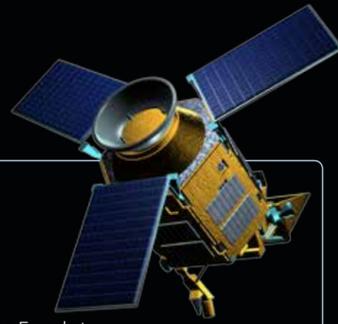
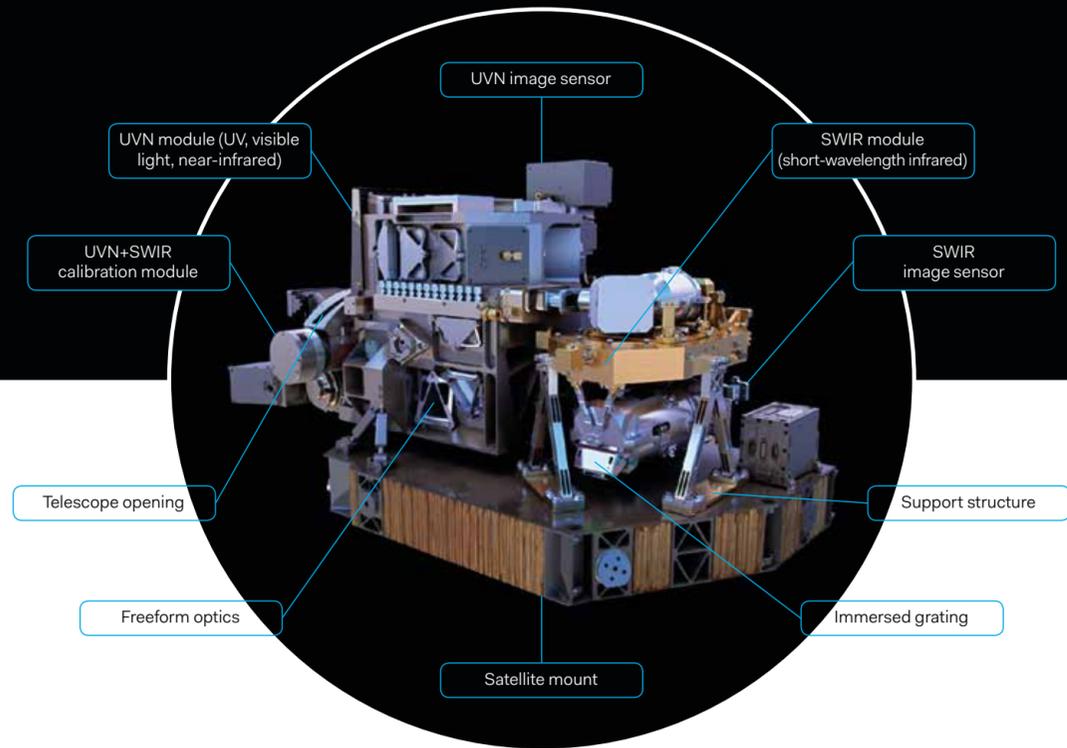


Tropomi facts



Name Tropomi (TROPOspheric Monitoring Instrument)
Mission Climate change research and air quality management
Platform The Sentinel-5 precursor satellite
Weight ~220 kg (Tropomi) | ~900 kg (Sentinel-5p)
Position Polar orbit, 824 kilometre attitude, 98.74 degree inclination, sun-synchronous
Launch Date: 2017 | Launcher: Rocket | Location: Plesetsk Cosmodrome, Russia | Carrier: Eurokot
Nominal mission 7 years (2017-2024)



How Tropomi works

Tropomi orbits the Earth at a height of 824 kilometres. Thanks to its polar orbit, the instrument can map Earth's atmosphere in one day, every single day. Tropomi measures the light reflected by the atmosphere and compares this with direct sunlight. Since each atmospheric gas absorbs light of a certain wavelength, Tropomi can determine the quantity of each gas present in the lowest layer of Earth's atmosphere (the troposphere).



Light enters the instrument via the telescope opening.



Light travels through the Tropomi instrument thanks to freeform optics. Purple represents UV, red is near infrared and yellow is visible light.



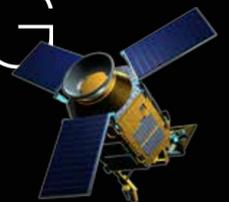
Tropomi is a partnership between Airbus Defence and Space Netherlands, KNMI, SRON and TNO, on behalf of the NSO and ESA. Airbus DS NL is the prime contractor for the design and building of the instrument. The scientific management is in the hands of the KNMI and SRON. TROPOMI is funded by the Ministry of Economic Affairs, the Ministry of Education, Culture and Science and the Ministry of Infrastructure and the Environment.

Tropomi
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Colophon
 Publication: Netherlands Space Office | Design: Smidswater | Text: Sander Koenen



OBSERVING OUR FUTURE



Tropomi spectral window



Tropomi is a satellite instrument that can monitor air quality more precisely than ever before. We know exactly how clean our air is. Governments can check if environmental agreements are being adhered to. And scientists can monitor the welfare of our planet, now and in the future.

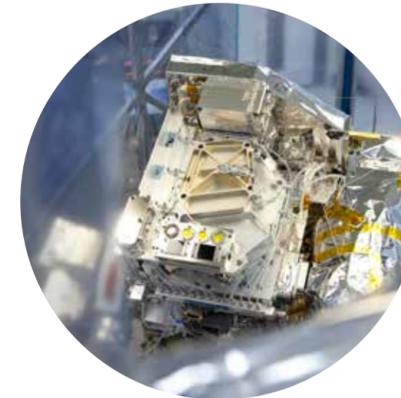
High tech in Holland

Tropomi unites technological innovation with world-class science. Data provided by this mission are of vital importance to our daily lives and for global climate research.

With Tropomi, the Dutch space industry is about to set a new standard for satellite instruments. Its unprecedented accuracy allows scientists to understand our atmosphere down to a molecular level – thanks to high tech innovations, such as the immersed grating and freeform optics; both developed by Dutch engineers.

Tropomi maps the atmosphere from out in space, where the extreme conditions require technology that is robust, reliable and, at the same time, light.

The development of precision instruments that meet the stringent requirements of space has been a speciality in the Netherlands for decades.



Tropomi is the only instrument on board the Sentinel-5 precursor satellite. Sentinel-5p is part of the Copernicus Earth observation programme run by the European Commission in cooperation with the European Space Agency (ESA).



How clean is our air?



Our air needs to be clean and healthy. But how clean is it really and how are we affecting it? Satellites have revealed a painful reality.

Human activities, such as traffic and heavy industry, are causing an alarming amount of gas and dust emissions. With its unprecedentedly detailed view, Tropomi (TROPOspheric Monitoring Instrument) makes it perfectly clear how air pollution is caused and whether international agreements are paying off.

The data from Tropomi can also be used to warn pilots about volcanic activity that would make flying unsafe.



Cutting-edge science from space

Our planet's climate is changing – that is undeniable. But what exactly is changing? At what speed? How is it influenced by human activity? And what are the consequences for mankind? We can only answer these questions if we have access to reliable data, collected over a long period of time.

Tropomi is called on to accurately map Earth's atmosphere every single day. We can see exactly how air quality is changing.

Tropomi builds on the successes of other atmospheric instruments developed in the Netherlands such as Gome, Sciamachy and Omi. Thanks to this rich tradition, today we are world player when it comes to space research and the technology required.

