Development of Feature Based Artificial Neural Network Model for Weather Nowcasting

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ABSTRACT

The performance of Artificial Neural Networks in forecasting the short range (3-6 hourly) occurrence of rainfall is presented. Feature sets extracted from both ground level weather parameters and satellite images were used in developing the networks. The study was limited to forecasting the weather over Colombo (79°52' E, 6°54 N), the capital of Sri Lanka. From the available ground level weather parameters, a total of seven parameters, pressure, temperature, dew point, wind direction, wind speed, cloud amount and rainfall have been selected for the present study. From satellite images, four types of images, visible image of clouds, infrared image of clouds, infrared color image of clouds and water vapor image of clouds were used. The best performance was observed for hybrid models that combine ground level and satellite observations with 75% accuracy for short range forecasting. A strong seasonal dependence in the accuracy of forecasting linked to monsoons is observed.

Acknowledgment: Financial assistance by National Research Council of Sri Lanka (NRC grant number 06-18) is acknowledged.