

Comments on Okamoto et al (2024)

This paper presents a study characterizing the vertical and horizontal distribution of tropospheric ozone over the South and Tropical Atlantic during February 2017 using a combined UV-IR product from IASI+GOME2, in situ airborne measurements from the Atmospheric Tomography Mission (ATom) and 3 reanalysis models.

The topic is important, but there are a few items that should be addressed as described below.

- 1) The observational data used within this study is very limited and should be expanded to include other vertical profiles available for your period of interest. Thompson et al (2021), which should be cited in this paper (and more recently Thompson et al (2025), presents a great reference for models and satellite products in the tropics, including the Atlantic, based on multiple SHADOZ ozonesonde stations within your region of interest. These stations include Ascension Island, UK, and Natal, Brazil, where vertical ozone profiles from 1998-2023 are available online here: <https://tropo.gsfc.nasa.gov/shadoz/Archive.html>. Also available during February 2017 is in situ ozone monitoring data from the Ascension Island station: <https://tropo.gsfc.nasa.gov/shadoz/Ascension.html>. It is important to provide insight from ground-based measurements for your tropospheric ozone discussion outside the limited aircraft flights and one satellite product.
- 2) Recent studies using ground-based and satellite observations discussing current tropical tropospheric ozone distributions should be addressed and cited: Thompson et al (2021; 2025) and Gaudel et al. (2024).
- 3) Based on the knowledge that UV/IR satellite products are limited with their sensitivity in the lower troposphere (using 0-3km layer here) and over water (versus land), have you done comparisons with similar tropospheric ozone satellite products? A demonstration of what the IASI-GOME2 vertical profiles, and other similar satellite products, look like over a tropical Atlantic site like Ascension Island for your period of interest would show the full extent of the vertical ozone distribution and any limitations in the presented satellite and model reanalysis. Pennington et al (2024) describes a joint AIRS/OMI ozone product similar to the IASI-GOME2 that could be used and Keppens et al (2025) provides a list of current tropospheric ozone observing satellite products that could be compared here.

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