

MONTHLY WEATHER REVIEW.

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INTRODUCTION.

The MONTHLY WEATHER REVIEW for October, 1902, is based on reports from about 3,100 stations furnished by employees and voluntary observers, classified as follows: Regular stations of the Weather Bureau, 160; West Indian service stations, 17; special river stations, 132; special rainfall stations, 48; voluntary observers of the Weather Bureau, 2,562; Army post hospital reports, 18; United States Life-Saving Service, 9; Southern Pacific Company, 96; Hawaiian Government Survey, 75; Canadian Meteorological Service, 33; Jamaica Weather Service, 130; Mexican Telegraph Service, 20; Mexican voluntary stations, 7; Mexican Telegraph Company, 3; Costa Rican Service, 7. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; Lieut. Commander W. H. H. Southerland, Hydrographer, United States Navy; H. Pittier, Director of the Physico-Geographic Institute, San Jose, Costa Rica; Capt. François S. Chaves, Director of

the Meteorological Observatory, Ponta Delgada, St. Michaels, Azores; W. M. Shaw, Esq., Secretary, Meteorological Office, London; and Rev. Josef Algué, S. J., Director, Philippine Weather Service; H. H. Cousins, Chemist, and in charge of the Jamaica Weather Office.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. The Hawaiian standard meridian is $157^{\circ} 30'$, or $10^{\text{h}} 30^{\text{m}}$ west of Greenwich. The Costa Rican standard of time is that of San Jose, $0^{\text{h}} 36^{\text{m}} 13^{\text{s}}$ slower than seventy-fifth meridian time, corresponding to $5^{\text{h}} 36^{\text{m}}$ west of Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local standard is mentioned.

Barometric pressures, whether "station pressures" or "sea-level pressures," are now reduced to standard gravity, so that they express pressure in a standard system of absolute measures.

FORECASTS AND WARNINGS.

By Prof. E. E. GARRIOTT, in charge of Forecast Division.

The most important storm of the month appeared on the 6th in the Gulf of Campeachy, moved thence to the middle Gulf coast of the United States by the 10th, reached a position off the south New England coast by the morning of the 12th, and advanced over the Atlantic Ocean to a point near the north coast of Scotland by the 16th. The history of this storm previous to the 6th can not be positively determined. It is believed, however, that it originated within an area of low barometric pressure that covered the Gulf of Tehuantepec on October 3, when the barometer read 29.76 inches at Salina Cruz, a fall of .09 inch in twenty-four hours. By the morning of the 4th the low area had apparently shifted its position over the isthmus to the Gulf of Campeachy where, at Frontera, the barometer had fallen .05 in twenty-four hours and to 29.85 inches. During the 5th and 6th the barometric depression deepened over the Gulf of Campeachy and on the latter date acquired hurricane intensity and began a north-northeasterly course over the Gulf of Mexico. Inasmuch as the storms that are encountered over the extreme southern part of the Gulf of Mexico are usually straight northerly gales, or disturbances that are generated by a sweep of strong northerly winds over that region, and as there is no Weather Bureau record of a previous cyclonic development of equal intensity in the part of the Gulf of Mexico from which this disturbance advanced, the storm under consideration presents points of unusual interest. The strong northerly winds which appear to supply

one of the principal elements of storm generation over the southern part of the Gulf were not blowing from the 3d to the 6th; neither is there evidence that the storm moved westward over Yucatan from the Caribbean Sea. It may be allowable to assume, therefore, that the storm developed and intensified within the area of low barometric pressure that appeared first over the Gulf of Tehuantepec, on the Pacific coast, and later over the Gulf of Campeachy, which is the extreme southern bay of the Gulf of Mexico.

The following particulars regarding this storm, as witnessed in the Gulf of Campeachy, are furnished by Prof. A. E. Kennelly, of Harvard University:

On the 6th of October, 1902, we were laying cable from Campeachy toward Frontera de Tabasco in the steamer *Ydun*. On the 5th we had fair weather but with a marked westerly swell, for the first time in three weeks. On the 6th the weather became threatening and the glass fell slowly. The wind steadily increased from south. By 4 p. m., ship's time, the wind and sea had increased in violence to such a degree that it was necessary to cut and buoy our cable, in a position approximately latitude $19^{\circ} 30'$ north, longitude $92^{\circ} 10'$ west. The wind remained at approximately south. The gale increased in violence each hour until 3 a. m. the next morning, October 7, when the ship was evidently in the center of the hurricane with practically calm weather, but heavy sea. The barometer (aneroid) indicated 28.66 inches. Our position is not accurately known since we had drifted northward for nearly twelve hours, but it was in the center and probably about latitude $19^{\circ} 45'$ north, longitude $92^{\circ} 10'$ west. In the center of the hurricane where we had remained for two hours hundreds of birds of all kinds settled on the ship. They seemed all to be land birds, and varied in size from little reed birds to a large