

NASA Global Precipitation Measurement Mission Passes Major Review

December 8 2009, by Sarah DeWitt

(PhysOrg.com) -- NASA's effort to deploy the first satellite mission to advance global precipitation observations from space moved closer to this goal when agency officials approved critical elements for the Global Precipitation Measurement (GPM) mission on Dec. 2.

NASA gave GPM the green light to proceed to the mission implementation phase in a review meeting chaired by [NASA](#)'s Associate Administrator Christopher Scolese.

Building on the success of the [Tropical Rainfall](#) Measuring Mission (TRMM), a joint project between NASA and the Japan Aerospace Exploration Agency (JAXA), GPM will usher in a new generation of space-based observations of global precipitation, a key element of the Earth's climate and also the primary source of freshwater. GPM is an international collaboration that currently includes NASA and JAXA, with anticipated contributions from additional international partners.

"This joint NASA/JAXA mission is scientifically important and stands as a prime example of the power of international cooperation in Earth observations," said NASA's Earth Science Division director Michael Freilich. "GPM's global precipitation measurements will advance our abilities to monitor and accurately predict precipitation on a global basis. GPM builds on the strong scientific and technical collaborations developed between NASA and JAXA. GPM instruments will also provide key calibration references to allow measurements from a wide variety of other [satellite](#) missions, including those from other U.S. and

international organizations, to be combined to provide accurate predictions and global data sets."

The heart of the GPM mission is a spaceborne Core Observatory that serves as a reference standard to unify and advance measurements from a constellation of multinational research and operational satellites carrying microwave sensors. GPM will provide uniformly calibrated precipitation measurements globally every 2-4 hours for scientific research and societal applications. The GPM Core Observatory sensor measurements will for the first time make quantitative observations of precipitation particle size distribution, which is key to improving the accuracy of precipitation estimates by microwave radiometers and radars.

The GPM Core Observatory will carry a Dual-frequency Precipitation Radar (DPR) and a multi-channel GPM Microwave Imager (GMI). DPR will have greater measurement sensitivity to light rain and snowfall compared to the TRMM radar. GMI uses a set of frequencies to retrieve heavy, moderate, and light precipitation from emission and scattering signals of water droplets and ice particles.

GPM is the cornerstone of the multinational Committee on Earth Observation Satellites Precipitation Constellation that addresses one of the key observations of the Global Earth Observation System of Systems.

NASA is responsible for the GPM Core Observatory spacecraft bus, the GMI carried on it, the Core Observatory integration, launch site processing, mission operation and science data processing and distribution. NASA is also responsible for the development of a second GMI to be flown on a partner-provided Low-Inclination Observatory (LIO) and the Instrument Operational Center for the LIO. The GPM Core Observatory is scheduled for launch in July 2013 from JAXA's

Tanegashima launch site on an H-IIA rocket.

Provided by JPL/NASA ([news](#) : [web](#))

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