



# GSLV-F14/INSAT-3DS Mission

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## Why in News?

The [Indian Space and Research Organisation \(ISRO\)](#) is all set to launch its **GSLV-F14/INSAT-3DS mission** on 17<sup>th</sup> February 2024, with the aim of enhancing weather forecasting and disaster warning capabilities.

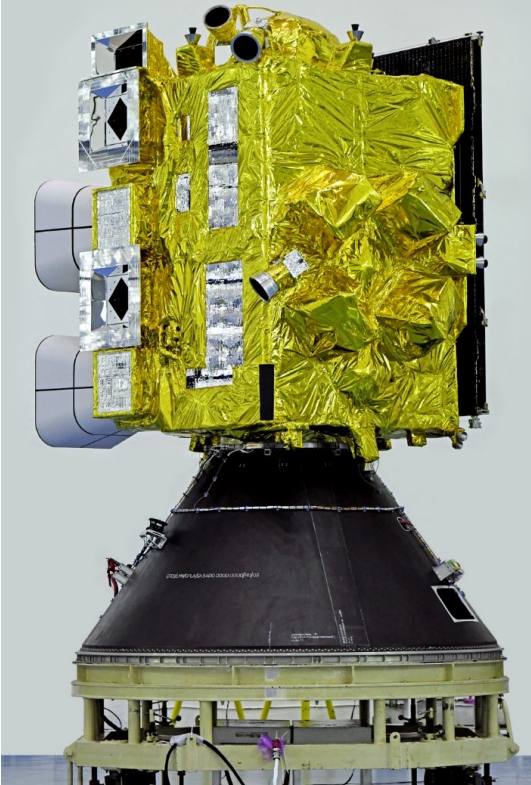
## What are the Key Highlights of the GSLV-F14/INSAT-3DS Mission?

- INSAT-3DS will be launched aboard the [Geosynchronous Satellite Launch Vehicle F14 \(GSLV F14\)](#).
  - GSLV-F14 is a **three-stage launch vehicle**.
    - The first stage (GS1) has a solid propellant motor and four **earth-storable propellant stages (EPS)**.
      - EPS includes a supporting structure, propellant tanks, and an engine.
    - The second stage (GS2) is also an earth-storable propellant stage
    - The third stage (GS3) is a **cryogenic stage**, with propellant loading of liquid oxygen (LOX) and liquid hydrogen (LH2).
    - The GSLV-F14 is the 16th flight of the GSLV, and the 10th flight with the indigenous cryo stage.
  - INSAT-3DS comprises **four payloads**, including an Imager, a sounder, a data relay transponder, and a satellite-aided search and rescue transponder.
    - **Imager Payload:**
      - INSAT-3DS carries a multi-spectral Imager capable of generating **Earth images in six wavelength bands**.
    - **Sounder Payload:**
      - It features a 19-channel Sounder payload, offering data on atmospheric vertical profiles like temperature and humidity.
    - **Data Relay Transponder (DRT):**
      - INSAT-3DS through DRT receives global meteorological, hydrological, and oceanographic data from automatic weather stations and data collection platforms, relaying it back to user terminals.
    - **Satellite aided Search and Rescue (SA&SR) Transponder:**
      - INSAT-3DS through SA&SR relays distress signals for global search and rescue operations, covering the **Ultra high frequency band**.
  - INSAT-3DS is designed to **enhance meteorological observations**, aid in weather forecasting, and improve **disaster warning capabilities**.
    - Fully funded by the Ministry of Earth Sciences (MoES), it follows the lineage of **Third Generation Meteorological Satellites from Geostationary Orbit**.
  - The satellite will monitor land and ocean surfaces, augmenting the services provided by existing [INSAT-3D and INSAT-3DR satellites](#).
    - India gets weather updates through INSAT-3D & 3DR weather satellites. INSAT 3DR was launched in 2016 as a follow up on INSAT-3D which was launched in 2013.
  - It will significantly contribute to India's weather agencies, facilitating more accurate weather forecasts and better disaster management strategies.

- It will facilitate data collection and dissemination capabilities from the data collection platforms.
- INSAT-3DS will provide satellite-aided search and rescue services, enhancing emergency response capabilities.

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