

PSLV-C2 / OCEANSAT-1 (IRS-P4) MISSION

26 May, 1999

THE MISSION

PSLV-C2 carrying on-board the OCEANSAT-1 (IRS-P4) lifted-off from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota on May 26, 1999. Along with OCEANSAT-1 (IRS-P4) two more co-passenger satellites Korean KITSAT-3 and German DLR-TUBSAT as auxiliary payloads were injected into the same 727 km Polar Sun-synchronous soon after primary satellite separation. It was for the first time that ISRO launched three satellites in a single vehicle. The mission completed on August 8, 2010 after serving for 11 years and 2 months.

PSLV - C 2

THE LAUNCH VEHICLE

The PSLV-C2 was the second operational flight of PSLV. The vehicle configuration for PSLV-C2 is essentially same as PSLV-C1. It is configured as a 44.4 m tall, with a lift-off weight of 294 tonne, and a four stage vehicle employing solid propellant stages in the first and third stages and liquid propellant stages in the second and fourth stages. It also employs six solid propellant strap-on motors for the first stage. Special interface provisions were created on the vehicle to mount these 3 satellites and separate them at the appropriate time.

SPECIFICATIONS

Height	44.4 m	
Lift-Off Mass	294 t	
No of Stages	4	
Payloads	OCEANSAT-1 (IRS-P4)	2 International Customer Satellites Korea (1) Germany (1)
Orbit Height	727 km	
Inclination (deg)	98.286 ± 0.2°	
Launch Azimuth	140°	



OCEANSAT-1 (IRS-P4)

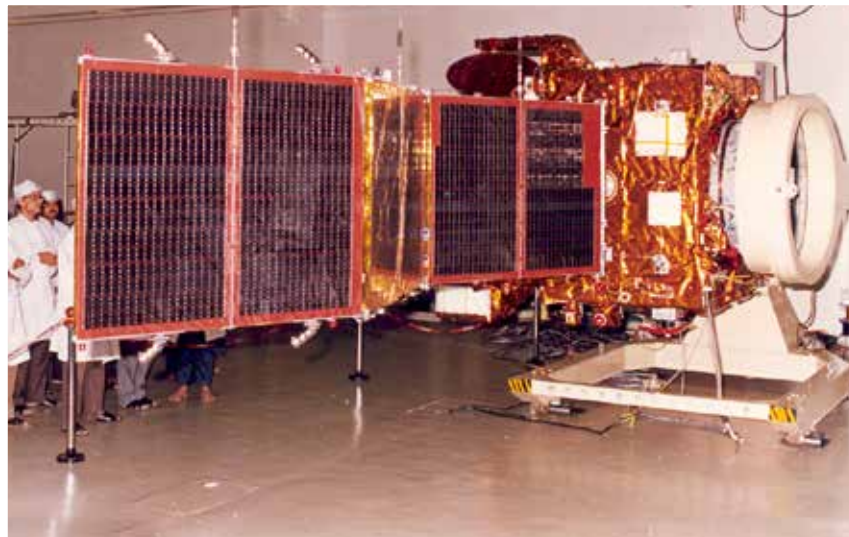
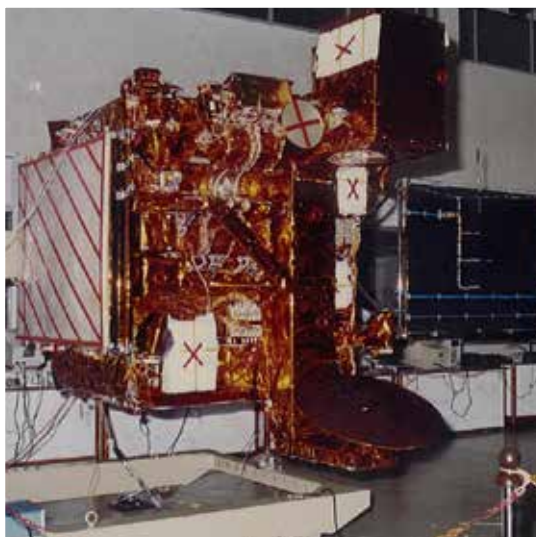
THE SATELLITE

OCEANSAT-1 (IRS-P4) is the first satellite primarily built for ocean applications. This satellite carried an Ocean Colour Monitor (OCM) and a Multifrequency Scanning Microwave Radiometer (MSMR) for oceanographic studies. OCM was a solid state camera operating in eight narrow spectral bands. The camera was used to collect data on chlorophyll concentration, detect and monitor phytoplankton blooms and obtain data on atmospheric aerosols and suspended sediments in the water. MSMR, which operated in four microwave frequencies both in vertical and horizontal polarization was used to collect data on sea surface temperature, wind speed, cloud water content and water vapour content in the atmosphere above the ocean.

IRS-P4, thus, is vastly augmented the IRS satellite system of ISRO comprising four satellites, IRS-1B, IRS-1C, IRS-P3 and IRS-1D and extended remote sensing applications to several new areas. The satellite was placed in a 720 km Polar Sun-synchronous Orbit inclined at 98.28° which is a recurrent orbit and goes round the globe, pole to pole, 29 times in two days. This orbit allowed a systematic coverage of Earth surface once in two days by OCM and full daily coverage by MSMR. The satellite bus was derived from proven IRS bus platform. However, large scale improvements in most of the subsystems were carried out to improve their performance parameters.

SPECIFICATIONS

Weight	1050 kg
Power	800 W
Stabilization	3-axis body stabilized (zero momentum) with Reaction Wheels, Magnetic Torquer
Type of Satellite	Earth Observation
Payloads	<ul style="list-style-type: none">• Ocean Colour Monitor (OCM)• Multi-frequency Scanning Microwave Radiometer (MSMR)
Mission Life	11 years and 2 months



THE INTERNATIONAL CUSTOMER SATELLITES

The Antrix Corporation, the commercial front of the Department of Space, markets PSLV launch services on behalf of ISRO. The 2 auxiliary passenger satellites were Korean KITSAT-3 and German DLR-TUBSAT.

KITSAT-3

THE SATELLITE

KITSAT-3 is developed by Korea Advanced Institute of Science & Technology, South Korea. It is the third experimental Microsatellite realised by KAIST.



SPECIFICATIONS

Weight	110 kg
Power	180 W
Stabilization	3-axis stabilized attitude control with Star Sensors, Fibre Optic Gyros, Magnet Torquers and Reaction Wheels
Type of Satellite	Microsatellite
Payloads	Remote Sensing Payloads <ul style="list-style-type: none">• 15 m Ground Resolution• 3 Channel Linear CCD Camera Space Science Payloads <ul style="list-style-type: none">• Radiation effects on Microelectronics• High Energy Particle Telescope• Scientific Magnetometer• Electron Temperature Probe

DLR-TUBSAT

THE SATELLITE

DLR-TUBSAT is a joint project of DLR Institute of Space Sensor Technology and the Technical University of Berlin, Germany. The Microsatellite is mainly used to carry out tests involving exact three axis attitude control and to qualify different subsystems with regard to their tasks in target pointing and high resolution Earth Observation.

SPECIFICATIONS

Weight	45 kg
Stabilization	3 Reaction Wheels, 3 Fibre Optic Laser Gyros, 3-axis Star Sensor
Type of Satellite	Microsatellite
Payloads	Three digital cameras with 16 mm and 50 mm wide angle lens and 1000 mm telebus

