

Coupling between the Arctic and Atlantic Meridional Overturning Circulation: A Review

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The Atlantic Meridional Overturning Circulation (AMOC) and the Arctic are tightly coupled. Atlantic waters entering the Nordic Seas and the Arctic Ocean strongly shape the high-latitude environment, while in turn water mass transformations in the Nordic Seas and Arctic Ocean are critical processes for driving the AMOC. The processes responsible for this coupling involve complex interactions between the ocean, cryosphere, and atmosphere; understanding these processes, and how they respond to a warming climate, is critical for our ability to project and anticipate future changes in both the Arctic and the AMOC. The last decades have seen significant improvements in data coverage, as well as in climate models. This has allowed us to make significant progress in understanding the controls on the interactions between the AMOC and the Arctic. Here we will review some of this progress and identify some of the main knowledge gaps.