

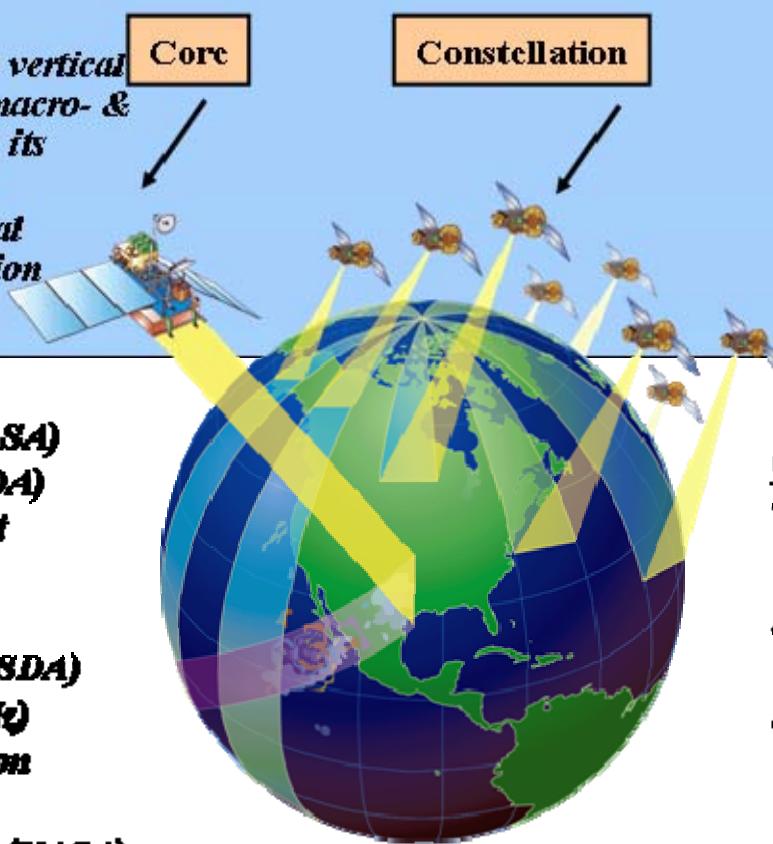
Global Precipitation Measurement (GPM)

OBJECTIVES

- Understand horizontal & vertical structure of rainfall, its macro- & micro-physical nature, & its associated latent heating
- Train & calibrate retrieval algorithms for constellation radiometers

Core

Constellation



Core Satellite

- TRMM-like spacecraft (NASA)
- H2-A rocket launch (NASDA)
- Non-sun-synchronous orbit
 - ~ 65° inclination
 - ~ 400 km altitude
- Dual frequency radar (NASDA)
Ku-Ka Bands (13.6-35 GHz)
 - ~ 4 km horizontal resolution
 - ~ 250 m vertical resolution
- Multifrequency radiometer (NASA)
10.7, 19, 22, 37, 85, 150, 183 GHz V&H

Precipitation Processing System

- Produces global precipitation products
- Products defined by GPM partners

OBJECTIVES

- Provide sufficient global sampling to significantly reduce uncertainties in short-term rainfall accumulations
- Extend scientific and societal applications

Constellation Satellites

- Pre-existing operational-experimental & dedicated satellites with PMW radiometers
- Revisit time
 - 3-hour goal at ~90% of time
- Sun-synch & non-sun-synch orbits
 - 600-900 km altitudes

Precipitation Validation Sites for Error Characterization

- Select/globally distributed ground validation "Supersites" (research quality radar, up looking radiometer-radar-profiler system, rain gauge-distrumeter network, & T-q soundings)
- Dense & frequently reporting regional rain gauge networks