

## **INORGANIC CARBON SYSTEM AND CONTROLS IN THE CHUKCHI SEA OF THE ARCTIC OCEAN OBSERVED FOR TWO YEARS.**

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### **ABSTRACTS**

The Arctic Ocean has potential to take up atmospheric CO<sub>2</sub> owing to high biological productivity driven by melting sea-ice. The sea-ice coverage in Arctic summer has been dwindled since 1970s. Biological production and CO<sub>2</sub> fluxes in the Arctic Ocean are highly dependent on sea-ice coverage and the formation and melt of sea ice as well. In order to study the inorganic carbon system in Arctic surface water in response to sea ice melt, shipborne measurements were conducted along Northwind Ridge and western boundary of Canada Basin in July 2010 and Chukchi Borderland and Mendeleev Ridge in August 2011. Dissolved inorganic carbon (DIC), total alkalinity (TA), and dissolved CO<sub>2</sub> (*p*CO<sub>2</sub>) were measured in the study area. Seawater samples for DIC and TA were collected onboard of the Korean ice-breaking research vessel, Araon, and were analyzed in the laboratory. *p*CO<sub>2</sub> on the surface water was measured underway using an automated flowing *p*CO<sub>2</sub> measuring system. Together with fundamental hydrographic parameters such as temperature, salinity, nutrients, and dissolved oxygen, we will discuss the spatial variation of inorganic carbon system and controls in the Chukchi Sea in the presentation. .