

عنوان مقاله:

A Wavelet-ANN Approach to Investigate the Effect of Seasonal Decomposition of Time Series in Daily River Flow Forecasting

محل انتشار:

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خلاصه مقاله:

This paper presents the effect of seasonal decomposition of time series in daily flow forecasting. Models are developed for each season separately and a wavelet-neural network approach is applied to predict the flow discharge in Karaj River. Different combinations of the meteorological data (precipitation and temperature) and the flow discharge with different lag times and also different wavelet decomposition levels are used to find the best model performances. Discrete wavelet transform is used to decompose the original time series and the decomposed sub-time series are applied as the new input data for the neural network models. The study demonstrates that wavelet-neural network models can be used to predict the flow discharge successfully. Performances of seasonal models are compared with non-seasonal models. Comparisons show that the use of seasonal models instead of non-seasonal models provides a more accurate prediction of the river flow. Results of this study reveal that the best model for each season includes different input variables

کلمات کلیدی:

Wavelet Transform, Neural Network, Flow Discharge, Precipitation, Model Performance

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