

# sentinel-4

## → COPERNICUS GEOSTATIONARY ATMOSPHERIC MISSION



Last update April 2015

### MISSION OBJECTIVES

The Sentinel-4 mission covers the needs for continuous monitoring from a geostationary orbit of the atmospheric chemistry in order to support air quality monitoring and forecast over the skies of Europe. The main data products will be O<sub>3</sub> (Ozone), NO<sub>2</sub> (Nitrogen dioxide), SO<sub>2</sub> (Sulfur dioxide), HCHO (Formaldehyde) and aerosol optical depth, which will be generated about every hour at a high spatial resolution.

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 resolution is 8 km while the spectral resolution in the three wavelength bands ranges between 0.12 and 0.50 nm.

### MISSION PROFILE

Two Sentinel-4 instruments will be embarked respectively on two Meteosat Third Generation-Sounder satellites (MTG-S1 and MTG-S2). Coverage of Europe and of North Africa (Sahara) is achieved by scanning an area of 8.8° East-West x 16.6° North-South (full angles, w/o margins) with a repeat cycle of about 60 minutes.

### SATELLITE PAYLOAD

#### Number of units

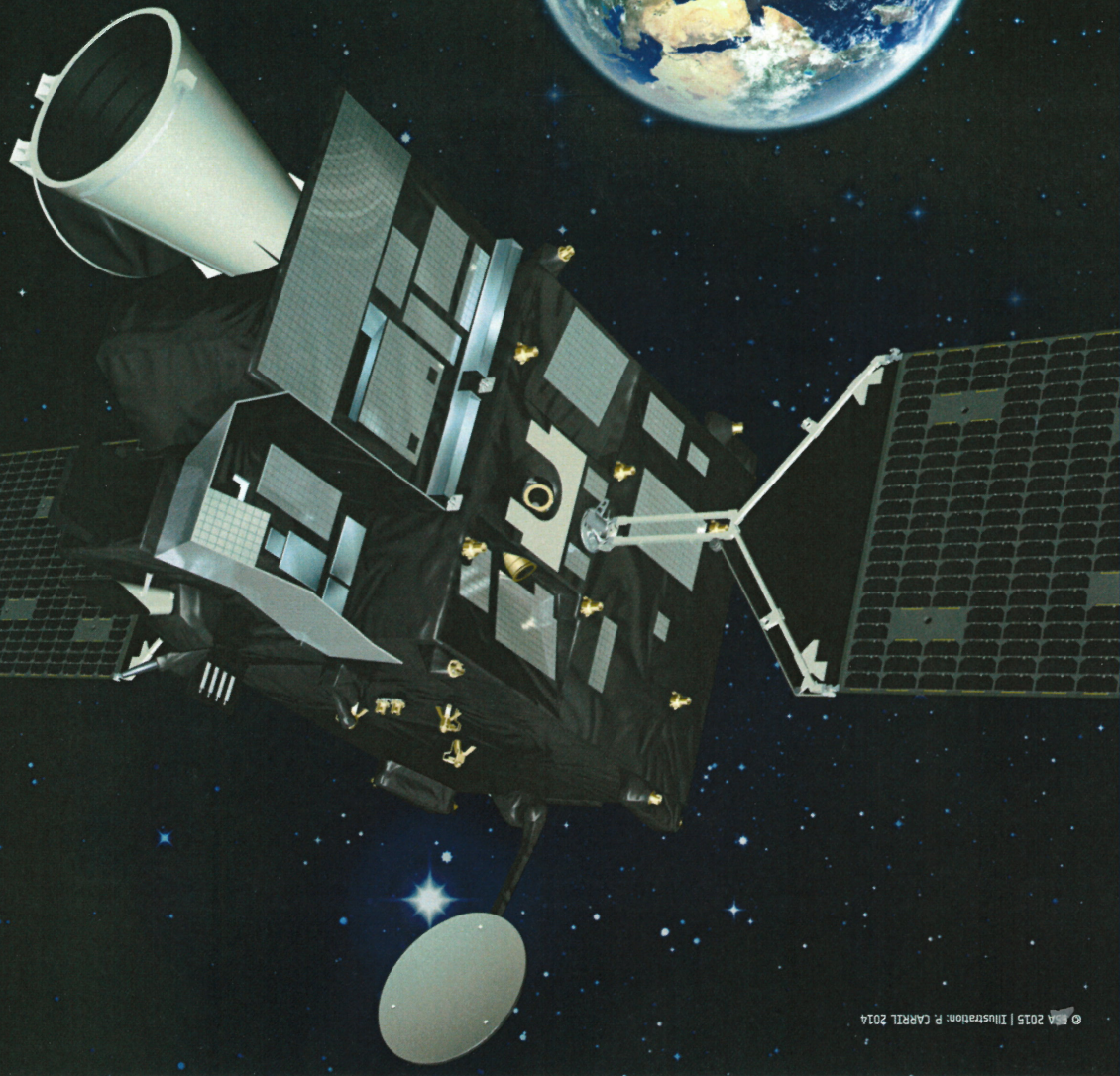
- The instrument will be composed of 3 units:
- > the Main Optical Unit which contains the optical and detection chain
  - > the Instrument Control Unit
  - > the Scan Drive Electronics Unit
- Instrument Characteristics**
- > Allocated mass: 200 kg
  - > Allocated mean power: 180 W
  - > Data Rate during 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).

# sentinel-4

## → COPERNICUS GEOSTATIONARY ATMOSPHERIC MISSION



© ESA 2015 | Illustration: P. CARILLI 2014