



First retrievals of glyoxal tropospheric columns from TROPOMI onboard the Copernicus Sentinel-5 Precursor Mission

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The TROPospheric Monitoring Instrument (TROPOMI) has been launched on October 13, 2017, aboard the polar orbiting platform Sentinel-5 Precursor (S5p). TROPOMI measures the Earth's radiance in the ultraviolet, visible, near and short-wave infrared spectral ranges with an unprecedented spatial resolution of $7 \times 3.5 \text{ km}^2$, providing important information on natural and anthropogenic emissions of trace gases and aerosols.

Although currently not part of the suite of operational products, glyoxal tropospheric columns retrieved from TROPOMI are expected to provide important and complementary information on VOC emissions and their localization. In the past, we developed a scientific retrieval algorithm relying on the DOAS approach which has been successfully applied to the GOME-2A/B and OMI observations in the visible spectral region. This algorithm will serve as the basis for the operational glyoxal product of the future Sentinel-5 instrument. In this work, we present first results of its application to TROPOMI spectra. Based on comparisons with OMI retrievals, we illustrate the benefit of the excellent TROPOMI spatial resolution and signal-to-noise ratio to better identify and characterize the sources of this challenging tropospheric trace gas.