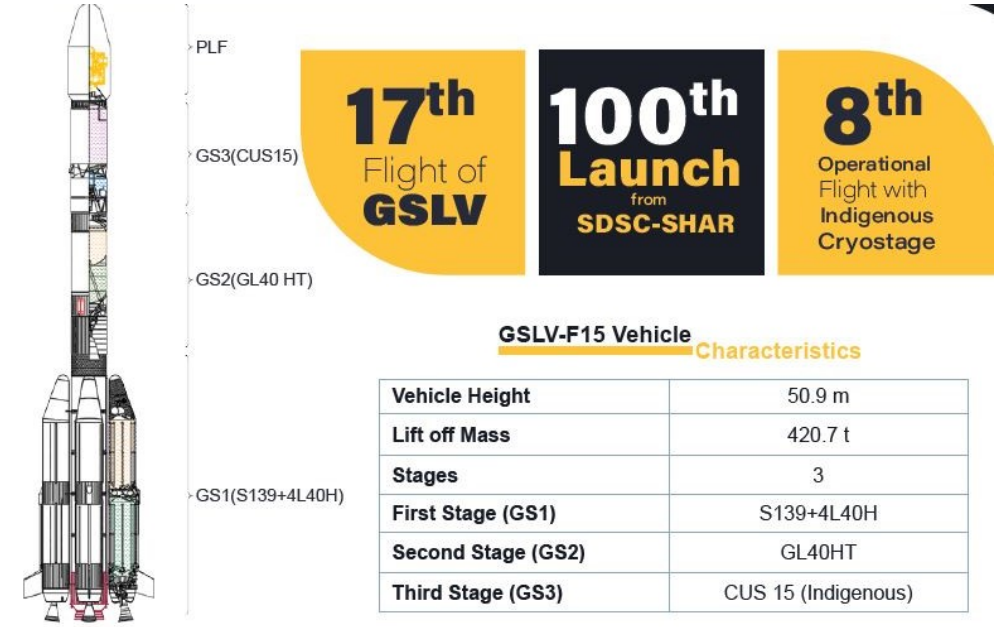
GSLV-F15 NVS-02 Mission

Why in News?

GSLV-F15 NVS-02 mission is the 100th 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** – **17th flight** of India's Geosynchronous Satellite Launch Vehicle (GSLV).
  - **11th flight with** – Indigenous Cryo stage.
  - **8th 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)***.



Vehicle Configuration

- **NVS-02 satellite** – It is the *2nd 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| 100th Launch from Satish Dhawan Space Centre
2. ISRO| GSLV-F15 NVS-02 Mission

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