Geophysical Research Abstracts
Vol. 21, EGU2019-9453, 2019
EGU General Assembly 2019

Tropospheric ozone columns observed by S5P/TROPOMI combined with BASCOE MLS data

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Sentinel 5 Precursor (S5P) satellite was launched into a polar orbit in October 2017, carrying the TROPOMI instrument. S5P has sun synchronous orbit with an equator crossing time of 13:30 LT. TROPOMI achieves an almost daily coverage, due to the wide swath width of 2600 km. The near-real-time (NRT) ozone total column is based on the two step DOAS approach, consisting of a slant column retrieval and an iterative AMF-calculation.
In this study we present tropospheric ozone columns based on total column from S5P and stratospheric column based on 4D-Var assimilation of Aura MLS ozone profiles. MLS profiles are assimilated by the Belgian Assimilation System for Chemical ObsErvations (BASCOE, Lefever et al., 2015, ACP) and are delivered with a time frequency of 3 hours. BASCOE stratospheric columns are interpolated linearly in time and space to TROPOMI total column locations before subtraction. To avoid potential errors we used only cloud free TROPOMI data.
After a brief introduction of the method the data will be compared to other tropospheric ozone data e.g OMPS or sondes. The study will focus be on the first year highlighting some tropospheric ozone hotspots like megacities.