



Dynamic equilibrium simulation of Antarctica with the Potsdam Parallel Ice Sheet Model (PISM-PIK)

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We present a dynamic equilibrium simulation of land ice on Antarctica with the Potsdam Parallel Ice Sheet Model (PISM-PIK). In order to capture slow grounded ice flow, fast ice shelf motion as well as fast flowing ice streams the shallow ice approximation (SIA) is complemented by the shallow shelf approximation (SSA) on a velocity level. The initial PISM code was enriched by physical parameterizations for subgrid-scale ice-shelf advance and retreat, a large scale calving law (eigen-calving) and a stress boundary condition on the ice-ocean boundary. This combination allows for free movement of the grounding line as well as a dynamic calving front. We compare the dynamical equilibrium simulation (order of 100000 model-years) with present observations and present dynamical features associated with basal ice shelf melting and grounding line retreat.