



Introducing GLIMMER - a 3D thermo-mechanical ice sheet model

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Ice sheets are an integral part of the larger Earth System. They affect atmospheric and oceanic circulation patterns, sea-level change and shape the Earth's surface by erosion, sediment transport and deposition. Many complex models, therefore, require a component to simulate ice sheet behaviour.

GLIMMER is a 3D finite-difference thermo-mechanical ice sheet model. It is used for the land-ice component of the GENIE project which aims to develop a unified Earth System Model (ESM). This system is a collaborative effort to create a standard ice sheet model that can be used by other projects. GLIMMER can be used as a stand-alone model or as a component of an ESM.

GLIMMER is developed as a Fortran95 library which can be called from other models that provide boundary conditions. This interface is designed to be as flexible as possible. The GLIMMER project includes example drivers of varying complexity ranging from simple EISMINT-type climate parameterisations to complex couplers linking the ice sheet model with the GENIE ESM. GLIMMER has been tested using the EISMINT-1 and EISMINT-2 benchmarks. The netCDF Climate and Forecast Metadata Convention is used for data input and output. GLIMMER also includes data processing and visualisation utilities.

The development of GLIMMER is open. Current snapshots can be obtained from the NeSCForge site which hosts the project. Participation with and contributions to the GLIMMER project are most welcome.