Atmos. Meas. Tech. Discuss., 8, C2636–C2638, 2015
www.atmos-meas-tech-discuss.net/8/C2636/2015/

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 #1

Received and published: 18 August 2015

This paper by McPeters et al. presents a comparison of OMI total ozone data with ground-based observations and several satellite data records over the ten years period from 2004-2014. In terms of creating stable and reliable global long-term ozone data records such a comparison is essential. The manuscript is written in a clear and concise way.

I recommend publication in AMT after a few minor points have been addressed.

Specific comments:

p.7492, Introduction, first paragraph: I would suggest to extend the motivation a bit; not only the verification of climate models is of importance, but also the detection of ozone trends or the impact of climate change.

p.7493, l.20: Please add a reference which provides detailed information on the OMI instrument, e.g. Levelt et al., 2006.

p.7494, l.21: To which comparisons do you refer here ?

p.7495, l.2: I would suggest to provide a short overview of the results of older literature related to OMI-TOMS total ozone data (e.g. Balis et al., 2007, or McPeters et al., 2008)

p.7495, l.4: Please provide the information (either here or in the section "Data availability") from which web-site the ground-based data were taken.

p.7495, l.8: I agree with the second reviewer and would suggest to provide more information how the drift has been calculated.

p.7495, ll.9-14: I am not sure whether I understand this paragraph. You explain that the offset between OMI and ground-based data is caused by the use of the Bass&Paur ozone cross-sections rather than using BDM cross-sections. Then you say that the ground-based retrievals also use Bass&Paur cross-sections. Is the offset caused by the use of different wavelengths ? And why do you expect little change if the newer BDM cross-sections are used ?

p.7498, l.12: Please add the reference "Coldewey-Egbers et al., 2015" which refers to the most recent version of GTO you are using in this study.

p.7498, l.14: Please provide the information (either here or in the section "Data availability") from which web-site the GTO data were taken.

pp.7499-7500, Data availability: This section indicates that you use OMI-TOMS level 2 as well as level 3 data for the comparison. Please indicate in the corresponding sections (3 and 4) which data you use for the individual analyses.

References:

D. Balis et al., Validation of Ozone Monitoring Instrument total ozone column measurements using Brewer and Dobson spectrophotometer ground-based observations",

AMTD

8, C2636–C2638, 2015

JGR, Vol. 112, D24S46, doi:10.1029/2007JD008796, 2007.

Coldewey-Egbers, M., Loyola, D. G., Koukouli, M., Balis, D., Lambert, J.-C., Verhoelst, T., Granville, J., van Roozendael, M., Lerot, C., Spurr, R., Frith, S. M., and Zehner, C.: The GOME-type Total Ozone Essential Climate Variable (GTO-ECV) data record from the ESA Climate Change Initiative, Atmos. Meas. Tech. Discuss., 8, 4607-4652, doi:10.5194/amtd-8-4607-2015, 2015.

P. Levelt et al., Science objectives of the Ozone Monitoring Instrument, IEEE Trans. Geosci. Remote Sens., 44(5), 1199–1208, doi:10.1109/TGRS.2006.872336, 2006.

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