

## Description of Additional Supplementary Files

**File Name:** Supplementary Data 1

**Description:** Site core information, foraminifera samples, analyses, and calculations.

**File Name:** Supplementary Data 2

**Description:** Global Mean Temperature (GMT) estimates, CO<sub>2</sub> forcing relative to preindustrial, and climate sensitivity calculations.

**File Name:** Supplementary Data 3.

**Description:** Reprocessed  $\delta^{11}\text{B}$  data for atmospheric CO<sub>2</sub> and seawater pH from planktonic foraminifera. Note that for this processing, no vital effect corrections are applied, and temperature is based on Mg/Ca or  $\delta^{18}\text{O}$  measurements in the respective references, treated the same way as for the rest of the time series in this paper.