

## WEATHER OF THE MONTH.

## WEATHER OF NORTH AMERICA AND ADJACENT OCEANS.

## GENERAL CONDITIONS.

By A. J. HENRY, Meteorologist.

Before examining in detail the weather of the current month, let us consider for a moment the general average weather conditions for January in the Northern Hemisphere. In that month pressure is high over the middle latitudes of the continents and low in the Arctic region and the northern portions of the Atlantic and Pacific Oceans. Pressure is highest over east-central Asia and lowest in the neighborhood of Iceland and also in the Gulf of Alaska. In the higher latitudes—say, to the northward of latitude 40° N., the prevailing winds are westerly, subject, of course to such variation as may be introduced by the current pressure distribution.

*Current-pressure distribution.*—Telegraphic and mail reports available at this writing show clearly that pressure in the middle western latitudes of the United States was considerably above the normal, and that immediately to the north, as in Canada and Alaska, pressure was for the most part below the normal.

The pressure of the two Pacific stations, Honolulu and Midway was generally above the normal. In this connection it is interesting to note that beginning in December, 1918, the uniformly low pressure which had prevailed at Honolulu since December, 1917, gradually merged into a type of moderately high pressure and that there was a still further increase in pressure at that station during the current month. Vessel reports from the North Pacific afford little definite information except as to the absence of gales. It may well be that such absence, especially in the Gulf of Alaska, is apparent rather than real, since it is known from reports of shore stations that there was a period of at least a week with fresh gales off the Washington and Oregon coasts and probably thence northward.

For the Atlantic area it is impossible to generalize freely, but there seem to have been the usual number of storms in the steamer lanes and during the last decade of the month to the southward, as indicated by reports from Bermuda and the Azores. In the first and second decades of the month pressure over middle latitudes in the Atlantic appears to have been above normal.

## NORTH PACIFIC OCEAN.

By F. G. TINGLEY.

Only incomplete vessel weather reports are available from the North Pacific Ocean at this writing. It appears, however, from those at hand that the month was almost entirely free from severe storms. Of a total of some 330 observations thus far received from ships on trans-Pacific routes, only 35 show winds of a force of 7 or greater. These are divided as follows: 17 of force 7, 10 of force 8, 8 of force 9. No winds exceeding force 9 have been reported. Twenty-one vessels reported no gales or storms. The quiet conditions indicated are such as would be inferred from the pressure distribution shown by daily observations at the several island stations of the bureau, viz, Dutch Harbor, Midway Island, and Honolulu. This pressure distribution is discussed elsewhere.

## NORTH AMERICA.

By EDWARD H. BOWIE, Supervising Forecaster.

[Dated: Weather Bureau, Washington, Feb. 18, 1919.]

The meteorological conditions during January were in a marked degree like those of the month immediately preceding, and markedly unlike those of January, 1918. During the current month the temperature was above the normal over nearly all parts of the United States; there were no widespread cold waves, except for the one at the beginning of the month; there were no disturbances attended by heavy and widespread falls of snow or sleet; and there were no destructive gales in the interior, and few on the coasts. Similar meteorological conditions prevailed during December, 1918. It will be recalled that December, 1917, and January, 1918, were months of great and prolonged cold waves, unusual falls of snow and sleet, and severe wind storms,<sup>1</sup> and hence these two months stand out in marked contrast with the two just passed.

It will be of interest therefore to set forth in some detail the apparent reasons why the two months of the current winter were so dissimilar to the same months of the preceding winter. First, it may be said that meteorologists are not agreed as to the primary causes that bring about such striking contrasts in atmospheric phenomena such as occurred in December, 1918, and January, 1919, and the corresponding months of the winter of 1917-18. That profound modifications of the general or primary circulation of the atmosphere are involved there seems no doubt, but what brings these about it is not possible to say. These modifications in the general circulation are unquestionably shown in the general distribution of air pressure over the Alaskan area and the Pacific Ocean, and since the types of LOWS and HIGHS that cross the United States seem to be predetermined by the pressure distribution within these areas, it follows that any abnormalities over these areas will be reflected in the atmospheric conditions in the United States.

Normally the pressure is low during the winter months over Alaska and the Aleutian Islands and high over the middle latitudes of the Pacific Ocean, but there are periods when this pressure distribution is intensified and other times when there is a complete reversal of this distribution. During such times marked departures from normal atmospheric phenomena of the United States occur. The connection between the pressure distribution prevailing over the Pacific Ocean and Alaska and the weather of the United States has been set forth in Supplement No. 4, M. W. R., *Anticyclones of the United States*. Particularly interesting in this connection will be found the accompanying graphs of pressure for December, 1918, and January, 1919, and the corresponding months of the winter of 1917-1918. (Charts E. H. B. XI and XII.) Attention is drawn to the striking dissimilarity in the departures from the normal pressures at the several stations. It will be noted that during the two months just passed the pressure was consistently below the normal in the Alaskan area, and above the normal over the middle latitudes of the Pacific Ocean, as shown by the daily observations at Honolulu and Midway Island, while during December,

<sup>1</sup> Cf. P. C. Day, "The Cold Winter of 1917-18" Mo. Wea. Rev., Dec., 1918, 46: 570-580, 4 figs, 24 charts.