A study of geochemistry about a surface water in glacial-interglacial.

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Southern Ocean played a part in a global environment of the past that is attached importance. In particular, a solution for causes and processes of a change in a concentration of CO2 that is closely related to the glacial-interglacial cycle that is an importance task for recently paleoclimatology and paleoceanography. On the task, it is important to clarify phenomena such as a change of volume of bioproductivity, of surface water temperature and of sea-ice distribution in glacial-interglacial.

In this study, I used a deep-sea core (SIR-1PC and SIR-1MC) which was recovered from SIR-1(54 44.25S , 140 02.20E) that is the Australian sector of the Southern Ocean core site is located under the modern Antarctic Polar Front(APF).

I measured quantity of CaCO3 in the sediment with the carbonate analyzer Coulometer. From the measurement result and existing data, I found that interglacial is rich and glacial is few in CaCO3. This means that expansion of sea ice resulted Silica Belt went up north until the core site, siliceous planktons increased, and then, the siliceous planktons diluted calcareous planktons.

I measured quantity of Carbon, Nitrogen and Sulfur in the sediment with the element analyzer Flash EA. Some theses reviewed that temperature change and C/N ratio change becomes an index of the quantity of Fe increase and decrease. Also a relationship between quantity of Fe and volume of phytoplankton productivity attract attention as The Iron Hypothesis. As a result of measurement, the time when C/N ratio was big had much diatom of phytoplankton. From the above, I estimated that there was much of quantity of Fe. This thing show that a quantity of Fe served as an important part in an environmental change.