

Supplementary of “An assessment of the North Atlantic Oscillation in the Late Pliocene and its impact on European climate”

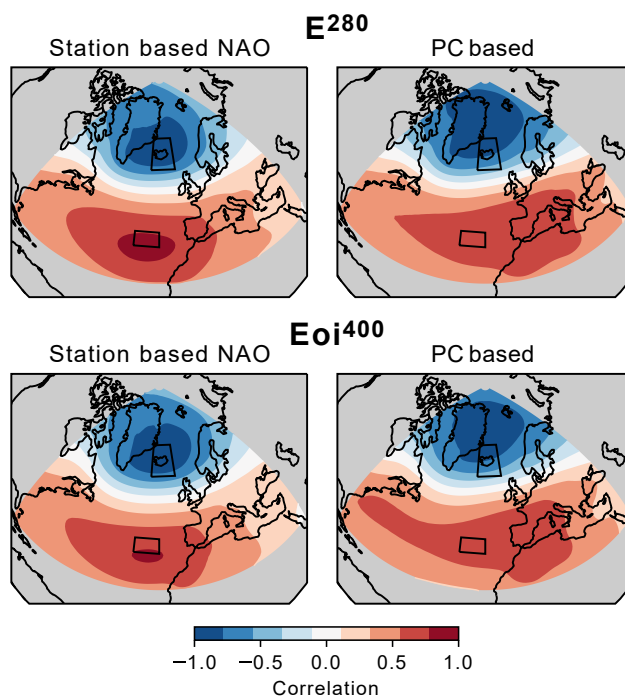


Figure S1. Correlation of December, January, February sea level pressure and the NAO index calculated using a station based metric and from the principle component (PC) for the pre-industrial (E^{280}) and the Late Pliocene (Eoi^{400}).

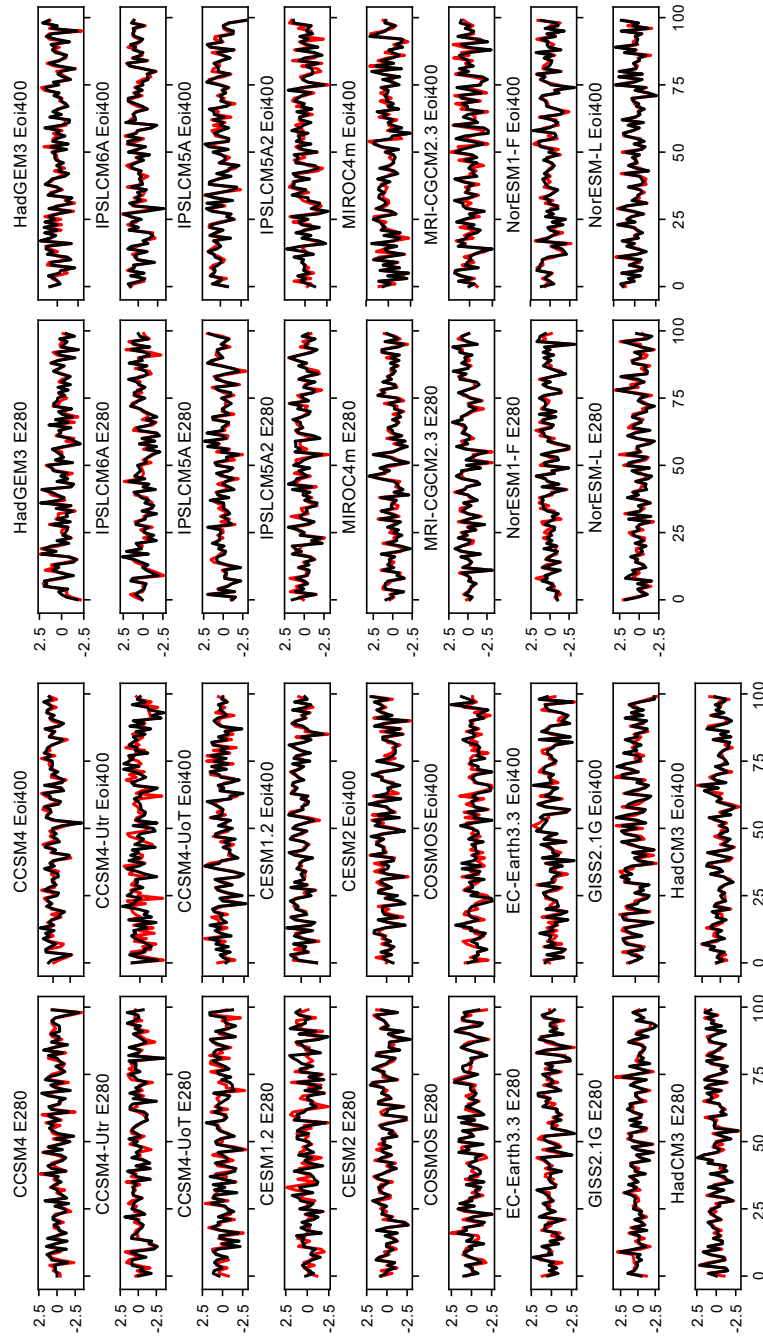


Figure S2. Standardised North Atlantic Oscillation index defined by a station based metric (red) and from the principle component analysis (black) for the pre-industrial (E^{280}) and the Late Pliocene (Eoi^{400}) for each model.

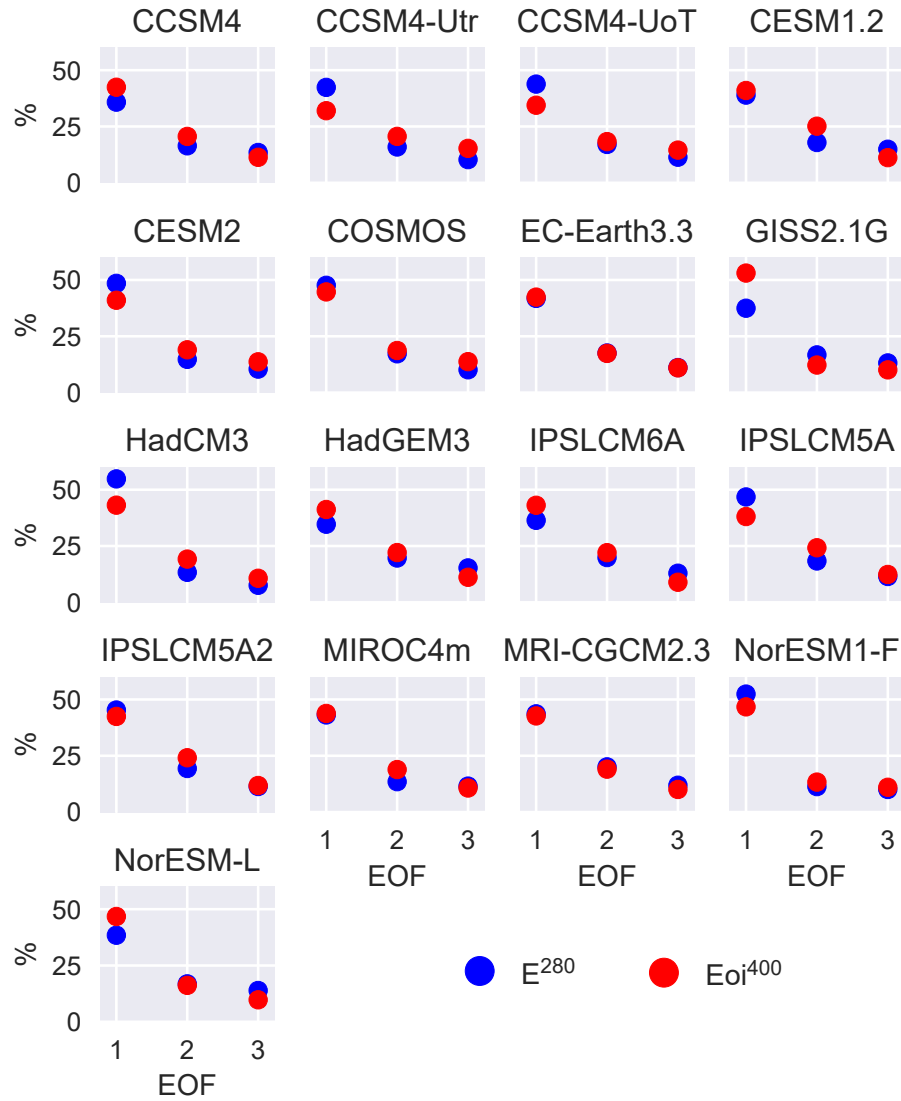


Figure S3. Percentage variance explained by the first 3 EOFs in the North Atlantic region in the pre-industrial (E^{280}) and the Late Pliocene (Eoi^{400}).

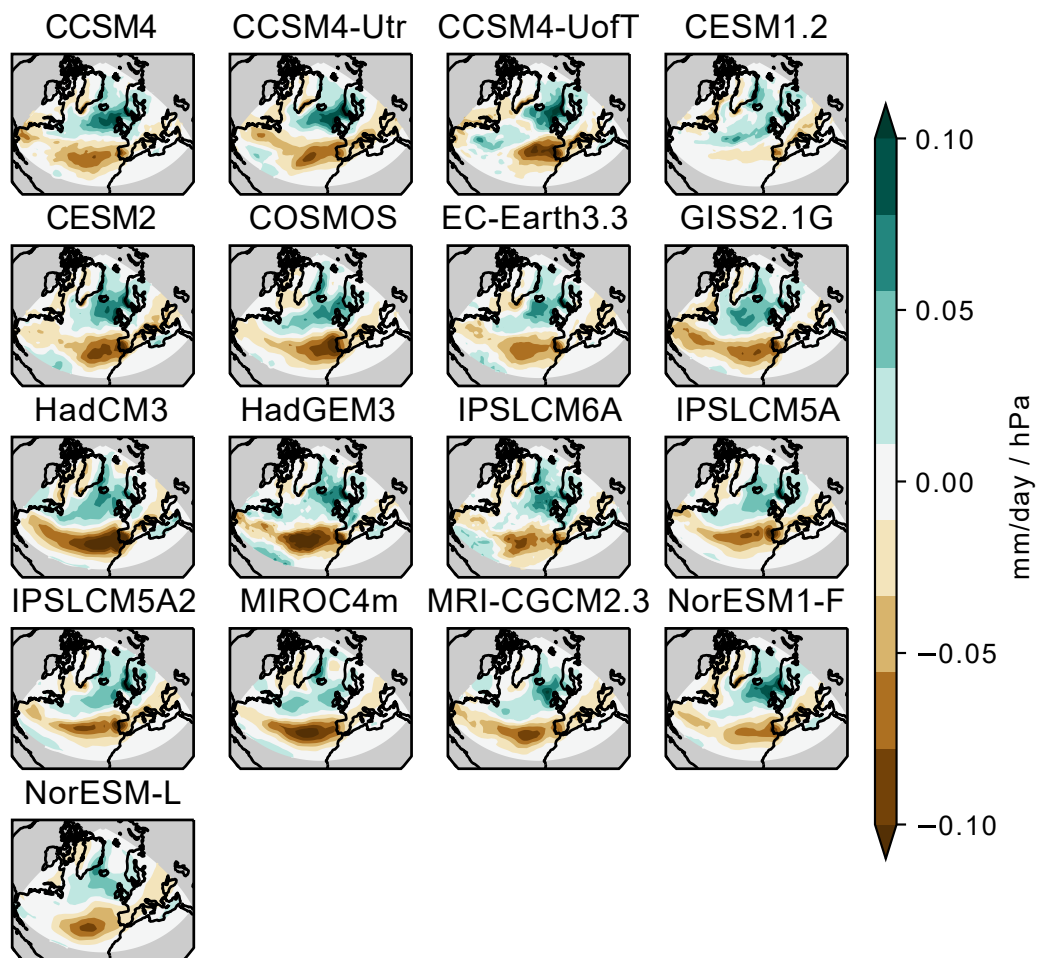


Figure S4. Relationship between December, January, February precipitation and the North Atlantic Oscillation in the pre-industrial simulation for each model.

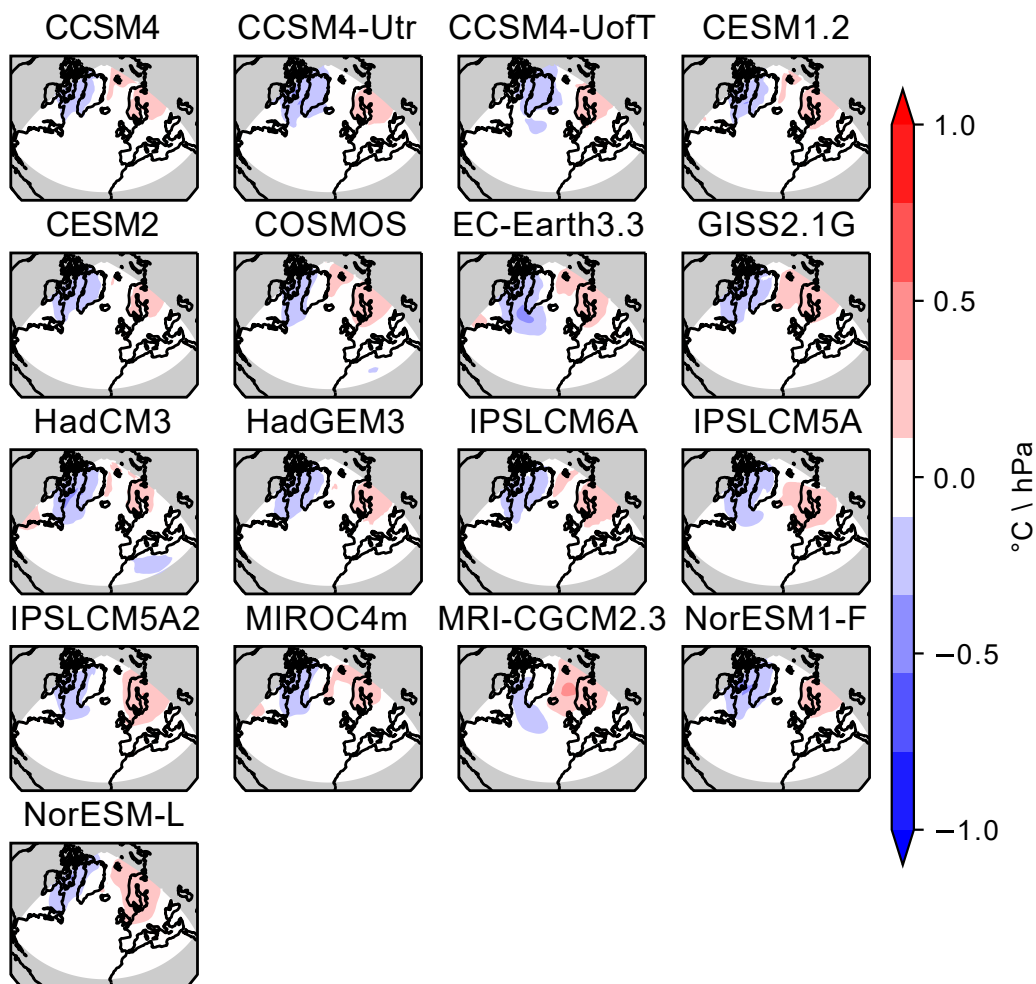


Figure S5. Relationship between December, January, February temperature and the North Atlantic Oscillation in the pre-industrial simulation for each model.

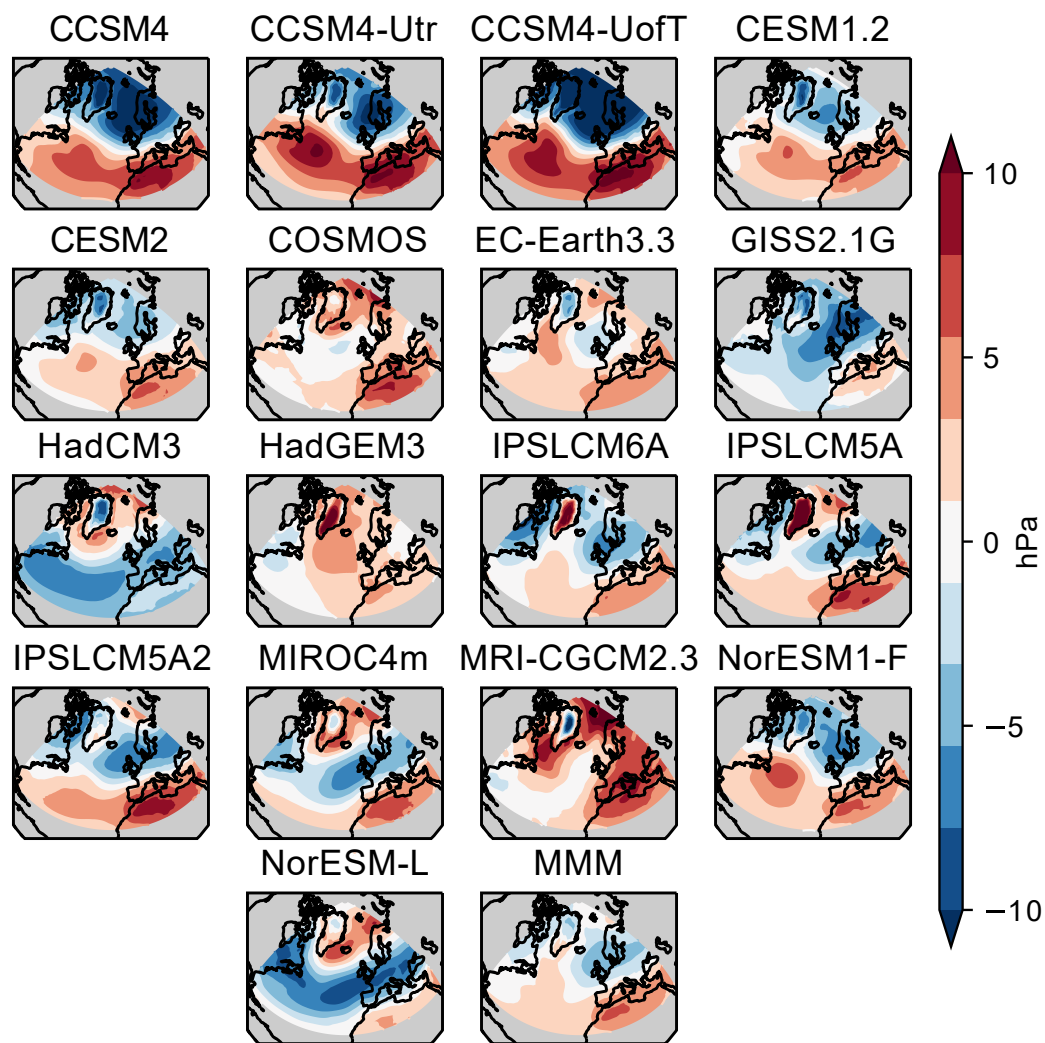


Figure S6. Difference in the December, January, February mean sea level pressure between the pre-industrial simulations and the NOAA CR20 reanalysis data for each model.

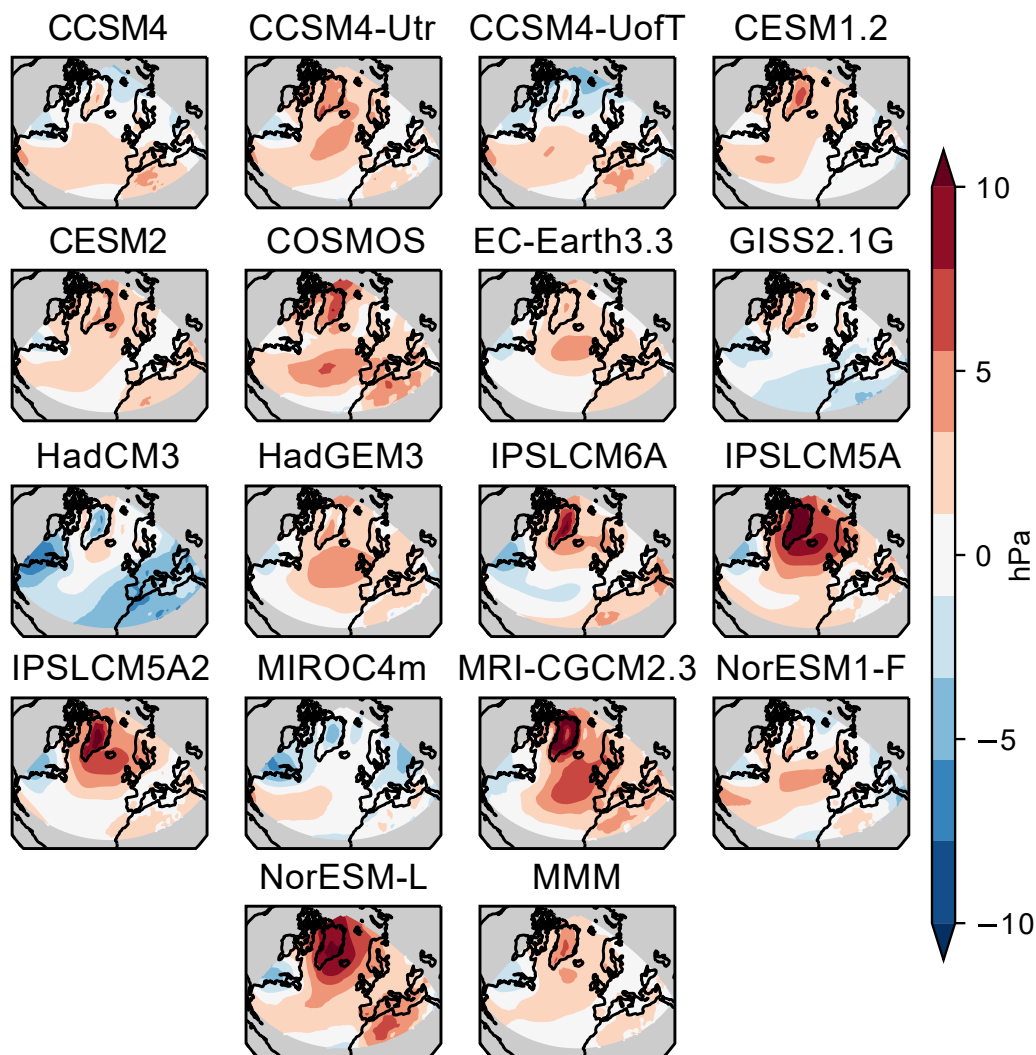


Figure S7. Difference in the June, July, August mean sea level pressure between the pre-industrial simulations and the NOAA CR20 reanalysis data for each model.

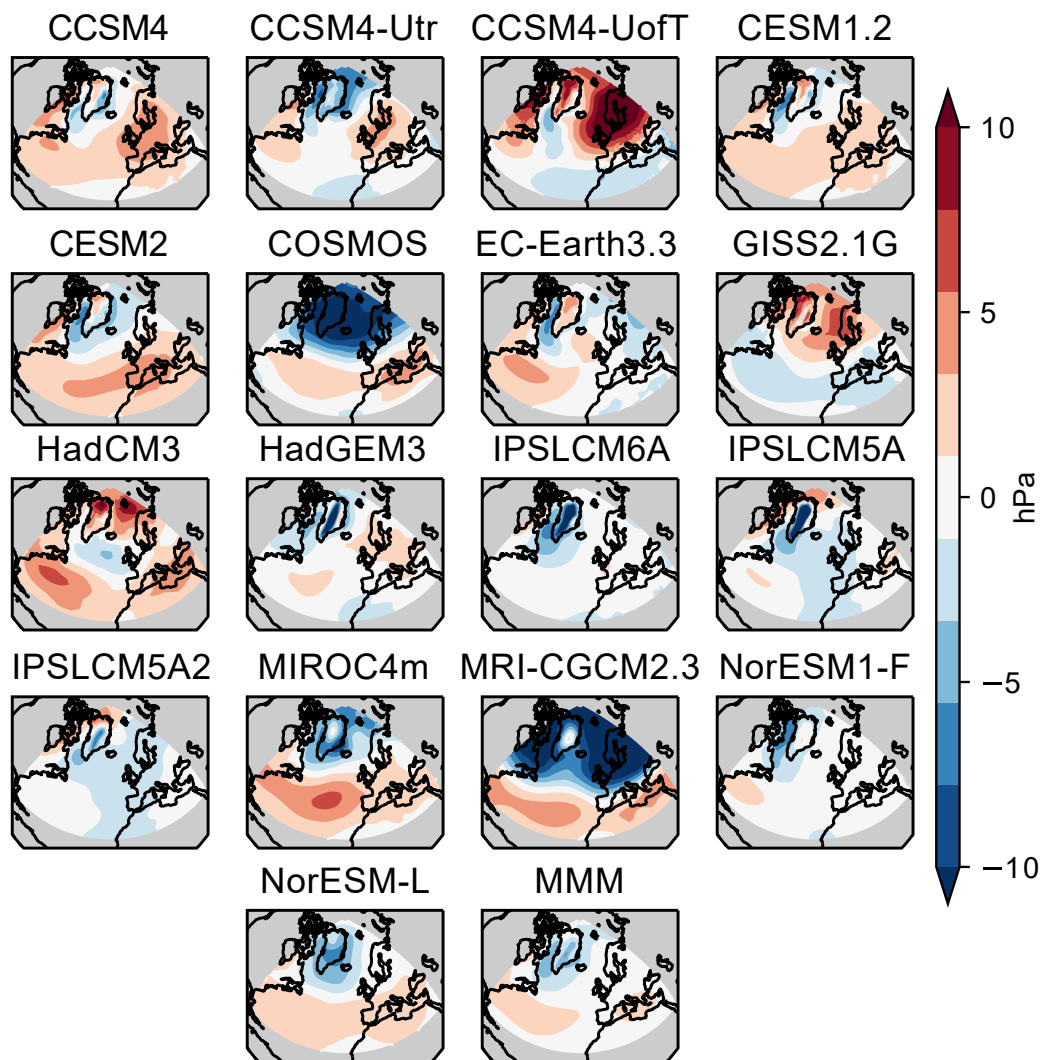


Figure S8. Difference in December, January, February mean sea level pressure between the Late Pliocene (Eoi⁴⁰⁰) and pre-industrial (E²⁸⁰) simulations for each model.

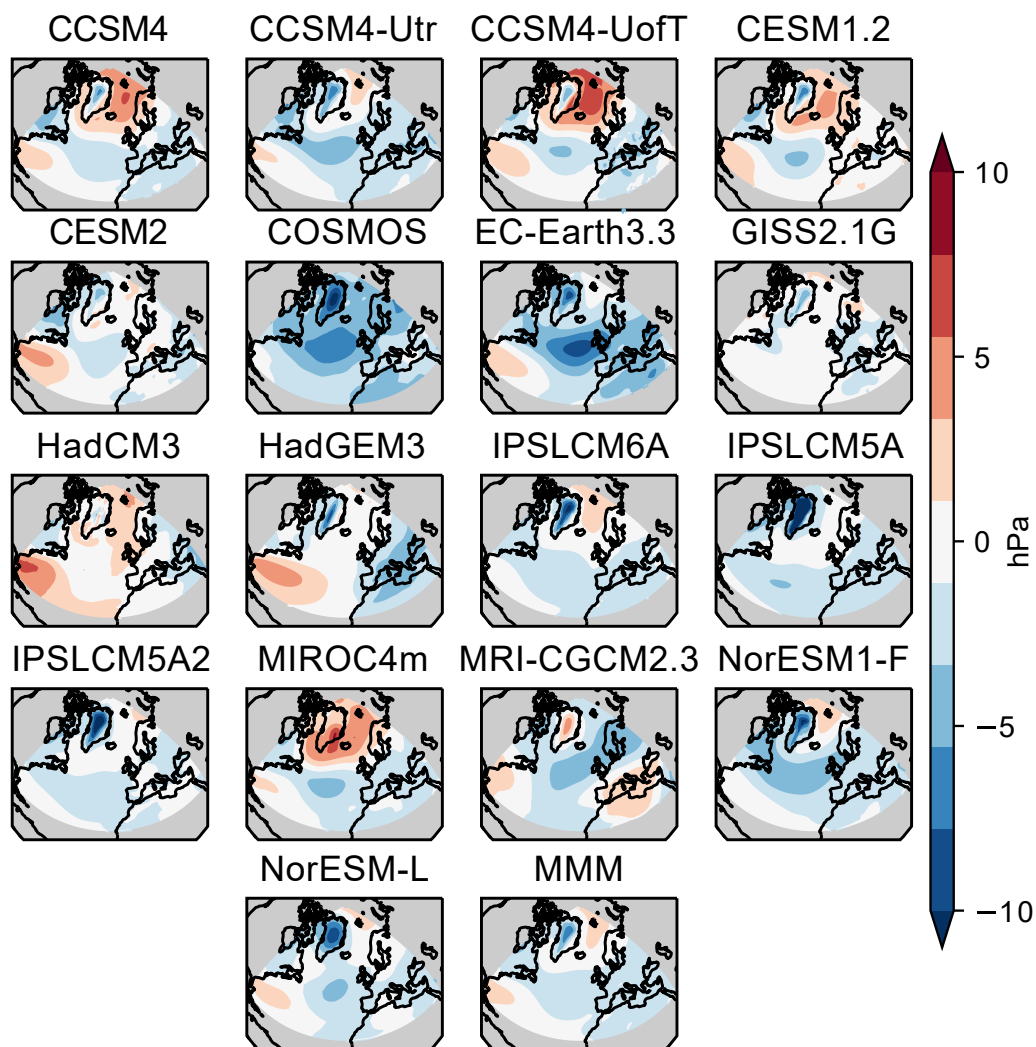


Figure S9. Difference in June, July, August mean sea level pressure between the Late Pliocene (Eoi^{400}) and pre-industrial (E^{280}) simulations for each model.

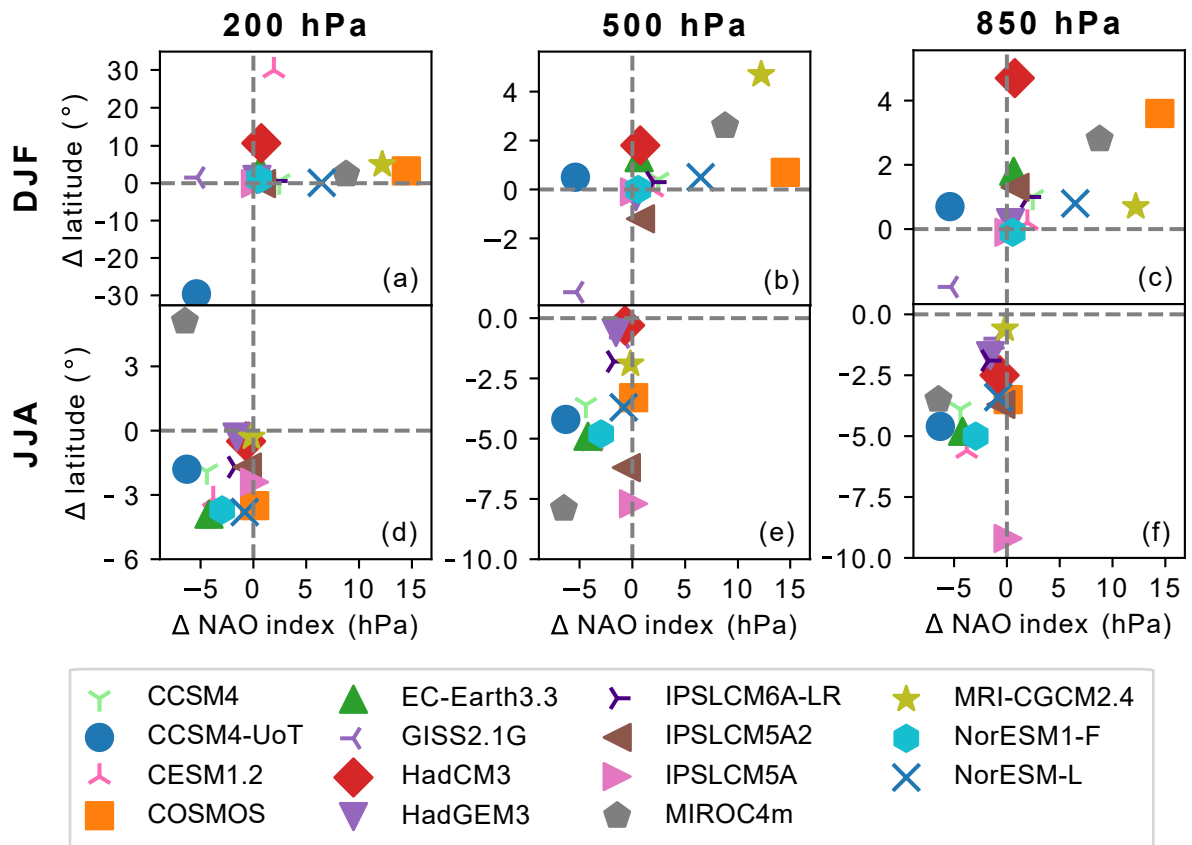


Figure S10. Change to the North Atlantic zonal wind speed and NAO index in December, January February (DJF) and June, July, August (JJA) at three pressure levels (200 hPa, 500 hPa and 850 hPa). The dashed lines indicate position of zero change.

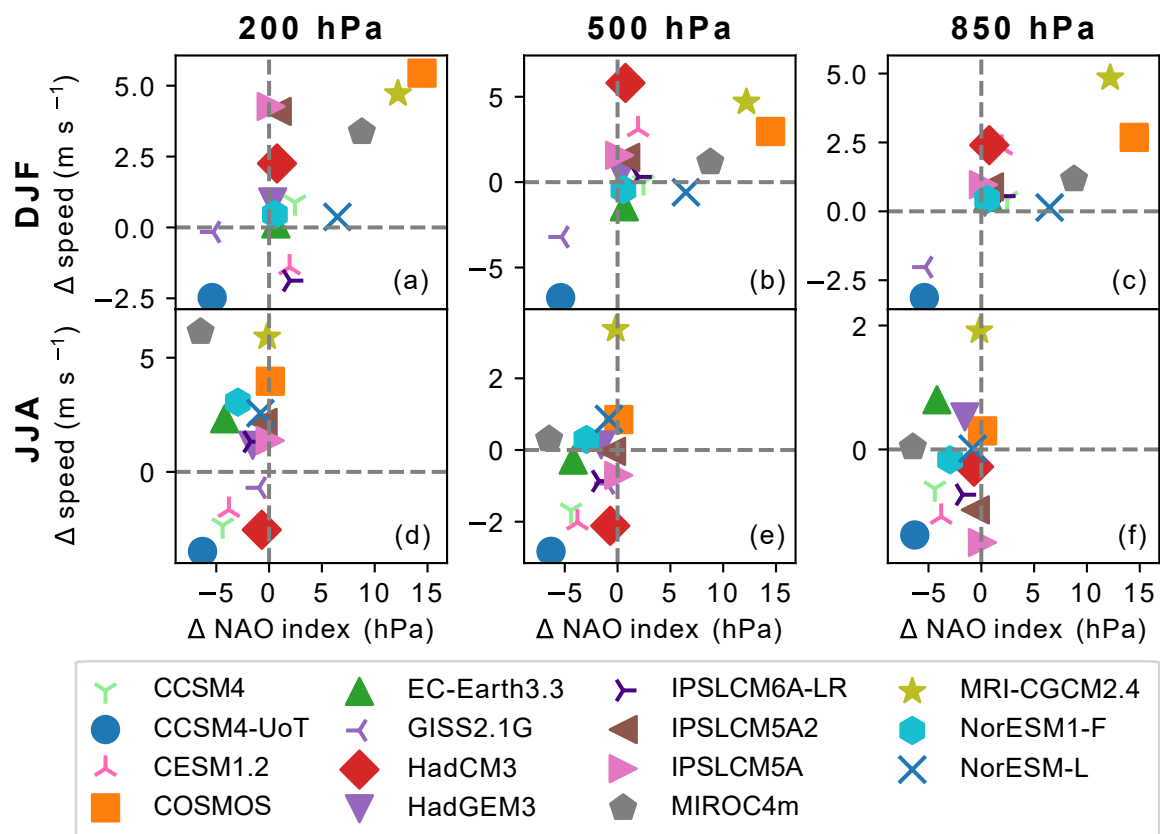


Figure S11. Change to the North Atlantic zonal wind speed and NAO index in December, January February (DJF) and June, July, August (JJA) at three pressure levels (200 hPa, 500 hPa and 850 hPa). The dashed lines indicate position of zero change.

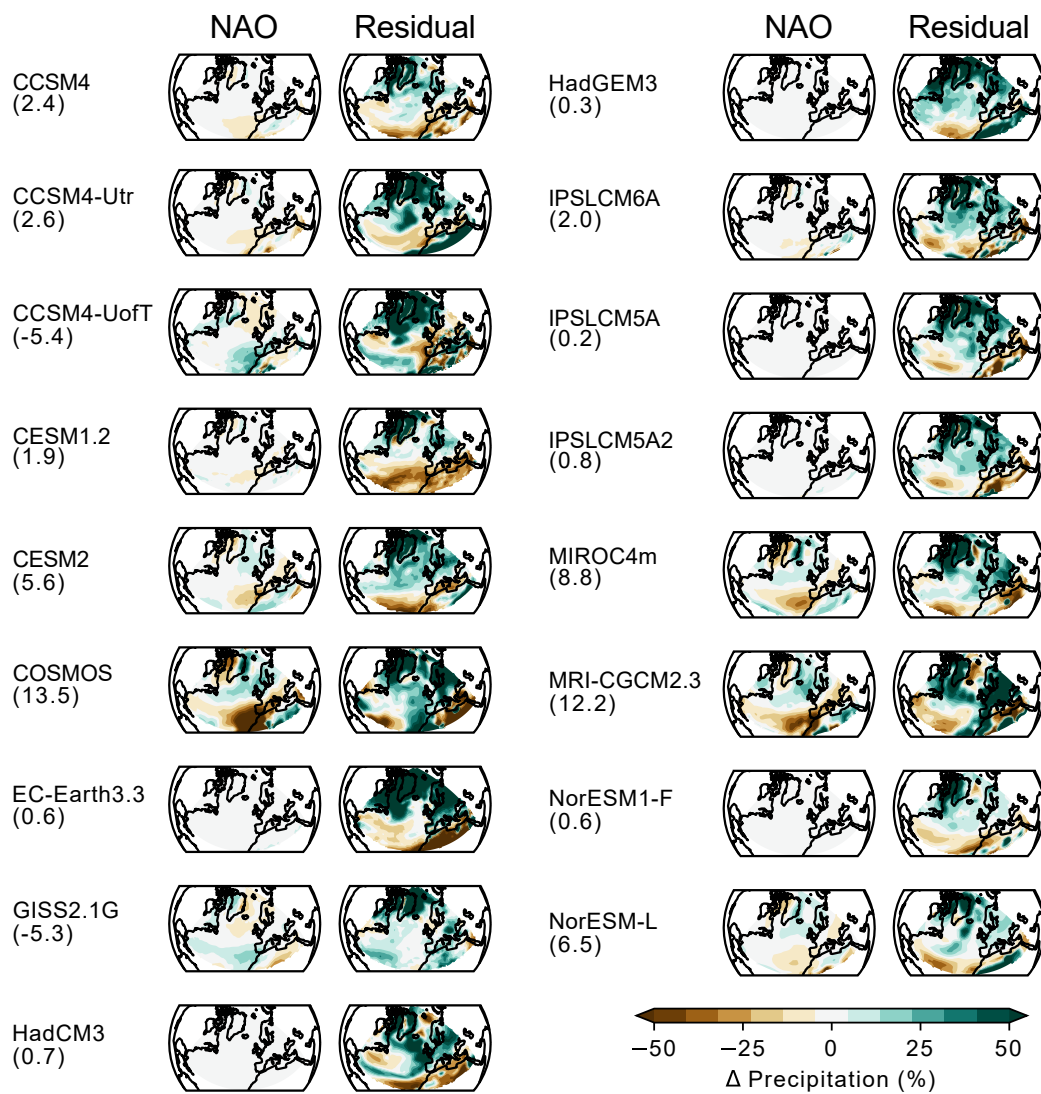


Figure S12. Percentage change in December, January, February mean precipitation attributed to the North Atlantic Oscillation (NAO) and the residual.

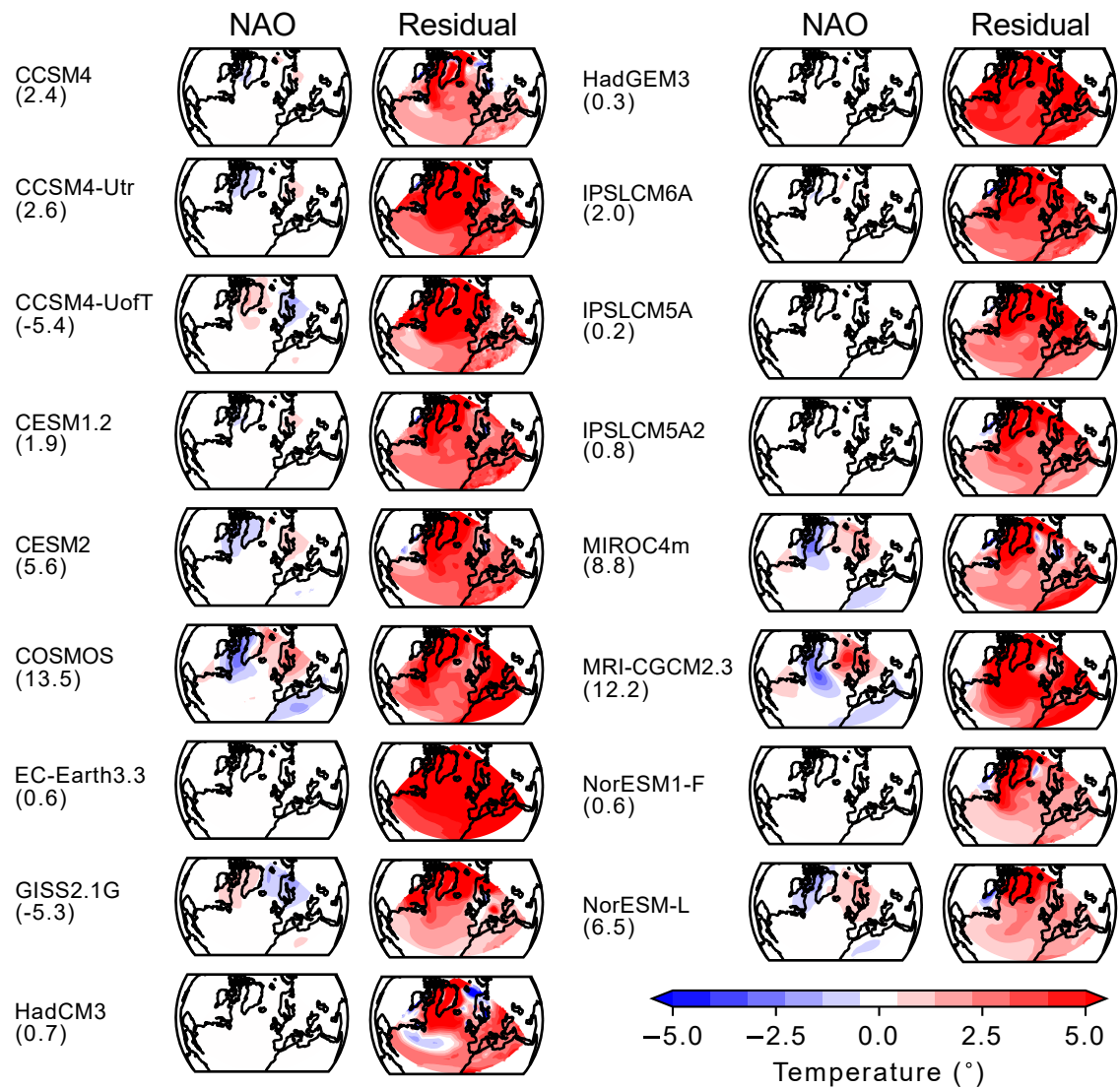


Figure S13. Temperature change in December, January, February mean surface air temperature attributed to the North Atlantic Oscillation (NAO) and the residual.

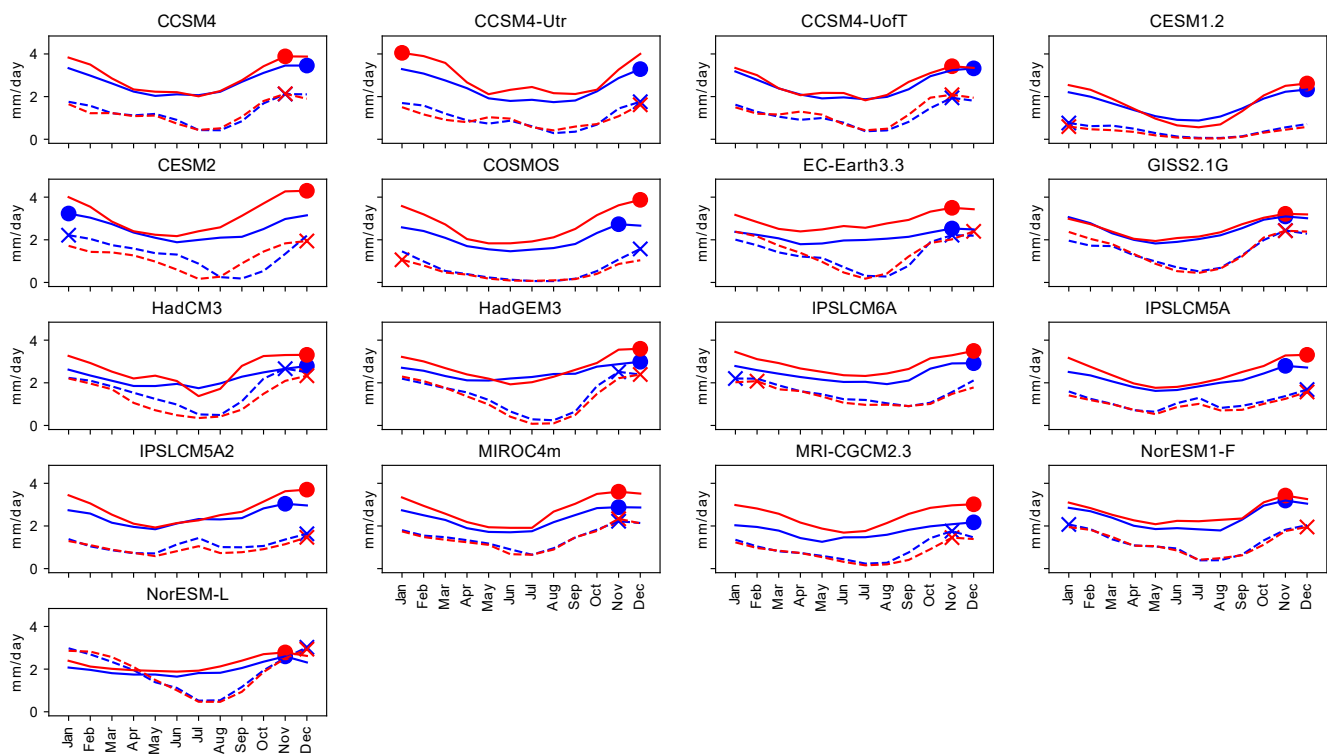


Figure S14. Monthly precipitation values for Northern (solid line) and Southern (dashed line) Europe in the Late Pliocene (red) and pre-industrial (blue) simulations. The dots note the month of highest precipitation in Northern Europe and the crossed note the month of highest precipitation in southern Europe.