

Supplementary Figures

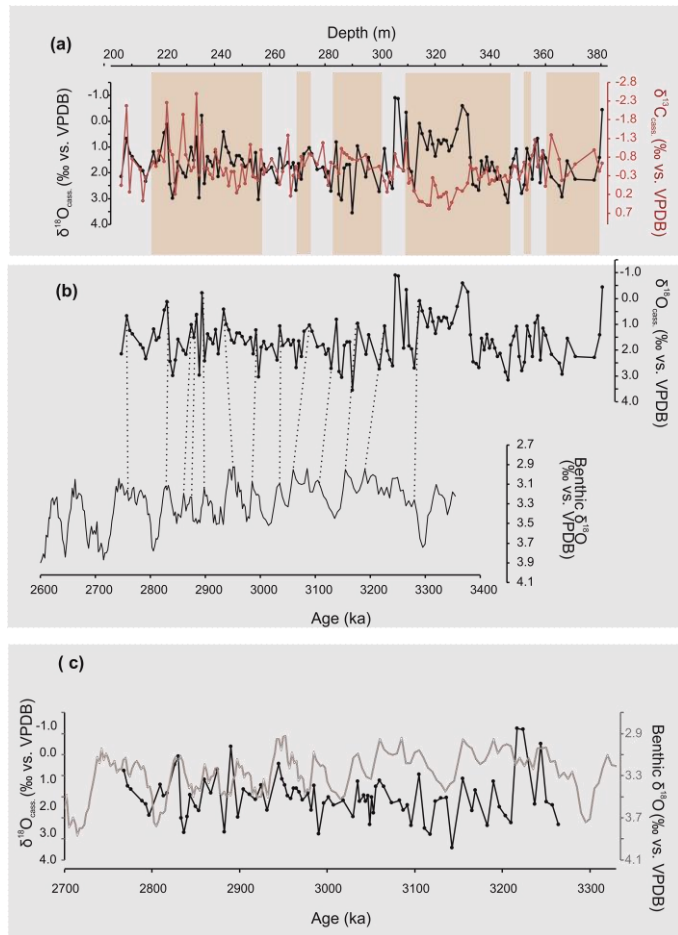


Fig. S1. (a) Comparison of the benthic $\delta^{18}\text{O}_{\text{cass.}}$ (black) and $\delta^{13}\text{C}_{\text{cass.}}$ (red) records from the Hank site, with opposing trends in the two records shaded in orange. (b) Comparison of the benthic $\delta^{18}\text{O}$ record from the LR04 stack (Lisiecki and Raymo, 2005), with the $\delta^{18}\text{O}_{\text{cass.}}$ record from the Hank site plotted on separate age and depth axes. Tie points are indicated with a dotted line. (c) Comparison of the benthic $\delta^{18}\text{O}$ records from the LR04 stack (Lisiecki and Raymo, 2005), and the $\delta^{18}\text{O}_{\text{cas.}}$ record from the Hank site plotted on the same age axis according to the age model presented in the main manuscript.

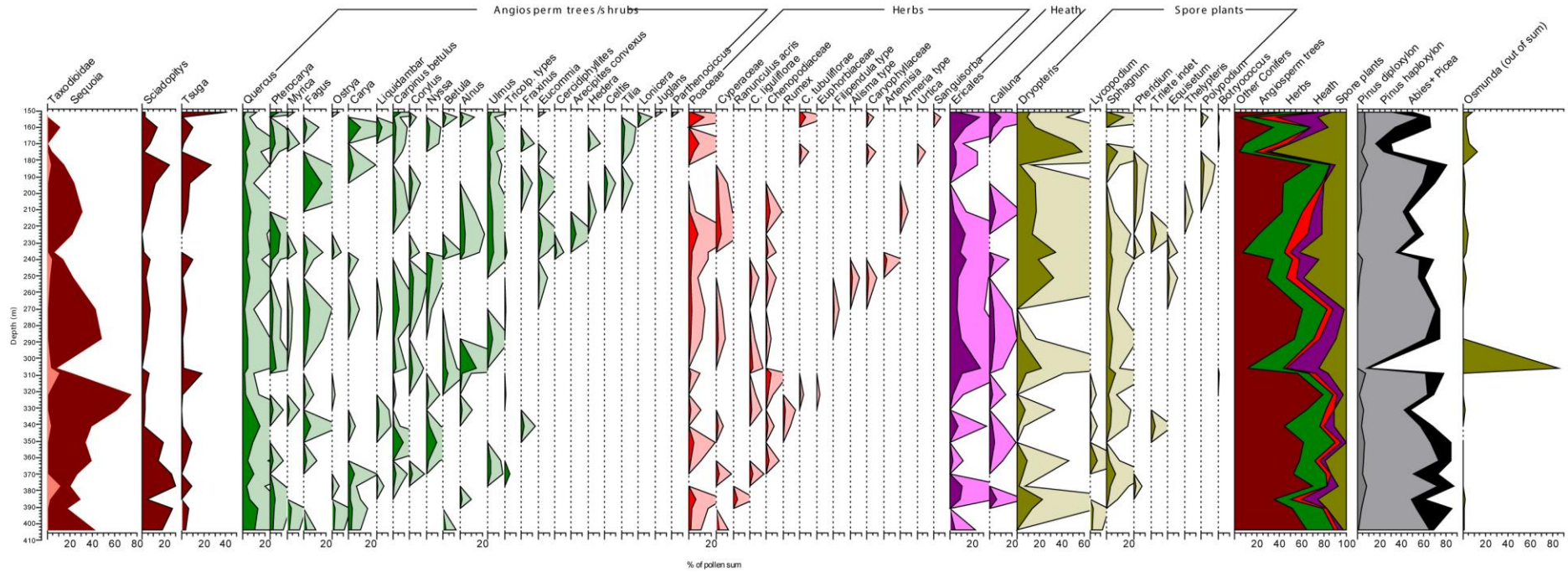


Fig. S2. Pollen abundances expressed as a percent of total pollen sum (except for *Osmunda* and bisaccates) in the Hank sediments. The multi-coloured panel excludes bisaccate conifers and represents the primary percentage sum. The grey shaded panel shows the bisaccate pollen as percent of the total terrestrial palynomorphs (sum including all conifers and *Osmunda*). The conifer dominance caused a relatively low pollen sum (~100/sample without bisaccates), which for the present data excludes detailed interpretation of stratigraphic ranges of individual taxa.

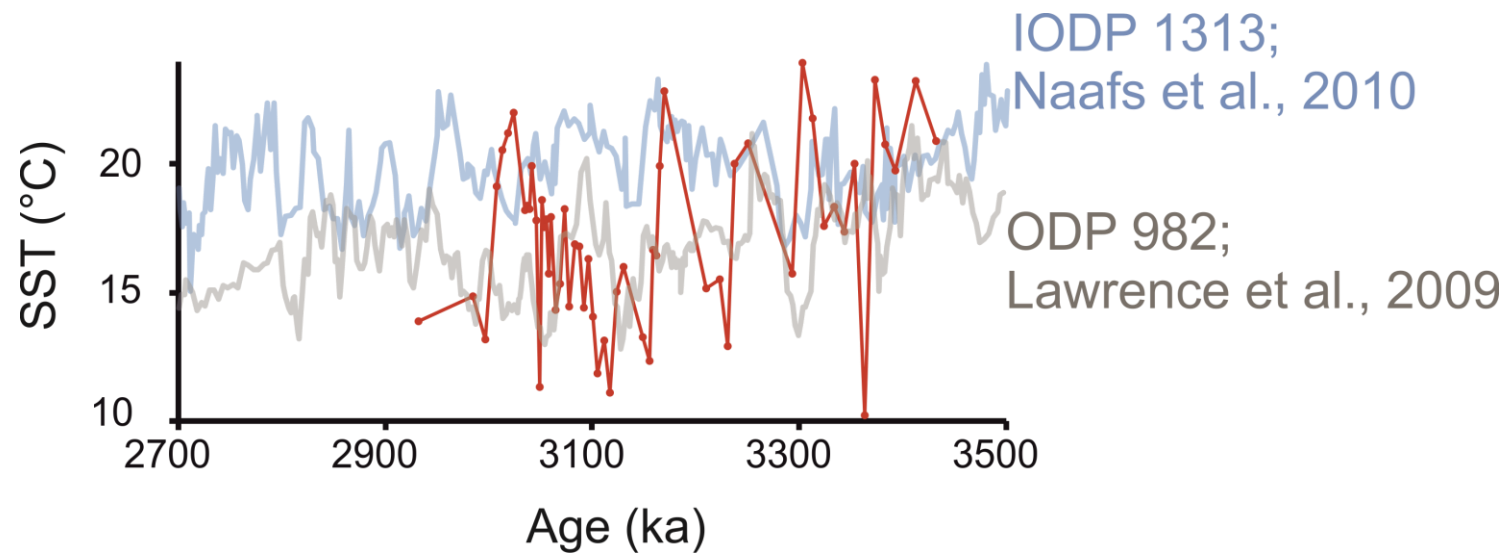


Fig. S3. Comparison of the $U^{K'}_{37}$ SST record from the Hank site (red), with two sites in the North Atlantic discussed in the main text: IODP site 1313 (blue line; Naafs et al., 2010) and ODP Site 982 (grey line; Lawrence et al., 2009).