

Gridded daily Indian monsoon rainfall for 14 seasons: Merged TRMM and IMD gauge analyzed values

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Abstract

Indian monsoon is an important component of earth's climate system. Daily rainfall data for longer period is vital to study components and processes related to Indian monsoon. Daily observed gridded rainfall data covering both land and adjoining oceanic regions are required for numerical model validation and model development for monsoon. In this study, a new gridded daily Indian rainfall dataset at $1^\circ \times 1^\circ$ latitude/longitude resolution covering 14 monsoon seasons (1998 –2011) are described. This merged satellite gauge rainfall dataset (NMSG) combines TRMM TMPA rainfall estimates with gauge information from IMD gridded data. Compared to TRMM and GPCP daily rainfall data, the current NMSG daily data has more information due to inclusion of local gauge analysed values. In terms of bias and skill scores this dataset is superior to other daily rainfall datasets. In a mean climatological sense and also for anomalous monsoon seasons, this merged satellite gauge data brings out more detailed features of monsoon rainfall. The difference of NMSG and GPCP looks significant. This dataset will be useful to researchers for monsoon intraseasonal studies and monsoon model development research.

[Keywords: Observed monsoon rain; satellite rain; daily merged rain data; TRMM rainfall; monsoon rainfall variability]