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Comparative Study of Evapotranspiration Models

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Abstract

The present paper emphasis on role of evapotranspiration in context with optimal use of water resources system using various predicted models. The different methods of reference evapotranspiration recommended by the various FAO (Food and Agricultural Organisation). The main objective of the present research paper is to analysis of daily, monthly, yearly using various reference evapotranspiration.

Introduction

The modified Penman Monteith (PM) is also used to calculate the common command area and also to calculate the crop water requirement. Basically, the evapotranspiration is the process in which both evaporation and transpiration can occurs simultaneously

Literature Review

Pandey, S et. al (2014) suggest that the evapotranspiration play a major role for planning, design and execution of water resources planning projects. In the light, past researchers the different methods of evapotranspiration based of various inputs of meteorological data which is available in terms of daily, monthly, yearly etc. To check the consistency of data, different models random checks will be done like one of the most reliable methods so called is sensitivity methods which is used to analysis of individual parameters as a whole for which the values of output is obtained.

Nandagiri, L et al (2006) suggested that the reference evapotranspiration play vital role for estimation of water requirements rate of the crops. In the present research paper, it shows that the various equations for calculation of evapotranspiration were discussed and results of these equations were found to be satisfactory. For the ease of research work, linear regression equations for FAO- PM Method usually calculate the estimates in terms of evapotranspiration to developed as a simple tool for each season. Similarity, the monthly data for arid, semi arid, sub humid and humid etc.

Nikam, B.R. et. al (2014) recommended that the calculation of reference evapotranspiration. Also, few other methods are used for very less data for calculation of reference evapotranspiration which also give very close results as compare to the other methods. The best fit of curve were also obtained from these values.Two methods on temperature based study approaches i.e. Hargreaves and Thornthwaite method and two other approaches on radiation based approaches i.e. Priestley-Taylor method are used to calculate reference evapotranspiration values and are compared with standard FAO-56 PM method. Performances of all method were evaluated by regression and error analysis. On basis of seasonal Priestley-Taylor method was good for Rabi season.

Conclusions:

The present study concluded that the if the evapotranspiration is being calculated for a command area or catchment area. If sufficient water requirement of the crop is available, water balance system cannot be sufficiently be obtained. The water requirement of crop can be easily calculated by using various types of Irrigation efficiency.

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