



Earth Observation Satellite: EOS-02

Why in News?

The Union Minister of Science & Technology said that **EOS (Earth Observation Satellite)-02** satellite will be launched in the second quarter of 2022.

- The launch was delayed due to **pandemic** and consequent **lockdown**.
- Earlier, the **Indian Space Research Organisation's** earth observation satellite **EOS-04 and two small satellites (INSPIRESat-1 and INS-2TD)** were successfully placed into the intended orbit by the **PSLV (Polar Satellite Launch Vehicle)-C52** rocket.

What is the EOS-02 Satellite?

- EOS-02 is **Technology demonstration satellite for various new technologies** with applications that include **agriculture, forestry, geology, hydrology, miniaturised power electronics, reaction wheels** etc. and forming the payload for **SSLV (Small Satellite Launch Vehicle)-1**.
 - **SSLV** is the smallest vehicle weighing only 110-tonne. **It will take only 72 hours to integrate, unlike the 70 days taken now for a launch vehicle.**
 - It aims to **cater to the market for the launch of small satellites into Earth's low orbits** that has emerged in recent years to cater to the needs of developing countries, universities for small satellites, and private corporations.

What are the Other Satellites in the EOS Series?

- **EOS-01:**
 - Earth Observation satellite meant for Agriculture, Forestry & **disaster management** support
- **EOS-03:**
 - First Agile Earth Observation satellite in **Geostationary orbit** and applications which include near real time imaging, quick monitoring of natural disasters, spectral signatures for agriculture, forestry etc.
- **EOS-04:**
 - **Radar** Imaging satellite meant to provide high quality images under all weather conditions for applications such as Agriculture, Forestry & Plantations, Soil Moisture & Hydrology and **Flood** Mapping.
- **EOS-05:**
 - Earth Observation Satellite in the Geostationary Orbit.
- **EOS-06:**
 - Earth Observation satellite meant for applications, which include ocean related services and advisories towards potential fishing zone forecast , ocean state forecast.

What are Earth Observation Satellites?

- 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.

First launch of **2022**

On Monday, Earth Observation Satellite **EOS-04** and two small satellites – **INSPIRESat-1** and **INS-2TD** – were placed in the orbit by the **PSLV-C52** rocket. A detailed look at the payload

DETAILS OF THE LAUNCH

- 1** Monday's was the 54th flight of PSLV and 23rd mission using PSLV-XL configuration with six PSOM-XLs (strap-on motors)
- 2** After a flight of about 18 minutes, the vehicle injected the satellites into their intended orbit
- 3** Primary satellite EOS-04 was put into the intended sun synchronous polar orbit of 529 km altitude at 6.17 a.m.

EOS-04 Weight: **1,710 kg**

Mission life: **10 years**

Use: Radar Imaging Satellite is designed to provide high quality images under all weather conditions for applications such as agriculture, forestry and plantations, soil moisture and hydrology and flood mapping

INSPIRESat-1 Weight: **8.1 kg**

Mission life: **1 year**

Use: Two payloads in the satellite are aimed at improving the understanding of ionosphere dynamics and the sun's coronal heating processes

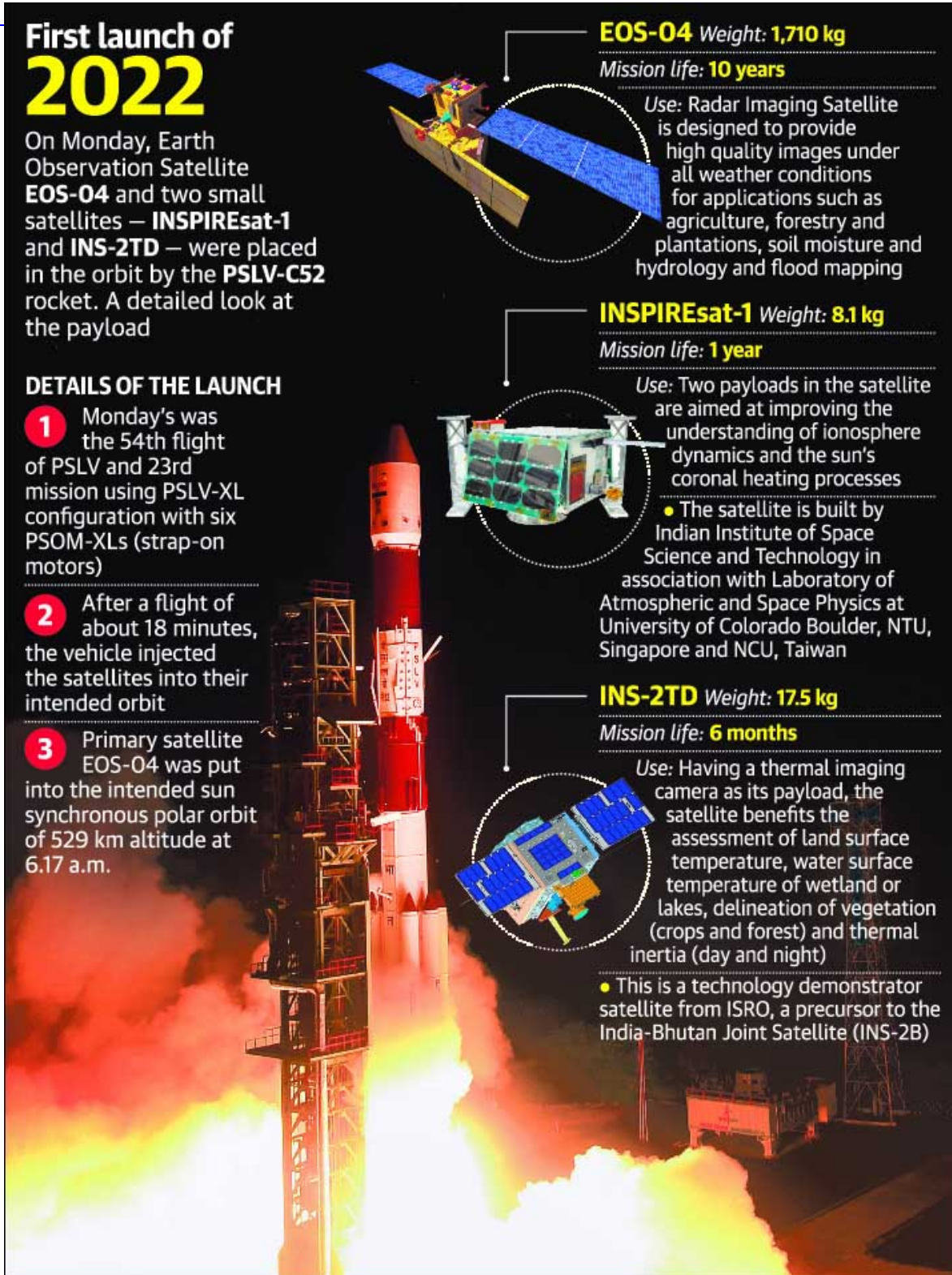
- The satellite is built by Indian Institute of Space Science and Technology in association with Laboratory of Atmospheric and Space Physics at University of Colorado Boulder, NTU, Singapore and NCU, Taiwan

INS-2TD Weight: **17.5 kg**

Mission life: **6 months**

Use: Having a thermal imaging camera as its payload, the satellite benefits the assessment of land surface temperature, water surface temperature of wetland or lakes, delineation of vegetation (crops and forest) and thermal inertia (day and night)

- This is a technology demonstrator satellite from ISRO, a precursor to the India-Bhutan Joint Satellite (INS-2B)



UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. With reference to the Indian Regional Navigation Satellite System (IRNSS), consider the following statements: (2018)

1. IRNSS has three satellites in geostationary and four satellites in geosynchronous orbits.
2. IRNSS covers entire India and about 5500 sq. km beyond its borders.
3. India will have its own satellite navigation system with full global coverage by the middle of 2019.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) None

Ans: (a)

- **Indian Regional Navigation Spacecraft System (IRNSS)** is an independent regional navigation satellite system being developed by India.

Source: PIB

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