# Supplementary Information for: Quantification of the Greenland ice sheet contribution to Last Interglacial sea level rise

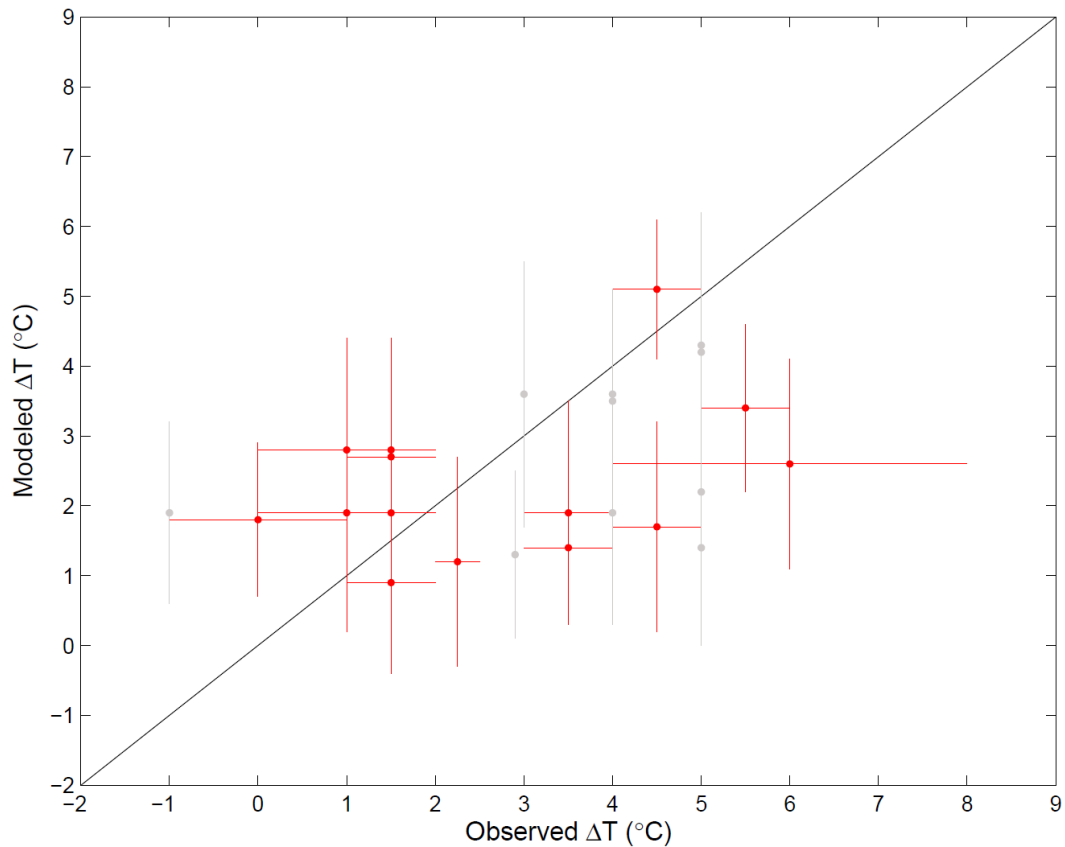**Emma J. Stone, Daniel J. Lunt, James D. Annan and Julia C. Hargreaves**

**Figure S1**. LIG maximum summer high latitude Northern Hemisphere modelled temperature anomalies compared with temperature anomalies derived from palaeo-proxy reconstructions. The model simulation is the 130ka HadCM3 experiment with a fixed present day GrIS. Uncertainty is shown by the vertical and horizontal lines for each data point and in the case of the modelled temperature changes this is $2\sigma$. Those data points which only included model uncertainty are coloured grey (see Table 3 for the location coordinates).
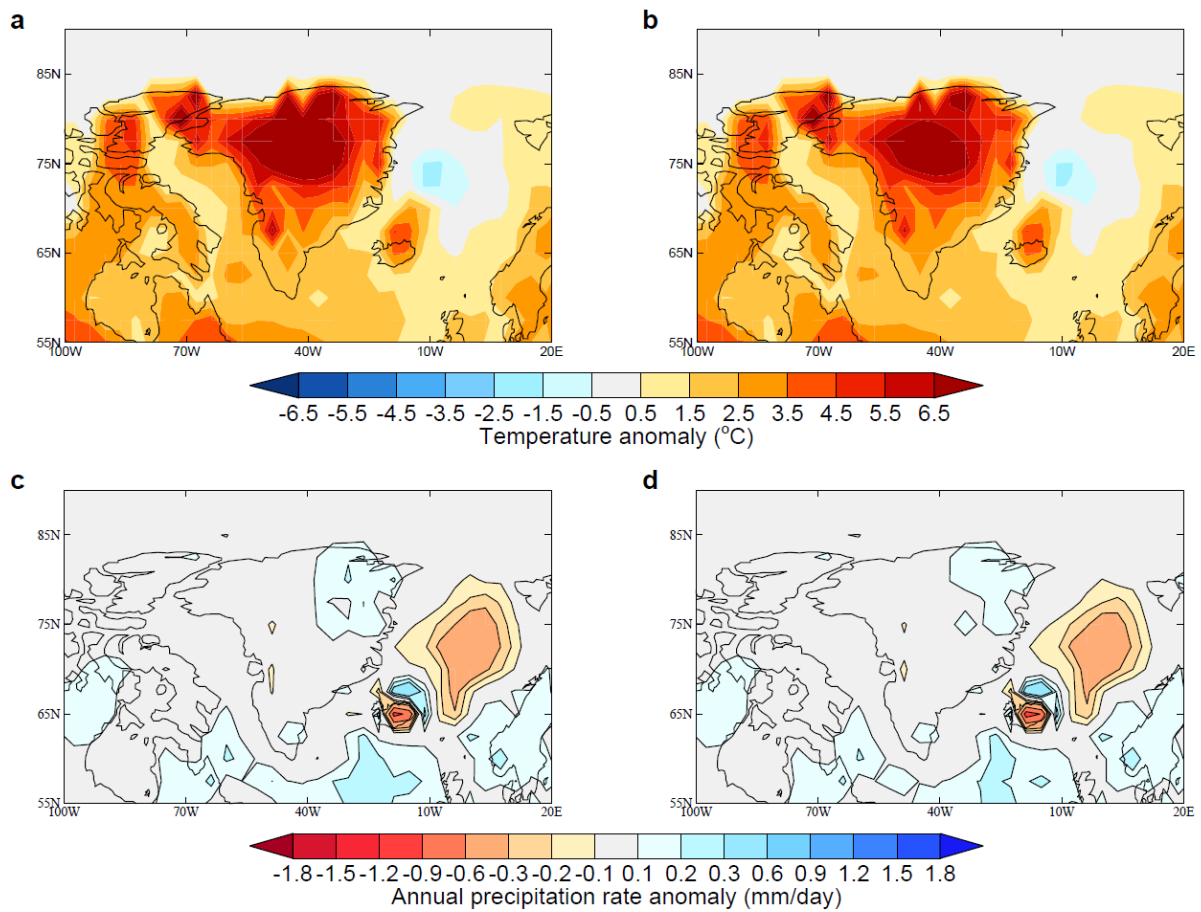
**Figure S2**. Temperature and precipitation anomaly forcings derived from HadCM3 according to the coupling methodology described in Sect. 2.3 for the time at which minimum ice volume is reached (a, c) and the time at which the average Greenland maximum temperature anomaly is reached (b, d) for the palaeo-constrained simulation with the highest skill-score.
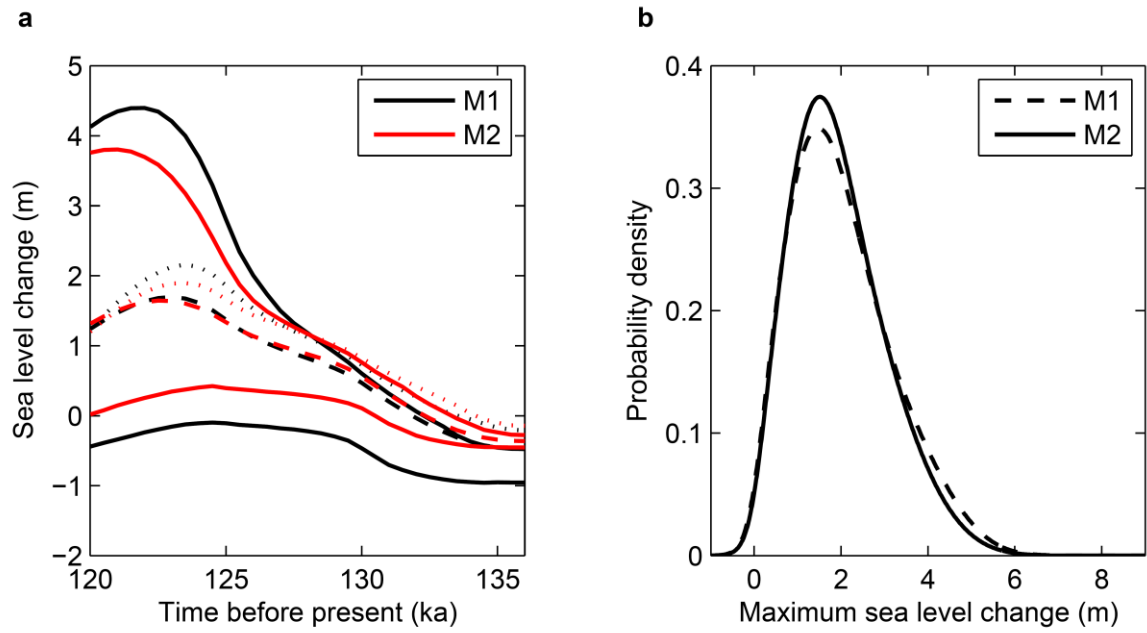
**Figure S3.** A comparison of LIG sea level between coupling using two GrIS states (ice-covered and ice-free: M1) and coupling with three GrIS states (ice-covered, partially ice-covered and ice-free: M2). (a) Comparison of sea level change between M1 and M2. The solid lines are the minimum and maximum sea level change from the ensemble. The dashed line refers to the average of all accepted experiments and the dotted line shows the experiment with the highest skill for modern day. (b) Comparison of the probability density functions for maximum LIG sea level change for M1 and M2.
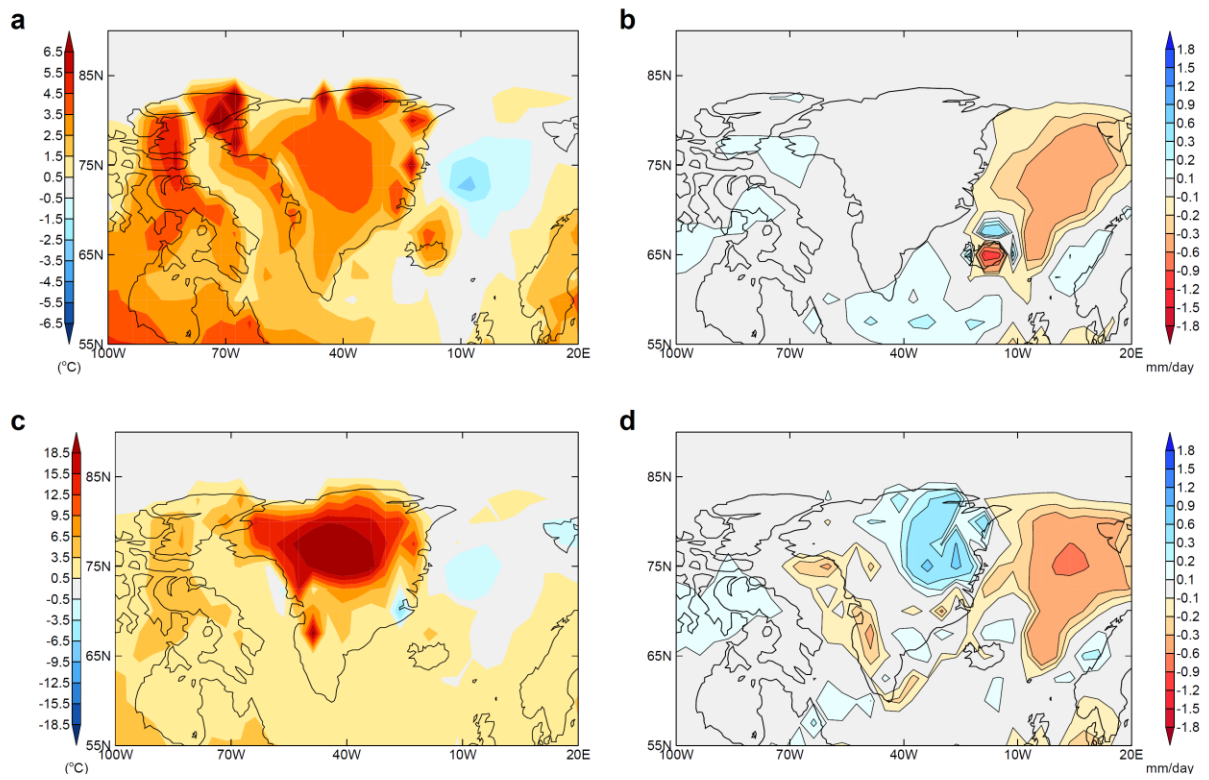
**Figure S4**. Temperature and precipitation anomalies at 130ka with the GrIS present (a, b) and without the GrIS present (c, d). (a) Temperature and (b) precipitation response as a result of insolation changes compared with pre-industrial, and (c) temperature and (d) precipitation response as a result of insolation and topographic changes compared with pre-industrial.