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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Spatial, temporal, and vertical variability of polar stratospheric ozone loss in the Arctic winters 2004/05–2009/10" *by* J. Kuttippurath et al.

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This is a nice study that shows high resolution simulations for ozone loss for the Arctic winter 2005 to 2010. I appreciate this work, however there are two points in my opinion that need to be improved. There are a number of publications on ozone loss in the winter 2004/05 with differing results.

1. The comparison of ozone loss with other existing studies is important to evaluate these model results. For a correct comparison of the calculated ozone loss it is extremely important to compare numbers that have (a) the same vortex edge definition (b) the same vertical range over which the column is evaluated and (c) the

same time interval. Otherwise, the given numbers are not comparable. In models, it is possible to evaluate all these numbers for different definitions, whereas some observation based methods are mostly determined by the availability of the observations. Therefore it would be essential to get a comparable Mimosa-Chim number to the individual published results

2. The results of derived ozone loss are based on the passive ozone tracer, a quantity that cannot be measured. A validation/comparison between model ozone loss and e.g. MLS-derived ozone loss may be incorrect, if the passive tracer would be simulated incorrectly. Therefore it is desirable to show a direct comparison of modeled ozone with observations as it was done in fig. 4; However, as the color scale is rather difficult to read, I would propose to show the difference model ozone - MLS ozone with the range (color bar) of figure 3. With this one could possible see offsets or trends of the simulation better.

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