

Mauna Kea aquifers shallower than expected

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Unexpectedly high water in the Humuula saddle region, between Mauna Kea and Mauna Loa, has prompted a University of Hawaii researcher to seek a new site for additional tests.

Donald Thomas, director of the university's Center for the Study of Active Volcanoes, in 2012 got permission to drill two bore holes to collect core samples. While drilling the first sample, Thomas said, scientists got some interesting preliminary results.

"We found water that was at a higher elevation than expected," Thomas said.

They found the first thin band of water about 500 feet below the surface. A thicker band was present at about 700 feet, and a regional water table was at 1,800 feet, Thomas said.

"That's considerable shallower than we anticipated," he added.

Because of those preliminary findings, Thomas decided to seek a new site, about 7 miles from the original one, to check to see how widespread that water table is.

The surprising findings aren't the first for scientists. In 2012, Thomas noted that Hawaii's hydrology often revealed resources in places scientists would not have expected.

A 1993 drilling project found an artesian groundwater aquifer more than 1,000 feet below sea level. That aquifer's presence contradicted scientific literature discounting the likelihood of Hawaii Island having any artesian water, a

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previous environmental assessment said. Another research effort, done about a mile inland from the initial borehole location, found an artesian aquifer at about the same depth.

Thomas, in the draft environmental assessment published last week, noted several reasons to conduct the research.

“Recent decades have seen a substantial increase in the use and ‘occupancy’ of the higher elevation areas of both Mauna Loa and Mauna Kea,” the document said, adding activities include telescopes, hunting and military training, as well as a desire by the Department of Hawaiian Home Lands to increase leasing activity in the saddle lands. “Nearly all of these activities depend on the availability of potable water that, in most cases, must be trucked to the Saddle from Waimea or Hilo — an inefficient and expensive process that consumes a substantial quantity of our scarce liquid fuels.”

The first bore hole and core sample revealed more about the saddle’s geology than just the depth of water, Thomas said.

“We know Mauna Kea has been glaciated at least twice,” he said. “A lot of the shallower rocks were material that had washed off of Mauna Kea.”

That’s different than material found in similar drilling tests nearer to Hilo, where only lava flows were found, Thomas said.

Drilling on the new site, which is on U.S. Army garrison property, could begin within a few months. Thomas said he expects to receive a finding of no significant impact for the drilling project.