

عنوان مقاله:

Comparison of Three Intelligent Techniques for Runoff Simulation

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خلاصه مقاله:

In this study, performance of a feedback neural network, Elman, is evaluated for runoff simulation. The model ability is compared with two other intelligent models namely, standalone feedforward Multi-layer Perceptron (MLP) neural network model and hybrid Adaptive Neuro-Fuzzy Inference System (ANFIS) model. In this case, daily runoff data during monsoon period in a catchment located at south India were collected. Three statistical criteria, correlation coefficient, coefficient of efficiency and the difference of slope of a best-fit line from observed-estimated scatter plots to 1:1 line, were applied for comparing the performances of the models. The results showed that ANFIS technique provided significant improvement as compared to Elman and MLP models. ANFIS could be an efficient alternative to artificial neural networks, a computationally intensive method, for runoff predictions providing at least comparable accuracy. Comparing two neural networks indicated that, unexpectedly, Elman technique has high ability than MLP, which is a powerful model in simulation of hydrological processes, in runoff modeling.

کلمات کلیدی:

Elman; MLP; ANFIS; Runoff Simulation; India

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