₁ Supplementary Materials for Past and future response of the

₂ North Atlantic warming hole to anthropogenic forcings

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₄ 1 Figures
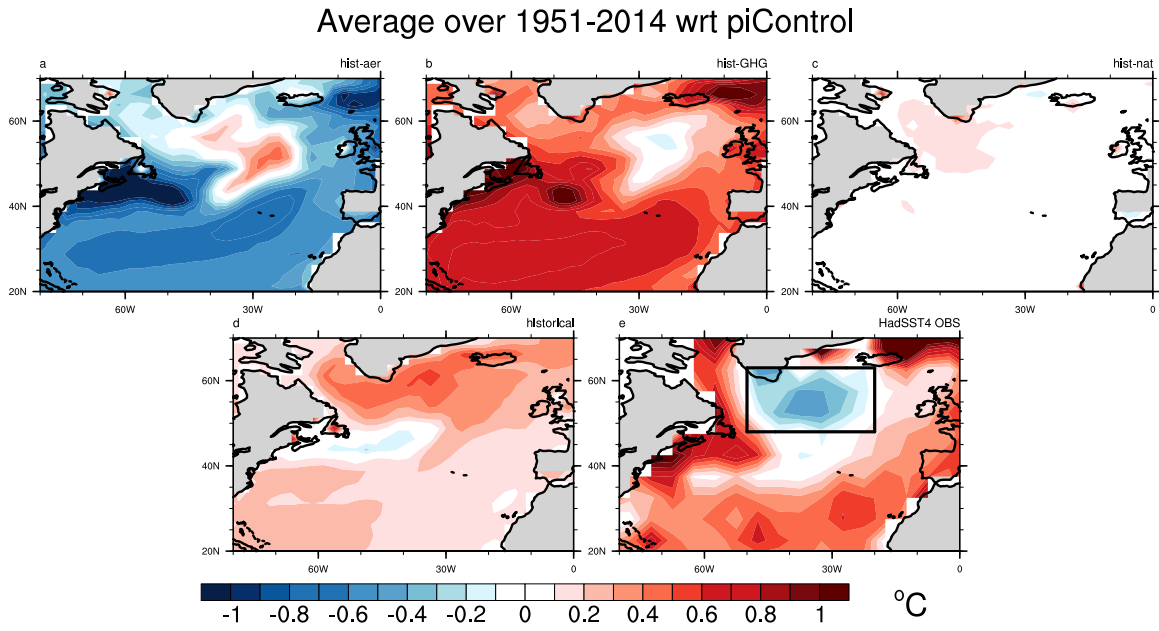
Figure S 1: Same as Fig. 1 but taking the time-mean piControl simulations as a reference.
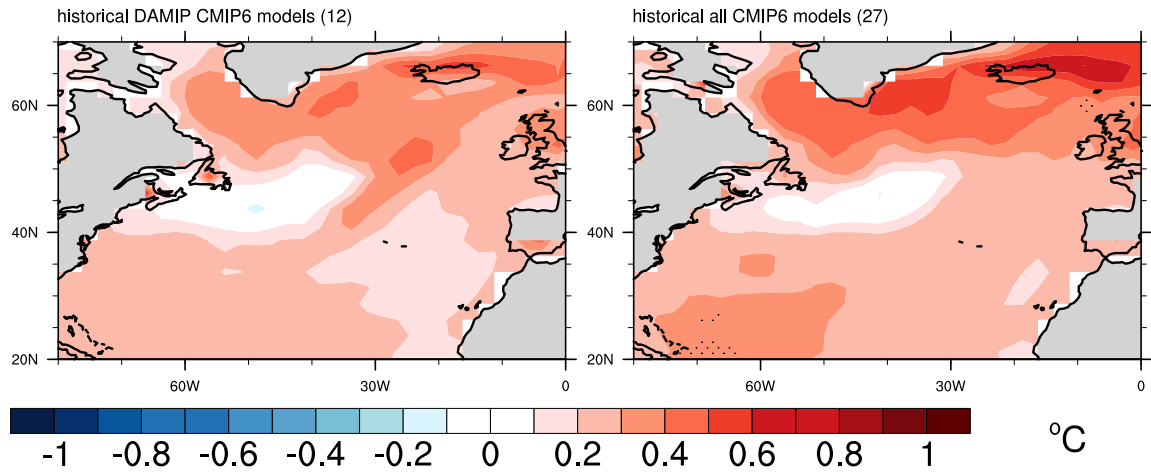
Figure S 2: (left) Same as Fig. 1d. (right) Same as Fig. 1d but with all CMIP6 models. The number of models is in parenthesis.

historical average over 1951-2014 wrt 1870-1900
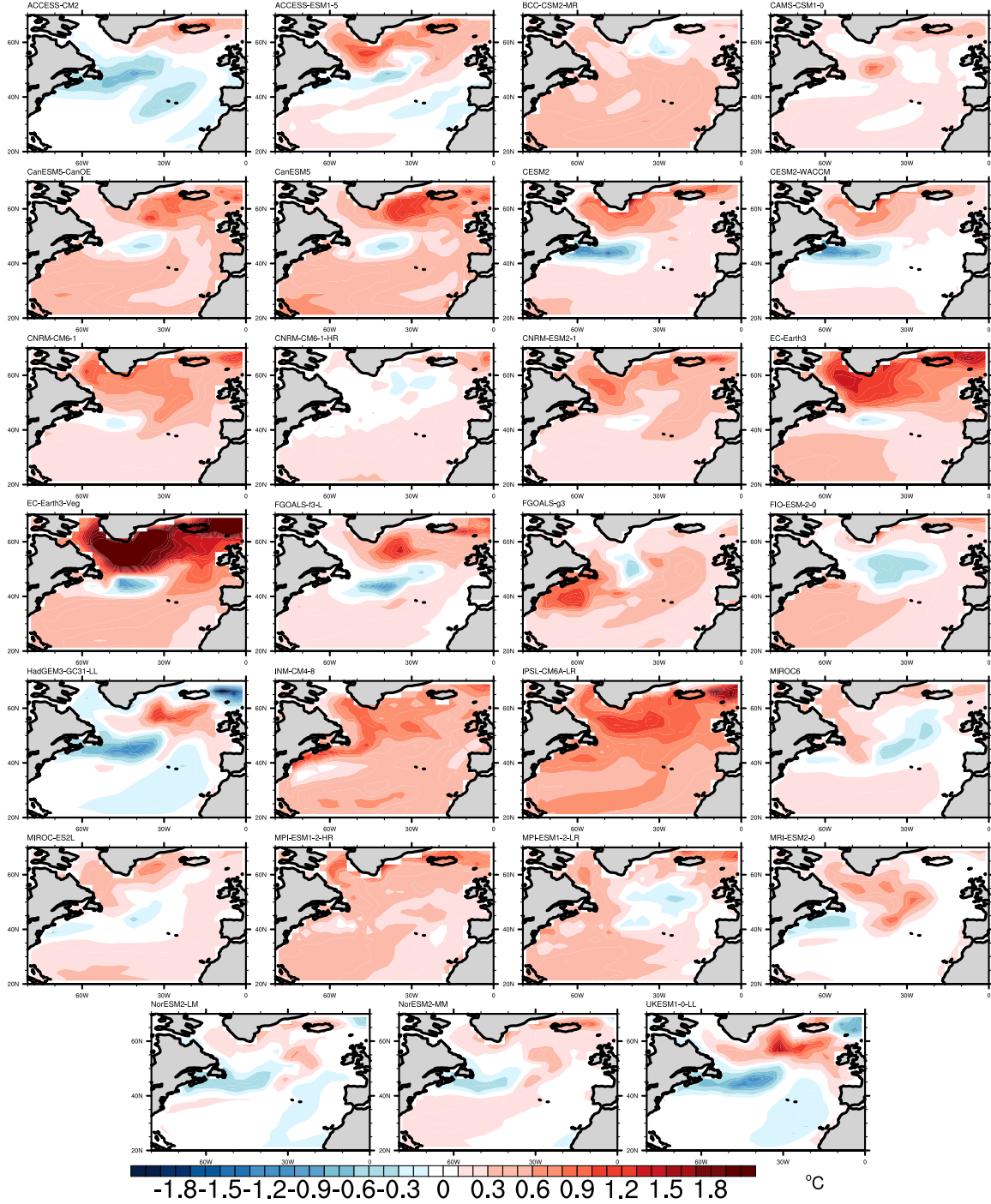
Figure S 3: Annual SST ensemble mean difference between the 1951-2014 and 1870-1900 periods for the historical simulations from the 27 CMIP6 models.
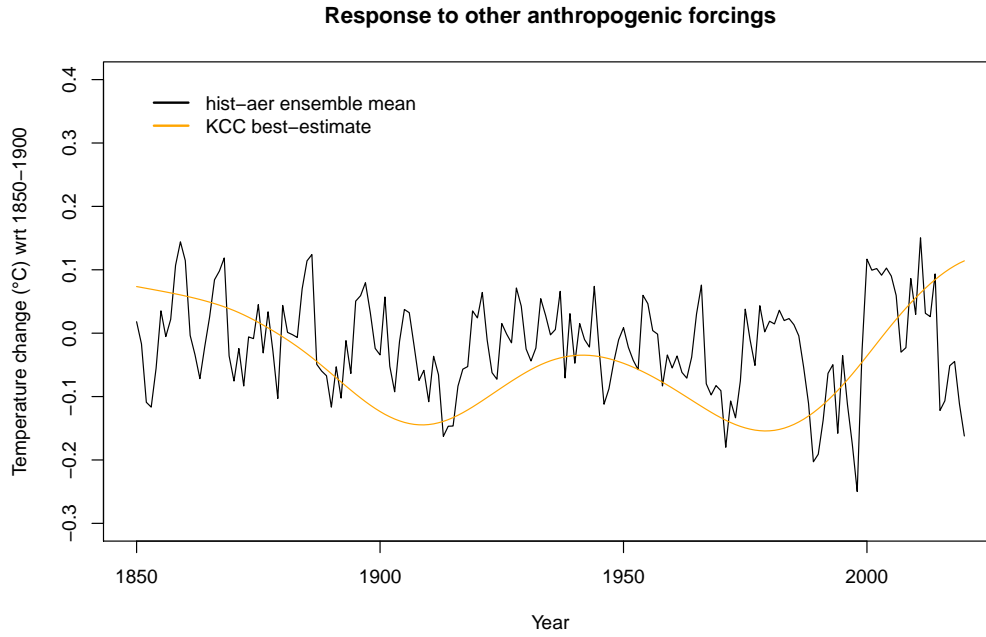
Figure S 4: Comparison between the estimation by the KCC method of the unconstrained OA component in the simulated WH index (in orange, used in Fig. 2) and the actual SST forced response from the unconstrained hist-aer simulations (in black). 107 members are used to compute the hist-aer ensemble mean.

hist-aer average over 1951-2014 wrt 1870-1900
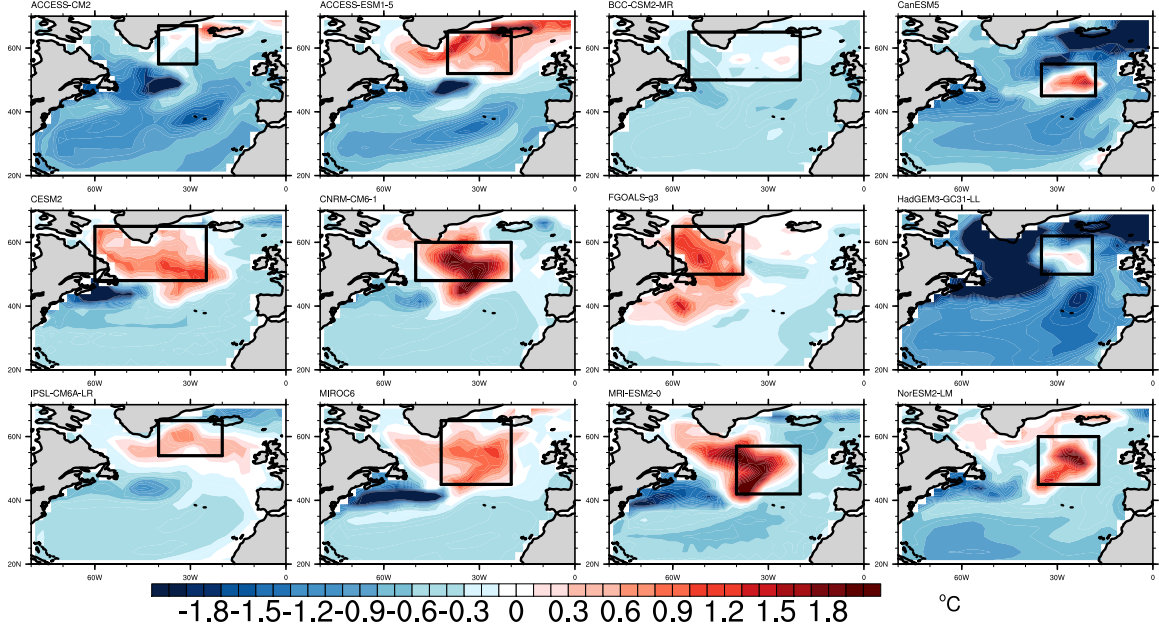
Figure S 5: Annual SST ensemble mean difference between the 1951-2014 and 1870-1900 periods for the hist-aer simulations from the 12 DAMIP models. Each WH index corresponds to the spatial average of the SST calculated on the black boxed area.

hist-GHG average over 1951-2014 wrt 1870-1900
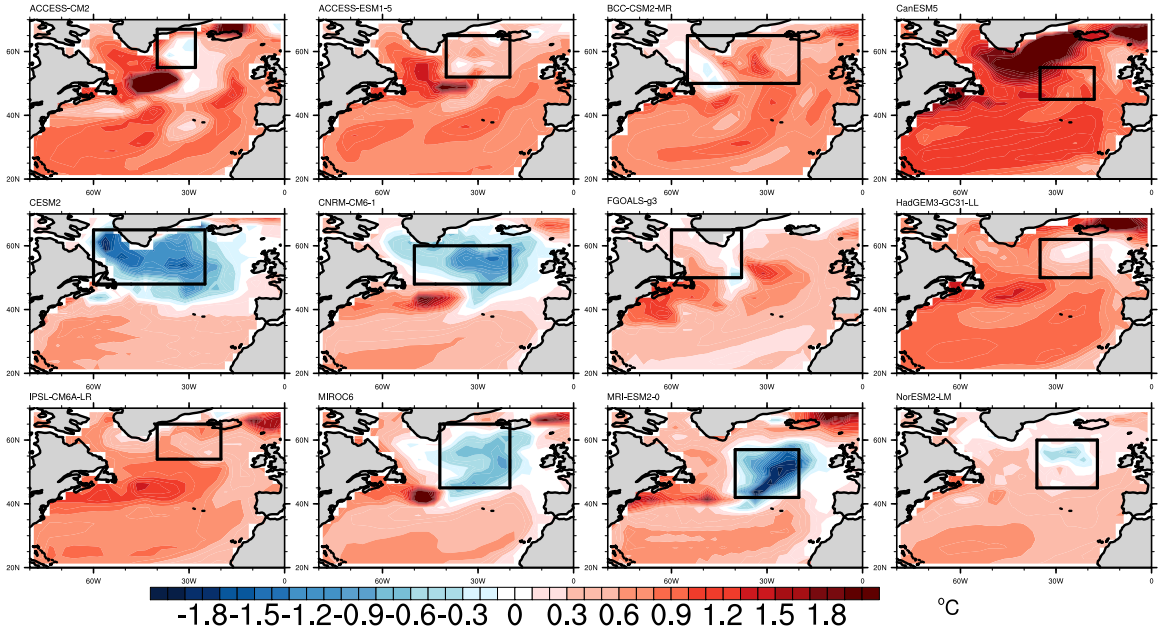
Figure S 6: Same as Fig. S5 but for the hist-GHG simulations.

piControl annual standard deviation
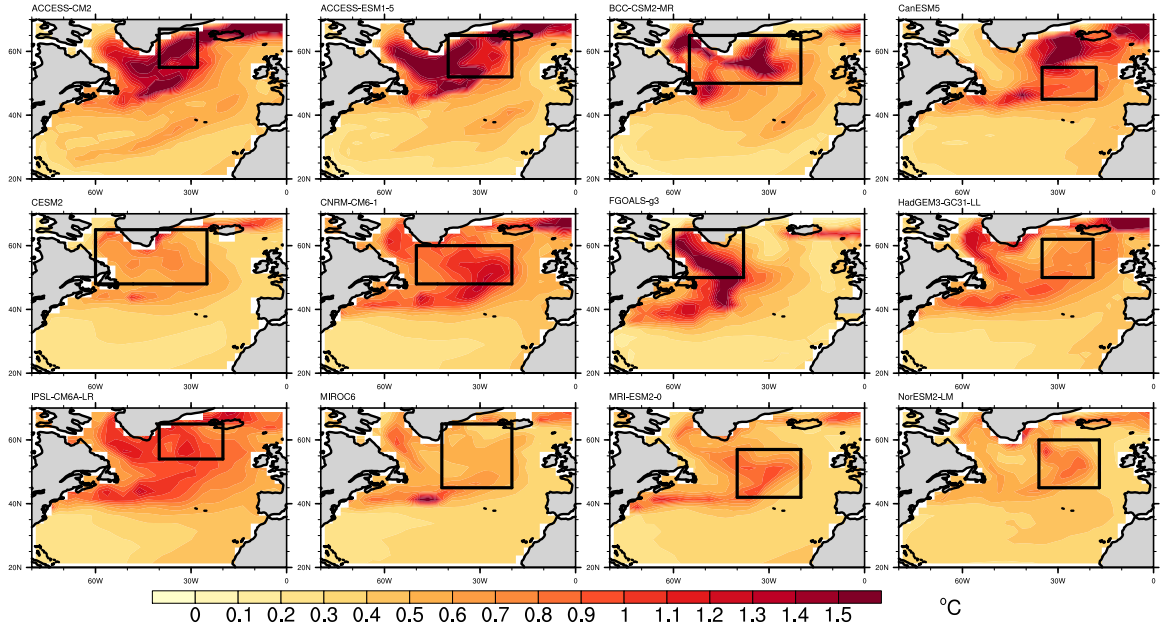
Figure S 7: Annual SST standard deviation for the piControl simulations from the 12 DAMIP models.
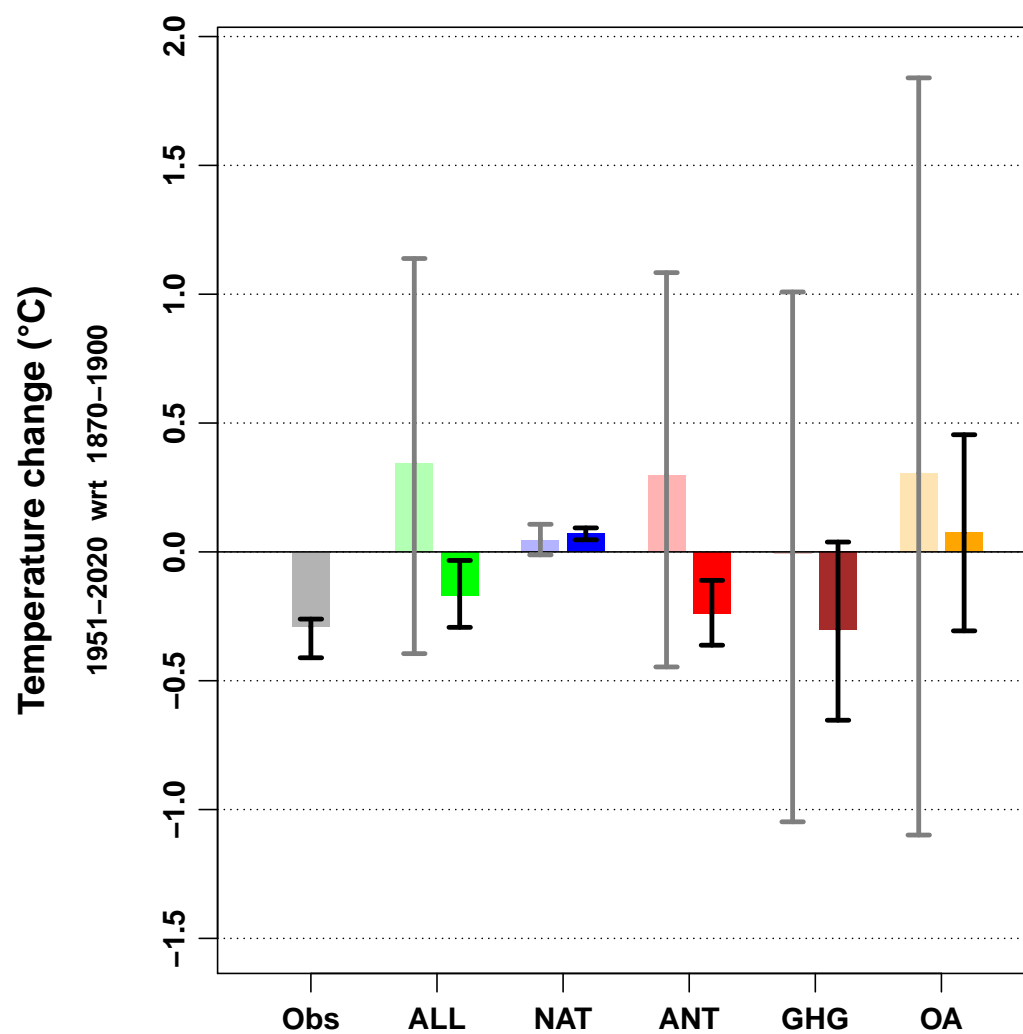
Figure S 8: Same as Fig. 2 but using an adaptative definition of the WH index (see Fig. S5).
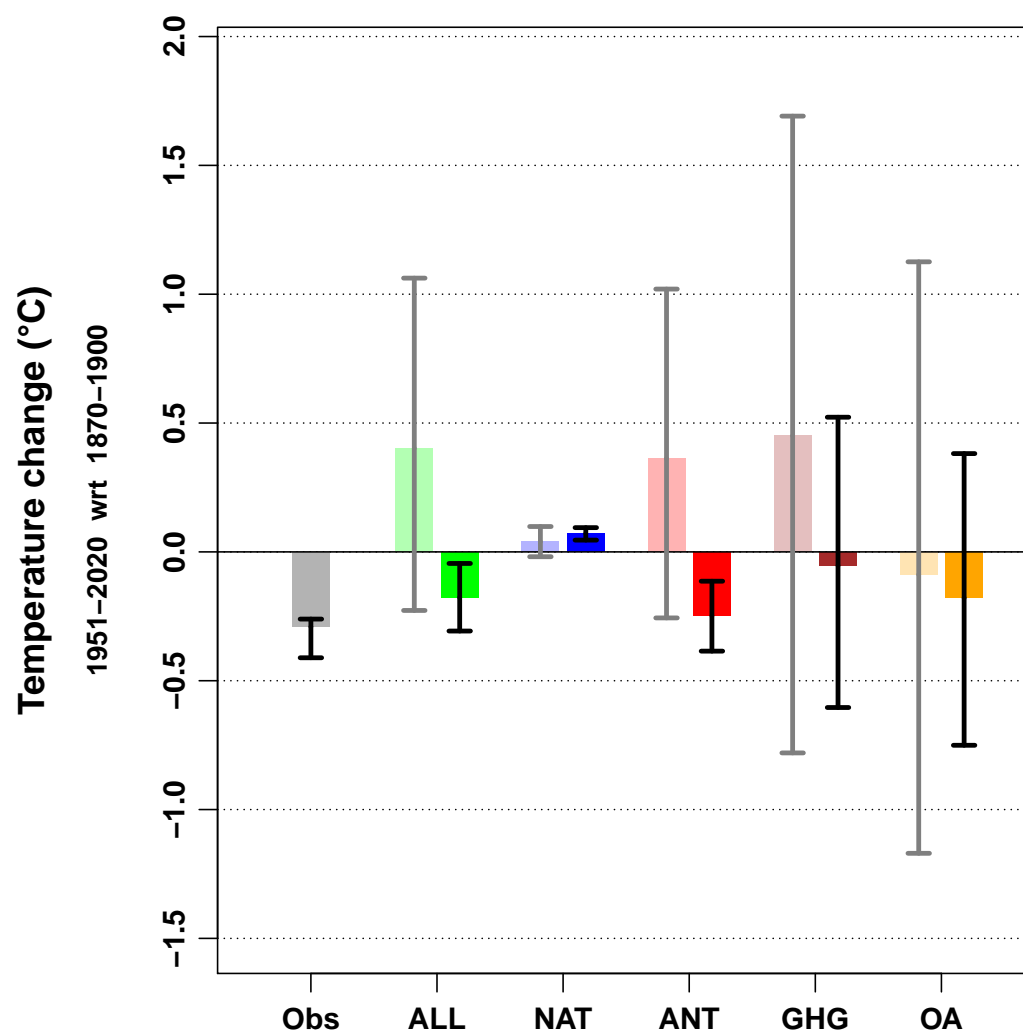
Figure S 9: Same as Fig. 2 but using all CMIP6 models.