

## **Authigenic and detrital neodymium isotopic compositions of surface sediments in Svalbard fjords: preliminary results**

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The Svalbard Archipelago is located in the eastern Arctic Ocean near the Fram Strait. This region is characterized by several fjords formed during the retreat/advance of glaciers. The behavior of glaciers exerts a strong influence on the sediment transport system and hydrology in Svalbard, and hence tracing of the change in sediment provenance and seawater composition is important to understand the ice dynamics and history. Here we tentatively measured detrital and authigenic Nd isotopes ( $^{143}\text{Nd}/^{144}\text{Nd}$ ;  $\epsilon_{\text{Nd}}$ ) of surface sediments in Svalbard fjords – Dicksonfjorden, Hornsund, Isfjorden, Van Mijenfjorden, Wijdefjorden and Woodfjorden – to reconstruct spatial variation in lithological sediment provenance and water mass composition at present. Detrital  $\epsilon_{\text{Nd}}$  fluctuates widely from -10.1 to -24.9, indicating a large spatial variation in the provenance of Svalbard sediments at present. As expected from various and different rocks surrounding Hornsund area,  $\epsilon_{\text{Nd}}$  values of detrital sediments are mostly variable in Hornsund. On the contrary, detrital  $\epsilon_{\text{Nd}}$  values in Dicksonfjorden and Woodfjorden are relatively constant with average value of -13.6. Considering the geological setting and overall reddish sediments in Dicksonfjorden and Woodfjorden, Devonian red sandstone seems to be a dominant source for both fjords at present. Authigenic  $\epsilon_{\text{Nd}}$  values in Svalbard are also variable ranging from -9.0 to -14.5 and well correlated with detrital  $\epsilon_{\text{Nd}}$  ( $r = 0.62$ ,  $n = 45$ ), probably resulting from local Nd fluxes such as meltwaters draining rocks and/or sediment-seawater interaction. Again, the oscillation in authigenic  $\epsilon_{\text{Nd}}$  is mostly prominent in Hornsund, but the variation in authigenic  $\epsilon_{\text{Nd}}$  has a smaller amplitude compared to detrital  $\epsilon_{\text{Nd}}$ , indicating that seawater composition in Hornsund is also influenced by the N. Atlantic inflow as well as local fluxes. Likewise, northward increase in authigenic  $\epsilon_{\text{Nd}}$  from coastal to pelagic area in Wijdefjorden seems to be an example to show the interplay between local terrestrial input and N. Atlantic inflow.

## Arctic gateway connecting the North Atlantic and North Pacific Oceans

Conveners: Rujian Wang, Leonid Polyak, Seung-II Nam, Masanobu Yamamoto

10:50-11:05	A thermohaline-driven intensification of the Atlantic Meridional Overturning Circulation during the abnormally long interglacial of marine isotope stage 11	
	Benoît Thibodeau	The University of Hong Kong, Hong Kong, China
11:05-11:20	Surface nutrient utilization in the Nordic Seas and its relevance for AMOC dynamics during MIS 11	
	John Doherty	The University of Hong Kong, Hong Kong, China
11:20-11:35	Deglacial and Holocene sea-ice variability north of Iceland and response to ocean circulation changes	
	Xiaotong Xiao	Ocean University of China
11:35-11:50	Holocene environmental changes in Woodfjorden of northern Spitsbergen, Svalbard archipelago	
	Young-Ji Joo	Korea Polar Research Institute, Korea
11:50-12:05	Authigenic and detrital neodymium isotopic compositions of surface sediments in Svalbard fjords: preliminary results	
	Kwangchul Jang	Korea Polar Research Institute, Korea
12:05-12:20	Impact of the Labrador Current flow speed to Atlantic meridional overturning circulation (AMOC) during the Holocene: sedimentological and organic geochemical perspectives	
	Harunur Rashid	Memorial University of Newfoundland, Canada

Wed.

Oral presentation

