European Commission

European Space Agency

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

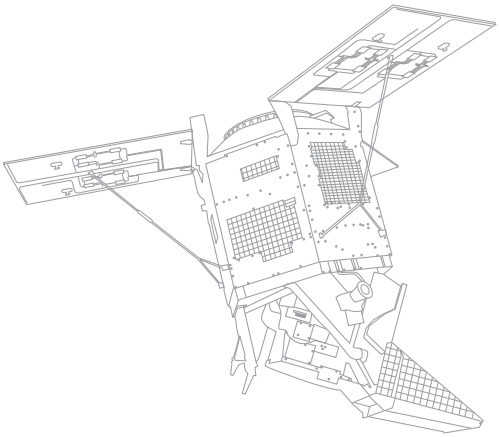
In 2012, poor air quality in Europe caused almost 500 000 premature deaths. Tropomi – a spectrometer – will map the global atmosphere every day with a resolution as high as 7 km × 3.5 km. At this resolution, air pollution over cities can be detected. The mission will also contribute to services such 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.

Credits: ESA/ATG medialab

opernicus
Europe's eyes on Earth



Facts and figures

Launch	Second half 2017
Launcher	Rockot from Plesetsk, Russia
Orbit	Polar, Sun-synchronous at altitude of 824 km and in formation with Suomi-NPP of US National Oceanic and Atmospheric Administration
Revisit time	Daily global coverage (13:30 mean local solar time)
Life	Minimum of seven years (consumables for 10 years)
Satellite	3.35 m high, 5.63 m diameter and a mass of 820 kg (including 82 kg fuel)
Instrument	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
Receiving stations	Scientific data: transmitted to Svalbard (NO) and Inuvik (CA) Telemetry data: transmitted to Kiruna (SE), Svalbard and Inuvik Telecommand: from Kiruna
Data processing and dissemination	DLR German Aerospace Center
Main applications	To provide global information on a multitude of atmospheric trace gases, aerosols and cloud distributions affecting air quality and climate
Mission	Developed jointly by ESA and Netherlands Space Office, managed by ESA
Funding	ESA Member States, Netherlands Space Office and the EU
Prime contractors	Airbus Defence & Space NL and UK
Technical information	sentinels.copernicus.eu

For further information
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Sentinel-5P provides global maps of atmospheric gases such nitrogen dioxide, ozone, formaldehyde, methane and carbon monoxide. (KNMI/CCI)