Validation of satellite precipitation products using NMQ over the CONUS

Jianxin Wang
NASA Goddard Space Flight Center, USA

Petersen, Walter (NASA Wallops Flight Facility, Wallops Island, USA)
Wolff, David(NASA Wallops Flight Facility, Wallops Island, USA)
Huffman, George (NASA Goddard Space Flight Center, Greenbelt, USA)
Bolvin, David (NASA Goddard Space Flight Center, Greenbelt, USA)
Kirstetter, Pierre-Emmanuel (NOAA/National Severe Storms Laboratory, Norman,USA)

E-mail: jianxin.wang@nasa.gov

The Global Precipitation Measurement (GPM) Core Observatory satellite was successfully launched on 27 Feb 2014. The GPM ground validation (GV) effort is currently underway for independent validation of space-borne instrument measurements and retrieved precipitation products using ground and airborne precipitation measurements.

As a spin up to full GPM GV efforts, this study compares two satellite precipitation products, version-7 TRMM Multi-satellite Precipitation Analysis (TMPA) gauge-adjusted rain rates (3B42) and a one-month (June 2012) pre-launch "test-version" of the Integrated Multi-Satellite Retrievals for GPM (IMERG) product, with ground-radar rain products produced in the National Mosaic and Multi-Sensor Quantitative Precipitation Estimation (QPE) (NMQ; now called the "Multi-Radar Multi-Sensor" system). The comparisons are conducted over the conterminous United States (CONUS) at various spatial and temporal scales with respect to different precipitation types (rain and snow), and filtered with radar quality index (RQI) thresholds. Preliminary comparisons of the 3B42 and IMERG test product are in good overall agreement, but both are high-biased relative to NMQ. More comprehensive comparisons will be conducted once the post-launch IMERG product is available.

This study will describe the comparison products and methodologies put in place to help ensure a robust ground validation capability to support GPM operations.