

**Subject: Scholes cabin 5: Buoys**

**15 December 09 05:09 UTD 50.4947 S 0.8961 E**

Hi Stirling,

Every day we launch a few meteorological buoys, called 'drifters'. They look like a hard, blue plastic beach ball, with a canvas bucket attached on a rope. The 'bucket' is a sea-anchor which causes them to be dragged with the currents rather than blown around by the wind. In the ball are batteries, a GPS and a temperature and pressure sensor. The data are sent by a radio transmitter to a satellite, and from there to the World Meteorological Organisation in Geneva.

There are many thousand 'drifters' around the world at any moment. They are part of the Integrated Global Observing System (which I helped to design, though not that part) and the World Ocean Circulation Experiment. They help to make weather forecasts more accurate, map the currents for shipping, and test ocean circulation models. Before we toss them overboard, people often scribble their names on them, like a message in a bottle. They must end up on some beach, somewhere, after drifting around for years.

Today is special because we launched a much more expensive buoy called a 'profiling' float, on behalf of the South African Environmental Observation Network. It is about the shape, size and weight of one of those tall gas bottles in my lab. It floats upright, with its transmitters sticking out, and every ten days sinks into the deep ocean, measuring the temperature and salinity as it goes. After drifting along in the darkness for a while, it bobs up to the surface again and sends the data back to base via the Argos satellite. You may be able to see it in a few days at [http://www.bodc.ac.uk/data/online\\_delivery/argo/](http://www.bodc.ac.uk/data/online_delivery/argo/).

The Argos reference numbers for the two floats we launched are 99077 and 99078 (or A4D5A5F and A4D5A6A, in hexadecimal notation). It should keep going for up to five years and in this time dive to 2000 m and return more than 250 times. There are fewer of these because they are very expensive. It feels strange to toss something that costs the same as a new motor car over the stern! But when you work out the cost of operating a ship like SA Agulhas, which every day adds up to about the same price as one buoy (without counting the salaries of the researchers on board), it is cheaper to have a disposable floating robot doing the job. Of course, SA Agulhas is doing other jobs at the same time.

Although it is midsummer and we are only about the latitude of the southern tip of New Zealand, it is now cold enough that I have to put on my thick polar jacket when I go out

to do the underway CTD measurements at 2 and 4 am. (It was lightly snowing - graupel, actually, which is like tiny, soft hailstones - at 4 am on 16 Dec).

Stay warm,

Dad