

Does the mid-latitude ocean drive polar variability?

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Atlantic Water is the main source water for the Arctic Ocean and a key source of salt and heat, and thus plays an important role in the mass and heat budget of the Arctic and in the meridional overturning circulation. Recently considerable evidence has accumulated for decadal fluctuations in its properties. Here we report on results from several studies examining historical variability of the high latitude Atlantic Ocean during the 20th and early 21st century looking at observational data sets in comparison with results from CMIP5 models. The results show a time-varying pattern of exchange between the midlatitude and higher latitude ocean which interacts with changes in surface meteorology at high latitude. The possible connection of these exchanges to the recent loss of Arctic sea ice will be discussed.