

Impact of assimilation of Megha-Tropiques ROSA radio occultation refractivity by observing system simulation experiment

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Abstract

Numerical weather prediction models are assimilating more Global Positioning System Radio Occultation (GPSRO) observations into their operational model in recent times as a result of significant positive impact with use of GPSRO data in assimilation system. The Megha-Tropiques satellite mission is aimed to provide large number of observations over the tropical region and carries payload ROSA for providing GPSRO observations. At present, the quality of processed GPSRO retrievals from Megha-Tropiques ROSA is not satisfactory. In order to assess the impact of assimilation of good-quality ROSA observations, an observing system simulation system experiment (OSSE) was conducted using NCMRWF T574 model. The experiment was conducted for a period of 15 days during September 2012 and refractivity operator was used for assimilation. Results show significant improvement in forecast skill for forecasts beyond 72 h with OSSE data.