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Quantifying Human-Induced Dynamic and Thermodynamic Contributions to Severe Cold Outbreaks Like November 2019 in the Eastern United States

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In the supplementary information, we provided one table on the selected experiments and one figure on model performance for November Tmin and V300 anomalies.

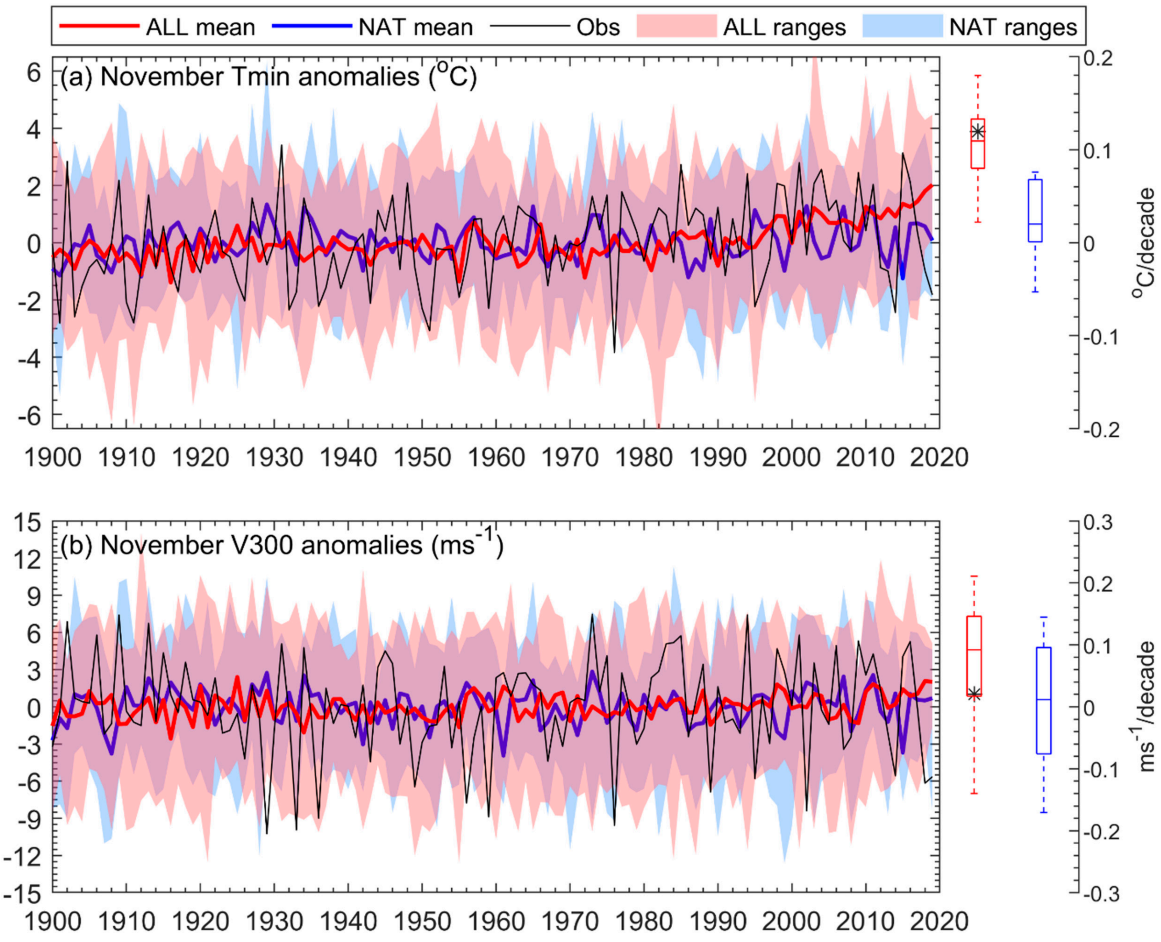

Fig. ES1. Time series of (a) November mean of daily minimum near-surface air temperature (Tmin) and (b) 300-hPa meridional wind (V300) anomalies from 1900 through 2019 averaged over the eastern United States. Light red (blue) shadings denote their ranges from the CMIP6 ALL (NAT) simulations with their ensemble mean shown in red and blue curves. The black curve is the observed Tmin or NOAA-20CRv3 V300. The trends are plotted as boxplots for CMIP6 and as asterisks for the observed Tmin and reanalyzed V300 in the right. The bottom and top edges of the box indicate the 25th and 75th percentiles of the simulated trends.

Table ES1. CMIP6 models with the associated simulations (r1i1p1f1) used in this study. A check mark (✔) means available online and an X (✘) means unavailable online (https://esgf-node.llnl.gov/search/cmip6/).

Model	Historical runs	SSP2_45 runs	Natural-forcing-only runs
ACCESS-CM2	✔	✔	✘
ACCESS-ESM1.5	✔	✔	✔
AWI-CM-1.1-MR	✔	✔	✘
BCC-CSM2-MR	✔	✔	✔
BCC-ESM1	✔	✘	✘
CESM2-WACCM	✔	✔	✘
CMCC-CM2-SR5	✔	✔	✘
CanESM5	✔	✔	✔
FGOALS-g3	✔	✔	✔
GFDL-CM4	✔	✔	✔
GFDL-ESM4	✔	✔	✘
GISS-E2.1-G	✔	✘	✔
GISS-E2.1-H	✔	✘	✔
INM-CM5.0	✔	✔	✘
IPSL-CM6A-LR	✔	✔	✔
MIROC6	✔	✔	✔
MPI-ESM1.2-HR	✔	✔	✘
MPI-ESM1.2-LR	✔	✔	✘
MRI-ESM2.0	✔	✔	✔
SAM0-UNICON	✔	✘	✘