

A Science Service Feature

Released on receipt
but intended for use
November 14, 1928

? WHY THE WEATHER ?

Mailed November 7, 1928

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Authority on Meteorology

MEASURING EVAPORATION

The weatherman measures evaporation, as he does rainfall, in terms of depth, the units employed being either inches or subdivisions of the meter. The measurement expresses the depth of a flat layer of water of area equal to that of the evaporating surface. The instruments employed are known as atmometers, atmidometers, evaporimeters, etc., and are of many kinds, some being designed to simulate the surface of vegetation or to meet various other special conditions. Many attempts have also been made to develop mathematical formulas by means of which the amount of evaporation might be computed when the factors on which it depends are known--shape and extent of surface, temperature of the surface layer of water, temperature of the air, humidity, wind, barometric pressure and so on.

"A few special cases," says Dr. W. J. Humphreys, "such as evaporation from flush circular and elliptical water surfaces at constant temperature and in an absolutely stagnant atmosphere have been completely analyzed. But this work, however ingenious, has contributed very little to the solution of the general problem, because in Nature water surfaces are of irregular outline and all the factors that control evaporation are in such a maze of flux and reflux as to render equation testing and evaluation of constants of doubtful accuracy and value. Evaporation, therefore, like most biological and many other phenomena, must be observed and measured; it cannot be computed very accurately."

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