International J. of Engg. Research & Indu. Appls. (IJERIA).
ISSN 0974-1518, Vol.3, No. IV (November 2010), pp. 355-368

MODULAR FEEDFORWARD AND RBF NEURAL NETWORK MODELING APPROACH FOR SHORT TERM FLOOD FORECASTING A COMPARATIVE STUDY

RAHUL P. DESHMUKH AND A. A. GHATOL

Abstract

The artificial neural networks (ANNs) have been applied to various hydrologic problems recently. This research demonstrates static neural approach by applying Modular feedforward neural network and Radial basis function neural network to rainfall-runoff modeling for the upper area of Wardha River in India. The model is developed by processing online data over time using static modeling. Methodologies and techniques of the two models are presented in this paper and a comparison of the short term runoff prediction results between them is also conducted. The prediction results of the Radial basis function neural network indicate a satisfactory performance in the three hours ahead of time prediction. The conclusions also indicate that Radial basis function neural network is more versatile than Modular feedforward neural network and can be considered as an alternate and practical tool for predicting short term flood flow.

Keywords : Artificial neural network, Forecasting, Rainfall, Runoff, Models.