

History of the Last Glacial and Holocene Antarctic Ice Sheet deduced from marine sediment cores

Yusuke Yokoyama[1]

[1] Dept. Earth & Planet. Sci., Univ. Tokyo

<http://www.eps.s.u-tokyo.ac.jp>

Antarctic ice sheet holds the largest quantities of freshwater on earth surface and hence its growth and decay influences significantly on the earth's climate. Studies on the ice sheets history during the last glacial to the present would give us a clue to predict the future changes. During the last glacial, global climate was significantly colder and large area of the northern hemisphere was covered by huge ice sheets. Spatial and temporal variation of the northern hemisphere ice sheets are relatively well known whereas little evidence have been reported for Antarctic ice sheet. Partly because large area is covered by ice even during the interglacial time. Therefore marine sediment core can provide important information of the history of the ice sheet.

We studied sediment cores obtained from the off West Antarctic Ice Sheet (WAIS). WAIS is particularly important for the future climate since most of the ice sheet grounded below present day sea-level. Therefore it is anticipated that the WAIS is susceptible to the climate change which would be trigger to create large disintegration of the ice sheet. Two region have been studied to understand the WAIS history. The first is Weddel Sea sector and the other is the Ross Sea sector of the WAIS. In the Weddel Sea region, offshore sediments recorded particular source of the ice bergs originated from WAIS. The record is indicative of spatial and temporal variations of ice disintegration during the last 30 kyrs. In the Ross Sea region, we investigated the melting history of the WAIS during the Holocene. Both records show rapid fluctuations of the WAIS during the last glacial to the Holocene.