

Identification of an appropriate low flow forecast model for the Meuse River

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Abstract This study investigates the selection of an appropriate low flow forecast model for the Meuse River based on the comparison of output uncertainties of different models. For this purpose, three data driven models have been developed for the Meuse River: a multivariate ARMAX model, a linear regression model and an Artificial Neural Network (ANN) model. The uncertainty in these three models is assumed to be represented by the difference between observed and simulated discharge. The results show that the ANN low flow forecast model with one or two input variables(s) performed slightly better than the other statistical models when forecasting low flows for a lead time of seven days. The approach for the selection of an appropriate low flow forecast model adopted in this study can be used for other lead times and river basins as well.

Key words low flows; linear regression model; ANN; ARMAX; uncertainty; appropriate model; Meuse River