

## Anonymous Referee #1

*This is an important and useful paper which provides an up-to-date assessment of stratospheric ozone trends and their uncertainties. The paper provides a fairly concise summary of the results in an easy-to-find location - rather than having them in a large report. It is well written. I think the paper can be published as is, though I do have some minor comments that the authors should consider.*

We thank the referee for the kind and helpful comments.

*1) Abstract. The abstract is a bit long, which is ok for this style of paper, but I think it misses two points: (a) It should make clear that the +ve trend in O3 since 1998 is not necessarily recovery from EESC. The reader is left with the implication that the decrease in EESC explains 'all' of the change in the O3 trend. (b) The update of these results compared to WMO (2014) - that the upper stratospheric increase may not be significant - is an important result, I think, and is worth noting here.*

It is a long abstract. A few minor changes have been made, and the two additional points suggested by the reviewer have been included.

*2) P8570. Line 13. The Lambert et al paper is not available (not even submitted yet?), so that was not much help.*

The preparation of the Lambert et al paper has taken longer than expected. The text referring to it has been amended and now additionally refers to the Hubert et al (2015) paper currently in ACPD. Lambert et al is still expected to be submitted, so we would like to leave a reference to it in the text.

*3) P8570. Line 25. Why is "recovery" in quotation marks. This is a possibly confusing and subtle issue for some so (as in the abstract) you should say what you mean by recovery.*

The quotation marks have been removed since the reference to EESC is already there.

*4) P8570. Line 29. Do you mean 'a' trend?*

Yes. Change made

*5) P8578. Line 6. Not clear to mean what you mean by 'shape'. (Could be a vertical profile).*

We have changed it to 'temporal evolution'.

*6) P8578. Line 13. Change 'losses' to 'depletion' (or decreases). (Loss is the chemical process which is always occurring and balanced by production...).*

We have changed 'losses' to 'decreases'.

*7) P8578. Line 16. Does 'insignificant' mean 'small' or 'not significant' (statistically)?*

'Statistically insignificant trends' is now used.

8) P8583. Line 25. *I can see that you would want to reference the SPARC report for the methodology but I think there is a clear difference between combining observations of the same real quantity (O<sub>3</sub>) from different platforms, and estimates of a derived quantity using very different indirect methods and also models, which have no link to reality. I would suggest that you note this.*

There is a clear difference, but the mathematical similarities are striking. We have included the following: "In this study, we combine trends calculated from merged sets of observations of the same real quantity (O<sub>3</sub>) from different platforms, so the comparison is not 100%. However the similarities in the amount of rigorous knowledge of the uncertainties are such that we have adopted the same methodologies..." at p8584, line 25.

9) P8586. Lines 15-19. *'We hope...real scientific value'. These sentences should be rephrased. Is this just a wild hope, or is there reason to think that this work could be done? Change 'real' to something like 'considerable' - it makes it sound like the other work in this field has not been of any value.*

We have changed it to "Considerable benefits would be gained if the SAGE I record could be revised to be consistent with the SAGE II record without having to use the altitude correction from Wang et al. (1996), as it would lead to better knowledge of the changes in ozone in the lower stratosphere in this early period."

10) P8587. Line 23. *'related to individual...'*

Done.