Supplementary material for

Characteristics and Mechanisms of the Dipole Precipitation Pattern in "Westerlies Asia" over the Past Millennium Based on PMIP4 Simulation

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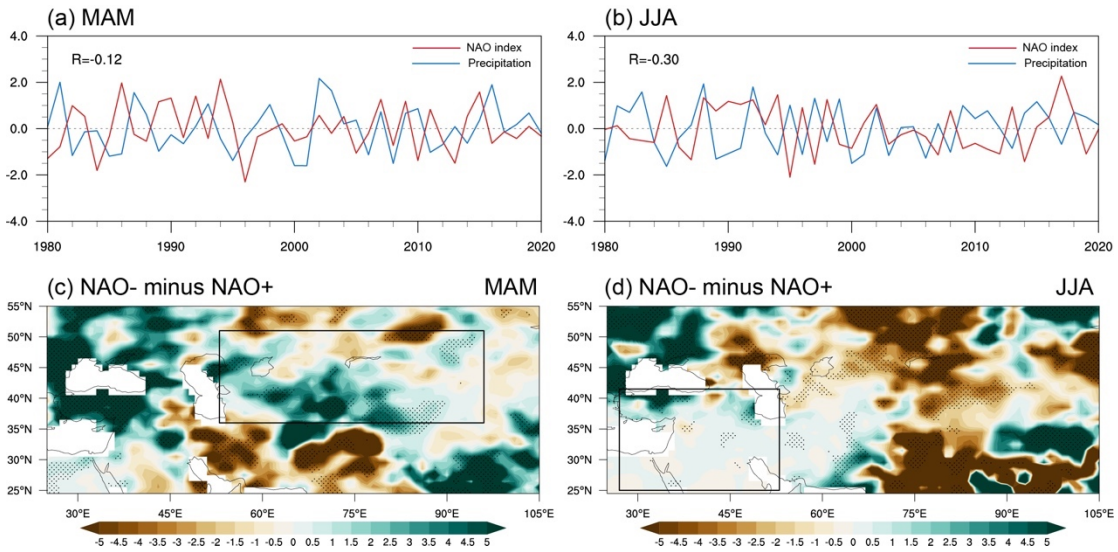


Figure S1. (a) Variations and correlation of standardized area-averaged spring precipitation in the arid central Asia and spring NAO index; (b) Variations and correlation of standardized area-averaged summer precipitation in the arid West Asia and summer NAO index; (c) Difference of spring precipitation over the arid central Asia between the negative NAO phase and positive NAO phase (NAO-negative minus NAO-positive); (d) Difference of summer precipitation over the arid West Asia between the negative NAO phase and positive NAO phase (NAO-negative minus NAO-positive). The dots indicate passing the significance test at the 95% level. Precipitation data are derived from GPCC V2022, and the NAO index is calculated based on the surface pressure data provided by ERA5.

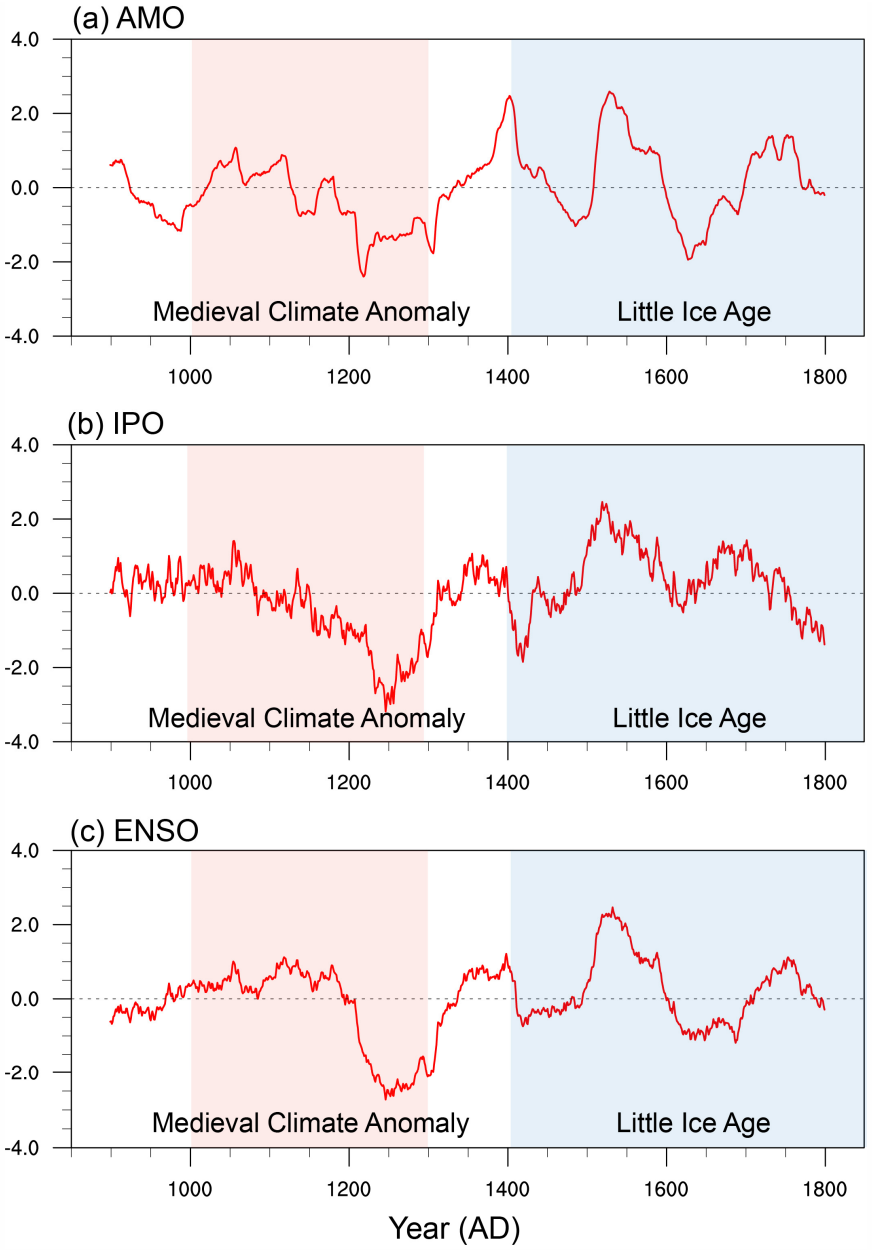


Figure S2. (a) AMO, (b) IPO, and (c) ENSO variations simulated by the PMIP4 multi-model ensemble mean over the past millennium. The results are subjected to 99-year moving average and standardization, representing centennial-scale signals. The AMO is calculated based on the detrended sea surface temperature (SST) in the North Atlantic (0–70°N, 280–360°E). The IPO index is derived from the difference between the detrended sea surface temperature anomalies (SSTAs) in the equatorial central Pacific (10°S–10°N, 170°E–90°W) and those in the northwest Pacific (25°N–45°N, 140°E–145°W) and southwest Pacific (50°S–15°S, 150°E–160°W). The ENSO is calculated based on the detrended SST in the equatorial central-eastern Pacific (-5–5°N, 170–240°E).