

Supporting Information for

Storylines reveal contrasting thermodynamic effects of climate change on 2020/21 East Asian cold extremes

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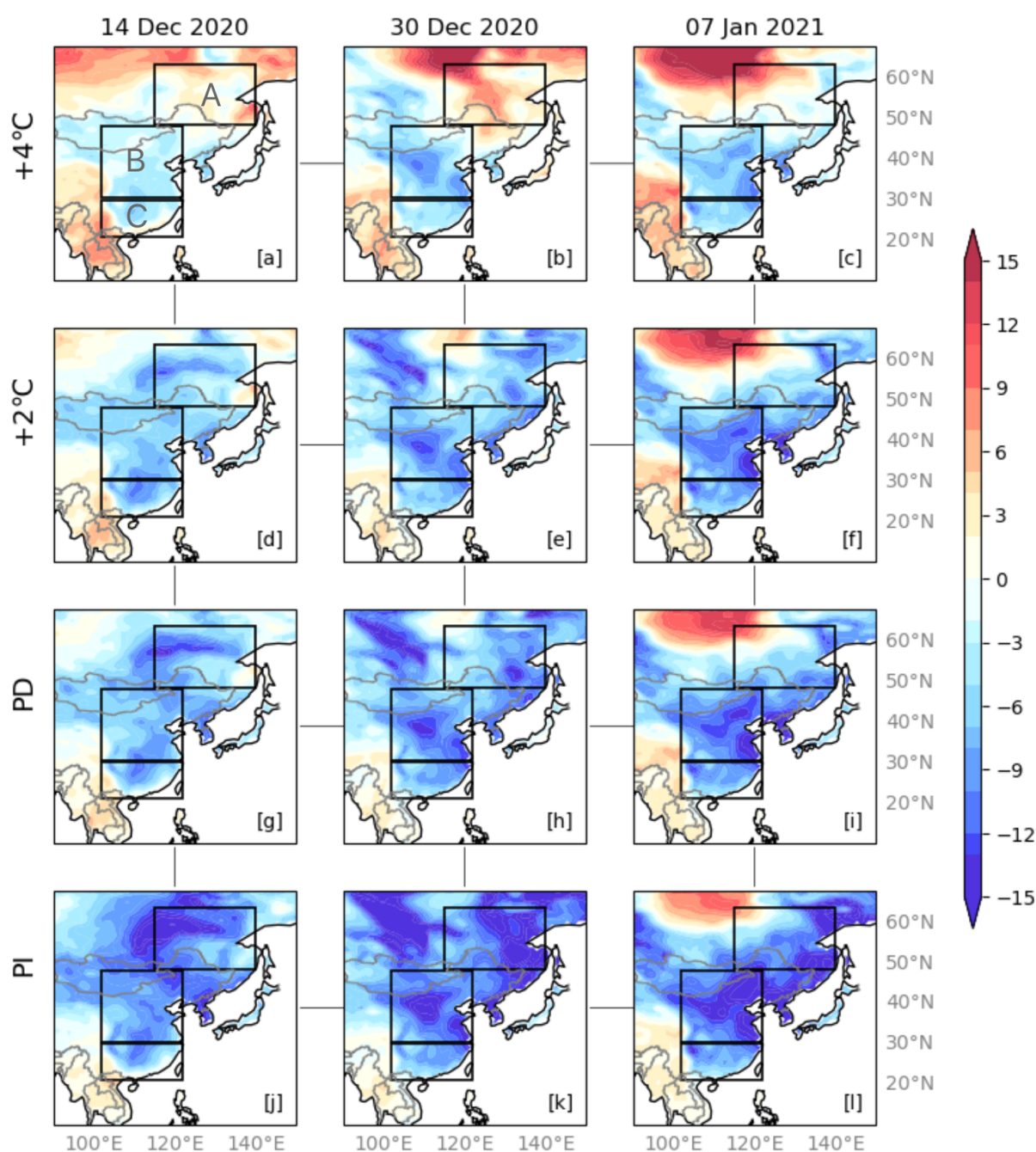
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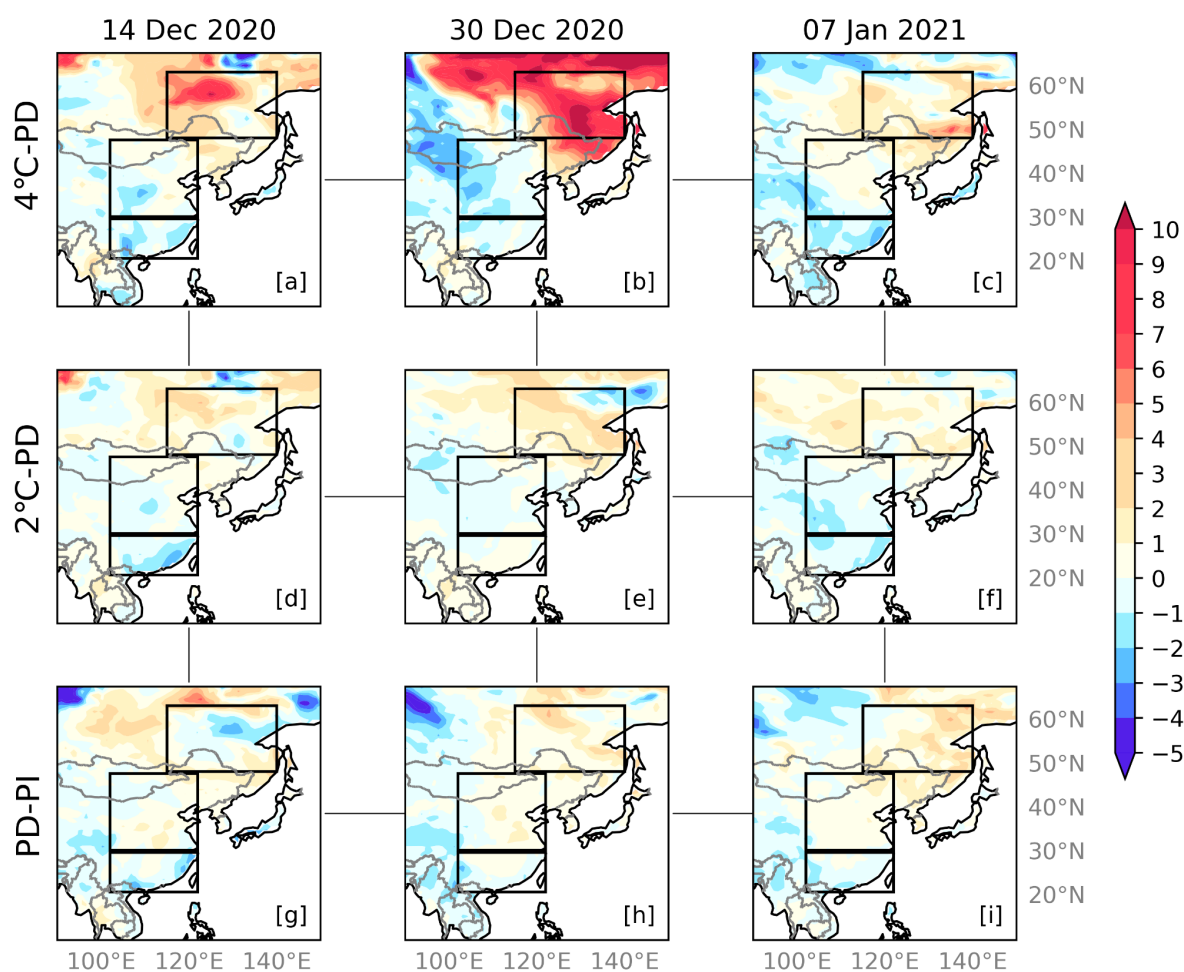
Figure S1 to S7

Introduction

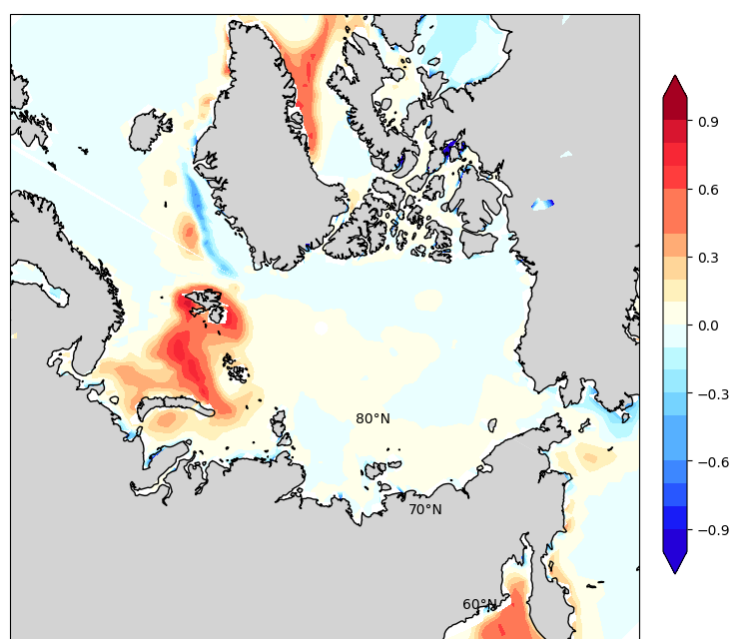
This supporting information provides figures to further demonstrate the results presented in the main paper.



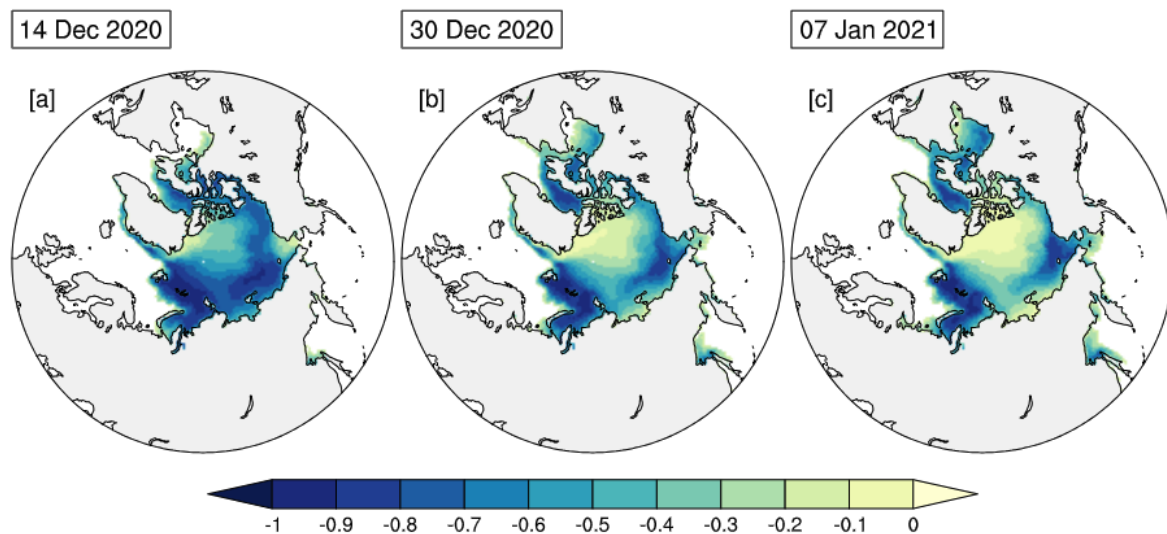
Supplementary Figure 1. Anomalous t2m (°C) fields in each climate scenario. The climatology is based on the ensemble mean of free run simulation during 1985-2014.



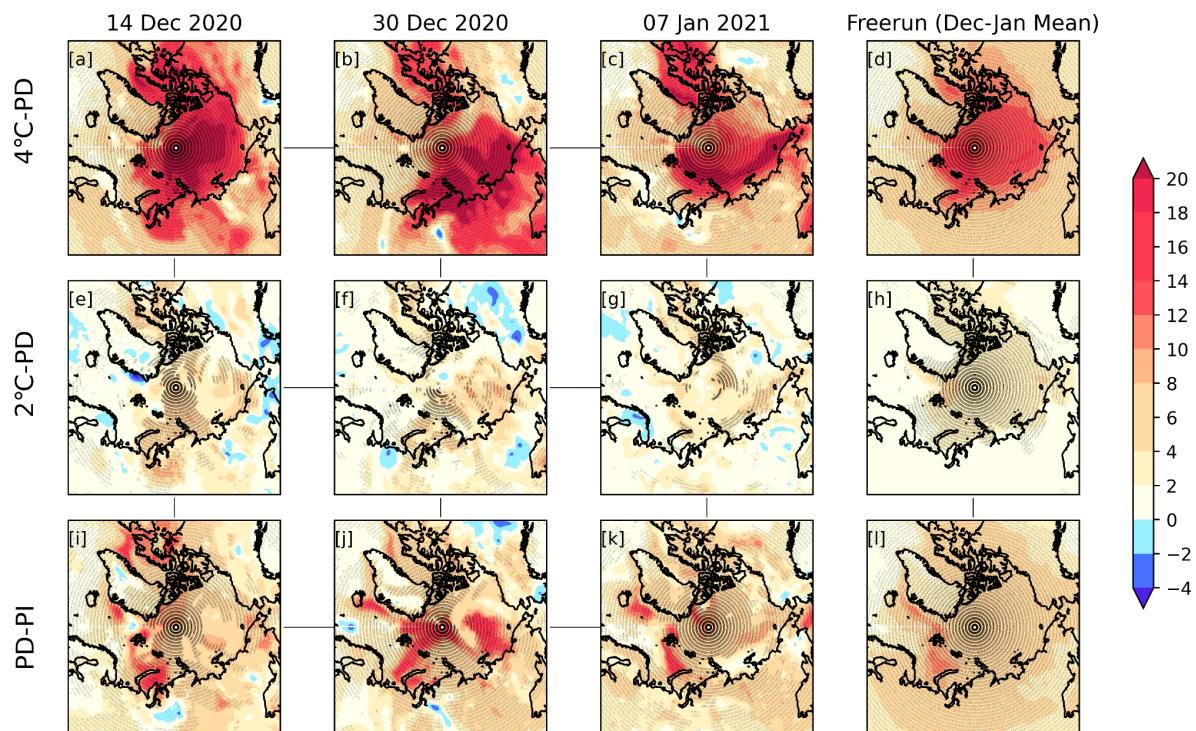
Supplementary Figure 2. Difference t_{2m} ($^{\circ}\text{C}$) fields between each climate and PD scenario after subtracting corresponding free run results in nudging simulation.



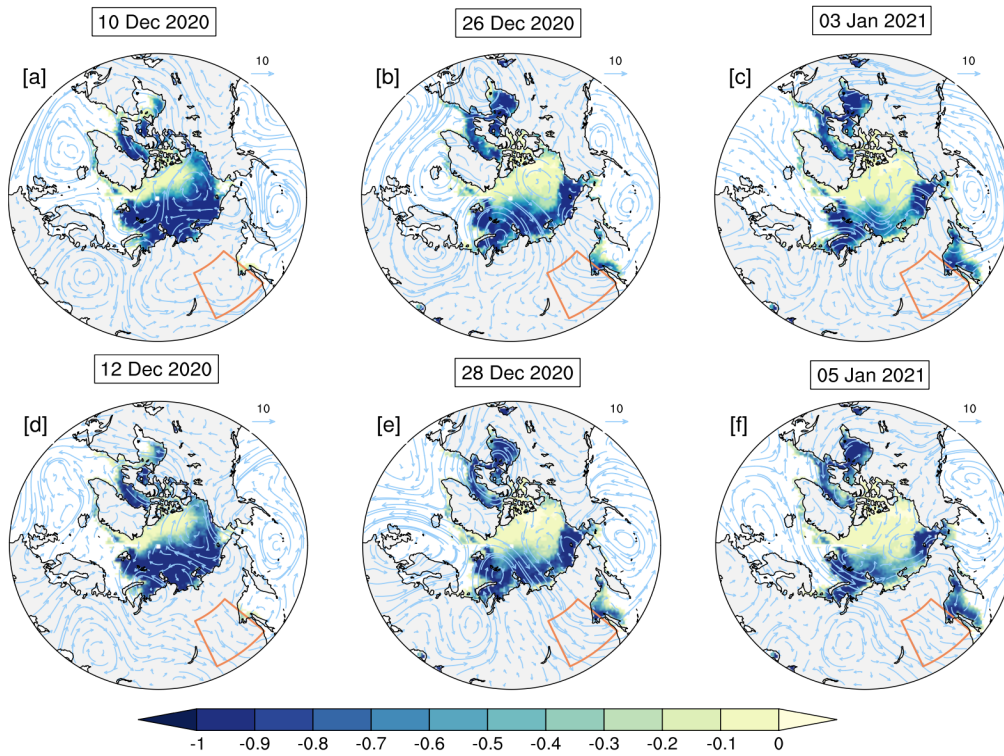
Supplementary Figure 3. Difference fields of sea ice concentration between PD simulation and ERA5 averaged over December to February.



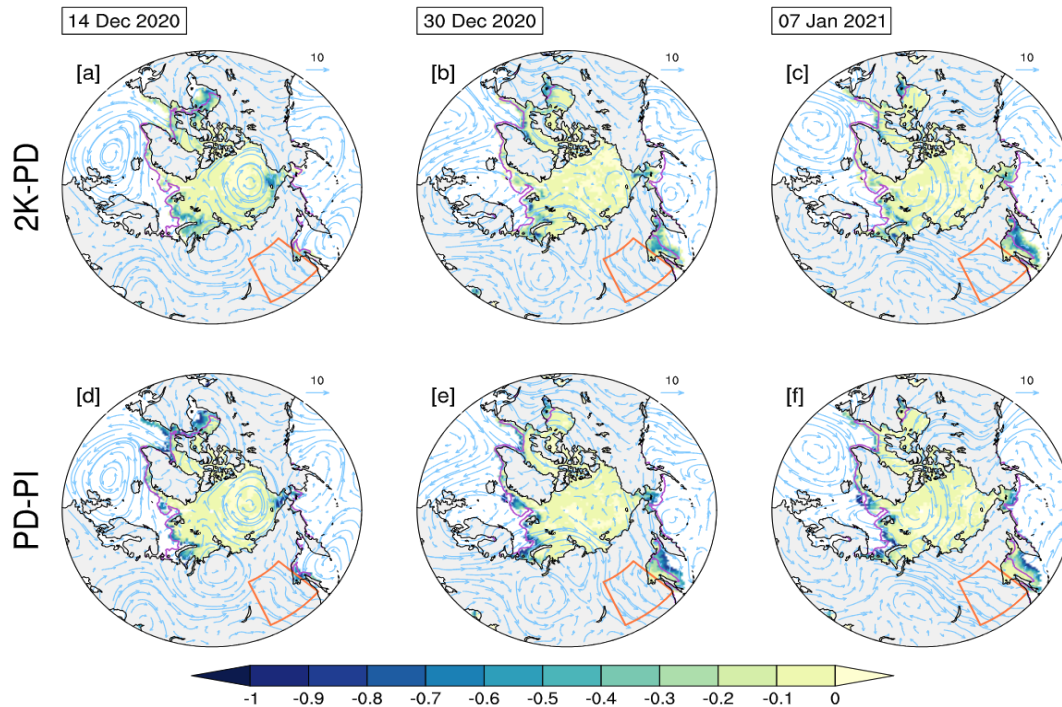
Supplementary Figure 4. Sea ice concentration difference between 4°C and PD based on the free runs.



Supplementary Figure 5. T2m (°C) difference fields between different climates and PD over the Arctic region. Dotted region denotes no-overlapped ensembles between different climates.



Supplementary Figure 6. Sea ice concentration difference fields between 4°C and PD (shading) and 850-hPa winds at PD climate (vectors, m/s) in four and two days before the cold events. Orange box denotes Northeast Asia region.



Supplementary Figure 7. Sea ice concentration difference fields between 2°C, PI with PD climate (shading) and 850-hPa winds at PD climate (vectors, m/s). Purple contour denotes climatological 15% sea ice concentration in the PD scenario. Orange box denotes Northeast Asia region.