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Estimation of the Evapotranspiration in Spain related with atmospheric humidity changes and temperature increases as a consequence of Climate Change

R. Moratiel and J.M. Durán

Departamento de Producción Vegetal: Fitotecnia. E.T.S.I. Agrónomos. Universidad Politécnica de Madrid, Ciudada Universitaria, 28040-Madrid, Spain. (ruben.moratiel@upm.es)

The factors that affect Evapotranspiration can be grouped as: climatic variables (radiation, air temperature, atmospheric humidity and wind speed), crop variables (crop, variety and phenologic stages, among others) and management and environmental conditions (salinity or fertility of the soil, crop density, among others). Whenever Climatic Change is discussed the IPCC temperature increases situated between 0.5 ºC and 2ºC in the next forty years are referenced. This increase in temperature provokes an increase in Evapotranspiration if the other climatic variables maintain their values, however these increments could cause associated increases or decreases to the remaining climatic variables and affect the Evapotranspiration in different ways.

The object of this paper is to calculate the water requirements of principal crops through Evapotranspiration dependent on temperature increases associated with the variation of atmospheric humidity with a range of $\pm$ 5 to $\pm$ 15% of the current values. The data used in the equation of FAO- Penman Monteith was obtained from thirty-six agroclimatic stations of the national irrigation net (SIAR). These monthly estimations of ETo and ETP for different crops have been shown by GIS for peninsular Spain.