Abstract

Evapotranspiration is one of the main components of the water balance, which has played a significant role in the global climate through the hydrological cycle, and its estimated significant applications in predicting product performance, land design, design of irrigation canals and water distribution facilities. Accurate estimate evapotranspiration is essential for many studies such as the hydrologic balance, design and management of irrigation systems, simulation and plant production planning and management of water resources. The present study was done to determine the reference crop evapotranspiration in the of hamedan–bahar plain. Meteorological data of the study area were collected by the country's meteorological organization. After qualitative control of the data and the accuracy of the information, the amount of transpiration evaporation was calculated in the plain using Ref-ET software and hargreaves-samani method. Another goal of this study was to demonstrate the potential of ground-based technique of GIS software as a new method for estimating the crop water requirement. For this reason, after calculating transpiration evaporation using GIS, the best zoning method was investigated. After determining the best method, the transient spin was zoned in the plain. Based on the results, by evaluating the statistical indices r and NRMSE, the best way to internalize the Evapotranspiration of the reference plant in the spring and autumn was related to the conventional kriging method. The radial base function method had the last error and maximum correlation in summer. In winter, the generalestimator with power 2 was more in error and more correlated with other methods. According to the interpolation methods, the Evapotranspiration from the reference plant in the spring of the 2.43 to 2.61 (mm / d) class was highest coverage on the plain surface. In the summer, the amount is between 6.24 and 7.7 mm / d in the autumn, 3.33 to 3.95 m / day, and in the winter, the Evapotranspiration rate of the reference plant in the class of 0.8 to 1.1 m / day is the highest coverage on the surface of the plain. Also, the results showed that the evapotranspiration calculated was consistent with that in the national water document, and there is a pressing need to revisit this document.

Keywords:

Evapotranspiration, Hamedan – bahar plain, GIS, REF ET

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