

Dear Slimane Bekki,

here is the missing reply to your comment from the pre-review:

- *Also, different parameters of the scheme are derived from fits to the ATLAS modelled ozone evolution for different years and then to the averaging of the fit coefficients for the 40 years. The tables of the fit coefficients show single values without any error bars/standard deviations. You should provide values with uncertainties in the manuscript.*

To be able to resolve this comment, we had to change the method of obtaining the fit coefficients. Unfortunately, it was mathematically not obvious how to obtain these values with the method used in the original manuscript.

For this reason, we introduced 2 major changes to the method:

1. The fit is now based on the non-accumulated ozone time series (i.e., changes per day) and not on the accumulated time series.
2. Instead of fitting the parameters for each individual year and then averaging the fit parameters over the years, we now concatenate the time series of all years before the fit to obtain a single fit parameter.

95% confidence intervals for the single fit parameters are obtained by the method presented in Wohltmann et al., 2007, doi:10.1029/2006JD007573, paragraph 41. While this method considers auto-correlation in the residuals, it turned out that the change from accumulated to non-accumulated time series actually led to very low auto-correlations, and this would not have been necessary (but does not hurt either).

These changes prompted the following changes to the manuscript:

1. A complete rewrite of section 3 to reflect the changes in the method.
2. Addition of new Figures 2 and 4 (figure numbers from new manuscript) and deletion of old Figures 2 and 3 (figure numbers from original manuscript).
3. The content of all figures and the numbers given in the text (fit parameters etc.) have changed slightly throughout the paper.
4. We have now added a version of the table with error bars in the supplement and have added a reference to this table in the table caption.

The fit parameters obtained by the new method are very similar to the fit parameters of the old method. That means that the results do not change qualitatively and that the conclusions remain the same.

The new method is more elegant and gets rid of some (partly arbitrary) assumptions of the old method (see also comment of reviewer 1 to lines

132–133 that is resolved by the new method). However, a disadvantage is that the actual fit does not "look" as clear and intuitive in new Figure 2 as this was the case with old Figures 2 and 3.