

Dallas Morning News

3.1-magnitude earthquake in northwest Dallas surprises residents, scientists

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August 25, 2017

If North Texans forgot what it was like to be rattled awake by an earthquake, they received a reminder Friday morning when a 3.1-magnitude tremor struck northwest Dallas.

"The house shook pretty well," said Jim Wells, a retired electrical engineer from Irving, who felt a small tremor followed by a much stronger one. "We had a nice hiatus of a year or two years, and now we seem to be back to square one."

Many took to Twitter and NextDoor.com to report the shaking. More than 500 reported it to the U.S. Geological Survey's Did You Feel It? database, which tracks earthquake intensities.

The epicenter lay 3 miles below northwest Dallas, in the vicinity of Walnut Hill Lane between Luna Road and Interstate 35E, said seismologist Heather DeShon of Southern Methodist University. She pinpointed its location using data from SMU's seismic stations, as well as new ones operated by TexNet, the state-sponsored seismic network operated by the University of Texas at Austin.



Dr. Heather DeShon, who works in the department of Earth Sciences at SMU, presented to seismologists from SMU, UT-Austin and the U.S. Geological Survey before the Railroad Commission about their study of quakes in Azle and Reno at a panel in Austin on May 5, 2015. (Thao Nguyen/Special Contributor)

The 6:41 a.m. event was the strongest since May 2015, when Irving and Dallas experienced dozens of earthquakes that persisted for months. Researchers tentatively tied the earlier quakes, which began in April 2014, to the disposal of wastewater from oil and gas operations in North Texas. Scientists have known for decades that wastewater disposal can increase underground pressure, which in turn can cause faults to slip and produce earthquakes.

The U.S. Geological Survey noted in a report earlier this year that quakes around Dallas came to a virtual halt last year. The agency's scientists said they didn't record any earthquakes strong enough to be felt in the area in 2016.

"I think we had all hoped and assumed that the rate of these larger earthquakes was decreasing — and it has been decreasing — but this one that occurred today is a bit surprising," said Peter

Hennings, principal investigator of the Center for Integrated Seismicity Research at UT-Austin's Bureau of Economic Geology (BEG).

He and his colleagues are studying the Irving and Dallas earthquakes in hopes of better understanding their cause. Last year, scientists at SMU found that wastewater from oil and gas production and hydraulic fracturing "plausibly" set off the tremors, even though the nearest wastewater well is at least 8 miles away.

In a scientific paper published in July 2016, they suggested that fluid pressure could have migrated to Dallas over tens of miles from high-volume disposal wells in Johnson and Tarrant counties.

Hennings called that an "important hypothesis" and one that his team is investigating. He said the BEG is conducting several studies on earthquakes in the Dallas-Fort Worth area that will provide some answers by the end of the year.

For SMU's DeShon, Friday's quake was a reminder that it takes earthquake sequences a while to die off and that North Texans need to be prepared for shaking. She said there could be a few smaller earthquakes in Irving in the coming days — aftershocks.

There could also be a slightly larger one, as there were in the previous sequence. DeShon recommended checking the websites of the USGS and the American Red Cross, which offer earthquake preparation tips