

第四紀の東南極氷床変動史研究の現状と課題

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Perspectives on the study of the Quaternary East Antarctic ice-sheet history

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It has been well known that the age at which the northern hemisphere ice sheets was the greatest was at the Last Glacial Maximum (LGM). In CLIMAP model, Antarctic ice sheet is also considered to have advanced synchronously to the edges of continental shelf margin at the LGM. However, the geological evidence of East Antarctic ice sheet (EAIS) history of LGM and pre-LGM is sparse. We have studied the stratigraphic relationship between raised beach sediments including *in situ* fossil shells and glacial sediments around the Lützow-Holm Bay region, East Antarctica. The AMS radiocarbon dating ages of *in situ* fossil shells are clearly classified into two groups; the younger group is 3-8 kyrs BP, and the other is older than 30-46 kyrs BP. Any marine layers and *in situ* fossil shells were not disturbed by ice sheet loading or scouring. In addition, glacial sediments associated with the greatest ice advance can be observed under marine beds including older fossils. These facts indicate that the age at which the East Antarctic ice sheet was the greatest was older than 46 ka not LGM, and the advance of the East Antarctic ice sheet was not as dramatic as the advance of northern hemisphere ice sheets during the last glacial. The sea-level observations around the Lützow-Holm Bay region using the relationship between heights and ages of *in situ* fossil shells indicate the existence of a sea-level high stand of about 10 m around 46 kyrs BP. These near-field sea-level variations can also provide important constraints on the melting history of East Antarctic ice sheet before the LGM using numerical calculation.

References

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