

**Science - Hydrology; New Hydrology Study Results Reported from University of Texas Austin (Recent water disposal and pore pressure evolution in the Delaware Mountain Group, Delaware Basin, Southeast New Mexico and West Texas, USA)**

487 words

8 April 2022

Science Letter

SCLT

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English

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2022 APR 15 (NewsRx) -- By a News Reporter-Staff News Editor at Science Letter -- A new study on hydrology is now available. According to news reporting originating from the University of Texas Austin by NewsRx correspondents, research stated, "Study region: A flat, large, semi-arid plateau in the southwest United States (west Texas and southeast New Mexico) underlain by a deep Paleozoic sedimentary basin, the tectonic Delaware Basin, host of intensive hydrocarbon production."

Our news correspondents obtained a quote from the research from University of Texas Austin: "Study focus: Impacts of injection of large volumes of water produced from oil and gas wells and injected through 1000 + disposal wells, in particular, pressure buildup, induced seismicity and their potential consequences, in a formation underlying fresh-water aquifers but separated from them by thick layers of evaporites. The target formation is the Delaware Mountain Group (DMG) of Permian age and consisting of up to 4500 ft (~1400 m) of mostly fine-grained, deepwater siliciclastic slope and basin deposits (sandstones, siltstones, and minor limestones). A flow model was developed and calibrated from well log data, stratigraphic data, petrophysical analyses, and core data (123 x 170 mi<sup>2</sup> - 1 x 1 mi<sup>2</sup> grid size) complemented with dynamic injectivity information based on surface injection pressures and rates of the disposal wells."

According to the news reporters, the research concluded: "New hydrological insights for the region: Injection of 5.8 billion barrels (0.92 billion m<sup>3</sup>) of waste water has generated regional pressure increases in the DMG mostly in the 100-400 psi (0.7-2.8 MPa) range: (1) creating strong artesian conditions that, combined with the presence of numerous historical boreholes, could connect DMG and fresh-water aquifers; and (2) generating conditions leading to actually observed moderate induced seismicity."

For more information on this research see: Recent water disposal and pore pressure evolution in the Delaware Mountain Group, Delaware Basin, Southeast New Mexico and West Texas, USA. Journal of Hydrology: Regional Studies, 2022,40():101041. (Journal of Hydrology: Regional Studies - <http://www.journals.elsevier.com/journal-of-hydrology-regional-studies/>). The publisher for Journal of Hydrology: Regional Studies is Elsevier.

A free version of this journal article is available at <https://doi.org/10.1016/j.ejrh.2022.101041>.

Our news editors report that more information may be obtained by contacting Jun Ge, **Bureau of Economic Geology**, Jackson School of Geosciences, University of Texas Austin, Austin, TX, USA. Additional authors for this research include J.-P. Nicot, P.H. Hennings, K.M. Smye, S.A. Hosseini, R.S. Gao, C.L. Breton.

Keywords for this news article include: University of Texas Austin, Science, Hydrology.

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Document SCLT000020220408ei48000rz