

What still surprises you about classical ocean physics?

The power of the thermal wind relationship!

Ocean stratification provides key constraints on:

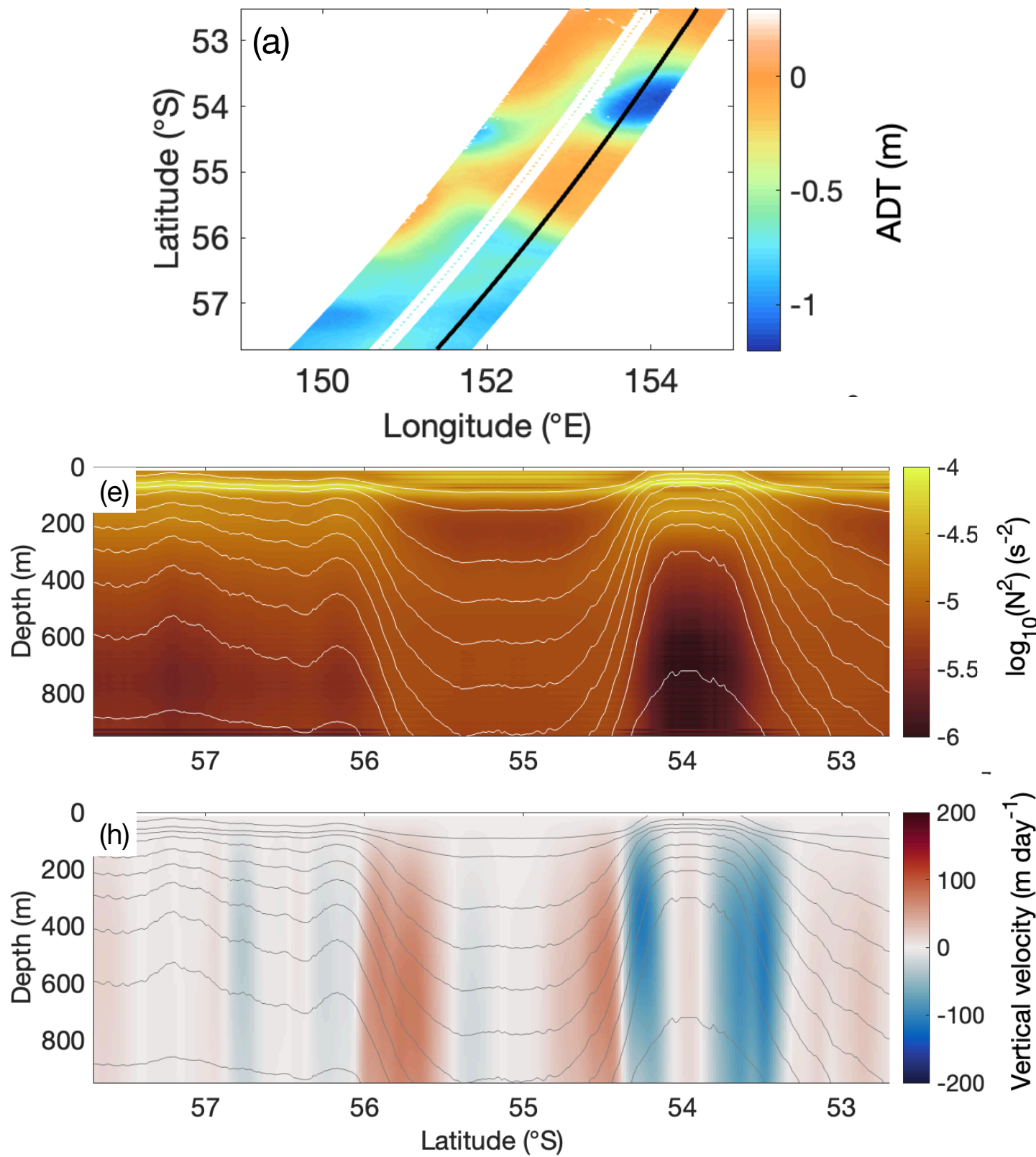
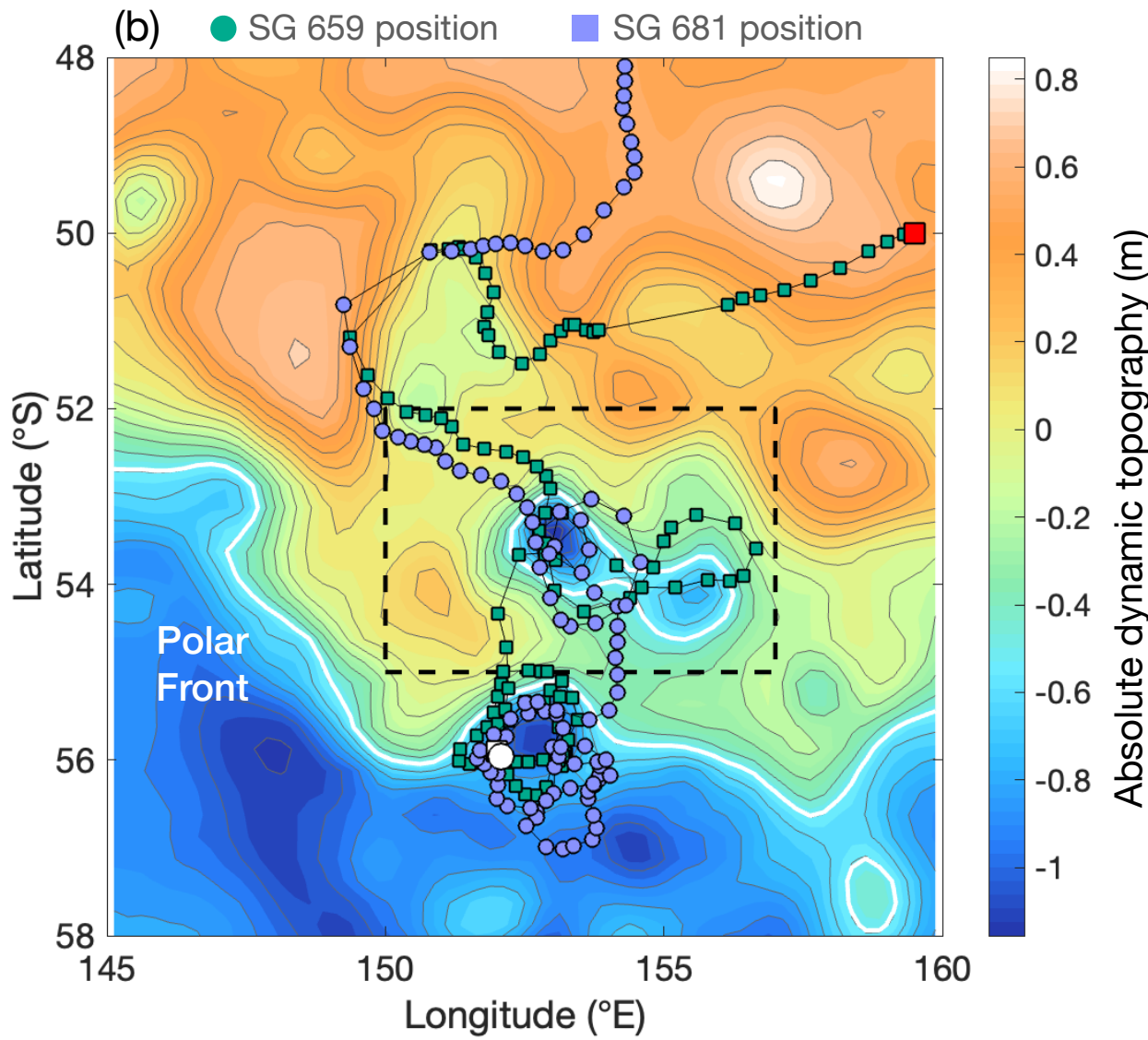
- Mesoscale, submesoscale, and vertical circulations (SWOT);
- Surface and interior water mass transformation rates (overturning rates);
- Ocean-ice interactions in polar regions.

What is something you recently learned from your research?

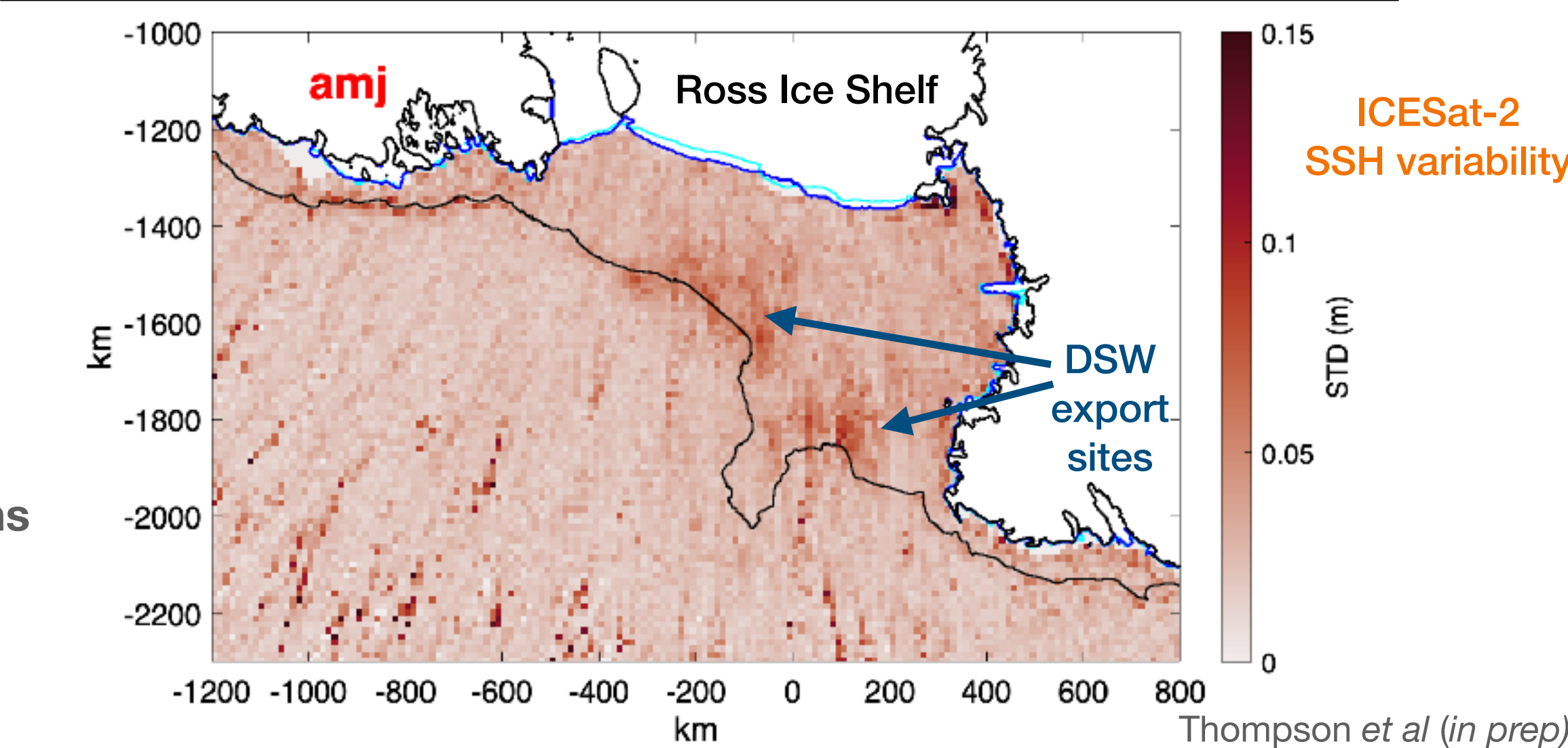
Inter-shelf-sea exchange is a critical component of the overturning circulation at the Antarctic margins.

- The Antarctic margins are vulnerable to dramatic regime shifts over the next decade;
- Monitoring these changes requires a large-scale observing network;
- **Mechanistic understanding requires an ambitious effort to couple *in situ* observations (floats/gliders) with satellite observations (SWOT, ICESat-2, PACE, EDGE);**
- Opportunities to contribute to Antarctic InSync and International Polar Year 5 (2032-33) activities.

FOCUS-SWOT field campaign:
Estimating S. Ocean vertical velocities



Thompson et al (Comm. Earth Env. 2026)



Thompson et al (in prep)