sentinel-5p

→ GLOBAL AIR MONITORING
FOR COPERNICUS

Satellites to serve

The Sentinels are a new fleet of satellites designed to deliver the wealth of data and imagery that are central to Europe’s ambitious Copernicus programme. This unique global monitoring initiative – the largest in the world – is making a step change in the way we manage our environment, understand and tackle the effects of climate change, and safeguard everyday lives.

Global air quality monitoring

Sentinel-5 Precursor is the first Copernicus mission dedicated to monitoring our atmosphere. With air pollution a major concern, this new satellite carries the state-of-the-art Tropomi instrument to map a multitude of trace gases such as nitrogen dioxide, ozone, formaldehyde, sulphur dioxide, methane, carbon monoxide and aerosols – all of which affect the air we breathe and therefore our health, and our climate.

With a swath width of 2600 km, it will map the entire planet every day. Information from this new mission will be used through the Copernicus Atmosphere Monitoring Service for air quality forecasts and for decision-making. Data are free of charge and open to users worldwide.

For a better quality of life

In 2012, poor air quality in Europe caused almost 500 000 premature deaths. Tropomi – a spectrometer – will map the global atmosphere every day with a resolution as high as 7 km × 3.5 km. At this resolution, air pollution over cities can be detected. The mission will also contribute to services such as volcanic ash monitoring for aviation safety and for services that warn of high levels of UV radiation which can cause skin damage. In addition, scientists will also use the data to improve our knowledge of important processes in the atmosphere related to the climate and to the formation of holes in the ozone layer.

Teamwork

The Sentinel-5 Precursor mission is the result of close collaboration between ESA, the European Commission, the Netherlands Space Office, industry, data users and scientists. Building on heritage from a number of European atmospheric missions going back to the 1990s, Sentinel-5 Precursor was designed and built by a consortium of 30 companies under the leadership of Airbus Defence and Space NL and UK.
Second half 2017

Rockot from Plesetsk, Russia

Polar, Sun-synchronous at altitude of 824 km and in formation with Suomi-NPP of US National Oceanic and Atmospheric Administration

Daily global coverage (13:30 mean local solar time)

Minimum of seven years (consumables for 10 years)

3.35 m high, 5.63 m diameter and a mass of 820 kg (including 82 kg fuel)

Tropospheric Monitoring Instrument (Tropomi).

Swath width of 2600 km covering bands in ultraviolet and visible (270–495 nm), near infrared (675–775 nm) and shortwave infrared (2305–2385 nm) at a spatial resolution as high as 7 km x 3.5 km

Scientific data: transmitted to Svalbard (NO) and Inuvik (CA)

Telemetry data: transmitted to Kiruna (SE), Svalbard and Inuvik

Telecommand: from Kiruna

To provide global information on a multitude of atmospheric trace gases, aerosols and cloud distributions affecting air quality and climate

Developed jointly by ESA and Netherlands Space Office, managed by ESA

ESA Member States, Netherlands Space Office and the EU

Airbus Defence & Space NL and UK

sentinels.copernicus.eu

For further information
ESA Media Relations Office
Tel: +33 1 5369 7299 | Fax: +33 1 5369 7690
media@esa.int | www.esa.int