

Cache Valley

USU researchers peer into fault's past

They hope knowing seismic history can help predict next quake

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PARADISE - Three trenches scooped out of a northern Utah hillside are bringing geologists a bit closer to knowing when the last big earthquake hit southern Cache Valley and, importantly, when another one could be due.

Stephanie Davi, a Utah State University graduate student in geology, is using a grant from the National Earthquake Hazards Reduction Program to advance the knowledge about the East Cache Fault that runs north-south for about 50 miles on Cache Valley's east side.

So far, she can't say whether an earthquake occurred here in the past 10,000 years. But if one did, it would be considered recent enough to influence how development takes place in this tucked-away part of the valley some 12 miles south of Logan, said her USU faculty adviser, Jim Evans.

"This could have an impact on determining the risk."

The area is feeling development pressure. There is a proposal to turn Powder Mountain into a year-round resort with paved access from Cache County. And the proposed Ruby Pipeline would cross the valley's south end, carrying natural gas from Wyoming to Oregon.

Though it's too soon for conclusions, Davi believes her easternmost trench - it's on what has been considered the fault's main strand - may be far older than 10,000 years. Sediment testing will be used to determine when the area was last disturbed, but the fault could be 4 million or 5 million years old.

If so, there may be an unmapped fault nearby that is the true main strand, she said.

"Perhaps the energy has been shifted to a fault farther west," she said. "There may be a fault there that is not even on the map."

If funding can be arranged and permission from the property owner secured, Evans and Davi would like to extend her trench 30 or 40 feet to the west.

With the help of a backhoe crew, Davi dug two trenches on other suspected strands of the fault last fall.

She could not find it in her middle trench, either because the sediment was too deep or she missed it by a few feet. That sediment is being tested to determine when it was last disturbed, Davi said.

But the westernmost trench, dug at the shoreline of the ancient Lake Bonneville where geologists previously suspected a fault, found none at all.

Chris DuRoss, a Utah Geological Survey geologist who toured the trench with Davi and other geologists Monday, said the East Cache Fault has not been nearly as active as the Wasatch Fault, which stretches 220 miles along the Wasatch Front.

But little is known about East Cache Fault - except in the central section near Logan, where studies indicate an earthquake occurred in the past 4,000 to 5,000 years. That's a mere blink in geologic time.

Davi's are the first trenches on the southern part of the fault.

"The idea is to get in here to piece together the history," DuRoss said.

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