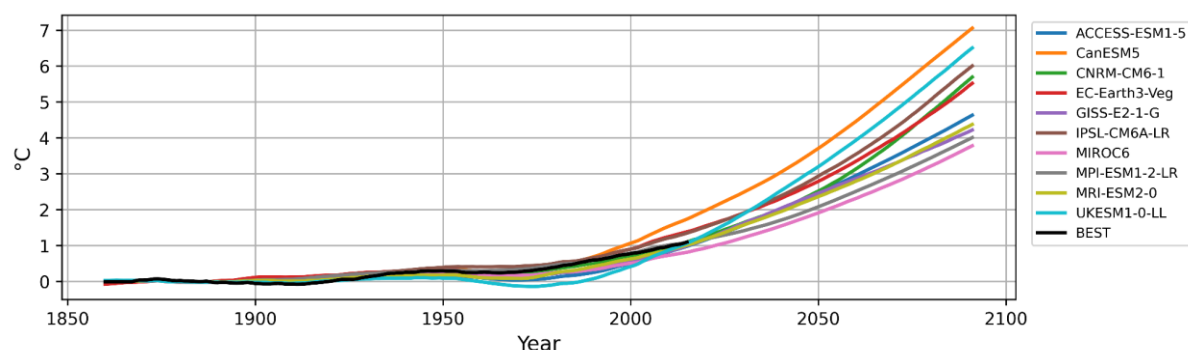
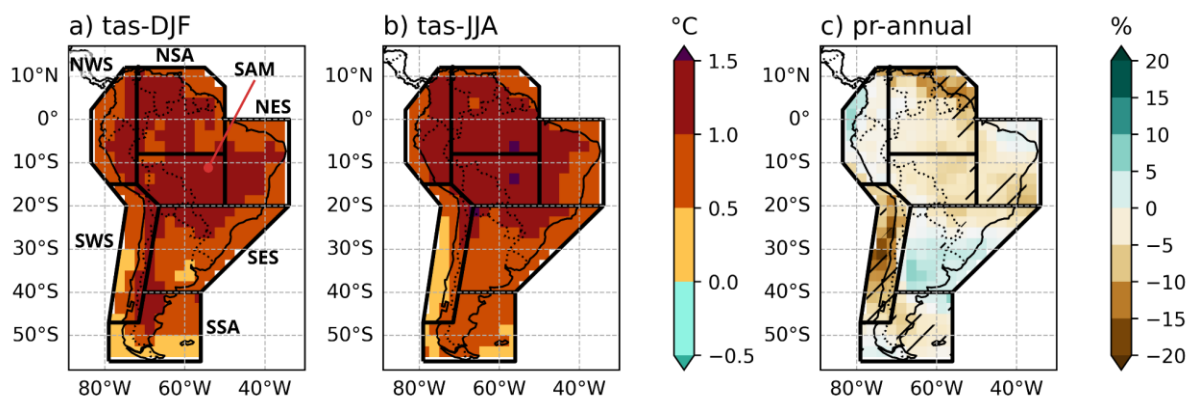


Supplementary material for

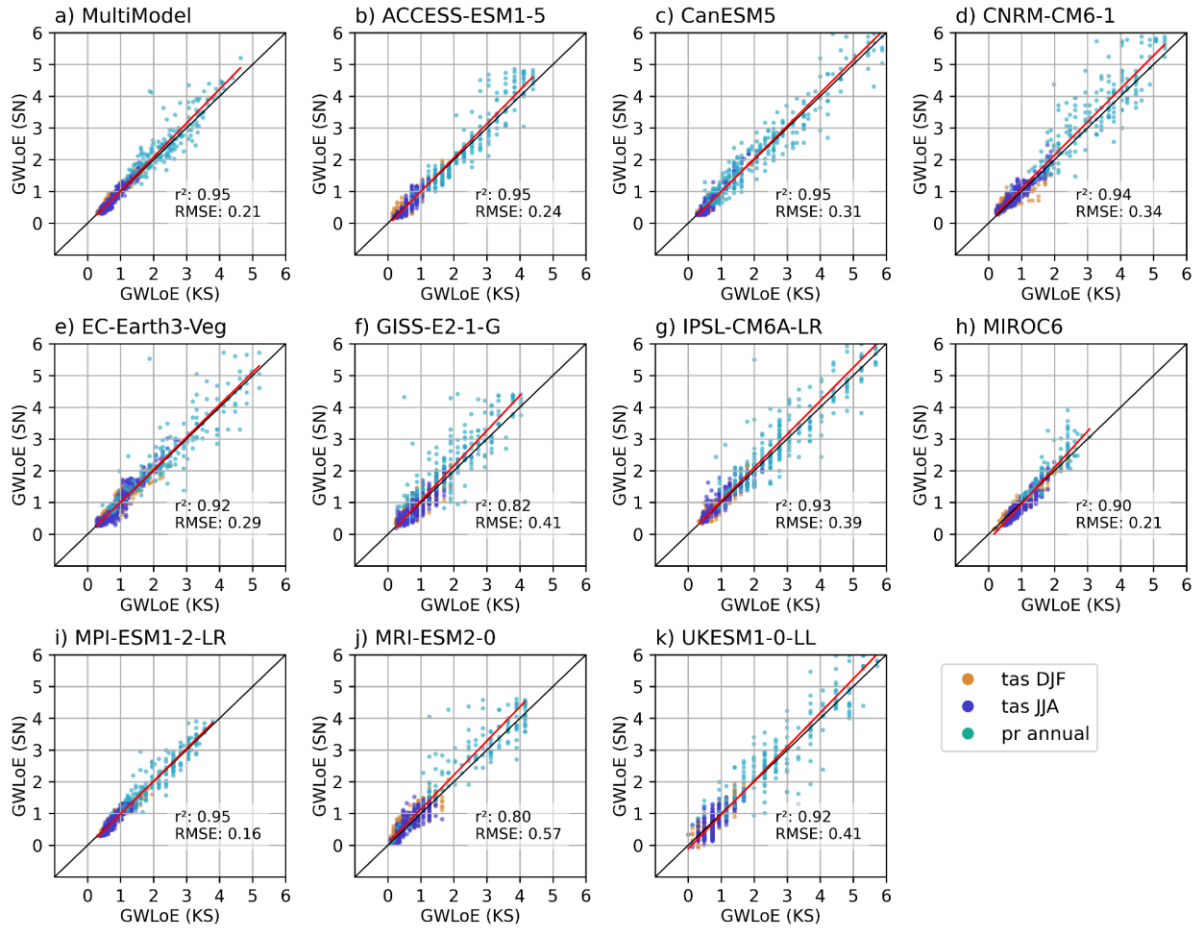
Emergence of climate change temperature and precipitation signals over South America



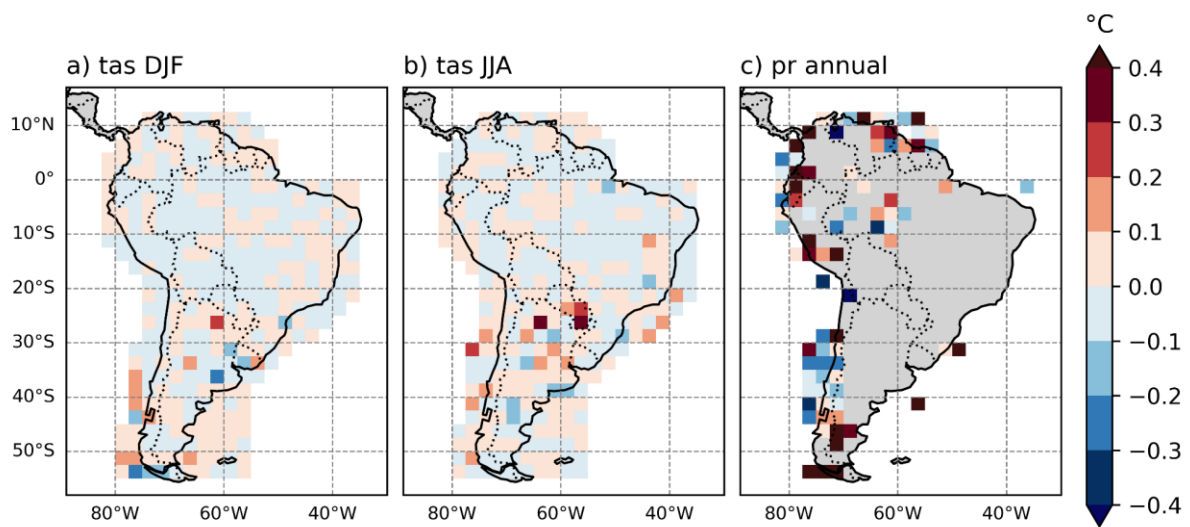
Supplementary Fig. 1 Global mean land-sea temperature anomaly (°C) with respect to 1850-1900 for each model and BEST, smoothed with a 20-year window rolling mean. These time series were used to convert ToE to GWLoE



Supplementary Fig. 2 Multi-model median ensemble of climate change signals for (a) tas-DJF, (b) tas-JJA, and (c) pr-annual, evaluated at global warming level of 1.0 °C. For pr-annual, hatched areas indicate regions where all models agree on the sign of change



Supplementary Fig. 3 Scatter plots of the multimember and multimodel median GWLoE (°C) in each land grid point estimated using the Kolmogorov-Smirnov method versus the Signal-to-Noise method, for tas-DJF (orange circle), tas-JJA (blue circle), and pr-annual (magenta circle). The red line represents the linear fit between the ToE estimates from both methods. The coefficient of determination and the root of the mean square error (RMSE) are indicated for each regression



Supplementary Fig. 4 Difference in multi-model median GWLoE calculated with the SSP5-8.5 and the SSP2-4.5 for (a) tas-DJF, (b) tas-JJA and (c) pr-annual.