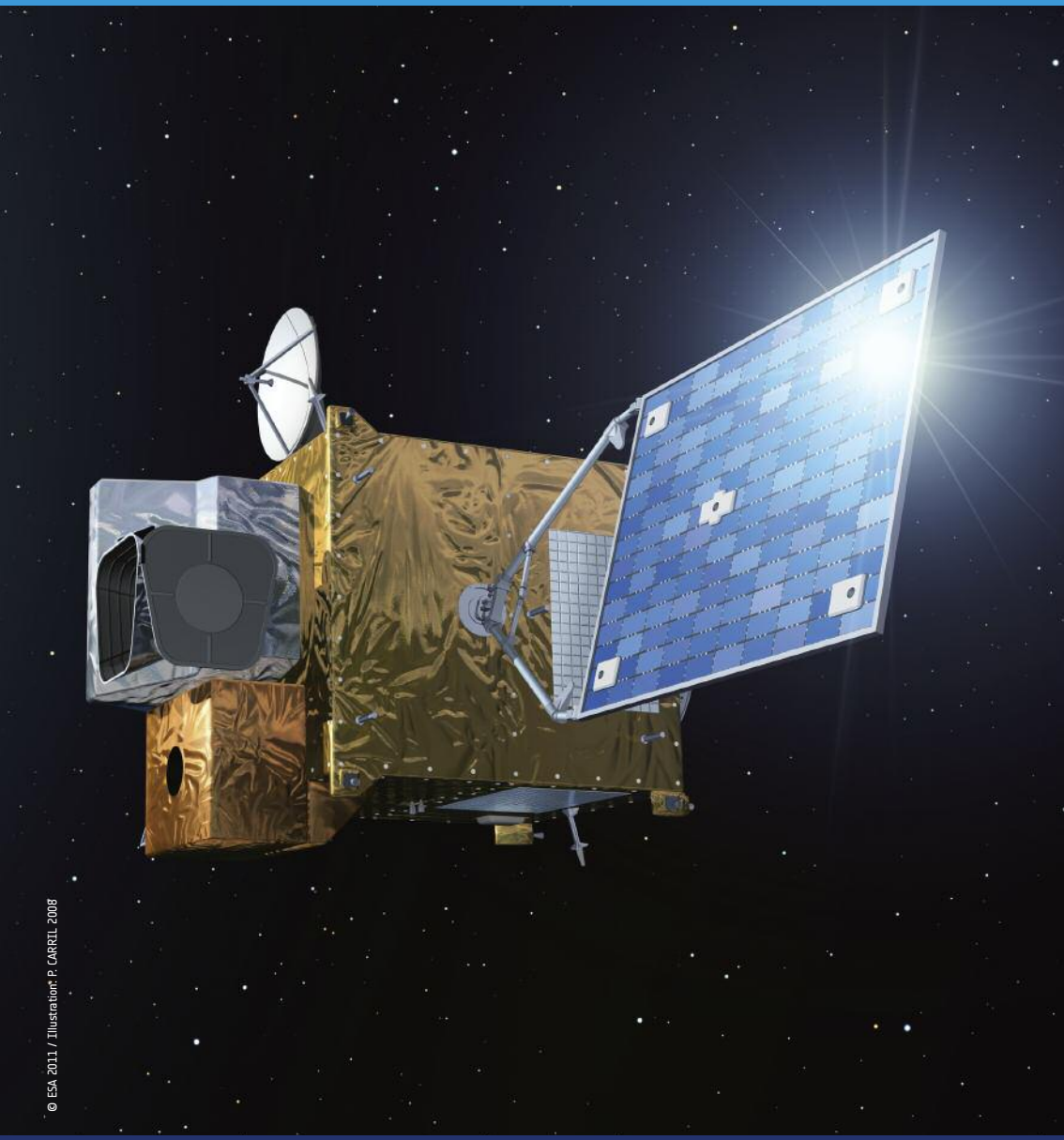
sentinel-4

→ GMES GEOSTATIONARY ATMOSPHERIC MISSION



sentinel-4

→ GMES GEOSTATIONARY ATMOSPHERIC MISSION

Last update March 2011

MISSION OBJECTIVES

The Sentinel-4 mission covers the needs for continuous monitoring of the atmospheric chemistry at high temporal and spatial resolution from the geostationary orbit. The main data products will be O_3, NO_2, SO_2, HCHO and aerosol optical depth, which will be generated with high temporal resolution (~ 1 hour) to support air quality monitoring and forecast over Europe.

The Sentinel-4 UVN instrument is a high resolution spectrometer covering the
› ultraviolet (305-400 nm),
› visible (400-500 nm)
› near-infrared (750-775 nm) bands.
The spatial sampling is 8 km and a spectral resolution between 0.12 nm and 0.5 nm (depending on the band).

MISSION PROFILE

The UVN instrument will be embarked on the Meteosat Third Generation (MTG) – Sounder satellite. Coverage is achieved by scanning by a fast repeat cycle over Europe and North Africa (Sahara) of 60 minutes (goal 30 minutes).
› Launched with MTG-S1 and MTG-S2.

SATELLITE PAYLOAD

Number of units

The instrument will be composed of 3 units:
› the Main Optical Unit that contains the optical and detection part
› the Video Electronic Unit
› the Instrument Control Unit

Instrument Characteristics

› Average power is 180 W
› Mass including electronics = 150 kg
› Power consumption = 180 W
› Data Rate during acquisition = <30 Mbps
› Mission reliability = >0.75 @ 8.5 years

Imaging coverage and instrument field of view

From the MTG-S satellite, the accessible area is 8.8° EW x 16.6° N-S (full angles – w/o margins), assuming a 180°-satellite yaw flip by the MTG-S satellite. Because of the yaw flip of the MTG-S satellite every 6 months, the 2-axis mechanism will allow to point both the northern and southern hemisphere. The instrument has a N-S field of view of: 3.4° (instantaneous during acquisition).