Geophysical Research Abstracts
Vol. 16, EGU2014-894-2, 2014
EGU General Assembly 2014

Numerical simulation of the last Cordilleran Ice Sheet

Julien Seguinot (1,2,3), Irina Rogozhina (3), Arjen P. Stroeven (1,2), Martin Margold (4), Johan Kleman (1,2), Constantine Khroulev (5), Qiong Zhang (1,2)

(1) Department of Physical Geography and Quaternary Geology, Stockholm University, Sweden, (2) Bolin Centre for Climate Research, Stockholm University, Sweden, (3) German Research Centre for Geosciences, Potsdam, Germany, (4) Department of Geography, Durham University, UK, (5) Geophysical Institute, University of Alaska Fairbanks, Fairbanks, USA

The Cordilleran Ice Sheet of North America is one of the least understood Pleistocene ice sheets in terms of its extent, volume and dynamics. Although smaller in volume than its Laurentide and Eurasian counterparts, it may nevertheless have attained a size similar to that of the modern Greenland Ice Sheet during its last glacial maximum extent. Despite more than a century of geomorphological and stratigraphical observations, the complexity of the evidence is such that reliable reconstructions of glacier advance and retreat at an ice-sheet scale have been lacking. Here we use a numerical glacier model (PISM) to complement field-based evidence and perform a quantitative reconstruction. Following sensitivity experiments using climate forcing from different sources, we present a high-resolution simulation of the last Cordilleran Ice Sheet expansion cycle, and a comparison between model results and field evidence in terms of regional climate complexity associated with mountainous topography.