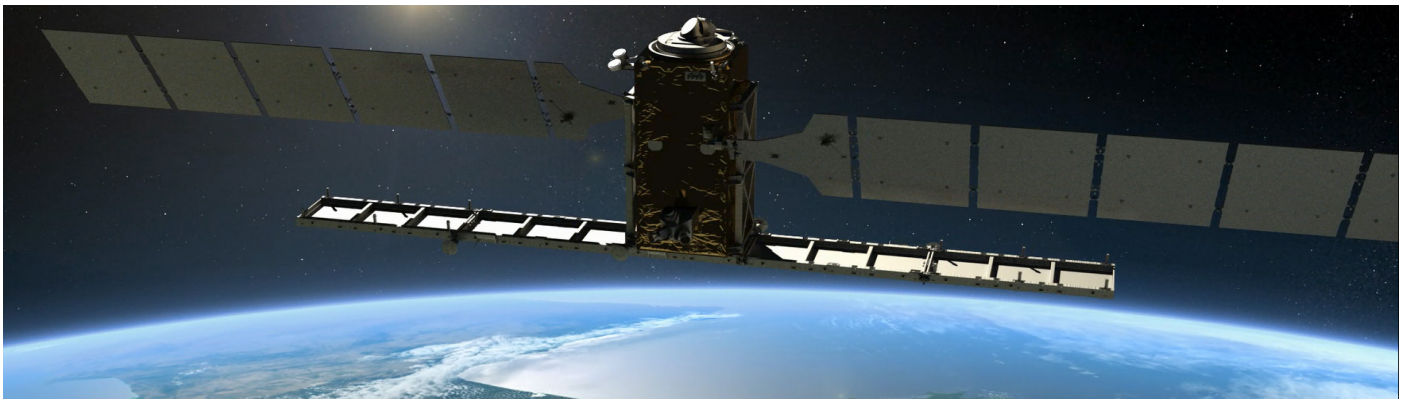
European Commission

Copernicus

Copernicus is the European Earth Observation and Monitoring Programme



What is Copernicus?

Copernicus is an EU Programme aimed at developing European information services based on satellite Earth Observation and in-situ (non-space) data analyses. This initiative is headed by the European Commission (EC) in partnership with the European Space Agency (ESA) and the European Environment Agency (EEA).

It is the first time that vast amounts of global data from satellites and from ground-based, airborne and seaborne measurement systems are being used to provide information to help service providers, public authorities and other international organisations improve the quality of life for the citizens of Europe. The information services provided will be freely and openly accessible to its users.

How does Copernicus collect data?

The Copernicus system comprising both **the Space Component** and **the In-Situ Component** has been specifically designed to meet user requirements. It delivers near-real-time data on a global level which can also be used for local and regional needs, to help us better understand our planet and sustainably manage the environment we live in.

Copernicus observes from Satellites: Copernicus will be served by a set of dedicated satellites (the Sentinels) and contributing missions (existing commercial and public satellites). Sentinel 1, the first of the Sentinel missions, designed specifically for Copernicus by ESA, launched on April 3rd, 2014, will provide a unique set of observations, starting with high-resolution, all-weather, day and night radar images to be used for land and ocean services.

Copernicus collects information from In-situ systems such as ground stations, which deliver data acquired by a multitude of sensors on the ground, at sea or in the air. These data come from European and non-European organisations and from Member States as well.

Copernicus monitors: It stores the information and keeps track of changes or recurring phenomena: this constitutes a large amount of reliable and up-to-date information on the status of our planet.

Copernicus analyses: The data is analysed in a way that generates indicators useful for researchers and end users, providing information on past, present and future trends. They can analyse, for example, the air quality in our cities and detect visible and noticeable increases in air pollution (smoke, dust, smog) or analyse the rise in global sea levels.

What happens to the data?

The Copernicus system delivers data and information to Copernicus users, supplied on a long term and sustainable basis through a set of services. The EC funds companies and public entities which provide these services. The information can be used by end users for a wide range of applications in a variety of areas. These include urban area management, sustainable development and nature protection, regional and local planning, agriculture, forestry and fisheries, health, civil protection, infrastructure, transport and mobility, as well as tourism.

What are the services?

The services address six thematic areas:

An Atmosphere Monitoring Service
→ pre-operational mode;

A Marine Environment Monitoring Service
→ pre-operational mode;

A Land Monitoring Service
→ now operational;

A Climate Change Service
→ development phase;

An Emergency Management Service
→ now operational;

A Security Service
→ development phase;

What is the added-value of the Copernicus System?

- Guarantee of service, providing global spatial coverage;
- Near-real time data provided to end users;
- Enable integration of the data (space and in-situ) and analyses;
- High resolution images, and lower resolution overviews;
- Regular and systematic review of data;
- Reduced reaction time to enable better response to man-made or natural disasters;
- Global/Pan European Approach to Earth monitoring.

The Copernicus data policy promotes the access, use and sharing of Copernicus information and data on a full, free and open basis.

How does Copernicus help the citizens of Europe?

Copernicus is the concrete realisation of the European idea of providing our citizens with new public services on both a European and global scale. By investing in Earth monitoring and observation systems and networks, which monitor and forecast the state of the environment on land, sea and in the atmosphere, we are now better able understand our planet, protect and sustain our environment and feel more safe and secure.

Copernicus in Action (examples)

- The Marine environment monitoring service provided data on oil spill scenarios to the Italian Coast Guard during the parbuckling of Costa Concordia;
- During the terrible floods that hit central Europe in 2013 the Emergency Management Service (GIO-EMS) provided reference maps and flood delineation to the affected areas;
- Copernicus also plays an important role in creating business opportunities for small and medium-sized enterprises, which create jobs and growth. The impact of the Copernicus programme is estimated at some 48,000 jobs over the period 2015-2030.