Multi-step ahead forecasting of monthly streamflow discharge time series using a variety of algorithms

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We compare a variety of algorithms in performing multi-step ahead forecasts of monthly streamflow discharge. We examine 285 time series originating from MOPEX catchments. We seasonally decompose the time series using a multiplicative model. We apply the algorithms to the deseasonalized time series and further make twelve-step ahead predictions corresponding to the last year's monthly values of each time series. These values are not used in the fitting and validation processes. The forecasts are multiplied by the estimated seasonal component and, subsequently, they are compared with each other using an adequate number of metrics and two benchmarks. The results indicate that most of the methods perform well, in average better than the benchmark ones.