

2016 I09N Cruise report, week 2

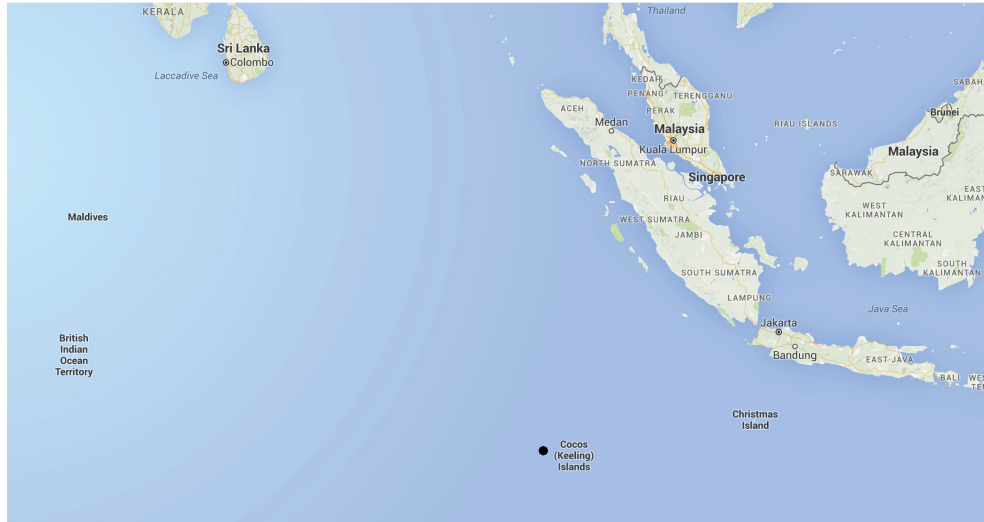
Ahoy land-dwellers!

Week 2 of our I09N cruise seems to have flown by as we have settled into our routine of 3-4 stations per day. The weather has been fantastic and we have been working under calm seas. We can definitely tell that we have entered tropical waters now. The temperatures at the sea surface are around 30C (that's 86 Fahrenheit) and we can feel the high humidity in the air. No one is complaining if they get splashed with the cool, refreshing water from the deep bottles anymore.

This past week we have sampled what will be our deepest stations of the cruise, reaching up to 6122 m depth. That is 3.8 miles deep! The sensors on our Rosie (nickname for our rosette), however, can only withstand depths of 6000 m, so we had to stop her short. I am sure she was wondering why we didn't lower her to the near-bottom, like we normally do.

While on one of these deep stations, the secondary conductimeter sensor of the CTD stopped working (not to worry, this is why we have 2 installed). The conductimeter provides a continuous profile of salinity, so it is an essential piece of equipment in the package. We replaced the faulty conductimeter while in transit to our following station, without any waste of ship time. A couple of days later we had to replace the primary conductimeter as well - so we are now working with two brand new ones. At the same time, the oxygen sensor started to show increased scatter. Normally, only one oxygen sensor is installed, so it needs to provide a clean profile. We did some minor install modifications, tested all our spares, and are now back with a reliably functioning oxygen sensor.

We have just sailed past Cocos Islands. These small coral atolls belong to Australia and are located southwest of Christmas Island (see picture below). Unfortunately we were just a little too far to be able to see the atolls, but that didn't stop us from learning about them. Apparently, two British captains (one Scottish, one English) rediscovered them in the 19th century and planned to settle there. One came with a harem of 40 women. The second came shortly after with his family for a more traditional settlement. As you can imagine, these 2 groups didn't get along, especially after some women from the harem started deserting to live with the sailors of the second group. Another interesting fact? Charles Darwin stopped there during his journey of discovery aboard the Beagle. Participating in a GO-SHIP cruise always brings with it the chance to learn interesting little facts about remote parts of our planet!



Location of Cocos Islands. The black dot represents the approximate location of the RV Roger Revelle on April 2nd.

On Sunday April 3rd, at approximately 16:30 local time, while on station 115, we had a loss of communications with the CTD which was then at 3000 m depth and coming up. We recovered the package and determined that one of the conductor cables had shorted. The winch cable has three electrical conductor cables inside that are used to communicate with the rosette while it is in the water. Fortunately, only one conductor is needed, so we switched to an alternate one in the winch and have proceeded with sampling, redoing a cast on station 115. There will be no impacts to our science plan as a result of the time invested in reterminating the cables and no modifications have been made to our station planning.

We have also been deploying ARGO floats at select locations along the way. ARGO floats are free drifters that stay “parked” at a predetermined depth (normally around 1000 m). Every 10 days or so, they descend to 2000 m and profile the temperature and salinity on the way back to the surface. These profiles, along with the surface GPS position, are then sent via satellite to the labs overseeing the drifters. There are currently over 3000 ARGO floats providing us with T-S data from all the world’s oceans, and around 800 need to be deployed every year in order to keep the array active. By the end of this cruise we will have deployed 8 new floats.



Amanda Fay and Molly Martin assist restech Matt Durham during the deployment of Argo float 9763. Photo courtesy of Patrick Mears.

Science never sleeps on this cruise. Next week we will be talking about our underway measurements, so stay tuned for that!

In the meantime, you can check our cruise blog:

<http://goship-i09n-2016.blogspot.com/>

One of our CTD-watch standers, Amanda Fay, is also chronicling her experience in her own blog:

<http://fayamanda.weebly.com/i09n-cruise-blog>

Onwards!

Carmen and Leticia, chief scientists I09N