Contribution ID: **30** Type: **Talk**

Biogeochemical observations on AMOC moorings – results from oxygen measurements on the 53N array

The Labrador Sea is a key region for ocean ventilation, as it is one of the few places globally where deep water formation can transport atmospheric oxygen and anthropogenic carbon to the deep ocean. The newly formed Labrador Sea Water (LSW) is then exported out of the basin, spreading the biogeochemical signal set in the formation region to the rest of the ocean. While this general picture has been well known for some time, ocean sensor technology has only recently reached a point where ocean biogeochemistry can be continuously measured *in situ* and thus linked to the underlying physical forcing.
In this talk, we will present results from the 53N moorings in the Labrador Sea's boundary current, which are part of the OSNAP array, and have been equipped with oxygen sensors since 2016. The data reveal a pronounced seasonal cycle in oxygen concentration at 600m depth, indicating a preferential export of LSW in the months following the deep convection period. We estimate the annual oxygen transport out of the basin driven by the addition of LSW to the outflowing boundary current to be 1.6 Tmol, about half of the annual uptake in the interior.
Our results highlight two benefits of adding biogeochemical sensors to existing AMOC observing infrastructure: Using the measurements as a tracer to better understand the underlying dynamics, and obtaining estimates of biogeochemical fluxes associated with the AMOC.

Topic

Observational priorities –what should we measure?

Author: KOELLING, Jannes (Dalhousie University)

Co-authors: WALLACE, Douglas (Dalhousie University); ATAMANCHUK, Dariia (Dalhousie University)

Presenter: KOELLING, Jannes (Dalhousie University)

Session Classification: Value of AMOC Observing / Observational Priorities

Track Classification: Observational Priorities