Hydroinformatics Forecasting Contest 1: comparison of results and construction of ensemble forecasts

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This paper will present a comparative analysis of the submitted results. Models will be assessed on calibration period and testing period outputs. Numerical and graphical analysis will be performed. HydroTest (www.hydrotest.org.uk) will be used to provide a set of consistent statistical descriptors. Time shift analysis will be used to test for temporal displacement. The submitted results will also be compared to earlier published findings (Han et al., 2002; in press; Bray & Han, 2004) and used for the development of 'ensemble forecasts'. Ensemble forecasting offers two potential advantages with regard to superior hydrological modelling: it can be used to develop solutions that are more accurate or more robust and in so doing encompass the best aspects of each individual model; it offers a practical solution for the quantification and assessment of forecasting uncertainties. Limited investigation has been performed on the use of different methods for producing multi-model forecasts and a number of preferred options will be compared and contrasted.

Bray, M. & Han, D. (2004) Identification of support vector machines for runoff modelling. *Journal of Hydroinformatics* 6(4): 265-280.

Han, D., Cluckie, I.D., Karbassioun, D., Lawry, J. & Krauskopf, B. (2002) River Flow Modelling Using Fuzzy Decision Trees. *Water Resources Management* 16(6): 431-445. DOI: 10.1023/A:1022251422280

Han, D., Kwong, T. & Li, S. (in press) Uncertainties in real-time flood forecasting with neural networks. *Hydrological Processes*. DOI: 10.1002/hyp.6184