



Evolution of the Copernicus Space Component: preparing for tomorrow

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Copernicus, the ambitious and unique worldwide Earth Observation programme led by the EU, ensures the regular observation and monitoring of Earth's atmosphere, oceans, and continental surfaces, and provides reliable, timely and accurate information to support a broad range of environmental and security policies.

The space component of Copernicus is composed of a fleet of satellite missions specifically developed to satisfy Copernicus user needs (the Sentinel families) and also of satellites from other space agencies or organisations, not designed originally for Copernicus, but contributing to the programme (Contributing Missions).

The data from the Copernicus satellites, along with some in-situ data, feeds a range of information services in six thematic domains: ocean, land, atmosphere, emergency response, climate change and security.

The first two Sentinel satellites (an imaging all-weather night-and-day radar mission, called Sentinel-1, and a high resolution multi-spectral optical mission, Sentinel-2) have already been launched in 2014 and 2015, respectively. The third one (a multi-instrument global sea/land monitoring mission, called Sentinel-3) will be launched in the next weeks.

The remaining families will join in the following years and will cover all environmental domains: Sentinel-4, Sentinel-5 precursor and Sentinel-5 will be aimed at monitoring the air quality, stratospheric ozone and solar radiation at high temporal and spatial resolution, while Sentinel-6 will provide high precision ocean altimetry measurements.

With two spacecraft of each Sentinel type flying simultaneously and two additional identical spacecraft in the making to replace the first couples at the end of their lifetimes, the provision of environmental information of our planet will be guaranteed until at least 2035.

In the meantime, new priorities have been introduced in the EU policies arising from recent events in Europe and new societal needs; migration issue, better management of EU external borders, natural resources handling and climate change among others.

Copernicus has therefore to respond to the dynamics of the EU policies' priorities with the required rapidity and flexibility, bringing concrete results in terms of information and growth (Sentinels' evolution) and, at the same time, taking account of the continuity of existing Sentinels data and Services (Second Generation).

The Sentinels' evolution, more time stringent than the Second Generation, is a joint EU-ESA endeavour just started concerning a CO₂ monitoring mission. Other domains/techniques under investigation for future missions are: polar ice/ocean interferometric altimetry, thermal Infrared, soil moisture or hyper-spectral land imaging.

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