

**152°W as an Alaskan
Beaufort Sea DBO line?**

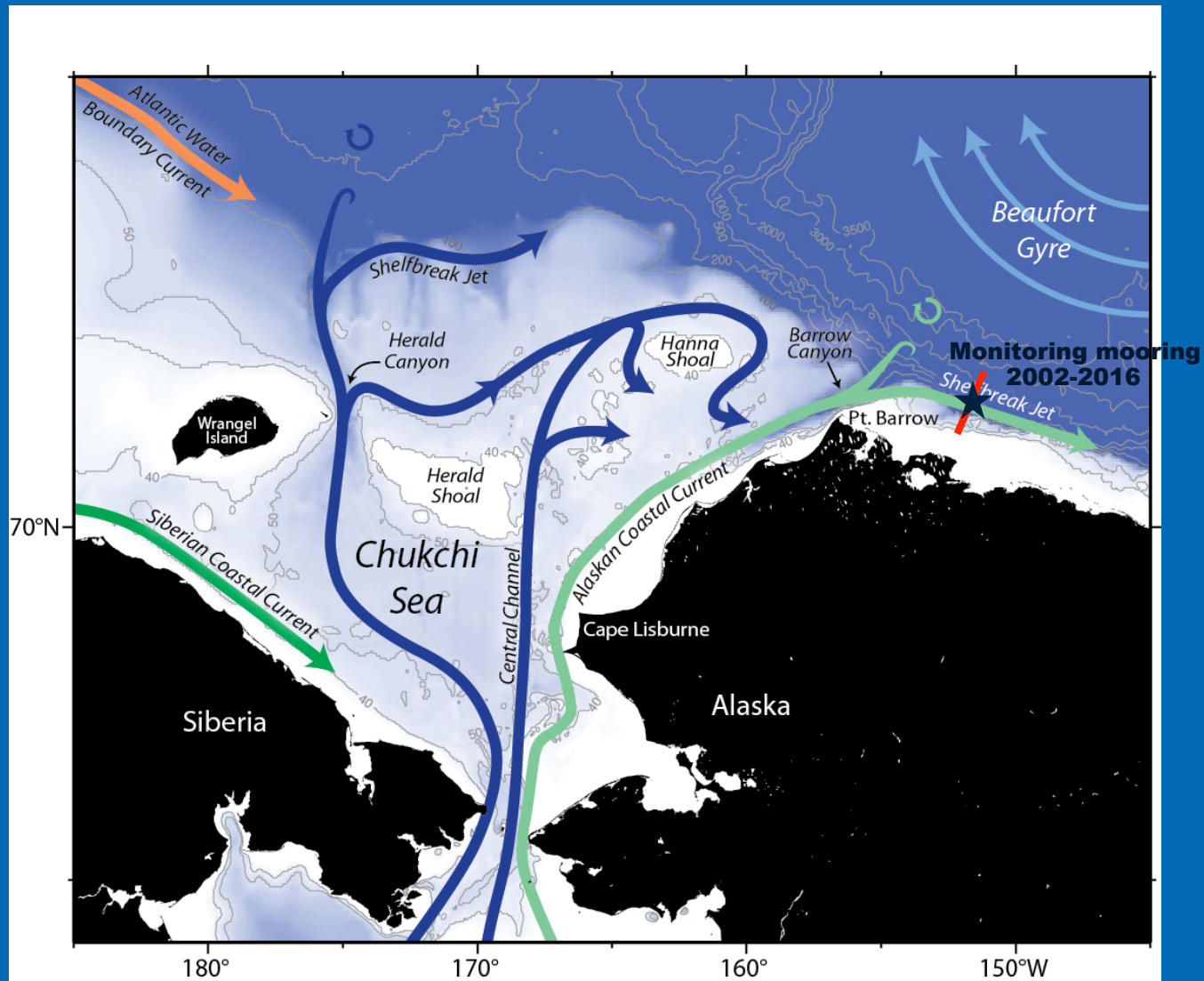


Photo by Amanda Kowlaski

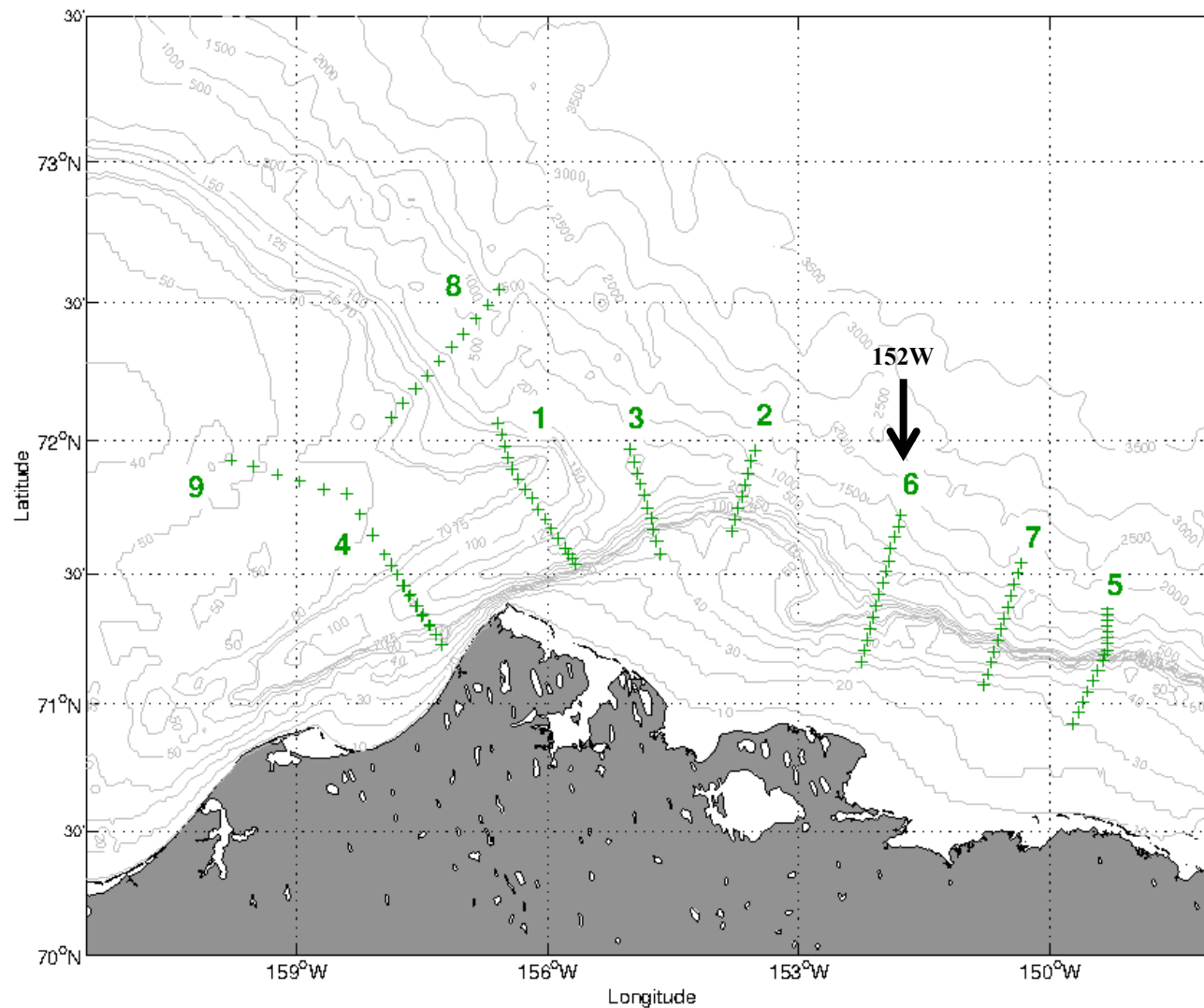
This map illustrates the oceanographic features of the Chukchi and Bering Seas. Key elements include:

- Geographic Labels:** Siberia, Alaska, Wrangel Island, Herald Shoal, Hanna Shoal, Barrow Canyon, Pt. Barrow, Cape Lisburne, Chukchi Sea, Beaufort Gyre.
- Ocean Currents:**
 - Atlantic Water Boundary Current:** Shown as an orange arrow flowing southeast from the top left.
 - Siberian Coastal Current:** A green arrow flowing north along the Siberian coast.
 - Shelfbreak Jet:** A blue arrow flowing northeast from the Siberian coast, passing through Herald Canyon.
 - Central Channel:** A blue arrow flowing north through the central part of the Chukchi Sea.
 - Alaskan Coastal Current:** A green arrow flowing north along the Alaskan coast.
 - Shelfbreak Jet (Bering Sea):** A green arrow flowing northeast from the Alaskan coast.
- Bathymetry:** Depth contours are marked at 40, 50, 100, 200, 500, 1000, 2000, 3000, and 3500 meters.
- Coordinates:** The map includes latitude (70°N) and longitude (180°, 170°, 160°, 150°W) markers. A specific longitude, 152°W, is highlighted with a red line.

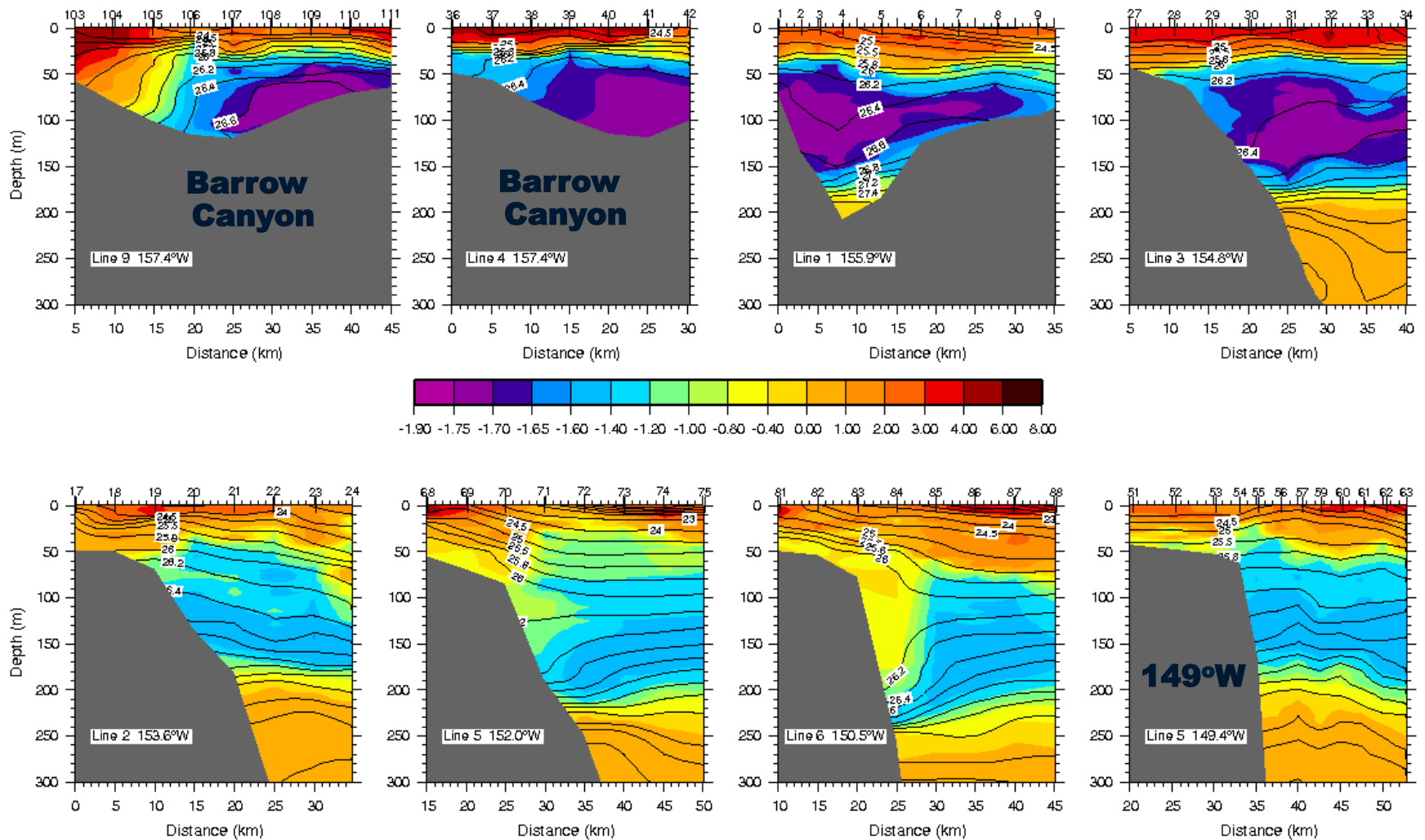
Downstream of the Chukchi Sea outflow points



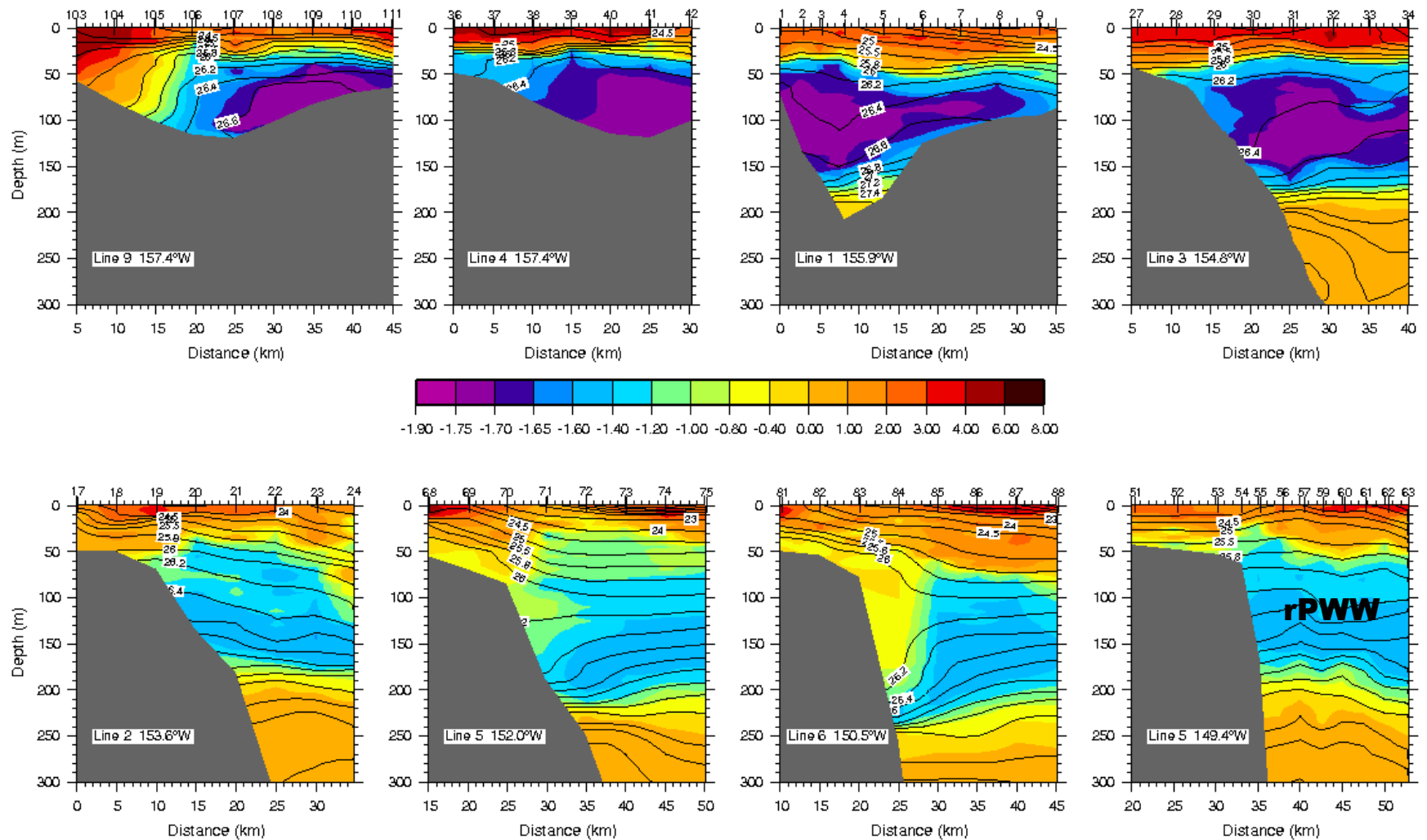
Boundary current survey July 2009



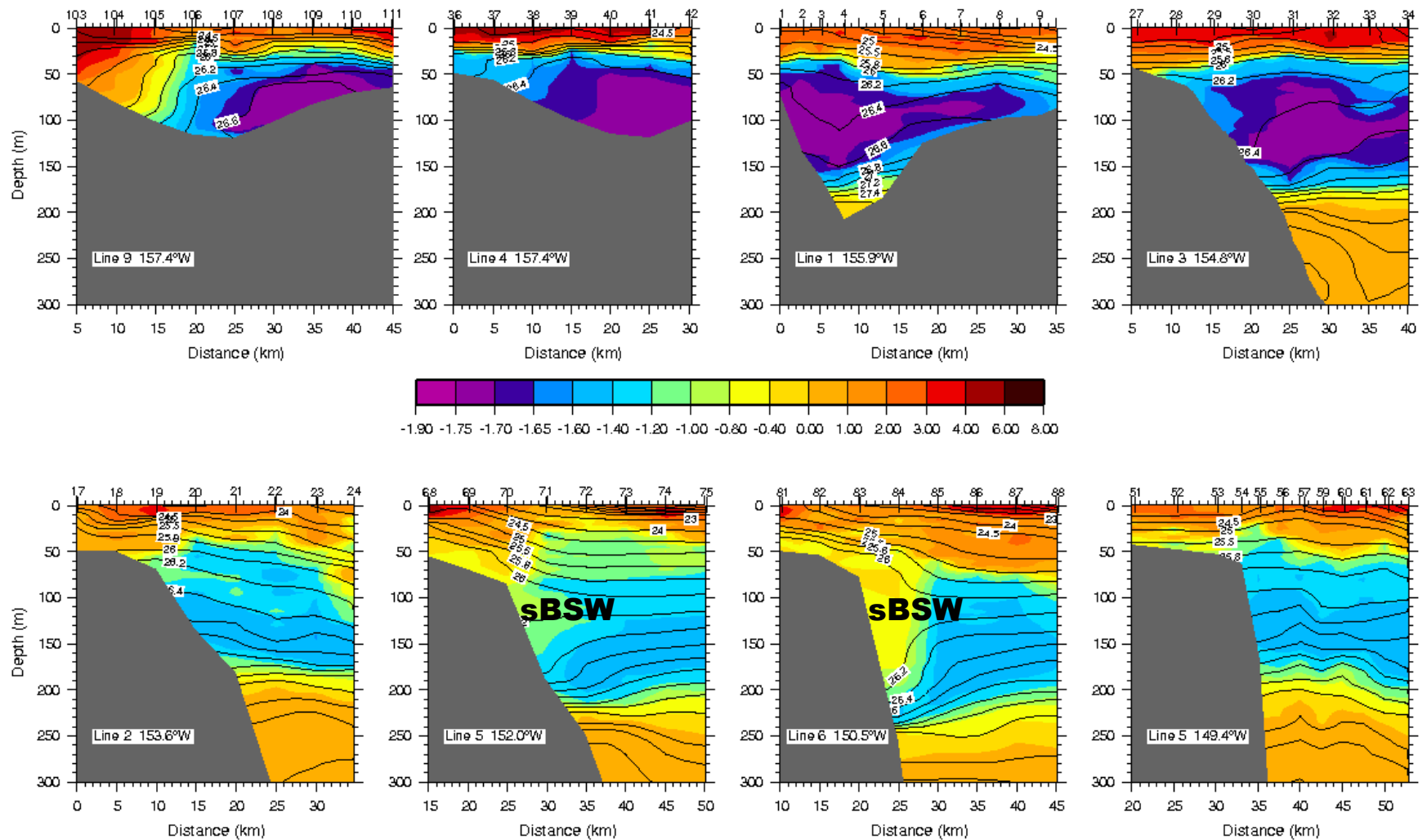
Flavors of the boundary current



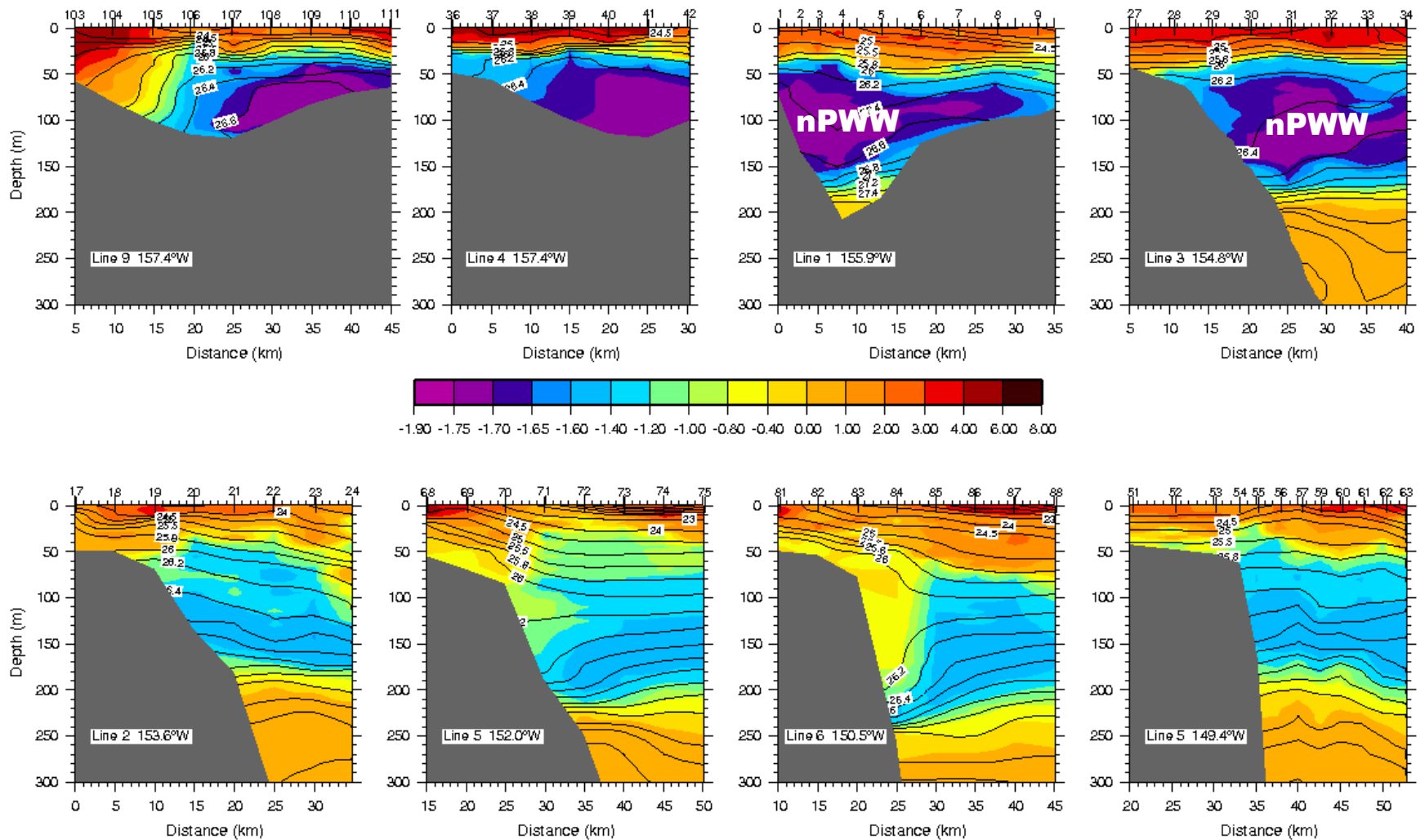
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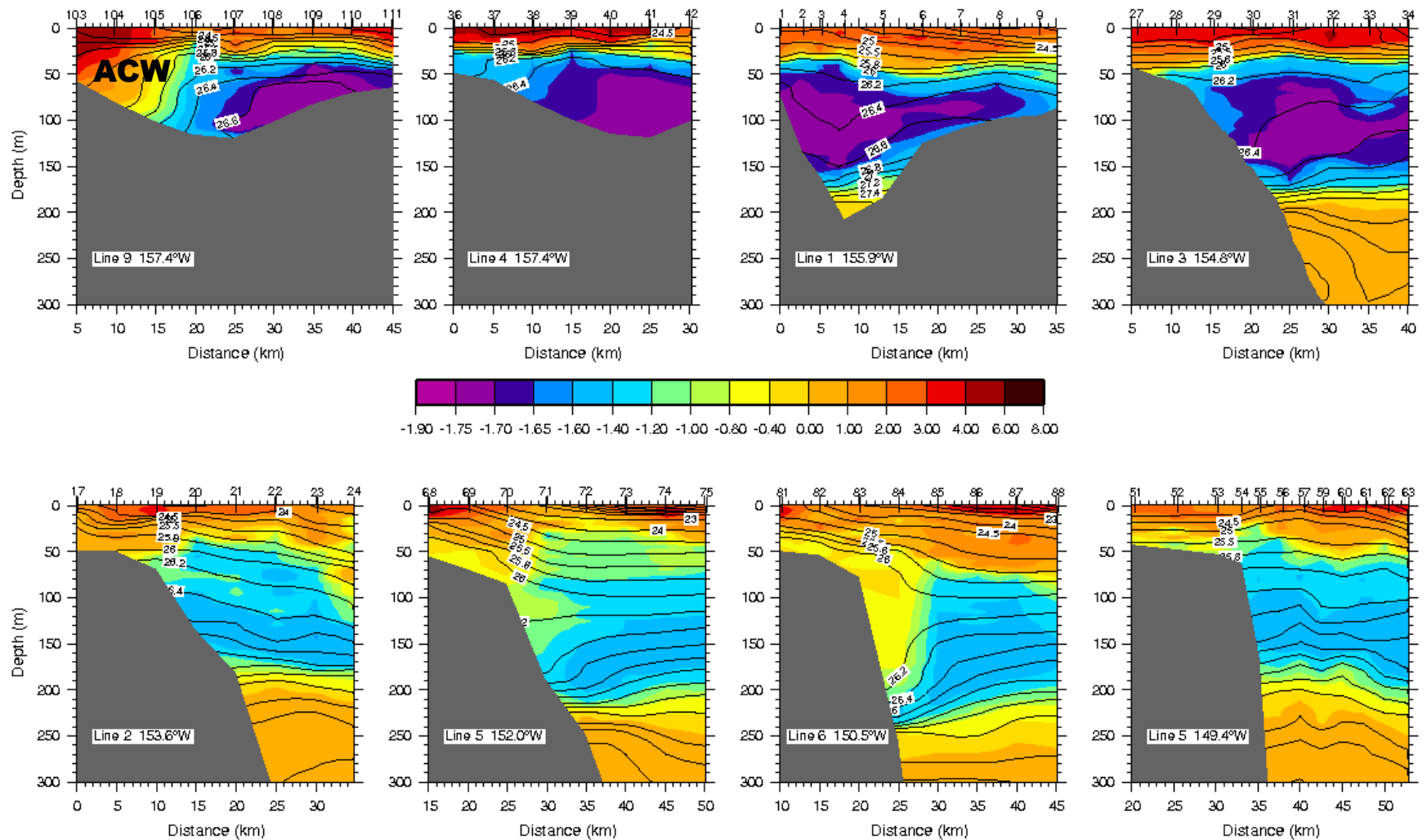
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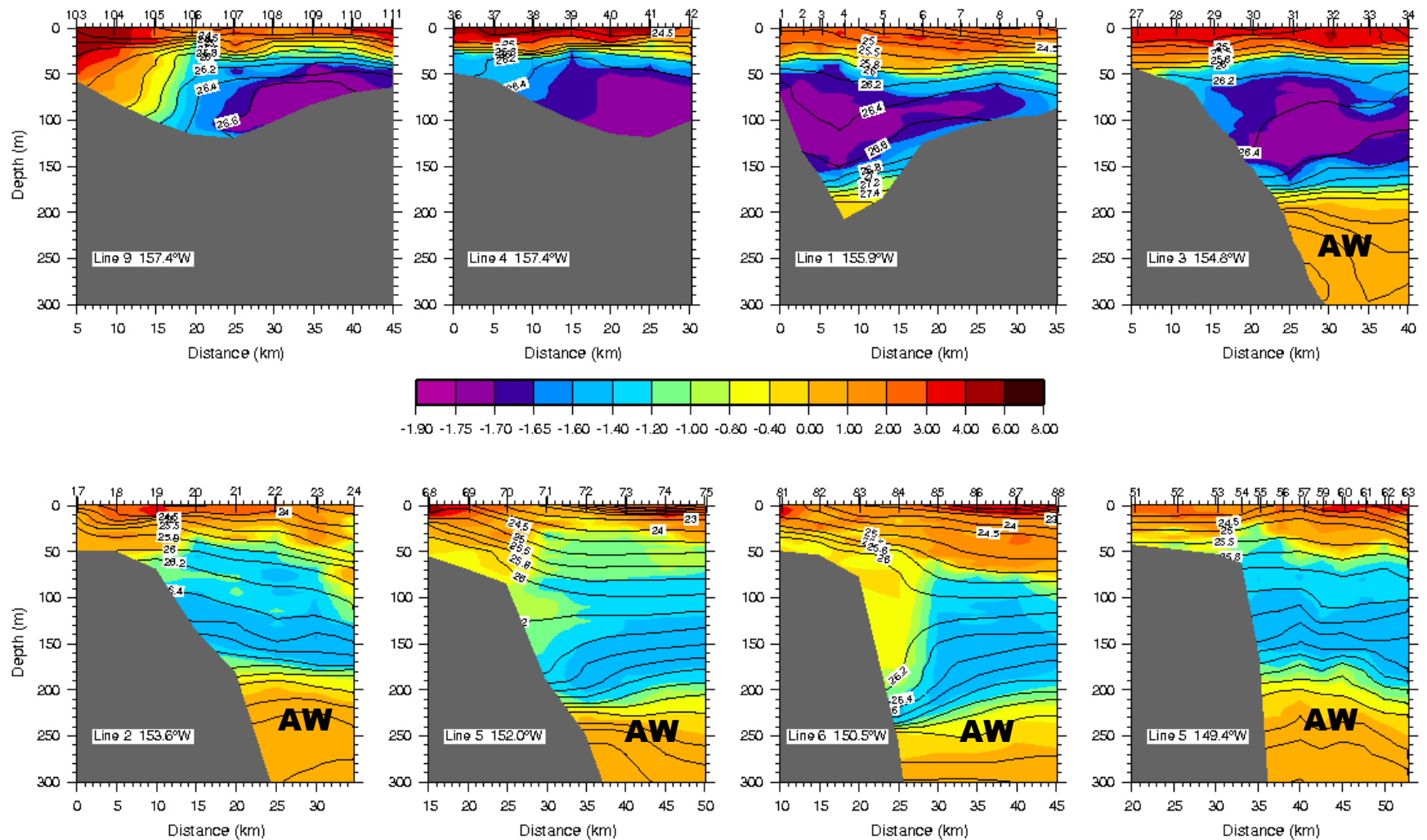
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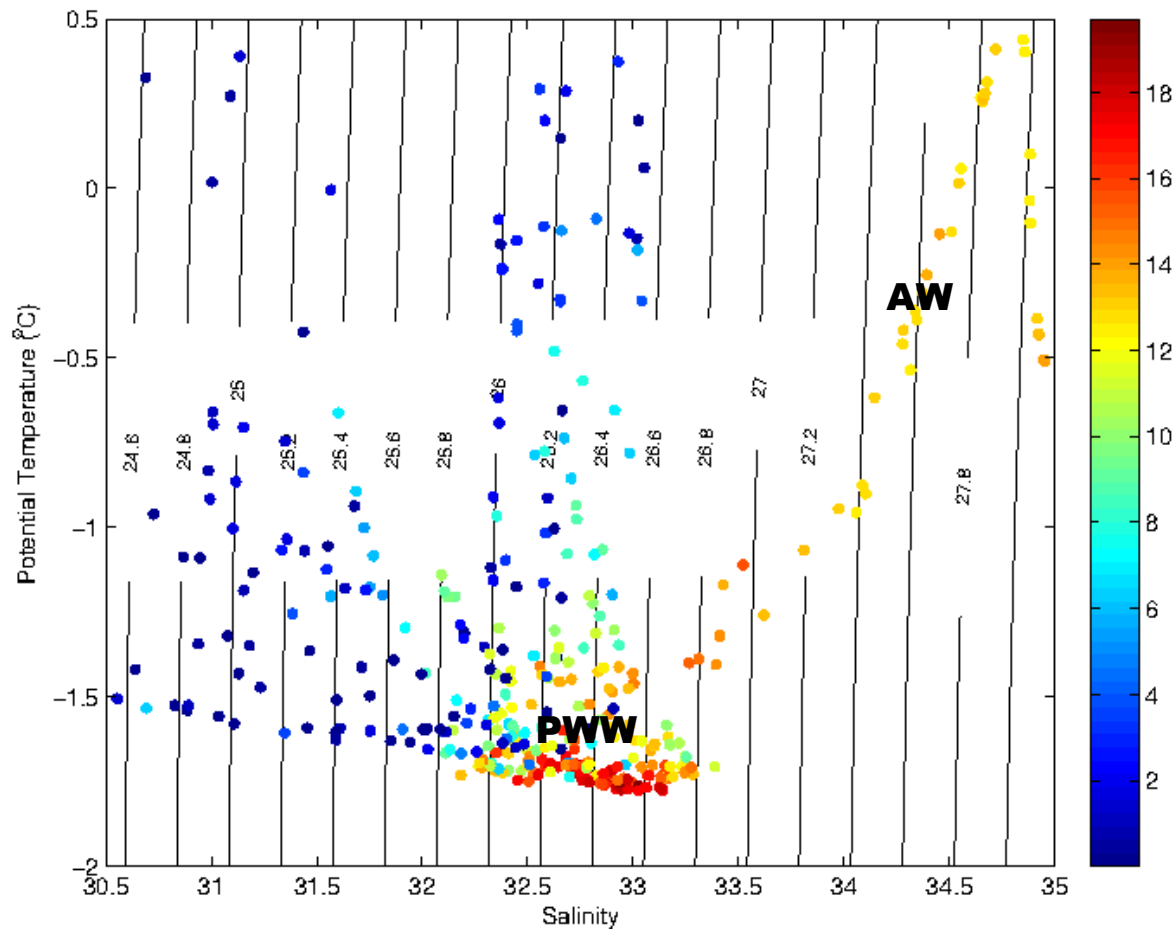
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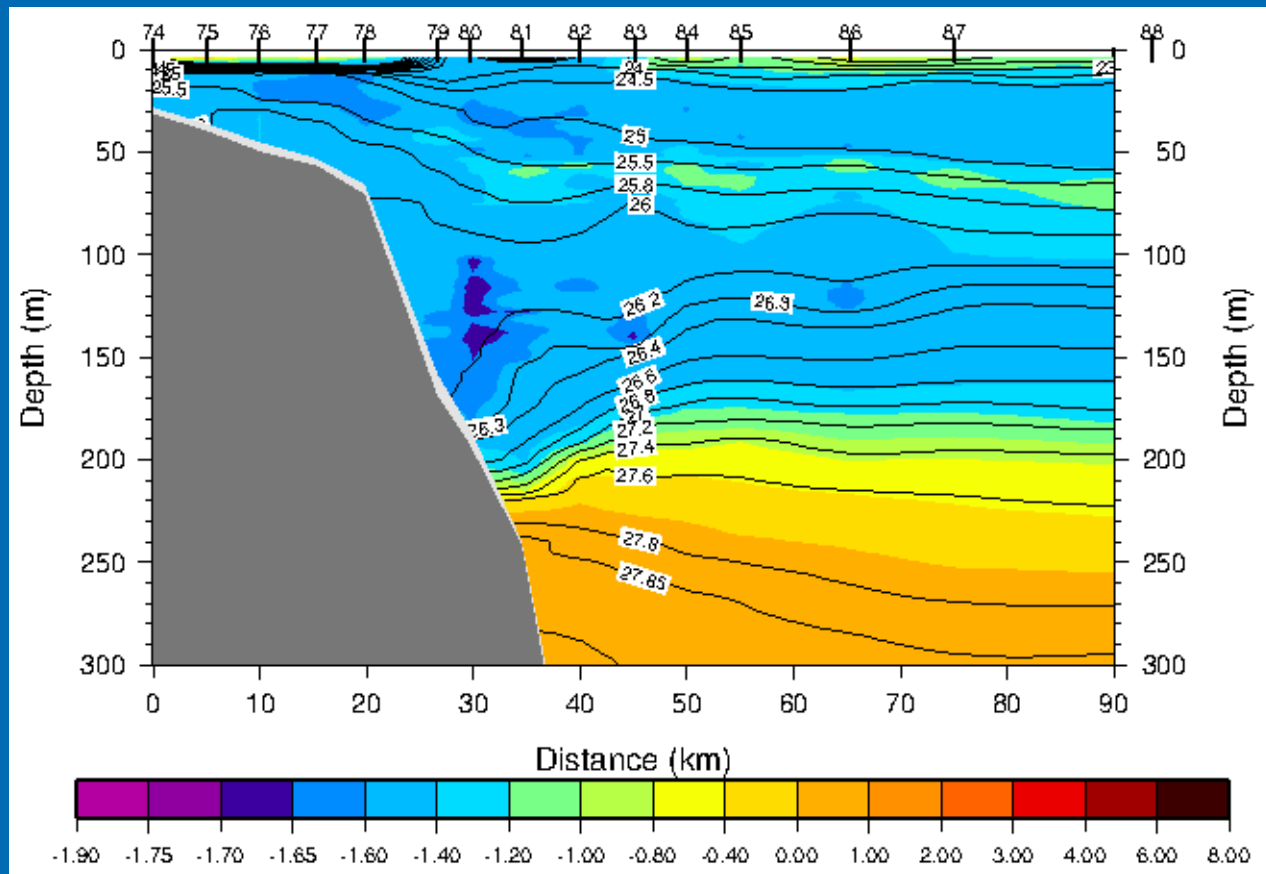
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T-S diagram colored by nitrate

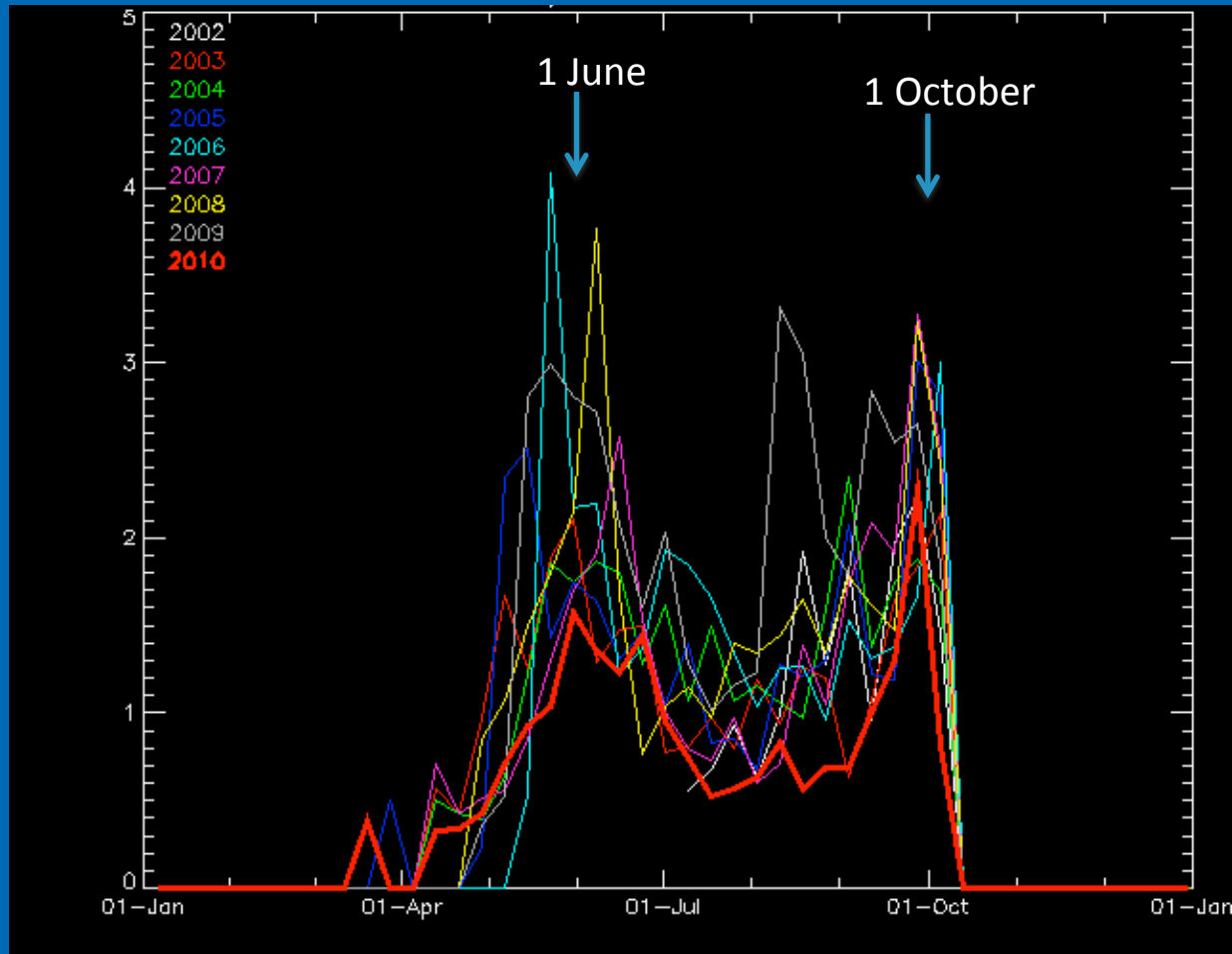


July occupation of 152°W



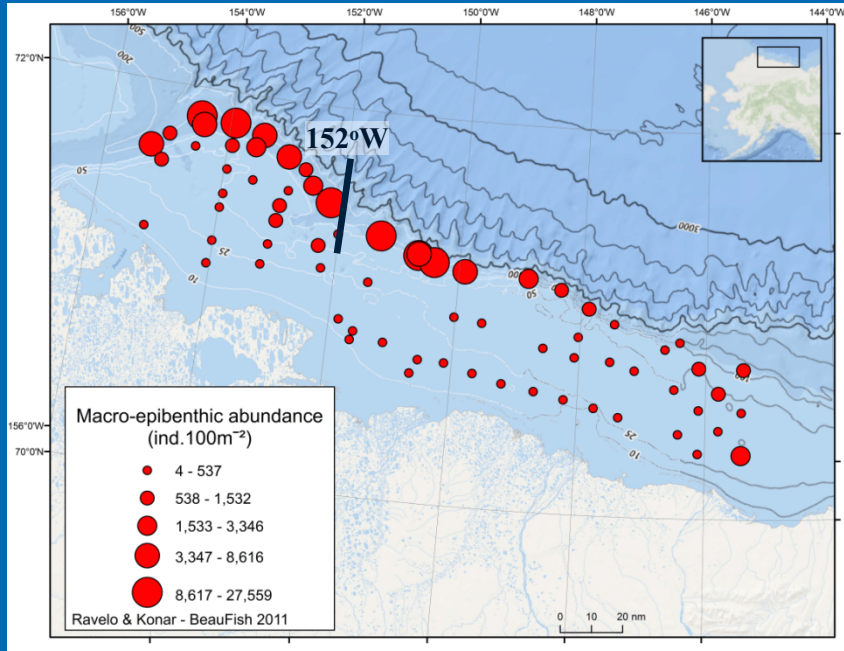
High-nitrate rPWW throughout top 150m

Mean chlorophyll ($\mu\text{g/L}$) near Barrow Canyon 2002-2010



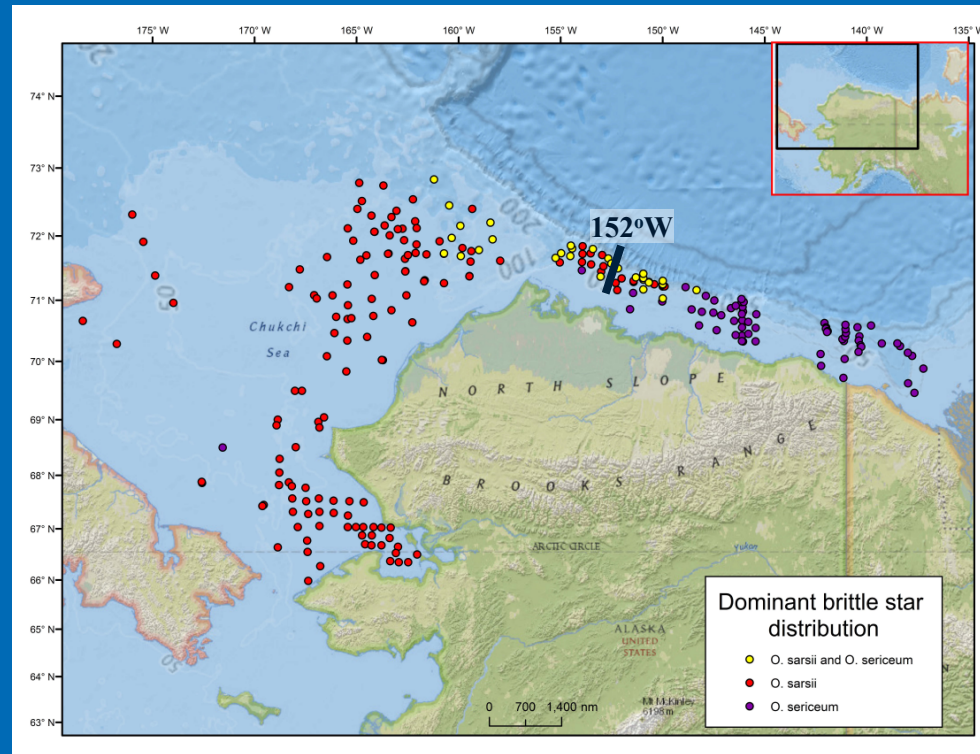
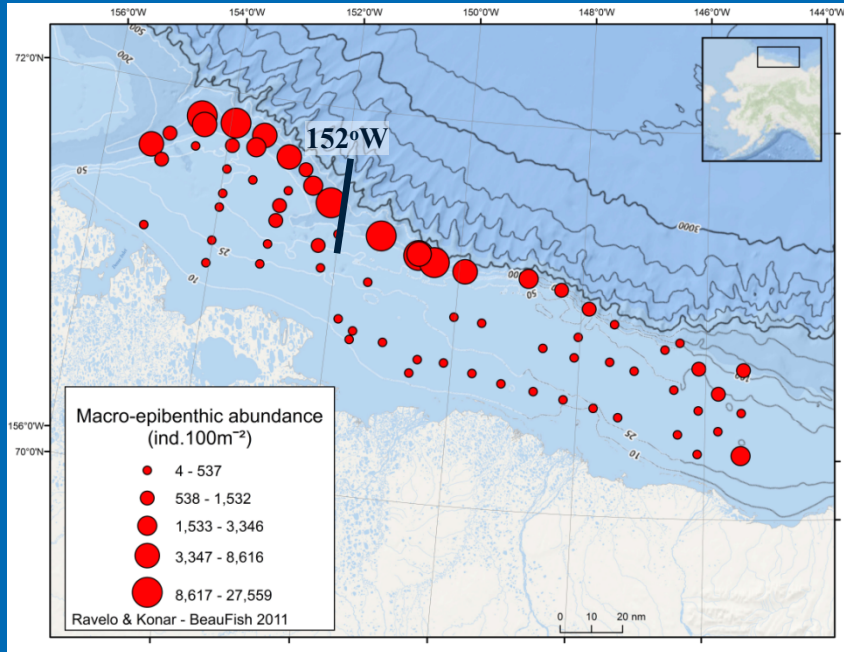
Courtesy of
G. van Dijken

Epibenthic Abundance



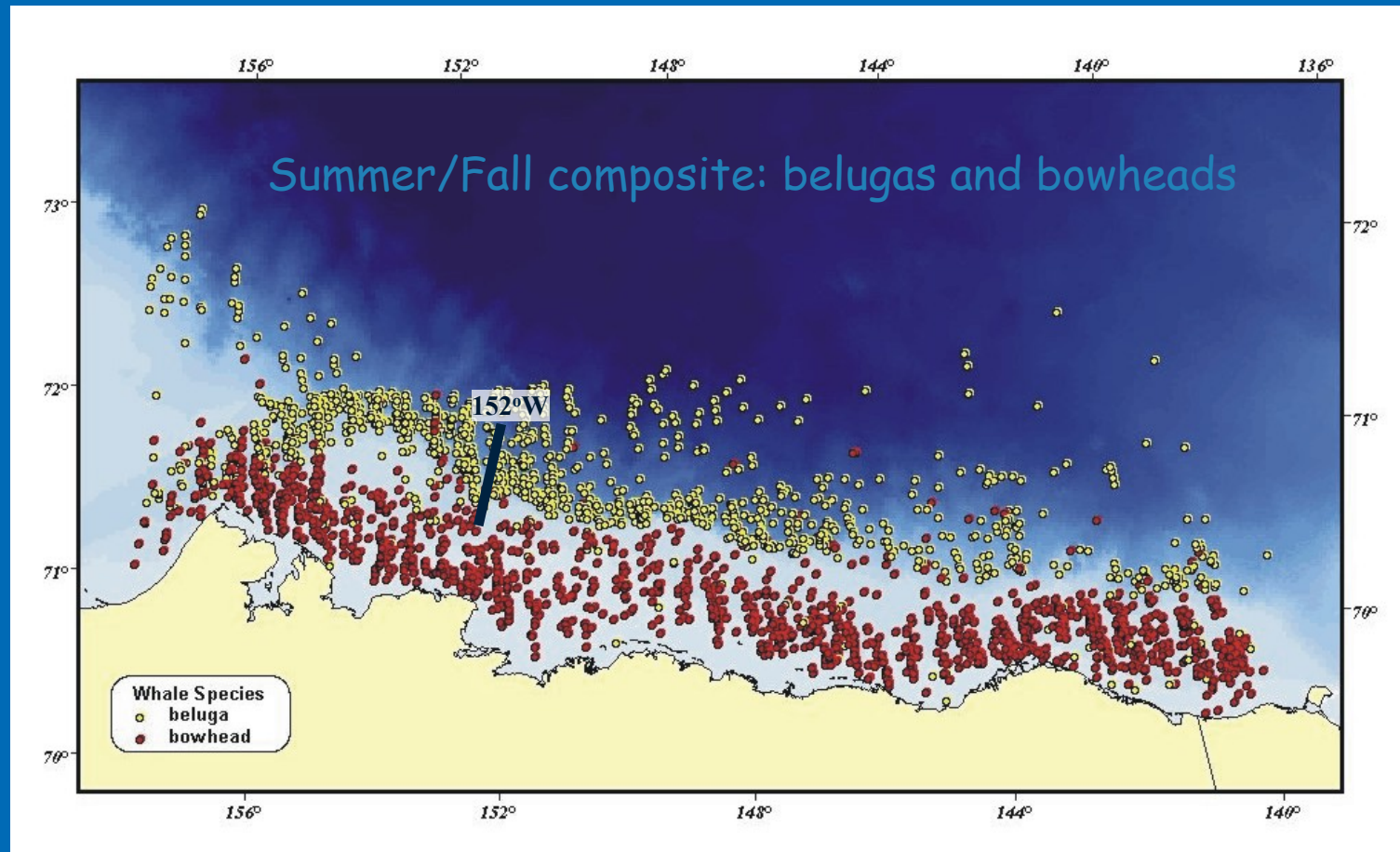
Ravelo et al. (submitted)

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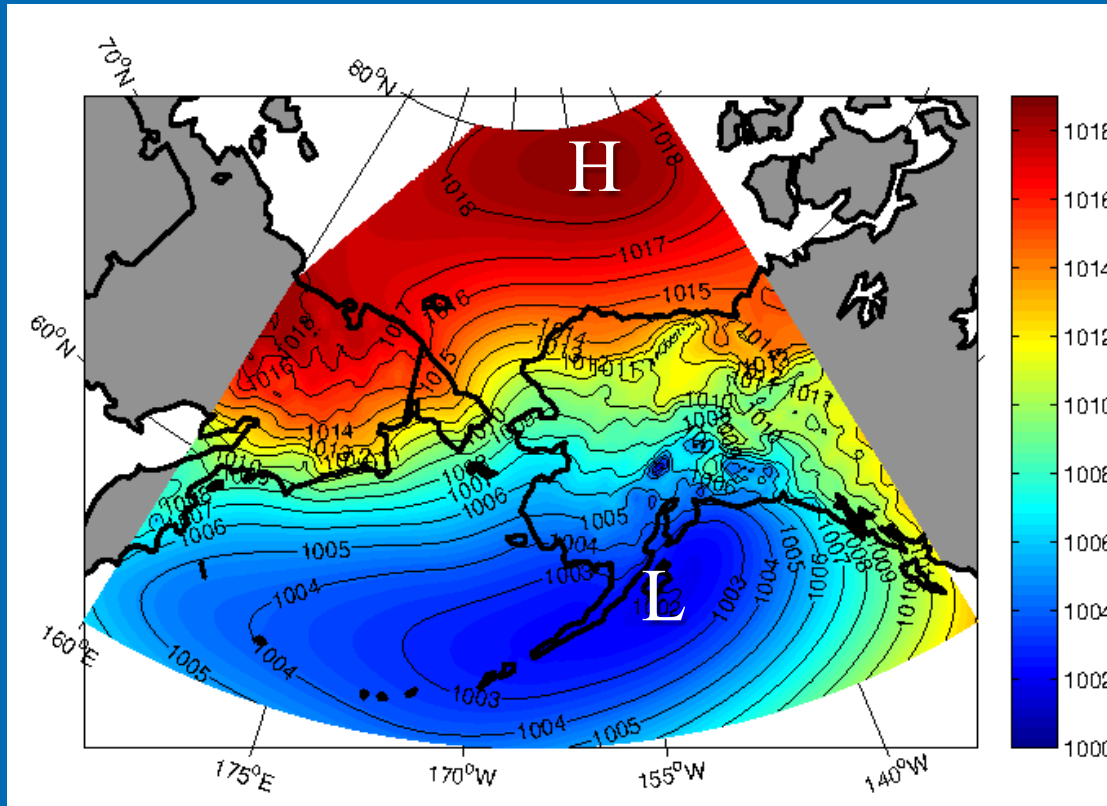
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Marine mammal Distribution



From S. Moore et al.

Impact of wind: Beaufort High and Aleutian Low

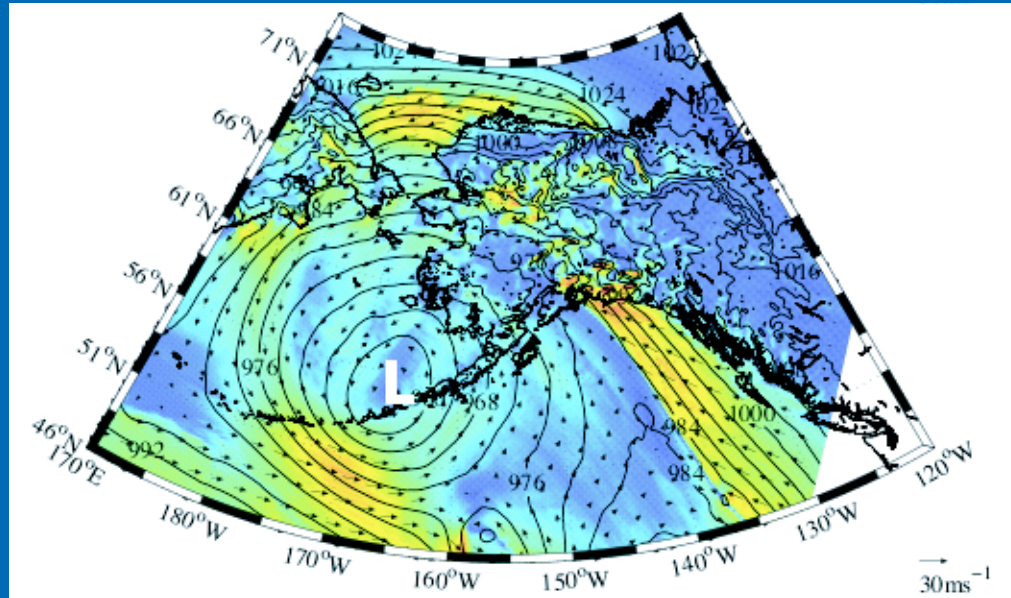


From North American
Regional Reanalysis

Mean sea-level pressure (mb) 2002-12

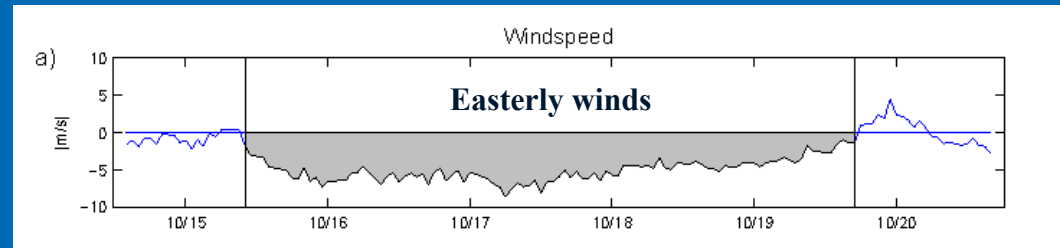
Typical upwelling sequence:

1. Aleutian low results in easterly winds in the Chukchi/Beaufort Seas



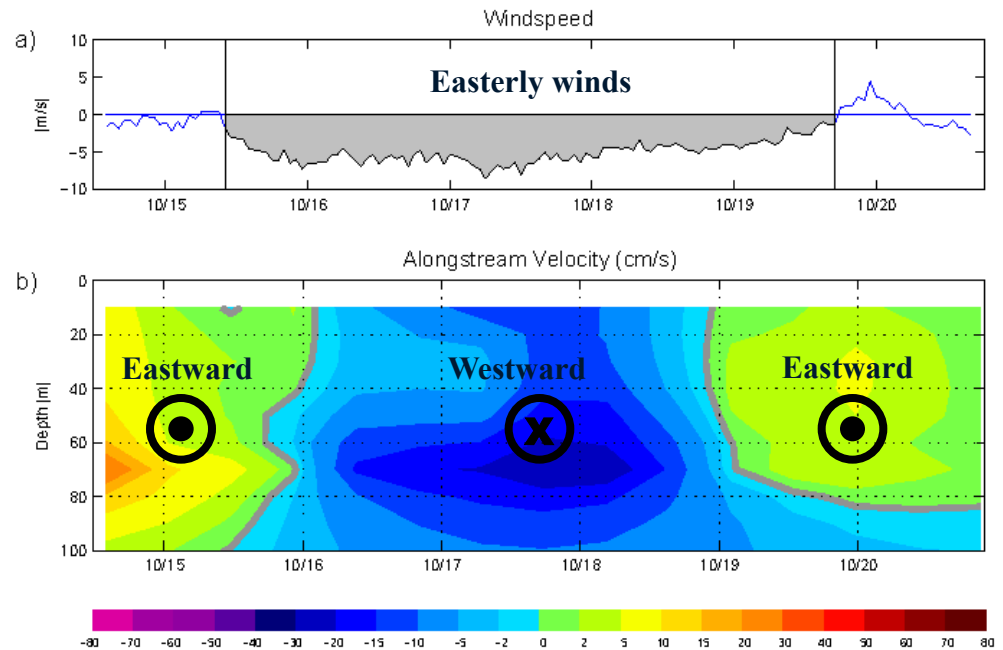
2. Eight hours later the shelfbreak jet reverses

3. Ten hours after that upwelling commences

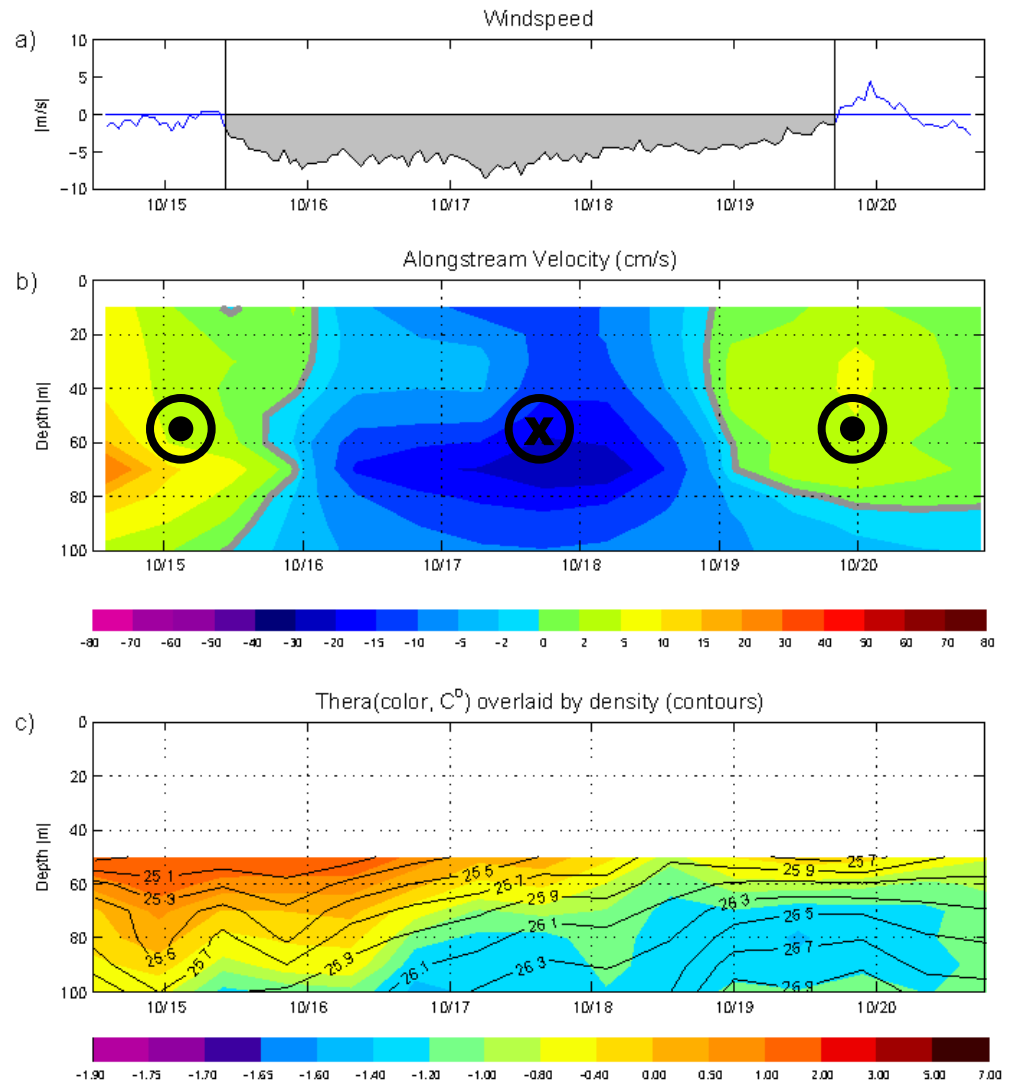


**Early-autumn
upwelling event**

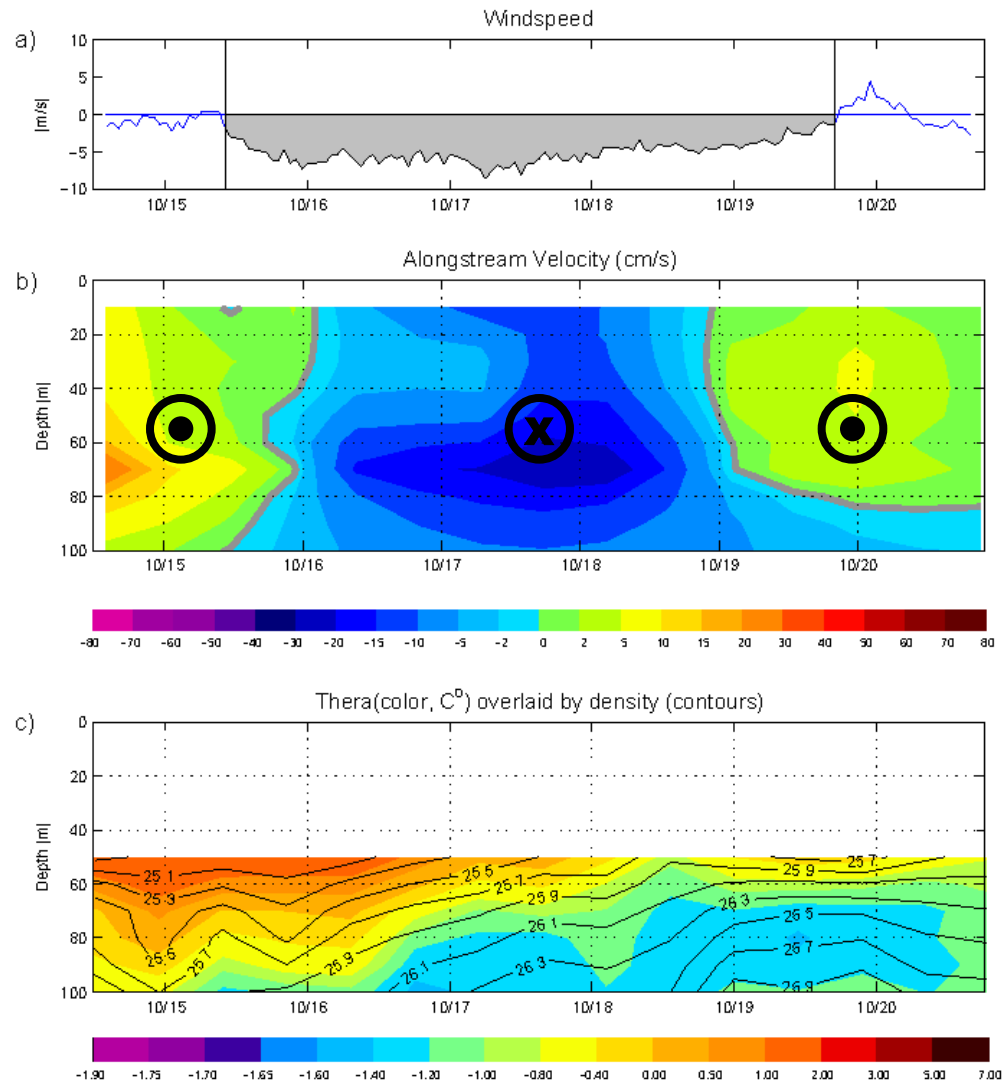
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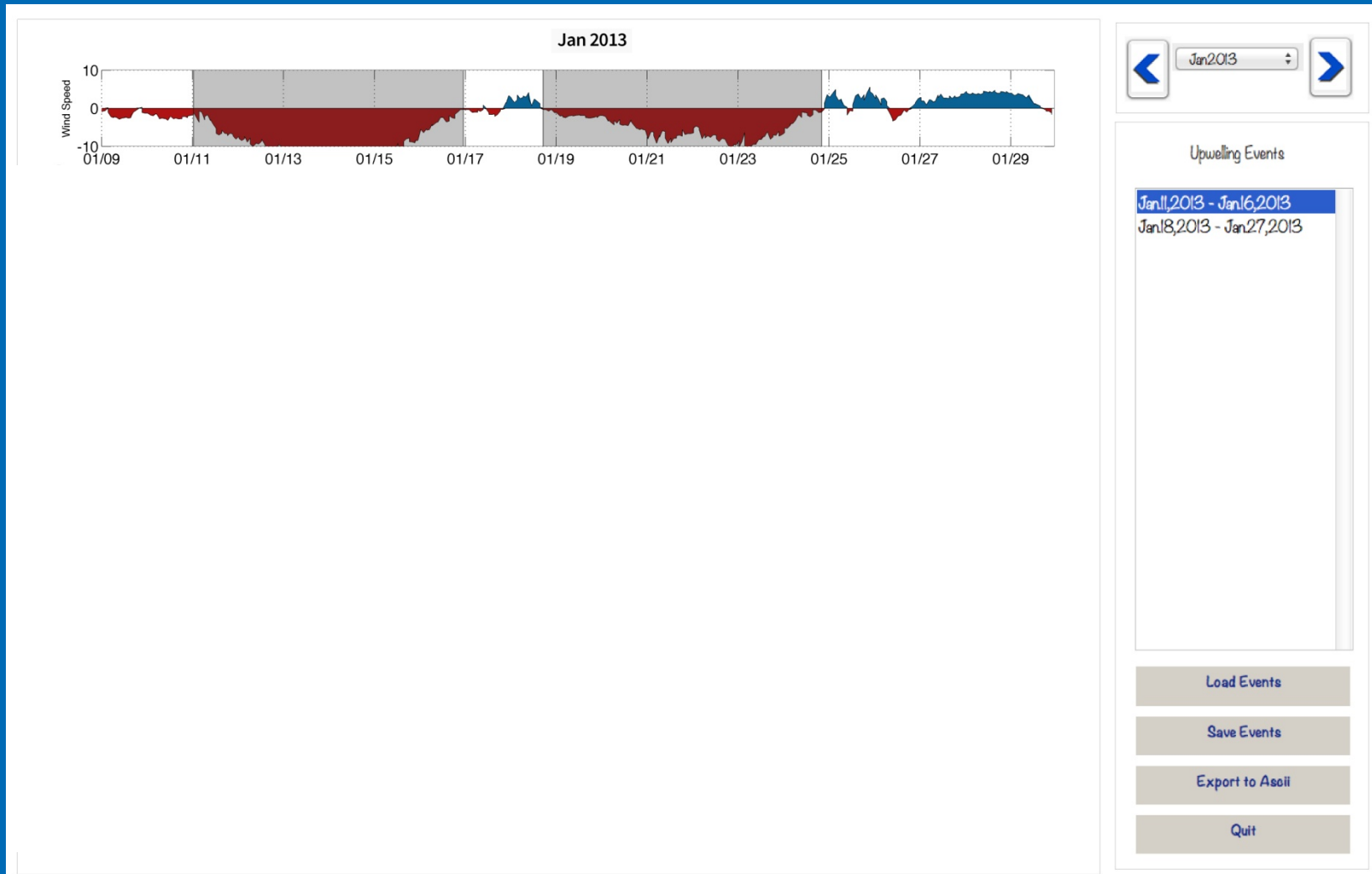


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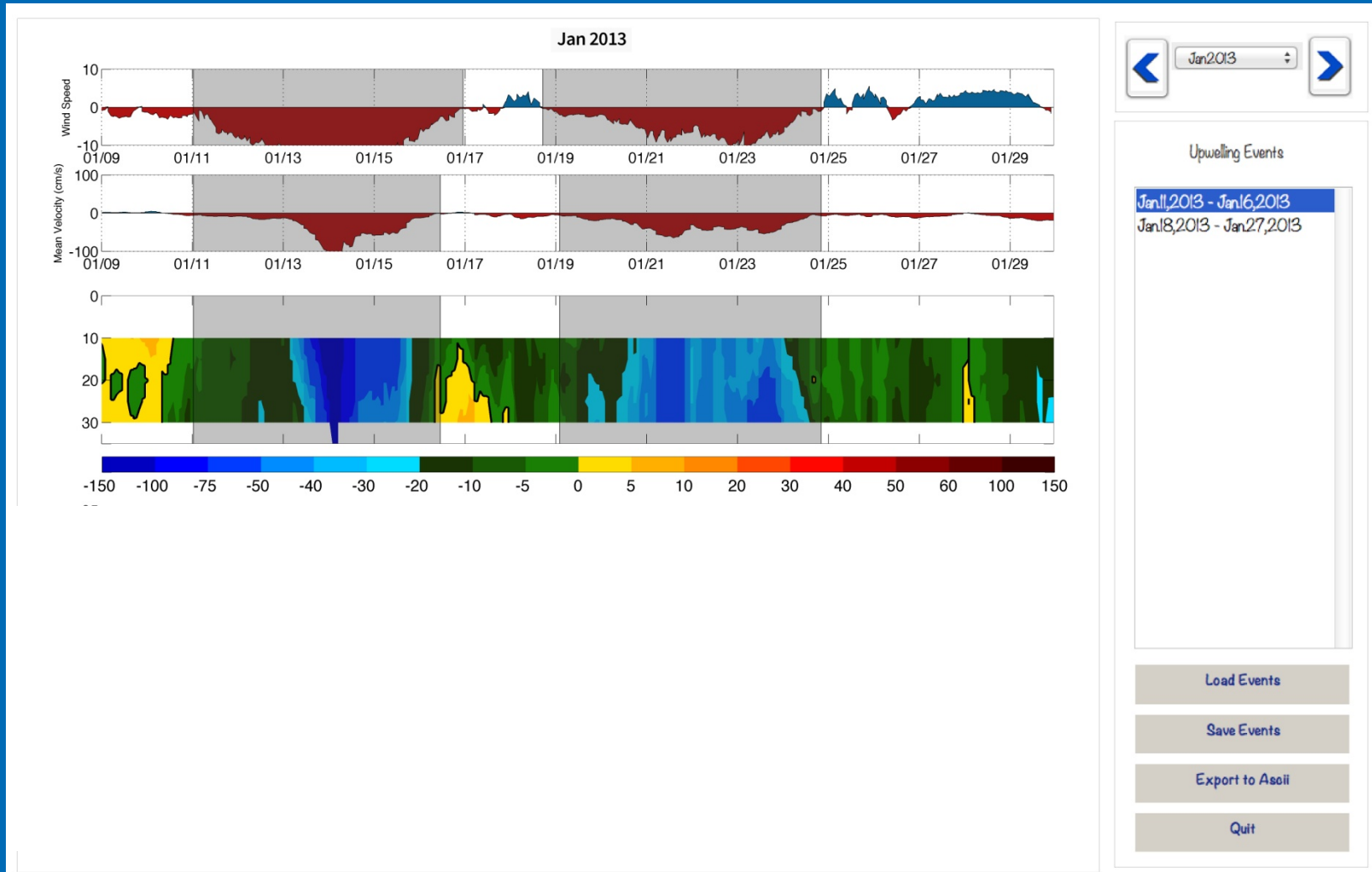
Pickart et al. (2013) found that on average the storms provide $\sim 950 \text{ mmol C/m}^2$ per season, on par with measurements during summer in the Chukchi Sea in the absence of storms (Hill and Cota, 2005)

Identifying / Quantifying Upwelling



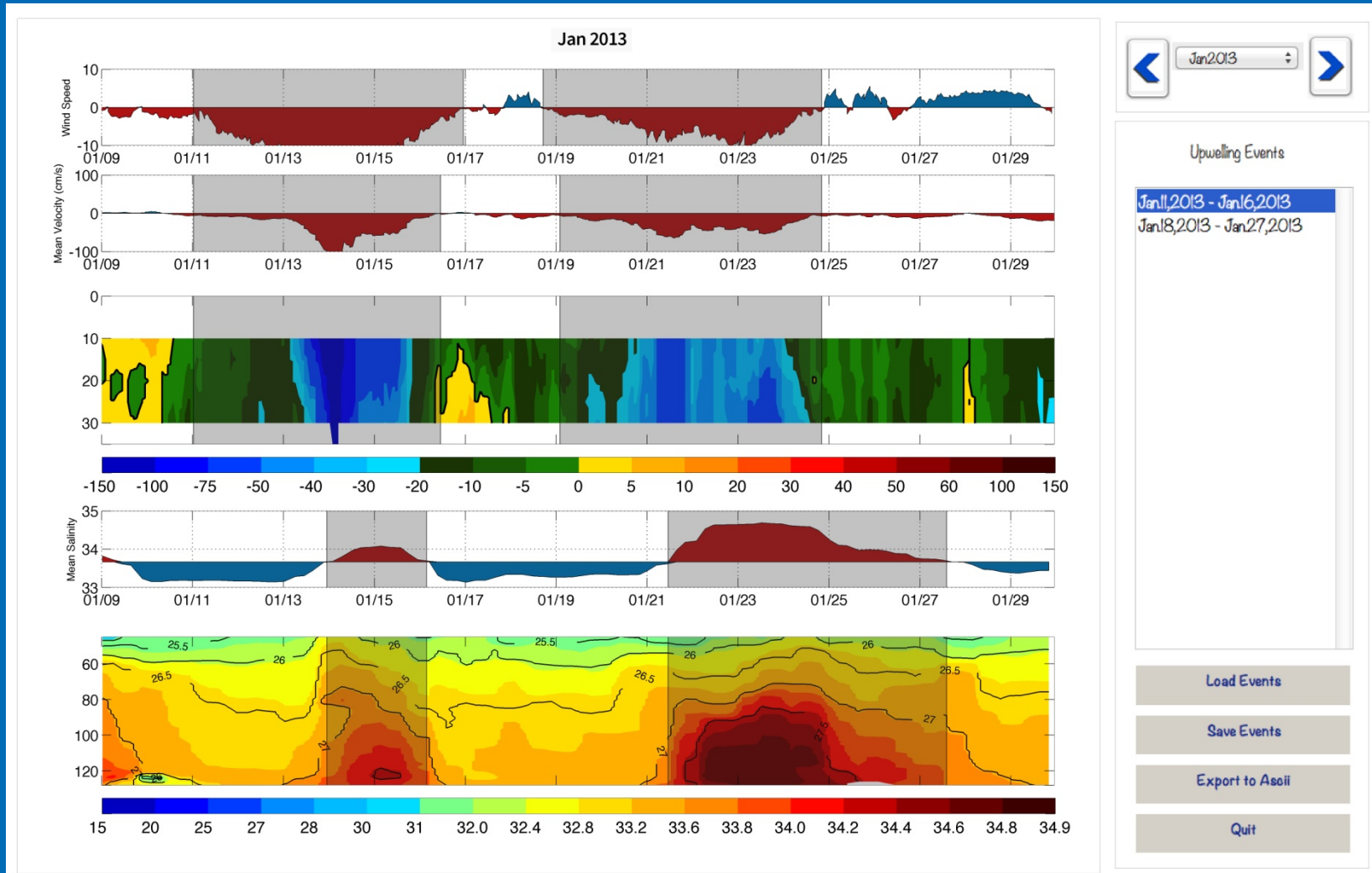
Graphical User Interface

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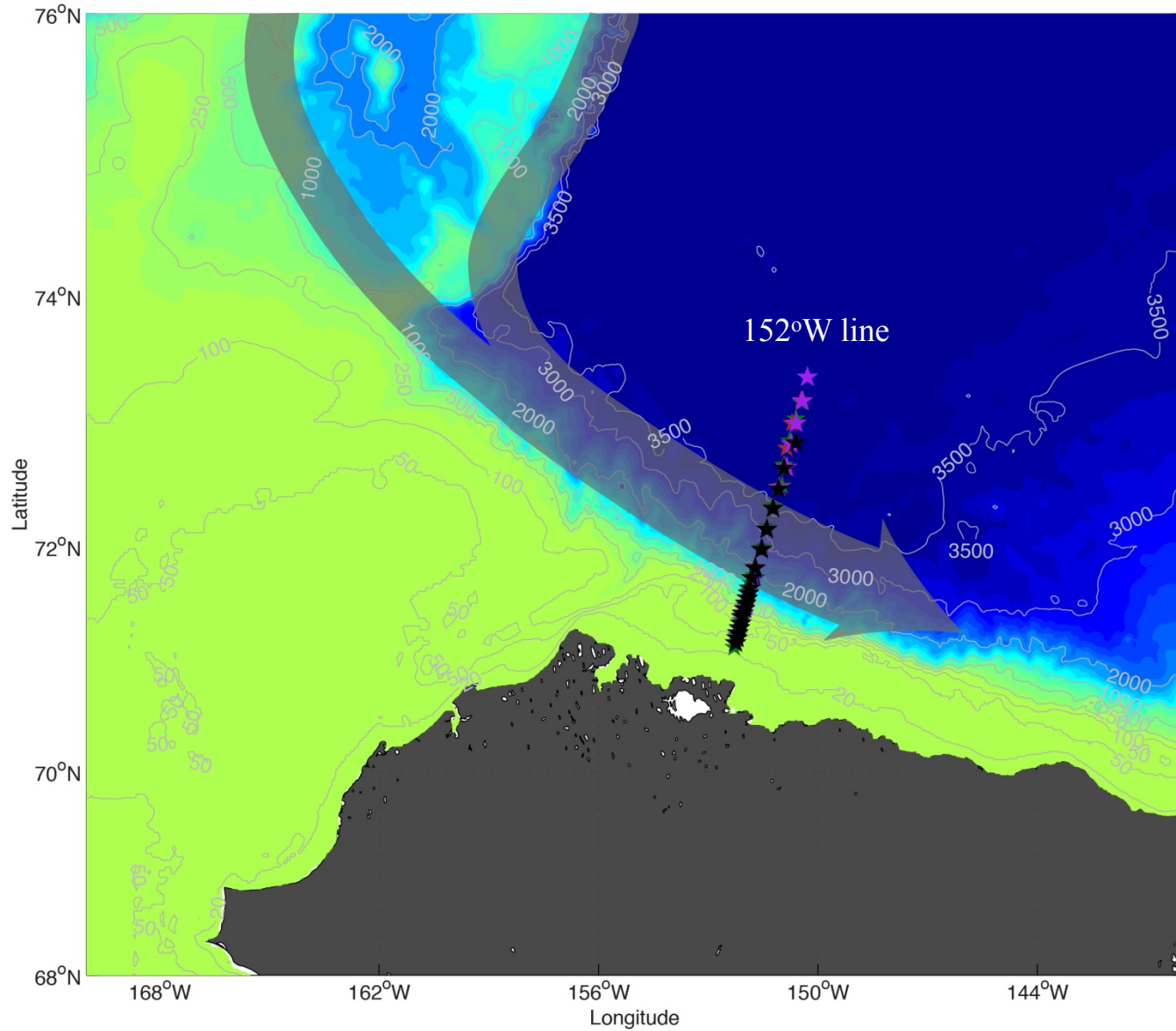
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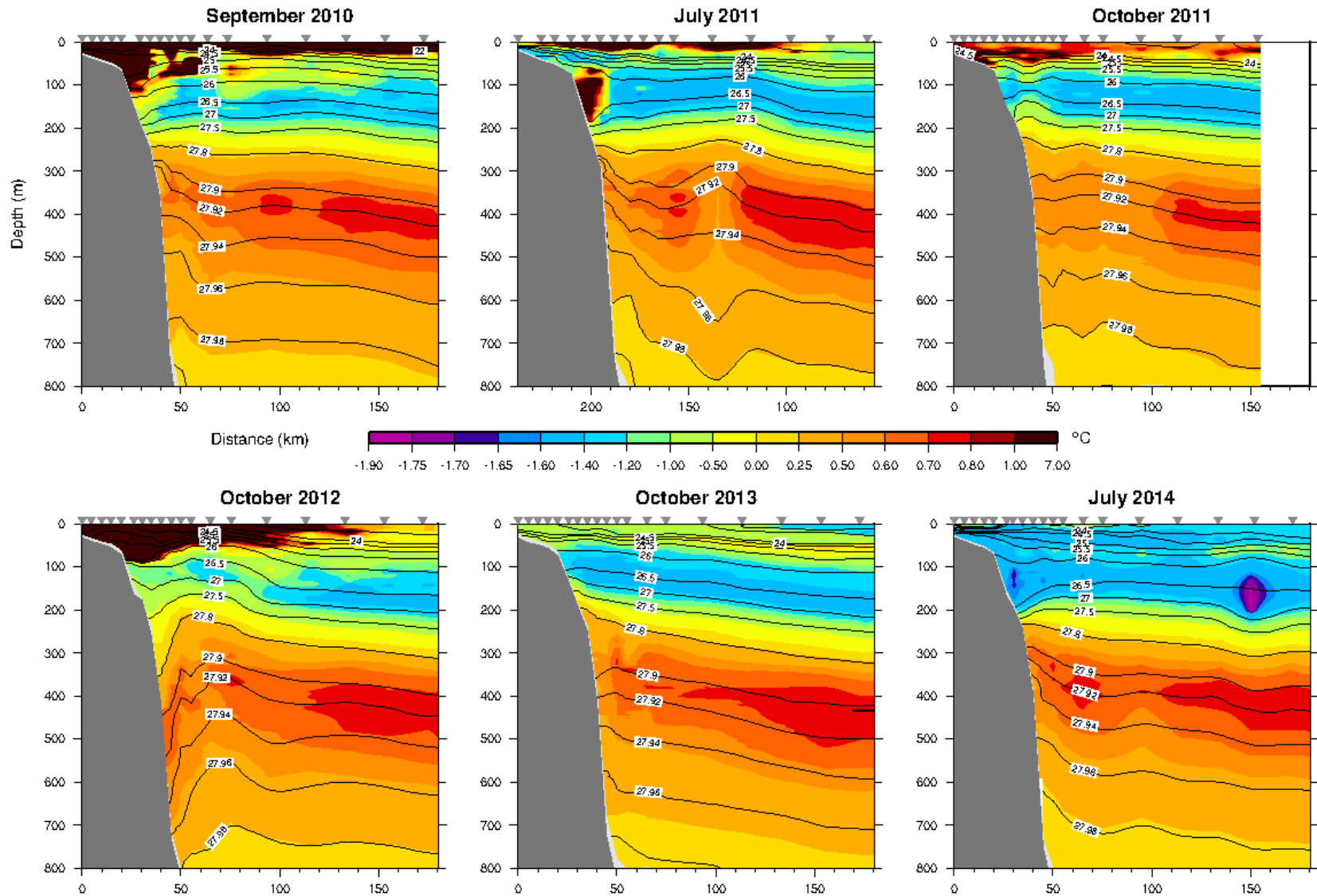


Graphical User Interface

Atlantic Water Boundary Current



Atlantic Water boundary current timeseries



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- Optimal place to monitor the AW boundary current (i.e. between the steep Northwind Ridge and flat topography farther downstream)