

1- Assessment of several reference evapotranspiration estimation methods under coastal Mediterranean Conditions.

Abstract

Seven different methods were used to estimate reference evapotranspiration (ET_o) at three stations located in the region of Valencia, Spain namely Benicarlo, Villalonga and Almoradí. The evaluated methods were FAO-Penman-Monteith (P-M), FAO Blaney-Criddle (B-C), Turc, Jensen-Haise (J-H), Hargreaves (Harg), FAO radiation (Rad) and Priestley-Taylor (PT). The objective was to evaluate ET_o values estimated by the previous methods against the corresponding values estimated using the standardized P-M method. ET_o values calculated by the Rad and B-C methods were overestimated compared to P-M at all stations while the other methods underestimated the ET_o computed with the P-M method. Indeed, the ET_o values calculated by the Rad and B-C methods best matched the ET_o calculations by the PM method with the smallest root-mean square-difference (RMSE) and adjusted root-mean square difference (ARMSD). Regarding the slopes (b) of the linear regressions, the Rad and B-C methods values were close to unity. The results obtained from this study, indicated that the Rad and B-C methods gave reliable calculations of ET_o values at the three stations. Indeed, the Rad and B-C methods are the most suitable for estimating ET_o values when metrological data are insufficient to apply the P-M method