

Variability of freshwater distribution in the Canada Basin of the Arctic Ocean

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Freshwater inventories in the surface and halocline waters of the Arctic Ocean derive from inputs from rivers, sea-ice melt and low salinity Pacific water and removal due to sea-ice formation. In order to assess interannual variability of these freshwater components in the Canada Basin a suite of geochemical tracers were collected in 2000 to 2005: oxygen isotope ratio and alkalinity are used to distinguish sea ice meltwater/ brine rejection from other freshwater inputs and nutrients are used to identify Pacific water distributions. Horizontal maps show that the relative contributions of these components vary significantly according to regional sources. Shelf- basin exchange is shown by the lateral transport of freshwater and brine from the continental shelves into the Canada Basin.

Substantial inter-annual differences are found in both horizontal and vertical distributions of freshwater components.