



The Global Precipitation Measurement Mission

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The Global Precipitation Measurement (GPM) mission's Core satellite, scheduled for launch at the end of February 2014, is well designed estimate precipitation from 0.2 to 110 mm/hr and to detect falling snow. Knowing where and how much rain and snow falls globally is vital to understanding how weather and climate impact both our environment and Earth's water and energy cycles, including effects on agriculture, fresh water availability, and responses to natural disasters.

The design of the GPM Core Observatory is an advancement of the Tropical Rainfall Measuring Mission (TRMM)'s highly successful rain-sensing package [3]. The cornerstone of the GPM mission is the deployment of a Core Observatory in a unique 650 non-Sun-synchronous orbit to serve as a physics observatory and a calibration reference to improve precipitation measurements by a constellation of 8 or more dedicated and operational, U.S. and international passive microwave sensors. The Core Observatory will carry a Ku/Ka-band Dual-frequency Precipitation Radar (DPR) and a multi-channel (10-183 GHz) GPM Microwave Radiometer (GMI). The DPR will provide measurements of 3-D precipitation structures and microphysical properties, which are key to achieving a better understanding of precipitation processes and improving retrieval algorithms for passive microwave radiometers. The combined use of DPR and GMI measurements will place greater constraints on possible solutions to radiometer retrievals to improve the accuracy and consistency of precipitation retrievals from all constellation radiometers. Furthermore, since light rain and falling snow account for a significant fraction of precipitation occurrence in middle and high latitudes, the GPM instruments extend the capabilities of the TRMM sensors to detect falling snow, measure light rain, and provide, for the first time, quantitative estimates of microphysical properties of precipitation particles.

The GPM Core Observatory was developed and tested at NASA Goddard Space Flight Center. It was shipped to Japan in November 2012 for launch on a Japanese H-IIA rocket from Tanegashima Island, Japan. The launch has been officially scheduled for 1:07 p.m. to 3:07 p.m. EST Thursday, February 27, 2014 (3:07 a.m. to 5:07 a.m. JST Friday, February 28).

The day that the GPM Core was shipped to Japan was the day that GPM's Project Scientist, Dr. Arthur Hou passed away after a year-long battle with cancer. Dr. Hou truly made GPM a global effort with a global team. He excelled in providing scientific oversight for achieving GPM's many science objectives and application goals, including delivering high-resolution precipitation data in near real time for better understanding, monitoring and prediction of global precipitation systems and high-impact weather events such as hurricanes. Dr. Hou successfully forged international partnerships to collect and validate space-borne measurements of precipitation around the globe. He served as a professional mentor to numerous junior and mid-level scientists. His presence, leadership, generous personality, and the example he set for all of us as a true "team-player" will be greatly missed.

The GPM mission will be described, Arthur's role as Project Scientist for GPM, and early imagery of GPM's retrievals of precipitation will be presented if available at the end of April 2014 (2 months after launch).