## O 41. ESTIMATION OF MONTHLY PAN EVAPORATION USING ANFIS TECHNIQUE

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**ABSTRACT**: Evaporation is one of the most important components of the hydrological cycle. The accurate determination of the amount of evaporation is very important for the planning and management of water resources. There are many meteorological parameters that affect the amount of evaporation. Among all the components of the hydrological cycle, the estimation of evaporation is very difficult because of complex interactions between the components of the land±plant±atmosphere system. The amount of evaporation can be determined by direct measurements and various empirical equations. In addition, as well as the prediction of many meteorological and hydrological parameters, artificial intelligence methods such as ANN, SVM, ANFIS are widely used in evaporation prediction. In this study, monthly evaporation estimation were studied using meteorological parameters of three stations (Konya, Karaman, Aksaray) on Konya Closed Basin in Turkey. For this aim, ANFIS models were used. In ANFIS models, backpropagation and hybrid learning algorithms were employed. In addition, Subtractive Clustering (ANFIS-SC) techniques were utilized to set up the rules. The number of epochs was taken as 100 in ANFIS models. While the most successful prediction was obtained with the hybrid learning algorithm for the Aksaray station, the backpropagation learning algorithm was more successful in evaporation estimation at Konya and Karaman stations.

*Keywords: Evaporation, Meteorology, ANFIS, Backpropagation*