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ARCTIC OCEAN CIRCULATION AND EDDIES CHARACTERIZING NUTRIENT AND PHYTOPLANKTON DISTRIBUTIONS IN THE CANADA BASIN

In recent years, the Arctic has rapidly lost its summer sea ice cover. As a result, the wind can drive the ocean circulation more efficiently. The enhanced ocean circulation changes nutrient distributions, and therefore, could impact ecosystem characteristics in the Arctic Ocean. For example, the accumulation of freshwater in the Canada Basin produces a density gradient between the Chukchi Sea shelf and the basin, resulting in the formation of strong westward flow over the shelf slope. This strong westward flow prevents the spread of nutrient-rich shelf water towards the central Canada Basin. This blocking of nutrient-rich water may inhibit phytoplankton growth in the Canada Basin. On the other hand, warm-core eddies which contain high-ammonium shelf water can supply ammonium to the euphotic zone in the southwestern Canada Basin and may increase biomass of phytoplankton there. The role of warm-core eddies in supplying nutrients to the euphotic zone and controlling phytoplankton distributions seems to be more important than previously because the recent deepening of the nutricline in the Canada Basin has decreased the nutrient supply to the euphotic zone.

Poster presentation

Session #:012
Date: 2/24/2012
Time: 08:00 - 16:00
Location: Poster/Exhibit Hall

Presentation is given by student: No

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