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Sentinel-6 Satellite: Jason-CS Mission

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Why in News

Recently, **Copernicus Sentinel-6 Michael Freilich satellite** was launched from the Vandenberg Air Force base in California aboard a **SpaceX Falcon 9 rocket**.

Sentinel-6 – diving into ocean surfaces

The Copernicus satellite will carry out high-precision measurements observing ocean currents and documenting changes in sea-surface height and levels.



Vital for predicting sea level rises – currently > 3mm per year – to protect coastal regions



Monitors changes in sea surface height with an accuracy of a few centimetres



Mission up to **7** years



Global mapping of the sea surface topography every **10** days



Airbus is satellite prime contractor, building on heritage from **20+** satellites currently providing insights on climate change



Working together around the globe to protect our planet (ESA, NASA, NOAA, EUMETSAT)

Key Points

- **Jason-CS Mission:** Sentinel-6-Satellite is a part of the **mission** dedicated to **measuring changes in the global sea level**. The mission is called the **Jason Continuity of Service (Jason-CS) mission**.
 - **Objective of the Mission:** To measure the **height of the ocean**, which is a key component in understanding how the **Earth's climate is changing**.
 - **Components:** It consists of **two satellites, Sentinel-6** and the other, called **Sentinel-6B**, to be **launched in 2025**.
 - **Joint collaboration of:** The European Space Agency (ESA), **National Aeronautics and Space Administration (NASA)**, European Organisation for the Exploitation of Meteorological Satellites (Eumetsat), the USA's National Oceanic and Atmospheric Administration (NOAA) and **the European Union (EU)**, with contributions from France's National Centre for Space Studies (CNES).
- **Mechanism:**
 - The satellite will send pulses to the Earth's surface and measure how long they take to return to it, which will help in measuring the **sea surface height**. It will **also measure water vapour along this path** and find its position using GPS and ground-based lasers.
 - As per **NASA**, this will help in **monitoring critical changes in ocean currents and heat storage** only from space, by measuring height of the sea surface.
 - This will in turn help in **foreseeing the effects of the changing oceans on the climate**.
- **Significant in:**
 - **Ensuring** the continuity of **sea-level observations**.
 - **Understanding** how the **ocean stores and distributes heat, water and carbon in the climate system**.
 - **Supporting** operational oceanography, by providing improved forecasts of **ocean currents, wind and wave conditions**.
 - **Improving** both **short-term forecasting** for weather predictions, and **long term forecasting** for seasonal conditions like **El Niño and La Niña**.
- **Other satellites** (joint mission of **NASA and CNES**) that have been launched **since 1992** to track changes in the oceans on a global scale include the **TOPEX/Poseidon, Jason-1 and OSTN/Jason-2**, among others.

Source:IE