

The GPM Radiometer Algorithm: V5 and Beyond

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The Global Precipitation Measurement (GPM) mission was launched in February 2014 as a joint mission between JAXA from Japan and NASA from the United States. GPM carries a state of the art dual-frequency precipitation radar and a multi-channel passive microwave radiometer that acts not only to enhance the radar's retrieval capability, but also as a reference for a constellation of existing satellites carrying passive microwave sensors. In May of 2017, GPM released Version 5 of its precipitation products starting with GMI and continuing with the constellation of radiometers. The precipitation products from these sensors are consistent by design and show relatively minor differences in the mean global sense. Closer examination of the differences, however, reveals regional biases between sensors with different information contents. By looking at cloud systems instead of individual satellite pixels, the relationship between biases and the large scale environmental state become more clearly defined. Organized convection, which occurs more readily in regimes with large Convective Available Potential Energy (CAPE) and shear tend to drive biases in different directions than isolated convection. This analysis will be used to then drive a bigger picture of how GPM's latest results inform the Global Water and Energy budgets.