

Author responses to editor comments on paper "Observational evidence of EPP-NO_x interaction with chlorine curbing Antarctic ozone loss".

We would like to thank the editor for his comments on the paper. We have implemented all suggestions in the text.

Comment: The Holton-Tan mechanisms explains the influence of the QBO on the strength of polar vortex via wave forcing. This is however, a non-local effect, thus not "in the polar region". I therefore suggest to rephrase the statement in the conclusions section to something like: "the QBO modulating Antarctic ozone loss are also via its wave-forcing effect on the polar region (i.e. the Holton-Tan effect)"

Reply: We changed this text as suggested.

Comment: In Figure 5, detrended polar ozone column values of less than 100 DU are shown. Please specify more clearly what this is, as certainly the November ozone column is not below 100 DU.

Reply: This is caused by the area weighting applied across the polar region. We added to the figure caption to explain this, and also noted that these are low when contrasted to the non-area weighted values shown in Figure 3a.

Comment: The new sentence summarizing Figure 1 in response to rev. 1 comments is very long. I suggest to break up into at least two sentences.

Reply: This has now been broken into two separate sentences.

Comment: Rev. 1 remarked that the term "gradient of the trend" should be avoided. I agree with this statement. The replacement with slope of the trend is however not better. In mathematical terms, the slope of a trend would be the second derivative. Please simply use positive or negative trend.

Reply: We updated this accordingly across the manuscript.

Comment: The use of "previous winter" is still confusing, as you are referring to the same year. I suggest that the use of "respective" winter may be clearer, inparticular if you refer to November values. In case you explicitly refer to spring (and not to November), the term "proceeding winter" would also be clear.

Reply: We changed to the term "preceding winter" to clarify. We also added the following example to section 2.5: *Explicitly, when investigating the Antarctic atmosphere in Aug-Dec of e.g. the year 2012, we would contrast to the average A_p of the preceding winter: May-August of 2012.*