

Japan Geoscience Union Meeting 2011

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

©2011. Japan Geoscience Union. All Rights Reserved.



MIS022-P05

会場: コンベンションホール

時間: 5月23日 14:00-16:30

北部ベーリング海 更新世有孔虫酸素炭素同位体比変化 Pleistocene foraminiferal oxygen and carbon isotope records in the Bering Sea (IODP EXP. 323 Site U1343)

朝日 博史^{1*}, 池原 実², 坂本 竜彦³, 高橋 孝三⁴

Hirofumi Asahi^{1*}, Minoru Ikehara², Tatsuhiko Sakamoto³, Kozo Takahashi⁴

¹ 東京大学 大気海洋研究所, ² 高知大学 海洋コア総合研究センター, ³ 独立行政法人 海洋研究開発機構, ⁴ 九州大学
¹ AORI, University of Tokyo, ² Kochi University, ³ JAMSTEC, ⁴ Kyushu University

Sea ice history in the northern hemisphere provides insight to understand the cooling mechanism since the Northern Hemisphere Glaciation (NHG). IODP Expedition 323 recovered first appropriate sediments in the Bering Sea to see sequential record during whole Pleistocene. Among the seven sites drilled during this expedition, Site U1343 is situated at the Beringian slope that is proximal to the current seasonal ice-margin. To augment shipboard data, we have generated oxygen and carbon isotope record of planktic and benthic foraminifers. Inter-species calibration of benthic foraminiferal oxygen isotope provides well-established composite oxygen isotope record during last 2.1 Ma. Oxygen isotope stratigraphy during last 0.6 Ma reasonably matches to the biostratigraphy age-model on-board. Carbon isotope of both planktic and benthic foraminifer above 200m CCSF-A shows partial contamination from the interstitial water with light ¹³C, produced by the bacterial activity in the Sulfate-Methane Transition Zone. Concurrence of colored foraminifer shells presence at those contaminated interval suggests the alteration process between foraminifer shells and the interstitial water. Contaminated data can simple be excluded by using statistical model and the presence of colored shells. Oxygen and carbon isotope records shows notable shift after the Mid-Pleistocene Transition (MPT). Long-term trend of foraminiferal oxygen and carbon isotope with changes in the sea-ice related flora indicate progressive sea-ice formation after the MPT. This sea-ice formation is attributed to the less ventilation between surface and deep water, hence formation of the oxygen minimum water around 2000m depth in the Bering Sea.

キーワード: 有孔虫, 酸素同位体比, 炭素同位体比, ベーリング海, 更新世

Keywords: foraminifer, oxygen isotope, carbon isotope, Bering Sea, Pleistocene