



The 8.2 ka cooling event related to large scale melting of the Greenland Inland Ice?

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Today we witness that the Greenland Inland Ice is a very important factor when discussing (future) climatic changes, but in case of the cold spell of 8200 cal yr. BP limited attention has been given to the possible role of the Greenland Inland Ice.

Evidence of the 8200 cal yr. BP cooling event has been recognized in many areas of the North Atlantic region. The cooling has generally only been linked with a massive freshwater discharge from the Hudson Strait, Canada. However, new results from South and West Greenland indicate strongly enhanced melt water production from Greenland in the period immediately preceding 8200 cal yr. BP.

We present the results of magnetic susceptibility measurements from three sediment cores from the Davis Strait area west off Greenland. The records show high values of magnetic susceptibility associated with massive silt deposition in the period before the 8200 cal yr. BP event. This documents large-scale melt water outflow, from the Inland Ice to the area, beginning centuries before the 8200 cal yr. BP event. After the magnetic susceptibility values reached a maximum, we see a gradual decreasing trend in all the cores from west off Greenland. We have compared this information, also supported by our foraminiferal data, with records of two other cores collected from a South Greenland fjord and the shelf off Southeast Greenland, respectively. In addition we have correlated with marine results from the Spitsbergen region. The Spitsbergen data shows, on the basis of planktic foraminifers, that the most pronounced cooling occurred already at 8800 cal yr. BP presumably related to expansion of Arctic Water

masses. This may be linked to the effects of early Holocene warming of the circum-Arctic region leading to increased melt water production from the surrounding continents also including the northern part of the Greenland Inland Ice. Thus we suggest that significant and large-scale melting of the Greenland Inland Ice prior to 8200 cal yr. BP should be taken into account when discussing driving mechanisms behind the cold spell of 8200 cal yr. BP.