

CEOS MIM Database Quarterly Report

July 2022



The Earth Observation Handbook, prepared by the European Space Agency (ESA) in support of the Committee on Earth Observation Satellites (CEOS), presents the main capabilities of satellite Earth observations, their applications, and a comprehensive overview of present and planned civil space agency Earth observation satellite missions and their instruments. The database which serves as the foundation for the missions, instruments, and measurements information at the heart of the Handbook content is updated annually and is always available online at:

<http://database.eohandbook.com>

This page provides a summary of key mission activities from the past quarter (Apr - Jun, 2022), and the coming two quarters (Jul - Dec, 2022).

Latest News

The German Aerospace Centre (DLR) launched the first-ever German optical Earth observing satellite, **EnMAP**, on 1 April 2022. **EnMAP** is a hyperspectral imager, with 230 spectral channels in the solar-reflectance range. It will acquire data on a frequent basis with high geometric resolution. On 27 April 2022, **EnMAP** captured a first light image, recording a strip about 30 km x 180 km over Istanbul. These first images already give a glimpse of what can be expected from **EnMAP**, with high quality observed in all channels. **EnMAP** data was assessed as **CEOS Analysis Ready Data (CEOS-ARD)** prior to launch.



EnMAP first images
(Credit: DLR)

The first of three flights to launch the **TROPICS** (Time-Resolved Observations of Precipitation structure and storm Intensity with a Constellation of Smallsats) satellites for NASA lifted off on 12 June 2022, however failed to reach orbit. With the remaining four satellites, **TROPICS** will still meet its science objectives, namely to provide improved time-resolved observations of tropical cyclones compared to traditional observing methods. The second flight to launch the next two satellites in the series is expected in July 2022.

Upcoming Satellite Launches

Agenzia Spaziale Italiana's (ASI) **LARES-2** (LAsER RELativity Satellite 2) is expected to launch in July 2022, improving on the technology from its predecessor **LARES**. The mission will take gravitational, magnetic and geodynamic measurements to calculate the dragging of inertial frames due to the Earth's angular momentum, known as the Lense-Thirring effect, as well as a high-precision test of the Earth's gravitomagnetic field, as predicted by Einstein's theory of General Relativity. In addition, **LARES-2** will allow other measurements in General Relativity, geodesy and geodynamics.



LARES-2
(Credit: INFN)

The Earth Surface Mineral Dust Source Investigation (**EMIT**) instrument developed by NASA will be hosted on the International Space Station, with launch expected in July 2022. The mission will comprehensively measure the mineral composition of Earth's dust source regions to help scientists understand how they heat or cool our planet when strong winds lift the particles from Earth's desert and dryland regions and carry them great distances through the atmosphere. **EMIT's** science objectives are specifically focused on better understanding this heating and cooling effect, known as radiative forcing.

Other News

A major anomaly occurred on **Sentinel-1B** on 23 December 2021, related to a unit of the power system. Very detailed investigations into the anomaly have occurred, with a summary report to be published shortly. ESA has also performed many recovery attempts of the power unit, with no success. Consequently, the launch of **Sentinel-1C** is being moved up to 2023, in an effort to replace the function of **Sentinel-1B** as soon as possible.

Launched

EnMAP
DLR
1 April 2022

Upcoming

TROPICS Constellation
NASA
Next Launch: July 2022

LARES-2
ASI
July 2022

EMIT-on-ISS

NASA
July 2022

RESOURCESAT-3S
ISRO
July 2022

CAS500-2
KARI / KAI / NGII
Q3 2022

KOMPSAT-7
KARI / KAI
September 2022

KOMPSAT-6

KARI / KAI
October 2022

JPSS-2
NOAA / EUMETSAT / NASA
November 2022

SWOT
NASA / UKSA / CNES / CSA
November 2022

TEMPO
NASA
November 2022

THEOS-2 Main VHR

GISTDA
December 2022

Sentinel-1C
ESA / COM
2023 (exact date TBC)