

EOS- 04, ISRO's first launch mission of 2022

February 14, 2022

In news– The Indian Space Research Organization (ISRO) has successfully launched earth observation satellite EOS-04 with on board PSLV-C52 on February 14, which is the first mission of ISRO in 2022.

About EOS- 04 & PSLV-C52

- **EOS-04 is a Radar Imaging Satellite** designed to provide high quality images under all weather conditions for applications such as Agriculture, Forestry & Plantations, Soil Moisture & Hydrology and Flood mapping.
- It was launched from Satish Dhawan Space Center, Sriharikota Range (SHAR), Sriharikota.
- **PSLV-C52** is designed to **orbit an earth observation satellite (EOS-04), weighing 1710 kg** into a sun synchronous polar orbit of 529 km.
- It was the 54th flight of PSLV and the 23rd flight of PSLV in the XL configuration (6 strap-on motors).
- **PSLV-C52 mission will also carry two small satellites as co-passengers** which includes
 - One student satellite (**INSPIRESat-1**) from Indian Institute of Space Science & Technology (IIST) in association with Laboratory of Atmospheric & Space Physics at University of Colorado, Boulder and
 - A technology demonstrator satellite (**INS-2TD**) from ISRO, which is a precursor to India-Bhutan Joint Satellite (INS-2B).

PSLV C52/ EOS-04



EOS-04 is a Radar Imaging Satellite designed to provide high quality images under all weather conditions for applications such as Agriculture, Forestry and Plantations, Flood Mapping, Soil Moisture & Hydrology. Collecting earth observation data in C-Band, it complements/supplements the data from Resourcesat, Cartosat series and RISAT-2B series.



INS-2TD is a technology demonstrator satellite from ISRO, which is a precursor to the India-Bhutan joint satellite (INS-2B). Having a thermal imaging camera as its payload, the satellite benefits the assessment of land surface temperature, water surface temperature of wetlands/lakes; delineation of vegetation (crops and forest); and thermal inertia (day/night).



INSPIRESat-I is a student satellite developed by Indian Institute of Space Science & Technology (IIST), in association with University of Colorado, USA. Other contributors are NTU, Singapore and NCU, Taiwan. Two scientific payloads improve the understanding of ionosphere dynamics and sun's coronal heating processes.

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Satellite	Mass (kg)	Power (W)	Mission life
EOS-04	1710	2280	10 years
INS-2TD	17.5	42	6 months
INSPIRESat-I	8.1	30	1 year

- **EOS-04 is the fourth in a series of earth observation satellites that are being launched** under a new generic name.
- Two years ago, ISRO had moved to a new naming system for its earth observation satellites which till then had been named thematically, according to the purpose they were meant for.
- However, only the first of these newly named satellites, EOS-01, launched in November 2020, is in orbit right now.
- EOS-02, a micro-satellite to be flown on a new launch vehicle called SSLV (Small Satellite Launch Vehicle) is yet to be launched, while launch of EOS-03 had ended in a failure in August 2021.
- **EOS-04 would replace the RISAT-1** which was launched in 2012 but has been non-functional for the last few years.
- RISATs use synthetic aperture radars to produce high-resolution images of the land. One big advantage that radar imaging has over optical instruments is that it is unaffected by weather, cloud or fog, or the lack of sunlight.
- It can produce high-quality images in all conditions and at all times, making it suitable for surveillance.
- EOS-04 was designed to provide high-quality images for **applications such as agriculture, forestry and plantations, flood mapping, soil moisture and**

hydrology.

- It will complement the data from Resourcesat, Cartosat and RISAT-2B series of satellites that are already in orbit.
- India currently has 53 operational satellites, of which 21 are earth observation ones and another 21 are communication-based. Eight are navigation satellites, while the remaining three are science satellites.