ABSTRACT

Superensemble forecasts derived from a suite of multiple models are a useful tool in rainfall prediction, in which the models from THORPEX Interactive Grand Global Ensemble (TIGGE) operational suite are employed. The overall objective of this study was to assess the predictability of precipitation on medium range timescale over the Greater Horn of Africa region using the superensemble technique. Forecast datasets from TIGGE and rain rates from Tropical Rainfall Measuring Mission (TRMM) were used to construct a multimodel Superensemble precipitation forecast for the period 20 to 29 November, 2013. Previous 450 days of Multimodel forecast data of 2008 to 2012 during the months of October, November and December were used to train the model and calculate statistical weights. Standard metrics for forecast validations that included the Root Mean Square Error (RMSE), Equitable Threat Score (ETS), Spatial Correlation (SC) and Bias were used. Four individual runs were undertaken to ensure that the results were stable. In all runs, it was noted that the multimodel superensemble carried a consistent higher skill in terms of SC and RMSE as compared with that of the individual member models in the suite. The superensemble ETS and bias scores for all forecasts carried the best scores close to 1.0. Skill forecasts of precipitation clearly demonstrate that it is possible to obtain higher skills for precipitation forecasts for Days 1 through 10 of forecasts from the use of the multimodel superensemble as compared to the best model in the suite. The higher skills of the multimodel superensemble make it a very useful tool for prediction and early warning of the risks associated with extreme weather and climate events.