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Atmospheric Measurement Techniques Discussions

Interactive comment on "Relative drifts and biases between six ozone limb satellite measurements from the last decade" *by* N. Rahpoe et al.

Anonymous Referee #3

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The paper presents analysis of the drifts and biases between six ozone limb measurements of ESA and its third party missions using linear regression model. This is a prerequisite by ESA in order to create combined climate data record as part of climate change initiative (O3 CCI). The topic of the manuscript is of importance for the scientific community, and address an important question of long term-data quality and creating combined climate data record. However, the conclusions need to address a main objective of this study, how to combine different data records of different qualities in order to create climate data records.

Specific comments:

-Provide referenced uncertainty estimate for each instrument (as you did for GOMOS),

and a reference for outliers removal criteria if used.

-Provide more details of the data used, source, availability, and reason for selecting specific dataset if there are different versions/sources available.

- Given that all measurements needed to be converted to common grid and units, can you explain how and which data set were converted.

-Section 4 and Fig 1-4, The authors use of SCIAMACHY as the reference sensor; I'm not sure SCIAMACHY is the best option despite its dense sampling. Ideally, an outside instrument of good quality measurements such as MLS, is better option. If not, then one of the "balanced range" instruments, OSIRIS or GOMOS should be selected. It's difficult to interpret the figures (especially fig 4) when the reference instrument is part of the study and exhibit some biases at certain altitudes.

Page 3706, Line 24: "Most probably, this is due to diurnal ozone variations." This is unproven explanation as the authors show no evidence to support it, given that other instruments don't show such bias (see supplement plots for OSIRIS vs. GOMOS vs. ACE).

-Figures 5-10 are difficult to follow given the amount of information on display. Maybe it can be changed from one panel per latitudinal zone to one panel per instrument, just an idea.

-page 3711, Conclusions: The paper is missing an important conclusion,once you asses the relative bias and drift of these instruments, how do you proceed to merge it into combined climate data record.

minor corrections: page 3706 line 10: "shows a negative bias of about -5 to 10 %" change to -10%

Interactive comment on Atmos. Meas. Tech. Discuss., 8, 3697, 2015.