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Upgrades to the TRMM Multi-satellite Precipitation Analysis (TMPA)

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The TRMM Multi-satellite Precipitation Analysis provides TRMM-based combined satellite precipitation estimates, including monthly precipitation gauge information, at relatively fine scale (0.25x0.25-deg lat/long, 3-hourly). The TMPA is computed twice – first in near-real time (TMPA-RT) about 8 hours after observation time, and then again in post-real time a couple weeks after the end of each calendar month. The post-real-time TMPA benefits from the direct use of monthly precipitation gauge data to control biases in the satellite algorithms, and is therefore preferred for scientific analysis. Both runs are in the process of being upgraded. First, the long-delayed enhancement of the post-real-time run from Version 6 to Version 7 is being finalized. The TMPA now includes new, important sources of passive microwave satellite precipitation estimates, and a significantly improved infrared dataset for the period 1998-1999. In addition to new satellite sources, Version 7 TMPA now uses the new, more complete GPCC "Full" gauge analysis, when available, and the GPCC "Monitoring" gauge analysis at other times, although this change will add another six weeks of latency. Finally, the output data files now provide the satellite precipitation data source, the passive microwave-only precipitation estimates, the infrared-only estimates, the satellite observation time in addition to precipitation and amount and error estimates.

The TMPA-RT was modified in early 2009 to include a climatological calibration to the Version 6 TMPA, but until now the data record to which the calibration was applied was short, only starting in October 2008. A new scheme has been devised for applying the climatological calibration to TMPA-RT data extending back to February 2005, which extends the data record from 2.5 years to over 6 years. As well, this approach provides the methodology to re-calibrate the TMPA-RT to Version 7 when that dataset is computed.

Improvements in the two datasets will be illustrated, focusing on improved dataset homogeneity for Version 7 and the interannual characteristics of the longer TMPA-RT record. In addition, the updated timeline for Version 7 production will be given.