

PSLV-C1 / IRS-1D Mission

29 September, 1997

THE MISSION

PSLV-C1 carrying on-board the Indian Remote Sensing Satellite (IRS-1D) lifted-off from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota on September 29, 1997. PSLV-C1 was deployed on its first operational mission of launching Indian Remote Sensing Satellite IRS-1D into 817 km Sun-synchronous Polar Orbit. The launch of this satellite demonstrated the country's total self-reliance in this vital application area. The mission completed during January 2010 after serving for 12 years and 3 months.

PSLV - C 1

THE LAUNCH VEHICLE

The payload capability of the PSLV-C1 was enhanced to 1200 kg for the mission to meet the mission requirement. This had been achieved mainly through increase in the first and second stage propellant loading, altering the sequence of ignition of the strap-ons and reduction in inert mass of the fourth stage of the launch vehicle. The PSLV with an overall height of 44.4 m and lift-off mass of 294 tonnes is configured as a four stage vehicle with alternate solid and liquid propulsion modules. The first stage motor of PSLV-C1 carried 138 tonnes of solid propellant and measured 2.8 m in diameter. The motor case was made of indigenously produced high metal steel.

PSLV was guided and controlled in all the three axis from lift-off to spacecraft injection by the Navigation, Guidance and Control System (NGC) housed in the equipment bay. The closed loop guidance scheme resident in the on-board computer ensured the required accuracy of the injection conditions. The three axis attitude stabilisation of the vehicle is achieved by the autonomous control systems provided in each stage.

SPECIFICATIONS

Height	44.4 m
Lift-Off Mass	294 t
No of Stages	4
Payloads	IRS-1D
Orbit Height	817 km
Inclination (deg)	$98.731 \pm 0.2^{\circ}$
Launch Azimuth	140°

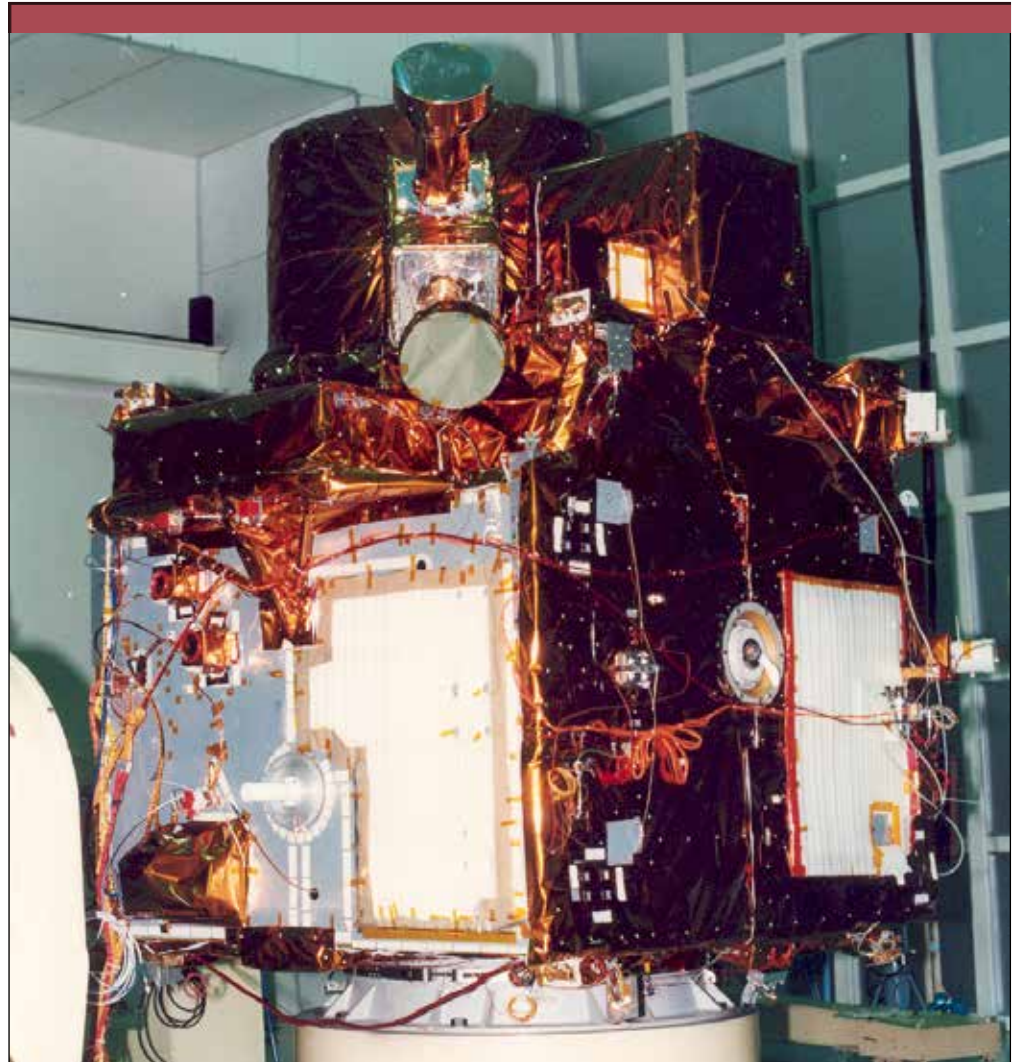


IRS-1D

THE SATELLITE

IRS-1D, a follow-on satellite to IRS-1C belongs to the second generation of IRS series of Satellites. IRS-1D, like its predecessor IRS-1C carried a combination of three cameras – a Panchromatic Camera (PAN) with a spatial resolution of 5.8 m, Linear Imaging Self Scanner (LISS-3) operating in four spectral bands with spatial resolution of 23.5 m in visible and near infrared bands and 70.5 m in short wave infrared band and a Wide Field Sensor (WiFS) with a spatial resolution of 188 m.

IRS-1D has similar capabilities as IRC-1C in terms of spatial resolution, spectral bands, stereoscopic imaging, wide field coverage and revisit capability. The improvements carried out in the IRS-1D satellite taking into account the IRS-1C experiences have resulted in better quality imageries. Availability of high resolution data from IRS-1D and its predecessor IRS-1C have enabled new Remote Sensing Applications to be taken up, especially; in the areas of urban sprawl, infrastructure planning and other large scale thematic mapping.



SPECIFICATIONS

Weight	1250 kg
Power	809 W
Stabilization	3-axis body stabilized (zero momentum) with 4 Reaction Wheels, Magnetic Torquer
Type of Satellite	Earth Observation
Payloads	<ul style="list-style-type: none">• PAN• LISS-3• WiFS
Mission Life	12 years and 3 months

