Abstract

Synthetic generation of streamflow data facilitates the planning and operation of water resource projects. Significance of streamflow forecasting for intermittent river increases many fold in order to use available water yearlong for multipurpose water resources project. In the present study, monthly streamflow data has been used for intermittent river Goi in Narmada river basin. The performance of stochastic stream flow generation models—seasonal autoregressive integrated moving average (SARIMA) and Thomas-Fiering model are compared with Artificial Neural Network (ANN) approach. The performance of these models is evaluated on the basis of root mean square error (RMSE) and coefficient of determination (R2). The study reveals that SARIMA performs better than Thomas-Fiering and ANN models. Thomas Fiering model is least reliable model among other two models. However Thomas-Fiering model performed well in case of high flow prediction whereas SARIMA and ANN performed well for lower and moderate flow. The predicted data can be used for the small hydropower projects development.


**Index Terms**

Computer Science  
Information Science

**Keywords**

Seasonal Autoregressive Integrated Moving Average  
Neural Network  
Stochastic Models  
Prediction  
Small Hydropower  
Power Potential