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Artificial Neural Networks for Event Based Rainfall-Runoff Modeling

Author(s)

Archana Sarkar, Rakesh Kumar

ABSTRACT

The Artificial Neural Network (ANN) approach has been successfully used in many hydrological studies especially the rainfall-runoff modeling using continuous data. The present study examines its applicability to model the event-based rainfall-runoff process. A case study has been done for Ajay river basin to develop event-based rainfall-runoff model for the basin to simulate the hourly runoff at Sarath gauging site. The results demonstrate that ANN models are able to provide a good representation of an event-based rainfall-runoff process. The two important parameters, when predicting a flood hydrograph, are the magnitude of the peak discharge and the time to peak discharge. The developed ANN models have been able to predict this information with great accuracy. This shows that ANNs can be very efficient in modeling an event-based rainfall-runoff process for determining the peak discharge and time to the peak discharge very accurately. This is important in water resources design and management applications, where peak discharge and time to peak discharge are important input variables

KEYWORDS

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