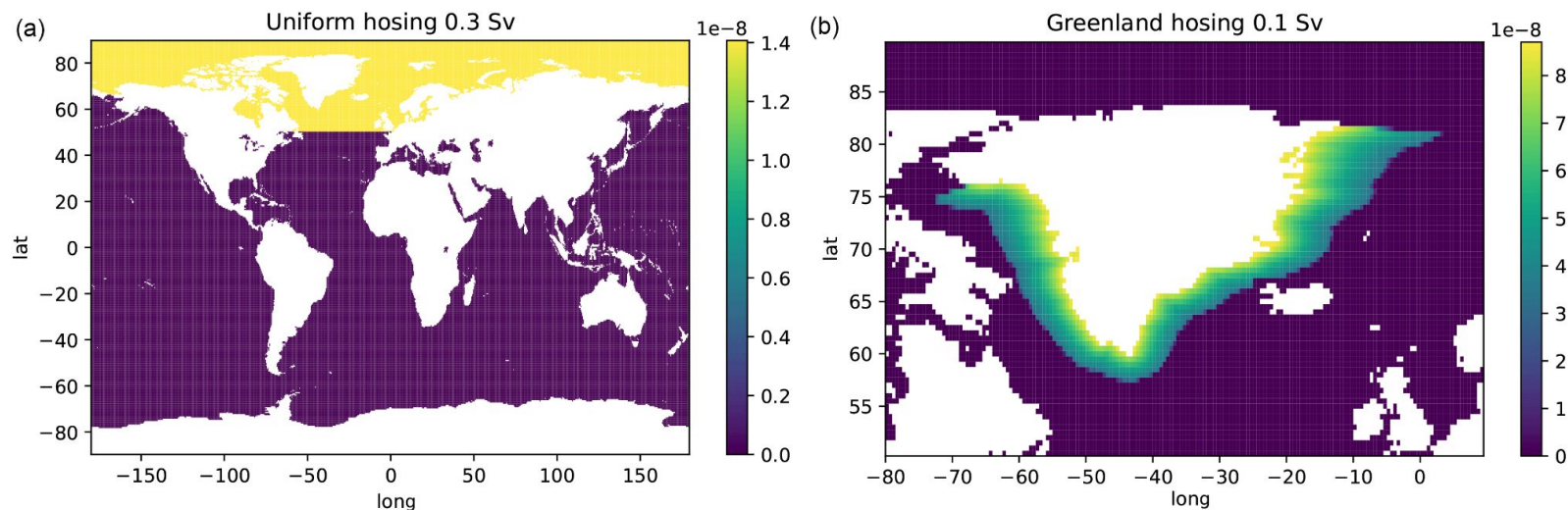


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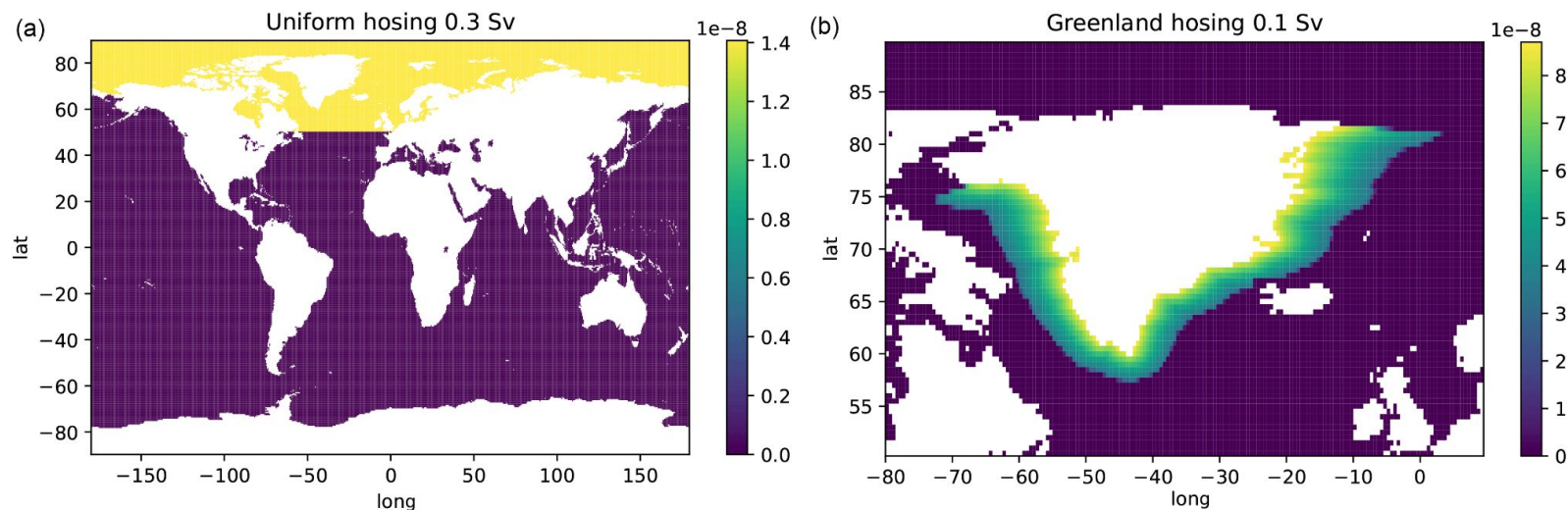
From idealised water hosing to a more realistic approach

Proposed hosing distributions in NAHosMIP *Jackson et al. (2023)*



From idealised water hosing to a more realistic approach

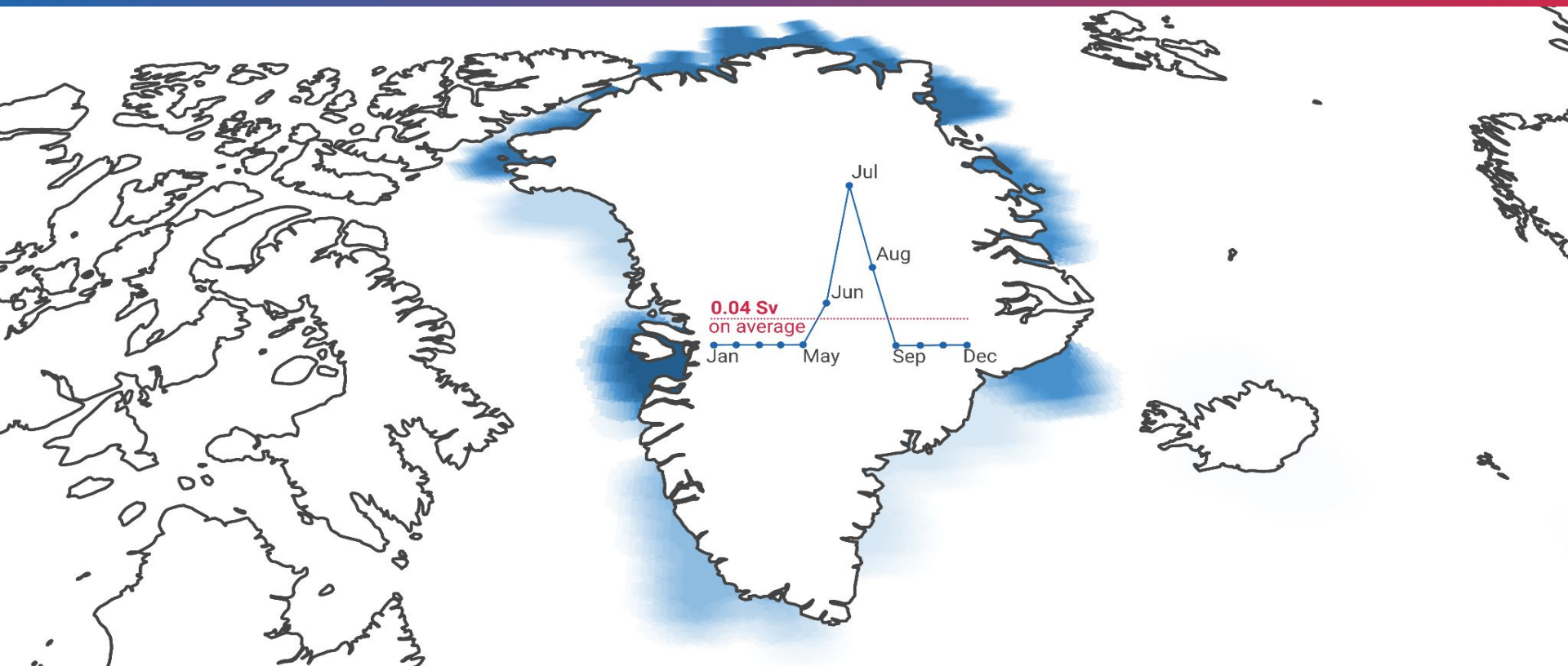
Proposed hosing distributions in NAHosMIP *Jackson et al. (2023)*



Few studies with realistic forcing and eddy-rich ocean

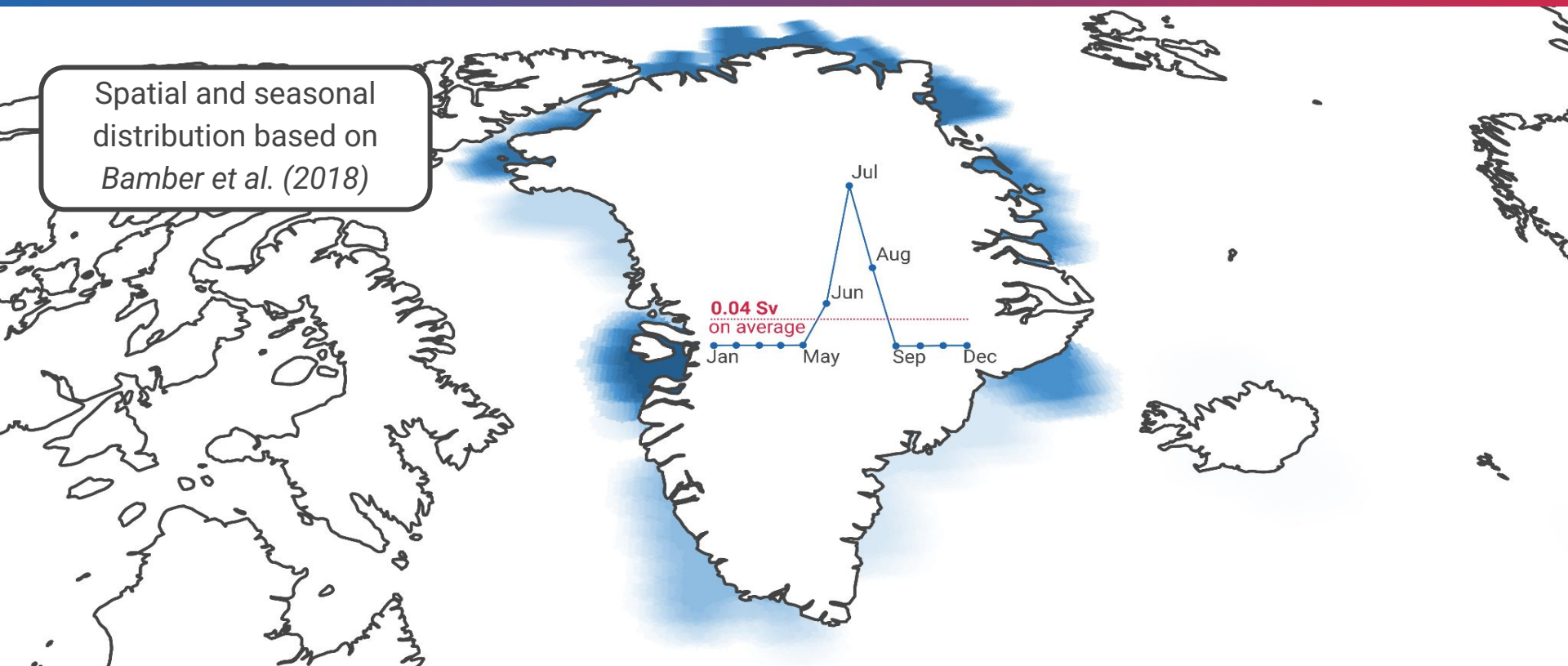


Quasi-realistic Greenland meltwater forcing in EC-Earth3P-VHR



Quasi-realistic Greenland meltwater forcing in EC-Earth3P-VHR

Spatial and seasonal distribution based on *Bamber et al. (2018)*



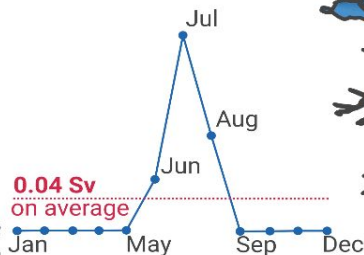
Quasi-realistic Greenland meltwater forcing in EC-Earth3P-VHR

Spatial and seasonal distribution based on *Bamber et al. (2018)*

EC-Earth3P-VHR

~8 km ocean

~16 km atmosphere



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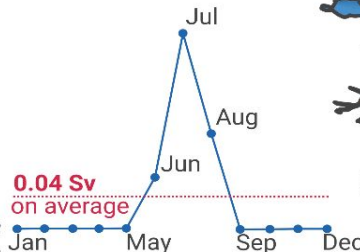
~16 km atmosphere

1950-radiative forcing

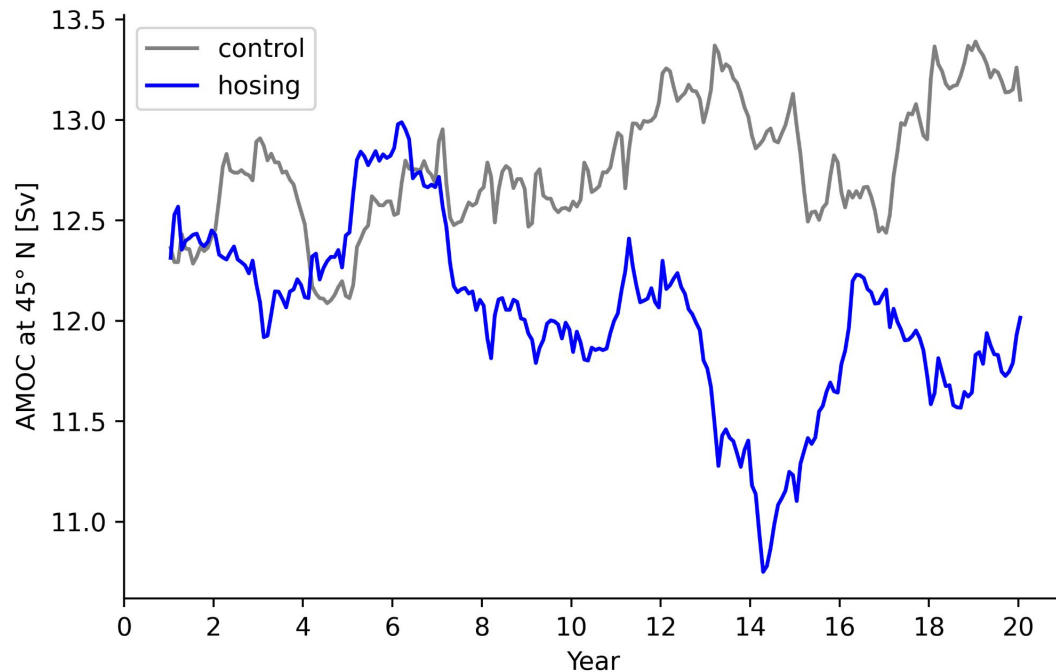
3 members

21 years

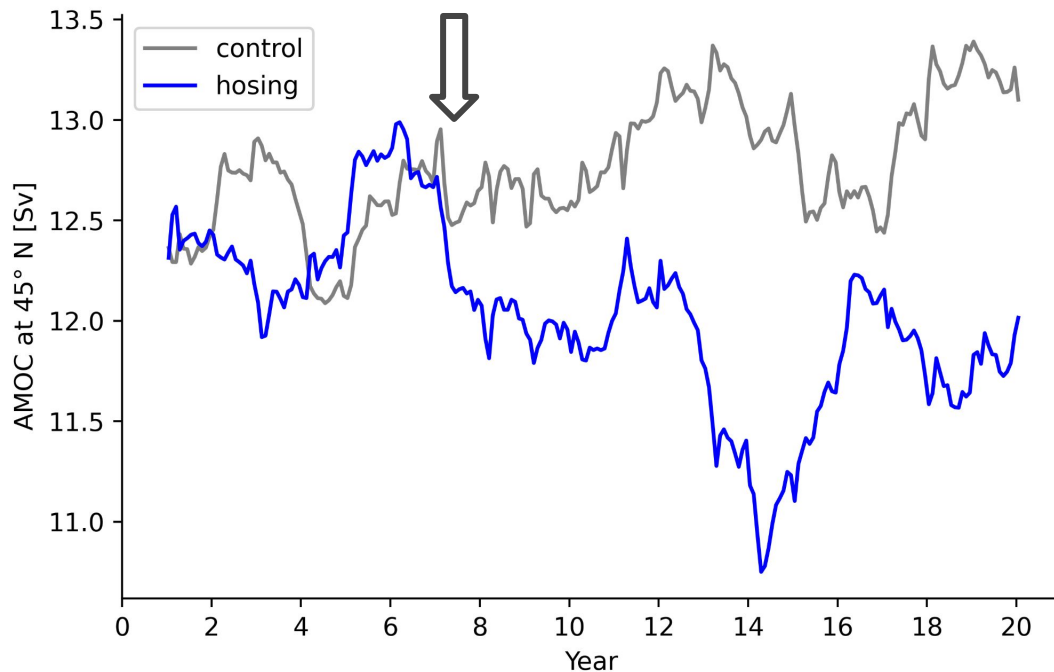
0.04 Sv
on average



Evolution of the AMOC



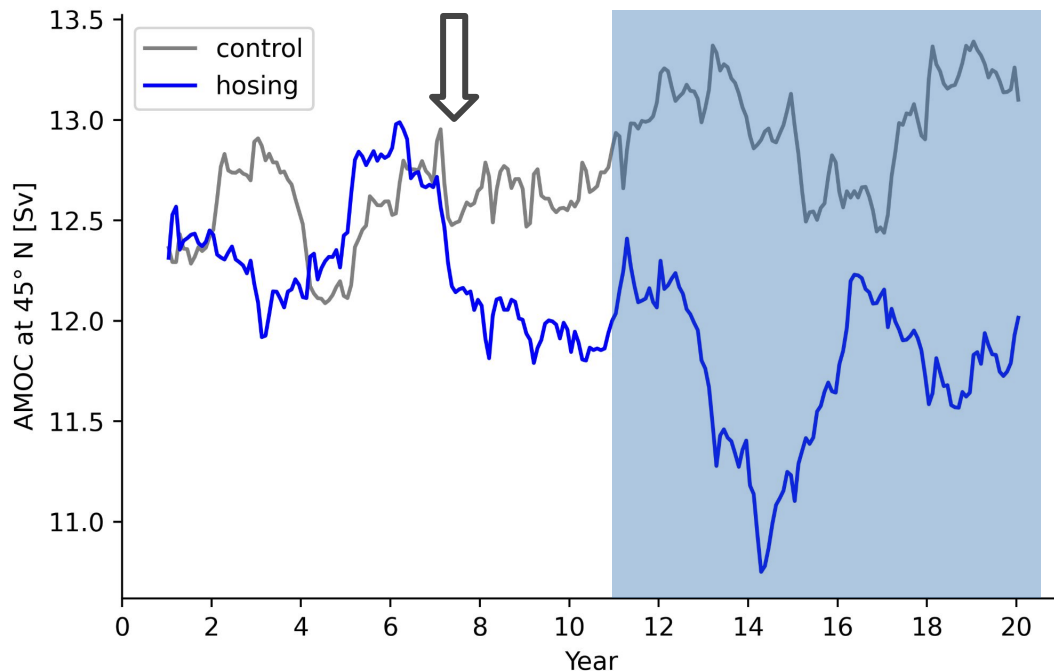
Evolution of the AMOC



AMOC changes at 45° N
start developing in year 7



Evolution of the AMOC

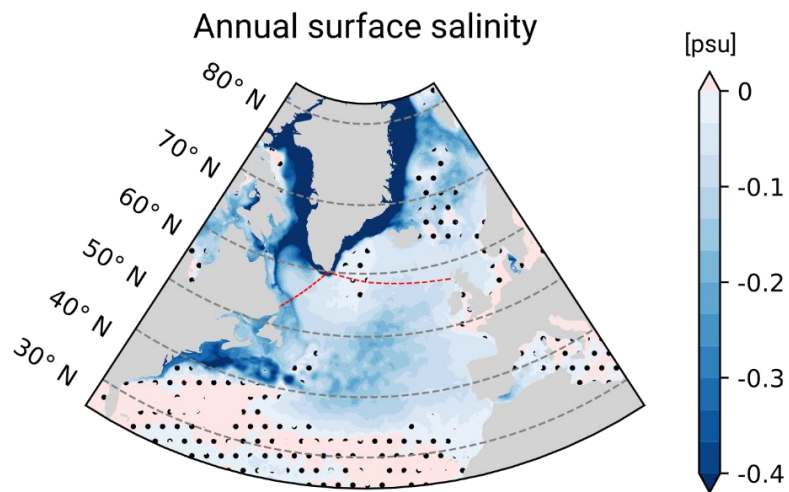


AMOC changes at 45° N
start developing in year 7

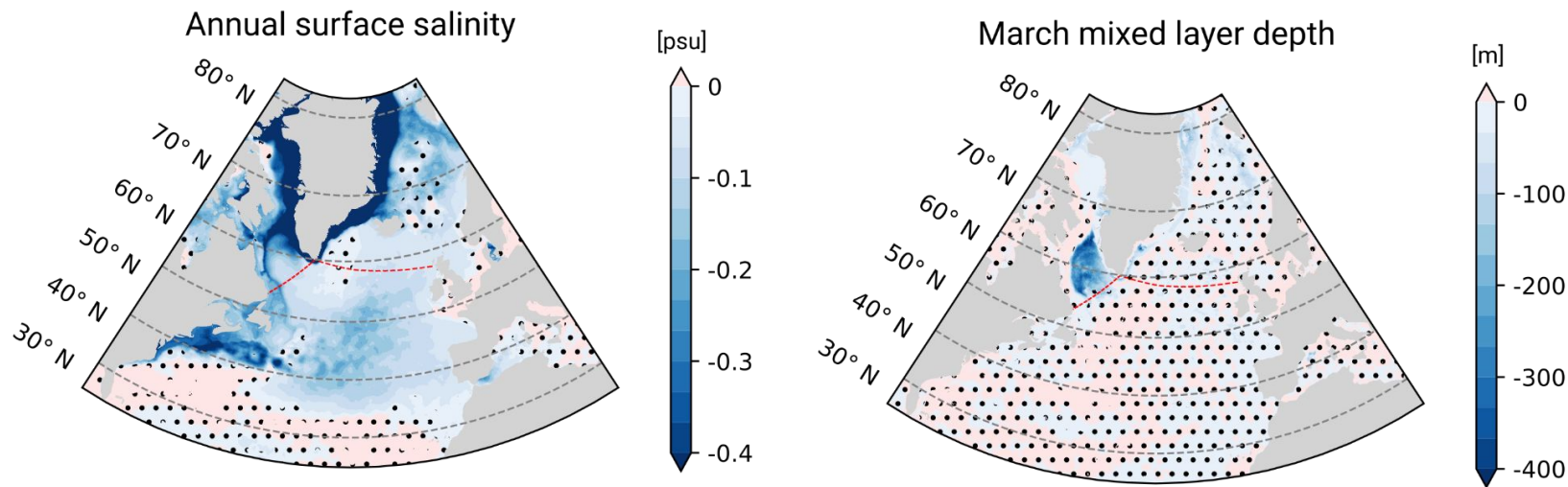
From now on...
Showing last 10 years anomalies
Dots mask non-significant



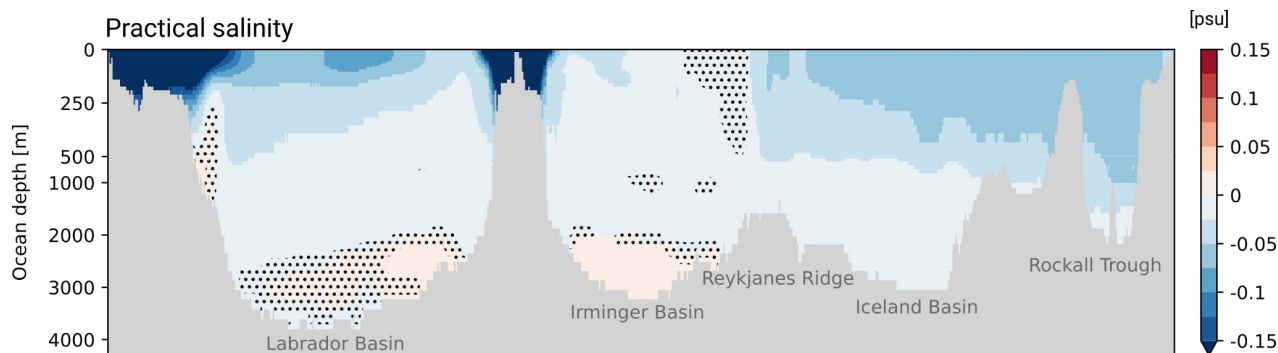
Freshening and cooling of the Subpolar North Atlantic



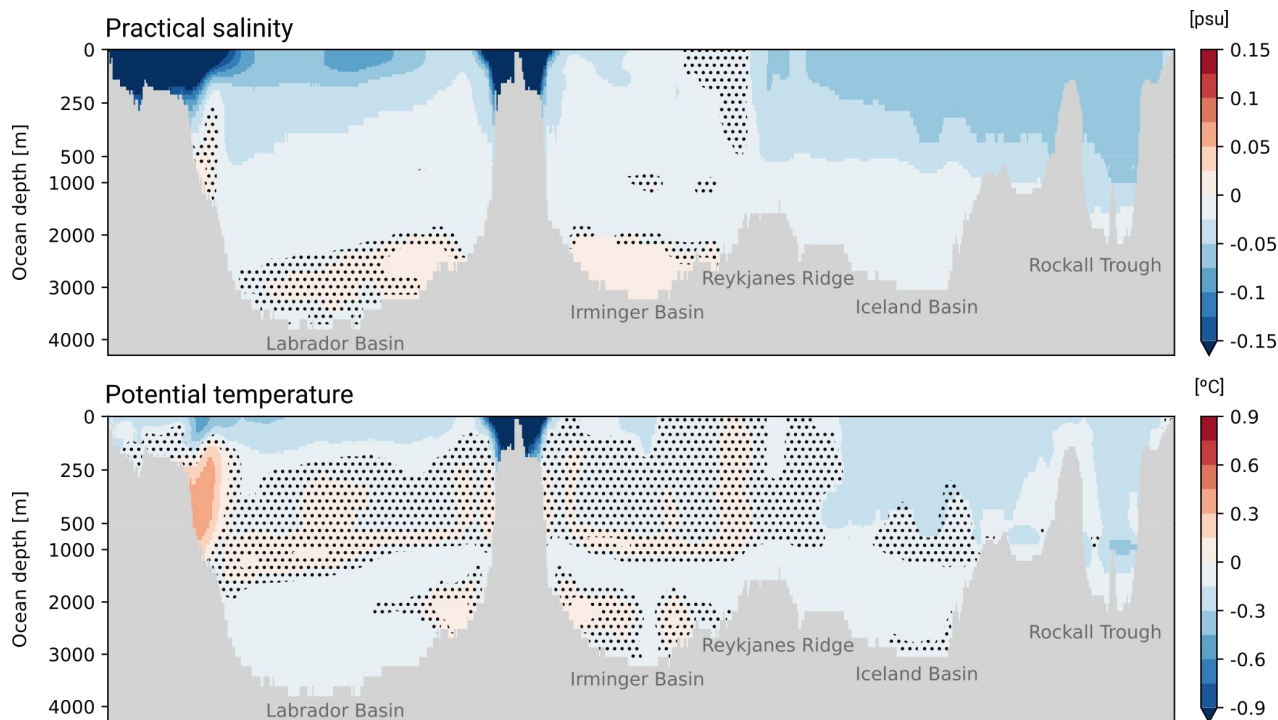
Freshening and cooling of the Subpolar North Atlantic



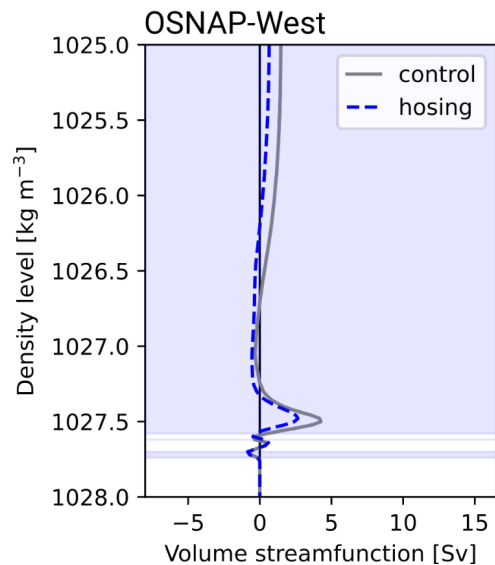
Freshening of the OSNAP section and warming of the DWBC



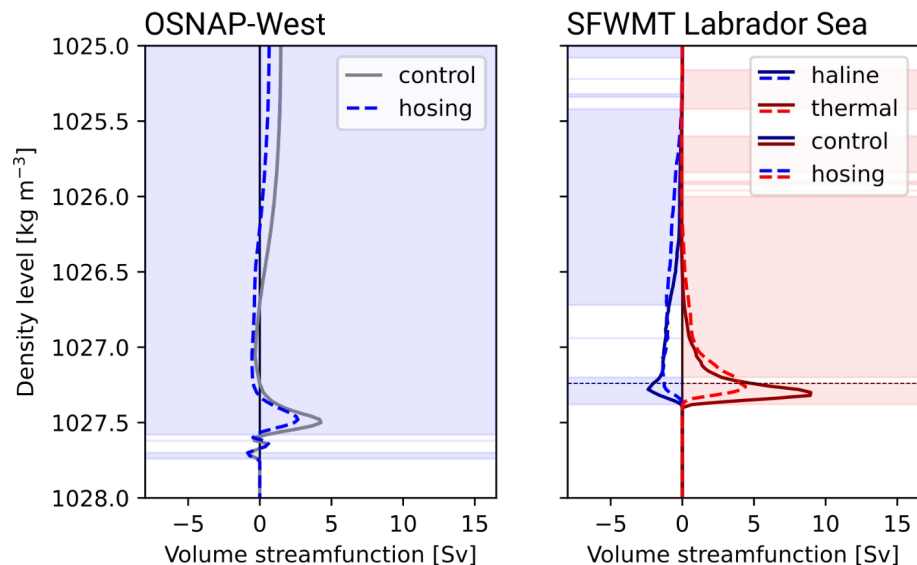
Freshening of the OSNAP section and warming of the DWBC



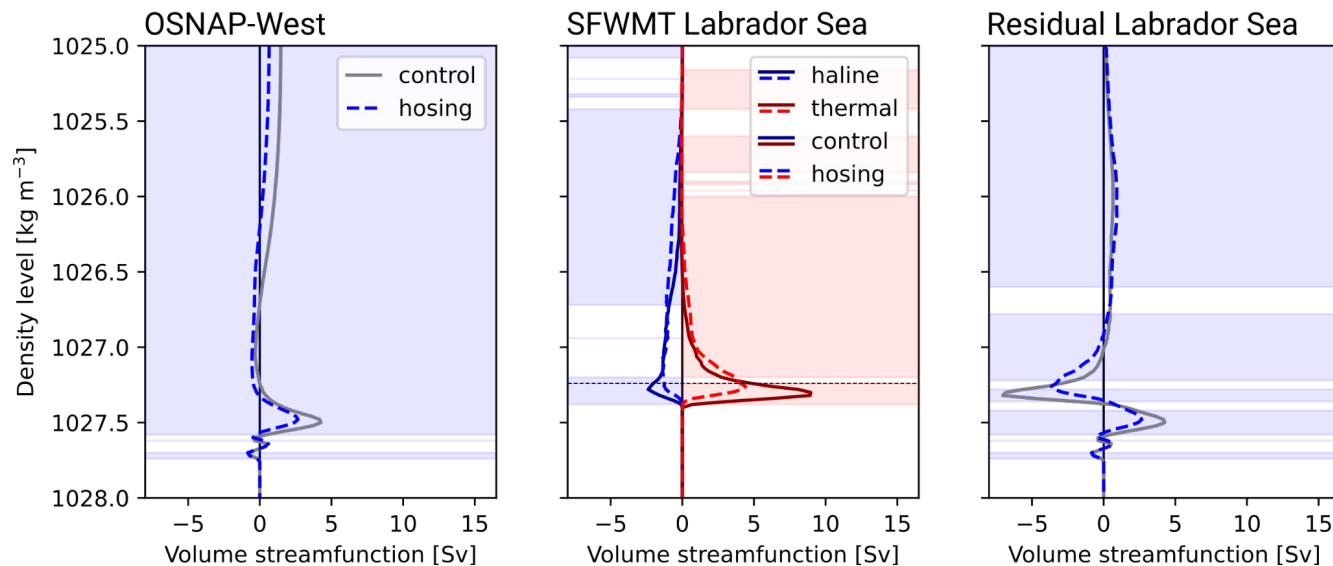
Reduction of available water for deep mixing in the Labrador Sea



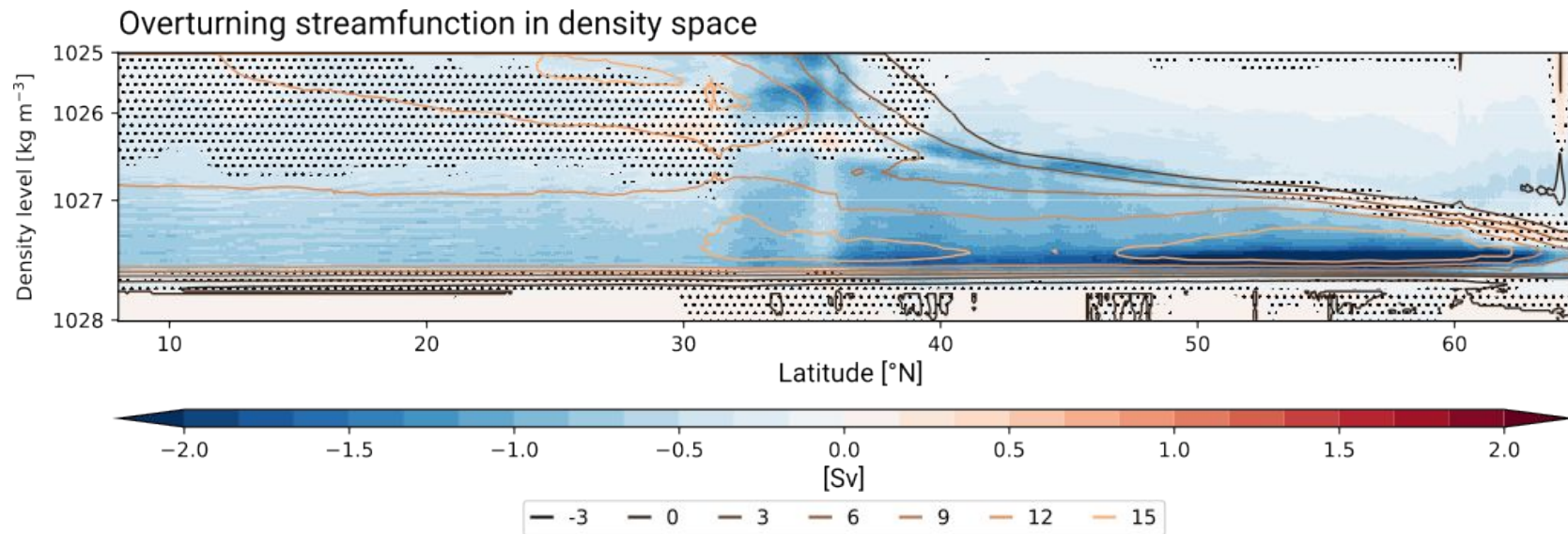
Reduction of available water for deep mixing in the Labrador Sea



Reduction of available water for deep mixing in the Labrador Sea



Widespread AMOC weakening



Conclusions

- ❖ Spatio-temporal distribution and the model resolution are key aspects



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Conclusions

- ❖ Spatio-temporal distribution and the model resolution are key aspects
- ❖ The freshwater anomalies reduce the vertical mixing in the Labrador Sea
- ❖ This impacts the low and mid latitudes AMOC and also produces a warming of the deep western boundary current



Funding

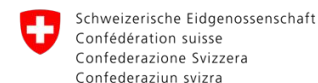
EERIE project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101081383.



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ETH Zürich's contribution to EERIE is funded by the Swiss State Secretariat for Education, Research and Innovation (SERI) under contract #22.00366.

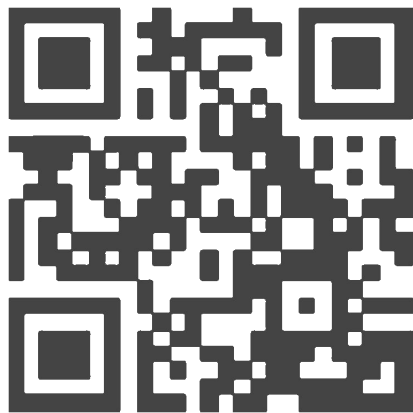


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*eneko.martin@bsc.es



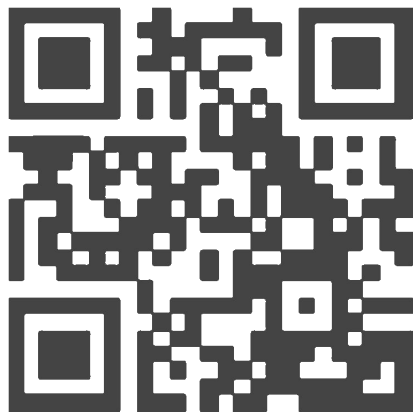
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Thank you

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More analyses



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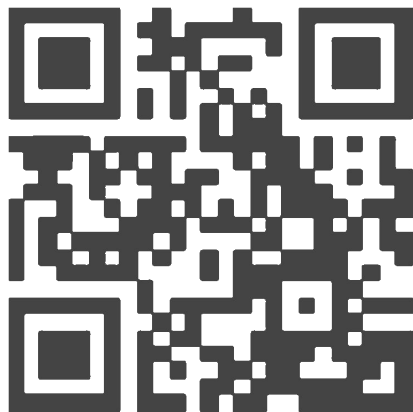
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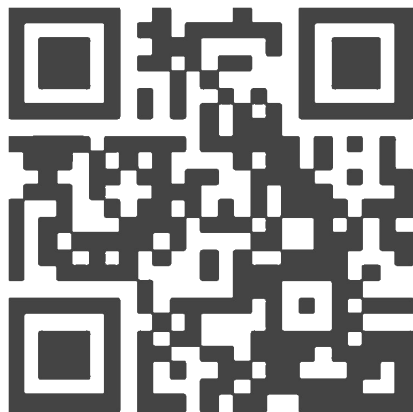
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More analyses

More discussion

More fun



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