

Matera Space Centre



The Matera Space Centre, which opened in 1994, was created as part of the national and international network of centres and teleports operated by Telespazio, a joint venture between Leonardo (67%) and Thales (33%). It is located next to the Space Geodesy Centre of the Italian Space Agency (ASI), which opened in 1983. Together, the two centres constitute the space hub of Basilicata, dedicated to Earth Observation and Space Geodesy.

From the Matera Space Centre, which in 2009 became a part of e-GEOS - a joint venture between Telespazio (80%) and ASI (20%) - are operated the antennae and technologically advanced infrastructures necessary for the acquisition, processing, storage and distribution of data collected through remote sensing using the main Earth Observation satellites.

From here is also managed the production of geo information images and products used for services in near-real-time for maritime observation and emergency management. In particular, at the Matera Space Centre, e-GEOS is focused on the activities related to the development of services based on the data from the Italian radar satellite constellation COSMO-SkyMed, financed by ASI, MIUR and the Italian Ministry of Defence.

The Space Centre, in fact, is the main hub of the civil infrastructure of the programme and has been guaranteeing, from the launch of the first satellite in 2007, operative and maintenance services.

Since 2012 the Matera Space Centre of e-GEOS has been one of the three stations of the Core Ground Segment of the ESA for the reception and elaboration in near-real-time of radar and optical data acquired from the Sentinel satellites, as part of the European Earth Observation programme, Copernicus.



THE ACTIVITIES

The main activities conducted at the Matera Space Centre are Earth Observation and Space Geodesy.

EARTH OBSERVATION

The Matera Space Centre of e-GEOS offers services and products for Earth observation for primary public and private clients and partners. For the **Italian Space Agency** it operates the Italian Civil Ground Segment (I-CUGS) of the COSMO-SkyMed constellation satellite, and the operations for second generation satellites of this program (CSG) are underway.

For the **European Space Agency (ESA)** it acquires, elaborates, stores and distributes data for a variety of international satellite missions: ERS-1, ERS-2, ENVISAT, ALOS, MODIS, JERS, MOS-1, Landsat-5, Landsat-7, and, from 2013, Landsat-8.

For the **European Union**, under the Copernicus programme, the Core Ground Segment supplies services in near-real-time regarding the radar sensors of the satellites Sentinel-1A and Sentinel-1B, and multispectral sensors from satellites Sentinel-2A and Sentinel-2B, for the monitoring of the land, the oceans and the atmosphere, and for the management of emergencies.

For the **European Maritime Safety Agency (EMSA)** it carries out activities of acquisition and elaboration of data from the missions Sentinel-1, Radarsat and COSMO-SkyMed and services of maritime surveillance (oil spill and vessel detection). The information sent to the EMSA, within 30 minutes of the satellite passing, enables the monitored of oil pollution in the seas and the identification of ships responsible for illegal activities.

Lastly, in regards to e-GEOS contracts with public and private national and international end users, the Matera Space Centre conducts value-added data processing activities including orthorectification, image mosaicking and the extraction of digital elevation and terrain models, starting from optical and radar data collected both by aircraft and satellite, with the aim of managing and monitoring the area, and support activities in.

SPACE GEODESY

Activities of Space Geodesy are carried out for the Italian Space Agency (ASI) at the Space Geodesy Centre dedicated to professor Giuseppe "Bepi" Colombo, one of the key stations in the **global geodetic network** and pride and joy of Italy in the world.

These activities include operation of **Very Long Baseline Interferometry (VLBI)**, a radio telescope used for geodetic measurements through the observation of remote sources like Quasars; the operations of the **Matera Laser Ranging Observatory (MLRO)**, used to determine the exact orbits of artificial satellites and make high precision geodetic measurement; and lastly the operations of the **Italian GNSS Fiducial Network (IGFN)**, a permanent network of GNSS stations (Global Navigation Satellite System) created in 1995 to improve GPS data usability over the national territory.

With the optical telescope of the **Space Debris Observatory** space debris are monitored, as part of programs for both the ASI and ESA.

Lastly the Space Geodesy Centre lends itself also for the study of new technologies for quantum communication.

