

## Development of a climate/ice-sheet coupled model (MIROC-IcIES) for Greenland ice-sheet simulation

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Numerical modeling is an important technique for projection or reconstruction of ice sheets under past or future climate changes. Since climate and ice-sheet systems interact each other, development of a numerical model to couple a climate model and an ice-sheet model is expected recently, as well as stand-alone models. The recent intercomparison project of ice-sheet models ISMIP6 [1] includes a protocol of intercomparison of coupled models for future projection of hundred-year scales.

We are developing a coupled model of a climate model MIROC and an ice-sheet model IcIES. In this study a coupling design of the model is described. A temperature-index model (such as the positive degree-day model) is introduced to compute the surface mass balance on the ice sheet at first, which will be expected to replace by land-surface models. Changes in discharge from the ice sheet and ice-sheet topography are introduced in the climate component. Preliminary results will be presented to study the effect of the interaction, e.g, off-line coupling.

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