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Supplement of

Last Glacial Maximum climate and atmospheric circulation over the Australian region from climate models

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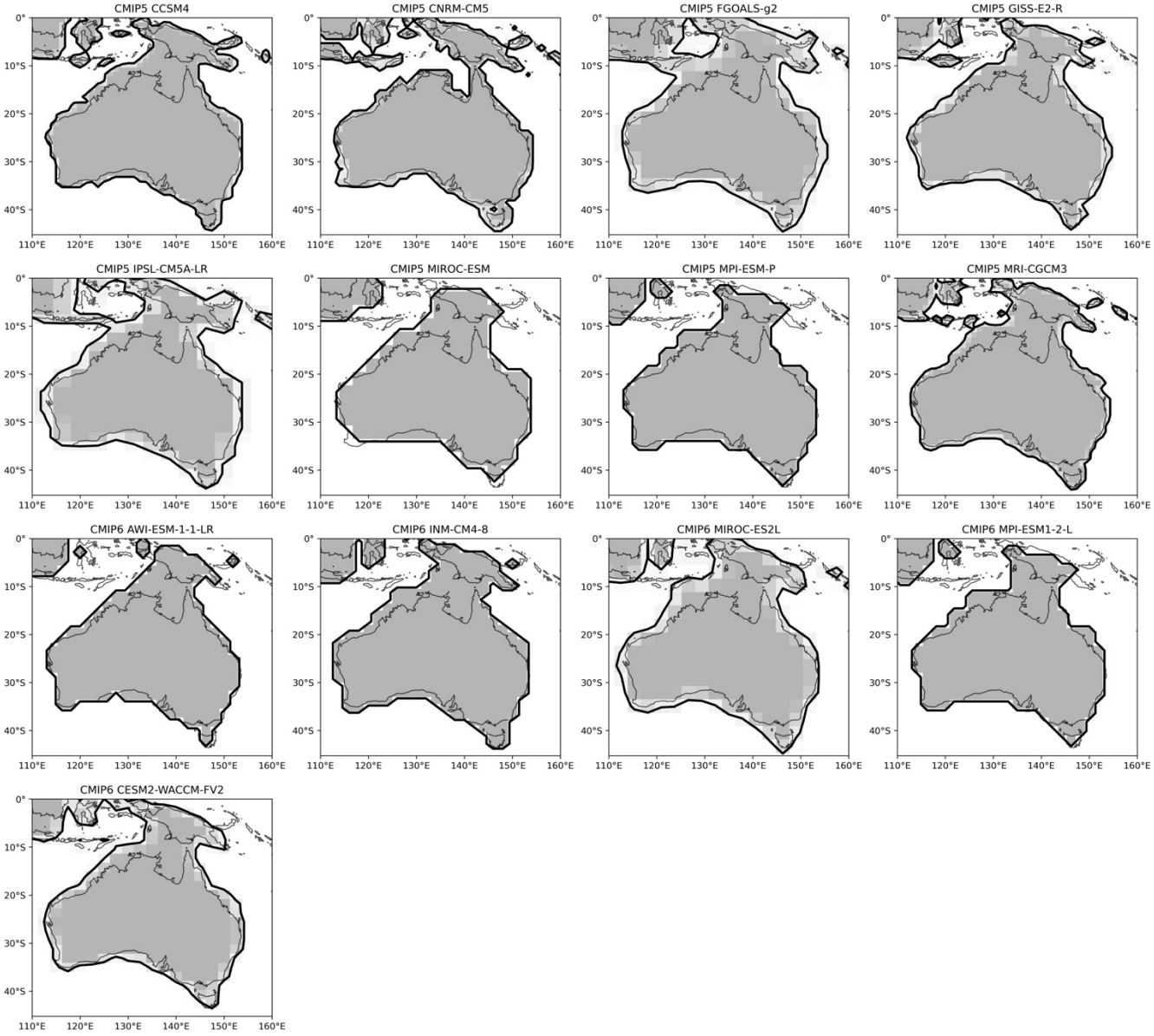

Figure S1: LGM land masks configured in individual CMIP5 and CMIP6 models, plotted over modern coastlines. The thick black lines denote the coastlines in LGM prescribed in each model, and the thin black lines denoted the coastlines in piControl. 30% land area fraction was selected for plotting the LGM contours in models.

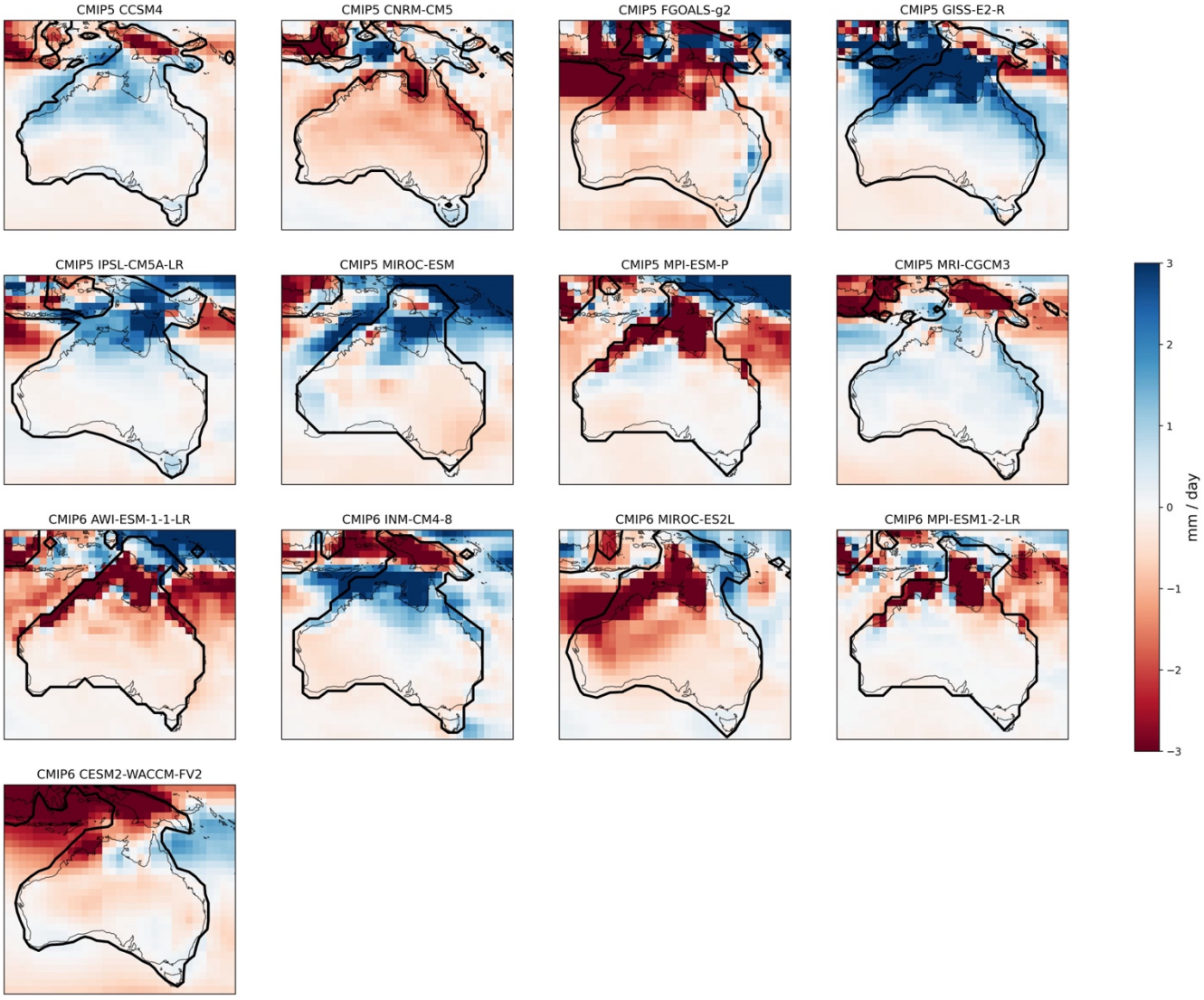

Figure S2: DJF LGM - PI mean precipitation anomaly (mm/day) over the Australian domain simulated by individual CMIP5 and CMIP6 models. The thick black lines denote the coastlines in LGM prescribed in each model, and the thin black lines denoted the coastlines in piControl. 30% land area fraction was selected for plotting the LGM contours in models.

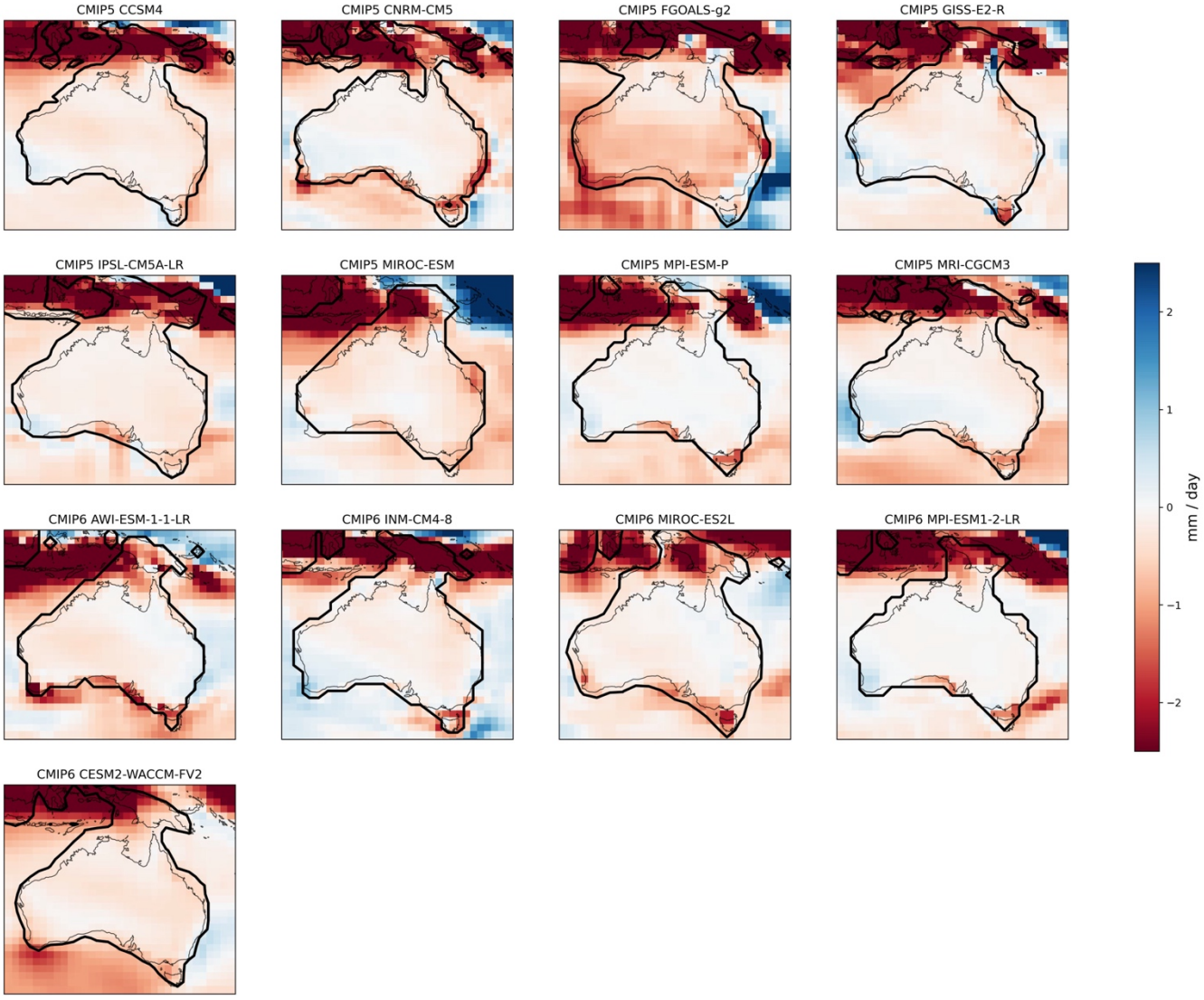

Figure S3: JJA LGM - PI mean precipitation anomaly (mm/day) over Australia simulated by individual CMIP5 and CMIP6 models. The thick black lines denote the coastlines in LGM prescribed in each model, and the thin black lines denoted the coastlines in piControl. 30% land area fraction was selected for plotting the LGM contours in models.

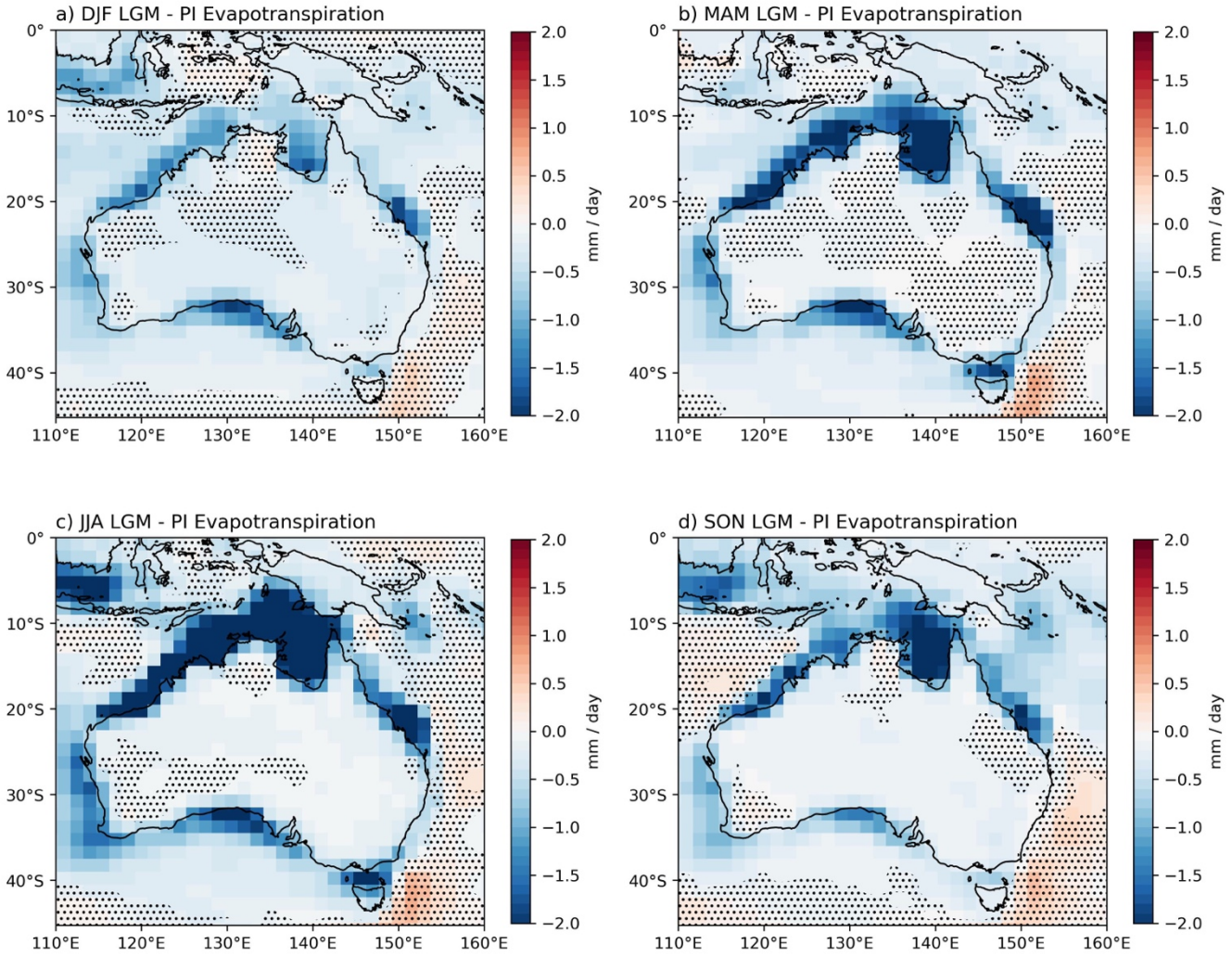

Figure S4: MMM seasonal anomalies for LGM - PI evapotranspiration (E, mm/day) simulated by the ensemble of CMIP5 and CMIP6 models for (a) DJF, (b) MAM, (c) JJA and (d) SON seasons. Stippling indicates areas where less than 70% of ensemble members agree on the sign of the anomaly.

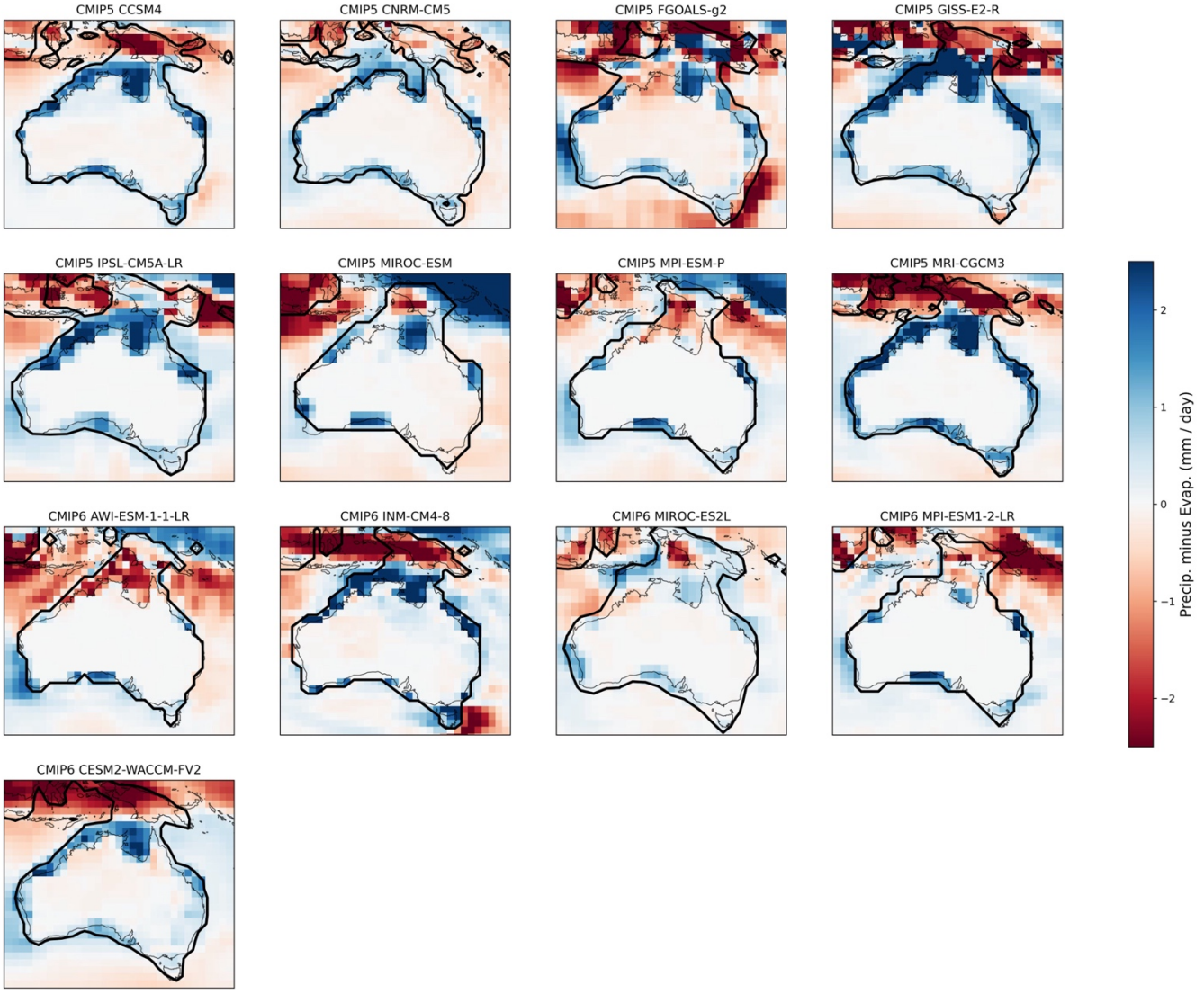

Figure S5: Annual LGM - PI mean precipitation – evapotranspiration anomaly (P-E, mm/day) simulated by individual CMIP5 and CMIP6 models over the Australian domains. The thick black lines denote the coastlines in LGM prescribed in each model, and the thin black lines denoted the coastlines in piControl. 30% land area fraction was selected for plotting the LGM contours in models.

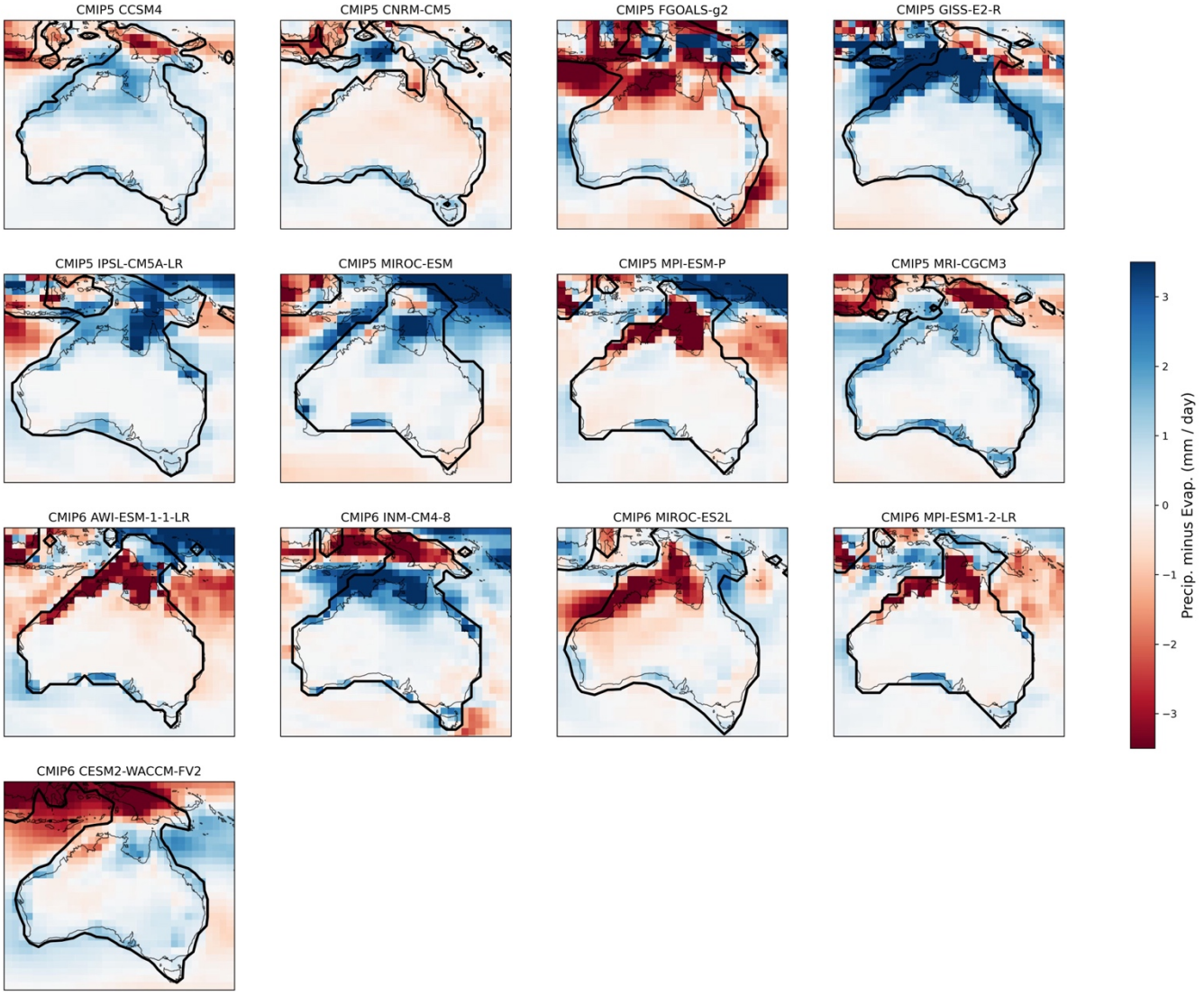

Figure S6: DJF LGM - PI mean precipitation - evapotranspiration anomaly (P-E, mm/day) over Australia simulated by individual CMIP5 and CMIP6 models. The thick black lines denote the coastlines in LGM prescribed in each model, and the thin black lines denoted the coastlines in piControl. 30% land area fraction was selected for plotting the LGM contours in models.

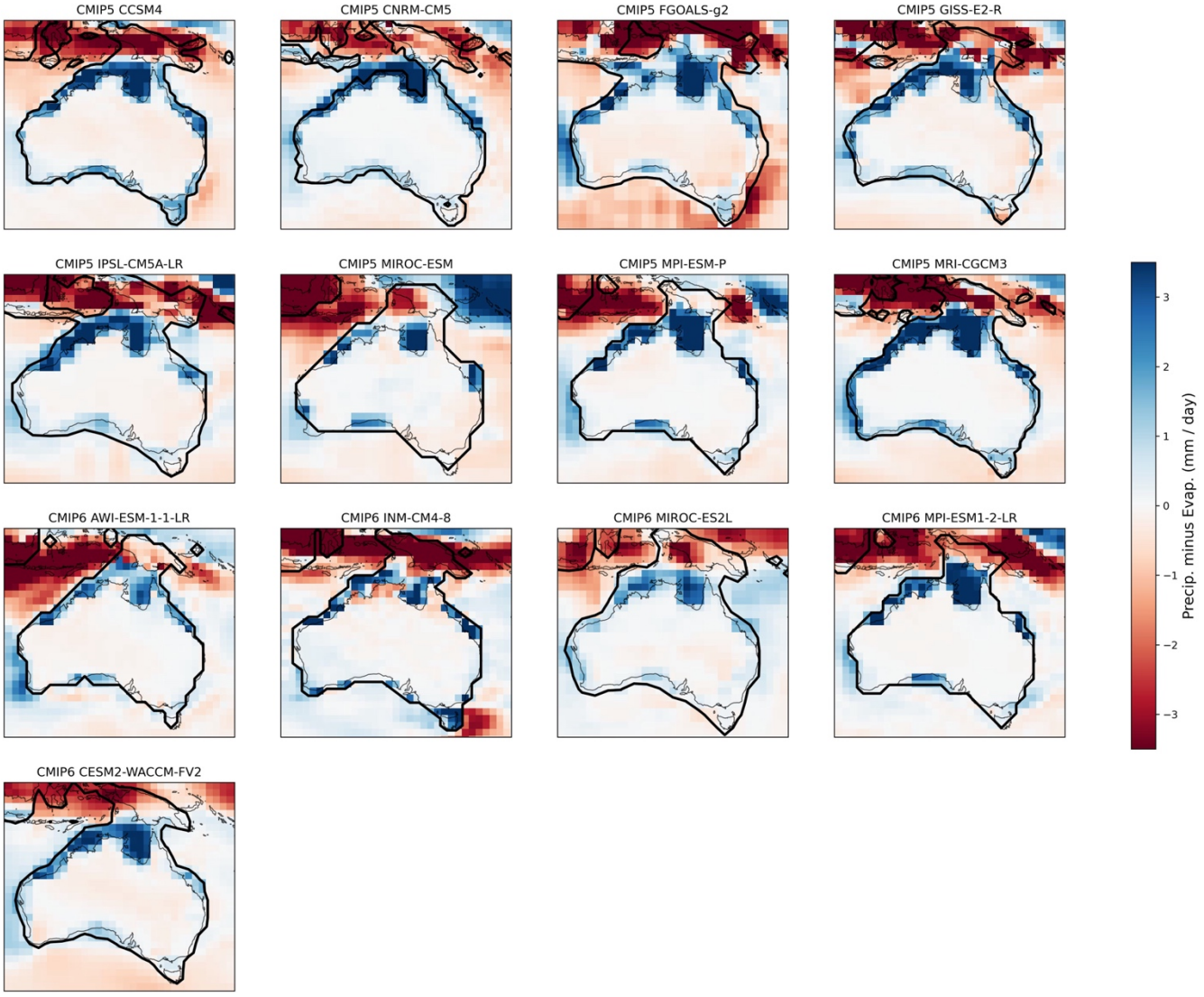

Figure S7: JJA LGM - PI mean precipitation - evapotranspiration anomaly (P-E, mm/day) over Australia simulated by individual CMIP5 and CMIP6 models. The thick black lines denote the coastlines in LGM prescribed in each model, and the thin black lines denoted the coastlines in piControl. 30% land area fraction was selected for plotting the LGM contours in models.

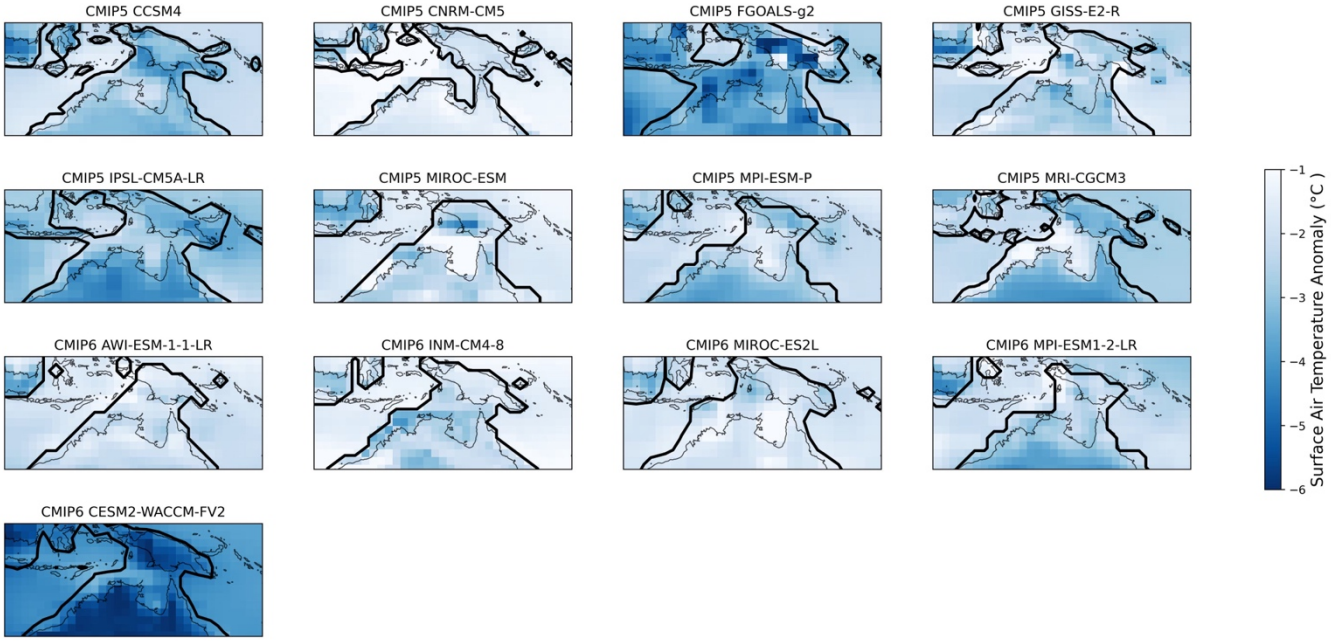

Figure S8: Annual LGM - PI mean surface temperature anomaly (°C) over the Northern Australian domain simulated by individual CMIP5 and CMIP6 models. The thick black lines denote the coastlines in LGM prescribed in each model, and the thin black lines denoted the coastlines in piControl. 30% land area fraction was selected for plotting the LGM contours in models.

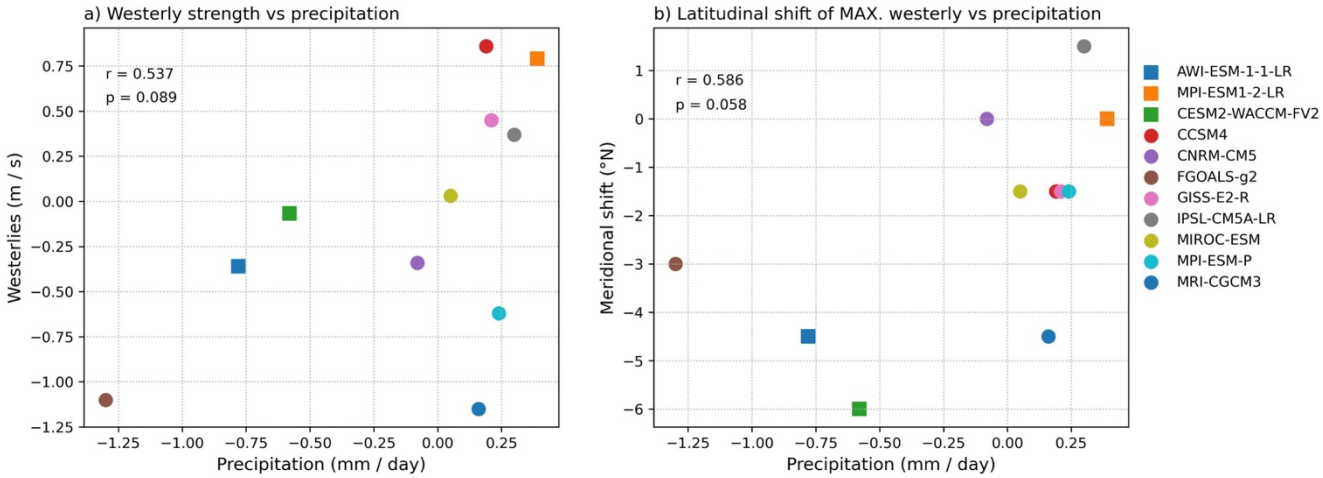

Figure S9: Relationship between JJA LGM - PI anomalies for (a) the strengths of the 850 hPa westerlies over 30ºS to 35ºS Southern Australia domain; (b) latitudinal shifts in the maximum westerly wind and precipitation averages over smaller south-west Australia domain (30ºS-35ºS, 115ºE-120ºE) simulated by CMIP5 and CMIP6 models (excluding CMIP6 INM-CM4-8 model). MIROC-ES2L model is also excluded due to complex identification of the latitudes of maximum westerles in two periods.