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## **Cruise Report: AX08 May 26 – June 21, 2017**

### **AX08 Cruise**

Ship: M/V Maersk Visby  
Call Sign: 9V8827  
IMO: 9411367  
Project Title: Ship of Opportunity Program, High Density XBT Transect AX08  
Cruise: Departing Durban, South Africa May 28, 2017; Deployment start Cape Town, South Africa June 3, 2017; Arriving Newark, New Jersey, June 21, 2017  
Scientific Ship Rider: Mrs. Renae Logston

### **AX08 Instruments and Deployments**

Expendable Bathythermographs (XBTs) deployed: 504  
High Density deployment of XBTs commenced from Cape Town, South Africa (200 meters and deeper) till Newark, New Jersey (reached 200 meter depth). The cruise plan indicated that normally the deployments started around 33.5°South, but due to a storm approaching Cape Town the vessel stayed close to shore and only reached 200 meter depth at 33 16.3°South. High Density deployment for this cruise meant launching a probe every 25 kilometers, this translated to every 13.5 nautical miles the vessel travelled. The average speed of the vessel from June 3 – 11, 2017 was 16-17 knots, the average deployment was every 48-51 minutes. From June 12 – 19, 2017 the average speed of the vessel was 15-16 knots, the average deployment was every 51-54 minutes. June 20 – 21, 2017 the average speed of the vessel was 13-14 knots, the average deployment was every 58 - 62 minutes. Deployment was suspended on June 20, 2017 from 19:30 GMT till 20:15 GMT due to the ship's scheduled stop. The deployments ended at 23:32 GMT of June 20, 2017 when the vessel arrived at 200 meter depth. The approximate height of deployment from launcher to water line from the Maersk Visby is ten meters.

Argo Float deployed: 6

01 AX08 WHOI S2A 10094  
ARGO  
DATE: JUNE 9 2017  
TIME: 15:04 GMT  
LAT: 05 00.00 SOUTH  
LON: 011 32.09 WEST  
SHIP: MAERSK VISBY

03 AX08 WHOI S2A 10093  
ARGO  
DATE: JUNE 10 2017  
TIME: 17:23 GMT  
LAT: 00 00.15 SOUTH  
LON: 016 43.16 WEST  
SHIP: MAERSK VISBY

05 AX08 WHOI S2A 10095  
ARGO  
DATE: JUNE 11 2017  
TIME: 20:52 GMT  
LAT: 05 02.18 NORTH  
LON: 021 56.97 WEST  
SHIP: MAERSK VISBY

02 AX08 WHOI S2A 10086  
ARGO  
DATE: JUNE 10 2017  
TIME: 09:12 GMT  
LAT: 01 29.92 SOUTH  
LON: 015 10.32 WEST  
SHIP: MAERSK VISBY

04 AX08 WHOI S2A 10089  
ARGO  
DATE: JUNE 11 2017  
TIME: 01:00 GMT  
LAT: 01 29.34 NORTH  
LON: 018 15.71 WEST  
SHIP: MAERSK VISBY

06 AX08 WHOI S2A 10088  
ARGO  
DATE: JUNE 12 2017  
TIME: 07:28 GMT  
LAT: 06 57.56 NORTH  
LON: 023 58.23 WEST  
SHIP: MAERSK VISBY

All Argo floats were turned on in Durban Port on May 26, 2017 under the supervision of Gus McKay from the South African Weather Services (SAWS). We received confirmation that all Argo floats were relying messages, their bladders were inflating and deflating and we confirmed we could hear their motors running after magnetically turning on the instruments. All Argo floats were placed back into storage until their deployments, first deployment being June 9, 2017. Each Argo float was taken out of their plastic protective sheet, serial numbers noted, deployed from the Aft Deck, manually lowered (approximately 10 meters) to the water line using rope, care was taken to not deploy into the direct wake of the vessel. This was the first time I have deployed Argo floats in this manner, my previous experience is the instrument is out of its packaging and the technician throws it into the ocean. I used bowlines to secure the rope to the provided slings on the instrument's package and another bowline to the vessel as a backup holdfast. All packages were successfully deployed with slings and releases recovered. Deployment information and Argo Float Deployment Reports were emailed to [deploymentinfor@whoi.edu](mailto:deploymentinfor@whoi.edu); [aoml.argo@noaa.gov](mailto:aoml.argo@noaa.gov); [probbins@whoi.edu](mailto:probbins@whoi.edu); [cahearn@whoi.edu](mailto:cahearn@whoi.edu); and [Zach.Barton@noaa.gov](mailto:Zach.Barton@noaa.gov).

## **Issues and Problems**

### **Setup**

May 26, 2017: Alistair Blair, Gus McKay and myself (Rena Logston) set up the long nose XBT Launcher and wired it to the computer on the E deck. After multiple tried to get the launcher to connect to the computer we tested the wire and thought that there may be something wrong with the CAT5 plug. We re-crimped the CAT5 and this still did not correct the problem. Gus thought that it might be the wire and when tested this was correct. The other wire on the spool was inspected and was noted to have pinched sections that would have rendered the wire useless. We found another green CAT5 wire in the equipment box but when tested this wire was also not working, again we found pinched sections. We used new wire to rewire the line from the E cabin to the auto launcher. We re-crimped the CAT5 in the 'b' format and tested the line. We had to re-crimp and use new plugs a couple of times before the connection was made with the computer (not clean crimp, one prong destroyed on plug, etc.). While sailing from Durban to Cape Town Alistair and I tested the long nosed launcher. One of the tube's pins was sticking on the launcher and was decided that it would be wise to start the cruise with a full functioning launcher. We changed the AX08 long nose launcher for another long nosed launcher. When we opened the equipment box it was stored in we noticed that the whole box and the launcher were damp. We tried setting up the launcher and connecting to the computer but this launcher would not make connection. We left the launcher out in the storage room to fully dry and also for the box-padding to also fully dry before storage. The next launcher we tried was a short nosed launcher. We set the launcher up and it was not connecting to the computer. It was determined that it was the plug and we re-crimped and the wire made connection but only seven tubes were functional (number five was out of service). Again we decided it would be wise to change out this launcher for the original launcher that only had a minor problem of one pin sticking (which I could manually maneuver). The original launcher was re-set up and connected but not making connection to the computer. Knowing that we had just used this launcher and the wire was functional (plug in working condition) we looked at the launcher's box where Alistair noticed the pins had corrosion on them. He tired cleaning the corrosion off with a wire brush but this was unsuccessful. We re-installed the short nosed launcher and this is what was used for the remainder of the voyage, with only seven functioning tubes.

### **Launcher's Tubes**

Throughout the entirety of the cruise there were only seven functioning tubes. Intermittently other tubes would also misfire, mainly tube one which would not register a connection to the probe. The frequency that this happened was at least once, sometimes more than once, a day. To mitigate this I would try to clean the launcher's connection spikes and close the top as tight as possible, this was under the direction

of Zachary Barton. Half of the time these measure worked and the probe established connection, the others could not be connected and new probes would be used.

### **Amverseas Software**

The program would freeze on a regular basis, at least once a day, most days between one to three times a day. The program would mainly freeze trying to establish connection from the MK21 to the program or when the program needed to reset the Climatology parameters. Zachary had informed me that the program does take a while to connect and to allow the program to run through its normal course. I would allow the program to run for five to ten minutes and if the MK21 did not make any indication (i.e. clicking noise) then I would close down the program and restart the whole computer. The program would also indicate sometime that there was no connection with the MK21 and I would shut down the program and restart the computer. Under Zachary's advice I would also regularly shut down and restart the computer each day to allow the computer and the program to reset itself to be able to run more efficiently. Another sever problem I ran into was when the program would freeze in the middle of profiling. This happened on three days, June 12, 2017 being the worst case where once every reload a profile was freezing (i.e. one in seven drops). These profiles all seemed to be good profiles but would get stuck between 300 – 900m. I would allow the program to run for five minutes to allow it to right itself but it never did. I then would try to end the launch manually to try and save the profile but this was also unsuccessful. I would have to resort to shutting down the program and restarting the computer. Unfortunately each time the profile was not saved because the program did not run through its full cycle. I would deploy another probe to capture the profile.

### **Profiles**

Most profiles were good as indicated in the data notes. I did have some profiles that would, as mentioned above, freeze and were unsaved and profiles that were distorted by possible leakage, insulation damage, wire stretch and interference from high seas-wind due to passing through a storm on June 20, 2017. All of these, except for the profiles that were not saved due to program error, were indicated in the data notes.

### **Additional Supplies**

Due to changing out the CAT5 cable and auto launcher multiple times the supply of zip ties and waterproofing tape was diminished before the vessel arrived in Cape Town. The vessel was docked in Cape Town for one day and under the advice of Alistair and Gus I went to a home improvement store and purchased zip ties, duct tape and waterproofing tape. These supplies would have been needed if I had to setup another launcher or rewire the CAT5. I did immediately have to use the waterproofing tape as we had ran out before waterproofing the auto launcher was complete. Fortunately I did not have to setup another launcher and the zip ties, waterproofing tape and duct tape are in the equipment box for the next cruise.

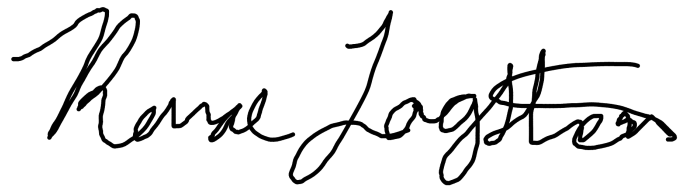
### **Recommendations**

I was asked to go on this cruise last minute but having just come from another cruise I believe I was fairly prepared though there were some issues. These issues were mainly the vessel requires all passengers on board to have a current Yellow Fever Vaccination and Medical. I happened to have my medical from my previous cruise with me but I had not had a Yellow Fever Vaccination. I only learnt I needed these while already at sea (sailing from Durban to Cape Town). In Cape Town I went to a travel doctor and received the Yellow Fever Vaccination. This might have been a problem if we had not stopped in Cape Town or if the Captain had asked for these items when we were already at sail in the middle of the Atlantic. Another issue was I received some mixed messages on weather I could dump cardboard at sea. The only cardboard I did dumb was in connection with the Argo Floats (i.e. their protective boxes). I asked the crew if other cardboard could be dumped, and although it is legal it is against Maersk's personal policy. The crew said they would dispose of the excess cardboard when the vessel arrives in Durban if we cannot offload it in Charleston.

My recommendation for the above issues is to have a set of protocols for new scientific ship riders informing them that they will need Yellow Fever Vaccination, Medical, headlamp, personal protective gear, US dollars (if they want soda, bottle water, etc.), etc. and also the rules of the vessel (i.e. dumping protocols, informing bridge when you work at night, etc.). I am aware of the basic ship visit and rider rules that are provided but I think a more detailed informative sheet on what is needed would help. This also may have just been overlooked since again I did join very last minute for this cruise.

### **Comments**

I would like to thank the Captain and all the crew of the Maersk Visby, they were friendly and helpful throughout the whole trip. They went out of their way to make me feel welcomed on board with tours of the engine room, bridge and drills, inviting me to play bingo-horses, be a part of their barbeque night and have meaningful conversations during mealtime and on the bridge. I would like to also thank Alistair and Gus for teaching me the ins and outs of the ship, the auto launcher, Argo floats and the Amverseas program. Lastly I would like to thank NOAA for this opportunity to learn new skills and to get more ship-based experience. This has been a great experience and one that not too many people get to take and I hope to be part of these cruises in the future.

A handwritten signature in black ink that reads "Renae Logston". The signature is written in a cursive, flowing style.

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