

Scientists Discover Underwater Volcano

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University of Oregon biologists on the first-ever manned submersible expedition to a newly discovered undersea volcano near Samoa report that warm water emanating from the volcano's summit supports a remarkable eel population.

During a recent trip to study Vailulu'u Volcano, scientists found a new active volcano growing to within 1,800 feet of Vailulu'u's surface. The new volcano is emerging from Vailulu'u's summit crater, according to Craig Young, director of the university's Oregon Institute of Marine Biology (OIMB), and eventually will become the next island in the Samoa Chain.

"The biological community surrounding the eruption site is unique," said Young. "We were amazed to find that this area, which was dubbed 'Eel City' by expedition members, is populated only by thick microbial mats and hundreds, perhaps thousands, of eels. Although small eels are not uncommon in the cold waters of the deep sea, this is the only place in the world where any type of fish is known to dominate a hot-water vent and where invertebrates are virtually absent."

Young and Adele Pile of the University of Sidney led the biology group for the international scientific team exploring Vailulu'u, located off Samoa's eastern end. They are working with geologists and geomicrobiologists led by researchers at Scripps Institution of Oceanography at the University of California, San Diego.

The new volcano, named Nafanua after the ferocious Samoan goddess of

war, did not exist just four years ago, according to Hubert Staudigel, a geologist at Scripps's Cecil H. and Ida M. Green Institute of Geophysics and Planetary Physics, and Stan Hart, a geochemist at Woods Hole Oceanographic Institution. With a growth rate of at least eight inches per day, the volcanic cone has rapidly emerged since the area was last surveyed by sonar in May 2001. Nafanua now stands at 300 meters, or nearly 1,000 feet.

"To actually have a documented case of an underwater volcano that has emerged within an accurate period of time is very rare-this is one of those cases," Staudigel said.

The eels live among fragile cavernous rock pillars surrounding the hydrothermal vent area. As the submarine landed near this area, scores of eels, approximately one foot in length, emerged from the rock caves and crevices.

"This is the first deep-sea hydrothermal community ever discovered that is dominated by eels" said Young. "Organisms at hydrothermal vents normally obtain their energy from hydrogen sulfide. At this point we do not know how these eels make their living, because we have not yet caught any of them." During the next expedition, planned for this July, the biologists expect to trap the eels and study their position in the food chain.

The team explored the site using the National Oceanic and Atmospheric Administration (NOAA) submersible Pisces V, a seven-foot sphere that has the capability to carry a pilot and two scientists to dive to depths of more than 6,000 feet. The research vessel Ka'imikai O Kanaloa carried the Pisces V to the dive site, with Staudigel and Young serving as co-chief scientists.

The University of Oregon biology team, which included Young and

Sandra Brook of OIMB, was funded by two grants, one from NOAA's Ocean Exploration Office and one from NOAA's National Undersea Research Program, which underwrote the cost of the ship and submersible.

Source: University of Oregon

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