Supplementary Material: Bayesian multi-proxy reconstruction of early Eocene latitudinal temperature gradients

—

Kilian Eichenseer1 and Lewis A. Jones2

—

1Department of Earth Sciences, Durham University, South Road, DH1 3LE, Durham, United Kingdom

2Centro de Investigación Mariña, Grupo de Ecoloxía Animal, Departamento de Ecoloxía e Bioloxía Animal, Universidade de Vigo, 36310 Vigo, Spain.

—

**Corresponding author:** kilian.eichenseer@durham.ac.uk

## S1. Convergence checks

|  |
| --- |
| Supplementary Figure 1: Traceplots of a subset of the unknown model parameters. The four colours correspond to the four independent model runs. a) Traceplot of A, K-A, M, B and ; b) Traceplot of five selected ; c) Traceplot of five selected . All traceplots display mixing of the chains, and relatively quick convergence.” |

## S2. Gradient with just the geochemical proxy data

|  |
| --- |
| Supplementary Figure 2: Latitudinal temperature gradient with just the geochemical proxies (orange), showing the median (line) and 95% credibal interval (shading). Symbols with vertical lines show the median and 95% credible intervals of . The blue line and shading in the background show the latitudinal temperature gradient with the geochemical and ecological proxy data, as in Figure 4. |

## S3. Separate gradients on the northern and southern hemisphere

|  |
| --- |
| Supplementary Figure 3: Latitudinal temperature gradient in seperate hemispheres, showing the medians (lines) and 95% credibal intervals (shadings) in the southern (red) and northern hemisphere (blue). Symbols with vertical lines show the median and 95% credible intervals of . Turquoise symbols in the northern hemisphere highlight the ecological proxy data. The grey line and shading in the background show the latitudinal temperature gradient with the data from both hemispheres combined, plotted in both hemispheres. |