

Interactive comment on “Validation of ozone profile retrievals derived from the OMPS LP version 2.5 algorithm against correlative satellite measurements” by Natalya A. Kramarova et al.

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Referee: This paper is clearly presented and well organized to describe a newly upgraded retrieval algorithm for OMPS LP observations. The subject of the paper is appropriate to AMT. Below are a few comments concerning clarifications / extensions for consideration in the final publication in AMT.

Authors appreciate the referee's comments and provide point-to-point responses below.

[1] Referee: Have the impacts of algorithm updates on the data throughput/yields been

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estimated?

Authors: In the new version 2.5 we implemented two types of changes: calibration updates (including altitude corrections) and algorithmic changes. In Sec. 4.2 we compare v2.5 retrievals against the previous version 2. Where it is possible we attribute observed changes in ozone to a specific calibration/algorithmic update.

[2] Referee: For the comparisons among MLS, OSIRIS, ACE, have the contribution of the accuracy differences of spectroscopic parameter data across microwave-infrared-vis-UV ozone bands taken into account? The spectroscopic differences could be one of the observable sources that contribute to relative bias among data sets. Its quantification could help in bias corrections of data products.

Authors: We agree with the referee that the differences in the accuracy of spectroscopic data between UV/VIS, microwave and infrared spectral ranges can be responsible for a fraction of the observed biases among the instruments. However, in the presented study we did not attempt to account for these uncertainties.

[3] Referee: This paper has been focusing on the comparisons of OMPS LP central slit measurements with reference data sets. Could you consider to include discussions on the evaluation of the quality of OMPS LP retrievals using the measurements from OMPS LP left and right slits? or any possible approaches (e.g., via data assimilation system(s) + reference data sets) of estimating the quality of those retrievals

Authors: Internally, we analyzed the ozone retrievals from left and right slits, compared them with the data from the center slit and against independent instruments. We see consistent biases between the three slits that can not be explained by the geophysical ozone variability. We also see larger number of outliers in the retrievals from the side slits. The analysis of measured radiances revealed larger SL and calibration problems in the left and right slits (altitude and spectral shifts). The separation between 3 slits is about 250 km, and the stratospheric ozone does not change much across 250 km, except for the polar winter and spring conditions (ozone hole). In most cases, data from

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the side slits don't bring additional information about the ozone distribution. Considering significantly larger measurement errors in the side slits, the OMPS Team decided to release only ozone retrievals from the center slit at this time. However, we continue efforts to characterize and reduce errors in the side slits.

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