

WEATHER ON THE NORTH PACIFIC OCEAN

By WILLIS E. HURD

Atmospheric pressure.—Barometric conditions were practically normal over the North Pacific Ocean during July. The only considerable local departure was at Titijima, in the Ogasawara Islands, where the average pressure, 1,014.3 millibars (29.95 inches) was 3.7 millibars (0.10 inch) above the normal of the month.

Most central and northeastern waters of the ocean were almost completely dominated by an area of high pressure which extended westward unusually far into east longitude.

A shallow depression—the Aleutian Low—lay over Bering Sea, with average pressure of 1,008.6 millibars (29.78 inches) at Petropavlovsk. In the extreme southwestern part of the ocean, the Asiatic Low extended seaward over the southern Archipelagos of Japan, Naha, Nansei Islands, having an average barometer of 1,006.1 millibars (29.71 inches), which is slightly lower than the normal for July.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean July 1940, at selected stations

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Millibars	Millibars	Millibars		Millibars	
Point Barrow	1,014.1	+0.9	1,025	15	999	16
Dutch Harbor	1,012.5	-1.3	1,028	27, 28	990	19
St. Paul	1,009.6	-9	1,028	27	989	20
Kodiak	1,015.4	+1.5	1,030	14	1,002	17
Juneau	1,015.9	-1.7	1,027	4	1,005	27
Tatoosh Island	1,018.3	+7	1,029	2	1,008	26
San Francisco	1,015.2	+1.0	1,021	12	1,009	26
Mazatlan	1,011.7	+5	1,017	30	1,007	2
Honolulu	1,015.0	-7	1,020	10	1,012	29
Midway Island	1,021.3	+1.7	1,025	7, 13, 14	1,017	20, 28
Guam	1,010.0	-5	1,014	10	1,004	8
Manila	1,007.3	+2	1,011	21	1,002	6
Hong Kong	1,002.7	-1.4	1,009	24	993	8
Naha	1,006.1	-3	1,015	23, 24	997	12
Titijima	1,014.3	+3.5	1,017	8, 19, 20, 22	1,003	6
Petropavlovsk	1,008.6	-1.6	1,019	26, 30	993	12

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observations.

Extratropical cyclones and gales.—July was one of the quietest months on record, so far as extratropical cyclones are concerned, on upper waters of the North Pacific. Several low-pressure areas formed over or entered the northern part of the ocean, but they caused few high winds. The only gale of record arising from any of these disturbances was a southeast wind of force 9 reported by the American steamer *Los Angeles* near 55° N., 165° W., on the 19th. The deepest northern cyclone of the month was then centered over the Aleutians, with lowest pressure, 989 millibars (29.20 inches), occurring at St. Paul Island on the 20th.

Typhoons and other tropical cyclones.—On page 196 is an account by Rev. Bernard F. Doucette, S. J., Weather Bureau, Manila, P. I., of one depression and five typhoons that occurred during the month in the Far East. In at least two of these typhoons, those of July 6-16 and July 25-29, there were reports of hurricane velocities.

In the southeastern Pacific there were at least two tropical cyclones, in addition to suspiciously squally conditions on 2 days south of the Gulf of Tehuantepec. In these, the American steamer *Manoa* had an east gale of force 8, with slightly depressed barometer, near 15° N., 95° W., during a thunderstorm on the 4th. On the 9th, a little to the southwestward, the United States Army

transport *Chateau Thierry* had an early morning gale of force 9 from the northeast.

The earlier of the two known cyclones appeared as a depression at some distance southwest of Acapulco, Mexico, on the 20th. On the 21st a few vessels experienced rough weather off the coast between Acapulco and Manzanillo, but the only gale of any severity reported was of force 10 from the southeast, encountered by the Swedish motorship *Shantung* close to 19° N., 105° W., at 8 a. m. Four hours earlier the ship's lowest barometer was read as 1,006.6 millibars (29.72 inches), wind east, force 2. On the 24th an unknown vessel reported a northeast wind of force 8, barometer 1,009 millibars (29.80 inches), near 24° N., 125° W. Thereafter the disturbance seems to have rapidly disintegrated.

The second cyclone is known through the reports of two American steamers, the *Agwidale* on the 29th, and the *Liberator* on the 30th. The *Agwidale*, Honolulu toward Balboa, encountered the highest wind, east-northeast, force 10, at 11 p. m. of the 29th, in 19°55' N., 127°40' W., with uncorrected barometer down to 1,001.7 millibars (29.58 inches). The *Liberator*, on the same route, had an extreme velocity of force 10 from the southeast near 7 a. m. of the 30th. At 3 a. m., in 19°36' N., 128°30' W., occurred the vessel's lowest barometer, 969.5 millibars (28.63 inches). The cyclone is thus seen to have been of marked intensity and to have been traveling in a west-northwest or northwest direction.

Fog.—Numerous occurrences of fog were observed from ships along the greater extent of the northern routes between the fortieth and fiftieth parallels. Between about longitudes 150° W. and 150° E., fog was reported on some 15 to 25 percent of the days, and was in some areas long-continued and dense. The most widely fogged periods were the 7th-8th and the 15th to 18th. Along the American coast the Swiftsure Bank Lightship, at the entrance to the Strait of Juan de Fuca, reported fog on 13 days. Off Oregon there were 3 days with fog in ship reports; off California, 11 days; and off Lower California, 7 days.

TYPHOONS AND DEPRESSIONS OVER THE FAR EAST

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Depression, June 26-July 3, 1940.—A depression, apparently of mild intensity, formed a short distance east of Samar, moved west-northwest across the Visayan Islands, and inclined to the north when over the China Sea. It recurved to the northeast when the center reached the western part of the Balintang Channel, a course which brought the depression to the locality of southern Formosa (Taiwan). On July 1, the direction again became west-northwest and in 2 days the center reached the continent where it disappeared.

Typhoon, July 2-9, 1940.—This storm appeared about 150 miles south-southeast of Yap on July 3, moved in a northwesterly direction to the eastern part of the Balintang Channel where it inclined to the north, moving in this direction for only a day (July 6). A northwesterly course was followed July 7 and 8, and a shift to the west took place after the center crossed Formosa. No trace of the typhoon could be found July 9.

Of all the observations received during these days, the pressure at Ishigakijima, Nansei (Loochoo) Islands, was the lowest, namely, a value of 739.7 mm. (986.2 mb.) reported July 7 at 2 p. m.