

The eoPortal Newsletter

May 2025

Biomass Launched!

The European Space Agency's Biomass mission successfully launched on 29 April 2025 aboard a Vega-C rocket from Kourou, French Guiana. Biomass carries the first P-band Synthetic Aperture Radar in space (P-SAR), designed to map and monitor forests in 3-D for a better understanding of the carbon cycle.

The 12 metre deployable antenna achieves global coverage through interleaved stripmap swaths, gathering frequent measurements of forest properties at a 200 m spatial resolution.



Data delivered by Biomass will advance understanding of the world's forests and their dynamics, reduce uncertainties of carbon stock and flux quantifications, provide insight into the role of forests in the carbon cycle, and support global action against deforestation. The P-band SAR is capable of penetrating dense forest canopies, enabling detailed estimation of the above-ground biomass by capturing structural information about trunks and large branches.

Biomass will employ polarimetric, interferometric, and tomographic SAR techniques across multiple baselines to map the horizontal and vertical structure of forests and above-ground biomass. The concept of SAR tomography will be implemented from space for the first time with Biomass. In addition, the mission will also monitor sub-surface geological features in arid regions, track ice sheets in Antarctica, and enable the modelling of terrain covered by dense forests.

[Read more](#)



Above-Ground Biomass

Above-ground biomass can be measured from space using passive optical sensors, microwave Synthetic Aperture Radar (SAR), and lidar. Lower frequencies like P- or L-band will penetrate vegetation cover and detail lower canopy structures.

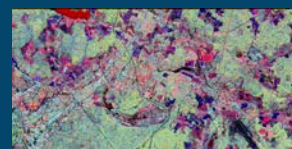
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ISS: GEDI (Global Ecosystems Dynamics Investigations lidar)

Installed on the ISS, GEDI uses laser-based technology to make precise measurements of forest canopy height, canopy vertical structure, and surface elevation, supporting above-ground biomass measurements.

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Polarimetric SAR

PoSAR is an advanced radar imaging technique that utilises conventional SAR by analysing the polarisation of radar waves. This provides detailed insights into Earth's surface characteristics such as terrain type, vegetation density, urban structures, and soil moisture.

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Launch Highlights

BlackSky Global's first Gen3 satellite was launched on the 60th Electron launcher from RocketLab. The 'Fasten Your Space Belts' mission lifted-off from Mahia, New Zealand at 12:17 NZDT on February 19th (23:15 UTC on February 18th), deploying the satellite to a 470 km orbit.



[Read more](#)

Image credit: RocketLab



Image credit: NASA

The **Lunar Trailblazer** satellite was launched on February 27, 2025 at 00:16 UTC on a Falcon 9 rocket alongside PRIME-1 (IM-2), the second lunar lander mission of the commercial space exploration company Intuitive Machines, from Launch Complex 39A (LC-39A) at the Kennedy Space Center.

[Read more](#)

The **WorldView Legion** constellation launched **WorldView Legion 5** and **Legion 6** on February 4, 2025 at 22:13 UTC from the Kennedy Space Center in Florida, onboard SpaceX's Falcon 9 rocket.



[Read more](#)

Image credit: SpaceX



Image credit: SpaceX

Transporter 13, the most recent of SpaceX's Falcon 9 rideshare missions, launched on March 15, 2025, at 06:43 UTC, from Space Launch Complex 4E (SLC-4E), at the Vandenberg Space Force Base (VSFB) in California, carrying a number of payloads, including:

- [Alba Orbital](#) - Cluster 9 Launch (three platforms)
- [ICEYE](#) - four platforms
- [Tomorrow.io](#) - two platforms
- [SpaceEye-T](#)

On April 21, SpaceX launched the third in its series of mid-inclination dedicated rideshare missions, Bandwagon-3, carrying a number of payloads including another microwave radiometer satellite for

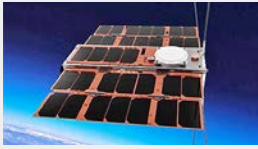
Tomorrow.io.

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Image credit: SpaceNews/Brandon Lindner

Recent Highlights

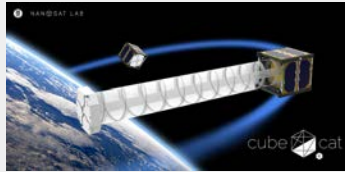


AEROS MH-1

EO Mission - Oceans Monitoring

AEROS MH-1 is a Portuguese Earth observation mission launched in March 2024 to monitor oceans with a specific focus on the Atlantic Ocean. The nanosatellite was developed by Thales Edisoft Portugal in partnership with MIT, with support from a consortium of Portuguese organisations.

[Read more](#)

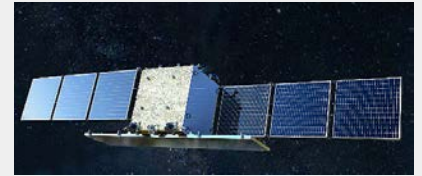


³Cat Constellation

EO Mission - Technology Demonstration

³Cat (Cube-cat) is a Spanish commercial satellite constellation of the Polytechnic University of Catalonia (UPC) designed to support educational, scientific, technology demonstration, and mission support applications.

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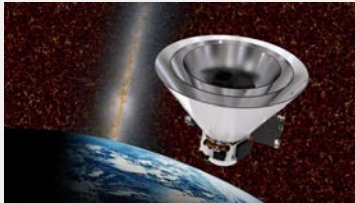


PIESAT (Hongtu)

EO Mission - Land Monitoring

PIESAT, also known as Hongtu, is a Chinese commercial constellation of X-band Interferometric Synthetic Aperture Radar (InSAR) satellites. PIESAT's 'interferometric cartwheel' configuration enables enhanced InSAR observations.

[Read more](#)



SPHEREx

Non-EO Mission - Space-Based Telescope

SPHEREx is a space-based telescope developed by NASA JPL, CalTech, and Ball Aerospace to study the early universe through spectrophotometry.

[Read more](#)



Space Rider

Non-EO Mission - Space Laboratory

Space Rider is a reusable, uncrewed space laboratory developed by the European Space Agency (ESA) to provide independent access to low Earth orbit for scientific research and technology demonstration.

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GESat

EO Mission - Greenhouse Gas Monitoring

GESat, developed by Absolut Sensing, is a constellation of commercial satellites designed to aid public and private organisations in monitoring and reducing anthropogenic greenhouse gas emissions.

[Read more](#)

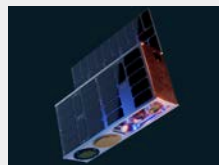


Joint Polar Satellite System

EO Mission - Meteorology

JPSS provides advanced atmospheric temperature, moisture and pressure profiles from space, as well as advanced imaging capabilities for meteorology.

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Forest (OroraTech)

EO Mission - Wildfire Detection

The Forest satellite missions, developed by OroraTech, a Munich-based startup, are aimed at enhancing global wildfire detection and environmental monitoring through advanced thermal-infrared imaging.

[Read more](#)



Drishti (GalaxEye)

EO Mission - Combined Optical & SAR

The Drishti mission will carry the world's first combination of both Synthetic Aperture Radar (SAR) and multispectral sensors. The mission is developed by Indian startup GalaxEye.

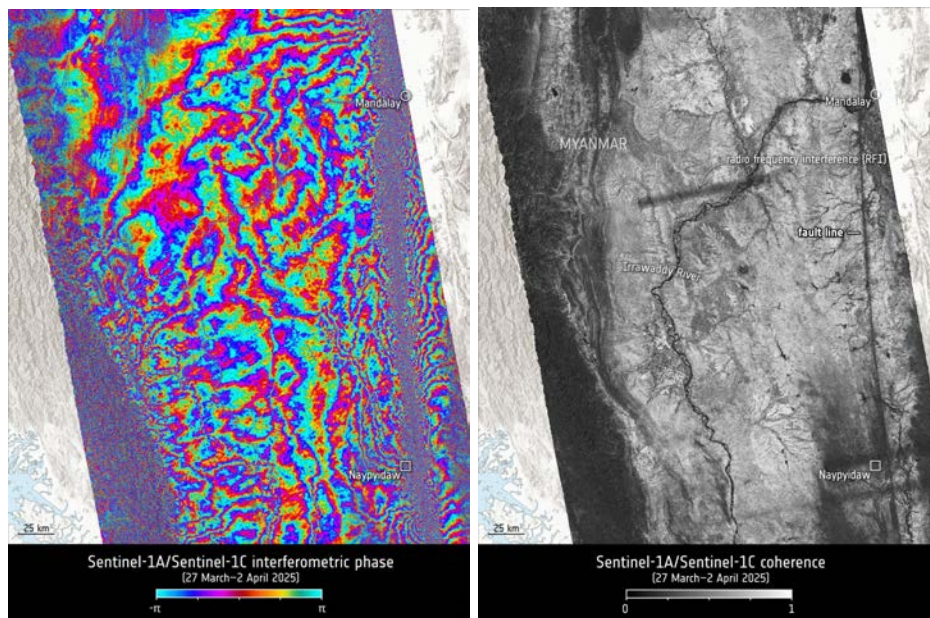
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Satellites Supporting the Myanmar Earthquake

Satellite-based monitoring has become essential in managing seismic events around the world, delivering crucial insights for emergency response, damage assessment, and understanding broader impacts. This includes the devastating 7.7 magnitude earthquake which struck Myanmar in March 2025, where space-based observations were vital in rapidly mapping the destruction, guiding emergency response operations, and supporting longer-term recovery efforts.

Pre- and post-earthquake satellite images from Sentinel-1 were combined to form an interferogram of the Sagaing Fault (left image below). The image on the right uses data from Sentinel-1A and Sentinel-1C to reveal a 'coherence map', where the fault appears as a dark fracture slicing through the land. The coherence map shows areas that have changed between the two acquisition dates as dark tones while stable areas appear bright.

[Read more](#)



Earthquakes and InSAR

Interferometric SAR (InSAR) or radar interferometry is used to measure changes in the Earth's topography as a result of various processes, including seismic activity.

[Read more](#)

Floods

Optical and SAR satellite imagery are often used to track the onset, duration and retreat of floodwaters, providing information on flood extent, water level, depth, and volume for flood response and mitigation.

[Read more](#)

Sea Ice Monitoring

Satellite observations can monitor various aspects of sea ice, including thickness, extent, drift and even age. A variety of instrument types are used, from optical to passive microwave and SAR.

[Read more](#)