The depression of the 20th–21st was attended by general rainfall from Aconcagua to Chiloe. The greatest 24-hour amounts in inches were 1.65 at Talca, 1.46 at Valparaiso and San Fernando, and 1.22 at Curico.

On the 24th there appeared a center of low pressure which remained stationary off Isla Mocha until the 28th, bringing continued unsettled weather and rain. The heaviest daily amounts of precipitation in inches were 1.34 at Talca, 1.50 at Valdivia, 2.01 at Cauquenes on the 25th, and 2.20 at Temuco on the 27th.

Lastly, on the 29th–30th there was a depression off the middle coast accompanied by rainfall from Coquimbo to Chiloe, the heaviest falls being recorded on the 29th—Valdivia, 2.24 inches, and San Fernando, 2.28 inches.

The region receiving rain during the month extended from Coquimbo to Magallanes. The total precipitation for the month was 3.87 inches at Santiago and 9.79 inches at Valdivia.—*Translated by W. W. Reed.*

METEOROLOGICAL SUMMARY FOR BRAZIL, MAY, 1928

By FRANCISCO DE SOUZA, Acting Director

[Directoria de Meteorologia, Rio de Janeiro]

In May seven anticyclones were charted; some of these were of rather marked intensity and caused decided fall in temperature in the south. The weather was unsettled and at times stormy, especially on the southern coast, where occasional tempestuous winds occurred. Precipitation was light in the northern and central regions, the monthly totals showing deficiencies of 3.03 and 1.30 inches, respectively. In the southern region very irregularly distributed rainfall gave an average excess of 3.15 inches above the normal.

The rains did not interfere with cultivation except in the case of cane, which suffered in this respect in the last decades. Harvesting of coffee, cacao, cotton, cane, cereals, and vegetables continued with rather favorable yields.

At Rio de Janeiro the weather was generally fine; there was only one period of unsettled conditions. There was little cloudiness, only six days being recorded as cloudy. Temperatures averaged above normal; the departures for mean maximum and mean minimum were 2.7° and 2.5° F., respectively. The temperature extremes recorded in the Federal District were 96° at Tijuca and 50° at Campo dos Affonsos. The total precipitation, distributed over nine days, was 1.01 inches, or 2.30 inches below the normal. The duration of sunshine exceeded the normal for May by 32.6 hours. The prevailing winds were from the north quadrant; at times they were rather strong and on the 4th a maximum velocity of 42 miles per hour was recorded.—*Translated by W. W. Reed.*

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RECENT ADDITIONS

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SOLAR OBSERVATIONS

SOLAR AND SKY RADIATION MEASUREMENTS DURING JUNE, 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 were slightly above the normal values for June at all three stations. At Madison, Wis., an intensity of 1.45 gram-calories per minute per square centimeter measured at 11 a. m. of June 14, through air mass 1.09 is the highest intensity ever measured at that station in June.

Table 2 shows that the total solar radiation received on a horizontal surface directly from the sun and diffusely from the sky was below the June normal at the three stations for which normals have been determined.

Skylight polarization measurements at Washington made on six days give a mean of 50 per cent, with a maximum of 56 per cent on the 9th. At Madison measurements made on two days give a mean of 66 per cent with a maximum of 70 per cent on the 14th. These are slightly above the correspomding average values for June at both stations.

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

[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.*
June 8	11.38		0.68	0.84	0.89						10.97
9	13.61					1.29					14.10
14	20.24					1.32					16.20
15	12.68					1.25					12.24
16	6.76				1.06	1.28					5.79
25	17.37				1.12	1.28					16.79
27	11.38		0.69	0.87	1.08	1.30					10.59
28	13.61		0.65	0.82	1.00						11.38
30	15.65				0.90	1.06					12.68
Means			(0.67)	0.84	1.01	1.25					
Departures			+0.02	+0.09	+0.10	+0.03					

Madison, Wis.

June 2	5.79				1.26						6.27
7	6.27				1.06						9.83
14	9.47		0.87	1.01	1.17	1.48					6.76
15	7.29			0.94	1.13	1.36					7.29
26	7.29					1.35					9.14
Means			(0.87)	(0.98)	1.16	1.40					
Departures			−0.01	+0.01	−0.05	+0.08					

Lincoln, Nebr.

July 1	8.18					1.38	1.22	1.05	0.92		5.79
13	8.48		0.95	1.08							6.76
14	7.87		0.96	1.04	1.20	1.44					9.14
21	12.24		0.80	0.98	1.15	1.35					10.59
25	9.14			1.00	1.17						6.76
Means			0.90	1.02	1.17	1.39	(1.22)	(1.05)	(0.92)		
Departures			+0.12	+0.08	+0.06	+0.03	+0.12	+0.14	+0.12		

[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.*
June 4	449	394	393	250	336		−33	−119	−164
June 11	469	573	550	522	485	490	−23	+67	+36
June 18	345	364	440	290	218	684	−124	−155	−111
June 25 [1]	552	438	498	280	393	670	+36	−101	−107
Excess or deficiency since first of year on July 1							−1,532	−480	−1,346

[1] 8-day mean.

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.*	°	°	°			
June 1 (Naval Observatory).	11 38	−33.0	182.7	−17.5		62	
		−27.5	188.2	+8.0		15	
		−21.0	194.7	+8.5	123		
		−16.0	199.7	−13.0		432	
		−7.5	208.2	+10.5		62	
		+0.5	216.2	+8.5		46	
		+13.0	228.7	−10.5		40	
		+36.0	251.7	+9.0	15		
		+66.5	282.2	+12.0	46		
		+69.0	284.7	−17.0	62		
		+78.0	293.7	−19.0	77		980
June 2 (Naval Observatory).	11 17	−68.0	134.7	+15.0		25	
		−39.5	163.2	−9.0		9	
		−36.0	166.7	+7.5	9		
		−34.0	168.7	+11.0		31	
		−20.5	182.2	−17.0		37	
		−8.5	194.2	+8.0	123		
		−3.5	199.2	−13.0		340	
		+6.0	208.7	+10.5		31	
		+13.0	215.7	+9.0		15	
		+28.0	230.7	−10.5		6	
		+49.5	252.2	+9.0		6	
		+80.0	282.7	+11.0	31		663
June 3 (Naval Observatory).	12 28	−19.0	169.8	+11.0		62	
		−7.5	181.3	−17.0	31		
		+6.0	194.8	+8.0		216	
		+10.0	198.8	−13.5		278	
		+20.0	208.8	+10.5		15	
		+28.5	217.3	+9.5		37	
		+29.0	217.8	−10.0		15	
		+62.0	250.8	+9.0	31		685
June 4 (Mount Wilson)	11 30	−29.5	146.6	+21.0		2	
		−6.0	170.1	+11.0		45	
		+6.0	182.1	−16.0		27	
		+19.0	195.1	+8.5		347	
		+23.0	199.1	−13.0		413	
		+32.0	208.1	−20.0		14	
		+37.0	213.1	+8.0		33	
		+42.0	218.1	−10.0		15	896
June 5 (Naval Observatory).	11 36	−15.0	147.8	+19.5		62	
		+2.5	165.3	+9.0		62	
		+7.0	169.8	+8.5		46	
		+11.0	173.8	+11.0	6		
		+18.5	181.3	−18.5		31	
		+31.5	194.3	+8.0		154	
		+35.0	197.8	−13.0		216	
		+52.0	214.8	+9.0		9	
		+54.0	216.8	−10.0		46	632
June 6 (Naval Observatory).	12 1	−79.0	70.3	−7.0	15		
		−2.5	146.8	+20.0		31	
		+1.5	150.8	+19.0	37		
		+15.5	164.8	+8.0		185	
		+20.5	169.8	+8.0		139	
		+31.0	180.3	−18.0	15		
		+47.0	196.3	+7.5		93	
		+48.0	197.3	−14.5		37	
		+49.5	198.8	−11.5	77		
		+68.0	217.3	−10.0		46	675
June 7 (Naval Observatory).	11 43	−72.0	64.3	−11.0	154		
		−65.0	71.3	−12.0	15		
		−42.5	93.8	−11.0		12	
		+11.0	147.3	+20.0		31	
		+16.0	152.3	+18.5	77		
		+28.0	164.3	+7.5	139		
		+32.0	168.3	+10.5		123	
		+35.0	171.3	+8.0	139		
		+44.5	180.8	−17.5	9		
		+59.0	195.3	+7.0		154	
		+60.5	196.8	−15.0		31	
		+63.5	199.8	−11.5	77		
		+77.5	213.8	−20.0	31		992