

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, 1929, **57:26.**

Table 1 shows that solar radiation intensities averaged below the normal values for November at Madison, Wis., and Lincoln, Nebr., and above the normal at Washington, D. C.

Table 2 shows an excess in the total solar radiation (direct + diffuse) received on a horizontal surface at Chicago, and a deficiency at the other four stations for which normal values have been determined.

Skylight polarization measurements obtained on three days at Washington give a mean of 52 per cent and a maximum of 55 per cent on the 19th. These are considerably below the respective averages for November at Washington. At Madison, measurements obtained on seven days give a mean of 65 per cent and a maximum of 72 per cent on the 15th. These values are close to the corresponding averages for November at Madison.

TABLE 1.—*Solar radiation intensities during November, 1929*

[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.*
Nov. 2	14.60				1.15						14.10
Nov. 5	3.81	0.73	0.84	1.01	1.23	1.44	1.22	1.05	0.90	0.76	4.17
Nov. 6	5.16				1.20		1.15	0.96	0.78	0.72	5.56
Nov. 11	6.50				1.04		0.96				6.50
Nov. 19	4.95	0.69	0.80	0.95	1.13	1.34					3.99
Nov. 20	5.56						1.26	1.11	0.94	0.86	4.57
Nov. 21	2.87				1.17						4.17
Nov. 26	4.75				1.14						6.02
Nov. 29	1.88			1.04							1.60
Nov. 30	0.94	0.85	1.00	1.12	1.25						0.66
Means		0.76	0.88	1.03	1.16	1.39	1.15	1.04	0.87	0.78	
Departures		+0.01	+0.02	+0.03	−0.02		−0.02	+0.06	+0.04	+0.05	

Madison, Wis.

Nov. 1	4.17	0.79	0.87	1.01							4.57
Nov. 2	4.17	0.85	0.98	1.12	1.34						3.99
Nov. 5	3.63				1.20			0.98			3.99
Nov. 8	4.37							1.03			4.57
Nov. 9	3.45	0.67	0.84	1.00	1.22			0.84			6.50
Nov. 15	3.99	0.99	1.11	1.23	1.41	1.59		1.24			3.81
Nov. 22	0.86	0.88	1.03	1.21	1.40			1.19			0.81
Nov. 26	3.81		0.93	1.06							3.99
Nov. 29	0.71	0.99	1.12	1.25	1.40						0.86
Nov. 30	0.71	0.69	0.84	1.00							1.19
Means		0.84	0.96	1.11	1.33	1.59		1.06			
Departures		−0.04	−0.05	−0.04	+0.02			−0.09			

Lincoln, Nebr.

Nov. 1	3.99			1.06	1.25	1.48					4.57
Nov. 2	3.99	0.85	0.98	1.13	1.31	1.52					4.37
Nov. 4	3.99		1.10	1.23							3.63
Nov. 15	3.81	0.79	0.94	1.10	1.30		1.33	1.13	0.99	0.80	5.36
Nov. 20	3.00				1.41						2.74
Nov. 22	1.02		1.04	1.13							1.88
Means		0.82	1.02	1.13	1.32	1.50	1.33	1.13	0.99	0.80	
Departures		−0.10	−0.02	−0.06	−0.03		−0.03	−0.06	−0.06	−0.13	

[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	Fresno	La Jolla	Washington	Madison	Lincoln	Chicago	New York
1929	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Oct. 29	158	139	200	72	68	321	322	340	−77	−43	−35	−64	−103
Nov. 5	306	173	206	106	140	254	300	297	+81	+7	−19	−8	−4
Nov. 12	131	121	172	106	67	275	286	310	−61	−16	−26	+7	−57
Nov. 19	162	140	238	169	121	214	239	278	−18	+8	+33	+77	+5
Nov. 26	187	153	194	160	188	230	225	221	+31	+29	+9	+80	+80
Excess or deficiency since first of year on Dec. 2									−5,992	−658	−4,388	−42	−6,496

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, Mount Wilson, and Perkins 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	
1929	*h. m.*	°	°	°			
Nov. 1 (Naval Observatory).	11 35	−41.5	174.8	+3.5	9		
		−31.0	185.3	+16.0		247	
		+22.0	238.3	+10.0		571	
		+48.5	264.8	+14.0		231	1,058
Nov. 2 (Naval Observatory.	10 36	−36.0	167.6	−11.5	6		
		−16.0	187.6	+13.5		525	
		+8.5	212.1	−16.0	3		
		+35.0	238.6	+9.5		586	
		+62.0	265.6	+13.0		185	1,305
Nov. 3 (Perkins Observatory).	10 42	−76.5	113.7	−10.0	217		
		−10.1	180.1	+12.1		124	
		−2.4	187.8	+13.8		837	
		+4.6	194.8	+14.0		806	
		+49.7	239.9	+9.9		589	
		+75.8	266.0	+11.8	62		2,635
Nov. 4 (Naval Observatory).	13 33	−64.0	111.6	−11.5	494		
		−17.5	158.1	+15.0		25	
		+2.0	177.6	−21.0	6		
		+13.5	189.1	+14.0		926	
		+28.0	203.6	−11.5	6		
		+35.0	210.6	−15.5	6		
		+63.0	238.6	+9.0		448	1,911
Nov. 5 (Naval Observatory).	10 55	−53.0	110.9	−11.5	463		
		−43.0	120.9	+4.5	3		
		−5.5	158.4	+15.0		15	
		+24.5	188.4	+14.5		1,096	
		+41.5	205.4	−11.0		15	
		+75.5	239.4	+9.0		340	1,932
Nov. 6 (Naval Observatory).	11 0	−80.5	70.1	−12.5	201		
		−39.5	111.1	−11.5	571		
		−26.5	124.1	+3.5	6		
		+9.0	159.6	+5.0	6		
		+10.0	160.6	+14.5	9		
		+39.0	189.6	+15.0		1,127	1,920
Nov. 7 (Naval Observatory).	11 18	−69.0	68.3	−13.5		340	
		−26.5	110.8	−12.0	463		
		+5.0	142.3	−24.5		15	
		+24.5	161.8	+6.0	15		
		+52.5	189.8	+14.5		1,157	1,990
Nov. 8 (Perkins Observatory).	13 25	−49.6	73.2	−11.8	403		
		−10.3	112.5	−10.9	1,767		
		+62.8	185.6	+15.2		589	
		+74.6	197.4	+14.3	279		3,038
1929							
Nov. 9 (Naval Observatory).	10 54	−80.5	30.7	−7.0	22		
		−79.0	32.2	+6.5	216		
		−65.0	46.2	−10.5	93		
		−40.0	71.2	−13.0		262	
		+0.5	111.7	−11.5		509	
		+54.5	165.7	+5.5		15	
		+78.5	189.7	+15.5		1,111	2,228
Nov. 10 (Naval Observatory).	10 44	−68.0	30.1	+7.0		370	
		−66.5	31.6	−6.5	31		
		−51.0	47.1	−10.5	77		
		−49.0	49.1	+16.5	6		
		−26.5	71.6	−12.0	247		
		+13.5	111.6	−11.5		463	
		+43.0	141.1	+5.5		9	
		+63.0	161.1	+13.0		18	
		+85.5	183.6	+15.5	370		1,591
Nov. 11 (Naval Observatory).	11 7	−56.5	28.2	+7.0		432	
		−54.0	30.7	−7.0	31		
		−38.0	46.7	−11.0	62		
		−13.0	71.7	−12.0	247		
		+27.0	111.7	−11.5		556	
		+59.5	144.2	+5.0	18		1,346
Nov. 12 (Naval Observatory).	12 39	−53.0	17.6	−7.0	12		
		−41.0	29.6	−5.5		108	
		−40.5	30.1	+7.0		401	
		−23.5	47.1	−11.5		77	
		+1.0	71.6	−11.5	247		