

Part of New Zealand's submerged 'Pink Terraces' found

February 3 2011



Digital underwater photographs of area around the pink terrace structures in Lake Rotomahana, New Zealand. Taken using equipment developed with funding from the US National Science Foundation and WHOI. Digital underwater camera developed by Mr. Mark Olsson of DeepSea Power & Light, San Diego, CA, USA. Credit: Dan Fornari, Woods Hole Oceanographic Institution

The free-swimming REMUS vehicles were developed by WHOI with funding from the US Navy and were operated by Amy Kukulya and Robin Littlefield of the WHOI Oceanographic Systems Laboratory (OSL) who travelled to New Zealand for the expedition. Dan Fornari, a scientist with the WHOI Geology & Geophysics department, helped lead the expedition and, along with Marshall Swartz of the WHOI Physical Oceanography department, developed the underwater camera system

used in the lake.

After detecting areas of interest with the AUV's sonar systems, the team used the underwater camera system, developed with funds from the U.S. National Science Foundation, to capture images of the lake floor where they were able to photograph some of the stepped terrace edges.

Dr. de Ronde said the rest of the Pink Terraces were either destroyed during the eruption, or are still concealed under thick sediment not able to be penetrated by high-frequency AUV sonars.

The scientists found no sign of the larger White Terraces in the part of the lake that matched their location prior to 1886. The two terraces, part of a very large on-land geothermal system, were separated by several hundred meters prior to the eruption.

There are very few examples of large land-based geothermal systems that have been torn apart by an eruption and become inundated in this way. Scientists hope the data collected during this expedition will help them better understand how geothermal systems respond to disruptions of this kind.

“It was very gratifying to take the tools and knowledge we’ve developed for ocean research and apply them to work in the lake, especially for a scientific project with so much Maori cultural significance.”

In 2009, WHOI signed a memorandum of understanding with GNS and New Zealand's National Institute for Water and Atmospheric Research (NIWA) to expand research and technology development collaborations across the scientific disciplines in the southwest Pacific and within New Zealand territorial waters. In addition to the work in Lake Rotomahana, the organizations are also collaborating on deep ocean research on the Kermadec Seamounts north of [New Zealand](#)'s North Island using the

Sentry AUV and TowCam deep-sea imaging system.

“We hope the success in Lake Rotomahana is the first of many scientific collaborations in this part of the world where there are many interesting research problems to investigate.”

The project was a collaboration involving GNS Science, Woods Hole Oceanographic Institution in Massachusetts, Lamont-Doherty Earth Observatory at Columbia University in New York, the National Oceanic and Atmospheric Administration in Seattle, and the University of Waikato.

After this week’s discovery, de Ronde paid tribute to colleagues from WHOI, saying “This result would not have been possible without the team from Woods Hole Oceanographic Institution and their American colleagues. Their contribution has been huge.”

Provided by Woods Hole Oceanographic Institution

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