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The early Holocene as recorded in three cross-dated Greenland ice cores.

S. O. Rasmussen, B. M. Vinther, H. B. Clausen, K. K. Andersen

Ice and Climate Research, Niels Bohr Institute, University of Copenhagen, Denmark (olander@gfy.ku.dk)

A new ice core chronology for the Greenland DYE-3, GRIP, and NGRIP ice cores has been constructed [Rasmussen et al., in press, Journ. Geophys. Res., 2005JD006079], for the first time making it possible to compare the δ^{18}O and accumulation signals recorded in the three cores on an almost annual scale throughout the Holocene. We here introduce the new time scale and investigate δ^{18}O and accumulation anomalies that are common to the three cores in the Early Holocene (8–11.7 ka before present). Three time periods with significant and synchronous anomalies in the δ^{18}O and accumulation signals stand out: the well known 8.2 ka event, an event of shorter duration but of almost similar amplitude around 9.3 ka before present, and the Preboreal Oscillation in the first centuries of the Holocene. For each of these sections, we present a δ^{18}O anomaly curve and a common accumulation signal that represents regional changes in the accumulation rate over the Greenland ice cap.

For the 8.2 ka event, the anomaly signature is compared to the findings of the three recent reviews of Alley and Ágústdóttir [QSR, 2005], Rohling and Pälike [Nature, 2005], and Wiersma and Renssen [QSR, 2006].