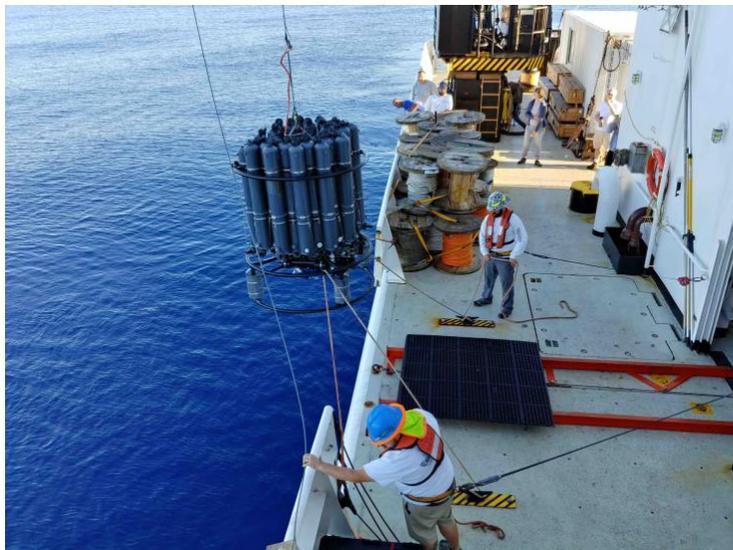


## I07N Cruise Report – Week 1 (Apr. 23-29)

Departed Durban (South Africa) on April 23, 2018, headed for I07N



*The rosette is being lowered at the I07N first test station.*

We departed from Durban on April 23 at 2 pm local time. During the first day and night the ocean was a little rough, but everybody onboard could cope with it reasonably well. On the first day of the cruise we deployed the first SVP drifter in the Agulhas Current. On the second day, we did the “fire” and “abandon the ship” drills. Later we also had an “Egress” drill when everybody had to find the way out being blindfolded (that was a lot of fun!). The crew is paying significant attention to safety, and everybody understands that safety is our top priority.

The second SVP drifter was deployed on April 25. On the same day we reached the first test station and did a CTD cast down to 3000 m firing all Niskin bottles. Two bottles were fired at the same depth (80 m) as was requested by our oxygen group. Because the ship had issues with the aft winch during previous cruises, we decided to test this winch once again using it for the first test cast. The first cast showed that the issue remains, and it is reflected in modulo error, in particular during the upward cast. Tests indicate that the problem is unlikely to be related to the cable or termination, but it’s rather in the winch itself. Unfortunately, there is nothing that can be done onboard to fix the problem. We will proceed using the forward winch instead, which worked flawlessly during the previous cruises. The first test cast was mostly dedicated to teaching students, so not all groups were involved, and not all depths were sampled. On April 25, we also deployed the first (NAVIS type) Argo float from NOAA-PMEL. The ship slowed down to 1.5 knots, and the float was released from the port side of the stern. On April 26 we deployed the first (out of four) wave buoy from Scripps Institution of Oceanography. We decided to move the location of the second test station a little further east than we initially planned, because we wanted to do a cast deeper than 5000 m and past a sea mountain on our way, so eventually we did the second test cast down to just above the bottom at 5240 m. This

time we used the forward winch and it worked very well. After about 14 hours of steaming from the second test station, we reached the first station of the I07N line in time according to our schedule, and the I07N survey officially began. By the end of the week, we have completed 7 stations. On station 7 we did the first net tow, and our biologists seem to be satisfied with the catch.

We have not had major issues overall. The forward winch has worked very well. Among the minor issues, we have occasional leakages from the bottom caps of Niskin bottles that are easily fixed between the stations.

One of the minor concerns so far is timing. The distance between the stations south of 22.5 S (stations 4 to 21) is only 20 miles, which takes less than 2 hours of steaming. When all groups are sampling, sometimes we are not able to complete sampling before we arrive at the next station. Upon the arrival at the next station, the ship is just waiting for sampling to be completed and then the rosette goes in the water right away. Because of this, we are currently running about 4 hours behind the schedule. The most time consuming was sampling for black carbon on stations 2-4. We will not do black carbon until station 22, so we are hoping that our sampling time will improve, and we will be able to make some time to return on schedule. When the distance between the stations increases to 30 nm, the ship will be able to steam at a higher speed, which will also bring us closer to the schedule.

The ship's leadership and the entire crew has been very professional and attentive to our needs. The galley is keeping us well fed, including those with dietary restrictions. We have been enjoying calm seas and everybody onboard is doing well.

Denis Volkov (Chief Scientist, CIMAS/NOAA-AOML)  
Viviane Menezes (Co-Chief Scientist, WHOI)