

Supporting Information for

Evolution of continental temperature seasonality from the Eocene greenhouse to the Oligocene icehouse - A model-data comparison

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Figure S1: Atmospheric and ocean temperature evolution through spin-up time (°C)

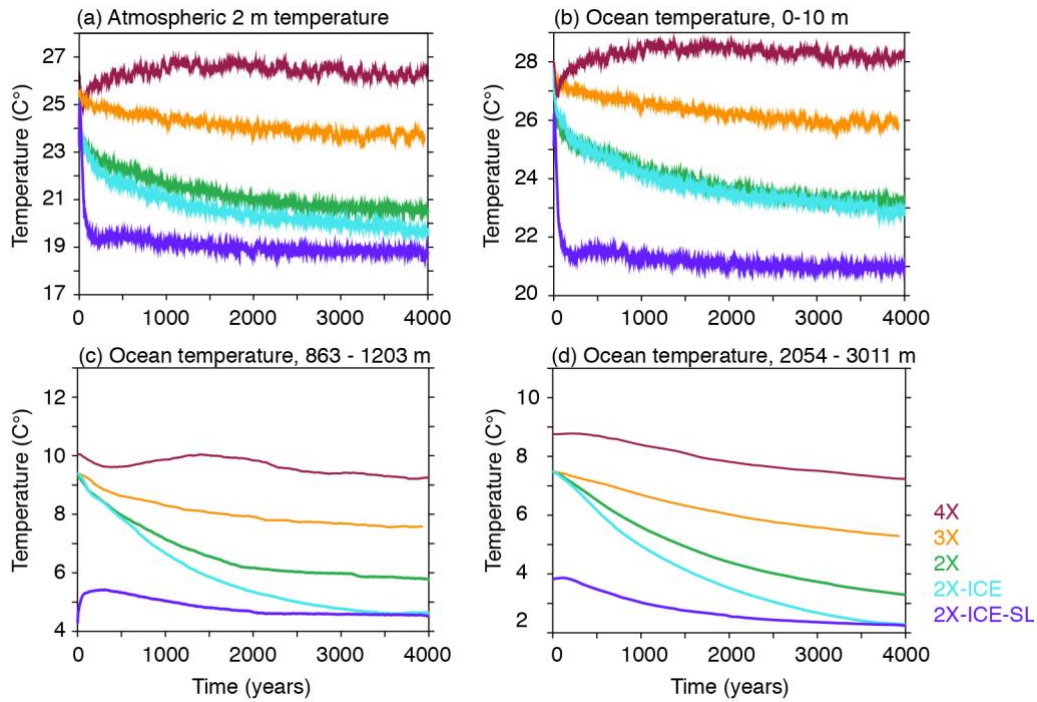


Figure S2: Absolute Mean Annual Range of Temperatures ($^{\circ}\text{C}$).

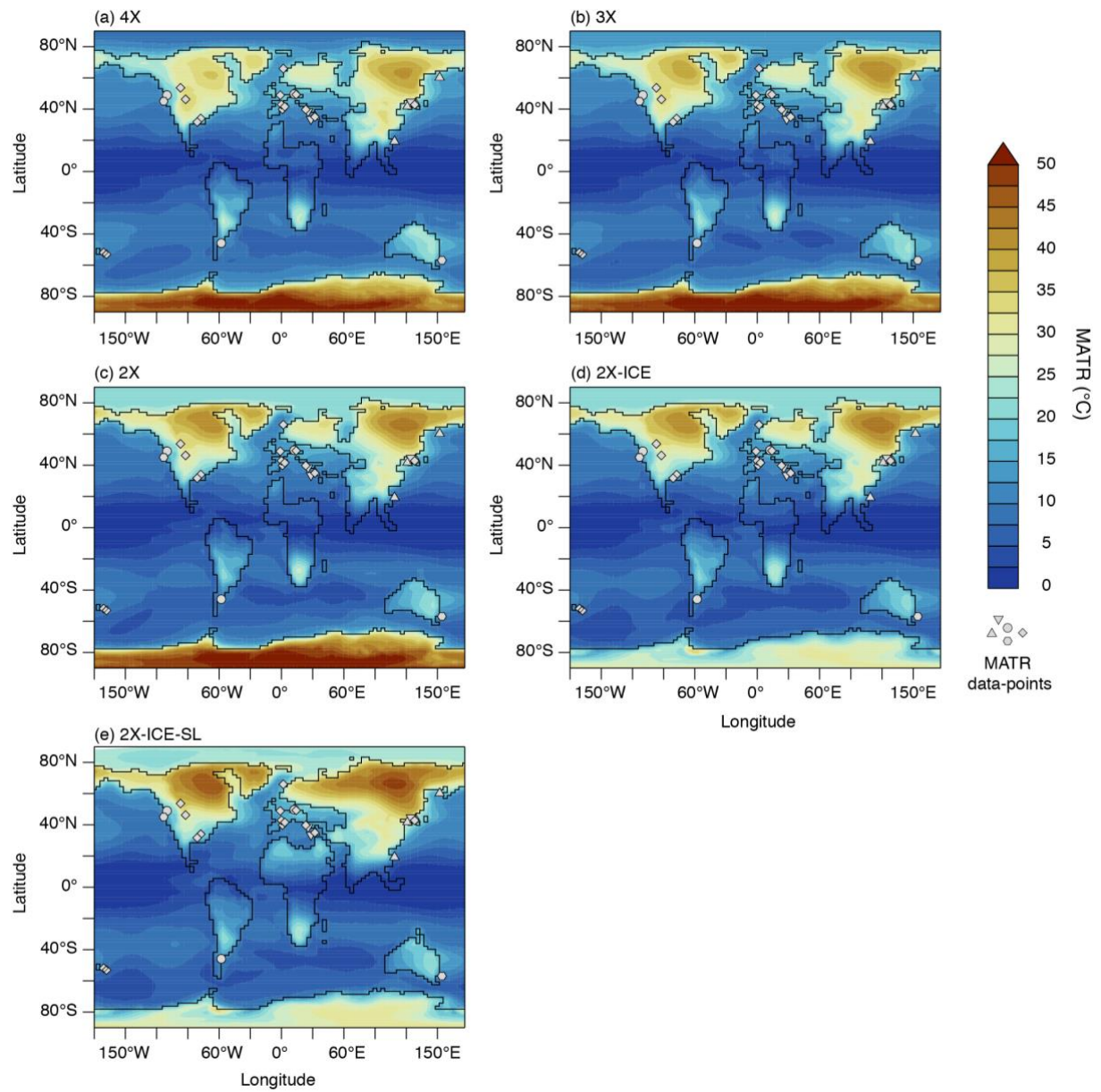


Figure S3: Coldest Month Mean Temperature (CMMT, °C). Orange lines are level contours every 10°C.

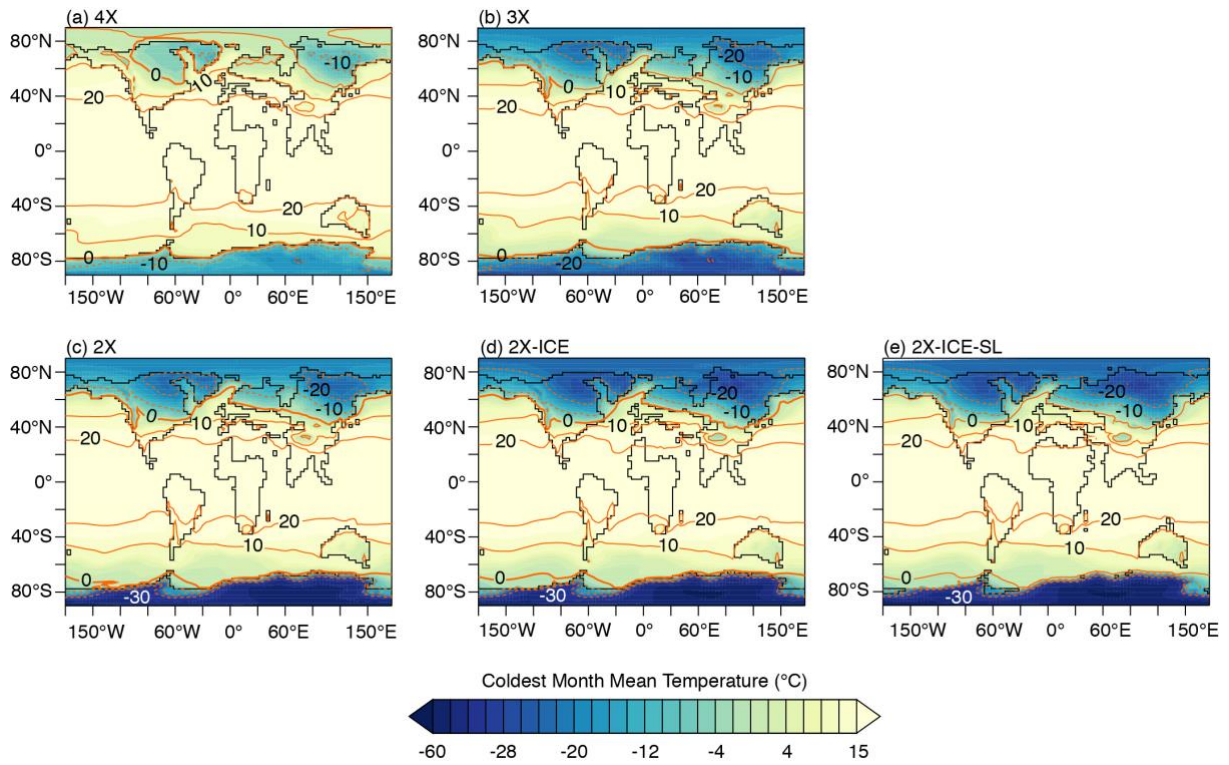


Figure S4: Global map of low-level clouds changes (%).

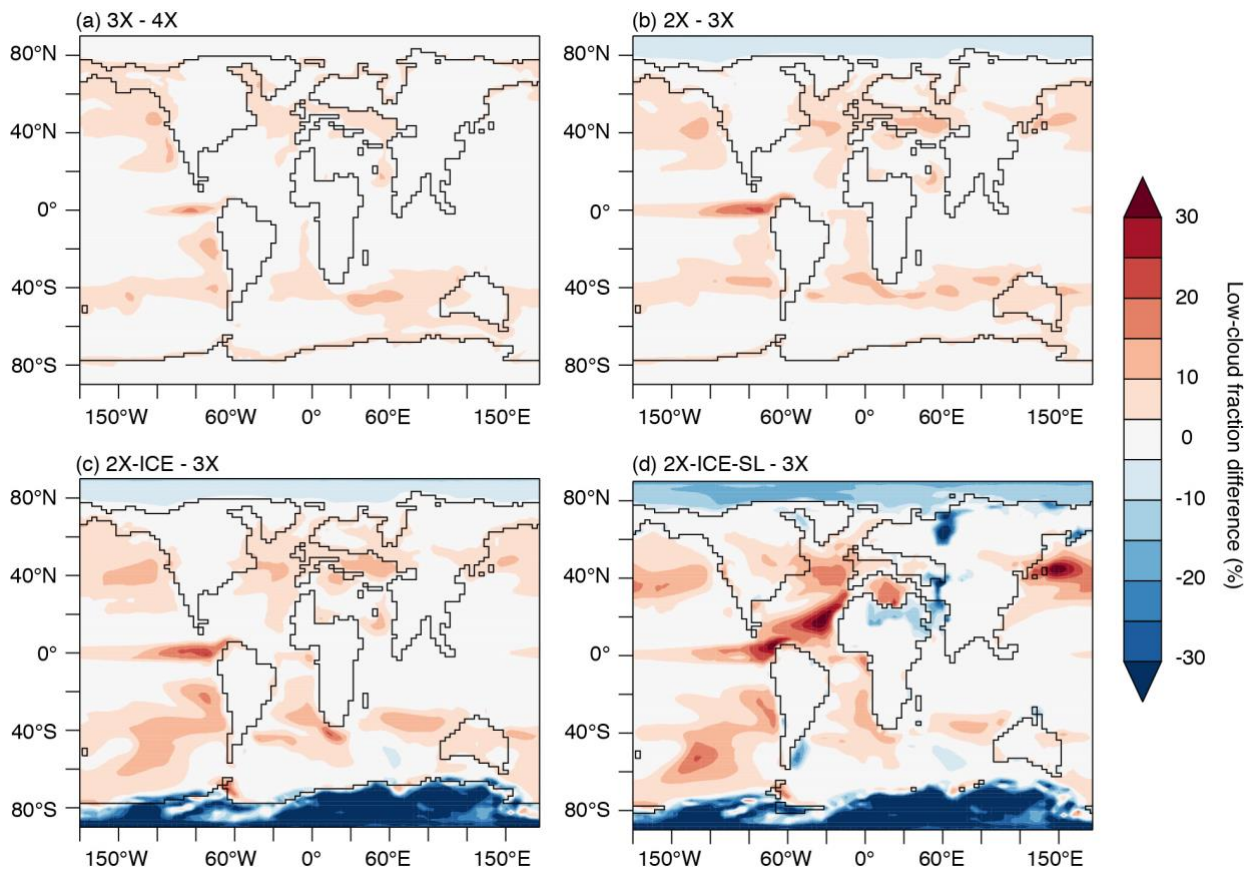


Figure S5: Latitudinal gradient of Atlantic Sea-Surface Temperatures (SST). (a). Mean annual values. Bold lines indicate the mean value of the SST gradient for the different simulations. Thinner lines indicate the minimum and maximum values for 3X (orange) and 2X-ICE-SL (dark blue). Symbols correspond to SST proxy-data estimates for the Atlantic Ocean (extracted from the compilation of Hutchinson *et al.*, 2021), orange symbols correspond to pre-EOT values (38-34.2 Ma), dark blue symbols are post-EOT values (33.7-30 Ma). (b-d). SST gradient anomalies annually (b), for Boreal winter, January to March (c), for Boreal summer, July to September (d). For (b-d), symbols are SST differences between pre- and post-EOT values given by Hutchinson *et al.*, 2021. All proxy-data error bars are those given by Hutchinson *et al.*, 2021. Line “-5°C” is purely indicative and aims at highlighting a stronger temperature decrease in the Northern part of the North Atlantic Ocean during Boreal summer as compared to Boreal winter.

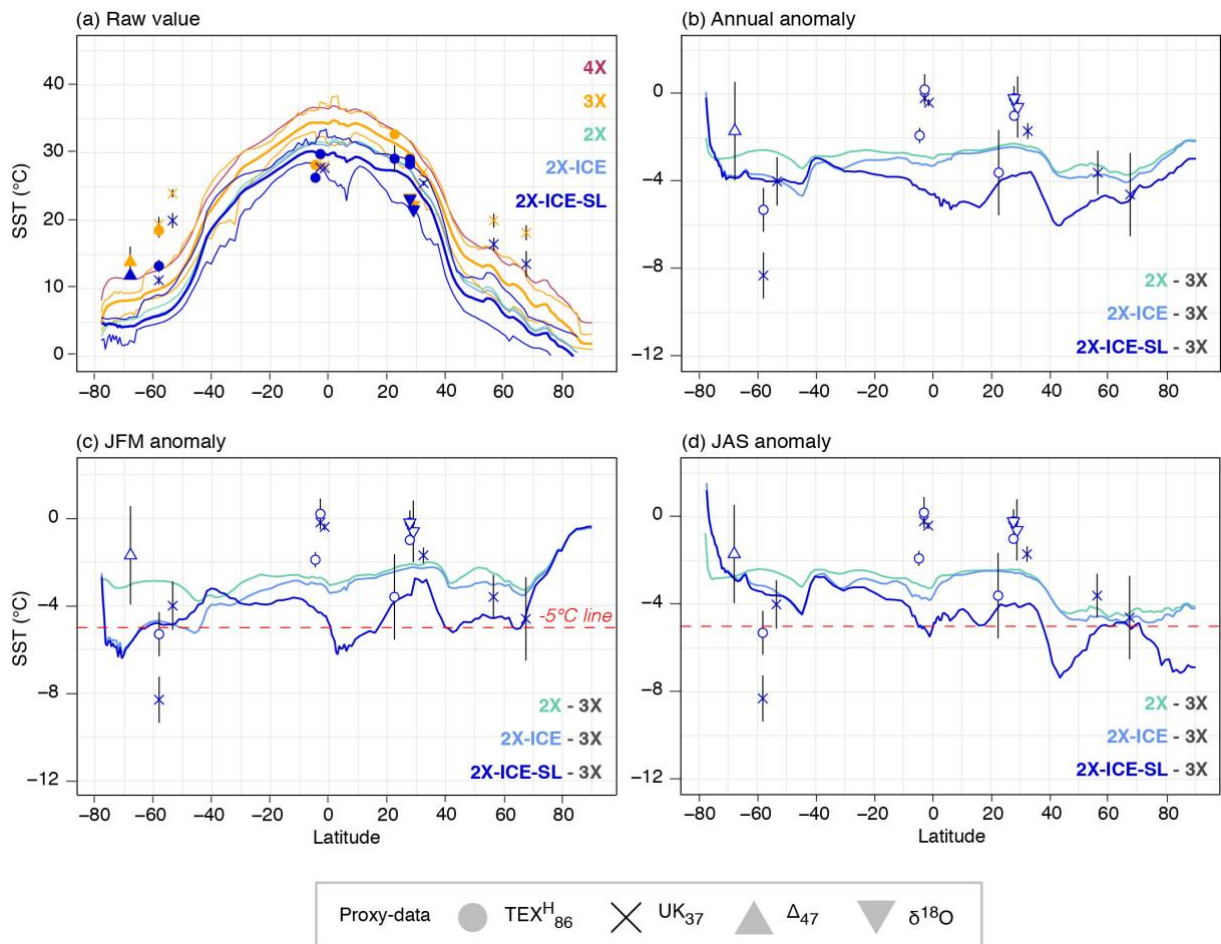
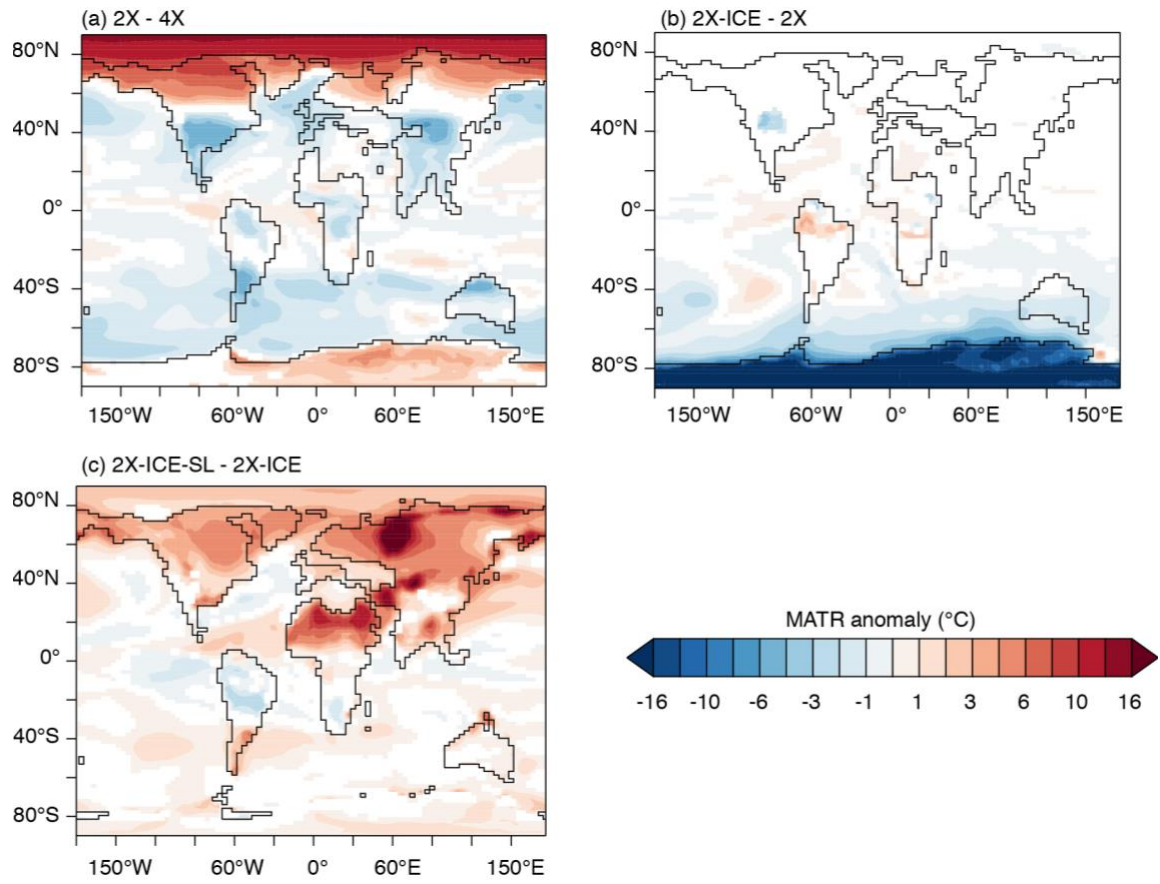


Figure S6: Additional MATR anomalies ($^{\circ}\text{C}$). White areas indicate no significant change in MATR (Student test, 95% confidence).



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