Atmospheric Measurement Techniques Discussions

Atmos. Meas. Tech. Discuss., community comment CC1
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Comment on amt-2022-23

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Community comment on "Tropospheric ozone retrieval by a combination of TROPOMI/S5P measurements with BASCOE assimilated data" by Klaus-Peter Heue et al., Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2022-23-CC1, 2022

This is a very nice tropospheric column ozone product and the fine horizontal resolution is amazing.
Regarding the case study of high ozone values above the southeastern USA, these enhancements are almost certainly due to high ozone levels in the upper troposphere, due to photochemical ozone production from lightning NOx. The papers listed below show the results from targeted ozonesonde campaigns that were designed to study this upper tropospheric phenomenon. To confirm that the TROPOMI ozone enhancements are in the upper troposphere you could check the ozonesondes from Huntsville, Alabama and the IAGOS aircraft profiles.

Ozonesonde profiles from Huntsville, Alabama can be found here:
https://gml.noaa.gov/aftp/data/ozwv/Ozonesonde/Huntsville,%20Alabama/100%20Meter%20Average%20Files/

IAGOS ozone profiles above the southeastern USA (Atlanta, Dallas and Houston) can be found here:
http://iagos-data.fr/#TimeseriesPlace:

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