



Relationship between Temperature and Evapotranspiration increase in Spain as a consequence of Climate Change

J. M. Durán and S. Salamanca

CEIGRAM. Escuela Técnica Superior de Ingenieros Agrónomos, Universidad Politécnica de Madrid, Ciudad Universitaria, 28040-Madrid, Spain. (josem.duran@upm.es)

Nowadays Climate Change (CC) must be taken into consideration as part of every important decision. This is something that the authorities may have realized too late to avoid entirely, but at least they have done so in time to predict some climatic disasters and prepare for them.

Although there is a lot of controversy related to the origin of CC, most experts agree that human responsibility has a lot to do with these changes, especially due to Greenhouse Gas emissions. The most important changes expected due to CC are higher temperatures and different intensity and frequency of precipitation. In agriculture, CC aggravates the problem of water shortages. The changes suffered by crops as a consequence to CC referring to yield are mainly caused by variations in crop water availability. When temperature rises and precipitation decreases, crop water requirements increase; this increase must be evaluated.

The aim of this paper is to estimate the variations in main crop water requirements through Evapotranspiration (ETP, mm), depending on an increase of temperature from 0.5 to 2°C, as suggested by IPCC until 2050.

Thirty-six agroclimatic stations from a national irrigation information net (SIAR) have been used to evaluate ET_0 (mm) along the last year, according to Penman-Monteith equation recommended by FAO. The increases of monthly expected ET_0 and ETP for different crops have been shown by GIS for peninsular Spain. This estimation can be useful to know the new water requirements of irrigated crops or the yield losses of non-irrigated crops.