



Dynamics of abrupt climate change as inferred from the NGRIP ice core record

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High-resolution examination of the NorthGRIP (NGRIP) ice core is providing new insights into early Holocene and late glacial climatic behaviour. Several high-resolution data sets obtained from the core make it possible to reconstruct variations in the climatic régime of the North Atlantic region during the early Holocene and late glacial on annual scale and better. This degree of temporal resolution, combined with data derived from a wide variety of climate proxy indicators, makes it possible to map out the nature of abrupt climate changes in considerable detail and to identify leads and lags in the climate system. A combination of existing and new data series from the

DYE-3, GRIP, and NGRIP ice cores on the recent Greenland Ice Core Chronology 2005 (GICC05) time scale is used in this study. Accurate dating and precise synchronization of the records from different ice cores allow the dynamics of climate change to be investigated in detail across three transitions: the warming from Greenland Isotope Stadial 2 (GS-2) into Greenland Isotope Interstadial 1 (GI-1) (also known as the onset of the Bølling period, 14.7 ka b2k), the cooling from GI-1 into GS-1 (the onset of the Younger Dryas, 12.9 ka b2k), and the warming from GS-1 into the Holocene (11.7 ka b2k). The results show that different climatic proxies change asynchronously across these transitions, providing information about the triggers of climate change and the sequence of events in these changeable periods.