



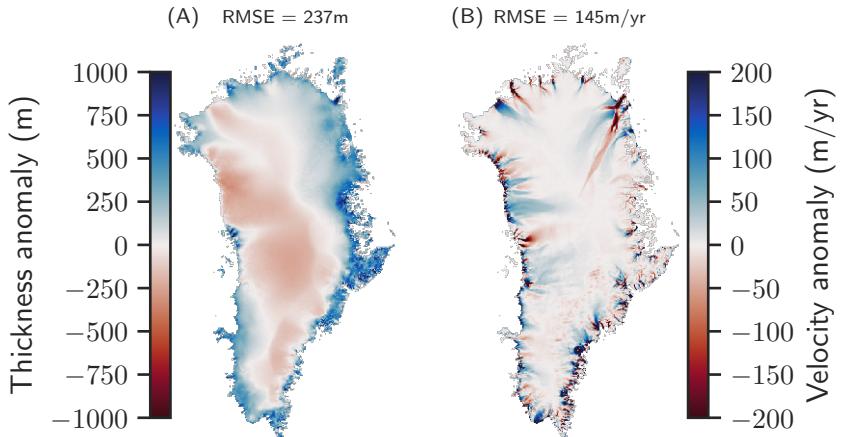
*Supplement of*

## **Impact of the melt–albedo feedback on the future evolution of the Greenland Ice Sheet with PISM-dEBM-simple**

**Maria Zeitz et al.**

*Correspondence to:* Maria Zeitz (maria.zeitz@pik-potsdam.de) and Ricarda Winkelmann (ricarda.winkelmann@pik-potsdam.de)

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**Figure S1. Comparison of simulated thickness and velocity magnitude with observed values.** (A) Thickness differences are given between observed data (BedMachine, (Morlighem et al., 2017)) and the initial state for the simulation at the end of the glacial cycle. The root mean square error is at 237m. (B) Differences in the magnitude of surface velocities between observed (Rignot and Mouginot, 2012) and simulated values. The root mean square error is at 145m/yr. The differences are positive (blue), where the simulated values overestimate thicknesses or velocities and negative (red), where the simulated values underestimate thicknesses or velocities.

## 1 Statistical analysis of the initial state

The initial state was achieved by spinning up the model over 125 ka with a scalar temperature anomaly applied to the climatological mean from 1971-1990 of MAR v3.9 monthly temperature and precipitation fields. The precipitation is scaled with a 7.3% increase for each degree Celsius of warming (Huybrechts, 2002).

## References

- Huybrechts, P.: Sea-level changes at the LGM from ice-dynamic reconstructions of the Greenland and Antarctic ice sheets during the glacial cycles, *Quaternary Science Reviews*, 21, 203–231, [https://doi.org/10.1016/S0277-3791\(01\)00082-8](https://doi.org/10.1016/S0277-3791(01)00082-8), 2002.
- Morlighem, M., Williams, C. N., Rignot, E., An, L., Arndt, J. E., Bamber, J. L., Catania, G., Chauché, N., Dowdeswell, J. A., Dorschel, B., Fenty, I. G., Hogan, K., Howat, I., Hubbard, A., Jakobsson, M., Jordan, T. M., Kjeldsen, K. K., Millan, R., Mayer, L., Mouginot, J., Noël, B. P. Y., O'Cofaigh, C., Palmer, S., Rysgaard, S., Seroussi, H., Siegert, M. J., Slabon, P., Straneo, F., Van Den Broeke, M. R., Weinrebe, W., Wood, M., and Zinglersen, K. B.: BedMachine v3: Complete Bed Topography and Ocean Bathymetry Mapping of Greenland From Multibeam Echo Sounding Combined With Mass Conservation, *Geophysical Research Letters*, 44, 11,051–11,061, <https://doi.org/10.1002/2017GL074954>, 2017.
- Rignot, E. and Mouginot, J.: Ice flow in Greenland for the International Polar Year 2008-2009, *Geophysical Research Letters*, 39, 1–7, <https://doi.org/10.1029/2012GL051634>, 2012.