



## Mission Status Report 76

Reference Period: 01-15 Dec. 2020

sentinel-5p

→ GLOBAL AIR MONITORING  
FOR COPERNICUS

### Mission Status

#### Overall

- The mission, in Phase E2 (Operations Phase) since 24<sup>th</sup> April 2018, has reached routine operations capacity at the beginning of March 2019. Routine operations have not been affected by COVID-19.

#### Data availability and access

- Level 1B Radiance/Irradiance, Methane, Tropospheric Ozone (Offline); Carbon Monoxide, Formaldehyde, Nitrogen Dioxide, Sulphur Dioxide, Total Ozone, Aerosol Absorbing Index, Aerosol Layer Height and Cloud products (Offline and NRT) are available to the public via the Copernicus Sentinel-5 Precursor Data Hub – [s5phub.copernicus.eu](https://s5phub.copernicus.eu).

#### Platform

- All platform subsystems performed nominally.
- A Collision Avoidance Manoeuvre (CAM) was executed on 4<sup>th</sup> December. The manoeuvre was implemented with a new procedure prepared by the flight operations team at ESOC. The new CAM procedure allows the TROPOMI instrument to continue its measurements avoiding the previous data gap of ~10 orbits for similar manoeuvres. During the manoeuvre the instrument pointing was as expected non-nominal for 2 orbits (orbits 16284-16285), causing a non-nominal ground pixel size.

#### TROPOMI Payload

- The TROPOMI instrument continues measuring in nominal operations baseline with a 360 orbit repeat cycle and since 6<sup>th</sup> August 2019 with a spatial resolution of about 5.5 km along-track and 3.5 km across-track.

#### Ground Segment

- The status of both FOS and PDGS has been nominal. Routine scheduling, acquisition, processing and dissemination tasks were performed without major anomalies.
- The PDGS performed an upgrade on 2<sup>nd</sup> - 3<sup>rd</sup> December and NRT products for data acquired during the PDGS downtime period were not generated affecting the orbits 16256 - 16258.
- Due to data acquisition problems there were gaps in the NRT product generation affecting orbits 16362-16366 and 16378-16379. The non-time critical (OFFL) processing of these orbits was unaffected.
- Due to a Ground Segment anomaly affecting the background calibration the data quality of the TROPOMI NRT products Sulphur Dioxide and Formaldehyde was degraded: between 4<sup>th</sup> - 7<sup>th</sup> December for the Sulphur Dioxide product and between 5<sup>th</sup>-13<sup>th</sup> December for the Formaldehyde product.

#### Level 1B / Level 2 processors

- The PDGS upgrade on 2<sup>nd</sup> - 3<sup>rd</sup> December included the deployment of an improved NO<sub>2</sub> processor (version 01.04.00). With this version the tropospheric NO<sub>2</sub> vertical column amount is estimated to increase in the range of about 25% especially for anthropogenic emission regions, and this is in line with independent ground-based measurements and model inter-comparisons. A bug fix for a problem in the Ozone Tropospheric product (processor version 02.01.04), that affected only few measurements was implemented as well. The improved data are available starting with NRT orbit 16259 (2<sup>nd</sup> December 2020) and OFFL orbit 16213 (29<sup>th</sup> November 2020).

#### Cal/Val Activities

- The routine validation activities continued nominally for the publicly released products.
- The fourth Copernicus Sentinel-5 Precursor Quality Working Group (QWG) meeting took place on 3<sup>rd</sup> December via video-conference, with the main objective of discussing the TROPOMI data uncertainty characterization.

#### Outlook

- The KNMI and DLR-UPAS teams are working on improved L2 processor versions that are foreseen to be released in operations by April 2021, together with the deployment of the new L1b processor version 2.