Comment on acp-2022-202
Anonymous Referee #3


In this manuscript, a measurement report is given on the various ground-based measurements deployed during the TROLIX-19 field campaign in Cabauw, Netherlands during September 2019. The focus of the campaign and this paper was to provide comprehensive validation of the TROPOMI ozone profile retrievals using ozone lidar measurements, the measurement focused on in this paper, as well as ozonesondes, Pandora, Brewer, etc. Ozone lidar measurements were also compared against other satellite and model datasets, such as OMPS (satellite), MLS (satellite), and GEOS-CF (model). The authors also analyzed the temporal variability of full tropospheric and 0-2 km ozone columns using GEOS-CF, TROPOMI, ozonesondes, and ozone lidar.

The article provides a comprehensive analysis of the measurements and ancillary datasets used to demonstrate the variability of tropospheric and stratospheric ozone profiles during TROLIX-19. The authors clearly and concisely state the impact of the ground-based measurements have on understanding the capabilities and limitations of current polar orbiting and future geostationary ozone retrievals.

Specific comments:

Line 95: It would be worth mentioning how many stations are in the network
Line 145: Correct spelling of campaign

Line 147: Specify which radiosonde manufacturer was used and the specific model

Line 159: Put space between “are” and “used”

Figure 2: Add label to the color bar, include units

Line 233: It can be assumed that 4 km is chosen to investigate the model and observation difference observed between 3-5 km on 20-21 September. However, it should be specifically mentioned at the beginning of this paragraph why 4 km is chosen.

Line 279: Correct to say Figure 4, bottom panel