In response to the editors comments

We thank the editor for her thorough consideration of our manuscript and revisions, and for her additional suggestions. We have implemented all of these, and in certain cases we respond as below (black: editor's comments; blue our comments).

Please check the references for the figures. Since you go quite often back and forth and point on specific panels it is a bit difficult to keep track of all of them. At some occasion I had the feeling that the referencing was not entirely correct (see my comments below).

Agreed – I also found some additional mistakes and have corrected these. I have also reordered the SM figures to reflect the order they are mentioned in the main article.

There are many acronyms used throughout the text and I was wondering if it could be worth to provide a list of acronyms as appendix in the manuscript or in the supplement to make it a bit easier for the reader.

Agreed: I have added a comment to the list being in the supplementary materials in the final paragraph of the introduction, and added a list to the beginning of the Supplementary materials.

P4, L79: "….and 2018…" does the year 2018 refer to another Ball et al. paper? If yes, the parentheses should be moved.

No, but I have modified the text to flow a bit better!

P7, L188: Instead of "remain appropriate" I would express that a bit differently. My suggestions would be " best option" , "best choice" or "best suitable data set".

I actually struggled over these two words before! I have gone with "best option"; thanks for the suggestion.

P8, L248: The acronym DLM has been introduced, but I think DLMMC not.

There is no specific acronym, so I have written "the code called 'DLMMC'"

P8, L249: I am not sure if the acronym MLR has been introduced.

It had, in the previous section.

P10, L289: Here, I was not sure if you really mean Fig. S3-S5. I would have said only Fig S4 since there you show different latitude bands.

This is meant to provide a sensitivity comparison of the 50-50 and 60-60 bands, so I think there is indeed an error here, and S4 should be dropped, which I do.

P15, L354: Figs. 4a and c -> Figs. 4a-c?:

4b is not included in the reference (as it discusses mixing), so we left this as is.

P16, L411: The differences are hard to see. Quickly looking at the figure and comparing them one comes to the conclusion they almost look the same. Of course, if one looks directly at the observations in the plot, it gets quickly obvious. Here, it could be helpful to guide the a bit more since the observations go a bit under in the crowd of the large number of models.

This is fair; I have added "(compare orange and black on the right side of the panel)" to the end of the sentence.

P19, L456: Really both hemispheres? I see this behavior rather for the NH than SH.

I am not sure I understand this: the zero line goes through the shading in observations so there is little confidence in a change. Is that what you refer to?