

عنوان مقاله:

Application of Data-Driven Models in Rainfall-Runoff Modelling via Principal Component Analysis

محل انتشار:

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خلاصه مقاله:

In this study, the performance of two kinds of statistical neural networks was studied in rainfall-runoff simulation. Two mentioned neural networks included Radial Based Function (RBF) and General Regression Neural Network (GRNN). In order to compare the obtained results with an indicator, Multi-Layer Perceptron (MLP) neural network, which is well known as an efficient method was applied. In order to simulate the rainfall-runoff process, the precipitation data of 10 stations in Karkheh basin, located in Iran, and discharge data of Abdolkhan station, which is the outlet point of the basin, were employed. Since with respect to a three-step delay for inputs in order to create a rainfall-runoff model, the number of outputs were 30, using the principal component analysis, three initial principal components that fulfilled about 90% of total data variance, were used. The results showed that GRNN method has had the best performance, and subsequently, MLP and RBF has ranked as second and third rate.

کلمات کلیدی:

Rainfall-Runoff Simulation, Karkheh Basin, Principal Component Analysis, Artificial Neural Networks

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