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Probing Kilauea's roots: Earthquake study discovers deep fault zone beneath the volcano

A 30-km deep active fault zone has been discovered beneath Kilauea volcano, according to a study published tomorrow in the journal *Science*. A team led by Assistant Professor Cecily Wolfe of the School of Ocean and Earth Science and Technology (SOEST) at the University of Hawaii used earthquakes recorded by the USGS Hawaii Volcano Observatory (HVO), to determine the existence of the 30-km fault zone, and other smaller, distinct fault zones.

“Kilauea is one of the best studied volcanoes in the world,” says Cecily Wolfe, “yet scientists continue to discover new surprises about how the growing volcano affects the crust and upper mantle.” The close association between the frequently erupting volcano and this newly discovered fault zone implies that the strain induced by the magma contributes to the tectonic faulting.

“Our new results significantly change the view of the volcano's deep structure: it was previously interpreted that deep mantle earthquakes beneath Kilauea outline the magma conduit, and but our study shows instead that many of these earthquakes are from tectonic fault zones” says Cecily Wolfe. “These deep fault zones may reflect the combination of stresses from magma movement and from the loads of the volcanoes themselves, and they provide another clue for scientists seeking to understand Kilauea's mysteries.”

Other researchers involved in the study are Paul G. Okubo from the USGS Hawaiian Volcano Observatory, and Peter M. Shearer from Scripps Institute of Oceanography at the University of California at San Diego.

For more information read:

Science, April 18, 2003, <http://www.sciencemag.org/>

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