Referee #3

Major concerns

(1) Confusion about what the goal of the paper is (NOT the best explanatory set of variables, but trend significance).

In the revised paper and with implementation of the proper PWLT regression the discussion of optimal explanatory variables has shrunk in favor of discussion of trend significance. See also our answer to the other referees.

(2) In the revision the main message is better worded and should be more consistent.

(3) Added a brief explanation about how the trend is calculated from the EESC. Note that there is an unresolved issue with EESC-based trend uncertainties in our paper and that of Kuttippurath et al [2013], the latter not providing sufficient information to resolve it.

(4) Better motivation as why to dismiss the EESC added. The EESC is a pre-defined function that does now allow much flexibility in ozone trends. PWLT is better suited to cope with that.

(5) Results now provide indications why certain ozone time series perform "better" than others and this is discussed. Keep in mind that we merely extend on what others have done. In a separate paper [Knibbe et al., 2014; ACP] we analyse the geographical distribution lon-lat of all local ozone time series for all months for a 30 year period. Such an analysis comes with its own intricacies which are not the scope of this paper, but does not solve the issue of trend significance and regression uncertainties. If anything it could even be worse, because then one would have to consider additional regressions as there may be other processes affecting ozone outside of the ozone hole season. Note that Knibbe et al. [2014] does not consider regression uncertainties.

Minor comments

Minor comments are addressed accordingly. Below only follow comments that require a more detailed response.

- Brief description of the MSR dataset is added to the now section 2.7 on ozone scenarios.

- The separate QBO and solar flux descriptions have been moved to the supplementary information (see also referee #2) to avoid confusion. A brief remark is added discussing uncertainties of the individual QBO and solar flux variables, referring to the SI for additional information.

- A table was added with online data sources (upgraded from the supplementary information)

- Differences between pre-break trend uncertainties in Kuttippurath et al [2013] and this study are discussed in our response to referees #1 and #2. It is unclear where the differences come from as information is lacking in Kuttippurath et al [2013] on their calculation of EESC trend uncertainties, but it is clear that it differs from ours. See further our reponse to R#1 and R#2.

- Figure 4 is adjusted accordingly.

- The EESC regression is determined by the pre-BREAK period as the pre-BREAK trend distribution does not show a tri-modal shape as seen for the post-BREAK distribution.

- Auto-correlation. We made a small adjustment to the paragraph, also based on comments by the other referees. Basically, ozone records show a certain autocorrelation. The regression turns out to remove this, as the 1-year lag auto-correlation of the residuals is near zero for all regressions. If that would not have been the case then a correction would be needed for the PWLT trend uncertainties. Since this is not the case, a correction is not needed.

- The large sensitivity of the post-BREAK EESC-based trends to the exact EESC shape is the reason to not prefer EESC-based trends. This has been reworded.

- Volcanic aerosols. This section has been rewritten. In essence, it is unclear from the regressions what even the sign of the ozone-aerosol effect is. Hence, no reason to include volcanic aerosols.

- Added a remark about figure 9 being similar to figure 5 but with larger correlation bins for visualization purposes.

- Table 5. It is better explained in the text which time periods appear more relevant, and this is also summarized in the conclusions.

- Figure 2 now includes a legend with all 16 scenarios and a description which scenarios is what.

- Dark blue and red lines in figure 5 are explained in the figure caption.