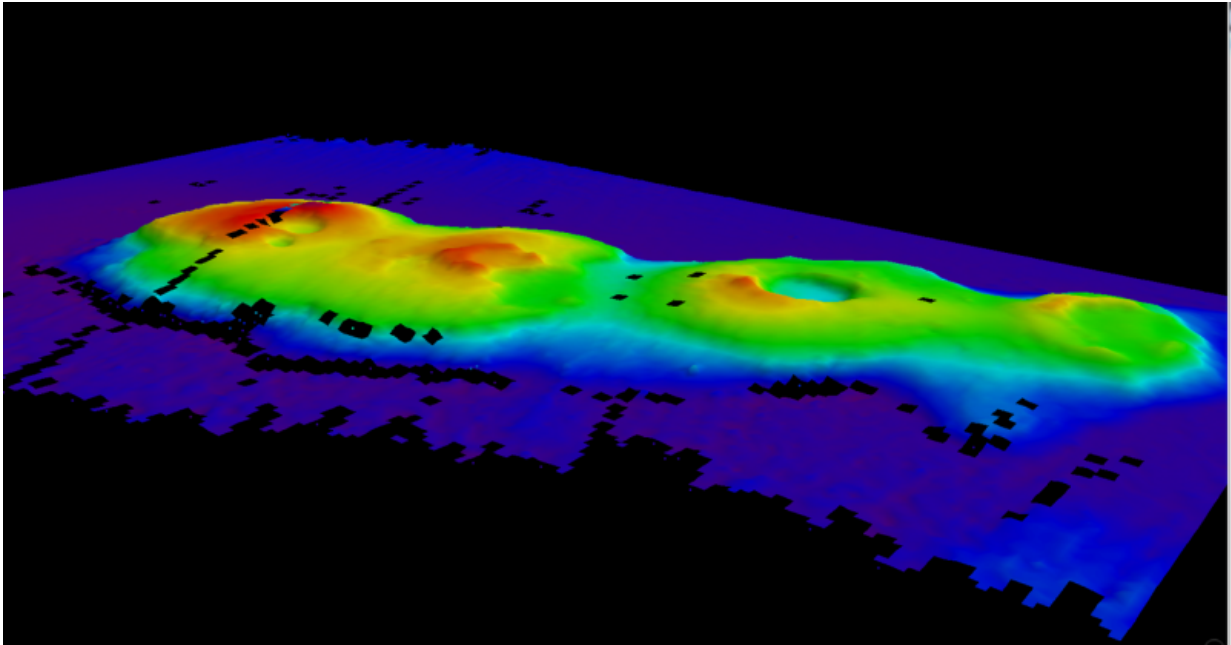


Submerged volcanoes found off Sydney

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Australia's new ocean-going research vessel Investigator has discovered extinct volcanoes likely to be 50 million years old about 250 kilometres off the coast of Sydney. The largest is 1.5 kilometres across the rim and rises 700 metres from the sea floor. Credit: Marine National Facility

Australia's new ocean-going research vessel Investigator has discovered extinct volcanoes likely to be 50 million years old about 250 kilometres off the coast of Sydney.

The chief scientist for the voyage, UNSW Australia marine biologist

Professor Iain Suthers, said the volcanoes were discovered in 4,900 meters of water during a search for nursery grounds for larval lobsters. At the same time the ship was also routinely mapping the seafloor.

"The voyage was enormously successful. Not only did we discover a cluster of volcanoes on Sydney's doorstep, we were amazed to find that an eddy off Sydney was a hotspot for lobster larvae at a time of the year when we were not expecting them," Professor Suthers said.

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 1.5 kilometres across the rim and it rises 700 metres 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 seafloor.



UNSW Australia scientists on board Australia's new ocean-going research vessel Investigator were studying larval lobsters in ocean eddies off the coast of Sydney when extinct submerged volcanoes were discovered. Credit: Marine National Facility

"They tell us part of the story of how New Zealand and Australia separated around 40-80 million years ago and they'll now help scientists target future exploration of the sea floor to unlock the secrets of the Earth's crust," Professor Arculus said.

"They haven't been found before now because the sonar on the previous Marine National Facility (MNF) research vessel, Southern Surveyor,

could only map the sea floor to 3,000 metres, which left half of Australia's ocean territory out of reach.""

On board the new MNF vessel, Investigator, we have sonar that can map the sea floor to any depth, so all of Australia's vast ocean territory is now within reach, and that is enormously exciting," Professor Arculus said.

Professor Suthers said the 94-metre Investigator has other capabilities that marine scientists in Australia have never had before, and the vessel will be key to unlocking the secrets of the oceans around our continent and beyond.

"Investigator is able to send and receive data while we're at sea, which meant the team back on base at UNSW in Sydney could analyse the information we were collecting at sea and send back their analysis, along with satellite imagery, so we could chase the eddies as they formed," Professor Suthers said.

"This is the first time we've been able to respond directly to the changing dynamics of the ocean and, for a biological oceanographer like me, it doesn't get more thrilling," Professor Suthers said.

"It was astounding to find juvenile commercial fish species like bream and tailor 150 kilometres offshore, as we had thought 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 and concluded on 18 June in Sydney, with 28 scientists from UNSW, La Trobe 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 248 kilometres from Sydney Heads. The cluster is 20 kilometres long and six kilometres wide and the seafloor is 4890 metres deep, with the highest point in the cluster rising up to 3,998 metres.

Provided by University of New South Wales

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