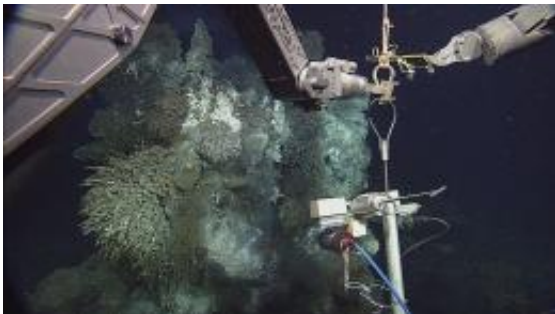


# Explore underwater volcanoes, seafloor hot springs and methane ice

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(PhysOrg.com) -- Scientists are in the early stages of building a fiber optic network on the seafloor for observing, in real time, deep-sea hydrothermal vents---places where super-heated water and minerals spew from Earth's crust offering clues about how life on the planet may have begun.

A team is currently aboard the [R/V Thompson](#), off the coast of Oregon, mapping an undersea volcanic chain called the Juan de Fuca Ridge, as preliminary work to install an [observatory](#) along the ridge by 2013. This observatory will be a key component of the NSF-funded Ocean Observatories Initiative, which aims to construct a permanent infrastructure at the [seafloor](#) for the long-term study of ocean phenomena.

This state-of-the-art equipment will evaluate the physical, chemical, biological and geological properties of this system of hydrothermal vents, whose hot temperatures (reaching upwards of 400 degrees Celsius) and [acidic waters](#) sustain a surprisingly rich community of microbial organisms. Once constructed, the observatory will transmit a continuous stream of data and images to scientists and the public over the Internet.

Lamont-Doherty marine geophysicist Timothy Crone, currently participating in the Enlighten '10 expedition, has developed a sophisticated camera to measure how fast fluids are flowing from these hydrothermal vents (called black smokers).

Eventually, Crone's camera will be installed as part of the cabled observatory. His preliminary research will help elucidate connections between earthquake activity, flow rates, and biological activity in these underwater vent systems.

This observatory will be the largest and most extensive of its kind, providing researchers with troves of data from harsh environments notoriously difficult for scientists to study.

**More information:** [Click Here](#) to Watch live video footage of work going on at deep-sea vents

Provided by Columbia University

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