

Application of Neural Networks for Flood Forecasting

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ABSTRACT: An artificial neural network model was developed for flood forecasting at river Kellenbach (Nahe catchment). The rainfall-runoff process is very complex and not always scientifically clarified, so ANN models can take advantage of their capability to simulate the unknown relationship between a set of input variables descriptive of the hydrological system. For implementation in the flood warning service here the model input is reduced on online available rainfall and discharge data. Model predictions are very accurate when the model is used with a 6-hour time horizon. Model accuracy decreases when the time horizon exceeds the reaction time of the catchment or in dependence on the amount of rainfall the discharge in the hours preceding the flood event presents no longer the state of the system.

KEYWORDS: Flood forecasting, rainfall-runoff-process