



Copernicus: Taking the pulse of our planet

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Copernicus, regarded as the world's most ambitious environmental satellite programme to date, is the European effort to create an operational system capable of collecting a comprehensive set of Earth observation parameters that will help to identify, respond and adapt to global phenomena like climate change.

Copernicus primarily builds on the data collected from Earth Observation satellites — satellites specifically built for the programme, the Sentinels, and other missions from which part of the data is used by Copernicus — all of them making up the Copernicus space component.

The Copernicus services transform this wealth of data into value-added information by processing and analysing the data, integrating it with other sources and validating the results. Scientists, weather forecasters, policy-makers and resource managers will be using, among others, all this data to act on for the benefit of all citizens.

The overall project manager of Copernicus is the European Commission, whereas the European Space Agency is tasked with the coordination of the space component, e.g. developing, launching, and operating the Sentinel satellites with EUMETSAT as partner. The Space Component is co-funded by ESA and the European Union.

Data from the Sentinel satellite fleet are distributed worldwide free of charge. Around 15 Terabytes of data are generated and distributed every day to a user base of nearly 200.000 – making it one of the largest data producers in the world. The differently-instrumented Sentinel satellites include high-resolution multi-spectral cameras, radar systems capable of day-and-night, all-weather imaging as well as specialised sensors for the measurements of sea/land topography, atmospheric changes and surface temperature.

As such, taking the pulse of an ever-changing planet, Copernicus is considered an operational program with satellites being produced in series to ensure data continuity over a long period.

The future evolution of the space component has already started with a large set of concrete needs and requirements gathered over the last 2 years to improve the monitoring of our planet's health. New user and observation requirements like CO₂ measurements to estimate anthropogenic emissions, high-resolution thermal observations, monitoring of sea ice and ice sheets in the polar regions, hyper-spectral measurements or SAR L-band observations have been identified, structured and prioritized in a continuous reflection process led by the European Commission, and with the main support of ESA and other partners.

Copernicus supports some of the main United Nations Sustainable Development Goals by helping mitigating climate-related disasters, monitoring the rise of global temperatures and the increase in marine pollution coming from land-based sources, and ensuring sustainable urban development, just to name a few.

This presentation will therefore give an overview of the current status and future perspectives of the Copernicus space component.