High-spatial-resolution oceanography of the central Canadian Arctic Archipelago

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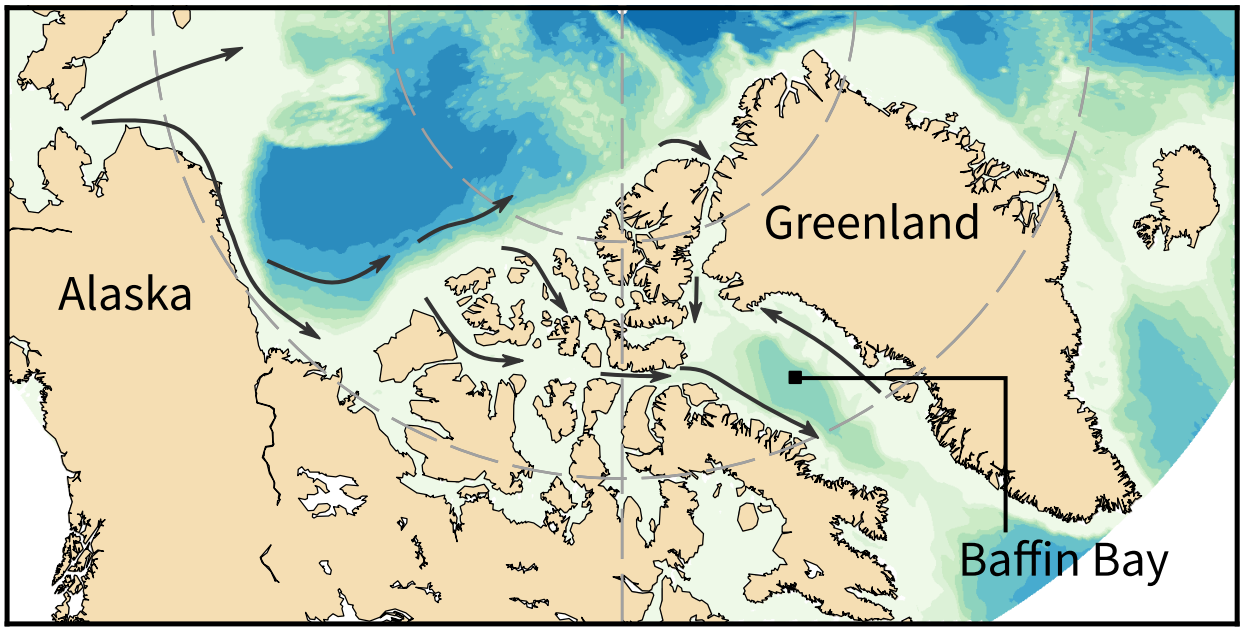
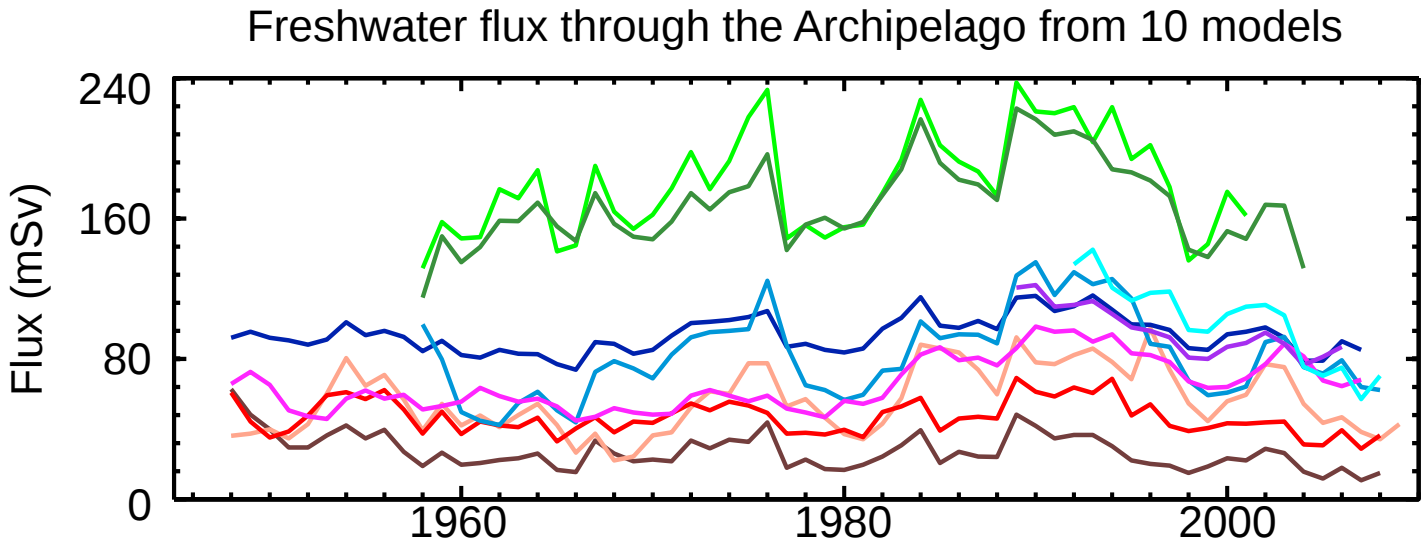
Bill Williams,[2] Humfrey Melling[2]

[1]University of Victoria
[2]Institute of Ocean Sciences

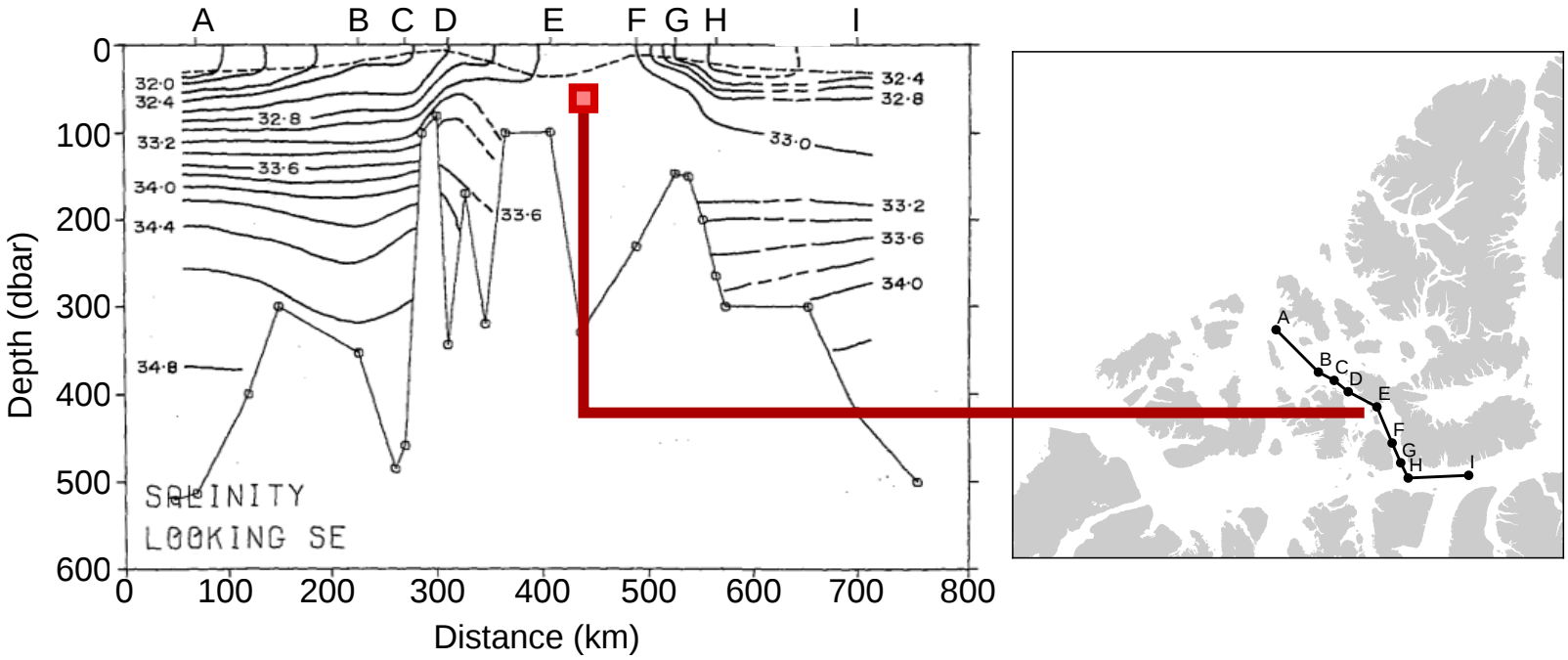
Large-scale flow estimates disagree





Jahn et al. (2012)

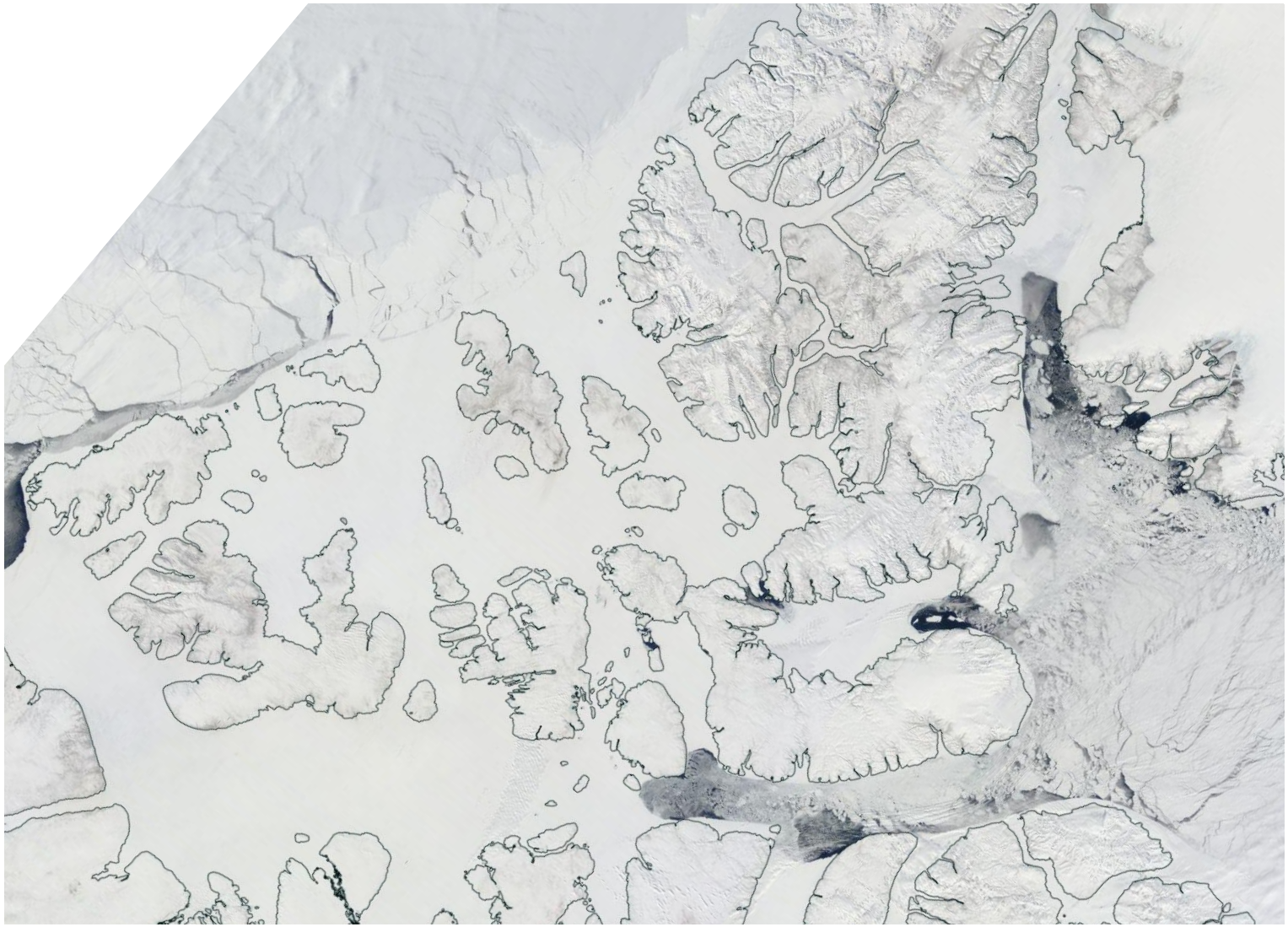
Past observations indicate strong mixing



de Lange Boom et al. (1987)

Ice conditions indicate strong mixing

May 3



NASA Worldview

Ice conditions indicate strong mixing

June 3

NASA Worldview

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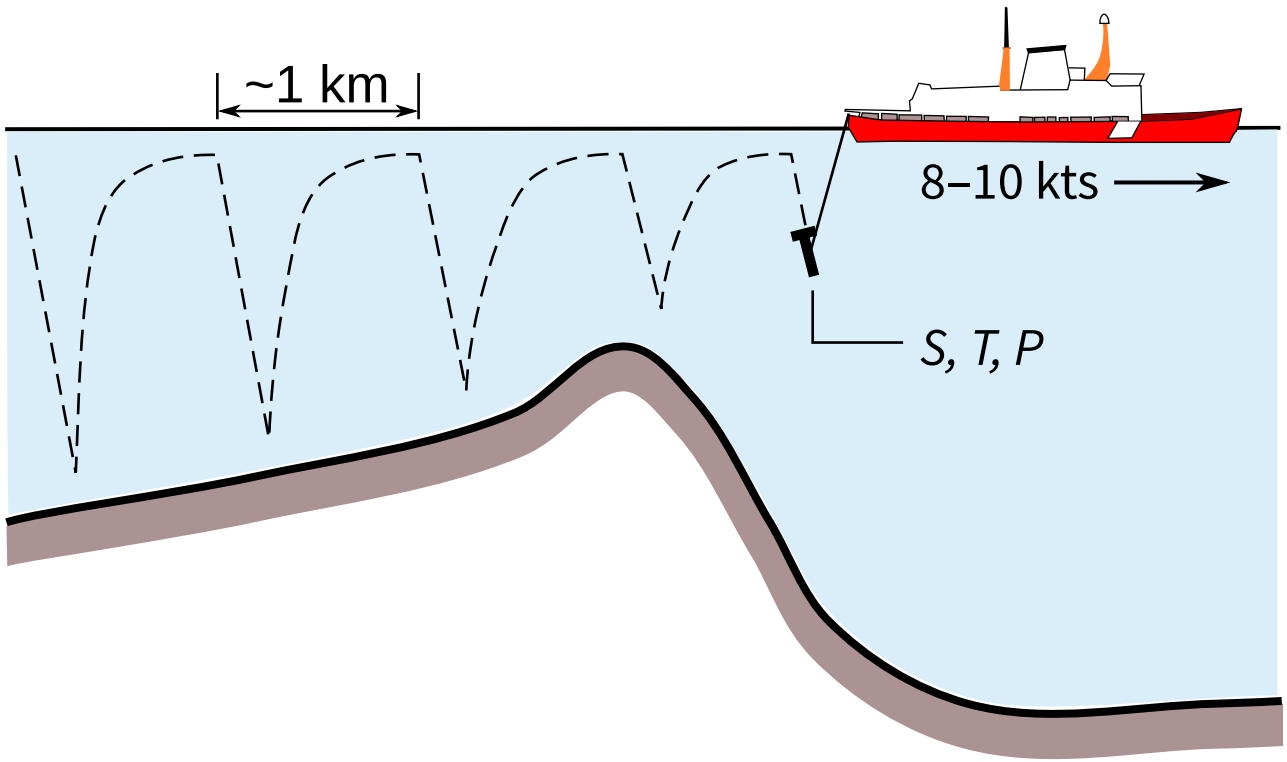
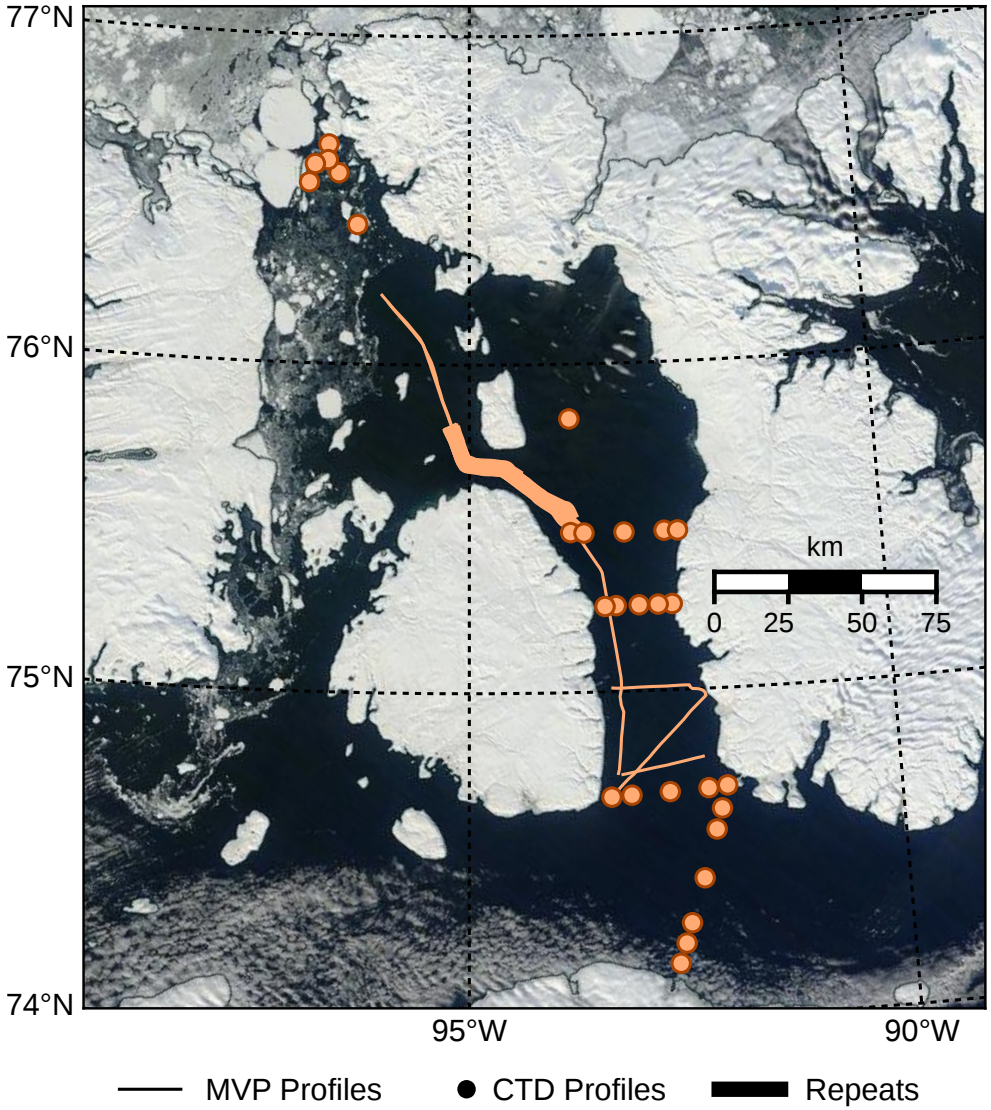
June 3

NASA Worldview

The MVP: moving vessel profiler

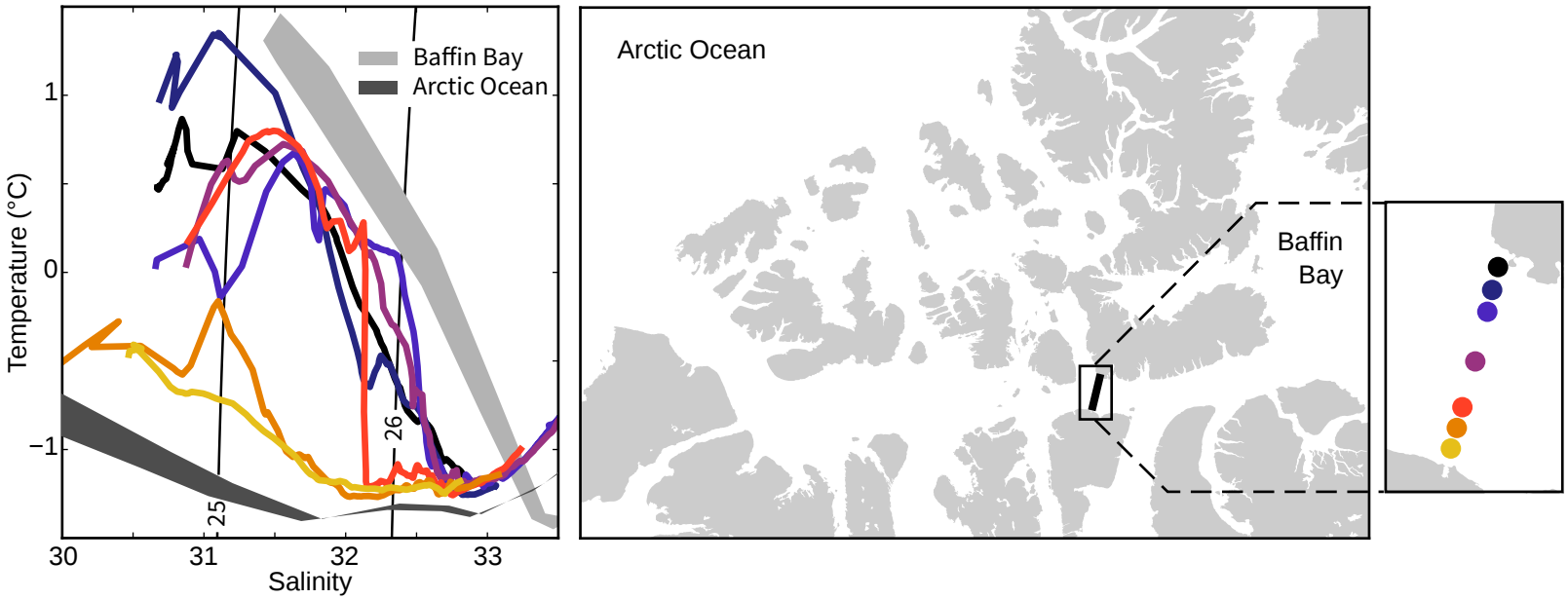


Survey summary



NASA Worldview

A meeting ground for water masses



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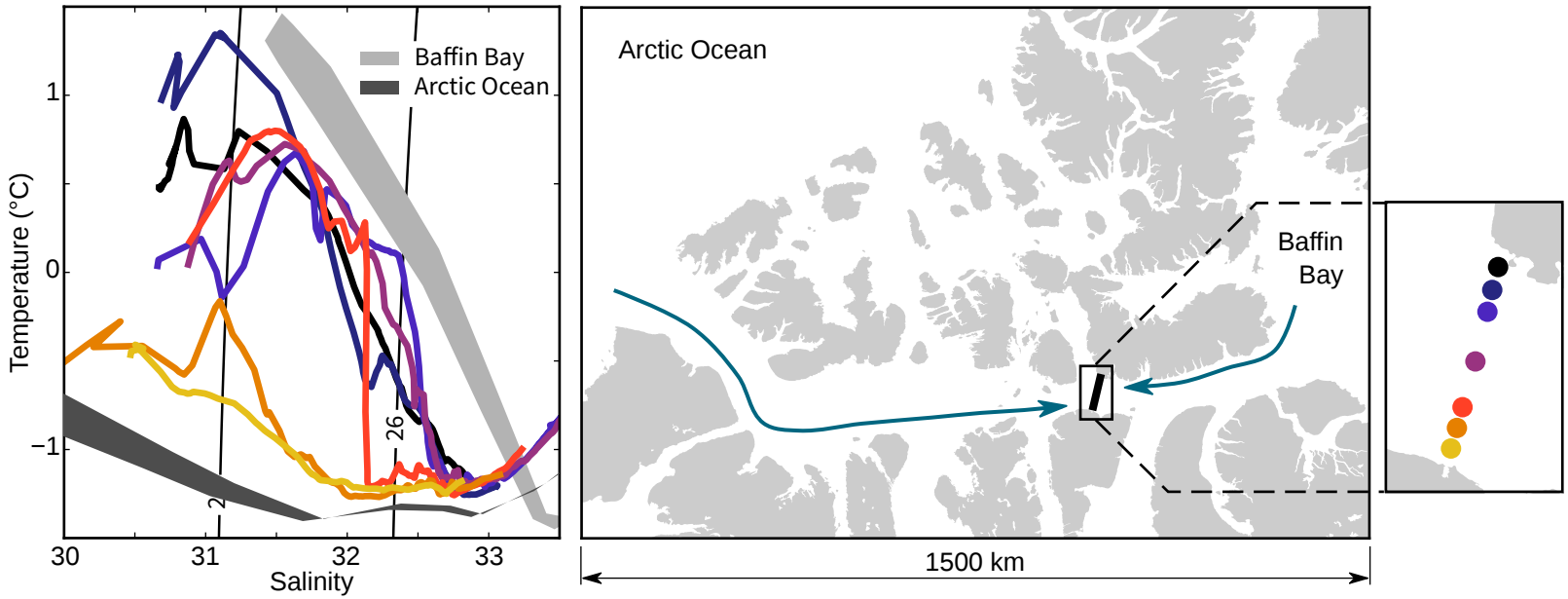
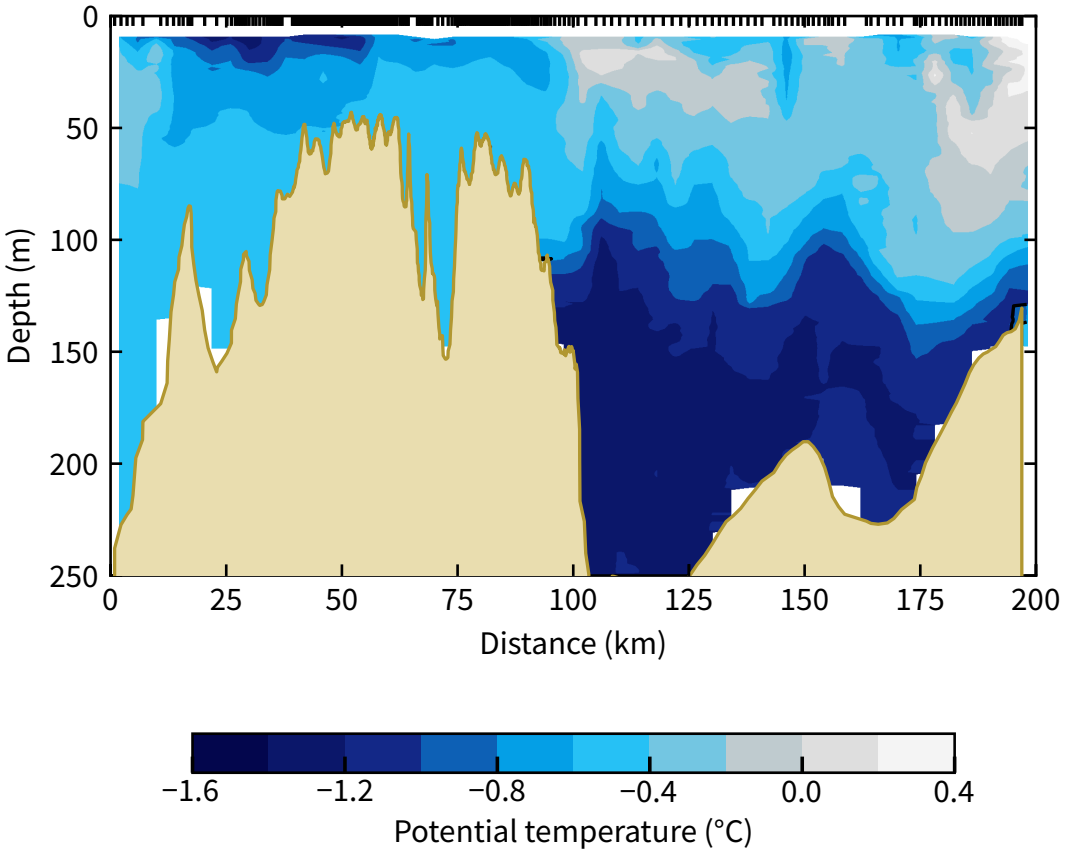
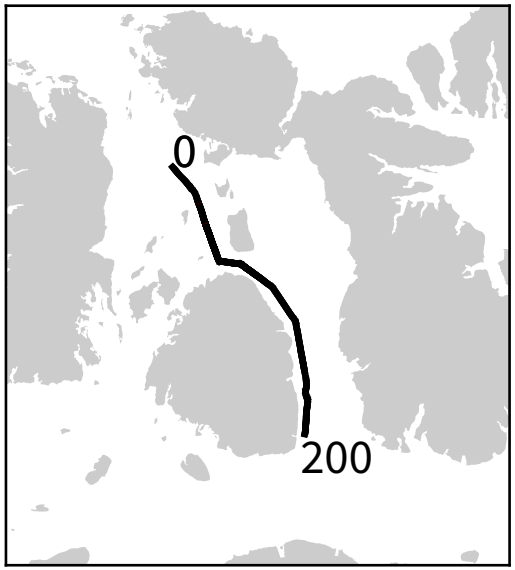


An abrupt transition in properties





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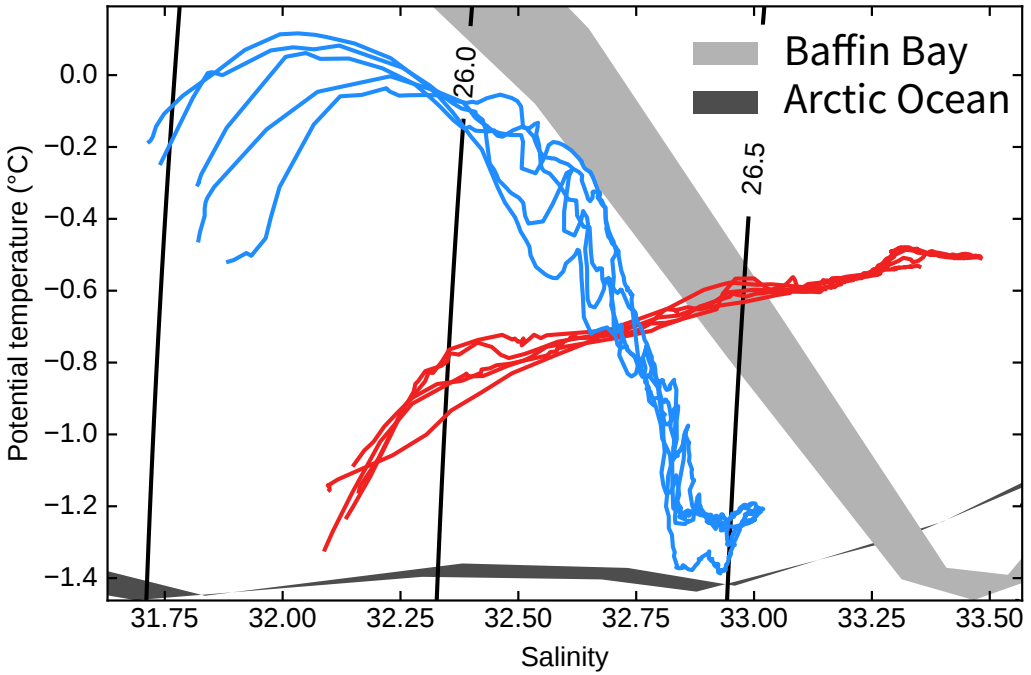
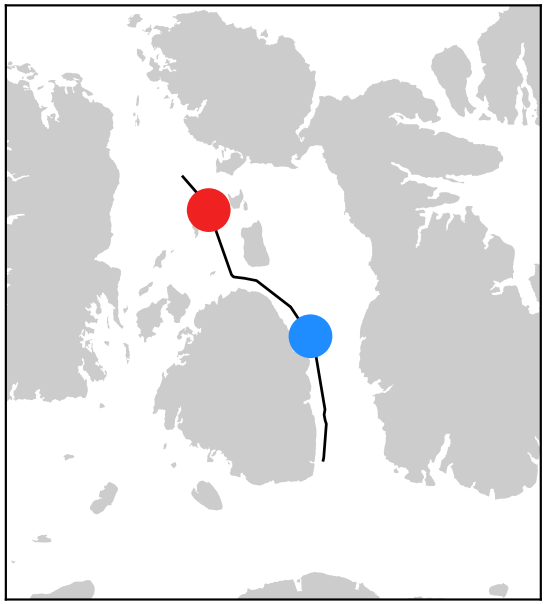
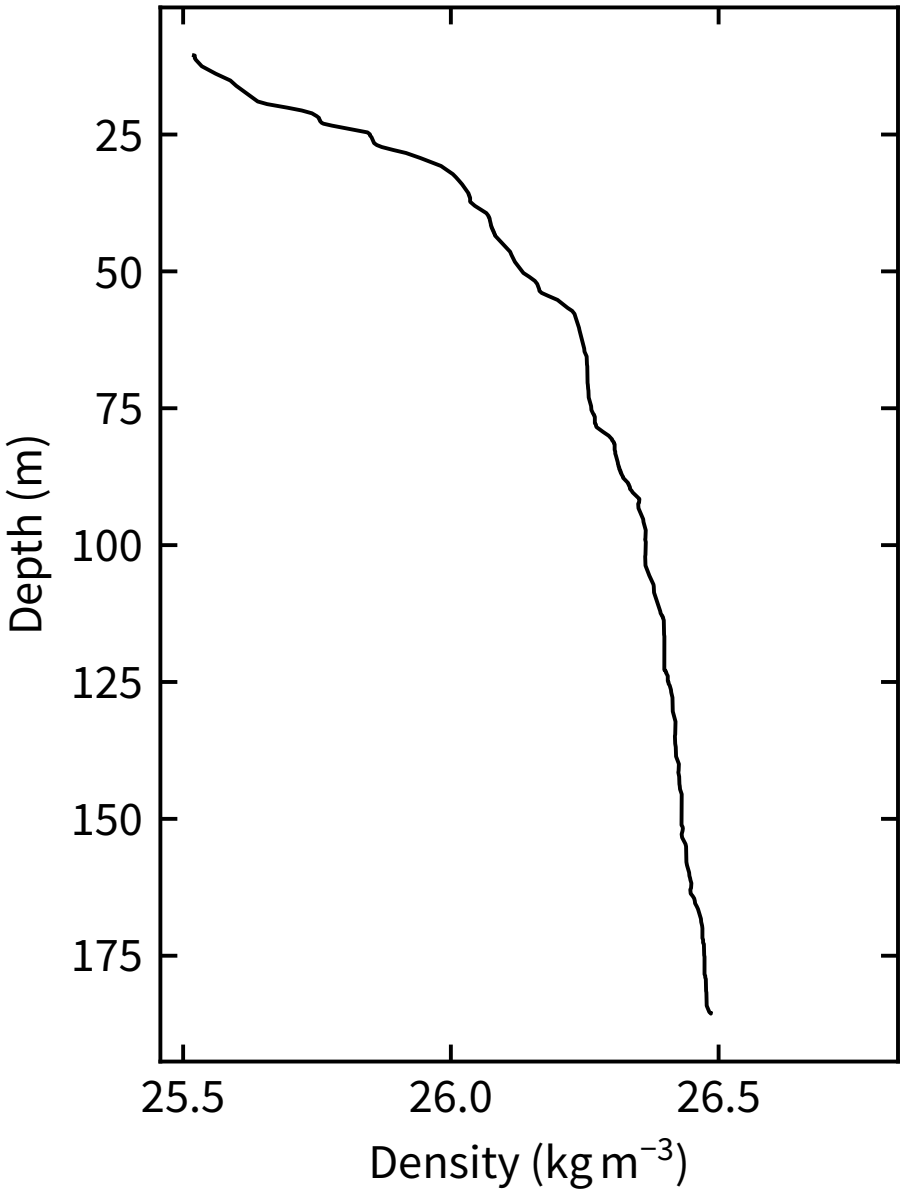




Estimating dissipation



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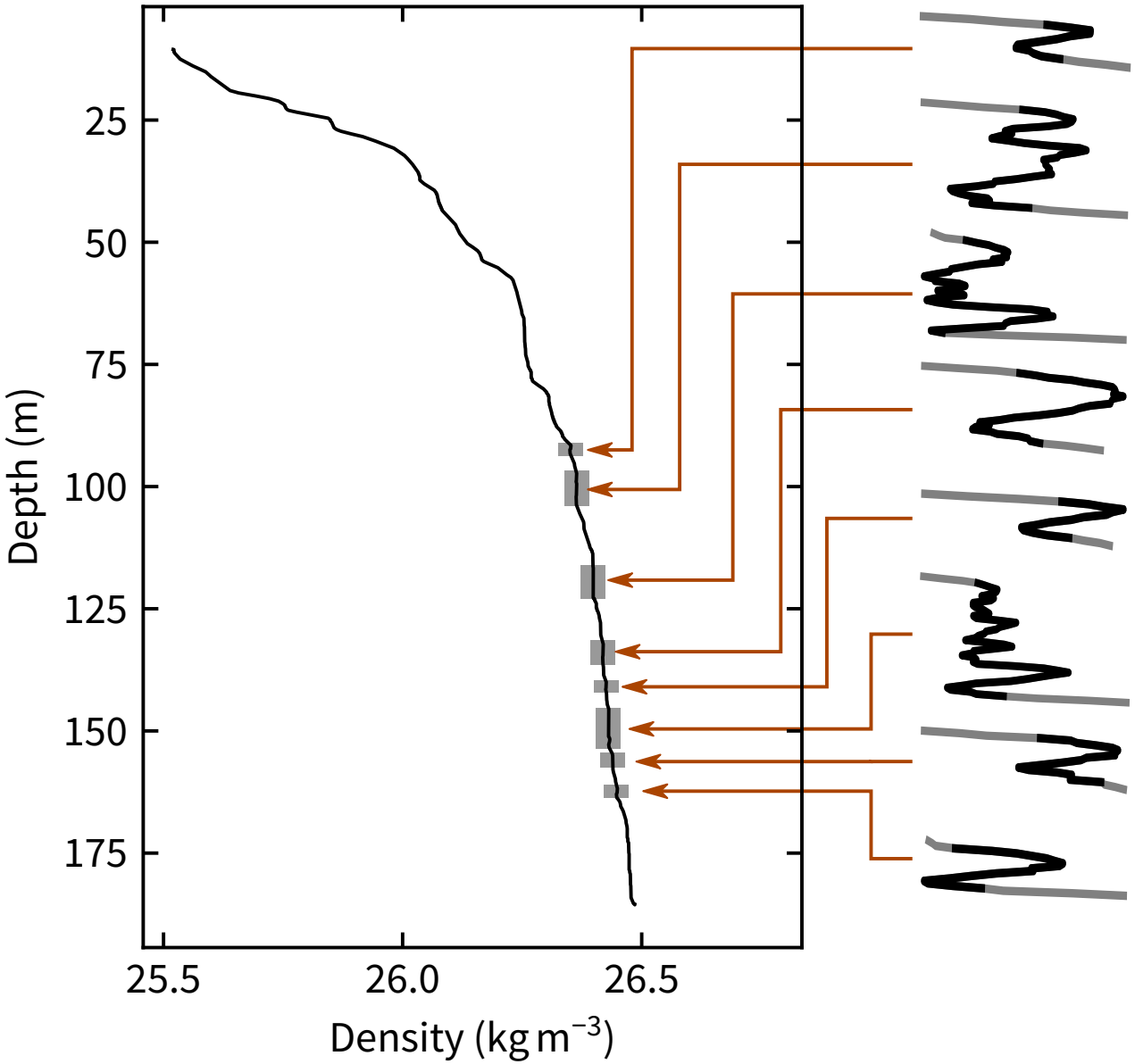
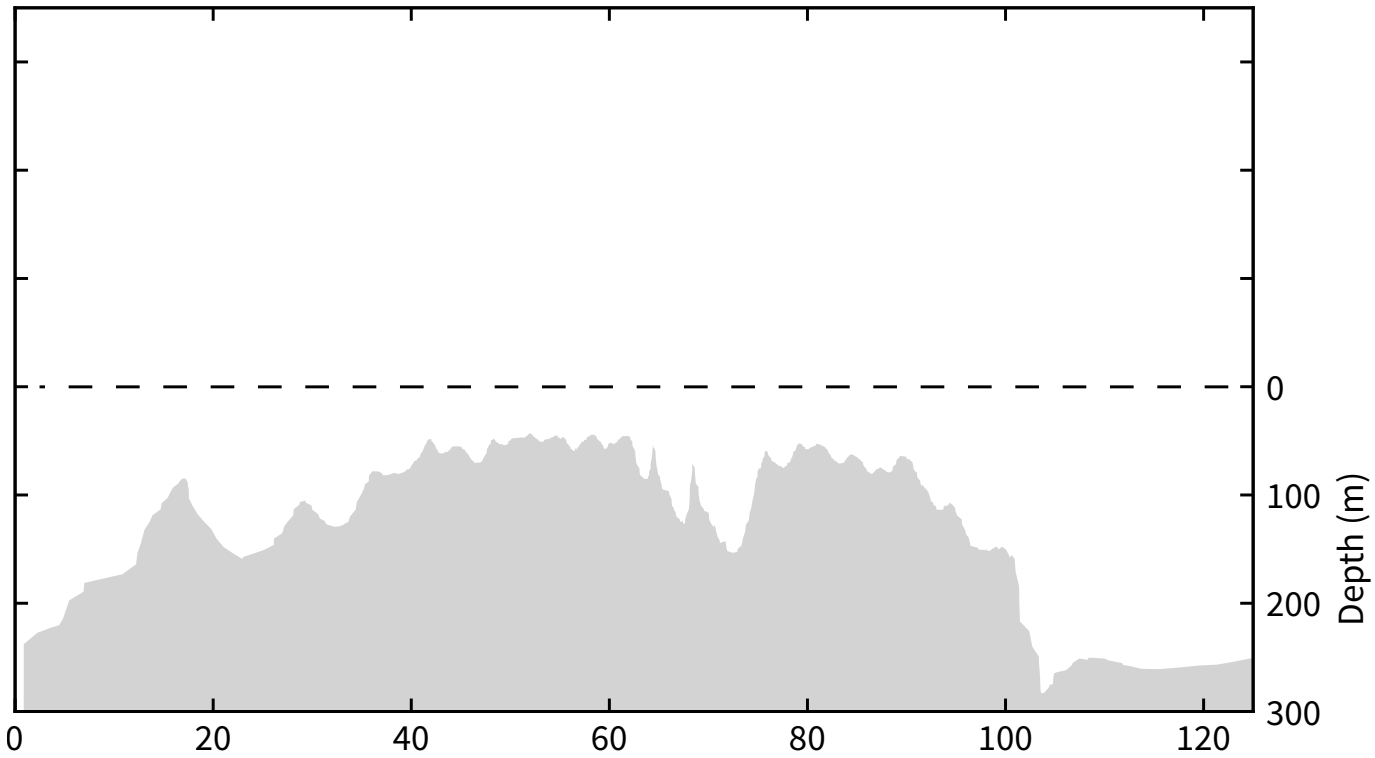


High dissipation rates near sills



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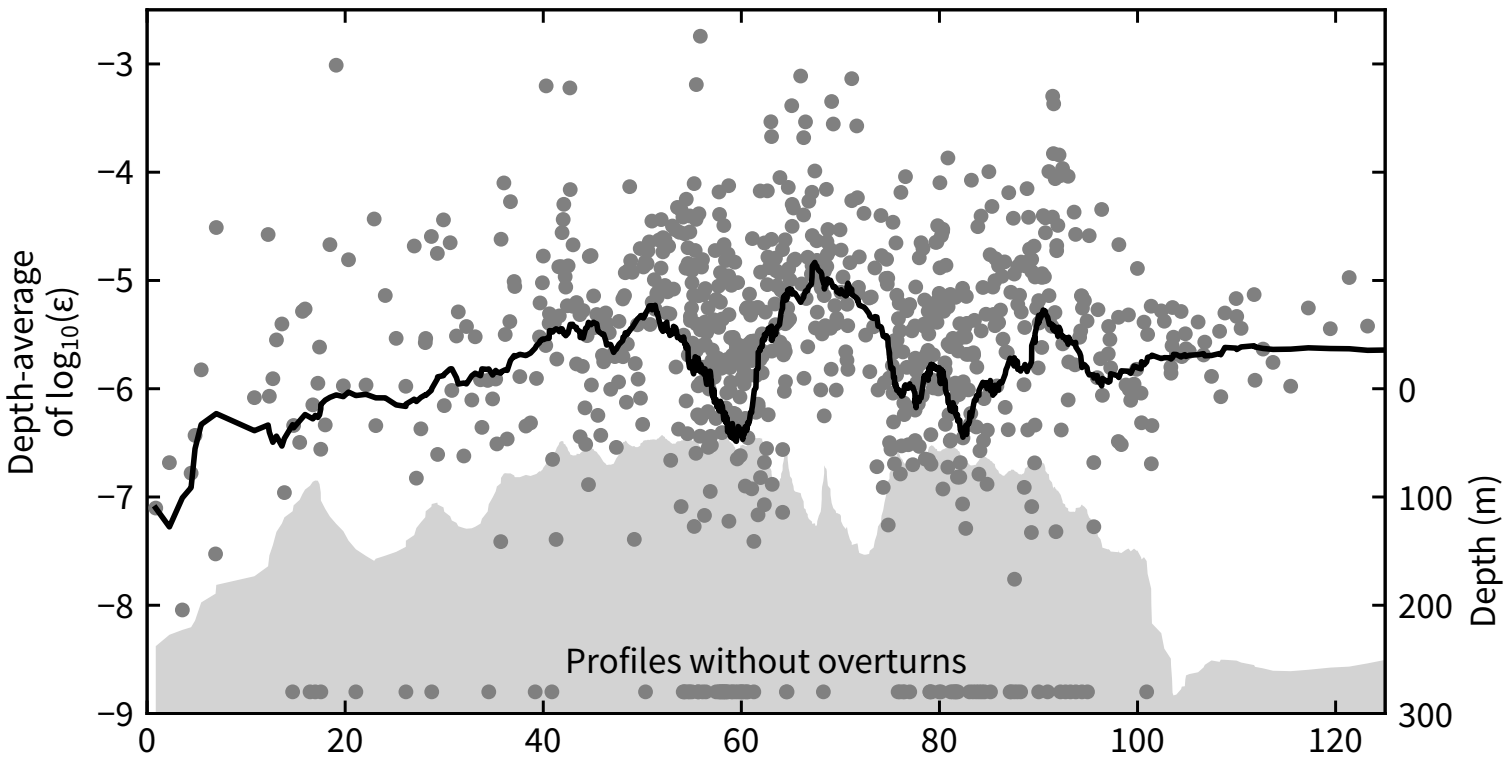
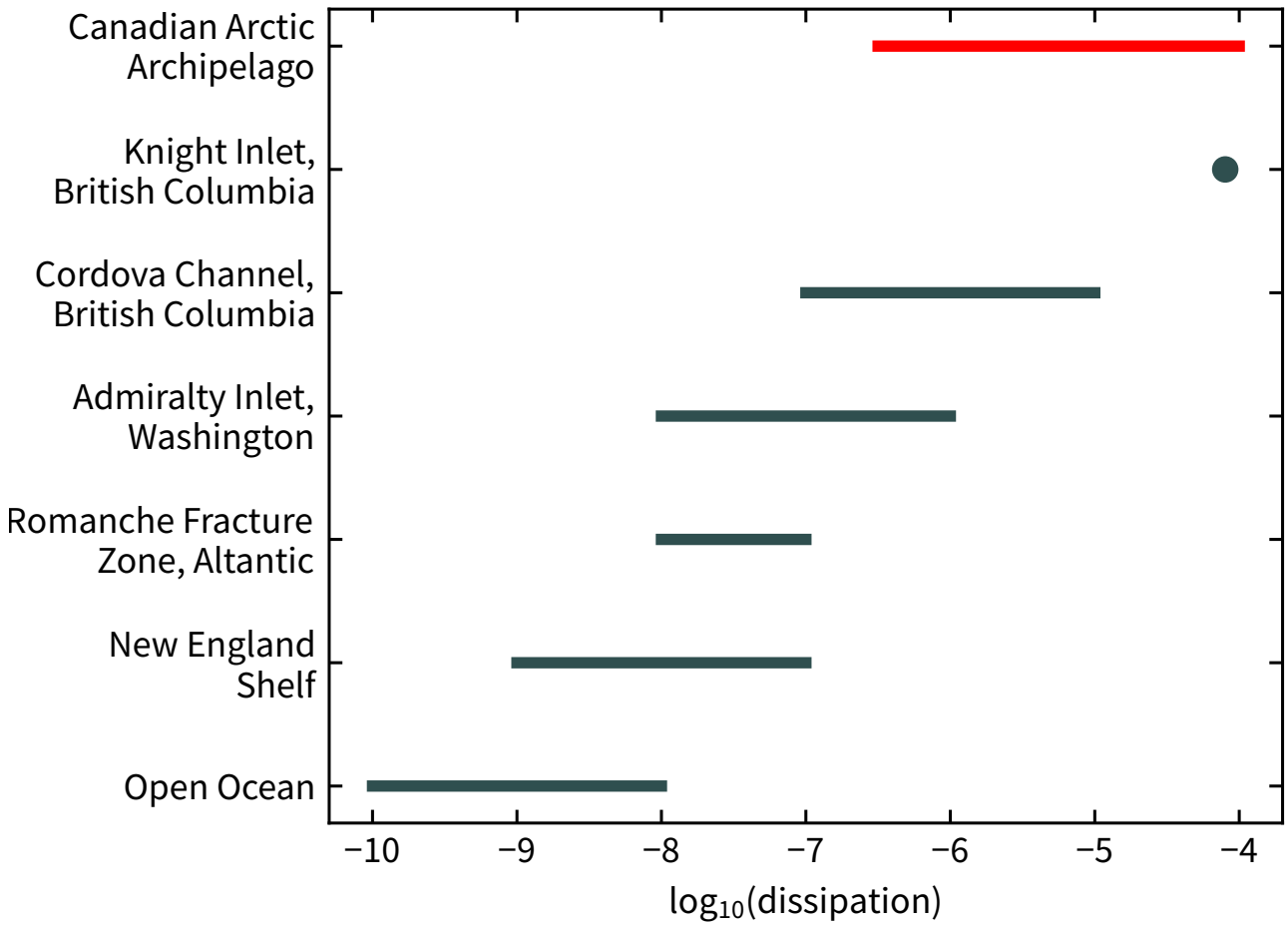


Mixing rates in context



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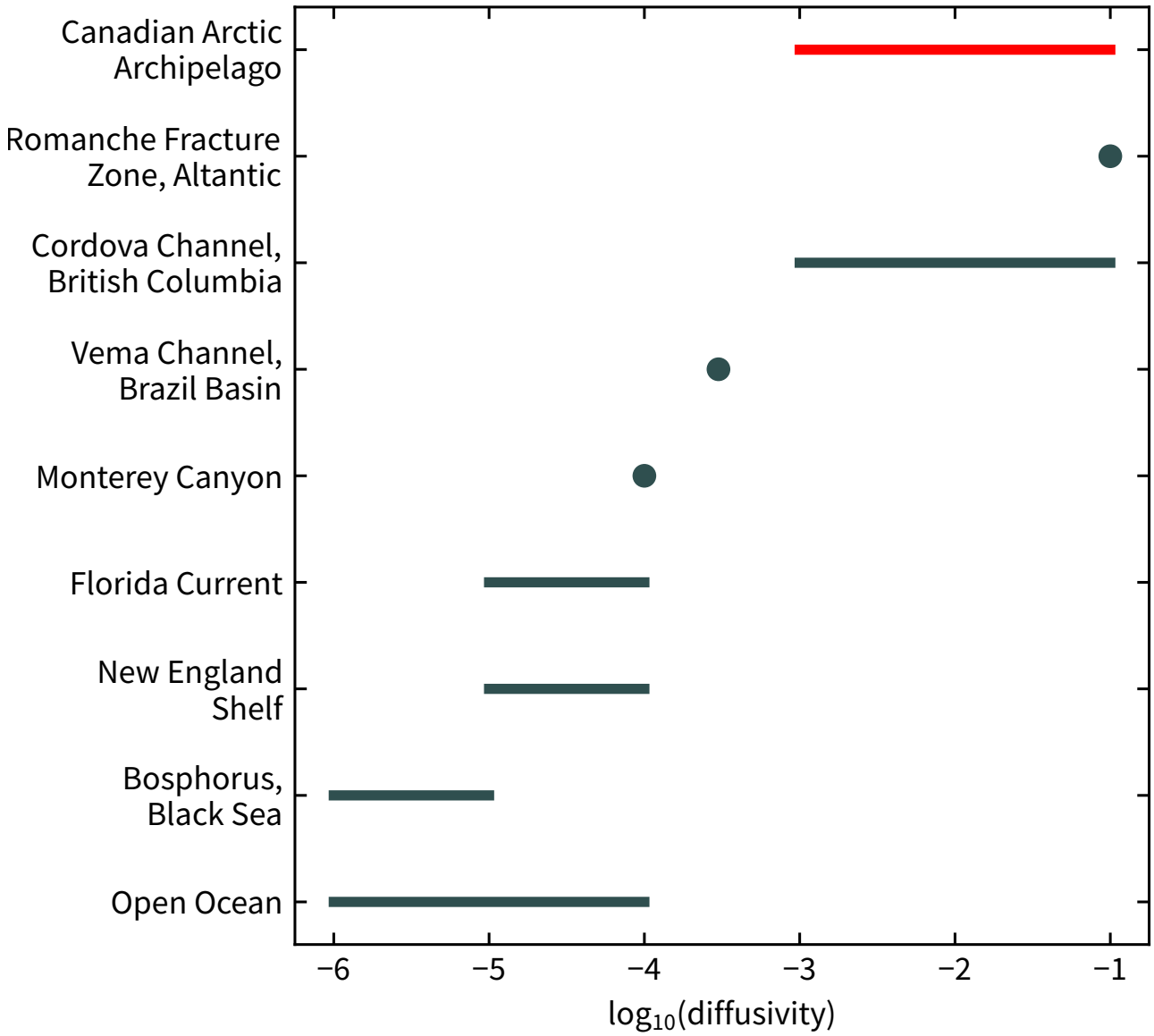
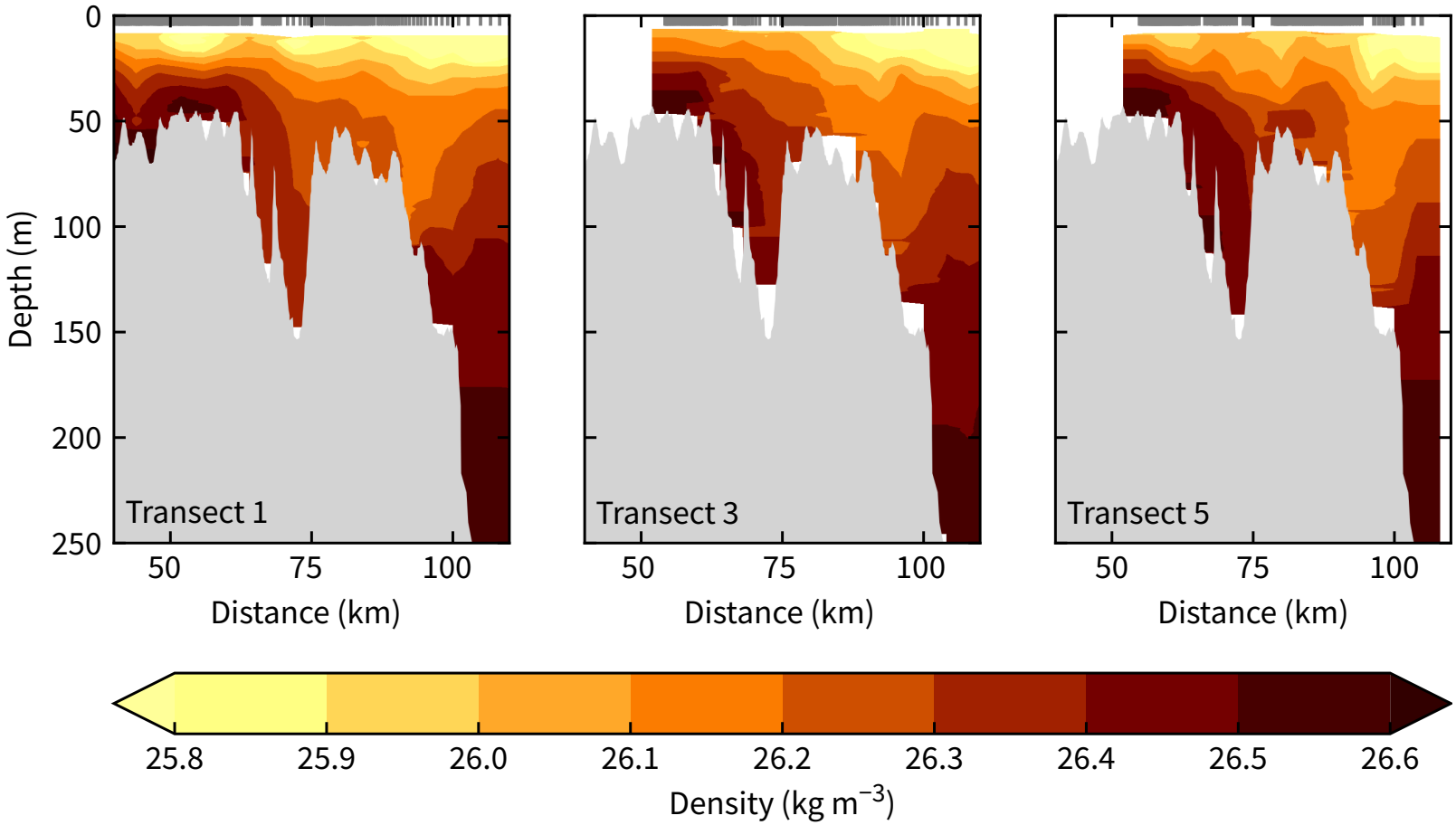


Why such large dissipation and mixing?



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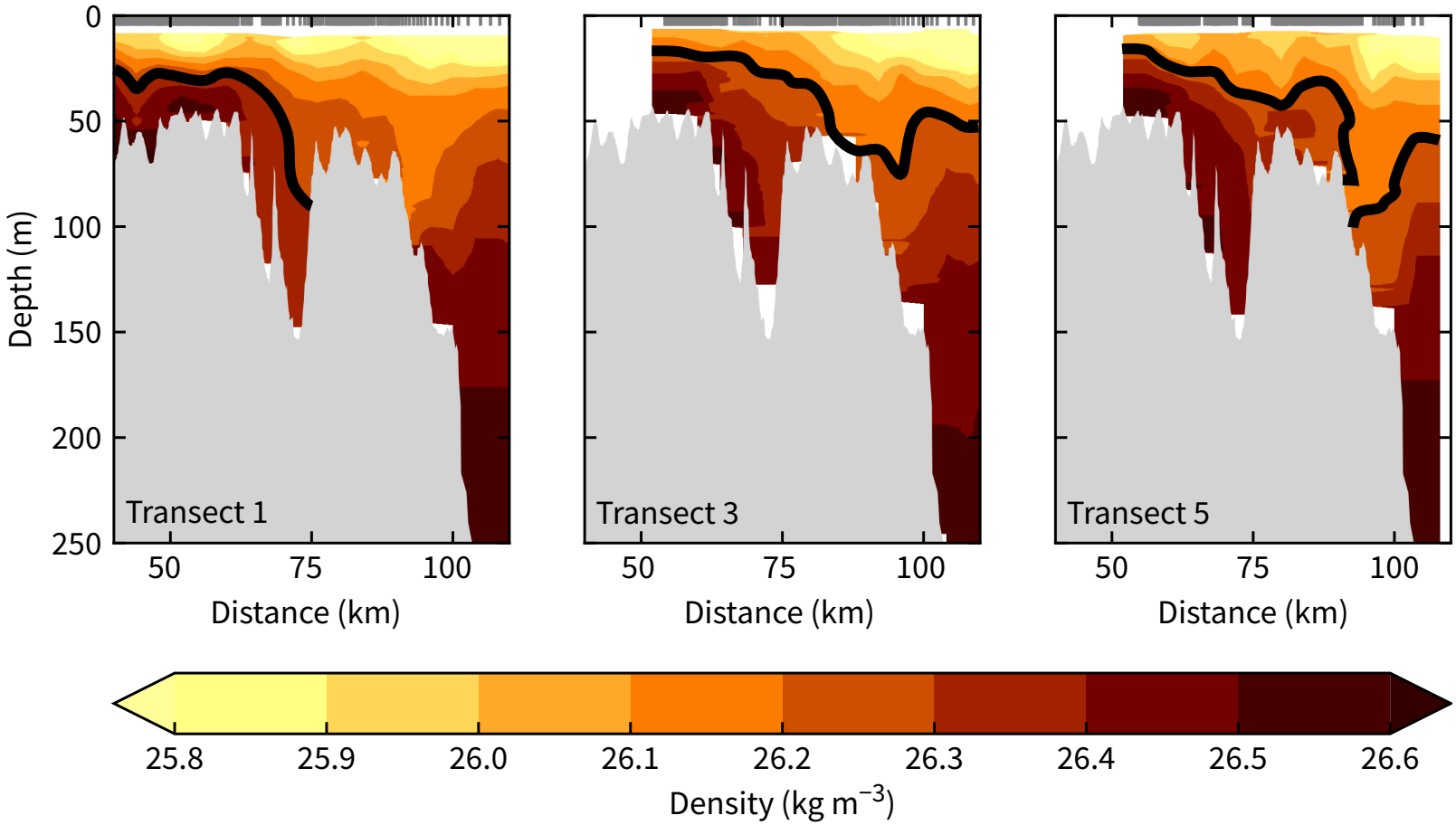

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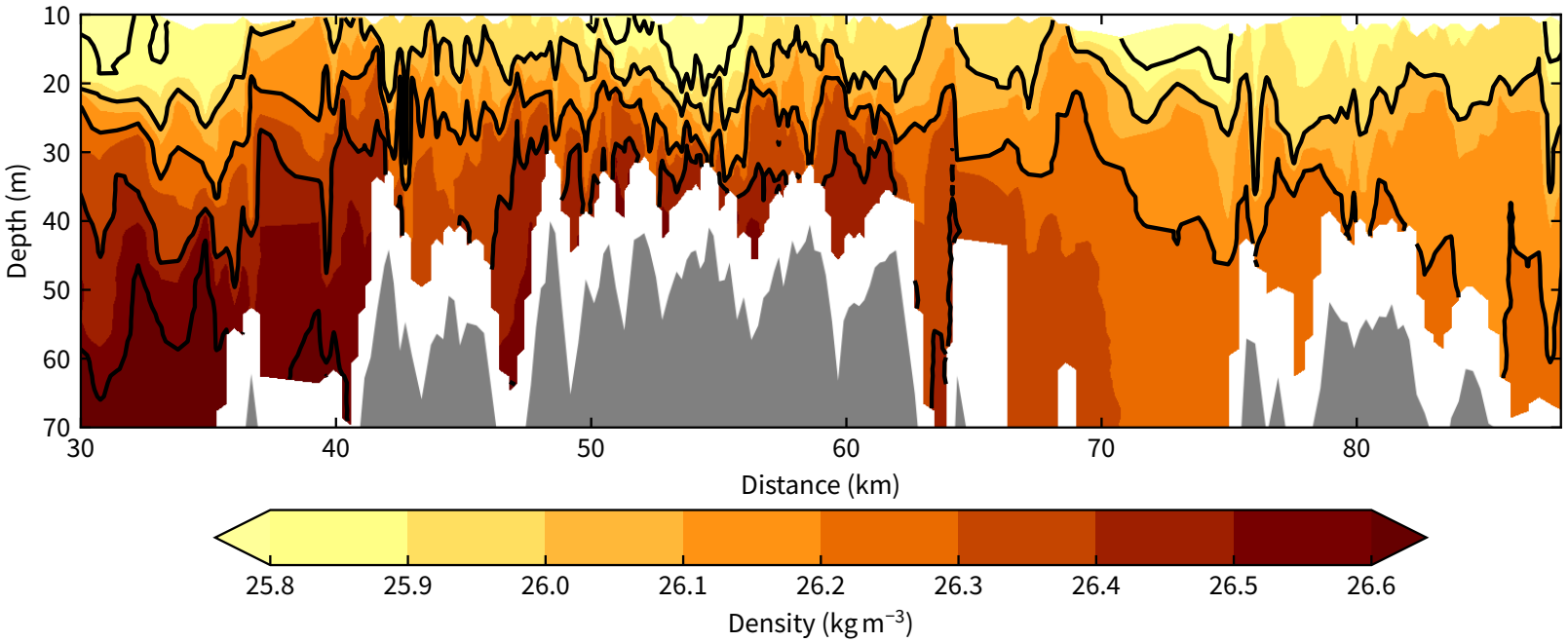

Conclusions

- Water masses meet in the Archipelago
- Bathymetry inhibits direct communication ...
- But also enhances mixing

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