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# Sea ice and ocean variability in the SW Labrador Sea since the Mid-Holocene

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The ongoing rapid decline in Arctic sea ice cover has increased the need to improve the accuracy of the sea ice components in climate models and to provide high-resolution long-term sea ice records based on proxy data. We analysed the sea ice specific proxy IP25 from a sediment core northeast of Newfoundland covering the last ca 5700 years, providing the southernmost multi-millennial record of this proxy to date. Based on this record and a suite of other proxy data – diatom and dinoflagellate cyst assemblages, alkenone-based sea surface temperatures (SSTs, covering the last 2000 years), and XRF-data from the same core – we reconstructed sea ice and ocean variability in the Baffin Bay - Labrador Sea system: Diatom, dinoflagellate cyst and XRF-data suggest high freshwater export from the Baffin Bay during the Holocene Climate Optimum (HCO), and a decrease in the export at the onset of Neoglacial cooling, which began in the study area around 4000-3000 cal yr BP. A change to more similar oceanographic conditions than today can be observed around 3000 cal yr BP. The IP25 record reveals increased sea ice export from the Baffin and Hudson Bays starting ca 1500 cal yr BP, accelerating ca 800 cal yr BP. The export culminates at the height of the Little Ice Age, with decreasing sea ice export towards the present. This is also supported by the XRF-data. The IP25 record is relatively similar with modelled sea ice variability during the Late-Holocene in the Baffin Bay - Labrador Sea system. Initial results of spectral and wavelet analysis reveal cyclical short-term variability in our data.