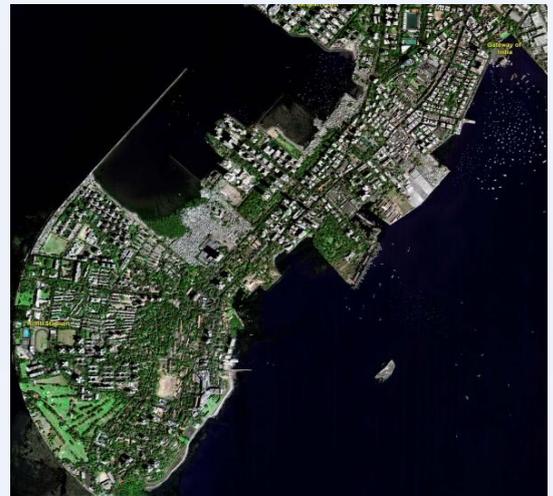# nrsc
CARTOSAT - 3

Cartosat-3 was launched successfully by ISRO's Polar Satellite Launch Vehicle (PSLV-C47), along with 13 co-passenger satellites at 09:28 hours IST on November 27th, 2019 from Satish Dhawan Space Centre (SDSC), Sriharikota, Andhra Pradesh.

Cartosat-3 is a third generation, agile and advanced satellite, with very high resolution imaging capability. Cartosat-3 provides Panchromatic imagery with a resolution of 0.28m and Multispectral imagery in four spectral bands with a spatial resolution 1.12 m, with a nominal swath of ~17 Km. The satellite is capable of steering up to $\pm45°$ and $\pm26°$ along and across the track respectively.

Major advancements in Cartosat-3

• X and Ka-band transmission and reception to handle high data rates.
  •X band data rate 960 Mbps .
  •Ka Band data rate is 2880 Mbps.

• Time Delay Integration (TDI) to achieve better Signal-to-Noise Ratio (SNR).
• Continuous imaging capability to cover long strips up to 4200 Km.
• Capability to image up to 28 spots in one orbit
• 11-bit radiometric resolution
• SSR Capacity 3 x 1.2 Tb.
• CMG and FOG to provide better attitude control.

Salient Features	
Satellite Mass (kg)	1625 Kg
Orbit Type	Polar, Sun Synchronous (SSO)
Orbit Height (Km)	505 Km
Orbit Inclination (deg.)	97.42 deg.
Local Time of Equator Crossing	9:30 am

On the first day of imaging (1st Dec 2019), Panchromatic and Multispectral images will be captured in **orbit 62.**

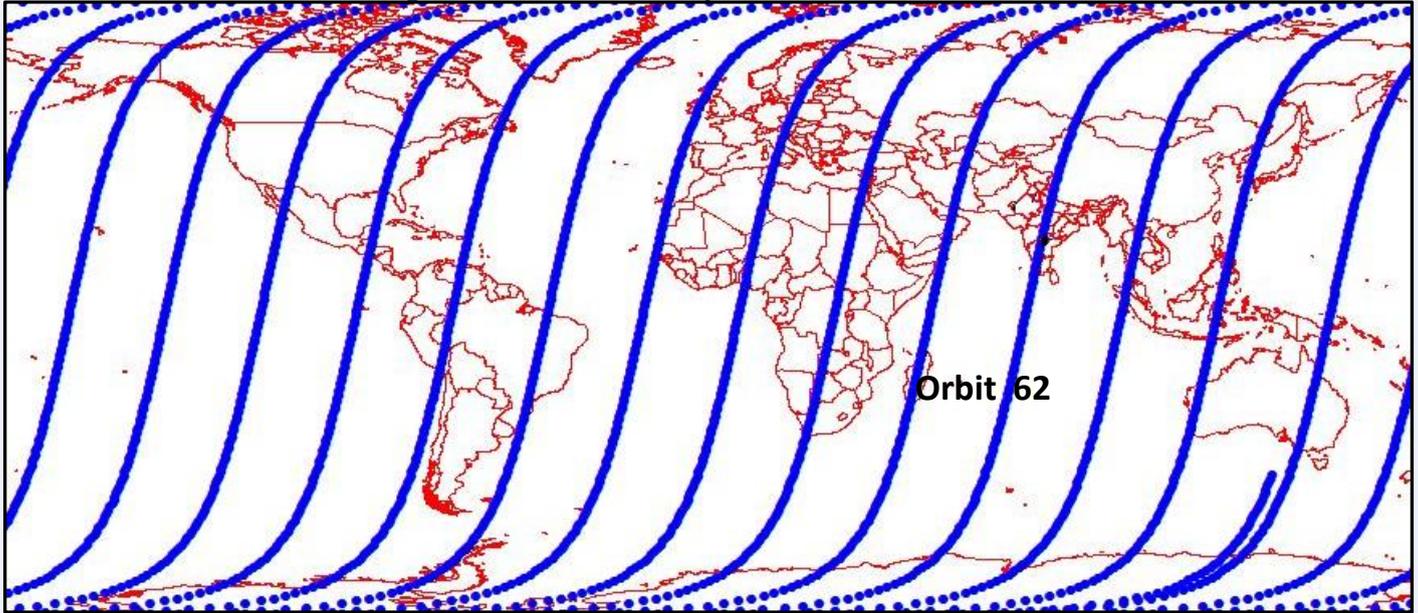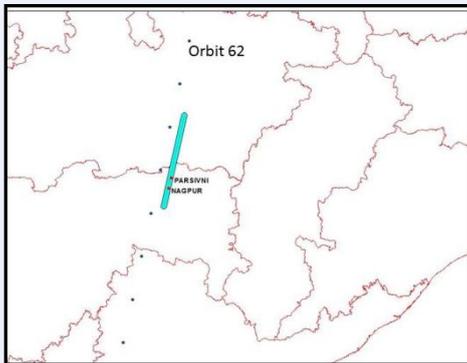## Fig 1: Cartosat- 3 Orbit pattern on 01-Dec-2019

Orbit 62

Fig 2 : Imaging strip in Orbit 62

Date of Pass	Orbit Number	Location / Length of the strip/ Imaging mode / imaging and play back duration
01-Dec-2019	62	Nagpur 200 Km Strip Along Track 4:25:44.614 T0 4:26:17.894 (UTC)

Sensor Parameters

PARAMETERS	PAN	MULTISPECTRAL
Ground Sampling Distance (GSD)	0.28 m	1.12 m
Swath	~17 Km	~17 Km
Spectral Bandwidth (µm)	0.45 - 0.9	B1:0.45 - 0.52 B2:0.52 - 0.59 B3:0.62 - 0.68 B4:0.77 - 0.86
Quantisation	11 Bits	11 Bits
Nominal TDI Stages	45	45
No. of Detectors	24	24
SSR Capacity (3Nos)	3.6 Tb	

Cartosat-3 data will meet the increasing user demands for cartographic applications at cadastral level, Precision farming, crop insurance, taxation, disasters at micro level, urban and rural resource management, coastal land use and regulation, utility mapping and GIS applications. This is achieved with its agility and revisit and imaging capability.

The following Cartosat- 3 data products will be offered.

- ❖ Georeferenced/Orthokit
- ❖ Orthorectified
- ❖ Pan + Mx Bundle/Merged
- ❖ Mosaic Products

Currently only Standard products are made available to the users