

News

Seismologist wanted: State earthquake monitor has two staff openings

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OKLAHOMA CITY - Jeremy Boak is looking for a rock scientist who's willing to put in long hours to help solve the state's ongoing earthquake situation.

The Oklahoma Geological Survey will soon have no seismologist on staff; its director, Boak, is grooming new workers to keep the temblor data flowing to the Oklahoma Corporation Commission.

That means the big-picture research on earthquake activity will be on hold for a while, he said.

"My job is to stay in touch with everyone and keep working with the industry to provide (fault) data," Boak said.

OCC spokesman Matt Skinner said staff members at his agency are concerned the geological survey won't have a seismologist for a period of time. The agency needs earthquake location data from the geological survey to help guide its directions and its advice to disposal well operators.

"We deeply appreciate how hard they are working to keep information flowing, that is vitally important," Skinner said.

The geological survey and oil and gas regulators depend on one another for data when it comes to managing the state's response to earthquakes. The cooperation between the two shapes policy that oil and gas regulators establish and enforce. Cooperation also guides scientific research about the rock layers and earthquake behavior.

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OGS equipment records approximately where earthquakes happen, and staff members refine the information to give OCC more precise information on where a temblor originated. Regulators can better define how to mitigate earthquake risk from disposal wells if they know precisely where earthquakes happen.

OCC officials gather data on how much wastewater was disposed in wells and provide those volumes to OGS researchers who study the rock formations. Understanding how much wastewater is injected and how much pressure that puts on rocks allows scientists to define what area has a higher risk for an earthquake, Boak said.

Determining where temblors happen and if nearby faults could trigger more earthquakes is the best way to mitigate risk from man-made earthquakes, according to a report released by the Interstate Oil and Gas Compact Commission in September.

The state has experienced a dramatic uptick in earthquakes since 2012, when there were more than 300 days without temblors recorded. So far there have been only 10 days in 2015 in which quakes weren't recorded, Boak said.

Scientists agree wastewater disposal deep underground can trigger earthquakes if fluid travels into rock faults. Oklahoma regulators and state scientists have been working since 2013 to mitigate earthquake risk and understand how and why the temblors occur. Gov. Mary Fallin appointed Secretary Michael Teague in 2014 to lead a seismic coordinating council to ensure regulators, scientists and the oil and gas industry are working together to solve the problem.

Boak's task is to fill in the gaps at the geologic research agency until he can find replacements for Austin Holland, the chief seismologist who left the agency in August, and for Amberlee Darold, the other seismologist who will leave Nov 6. Once Boak hires a new earthquake researcher, he can determine what the second scientist will need to bring to the table, he said.

Texas has also had earthquakes near disposal wells and responded to the phenomenon differently. The Texas Railroad Commission, which regulates the oil and gas industry in that state, hired a seismologist for its staff about 18 months ago, and is looking to hire another geoscientist, said Jared Craighead, chief of staff and legal counsel for Texas Railroad Commissioner Ryan Sitton.

In its 2015 session, the Texas Legislature, appropriated about \$4.5 million for its **Bureau of Economic Geology** to buy seismic monitoring equipment and research the rock layers, Craighead said.

Boak he's looking forward to having more staff in his office and pursuing research and funding from the National Science Foundation and other federal agencies.

"What will be really exiting with a full team in place is to figure out what are the next questions we need to ask," he said.

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