

Interactive comment on “Inverse stochastic-dynamic models for high-resolution Greenland ice-core records” by Niklas Boers et al.

Niklas Boers et al.

boers@pik-potsdam.de

Received and published: 22 May 2017

Response to Anonymous Referee #1:

We thank the reviewer for his positive evaluation of our manuscript. Regarding the relevance of coupling terms between the $\delta^{18}\text{O}$ and dust variables, we acknowledge that their effect on the temporal asymmetry in terms of sawtooth-shaped oscillations between stadials and interstadials is hard to assess quantitatively. Coupling terms are, however, strongly supported by the model selection criteria (AICc and BIC) despite their introducing a substantial number of additional parameters (14 vs. 31). Furthermore, including coupling terms is necessary for an accurate approximation of the statistical properties of the NGRIP time series. In the revised manuscript, we will replace item 3 of

C1

the conclusions by “Including coupling terms between the $\delta^{18}\text{O}$ and dust variables substantially improves the statistical characteristics of the simulated time series in terms of reproducing the bimodality of the probability density functions as well as the correct average waiting time between subsequent transitions from stadials to interstadials.”

Interactive comment on Earth Syst. Dynam. Discuss., doi:10.5194/esd-2017-8, 2017.

C2