

## Final Response to Reviewers

We thank the reviewers and editor for their final detailed comments on the manuscript. We have addressed these comments as described below. All reviewer/editor comments are presented in italic font while the author responses are displayed in standard font.

*1) In the first two sentences in the abstract you say “applied” but I think you mean “used”*

In accordance with this reviewer’s comment, we have replaced “applied” with “used” in the first two sentences of the abstract in the revised manuscript.

*2) Line 46 : The phrase “random bias” appears... I think you mean something else here.*

Thank you for catching this, we meant to say random errors. This has been corrected in the revised manuscript.

*3) Line 268: Most manuscripts just use “A” instead of “AK”. Consider using A alone because AK at first glance could mean A (matrix) multiplied by the Jacobian matrix K.*

Good point. In the revised manuscript, all occurrences of “AK” have been replaced by “A” or “averaging kernel”.

*4) Im not sure how Figure 7 and the corresponding discussion is useful for this paper. I would not expect 2km layers in the retrieved profile to have that much information about ozone variability (hence the reason for all the scatter). Consider coarsening the layers (e.g. 6 km) to be consistent with the DOFS in the tropospheric part of the profile. Alternatively just remove this figure and section as its confusing and you have already made your points about TOLNET / TROPOMI / CRIS comparison in previous sections.*

To address this final Reviewer #2 comment, we substantially revised Sect. 3.3.3 of the manuscript. The original Fig. 7 showing the evaluation of TOPAS retrievals at 2-km vertical layers has been moved to the supplemental information as Fig. S3. Text S1 has been added to the supplemental information in order to describe the results of Fig. S3. The updated Fig. 7 now shows the scatter plots of the TOPAS retrievals compared to TOLNet observations for two separate 6-km vertical layers in the troposphere. The text in Sect. 3.3.3 has been revised to discuss this new figure.