Fig. S1. Results from the model-data comparison for mean cold month temperature, late Miocene data – modern potential natural climate estimates.
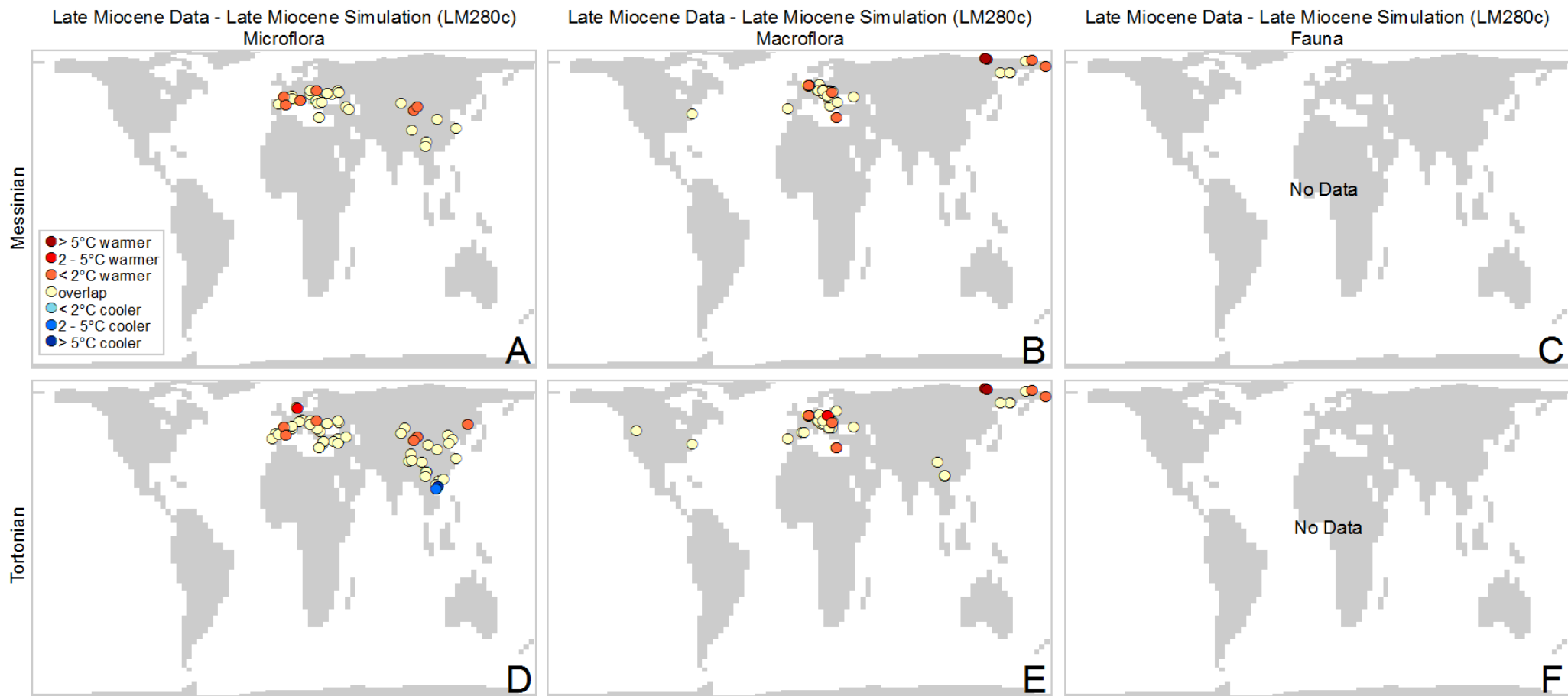
Fig. S2. Results from the model-data comparison for mean cold month temperature, late Miocene data – LM280c.

Late Miocene Data - Late Miocene Simulation (LM400c)
Microflora

Late Miocene Data - Late Miocene Simulation (LM400c)
Macroflora

Late Miocene Data - Late Miocene Simulation (LM400c)
Fauna

Messinian

Tortonian

> 5°C warmer
2 - 5°C warmer
< 2°C warmer
overlap
< 2°C cooler
2 - 5°C cooler
> 5°C cooler

No Data

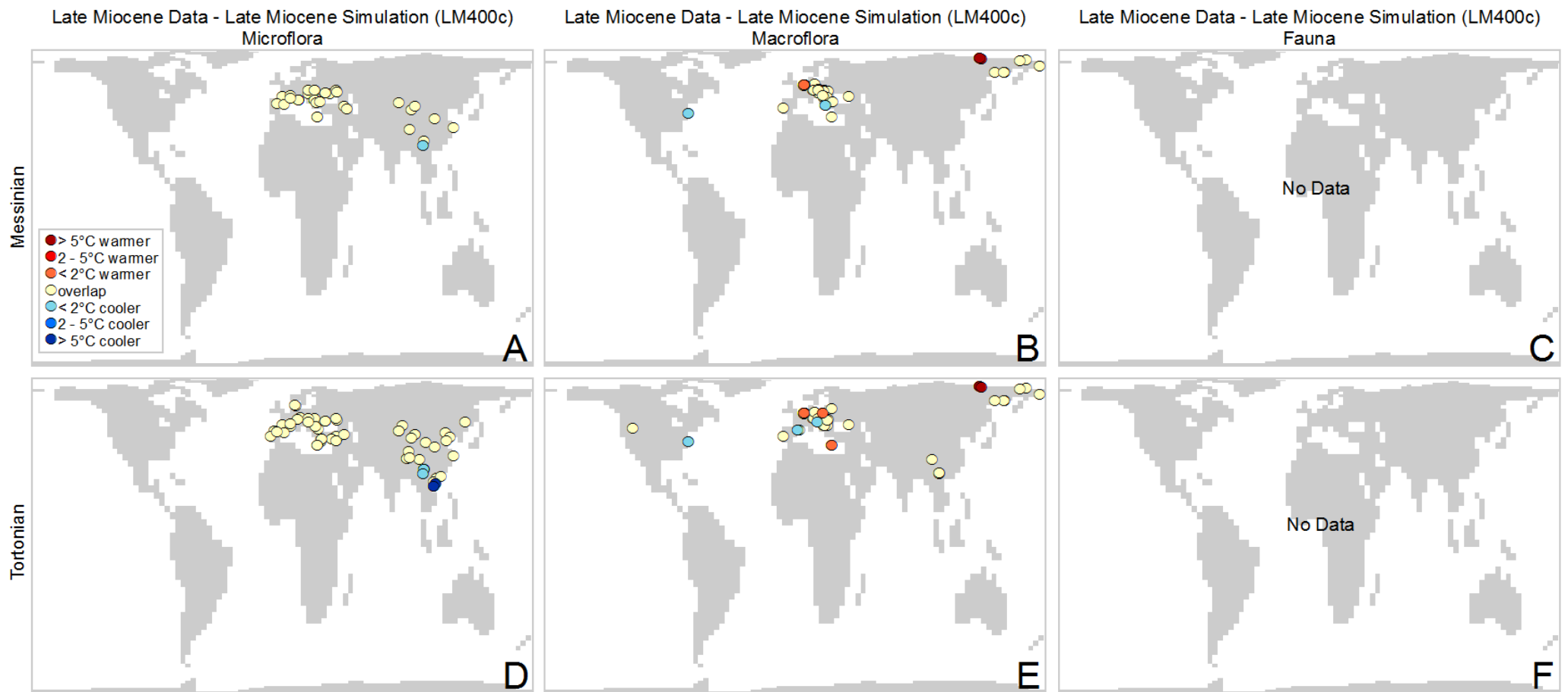No Data

A   B   C   D   E   F

Fig. S3. Results from the model-data comparison for mean cold month temperature, late Miocene data – LM400c.
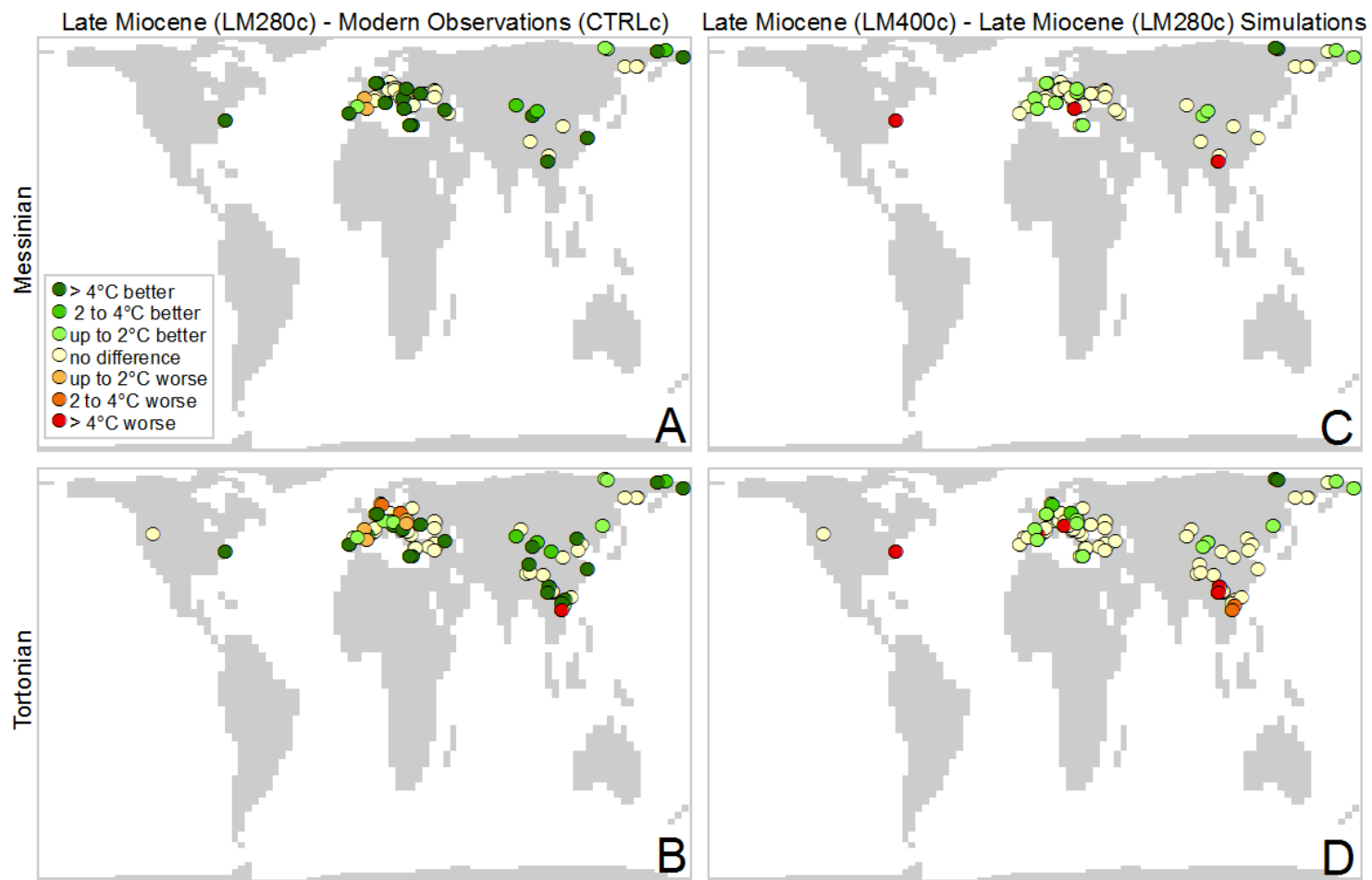
Fig. S4. Improvements in the model-data comparison for mean cold month temperature. The lefthand column (A,B) shows the improvement that the late Miocene palaeogeography makes to the model-data comparison. The righthand colum (C, D) shows the improvement that higher CO_2 makes to the model-data comparison. Green circles indicate an improvement, red circles indicate a deterioration. The datapoints showing 'no difference' are plotted underneath the other datapoints in order to highlight the differences.
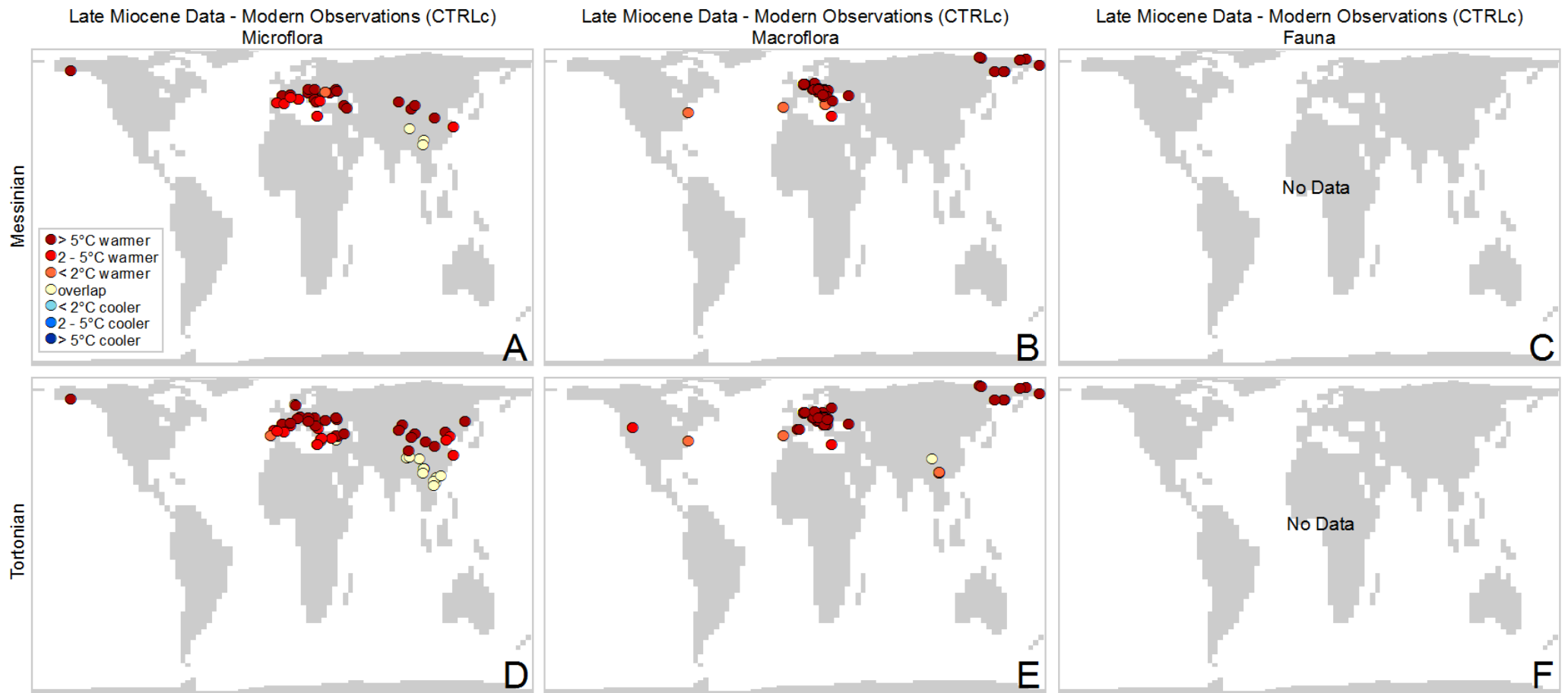
Fig. S5. Results from the model-data comparison for mean warm month temperature, late Miocene data – modern potential natural climate estimates.
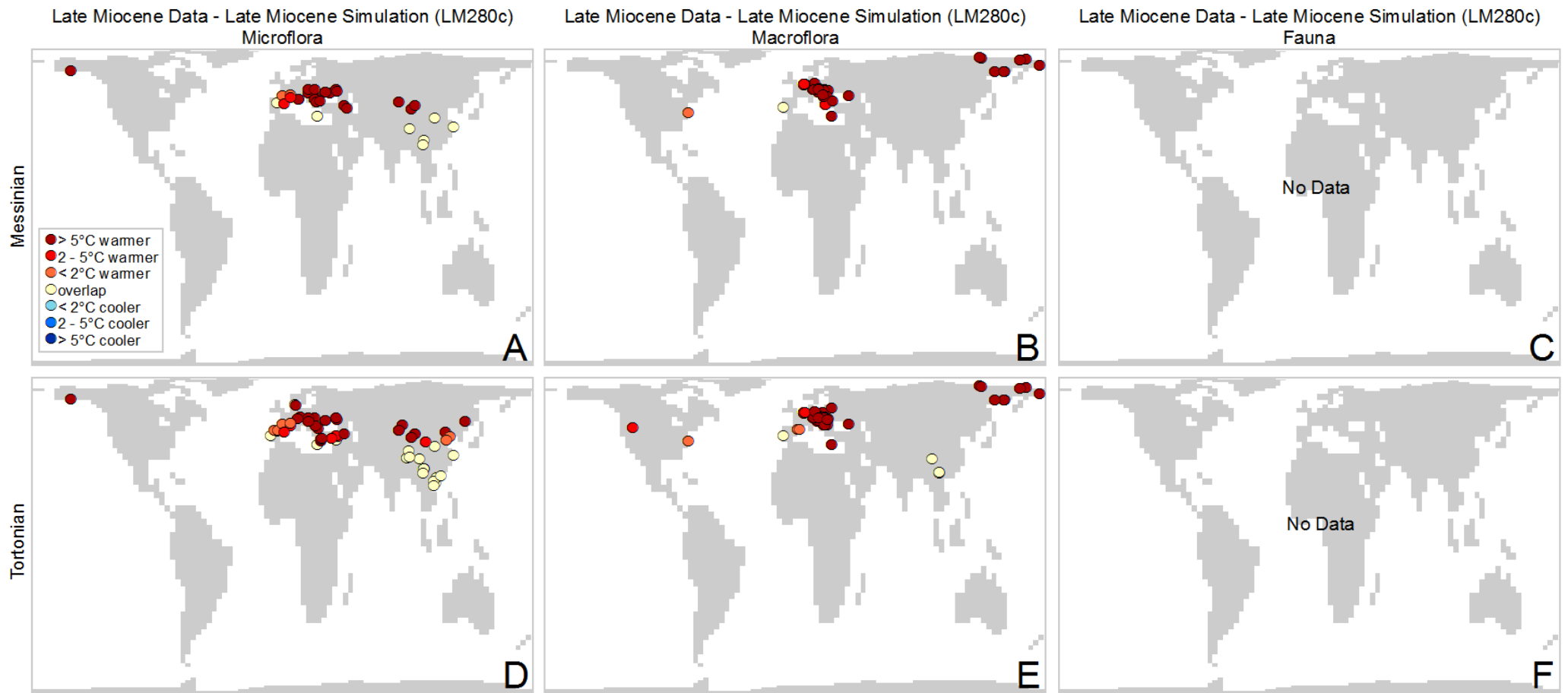
Fig. S6. Results from the model-data comparison for mean warm month temperature, late Miocene data − LM280c.
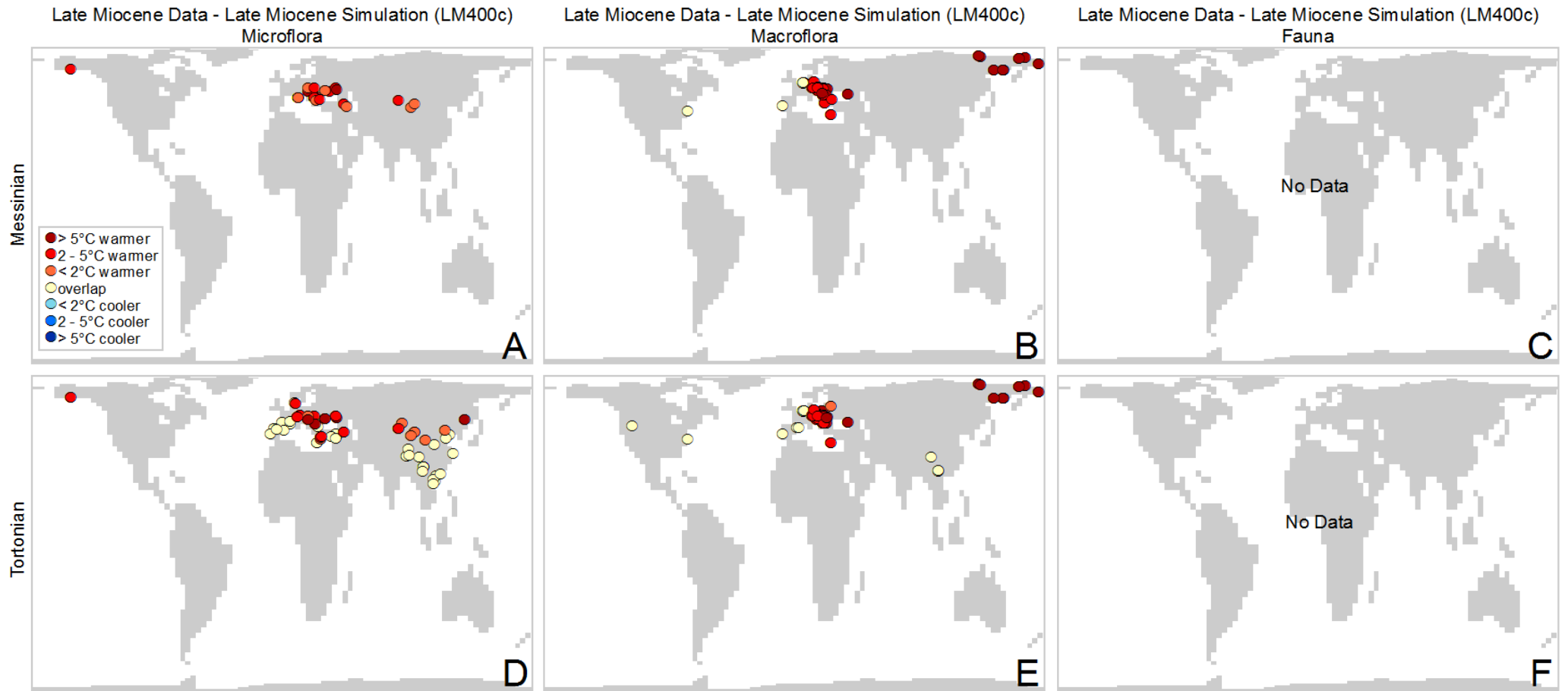
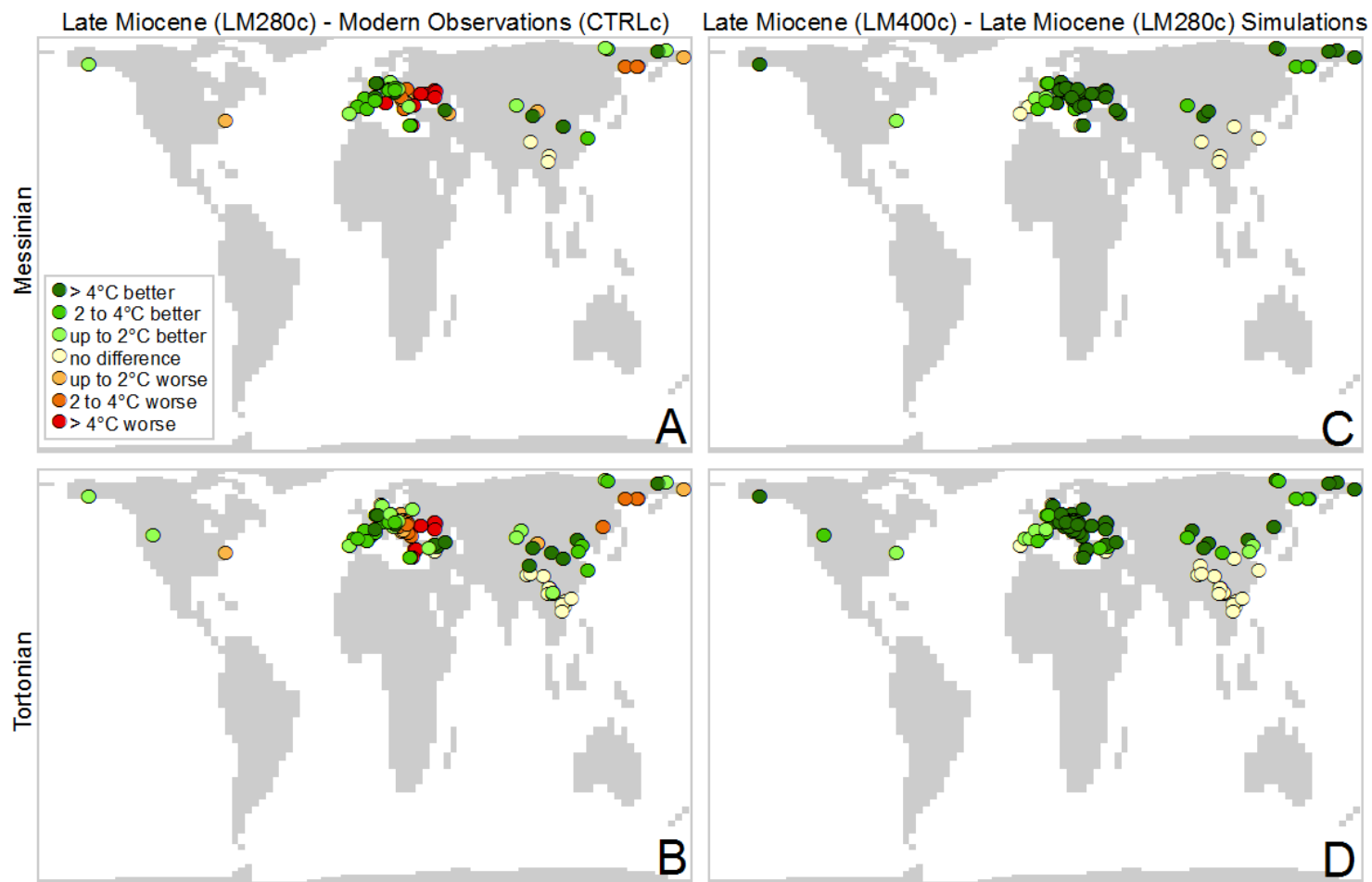Fig. S7. Results from the model-data comparison for mean warm month temperature, late Miocene data – LM400c.

Fig. S8. Improvements in the model-data comparison for mean warm month temperature. The lefthand column (A,B) shows the improvement that the late Miocene palaeogeography makes to the model-data comparison. The righthand colum (C, D) shows the improvement that higher CO_2 makes to the model-data comparison. Green circles indicate an improvement, red circles indicate a deterioration. The datapoints showing 'no difference' are plotted underneath the other datapoints in order to highlight the differences.
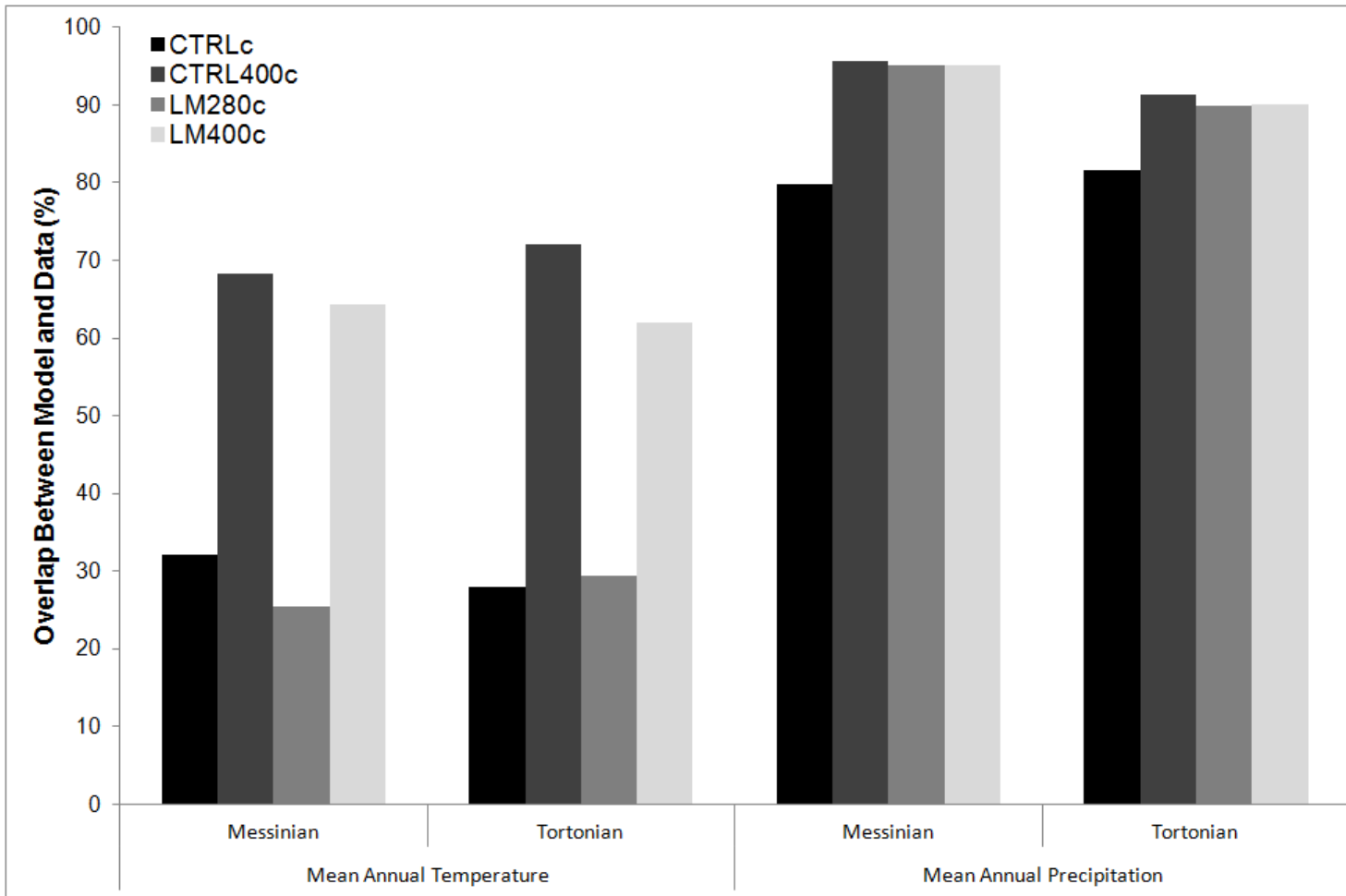
Fig. S9. Non-linearity test of model-data comparison summary for MAT and MAP. Shown is the percentage of the total number of datapoints that overlap with the model results.