

***Mission Status Report 103***

***Reference Period: 16-31 Jan. 2022***

***Mission Status***

Overall

* The mission, in Phase E2 (Operations Phase) since 24th 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, Level 2 Methane, Tropospheric Ozone (Offline); Carbon Monoxide, Formaldehyde, Nitrogen Dioxide, Sulphur Dioxide, Total Ozone, Ozone Profile, Aerosol Absorbing Index, Aerosol Layer Height and Cloud products (Offline and Near Real Time) are available to the public via the Copernicus Sentinel-5 Precursor Data Hub – s5phub.copernicus.eu.
* Since 15th December 2021 a new Nitrogen Dioxide dataset reprocessed with the Sentinel-5P Product Algorithm Laboratory (S5P-PAL) using the official processor Version 2.3.1 is available to the users to allow consistent long-term data analysis (e.g. trends in air pollution based on COVID-19 impact). It covers the time period 1st May 2018 to 14th November 2021 and is available at <https://data-portal.s5p-pal.com>. It is planned to replace this data set during 2022 by an upgraded product reprocessed with the PDGS (Payload Data Ground Segment).

Platform

* All platform subsystems performed nominally.

TROPOMI Payload

* The TROPOMI instrument continues measuring in nominal operations baseline with the 360 orbit repeat cycle and since 6th 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 (Flight Operations Segment) and PDGS has been nominal. Routine scheduling, acquisition, processing and dissemination tasks were performed without major anomalies.
* Some orbits were affected by acquisition problems leading to data loss in variable percentages:
* 16th January: orbits 22071 (3%), 22072 (100%), 22073 (100%), 22074 (90%)
* 19th January: orbits 22121 (4%), 22122 (92%)
* 20th-21th January: orbits 22139 (15%), 22140 (100%), 22141 (97%)
* 27th January: orbits 22237 (16%), 22238 (100%), 22239 (80%)

Level 1B / Level 2 processors

* In preparation for the next round of processor releases (planned during this year), analysis is ongoing of a Level 1B Test Data Set that includes a correction for the time dependent radiance degradation. The preliminary conclusion is that the implementation of the degradation correction is in line with the expectations.
* The analysis of the impact of the new Level 1B transient pixel flagging algorithm on Level 2 products has been completed, with the go-ahead to implement this algorithm in the Level 1B processor.

Cal/Val Activities

* The routine validation activities continued nominally for all products.

***Outlook***

* The next PDGS upgrade is planned during March 2022 to release improved Formaldehyde and Sulphur Dioxide products.
* Another PDGS upgrade is planned during June 2022 when new Level 1B and Level 2 processors will be released to be used for a full mission reprocessing campaign.

 *Report prepared by the ESA Sentinel-5 Precursor Team*