

TABLE 1.—Solar radiation intensities during June, 1923.
[Gram-calories per minute per square centimeter of normal surface.]
Washington, D. C.

Date.	Sun's zenith distance.											Local mean solar time.
	S. a. m.	77.8°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	77.8°	Noon.	
	75th mer. time.	Air mass.										
		A. M.					P. M.					
e.	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e.		
June 1.....	mm. 11.38				cal. 1.03	cal. 0.81				mm. 13.13		
2.....	12.68	0.34	0.44	0.60	0.94	0.69				14.10		
4.....	15.65		0.44	0.68	0.97	0.78	0.65			15.65		
5.....	16.79				1.12					17.37		
8.....	13.61				1.20					10.21		
9.....	6.76		0.80	0.97	1.21					7.04		
14.....	9.83				0.76	0.76	0.65			10.97		
15.....	12.24		0.43	0.67	1.02					12.68		
16.....	10.97	0.43	0.57	0.79						12.68		
18.....	13.13	0.55	0.71	0.88	1.00					14.60		
19.....	15.11	0.31	0.45	0.63	0.99		0.46			18.59		
20.....	17.96		0.24	0.39						17.96		
21.....	17.37						0.65			15.11		
22.....	16.20			0.65	0.88	0.26				16.20		
26.....	16.79	0.59	0.74	0.89	1.09					16.79		
27.....	12.24	0.56	0.73	0.94						10.21		
30.....	8.48			0.97						6.76		
Means.....		0.46	0.56	0.76	1.02	0.66	0.60					
Departures.....		-0.16	-0.15	-0.12	-0.20	-0.27	-0.15					

Madison, Wis.

June 13.....	11.81			0.36					12.24
14.....	14.10			0.90					15.65
19.....	17.37			1.00					15.65
21.....	17.96			0.85					18.59
22.....	18.59			0.99					17.37
23.....	17.96			0.75					17.37
26.....	11.38			1.45					9.83
27.....	13.13			1.35					15.11
30.....	7.29			1.43					7.04
Means.....	8.81	0.89	1.00	1.11	1.37				12.24
Departures.....		(0.89)	(1.00)	0.92	1.40				
		+0.02	+0.04	-0.17	+0.09				

WEATHER OF NORTH AMERICA AND ADJACENT OCEANS.

NORTH ATLANTIC OCEAN.

By F. A. YOUNG.

The average pressure for the month was most unevenly distributed, as compared with the normal, as shown by observations made at land stations on the coasts and islands of the North Atlantic. At St. Johns, Newfoundland, the average barometric reading for June was about 0.25 inch below the normal, and on the Canadian and New England coasts the negative departures ranged from 0.12 to 0.15 of an inch. On the American coast, south of New York, as well as in the Bermudas, small departures occurred, while in the Azores and British Isles the pressure was considerably higher than usual.

Fog was unusually prevalent during the month, especially over the Grand Banks and along the American coast, north of the 35th parallel. It was reported on 19 days in the 5-degree square between latitudes 40°-45° N., longitudes 45°-50° W., on 20 days between latitudes 40°-45° N., longitudes 60°-65° W., and on 18 days in the square immediately to the westward of the latter. According to reports received the number of days on which fog occurred was also greater than usual over the eastern section of the steamer lanes and along the European coast, north of the 45th parallel.

With the exception of July, June is ordinarily the quietest month of the year over the North Atlantic. During the month under discussion the number of days with winds of gale force was somewhat greater than usual over the middle-western section of the ocean, due primarily to the cyclonic disturbance in the last decade of the month, that will be referred to later.

From the 1st to the 3d a well-developed depression was over Newfoundland and gales were reported

TABLE 1.—Solar radiation intensities during June, 1923—Continued.
Lincoln, Nebr.

Date.	Sun's zenith distance.											Local mean solar time.
	S. 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.										
		A. M.					P. M.					
e.	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e.		
June 19.....	mm. 17.37				cal. 1.30	cal. 1.07	cal. 0.84	cal. 0.70	cal.	mm. 19.23		
20.....	17.96		0.72	0.83	1.02					18.59		
22.....	17.37			0.93	1.03					16.20		
24.....	15.11			0.93	1.11	1.34				17.37		
25.....	15.65		0.80	0.94	1.11	1.28	1.13	1.00	0.89	19.89		
29.....	7.87		0.85	1.07	1.17	0.79	0.94	1.10	1.31	8.13		
Means.....			0.79	0.94	1.10	1.31	(1.10)	(0.92)	(0.80)			
Departures.....			+0.05	+0.02	+0.02	-0.04	+0.01	+0.02	+0.04			

*Extrapolated.

TABLE 2.—Solar and sky radiation received on a horizontal surface.

Week beginning.	Average daily radiation.			Average daily departure for the week.			Excess or deficiency since first of year.		
	Washington.	Madison.	Lincoln.	Washington.	Madison.	Lincoln.	Washington.	Madison.	Lincoln.
June 4...	cal. 592	396	338	+90	-107	-199	-1,785	+925	+580
11.....	413	527	432	-101	+10	-120	-2,490	+997	-259
18.....	534	561	563	+12	+30	-12	-2,407	+1,205	-340
25.....	564	561	568	+44	+22	-16	-2,102	+1,359	-452

from a limited area in the southerly quadrants. Storm logs:

Italian S. S. *Alberta*:

Gale began on May 31, wind S, 5. Lowest barometer 29.51 inches at 12:30 a. m. on the 1st, wind SW., 9, in latitude 36° 40' N., longitude 50° 05' W. End at noon on the 1st, wind NW. Highest force of wind 9; shifts S.-SW.-W.

American S. S. *Afel*:

Gale began on the 2d, wind SW. Lowest barometer 29.96 inches at noon on the 2d, wind SW., 7, in latitude 38° 38' N., longitude 54° 04' W. End on the 3d, wind W. Highest force of wind 8; shifts SW.-W.

Reports were received of moderate gales on the 1st over the region between Hatteras and the Bahamas, and on the same date they were also reported between the 20th meridian and the coast of France; comparatively high barometric readings prevailed in both localities.

From the 4th to the 7th moderate weather was the rule, except for a few sporadic winds of gale force.

On the 8th there was a well-developed disturbance central near latitude 45° N., longitude 35° W. On the same day a second Low appeared with the center somewhere near latitude 57° N., longitude 15° W., although not enough observations have been received for an accurate determination. A number of gale reports were received from vessels in the region between the 45th meridian and the European coast. By the 9th these two depressions had apparently joined forces, and on that date as well as the 10th, the center was not far from the north coast of Scotland. Storm logs:

British S. S. *Tacoma*:

Gale began on the 7th, wind W. Lowest barometer 29.44 inches at 8 p. m. on the 8th, wind N., 9, in latitude 46° 28' N., longitude 30° 20' W. End on the 9th, wind NW. Highest force of wind 9; steady NW.

Danish S. S. Virginia:

Gale began on the 6th, wind SSW. Lowest barometer 29.09 inches at 11 a. m. on the 8th, wind W., 10, in latitude 56° 48' N., longitude 18° 38' W. End on the 9th, wind W. Highest force of wind 10; shifts W.-WSW.

British S. S. Bloomfield:

Gale began on the 7th, wind SW. Lowest barometer 29.61 inches at 11 a. m. on the 9th, wind W., 8, in latitude 48° 09' N., longitude 18° 17' W. End on the 10th, wind WNW. Highest force of wind 8; shifts SW.-W.-NW.

On the 9th a LOW appeared off the coasts of Nova Scotia and Maine; this moved rapidly northeastward, and on the 10th the center was near St. Johns, Newfoundland, while vessels between the 35th and 40th parallels and the 50th and 55th meridians encountered southerly to southwesterly gales. Storm log:

British S. S. Bolton Castle:

Gale began on the 10th, wind SW. Lowest barometer 29.97 inches at 2 p. m. on the 10th, wind SW., 8, in latitude 36° 50' N., longitude 54° 49' W. End on the 10th, wind W. Highest force of wind 8, SW.; steady SW.

From the 11th until the 21st summer conditions and light to moderate winds prevailed over the entire ocean, with the following exceptions: On the 12th and 13th there was a slight disturbance with moderate gales over a very limited area between the 55th and 40th parallels and the 55th and 60th meridians. Storm log:

American S. S. West Haven:

Gale began on the 12th, wind SSW. Lowest barometer 29.79 inches at noon on the 13th, wind S., 8, in latitude 39° 01' N., longitude 55° 04' W. End on the 13th, wind SW. Highest force of wind 9; shifts S.-SW.

On the 15th a westerly gale was reported by one vessel in the vicinity of the Bermudas. Storm log:

American S. S. West Carmak:

Gale began on the 15th, wind SW. Lowest barometer 29.90 inches at noon on the 15th, wind SW., 5, in latitude 33° 54' N., longitude 64° 13' W. End on the 15th, wind NW. Highest force of wind 8; shifts SW.-NW.

From the 22d to 28th the conditions over the western section of the ocean were most unusual for the summer season, as a deep depression remained in the vicinity of Newfoundland during that period, while the storm area varied in extent and intensity from day to day. Charts VIII to XI show the conditions from the 23d to 26th, inclusive.

The most severe weather of the month occurred on the 23d, when the western section of the ocean, north of the 35th parallel was covered by a severe cyclonic disturbance. Storm logs:

American S. S. President Polk:

Gale began on the 23d, wind NW. Lowest barometer 29.88 inches at 1 p. m. on the 23d, wind NW., 10, in latitude 40° 48' N., longitude 58° 22' W. End on the 23d, wind NW. Highest force of wind 10, NW.; steady NW.

The above gale was extremely freakish coming as it did with a high barometer and no usual sign. It made up a very heavy sea, the waves being as high as those seen during midwinter. Before things could be secured on board ship, some little damage was done by force of water coming on board.

British S. S. Lackawanna:

Gale began on the 22d, wind SE. Lowest barometer 29.03 inches at 3 a. m. on the 23d, wind SW., in latitude 41° 22' N., longitude 46° 34' W. End at noon on the 24th, wind WNW. Highest force of wind 11; shifts SE.-SSW.-WSW.

British S. S. Norfolk Range:

Gale began on the 22d, wind SE. Lowest barometer 29.63 inches at 9:23 a. m. on the 23d, wind S., 9, in latitude 47° 04' N., longitude 39° 13' W. End on the 25th, wind SSE. Highest force of wind 9; shifts S.-SSE.

On the 24th, as shown on Chart IX, the center of the disturbance had moved but little since the previous day, although the storm area had contracted considerably in extent, and was now practically confined to the eastern quadrants. On the 25th a secondary LOW appeared, Chart X, and heavy gales were reported from a limited area.

Japanese S. S. Fukuyo Maru:

Gale began on the 23d, wind SSE. Lowest barometer 29.42 inches at noon on the 25th, wind S., 9, in latitude 38° 47' N., longitude 42° 42' W. End on the 26th, wind WSW. Highest force of wind 10; shifts S.-W.

By the 26th, the relative position of the two LOWS had changed materially, as shown by Chart XI, and some vessels in the steamer lanes, between the 25th and 45th meridians encountered heavy weather, while a number of others in the same region reported only moderate winds. Storm log:

Belgian S. S. Sunoco:

Gale began on the 25th, wind SSE. Lowest barometer 29.43 inches at 5 p. m. on the 25th, wind SSE., 11, in latitude 43° 13' N., longitude 41° 23' W. End on the 26th, wind NNW. Highest force of wind 11; shifts SSE.-WSW.

From the 26th to 28th westerly to southerly gales were reported from the area between the Bermudas and Hatteras. Storm logs:

British S. S. Parima:

Gale began on the 26th, wind WSW. Lowest barometer 29.57 inches at 4 p. m. on the 27th, wind WNW., in latitude 36° 14' N., longitude 72° 35' W. End on the 27th. Highest force of wind 8; shifts WSW.-WNW.

American S. S. E. L. Doheny III:

Gale began on the 27th, wind WSW. Lowest barometer 29.54 inches at 6 a. m. on the 28th, wind S., 9, in latitude 32° 05' N., longitude 72° 15' W. End at 4 p. m. on the 28th, wind WSW. Highest force of wind 9, S; shifts WSW.-S.

On the 29th southerly to southwesterly gales prevailed over a limited area between the 37th and 42d parallels, and the 60th and 65th meridians.

NORTH PACIFIC OCEAN.

By WILLIS E. HURD.

June is usually associated with quiet conditions on the North Pacific Ocean. The typhoon is moderately infrequent, averaging only one or two annually in the month, and the gradient between the shallowing Aleutian LOW and the great high pressure area to the southward and southeastward is not particularly steep. In these respects June, 1923, was somewhat anomalous, for not only was there a far greater than normal number of typhoons formed in the Orient, but the Aleutian LOW was remarkably strong for the season. It persisted definitely until the third decade of the month, and during three or four days exhibited a depth comparable to that existing during the height of its winter activity, while it was attended by strong gales over a considerable expanse of ocean south of the Aleutian Islands. The North Pacific HIGH was fairly steady in its development and position throughout the month.

In the Hawaiian area quiet conditions prevailed. The trade wind was generally steady, and changes in pressure were of little importance. Only one disturbance appeared between the islands and the Californian mainland, and that was scarcely more than a mere depression which originated near latitude 35° N., longitude 135° W., on the 26th, and died out slightly to the northward on the