# COSMO-SkyMed

**COSMO-SkyMed** is one of the most innovative Earth Observation programmes, financed by the **Italian Space Agency (ASI)**, the **Ministry of Defence**, and the **Ministry of Education**, **University**, and **Scientific Research**.

The system is based on a configuration of four satellites equipped with **SAR (Synthetic Aperture Radar)** sensors that watch the Earth day and night under any weather conditions.  COSMO-SkyMed was developed for dual use and satisfy both civil and military needs.

The system was set up gradually. From 2007 to 2010, all four first-generation satellites were launched and are still in service.

In December 2020 and February 2022, the constellation was enhanced by **the first two second-generation elements (CSG)** which, together with two other satellites coming in the next few years, will fully replace the first generation of COSMO-SkyMed.

The **Second Generation** was designed to guarantee operational continuity of the radar observation services provided by the four first-generation satellites. **It will ensure further improved performance in terms of technology, services, and the system's service life.**

The two new satellites represent the pinnacle of radar observation from space in terms of precision, characteristics, and image quality.

The CSG will ensure further improved performance in terms of technology, services, and the system's service life. All these characteristics **will enable the development of new applications in areas of increasing strategic value** such as:

›   monitoring of critical infrastructure

›   emergency management

›   precision agriculture

›   maritime safety and coastal control

**TELESPAZIO**
*a LEONARDO and THALES company*

## TELESPAZIO'S ROLE

With its proven experience, **Telespazio supports the program in its most crucial phases**, from the realization of the entire ground segment to the acquisition and processing of data from the constellation, through its subsidiary e-GEOS.

Telespazio is responsible for designing and developing the ground segment, and for **providing Integrated Logistics and Operations services**. Telespazio is also responsible for the **LEOP** (Launch and Early Orbit Phases), **IOT** (In Orbit Tests) and **Operational Approval phases** of the satellite.

**The Fucino Space Centre** hosts the **Constellation Control Centre** and engages in command and control activities and plans image acquisition requests.

**e-GEOS** (a Telespazio / ASI company), markets the COSMO-SkyMed radar data throughout the world. From the **Matera Space Centre**, e-GEOS acquires, processes, and distributes COSMO-SkyMed satellite data for civil applications.
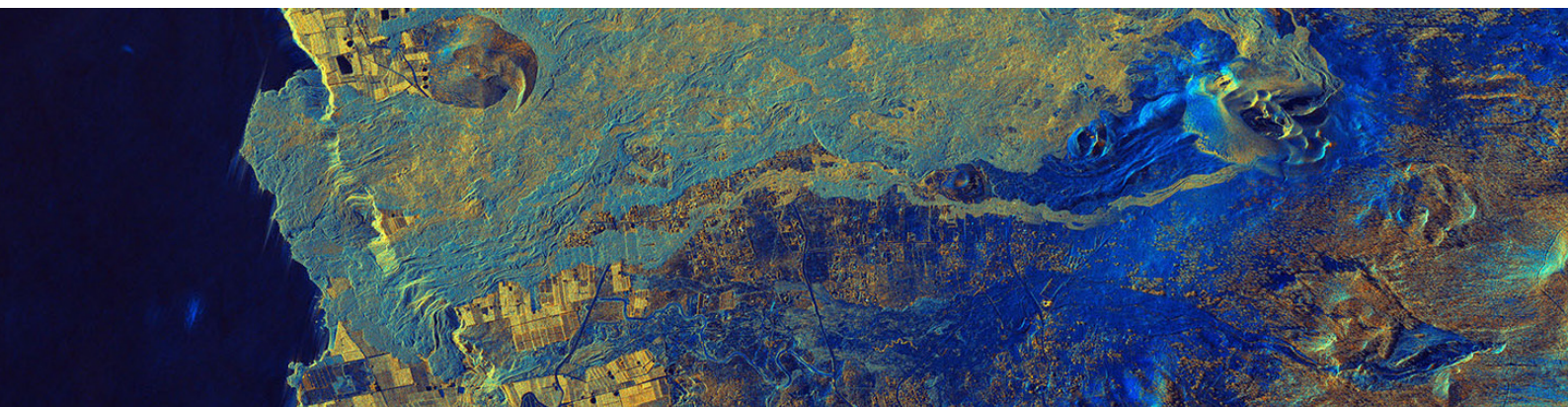
## THE ROLE OF INDUSTRY

COSMO-SkyMed is the result and expression of the best skills of the Italian space industry.

**Thales Alenia Space** is responsible for the entire CSG programme, including building four satellites.

**Leonardo** contributes to the programme by supplying the Altitude Sensors (A-STR) for orienting the satellite, solar panels (PVA), and sophisticated units that process and distribute electricity throughout the satellite, maximising its energy efficiency.

In December 2020 Thales Alenia Space and Telespazio have signed the contracts with the Italian Ministry of Defence and with the Italian Space Agency (ASI), to launch the development of two additional satellites and the upgrade of ground, logistic support and operational segments to complete the COSMO-SkyMed Second Generation constellation.



## SATELLITES FOR SUSTAINABILITY

Thanks to its radar eyes and its ability to monitor crisis areas, COSMO-SkyMed contributes to predicting landslides and floods and to coordinating relief efforts in case of earthquakes or fires.

As a participating mission in the European Copernicus program, COSMO-SkyMed imagery is very important to the European Commission's Emergency Rapid Mapping service, which makes satellite maps of areas affected by a natural emergency or humanitarian crisis available within hours. For istance, COSMO Sky-Med provided data and maps of lava movements during La Palma volcanic eruption in the fall of 2021.

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