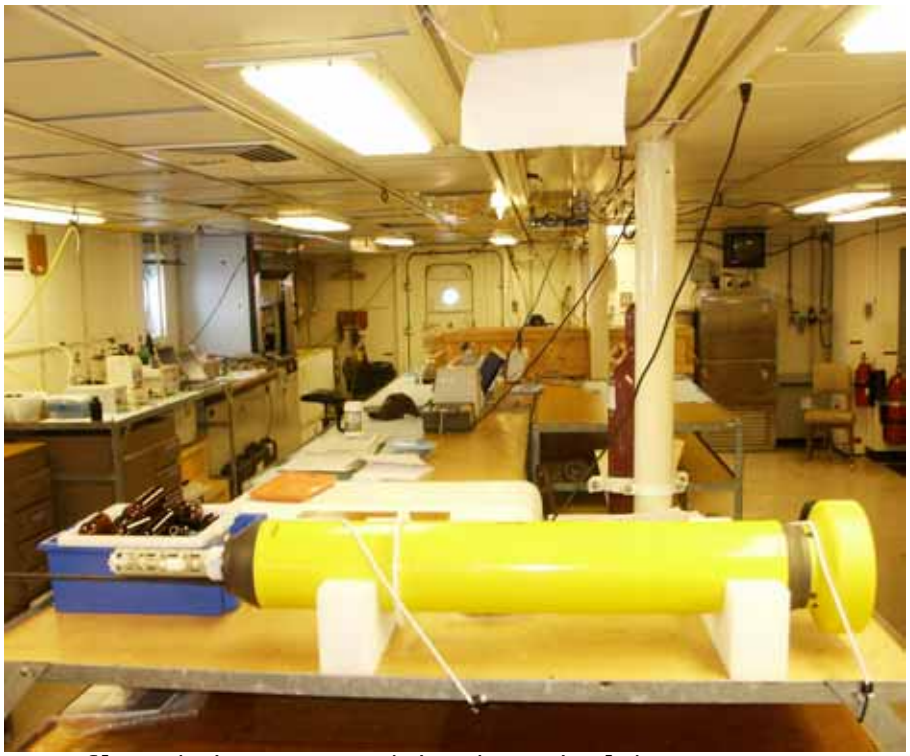
Journal #13

Friday

1. 212200Z January 05
2. Position: Lat: 36-30.0S, LONG: 150-00.0W
3. Course: On Station
4. Speed: 11.0 kts
5. Distance: 090.0 NM
6. Steaming Time: 08H 12M
7. Station Time: 15H 48M
8. Fuel: 2,400 gals
9. Sky: Cu 3
10. Wind: 175-T, 19 Kts.
11. Sea: 175-T, 2-3 Ft
12. Swell: 200-T, 5-7 Ft
13. Barometer: 1024.2 Mb
14. Temperature: Air: 20.0 C, Sea: 20.6 C
15. Equipment Status: Normal
16. Comments: none

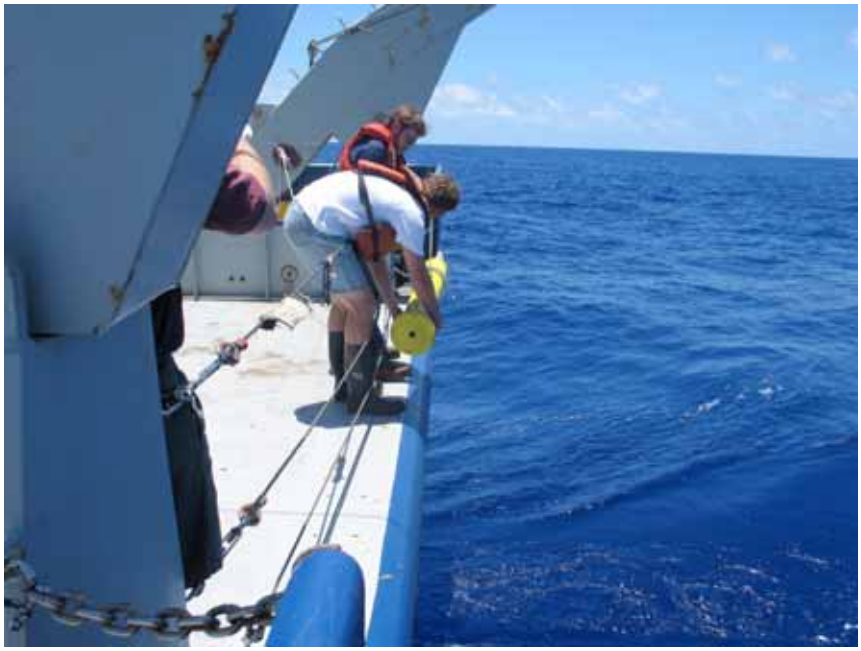
MASTER, R/V ROGER REVELLE

Busy day today, we are doing our broadcast from the bridge with Captain David Murline and we are still doing our CTD casts. There were some problems with the ARGO floats we deployed, seems that 2 of them are not talking to the satellite. So they uncrated 2 more and turned them on and put them on the deck to see if they could be seen by the satellite, when we know if they are working we will deploy them.

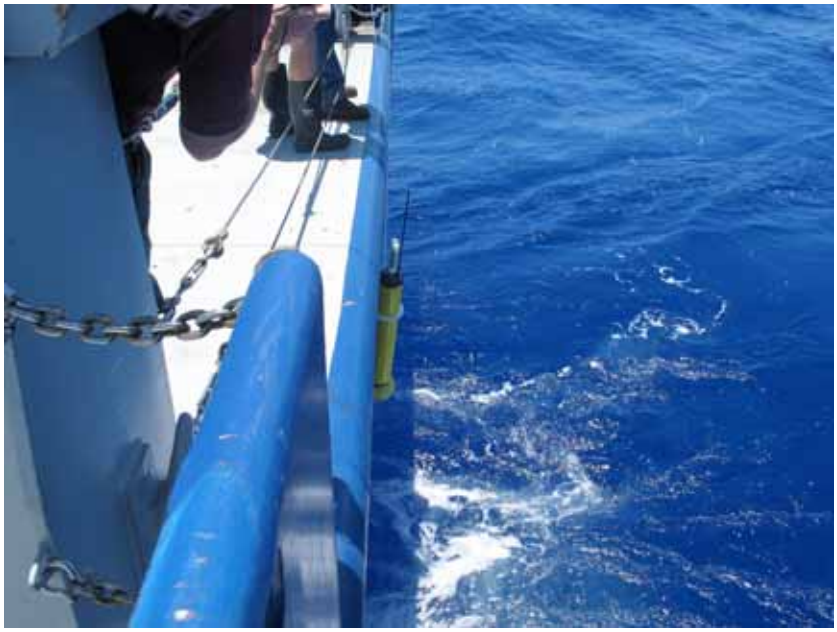


Argo float being prepared in the main lab.

For more information on the ARGO program go to : www.argo.ucsd.edu



Scott Hiller and Dr. Thiess lower the ARGO into the water



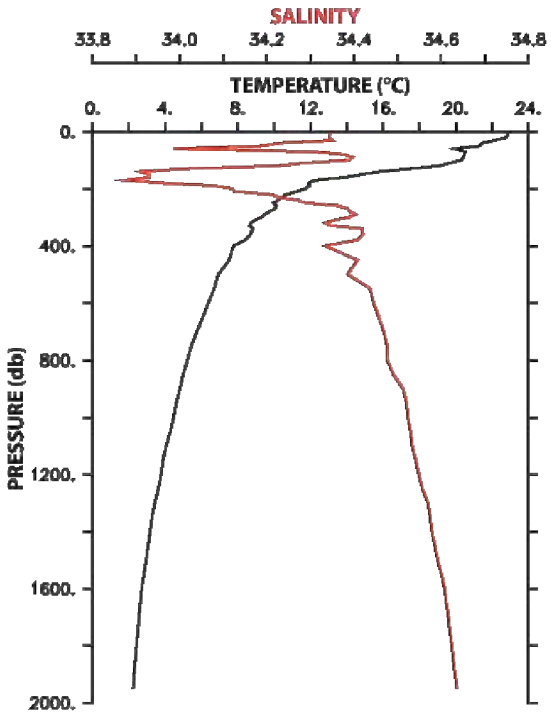
Slowly…..

There goes our baby….. be safe,,,,,write often!!!!!

The Argo's will communicate for about a year and half with the batteries they have. **Argo provides a new source of data from the top 2km of the ocean. It uses a fleet of robotic floats that spend most of their life at depth and that surface regularly to make the temperature and salinity profile measurements. The floats are contributed by many countries but all data are freely available. As of 23 Jan 2005 there are 1583 floats worldwide….that means our little babies too!!!!**

For a map of the argo floats worldwide go to: www.argo.ucsd.edu

The ARGO program is a major contributor to the CLIVAR program, which is why we are dropping off more of them.



An Argo profile from the subtropical North Pacific (20.25N 121.4W, May 15 2004). This shows interleaving in the salinity data. Red is salinity and black is for temperature. These are the types of data profiles we are creating with each of our CTD casts, we can create them for temp, salinity, pressure, O2 levels, N2 levels and several others. I will be bringing back several sets of these data for my classes to work with and plot.

They have already done T/S diagrams for the Atlantic water masses and we will be doing them for several of the Pacific water masses.

During our broadcast today we had several large Albatross flying around the ship. These are the largest of the sea birds and spend their entire life at sea except for very short periods on shore to breed lay eggs and raise their young.

Albatrosses are **AMAZING**! They are among the largest flying birds, weighing in at up to 10 kilograms (22 lbs). Some species display striking colors and perform beautiful mating dances. Albatrosses are **oceanic birds**. They live at sea and find their fish and squid food on the open ocean. They come to land on islands only because their offspring have to be on land until they can fly. **This can be a problem for Mom and Dad Albatross, because the food in the ocean may be a long distance from where the nesting island happens to be!** To handle this problem albatrosses can cover thousands of kilometers during one trip to find food for their babies and themselves. Let's introduce you to the birds and their athletic ability.

Scientists have found that there are 24 species of albatrosses, and they all have a stocky body, webbed feet, very long wings, and hooked beak.

Some basics of being an albatross are:

Yucky child care. Babies in the nest, or "nestlings", get their food when the mother or father returns to the nest and gives it to them. Some bird species carry the food, like a worm or insect, in the bill and pop it into the nestling's mouth. That is not what albatrosses do. Albatross parents catch and swallow their prey at sea, then fly back to the nest. The parents then...uh... **regurgitate** the food into the nestling's mouth. You might not know what "regurgitate" means, but you probably do know what "vomit" means, and it is the same thing. How would **YOU** like to get your breakfast that way? Well, albatross babies love it

This information came from the Albatross Project website:
www.wfu.edu/albatross/atwork/atwork.htm

Go there for more pictures and information on these amazing birds…..for your journal find out what eats Albatrosses!!!!

We were able to see outside of the bridge towards the bow and get a feel for the ocean conditions out here. One of the students asked how close we were to land and Captain Dave responded that the closest land was New Zealand at about 1500 miles. We about the same distance from New Zealand that San Diego is from San Francisco. We are heading south along the 150'W line of longitude. We are at about 37'S latitude today and will soon be entering the "Roaring Forties".

ROARING FORTIES

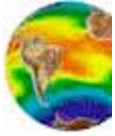
. This region has been dubbed the 'Roaring Forties', 'Furious Fifties' and 'Screaming Sixties' by sailors – a reference to the wild and unpredictable weather found between 40 and 60 degrees latitude.

Gale force winds and huge waves are caused by weather systems and currents that circle Antarctica unimpeded by land masses. The Antarctic ice sheet produces very cold, dense air that drains towards the coast. These katabatic winds move slowly at first but accelerate under the influence of gravity as they travel down from high altitudes, reaching speeds of up to 40kph.

As the winds move north over the Southern Ocean, they interact with warmer air from the north. This creates low pressure systems or polar cyclones that ride the Southern Ocean. The strongest of these westerly winds produce hurricane forces. Wind speeds of 120kph are common but they can reach more than 250kph.

Making seafaring conditions even more treacherous is the Antarctic Circumpolar Current which flows against these winds in an easterly direction. This is the largest ocean current in the world, transporting five times more water than the Gulf Stream in the Northern Hemisphere.

This massive wall of water acts like a cold insulator, blocking warmer tropical waters from the north and maintaining Antarctica's permanent ice sheet. Antarctic coastal temperatures can drop as low as minus 50°C.



More questions for Captain Dave:

How far south are you going?

We are supposed to go to at least 65’S latitude , which is within the Antarctic Circle and further if we have time and weather permits.

Will you see Antarctica?

No, we are not going that far and the ice would be too dangerous.

Will you see ice? When and Where?

Weather reports indicate that ice bergs have been seen as far north as 49’S this year, we will probably see some ice. But the R/V Revelle is not an icebreaker and we will not be going too close to the ice for safety reasons.

From a scientific point of view , why is this area so important?

General:
Antarctica and the Southern Ocean are key elements in the global weather system. This is a system which creates and transfers energy as winds, clouds, rain and all other elements we call "the weather".

Circulation:
The source of this energy is the sun, and because its heating effect is greater at the equator than at the poles, it creates a circulation in the atmosphere. Hot moist air rises over the equator and flows at a high level towards the poles, where it cools and sinks. The equator is therefore a region of low pressure, and the poles are regions of high pressure.

Interaction:
The atmosphere is not a closed system. It interacts with the land, the ocean, and the ice; and the ice in turn interacts with the ocean.Winds create currents in the ocean. The annual cycle of freezing and melting of the sea ice around Antarctica creates a vertical circulation in the ocean.

More from Captain Dave on our next broadcast on Thursday, January 27,2005