Atmospheric
Chemistry
and Physics
Discussions

Interactive comment on "Measurement report: Regional trends of stratospheric ozone evaluated using the MErged GRIdded Dataset of Ozone Profiles (MEGRIDOP)" *by* Viktoria F. Sofieva et al.

Anonymous Referee #1

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1   Overall Remarks

The paper reports on the construction of a merged long-term multi-satellite data set of ozone profiles. The data set provides monthly means on a latitude, longitude, altitude grid and covers the period 2001 to 2018. Data sets like this are very important for following and understanding the projected recovery of the ozone layer from anthropogenic ozone depleting substances, and publication in ACP is warranted. Using the merged data-set, climatological features of the global ozone distribution are presented. Decadal ozone trends are derived as a function of latitude, longitude and altitude. Data and methods of the paper are sound, and the presentation is good. I recommend

publication after addressing a few minor questions.

2   Specific Comments

One of the major points of the paper are longitudinal variations in both the climatological ozone distribution and in ozone trends, especially at higher northern latitudes. A good part of these variations seems related to intensity and position of the Aleutian stratospheric anti-cyclone. Unfortunately the chosen map-projection does not show this anti-cyclone very clearly. Therefore, I strongly suggest to add a few polar projection plots, especially polar projection plots that show the climatological ozone distribution along with the decadal trends for a few selected levels and months or seasons.

pg. 3 It would be good to give URLs and/or References for all the data used here, including ERA-Interim.

pg. 4, line 83: Are the used ozone profiles exactly the same as in the HARMOZ dataset, or are newer versions or reprocessed data used? Please clarify.

pg. 4, line 95: It would be good to show some plots of H. Also, for instruments with many samples (large N), the standard error off the mean might be too small / underestimated, if not all N samples are independent. The authors should probaly comment on that.

In many places, the English could be improved. The paper would benefit from copyediting by a native speaker.

3   Minor Comments

pg 1, line 27: delete "areas of"?

pg. 6, line 122: replace "in two" by "between two"

pg. 6, line 123: replace "selected" by "two different longitude"

Figure 3: the high ozone in winter at 50 to 60 N, 120 to 140 E is a consequence of the Aleutian anti-cyclone. The authors might should mention that here.

pg. 7, line 142: which period? Please explain.

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