

**Table S1.** IODP Site U1446 age-depth tie points from Clemens et al. (2021). \*New control point added for this study.

<b>Site U1446 CCSFD (m)</b>	<b>Control points LR04 Age (ka)</b>
73,43	382,27
76,141*	401*
81,3	428,24
82,07	436,77
67.93	490,93

**Table S2.** Regression coefficients (R) of linear regression between simulated tree fraction and climate variables for the transient experiments with time-varying insolation and CO<sub>2</sub> concentration. The calculation was performed on the 1000-year running mean of the original simulated data.

	<b>R</b>
Annual mean temperature	0,349
Annual mean precipitation	0,996