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## Chilean aftershocks

Montana Tech seismic monitors record massive quake  
By Nick Gevock of The Montana Standard - 03/02/2010

The earthquake in Chile ranks among the most powerful ever recorded in human history, a Montana seismologist said Monday, two days after the devastating quake.

The temblor that measured magnitude 8.8 killed hundreds of people and showed up prominently on seismic monitors in Montana, said



**Chilean aftershocks** Mike Stickney, director of earthquake studies for Montana Bureau of Mines and Geology at Montana Tech, on Monday studies the seismic monitor readout that shows the massive earthquake in Chile. -- Nick Gevock/The Montana Standard

Mike Stickney, director of earthquake studies for the Montana Bureau of Mines and Geology in Butte.

While hundreds of earthquakes around the world show up on the Montana measuring devices, this one stood out, he said.

"We've really only had a handful of events this big since the modern instruments were developed," he said in his office on the Montana Tech campus on Monday. "This is a scale of earthquake that only comes along once in a decade — it was huge." Stickney noted that the decade has been exceptional, with the 9.2 magnitude quake in 2004 in Indonesia that produced a tsunami that killed more than 200,000 people.

He showed seismic charts from the monitoring equipment he studies every day while checking to see which quakes have shaken Montana. While the monitors pick up hundreds of minute earthquakes daily, Stickney said the quake in Chile was anything but small.

It showed.

The seismic graphs were riddled with steep lines, illustrating the intensity of the quake. And that occurred over a broad area that is inhabited by more than two million people, Stickney said.

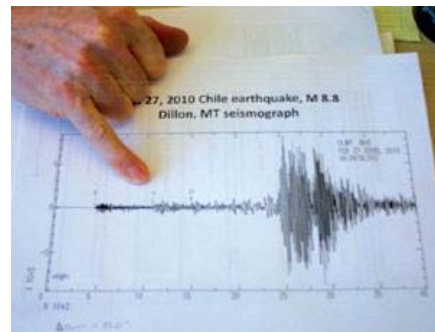
"It's a huge region of the fault that ruptured," he said. "It would be the equivalent of from here to Salt Lake City and it all broke or ruptured within a minute or two." Stickney said the type of fault along the west coast of South America, a subduction fault, is prone to producing more intense earthquakes. That's because one plate of the earth is being forced under another fault, creating more fault surface to slip when the earth's plates suddenly move.

In comparison, a strike slip fault like that along the coast in California has less surface area and generally cannot produce as powerful of a quake. Stickney said such faults can produce quakes of up to 8.0 magnitude.

Chile has recorded the largest earthquake recorded in modern history, a 9.5 magnitude temblor in 1960, Stickney said. Saturday's quake, while not that powerful, dwarfed the 7.0 magnitude earthquake that devastated Haiti last month.

"This earthquake in terms of energy released was 500 times bigger than the Haiti quake," Stickney said.

South America's long history of strong earthquakes has helped it be better prepared



A closeup of the seismic monitor readout at Montana Tech shows the intensity of the earthquake in Chile. The graphs were riddled with steep lines. Nick Gevock/The Montana Standard

than a country like Haiti, which lost an estimated 200,000 people in the disaster. Haiti had buildings crumble throughout the country and its government essentially shut down after the quake.

But in Chile, the loss of life given the intensity of the quake was far lower. Stickney said the humanitarian catastrophe was lessened because Chile has dealt with the quakes before and has building codes that account for earthquakes.

"Anything that would be knocked down by an earthquake probably has been if it was built before 1960," he said. "They've had to adapt and if you build something that doesn't survive an earthquake, it doesn't survive for very long." Stickney added that criticism of officials for issuing a tsunami warning is unfounded. He said the intensity of the quake and its location right along the coast means it had a strong possibility to create a devastating wave.

"They would have been remiss had they not issued a warning for this type of earthquake," he said.

— Reporter Nick Gevock may be reached at [nick.gevock@mtstandard.com](mailto:nick.gevock@mtstandard.com)

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