



The Megha-Tropiques Mission: overview of the French Science and Cal/Val plans

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The Megha-Tropiques mission is an Indo-French mission built by the Centre National d'Études Spatiales et l'Indian Space Research Organisation due to launch in 2010. Megha means cloud in Sanskrit and Tropiques is the French for tropics. The major innovation of MT is to bring together a suite of complementary instruments on a dedicated orbit that strongly improves the sampling of the water cycle elements. Indeed the low inclination on the equator (20°) combined to the elevated height of the orbit (865km) provides unique observing capabilities with up to 6 over-passes per day for the best case (Figure 8). The scientific objective of the mission concerns i) Atmospheric energy budget in the inter-tropical zone and at system scale (radiation, latent heat, ...) ii) Life cycle of Meso-scale Convective Complexes in the Tropics (over Oceans and Continents) and iii) Monitoring and assimilation for Cyclones, Monsoons, Meso-scale Convective Systems forecasting. These scientific objectives are achieved thanks to the following payload: SCARAB : wide band instrument for inferring longwave and shortwave outgoing fluxes at the top of the atmosphere (cross track scanning, 40 km resolution at nadir); SAPHIR: microwave sounder for water vapour sounding: 6 channels in the WV absorption band at 183.31 GHz. (cross track, 10 km) and MADRAS: microwave imager for precipitation: channels at 18, 23, 37, 89 and 157 GHz, H and V polarisations. (conical swath, <10 km to 40 km). In this presentation, a rapid overview of the anticipated Science and Cal/Val activities will be offered after a quick introduction to the Mission. The emphasis will be set on the instrumental combination and the associated scientific and technical challenges. Finally, the combination of this spacecraft and the other missions expected simultaneously, in particular in the framework of GPM, will be discussed.