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Earth Observation Satellite EOS-01: ISRO

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Why in News

India would launch its latest **earth observation satellite EOS-01** and **nine international customer satellites** from **Satish Dhawan Space Centre** in Andhra Pradesh's Sriharikota.

The **Polar Satellite Launch Vehicle** (PSLV-C49) of the **Indian Space Research Organisation (ISRO)** will launch these ten satellites on 7th November 2020. It will be **PSLV's 51st Mission**.

Key Points

- **EOS-01:** It is an **earth observation satellite** and is **intended for applications** in agriculture, forestry and disaster management support.
 - Earth observation satellites are the satellites **equipped with remote sensing technology**. Earth observation is the gathering of information about Earth's physical, chemical and biological systems.
 - Many earth observation satellites have been employed on **sun-synchronous orbit**.
 - **Other earth observation satellites** launched by ISRO include RESOURCESAT-2, 2A, CARTOSAT-1, 2, 2A, 2B, RISAT-1 and 2, OCEANSAT-2, Megha-Tropiques, SARAL and SCATSAT-1, INSAT-3DR, 3D, etc.

- **Nine Customer Satellites:** These are being launched **as part of a commercial agreement with NewSpace India Limited (NSIL)**, Department of Space.
 - NSIL, incorporated in 2019 (under the Companies Act, 2013), is a **wholly owned Government of India company**, under the administrative control of Department of Space (DOS).
 - NSIL is the **commercial arm of ISRO** with the primary responsibility of enabling Indian industries to take up high technology space related activities and is also responsible for promotion and commercial exploitation of the products and services emanating from the Indian space programme.
 - The **major business areas** of the NSIL include:
 - **Production** of Polar Satellite Launch Vehicle (PSLV) and **Small Satellite Launch Vehicle** (SSLV) through industry.
 - Production and **marketing of space-based services**, including launch services and space-based applications like transponder leasing, remote sensing and mission support services.
 - **Building of Satellites** (both Communication and Earth Observation) as per user requirements.
 - **Transfer of technology** developed by ISRO centres/ units and constituent institutions of Dept. of Space.
 - **Marketing spin off technologies** and products/ services emanating out of ISRO activities.
 - **Consultancy** services.
 - Recently, the Government of India has created the **Indian National Space Promotion and Authorization Center (IN-SPACE)**, an independent nodal agency under the Department of Space, to provide a boost to the private sector participating in space-related activities or using India's space resources.

Polar Satellite Launch Vehicle

- India's Polar Satellite Launch Vehicle (PSLV) is the **third generation** launch vehicle.
- PSLV is the **first launch vehicle which is equipped with liquid stages**.
- PSLV's first successful launch was in October 1994. PSLV was used for **two of the most important missions**. These are **Chandrayaan-1** in 2008 and **Mars Orbiter Spacecraft** in 2013.

- **Geosynchronous Satellite Launch Vehicle (GSLV) Mark II** and **GSLV MkIII** are other two launch vehicles.
 - **GSLV Mk II** is the **largest launch vehicle developed by India**, which is currently in operation. This **fourth generation launch vehicle** is a three stage vehicle with four liquid strap-ons. The indigenously developed **cryogenic Upper Stage (CUS)**, which is flight proven, forms the third stage of GSLV Mk II.
 - **GSLV MkIII**, chosen to launch Chandrayaan-2 spacecraft, is a **three-stage heavy lift launch vehicle** developed by ISRO. The vehicle has two solid strap-ons, a core liquid booster and a cryogenic upper stage.

GSLV Mk III is designed to carry a 4 ton class of satellites into Geosynchronous Transfer Orbit (GTO) or about 10 tons to Low Earth Orbit (LEO), which is about twice the capability of the GSLV Mk II.

Source: TH