

# The time lag of Last Glacial Maximum between East Antarctic Ice Sheet and northern hemisphere ice sheets

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The fluctuation of both hemisphere ice sheets during the last glacial has had a great impact on global sea-level changes and climatic variations through the thermohaline circulation change. It has been well known that the age at which the northern hemisphere ice sheets was the greatest was at marine isotope stage (MIS) 2. In CLIMAP model, Antarctic ice sheet is considered to have advanced synchronously to the edge of continental shelf margin, however, the geological evidence for Antarctic ice fluctuations is sparse. We have studied the stratigraphic relationship between raised beach deposits including in situ fossil shells and glacial deposits around the Lutzow-Holm Bay region, East Antarctica. The AMS radiocarbon dating revealed that the ages of in situ fossil shells are clearly classified into two groups: the younger group is 3-8 ka, and the other is older than 30-46 ka. Any marine layers and in situ fossil shells were not disturbed by ice sheet loading or scouring. In addition, glacial deposits associated with the last greatest ice advance can be observed under marine beds including older fossil. This fact indicates that the age at which the Antarctic ice sheet was the greatest was older than 46ka not MIS 2, and the advance of the Antarctic ice sheet was not as dramatic as the advance of northern hemisphere ice sheets during the last glacial.