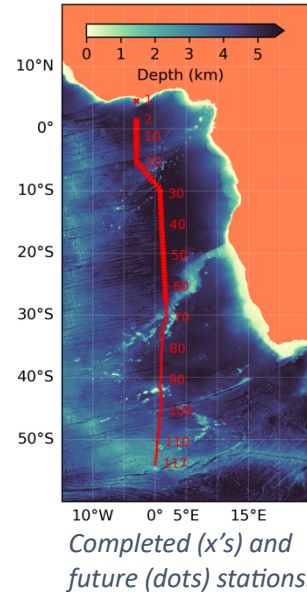


A13.5 2024 Cruise Update: Part 4 of 7

Operations proceeding as normal, except for the failure of our altimeter which limits how close to the bottom we can get. Currently we are aiming for 80 m above bottom, and confirming with LADCP results after each cast. Stats since last update:

Stations completed: 24 (total: 64/117)
Core Argo deployed: 0 (total: 0/4)
Deep Argo deployed: 1 (total: 1/1) ✓
BGC Argo deployed: 3 (total: 8/11)
EM-Apex deployed: 0 (total: 3/7)
SVP Drifters deployed: 3 (total: 10/18)



This past week we've almost completed our transect along the Angola Basin, and will be transiting over the Walvis Ridge, which separates the Angola Basin to the north from the Cape Basin to the south. This ridge often acts as a barrier to propagation of Agulhas eddies north from their formation region near the southern tip of Africa, so it will be interesting to see how the variability between stations changes once we enter the Cape Basin in a few days.

The main news from last week is the loss of our altimeter on the CTD rosette, which stopped working on Station 48, at 19.5°S. Our spare is also non-functional. Without an altimeter we do not have a reliable way of knowing exactly how far above bottom the CTD package is at any given time during the cast. GO-SHIP procedure is to get measurements to within 10 m of the ocean bottom; without an altimeter we are no longer able to achieve that and maintain an acceptable level of risk.

After losing the altimeter, we conducted a survey of past stations to determine how reliable the ship's multibeam sonar was at determining the bottom depth at the CTD rosette's location, which could shift by tens to possibly hundreds of meters from the location of the ship due to horizontal ocean currents. While most of the stations had multibeam depths within about 5 m of the actual recorded depth (deepest bottle depth plus the CTD altimeter reading), variations of greater than 20 m were not that uncommon and a few times the variation was over 40 m. To both minimize risk to the CTD rosette and also maintain a distance from bottom close enough for the downward-looking ADCP to reliably detect the ground, we are now stopping the CTD rosette at 80 m above the ship's multibeam depth reading. Before each station, we are also modifying our station location if necessary to move away from any sharp bathymetric features, which can be identified as we approach the station by the ship's multibeam altimeter. After each station, we can check our distance off bottom with the LADCP data, which reliably tells us how far above the bottom we were.

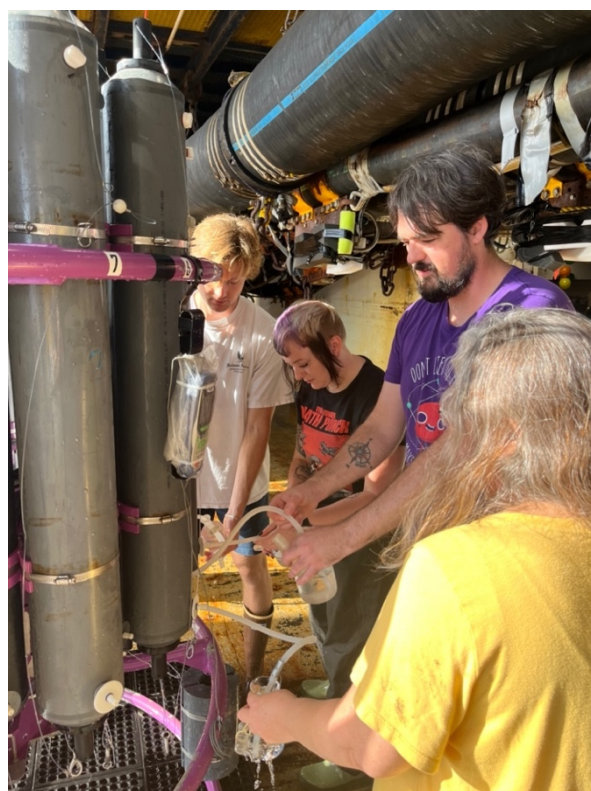
Those of you following the political news know that the federal government is set to shut down, in a staggered approach that begins on March 1st, if Congress is not able to either pass a continuing resolution or a funding bill. NOAA is part of the Department of Commerce, which will remain funded until March 8th (the second deadline). If the government shuts down on March 8th, we do *not* expect this cruise to be affected, as it has already been paid for. There are four federal employees on the cruise, and we expect that these four individuals will be covered under an exemption typically given to sea-going personnel during government shutdowns.

Next week we will pass the latitude of the Cape of Good Hope, the southern tip of Africa at about 34.5°S, and we're expecting to start to see rougher seas. However, we have been able to build up a bit of a weather window these past few weeks of calm.

All the best,

- Zach and Jesse

Feb. 29, 2024



Seawater sampling around the CTD rosette by “night crew” (left; midnight-noon) and “day crew” (right; noon-midnight). Roughly from left to right: Yifan Li (UDeI; fCO₂), Rachel Cohn (AOML/CIMAS; O₂), Daniel Sandborn (LLO; CTD watchstander), Max Pacatte (UCSB; DOC), Clara Haughey-Gramazio (UM/RSMAS; pH), Anna Bruno (UW/CICOES; CFCs), Evan Josza (UW/CICOES; DIC), Eva Jundt (TAMU; pH), Patrick Mears (AOML/CIMAS; fCO₂), and Jen Aicher (UM/RSMAS; O₂). Note that a few people are still missing from these photos – it is tough to get everyone in a picture while working around the rosette!