



Sentinel-5 Precursor: Early In-Flight Operation & Results

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As first atmospheric mission within the EC's Copernicus Programme the Sentinel-5 Precursor (S-5P) satellite was launched on 13 October '17. Following a flawless orbit injection and platform functional check-out the spacecraft's only payload instrument TROPOMI (TROPOspheric Monitoring Instrument) was switched on after a 25 days outgassing period.

Immediately after the instrument's radiant cooler opening, on 7 November '17, first Earth radiance measurements were acquired and an extensive in-flight calibration and characterization program was started. Besides Phase E1 specific measurements nominal Earth radiance and Solar irradiance observations were acquired for use in functional tests by the Level 1B / 2 processor developers. Various minor – though important – corrections to algorithms and configuration settings were identified leading to the installation of enhanced processor versions in the S5P Payload Data Ground Segment (PDGS) mid December '17. The updated processors were used to generate a first set of sample products (Level 1B & 2) for delivery to expert teams worldwide taking part in the S-5P CalVal Announcement of Opportunity project.

During the first part of the 6 months commissioning phase excellent performance of the S-5P satellite has been demonstrated and key parameters regarding the payload's radiometric sensitivity, spatial resolution and sampling capabilities could be fully verified. The Phase E1 specific measurement tasks will be completed in April '18 leading to the release of a second, overall update of L1B/2 processing chains and related calibration key data. The routine operations phase (Phase E2), with a nominal duration of 6.5 years, will commence immediately after the spacecraft In-Orbit Commissioning Review scheduled end April '18.

This paper will provide an overview of the S-5P commissioning tasks and report on results of early in-flight calibration activities. An outlook will be given on the transition to the routine operations phase.