

NORTH PACIFIC OCEAN, DECEMBER 1935

By WILLIS E. HURD

Atmospheric pressure.—Following a period of 2 months during which atmospheric pressures were abnormally high over the northern half of the North Pacific Ocean, conditions changed abruptly in December 1935, and pressures below normal prevailed over the entire eastern half of the ocean as well as over a portion of the Tropics extending almost as far west as the Philippine Islands. Through much of the Aleutian area and southern Alaskan waters pressures were much below the normal, the greatest recorded departure being -0.30 inch at Dutch Harbor. North of the fortieth parallel most days following the 10th, and some days preceding that date, had barometer readings below 29 inches. The lowest recorded barometer of the month was 28.32, read on the British steamship *Empress of Russia*, near $50\frac{1}{2}^{\circ}$ N., $167\frac{1}{2}^{\circ}$ W., on the 26th. A similarly low reading, 28.33 inches, was made on the American steamship *President Jefferson*, in nearly the same position on the 24th.

While anticyclones appeared sporadically over the ocean, high pressures prevailed only off the China and California coasts, the latter being weaker than normal and unusually restricted in area.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, December 1935, at selected stations

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Point Barrow.....	30.14	+0.11	30.66	24	29.66	20
Dutch Harbor.....	29.26	-.30	30.06	3	28.46	26
St. Paul.....	29.52	-.06	30.18	3	28.86	26
Kodiak.....	29.35	-.21	30.28	22	28.52	14
Juneau.....	29.65	-.14	30.30	21	28.90	10
Tatoosh Island.....	29.95	-.01	30.43	19	29.21	11
San Francisco.....	30.08	-.04	30.33	7	29.76	29
Mazatlan.....	29.93	.00	30.04	20	29.80	13
Honolulu.....	29.99	-.02	30.10	1	29.78	6
Midway Island.....	29.93	-.08	30.24	19	29.56	31
Guam.....	29.79	-.08	29.90	22	29.54	3
Manila.....	29.87	+ .01	30.00	12, 13	29.62	8, 31
Hong Kong.....	30.11	30.28	22	29.89	8
Naha.....	30.11	+ .13	30.36	22	29.80	26
Chichishima.....	30.06	+ .06	30.22	16	29.74	9
Nemuro.....	29.89	30.44	27	29.40	1, 10

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 observation.

Cyclones and gales.—December 1935 was a stormy month over much of the ocean north of the thirtieth parallel, and gales within some part of the great area were of practically daily occurrence. The dates of quietest weather were the 21st–22d and the 30th–31st; and of heaviest weather, including days of most widespread storminess, the 8th to 15th. Gales of force 11, the highest reported for the month, were experienced on the 6th, near 39° N., 170° E.; on the 8th, near 46° N., 158° W.; on the 11th, near 46° N., 156° E.; and on the 14th–15th, within the locality, 39° – 41° N., 130° – 141° W. On the 24th and 26th, the dates of extreme lowest barometer, south of the central Aleutians, the highest wind velocities reported were of force 9.

At the beginning of December a storm of considerable energy moved eastward from Japan. On the 2d and 3d it rapidly deepened in pressure to lower than 29 inches, and occasioned fresh to whole gales at sea from the Ogasawara Islands northward to the Kurils and thence eastward. Subsequently to the 3d the storm expanded and moved east-southeastward toward Midway Island, accompanied by gale winds, which reached greatest inten-

sity, force 11, on the 6th, as reported by the Japanese steamship *Shoyo Maru*, near 39° N., 170° E. On the 7th the disturbance merged with another great low-pressure area in midocean.

This cyclone moved slowly north and northeast, and by the 13th–14th was central south of the Peninsula and Gulf of Alaska. Throughout the fluctuating course of the storm area, strong to whole gales, more or less scattered in location, occurred over the wide expanse of sea to the northward of the thirtieth parallel. On the 10th–12th the majority of the gales reported were experienced between longitudes 170° E. and 160° W., and from about 30° N. to the Aleutian Islands. On the 13th and 14th the observed gale field was much more restricted in area and farther to the eastward, lying roughly between 40° – 50° N., 130° – 155° W.

During the 15th to 19th fluctuating cyclonic conditions extended from the Gulf of Alaska southward into middle latitudes, with central pressures continuing below 29 inches through the 18th. Gales were experienced on the 15th to 17th over the general area bounded by latitudes 35° – 47° N., longitudes 130° – 150° W. The highest wind velocity reported for this period was a south-southeast gale of force 11, encountered by the British steamship *Toorak*, near 39° N., 134° W., on the 15th. On the previous day this ship reported a southwest gale of force 11 6° to the westward.

During the 19th to 26th many scattered gales, at times attaining force 10, occurred along the northern and middle steamship routes between longitudes 160° W. and 175° E. during the prevalence of deep cyclones of the Aleutian low type over the north-central part of the ocean. Thereafter gale weather decreased rapidly in area and violence, and by the 30th our records show only one instance of a wind with force as high as 8 experienced by any ship at sea. This instance occurred near 46° N., 128° W.

Typhoons.—Subjoined is a report by Rev. Bernard F. Doucette, S. J., Manila Observatory, of three typhoons occurring in the Far East this month. Our only ship report of a gale experienced during one of these tropical cyclones is that of the American motorship *Jeff Davis*, which was in a wind of force 8 near 19° N., 137° E., on the 3d, in connection with the typhoon of December 1–12.

Tehuantepecers.—Strong winds of the norther type occurred in the Gulf of Tehuantepec, as follows: Of force 7 on the 1st and 5th; of force 8 on the 4th; and of force 9 on the 20th.

Fog.—No fog was reported observed in east longitudes this month, and instances of its occurrence were few in west longitudes. There were 5 days with fog along the northern route between longitudes 130° – 160° W.; 2 days with fog off the Washington coast; 5 days with fog off the California coast; and 1 day each with fog off Lower California and in the Gulf of Tehuantepec.

TYPHOONS OVER THE FAR EAST, DECEMBER 1935

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[Weather Bureau, Manila, P. I.]

Three typhoons for the month of December 1935, are to be reported. Two of these crossed the Philippine Archipelago.

Typhoon, December 1 to 12.—During the last few days of November, pressure was low over the eastern Caroline Islands. At 2 p. m., December 1, a definite center appeared west of Truk Island and moved W. by N. to latitude 8.30, longitude 146.30 where it shifted to a northerly course for a short time during the forenoon of