

NOAA Ship Ronald H. Brown A16N Leg 1 Weekly Scientific Report 02
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August 17, 2013

37.5°N, 20°W
10:00 a.m., Sunday, August 11, 2013 (local time & date)
22.9 degC (73.2 degF)
Winds 1.5 knots
Finishing station 056

The first leg of A16N continues without major incident or delay. We are typically making 10.5 knots between stations and generally making excellent time. The ship is only using one large generator and running at 570 rpm. The ship's officers have entered a competition to see who can get onto station and off station the quickest while not inducing any engine alarms. Typical times have been 3-7 minutes.

We've had a few technical issues on the ship. There was a major failure of the small generator number 6. This occurred during Trace Metal cast 41, when the ship lost power and propulsion with the CTD at depth. The emergency generator kicked on and power was restored within twenty minutes. The generator will have to be repaired, likely in Barbados. If the ship loses another generator, it would have to go immediately into port for repairs. The walk in freezer continues to function; however, moisture builds up and freezes, blocking the fans which has necessitated repair.

We had some science issues with one upward-looking ADCP failing (station 37 and 38). The UH ADCP was replaced with an AOML ADCP, which is now working well. Oyvind Lundesgaard has been examining the compass interference on the two ADCPs with the frame, pinger and orientation. The interference has been minimized by the removal of the Benthos pinger and a particular orientation of the two ADCPs.

Bill Landing gave a science talk to the ship's crew this week. He explained evidence from ice cores demonstrating the relationship between CO₂ concentrations and global temperature for the past 800,000 years and discussed current atmospheric CO₂ concentrations (~400ppm) in the context of pre-anthropogenic CO₂ levels (~180 – 280 ppm). He explained how trace metals in the ocean are an important control on the biological uptake of CO₂ and how measurements taken on CLIVAR cruises are being used to track the input of trace metals into the ocean from the atmosphere. The crew appeared to appreciate his presentation and there were many who stayed to ask follow-up questions.

The science party is planning for arrival in Madeira on Friday, 8/23. There will be several groups that hope to get spare equipment to the ship including water bath parts (Millero's pH/Alkalinity group), spare Go-Flow bottles (Landing/Resing's trace metal group), replacement 300 kHz Acoustic Doppler Current Profiler (Firing/Hummond LADCP group), spare cell and parts (Wannikhof DIC group). In addition, Brett Walker (Druffel group) will be sending frozen water samples home for specialized analysis.

We have two additional blogs to share with you. Josh Levy (pH/Alkalinity group) is a very good amateur photographer and has taken many beautiful pictures of his travels in Iceland before meeting the ship (as well as on board). You can follow his blog at: <http://4869milevoyage.blogspot.com/>. Also Rachel Shelly (trace metals group) does an excellent job explaining trace metals science (along with many nice pictures as well). You can follow her at: <http://eoas-fsu-clivar.blogspot.com/>. Please enjoy these blogs in lieu of any photos attached to this report.