



The Global Precipitation Measurement (GPM) Mission: An overview

A. Hou (1)

(1) NASA Goddard Space Flight Center, Greenbelt, Maryland, USA (arthur.y.hou@nasa.gov)

The Global Precipitation Measurement (GPM) Mission is an international satellite mission that uses advanced precipitation radar with a constellation of passive microwave radiometers to improve the accuracy, sampling, and coverage of global precipitation measurements. It is a science mission with integrated applications goals focusing on (1) advancing the knowledge of the global water/energy cycle variability and freshwater availability and (2) improving weather, climate, and hydrological prediction capabilities through more accurate and frequent measurements of global precipitation.

The GPM Mission is currently a partnership between NASA and the Japanese Aerospace Exploration Agency (JAXA), with opportunities for additional domestic and international partners in satellite constellation buildup and ground validation activities. The GPM Core satellite, which carries a JAXA-provided dual-frequency precipitation radar and a NASA-provided microwave radiometers with high-frequency capabilities for light rain and frozen precipitation measurements, is expected to be launched in the 2010 timeframe. The GPM Core will serve as a precipitation physics laboratory and a calibration system for improved precipitation measurements by a heterogeneous constellation of dedicated and operational microwave radiometers. NASA also plans to provide a “wild card” constellation member with a copy of the radiometer carried on the GPM Core to be placed in an orbit that maximizes the coverage and sampling of the constellation.

An overview of the GPM mission concept, instrument capabilities, ground validation plans, and the expected scientific and societal benefits will be presented.