

Streamflow forecasting using least-squares support vector machines

Abstract :

This paper investigates the ability of a least-squares support vector machine (LSSVM) model to improve the accuracy of streamflow forecasting. Cross-validation and grid-search methods are used to automatically determine the LSSVM parameters in the forecasting process. To assess the effectiveness of this model, monthly streamflow records from two stations, Tg Tulang and Tg Rambutan of the Kinta River in Perak, Peninsular Malaysia, were used as case studies. The performance of the LSSVM model is compared with the conventional statistical autoregressive integrated moving average (ARIMA), the artificial neural network (ANN) and support vector machine (SVM) models using various statistical measures. The results of the comparison indicate that the LSSVM model is a useful tool and a promising new method for streamflow forecasting. Editor D. Koutsoyiannis; Associate editor L. See Citation Shabri, A. and Suhartono, 2012. Streamflow forecasting using least-squares support vector machines. *Hydrological Sciences Journal*, 57 (7), 1275-1293.