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Interactive comment on “Combined SAGE II-GOMOS ozone profile data set 1984–2011 and trend analysis of the vertical distribution of ozone” by E. Kyrölä et al.

Anonymous Referee #1

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GENERAL COMMENTS

The analyses presented in this paper may be good. I say 'may' because the paper is so carelessly and sloppily written that it essentially becomes a challenge to the reader to extract the scientific value. My review below is not thorough - I could not bring myself to invest significant time in this review given that the authors had committed little time to bringing this paper to a standard worthy of publication. The quality of this paper needs to be SIGNIFICANTLY improved before it is ready for publication.

SPECIFIC COMMENTS

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Line 4: I think that some indication needs to be given as to what 'good vertical resolution' is.

Line 21: Rather than using a linear fit with an inflexion point, wouldn't it be easier and also make more physical sense if you used EESC (Equivalent Effective Stratospheric Chlorine) as a basis function in your regression model? That would also remove any uncertainty around where to put the point of inflexion.

Lines 25-26: Over which altitude range does this statement apply?

Lines 32-33: I think that you should also mention bromine here since this has also contributed significantly to ozone decreases.

Line 35: It would be better to use the word 'project' rather than 'predict' here. The models do not make predictions. They make projections based on emissions scenarios. The world may evolve in a very different way to what those scenarios say. In that case the projections would still be correct, but they would fail as predictions.

Line 38: I think that you should say 'ozonesondes' here rather than just 'sondes'.

Line 42: Please make it clear here what you mean by recovery. Do you mean just ozone increasing (which could e.g. be the result of changes in dynamics and not necessarily resulting from reductions in chlorine and bromine) or do you mean ozone recovering from the effects of chlorine and bromine?

Line 44: Please provide references in support of the assertion that signs of the ozone recovery have already been detected.

Line 83: You need to explain what MERRA is or at the very least expand the acronym.

Line 117: Sensitive to local fluctuations in what?

Line 121: You need to explain what ECMWF is or at the very least expand the acronym.

Line 126: You need to explain what MSIS90 is or at the very least expand the acronym.

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Lines 155-156: And, presumably, this information is provided in the GOMOS data files?

Line 158: You need to explain why a profile containing an ozone value of -0.49 ppm would not be rejected.

Line 164: I think you need to be more specific here and say 'solar zenith angle larger than 105°'.

Line 191: Again you need to be more specific and say 'real diurnal differences in ozone in the atmosphere'.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 10661, 2013.

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