

**A new multi-variable benchmark for Last Glacial Maximum simulations:
Supplementary Information**

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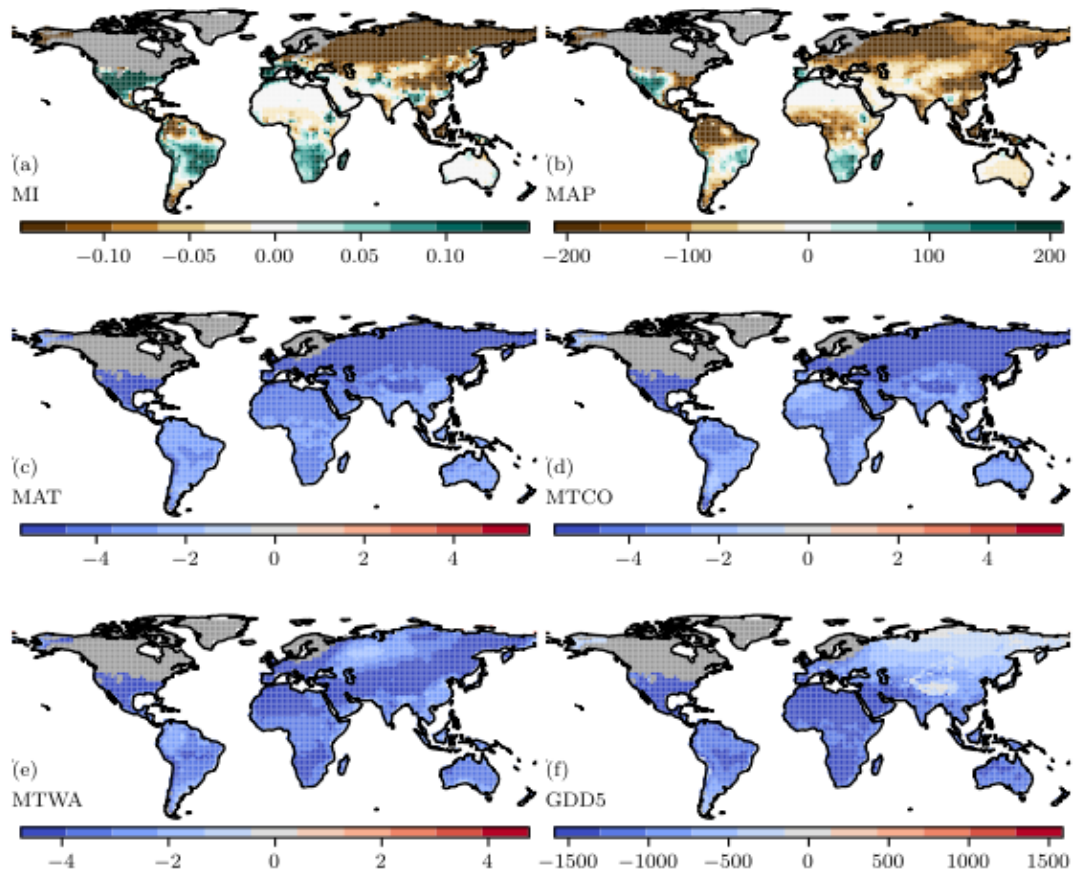
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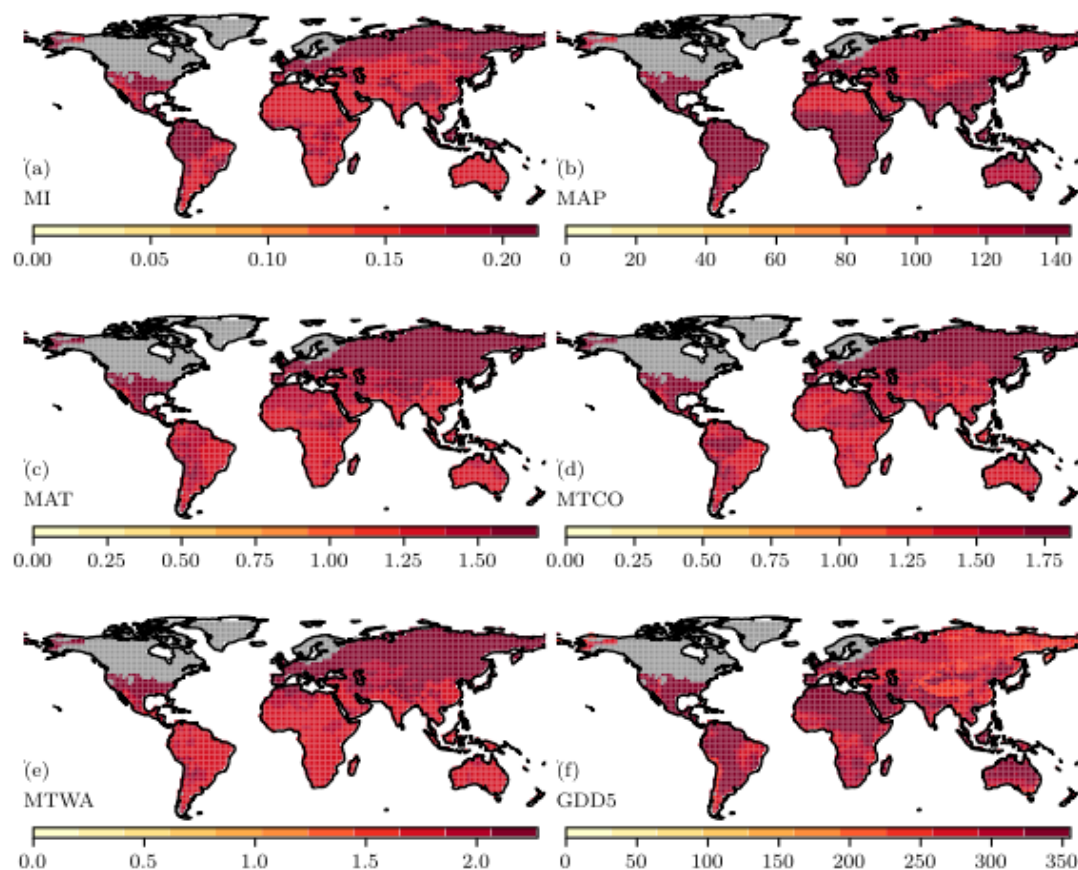
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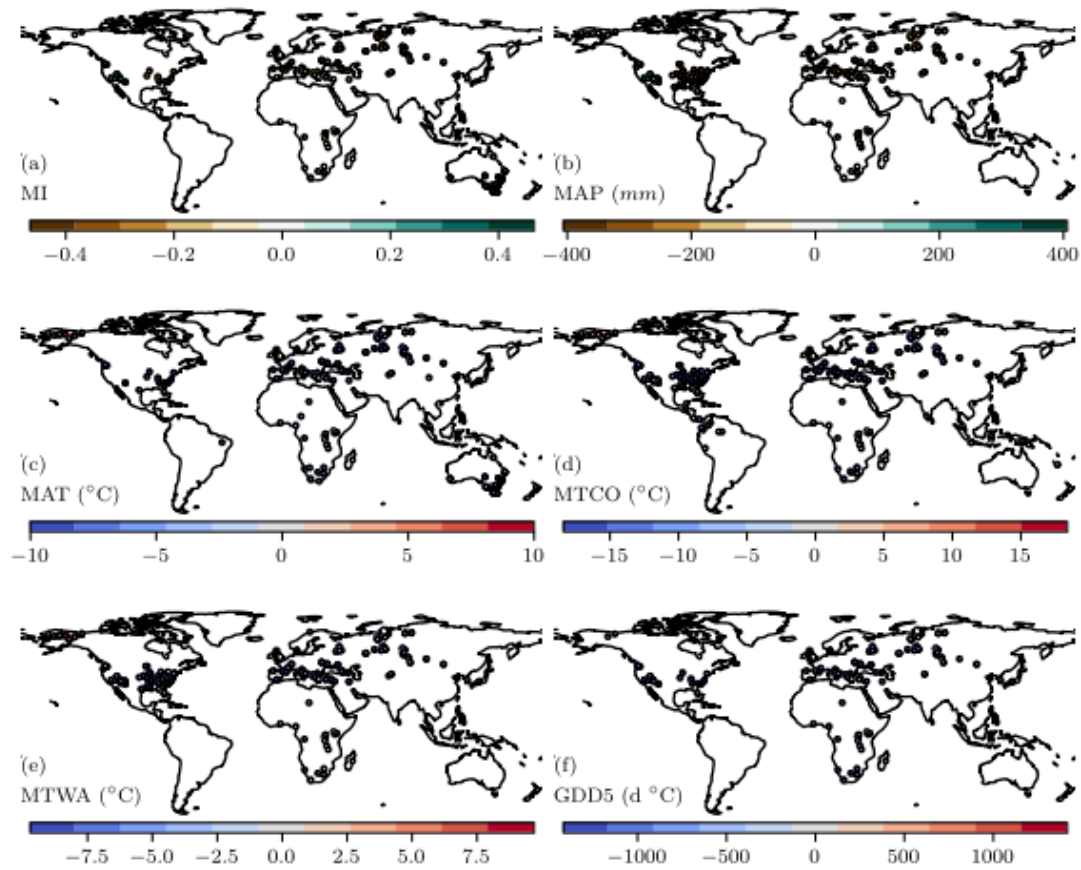
This supplementary information contains maps of the multi-model mean climate (SI Figure 1) and its standard deviation (SI Figure 2) of the ensemble of simulations of the Last Glacial Maximum from the Palaeoclimate Modelling Intercomparison Project (PMIP), as well as maps of the original site based reconstructions from Bartlein et al. (2011) and Prentice et al. (2017).



SI Figure 1: The multi-model mean climate of the ensemble of models from the Palaeoclimate Modelling Intercomparison Project (PMIP). The individual plots show the simulated (a) moisture index (MI), (b) mean annual precipitation (MAP), (c) mean annual temperature (MAT), (d) mean temperature of the coldest month (MTCO), (e) mean temperature of the warmest month (MTWA) and growing degree days above a baseline of 5° C (GDD5).



825 SI Figure 2: The standard deviation of the multi-model mean climate of the ensemble
 826 of models from the Palaeoclimate Modelling Intercomparison Project (PMIP). The
 827 individual plots show the simulated (a) moisture index (MI), (b) mean annual
 828 precipitation (MAP), (c) mean annual temperature (MAT), (d) mean temperature of
 829 the coldest month (MTCO), (e) mean temperature of the warmest month (MTWA)
 830 and growing degree days above a baseline of 5° C (GDD5).



832 SI Figure 3: Site-based reconstructions of climatic variables at the Last Glacial
 833 Maximum. The plots show reconstructions of (a) moisture index (MI), (b) mean
 834 annual precipitation (MAP), (c) mean annual temperature (MAT), (d) mean
 835 temperature of the coldest month (MTCO), (e) mean temperature of the warmest
 836 month (MTWA), and (f) growing degree days above a baseline of 5°C (GDD5). The
 837 original reconstructions are from Bartlein et al. (2011) and Prentice et al. (2017).