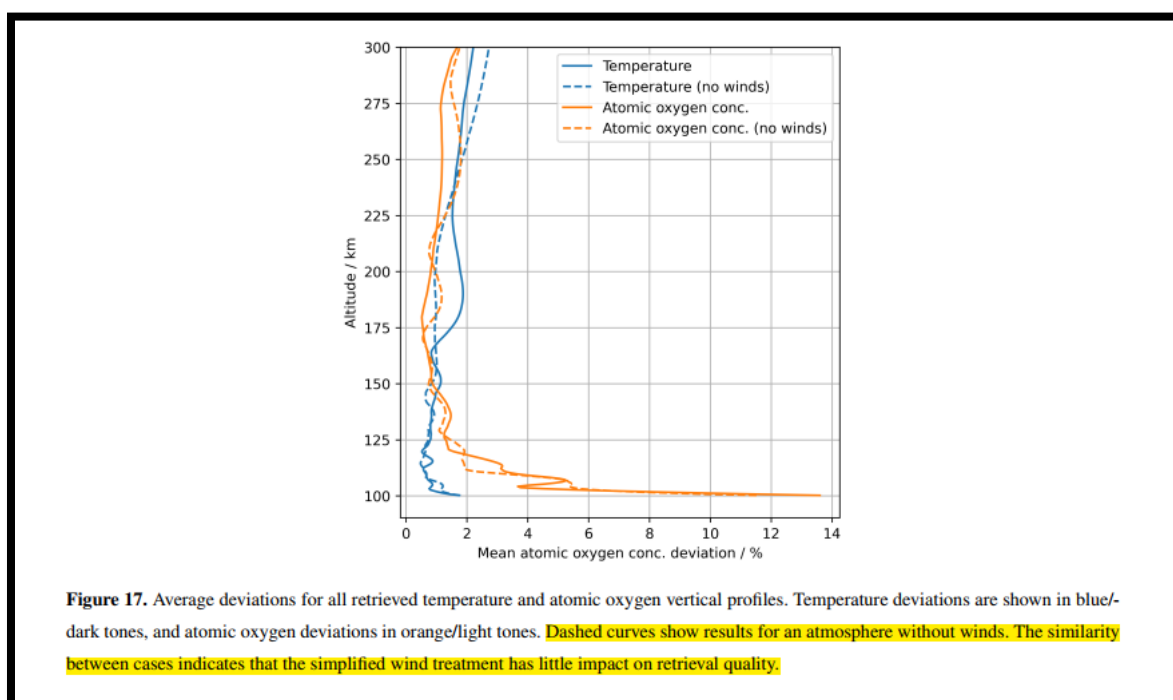


Again, we would like to thank the reviewer for the time and thoughts invested. We really appreciate that.

At this point, I only have one further suggestion. In their response to my review, the authors provided a lot of interesting information about the wind retrievals. I respect their decision not to include all of that in the manuscript: these details are not absolutely necessary given the limited claims regarding wind retrieval results that the authors make in this work, and this omission is also understandable given that a more detailed wind treatment might be in the works. However, Figure 4 in the authors response shows an important (and positive!) result, namely that a simulated retrieval with zero winds was also performed as part of this study and it showed that the simplified wind treatment does not result in meaningful degradation of atomic oxygen retrieval quality. The authors could consider mentioning that in the manuscript, as this would reassure the readers that winds, which were included in the generation of the simulated data set for the main retrieval, can truly be regarded as being out of scope of this work (and perhaps addressed separately later).

As requested by the reviewer we have included Figure 4 in the author response to the manuscript. It has been merged into Figure 17 in the original manuscript.



To accommodate the figure, we also added a little text in the results section.

with LOS passing through such low altitudes. To access the impact of the simplified wind treatment in the retrievals (the approximation of LOS winds by Doppler shifts), the retrieval simulations were repeated for an atmosphere without winds. The resulting average deviations are also shown in Figure 17. The deviations are similar in both cases and the simplified wind treatment has little impact on the retrieval quality. Results from single scan retrievals without any corrections for spherical asymmetry can be found in the supplementary material.