Consortium to Study Trends in Seismicity

Quarterly Report
October 1 to December 31, 2023

Rex Buchanan, Shelby Peterie, Rick Miller, Kansas Geological Survey
Statewide Earthquakes

- Statewide earthquakes
  - this quarter: 165
  - previous quarter: 206
  - largest = M 4.3 in OT

- Ottawa County
  - this quarter: 32 (M 4.3)
  - previous quarter: 2 (M 2.3)

- Saline County
  - this quarter: 24 (M 3.5)
  - previous quarter: 17 (M 2.3)

- Reno–Kingman
  - 13 (M 2.8)
  - previous quarter: 2 (M 1.7)

- Jewell area
  - 9 in Jewell Co (M 2.4)
  - 4 in Nebraska (M 3.9)
• **Criteria**
  - \( M \geq 2 \)
  - 30 mi of tier 1 wells

• **Alerts**
  - This quarter: 13
  - Previous quarter: 4

• **Summary**
  - Only one M>3
  - Half in Saline Co (M 3.5)
  - Half at KM-RN county line
  - Russell Co alert relocated 35 mi from RC-EW
  - One in SG
Earthquakes Within 20 miles

- Earthquakes w/in 20 mi
  - This quarter: 12
  - Last quarter: 12

![Map showing earthquake locations within 20 miles.](image-url)
Kiowa County

- Located earthquakes
  - none
  - one just outside 20 mi

- Subnetwork events
  - None
Rice and Ellsworth Counties

- Located earthquakes
  - None w/in 20 mi

- Subnetwork events
  - None w/in 20 mi
McPherson County

- Located earthquakes
  - 3 within 20 miles
  - M 2.1 on Dec. 27 in southern SA

- Subnetwork events
  - MP02: one -0.4M about 6 miles
  - MP01: None
Reno County

- Located earthquakes
  - 13 events ≥ 20 mi at Reno–Kingman county line
  - 1 microevent ≥ 20 mi near southeast county corner (M 2.8)

- Subnetwork events
  - None
Sedgwick County

• Located earthquakes
  – M 2.5 about 10 mi from wells
  – a few M <2 at about 20 mi

• Subnetwork events
  – None
Butler County

- Located earthquakes
  - 2 events w/in 20 mi
  - M <2

- Subnetwork Events
  - None
Johnson and Atchison Counties

- Located earthquakes
  - None
- Subnetwork events
  - None
Prague M 5.1
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