



Provenance of deglacial IRD and clay minerals in the Chukchi Plateau, western Arctic Ocean

K.K. Park (1), B.K. Khim (1), and K. Ohkushi (2)

(1) Department of Oceanography, Pusan National University, Busan 609-735, Republic of Korea, (2) Faculty of Human Development, Kobe University, Kobe 657-8501, Japan

A gravity core PC01 with a multiple core PL01 was collected from the Chukchi Plateau in the western Arctic Ocean on the R/V Mirai Cruise MR09-03. Core PL01 was compensated for the top-loss of core PC01, which represents a complete composite core. Age of the composite core was estimated by correlation of geochemical properties and IRD abundance with well-dated cores in the western Arctic Ocean, because AMS ^{14}C dates of bulk sediments were contaminated by old carbon. The distinct deglacial interval of the composite core was characterized by high CaCO_3 and TOC contents, high C/N ratios, and low $\delta^{13}\text{C}$ values, which clearly indicates the increased terrestrial contribution. Based on the microscope and SEM observation, the major IRD constituents are composed of carbonate minerals, supporting the high CaCO_3 content at the deglacial interval. These deglacial IRDs including carbonate minerals are possibly originated from the Canadian Arctic Archipelago. Clay mineral data at the high IRD interval show high kaolinite/chlorite ratios due to the increase of kaolinite that may be derived from the northern Alaskan margin of the North America. Therefore, the deglacial interval with high IRD abundance and increase of kaolinite/chlorite ratios indicates the intensified Beaufort Gyre system that played an important role in the sediment delivery.