

## ***Interactive comment on “The impact of mixing across the polar vortex edge on Match ozone loss estimates” by J.-U. Grooßet al.***

**J.-U. Grooßet al.**

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We have clarified the major concerns of referee #2 in the earlier comment. These points include ozone budget calculations, methods to determine ozone loss, questions to the CLaMS model setup. The answer to other specific comments follow here. The manuscript prepared for possible publication in ACP was changed accordingly.

- *The meaning of “mixing”, transport of air in and out of the vortex, etc.*

We have used the term “mixing” through the vortex edge where we mostly should have used “transport” or “irreversible transport” across the vortex edge. Air transported irreversibly across the vortex edge is “mixed” into the whole vortex volume, but may still maintain its characteristics for a longer time until it may be finally mixed with former pure vortex air. We did not intend to make this distinction. Im-

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portant for our arguments is only that the air is irreversibly transported into the vortex. The use of the word mixing was therefore misleading. In the revised paper, we changed the wording accordingly.

- *Use of technical terms*

Like other authors, we have used the technical terms correlation, dynamics, mixing (see above) etc. *outside their classical interpretation*. Some are however well accepted in the field, e.g. there are many papers on the “tracer correlation method” for determining ozone loss. Anyway we changed the word “correlation” to “relation” as it may be understood better. Similarly, the term “dynamics” was meant for “advection and mixing”. We also changed this in the revised manuscript. The term “ozone loss” is always used in the meaning of “chemical ozone loss”. Ozone changes due to advection or mixing are not mentioned in this context.

- *Altitudes are never great*

We do not agree with this specific comment about the English language. However, we do know that there were some language errors in the manuscript. The revised manuscript was proofread by the FZJ language service.

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