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The Cryosphere
Discussions

# *Interactive comment on* "Glacial cycles simulation of the Antarctic Ice Sheet with PISM – Part 1: Boundary conditions and climatic forcing" *by* Torsten Albrecht et al.

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We wrote a paper (Mikkelsen et al. 2018) where we outlined how the magnitude of the natural variability in the forcing can have a significant impact on ice sheet volume. I notice that the noise amplitude is not constant through out the period for WDC in figure 19 top left. The orange line is noticeably more smooth in the end than in the beginning. According to the mechanism outlined in our paper then this has the same effect as a trend in temperature. We have also seen quite large ice volume differences in smoothed vs non-smoothed paleo spin-ups of Greenland with PISM. So, I am curious how much the forcing variability differences impacts the final volume in your



fig19bottomleft. Can you comment on that please?

Mikkelsen, T. B., Grinsted, A., and Ditlevsen, P.: Influence of temperature fluctuations on equilibrium ice sheet volume, The Cryosphere, 12, 39-47, https://doi.org/10.5194/tc-12-39-2018, 2018.

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