



Investigation of the watershed area- peak flow relationship using artificial neural networks

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The relationship between catchment size and streamflow magnitude is a well known hydrological theory and is usually used for prediction at ungauged basins (PUB). However, the nonlinear behavior of this relationship generates a number of problems when used for flood peak prediction for design purposes due to increased uncertainty. In this study, artificial neural networks are used to develop the area-peak flood relation in the north of Iran. A number of different network architectures have been tested in order to define the best performing network. Preliminary results show that the ANNs can marginally increase the accuracy of the area-peak flood relationship when compared to the nonlinear regression method.

Keywords: Flood peak, prediction at ungauged basin, artificial neural network, catchment size, hydrologic modeling, scaling