

## **Warm ocean surface led to ice margin retreat in central-eastern Baffin Bay during the Younger Dryas**

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The Greenland ice sheet stability is linked to fast-flowing ice streams that are influenced by sea surface temperatures (SSTs) at their front. One of the largest ice streams in West Greenland is the Jakobshavn Isbræ, which has been shown to have collapsed at ca. 12.2 kyr BP in the middle of the Younger Dryas (YD) cold period (12.9-11.7 kyr BP). The cause for this collapse is still unknown yet hypotheses, such as warm Atlantic water inflow, have been put forward to explain it. Here we present the first diatom-based high-resolution reconstruction of sea surface conditions in the central-eastern Baffin Bay between 14.0 and 10.2 kyr BP. The sea surface temperatures reveal warmer conditions beginning at ca. 13.4 kyr BP and leading to intensive calving and iceberg discharge from Jakobshavn Isbræ visible as increased sedimentation rates and deposition of coarse-grained material in our sediment stratigraphy. The warm YD ocean surface conditions in Baffin Bay are out of phase with the  $\delta^{18}\text{O}$  record from the North Greenland Ice Core Project (NGRIP) and other SST records from northern North-Atlantic. We show that the ocean has had significant interactions with the Greenland ice sheet in the past and emphasize its importance under the current warming of the North Atlantic.