

Minor comments

Line numbers are as in the revised manuscript.

-Please correct punctuations on lines 106 and 265.

Done

-L 135: "Within this project" -> "In this work"?

Done

-L.138: "first the PV, PT tropopause" Acronyms should be explained

Done

-L. 300-302: "The global mean difference between these two tropospheric ozone data equals 1.82 DU and might therefore explain at least half of the differences between our tropospheric ozone data set and OPMS-MERRA-2." As seen in Figure 7 (top), the differences in ozone due to different tropopause definitions in NH is ~2-5 DU, while the difference S5P-BASCOE minus OMPS-MERRA-2 (Figure 6, middle) is ~7-20 DU, which is much larger. Therefore, please either (i) replace "at least half" with "partly" or (ii) subtract the estimated difference due to different tropopause definitions from "S5P-BASCOE minus OMPS-MERRA-2" (add a subplot in Figure 6)

*A subplot was added (S5-BASCOE(2.5PVU) - OMPS-MERRA-2) to figure 7. It is the same as suggested by the reviewer (middle of figure6 - upper part of figure 7). Based on this we correct our previous statement from "at least half" to "to a large extend".*

-Related to shifting to the ocean and not observing strong enhancements over Africa (L 363- 367), you can also mention that this is a combined effect of TROPOMI low sensitivity near the ground and wind advection of both ozone and its precursors towards the west in the middle troposphere, as found by simulations using a chemistry-transport model (Sofieva et al., 2022).

*Thank you for pointing this out. The study by Sofieva et al. (2022) confirms the previous study by Maxim and Levy (2000) with respect to the transport of polluted air masses to the Atlantic and the enhanced concentration in the middle troposphere. TROPOMI and similar UV instruments are more sensitive to the trace gases in the middle troposphere compared to the ground level.*

*included:*

*It is remarkable that the ozone column over the African Continent is lower compared to the Atlantic ocean. The low sensitivity of TROPOMI to ozone in the lower troposphere might cause an underestimation if the ozone concentration is enhanced close to ground.*

*Tropospheric ozone over the tropical Atlantic ...*

Sofieva et al. (2022) included chemical transport models in their study and confirmed the enhanced columns over the Southern Atlantic in the middle troposphere. They also found low tropospheric columns over the African continent that can be attributed to the low sensitivity of UV nadir viewing satellites for boundary layer trace gases.

Reference:

Sofieva, V. F., Hänninen, R., Sofiev, M., Szeląg, M., Lee, H. S., Tamminen, J. and Retscher, C.: Synergy of Using Nadir and Limb Instruments for Tropospheric Ozone Monitoring (SUNLIT), Atmos. Meas. Tech., 15(10), 3193–3212, doi:10.5194/amt-15-3193-2022, 2022.