

# Menominee County shakeup was an earthquake, says researcher

October 12 2010, By Dennis Walikainen

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Close up shows crack from Menominee County earthquake on October 4.

That shaking and loud noise experienced recently in Menominee County of Upper Michigan was indeed an earthquake, albeit a small one, according to a Michigan Tech researcher.

“The large crack and ridge were created most probably by a magnitude 1 or 2 earthquake,” said Wayne Pennington, chair of geological and mining engineering and sciences, of the events that took place Monday,

October 4.

The ridge and crack are 361 feet long, and the ridge is 4 to 5 feet high and 20 to 30 feet wide at its largest point, Pennington said after visiting the site. The crack is 2 feet wide and 4 to 5 feet deep at its largest point. Trees are tipped away from the crack at about 14 degrees on either side, showing that the surface is now tipping, having formed the ridge.

That ridge, according to Pennington, is the most informative feature, not the crack. Residents report that this ridge was not there earlier, and it appeared at the same time as the crack.

“The most-likely explanation is that the underlying limestone has faulted in a manner that has pushed rock on one side of the fault up and over the rock on the other side—a ‘reverse’ or ‘thrust’ fault,” said Pennington.

“The limestone is hard and brittle, and this movement can be described as the small [earthquake](#) that was felt.

Overlying the limestone is about 20 feet of soft clay, he said. This clay will deform in a “mushy” manner, rather than breaking along a fault. It ends up being pushed together, and this is what formed the ridge.

“Imagine a carpet or towel on top of two boards that are being pushed together,” Pennington said. “The carpet will wrinkle, and at the top of the wrinkle, the carpet pile will be spread apart, like the trees. The crack is similar to the one that forms at the top of a loaf of bread as the dough rises.”

Pennington said that small earthquakes can occur almost anywhere, as stress accumulates locally and is occasionally released suddenly.

“The area where the faulting occurred is not very likely to have another event soon, but the neighboring areas—at the ends of the ridge and

crack—may experience similar events in the future,” he said.

“When? Anytime in the next couple of centuries—next week or 200 years from now; we have no way of telling.”

Provided by Michigan Technological University

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