

COSMO-SKYMED SECOND GENERATION: THE FIRST IMAGES FROM THE NEW SATELLITE GIVE US AN EVEN SHARPER PICTURE OF OUR PLANET

Rome, March 9th 2020 - The first images of the **Second Generation (CSG) COSMO-SkyMed** mission for radar Earth observation highlight, even to an untrained eye, the innovative features present in the data that will make it possible to use the system for a wide range of applications to the benefit of a growing number of users.

The ability to measure the different polarizations of the signal allows the radar to characterize the nature of the territory observed and to represent it with false colour images (thus discriminating water, trees, crops, bare ground, glaciers, snow-covered ground, etc.). The very high spatial resolution and the strength of the signal sent also allows the detailed representation of very complex anthropic structures (urban or industrial environments), extracting information not only from reflective surfaces, but even from shadows.

COSMO-SkyMed Second Generation is an Earth observation satellite system of the **Italian Space Agency** and the **Ministry of Defence**, a flagship of Italian technology and innovation in the world. The first satellite was launched last December 18 from the Kourou Space Centre in French Guiana. During the subsequent in-flight test phase, the satellite was programmed to acquire the first data in the various operating modes of the SAR (Synthetic Aperture Radar) sensor. These data have been acquired and processed by the civil User Ground Segment (UGS) of the **Matera Space Centre** producing extraordinary images of our Planet: from Australia to the Falkland Islands; from the Philippines to Mexico to New Guinea. In attached to the press release, some images about Italy, Germany and Iceland.

The COSMO-SkyMed constellation was designed and built in Italy with an important contribution from **Leonardo**, through its subsidiaries and affiliates. In particular, **Thales Alenia Space**, a joint venture between Thales (67%) and Leonardo (33%) is responsible for the End-to-End system and the two Radar satellites, while **Telespazio**, a joint venture between Leonardo (67%) and Thales (33%) is responsible for the Ground Segment. In addition, Leonardo contributes to the programme by providing star trackers for satellite orientation, photovoltaic panels and electronic units for managing electrical power.

The CSG system, thanks to the technological innovations and innovative solutions introduced in the space and ground components, will guarantee **significant improvements compared to the first generation**, which is still operational today, in terms of performance, image quality, efficiency of services provided to civil and government users and longer service life. The high agility of the system, combined with a generational leap in technological terms, will allow a significant expansion of possible applications; they will include security and surveillance of territories and the prevention and analysis of disasters due to natural or anthropogenic causes.

The two new satellites - the second will be launched at the beginning of 2021 - together with the ground segment, represent the excellence of Earth observation systems with radar technology, both in terms of performance, such as geo-location and image resolution, and for the wide variety of dual services and



applications provided to government and civil users; the contribution that the system can provide to scientific research is also significant.

COSMO-SkyMed Second Generation images, as well as First Generation ones, are marketed worldwide by **e-GEOS** (80% Telespazio, 20% ASI).

COSMO-SkyMed represents the most ambitious satellite Earth observation programme ever carried out by Italy, with its exceptional operational capabilities dedicated to the prevention of environmental disasters, for the study of the Earth's surface and for safety. The system, thanks to radar technology, is able to observe the Earth from space with high resolution, in all weather and lighting conditions, both day and night.

Radar images acquired during some of the most severe natural disasters, such as cyclone Nargis in Burma, hurricanes Hannah and Ike on Haiti and earthquakes in Abruzzo, Emilia Romagna and Central Italy, have been used by humanitarian organizations involved in aid to the population. COSMO-SkyMed can be used for a wide range of services and applications, including detection of marine pollution, polar ice melting, monitoring of deforestation and desertification through multi-temporal analysis.

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