

***Mission Status Report 127***

***Reference Period: 16-31 Jan. 2023***

***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.

Operational Products availability and access

* Level 1B Radiance/Irradiance, Level 2 Methane, Tropospheric Ozone (Offline); Aerosol Absorbing Index, Aerosol Layer Height, Carbon Monoxide, Cloud, Formaldehyde, Nitrogen Dioxide, Ozone Profile, Sulphur Dioxide, and Total Ozone products (Offline and Near Real Time) are available to the public via the Copernicus Sentinel-5 Precursor Data Hub – <https://s5phub.copernicus.eu>.

Platform

* All platform subsystems performed nominally.

TROPOMI Payload

* The TROPOMI instrument continues measuring in nominal operations baseline with a 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 Flight Operations Segment (FOS) and Payload Data Ground Segment (PDGS) has been nominal. Routine scheduling, acquisition, processing and dissemination tasks were performed with one major anomaly on 16th January.
* The data production of orbits 27260 to 27261 and 27268 to 27275 was affected (delay, no data loss) by a fiber cable cut in Canada on 16th January. The technicians could solve the problem on 18th January.
* The full mission reprocessing of the Level 1B, Level 2 Sentinel-5P S-NPP Cloud information (auxiliary), Absorbing Aerosol Index, Aerosol Layer Height, Carbon Monoxide, Cloud, Methane, Nitrogen Dioxide, Total Ozone, and Tropospheric Ozone products was completed during end December 2022. The Sulphur Dioxide and Formaldehyde products reprocessing has started and is foreseen to finish by the first week of February.

Level 1B / Level 2 processors

* A new KNMI Ozone Profile processor will be put into operations during the next PDGS upgrade (March 2023). The aim is to significantly reduce the processing time by implementing the “checkerboard pattern” (i.e., processing of half of the ground pixels) in the Near Real Time processing chain.

Cal/Val Activities

* The routine validation activities continued nominally for all products.

PAL Activities

* Since 15th December 2021 a new Nitrogen Dioxide dataset reprocessed with the Sentinel-5P Product Algorithm Laboratory (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 2023 by an upgraded product reprocessed with the PDGS.
* Six pre-operational products (Aerosol Optical Thickness, Bromine Monoxide, Glyoxal, Sun-Induced Fluorescence, Water Vapour, and a Sulphur Dioxide product using the new Covariance-Based Retrieval Algorithm (COBRA)) are being provided to the public via <https://data-portal.s5p-pal.com>.

***Outlook***

* The full mission reprocessing campaign for all operational products is ongoing and is foreseen to finish during early 2023. The reprocessed datasets for the Absorbing Aerosol Index, Carbon Monoxide, Cloud, and Total Ozone products were released to the public on 5th December 2022. If product quality checks reveal no issues, there will be another public release during mid-end February for the Aerosol Layer Height, Methane, Nitrogen Dioxide, and Tropospheric Ozone products.

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