Supplementary materials

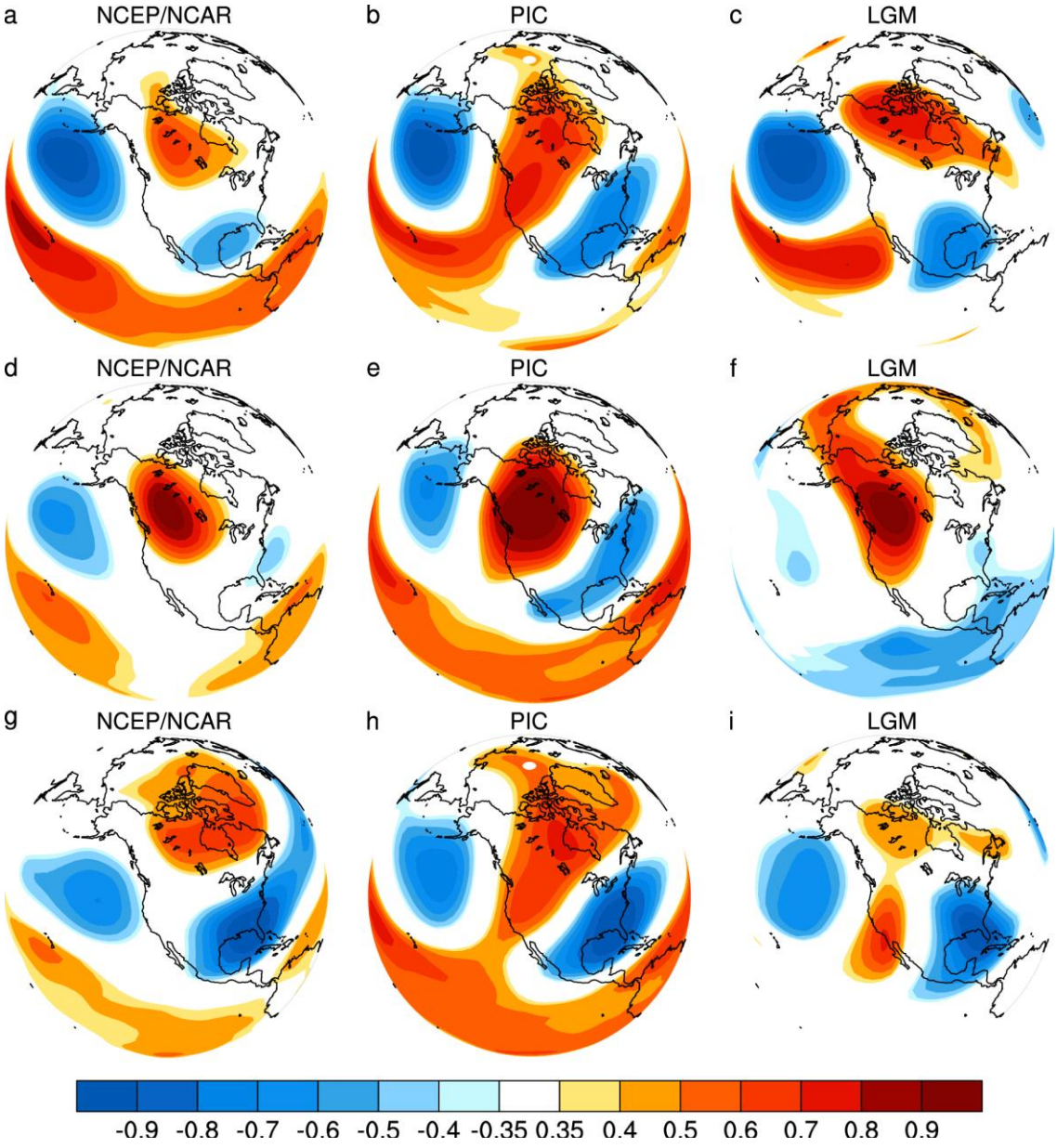

Figure S1. One-point correlation maps of 500 hPa geopotential heights in DJF for different base points in NCEP/NCAR reanalysis and PMIP2 CCSM3 simulations. Left panels: NCEP/NCAR, middle panels: PIC, and right panels: LGM. From top to bottom, the base point is at: North Pacific (45 °N and 165 °W), Alberta of Canada (55 °N and 115 °W), and Gulf Mexico (30 °N and 85 °W), respectively. The correlation coefficient of 0.35 corresponds to the 95% confidence level for 30-year correlations. For the all three base points, the correlation coefficients near Hawaii are set to positive.

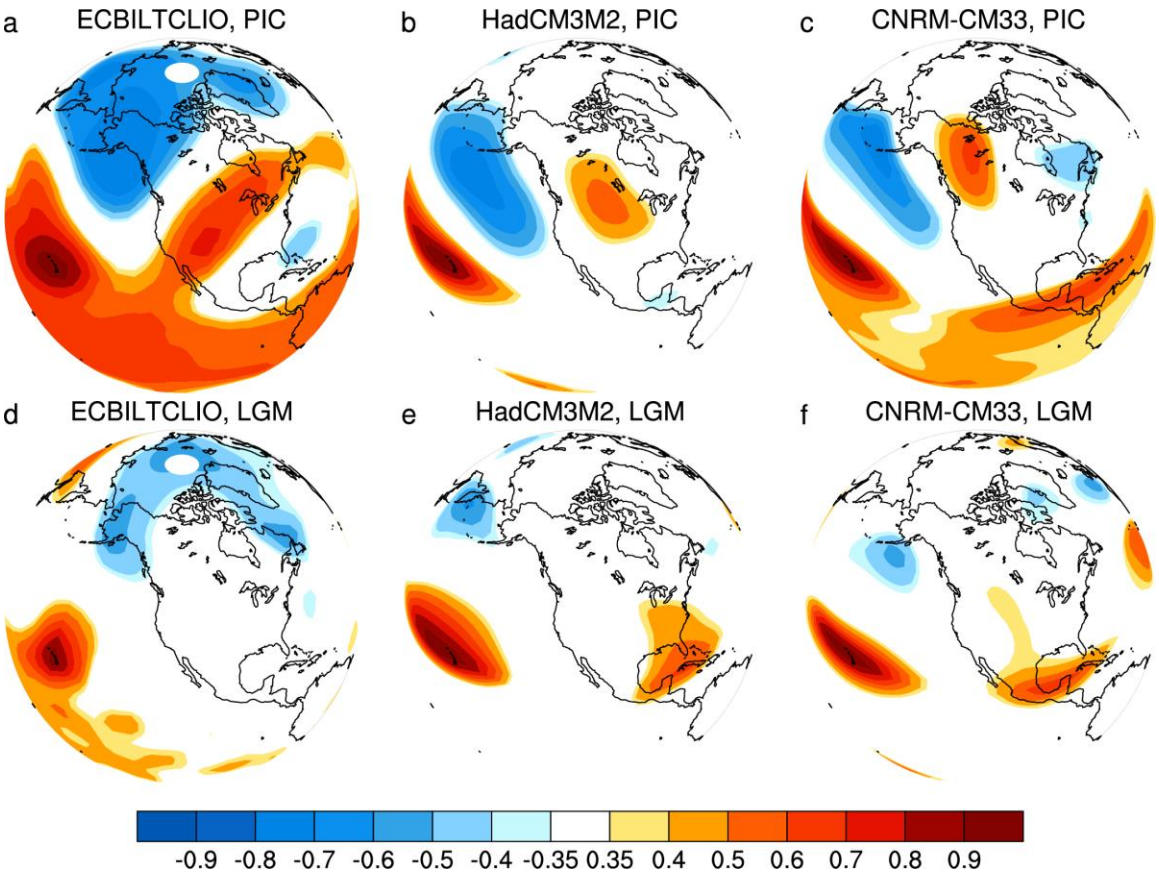

Figure S2. One-point correlation maps of 500 hPa geopotential heights in DJF in three other PMIP2 models. Upper panels: PIC simulations, and lower panels: LGM simulations. The base point is near Hawaii. The correlation coefficient of 0.35 corresponds to the 95% confidence level for 30-year correlations.

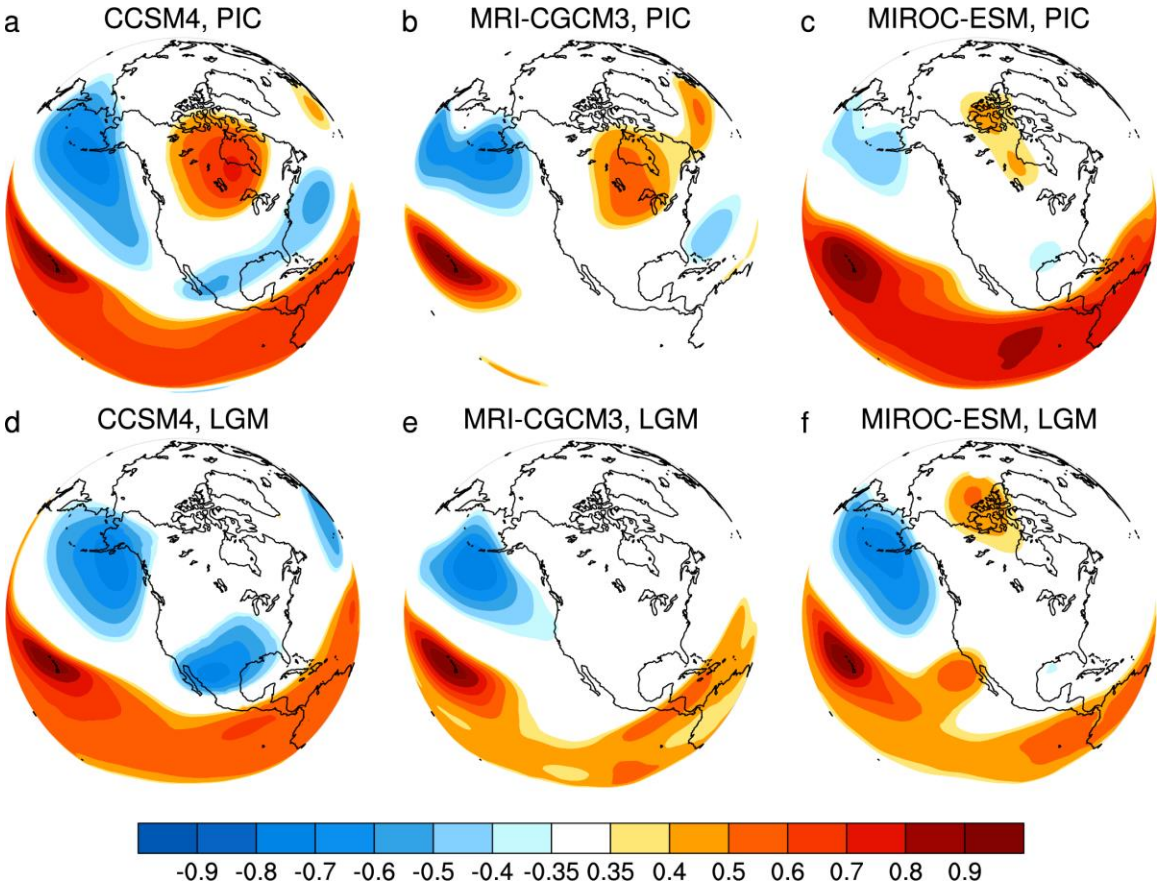

Figure S3. One-point correlation maps of 500 hPa geopotential heights in DJF in three other PMIP3 models. Upper panels: PIC simulations, and lower panels: LGM simulations. The base point is near Hawaii. The correlation coefficient of 0.35 corresponds to the 95% confidence level for 30-year correlations.

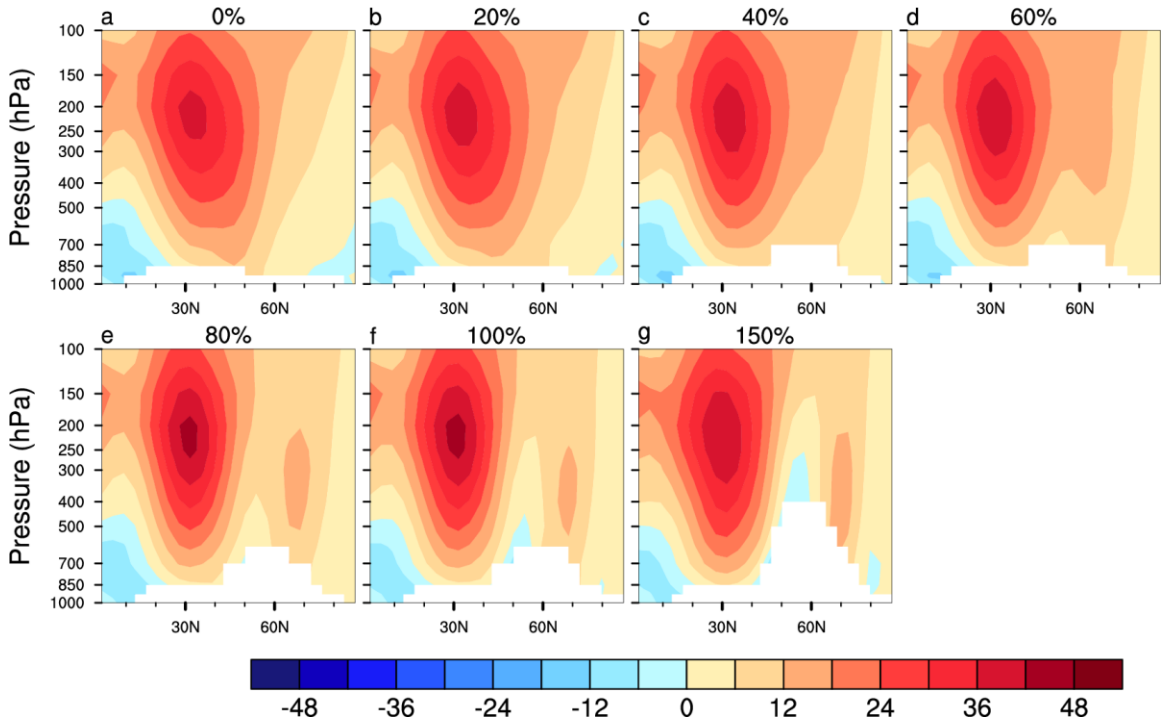

Figure S4. Vertical cross sections of DJF zonal winds along the longitude of 100 °W in sensitivity simulations with different ice sheet thicknesses. (a) 0%, (b) 20%, (c) 40%, (d) 60%, (e) 80%, (f) 100%, and (g) 150%. The color interval is 6 ms^{-1}.

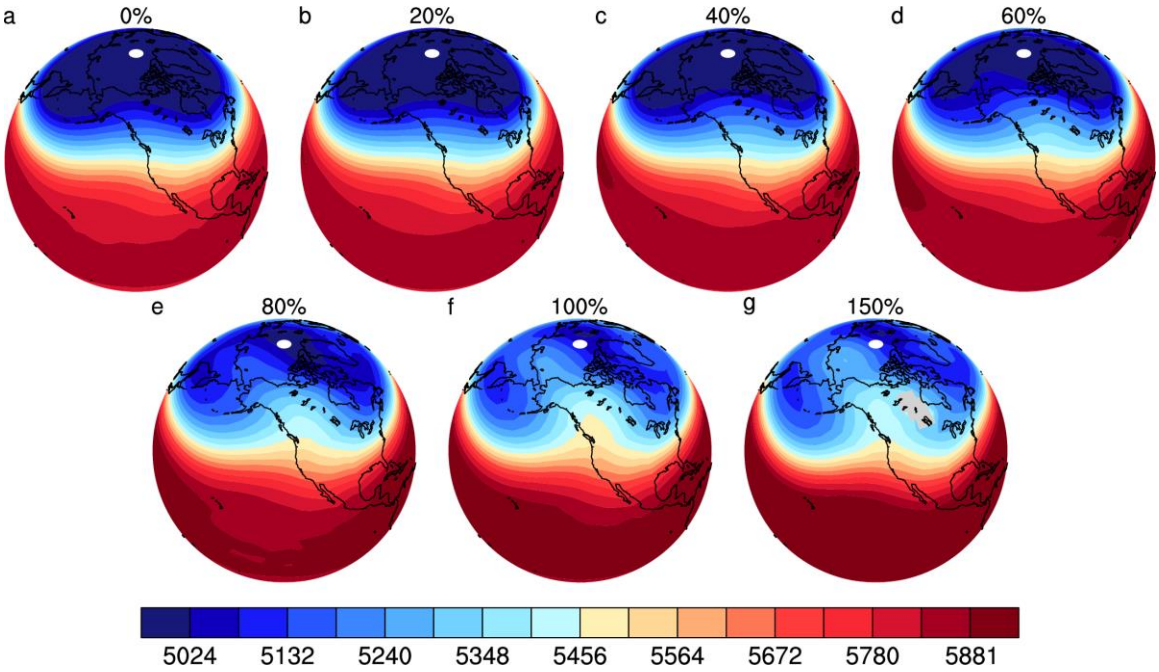

Figure S5. Climatological mean geopotential heights at 500 hPa in DJF in sensitivity simulations, with different ice sheet thicknesses. (a) 0%, (b) 20%. (c) 40%, (d) 60%, (e) 80%, (f) 100%, and (g) 150%. The unit is meter.