Atmos. Meas. Tech. Discuss.,
doi:10.5194/amt-2018-209-AC2, 2018
© Author(s) 2018. This work is distributed under
the Creative Commons Attribution 4.0 License.

Atmospheric Measurement Techniques Discussions



# *Interactive comment on* "Trend Quality Ozone from NPP OMPS: the Version 2 Processing" *by* Richard McPeters et al.

**Richard McPeters et al.**

richard.d.mcpeters@nasa.gov

Received and published: 31 August 2018

Despite the reference a short summary of the algorithms should be given here.

The basics of the algorithm are already described at what I think is the right level of detail in the last two paragraphs of section 3. The references are there if the reader needs real detail.

The AMT guidelines recommend adding a short summary of the paper and the sections at the end of the introduction. The authors may extend the last section of the introduction for this purpose.

This was done separately, not as part of the paper itself.



Printer-friendly version

Discussion paper

Line 83: “An algorithm uses ... “, add a reference to section 3.

Reference added.

Line 84: “... OMPS NM makes 400 individual scans per orbit with 35...:” please add the resulting resolution in both dimensions (20000km / 400 scans 50 km)

This information added.

Line 132: “...so NOAA 19 comparisons can be used for validation.” This validation is not shown, please add.

Not sure what you mean. The MOD data used for validation in Figures 4, 5, and 6 is mostly based on NOAA 19 SBUV in the later years, and in Figures 8, 10, and 11 the validation comparisons are explicitly against NOAA 19. A comparison of NOAA 19 ozone to the Brewer/Dobson network has been added.

Lines 222: “Looking at ground based comparisons of ozone in the lower stratosphere first, ...” Are sondes really “ground based” measurements?

Since each sonde is prepared and launched from a single ground site, I would consider it ground based. Could be a small confusion in terminology I guess.

Line 244: “There is no evidence of a significant time dependent difference.” I am sure the authors did some linear fits to the data and found the trend to be insignificant, however when looking at figure 8 it seems there is small decrease in the upper stratosphere and an increase in the lower stratosphere. So this statement might be clarified.

Adding all the data for 2017 makes the middle stratosphere time dependence even more clear, so a comment on this has been added to the text.

Line 250: “Selecting a single month for this comparison allows us to see any seasonal effect ...” this sounds strange, a seasonal effect can only be seen if you use several months (minimum 4), and compare them to each other.





CC BY

The sentence is saying that an annual average would hide small seasonal variations.

Line 294: The paper focuses on total column nadir profile so this section on tropospheric column can be seen as an “attachment” to illustrate the potential power of the dataset. Nevertheless the data might be compared to sonde data as well. The selected places for the comparison of the tropospheric columns are sounding stations for ozone sondes.

The ability to derive accurate tropospheric ozone by subtracting stratospheric ozone depends on high accuracy of the original total column ozone product, which is the subject of this paper. So yes, the purpose of this section is to illustrate the “potential power” of this dataset. We are working on implementing a tropospheric ozone product, and papers detailing the results will be forthcoming.

Line 295: “ozone from the NP plus LP combination” is it really the nadir profiler (NP) that is meant here not the nadir mapper (NM) as mentioned in line 287.

No, we are exploring the combination of the high resolution limb profiler (LP) and the low resolution nadir profiler (NP). Since the two have different strengths and weaknesses, the combination might be more accurate - to help reduce limb pointing errors for instance, or to refine the nadir a priori profile.

Line 316: “the drifting orbit” shall be mentioned earlier in the paper as a possible cause for the observed inconsistency.

Good suggestion. Added comment to the discussion of the time dependence seen in Figure 4.

Figure 3: Throughout the paper NOAA 19 is used as the key reference, for various comparisons. The validation of NOAA 19 is of course not subject of this paper, but nevertheless it might be nice to have the NOAA 19 data included in the comparison to the ground based observation.

Good suggestion. Have added a N19 comparison with the Brewer/Dobson network to





CC BY

Figure 3.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2018-209, 2018.



CC BY