



Reply on RC2

Brian R. Crow et al.

Author comment on "Dynamic boreal summer atmospheric circulation response as negative feedback to Greenland melt during the MIS-11 interglacial" by Brian R. Crow et al., Clim. Past Discuss., <https://doi.org/10.5194/cp-2021-118-AC3>, 2021

Review #2 (Alexander Robinson)

TA key weakness of the study is that the Greenland ice sheet is prescribed to its present day configuration. However, this seems necessary and reasonable for the authors to be able to explore the phenomena of interest. Furthermore, this weakness is addressed well in the text. Nonetheless, I think there is an excellent opportunity to compare the quasi-time-series presented in Fig. 1 (JJA Greenland temps) with those of Robinson et al. (2017). There, peak summer warming around Greenland was estimated to be around 2-3degC, which is quite consistent with that presented here - obtained only by running a climate model with the right orbital configuration and GHGs. Making this comparison would add some value to the work here, and provide context for the promised future work with an interactive ice sheet component.

We would like to thank you for your constructive and supportive comments. We agree that incorporating the summer Greenland temperature time series developed by Robinson et al. (2017) into Figure 1 and our discussions will indeed bolster the work, providing some additional context and support for our results.

Some further minor points are listed below:

L79: Seems strange to have this posed as a question here. Perhaps rephrase into a sentence, or prepare the reader that you will ask a question.

Rephrased as, "In particular, our interest lies in identifying the atmospheric changes across the North Atlantic sector that were most consequential for mass balance changes in the Greenland ice sheet."

L285: of Hadley cell => of the Hadley cell

Accepted.

L286: for the tropical convection upon => for tropical convection on

Accepted.

References

Robinson, A., Alvarez-Solas, J., Calov, R. et al. MIS-11 duration key to disappearance of the Greenland ice sheet. *Nat Commun* 8, 16008 (2017).

Citation: <https://doi.org/10.5194/cp-2021-118-RC2>