



## **On the sea-ice cover of the Nordic Seas in an idealized MITgcm-setup**

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Changes in the sea-ice cover of the Nordic Seas have been proposed to play a key role for the dramatic temperature excursions associated with the Dansgaard-Oeschger events during the last glacial. However, with its proximity to the warm Atlantic water, how a sea-ice cover can persist in the Nordic Seas is not well understood. In this study, we apply an eddy-resolving configuration of the Massachusetts Institute of Technology general circulation model with an idealized topography to study the presence of sea ice in a Nordic Seas-like domain. The sea-surface temperatures are restored toward cold, atmospheric temperatures, and as a result, sea ice is present in the interior of the domain. However, the warm, cyclonic boundary current prevents sea ice from being formed along the boundaries. Preliminary results suggest that freshwater inputs at the margins can introduce sea ice in the warm, cyclonic boundary. In addition, a reduction in the meridional heat transport and a shift in the vertical location of the warm inflowing water is observed when freshwater is introduced.

The magnitude and location of the freshwater input will be studied, along with changes in the temperature of the inflowing warm water. Results suggest a threshold value in the freshwater forcing for when sea ice is present in the boundaries, and a sea-ice cover which is sensitive to the temperature of the inflowing, warm water.