ISMIP6 - initMIP: Greenland ice sheet model initialisation experiments

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Earlier large-scale Greenland ice sheet sea-level projections e.g. those run during ice2sea and SeaRISE initiatives have shown that ice sheet initialisation can have a large effect on the projections and gives rise to important uncertainties. This intercomparison exercise (initMIP) aims at comparing, evaluating and improving the initialization techniques used in the ice sheet modeling community and to estimate the associated uncertainties. It is the first in a series of ice sheet model intercomparison activities within ISMIP6 (Ice Sheet Model Intercomparison Project for CMIP6). The experiments are conceived for the large-scale Greenland ice sheet and are designed to allow intercomparison between participating models of 1) the initial present-day state of the ice sheet and 2) the response in two schematic forward experiments. The latter experiments serve to evaluate the initialisation in terms of model drift (forward run without any forcing) and response to a large perturbation (prescribed surface mass balance anomaly). We present and discuss first results of the intercomparison and highlight important uncertainties with respect to projections of the Greenland ice sheet sea-level contribution.