

Late Holocene paleoclimatic record of sediment from the Weddell Sea off the northern Antarctic Peninsula: preliminary results

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A 4.7-m-long sediment core JV10 covering about 4000 years was collected from the Weddell Sea located near the Joinville Island (63° 15'S, 55° 45'W), the northern tip of the Antarctic Peninsula. The study area is influenced by both Weddell Sea Transitional Water and Upper Circumpolar Deep Water, so it can be a good site to study ocean circulation of Southern Ocean. Six AMS radiocarbon ages were determined by carbonate shells at the CAIS (Center for Applied Isotope Studies) at the University of Georgia. No age inversions were observed, implying a lack of reworking during deposition. Sedimentological, geochemical, and micropaleontological parameters were analyzed to reconstruct paleoenvironmental changes. The core was visually described and sliced for X-radiographs, and analyzed to determine magnetic susceptibility (MS) and the content of total organic carbon (TOC) and calcium carbonate (CaCO₃) content. Grain size is analyzed at 4 cm interval and diatom assemblage composition and abundance are analyzed at about 2 cm interval. Long chain alkyl 1,13- and 1,15-diols, specific lipids of diatoms of the genus *Proboscia*, are analyzed to test as a new proxy of sea surface temperature (SST). Chemosynthetic Bivalve shell *Calyptogena* sp. which is associated with the cold seep occurred at six horizons from ca. 4000 to 2500 yr BP. We postulate that the environment of study area was relatively stable during this period. It is consistent with the result of the James Ross Island close to the study area. After 2500 yr BP, MS, TOC, diatom abundance changed by about 500-year periodicity. This trend is being examined in terms of the Antarctic sea ice variability.