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The Fracking Process Is Now The Leading Cause Of Earthquakes In Texas

BY ALEJANDRO DAVILA FRAGOSO MAY 19, 2016 11:45 AM



CREDIT: AP PHOTO/TONY GUTIERREZ

A sign placed along the sidewalk reads, Common Sense Against Earthquakes, as a small group with Frack Free Denton protest in Denton, Texas.

In the last 40 years, oil and gas activity has caused some 60 percent of Texas earthquakes higher than magnitude 3 in the Richter scale, a new study led by researchers from the University of Texas at Austin found.

"Oil field practices have been causing earthquakes in Texas probably for about 90 years," Cliff Frohlich, lead author and associate director of the Institute for Geophysics at the University of Texas at Austin, told ThinkProgress. But "it looks like that as oil field practices changed in the last century, the causes of man-made earthquakes changed."

The study, published Tuesday in *Seismological Research Letters*, reports that fracking waste injection wells are now the leading cause of earthquakes in Texas. Hydraulic fracturing, or fracking, involves thrusting chemicals and water against shale rock to break it up and release oil or gas. The process produces large amounts of waste fluid, or brine, that is either recycled or disposed of in injection wells.

Scientists believe brine from injection wells may be able to flow into nearby faults and soften the friction holding the faults in place, making it easier for a fault to slip, release the stress that was already there, and cause an earthquake. "The stress might have been released by a natural earthquake at some point in the future," Frohlich said, "but [that] might have been in 10 years, or a thousand years, or a million years."

Of the 162 Texas earthquakes with magnitudes of 3 or greater between 1975 and 2015, the study categorized 42, or 26 percent, as "almost certainly" human-caused, and 53, or 33 percent, as "probably" human-caused. Only 13 percent of earthquakes were natural. The study was based on a review of journals and the historical catalog of Texas earthquakes from 1847 to 2015.

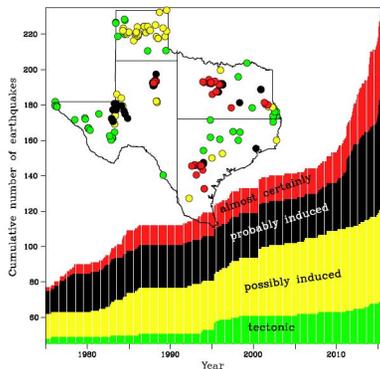
The study also points out that past extraction activities caused earthquakes, too. For instance, pumping too much oil out of the ground too quickly caused earthquakes as early as 1925. But "the recent boom is related to unconventional oil and gas development — fracking," said Frohlich, who noted there are tens of thousands of injection wells in the state and most don't cause earthquakes.

Studies linking injection wells with earthquakes have been mounting for quite some time in Texas and elsewhere. In February, researchers [linked](#) a set of 2005 earthquakes near Bakersfield, California to fracking wastewater disposal. And in 2013, a study linked all the earthquakes in a town in Ohio that had no known past quakes to injection wells, according to published [reports](#). Oklahoma's injection wells have also been under the spotlight after the state's strongest quake to date — which injured two people, destroyed 14 homes, and bent a local stretch of highway in 2011 — was [attributed](#) to injection wells.

For Texas, the most noteworthy cases are the series of earthquakes at the Dallas-Fort Worth International Airport, and another series of quakes in the cities of Timpson and Azle. All three cases occurred in regions where prior seismic activity was unknown, according to the study, and all three had accurately determined epicenters some 1.2 miles from active injection wells.

The Texas Railroad Commission, which regulates oil and gas extraction in the state, has never publicly acknowledged the relationship between injection wells and earthquakes. However, last year the state gave \$4.5 million to the University of Texas at Austin's Bureau of Economic Geology to study seismic activity in Texas, the Dallas Morning News [reported](#).

TAGS Earthquake, Fracking, Fracking Waste, Hydraulic Fracturing, Oil And Gas, Texas,



CREDIT: A HISTORICAL REVIEW OF INDUCED EARTHQUAKES IN TEXAS STUDY





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