

Interactive comment on “Tropospheric ozone climatology at two southern subtropical sites, (Reunion Island and Irene, South Africa) from ozone sondes, LIDAR, aircraft and in situ measurements” by et al.

et al.

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We thank the referee for his comments and suggestions that will be considered for the writing of the new version of the manuscript.

11066, I20 : During austral winter, maximum winds in the upper troposphere are located over South Africa. However, Reunion is located on the northern edge of the subtropical jet stream during this season. To clarify this statement, a new figure showing horizontal mean wind fields from reanalysis data and vertical wind fields from GPS data will be added to the manuscript, accordingly to the referee request.

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11070, section 2.2.2: A special attention will be brought to the rewriting of this section in the new version of the manuscript.

11072, section 3.4 and Figure 3: The referee comment will be included in the new version of the manuscript. We agree that a special care should be brought to discussions and conclusions about upper tropospheric mean ozone values where distributions of ozone content might not be normal and might be multimodal.

11073, section 4.1 : We thank the referee for mentioning this interesting approach. Diab et al. (2004) published a similar analysis based on a cluster classification of ozone profiles over Irene. This approach on the Reunion ozone database can be included in our future research projects .

Trend section : We agree that the variability in time of the tropopause height could influence the longer-term trend. It will be added to the discussion section of the revised version. However, for the discussion about trends on tropospheric layers (2-4km, 4-10km and 10-16km), we have chosen and we prefer to keep the fixed limits in order to compare the two different sites and different seasons, 16 km being generally under the thermal tropopause for the two sites. If one takes geophysical limits (as example height of the inversion of trade winds for the lower limits and height of the cold point tropopause for the upper limit), this comparison between different sites and seasons will be more questionable.

Diab, R. D., A. M. Thompson, K. Mari, L. Ramsay, and G. J. R. Coetzee (2004), Tropospheric ozone climatology over Irene, South Africa, from 1990 to 1994 and 1998 to 2002, *J. Geophys. Res.*, 109, D20301, doi:10.1029/2004JD004793.

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