

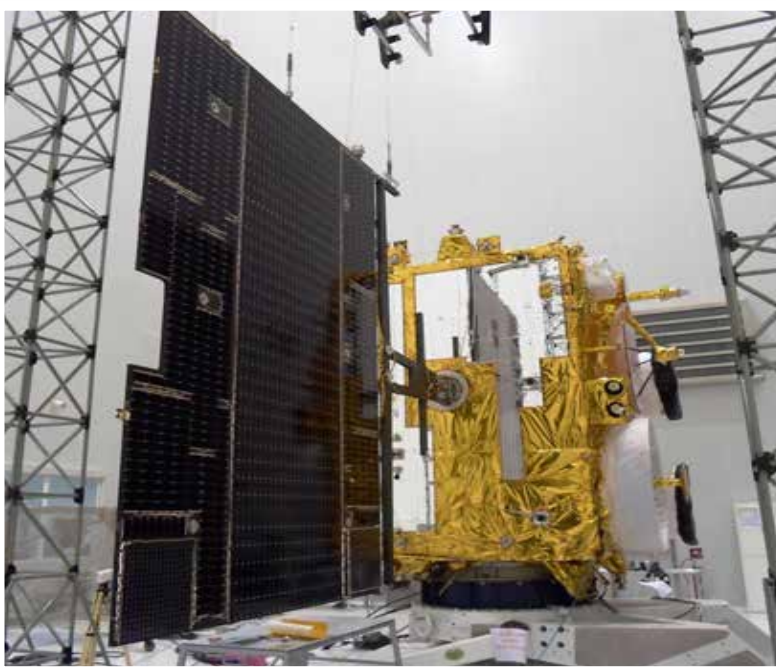
INSAT-3D MISSION

26 July, 2013

THE MISSION

India's advanced weather satellite INSAT-3D on-board the Ariane-5 VA-214 lifted-off from Kourou, French Guiana at 01:24 AM (IST) on July 26, 2013. After a flight of 32 minutes and 48 seconds, INSAT-3D was placed in an elliptical Geosynchronous Transfer Orbit (GTO), very close to the intended one. The orbit raising manoeuvres were performed on INSAT-3D using the satellite's own propulsion system to place it in the 36,000 km high Geostationary Orbit.

The satellite was placed at 82° East orbital slot. The satellite is designed for enhanced meteorological observations, monitoring of land and ocean surfaces, generating vertical profile of the atmosphere in terms of temperature and humidity for weather forecasting and disaster warning.



Ariane



INSAT-3D

THE SATELLITE

INSAT-3D is built around 1-2K bus platform. It is configured with improved Imaging System and Atmospheric Sounder. The satellite carries four payloads - 6 Channel Multi-spectral Imager, 19 Channel Sounder, Data Relay Transponder (DRT) and Search & Rescue Transponder. The payloads of INSAT-3D provide continuity and further augment the capability to provide various meteorological as well as search and rescue services.

The 19 Channel Sounder payload of INSAT-3D adds a new dimension to weather monitoring through its atmospheric sounding system, and provides vertical profiles of temperature, humidity and integrated ozone.



Data Relay Transponder, the third payload carried by INSAT-3D, receives the meteorological, hydrological, oceanographic parameters sent by Automatic Data Collection platforms located at remote uninhabited locations and relays them to a processing centre for generating accurate weather forecasts. The satellite is also equipped with a Search & Rescue payload that picks up and relays alert signals originating from the distress beacons of maritime, aviation and land based users and relays them to the mission control centre to facilitate speedy search and rescue operations.

SPECIFICATIONS

Weight	2060 kg
Power	1164 W, Two 18 Ah Ni-Cd Batteries
Stabilisation	Three axis body stabilized in orbit using Sun Sensors, Star Sensors, Gyroscopes, Momentum and Reaction Wheels, Magnetic Torquers and Thrusters
Antennae	0.9 m and 1.0 m body mounted antennae
Propulsion	440 Newton Liquid Apogee Motor (LAM) and twelve 22 Newton thrusters with Mono Methyl Hydrazine (MMH) as fuel and mixed Oxides of Nitrogen (MON-3) as oxidizer
Type of Satellite	Earth Observation
Payloads	<ul style="list-style-type: none">• 6 Channel Multi-spectral Imager• 19 Channel Sounder• Data Relay Transponder (DRT)• Search & Rescue Transponder
Mission Life	7 Years

The satellite has many new elements like the star sensor which is being flown for the first time in Geostationary Earth Orbit (GEO), micro stepping Solar Array Drive (SADA) to reduce the spacecraft disturbances and the Bus Management Unit (BMU) for control, sensor processing and telecommand / telemetry function of the satellite. INSAT-3D also incorporates new features of bi-annual rotation and Image & Mirror motion compensations for improved performance of the meteorological payloads.

ISRO has taken up the responsibility of end-to-end reception and processing of INSAT-3D data and the derivation of meteorological parameters with India Meteorological Department (IMD), New Delhi. An indigenously designed and developed INSAT-3D Meteorological Data Processing System (IMDPS) is installed and commissioned at IMD, New Delhi with a mirror site at Space Applications Centre, Ahmedabad.