

PSLV-C40 / Cartosat-2 Series Mission

12 January, 2018

THE MISSION

PSLV-C40 carrying on-board the Cartosat-2 Series Satellite lifted-off from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota at 09:29 AM (IST) on January 12, 2018. Cartosat-2 Series was launched into a 505 km Polar Sun-synchronous Orbit. Subsequently, the Microsat Satellite, built by ISRO, was placed at 365 km into a Polar Sun-synchronous Orbit. The 30 co-passenger satellites involved 1 Microsatellite and 1 Nanosatellite from India and 3 Microsatellites and 25 Nanosatellites from Canada, Finland, France, Republic of Korea, UK and USA.

Cartosat-2 Series, the primary satellite of this mission is a Remote Sensing Satellite carried by PSLV-C40. Microsat is a small satellite which derives its heritage from IMS-1 bus. The Indian Nanosatellites (INS) is a versatile and modular Nanosatellite bus system envisioned for future science and experimental payloads. The total weight of all the 31 satellites carried on-board PSLV-C40 is about 1323 kg.

PSLV - C40

THE LAUNCH VEHICLE

This was the 42nd flight that had crossed yet another milestone by placing multiple satellites in two different orbits.

SPECIFICATIONS

Height	44.4 m	
Lift-Off Mass	320 t	
No of Stages	4	
Payloads	<ul style="list-style-type: none"> • Cartosat-2 Series • Microsat • INS-1C 	28 International Customer Satellites Canada (1), Finland (1), France (1), Republic of Korea (5), UK (1), USA (19)
Inclination (deg)	97.55°	
Launch Azimuth	140°	
Launch Pad	First Launch Pad (SDSC, SHAR)	



CARTOSAT-2 Series

THE SATELLITE

This Remote Sensing Satellite is similar in configuration to earlier satellites in the series and is intended to augment data services to the users. After placing it into its designated orbit, it began providing regular remote sensing services using its Panchromatic and Multi-spectral Cameras. The imagery sent by the satellite will be useful for cartographic applications, urban and rural applications, coastal land use and regulation, utility management like road network monitoring, water distribution, creating of land use maps, change detection to bring out geographical and manmade features and various other Land Information System (LIS) as well as Geographical Information System (GIS) applications.

SPECIFICATIONS

Weight	710 kg
Power	986 W, Two Li-Ion batteries
Stabilisation	Reaction wheels, Magnetic Torquers and Hydrazine Thrusters
Type of Satellite	Earth Observation
Payloads	<ul style="list-style-type: none">• Panchromatic• Multi-spectral Cameras
Mission Life	5 Years



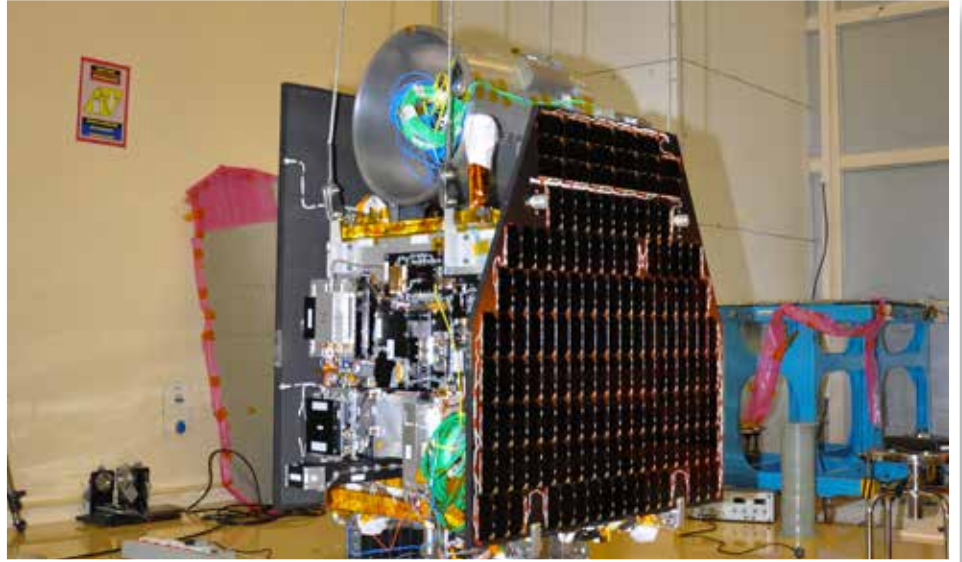
MICROSAT

THE SATELLITE

Microsat is a small satellite which derives its heritage from IMS-1 bus. This is a technology demonstrator and the forerunner for future satellites of this series. The satellite bus is modular in design and can be fabricated and tested independently of payload.

SPECIFICATIONS

Weight	100 kg
Type of Satellite	Small Satellite



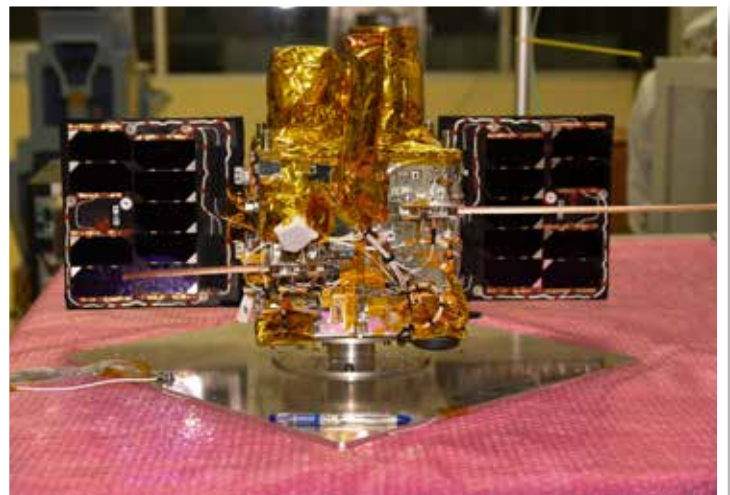
INS-1C

ISRO NANOSATELLITES

The Indian Nanosatellites-1C (INS-1C) is a versatile and modular Nanosatellite bus system envisioned for future science and experimental payloads. With a capability to carry up to 3 kg of payload and a total satellite mass of 11 kg, it offers immense opportunities for future use. The INS system is developed as a co-passenger satellite to accompany bigger satellites. It carried a Miniature Multi-spectral Technology Demonstration (MMX-TD) payload. Data sent by this camera can be utilized for topographical mapping, vegetation monitoring, aerosol scattering studies and cloud studies. It also provides a standard satellite bus for launch on demand services and providing opportunity to carry innovative payloads. It is the third satellite from the Indian Nanosatellite series.

SPECIFICATIONS

Weight	11 kg
Power	27 W, 11.2 Ah Li-Ion battery
Stabilisation	Attitude Sensors: Star Sensors, MEMS IMU, Micro Sun Sensors, Digital Magnetometer Actuators: Four Reaction Wheels, Magnetic Torquers
Type of Satellite	Nanosatellite
Payloads	MMX-TD
Mission Life	6 Months



THE INTERNATIONAL SATELLITES

Satellite	No. of Satellite	Country	Mission Objectives
Telesat Phase-1 LEO	1	Canada	Ka-band communication satellite meant for demonstrating the capability of satellite and customer terminal for delivering low latency broadband experiences
POC-1	1	Finland	SAR Payload Proof of Concept Demonstration
PICSAT	1	France	Measurement of exoplanetary transits
CANYVAL-X	1	Republic of Korea	To demonstrate astronomy with virtual telescope
CNUSAIL-1	1		To demonstrate solar sail technology
KAUSAT-5	1		Infrared Imaging of the Earth
SIGMA	1		To demonstrate probing of space radiation
STEP CUBE LAB	1		To demonstrate thruster, radiator and heat pipe technologies
CBNT-2	1	UK	CBNT-2 is an Earth Observation technology demonstration mission, to test and validate a high definition imagery and video system
Flock-3P	4	USA	Earth Observation
LEMUR	4	USA	Automatic Identification System (AIS) for Vessel Monitoring
Demosat-2	1	USA	UHF Radio Test
Micromas-2	1	USA	Microwave Radiometer Test
Tyvak-61C	1	USA	To catalogue variability of Luminous Stars
SpaceBEE	4	USA	Two-way Satellite Communication and Data Relay
Fox-1D	1	USA	Amateur Radio Communications
Corvus BC3	1	USA	Multi-spectral Remote Sensing
Arkyd-6	1	USA	Demonstration of core technology for use in asteroid exploration
CICERO-7	1	USA	To measure global weather patterns with high accuracy using a GPS Radio Occultation Sensor



Telesat Phase-1 LEO



PICSAT



CANYVAL-X



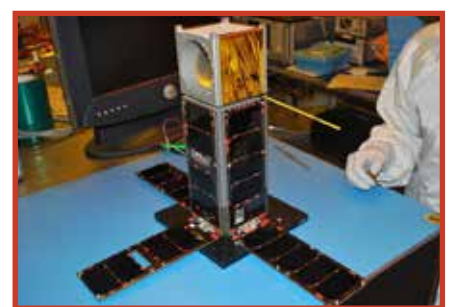
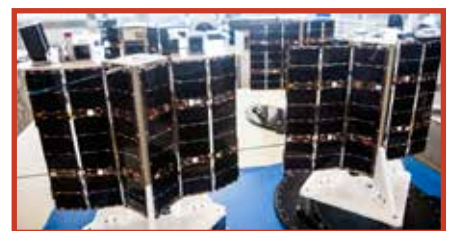
KAUSAT-5



CBNT-2



LEMUR



Micromas-2