

I would like to thank the authors for their detailed response to the previous round of comments, this is a much improved manuscript and I believe the clarity of the arguments is now much stronger. Overall, I believe that the main areas for improvement in the manuscript have now been addressed and only minor corrections now remain. I would support publication of this manuscript once these points have been addressed.

One significant conceptual point which remains for me is around Figure 9 and the cubic spline data. I believe that Fig 9a shows key information about the uncertainty of the minimum in the F_{ov} . However, it is very unclear to me why fitting cubic splines is the right thing to do here, which it should match the functional form, and why it gives rise to the very uneven and bimodal structure in the finer resolution pdfs which I believe may be spurious structure based on a very limited dataset. I am concerned additionally by the spikes in the pdfs outside of the fitted range which are shown in the figure. These seem spurious and confusing to the reader, as I suspect they are not realistic and are artefacts of the fitting system. I think that this approach should be considered and potentially compared to approaches such as Gaussian Processes to understand if they are adding information beyond that in Fig 9a or whether they are adding structure which cannot be reasonably inferred from the available data and could be misleading. If this approach remains in the paper then I would like it to be explained in more detail, particularly around the spatial structure and bimodality. I do not believe this significantly impinges on the conceptual importance of the paper and I think Fig 9a is strong enough to stand on its own and makes the point clearly enough, but I think that the cubic splines section should be reconsidered.

Minor Comments:

1. Line 24: Perhaps ref Wood (2019) box model here as well
2. Line 63-65: With the section removed from the previous manuscript, this doesn't read as well and might now benefit from an "and" or some grammatical restructuring
3. Line 165: It is somewhat unclear from this text whether the greater overshoot in forcing is expected at the slower rate or not, and if so then why this would be expected. Additional explanation here would be appreciated.
4. Figs 2 and 5 are improved but the text is still rather small, if this could be improved at all that would greatly improve them, perhaps the subplot titles could be placed onto the empty space in the subplots to allow more room for expansion? I think the figures are manageable as is, but improvements would be welcome
5. Line 209: Remind the reader that E_A is the freshwater forcing, or potentially harmonise such that F_H is freshwater forcing throughout the paper, although I understand that they are treated in different ways so this may be confusing.
6. Line 209-210: Ref Fig 5 to support this claim.
7. Line 284: "Similar as in the Stommel Model" should be "Similar to the Stommel Model"
8. Line 324: "precies" should be "precise"
9. Line 355-356: Some comment on how reasonable it is that these terms are small would be helpful, is there a citation or some analysis from models which suggests the order of magnitude of these terms and whether they can be safely ignored?
10. Fig 8: I think that "observed values" is still slightly misleading, perhaps it could be "CESM Model" and "Obs Model" just to be completely clear that this is idealised model data and not observations
11. Line 427: "Above-averaged" should be "above average"
12. Line 487: "Second argument" should be "The second argument"

13. Line 500: “loses resilience and making it more” should be “loses resilience, making it more”
14. Line 574 appears to be simply completing the square on the previous step, if the procedure from Faure Ragani is more significant than this or is imparting additional meaning to this procedure it would be helpful to state this explicitly
- 15.