**Astrosat**

Astrosat is India's first dedicated multi-wavelength space telescope. It was launched on a PSLV-XL on 28 September 2015. With the success of this satellite, ISRO has proposed launching AstroSat-2 as a successor for Astrosat.

Astrosat looks at things in space using different types of light like radio, optical, IR, UV, and X-rays. It can study specific things or look at many things all at once. Astrosat uses special equipment on the satellite to study light that can't be seen from the ground like UV, X-rays and visible light. But for radio, optical, and IR observations, they use telescopes on the ground to help.

The people who control the spacecraft and download its scientific data can communicate with it when it passes over Bangalore. They can see it for 10 out of 14 times a day. Every day, the satellite can collect a lot of data, 420 gigabits of it. The people at the ISRO center in Bangalore can download this data during the 10 times that they can see the satellite. In July 2009, a third 11-meter antenna was added to the Indian Deep Space Network (IDSN) to help track Astrosat.

**Objectives:**

Its main purpose is to do scientific research on:

* Simultaneous multi-wavelength monitoring of intensity variations in a broad range of cosmic sources
* Monitoring the X-ray sky for new transients
* Sky surveys in the hard X-ray and UV bands
* Broadband spectroscopic studies of X-ray binaries, AGN, SNRs, clusters of galaxies, and stellar coronae
* Studies of periodic and non-periodic variability of X-ray sources

**Payloads:**

* Ultra Violet Imaging Telescope (UVIT)
* Soft X-ray imaging Telescope (SXT)
* Large Area X-ray Proportional Counter (LAXPC)
* Cadmium Zinc Telluride Imager (CZTI)
* Scanning Sky Monitor (SSM)
* Charged Particle Monitor (CPM)

**Achievements:**

* A gamma-ray burst was detected by Astrosat on 5 January 2017.The gamma-ray burst was identified as a distinct supernova explosion that would form a black hole
* Astrosat also captured the rare phenomenon of a 6 billion year old small star or blue straggler feeding off and sucking out the mass and energy of a bigger companion star.
* On 31 May 2017, Astrosat, Chandra X-ray Observatory and Hubble Space Telescope simultaneously detected a coronal explosion on the nearest planet-hosting star Proxima Centauri
* In July 2018, Astrosat has captured an image of a special galaxy cluster that is more than 800 million light years away from Earth. Named abell 2256 the galaxy cluster is made of three separate cluster of galaxy that are all merging with one another to eventually form a single massive cluster in the future.
* AstroSat saw something special in 2019. It saw a burst of X-rays from a rare type of system called a Be/X-ray binary system. This system has a neutron star in it, and only a few outbursts like this have been seen before.
* In August 2020, AstroSat had detected extreme-UV light from a galaxy located 9.3 billion light-years away from Earth.