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Grounding line migration as response to cycles of sliding pertubations and initial geometries in the MISMIP3D experiment

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The benchmark experiment MISMIP3D (Pattyn et al., 2013) investigated the response of a artificial ice stream-ice shelf system to a sliding perturbation. We continued this experiment by applying cycles of pertubations at different time scales in order to see the long term response of the grounding line positions to changes in basal sliding. For this purpose we applied the finite-difference full-Stokes model TIM-FD3 on 2.5km and 1.25km using three different initial geometries. We found that our steady-state geometry shows a strong dependency of the grounding line position on the horizontal grid size and the chosen initial geometry. Not all experiments show a neutral equilibrium in subsequent basal sliding perturbation simulations.