

Supporting Information for “The recent emergence of Arctic Amplification”

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Contents of this file

1. Tables S1 to S2
2. Figures S1 to S5

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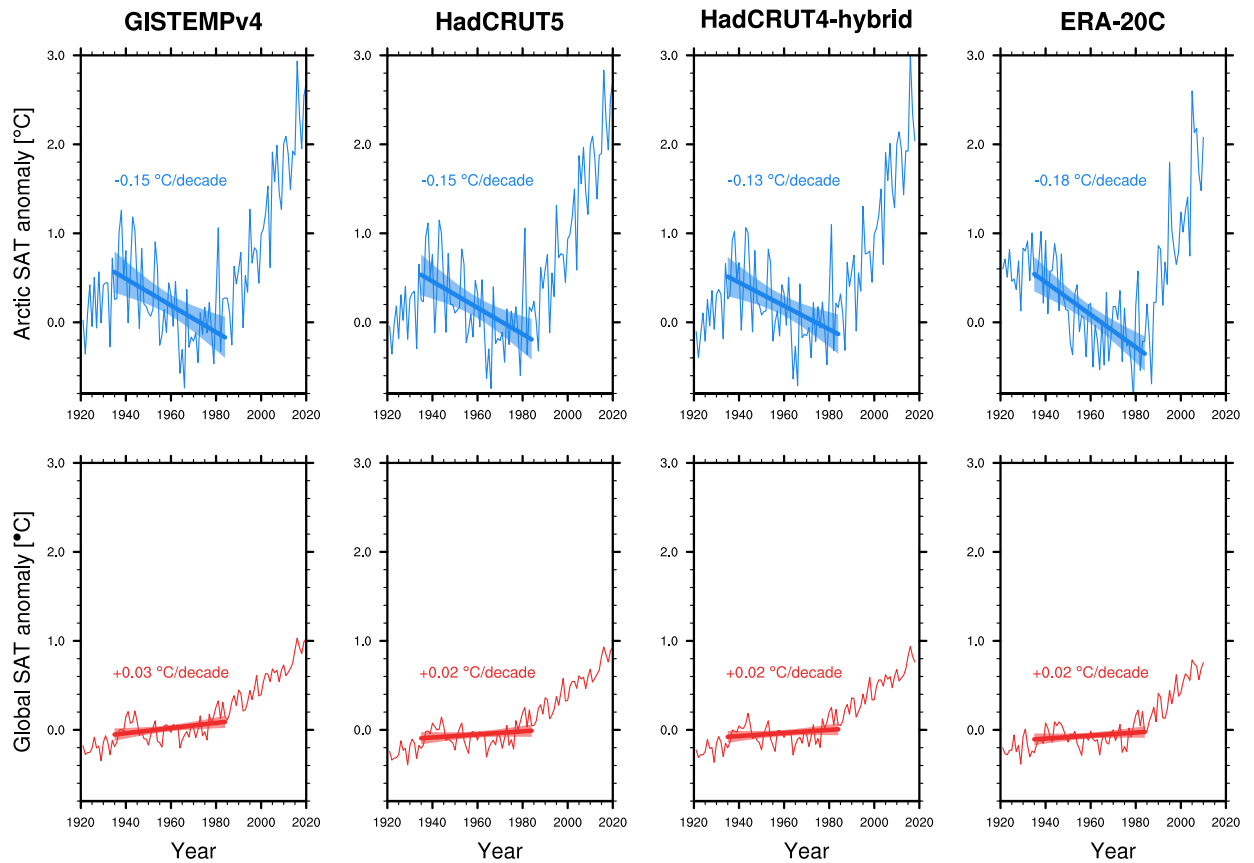
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Table S1. Observational and reanalysis datasets

Dataset	Type	Years	Reference
GISTEMPv4	Observations	1921-2020	(Lenssen et al., 2019)
HadCRUT5	Observations	1921-2020	(Morice et al., 2020)
HadCRUT4-hybrid	Observations	1921-2018	(Cowtan & Way, 2014)
ERA-20C	Reanalysis	1921-2010	(Poli et al., 2016)
ERA5	Reanalysis	1950-2020	(Hersbach et al., 2020)

Table S2. CESM1-CAM5 ensembles

Experiment	Description	Members	Years
CESM-LE	All forcings (Kay et al., 2015)	40	1921-2020
CESM x-aer	Anthropogenic aerosols fixed at 1920 concentrations (Deser et al., 2020)	20	1921-2020
CESM x-ghg	Greenhouse gases fixed at 1920 concentrations (Deser et al., 2020)	20	1921-2020

**Figure S1.** As in Figure 1 but for all of the four datasets that extend back to 1921 (Table S1).

The values for the 1935-1984 trends are shown in each panel.

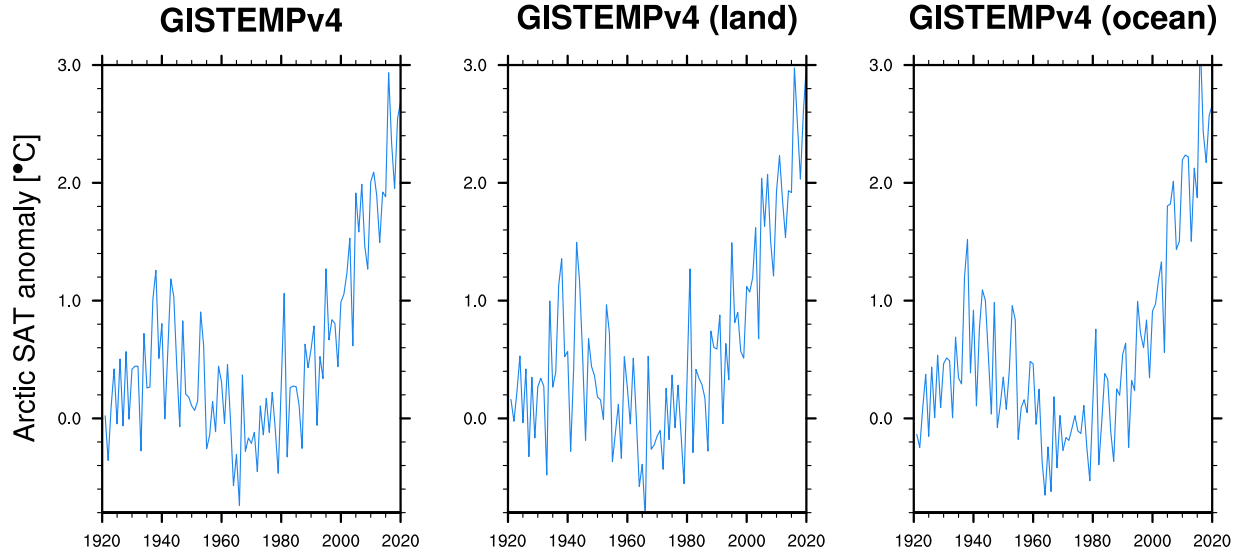


Figure S2. Timeseries of Arctic SAT anomaly from the 1951-1980 mean using GISTEMPv4 averaged over (left) land and ocean, (center) land only and (right) ocean only.

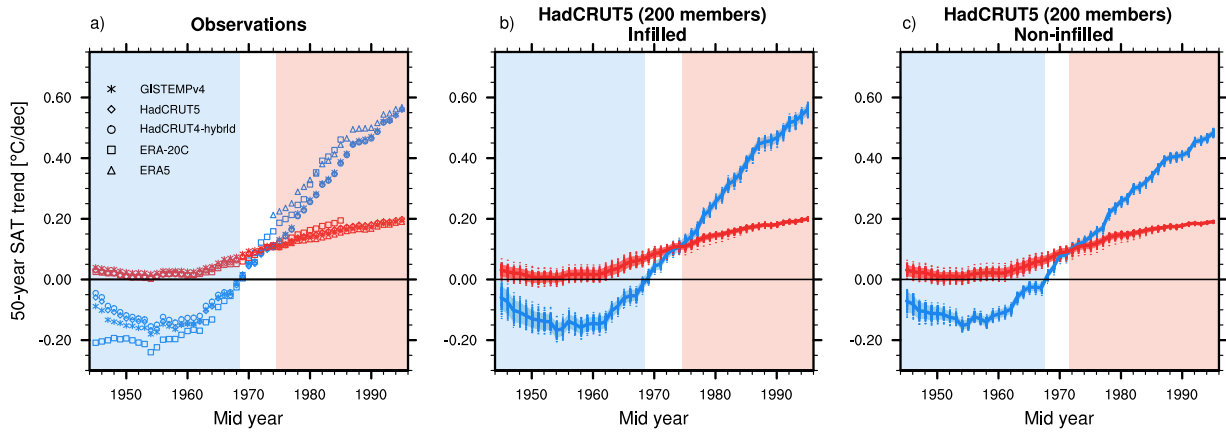


Figure S3. (a) As in Figure 2a but showing all five observational and reanalysis datasets (see list in Table S1). The red and blue shaded areas are reproduced from Figure 2a. (b) As in Figure 2a but for the 200 members of HadCRUT5 with statistical infilling. The thick lines show the ensemble mean, the dots show the individual members and the shaded envelope indicates the central 95% range. (c) As in panel b but for the 200 members of HadCRUT5 without statistical infilling.

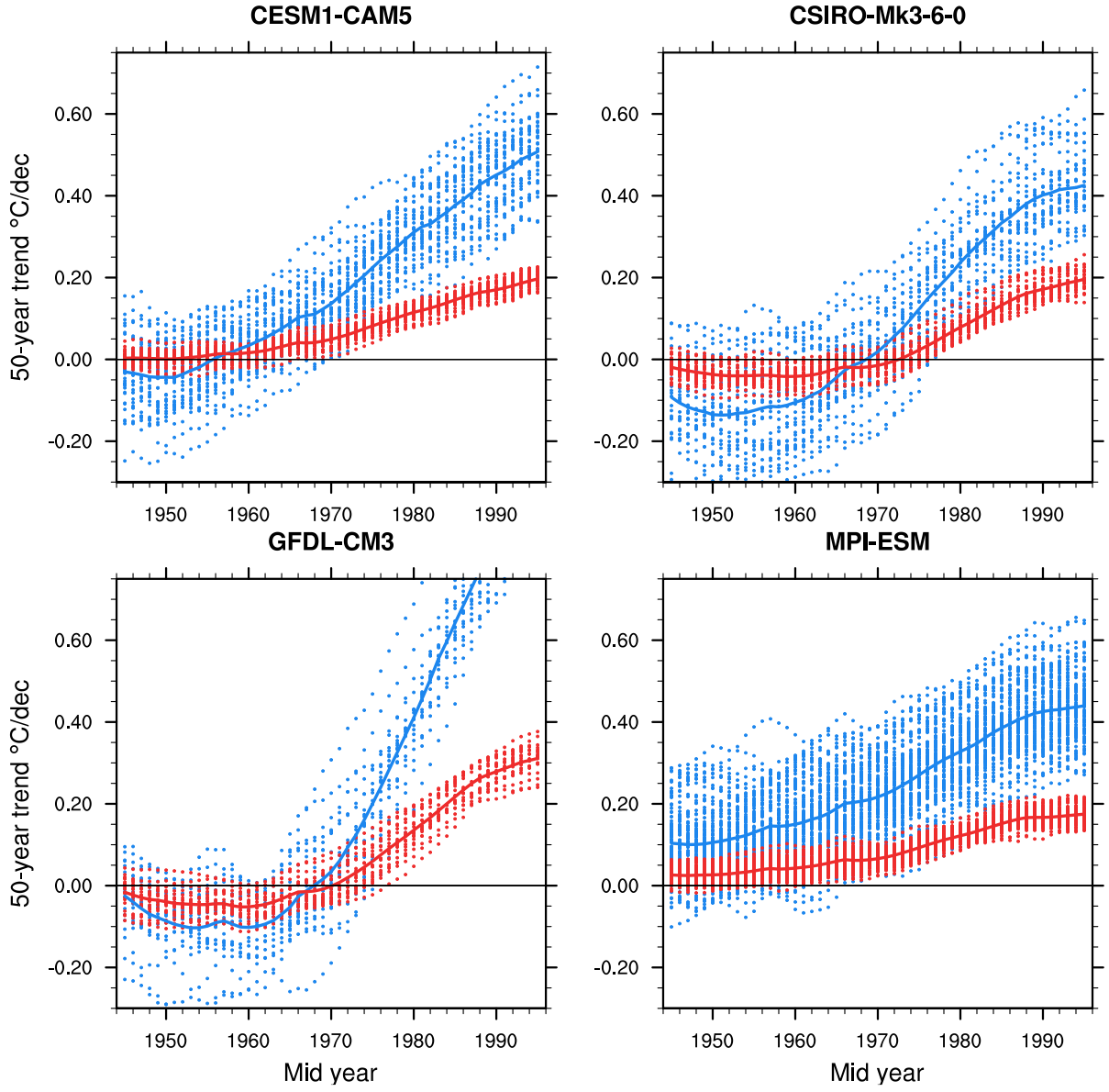


Figure S4. (a) As in Figure 2c but for four large ensembles: CESM1-CAM5 (the CESM1-LE, 40 members), CSIRO-Mk3-6-0 (30 members), GFDL-CM3 (20 members) and MPI-ESM (100 members).

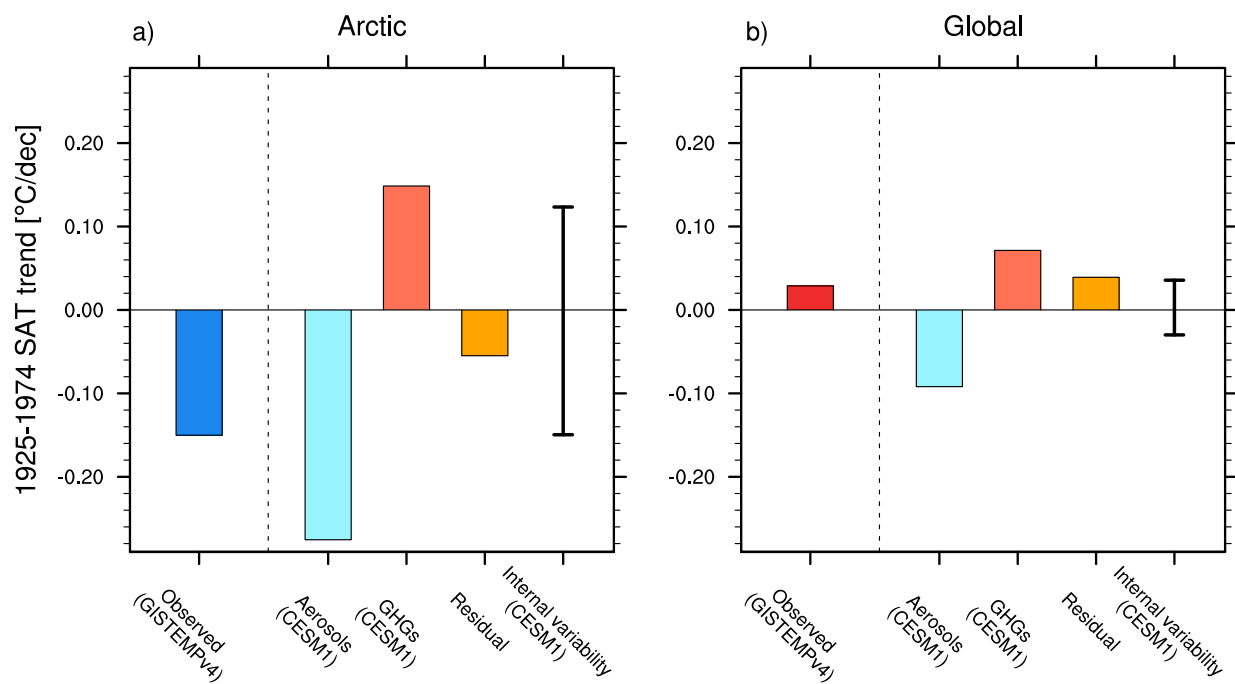


Figure S5. As in Figure 4 but for the period 1925-1974.