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Performances of Stochastic Approaches in Generating Low Streamflow Data for Drought Analysis

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Abstract

This study analyzed the monthly-minimum daily discharge data of each month from three gauge stations on Cekerek Stream for forecasting using stochastic approaches. Initially non-parametric test (Mann-Kendall) was used to identify the trend during study period. The two approaches of stochastic modeling, ARIMA and Thomas-Fiering models, were used to simulate the monthly-minimum daily discharge data of each month. The error estimates (RMSE and MAE) of forecasts from

both approaches were compared to identify the most suitable approach for reliable forecast. The two error estimates calculated for two approaches indicate that ARIMA model appear to be slightly better than Thomas-Fiering. However, both approaches were identified as appropriate method for simulating the monthly-minimum daily discharge data of each month from three gauge stations on Cekerek Stream.

Keywords

monthly-minimum daily discharge; stochastic model; ARIMA; Thomas-Fiering

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