

Launching a new era of weather observation

The Global Precipitation Measurement (GPM) Mission will unite a constellation of nine Earth-observing satellites to create global weather maps every three hours. GPM's Core Observatory will take detailed measurements of rain and snowfall, and use the data to calibrate and improve measurements taken by radiometers – which measure microwave radiation – carried on the other satellites



GPM constellation satellites

Tropical Rainfall Measuring Mission (TRMM)

Launched: 1997, U.S.-Japan mission

NOAA 18/19 – 2005, 2009, U.S.

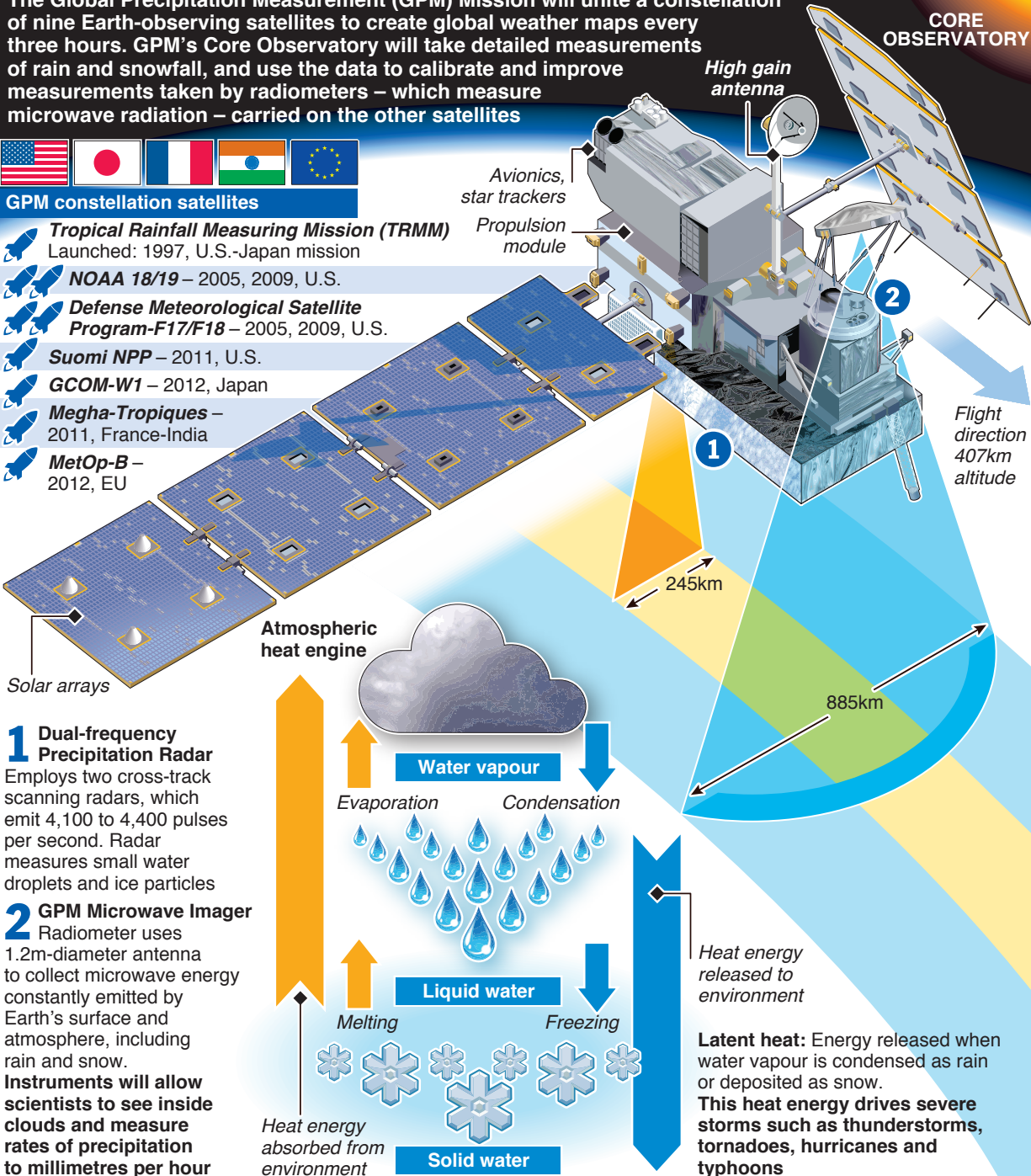
Defense Meteorological Satellite Program-F17/F18 – 2005, 2009, U.S.

Suomi NPP – 2011, U.S.

GCOM-W1 – 2012, Japan

Megha-Tropiques – 2011, France-India

MetOp-B – 2012, EU



1 Dual-frequency Precipitation Radar

Employs two cross-track scanning radars, which emit 4,100 to 4,400 pulses per second. Radar measures small water droplets and ice particles

2 GPM Microwave Imager

Radiometer uses 1.2m-diameter antenna to collect microwave energy constantly emitted by Earth's surface and atmosphere, including rain and snow.

Instruments will allow scientists to see inside clouds and measure rates of precipitation to millimetres per hour

Heat energy released to environment

Latent heat: Energy released when water vapour is condensed as rain or deposited as snow. This heat energy drives severe storms such as thunderstorms, tornadoes, hurricanes and typhoons