

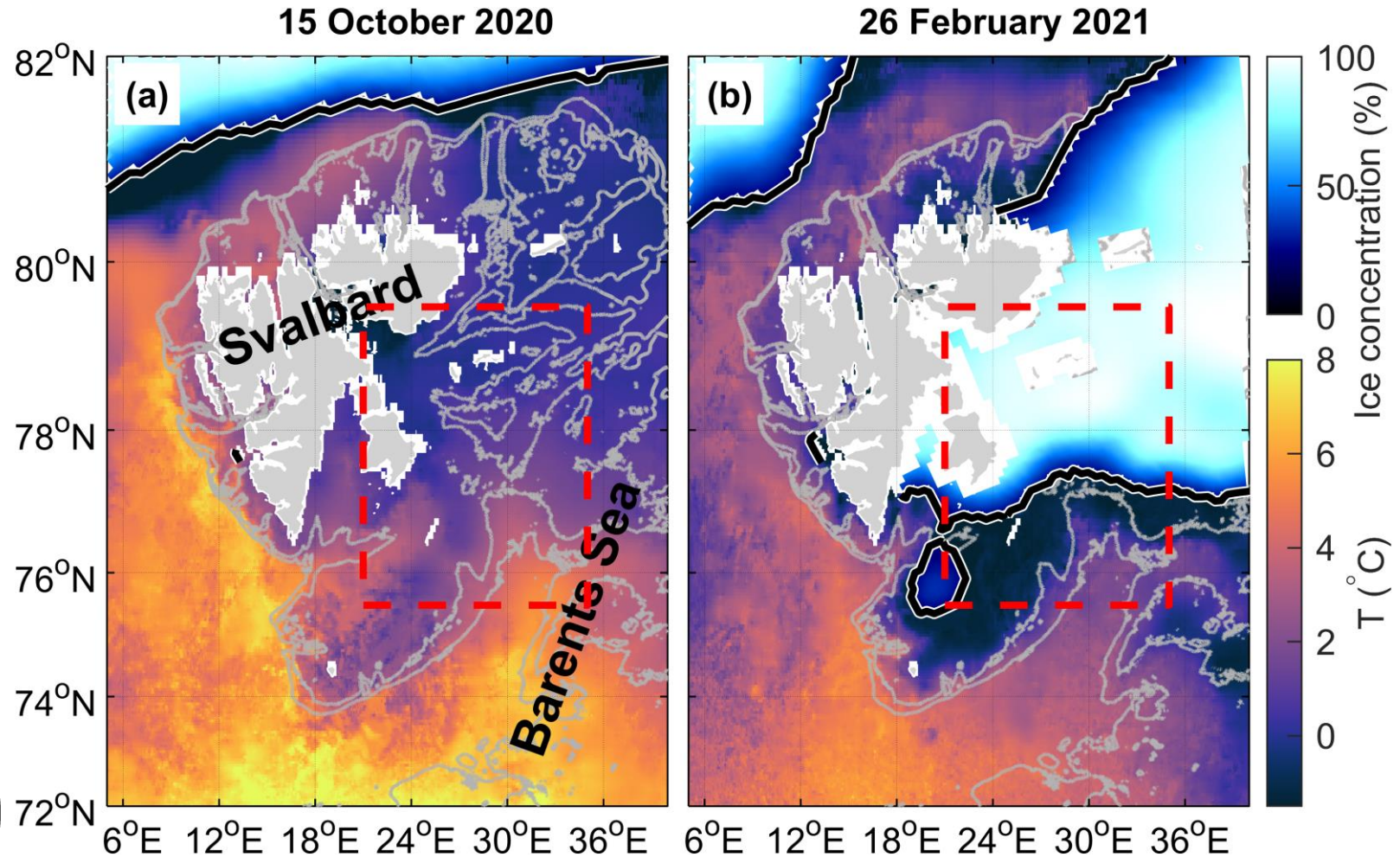
# Barents Sea Polar Front dynamics (Obs. 2019 – 2021)

**Eivind Hugaas Kolås,**  
Geophysical institute,  
University of Bergen, Norway

**Ilker Fer,**  
Geophysical institute,  
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**Till M. Baumann,**  
Geophysical institute,  
University of Bergen, Norway

**Zoe Koenig,**  
Norwegian Polar Institute,  
Tromsø, Norway



Lien et al. 2017



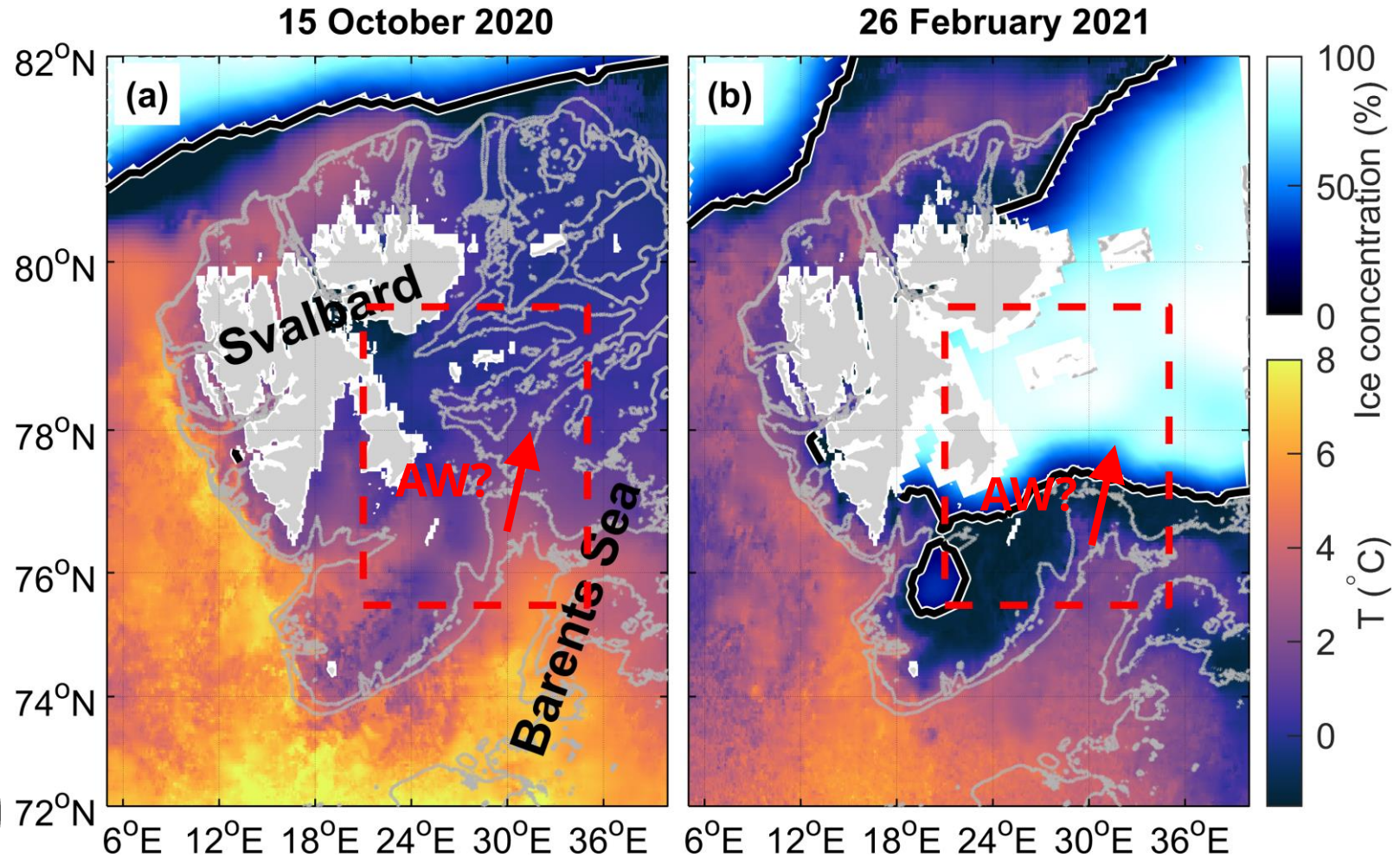
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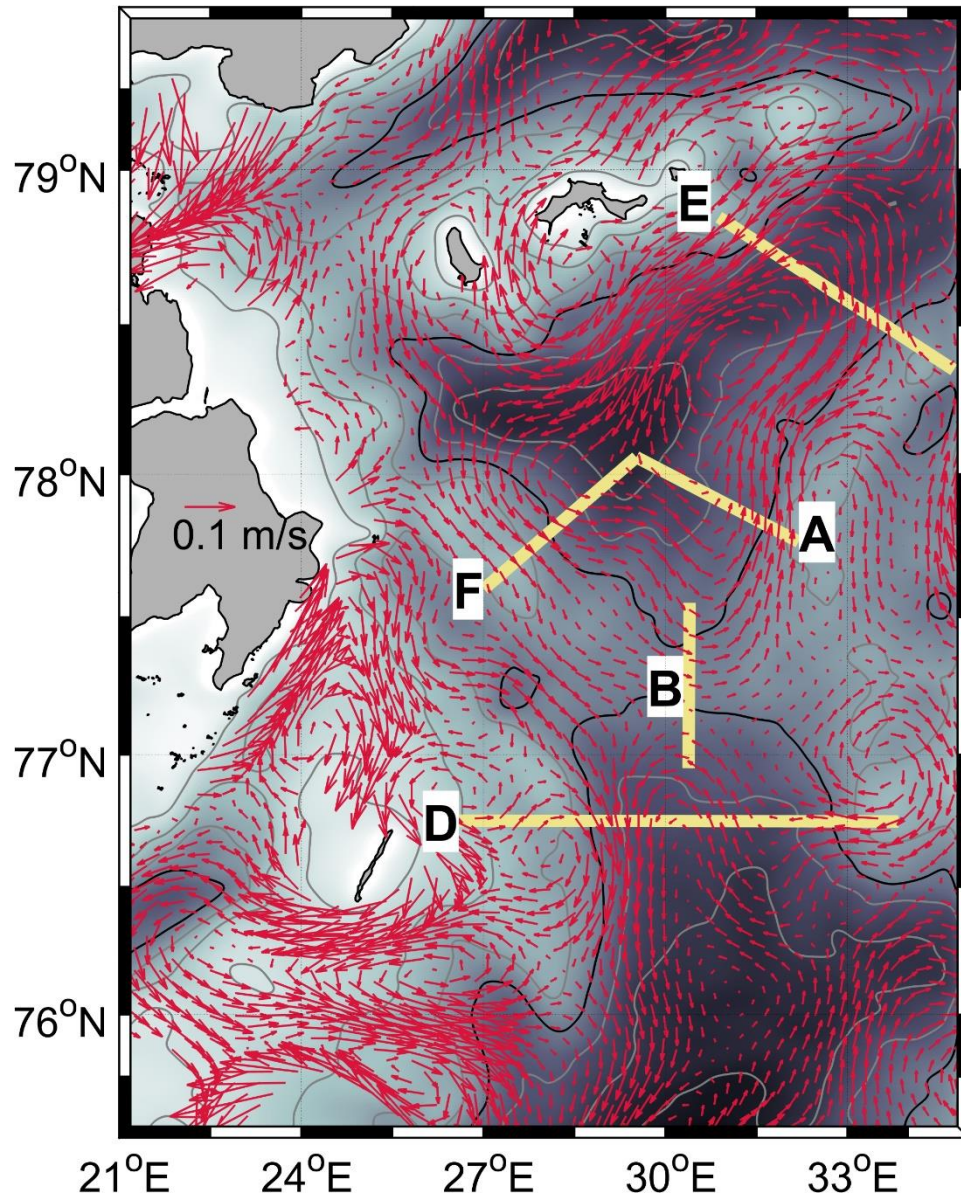
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Lien et al. 2017

## Depth average currents

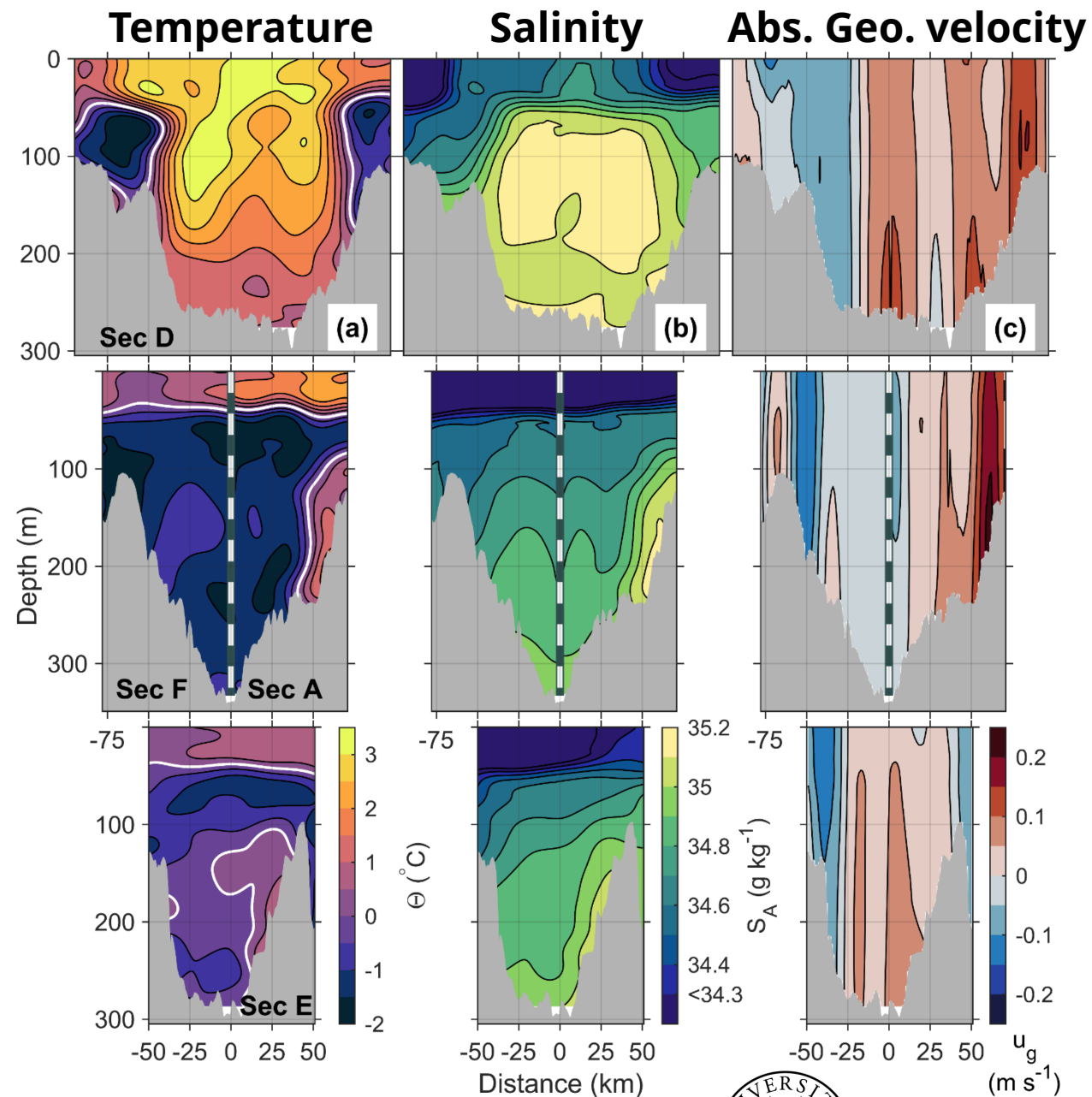
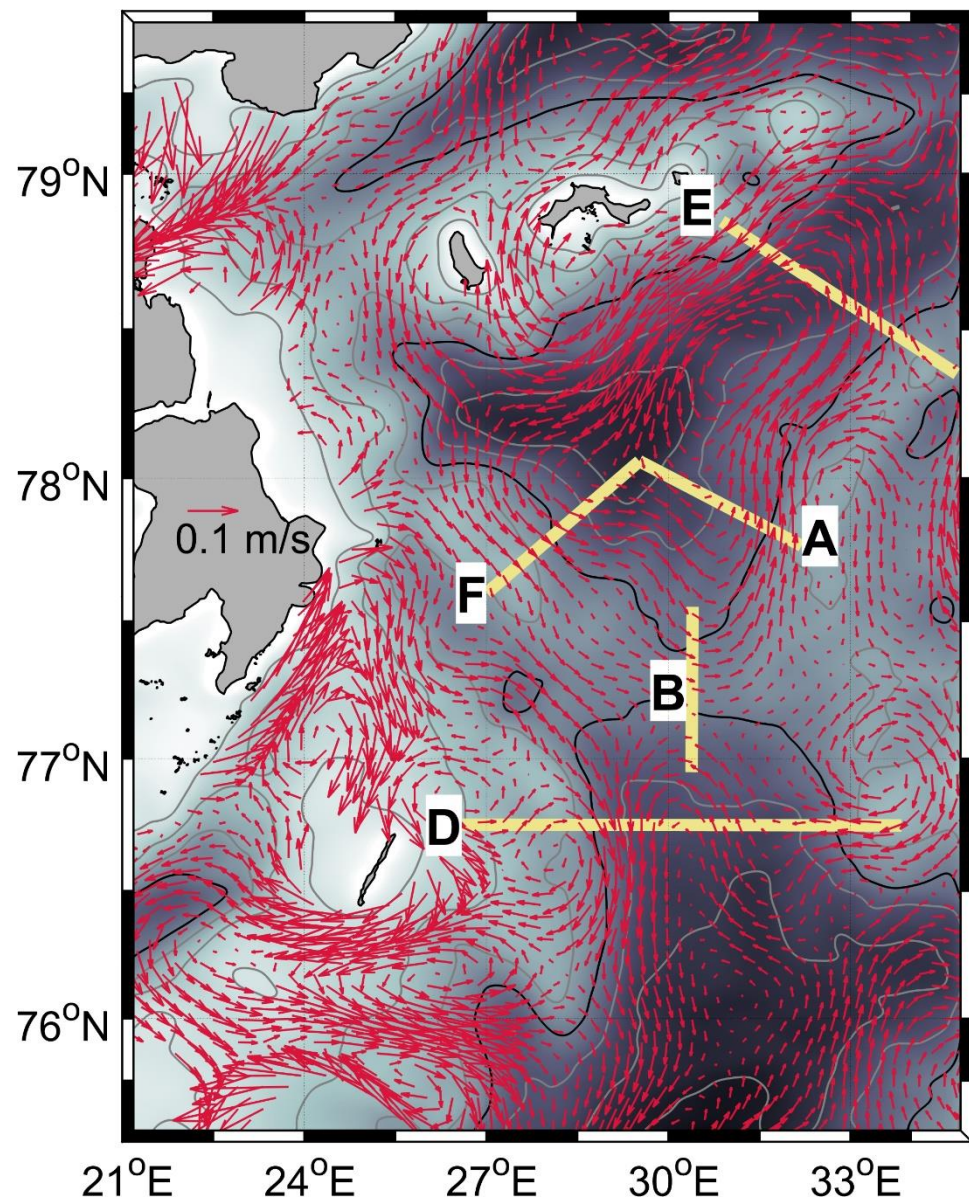


Objectively mapped data  
from 10 cruises and 5 glider  
missions

No Atlantic water  
crossing Sec B?



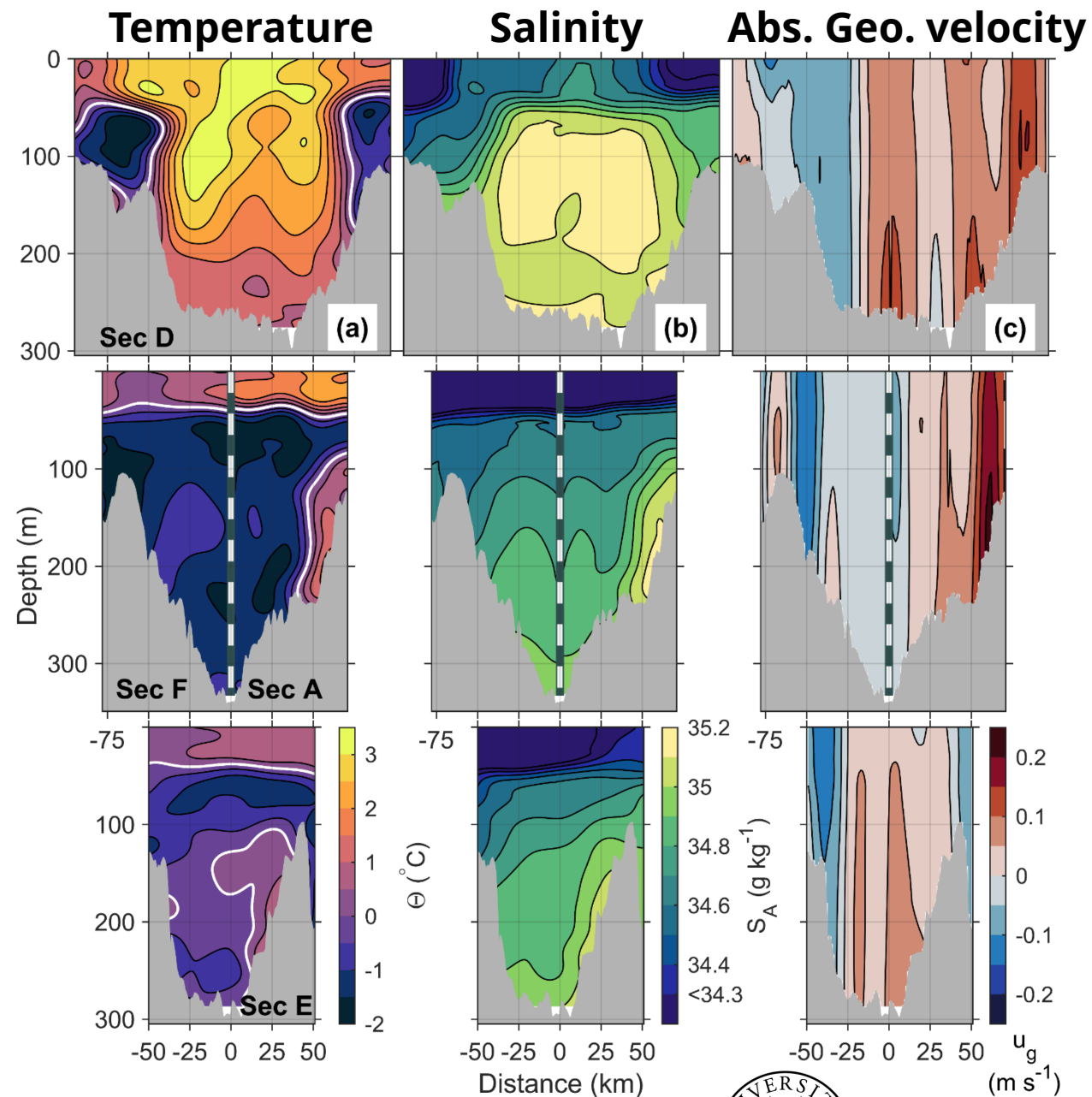
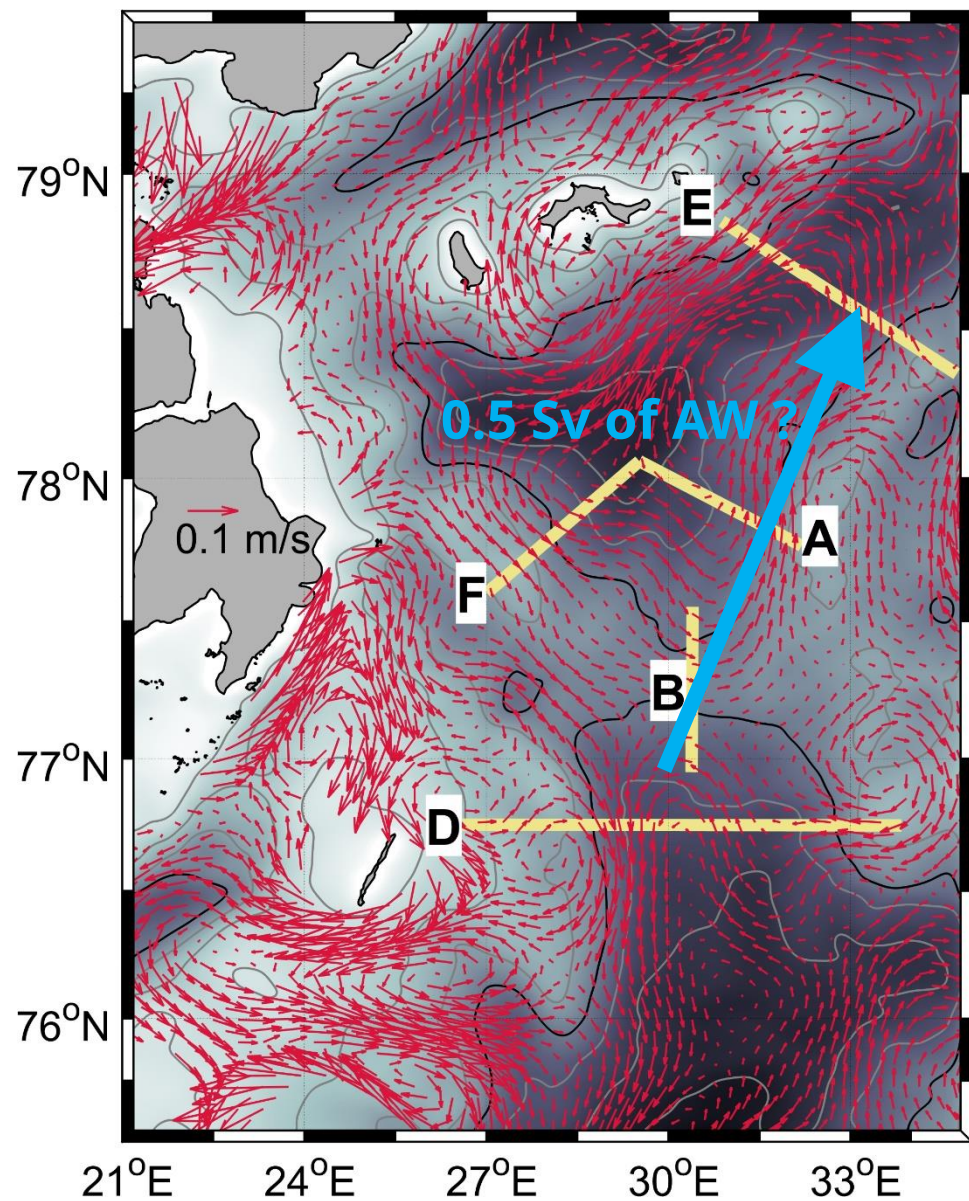
# Depth average currents



the  
Nansen  
LEGACY



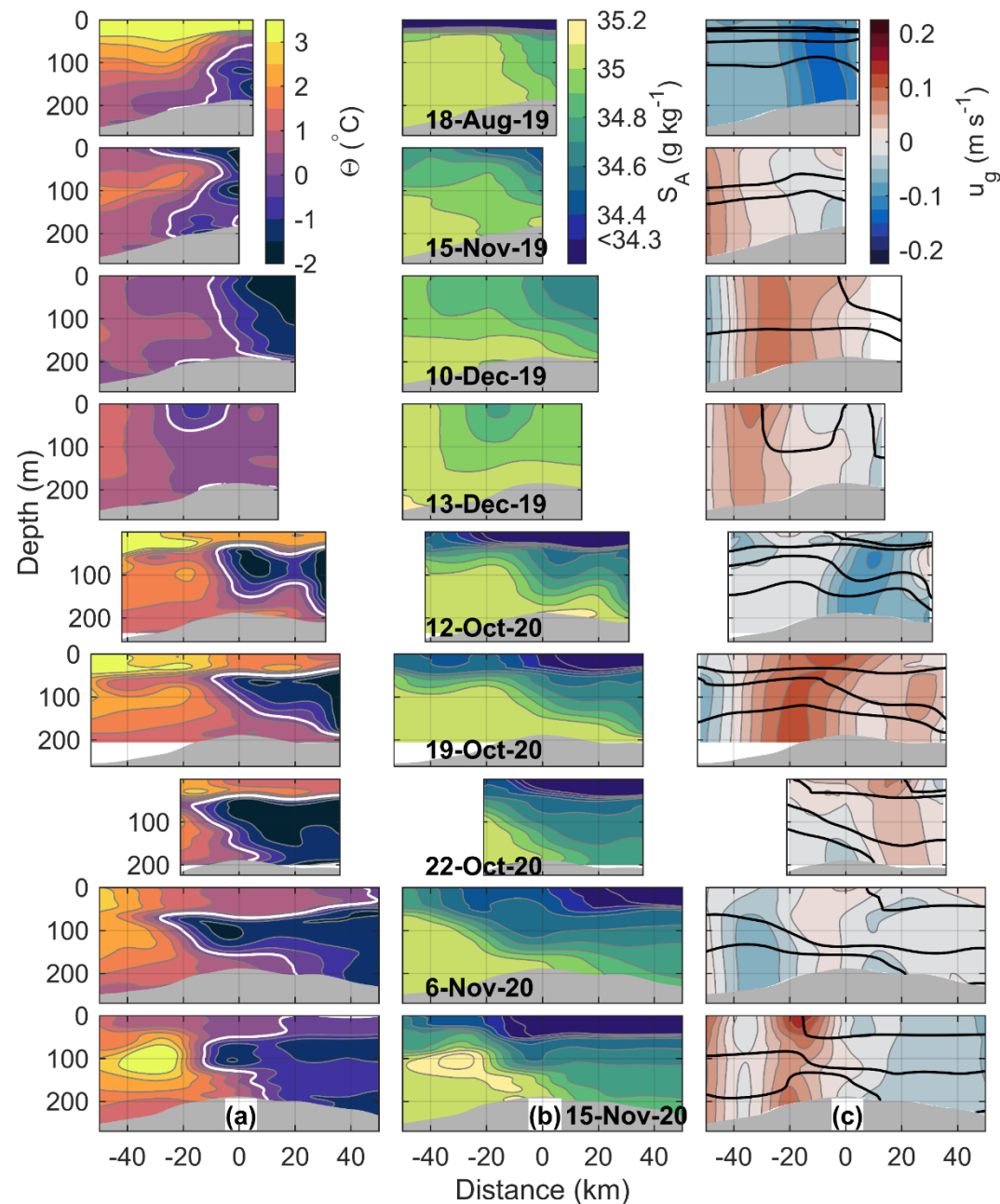
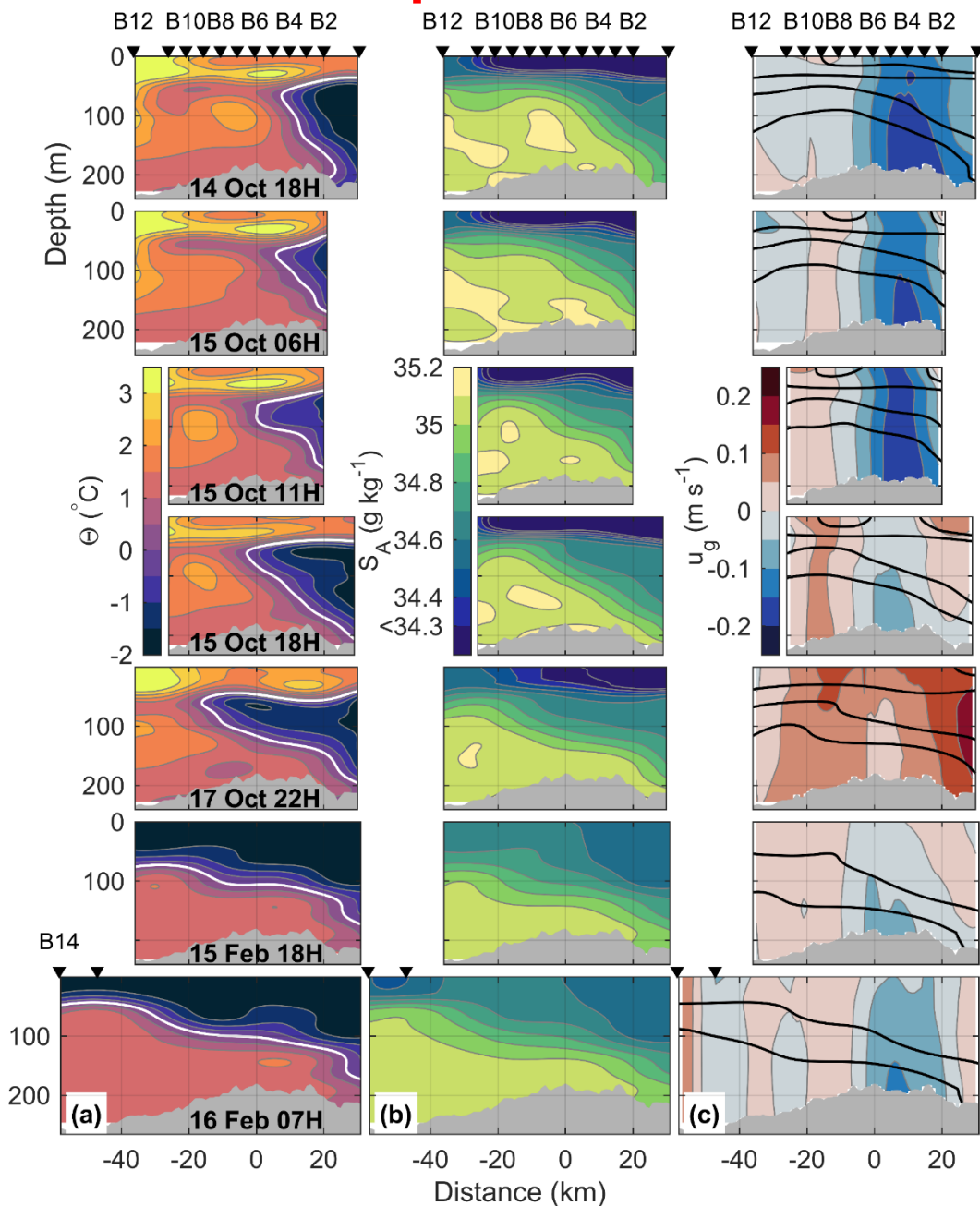
# Depth average currents



# Ship transects

## Sec B

# Glider transects



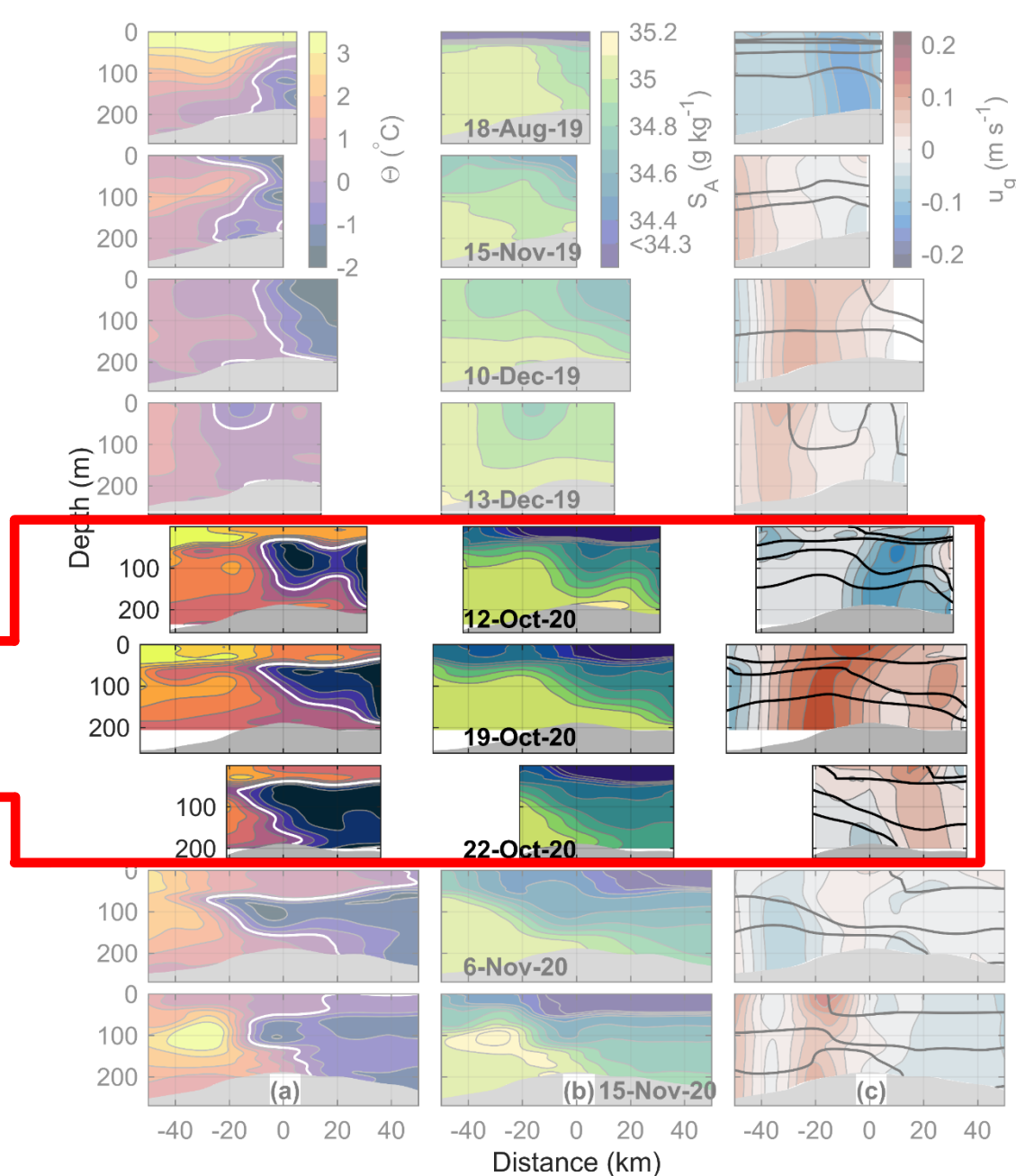
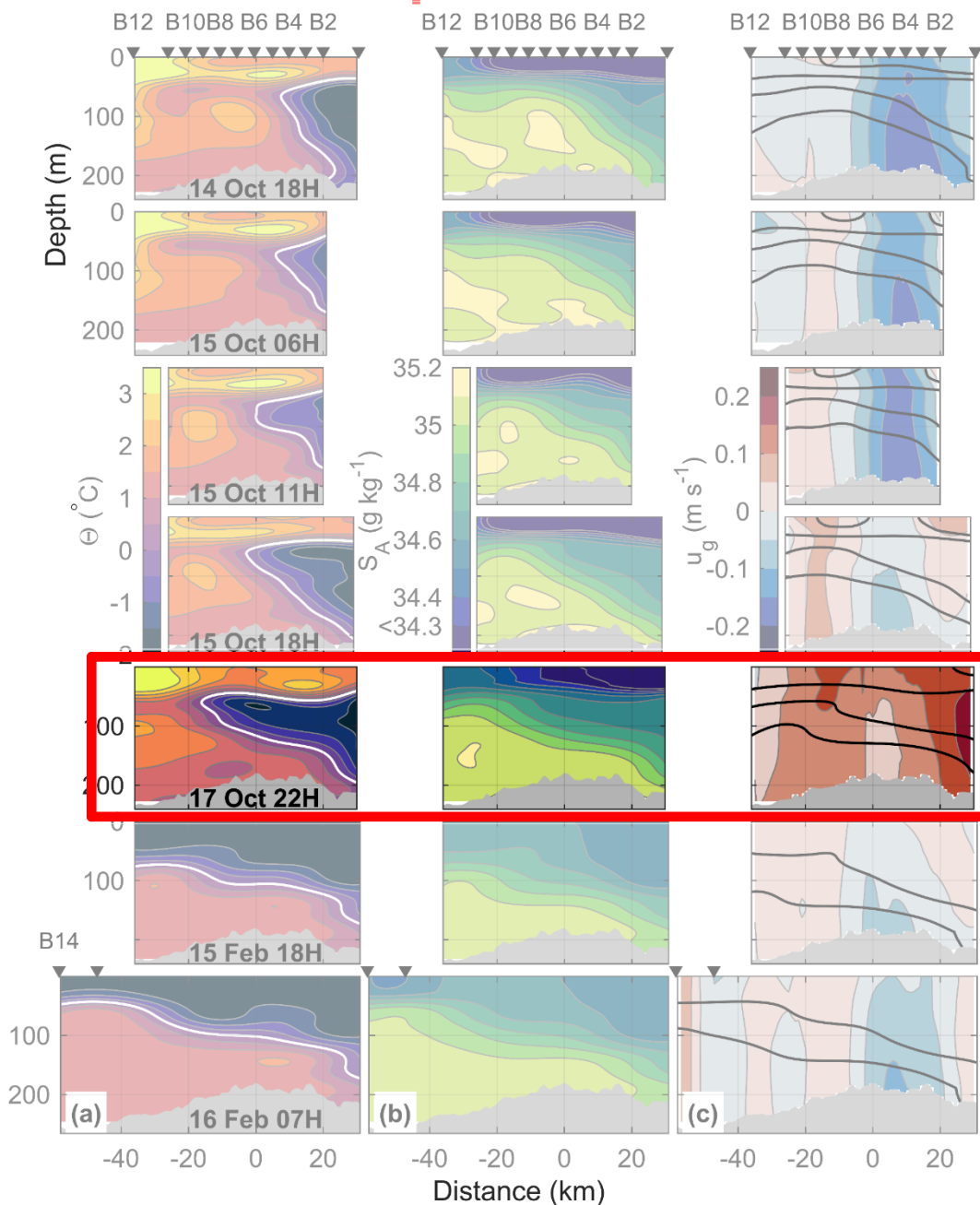
the  
Nansen  
LEGACY



# Ship transects

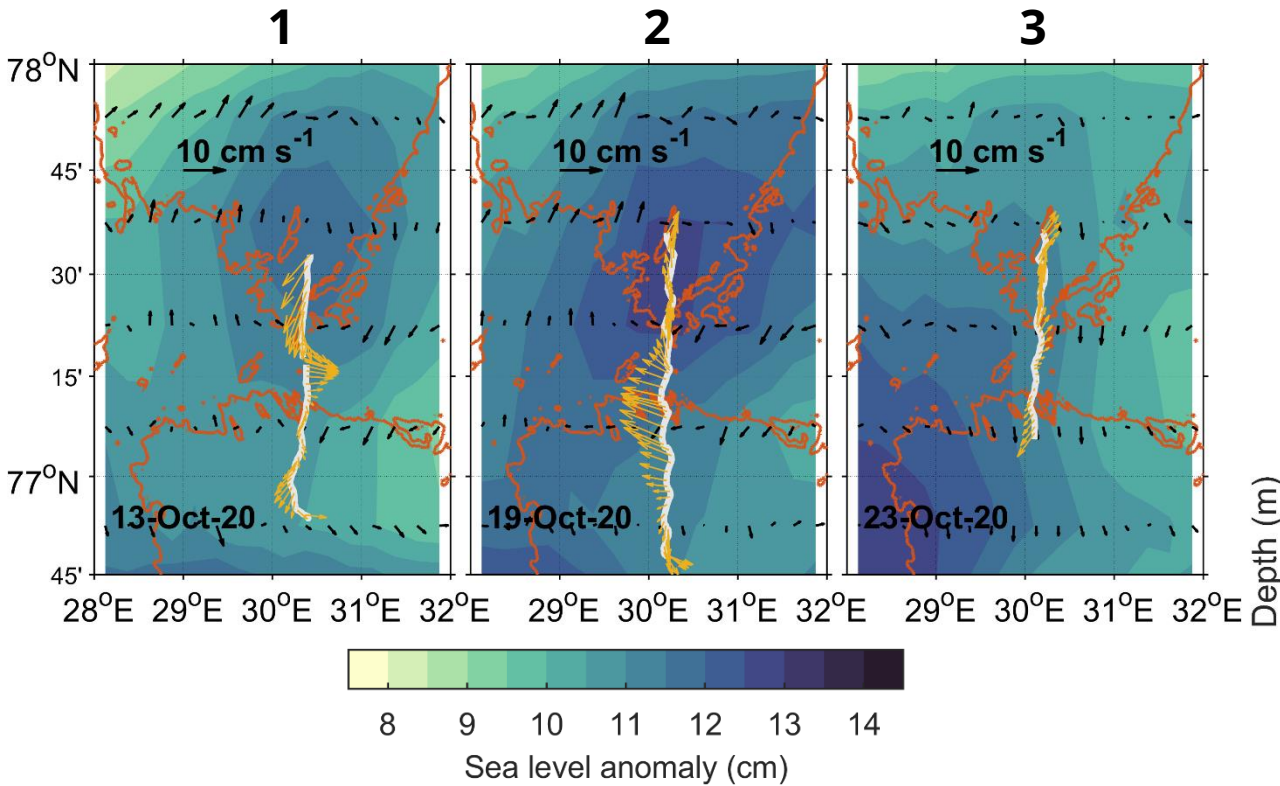
## Sec B

# Glider transects

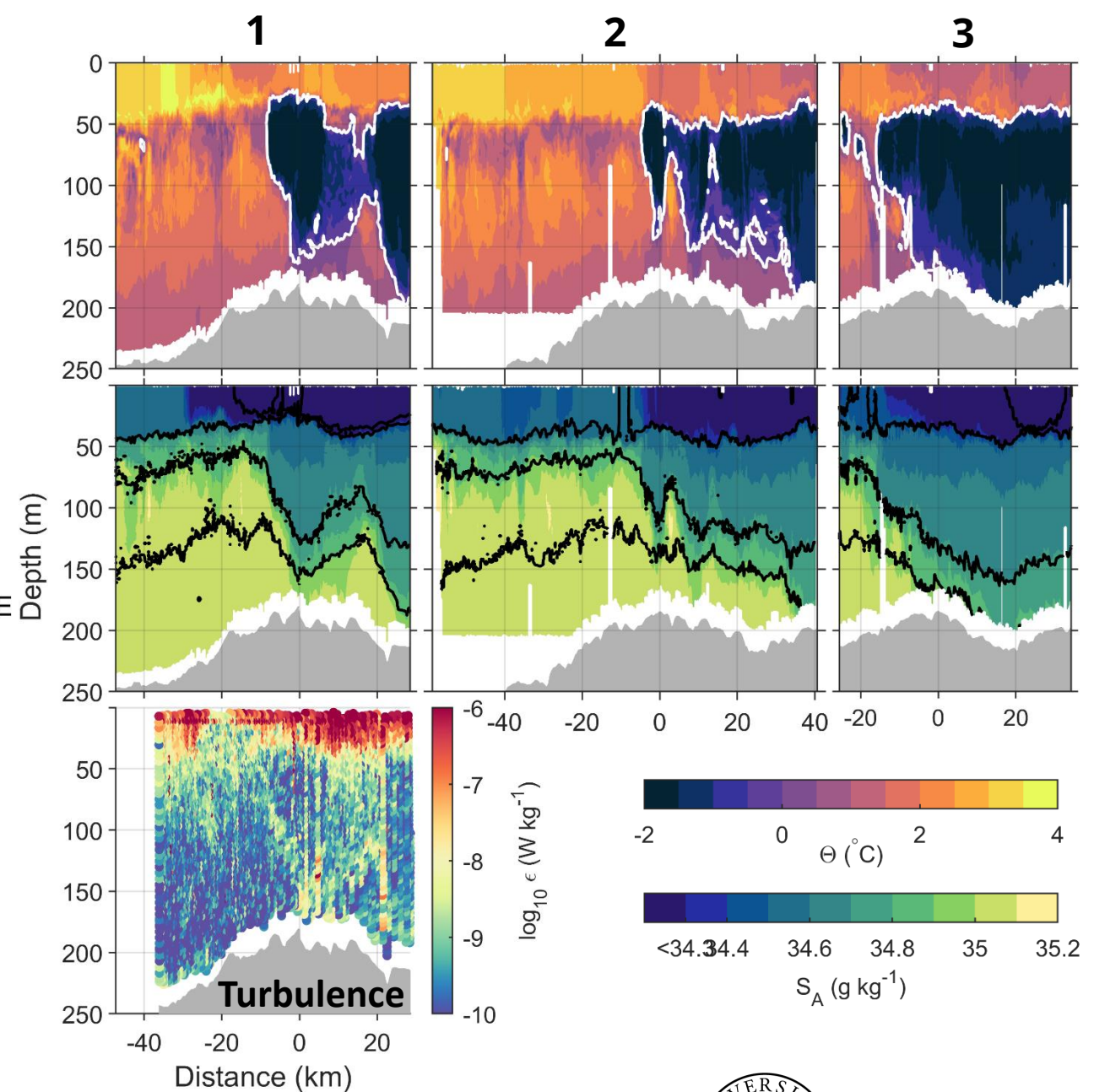
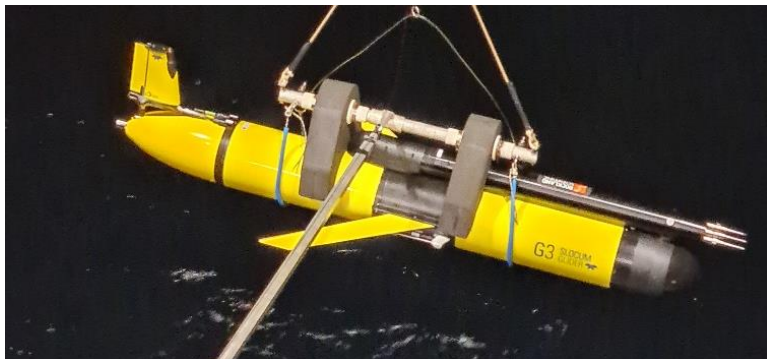


the  
Nansen  
LEGACY

# ODIN and an eddy



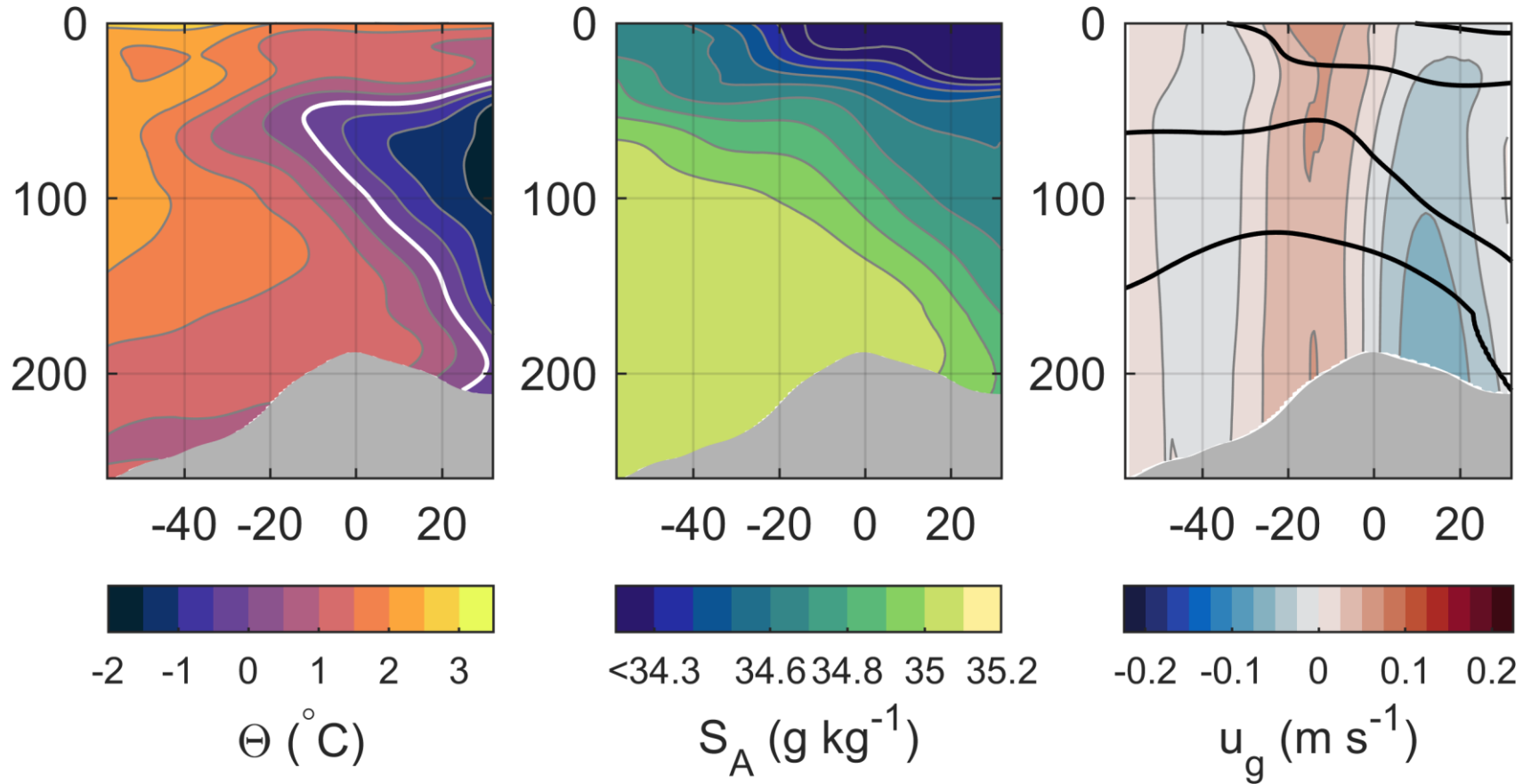
**Glider (Odin, below), crossing the sill 3 times while an eddy is present.**



the  
Nansen  
LEGACY



# Composite section B, including ship data and glider data



Mean volume transport in eastward flowing current north of sill is  **$0.2 \pm 0.2 \text{ Sv}$**



# Summary!

- Sloping Polar front sets up a geostrophic current, where bottom part is Atlantic water
- Eddies and tidal currents modulate the strength of the geostrophic current.
- Atlantic water north of the sill is rapidly modified by mixing with Polar water

