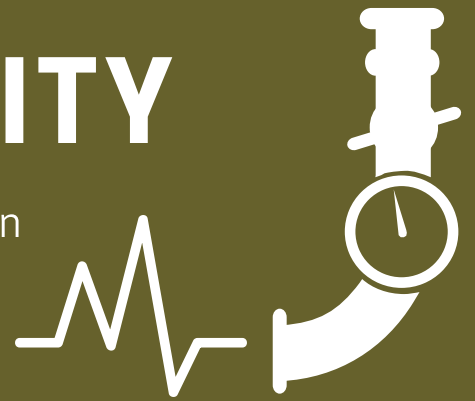


INDUCED SEISMICITY

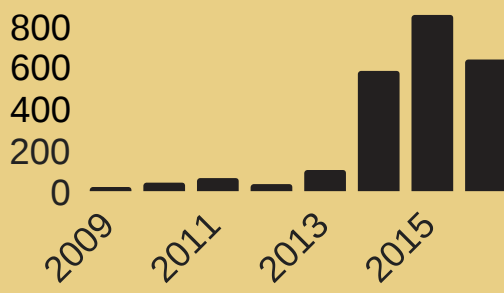
is the term given to earthquakes caused by human activity. It is often related to the injection of wastewater into underground layers of rock



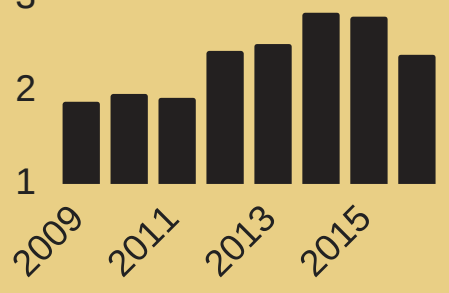
Oklahoma, US



Number of M3+ earthquakes



Annual injection (billion barrels)



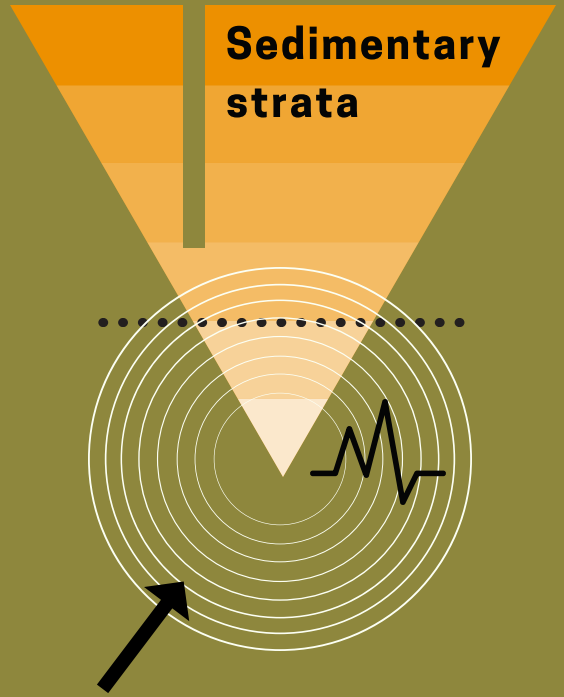
Seismicity increase is due to **fluid injection** into deep rock formations.

5.8

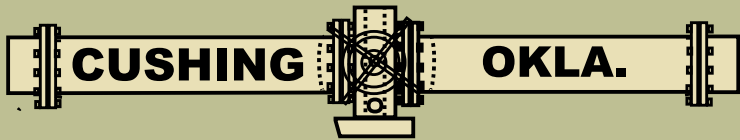
The largest magnitude earthquake in Oklahoma caused injury and damage to buildings



September 2016, Pawnee



Most earthquakes occur in crystalline basement rocks



National Security Threat

Earthquakes could affect major oil storage facilities.



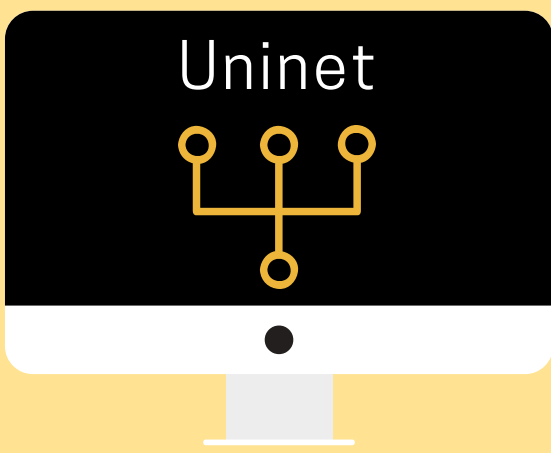
>10,000

The number of active disposal and oil recovery wells in Oklahoma



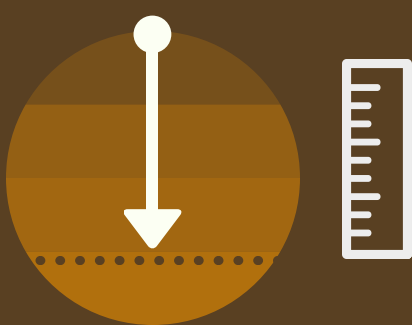
2.3 billion

The average number of barrels of water injected underground in Oklahoma per year, since 2011 wastewater disposal and oil recovery

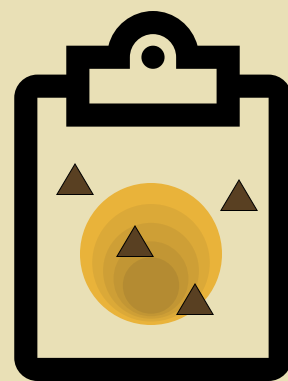


A new computer model investigates the **joint effect** of injection volume, depth and location on the energy released by earthquakes

www.lighttwist.net/wp/uninet



The models show that injecting closer to the basement leads to greater seismic moment release



The novel modeling approach will aid operators and regulators in wastewater disposal regions