

Study offers evidence of upcoming earthquake

PORTLAND (AP) — A recently conducted highway survey and changes in tidal patterns indicate that the Northwest is due for a massive earthquake.

The independent measurements from the different sources makes the evidence especially strong that the region is facing a major jolt, according to a team of Oregon researchers.

"There aren't a lot of other choices than a big earthquake," said Clifton E. Mitchell, the co-author of a University of Oregon study to be published in the *Journal of Geophysical Research*.

Several leading geologists praised the report, the first major study of its kind, saying it helps confirm predictions.

"It took these guys about four to five years to knock all the bugs out of it. Most of us feel pretty confident it's reliable work," said Robert Yeats, an Oregon State University geologist who has done extensive studies on the region's earthquake potential.

Yeats said there is little doubt among scientists that the Northwest is due for a giant quake.

The main question, he and other geologists say, is whether the area known as the Cascadia subduction zone will buckle all at once or in smaller pieces.

"If the whole subduction zone goes at the same time from, say Northern California to Vancouver Island, you may produce something greater than magnitude 9," said Yeats.

A quake of that size has yet to be recorded on the open-ended Richter scale. Readings of 8.9, the highest on record, were computed from seismographic records of

Pacific coastline rising at fast rate

PORTLAND (AP) — The ground is rising in the Pacific Northwest, another sign that a huge earthquake is building up beneath it.

In a study about to be published, a team of Oregon and Washington researchers have measured what geologists call the "uplift" of the coastline and found it to be rising at an unusually fast rate.

"It certainly points to the possibility of a major quake," said Clifton E. Mitchell, a University of Oregon graduate student who helped write the report for the *Journal of Geophysical Research*.

The study was done by Mitchell and Oregon geophysicists Ray Weldon and Paul Vincent, along with Mark Richards of the University of Washington.

The researchers drew on highway and railroad surveys and combined that data with ocean flow measurements to determine that the Northwest coastline is rising about 10 times as fast as expected.

The effect is something like a giant pizza crust being bent by the edge of a huge plate of dense rock sliding against it and wrinkling it.

Seismologists call the process "subduction."

It occurs as the section of the Earth's crust under the Pacific Ocean known as the Juan de Fuca plate moves eastward and downward beneath the North American plate under Washington, Oregon and Northern California.

The problem, Mitchell says, is that the upper crust that forms the three states is more like an overdone pizza crust that will eventually crack when it is wrinkled enough by the plate of rock pushing against it.

When that happens, a massive earthquake is likely.

"Of course, there is no way to accurately predict when it will happen," Mitchell said.

The evidence is especially strong because it was drawn from two independent sources, he said.

It backs up other recently discovered evidence of massive Northwest quakes in the past, including 300-year-old trees that may have been killed by a tidal wave caused by a quake, and undersea deposits of sediment, called turbidites, left by quakes.

quakes off the coasts of Ecuador in 1909 and Japan in 1933.

The subduction zone is an area lying off the Northwestern coastline where two sections of the Earth's crust are pushing against each other.

Mitchell compared the West Coast to a giant pizza crust that is being squashed against hard rock called the Juan de Fuca plate as it slowly slides beneath the North American continent.

"We're looking at two pieces, and one is sliding under the other. And they're sticking where they meet," Mitchell said.

His study noted that sections of the Oregon, Washington and Northern California coastlines are rising at higher than normal rates.

From Cape Mendocino in California to Newport on the Oregon Coast, the annual rate is nearly 10 times higher than expected in many areas, Mitchell said.

"They reach fairly rapid vertical velocities in geological terms," he said. "We're talking about millimeters per year rather than tenths of millimeters."

The rate falls off between Newport and Tillamook, but increases again at the mouth of the

Columbia River and along the Olympic Peninsula in Washington.

The variation suggests to Mitchell and others that a major quake running the entire length of the northern West Coast could fracture into segments, lessening its intensity.

Still, he says there is no way of accurately predicting the size of the quake, or when it might occur.

One of the nation's leading experts on subduction zone quakes, Larry Rich of the University of Michigan, said the Cas-

cadia subduction zone resembles an area off the coast of Japan.

The Cascadia zone also has features resembling a subduction zone in Alaska that produced a major earthquake in 1964, and another zone in Chile that produced the century's largest quake in 1960. There have been no recorded earthquakes of great magnitude since the Oregon Territory was opened to westward moving settlers.

"That's immediately bad news if we are to have one because it's a basic rule of thumb that the longer the recurrence time between earthquakes the larger the earthquake will tend to be," Ruff said.

Brian Atwater, a U.S. Geological Survey researcher at the University of Washington in Seattle and one of the chief experts on Northwest earthquakes, said the history of quakes in Japan illustrates their unpredictability.

"I would be very hesitant to try to reassure anybody there is a cap on what the subduction zone can do," he said.

The University of Oregon study supports other recently discovered evidence of massive Northwest quakes in the past, including 300-year-old trees that may have been killed by a tidal wave caused by a quake, and undersea deposits of sediment, called turbidites, left by quakes.

The other authors of the study are Oregon geophysicist Ray Weldon; Mark Richards, now at the University of California at Berkeley; and Paul Vincent, who recently left the University of Oregon to work as a physicist in the Portland area.

Judge dismisses lawsuit filed by student who lost eye

SEATTLE (AP) — A King County judge has dismissed a lawsuit filed against a University of Washington fraternity by a student who lost an eye in a bottle-throwing melee involving some fraternity members.

Phi Delta Theta and its national organization cannot be held responsible for actions by members — especially when the action violates fraternity rules, Superior Court Judge Sally Pasette ruled Friday.

The judge noted the bottle-thrower still

has not been identified, which raises the possibility he was not a fraternity member and makes the fraternity's liability even more difficult to pin down.

Douglas McBroom, representing plaintiff Jennifer Wen, said he will appeal the ruling, arguing that the bottle was thrown as part of a group action by fraternity members who banded together in the fight.

"It was essentially a melee in the street during the middle of the night that just happened," said attorney Cyrus Vance Jr., who represented the fraternity's national

organization.

Wen, now a junior majoring in business, was having a party at her house across the street from the fraternity when a fight broke out between fraternity members and some of her guests.

During the fight, Wen was struck in the face with a thrown bottle and suffered injuries that required removal of one eye.

She sued a few months later. Her attorneys requested the help of the public in finding the bottle thrower, but his iden-

tity was never determined. Wen said she believed the bottle was thrown from behind a van parked in front of the fraternity.

Vance argued that neither his client nor the fraternity had control over members' actions.

The incident focused statewide attention on problems with alcohol and violence on the UW's Greek Row.

Wen's family said Tuesday it is offering a \$5,000 reward for the identification of the person who threw the bottle.

The University of Oregon Creative Writing Program and the Walter Kidd Tutorial Program announce

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- III. Entrants should also note if they would like to be considered for enrollment in next year's Kidd Tutorials in fiction and poetry, CRWR 410. We are expanding the program for next year and are seeking applicants from all classes and majors. An information flyer on the Tutorials is available in the Creative Writing Program Office.
- IV. Three winners will be selected in each genre (fiction and poetry) for overall literary excellence. The poet Charles Wright will announce the winners at his public reading in Gerlinger Lounge in May. The decision of the judges is final; winners may not be chosen if by the judges' discretion no entries merit award.
- V. Entries must be received by Friday, April 15, 1994. Writers should retain a copy of all submissions. Manuscripts will not be returned.

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