With April came the beginning of the rainy season in the central region of Chile. The atmospheric circulation over the Pacific showed moderate intensity, but the mean path of the depressions was shifted more to the north.

The depressions of greatest importance were charted as follows: 12th to 17th, crossing the extreme south and causing unsettled weather with general rains in the south; and 24th to 26th, affecting conditions over the entire central region, with rain and high wind from Chiloe to Coquimbo. Snow fell to moderate depths in the cordillera and a temperature of 19° F. was recorded at Portillo (10,500 feet).

Periods of fine weather and fall in temperature accompanied the anticyclones of the periods 1st to 8th, 21st to 24th, and 28th to 30th, all moving from southern Chile, latitude 40° to 45° S., toward northern Argentina.—*Translated by W. W. R.*

Meteorological station at Portillo, Chile.—In April the Observatorio del Salto, Santiago, Chile, installed a new meteorological station at Portillo in the cordillera of the Andes at an elevation of 3,000 meters (9,840 feet). This station is equipped with instruments for the automatic recording of pressure, temperature, humidity, direction and force of wind, and precipitation.—*J. B. N.*

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RECENT ADDITIONS

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SOLAR OBSERVATIONS

SOLAR AND SKY RADIATION MEASUREMENTS DURING MAY, 1930

By HERBERT H. KIMBALL, Solar Radiation Investigations

For reference to descriptions of instruments and exposures, and an account of the method of obtaining and reducing the measurements, the reader is referred to this volume of the REVIEW, page 26.

Table 1 shows that solar radiation intensities averaged slightly above the normal intensity for May at Washington and Lincoln, and close to normal at Madison.

Table 2 shows an excess in the total radiation received on a horizontal surface at Washington, New York, and Chicago, a deficiency at Lincoln, Twin Falls, and Fresno, and close to the May normal at Madison.

Skylight polarization measurements obtained on 7 days at Washington give a mean of 53 per cent and a maximum of 62 per cent on the 29th. At Madison measurements obtained on 6 days give a mean of 55 per cent with a maximum of 63 per cent on the 2d. These are close to the corresponding averages for May at Washington and slightly below at Madison.

TABLE 1.—*Solar radiation intensities during May, 1930*

[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.*
May 3	4.75	0.69	0.79	0.98	1.19	1.33	0.86				6.02
May 5	5.79	0.50	0.61	0.76	0.98	1.22					7.57
May 7	9.83				0.88	1.20					12.68
May 9	9.83					1.27					6.76
May 10	5.79				0.97	1.28	1.02				6.50
May 13	10.59				1.07	1.26					7.57
May 16	7.29			0.91	1.11						7.29
May 20	8.48				0.76						10.59
May 23	13.13				0.97	1.30					12.24
May 27	4.75		0.92	0.92	1.08	1.38					4.75
May 28	7.57			1.01	1.15	1.47					10.59
May 29	5.36			0.93	1.08						5.36
Means		(0.60)	(0.77)	0.92	1.04	1.30	(0.94)				
Departures		−0.04	+0.06	+0.10	+0.05	+0.01	−0.04				

Madison, Wis.

May 2	6.76				1.22	1.41					5.16
May 3	6.02			0.99	1.14	1.37					5.79
May 5	13.13					1.33					11.38
May 6	14.10				0.97						15.11
May 8	8.18					1.26					4.83
May 17	3.99				1.11	1.23					3.30
May 24	4.17				1.18	1.39					4.57
May 26	4.95					1.26	0.96				5.79
May 31	5.36					1.40					5.56
Means				(0.99)	1.12	1.33	(0.98)				
Departures				+0.04	+0.01	−0.02	−0.07				

Lincoln, Nebr.

May 2	8.48		0.87	1.06	1.20	1.43	1.18	1.00	0.86	0.75	12.24
May 3	11.38		0.84	1.00	1.15	1.34					14.10
May 4	14.10					1.41	1.16	0.99	0.85	0.74	12.68
May 8	8.18				1.18	1.35					10.97
May 24	6.27			0.82	1.10	1.45	1.14	0.97	0.81		6.50
May 25	7.29		0.70	0.88	1.08	1.35	1.03	0.84	0.68		7.29
May 27	8.48			0.80	0.96						11.81
May 30	6.27						1.20	1.04	0.93	0.78	5.79
May 31	7.04			1.06	1.24						10.59
Means			0.80	0.94	1.13	1.39	1.14	0.97	0.83	0.76	
Departures			−0.01	±0.00	+0.01	+0.01	+0.03	+0.03	+0.03	+0.04	

[1] Extrapolated.

TABLE 2.—*Total solar radiation (direct diffuse) received on a horizontal surface*

[Gram-calories per square centimeter]

Week beginning	Average daily totals									
	Washington	Madison	Lincoln	Chicago	New York	Pittsburgh	Gainesville	Twin Falls	Fresno	La Jolla
1930										
Apr. 30	542	471	469	473	456	438	649	498	493	290
May 7	537	389	422	462	479	510	739	480	686	532
May 14	405	356	371	289	219	263	714	496	599	386
May 21	587	496	564	402	378	515	621	711	735	509
May 28	654	636	564	486	415	465	*626	#707	769	509
	Departures from weekly normals									
Apr. 30	+86	+18	−5	+104	+86	----	----	−75	−133	----
May 7	+75	−75	−60	+78	+111	----	----	−122	+40	----
May 14	−55	−112	−138	−91	−149	----	----	−158	−57	----
May 21	+98	+11	+37	+2	−11	----	----	+6	+40	----
May 28	+145	+142	+43	+64	+5	----	----	+22	+8	----
Accumulated departure on June 3, 1930	+2,072	−224	−1,351	+3,388	+49	----	----	−28	−1,513	----

* 5-day mean. # 6-day mean.

TABLE 2.—*Total solar radiation (direct diffuse) received on a horizontal surface*—Continued

LATE REPORTS, MARCH AND APRIL, 1930

NEW YORK

Average daily totals

1930		1930	
Feb. 26	226	Apr. 2	338
Mar. 5	195	Apr. 9	320
Mar. 12	280	Apr. 16	226
Mar. 19	360	Apr. 23	439
Mar. 26	292		

Departures from weekly normals

Feb. 26	−4	Apr. 2	+27
Mar. 5	−65	Apr. 9	−7
Mar. 12	+15	Apr. 16	−104
Mar. 19	+92	Apr. 23	+87
Mar. 26	+13		
Accumulated departure on Apr. 1	−224	Accumulated departure on Apr. 29	−245

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, U. S. N., 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	
1930	*h*	*m*	°	°	°			
May 1 (Naval Observatory).	10	55	−6.0	345.0	+11.0	--------	170	--------
			+27.0	18.0	−8.5	--------	12	--------
			+33.0	24.0	+13.0	--------	123	--------
			+40.5	31.5	−7.0	185	--------	490
May 2 (Naval Observatory).	11	14	+8.0	345.6	+11.5	--------	154	--------
			+41.0	18.6	−8.5	--------	12	--------
			+46.5	24.1	+12.5	--------	62	--------
			+54.5	32.1	−7.0	185	--------	413
May 3 (Naval Observatory).	10	55	−51.0	273.6	+17.5	--------	30	--------
			+20.5	345.1	+12.0	--------	123	--------
			+60.0	24.6	+12.5	--------	77	--------
			+67.5	32.1	−6.5	185	--------	416
May 4 (Naval Observatory).	11	5	−36.0	275.3	+16.5	--------	77	--------
			+32.0	343.3	+12.0	--------	108	--------
			+81.0	32.3	−7.0	139	--------	324
May 5 (Naval Observatory).	10	53	−22.0	276.2	+17.0	--------	247	--------
			+44.0	342.2	+13.0	--------	37	284
May 6 (Naval Observatory).	10	52	−9.0	276.0	+17.5	--------	355	--------
			+57.5	342.5	+14.0	15	--------	370
May 7 (Naval Observatory).	10	59	+4.5	276.2	+17.5	--------	463	463
May 8 (Naval Observatory).	11	1	+17.5	275.9	+17.0	--------	509	509
May 9 (Naval Observatory).	10	52	+31.5	276.8	+17.0	--------	463	463
May 10 (Naval Observatory).	10	46	+45.5	277.6	+16.5	--------	463	463
May 11 (Naval Observatory).	11	12	−11.5	207.2	+2.0	--------	19	--------
			+60.0	278.7	+17.0	--------	386	405
May 12 (Yerkes)	15	32	+4.0	207.1	+2.5	--------	181	--------
			+70.0	273.1	+16.5	100	--------	--------
			+78.0	281.1	+15.5	433	--------	714
May 13 (Naval Observatory).	11	5	+15.5	207.8	+2.5	--------	93	--------
			+71.5	263.8	+18.5	--------	31	124
May 14 (Mount Wilson)	12	15	+30.0	208.4	+2.0	--------	105	105
May 15 (Naval Observatory).	10	55	−8.5	157.4	−6.0	--------	37	--------
			+13.0	178.9	+15.5	--------	9	--------
			+42.5	208.4	+3.0	--------	46	92
May 16 (Naval Observatory).	10	55	−72.5	80.2	−11.0	--------	123	--------
			+7.0	159.7	−6.0	--------	46	--------
			+56.0	208.7	+3.0	--------	62	231
May 17 (Naval Observatory).	10	53	−58.5	81.0	−11.0	--------	154	--------
			+23.5	163.0	−6.0	9	--------	163
May 18 (Mount Wilson)	13	0	−46.0	79.1	−11.0	--------	201	--------
			+40.0	165.1	−7.0	8	--------	209