Geophysical Research Abstracts
Vol. 15, EGU2013-13931, 2013
EGU General Assembly 2013

Multi-model methods for probabilistic streamflow forecasting

Lu Zhang, Schalk Jan van Andel, and Dimitri Solomatine
UNESCO-IHE Institute for Water Education, Delft, Netherlands (s.vanandel@unesco-ihe.org)

Streamflow forecasting is important for flood control measures and early warning. Application of a single hydrological model for probabilistic forecasting, based on parameter uncertainty, sometimes does not result in sufficiently reliable forecasts. This can be because a particular model may perform better in rising limp, or peak discharge, or low-flows, and worse in other circumstances. Therefore, this research focuses on combining several models with different characteristics with the objective to produce sharper and more reliable probabilistic streamflow forecasts.

Multi-model methods are investigated (committees of models). In particular fuzzy committee method, neural network method and Bayesian model averaging method. These methods are used to combine multiple models, e.g. HBV hydrological model and a Neural Network model.

Relationships between applying model-committees for increasing sharpness and for increasing reliability are being analysed.

Main case study to be presented is Bagmati river, Nepal. Applicability to MOPEX catchments, USA, will be discussed.