Earth Observation Satellite & PSLV C54

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In news– The Indian Space Research Organisation (ISRO) has recently launched PSLV-C54 carrying Oceansat-3 also known as Earth Observation Satellite(EOS)-6, and 8 nanosatellites.

What is EOS-6?

- The **third generation Indian satellite for monitoring the oceans is formally named as Earth Observation Satellite-6 (EOS-6).**
- The ocean observing mission is a **follow up to OceanSat-1 or IRS-P4 and OceanSat-2** launched in 1999 and 2009, respectively.
- The satellite was l**aunched aboard the proven launch vehicle PSLV** (Polar Satellite Launch Vehicle) on its 56th flight (24th flight of the PSLV-XL version).
- The current launch, designed as PSLV-C54, also accommodated other small satellites along with Oceansat-3.
- **The Oceansat-3 was placed in the polar orbit at the height of about 740 kilometres** above sea level.
- While at ~1100 kilograms, it is only slightly heavier than Oceansat-1, **for the first time in this series it houses three ocean observing sensors** viz
    1. Ocean Color Monitor (OCM-3).
    2. Sea Surface Temperature Monitor (SSTM), and
    3. Ku-Band scatterometer (SCAT-3).
- There is also an **ARGOS payload**. All these sensors have their own importance for India's blue economy aspirations.
- The **advanced 13 channel OCM** with 360 m spatial resolution and 1400 km swath **will observe the day side**

of the earth every day and will provide crucial data on distribution of ocean algae which is the base of the food chain within marine ecosystems.

- The **OCM-3** with high signal-to-noise ratio is **expected to provide improved accuracy in daily monitoring of phytoplankton** having a wide range of operational and research applications including fishery resource management, ocean carbon uptake, harmful algal bloom alerts, and climate studies.
- **The SSTM will provide ocean surface temperature** which is a critical ocean parameter to provide various forecasts ranging from fish aggregation to cyclone genesis and movement.
- **The Ku-Band Pencil beam scatterometer onboard EOS-6 will provide high resolution wind vector (speed and direction)** at the ocean surface, something which any seafarer would like to know of, whether its fishermen or shipping company.
- **ARGOS is a communication payload jointly developed with France** and it is **used for low-power (energy-efficient) communications** including marine robotic floats (Argo floats), fish-tags, drifters, and distress alert devices useful for conducting effective search and rescue operations.
- While ISRO will continue to maintain the orbit of the satellite and its standard procedures for data reception, archive etc the **major operational user of this satellite would be MoES institutions** viz Indian National Centre for Ocean Information Services (INCOIS), Hyderabad and National Centre for Medium Range Weather Forecasting (NCMRWF), Noida that provide a bouquet of services every day for lakhs of stakeholders across the nation.
- **The launch of Oceansat-3 today is also significant since this is the first major ocean satellite launch coming from India since the initiation of the UN Decade of Ocean Science for Sustainable Development** (UNDOSSD,

2021-2030).

- The satellite also supports value added products such as potential fishing zone using chlorophyll, SST and wind speed, and land based geophysical parameters.

Note:

The eight nano satellites include ISRO Nano Satellite-2 for Bhutan (INS-2B), Anand, Astrocast (four satellites), and two Thybolt satellites.