Atmospheric
Chemistry
and Physics
Discussions

Open Access

Interactive
Comment

Interactive comment on "A Joint data record of tropospheric ozone from Aura-TES and MetOp-IASI" *by* H. Oetjen et al.

Anonymous Referee #2

Received and published: 7 December 2015

This is a well-written and interesting paper looking at merging the data for tropospheric ozone from the TES and IASI instruments to provide a long-term time series. The selection of time series that have been derived show some interesting features, and such consistently merged time series will clearly be useful in studying tropospheric ozone trends. There are a few points of the paper that could have been discussed in more detail, and I think would benefit from further elaboration as detailed below:

Section 3.1, p.31030, lines 26-28: There is a statement that the 'average results did not change' with latitude or season. It would be useful to quantify this agreement or else show a plot showing evidence for this.

Section 3.2 and Figure 2: a) This mentions in separate places that the differences between IASI and TES seem independent of the actual ozone amount, and a little

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

later that very large differences coincide with large IASI ozone values, which seems contradictory. The figure is rather crowded, so it is hard to see if there is a dependence on ozone – it would be good to see this shown in a different way too for clarity. b) p.31032, line 14-16. It's stated that the width of the frequency distribution is determined by the precision of the measurements and the collocation error. Have you looked at whether this matches what you would expect theoretically? c) p.31032, Line 16-17: Are the outlying points all associated with realistic ozone retrievals, or could they also be symptoms of a problem with those retrieval points (e.g cloud contamination?)

Section 4: The discontinuity in South East Asia is potentially very interesting. Have you investigated whether this is definitely a real affect in tropospheric ozone or if there could be any other possible reasons for this, e.g. instrumental factors, differences in inputs to the algorithm? Is this change seen in any of the input datasets for IASI? It is unfortunate that this seems to coincide exactly with the end of TES - are there any other data sources this could be validated against? You mentioned that there will be a more detailed paper on this, but it would still be useful to discuss here how confident you are that this is a real effect.

Minor points:

Section 2, p31029: Line 16: 'For TES we use the publically available v05 level 2 Lite data'. Please clarify if this is the ozone dataset you are using, or just what you are using as input to the algorithm – it's a bit ambiguous at the moment.

Section 3.3, p 31034, line 2: 'We are aiming to sample' – this is in the future tense, whereas everything else talks about what has been done?

Technical corrections:

Section 1, p31027, line 6: 'De Smedt et al, 2009' – in the references there is given as 2010.

Section 1, p31028, line 10: Metop was launched in 2006, not 2007 as stated.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 31025, 2015.

Interactive Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper