



## **Ice sheet model sensitivity on perturbations applied to the ISMIP6 ocean forcing**

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Ice shelf basal melt driven by oceanic heat is governing grounding line migration and ice dynamics of the Antarctic Ice Sheet (AIS). The recent ice sheet model intercomparison initMIP-Antarctica as part of ISMIP6 revealed a large spread in the simulated AIS response to ocean warming between the contributing models, partly based on models choices of parameterisation of ice-shelf basal melt. For the next phase of ISMIP6, the community agreed on using a prescribed ocean forcing parameterisation in combination with pre-processed forcing datasets including the observed present-day state of the ocean.

Here we compare the simulations performed with the Parallel Ice Sheet Model (PISM) based on the different types of thermal forcing from the ocean. In order to assess the response to short time perturbations of oceanic heat content, we apply idealised perturbation as anomalies to the present-day ocean state on a decadal to centennial timescale. In the analysis, we focus on the regions of significant response. We evaluate surface elevation trends and ice sheet spreading rates along representative flow lines to investigate the ice sheet response in the context of dynamic thinning or rather thickening. This is serving as a baseline to understand the response to ocean forcing from GCMs with considerable decadal variability.