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UT researchers develop model connecting pore pressure and earthquakes: New model could offer guide to future injection at far West Texas that avoids seismicity

By Mella McEwen

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<https://www.mrt.com/business/oil/article/UT-researchers-develop-model-connecting-pore-17215144.php>

The University of Texas at Austin's Bureau of Economic Geology is releasing a new model exploring connections between pressure and earthquakes just as 4.4 and 4.5 magnitude earthquakes were reported in the region Wednesday.

The model took a comprehensive look at subsurface pressure buildup associated with wastewater injection in the Delaware Mountain Group, the most commonly used geologic formation for disposing of produced water.

"This work is the culmination of a number of studies done at the BEG to understand the subsurface and put together a comprehensive model for predicting earthquakes," said Peter Hennings, principal investigator at the BEG's Center for Integrated Seismicity Research and one of the authors of the paper detailing the model.

Speaking with the Reporter-Telegram by telephone, he said the model provides a large-scale look at how pore pressures and injection intervals have changed over the past 36 years.

Indications are earthquake occurrences in the Delaware Basin have three causes, Hennings said.

The least number are induced by hydraulic fracturing in the southern Delaware Basin. The second most prevalent is caused by deep injection in the northern Delaware Basin, where the two earthquakes this week occurred. The most prevalent cause is pore pressure changes in the Delaware Mountain Group, where to date more than 11 billion barrels of wastewater have been injected into the formation...