



RESEARCH ARTICLE

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## Validation of medium range weather forecast for Keonjhar district of Odisha

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**ABSTRACT :** The validity of medium range weather forecast issued from National Centre for Medium Range Weather Forecast (NCMRWF) on various weather parameters for Keonjhar district of Odisha state during the period 2015 is discussed in this paper. The validity of weather forecast for monsoon and post-monsoon season was tested separately with real time data observed from station observatory. The ratio scores on Yes/No basis viz., Forecast Accuracy (ACC), Critical Success Index (CSI), Heidke Skill score (HSS), Hansen and Kuiper's (HK) scores were used for testing of only rainfall prediction. The predicted rainfall on Yes/No basis for the total seasons was 85.1 per cent correct, whereas it was 92.1 per cent correct for monsoon and 88.6 per cent correct for pre-monsoon period. The weather forecast for other parameters was tested with Critical Values for Error Structure as suggested by NCMRWF. On annual basis, the prediction of cumulative rainfall (84.6%), rainfall (77.7%), Total cloud cover (61.6%), and Tmin (52.2%) were having maximum correct events, whereas the predicted Wind direction (63.2%), RH I (36.3%) and Wind speed (35.0%) were having maximum number of failure events. On seasonal basis, the predictions for rain (83.5%), Cumulative rainfall (79.6%), wind speed (44.8%) and total cloud cover (44.6%) during monsoon period and cumulative rainfall (88.7%), rainfall (84.9%), wind speed (51.2%), and Tmin (50.4%) during pre-monsoon period were having higher percentage of correct events. However, the wind direction (71.1%) and RH II (60.6%) during monsoon and wind direction (53.6%) and RH II (52.9%) during post monsoon period were having maximum number of failure events. The value (0.89) of co-efficient of determination ( $r^2$ ) for rainfall during monsoon period indicated that the values of predicted rainfall were almost matching with the observed ones. It means that prediction of rainfall are near to accurate. The values of co-efficient of determination  $r^2 = 0.93$  in the regression analysis during pre monsoon period indicated accuracy in prediction of minimum temperature. The accurate weather forecasting with respect to various weather parameters is important as this can be used to facilitate the farmers to make broad decision on the crop management operations.

**KEY WORDS :** Weather forecast, Validity testing, Ratio scores, NCMRWF

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