



## **Post-glacial variations of sea ice cover and river discharge in the western Laptev Sea (Arctic Ocean) - a high-resolution study over the last 18 ka**

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Here, we provide a high-resolution reconstruction of sea-ice cover variations in the western Laptev Sea, a crucial area in terms of sea-ice production in the Arctic Ocean and a region characterized by huge river discharge. Furthermore, the shallow Laptev Sea was strongly influenced by the post-glacial sea-level rise that should also be reflected in the sedimentary records.

The sea Ice Proxy IP25 (Highly-branched mono-isoprenoid produced by sea-ice algae; Belt et al., 2007) was measured in two sediment cores from the western Laptev Sea (PS51/154, PS51/159) that offer a high-resolution composite record over the last 18 ka. In addition, sterols are applied as indicator for marine productivity (brassicasterol, dinosterol) and input of terrigenous organic matter by river discharge into the ocean (campesterol,  $\beta$ -sitosterol).

The sea-ice cover varies distinctly during the whole time period and shows a general increase in the Late Holocene. A maximum in IP25 concentration can be found during the Younger Dryas. This sharp increase can be observed in the whole circumarctic realm (Chukchi Sea, Bering Sea, Fram Strait and Laptev Sea). Interestingly, there is no correlation between elevated numbers of ice-rafted debris (IRD) interpreted as local ice-cap expansions (Taldenkova et al. 2010), and sea ice cover distribution. The transgression and flooding of the shelf sea that occurred over the last 16 ka in this region, is reflected by decreasing terrigenous (riverine) input, reflected in the strong decrease in sterol ( $\beta$ -sitosterol and campesterol) concentrations.

### References

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Taldenkova, E., Bauch, H.A., Gottschalk, J., Nikolaev, S., Rostovtseva, Yu., Pogodina, I., Ya, Ovsepyan, Kandiano, E., 2010. History of ice-rafting and water mass evolution at the northern Siberian continental margin (Laptev Sea) during Late Glacial and Holocene times. *Quaternary Science Reviews* 29 (27–28), 3919–3935.