

## GSLV-F15 NVS-02 Mission

### Why in News?

GSLV-F15 NVS-02 mission is the 100<sup>th</sup> launch from the Satish Dhawan Space Centre in Sriharikota, scheduled for January 29.

- **GSLV-F15 NVS-02** - Geosynchronous Satellite Launch Vehicle (GSLV)- F15/ Navigation with Indian Constellation-2 Satellite (NVS-2).
- **GSLV-F15 - 17<sup>th</sup> flight** of India's Geosynchronous Satellite Launch Vehicle (GSLV).
  - **11<sup>th</sup> flight with** - Indigenous Cryo stage.
  - **8<sup>th</sup> operational flight with** - Indigenous Cryogenic stage.
- **Payload** - Its fairing is a metallic version with a diameter of 3.4 meters.
- It will place NVS-02 satellite into a **Geosynchronous Transfer Orbit (GTO)**.



- **NVS-02 satellite** - It is the 2<sup>nd</sup> satellite in the NVS series.
- **Navigation with Indian Constellation (NavIC)** - *NVS-02 satellite is part of NavIC.*
- It is India's independent regional navigation satellite system designed to provide accurate Position, Velocity and Timing (PVT) service to users in India.
- It *extends to region of about 1500 km beyond Indian land mass.*
- **U.R. Satellite Centre (URSC)** - *NVS-02* was designed, developed and integrated at the *U.R. Satellite Centre (URSC)* with the support of other satellite-based work centres.
- **Navigation Payloads** - It operates in L1, L5, and S bands and employs **Tri-band antenna**.
- **Rubidium Atomic Frequency Standard (RAFS)** - Is the main component of the

navigation payload.

- RAFS is an ***atomic clock*** which acts as a stable frequency reference for the navigation payload.
- **Ranging Payloads** - It consists of ***C-band (CxC) transponder*** used for 2-way Code Division Multiple Access (CDMA) ranging to facilitate precise orbit determination.

*Code-Division Multiple Access (CDMA) is a digital cellular technology that uses spread spectrum techniques to allow multiple users to share the same frequency band simultaneously.*

- **Lift off mass** - 2,250 kg.
- **Power handling capability** - Approximately 3 kW.
- **Usage** - A combination of indigenous and procured atomic clocks for precise time estimation.

## References

1. [The Hindu| 100<sup>th</sup> Launch from Satish Dhawan Space Centre](#)
2. [ISRO| GSLV-F15 NVS-02 Mission](#)

