Geophysical Research Abstracts
Vol. 12, EGU2010-4721, 2010
EGU General Assembly 2010

Glacial ocean circulation and shelf edge glaciation offshore SW Greenland during the past 75.000 years

Marit-Solveig Seidenkrantz (1), Antoon Kuijpers (2), Steffen Aagaard-Sørensen (3), Sofia Andersson (4), Holger Lindgreen (2), Johan Ploug (5), Piotr Przybyło (6), Ian Snowball (7), and Michael Ivanov (8)

(1) Centre for Past Climate Studies, University of Aarhus, Department of Earth Sciences, Aarhus C, Denmark (mss@geo.au.dk, +(45) 8942 9406), (2) Geological Survey of Denmark and Greenland (GEUS), Østre Voldgade 19, 1350 Copenhagen, Denmark (aku@geus.dk), (3) Department of Geology, University of Tromsø, Norway, (4) Department of Earth Sciences, University of Gothenburg, Sweden, (5) Fugro Robertson Ltd, Llandudno, North Wales, United Kingdom, (6) Mærsk Oil and Gas, Copenhagen, Denmark, (7) GeoBiosphere Science Centre, Department of Geology, Quaternary Sciences, Lund University, Solvegatan 12, SE-23 62, Lund, Sweden (ian.snowball@geol.lu.se), (8) UNESCO-MSU Centre for Marine Geology and Geophysics, Faculty of Geology, Moscow State University, Vorobjevy Gory, Moscow 119899, Russia (fu@geol.mru.ru)

A multi-proxy study has been made of the gravity cores TTR13-AT-455G and TTR13-AT-479G collected during a cruise of RV 'Prof. Logachev' made offshore SW Greenland in 2003 within the framework of the UNESCO-supported, international 'Training-Through-Research' programme. The cores were retrieved from a water depth of 2381 m and 1033 m, respectively. Our data reveal that the most extreme West Greenland Weichselian glaciation occurred during MIS 4, when an ice shelf may have extended beyond the SW Greenland shelf edge. Our results further suggest a long-term (intermittent) increase in Irminger Sea Water (ISW) transport by the West Greenland Current probably having controlled the extent of stadial shelf glaciation in course of the last glaciation. Brine-related deep convection during most of MIS 2 and late MIS 3 is concluded to have favoured (subsurface) ISW advection into the subpolar gyre also during most of the LGM and H1, with more intensified deep-water circulation starting after the LGM at c. 16.7 kyr BP.