Bulletin of seismic activity in Oklahoma for the month of January 2023

This bulletin details earthquake activity as analyzed by the Oklahoma Geological Survey for January 2023. During January, a total of 171 earthquakes including 15 quarry blasts (Figure 1), were detected and reviewed. That represents a decrease of 24 earthquakes as compared with the previous month, December 2022, during which 195 earthquakes were detected and reviewed.
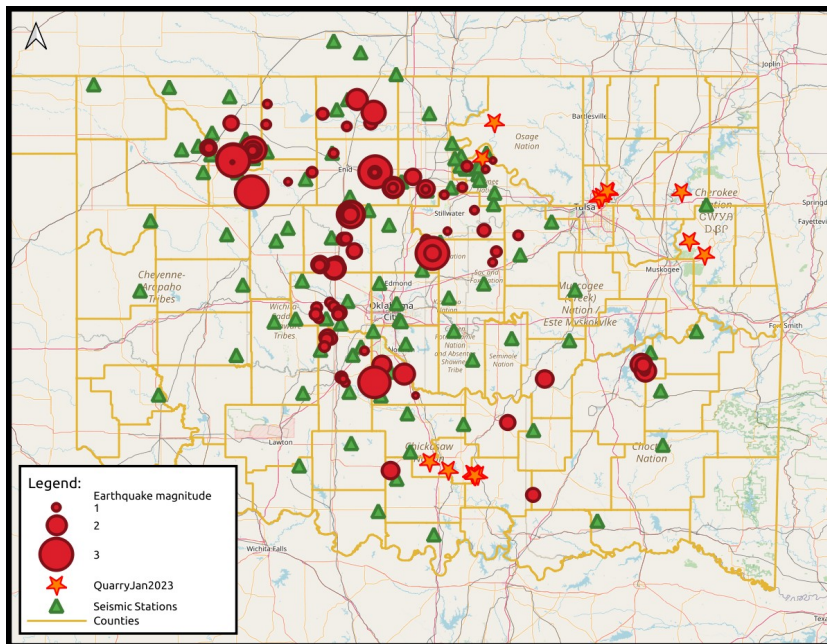

Figure 1. Epicenter Map of Earthquakes in Oklahoma during January 2023.

During January 2023, McClain county recorded the most seismic activity with 27 earthquakes, followed by Canadian county with 23 earthquakes. 30 out of 77 counties within the state have experienced at least 1 earthquake in January 2023 (Table 1).

The earthquake depths range from 0 to 16 km while the magnitudes fluctuate from 0.1 M_L to 3.5 M_L (Table 2). Excluding the quarry blasts that have a depth of 0, the average depth during this month is 7.2 km.

Earthquakes per Counties									
County	Earthquakes	County	Earthquakes	County	Earthquakes	County	Earthquakes
Alfalfa	4	Grady	11	Murray	6	Tulsa	4
Bryan	1	Grant	4	Muskogee	1	Woods	3
Canadian	23	Hughes	1	Noble	13	Woodward	8
Carter	1	Kingfisher	13	Oklahoma	1		
Cherokee	1	Lincoln	2	Osage	2		
Cleveland	1	Logan	4	Pawnee	5		
Creek	1	Major	13	Payne	4		
Garfield	10	Mayes	1	Pittsburg	4		
Garvin	1	McClain	27	Pontotoc	1		

Table 1. Table of earthquakes per county in Oklahoma during January 2023.

Number of Earthquakes per Magnitude range		
Magnitude range	Number of Earthquakes	Earthquake Effects
0 – 0.9	17	Usually not felt.
1 – 1.9	130	Usually not felt.
2 – 2.9	19	Often felt.
3 – 3.9	5	Most likely to be felt

Table 2. Number of earthquakes per magnitude in Oklahoma during January 2023.

The largest earthquake that was recorded during January 2023 was in Logan county and had a magnitude of 3.5 M_L.

For the most current information on earthquakes and other OGS-related news, visit: https://www.ou.edu/ogs.