

Week two at sea has certainly been an adventure!

On March 13th we crossed the equator at approximately 20:00 GMT, bringing us back to the northern hemisphere. Many scientists collected “equator water” leftover in the Niskins as a memento for our crossing. Styrofoam cups were sent down with the CTD, which crush as they get deeper in the ocean due to the immense pressures, as another souvenir for the cruise.

This past week we’ve had our fair share of equipment and operational difficulties. We were informed that the forward winch we were using had begun to aggressively shake during CTD casts, and after some monitoring by the engineers, it was determined that the forward winch would need to come offline to be repaired. Therefore, we would need to switch to the aft winch to continue operations. Unfortunately, during our cast at Station 26, we lost the CTD package during recovery. Thankfully, we had back-ups of the sensors, frame, and bottles needed, and were able to get a second CTD package in working order within eight hours. Since we now no longer have a back-up, there are many people back on land working to ship everything we need to Rota, Spain for Leg 2.



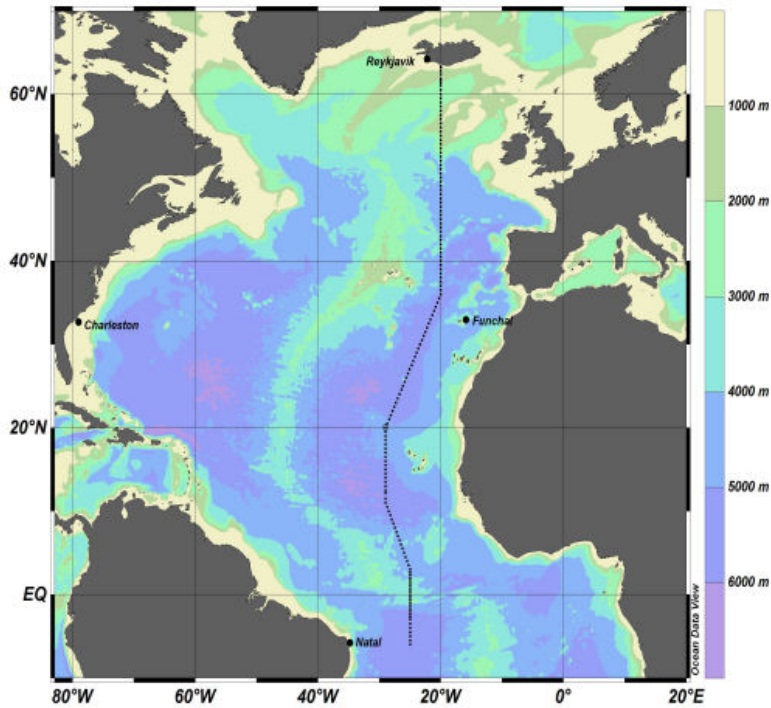
A jar of water from the equator station, as others sample the CTD rosette. Photo credit: Tyler Christian (AOML/CIMAS)



Comparison of a normal Styrofoam cup (left) and a cup that has been decorated and sent to 3160 m. (right).

Photo credit: Tyler Christian (AOML/CIMAS)

We have also been having a few issues with our altimeter, which tells us how far above the ocean bottom we are during the bottom approach of each CTD cast. A strength of the GO-SHIP program is that we sample throughout the entire water column, from surface to bottom, and we typically stop the CTD package at only 10 m from the ocean floor. After troubleshooting with two different models of altimeters, we again feel confident in our ability to know where the CTD is in relation to the ocean bottom throughout the cast. However, out of an abundance of caution we are planning to keep the CTD at least 15 m from the ocean bottom for the foreseeable future.



A16N 2023 projected cruise track. Star denotes our current location. Photo credit: US-GOSHIP

Despite these setbacks, we have still managed to complete 37 full CTD stations, and are on track to successfully finish the entire transect. Casts completed include 19 stations from 3°S to 3°N with $\frac{1}{3}^\circ$ spacing between stations for higher resolution near the equator, meaning less time between stations. We were quite busy keeping up with measurements! We are now back to $\frac{1}{2}^\circ$ spacing between stations for the remainder of the cruise. We have also completed daily “bio” casts to 1000 m for additional sampling of particulate organic carbon and phosphorus, environmental DNA, RNA, and phytoplankton pigments. In addition, we deployed another BGC Argo float at 4.5°N, 25.8°W, as well as a drifter at 7°N, 27°W.

As you might have seen in the news, there is a large “blob” of Sargassum in the Atlantic on its way to eastern Florida. We’ve actually been sailing through the blob for the last five days! Scientists on board have been collecting Sargassum samples along our cruise track, with the goal of studying the distribution of different species of Sargassum and measuring their elemental composition to better understand their origin.



Sargassum in the water alongside the ship. Photo credit: Ellen Park (WHOI/MIT)

As challenging as this week has been, we’ve been blessed with calm seas, great weather, and starry nights. Plus the occasional wildlife spotting – including squid, flying fish, and dolphins. Let’s hope for smooth sailing for the rest of this Leg!

Onwards,
Katelyn Schockman and Zach Erickson, Chief Scientists