



Global Precipitation Measurement (GPM)

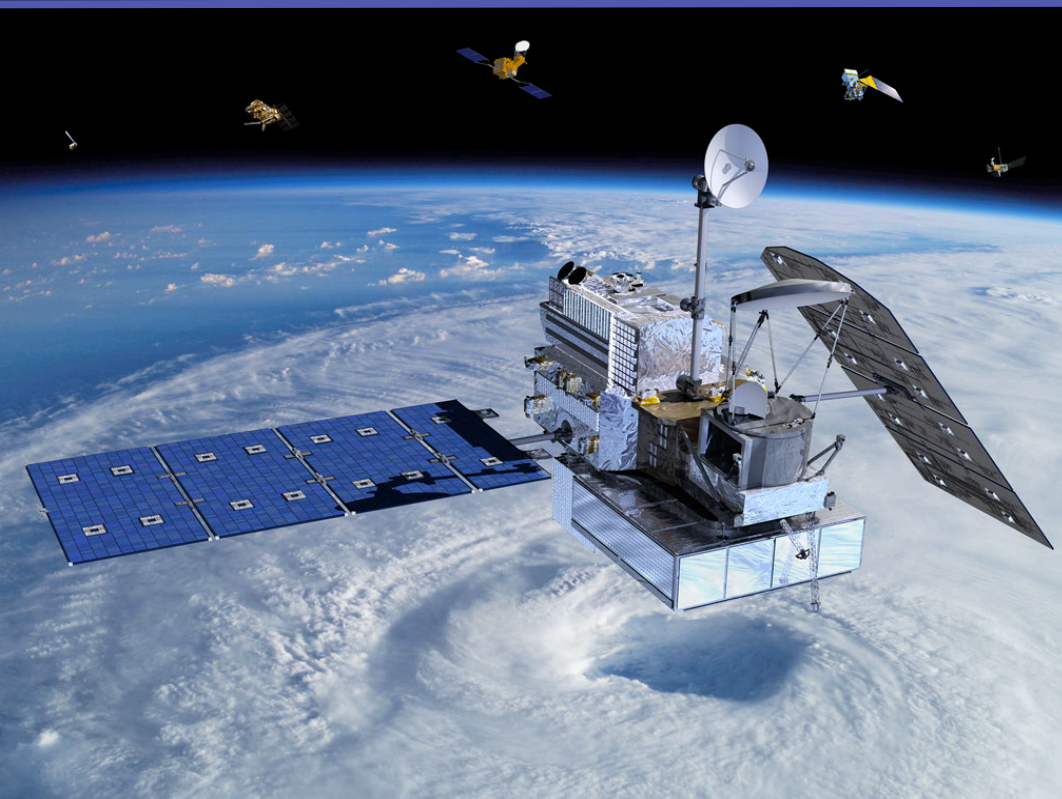


Mission Status

PMM Science Team meeting

March 18, 2013

Annapolis, Maryland



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Jackie Fiora, DPM Resources
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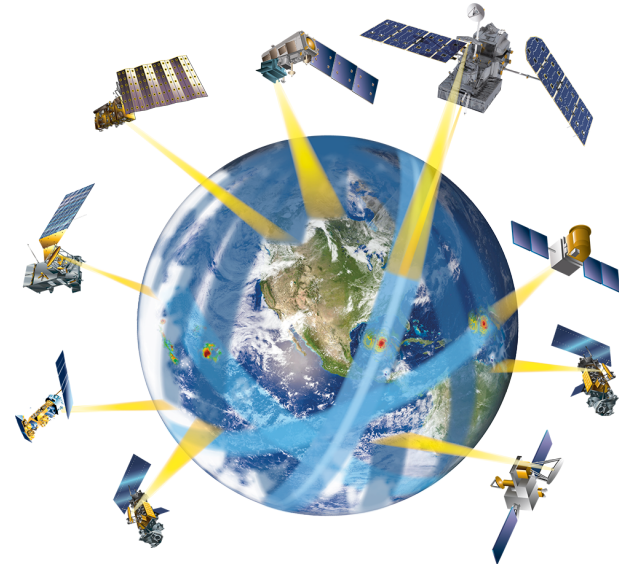
Category I/Class B Mission
 Science Mission Directorate
 Earth Systematic Missions Program
 Lead Center: Goddard Space Flight Center
 Major Partner: JAXA

Mission Objective:

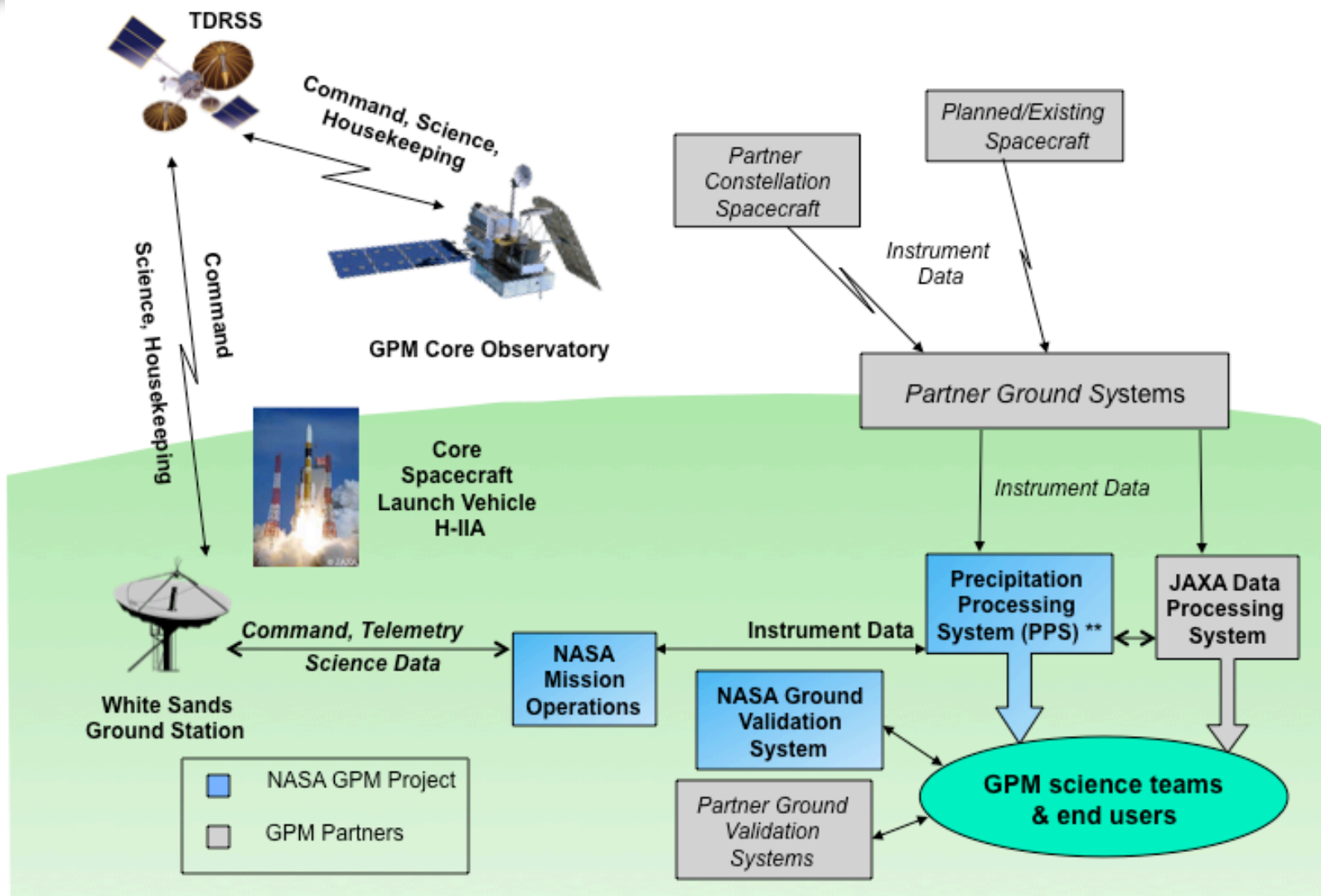
- Advancing precipitation measurement capability from space
- Improving knowledge of precipitation systems, water cycle variability, and fresh water availability
- Improving climate modeling and prediction
- Improving weather prediction and 4-D climate reanalysis
- Improving hydro-meteorological modeling and prediction

Mission Description:

- Constellation of spacecraft provide global precipitation measurement coverage
- NASA/JAXA Core spacecraft: Provides a microwave radiometer (GMI) and dual-frequency precipitation radar (DPR) to cross-calibrate entire constellation
 - 65° inclination, 400 km altitude
 - Launch readiness date: February 2014 on HII-A
 - 3 year mission (5 year propellant)
- Partner constellation spacecraft (JAXA, DoD, NOAA, etc.)



- Ground assets
 - Mission Operations Center for Core Spacecraft
 - Precipitation Processing System: Data processing, archive, distribution for the entire constellation of spacecraft
 - Ground validation system: Field campaigns and a world-wide network of ground-based measurements to validate space measurements and algorithms
- Partners
 - Japanese Aerospace and Exploration (JAXA)
 - DPR instruments for Core spacecraft
 - Launch service for Core spacecraft

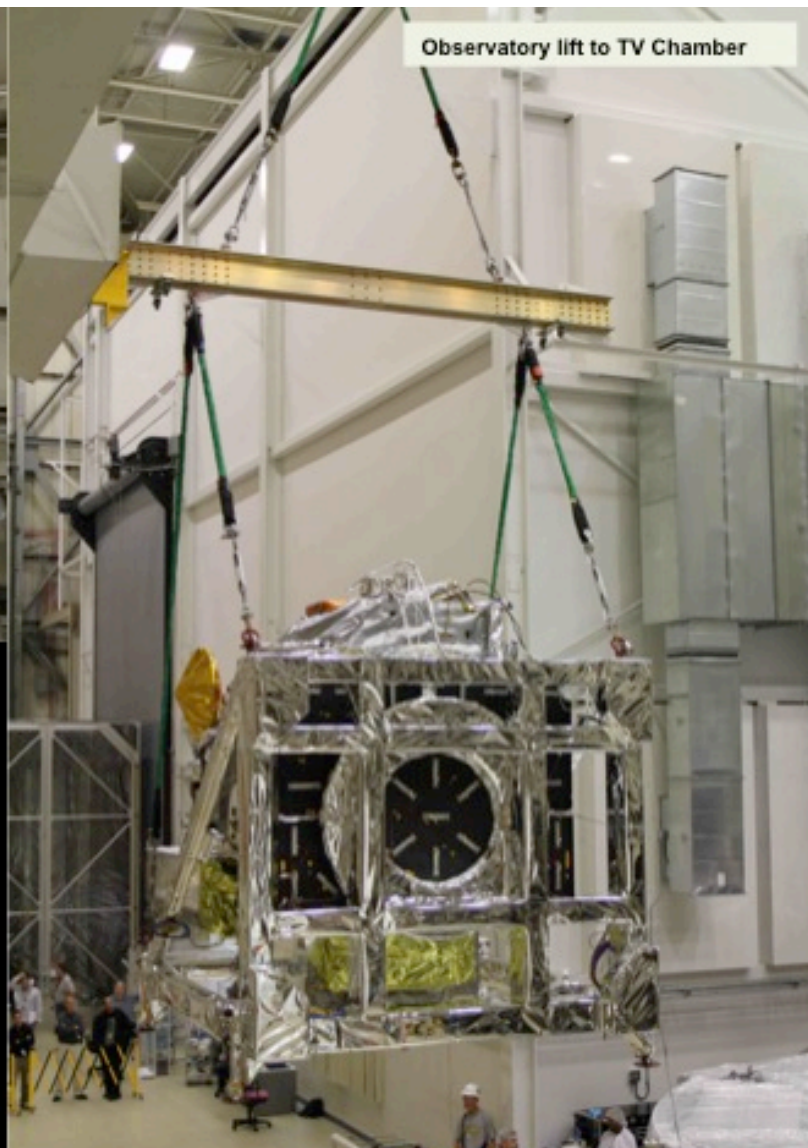


GPM System Architecture remains the same

- No impact to GPM from Sequestration
- Launch Readiness Date; February 14, 2014
 - Earlier Launch Date requested by JAXA (January 24, 2014); GPM Team will confirm the feasibility by August
- Ship date to launch site; End of October/early November 2013
- Core Observatory continuing with the Environmental Test Program at GSFC
 - Thermal Vacuum test successfully completed and started EMI/EMC
- Ground System development is complete
 - Mission Operation Center ready (GSFC Bldg 32)
- Precipitation Processing System development near completion
 - Algorithm testing in progress (GSFC Bldg 33)
- Ground Validation campaigns continuing with success
- Several key Reviews successfully completed
 - System Integration Review (SIR) ; Feb 2012
 - Key Decision Point “D” (KDP-D) ; April 2012
 - Mission Operation Review (MOR); August 2012
 - Pre-Environmental Review (PER) ; Oct 2012

- GMI delivered in Feb 2012 followed by DPR delivery in March and integration on the Observatory in April







Science Team Meeting, Annapolis Maryland March 2013

- RF Self-Compatibility Test between HGAS and GMI confirmed the need for band-reject filters for three channels
 - ✧ 89 GHz V & H
 - ✧ 183 GHz A
- Test repeated following the filter installations (3 filters) and interference was eliminated
- Results of RF Self-Compatibility Test also confirmed no interference between GMI 36 GHz channel and KaPR (35.5 GHz)



RF Absorbent Enclosure shown, was used in GPM High Bay to perform Self-compatibility test

- Loop-back semi-rigid cable on the outside of Receivers were replaced with filter assembly
- Filter installation performed by Ball personnel at GSFC
- Instrument calibration NOT impacted by filter installation; verified via Cold Target Test



Filter Installation in GMI Clean-room



89 GHz H channel loop-back

03/06/2013 10:15



89 GHz H channel filter installed

03/06/2013 14:46

- **April** ; Complete EMI testing in EMI chamber
- **May** ; Complete pre-vibe deployment and prepare for Acoustic/Shock/Vibe/Separation tests
- **June** ; Perform Acoustic/Shock/Vibe/Separation Tests
- **July** ; Post Vibe deployment and CPT
- **August/September** ; Pre-ship preparation (configuration) and test
- **October** ; Packing and shipping GSE and final preps prior to installing Observatory into the shipping container
- **Ship Date** ; End of October/early November 2013