Daily Merged Satellite Gauge Real-Time Rainfall Dataset for Indian Region

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Abstract

Simulation and prediction of Indian monsoon rainfall at scales from days-to-season is a challenging task for numerical modelling community worldwide. Gridded estimates of daily rainfall data are required for both land and oceanic regions for model validation, process studies and in turn for model development. Due to recent developments in satellite meteorology, it has become possible to produce realistic near real-time gridded rainfall datasets at operational basis by merging satellite estimates with rain gauge values and other available in-situ observations. In this study, we show the representation of monsoon rainfall from a merged satellite-gauge dataset developed jointly by ESSO-IMD and ESSO-NCMRWF at 0.5° spatial grids for three recent monsoon seasons. These daily merged gridded rainfall datasets are available in real-time via IMD, Pune website since June 2012. The merged rainfall data is able to capture the monsoon large-scale rainfall distributions adequately. For severe weather systems also, this merged data is found to be useful. The intra-seasonal variation shows realistic observed rainfall features in the merged dataset. Very soon improved multi-satellite estimates from GPM constellation will be available, which is being planned to be used in the current merged product in place of TRMM. More and newer types of data from radar, AWS and ARG will be incorporated in future version of the daily merged rainfall analysis product.