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Understanding the decreasing transport of the Deep Western Boundary Current within a steady AMOC

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The Overturning in the Subpolar North Atlantic Program (OSNAP) has monitored the Atlantic Meridional Overturning Circulation (AMOC) across the entire northern North Atlantic since 2014. The OSNAP record now includes the longest continuous measurements of the furthest upstream observations of the Deep Western Boundary Current near Cape Farewell, Greenland. Since the OSNAP record began, the Deep Western Boundary Current ($\sigma_\theta > 27.8 \text{ kg m}^{-3}$) has decreased in transport by 25% while the AMOC transport as calculated by OSNAP has remained relatively steady. Given that the Deep Western Boundary Current is the primary component of the lower limb of the AMOC, it is surprising that these results are so divergent. This presentation will explain the reasons behind these transport differences and how that may inform future observations of the AMOC and the Deep Western Boundary Current.

Topic

Value of AMOC observing –what have we learned?

Author: KOMAN, Gregory

Co-authors: BOWER, Amy (WHOI); FUREY, Heather (WHOI); FU, Yao (Georgia Tech); HOLLIDAY, Penny (NOC)

Presenter: KOMAN, Gregory

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