Meeting AMOC Observation Needs in a Changing Climate



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The importance of the subpolar continental shelves to the large-scale overturning circulation

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The continental shelves around the subpolar North Atlantic are important conduits of volume and freshwater transports. The Greenland and Labrador Shelves are deep (150-400 m), the Labrador Shelf is wide (200 km), and they each sustain coastal currents that reach 1-2 Sv of volume transport in the mean. Resolving these volume transports in AMOC monitoring lines is critical if an assumption of net zero mass balance is applied. In addition, the low salinity of the coastal currents makes the freshwater transports notable: the Labrador Coastal Current alone is likely responsible for about one-third of the total southward freshwater transport across the OSNAP array. Finally, shelf mooring arrays promote a process-based understanding of AMOC forcing mechanisms across a wide range of time scales from those directly resolved by the moorings to paleo time scales that rely on mechanisms of freshwater release along the subpolar boundaries. As AMOC arrays pare down their moorings for cost-cutting purposes, retaining this mooring infrastructure on the shelf is vital. It is also essential to invest in mooring technology that can sample surface salinities near sea ice and icebergs. In this poster, I will review the literature on the shelf mooring arrays, and provide information about future planned work on the Labrador Shelf.

Topic

Observational priorities -what should we measure?

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