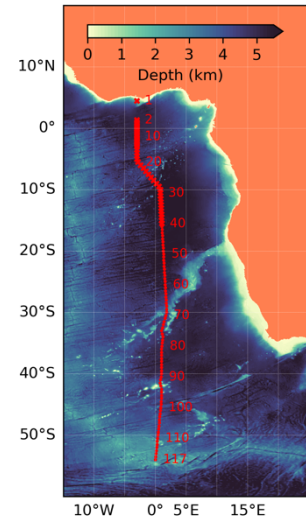


### A13.5 2024 Cruise Update: Part 3 of 7

We're in the thick of it, moving steadily southward and getting in 3-4 casts per day. Stats since last update:

Stations completed: 23 (total: 40/117)  
Core Argo deployed: 0 (total: 0/4)  
Deep Argo deployed: 0 (total: 0/1)  
BGC Argo deployed: 3 (total: 5/11)  
EM-Apex deployed: 2 (total: 3/7)  
SVP Drifters deployed: 5 (total: 7/18)



Completed (x's) and future (dots) stations.

This past week we've settled into normal operations. We are completing casts at a rate of roughly one every 7-7.5 hours, meaning every day we have at least three, and sometimes four, stations to process. It's busy, but we are making steady progress! We've also been transiting between stations slightly faster than initially expected, giving us a bit more wiggle room in our schedule for the southern latitudes, where we expect the sea state to pick up.

We are able to share some positive news on our secondary winch. In our last update, we had attempted a cast on the secondary winch, and found that it was not in good working order. The engineers and electrician on the ship have spent a considerable amount of time on this problem since then. The primary problem was associated with the variable frequency drive (VFD), which converts a constant voltage being supplied by the ship into varying voltages to control the speed of the winch. After much troubleshooting, an issue was found with the encoder device, which provides feedback to the VFD on how fast the winch is running, allowing the VFD to properly regulate speed. The encoder appeared to be faulty, with the end result being that at speeds higher than about 1 m/min, the encoder would give incorrect information to the VFD, causing it to stop and display errors and – once started up again – kick into overdrive before again halting with an error. Fortunately, the ship had a spare encoder and was able to make the repair. Additional problems with the tension/payout hookup and winch AC installation were also fixed in the process. The secondary winch has now been tested by running it for several hours during a transit, and appears to be in full working order. Thanks to everyone on the *Langseth* who helped with the troubleshooting on this!

We've started hitting a little bit of swell, which has been a wake-up call for us to remember to always fasten things down when not actively in use. To cope with this during casts, we have started drifting onto stations, meaning the ship does not try to hold position during the CTD cast in order to alleviate rolling and heaving of the ship. Unfortunately, the wind and the swell are

often coming at the ship from different directions, making it difficult to fully mitigate. All in all, though, the weather has been cooperating fully on this expedition so far, so we can't complain too much about a bit of roll!

All the best,

- Zach and Jesse

Feb. 22, 2024



*Sunset in the South Atlantic, with calm seas!*