A COMBINED NEURAL-WAVELET MODEL FOR PREDICTION OF WATERSHED PRECIPITATION, LIGVANCHAI, IRAN

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ABSTRACT
The first step in a river management program is precipitation modeling over the watershed. Considering the high stochastic property of the process, many models are still being developed to define this complex phenomenon. The Artificial Neural Network (ANN), a non-linear inter-extrapolator, is extensively used by hydrologists for rainfall modeling as well as in other fields of hydrology. In this research, wavelet analysis was linked to the ANN concept for prediction of Ligvanchai watershed precipitation at Tabriz, Iran. The main time series was decomposed to some multi-frequency time series by wavelet theory, then these time series were imposed as input data to the ANN to predict precipitation one month ahead. The results show the proposed model can predict both short and long term precipitation events by using multi-scale time series as the ANN input layer.

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