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Atmospheric Measurement Techniques Discussions

# *Interactive comment on* "OMI total column ozone: extending the long term data record" *by* R. D. McPeters et al.

**Anonymous Referee #2**

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This paper provides a comparison of the OMI total column ozone observations with both ground-based and satellite datasets. Such a comparison is highly relevant given the importance of having overlapping records to produce a long-term total column ozone dataset. The paper is well-written and follows a logical structure.

A few points need to be clarified to improve certain aspects, but these are largely minor issues:

P2, L29-33: It is perhaps somewhat limiting to say that ozone needs to be continued to be monitored just to evaluate future model projections. Such observations are also essential to ensure that policies continue to be effective and also for research purposes, for example ozone profile observations can be used to investigate solar effects on cli-



mate, speeding up of the Brewer-Dobson circulation etc; all of which can have impacts for surface climate and air quality.

P3, L75: It is not clear which comparisons are referred to by 'these comparisons' – is this comparisons with other OMI products or comparisons made elsewhere in the literature?

P4, L88-89: Where does the value of 'half a percent' come from? It would be useful if this could be described. And, if this stems from a linear fitting of the data in Figure 2, it would be useful if such a line could be included on the plot so that the reader can easily understand where this comes from.

P4, L90-92: Later (P5, L118-119) it is mentioned that the Bass & Paur cross-sections will be used in the next version of the data. However, it would probably fit better at this point, since the might ask themselves why these updated cross-sections were not used in this study.

P5, L110-111: It may be useful to add "in Figure 3" to the end of this sentence to let the reader know where this 'is plotted'.

P5, L114-115: How are the relative trends between OMI and N18 SBUV calculated? As above, it would help the reader to know how this was done.

P5, L123-124: It is quite interesting that there is an annual cycle in the differences. Why is this so?

P5, L133-135: Although this statement is likely true, what does a comparison between the four SBUV records and the ground-based show? OMI shows a slight negative trend (fig. 2), so perhaps this could be compared with the difference between SBUV and the ground-based? It might at least be useful to discuss this briefly here.

P6, L152-156: Is there any indication of the 'instrumental effect' of OMI in months other than June 2013? This might be interesting to mention even if no comparison with OMPS can be made.

P7, L172: What is the 'best merger' of the NASA SBUV/2 data? Are there various versions? Earlier in the text the SBUV MOD dataset is referred to, maybe it would be less confusing just to refer to this? (Which is in fact done in the next sentence).

P7, L178-180: The final sentence of this paragraph comes across as very informal. Does the 1% value come from expert judgement? A similar sentence is repeated as the last sentence in the conclusions.

Minor issues:

Figure 2: The caption should include some further information. It is not clear which region the data cover, if the data are daily values, etc.

Figures 3-8: More a matter of personal opinion than anything else, but it might be more logical to switch the plots (bottom plot to the top, and vice versa), i.e. to see the absolute values first and then to consider the differences below that.

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Interactive comment on Atmos. Meas. Tech. Discuss., 8, 7491, 2015.