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Sentinel-5 Precursor Mission Performance Center

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Sentinel-5 Precursor (S-5P) is the first of a series of atmospheric chemistry missions within the European Commission's Copernicus Programme, launched successfully in October 2017. With a nominal lifetime of 7 years, S-5P will provide continuity in the availability of global atmospheric data products between its predecessor missions SCIAMACHY (Envisat) and OMI (AURA) and the future Sentinel-4 and -5 series. S-5P will deliver unique data regarding the sources and sinks of trace gases with a focus on the lower Troposphere including the planet boundary layer due to its enhanced spatial, temporal and spectral sampling capabilities as compared to its predecessors.
The S-5P satellite carries a single payload, namely TROPOMI (TROPOspheric Monitoring Instrument) that was jointly developed by The Netherlands and ESA. Covering spectral channels in the UV, visible, near- and short-wave infrared, it measures various key species including tropospheric/stratospheric ozone, NO_2, SO_2, CO, CH4, CH_2O as well as cloud and aerosol parameters.
To ensure that the TROPOMI data products during the operational phase E2 correspond to the mission requirements, a team of science-, algorithm- and instrument experts is responsible to carry out a number of dedicated tasks within the so-called Mission Performance Center, managed by ESA. These tasks include the routine quality control of Level a and Level 2 data products, the long term monitoring of the TROPOMI instrument sensor performance, the in-flight calibration and characterization of the TROPOMI instrument on-board S5P and the maintenance and evolution of the calibration, validation and processing algorithms.

This paper presents an overview of the Mission Performance Center functions and how these are implemented.