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COMPARISON OF METHODS FOR ESTIMATING REFERENCE EVAPOTRANSPIRATION IN SOUTHERN CALIFORNIA

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ABSTRACT

A significant part of precipitation returns back to the atmosphere by evapotranspiration. Developing formulations aimed at accurately quantifying evapotranspiration over a given region can aid a wide variety of audiences, including water managers and hydrologists. In this study, the accuracy of four existing evapotranspiration methods (Thornthwaite, Blaney-Criddle, Turc and Makkink) for southern California is investigated. The end results are compared with those of the FAO Penman-Monteith method, which is taken as the benchmark solution for comparison purposes. The meteorological data from a California Irrigation Management Information System (CIMIS) station in southern California has been used. The comparison is first made by using the original constant coefficients in the above four methods and subsequently using recalibrated constant values. Based on statistical analysis, the methods that performed best in estimating daily and monthly evapotranspiration are recommended with their recalibrated constants for potential use in Southern California.

Reference: Castañeda, L., and P. Rao. 2005. Comparison of Methods for Estimating Reference Evapotranspiration in Southern California, *Journal of Environmental Hydrology*, Vol. 13, Paper 14.

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