In this work, seven Ensemble Artificial Neural Network (ANN) models, namely, Multilayer Perceptron Network (MLPN), Elman Recurrent Neural Network (ERNN), Radial Basis Function Network (RBFN), Hopfield Model (HFM), Ensemble Neural Network based on Variable Inputs with No Hidden Layers (ENN-V-S), Ensemble Neural Network based on Variable Inputs with Hidden Layers (ENN-V-M), Ensemble Neural Network based on Time Inputs with No Hidden Layers (ENN-T-M), are developed to predict the rainfall for one of the large cities of India i.e. Bangalore. Different network models are developed to match the predicted results with the actual data and ENN-Average is found to be the best among all. In order to test this, actual rainfall data was collected in Bangalore city for the calendar years 2007, 2008 and 2009. This data was used as training data for the ANNs and predictions were made for the year 2010. Again these predictions were compared with the actual data to verify the performance of the ANNs. In this study, it has been proved that ENN-Average model based on back propagation algorithm provide better accurate predictions than the SNN and ENN models based on other algorithms.
Novel Ensemble Neural Network Models for better Prediction using Variable Input Approach

References

- ASCE., 2001a. Task Committee on Artificial Neural Networks in Hydrology, Artificial Neural Networks in Hydrology. I. Preliminary concepts, Journal of Hydrologic Engineering, ASCE, 52, 115-123.
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Index Terms

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