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Geoscientific Model Development editorial board  
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**Revisions: TIMBER v0.1: conceptual framework for emulating temperature responses to tree cover change**

Dear Dr. Müller,

We once again would like to thank the reviewers for their comments and suggestions. We are pleased to present the revised manuscript of TIMBER v0.1 and believe that its overall quality and structure has been strengthened after considering and incorporating the reviews. Some main points are:

1. The Data and Methods sections have been elaborated upon to be more complete. We have furthermore added a section 2.3 outlining the “Tree cover change scenarios in selected SSPs”, and divided Section 3.4 into the two parts: (3.4.1) “Estimating parametric uncertainty in the predicted temperature responses”; and (3.4.2) “Evaluating signal-to-noise in the predicted temperature responses”.
2. We added some additional analysis in the results section, most importantly:
  - a. Quantifying the amount of grid points with MSEs lower than 0.5 (Figures 3 and B2). We settled on the MSE cut-off of 0.5 having noted that Winckler et al. estimated a  $\pm 0.25$  interpolation bias from the checkerboard method from which we allow for another  $\pm 0.25$ . This also allowed consistency in the MSE cut-off between min, mean and maximum surface temperature values.
  - b. Performing a Shapiro-Wilk test for normality in Section 3.3.2.
3. We directly refer to the limitations of TIMBER’s current conceptual set up in L490-493 of Section 5 (so as to acknowledge inability for further comparison of TIMBER’s outputs to other studies, as well as shortcomings of directly applying the Hooker model). Furthermore, we provide discussion on biogeophysical responses composed of albedo, thermal fluxes etc. in Section 5.2 and possibly extending TIMBER to differentiating Plant Functional Types in Section 5.3.

We are confident that the changes address most of the reviewers’ comments and improve the paper. We hope for some positive feedback.

Yours Sincerely,

A handwritten signature in black ink that reads "Shruti Nath".

Shruti Nath  
(on behalf of all co-authors)