**Atmospheric
Measurement
Techniques**
Discussions

Interactive comment on "Trajectory matching of ozonesondes and MOZAIC measurements in the UTLS – Part 1: Method description and application at Payerne, Switzerland" *by* J. Staufer et al.

Anonymous Referee #2

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Review of the AMTD manuscript "Trajectory matching of ozonesondes and MOZAIC measurements in the UTLS - Part 1: Method description and application at Payerne, Switzerland" by J. Stauffer et al.

General comments

In this manuscript the authors adapt the Match technique to compare ozone measurements of different sensors at different platforms in the upper troposphere/lower stratosphere with the aim to improve ozonesonde measurements and their long term trend analyses. The approach is promising and I recommend publication in AMT after

addressing some minor issues addressed below.

Comments

Page 7071, lines 3-6: Have there been any biases between the Arosa data and satellite data as well as satellite-satellite biases? I assume that any effects could be neglected. However, a comment would be appropiate.

P 7075, l 8: Why were matches between the same aircraft excluded?

P 7075, l 19-20: I understand that the data base for comparisons r < 50 km and dTheta < 0.25 K is too small. But is there any good reason to believe that the real errors are higher that in the proposed optimal ranges? I recommend to expand the optimal ranges to r < 100 km and dTheta < 1 K.

P 7075: Another Match criteria used e.g. by Rex et al., J. Atmos. Chem., 1998 is to exclude trajectories whose cluster trajectories diverge too much. Since some kind of cluster trajectories are already calculated (see section 3.4.1) I wonder, why this criteria wasn't used? That criteria should be able to sort out additional outliers.

P 7079, l 24+: The differences between scaling or not scaling should be discussed some more. At least any knowledge about height dependent biases of BM sondes should be mentioned in earlier and later times. Any column scaling will be scaling with respect to the stratospheric ozone column where we have the majority of the ozone. If we have different biases in the stratosphere and in the UTLS we would expect difference as those reported.

Minor comments and typos

P 7075, l 8: "aircrafts" instead of "aircraft"

P 7075, l 18: "r < 50 km" instead of "r < 5 km"

P 7077, l 25, and Figure 6: "averaged": may be better: "summed up"

P 7079, l 8: omit "of"

P 7079, l 25: "data" instead of "date"

P 7082, l 25: omit "including"

P 7083, l 18: "Matthews" instead of "Mattews"

P 7083, l 23: "Staehelin" instead of "Staehlin"

References in general:

Please check carefully spelling of all references. I haven't done that. But is seems to be needed after finding two typos within the first three references.

Please omit the numbers after each reference which seem to indicate the page numbers where those references appear. (This is presumable a technical problem of AMTD.)

P 7094, Fig. 6: One more hint explaining the numbers at the colour code would be nice.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 7063, 2013.

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