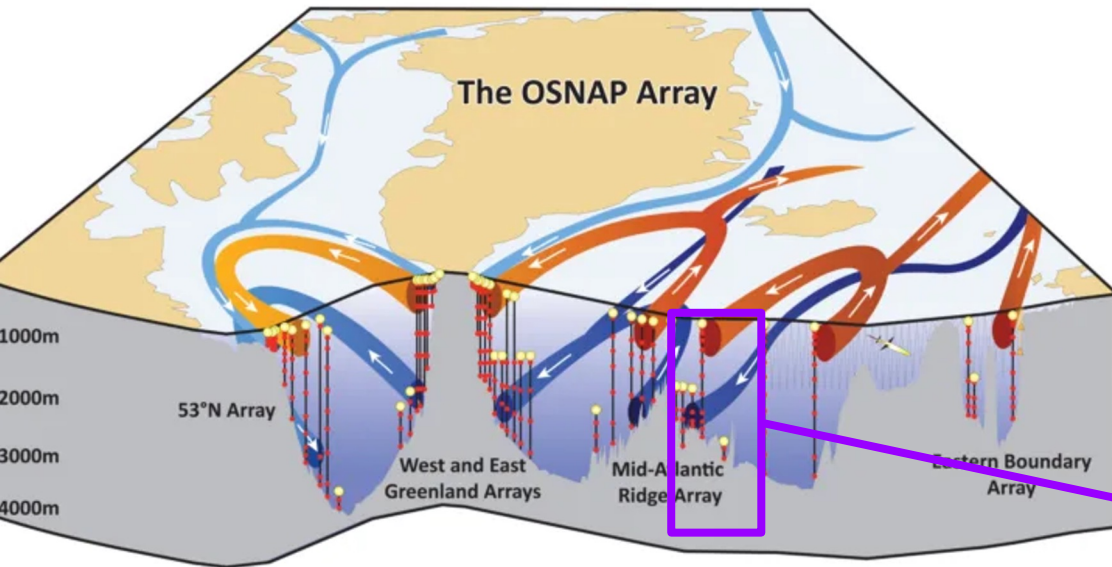


10 years of Iceland-Scotland Overflow Variability: The Role of Mixing Rates and Source Water Masses

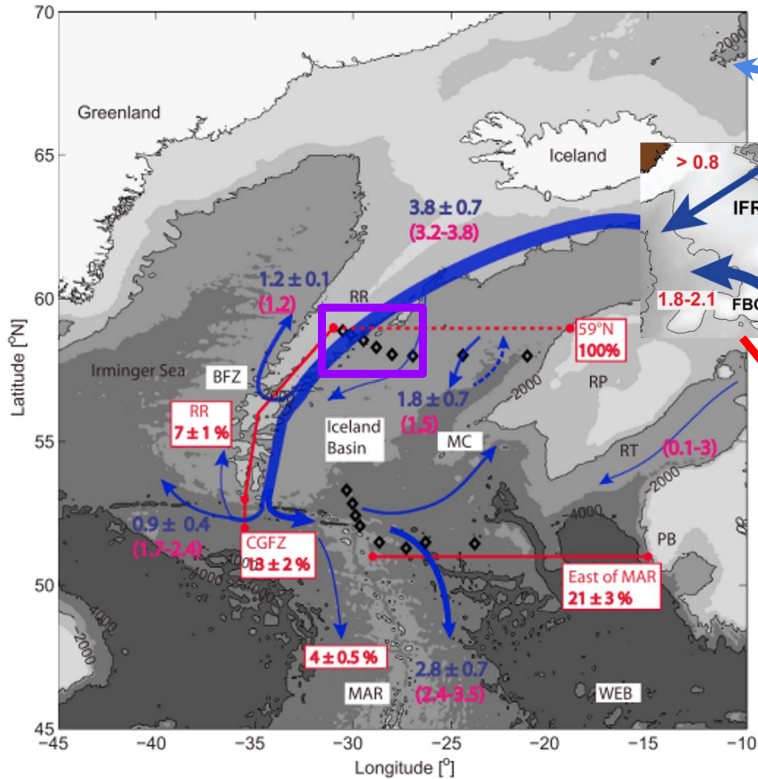
Ana Clara Mariani
Advisor: Tiago Bilo



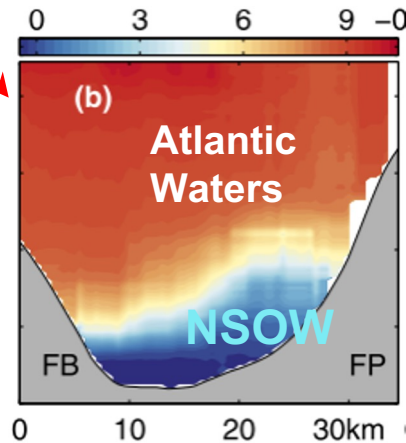
ISOW: component of lower limb of the AMOC + shortcut for climate signals

OSNAP section East of Reikjanes Ridge

What is ISOW - Island-Scotland Overflow Water?



Water mass formed in the Norwegian Seas (NSOW) overflows to the Iceland Basin through (mainly) the Faroe Bank Channel

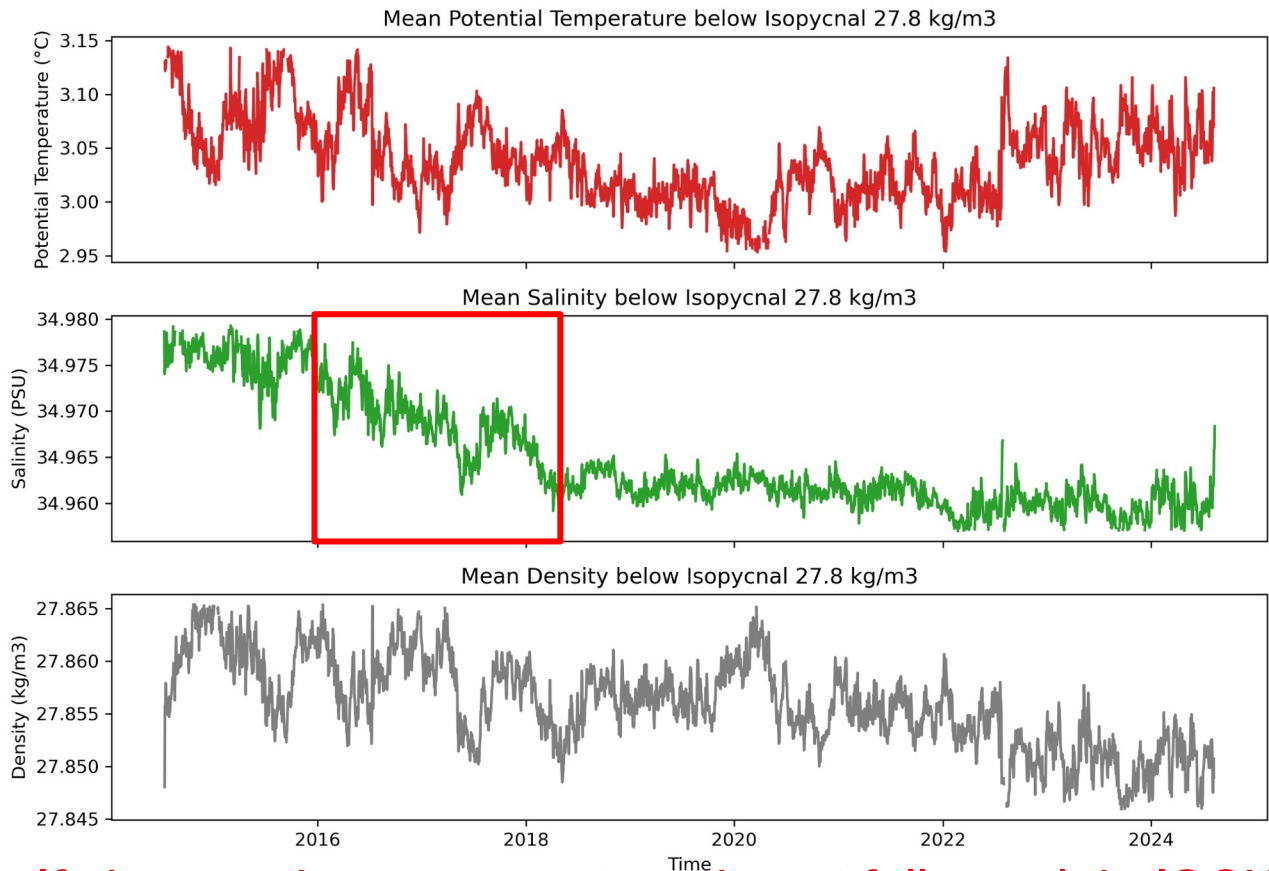


ISOW = 25% LSW
+ 27% SPMW +
48% NSOW
Johns et. al., 2021

Source: Zou et. al., 2017 + Johns et. al., 2021

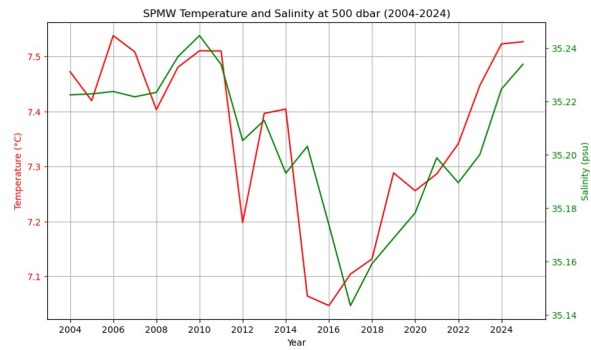
Source: Beaird et al., 2013

Variability of T, S and ρ in ISOW (OSNAP) x SPMW



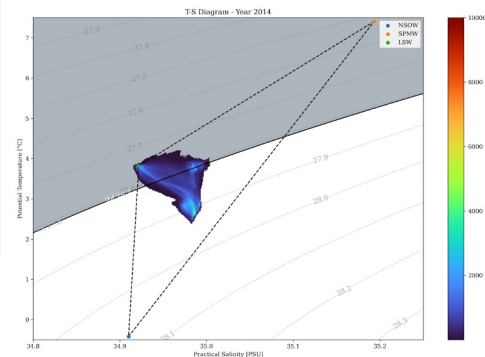
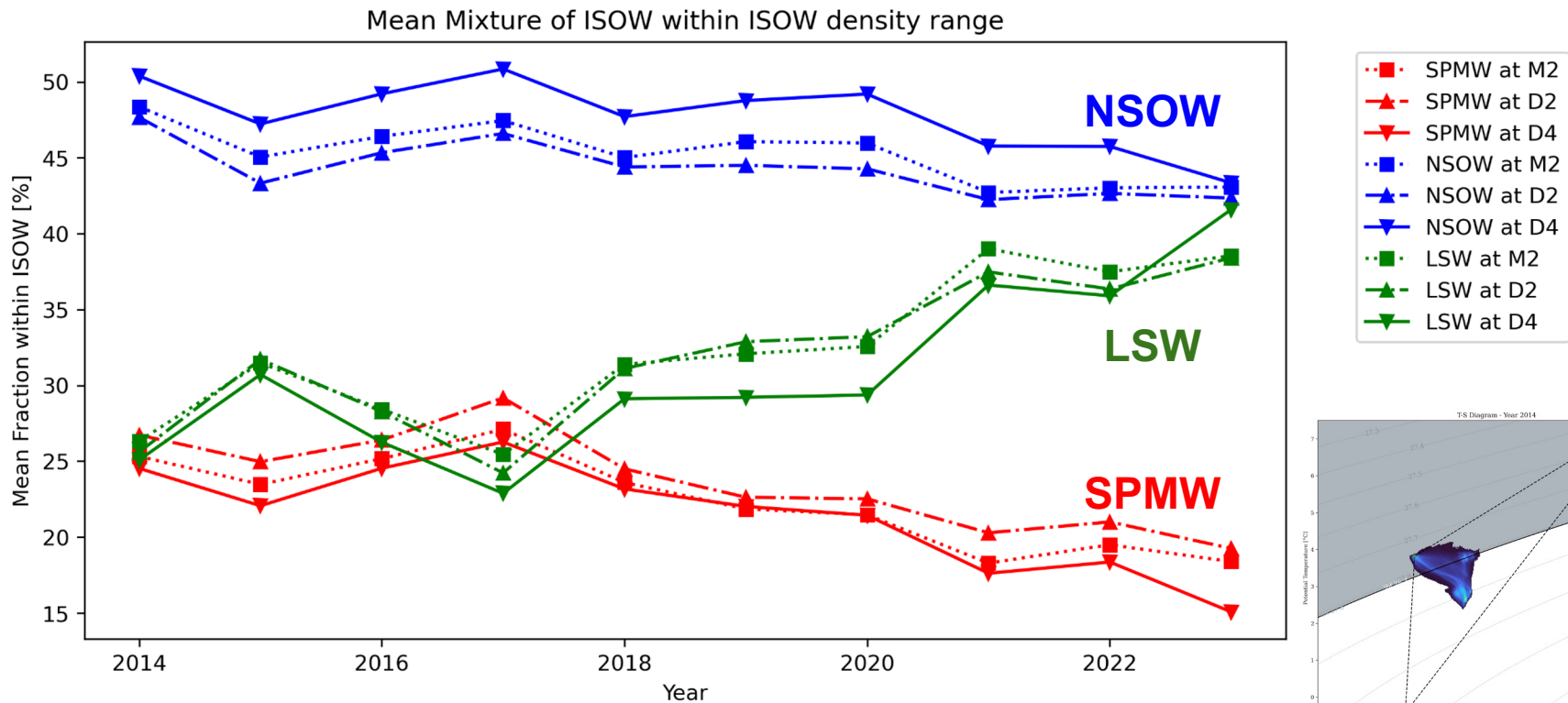
→ 2015: Great Salinity anomaly of the SPMW (Holliday et al. 2020)

→ Reflected in ISOW at OSNAP 7-8 months after



If changes in source waters do not fully explain ISOW variability, what does?

Variability of the mixing rates of each water mass within the ISOW at OSNAP



Conclusions:

- ISOW variability cannot be explained solely by changes in source water masses.
- A shift in composition is observed, with increasing LSW contribution and declining SPMW and NSOW fractions within the ISOW layer.

Next steps:

What controls the variability in water mass mixing?