



UNIVERSITY OF BERGEN



Evolution of the East Greenland Current from Fram Strait to Denmark Strait: Synoptic measurements from summer 2012

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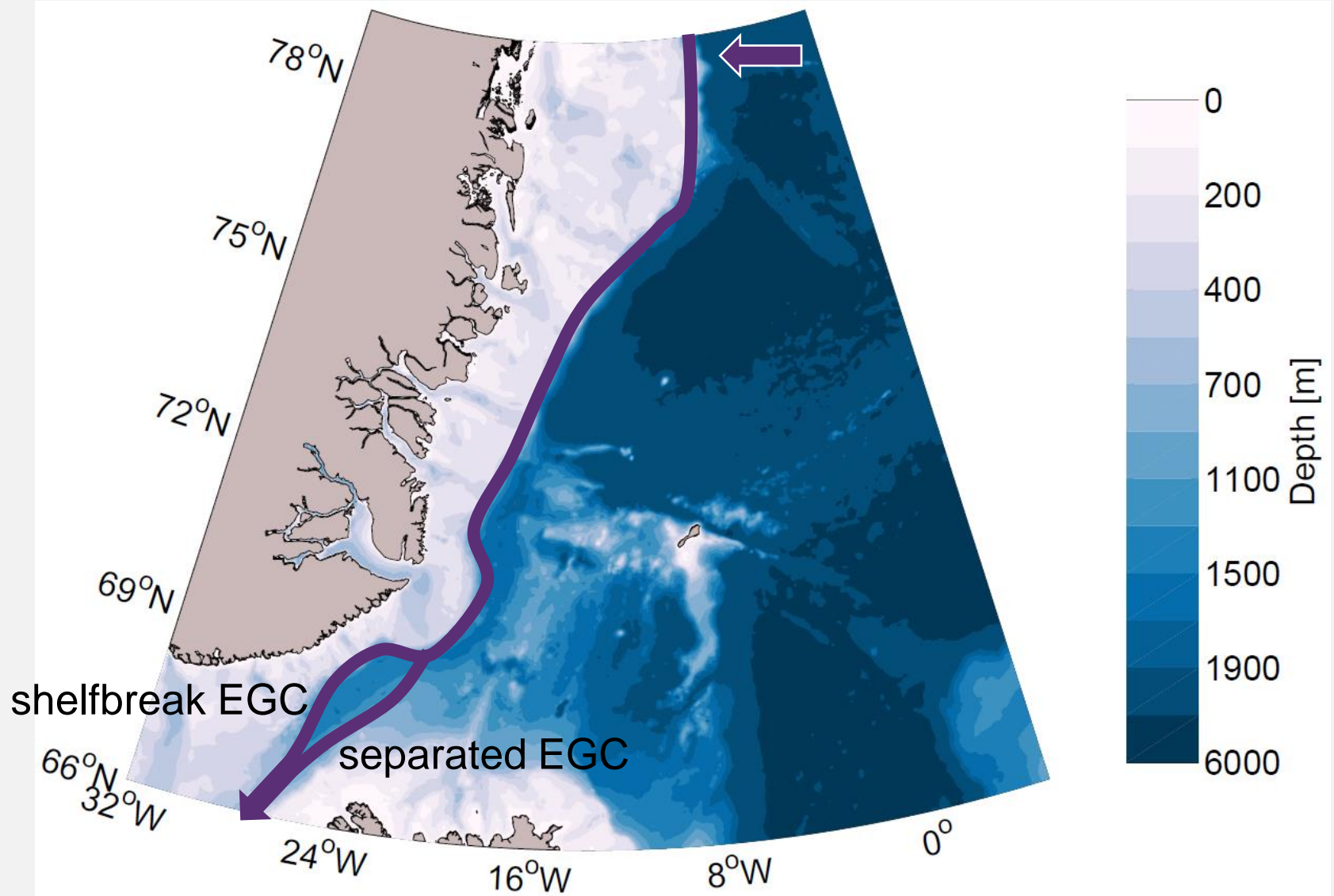
Robert Pickart

Kjetil Våge

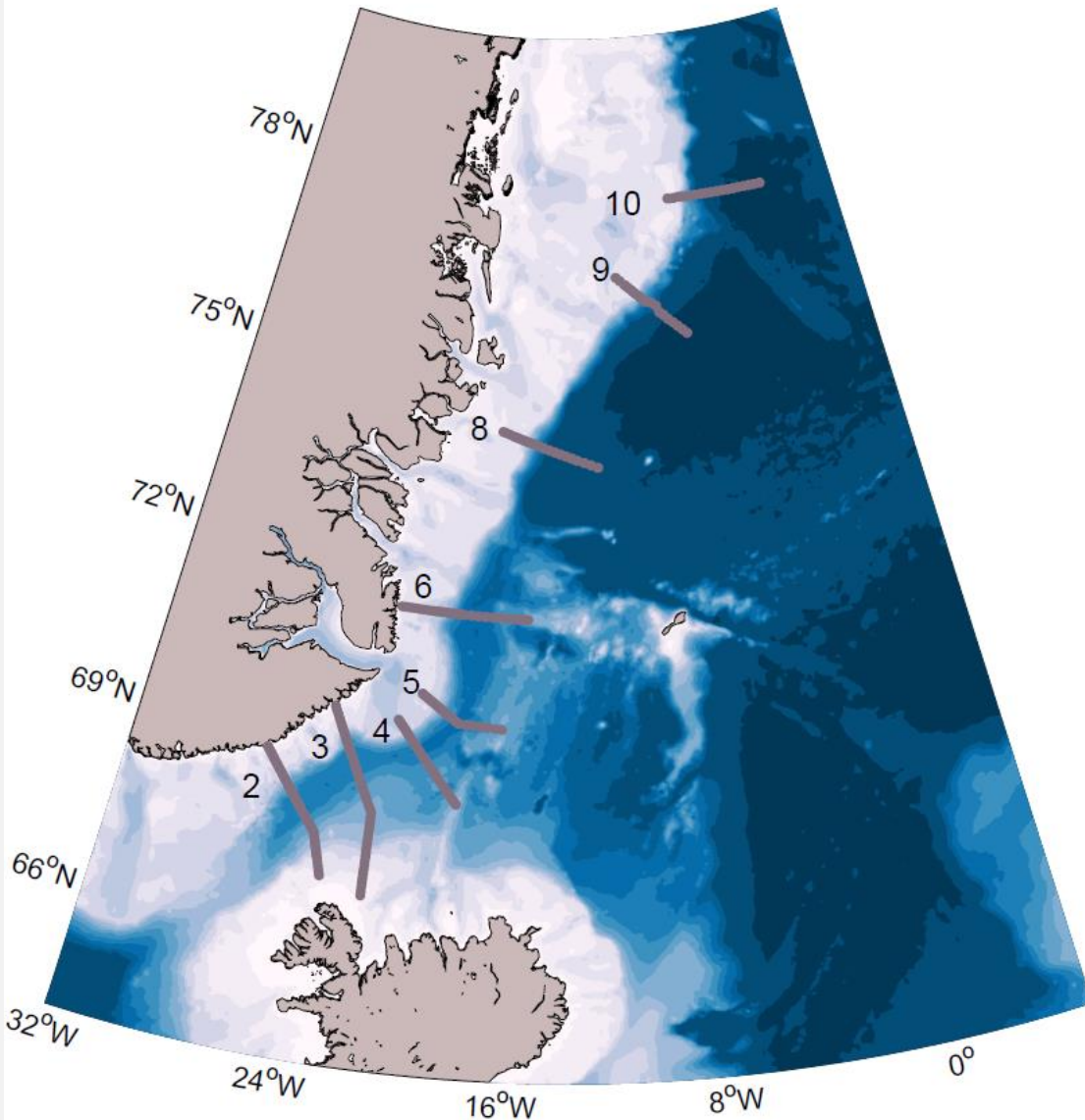
Agnieszka Beszczynska-Möller

Waldemar Walczowski

The East Greenland Current



Data

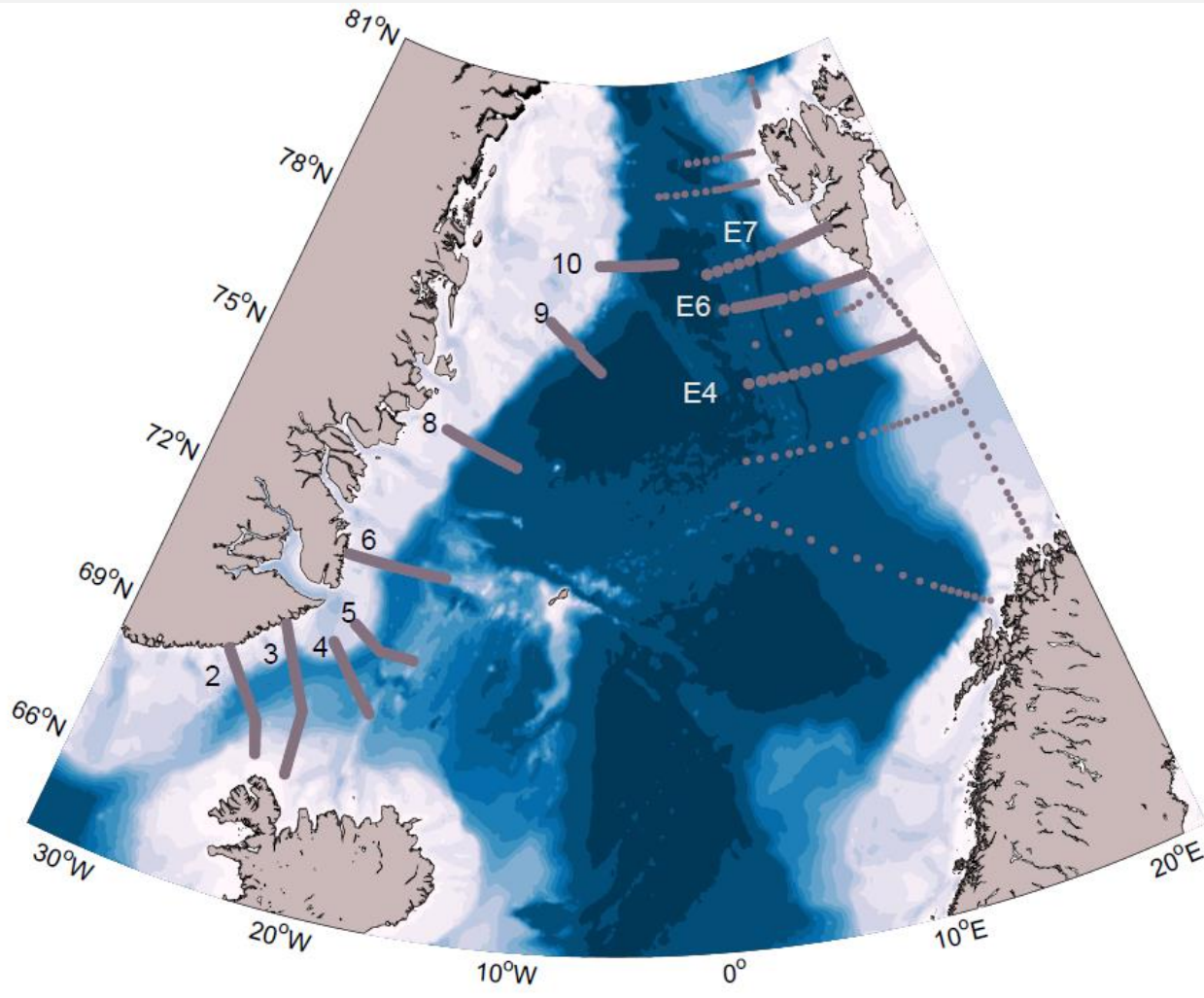


8 densely sampled sections across the EGC (August 2012).

CTD and velocity measurements.

Lack velocity section 10.

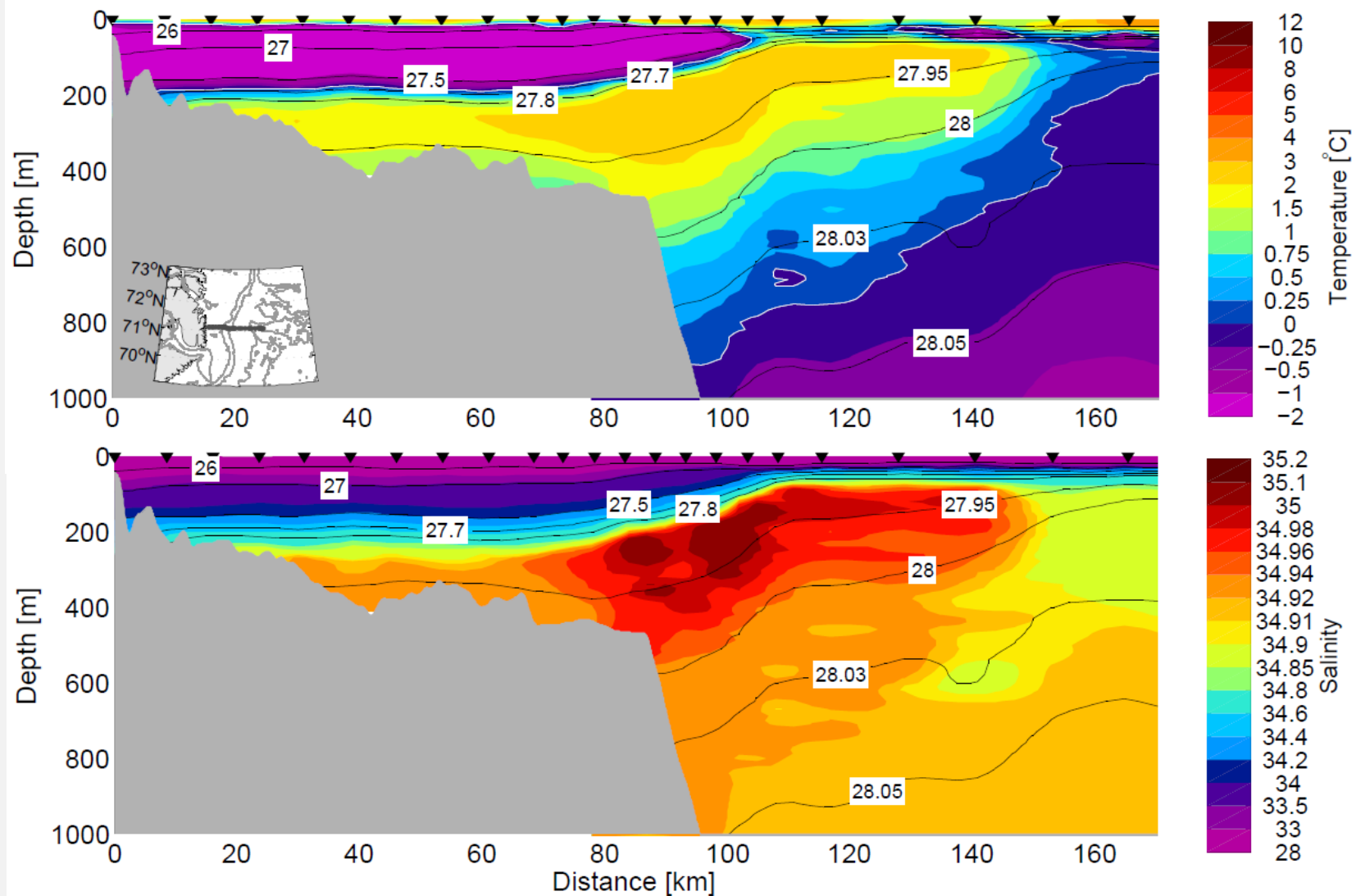
Data



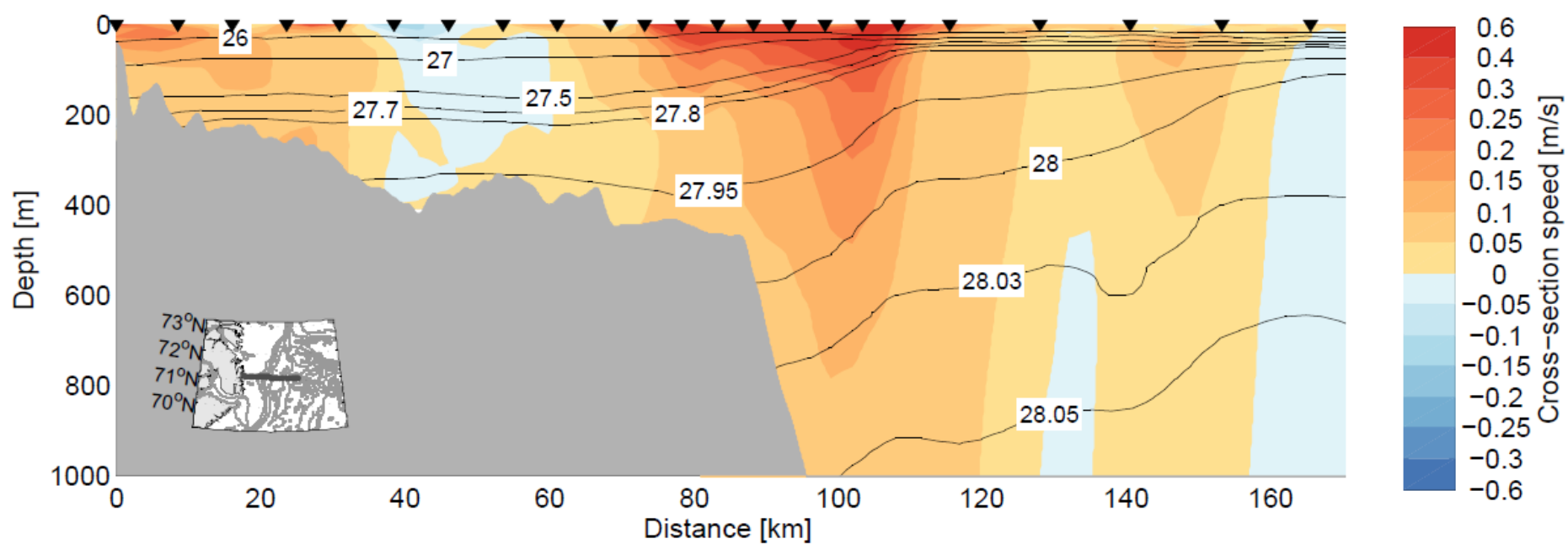
3 sections from
IOPAS cruise
in northeastern
Nordic Seas
(July 2012).

CTD and
velocity
measurements.

Water masses

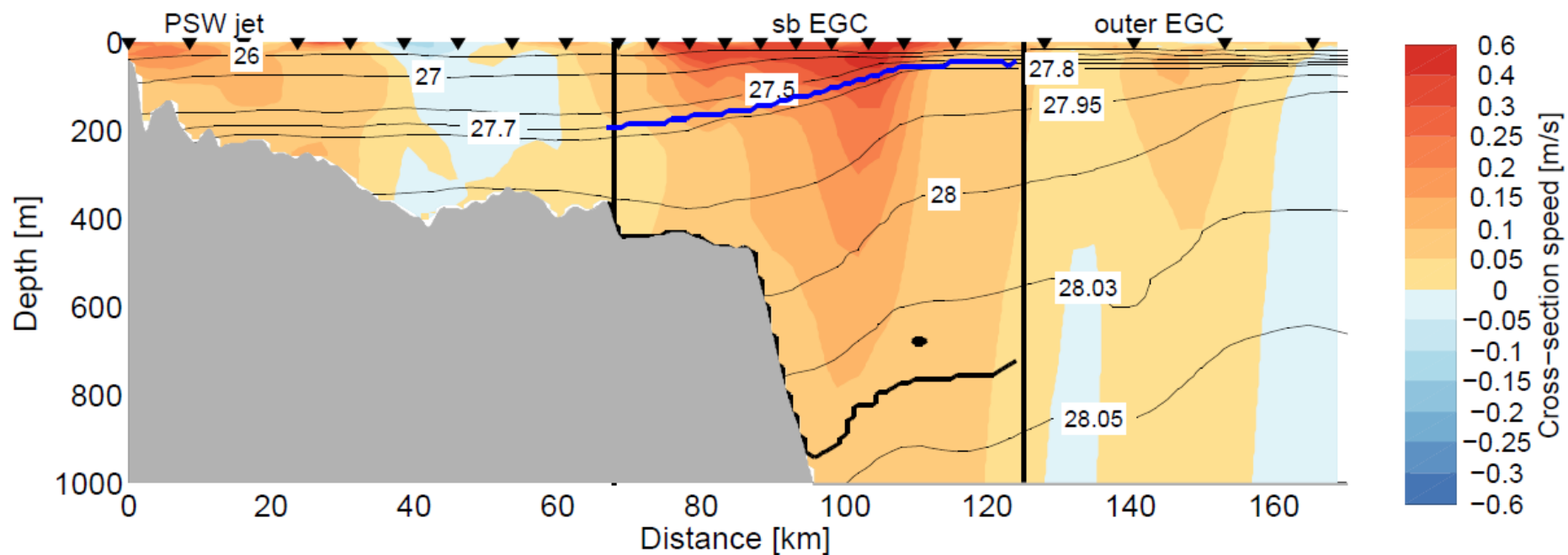


Kinematic structure



Absolute geostrophic velocities obtained by referencing geostrophic velocities to the measured velocities.

Kinematic structure

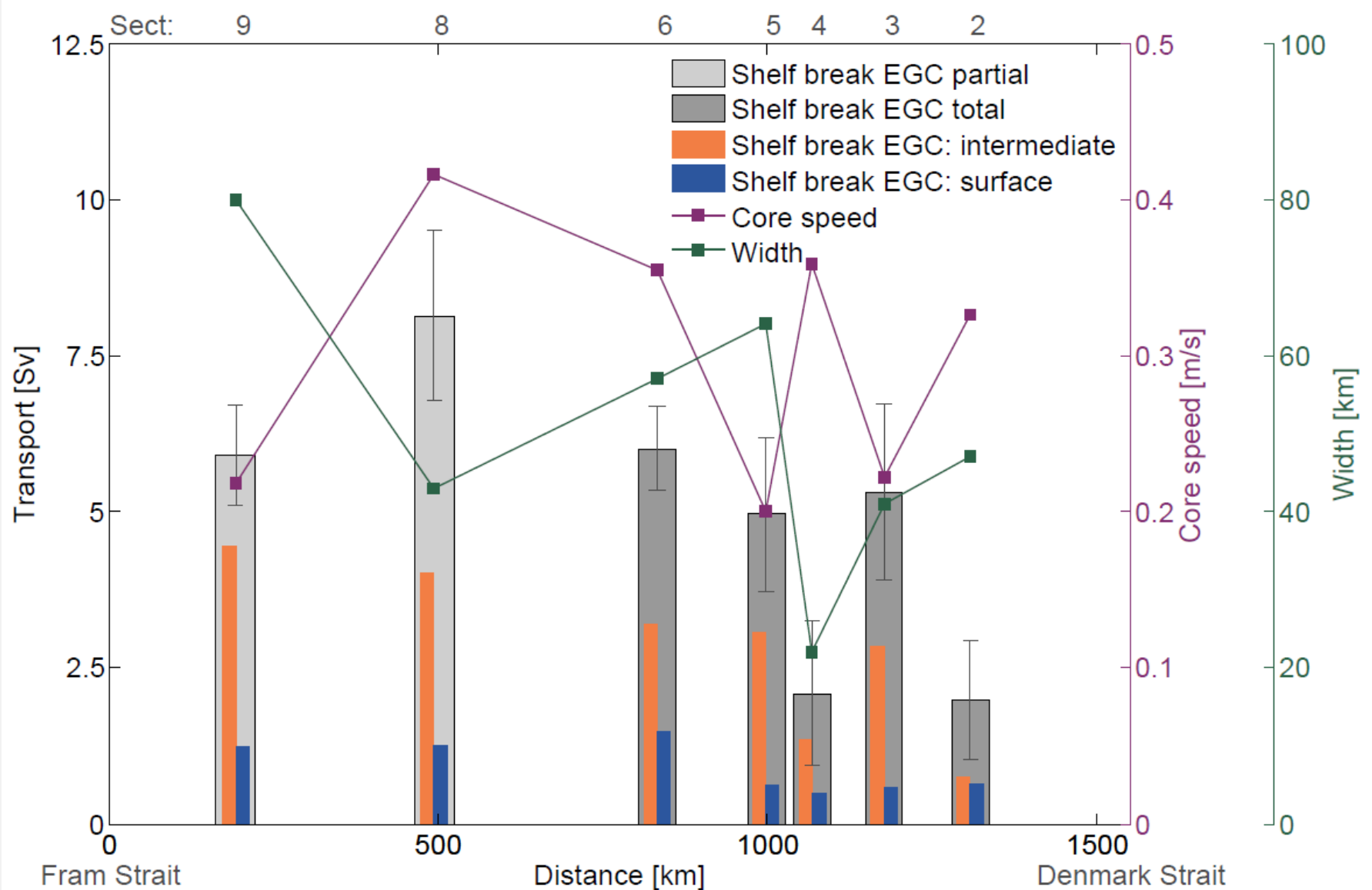


Shelf break East Greenland Current

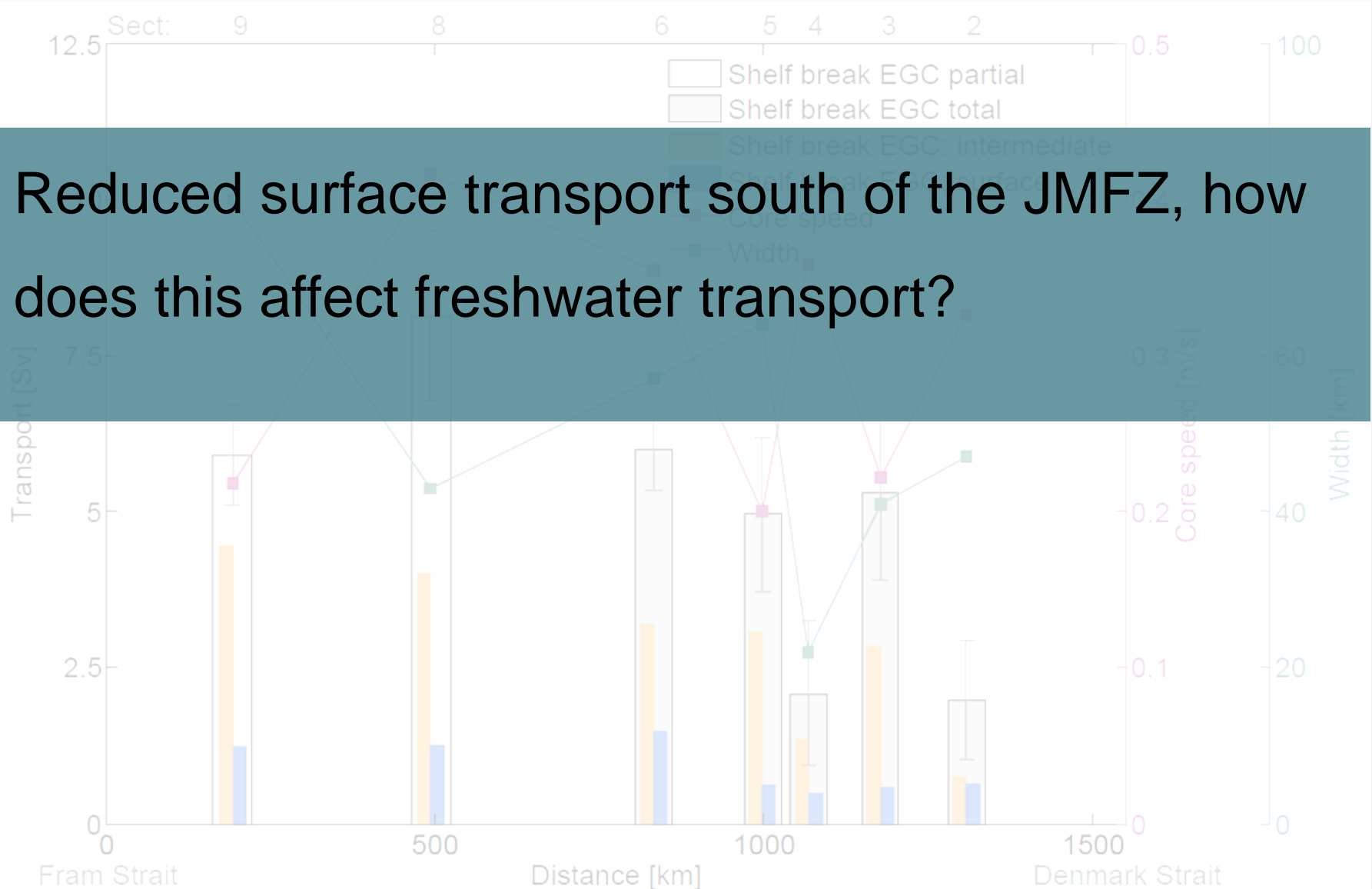
Polar Surface Water jet

Outer East Greenland Current

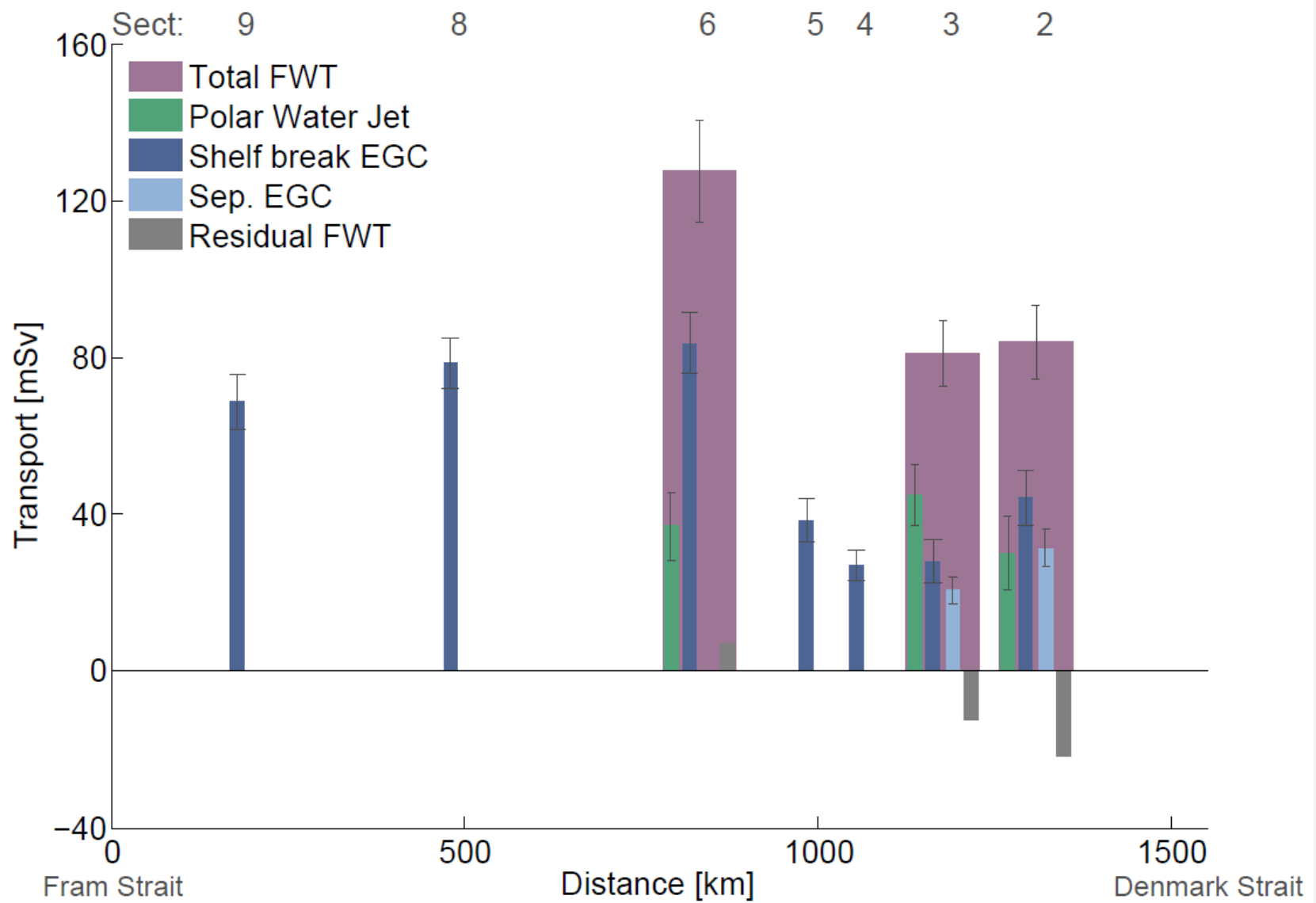
Shelf break East Greenland Current



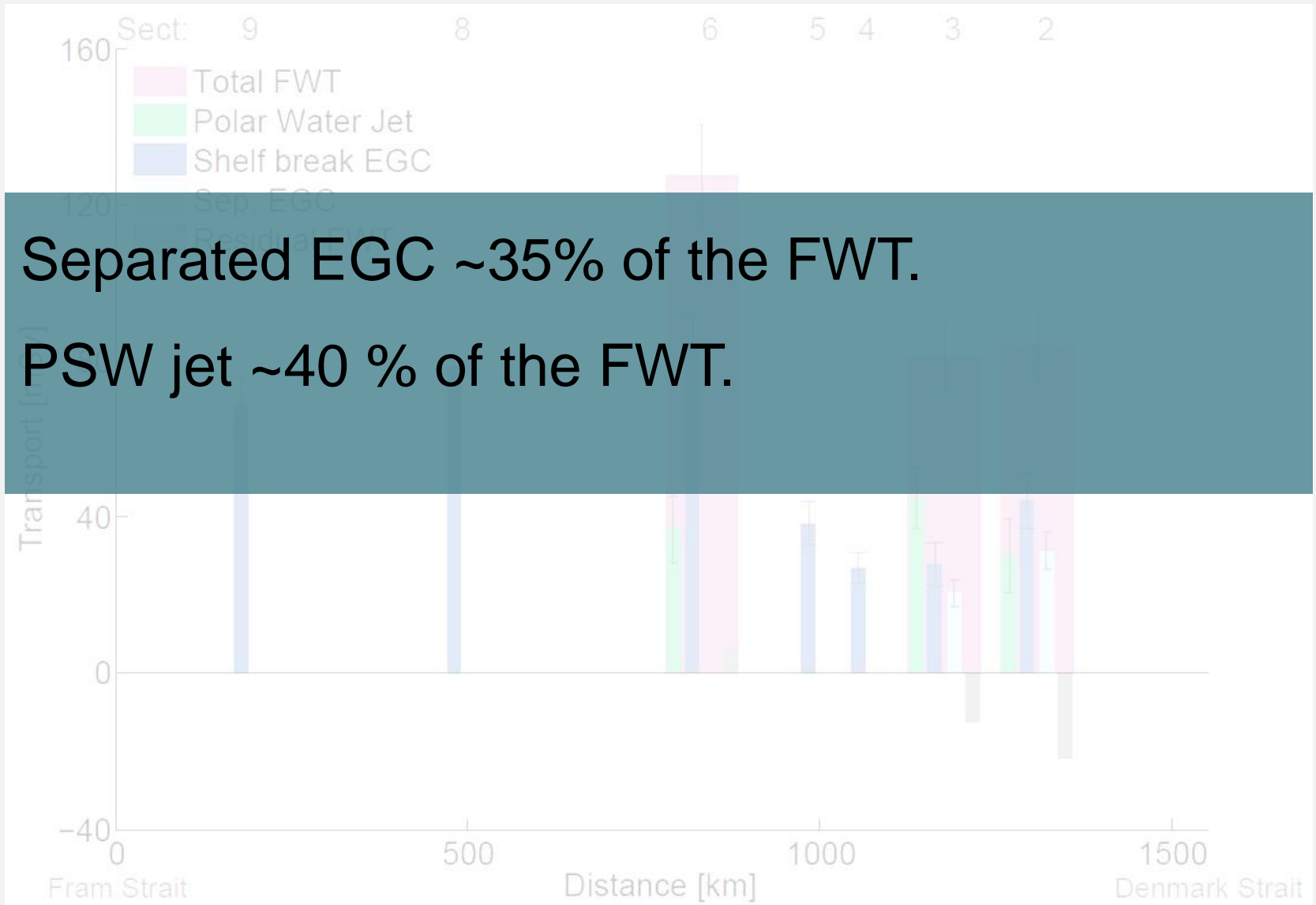
Shelf break East Greenland Current



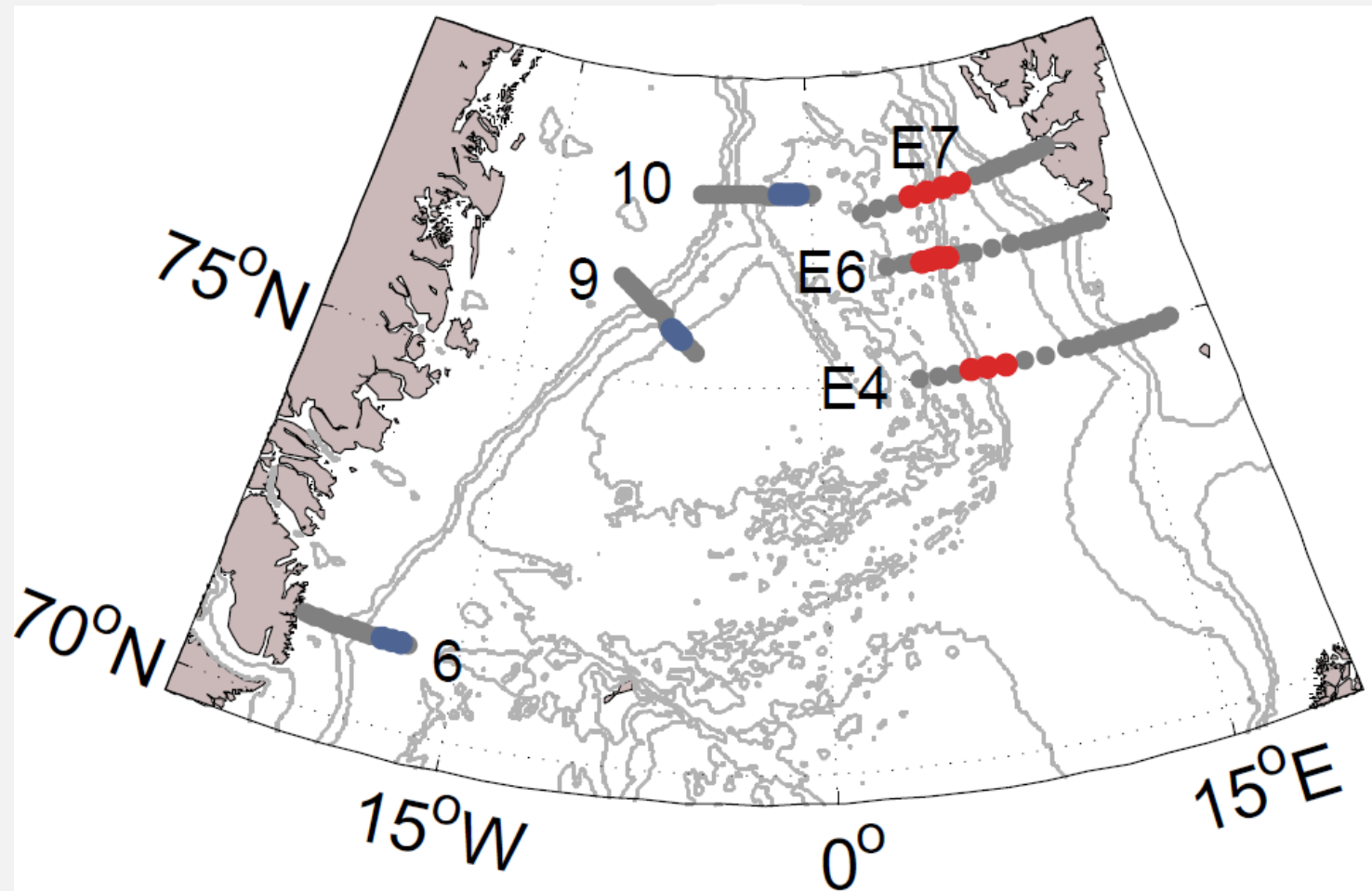
Freshwater transport



Freshwater transport



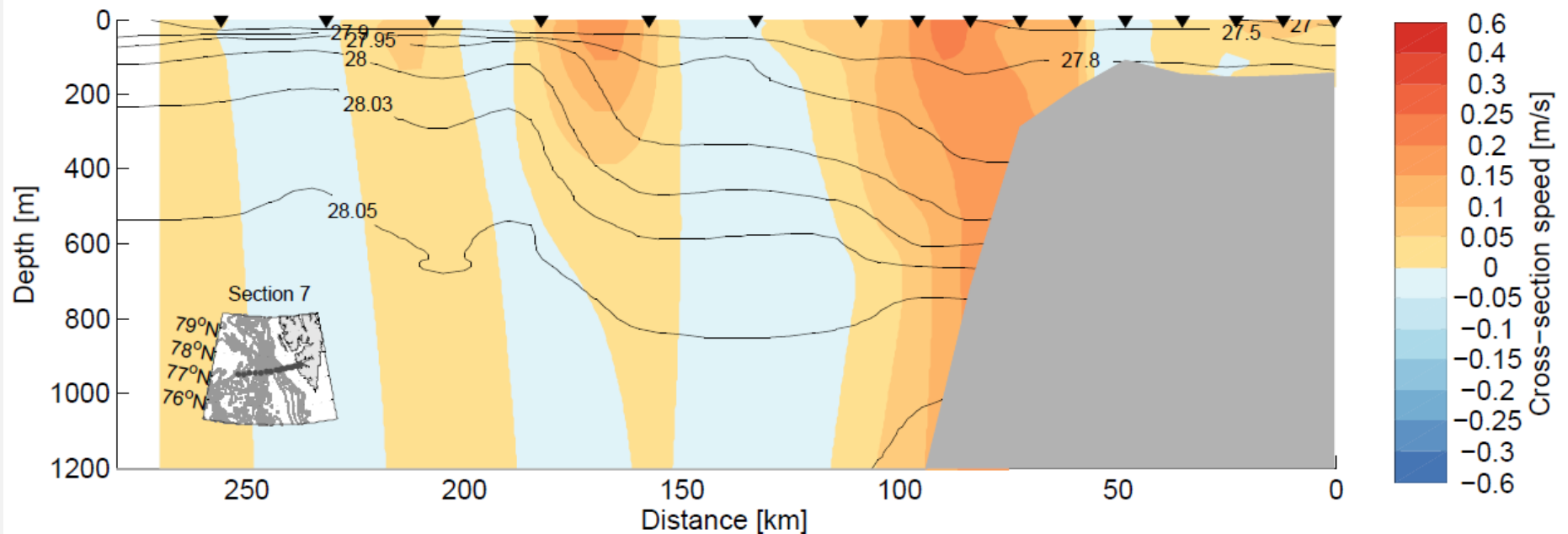
Outer EGC



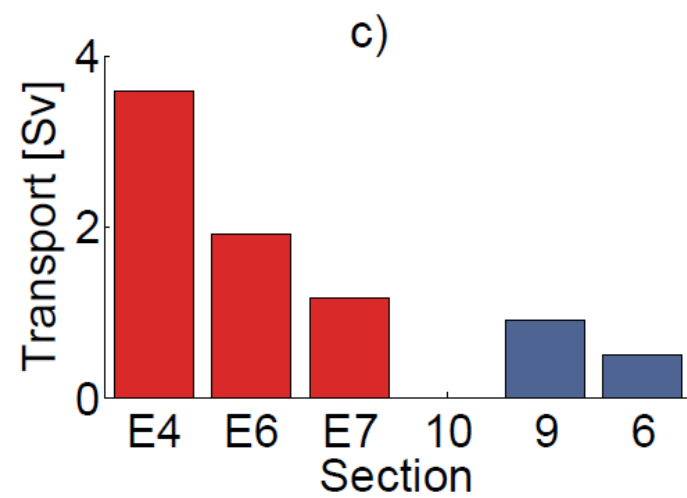
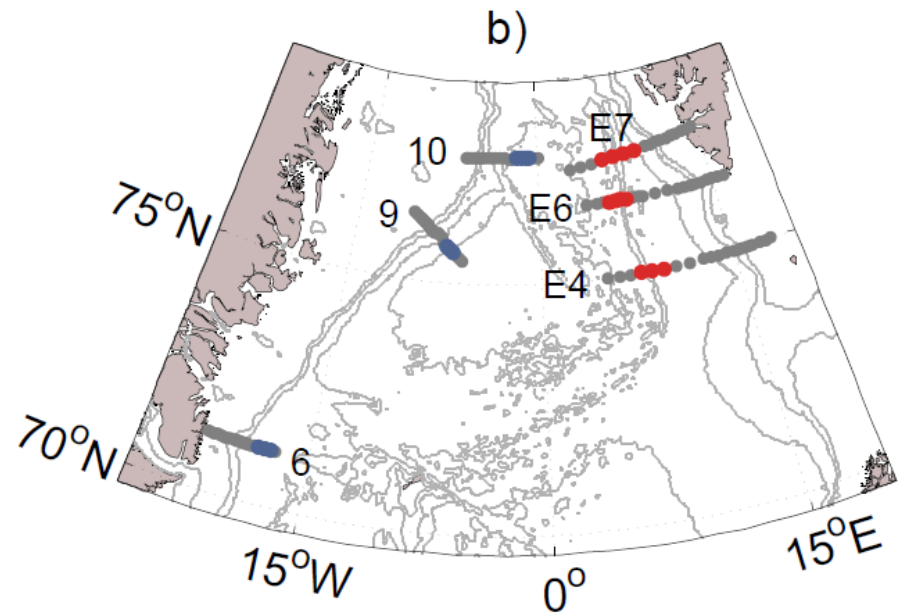
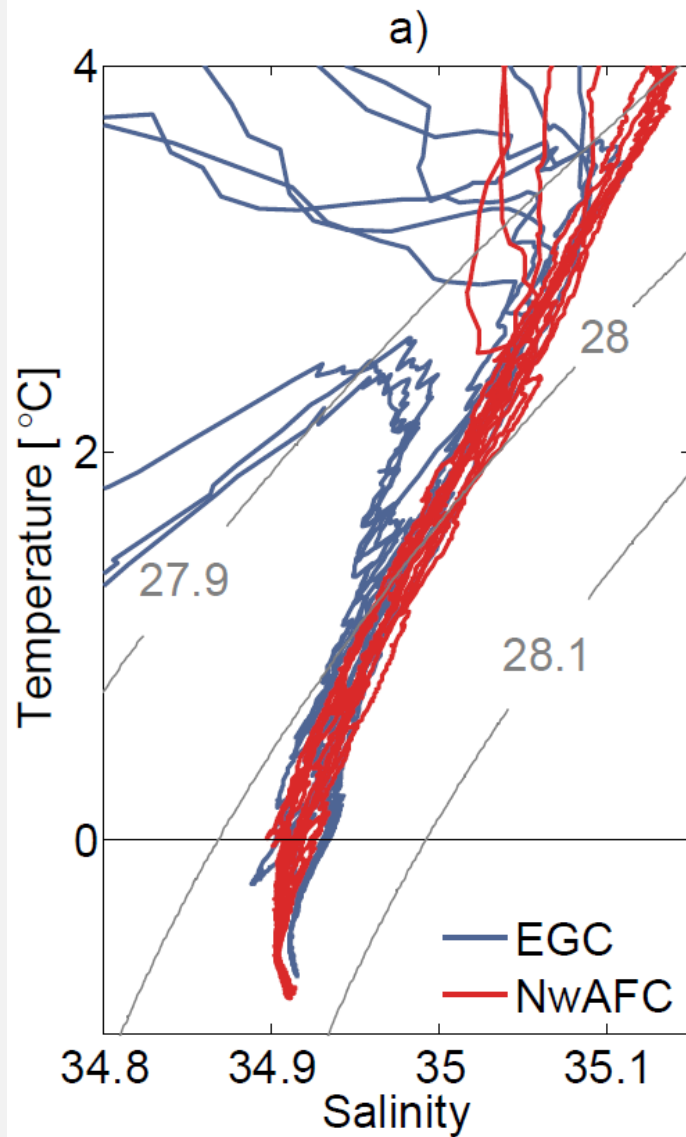
Outer EGC

NwAFC

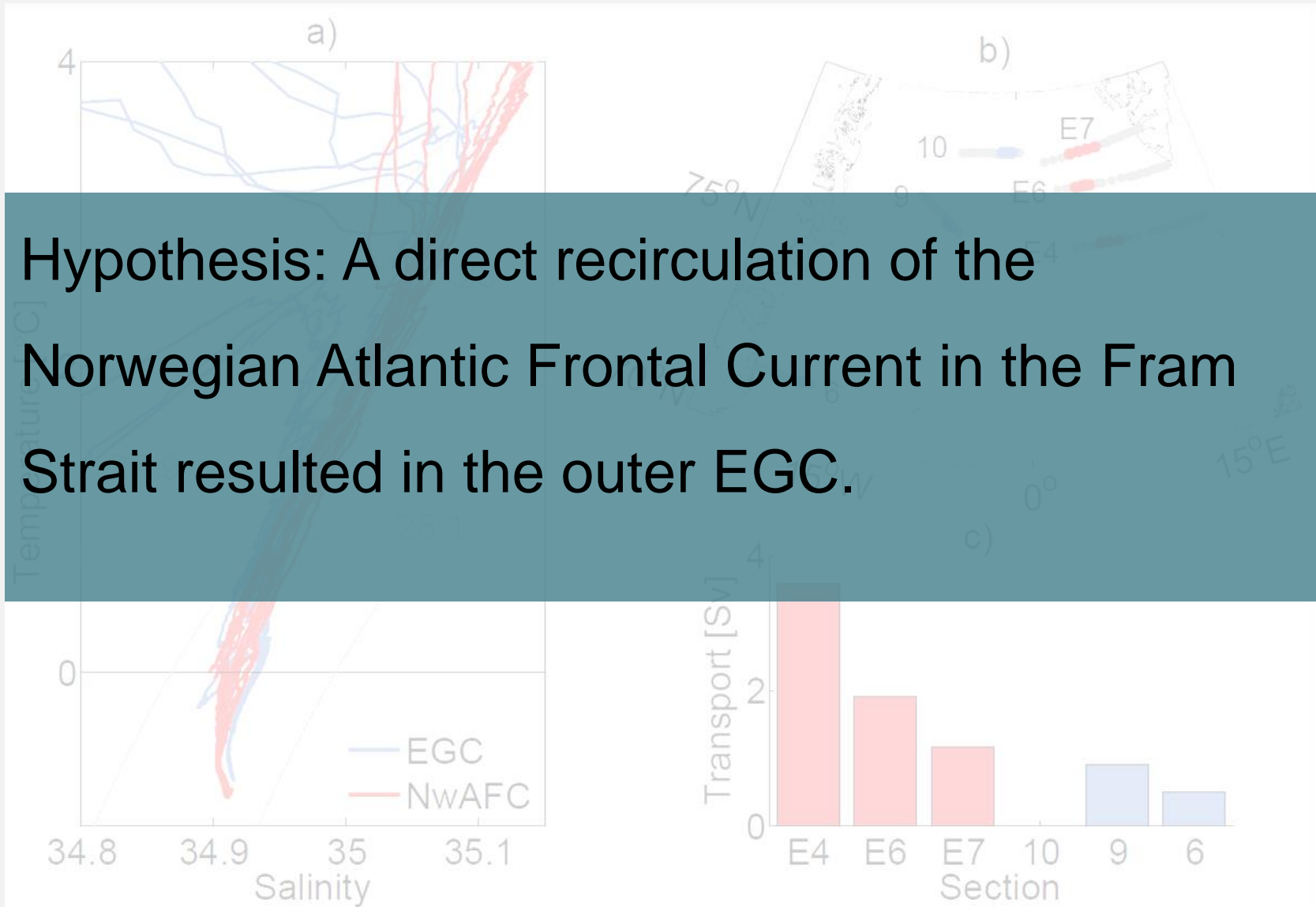
WSC



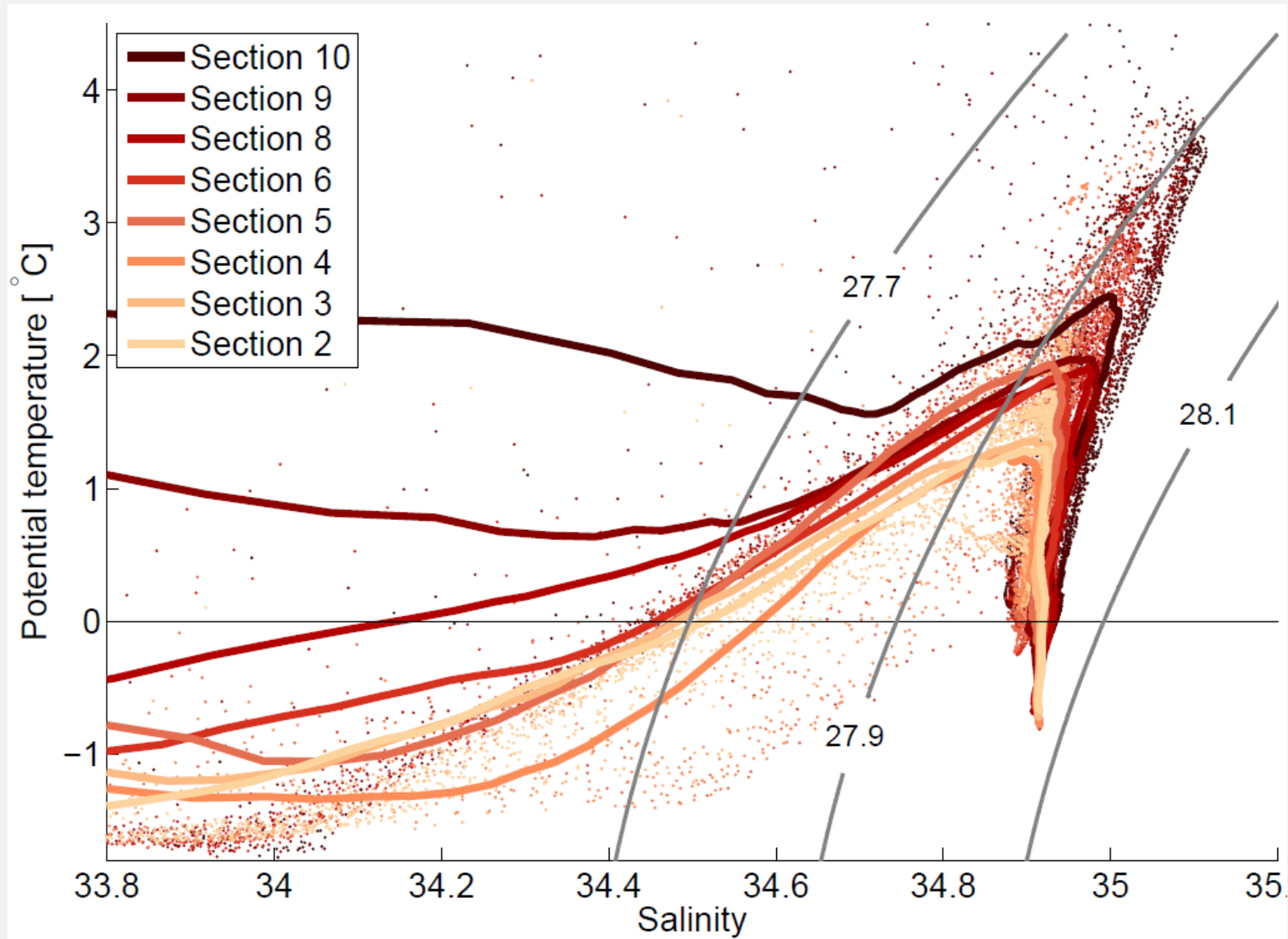
Outer EGC



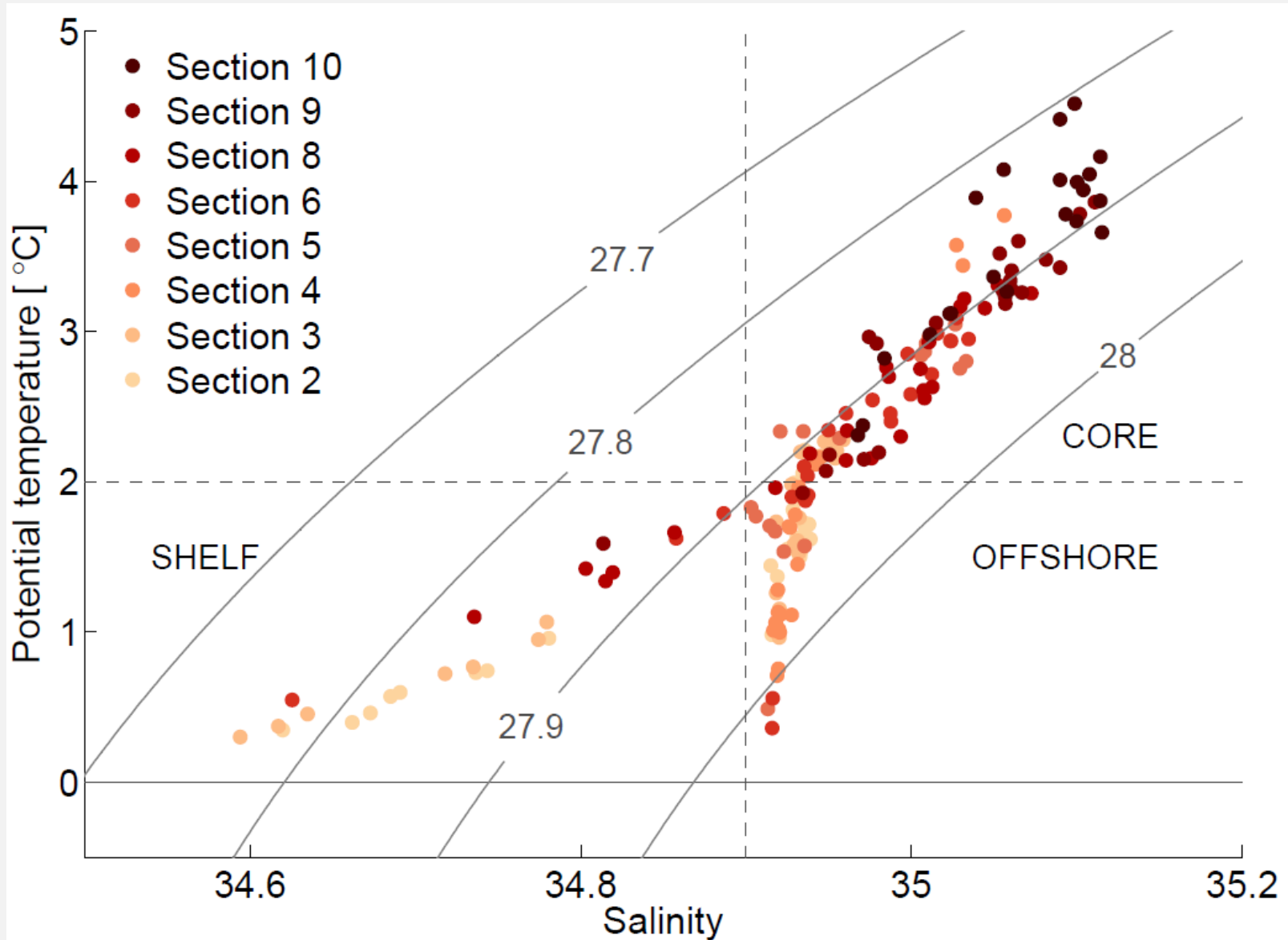
Outer EGC



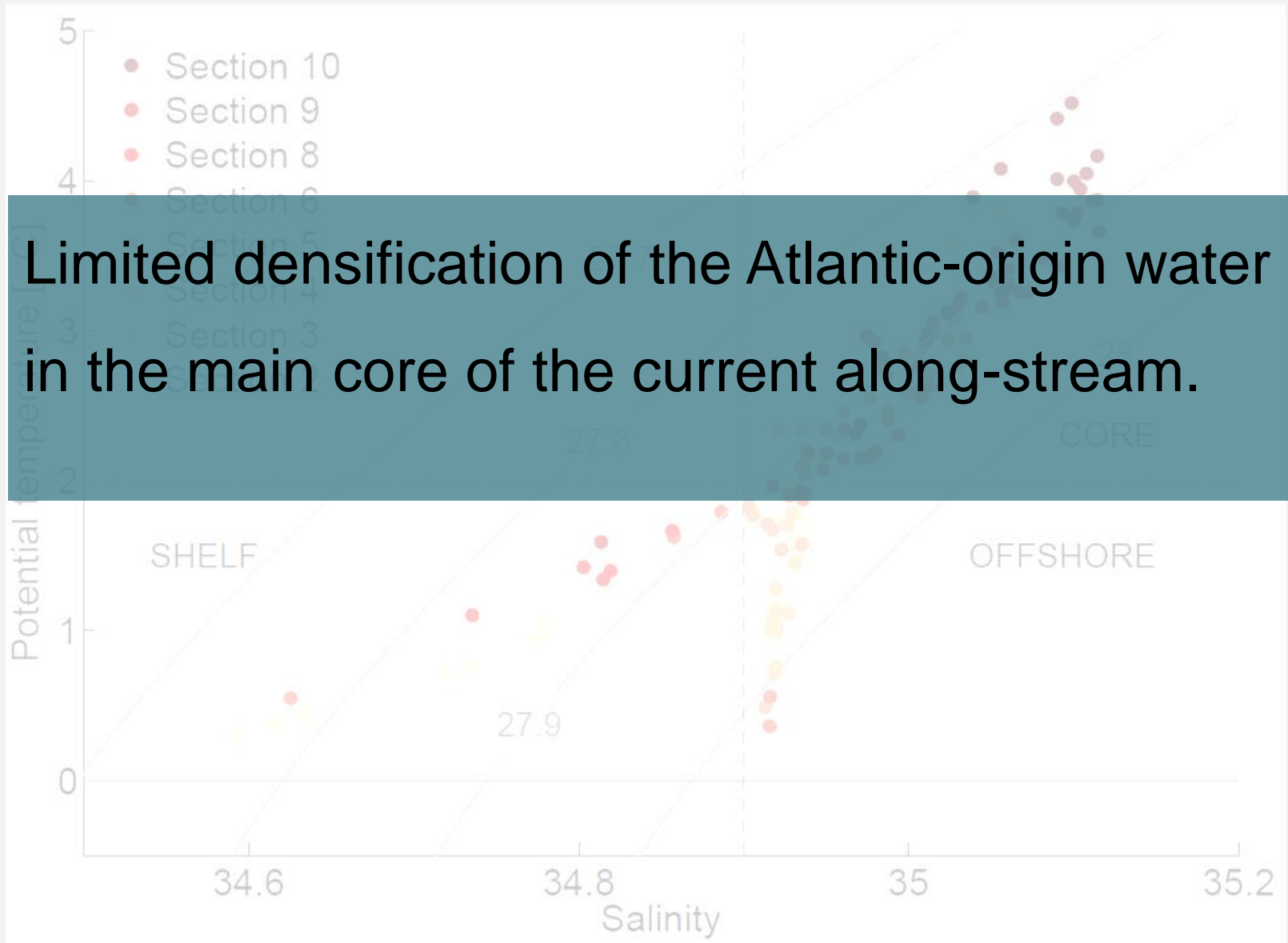
Modification of Atlantic-origin water



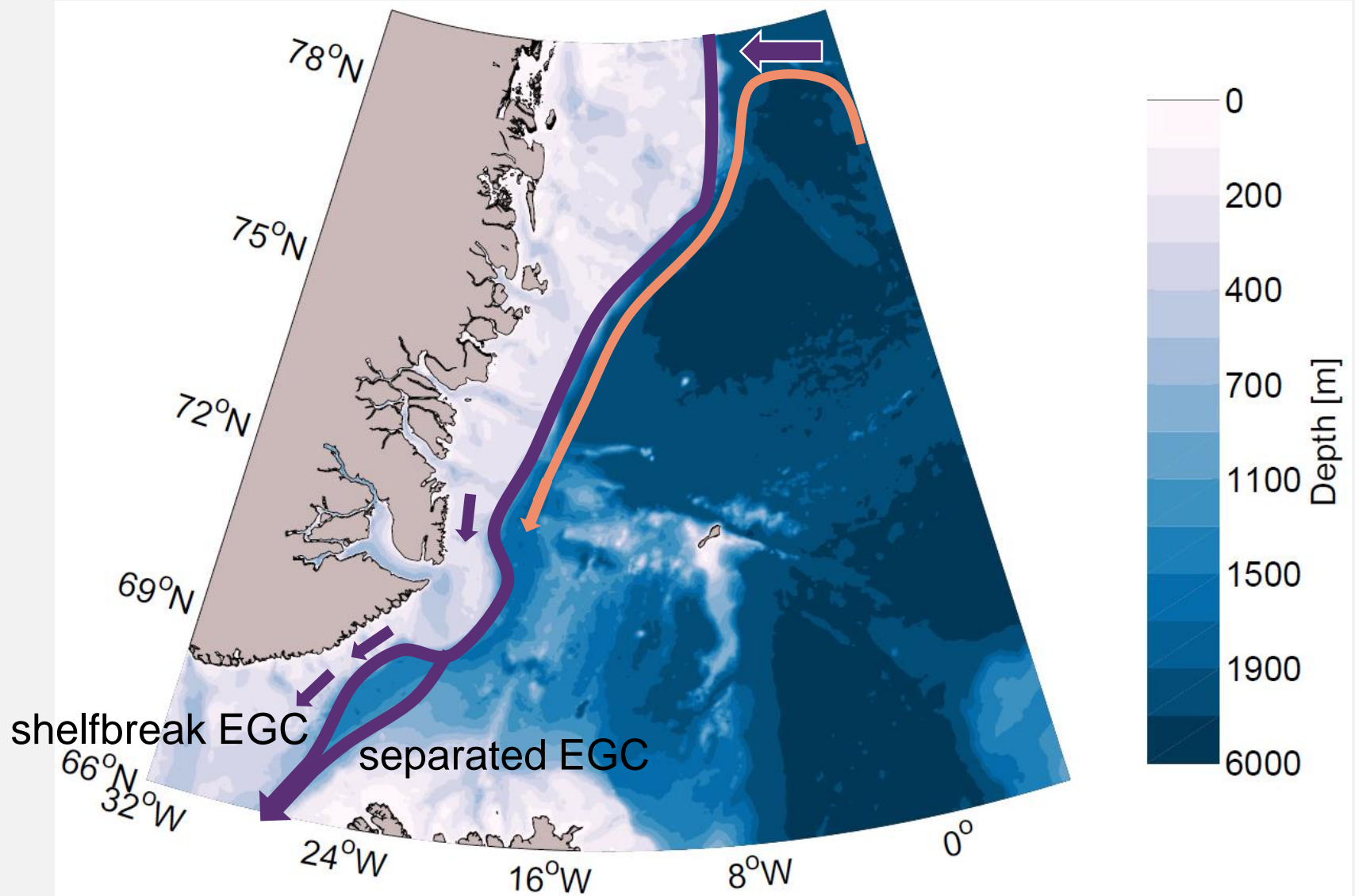
Modification of Atlantic-origin water



Modification of Atlantic-origin water



The East Greenland Current system



Summary

Three current cores detected in the EGC system:

- Shelf break EGC – Supply on average 2.2 Sv of dense Atlantic-origin overflow water to the Denmark Strait.
- PSW jet – carries ~ 40% of the FWT.
- Outer EGC - direct recirculation of NwAFC in Fram Strait.

Atlantic-origin Water, and hence overflow water, is not densified along-stream within the main current.

