

To,

Editor – *Climates of the Past*

We would like to thank the editor and the reviewers for their comments and deciding to proceed with this manuscript. We hereby submit the updated manuscript with the desired revisions. The output data from this study has been uploaded and data availability has been added to the manuscript.

Thanking you,

Rajarshi Roychowdhury, Rob DeConto

Response to Review #1:

Fig1: All the curves are annual mean. Is it correct? This should be specified

Fig 1(a) is annual mean and has been corrected in the manuscript. Fig 1(b) is for summer only (mentioned), and Fig 1(c) is sum of Positive Degree Days (defined in the main body of the manuscript).

GCM: Does this stand for Global Climate Model or General Circulation Model? What is the difference between both?

We use GCM for Global Climate Model. We have corrected inconsistencies in the manuscript.

L 133: What does geography mean in this context? A reference may be useful.

Added relevant details to the manuscript.

L 150: Summer insolation is obviously NOT symmetric across both Hemisphere according to Figure 3a. It remains still unclear what is the difference between insolation and energy in this context.

We have edited the text for clarity, and added the definition for summer energy along with reference.

L 227: Why is it 'Northern and austral summers' and not 'boreal and Southern summers'? I would have expected 'Northern and Southern summers' or 'boreal and austral summers'. What is the difference?

We have corrected the inconsistencies in the manuscript.

L 239: 'The forcing (summer energy (J)) calculated at the top of the atmosphere is symmetric across both hemispheres (Figure 5a)'. According to the figure, it seems rather anti-symmetric or asymmetric.

The forcing (Summer Energy) is numerically symmetric across both hemispheres, but out-of-phase, as expected for a change in precession (Since precession impacts both hemisphere in opposite ways). We have edited the text for clarity.

L 258: The section numbering should be checked throughout.

We have corrected the inconsistencies in the manuscript.