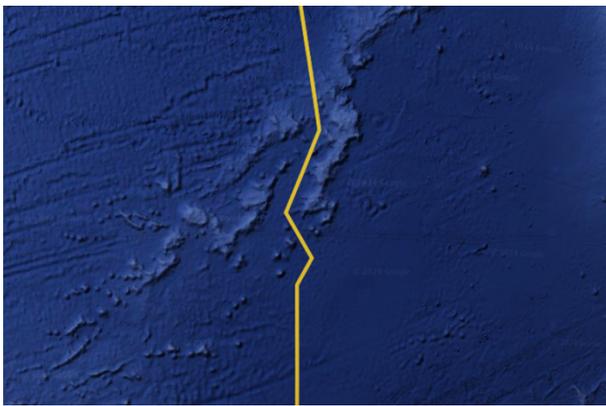
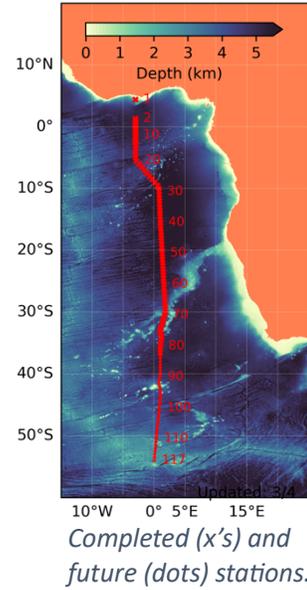


### A13.5 2024 Cruise Update: Part 5 of 7

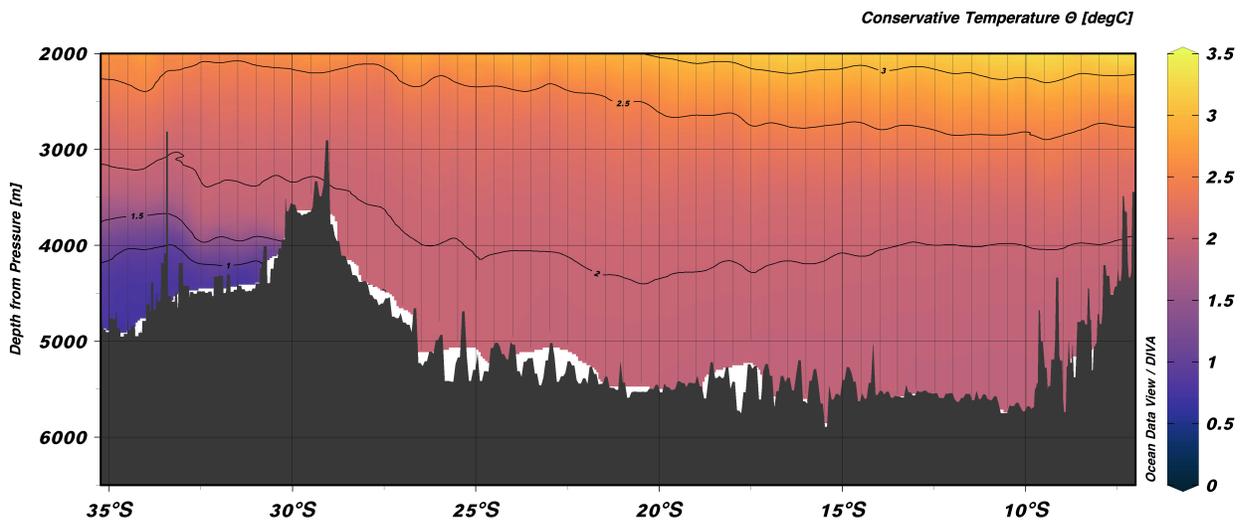
We ran into rough seas which stalled our progress between Stations 78 and 79. After an almost 40 hour delay, we are back to normal operations and continuing south. Stats since last update:

- Stations completed: 18 (total: 82/117)
- Core Argo deployed: 0 (total: 0/4)
- BGC Argo deployed: 1 (total: 9/11)
- EM-Apex deployed: 1 (total: 4/7)
- SVP Drifters deployed: 0 (total: 10/18)



This past week we transitioned from the Angola Basin to the Cape Basin through a canyon in the Walvis Ridge, which stretches from the coast of Africa to the Mid-Atlantic Ridge. The Walvis Ridge acts as a barrier to deep, cold Antarctic Bottom Water formed in the Southern Ocean, and you can clearly see the difference in deep ocean temperatures as we made our way from one basin to the other!

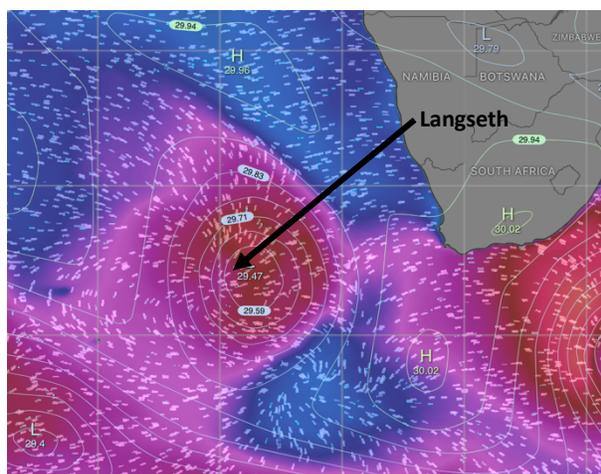
*Transect through Walvis Ridge as seen in Google Earth. Stations going through the gap in the ridge are 67-77 (29-34°S).*



*Conservative temperatures from 2000 m to about 80 m off of the ocean bottom in the Angola Basin (7-29°S), the transit of Walvis Ridge (29-33°S), and the northern part of Cape Basin (starting at 33°S).*

One issue we've been running into throughout the past couple weeks is a complicated sea state, with wind, swells, and ocean currents coming from different directions. This makes it difficult to orient the ship in a maximally advantageous way to minimize roll, approximately hold station, and not drift the ship over the CTD. On a few casts we had to stop the winch because of dangerously acute wire angles and even had the CTD cable make contact with the ship's hull on a couple occasions. This is potentially very dangerous, as friction between the hull and cable can weaken the cable. On Station 76 we noticed a bend in the cable, likely due to a hard ship roll the day prior. We took the opportunity to cut off all parts of the cable that could have made contact with the ship over the past week or so, and now again feel good about the cable, as well as the new CTD termination.

On Monday, Mar. 4<sup>th</sup> we ran into a storm system moving its way across the Atlantic as we steamed to Station 79. We had seen it in the weather forecast for a few days and were prepared for the storm's arrival. We went into standby mode for almost 40 hours, from 20:00 on Mar. 4<sup>th</sup> to 11:00 on Mar. 6<sup>th</sup>, as the ship endured winds of up to 45 knots, considerable pitching and rolling, and lots of water coming up onto the main deck. Fortunately, we came through mostly unscathed. During the downtime we were able to complete data processing and initial quality control checks on all of the stations to date, making us completely caught up on data sampling and analysis through Station 78. After over a day of not doing CTD stations, it was a relief to finally put the rosette over the side for Station 79!



*Storm moving eastward over our location (Station 79; 35°S, 1.1°E). Data from Windy.com (ECMWF) showing significant wave height at 00:00 on March 6, 2024. Red colors are 13-15 ft waves, pink is 8-10 ft, and dark blue about 7 feet.*

We've left Africa behind (most southern point: 34.8°S), and next week will enter the "Roaring 40s". Wish us luck!

- Zach and Jesse

Mar. 7, 2024