Supplementary material for: An ensemble of AMIP simulations with prescribed land surface temperatures

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This supplementary information contains three figures:

(1) The change in surface air temperature, precipitation and mean sea level pressure for each of the perturbed (SST+4K, 4xCO_2, 4xCO_2rad and solar+3.3%) AMIP free land simulations relative to the AMIP free land control run (Fig. S1) as a reference to show the climatic changes associated with each forcing.

(2) The change in surface air temperature, precipitation and mean sea level pressure for each of the perturbed (SST+4K, 4xCO_2, 4xCO_2rad and solar+3.3%) AMIP prescribed land simulations relative to the AMIP prescribed land control run (Fig. S2) as a reference to show the climatic changes in the prescribed land experiments are comparable to those of their free land counterparts.

(3) The change in surface latent heat flux over the Amazon for each free land simulation relative to its prescribed land counterpart to show the increases associated with the higher precipitation in the prescribed land simulations (Fig. S3).

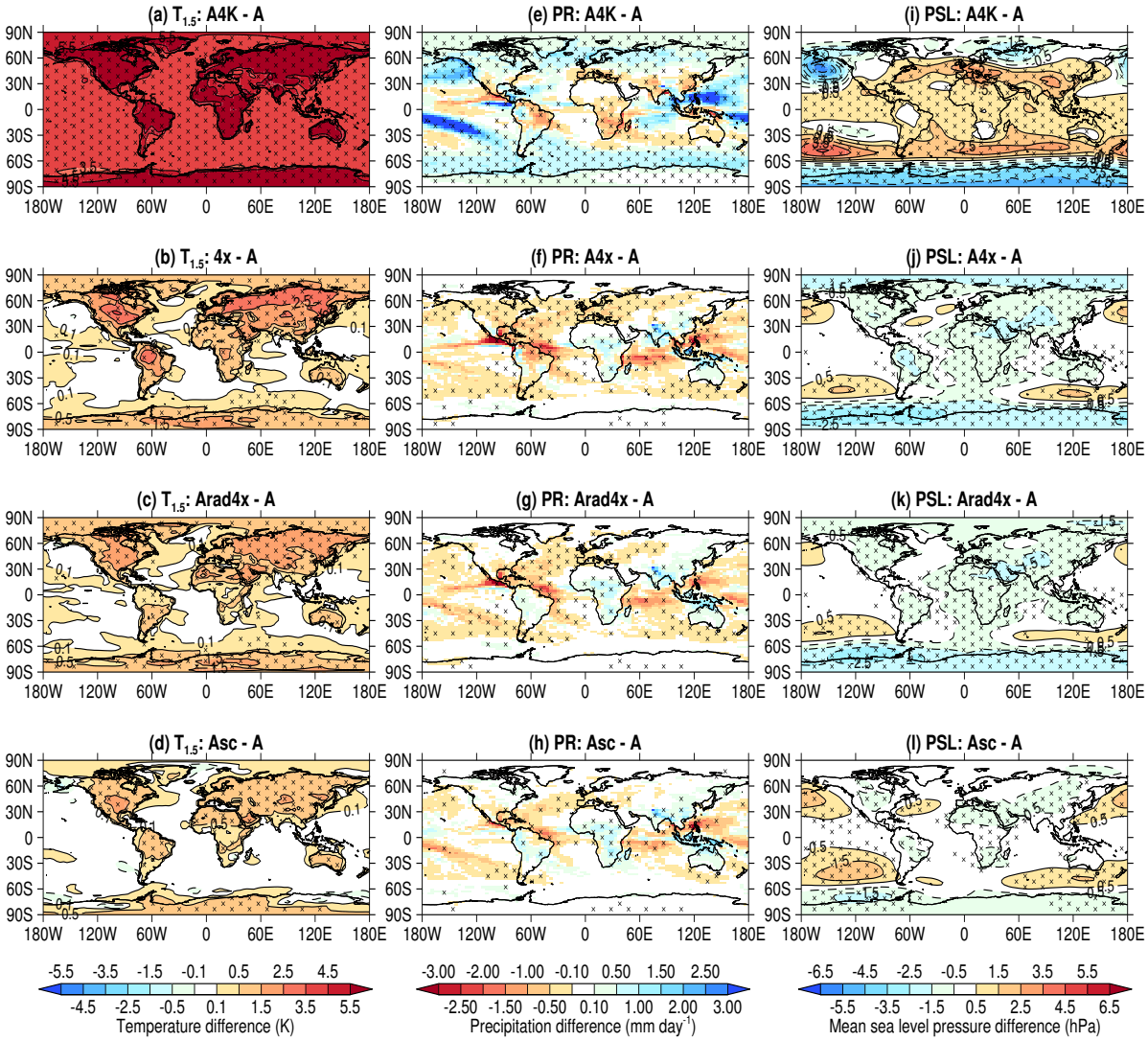

Figure S1. Differences in surface air temperature (TAS, K) for (a) A4K-A, (b) A4x-A, (c) Arad4x-A, (d) Asc-A. Equivalent differences between like-for-like simulations are given in (e)–(h) and (i)–(l) for pecipitation (PR, mm day^{-1}) and mean sea level pressure (PSL, hPa), respectively. The points labelled with an "x" indicate the differences are statistically significant using the Student's t-test ($p \leq 0.05$).

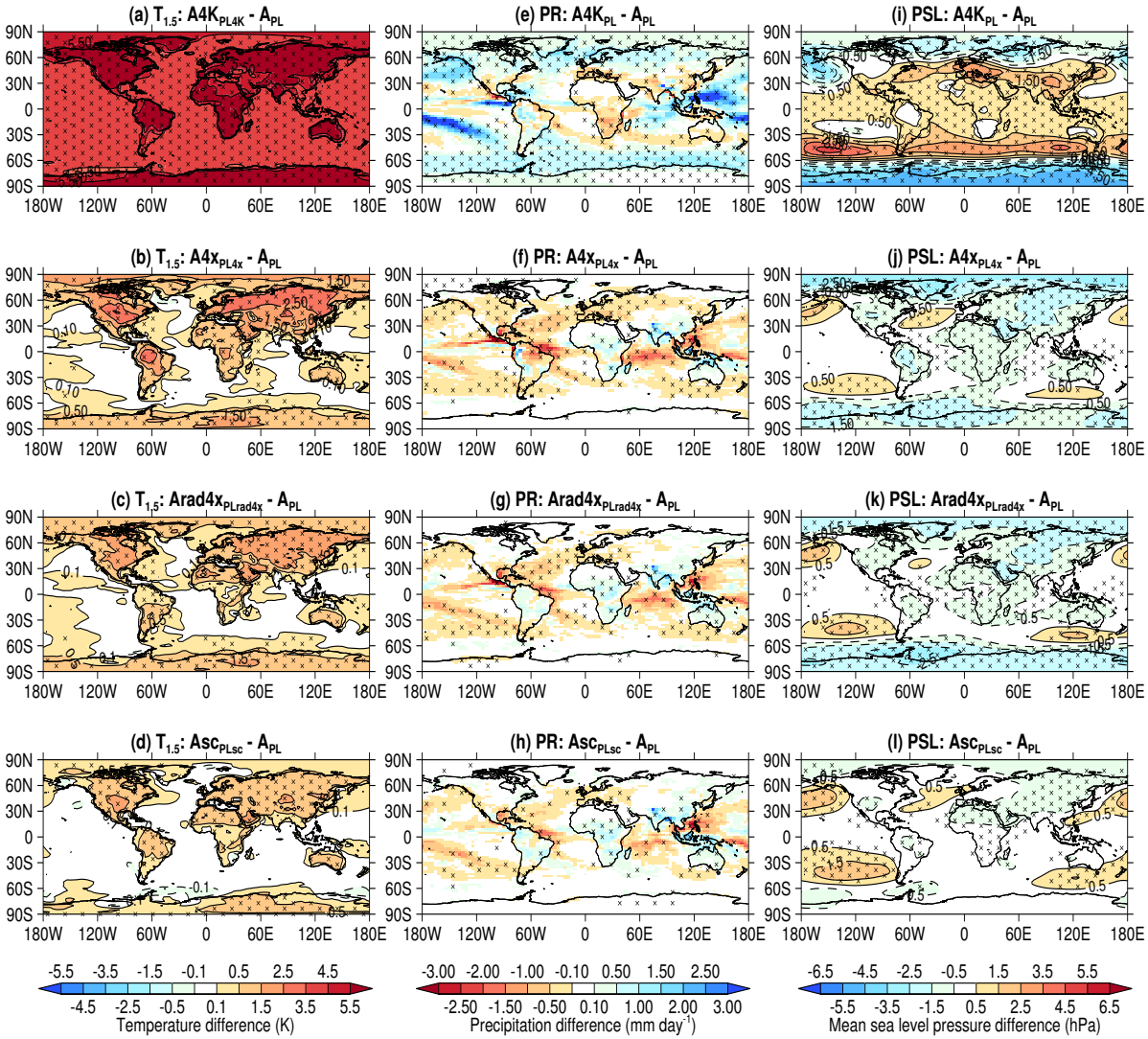

Figure S2. Differences in surface air temperature (TAS, K) for (a) A4K$_{PL4K}$-A$_{PL}$, (b) A4x$_{PL4x}$-A$_{PL}$, (c) Arad4x$_{PLrad4x}$-A$_{PL}$, (d) Asc$_{PLsc}$-A$_{PL}$. Equivalent differences between like-for-like simulations are given in (e)–(h) and (i)–(l) for pecipitation (PR, mm day^{-1}) and mean sea level pressure (PSL, hPa), respectively. The points labelled with an "x" indicate the differences are statistically significant using the Student's t-test ($p \leq 0.05$).

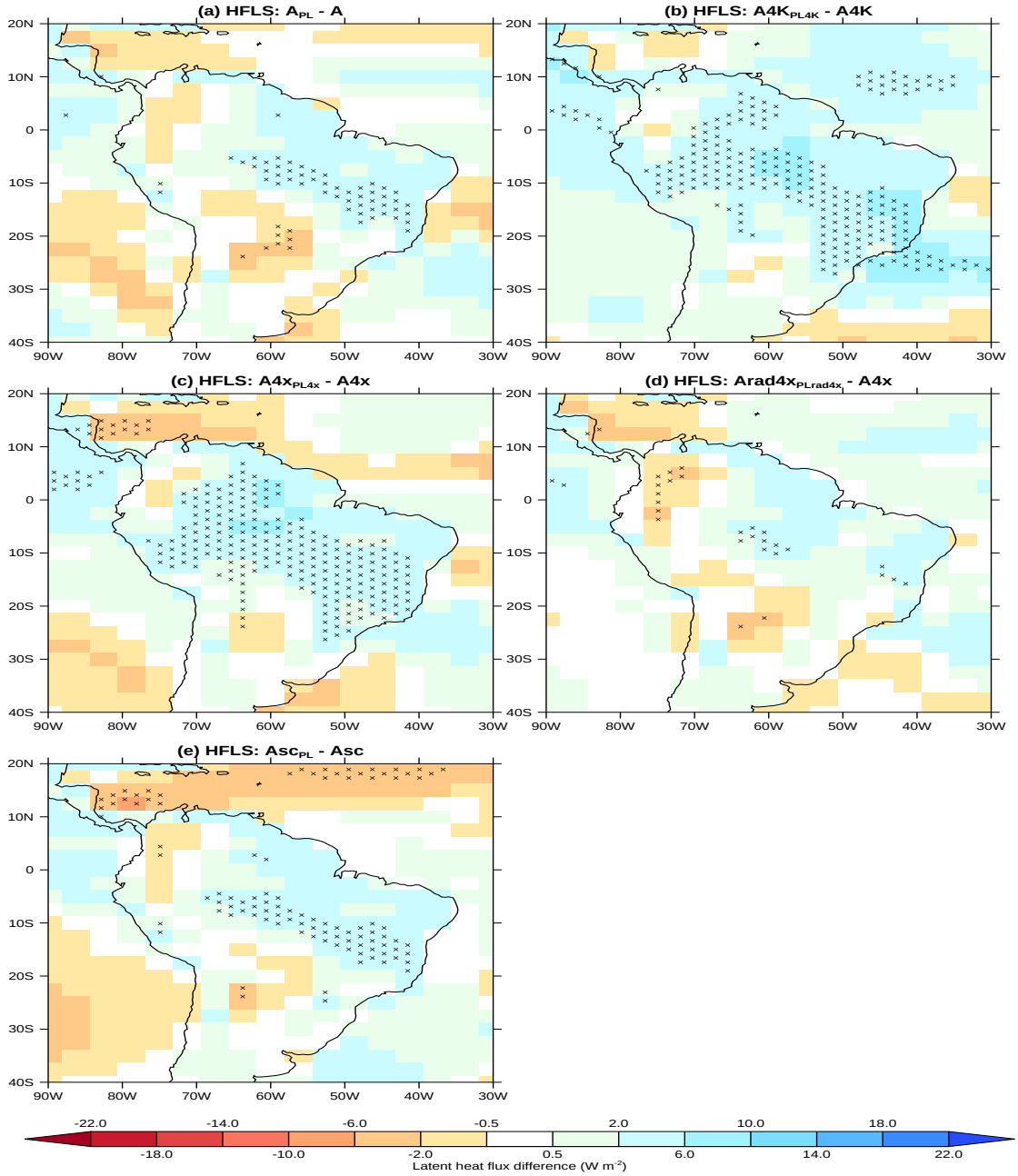

Figure S3. The difference in surface latent heat flux (W m^{-2}) for (a) A$_{PL}$ - A, (b) A4K$_{PL4K}$ - A4K, (c) A4x$_{PL4x}$ - A4x, (d) Arad4x$_{PLrad4x}$ - Arad4x and (e) Asc$_{PLsc}$ - Asc. The points labelled with an "x" indicate the differences are statistically significant using the Student's t-test ($p \leq 0.05$).