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# European winter climate response to projected Arctic sea-ice loss strongly shaped by change in the North Atlantic jet

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Previous studies have found inconsistent responses of the North Atlantic jet to Arctic sea-ice loss. The response of wintertime atmospheric circulation and surface climate over the North Atlantic-European region to future Arctic sea-ice loss under 2°C global warming is analyzed, using model output from the Polar Amplification Model Intercomparison Project. The models agree that the North Atlantic jet shifts slightly southward in response to sea-ice loss, but they disagree on the sign of the jet speed response. The jet response induces a dipole anomaly of precipitation and storm track activity over the North Atlantic-European region. The changes in jet latitude and speed induce distinct regional surface climate responses, and together they strongly shape the North Atlantic-European response to future Arctic sea-ice loss. Constraining the North Atlantic jet response is a priority for reducing uncertainty in the North Atlantic-European precipitation response to future Arctic sea-ice loss.

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