

# PSLV-C37 / Cartosat-2 Series Mission

15 February, 2017

## THE MISSION

PSLV-C37 carrying on-board the Cartosat-2 Series Satellite lifted-off from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota at 09:28 AM (IST) on February 15, 2017. About 16 minutes 48 seconds after lift-off the satellites achieved a polar Sun-synchronous Orbit of 506 km inclined at an angle of 97.46° to the Equator (very close to the intended orbit) and in the succeeding 12 minutes, all the 104 satellites successfully separated from the PSLV fourth stage in a predetermined sequence beginning with Cartosat-2 Series Satellite, followed by INS-1 and INS-2.

The Cartosat-2 Series Satellite is the primary satellite of this mission. It provides regular remote sensing services using its Panchromatic and Multi-spectral Cameras. The 2 co-passenger ISRO Nanosatellites INS-1A and INS-1B were also on-board along with the 101 International Customer Nanosatellites.



## PSLV - C 3 7

### THE LAUNCH VEHICLE

PSLV-C37 in its 39<sup>th</sup> flight was in 'XL' configuration with the use of solid strap-on motors. PSLV-C37 made history with the successful insertion of all the 104 satellites on-board.



### SPECIFICATIONS

<b>Height</b>	44.4 m	
<b>Lift-Off Mass</b>	321 t	
<b>No of Stages</b>	4	
<b>Payloads</b>	<ul style="list-style-type: none"> <li>• Cartosat-2</li> <li>• INS-1A</li> <li>• INS-1B</li> </ul>	<b>101 International Customer Satellites</b>
<b>Orbit Height</b>	506 km	
<b>Inclination (deg)</b>	97.46°	
<b>Launch Pad</b>	First Launch Pad (SDSC, SHAR)	



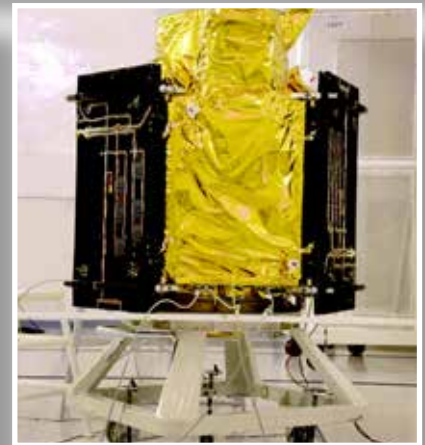
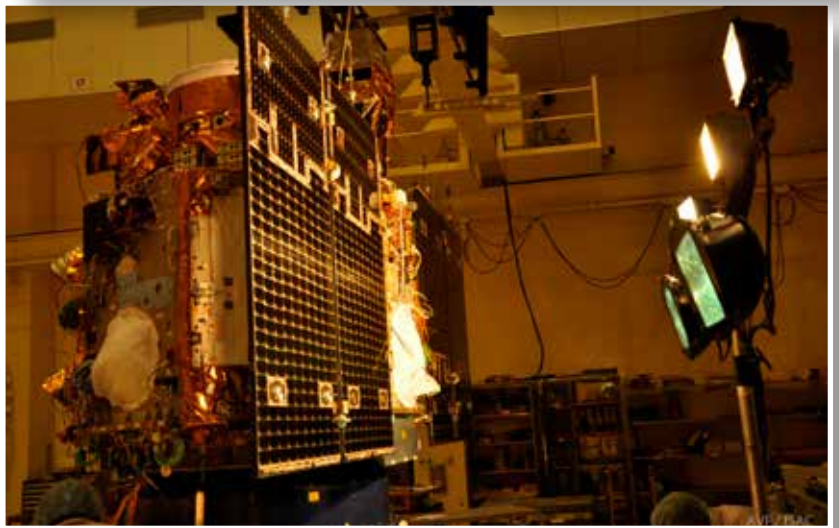
# CARTOSAT-2 Series

## THE SATELLITE

The Cartosat-2 Series Satellite is similar to the earlier four satellites of the Cartosat-2 Series. The imageries from Cartosat-2 Series Satellite will be useful for cartographic applications, urban and rural applications, coastal land use and regulation, utility management like road network monitoring, water distribution, creation of land use maps, change detection to bring out geographical and man-made features and various other Land Information System (LIS) and Geographical Information System (GIS) applications.

### SPECIFICATIONS

<b>Weight</b>	714 kg
<b>Power</b>	986 W; Two Li-Ion batteries
<b>Stabilisation</b>	Reaction wheels, Magnetic torquers and Hydrazine thrusters
<b>Type of Satellite</b>	Earth Observation
<b>Payloads</b>	<ul style="list-style-type: none"><li>• Panchromatic Camera</li><li>• Multi-spectral Camera</li></ul>
<b>Mission Life</b>	5 Years



# INS-1A & INS-1B

## THE SATELLITES

ISRO Nanosatellites (INS) 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 and its primary objectives include providing a standard satellite bus for launch on demand services and providing opportunity to carry innovative payloads for Universities / R&D Laboratories.

INS-1A and INS-1B carry a total of four different payloads from Space Applications Centre (SAC) and Laboratory for Electro Optics Systems (LEOS) of ISRO for conducting various experiments.

SBR payload from SAC measures the Bidirectional Reflectance Distribution Function (BRDF) of the Earth surface and will take readings of the reflectance of different surface features due to sun albedo. SEUM payload from SAC monitors Single Event Upsets occurring due to high energy radiation in the space environment in Commercial Off The Shelf (COTS) components.



### SPECIFICATIONS

	INS-1A	INS-1B
<b>Weight</b>	8.4 kg	9.7 kg
<b>Type of Satellite</b>	Nanosatellite	
<b>Payloads</b>	<ul style="list-style-type: none"> <li>• Surface Bidirectional Reflectance Distribution Function Radiometer (SBR)</li> <li>• Single Event Upset Monitor (SEUM)</li> </ul>	<ul style="list-style-type: none"> <li>• Earth Exosphere Lyman Alpha Analyser (EELA)</li> <li>• Origami Camera</li> </ul>
<b>Mission Life</b>	6 Months	

EELA payload from Laboratory for Electro Optics Systems, registers terrestrial exospheric line-of-sight neutral atomic hydrogen Lyman-alpha flux. Besides, it will estimate the interplanetary hydrogen Lyman-alpha background flux by means of deep space observations. Origami Camera payload from SAC is a Remote Sensing Colour Camera with a novel lens assembly for optical realisation in small package. There is scope for its future scalability and utilisation in regular satellites.

## THE INTERNATIONAL CUSTOMER SATELLITES

Satellite	No. of Satellite	Country	Mission Objectives
DOVE (Flock-3P)	88	USA	Remote Sensing
LEMUR	8	USA	Vessel Tracking using Automatic Identification System (AIS), Weather Measurement using GPS Radio Occultation
PEASSS	1	The Netherlands	Technology Demonstrator Nanosatellite
DIDO-2	1	Switzerland	Microgravity Research Nanosatellite
BGUSat	1	Israel	Technology Demonstrator for Nanosatellite Avionics Systems
Al-Farabi-1	1	Kazakhstan	Technology Demonstrator Nanosatellite
Nayif-1	1	UAE	Technology Demonstrator Nanosatellite