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

Anonymous Referee #1

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This is a model study finding the best fit of a stochastic difference model with delay to the joined isotope and dust records from the NGRIP ice core. The model is a 2D Langevin equation with additional time delay terms. This is not a new approach, but it introduces in a systematic way the dating uncertainty into the model fitting procedure. Furthermore, the effect of memory (non-Markovian terms in the Langevin equation) for improving the fit is shown. The only part I am not completely convinced by is the statement that the coupling between d18O and dust explains the sawtooth shape of the time series (time asymmetry) (point 3 in conclusions). I have seen an earlier version of the manuscript, and this new version is improved and expanded to accommodate my previous comments. The science is sound and the paper is well written. I can recommend publication without further revisions.