MEGHA TROPIQUES

- Launched on October 12, 2012
- Megha-Tropiques is an Indo-French Joint Satellite Mission for studying the water cycle and energy exchanges in the tropics.
- Megha-Tropiques carries four payloads namely, MADRAS - a scanning microwave imager, SAPHIR - a millimeter wave sounder, SCARAB - scanner for radiative budget and ROSA - Radio Occultation Sounder for Atmosphere.

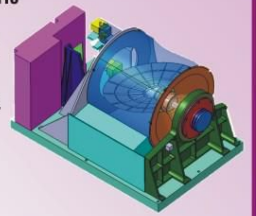
Salient Features		
Orbit Altitude	:	867 km
Inclination	:	20 deg
Period	:	102.16 min
Repetivity	:	97 orbits in 7 days
No. of orbits		
Per day	:	14 (Approx)
Lift off Mass	:	1000 kg
POWER SYSTEM		
Solar Panel	:	3 on either side generating 2000 W
Battery	:	2 x 24 AH Ni-Cd
Power Electronics	:	Dual bus system
DATA HANDLING SYSTEM		
Data rate	:	5.2 Mbps
RF System	:	S band

Microwave Analysis and Detection of Rain and Atmospheric Structures (MADRAS)

- A multi-frequency mechanically-scanning microwave imager at 18.7, 23.8, 36.5, 89 and 157 GHz at both V & H polarizations except 23.8 GHz (V only)
- Scanning at 24.14 RPM along a conical surface with 45° angle with respect to nadir
- Spatial resolution ranges from 40 km to 6 km
- Swath is about 1700 km

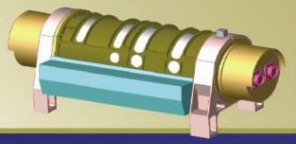
Sondeur Atmospherique du Profil d'Humidite Intertropicale par Radiometrie (SAPHIR)

- A millimetre-wave humidity sounder at 183 GHz for atmospheric profiling of humidity in the intertropics
- Mechanically scanning, across-track with an angle of ± 42.96°
- 6-channel sounder, which enables retrieving information in 6 atmospheric layers, from the Earth surface up to l2 km height
- The Dynamic range of brightness temperature - 4 K to 313 K
- Spatial resolution - 10 km
- The swath 1705 km



SCAnner for RAdiation Budget (SCARAB)

- A four-channel Earth radiation budget instrument, at 0.5-0.7 μm, 0.2-4 μm, 0.2-50 μm and 10.5-12.5 μm
- Spatial resolution of 40 km
- Measures the outgoing long wave and short-wave radiation from the top of the atmosphere.
- Swath is about 2242 km
- To provide simultaneous measurements of water vapour, clouds, condensed water in clouds, precipitation and evaporation
- To ensure high temporal sampling in order to characterize the life cycle of the convective systems and to obtain significant statistics



GPS Radio Occultation Sounder for Atmosphere (GPS-ROSA)

- Two frequency receivers L1 (1575.42 MHz) and L2 (1227.60 Mhz)
- Measures humidity and temperature profiles

ROSA Receiver

POD Antenna