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Supplement of

Fast responses on pre-industrial climate from present-day aerosols in a CMIP6 multi-model study

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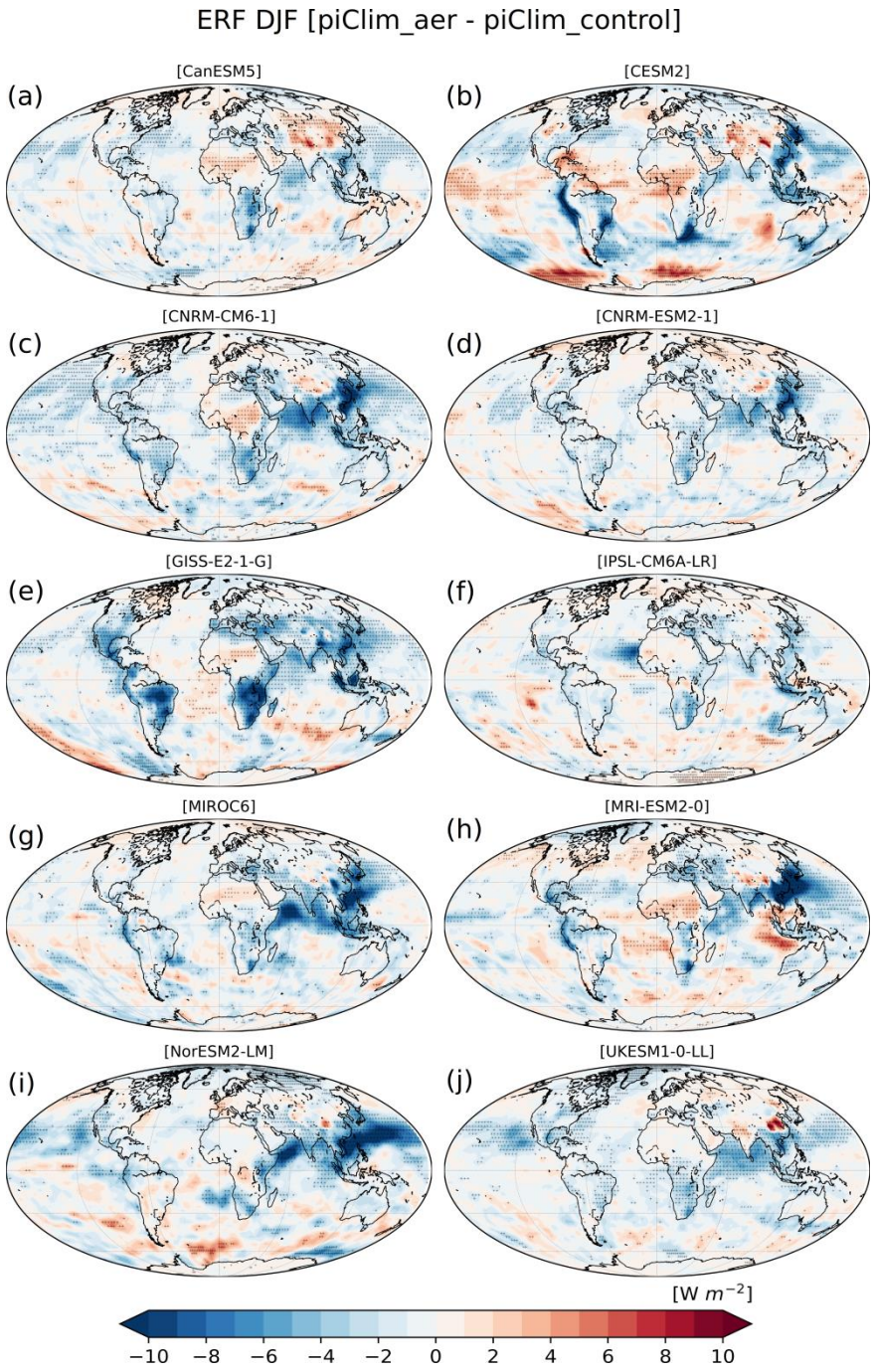

Figure S1. DJF differences between piClim-aer and piClim-control in the net radiative flux (W m^{-2}) at TOA including both SW and LW (aerosol ERF) for each one of the models used for the ensemble. The dot shading indicates areas in which the differences are statistically significant at the 95% confidence level.

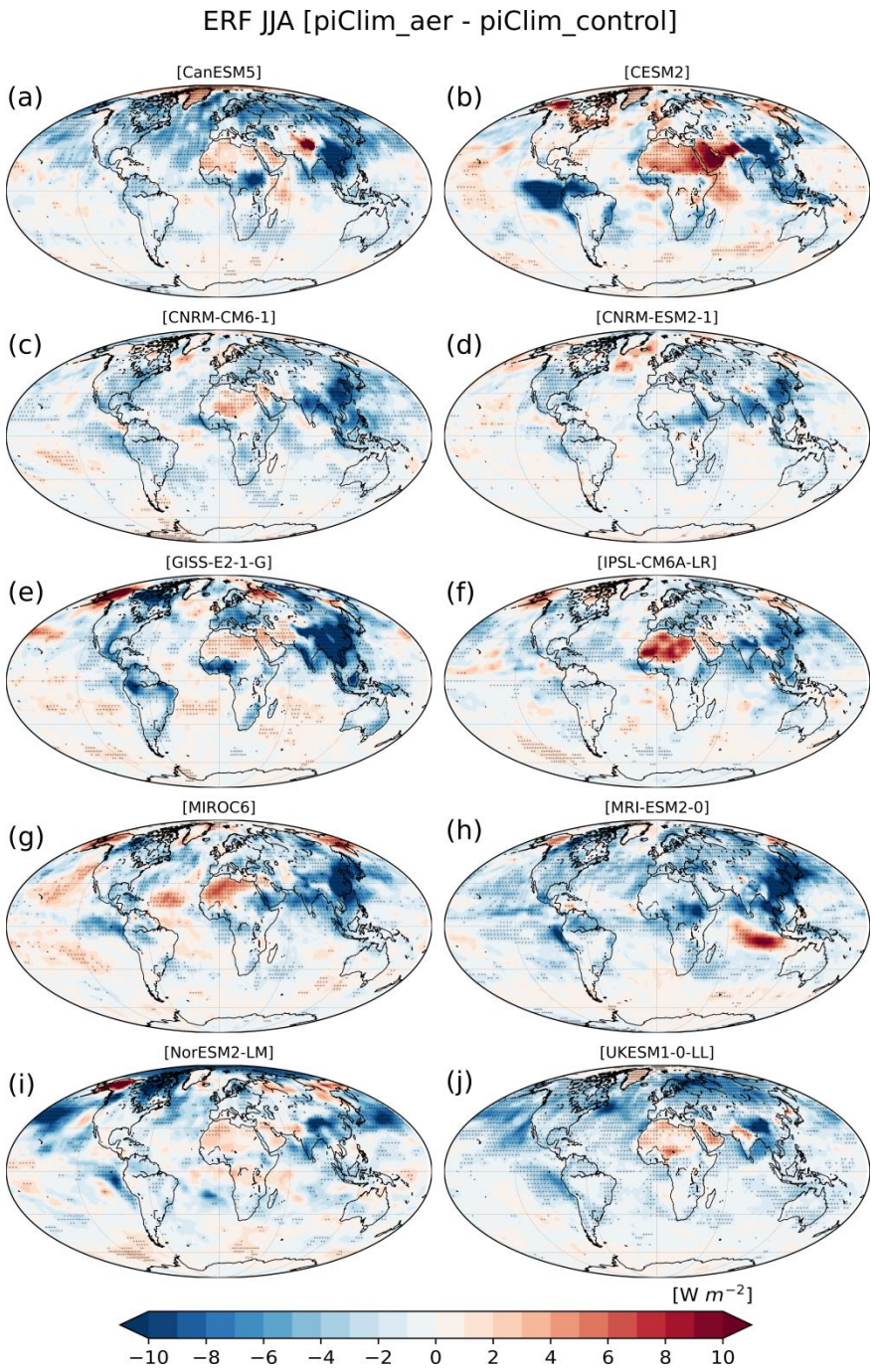

Figure S2. JJA differences between piClim-aer and piClim-control in the net radiative flux (W m^{-2}) at TOA including both SW and LW (aerosol ERF) for each one of the models used for the ensemble. The dot shading indicates areas in which the differences are statistically significant at the 95% confidence level.

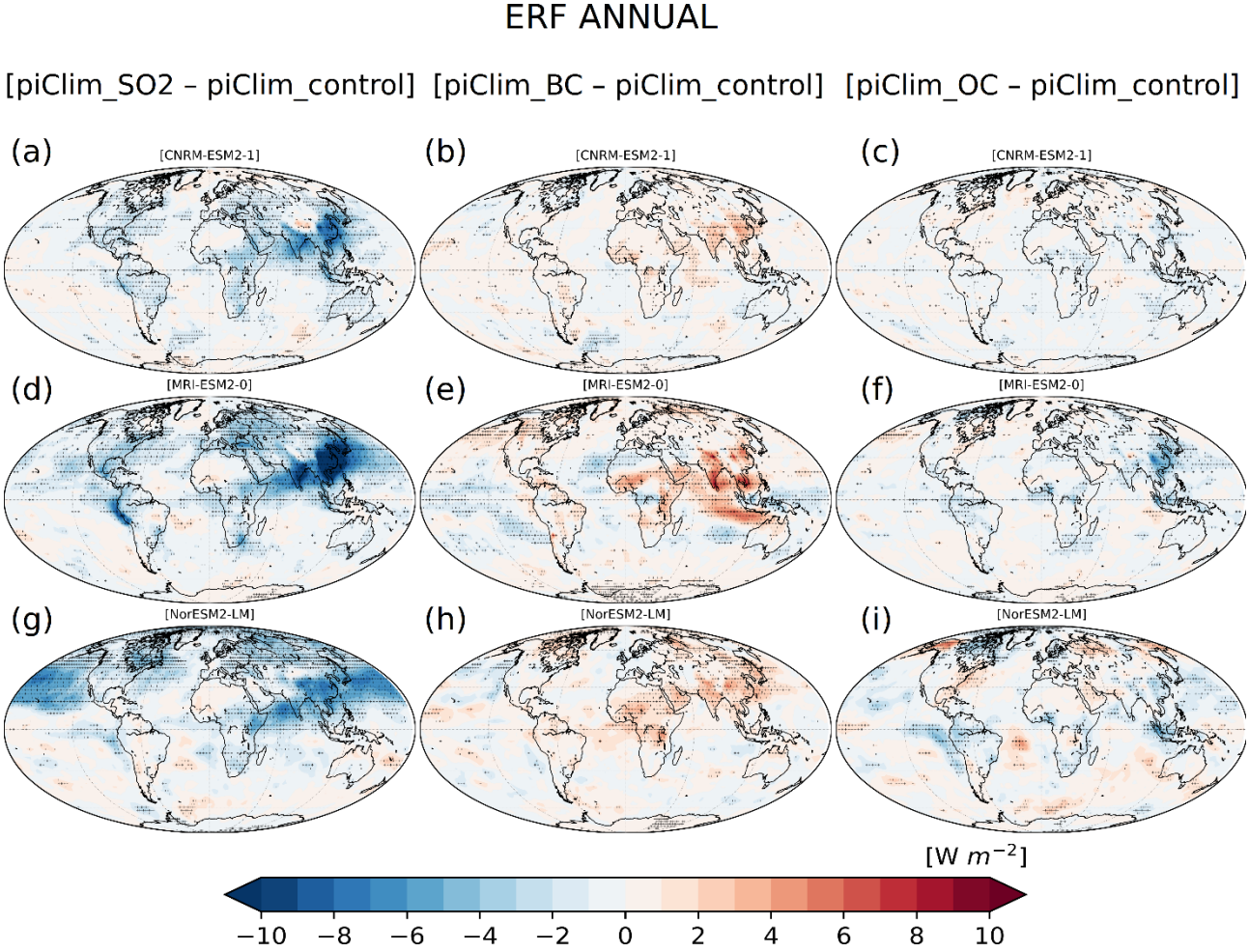

Figure S3. Annual differences in the net radiative flux (W m^{-2}) at TOA including both SW and LW (ERF) between i) piClim-SO_2 and piClim-control (first column), ii) piClim-BC and piClim-control (second column) and iii) piClim-OC and piClim-control (thrird column) for CNRM-ESM2-1, MRI-ESM2-0 and NorESM2-LM. The dot shading indicates areas in which the differences are statistically significant at the 95% confidence level.

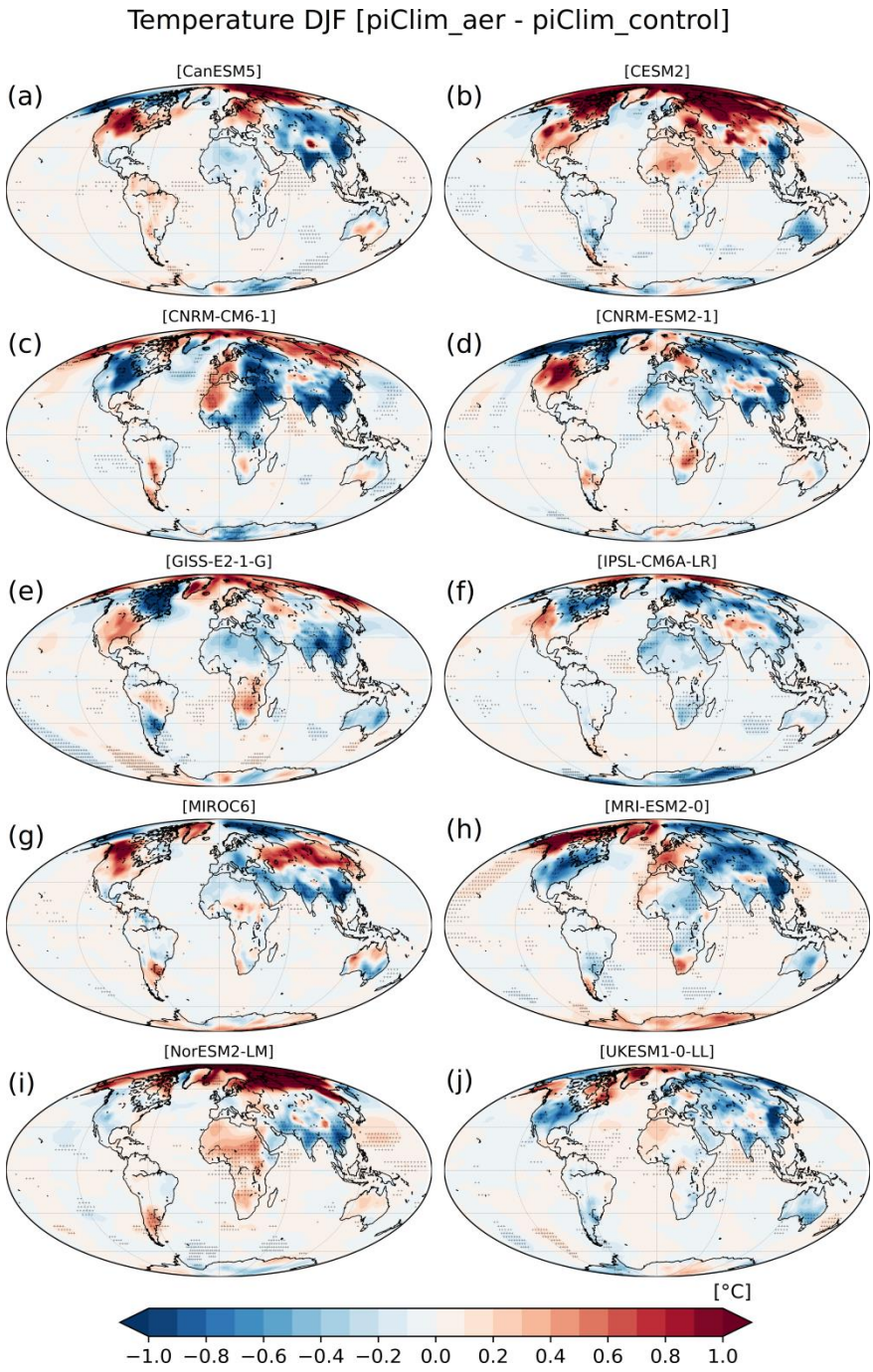

Figure S4. DJF differences between piClim-aer and piClim-control in near surface temperature (ºC) for each one of the models used for the ensemble. The dot shading indicates areas in which the differences are statistically significant at the 95% confidence level.

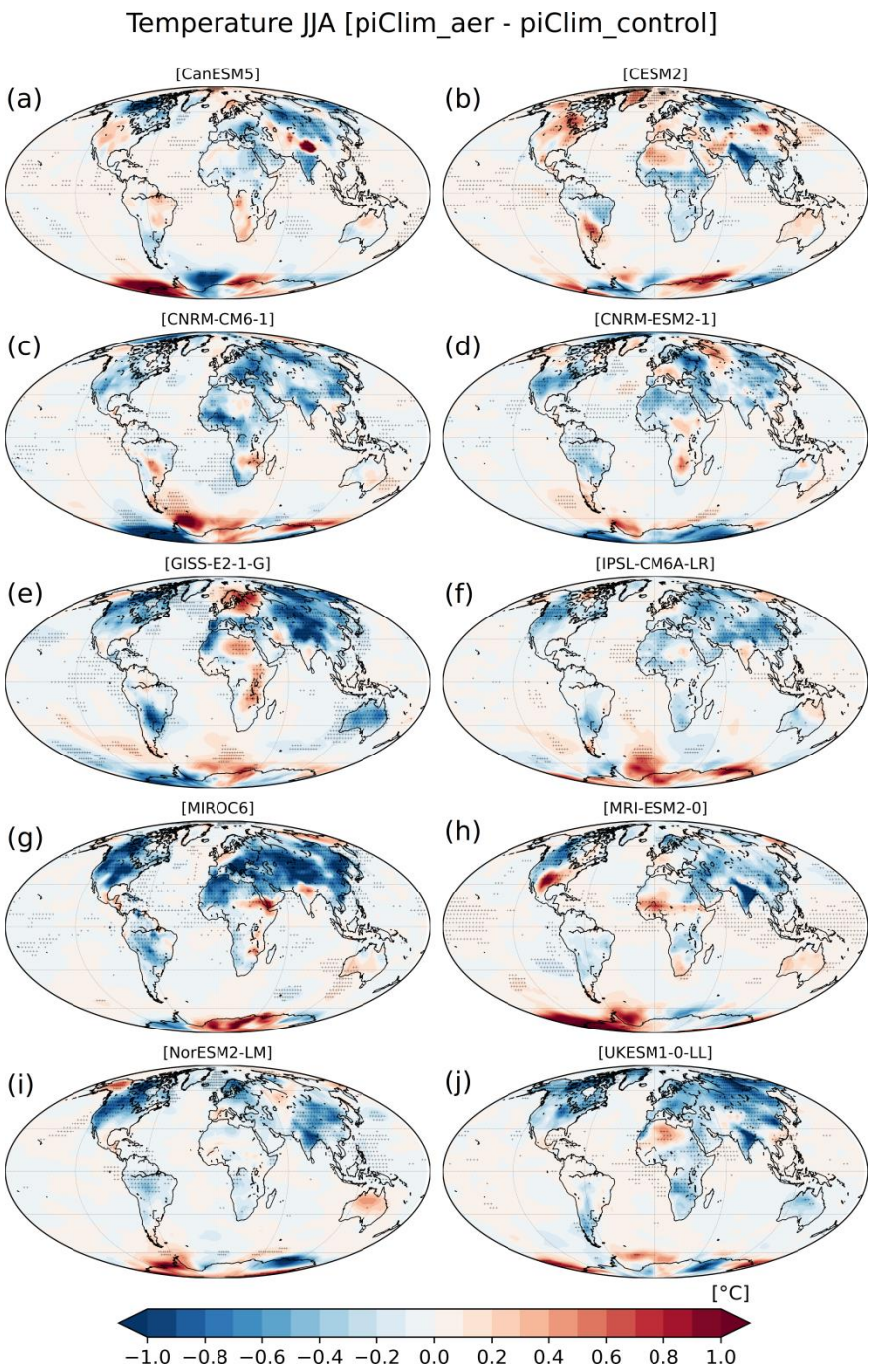

Figure S5. JJA differences between piClim-aer and piClim-control in near surface temperature (°C) for each one of the models used for the ensemble. The dot shading indicates areas in which the differences are statistically significant at the 95% confidence level.

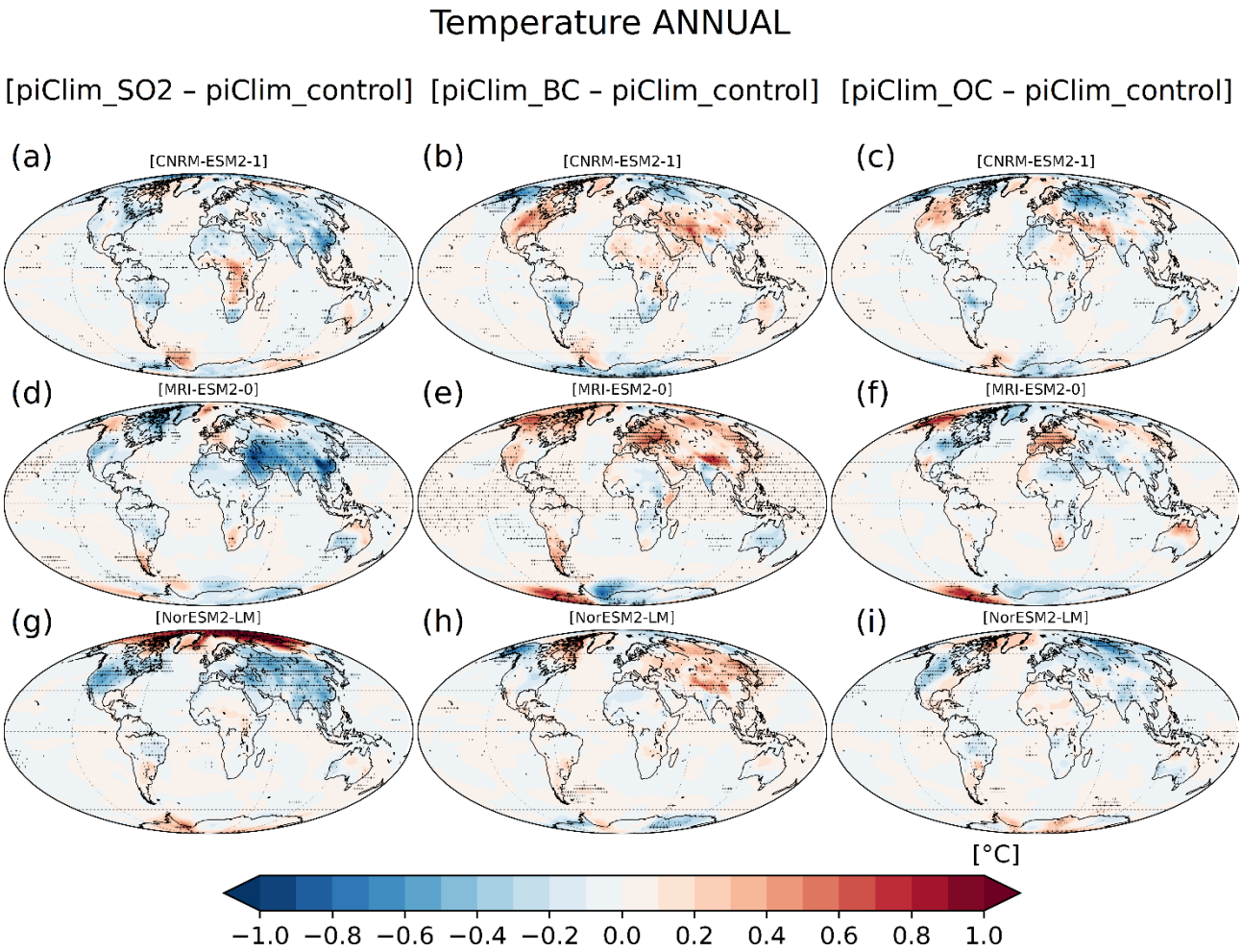

Figure S6. Annual differences in near surface temperature (°C) between i) piClim-SO_2 and piClim-control (first column), ii) piClim-BC and piClim-control (second column) and iii) piClim-OC and piClim-control (thrird column) for CNRM-ESM2-1, MRI-ESM2-0 and NorESM2-LM. The dot shading indicates areas in which the differences are statistically significant at the 95% confidence level.

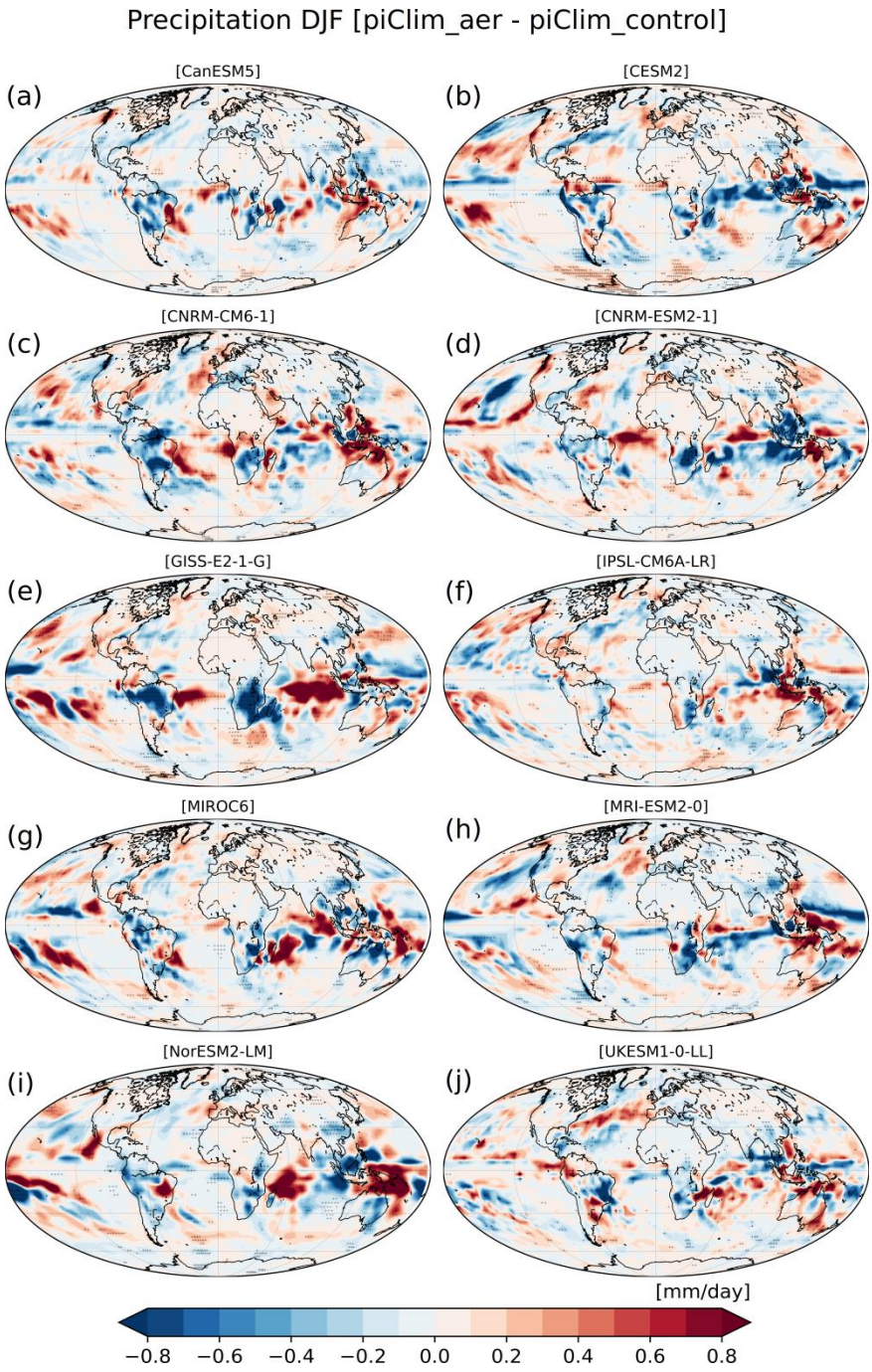

Figure S7. DJF differences between piClim-aer and piClim-control in precipitation (mm/day) for each one of the models used for the ensemble. The dot shading indicates areas in which the differences are statistically significant at the 95% confidence level.

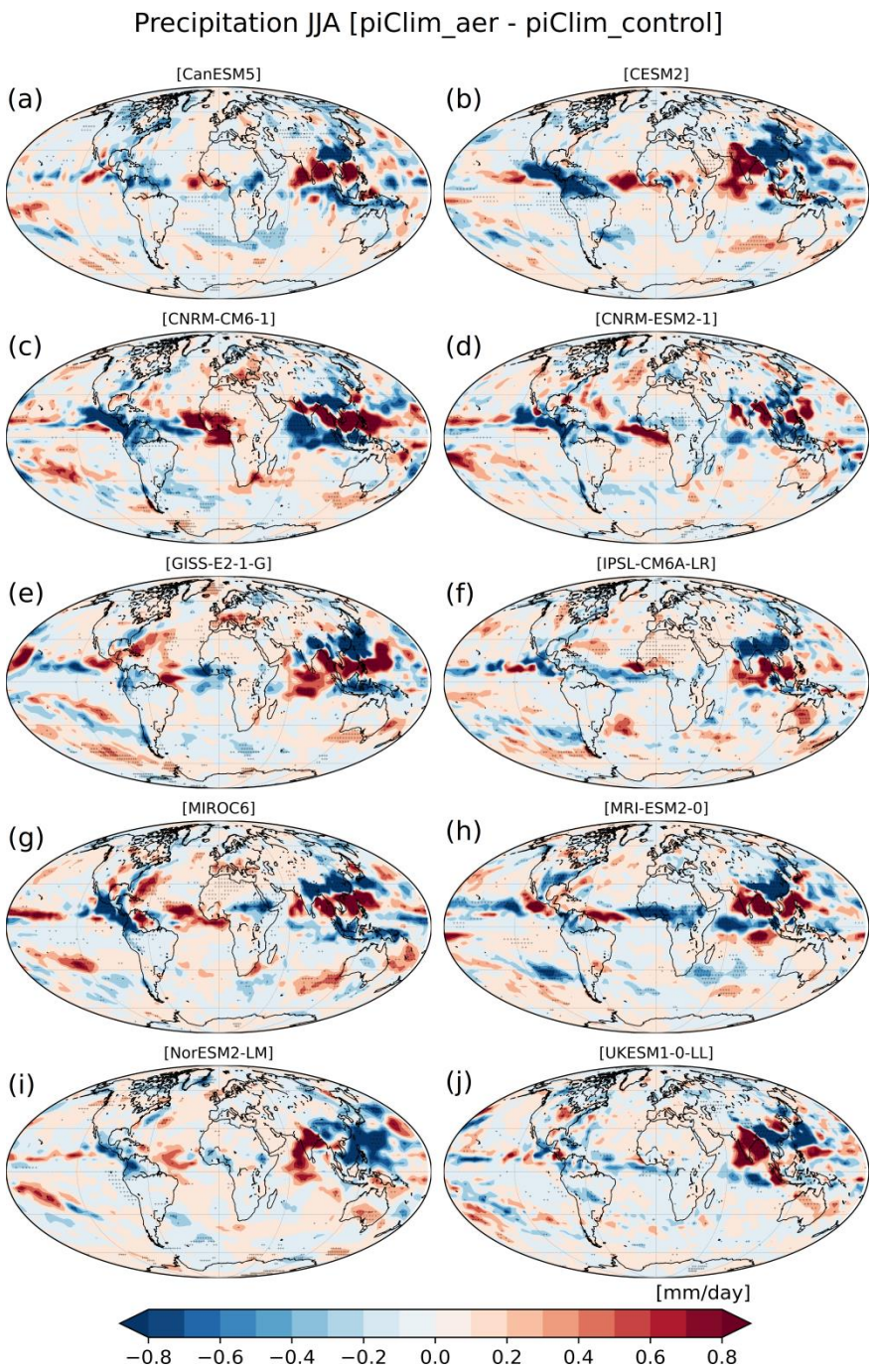

Figure S8. JJA differences between piClim-aer and piClim-control in precipitation (mm/day) for each one of the models used for the ensemble. The dot shading indicates areas in which the differences are statistically significant at the 95% confidence level.

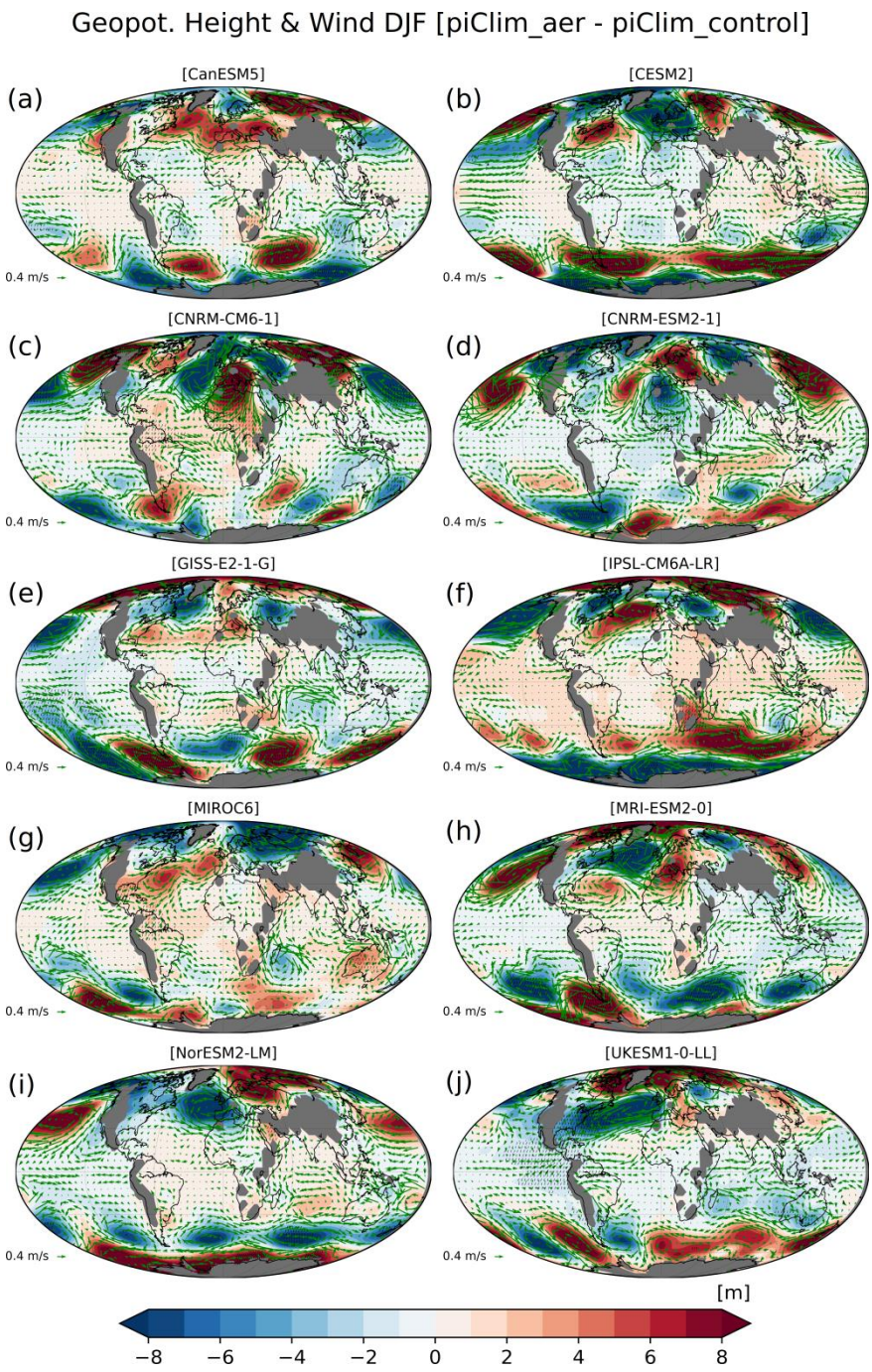

Figure S9. DJF differences between piClim-aer and piClim-control in geopotential height (m) and wind vectors at the 850 hPa pressure level for each one of the models used for the ensemble. The dot shading indicates areas in which the differences are statistically significant at the 95% confidence level. Areas with surface pressure lower than 850 hPa are masked with grey shade.

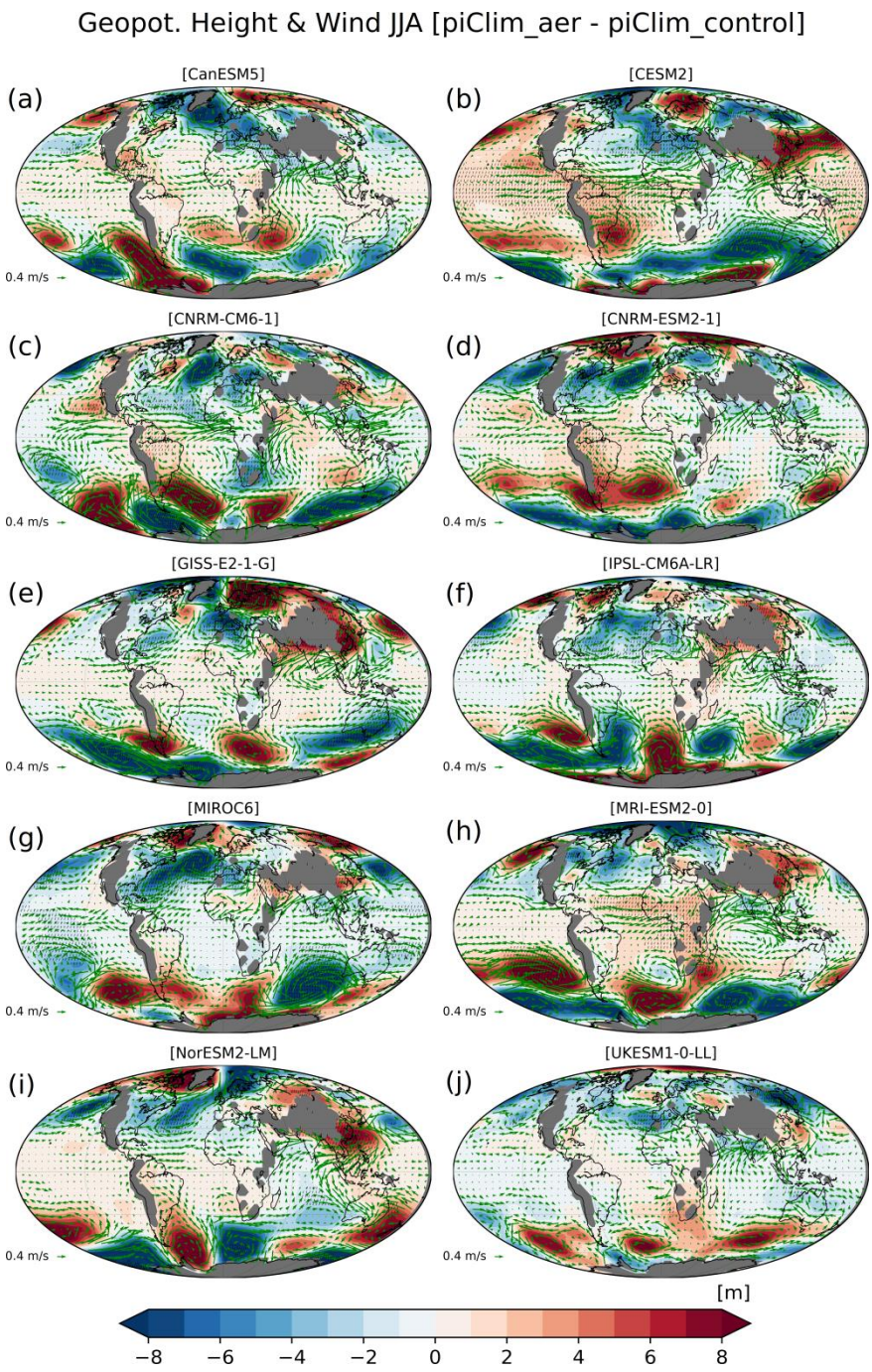

Figure S10. JJA differences between piClim-aer and piClim-control in geopotential height (m) and wind vectors at the 850 hPa pressure level for each one of the models used for the ensemble. The dot shading indicates areas in which the differences are statistically significant at the 95% confidence level. Areas with surface pressure lower than 850 hPa are masked with grey shade.