



## **Glimmer-CISM: developments in community ice sheet modelling**

Ian Rutt (1), Magnus Hagdorn (2), Jesse Johnson (3), William Lipscomb (4), Antony Payne (5), and Stephen Price (4)

(1) School of the Environment and Society, Swansea University, UK (i.c.rutt@swansea.ac.uk, +44-(0)1792-602685), (2) School of Geosciences, University of Edinburgh, UK, (3) Department of Computer Science, University of Montana, USA, (4) Los Alamos National Laboratory, New Mexico, USA, (5) Bristol Glaciology Centre, School of Geographical Sciences, University of Bristol, UK

The recent publication of a description and evaluation of the Glimmer community ice sheet model (Rutt *et al.*, 2009) is an important milestone in the development of a community-focused framework for ice sheet modelling. Now known as Glimmer-CISM (from *Glimmer; the Community Ice Sheet Model*), the model is flexible and well-documented, is written in standards-compliant Fortran 95, and adopts the widely-used CF metadata standard for I/O. Release under the GNU General Public License (GPL) means that the model is available to all interested researchers, and the level of verification undertaken means that a high degree of trust can be placed in the output. Furthermore, provision of a flexible coupling module (GLINT) has already facilitated coupling to the Hadley Centre FAMOUS climate model, with coupling to HadCM3 in an advanced state. The adoption of Glimmer-CISM as the land ice component of the US Community Climate System Model (CCSM) has provided a significant boost to the future of the model, as has the funding of the EU FP7 project *Ice2Sea*.

We present an overview of recent developments to Glimmer-CISM, including the provision of models of higher-order stress balance. We discuss planned future developments, and the new arrangements we are making to facilitate community involvement and international collaboration. Glimmer-CISM is a joint U.S./U.K. effort with support primarily from DOE, NSF, NASA, and NERC.

Rutt, I.C., M. Hagdorn, N.R.J. Hulton, A.J. Payne (2009) The Glimmer Community Ice Sheet Model, *J. Geophys. Res.*, **114**, F02004