Dear Reviewer,

Thank you very much for your very positive comments on our paper acp-2017-598 “Merged SAGE II, Ozone_cci and OMPS ozone profiles dataset and evaluation of ozone trends in the stratosphere”. All your comments are taken into account in the revised version.

Below we present the detailed replies to your comments. Your comments are in blue, replies are in black font.

Minor comments:

p. 1, lines 30-31: "upper stratosphere" occurs twice in this sentence.

Corrected

p. 1, lines 31-32: I would suggest to add that positive trends in the upper stratosphere are also expected due to decreasing temperatures in this altitude region.

Added.

p. 11, lines 14-26: The seasonal cycles for SAGE II and OMPS are computed using different reference time periods. For Figure 3 you calculate an adjusted seasonal cycle, but this is not used in the merging procedure. Might this have an impact on trend estimation ?

Yes, Figure 3 shows the adjusted seasonal cycle just for the illustration of seasonal cycles. The merging is performed on deseasonalized anomalies, in which instrument-specific seasonal cycle is removed (see also below).

and p. 13, lines 13-15: I am not sure whether I understand this correctly. Are these offsets (SAGE II vs Ozone_cci from 2002-2005 and OMPS vs Ozone_cci from 2012-2016) due to the different reference time periods for the seasonal cycle?

Yes, exactly.

And if so, do you correct for this? Might these offsets have an impact on trend estimation ?

Yes, these (small) offsets are corrected so that there are no jumps in the merged dataset. In the revised version, we added “As a result, small offsets in SAGE II and OMPS anomalies due to the different reference time periods for evaluation of the seasonal cycle are removed, and the anomalies from all instruments are aligned. “

Technical corrections:

p. 24, line 5: missing journal

p. 24, line 35: remove curly brackets around "MIPAS"

p. 25, line 4: correct "H_{2}O" and "O_{3}"

p. 26, lines 13-15: refer to final revised paper

Corrected.

On behalf of all co-authors,

Viktoria Sofieva