**Atmospheric
Measurement
Techniques**
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Discussions

Interactive comment on "Validation of the Suomi NPP Ozone Mapping and Profiler Suite total column ozone using Brewer and Dobson spectrophotometers" *by* K. Bai et al.

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Author Comments to Referee #1:

General comments:

We really appreciate your carefully review and professional comments and advice. A native language speaker has revised the whole paper's language usage and some sections have also been revised by taking your advice.

Specific comments:

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1. The value of RMSE and mean relative difference as reported in the abstract is collected from the linear regression of daily TOCs between OMPS and ground-based measurements, and it is a global value. The associated r-squared is reported in the Section 3 and Table 3. We will take your advice and express much more clearly when quoting these detail numbers in the abstract. 2. Thanks for your advice and we will add some reported error estimates from the ATBD as well as uncertainty of OMPS. 3. We did not apply filtering to the OMPS data. 4. We take your advice and add some related references to this Section. As we started this work, we only collected the ground-based Brewer and Dobson measurements with long time series and with good quality assurance. No filtering was applied to both ground-based measurements. 5. Thanks for your advice and we will consider these networks data in the next work. 6. We have taken your advice and these similar works have been referenced in our revised paper. 7. Due to the footprint is about 50 km, we consider that the distance between the ground station and the center of the satellite pixel less than 30 km would be probable to judge this station located in this satellite pixel. Except the spatial and temporal inconsistency between satellite instrument and ground measurements caused error means that the error caused by the spatial and temporal inconsistency was not analyzed in the study. 8. The latitudinal difference has been reported in Section 3 in Page 10, as shown in Fig. 3. It shows the performance of OMPS varying with latitude. 9. Thanks for the advice and we will revise our description of this point. 10. Thanks for the advice and we will revise our statements. In this work, we consider the ground total ozone measurements as the true value comparing with satellite total ozone data and the relative difference between them is calculated to evaluate the relative accuracy of the satellite observations. 11. We really appreciate your professional review. The monthly average TOCs by the satellite and the ground measurements have been plotted in Figure 4. We have revised our statements to eliminate these misunderstanding. In the next work, we will employ other collocated satellite and ground measurements to analyze much more deeply to find out the reason. 12. We have revised our misunderstanding statement in the revised paper and we appreciate your rigorous scientific approach. 13. Thanks

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for the remind and we have corrected this misunderstanding statement. 14. Thanks for your advice and we have revised this part in the text. 15. Thanks for the advice and the dependency of relative differences on both ground and satellite TOCs has been plotted and analyzed accordingly. 16. Thanks for the advice and we will pay more attention to this variation.

Technical corrections: 1. The whole paper has been revised by a native English speaker. 2. Thanks for the advice and we have revised through all the pages and place the references in chronological order. 3. Thanks for you advice. 4. We have taken your advice and the relative references have been added. 5. We have taken your advice and the relative references have been added. 6. Some more recent references have been added accordingly. 7. Thanks for the advice and the relative references have been added. 8. The algorithm to derive the OMPS TC ozone data used in this work is a version of the V8 algorithm applied to OMI and we have revised the algorithm section in the revised paper and some related references have been added to this section. The best description of this algorithm is in a paper by Bhartia et al. that is in the final review stage in the Journal AMT. 9. Thanks for providing helpful references and we have revised them in the article. 10. We really appreciate your carefully review and those mistakes have been corrected accordingly. 11. Thanks for your notification and the mistake has been corrected.

Please also note the supplement to this comment:
http://www.atmos-meas-tech-discuss.net/6/C1982/2013/amtd-6-C1982-2013-supplement.pdf

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