



**ACEAS**

Australian Centre for Excellence  
in Antarctic Science

A Special Research Initiative of the Australian Research Council

# Does the Antarctic Slope Current control the heat transport towards Antarctica?

*This is a collaborative project, with equivalent participation from all members.*



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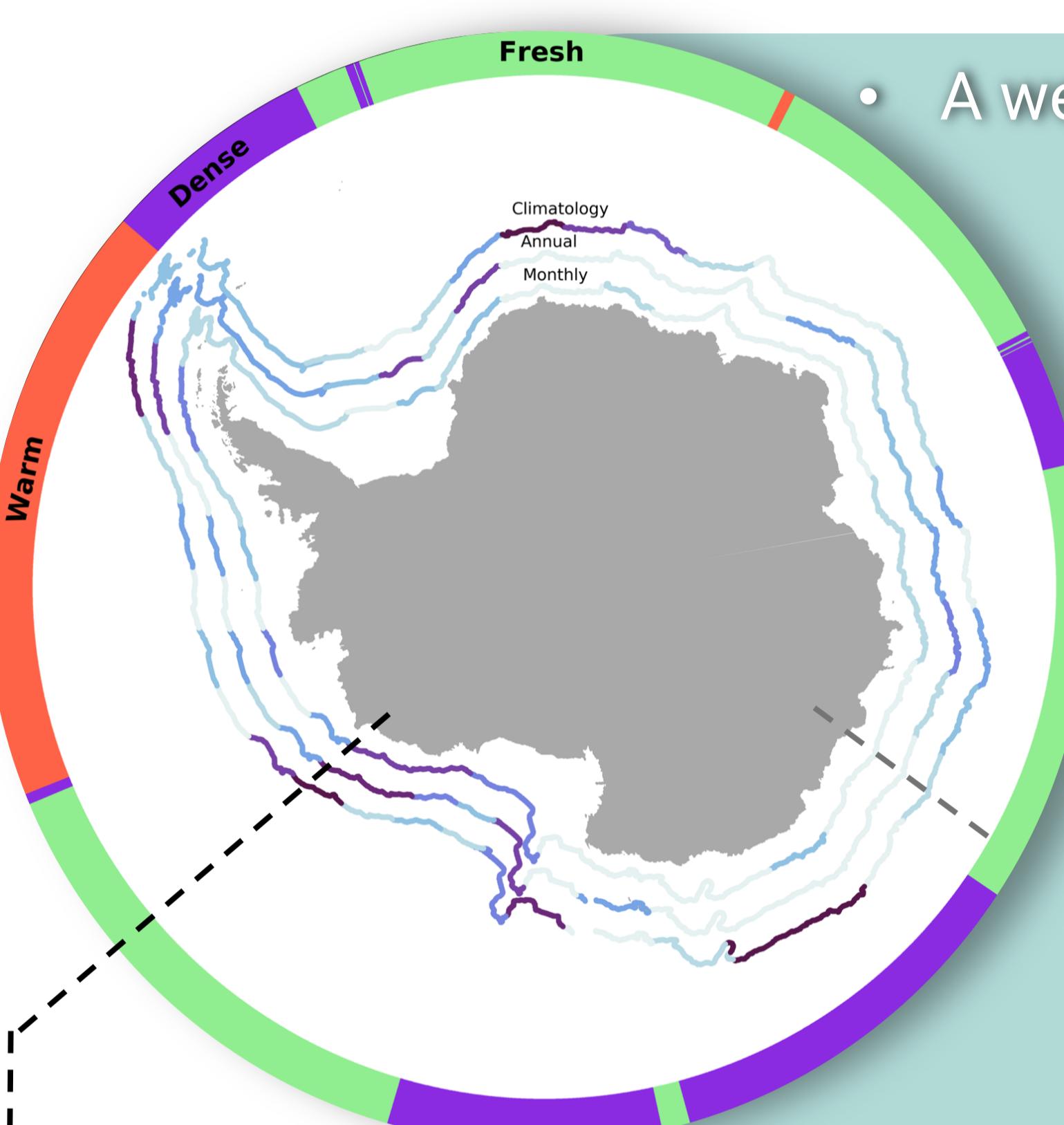
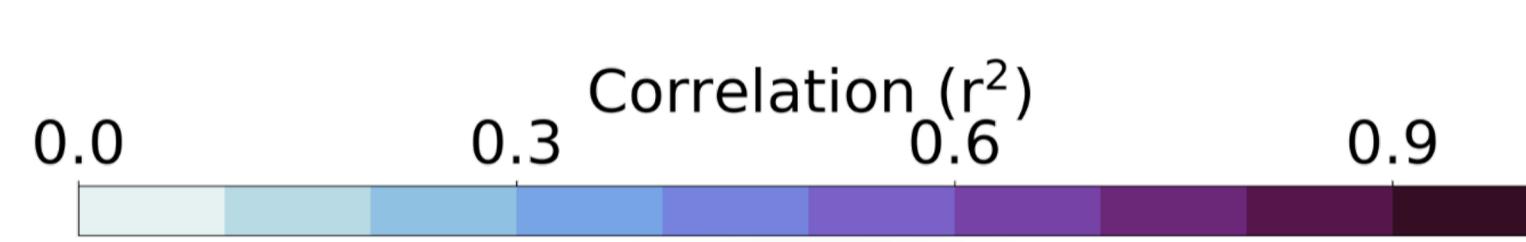
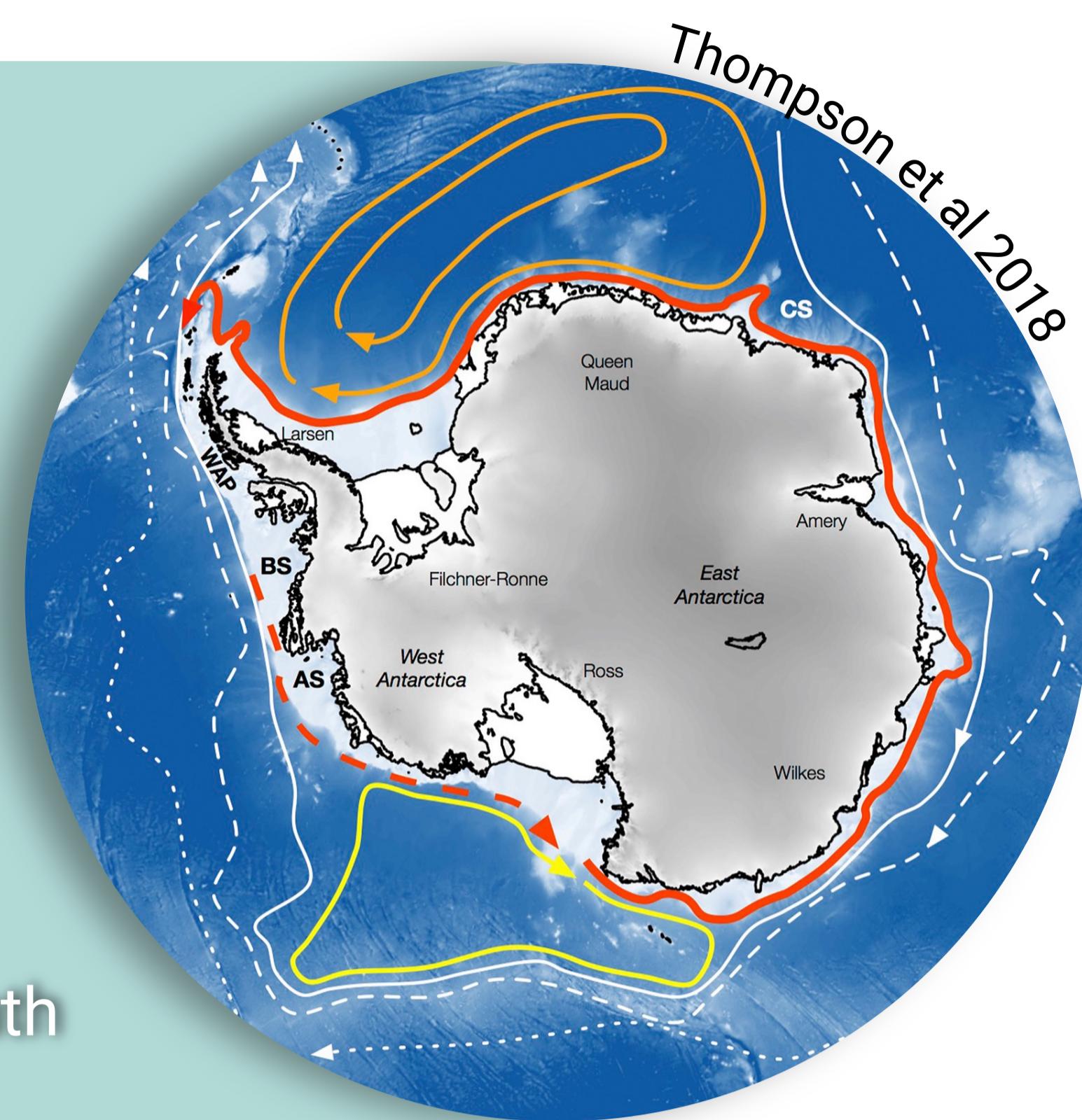


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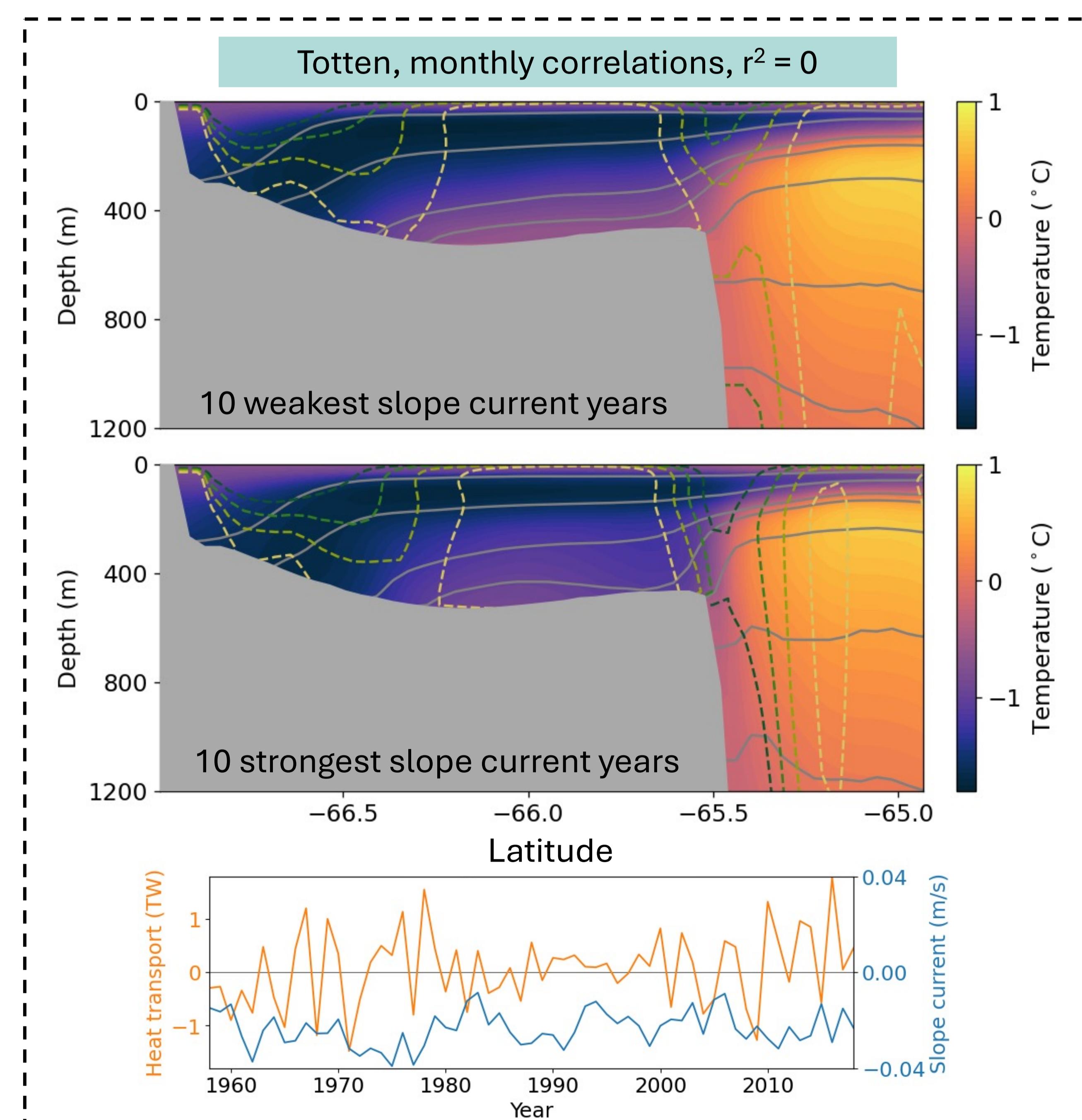
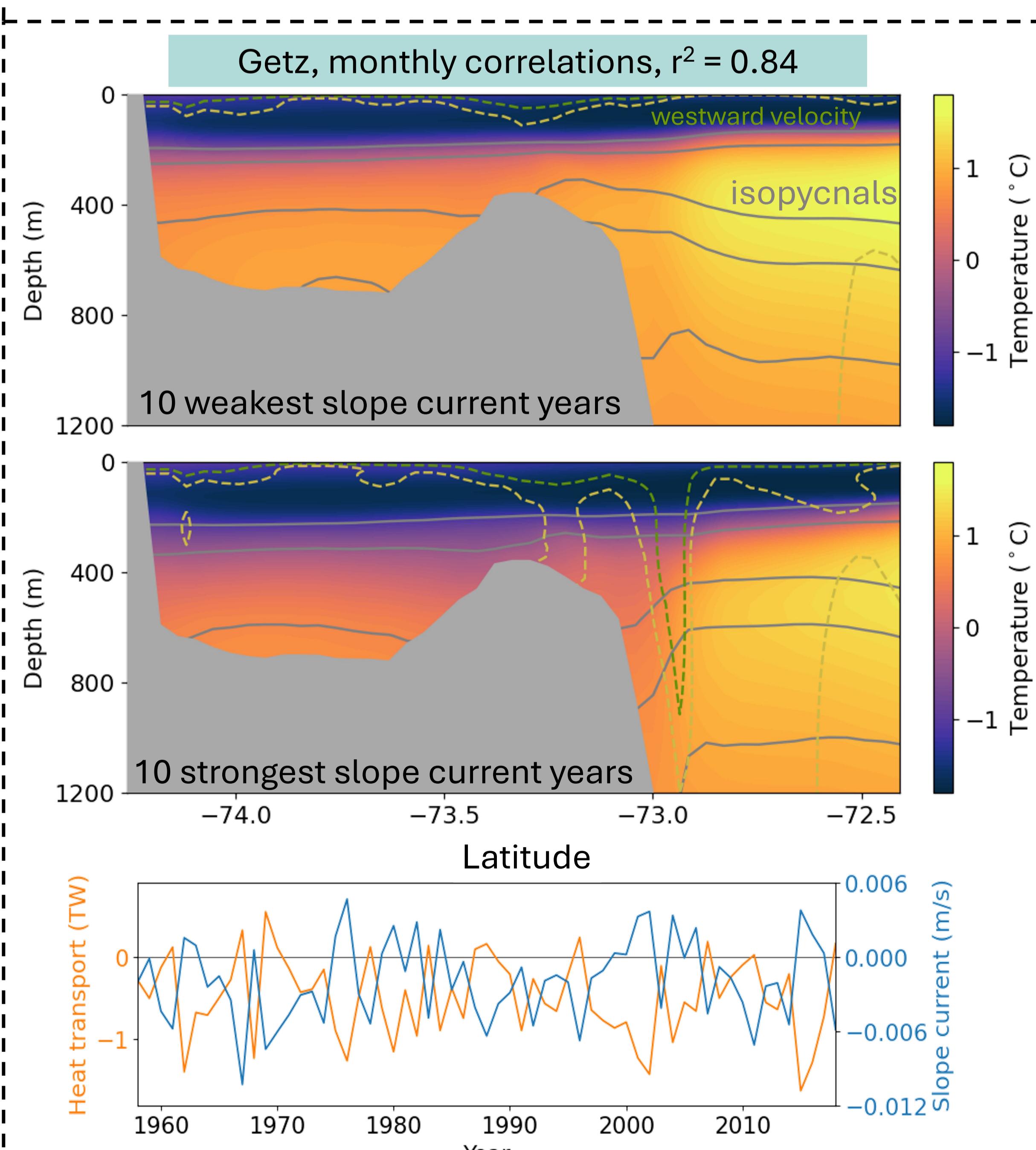
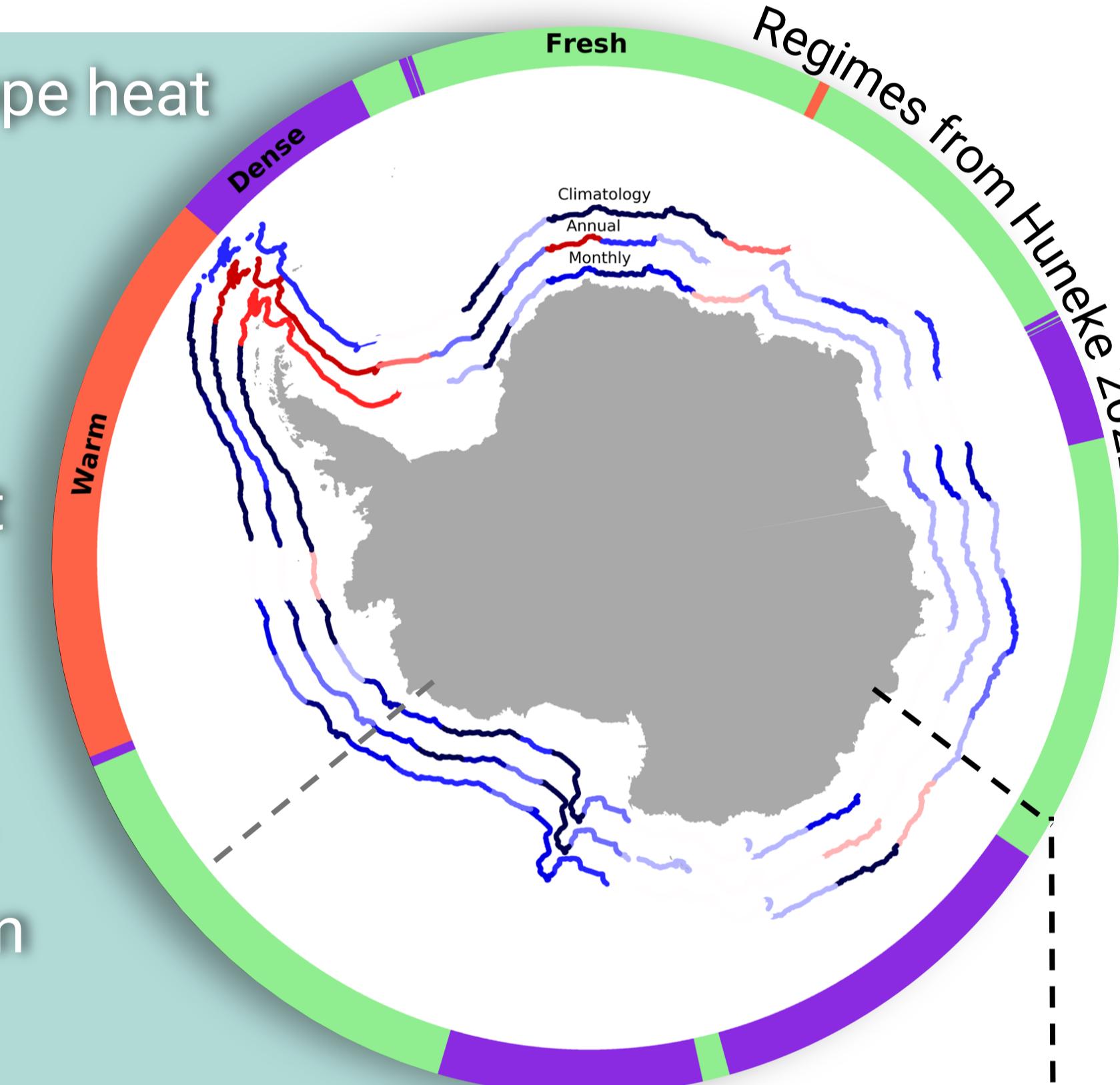
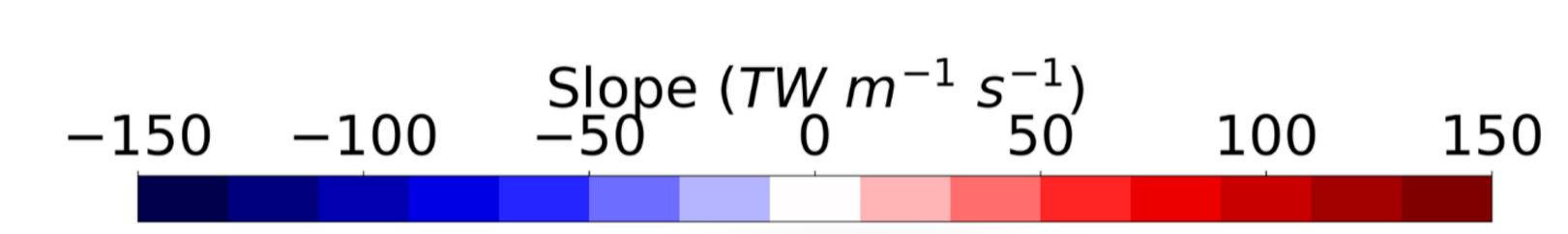


Matthew England

- The ocean heat transport towards Antarctica is a key driver of ice sheet melting.
  - The **Antarctic Slope Current (ASC)** is thought to control the heat transport towards Antarctica by isolating the continental shelf from Circumpolar Deep Waters (CDW).
  - We tested this relationship across different time and spatial scales.
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- We used an interannual forcing simulation with ACCESS-OM2, with  $0.1^\circ$  resolution.
  - CDW definition: The 95 % oldest waters along the continental slope (1 km isobath)
  - Cross-slope heat transport defined as the CDW heat transport across the 1 km isobath



- A weaker westward ASC flow drives a weaker cross-slope heat transport
- Determination coefficients suggests other dynamical aspects could be equally determinant of CDW heat transports towards Antarctica.
- Correlations between heat transport from CDW and ASC speed are spatially heterogeneous, even within the same shelf regime.



## Acknowledgements

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GitHub

