

## **10-Be surface exposure ages of late-Holocene Arctic ice-sheet and glacier variability**

CARLSON, WINSOR AND REUSCHE ROOD

The gradual decline in boreal summer insolation across the Holocene drove Arctic ice-sheet and glacier advance, usually culminating in a glacier maximum during the Little Ice Age (LIA; 1400-1900 C.E.). However, in several locations, glacier and ice-sheet margins may have reached pre-LIA late-Holocene maxima, suggesting a more complex picture of Arctic climate variability. Here we date two such maxima in southern Greenland near Narsarsuaq and western Svalbard in Linnédalen with  $^{10}\text{Be}$  surface exposure ages. Southern Greenland and west Svalbard ice margins reached a greater or equivalent extent as their LIA extent and retreated at  $1.5\pm 0.1$  ka ( $n=10$ ) and  $1.6\pm 0.2$  ka ( $n=16$ ), respectively. These periods of ice-margin retreat are concurrent with changes in ocean surface currents near southern Greenland and western Svalbard, suggesting a climatic forcing of glacier variability. A much larger network of  $^{10}\text{Be}$ -dated glacier margin variability will help elucidate how the Arctic cryosphere responded to late-Holocene climate change and would establish a baseline against which current ice-margin retreat can be compared.