



Arctic Cruise Planning Workshop Delmenhorst, 8-10 June 2009

Abstracts of talks

Applications of Radionuclide Tracers to Process Studies in the Arctic Ocean

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Artificial and natural radionuclides have been used to study water circulation and particle transport processes in the Arctic Ocean for many years. These studies have generally exploited knowledge of the well-defined input functions and decay rates for specific radionuclides to establish time scales and constrain the kinetics for a wide variety of processes. This talk will provide an overview of recent studies that have used natural and artificial radionuclides to address issues such as water circulation and mixing, biogeochemical cycling and boundary scavenging in the Arctic Ocean and suggestions will be made regarding the course of possible future activities.

The Arctic Ocean Carbon Cycle in a Changing Environment

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The Arctic Ocean is undergoing major changes, all from sea ice coverage and volume to input of terrestrial matter and water mass properties. Many of these changes, if not all, impact the Arctic Ocean carbon cycle and fluxes with the surrounding oceans and the atmosphere. In order to deduce how the carbon cycle is impacted by these environmental changes one needs to understand the whole Arctic Ocean system. With the present knowledge this is not possible as there are numerous feedbacks that act in different directions, and the relative magnitude of the individual feedbacks are not known. In this presentation I will describe the present knowledge with respect to the Arctic Ocean carbon system and illustrate some possible impact by changing environment. Examples of multiple feedbacks in different directions will be given and suggestions on how to improve the knowledge of the “net” effect of these in future studies will be given.