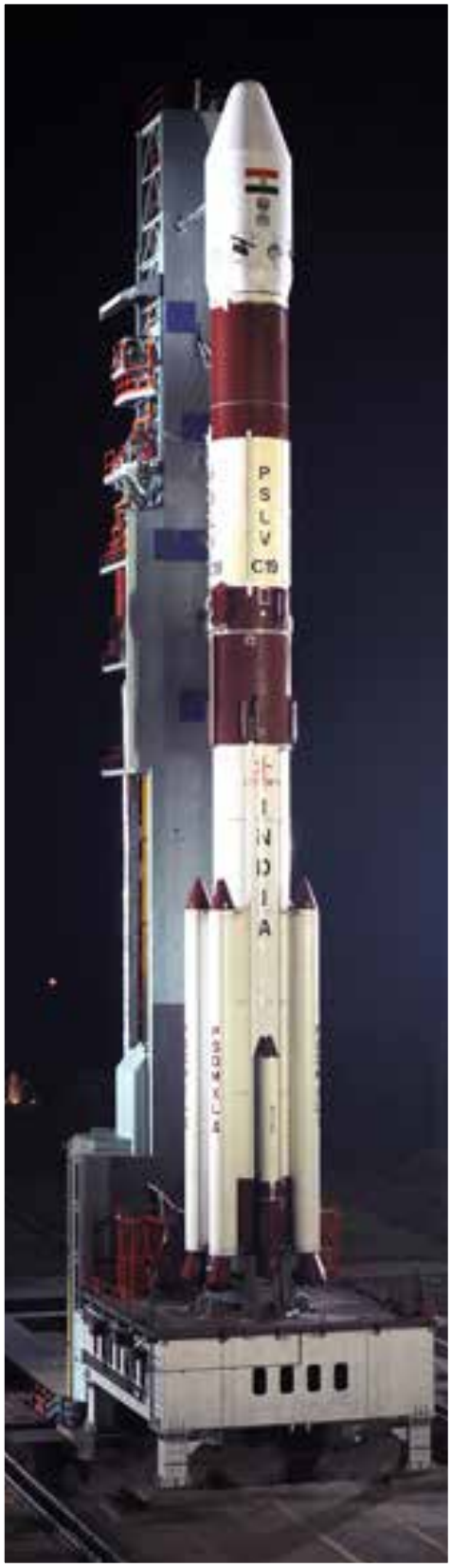
PSLV-C19 / RISAT-1 Mission

26 April, 2012

THE MISSION

PSLV-C19 carrying on-board the RISAT-1 Satellite lifted-off from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota at 05:47 AM (IST) on April 26, 2012. PSLV-C19 will place RISAT-1 into a Polar Circular Orbit of 480 km and an orbital inclination of 97.552^0. The satellite will be put in its final orbital configuration at 536 km altitude using thrusters on-board the satellite.

RISAT-1, the Radar Imaging Satellite is intended to provide services in areas of agriculture, particularly paddy monitoring in kharif season and management of natural disasters like flood and cyclone.



PSLV-C19

THE LAUNCH VEHICLE

PSLV-C19 in its 21st flight used the 'XL' configuration, each carrying 12 tonnes of solid propellant. This is the 3rd time the 'XL' variant of PSLV has been flown.

SPECIFICATIONS

Height	44.5 m
Lift-Off Mass	320 t
No of Stages	4
Payloads	RISAT-1
Inclination (deg)	97.552^0

STAGE CHARACTERISTICS				
	Stage-1	**Stage-2**	**Stage-3**	**Stage-4**
Nomenclature	Core Stage (PS1) + 6 Strap-on Motors	PS2	PS3	PS4
Propellant	Solid (HTPB based)	Liquid (UH25 + N_2O_4)	Solid (HTPB based)	Liquid (MMH + MON-3)
Mass (t)	138.0 (Core), 6 x 12.0 (Strap-on)	41.7	7.6	2.5
Max Thrust (kN)	4819 (Core), 6 x 716 (Strap-on)	804	240	7.3 x 2
Burn Time (sec)	101.5 (Core), 49.5 (Strap-on)	149	112.1	523
Stage Dia (m)	2.8 (Core), 1.0 (Strap-on)	2.8	2.0	2.8
Stage Length (m)	20 (Core), 14.7 (Strap-on)	12.8	3.6	2.6

RISAT-1

THE SATELLITE

RISAT-1 is a state-of-the-art Microwave Remote Sensing Satellite carrying a Synthetic Aperture Radar (SAR) Payload operating in C-band (5.35 GHz), which enables imaging of the surface features during day and night under all weather conditions and applications in agriculture, particularly paddy monitoring in kharif season and management of natural disasters like flood and cyclone. This satellite will orbit 14 times per day, with the repetivity of 25 days.

As compared to the optical remote sensing satellites that depend upon sunlight, the Synthetic Aperture Radar of RISAT-1 transmits its own radar pulses (at 5.35 GHz) to study the objects on Earth. This facilitates cloud penetration and imaging even without sunlight. For RISAT-1, imaging sessions around both 6 AM and 6 PM have been chosen.

SPECIFICATIONS

Weight	1858 kg
Power	2200 W, One 70 AH Ni-H2 Battery
Stabilisation	Three axis body stabilised using Reaction Wheels, Magnetic Torquers and Hydrazine Thrusters
Type of Satellite	Earth Observation
Payloads	Synthetic Aperture Radar (SAR) Payload
Mission Life	5 Years