

EGU23-14648, updated on 29 Feb 2024  
<https://doi.org/10.5194/egusphere-egu23-14648>  
EGU General Assembly 2023  
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## On the initialisation of ice sheet models: equilibrium assumptions, thermal memory, and present-day states

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A significant portion of the spread in future projections of ice sheet volume changes is attributed to uncertainties in their present-day state, and the way this state is represented in ice-sheet models. The scientific literature already contains a variety of classic initialisation approaches used by modelling groups around the globe, each with its own advantages and limitations. We propose a generalised protocol that allows for the quantification of the impact of individual initialisation choices, such as steady-state assumptions, the inclusion of internal paleoclimatic thermal signals, sea level and glacial isostatic effects, and calibration methods. We then apply this protocol to an ensemble of multi-millennia model spin-ups of the present-day Greenland and Antarctic ice sheets and show the importance of the choices made during initialisation.

[This abstract is a companion to “Sensitivity of future projections of ice sheet retreat to initial conditions” by Berends et al. We hope that, if both abstracts are lucky enough to be accepted, the conveners can program the two talks in sequence.]