

RVIB N. B. Palmer, NBP17-06/P06 Leg 1: Weekly Scientific Report 01

32.08°S, 160.00°E

11pm, Monday, 10 July 2017 (local time and day)

air: 18.4°C, water: 20.7°C, winds: 7 kt from the southwest
on station 029

Last Monday, July 3 2017, at about 10:00am the NBP departed from Sydney where it was docked in White Bay, berth 4. Loading of the ship prior to that went pretty smooth. Most items, including all floats, the DIC van, the NASA HyperSAS and other palettes and boxes, were loaded onto the ship on Wednesday, June 28, with only the ODF van and some missing sample bottle boxes left for loading on Thursday, June 29. Don Hill from DAMCO and Eric Hutt (MPC) made sure that all science equipment was delivered to the dock on time. Measurement groups started setting up in the labs, running tests, and trouble shooting as soon as their items were on board. Access to the port in Sydney was easy. Except for one overnight visit from a cruise ship, the NBP was the only ship at the White Bay west side dock. By the end of the port call the guard house people knew us quite well.

Members from the science party arrived in Sydney throughout the week. A replacement for one of the scientists in the pH/alkalinity group had to be found on short notice. We are glad that Derek Smith could make it to Sydney by July 2, 2017, just in time for our departure the next day. The steam out of the port in Sydney was very scenic. Since we have hit the open ocean, we have had fair weather with sun shine and wave heights of 6-8 feet at maximum. The prediction for the next couple of days, however, is for somewhat rougher seas and winds up to 20 knots.

We started the cruise with a test station at ~31.5°S, 153.5°E on the morning of July 4, followed by our first “real” station that same evening (no fireworks for us) in just 84m of water off the Australian coast, at 30.09°S, 153.48°E. Our station spacing since then has been extremely close, ranging from 2–26nm, which sets a very fast pace on each CTD cast. Short station spacing, which will continue for the next two weeks of the cruise, is necessary due to the varied topography of the western South Pacific, between the coast and the Kermadec Trench (just past the dateline).

All measurement groups have been working extremely hard to keep up with sampling and analysis. Most systems are running well, although we have had a few hiccups to deal with pretty much as soon as we reached deeper waters. At station 7 (2900m), the communication between the LADCP and its computer console became intermittent, until it completely stopped at station 10 (4599m). Most cables had been exchanged by then, but trouble shooting continued. The removal of the magnetometer from the rosette, after station 13, finally fixed the problem, and the LADCP has been working again since then.

First problems with Niskin bottles not closing occurred at station 6 (1985m). By station 12 (4707m), 7(!) bottles stayed open, with most bottles being repeat offenders, despite all efforts of adjusting lanyards and bottle positions. A quick inspection of the pylon's solenoids did not reveal any obvious signs of leaking or deterioration (the carousel had just returned from maintenance at Seabird). Nevertheless, we decided to exchange the carousel against SIO's new 36-place pylon (that was meant for the new rosette we are using, but that did not arrive in time for assembly). We are happy to report that all bottles have been closing since then.

The CFC group has been dealing with an unclear SF_6 peak in the CFC/ SF_6 gas chromatograms, revealed by the test station samples. At first, the thought was that this may be due to the brand new Niskin bottles on the CTD rosette. Hence, we exchanged seven Niskins against old ones from the back-up rosette. The problem, however, occurred also in samples from these bottles. The CFC group reports that interference with N_2O may have been the real cause of the SF_6 problem and that adjustment of flushing time and trap temperatures seems to have fixed it.

We have 46 floats on board, that cover different programs: UW Argo, SOCCOM, SIO Solo and SIO Deep Solo floats. Two UW Argo floats have been deployed so far without any problems. More deployments of floats as well as drifters will follow soon.

The crew and the captain of the NBP are fabulous to work with, and we are very grateful for the careful attention and professionalism that both the MTs and the winch operators provide during the deployment of our rosette and floats. We also appreciate all the help we are receiving from the MPC, MLT, ETs and ITs with any lab or technical issue.

- Sabine Mecking and Isa Rosso

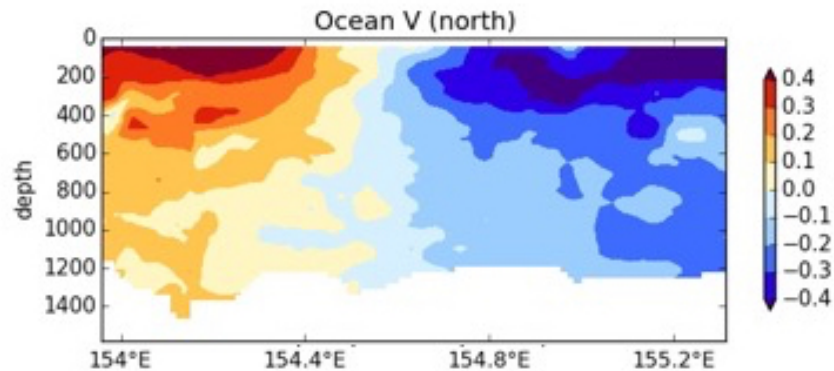
<http://usgoship-p062017.blogspot.com>



Departure from Sydney



Exchange of 36-place carousel



ADCP velocities on day 4 showing eddy variability or meandering of the East Australia Current