

Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

©2011. Japan Geoscience Union. All Rights Reserved.



APE031-P04

Room:Convention Hall

Time:May 25 10:30-13:00

North Atlantic icebergs in early glacial periods after intensification of Northern Hemisphere glaciation

Tatsuya Hayashi^{1*}, Masao Ohno²

¹National Museum of Nature and Science, ²Kyushu University

We investigated an iceberg discharge regime in early glacial periods after intensification of Northern Hemisphere glaciation by the examination of rock magnetic properties of marine sediments recovered at Site U1314 in the Gardar Drift (North Atlantic) during IODP Expedition 306. We constructed an age model during 2.76-2.10 Ma by tuning a newly created index [magnetic susceptibility (MS) + natural gamma radiation (NGR)] to the LR04 oxygen isotope stack record between the MIS 80 glacial and the MIS G7 interglacial periods. A NGR-MS index record indicates that a single iceberg surge occurred during individual glacial periods before MIS100, and in contrast, sawtooth-like fluctuations of iceberg surges occurred during glacial periods after MIS 100. In addition, the millennial-scale iceberg surges were dominated within glacial stages during intervals when ratios of LR04 oxygen isotope stack surpassed approximately 3.5 per mil. These are comparable to the climate changes in Pleistocene glacial periods, such as Dansgaard-Oeschger cycles and Bond cycles during the last glacial, suggesting that circum-North Atlantic continental ice sheets have oscillated and have calved icebergs in a similar manner at least since MIS 100.

Keywords: icebergs, intensification of Northern Hemisphere glaciation, North Atlantic