



Role of Arctic sea ice in the 2014-15 Eurasian warm winter

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Because of large internal variabilities, the role of Arctic sea ice (SIC) on regional climate cannot be easily separated. This study uses two groups of large ensemble atmospheric model simulations under climatological and observed SIC boundary conditions to investigate the role of SIC in the 2014-2015 December to February Eurasian warm winter (DJF15). It is shown that the SIC has large impact on the probability distribution function (PDF) of the DJF15 temperature and pressure fields. The anomalous high Barents Sea ice during the 2014-2015 autumn and winter leads to significant shift in the PDF skewness of the DJF15 surface temperature (from -0.13 to -0.48) and the related sea-level pressure (SLP) (from -0.18 to 0.32) that favor more occurrences of warm temperature anomaly and positive North Atlantic Oscillation-like pattern. This asymmetry is consistent with anomalous forcing in phase with the anomalies of the SLP field.