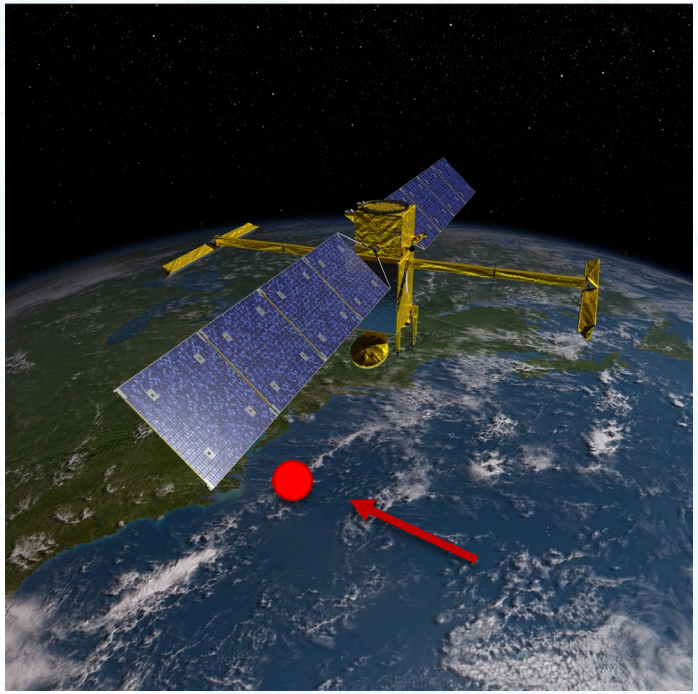

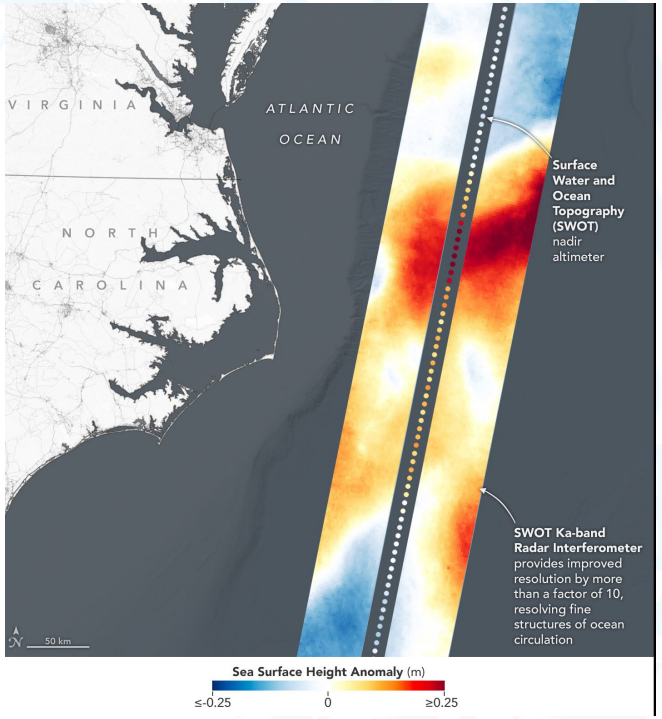

MAB-SWOT: The US East Coast crossover

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MAB-SWOT Overview

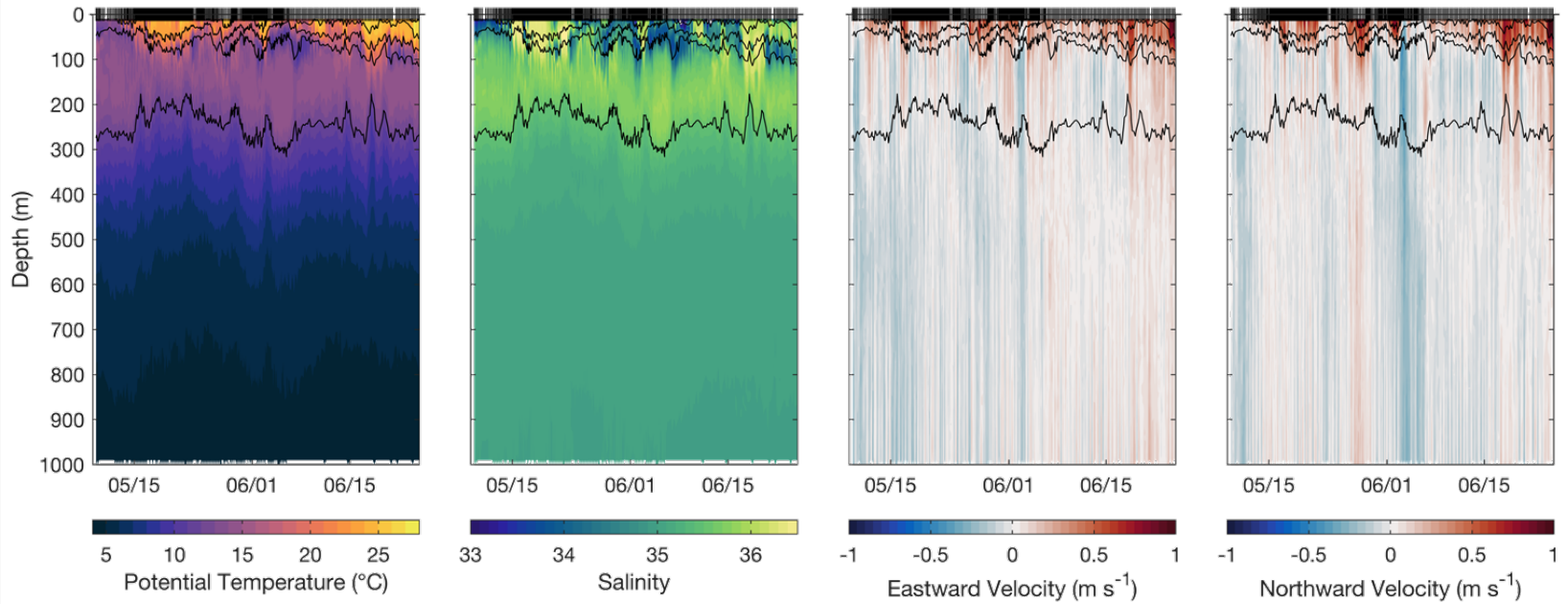
- Complemntary platforms:
  - Spray underwater gliders (Todd)
  - CPIESs array (Andres)
  - Moored ADCP (Muglia)
  - HF Radar (Seim/Muglia)
- Hydrographic Measurements:
  - Upper ocean, mobile: gliders
  - Full-depth, fixed: CPIES
- Velocity Measurements:
  - Upper ocean, mobile: gliders
  - Upper ocean, fixed: ADCP
  - Surface, broad-scale: HF radar

Gliders + CPIESs: A Virtual Full-Depth Mooring

- Upper ocean T,S + full-depth acoustic travel time + bottom pressure
  → Hydrography and SSH (steric / baroclinic + mass loading / barotropic)
- Array of CPIESs → Geostrophic currents
- Geostrophic current + upper ocean absolute currents → Absolute Currents
  (Geostrophic + Ageostrophic)

CPIESs: Jan 2023-June 2024

Gliders: Mar 2023-July 2023 (SWOT) + 6x per year Gulf Stream missions



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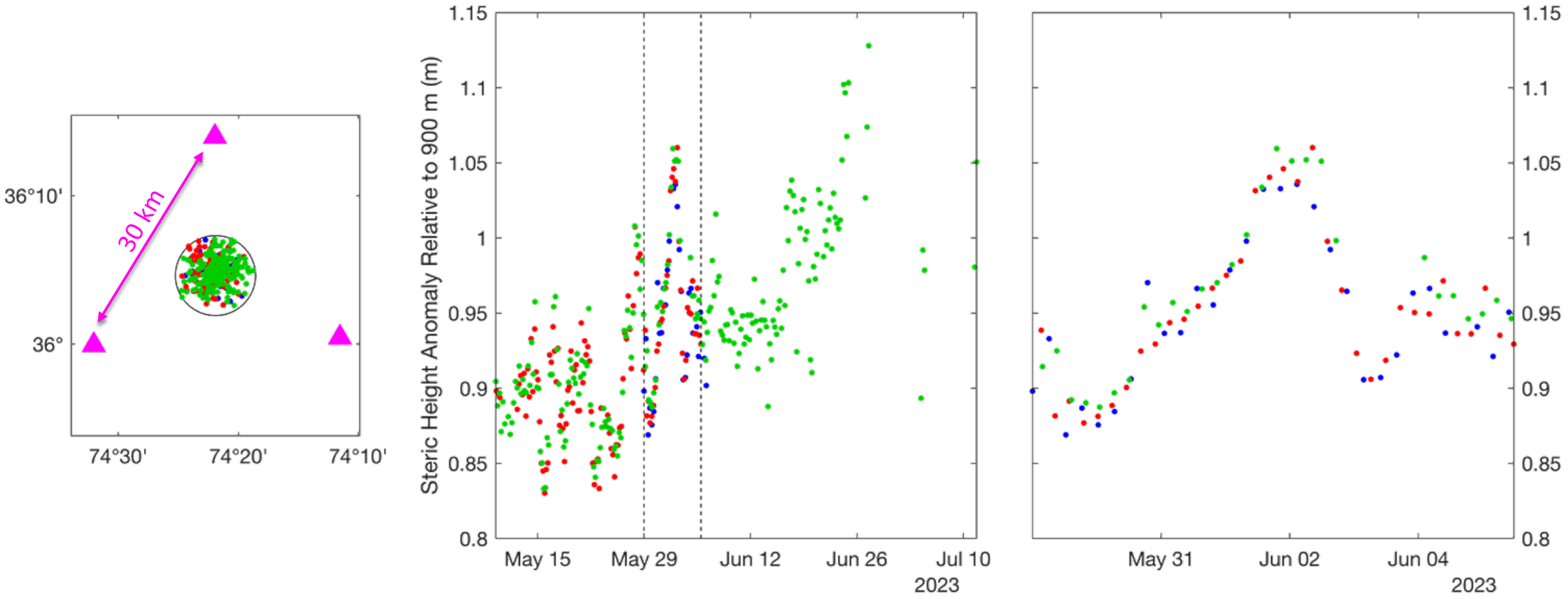
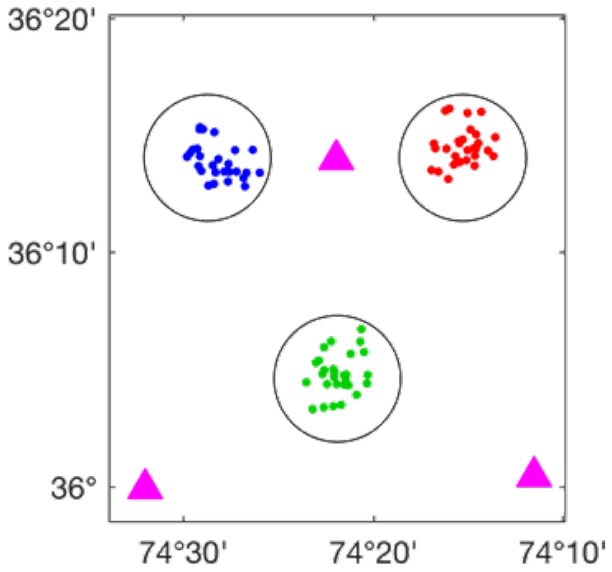
Glider-based Steric Height at Center of CPIES Array

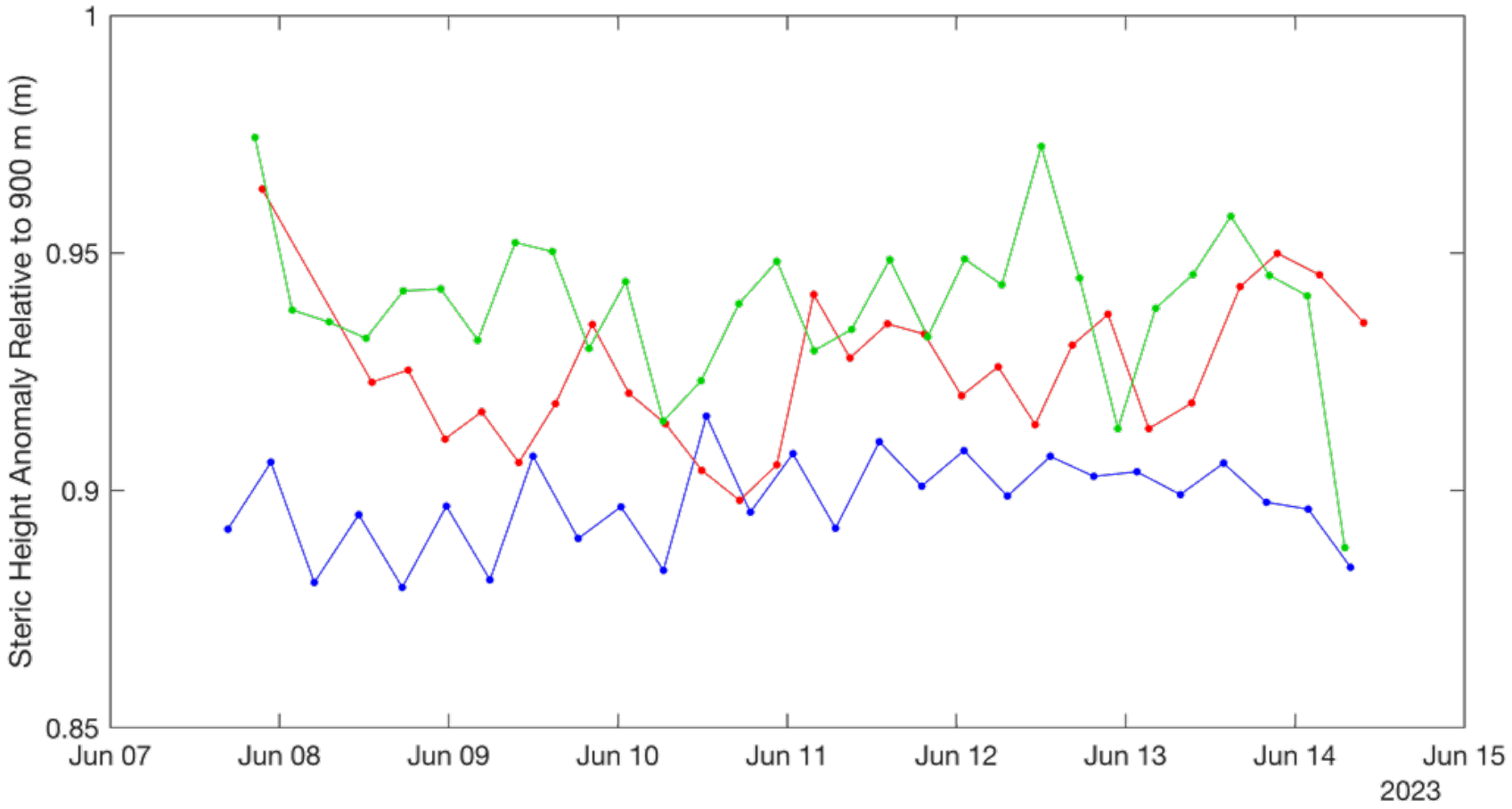
- Frequent estimates of steric height within 5 km of center of CPIES array.
- Three concurrent gliders for 1 week during meander event.



Glider-based Steric Height Gradient

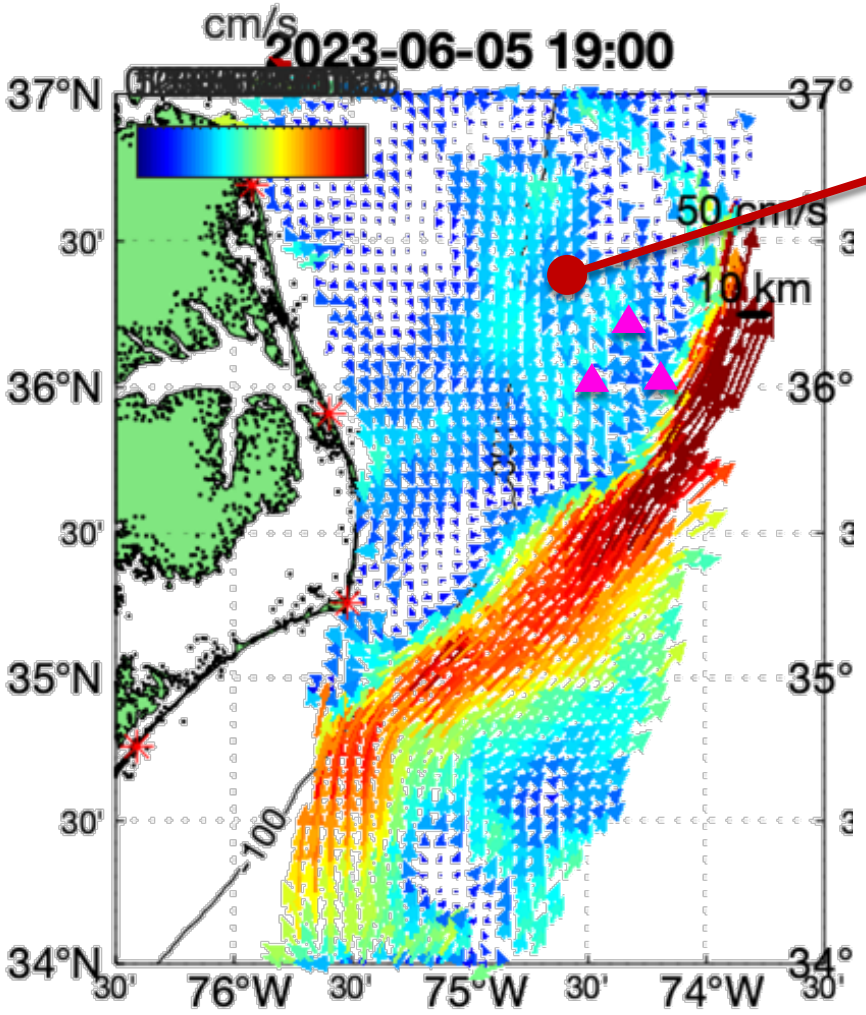
- Three gliders separated by ~20 km for 1 week to estimate gradients.
- O(0.05)-m steric height increase toward southeast as expected for Gulf Stream.



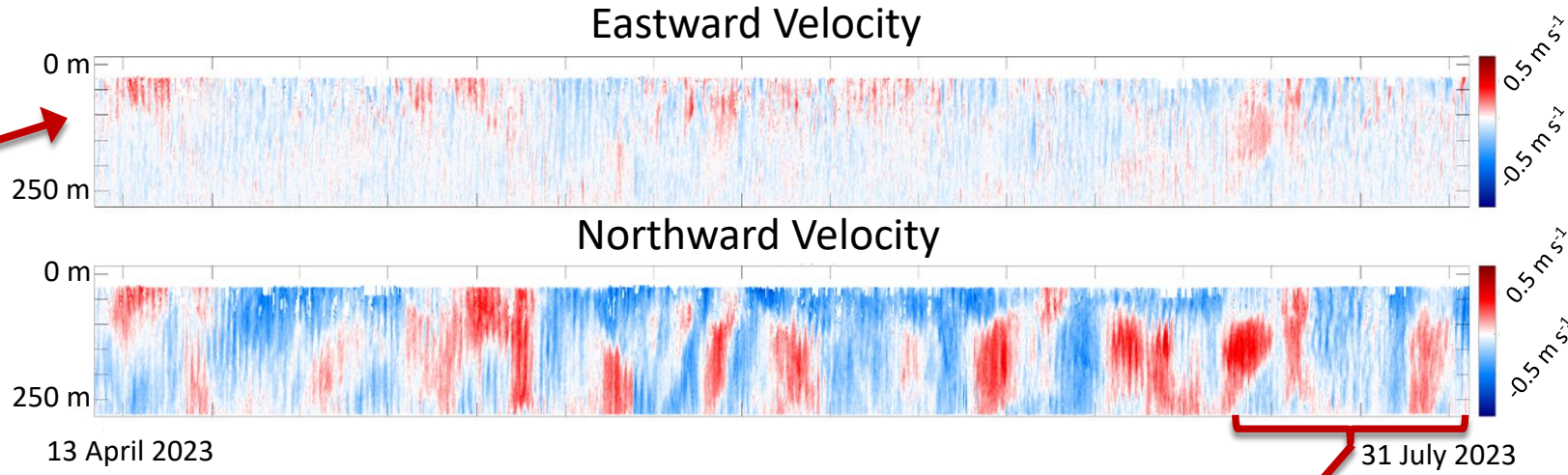


Radar and Acoustic Doppler Velocity Measurements

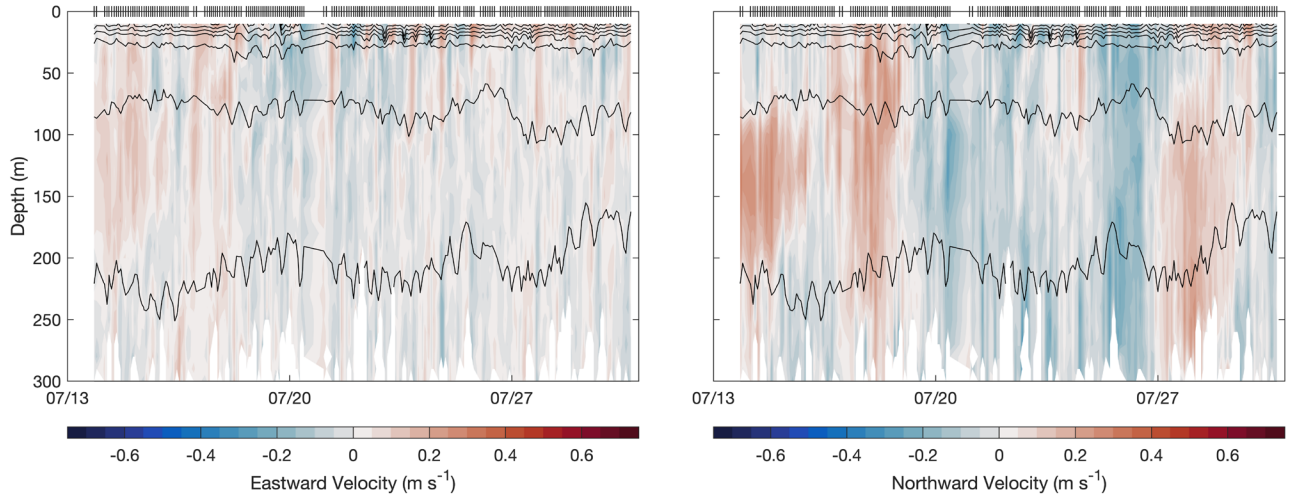
Shore-based HF Radars



Moored ADCP on Upper Continental Slope



Co-located Glider Sampling



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MAB-SWOT Future Plans