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**Science - Earth Science; New Earth Science Study Findings Recently Were Reported by Researchers at University of Texas Austin (Time-dependent Seismic Hazard and Risk Due To Wastewater Injection In Oklahoma)**

490 words

10 September 2021

Science Letter

SCLT

742

English

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2021 SEP 17 (NewsRx) -- By a News Reporter-Staff News Editor at Science Letter -- Research findings on Science - Earth Science are discussed in a new report. According to news reporting originating in Austin, Texas, by NewsRx journalists, research stated, "In the past decade, Oklahoma has experienced unprecedented seismicity rates, following an increase in the volumes of wastewater that are being disposed underground. In this article, we perform a probabilistic assessment of the time-dependent seismic hazard in Oklahoma and incorporate these results into an integrated seismic risk model to assess the evolution of the statewide economic losses, including a conservative forecast through 2030."

Funders for this research include State of Texas through the TexNet Seismic Monitoring Project, Industrial Associates of the Center for Integrated Seismic Research (CISR) at the **Bureau of Economic Geology** of the University of Texas, University School of Advanced Studies of Pavia (IUSS), Italy.

The news reporters obtained a quote from the research from the University of Texas Austin, "Our risk model employs an injection-driven earthquake rate model, a region-specific ground motion model, a recent Vs30 map, HAZUS exposure data and updated vulnerability curves for both structural and nonstructural elements, and contents. The calculations are performed using a stochastic Monte Carlo-based approach implemented in the OpenQuake engine. The resulting seismic hazard maps illustrate the incompatibility of the regional seismic provisions with the current seismicity. In 2015, in particular, the induced seismic hazard in several places in Oklahoma was higher than along the San Andreas fault. During the peak of seismicity in 2015, the seismic risk was 275 times higher than the background level, with the vast majority of losses originating from damages to nonstructural elements and contents. Our direct economic loss estimates are in reasonable agreement with the paid insurance claims, but show significant sensitivity to the ground motion model selection."

According to the news reporters, the research concluded: "The proposed risk model, with possible regular updates on the seismicity rate forecast, can help stakeholders define acceptable production levels."

This research has been peer-reviewed.

For more information on this research see: Time-dependent Seismic Hazard and Risk Due To Wastewater Injection In Oklahoma. Earthquake Spectra, 2021;37(3):2084-2106. Earthquake Spectra can be contacted at: Sage Publications Inc, 2455 Teller Rd, Thousand Oaks, CA 91320, USA.

Our news correspondents report that additional information may be obtained by contacting Iason Grigoratos, University of Texas Austin, 301 E Dean Keeton St, Austin, TX 78712, United States. Additional authors for this research include Ellen Rathje, Paolo Bazzurro and Alexandros Savvaidis.

Keywords for this news article include: Austin, Texas, United States, North and Central America, Earth Science, Science, University of Texas Austin.

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