

Review of the revised manuscript by a. A. Kuchar et al.

General remarks:

The authors have undertaken substantial efforts to improve the paper according to my and the other reviewers suggestions. I recommend the manuscript for publication in ACP providing that some minor corrections are done.

Special comments

Suggested changes in the text are printed in *italic*.

I. 48ff ... was reproduced *in CCM simulations?*

I. 93 ... may be *overestimating* the UV variability (Ermolli et al. 2013). *The latter authors* have also concluded ... input data for GCM *and CCM* simulations ...

I. 109 ... contributes to the lower *stratospheric* ozone and temperature anomaly ...

I. 118/119 This sentence appears twice, it was already mentioned around line 48, see comment above.

I. 128 ... *fully* nonlinear

I. 129 ... to study *the* properties and interactions

I. 148 Please, write out SPARC (Stratospheric Processes and their Role in Climate)

I. 172 A similar approach ...

I. 258 ... e.g. *the* NAO term was removed from the model and *the* resulting solar regression coefficient ...

I. 260ff ... since neither the amplitude nor *the* statistical significance field *was changed* significantly ...

I. 263 Remark: When there is a significant correlation between NAO and other terms this should be a hint to leave the NAO out of the regression equation.

I. 270 A Durbin-Watson test ...

I. 307 .. is *the* variance of the difference ...

I. 321 What do you mean by „altitudinal mean“ ??? These are latitude-altitude plots ...

I. 351 thorough -> through

I. 356 By including *an* EESC regressor term ...

I. 357f ... for *a* detailed description see *the* methodology section

I. 380 However, *the upper stratospheric* (no hyphen!)

I. 388 ... decreased by about 50% when using *the* adjusted dataset ...

I. 390 The trend regressor ... *reveals a large* ...

I. 392ff The results in figures ... from *the* raw dataset *were* kept in order to ..., where no adjustments *have been considered either*.

I. 420 ... also contribute to *the* total tendency ...

I. 424 fro -> for

The whole explanation from line 419 to line 426 is not clear to me. Why are periods longer than 1 year filtered out? Especially the sentences about the negative correlation of the tendencies remain unclear to me. Please reformulate this paragraph in an easier way.

I. 461 ... because of the dominance *of* the QBO ...

I. 520ff Which warming do you mean? If I remember it right , Chiodo et al. 2014 are discussing the positive low-latitude lower stratospheric temperature anomaly. These sentences come after the description of the zonal wind signal. wouldn't it be better to shift it backward following directly the description of the temperature anomalies?

I. 577 You are talking about December but refer to Figure 5s which shows the January results, please correct this.

Fig 7, upper panel: In my opinion the upper boxes of the temperature anomaly quadrupole pattern should be placed above the stratopause, i.e. above 1 hPa, as they appear at higher levels in your results (Fig 5a and 5b).

I. 621 ... *a weaker BDC*, ...

I. 622 Hypothetically, this could be due *to a stronger role* of unresolved wave processes ...

I. 712 There is an enhanced downwelling in *the* polar and *an* enhanced upwelling in *the equatorial* region *below* 1 hPa, ...

Acknowledgements: ... for the proofreading of our paper. OR: ... for proofreading our paper.