Support information

Increased Model Resolution Amplifies Boreal Winter Arctic Precipitation and Atmospheric Circulation Response to Sea-Ice Loss

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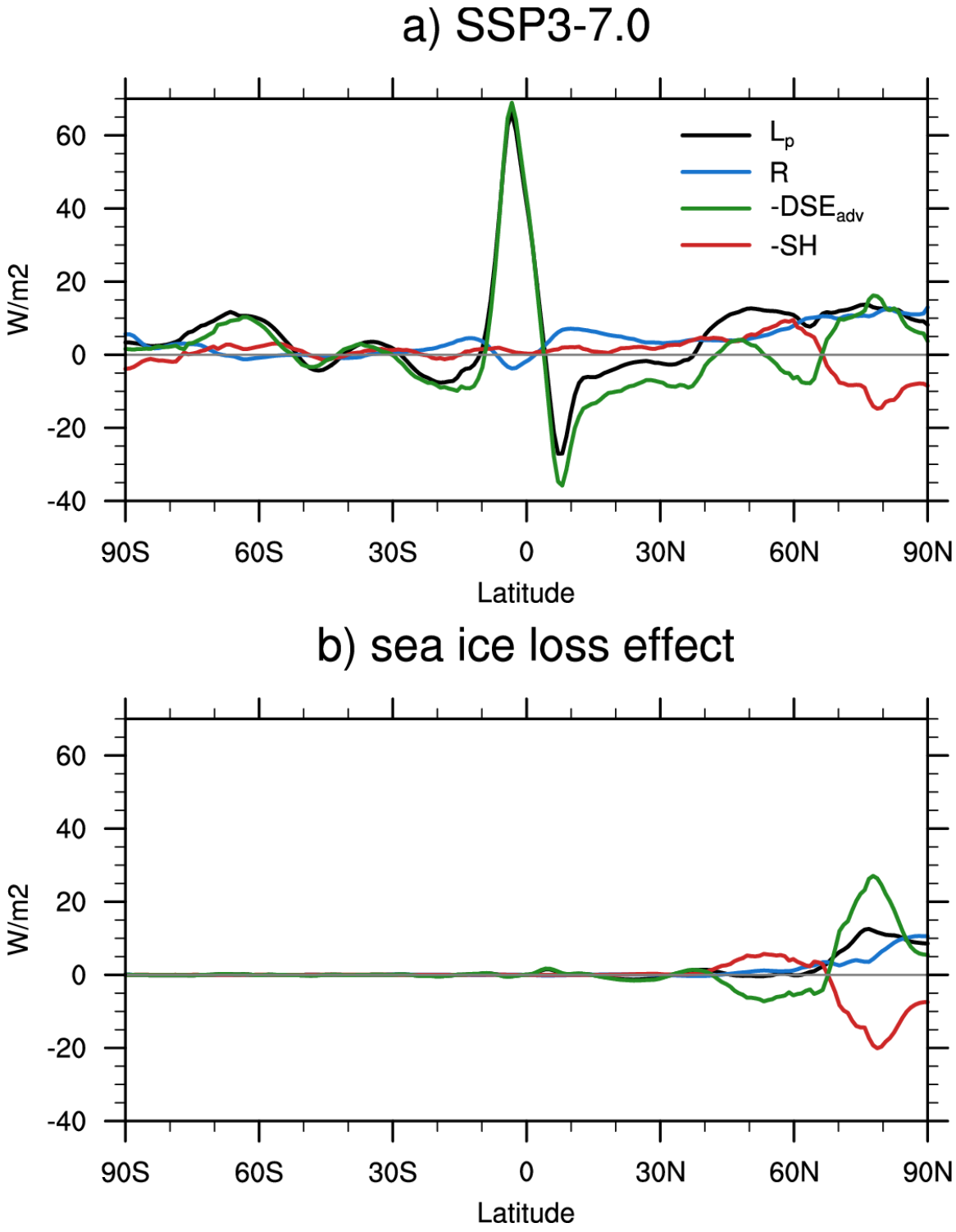

Figure S1: Atmospheric energy budget for (a) the future change between 1850-1869 and 2080-2089 and (b) its corresponding Arctic sea ice loss contributions.

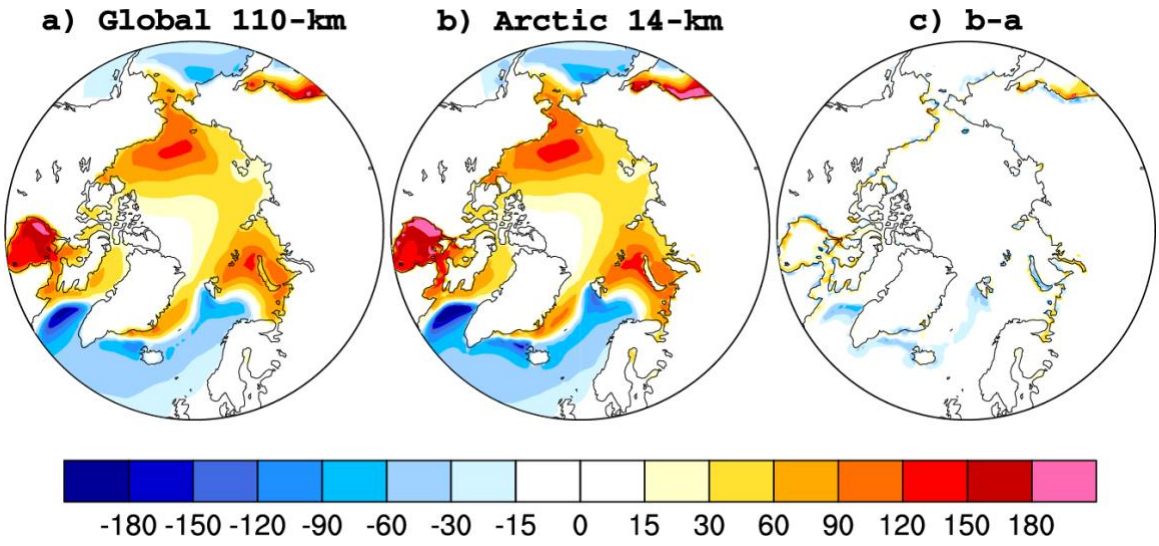

Figure S2: Boreal winter (DJF) surface energy flux response to Arctic sea ice loss in a) Global 110-km model, b) Arctic 14-km model, and c) their difference. The surface energy fluxes includes turbulent latent, sensible heat flux and net longwave radiative flux.

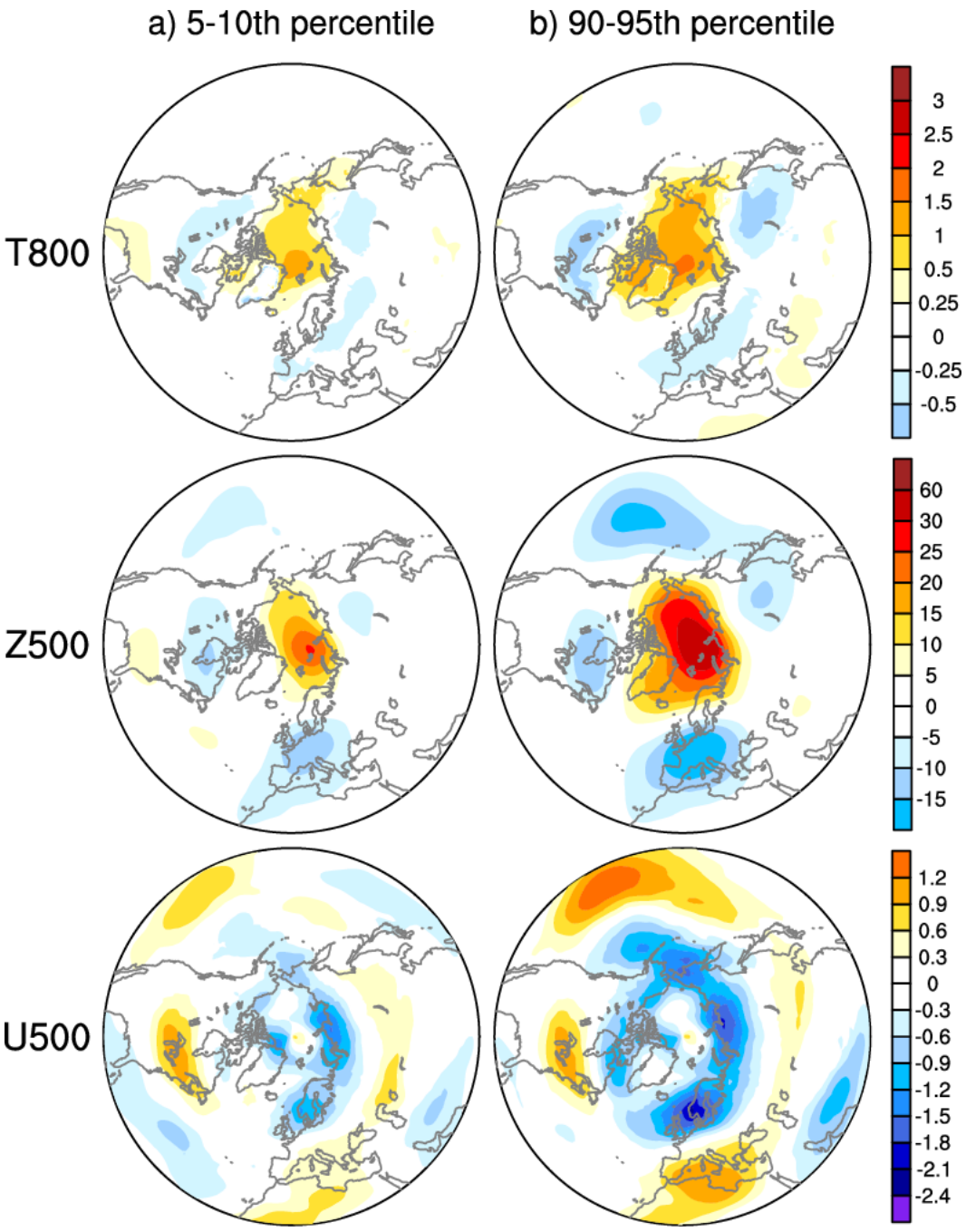

Figure S3: Composite response differences between the Arctic 14-km and Global 110-km models for the 5th–10th and 90th–95th percentiles of the 800-hPa temperature, 500-hPa geopotential height, and 500-hPa zonal wind through bootstrapping methods. See text for details.

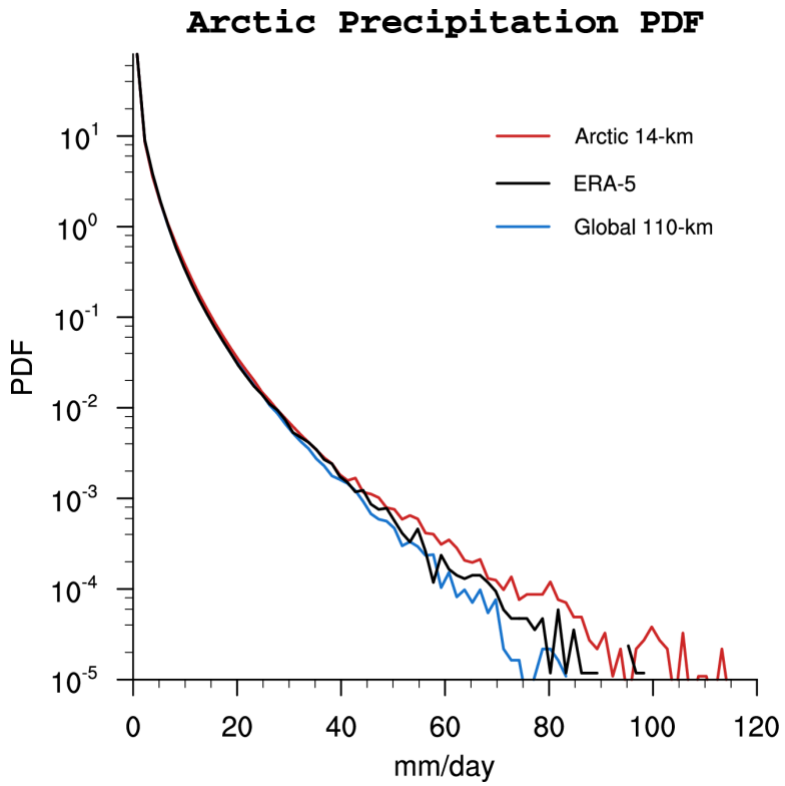

Figure S4: Probably density function (PDF) of the boreal winter (DJF) daily mean precipitation (unit of mm/day) over the polar cap in ERA-5 (black curve), Global 110-km model (blue curve) and Arctic 14-km model (red curve).