

MEDIA RELEASE

NEWS FROM THE UNIVERSITY OF TASMANIA

DATE: FRIDAY 20 FEBRUARY 2009

ATTENTION: Chiefs of Staff, News Directors



Unlocking the secrets of the sea

Tasmanian researchers are using ground breaking technology to uncover secrets of the Southern Ocean.

A group of scientists from the University of Tasmania (UTAS) has just returned from an international research voyage from Cape Town to the Kerguelen Plateau near Antarctica, investigating the Antarctic Circumpolar Current.

This broad, deep current flows eastward around Antarctica and is pushed constantly by the Roaring Forties winds. It links all the oceans of the world and plays a key role in the ocean's ability to moderate the climate.

The scientists deployed eight EM-APEX profiling floats in the hope of understanding this vital current.

These floats measure current speed and direction as well as temperature and salinity. They had never been used before outside the group that developed them at the University of Washington.

The EM-APEX transmit their data directly to UTAS each time they surface, using the Iridium satellite phone network. This gives scientists immediate up-to-date information.

The scientists also deployed 24 Argo floats, which were contributed by CSIRO's Wealth from Oceans Flagship and US researchers. These floats will measure temperature and salinity.

Researcher Helen Phillips, who is a post doctoral fellow in the joint marine science project between UTAS and CSIRO, said the floats would be carried along by the Antarctic Circumpolar Current, reporting daily on the ocean structure down to 1600 metres.

"Because the floats are free to move with the current and they profile so rapidly, we get incredible detail of the ocean structure along and across the current. It's in this detail that the secrets are held," she said.

"We could never get this much information using traditional instruments lowered from the ship."

The 52-day voyage on UK vessel *RRS James Cook* also involved oceanographers from the UK, USA and from CSIRO's Wealth from Oceans Flagship.

The combination of data from the EM-APEX and Argo floats, and the shipboard studies undertaken by the other researchers will provide information on the oceanic processes at work in the Antarctic Circumpolar Current.

The survey will answer two major questions. Firstly how the current gets rid of the energy provided by the wind so that it doesn't get pushed ever faster; and secondly how the ocean transfers heat across this wall of current, balancing the heat coming into the ocean in tropical waters with the heat leaving the ocean around Antarctica.

"The lessons learned from this study will ultimately be used in ocean circulation models to improve forecasts of climate variability and ocean movements used by fishers, search and rescue operators and other shipping," Dr Phillips said.

Video footage of the Vertical Microstructure Profiler (VMP), which was a key aspect of the voyage, are available from the Media Office, call 6226 8519.

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