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Contact: Tara Hicks, SOEST Outreach Specialist
(808) 956-3151, hickst@hawaii.edu

A Gigantic Tsunami in the Hawaiian Islands 120,000 Years Ago

Honolulu, Hawaii – Arguments rage about onshore marine fossils found in the Hawaiian Islands: were they left by gigantic tsunamis, or are they shoreline deposits exposed by massive uplift of the islands? Controversy continues because the islands involved (Lanai, Molokai, Maui) could be either sinking or rising. Now an international group of scientists led by researchers at the University of Hawaii have sidestepped the problem by looking at Kohala volcano on the island of Hawaii, which is known to be sinking at roughly one inch per decade. Guided by a photograph from the 1930s, the scientists have found an on-shore deposit of smashed-up marine shells, angular chunks of lava rock, lumps of soil, and fragments of coral, all cemented together by what was once coralline sand. The deposit rests on a soil whose upper horizons have been stripped off, leaving behind truncated roots of long-vanished shrubs. All the identifiable species in the deposit are from a back-reef environment quite unlike the present shoreline.

The closest back-reef environment is a drowned coral terrace now at a depth of 1,400 feet. The scientists have dated the on-shore deposit and found that it is 120,000 years old, the same age as the drowned terrace and the same age as the Alike 2 Landslide, the last giant landslide down the western slope of nearby Mauna Loa volcano. They conclude that Alike 2 threw up a gigantic tsunami which surged across the terrace and penetrated almost 4 miles inland, smearing fossil-laden sand up to at least 1,600 feet elevation.

“These giant landslides seem to occur during periods of higher than normal sea level--like we have now,” says Gary McMurtry, the lead researcher. “They pose a hazard not just in Hawaii but at all big oceanic volcanoes worldwide.”

“Obviously we have to figure out why they occur” says Gerard Fryer, a colleague of McMurtry.
“That means more mapping and much more dating. But we are racing galloping development--the best exposure on Kohala has already been damaged by unauthorized bulldozing”

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Megatsunami deposits on Kohala volcano, Hawaii, from flank collapse of Mauna Loa. Gary M. McMurtry, Gerard J. Fryer, David R. Tappin, Ian P. Wilkinson, Mark Williams, Jan Fietzke, Dieter Garbe-Schoenberg and Philip Watts, pages 741–744.

Contact Info:

Gary McMurtry

Associate Professor, Department of Oceanography
(808) 956-6858, garym@soest.hawaii.edu

Gerard Fryer

Associate Professor, Hawaii Institute of Geophysics and Planetology
(808) 956-7875, gerard@hawaii.edu

Images are available for download at

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