



A test bed for investigating the flow of outlet glaciers and ice streams embedded in the Greenland ice sheet

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Here, we define a test bed for fast flow regions and its vicinity embedded in an ice sheet. This test bed is designed for outlet glaciers and ice streams of the Greenland ice sheet. It consists of a fine resolution part with a manufactured basal trough over which the professional software COMSOL (Multiphysics Modeling Software) operates as a full-Stokes model. Results by COMSOL are compared with coarse resolution simulations with the ice-sheet model SICOPOLIS operating in shallow-ice-approximation mode and using parameterizations of the fast flow effects. For simplification, in this preliminary approach, both models run in isothermal mode. Definition of surface mass balance follows the EISMINT intercomparison project with parameters adapted to the Greenland ice sheet. In particular, we inspect with this test bed upstream and lateral flow effects of ice streams and outlet glaciers. We present first simulations with this approach, although presentation of the test bed itself is the main emphasis of this presentation.