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Atmospheric Measurement Techniques Discussions

Interactive comment on "Validation of 10-year SAO OMI Ozone Profile (PROFOZ) Product Using Aura MLS Measurements" *by* Guanyu Huang et al.

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https://www.atmos-meas-tech-discuss.net/amt-2017-92/amt-2017-92-AC1-supplement.pdf

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Responses to Referee #1:

We thank referee's helpful and constructive comments and review. The referee's comments are listed in *italics*, and our responses in black with revised texts in **bold black**. Please noted that figure numbers are different from those in the original manuscripts.

I. General impression:

As a follow-up to initial validation work by Liu et al. in 2010, this work reports on the comparative validation with respect to AURA MLS measurements of 10 years of SAO OMI nadir ozone profile data. It thus nicely complements a recent validation exercise of the same OMI data with respect to ozonesonde measurements (Huang et al., 2017). The impact of the occurrence of a serious OMI row anomaly in January 2009 is well addressed, and the comparative analysis is insightfully adopted accordingly. The only major thing missing seems to be a clear motivation for the comparison grid that has been used (see details below). Additionally, it is believed that the clarity of the presentation of the results could be improved by slightly adopting some of the figures, and possibly by including a summary table.

II. Specific comments:

In abstract/introduction and throughout the text, please mention the validated SAO algorithm/product version, as is done for the MLS data, for traceability and for comparison with the results presented in Liu et al. (2010).

We have added the version number (v0.93) for the current product. Note that the product of Liu et al. (2010) does not have a version as it is a research product that is not produced routinely, but with very limited spatiotemporal coverage.

Introduction, page 2, lines 35-36: The mentioning of a "suggestion that the possible affection of OMI measurements at shorter wavelengths in the UV-1 channel may have been affected by the RA at all cross-track positions" lacks any notion on how the affection could take place. This seems important however for the succeeding validation motivation. Please provide an appropriate indication of the 'affection' source.

We have added some notion and a reference as follows:

"…been affected **by blockage and solar radiation effects** of the RA… **(…Sergey Marchenko, 2014, Schenkeveld et al., 2017).**"

Section 2: The major motivation for the use of MLS data for comparison is its location on the same platform. This instrument however measures microwave thermal emission, whereas OMI is

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Fig. 1.