



*The Sentinel-1A satellite*

## THE COPERNICUS PROGRAMME

Copernicus is the programme created to establish a European capacity for Earth Observation, and is coordinated and managed by the European Commission. Copernicus provides accurate, timely and easily accessible information that enables monitoring of the Earth, the sea and the atmosphere, understanding and mitigating the effects of climate change and ensuring civil security.

### TELESPAZIO ROLE

Telespazio is one of the major industrial players in the programme. The company is involved in the space component ground segment development and operations; operates (through subsidiaries e-GEOS, GAF and Telespazio VEGA UK) in emergency management, land and sea safety management, land resource management, and the monitoring of climate change; provides Earth observation data related to the Copernicus Contributing Missions COSMO-SkyMed and IRS.

In particular e-GEOS (Telespazio 80%/ASI 20%) won two tenders launched by the European Commission as part of the Copernicus programme and in 2012 e-GEOS' Matera Space Centre became one of the three stations part of the Copernicus Core Ground Segment. It receives radar and optical data acquired by sensors aboard Sentinel-1 and Sentinel-2 mission satellites.

The Italian company, which operates in the Earth observation services sector, provides geospatial information and satellite maps of areas affected by emergencies to the European Commission, which is thus able to make the data necessary to manage disasters available to the civil protection services and competent authorities of EU countries. Furthermore, the Commission may make pre and post-event maps of any area in the world available within a few hours of the emergency arising, thereby facilitating the organization of aid operations. The 24-hour-a-day service can be used in all crisis situations (floods, earthquakes, fires, technological disasters) and is managed by e-GEOS, which leads a consortium consisting of German subsidiary GAF, Italian company Ithaca and French group SIRS.

## TELESPAZIO AND ESA'S SENTINELS

ESA is developing six missions called Sentinels specifically for the operational needs of the Copernicus programme. Sentinels provides radar and optical high resolution images of our planet. Telespazio participates in the creation, maintenance and evolution of the Payload Data Ground Segments (PDGS) for Sentinel-1 and Sentinel-3 (led by Telespazio VEGA Deutschland), the mission Control System of Sentinel-1, Sentinel-2, Sentinel-3 and Sentinel-5P and the infrastructure for access to the Earth observation products of the Copernicus missions (Copernicus Space Component Data Access/Coordinated Data Access System - CSCDA/CDS).

In the field of operations, Telespazio's staff supports ESOC (ESA's Space Operations Centre) during the pre and post launch phases of the Sentinel satellites, and is responsible for CSCDA/CDS operations as well as Sentinel-1 and Sentinel-2 data acquisition from its Matera Space Centre (through its subsidiary e-GEOS). Telespazio will also be responsible for managing operations in the Sentinel-3 ground segment until 2021.

## ESA'S SENTINELS SATELLITES: SERVICES AND APPLICATIONS

The Sentinels already provide high resolution radar and optical images of our planet and will continue to do so in the future. In particular:

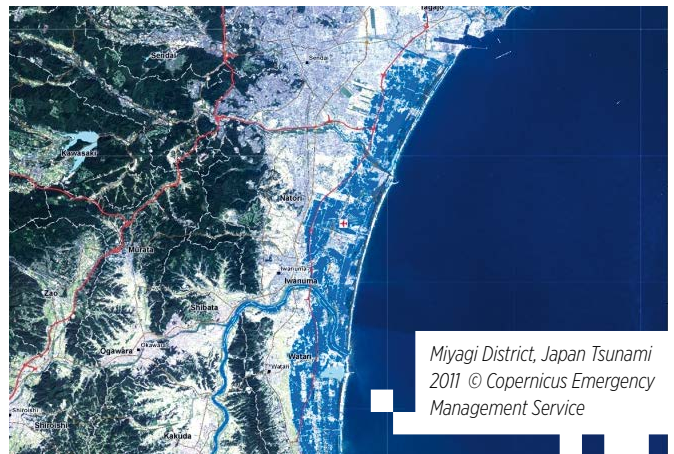
**Sentinel-1** is a polar-orbiting, all-weather, day-and-night radar imaging mission for land and ocean services. The first Sentinel-1 satellite was launched in 2014.

**Sentinel-2** is a polar-orbiting, multispectral high-resolution imaging mission for land monitoring providing, for example, imagery of vegetation, soil and water cover, inland waterways and coastal areas. Sentinel-2 also delivers information for emergency services. The first Sentinel-2 satellite was launched in 2015.

**Sentinel-3** is polar-orbiting, multi-instrument mission to measure variables such as sea surface topography, sea- and land-surface temperature, ocean colour and land colour with high-end accuracy and reliability. The first Sentinel-3 satellite was launched in 2016.

**Sentinel-4** is a payload that will be embarked upon a Meteosat Third Generation-Sounder (MTG-S) satellite in geostationary orbit. Sentinel-4 is dedicated to atmospheric monitoring.

**Sentinel-5** is a payload that will be embarked on a MetOp Second generation satellite, also known as Post-EPS. Sentinel-5 is dedicated to atmospheric monitoring.



**Sentinel-5 Precursor** satellite mission will be dedicated to atmospheric monitoring.

**Sentinel-6** will provide high accuracy altimetry for measuring global sea-surface height, primarily for operational oceanography and for climate studies. It is a cooperative mission developed in partnership by Europe (EU, ESA and EUMETSAT) and the U.S. (NOAA and NASA).

