



## **Geophysical validation of Sentinel-5P Methane and Carbon Monoxide using ground-based total column data from all stations of the TCCON and NDACC-IRWG networks (TCCON4S5P)**

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The Sentinel-5 Precursor (S-5P) satellite that was launched on 13 October 2017 is the first ESA Sentinel mission for atmospheric composition monitoring. It is a contribution to the European Commission Copernicus Programme to improve our understanding of the earth and its environment. The main objective of the S-5P mission is to perform atmospheric measurements with high spatio-temporal resolution to monitor air quality, climate forcing, ozone and UV radiation. The TROPOspheric Monitoring Instrument (TROPOMI) is the single payload onboard S-5P and measures the earth's reflected radiances from the ultraviolet to the shortwave infrared spectral range with a daily global coverage at a high spatial resolution of 7x7 km<sup>2</sup>.

In this presentation we will show the first validation results of the soon-to-be released S-5P methane product and the validation results of the carbon monoxide product from the start of the measurements in 2017 to the most recent available data. The validation study is performed as part of the ESA-AO project TCCON4S5P which uses data from all ground-based FTIR stations of the Total Carbon Column Observing Network (TCCON) and of the S-5P Mission Performance Centre (MPC) which uses publicly available data from the Network for the Detection of Atmospheric Composition Change – Infrared Working Group (NDACC-IRWG) and TCCON stations. The site-dependent biases and correlations will be discussed in detail with focus on different geophysical and meteorological conditions.