Ultra-Violet Imaging Telescope (UVIT)

Prelims: *Current events of national and international importance | Science & Technology*

Why in news?

Indian Institute of Astrophysics (IIA) celebrates 10 Years of Operation of the UltraViolet Imaging Telescope on board AstroSat.

- **AstroSat –** Launched on September 28, 2015, carrying 5 payloads spanning ultraviolet to X-ray bands.
- The UVIT is the ***primary payload*** of AstroSat among the 5 payloads.
- **UVIT's core science areas –**
  - Star formation in the Galaxy and nearby galaxies
  - Star formation history of the universe
  - Hot stars in globular clusters
  - Planetary nebulae
  - Transients and variability studies in UV

UVIT's Feature & Role –

- India's ***1st ultraviolet (UV)*** space telescope, unique globally for combining a large field of view with high spatial resolution(<1.5 arcseconds).
- **Far-UV Observation Capability –** The only operational telescope ***(besides the Hubble Space Telescope***) capable of observing in the far-ultraviolet spectrum.
- **Twin Telescope System –** It observes near-UV (200–300 nm) and visual bands (320–550 nm) & far-UV (130–180 nm)
- **Collaborations –** Led by IIA, with support from IUCAA (Pune), TIFR (Mumbai), multiple ISRO centres (ISAC/URSC, LEOS, IISU, SAC), and the Canadian Space Agency.
- Set up Special "Clean Rooms" at IIA's CREST campus (Hosakote) for sensitive fabrication.
- **Key Discoveries & Highlights**
  - Hot compact companion stars of Be stars
  - Blue Straggler Stars in clusters
  - Novae in the Andromeda galaxy
  - Extended UV disks in dwarf galaxies & planetary nebulae
  - Emission from distant galaxies at redshift 1.42
  - Correlations between UV and X-ray emissions in active galactic nuclei
  - Young star formation characteristics in galaxies

- **Future Plans –** India could now develop a bigger, ***next-generation space telescope*** called ***INSIST*** (Indian Spectroscopic and Imaging Space Telescope).

To know about ***AstroSat***, click here

References

1. PIB |Celebrates 10 Years of Operation of the UVIT
2. IIA | Ultra-Violet Imaging Telescope (UVIT)

