



GPM near-realtime data production at PPS

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In late summer of 2013 the core “calibrator” satellite of the Global Precipitation Measurement (GPM) mission will be launched from Tanegashima Space Center in Japan. An important contribution of the GPM will be the quick availability of near real-time data (NRT) for the user community. This data will be freely available to all users. This paper will describe the current plans for NRT data and its access methods. Four different types of data with different granularities and latencies will be generated and available from the Precipitation Processing System (PPS). The first of these are Instantaneous Field of View (IFOV) intercalibrated brightness temperature (Tc) products. For the core satellite the granularity of these products will be roughly a 5 min swath segment. These data will be available in under 20 minutes from data collection. The second type of data is Goddard Profiling (GPROF) precipitation retrievals based on these Tc products. The latency on these retrievals will be 20 minutes from data collection. The third NRT data type is the combined PR/GMI precipitation retrieval. These products combine the information from both the radiometer and the active two frequency precipitation radar. The granularity of these products is roughly orbital. These products will be available within 3 hours of data collection. Fourth, PPS will generate both Tc and precipitation retrieval products from all the GPM partner radiometers. Both the granularity and the latency of these products is dependent upon partner downlink and processing capabilities. Lastly, PPS will produce 1 hourly merged radiometer precipitation products on a .1 x .1 degree spatial grid. An hourly product will be produced 3 times. The first time will be within 3 hours of data collection, the next time will be within 4 hours of data collection and the final production of the particular hour will be within 6 hours of data collection. This production schedule ensures that those users who wish data as soon as possible even if not all radiometer data for the hour have been received. The final generation ensures that the most complete merged product is available for those who need completeness.

Several applications users have indicated the need to have data formats and test data available as far ahead of the launch as possible. This facilitates the preparation of ingest and reading software for the products. As PPS has needs for synthetic data to accomplish many of its requirements, it will make such data available to potential GPM NRT data users. GPM actually has two efforts to generate such data. PPS will be generating synthetic data based on combining TMI, AMSRE, and AMSU data into a product which has the GPM channels as well as the GPM orbital information. These products will be available as early as mid-2011. This paper will describe the PPS synthetic data effort. The second source of data is from a satellite simulator being developed through the efforts of the Precipitation Measurement Missions (PMM) Science team. These products will be produced using model data. This will allow matched Dual Precipitation Radar (DPR) and GPM Microwave Imager (GMI) data to be produced. Such simulated data is particularly useful for generating “realistic” combined products. This data will also be available to the broader community.