



Evolution of Precipitation Retrieval from TRMM Version 7 to the Global Precipitation Measurement Mission

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This paper describes the approach being taken to evolve from the TRMM V7 algorithms to those required for the Global Precipitation Measurement (GPM) Mission. GPM is scheduled to launch its core satellite containing a GPM Microwave Imager (GMI) and a Dual-frequency Precipitation Radar (DPR) in late summer of 2013. The development of algorithms for this mission will evolve from the retrieval algorithms developed as part of the Tropical Rainfall Measuring Mission (TRMM) especially from the latest version-version 7.

This paper will describe the major changes in the TRMM version 7 algorithms which make them an effective starting point for the development of GPM precipitation retrieval algorithms. The TRMM v7 changes to precipitation retrievals from the TRMM Microwave Imager (TMI) uses techniques in establishing its apriori database which the first step in the approach to be used for GPM. This paper will describe the transformation from a purely cloud resolving model database to one largely established using Precipitation Radar (PR) data. It will show the improvements in precipitation retrievals yielded by the new approach which presages the radar-enhanced radiometer retrievals planned for The paper also presents early work in the intercalibration of constellation radiometers Tb using a reference satellite. This technique will form the basis of developing a consistent set of retrievals from the GPM constellation radiometers.

The paper goes on to provide an overview of the TRMM v7 PR retrieval improvements which provide the starting point for the DPR Ku band retrievals for GPM. An overview presentation of the GPM DPR retrievals will be presented. The approach being used to integrate radiometer and DPR measurements into a combined retrieval during the GPM era will complete the discussion of algorithm evolution to support the GPM mission.

The paper concludes with the status of the current TRMM v7 efforts as well as presenting the status of the first versions of GPM retrieval algorithms.