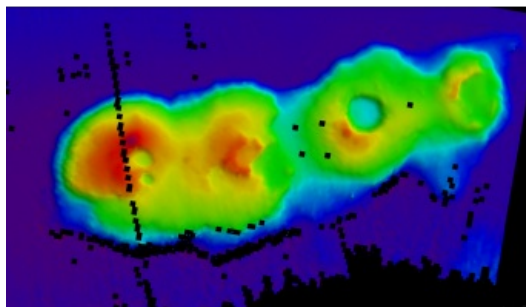


# Discovery of Old Volcano Cluster off Sydney



Australia's ocean-going research vessel *Investigator* has discovered a cluster of extinct volcanoes, likely to be around 50 million years old, approximately 250km off the coast of Sydney in 4,900m of water. The chief scientist for the voyage, UNSW marine biologist Professor Iain Suthers, said while they were searching for the nursery grounds for larval lobsters the ship was also routinely mapping the sea floor when the volcanoes were discovered. The four extinct volcanoes in the cluster are calderas, which form after a volcano erupts and the land around them collapses, forming a crater. The largest is 1.5km across the rim and it rises 700m from the sea floor.

Professor Richard Arculus from the Australian National University, an igneous petrologist and a world-leading expert on volcanoes, said these particular types of volcanoes are really important to geoscientists, because they are like windows into the sea floor. They show part of the story of how New Zealand and Australia separated around 40-80 million years ago and they will now help scientists target future exploration of the sea floor to unlock the secrets of the Earth's crust.

## Deeper Capability

They have not been found before because the sonar on the previous Marine National Facility (MNF) research vessel, *Southern Surveyor*, could only map the sea floor to 3,000m, which left half of Australia's ocean territory out of reach. The new MNF vessel, *Investigator*, has sonar that can map the sea floor to any depth, making all of Australia's ocean territory within reach.

They also found that an eddy off Sydney was a hotspot for lobster larvae at a time of the year when the researchers were not expecting them.

## Support from Shore

Professor Suthers said the 94m *Investigator* has capabilities that marine scientists in Australia have never had before and it will be key to unlocking the secrets the oceans around our continent and beyond. *Investigator* is able to send and receive data while the research team is at sea, so the team at UNSW in Sydney could analyse the information and send back their analysis, along with satellite imagery, so the eddies could be chased as they formed.

They found juvenile commercial fish species like bream and tailor 150km offshore, as thought was that once they were swept out to sea that was end of them, but in fact these eddies are nursery grounds along the east coast of Australia.

The research voyage led by Professor Iain Suthers departed Brisbane on 3 June 2015 and concluded on 18 June 2015 in Sydney, with 28 scientists from UNSW, Latrobe University, the University of British Columbia, the University of Sydney, the University of Auckland, the University of Technology Sydney and Southern Cross University.

The centre of the volcanic cluster is 33 31 S, 153 52 E, which is 248km from Sydney Heads. The cluster is 20km long and 6km wide and the sea floor 4,890 metres deep, with the highest point in the cluster rising up to 3,998 metres.



