Geophysical Research Abstracts
Vol. 18, EGU2016-18514, 2016
EGU General Assembly 2016

MAGIC-DML: Mapping/Measuring/Modeling Antarctic Geomorphology & Ice Change in Dronning Maud Land

Irina Rogozhina (1,2), Jorge Bernales (2), Jennifer Newall (3,4,5), Arjen Stroeven (3,4), Jonathan Harbor (3,4,5), Neil Glasser (6), Ola Fredin (7), Derek Fabel (8), Class Hättestrand (3,4), Nat Lifton (5,9)

(1) Center for Marine Environmental Sciences, Bremen University, Bremen, Germany, (2) Helmholtz Centre Potsdam GFZ German Research Centre For Geosciences, Potsdam, Germany, (3) Department of Physical Geography, Stockholm University, Stockholm, Sweden , (4) Bolin Centre for Climate Research, Stockholm University, Stockholm, Sweden, (5) Department of Earth, Atmospheric, and Planetary Sciences, Purdue University, West Lafayette, USA, (6) Centre for Glaciology, Institute of Geography and Earth Sciences, University of Wales, UK, (7) Geological Survey of Norway, Trondheim, Norway, (8) School of Geographical and Earth Sciences, University of Glasgow, UK, (9) Department of Physics and Astronomy, and Purdue Rare Isotope Measurement Laboratory (PRIME Lab), Purdue University, West Lafayette, USA

Reconstructing and predicting the response of the Antarctic Ice Sheet to climate change is one of the major challenges facing the Earth Science community. There are critical gaps in our knowledge of past changes in ice elevation and extent in many regions of East Antarctica, including a large area of Dronning Maud Land. An international Swedish-UK-US-Norwegian-German project MAGIC-DML aims to reconstruct the timing and pattern of ice surface elevation (thus ice sheet volume) fluctuations since the mid-Pliocene warm period on the Dronning Maud Land margin of the East Antarctic Ice Sheet. A combination of remotely sensed geomorphological mapping, field investigations, surface exposure dating and numerical modelling are being used in an iterative manner to produce a comprehensive reconstruction of the glacial history of Dronning Maud Land. Here we present the results from the first phase of this project, which involves high-resolution numerical simulations of the past glacial geometries and mapping of the field area using historic and recent aerial imagery together with a range of satellite acquired data.