

IODP Exp.318ウィルクスランド氷床形成史一航海概要

IODP Expedition 318 Wilkes Land Glacial History-Overview

岩井 雅夫^{1*}, Henk Brinkhuis², Carlota Escutia Dotti³, Adam Klaus⁴, 香月 興太¹,
酒井 豊三郎⁵, 杉崎 彩子⁶, 中井 睦美⁷, 山根 雅子⁸, Francisco J. Jimenez-Espejo⁶,
IODP Exp.318 乗船研究者一同,⁴

Masao Iwai^{1*}, Hendrik Brinkhuis², Carlota Escutia Dotti³, Adam Klaus⁴, Kota Katsuki¹,
Toyosaburo Sakai⁵, saiko Sugisaki⁶, Mutsumi Nakai⁷, Masako Yamane⁸,
Francisco J. Jimenez-Espejo⁶, IODP Exp.318 Shipboard Scientific Party⁴

¹高知大学, ²Utrecht University, ³CSIC-Universite de Granada, ⁴IODP-Texas A&M University, ⁵宇都宮大学,
⁶海洋研究開発機構, ⁷大東文化大学, ⁸東京大学

¹Kochi University, ²Utrecht University, ³CSIC-Universite de Granada, ⁴IODP-Texas A&M University,
⁵Utsunomiya University, ⁶JAMSTEC, ⁷Daito Bunka University, ⁸University of Tokyo

The Antarctic Ice Sheet plays a key role in global sea level, Earth's albedo, and oceanographic and biotic evolution. Sedimentary successions on the Antarctic continental margin are a direct record of Antarctic ice volume fluctuations and allow the resolution of inconsistencies between records of eustatic sea-level changes, oxygen isotope ratios in deep water foraminifera, and Antarctic glacial history inferred from onshore evidence. IODP Expedition 318 (January-March, 2010) was planned to reveal the Wilkes Land glacial history. The continental margin of the Wilkes Land is a key area of interest because of the sensitivity of the East Antarctic Ice Sheet (EAIS) to temperature increase.

The principal goals of Expedition 318 were to obtain:

1. the timing and nature of the first arrival of ice at the Wilkes Land margin inferred to have occurred during the earliest Oligocene (Oligocene isotope event-1),
2. the nature and age of the changes in the geometry of the progradational wedge interpreted to correspond with large fluctuations in the extent of the East Antarctic Ice Sheet (EAIS) and possibly coinciding with the transition from a wet-based to a cold-based glacial regime (late Miocene?Pliocene?),
3. a high-resolution record of Antarctic climate variability during the late Neogene and Quaternary ; and
4. an unprecedented, ultrahigh resolution (i.e., annual to decadal) Holocene record of climate variability.

The initial results of chronostratigraphic and paleoenvironmental information from IODP Expedition 318, which would provide major constraints to ice sheet models. The sedimentary records obtained from the Wilkes Land margin provide information about the tectonic scale to millennial-decade scale variability and vulnerability of this sector of the EAIS.

Keywords: Wilkes Land, East Antarctic Ice Sheet, Cenozoic, IODP, glacial history