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THE OKLAHOMA THERMOGRAPH PROJECT IN THE GULF OF MEXICO

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Through the cooperation of the United States Weather Bureau and Mr. Charles Weinberger, owner of the American Steamship Cayo Mambi, a

Negretti and Zambra sea-water thermograph was placed in operation on the Western Gulf of Mexico on November 9, 1936. The instrument was purchased by the University of Oklahoma, installation being made by engine room officers of Steamship Cayo Mambi, under the direction of Mr. W. F. McDonald of the New Orleans office of the Weather Bureau.

The thermograph, which records sea temperatures by means of a "mercury in steel" distance thermometer placed in the intake of the vessel, provides a continuous record of water temperatures 12-15 feet beneath the surface along the route traversed. The thermograms, along with supporting bucket and weather observations and other essential data, prepared by the New Orleans office of the Weather Bureau are received weekly at the University of Oklahoma where photostatic copies are made for the University and the New Orleans office. The original thermograms are then forwarded to the Weather Bureau at Washington for their permanent files.

This and similar thermograph projects, developed for other areas, supplements the regular bucket observation program of the Weather Bureau. Dr. Charles F. Brooks of the Blue Hill Observatory to whose pioneering work the development of thermograph projects has been due writes as follows concerning them: "The main reasons for installations of numerous sea-water thermographs on commercial steamships since 1926 have been to provide accurate sea temperature data for comparison with weather ashore in order to find out to what extent the slowly changing sea temperatures can be used to anticipate seasonal weather ashore."

Studies by the writer based on none too reliable bucket observation data for a limited Western Gulf area for the period 1920-1930 showed a dependence of rain fall in Oklahoma on sea temperature, there being for example a positive .52 correlation between June water temperatures in the Western Gulf and rainfall in Oklahoma in July a month later. The period was too short to give conclusive data. However, later correlations for the 23 year period 1912-1934 have substantiated these earlier studies, there being for example, a positive .62 correlation during this period between corn yield in Oklahoma and July-August surface water temperature in a limited area in the Western Gulf of Mexico and a $.625 \pm .084$ correlation between average June, July and August Gulf temperatures and the total July-August rainfall in Oklahoma.

Heretofore the Atlantic and Pacific Coastal waters have largely monopolized the attention of American students interested in thermograph investigations while the Gulf of Mexico, from which a major portion of the rainfall of the Mississippi Valley is derived, has been neglected. It thus is evident that the Oklahoma Western Gulf of Mexico Thermograph Project will fill an important gap in the thermograph studies of sea-water temperatures, and will, as the records accumulate, provide data essential to meteorological and climatalogical research.

BIBLIOGRAPHY

Charles F. Brooks: Gulf Stream Studies-General Meteorology Project. Monthly Weather Review, Vol. 58, pp. 103-106.

Charles F. Brooks: A Preliminary Comparison of Monthly Weather and Ocean Temperature Sequences in the Western North Atlantic. Transactions American Geophysical Union, 1934, pp. 211-214.

Clyde J. Bollinger: Influence of Sea Temperature Anomalies on Seasonal Temperature and Rainfall Departures in the Southwest, Annals of The Association of American Geographers. Vol. 26, March, 1936, No. 1.