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## Undersea Volcanic Eruptions Spotted in Action

Michael Reilly, Discovery News

**June 5, 2009** -- A crack team of "rapid response" [volcano](#) experts scrambled to the South Pacific Ocean last month to find something rarely seen by human eyes: an underwater eruption exploding into the inky, cold depths and spewing lava onto the ocean floor.

The realm of underwater volcanic eruptions is a strange, uncharted one. As much as 80 percent of the planet's volcanic activity is thought to occur on the sea floor, but scientists are rarely able to [witness the events](#).

One of the few other undersea volcanoes recorded by researchers was when a series of eruptions near the island of Guam in 2004 vented droplets of liquid carbon dioxide and formed pools of liquid sulfur.

Last November, a team led by Joseph Resing of the National Oceanic and Atmospheric Administration's [Pacific Marine Environmental Laboratory](#) in Seattle detected a plume of volcanic material floating in the water column, above the Lau Basin, 140 miles southwest of Samoa. On May 6 they returned and sent the remotely operated vehicle (ROV) Jason-2 into the abyss, wondering if the fiery theater was still going.

It was. The team saw glowing, red-hot lava creeping out of a vent called Hades on the West Mata volcano, nearly 4,000 feet under water. Ocean water chills lava on contact, forming pillow-shaped rocks that are commonly found on land, but that no one had ever witnessed growing on the ocean floor.



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About 100 meters (328 feet) from Hades, another vent, Prometheus, flung chunks of lava into the ocean. Though the water's crushing pressure damped the explosion, bursts of gas pushed ash and rocks 20 meters (66 feet) above the vent. Jason-2 swam near the vent to take readings and was promptly buried in 100 pounds of debris.

"The degassing is pretty spectacular," William Chadwick of Oregon State University, who was not involved in the cruise, said. "There's been a long debate about how [explosions look at depth](#), and you have these huge gas bubbles, maybe one meter (3.28 feet) across, coming out of West Mata."

Just 40 kilometers (25 miles) away, the team found the remnants of yet another eruption, this one at a mid-ocean ridge called the Lau Basin spreading center. The lavas were fresh, indicating the basin erupted at roughly same time as West Mata, but had stopped since November.

The team also observed a species of shrimp living on the [volcano](#). It's the only living thing daring enough to eke out an existence in the hellish scene, but Robert Embley of the National Oceanic and Atmospheric Administration's Pacific Marine Environmental Laboratory said they found them near Guam in 2004, too.

"The real story might be in how unique they are," he said. "How many other places do these shrimp exist? Are they unique to erupting volcanoes? We don't know yet, but that'd be pretty interesting."

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