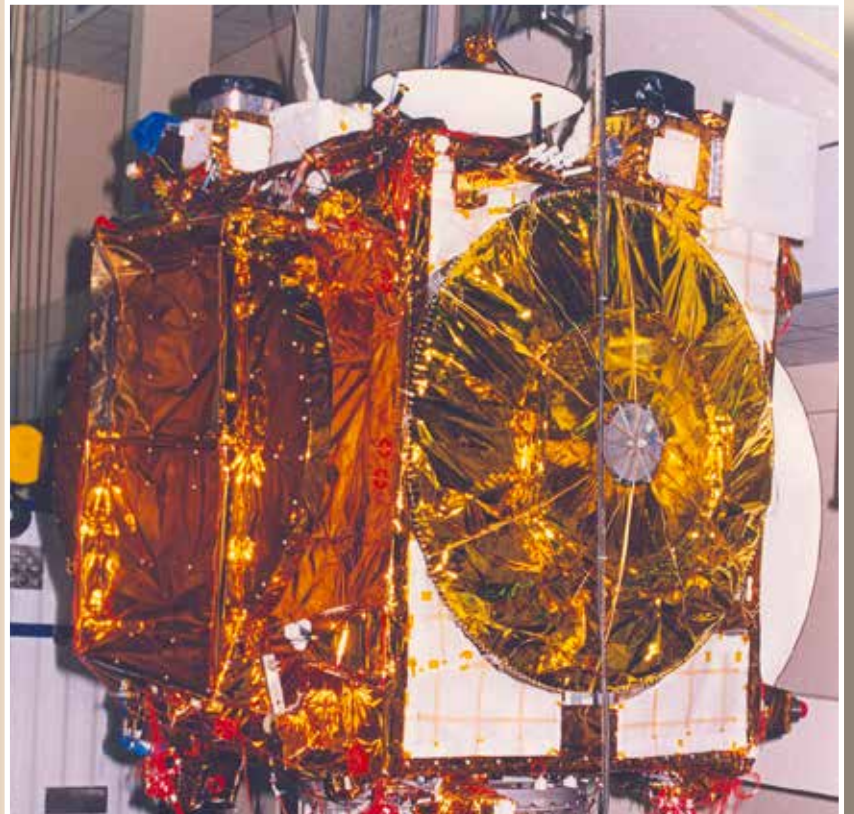


INSAT-2E Mission

03 April, 1999

THE MISSION

The Indian National Satellite (INSAT-2E) on-board the Ariane-42P lifted-off from Kourou, French Guiana on April 03, 1999. INSAT-2E, the last of the five satellites in the INSAT-2 series is a multi-purpose satellite for Telecommunication, Television Broadcasting and Meteorological Services built by ISRO.



Ariane



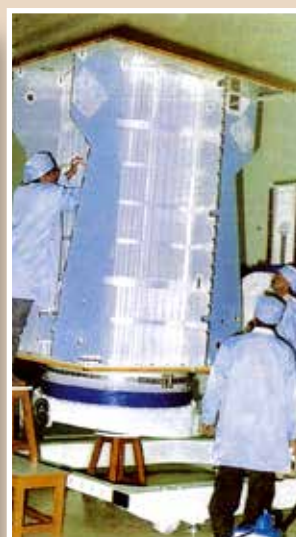
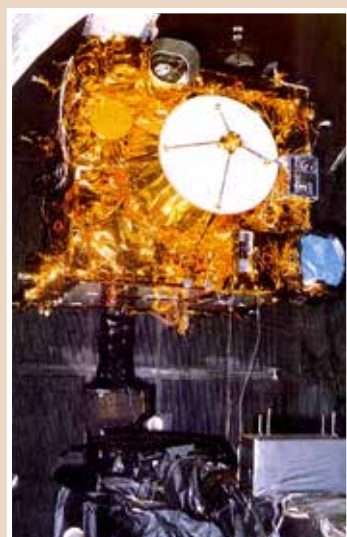
INSAT-2E

THE SATELLITE

INSAT-2E evolved as the forerunner of the future INSAT-3 bus. It carried 17 C-band including lower extended C-band transponders providing zonal and global coverage with an Effective Isotropic Radiated Power (EIRP) of 36 dBW. It also carried a Very High Resolution Radiometer (VHRR) with imaging capacity in the visible (0.55-0.75 μm), thermal infrared (10.5-12.5 μm) and water vapour (5.7-7.1 μm) channels and provided 2 km x 2 km, 8 km x 8 km and 8 km x 8 km ground resolution respectively. In addition to the above two payloads, it had a Charge Coupled Device (CCD) Camera providing 1 km x 1 km ground resolution in the Visible (0.63-0.69 μm), Near Infrared (0.77-0.86 μm) and Shortwave Infrared (1.55-1.70 μm) bands. Some of the new technologies used in the INSAT-2E spacecraft were corrugated central cylinder for housing propellant tanks, embedded heat pipe panels for spacecraft equipment mounting, GaAs / Ge solar cells for power generation, Nickel Hydrogen cells for battery realization, shaped memory alloy principle – based solar flap for compensation in seasonal variations in solar radiation pressure, usage of ASICs in bus systems like telemetry, telecommand electronics and attitude and orbit control electronics, large scale usage of hybrid micro circuits, shaped beam dual gridded reflectors for communication payload operations, linear CCD array providing 1 km resolution imagery from geostationary altitude, modular tray designs for bus system package realization etc.

THE ACHIEVEMENTS OF INSAT-2E

- Design and development of new bus, a forerunner of third generation satellite employing ASICs, HMCs and new generation radiation hardened processors.
- Heat pipe embedded panels for thermal design.
- Electrical and mechanical design techniques for all designs of dual gridded antenna.
- Provided satisfying service to the discerning international service provider INTELSAT and also Indian TV broadcasters in the private sector.
- Interfacing, managing and handling of international service providers like INTELSAT and private TV broadcasters.
- Exploiting the design capability of controlling the attitude of the satellite using gyros with reference derived from VHRR, CCD Camera and Solar Panel Sun Sensor and signals from ground antennae located in Russia and Sri Lanka, due to non-availability of Earth sensors for control, uniquely evolved new techniques.



SPECIFICATIONS

Weight	2550 kg
Power	2150 W
Stabilization	3-axis body stabilized using Bipropellant Thrusters, Momentum Wheels / Reaction Wheels & Magnetic Torquers
Type of Satellite	Communication
Payloads	<ul style="list-style-type: none">• 12 C-band Transponders• 5 extended C-band Transponders• 1 Data Relay Transponder• 1 SAR Transponder• VHRR / CCD Array
Mission Life	13 Years