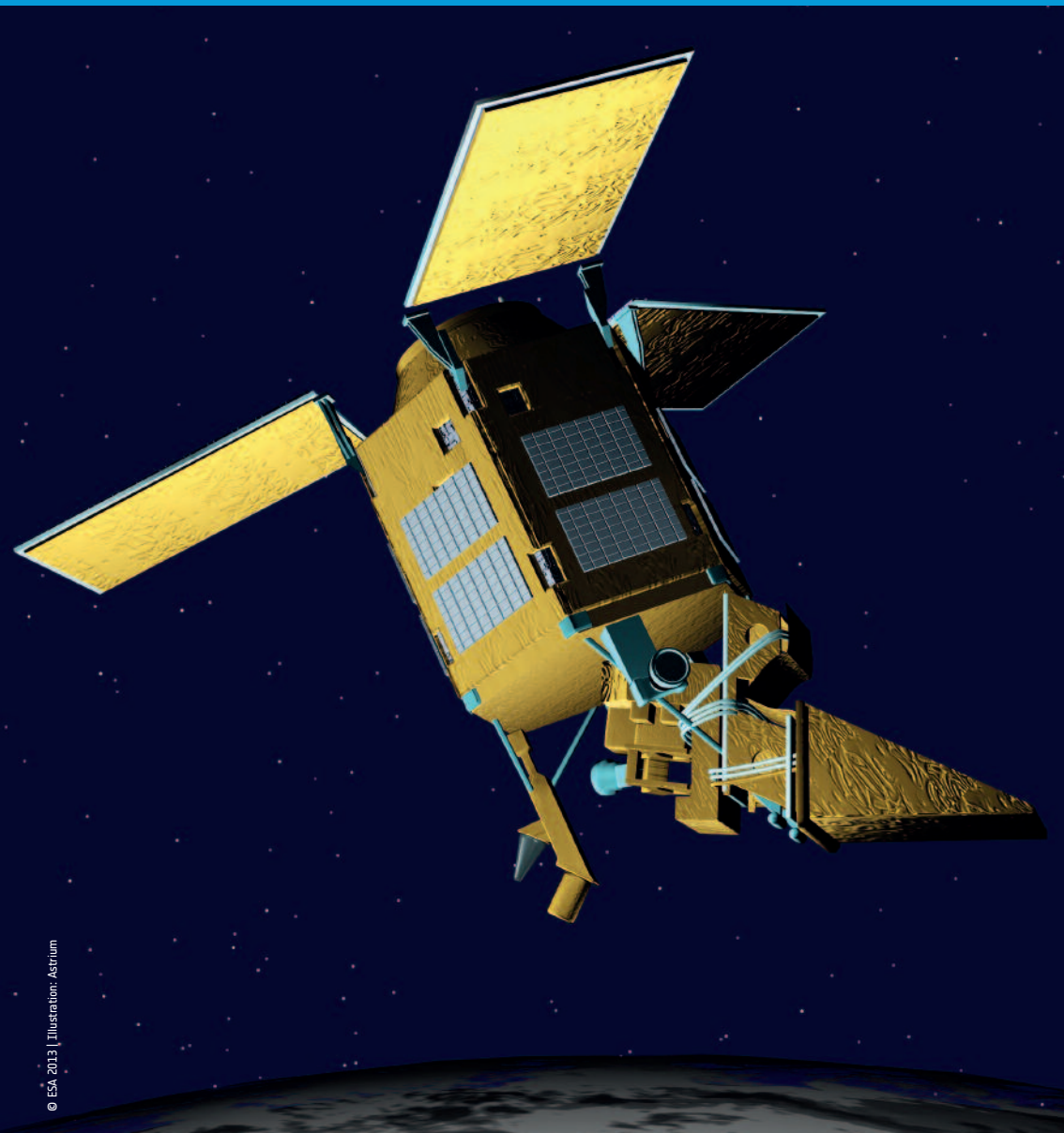


sentinel-5 precursor

→ COPERNICUS LOW EARTH ORBIT ATMOSPHERE MISSION





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Last update August 2013

MISSION OBJECTIVES

The Sentinel-5 precursor is a UV-VIS-NIR-SWIR spectrometer payload derived through tailoring of Sentinel-5 specifications, e.g. priority to spectral resolution, coverage, spatial sampling distance, signal-to-noise ratio and only high priority bands. It will bridge the gap between Envisat/EOS Aura and Sentinel-5 (the latter expected to be launched in 2020).

It will provide measurements of elements of atmospheric chemistry at high temporal and spatial resolution. Also, it will increase the frequency of cloud-free observations required for the study of troposphere variability. In particular the Sentinel-5 Precursor mission is expected to provide measurements of ozone, NO_2 , SO_2 , CO and aerosol.

MISSION PROFILE

- › Launch: 2015
- › Lifetime: 7 years
- › Orbit: sun-synchronous, 824 km, 13:30 h LTAN
- › Inclination: 98.742°

- › Repeat cycle: 17 days
- › Launcher: Compatible with VEGA and ROCKOT category of launchers

SATELLITE PLATFORM

- › Astrobus L 250 M from ASTRIUM
- › 3 axis stabilised with optional yaw steering
- › Launch Mass: 900 kg (incl. 80 kg fuel)
- › Spacecraft Power: 1500 W (EOL), 430 W average power consumption
- › Battery Capacity: 156 Ah
- › Data Storage Capacity: 480 Gbit (EOL) using flash-memory technology

- › Communication Links: S-Band TT&C with 64 kbps up-link and 128 kbps-1 Mbps downlink with ranging and coherency, X-Band Science Data downlink at 310 Mbps OQPSK
- › Propulsion: Mono-propellant hydrazine

SATELLITE PAYLOAD

- › Type: UV-VIS-NIR-SWIR push-broom grating spectrometer called TROPOMI
- › UVN module of TROPOMI provided as a national contribution by the Netherlands
- › Number of Channels: 4
- › Spectral Range: 270-495 nm, 710-775 nm, 2305-2385 nm

- › Spectral Resolution: 0.25-0.55 nm
- › Observation Mode: Nadir, global daily coverage, ground pixel 7x7 km²
- › Radiometric Accuracy: 2% approximately
- › Mass: 200 kg
- › Power: 170 W average
- › Data Volume: 140 Gbits/orbit