

NIWA Vessel Management

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Argonauts of the Pacific

NIWA research vessels now hold the world record for the greatest number of Argo floats launched by one organisation.

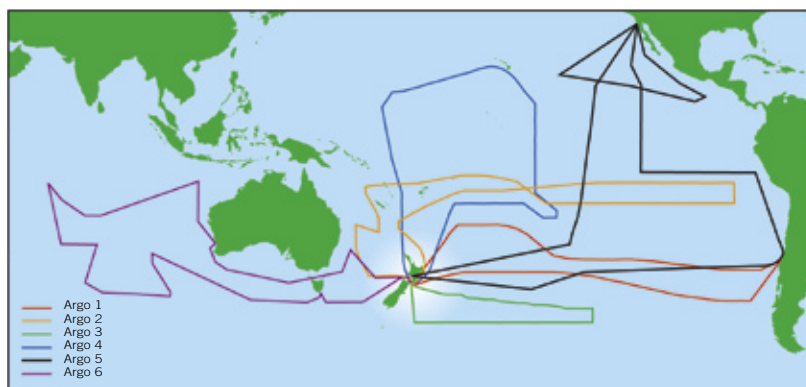
The Argo programme is a worldwide effort to deploy a network of high tech floats which will help scientists measure climate change, predict the strength of tropical cyclones, and even get a better fix on the path of toxic algal blooms.

Once deployed, the floats sink to a depth of 1000 metres and are carried along by ocean currents. After nine or ten days, they sink further to between 1250 and 2000 metres, then rise to the surface, measuring the temperature and salinity of the water on the way up. Once on the surface, the floats transmit the recorded information and their location via satellite.

During April 2005, *Tangaroa* deployed 45 of these floats on a mission that took the vessel to the Southern Ocean and more than halfway to Chile. Within two weeks of *Tangaroa* returning to port, the 28-metre *Kaharoa* sailed for the warm equatorial waters of the Pacific to deploy a further 60 floats during a two month round trip to Hawaii.

NIWA has now completed four voyages, covering over 45 000 nautical miles, and deployed 246 floats. Two more voyages are planned in the next two years. The first of these (134 floats) will take *Kaharoa* to the west coast of South and North America; the second will see *Kaharoa* sail to Mauritius in the Indian Ocean (100 floats).

The deployments are funded by the University of Washington (Seattle), Scripps Institution of Oceanography (San Diego), and NIWA.



The Argo float deployments (1-4) and the voyages planned for the next two years.

Vessels for oil and gas surveys

NIWA vessels are providing cost-effective, high quality surveys for the oil and gas industry.

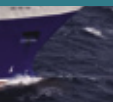
NIWA's deepwater research vessel *Tangaroa* surveyed the Kupe gas/condensate field in the South Taranaki Bight in association with Fugro Surveys for Origin Energy, which acts as operator on behalf of the Kupe Joint Venture. We carried out a detailed survey of the planned Kupe Platform site and of two potential pipeline routes between the platform and the shore approaches. The survey launch *Pelorus* was operated from *Tangaroa* to complete the inshore parts of the survey.

Tangaroa also recently completed a survey of the Tui Area Development, off the Taranaki coastline. This was an offshore seabed survey for New Zealand Overseas Petroleum Ltd which is investigating the development of a sub-sea oil field.

Tangaroa is the only fully equipped, New Zealand-based survey vessel capable of operating in virtually all weather.



great services



On the run

One evening in January 2005, NIWA Vessel Management received an urgent call from the United States. Stanford University's high tech 'Very Low Frequency Buoy' had broken free of its mooring deep in the Southern Ocean and was drifting rapidly towards Antarctica. Could *Tangaroa* find and retrieve it?

The buoy is massive: 3.1 metres in diameter, 7.1 metres tall, weighing just under 4 tonnes. It was designed and built by Stanford, with support from other institutes and commercial suppliers, and is equipped with three very sensitive VLF-loop antennas which are each almost 2.5 metres in diameter. It is used for research into the ionised regions of the upper atmosphere known as the ionosphere and magnetosphere.

Tangaroa had deployed the buoy in extremely deep water (5400 metres) nine months earlier. After constant battering by massive seas, it appears the tether holding the buoy in position gave way.

We reorganised *Tangaroa's* programme and set sail. It was a rough ride through 12 metre waves and 70 knot winds, chasing the buoy. Three days later, we saw it, then had to keep track of it for another day until the waves dropped to 'only' 4.5 metres before we could haul it on board.

We currently have the buoy in storage awaiting an electronic upgrade. *Tangaroa* will redeploy it later this year with a modified tether.



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Tangaroa deploys Stanford's buoy.

