

NORTH PACIFIC OCEAN

By WILLIS E. HURD

Atmospheric pressure.—During February, 1932, the same conditions of alternating high and low pressure in the Aleutian region persisted as in January. On several days the anticyclones crossing the higher latitudes of the ocean were abnormally well built-up. On the 18th and 19th St. Paul, in Bering Sea, had the extraordinarily high barometric reading of 30.90 inches. Curiously enough, at about the same time in the North Atlantic, the near vicinity of the Iceland low was dominated by an anticyclone of similar magnitude, the maximum pressure at Lerwick, Shetland Islands, being 30.87 inches, on the 20th. As few of the cyclones of the month were deep about the Aleutian Islands, the consequence was that the Aleutian low on the average was about three-tenths of an inch shallower than normal to the westward of the Alaskan Peninsula. The average center of the depression lay over the Gulf of Alaska, mean barometer at Kodiak, 29.76 inches.

The anticyclone off the middle American coast was weaker than normal for the month, while that off the Asiatic coast was in the same degree more highly developed than the average.

In low latitudes of the Pacific pressures were abnormally low. This was particularly noticeable at Honolulu, where the average barometer of 29.92 was below the normal by as much as 0.13 inch. Except in the vicinity of the Hawaiian Islands, however, there was an unusual lack of cyclonic development this month in Pacific equatorial waters.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean and adjacent waters, February, 1932, at selected stations

Stations	Average pressure		Highest	Date	Lowest	Date
	Inches	Inch				
Point Barrow ¹	30.11	-0.01	30.84	20	29.42	25
Dutch Harbor ¹	29.92	+0.32	30.70	19	28.90	15
St. Paul ¹	29.94	+0.29	30.90	18	28.82	12
Kodiak ^{1,2}	29.76	+0.14	30.38	3	28.98	8
Juneau ¹	29.78	-0.14	30.38	3	28.86	9
Tatoosh Island ^{2,3}	30.00	0.00	30.39	16	29.26	9
San Francisco ^{2,4}	30.03	-0.07	30.33	24	29.55	8
Mazatlan ^{1,5}	29.95	-0.05	30.06	25	29.84	12
Honolulu ¹	29.92	-0.13	30.14	27	29.62	21
Midway Island ^{1,5}	29.91	-0.08	30.18	25	29.46	22
Guam ^{1,5}	29.85	-0.06	30.00	11	29.74	3
Manila ¹	29.92	-0.04	30.02	26	29.78	3
Naha ^{1,5}	30.12	+0.07	30.28	17	29.86	21
Chichishima ^{1,5}	30.01	+0.03	30.18	12	29.78	5
Nemuro ^{1,5}	29.95		30.38	1	29.44	29

¹ Data based on 1 daily observation only, with departures computed from best available normals related to time of observation.

² A. m. and p. m. observations.

³ Data for 1 to 5 days missing.

⁴ And on other dates.

⁵ Corrected to 24-hour mean.

Winds and storms in Asiatic waters.—As a result of the strong seaward extension of the anticyclones from Asia, the northerly monsoon current was brisk to high in its velocities on several days between the Yellow and China Seas.

The severest cyclones of the month, so far as reports indicate, originated south or west of Japan and, moving east or northeast, acquired their greatest intensity in the region between latitudes 30° and 45° N., longitudes 145° and 165° E. Here the winds rose locally to forces of 11 or 12 on the 3d, 17th, 21st, and 28th. The storms seem quickly to have died out or abated after reaching their maxima of strength. The cyclone occasioning the severe

gale of the 17th originated near southwestern Japan on the 15th. By the 17th, when central south of the Kuril Islands, it had become of great depth. On this date the American S. S. *President Taft* passed through its calm center near 43° N., 153° E., with barometer depressed to 28.47 inches, which is the lowest reading on record for the entire North Pacific this month.

Gales elsewhere on the ocean.—Considering the ocean as a whole, despite the severity of the weather on several days over the western part of the middle and northern trans-Pacific routes, February was less stormy than any of the preceding three months. East of the one hundred and eightieth meridian no gales of record exceeded 10 in force, but these, as well as lesser gales, occurred locally on several dates, and for the most part are noted sufficiently in the accompanying table of gales.

The period of most general storminess was that of the 15th to 17th. In addition to the heavy gales then occurring east of Japan, northerly gales of force 9 were blowing off the middle and upper California coasts on the 15th and 16th, being continuations of gales which began there on the 13th and 14th. In midocean a great trough of low pressure, which extended from high latitudes well into the tropics, caused northeast and southeast gales of force 9-10 on the 15th to 17th near to and northeast of the Hawaiian Islands, and southerly gales of similar force on the 16th and 17th over a wide reach of the sea extending thence northward as far as the forty-fifth parallel.

Other and isolated high winds of special note were: A south gale of force 8 on the 3d, near 19° N., 140° W.; a low-latitude locality where winds from this direction are rare, even in the summer season, unless occasioned by infrequent tropical cyclones; a southeast gale of force 10 on the 2d and 3d on the Oregon coast; and fresh norther gales in the Gulf of Tehuantepec on the 4th, 5th, and 27th.

Winds at Honolulu.—The prevailing wind direction at Honolulu continued from the east, but, owing to the rather frequent appearance of depressions in the neighborhood, there was interspersed a fair sprinkling of southerly konas. The highest velocity at the station was 31 miles from the west on the 21st.

Fog.—Vessels reported fog west of the one hundred and eightieth meridian on only one day. East of this meridian, between 30° and 52° north latitude, the majority of 5° squares had from one to five days with fog, except along the Oregon and California coasts, where it was more frequent, the place of maximum occurrence being within short distances of San Francisco. Along the eastern half of the San Francisco-Honolulu route fog was quite general from the 23d to 27th.

SEA-SURFACE TEMPERATURE OBSERVATIONS, FEBRUARY, 1932

By GILES SLOCUM

Table 1 shows the average surface temperatures of the Caribbean Sea and the Straits of Florida for February, 1932. These figures are based upon about 80 per cent of the observations which will eventually become available. They are, therefore, preliminary, rather than final values. The final, revised figures, computed from complete data, will be given at a later date.

CARIBBEAN SEA

The temperature of the Caribbean Sea was somewhat higher this month than the 13-year February mean (1920-1932). On the basis of the mean monthly temperature values, computed from the 146 months since

January, 1920, February, 1932, was the twenty-fourth consecutive month having average or above average temperature.

The extreme warmth¹ in the Caribbean, which prevailed in December, 1930, and during the first nine months of 1931, was, however, at an end. February, 1932, was the fifth successive month with temperatures not more than 0.5° above the average, and the departure, 0.2°, of this month from the 13-year mean was that of an essentially normal month rather than of a particularly warm one, since approximately two months out of three may be expected to have greater temperature anomalies than 0.2°.

STRAITS OF FLORIDA

The Straits of Florida showed a temperature situation quite different from that in the Caribbean. In the straits, this was the warmest February in the 13 years of record. Both the second and the third quarters of this month (the 8th to the 14th and the 15th to the 21st) were warmer than any previous February quarter-month during the entire period treated, and the temperature anomaly of February, 1932, as a whole, was greater than that of any previous month from 1920 to date.

December, 1931, January, 1932, and February, 1932, taken together, constitute a period in which the surface temperatures in the Straits of Florida were as remarkably higher than normal as were those in the Caribbean Sea through most of 1931. The straits area was warmer during each of these three months than it had ever been

before during the same months since the beginning of 1920. In addition, the temperature departures of 1.9°, 1.8°, and 2.1°, respectively, from the 12 or 13 year December, January, and February means were each greater than that for any month in the 12 years preceding the beginning of this warm period in 1931-32.

These extreme conditions paralleled in magnitude of temperature anomaly and in uniqueness, if not in duration, the unprecedented thermal condition in the Caribbean shortly before. The periods of extreme warmth in the two areas, were, however, not contemporaneous. The abnormally high temperatures in the Caribbean were at an end before the abnormally high temperatures appeared in the straits, and, during the early winter months, the nearly seasonable temperatures in the Caribbean and the remarkably high temperatures in the straits were in strong contrast.

TABLE 1.—Preliminary mean sea-surface temperatures (°F.) in the Caribbean Sea and Straits of Florida, February, 1932

Quarter	Period	Caribbean Sea			Straits of Florida		
		Mean (°F.)	Departure from 13-year mean (1920-1932)	Change from preceding month	Mean (°F.)	Departure from 13-year mean (1920-1932)	Change from preceding month
I	Feb. 1-7	78.8	+0.1	-----	76.2	+1.3	-----
II	Feb. 8-14	78.4	0.0	-----	77.0	+1.6	-----
III	Feb. 15-21	79.1	+0.5	-----	77.4	+2.7	-----
IV	Feb. 22-29	78.9	+0.3	-----	76.6	+1.9	-----
	Month	78.8	+0.2	-0.8	76.8	+2.1	+0.1

¹ Cf. Summary of Sea-Surface Temperature Data for 1931, MONTHLY WEATHER REVIEW. Vol. 60: 35.