

## 統合深海掘削計画 302 次航海で得られた北極海口モノソフ海嶺上の海底堆積物コアの更新世年代モデルの構築

### Constraints on the Pleistocene chronology of sediments from the Lomonosov Ridge: IODP Expedition 302

# 坂本 竜彦 [1]

# Tatsuhiko Sakamoto[1]

[1] IFREE, JAMSTEC

[1] IFREE, JAMSTEC

Despite its importance in the global climate system, age-calibrated marine geologic records reflecting the evolution of glacial cycles through the Pleistocene are largely absent from the central Arctic Ocean. This is especially true for sediments older than 200 ka. Three sites cored during the Integrated Ocean Drilling Program Expedition 302, the Arctic Coring Expedition (ACEX), provide a 27 m continuous sedimentary section from the Lomonosov Ridge in the central Arctic Ocean. Two key biostratigraphic datums and constraints from the magnetic inclination data are used to anchor the chronology of these sediments back to the base of the Cobb Mountain subchron (1215 ka). Beyond 1215 ka, two best fitting geomagnetic models are used to investigate the nature of cyclostratigraphic change. Within this chronology we show that bulk and mineral magnetic properties of the sediments vary on predicted Milankovitch frequencies. These cyclic variations record glacial and interglacial modes of sediment deposition on the Lomonosov Ridge as evident in studies of ice-rafted debris and stable isotopic and faunal assemblages for the last two glacial cycles and were used to tune the age model. Potential errors, which largely arise from uncertainties in the nature of downhole paleomagnetic variability, and the choice of a tuning target are handled by defining an error envelope that is based on the best fitting cyclostratigraphic and geomagnetic solutions.

#### Related articles:

O 'Regan M., King J., Backman J., Jakobsson M., Palike H., Moran K., Heil C., Sakamoto T., Cronin T., and Jordan R. W., 2008, Constraints on the Plio-Pleistocene Chronology of Sediments from the Lomonosov Ridge, *Paleoceanography*, 23, PA1S19, doi:10.1029/2007PA001551

O Regan M., Sakamoto T., and King J., 2008, Data Report: Regional Stratigraphic Correlation and a Revised Composite Depth Scale for IODP Expedition 302, *Proceedings of the Integrated Ocean Drilling Program*, 302, doi:10.2204/iodp.proc.302.202.2008