

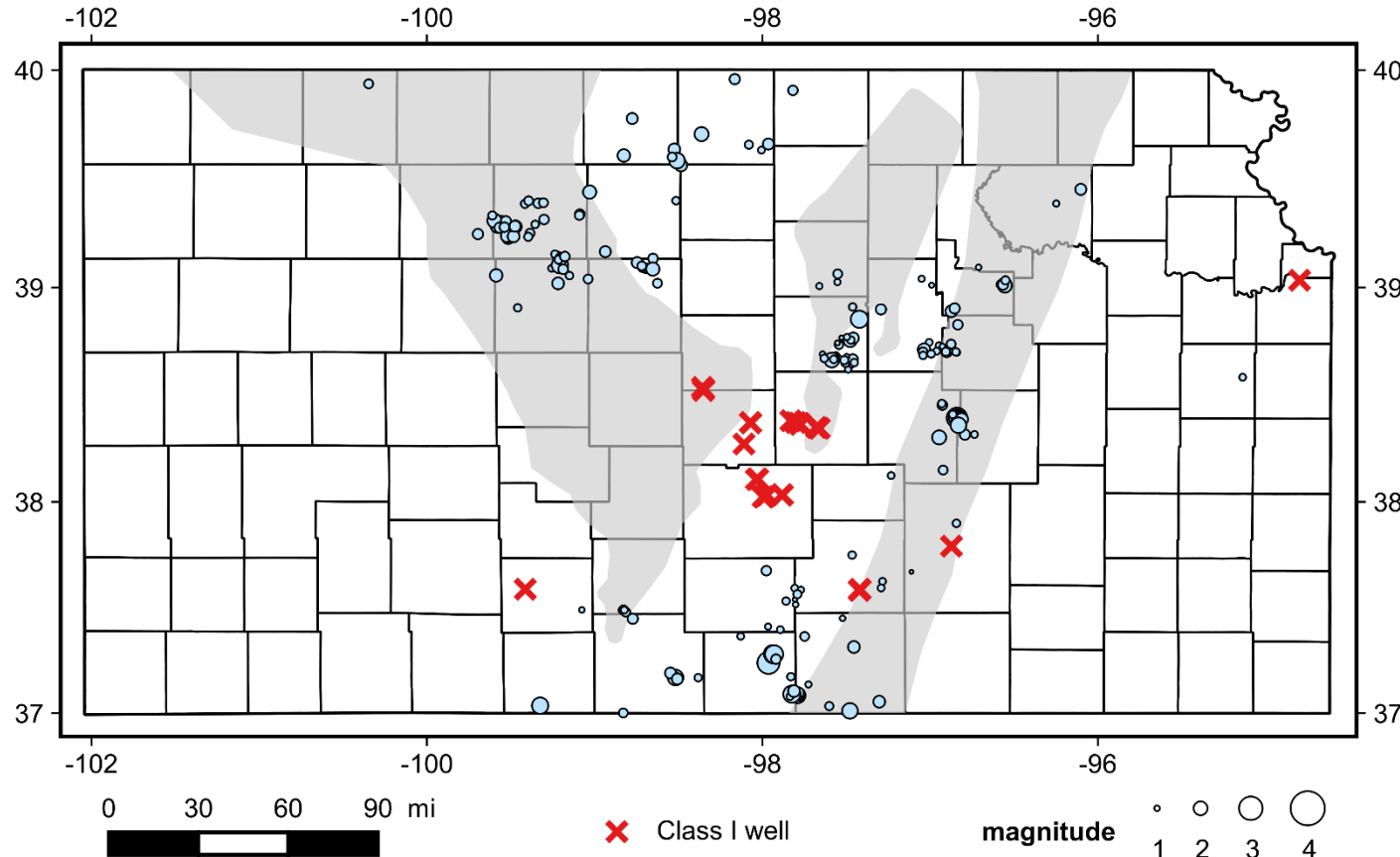
# Consortium to Study Trends in Seismicity

## Quarterly Report October 1 to December 31, 2022

Rex Buchanan, Shelby Peterie, Rick Miller, *Kansas Geological Survey*

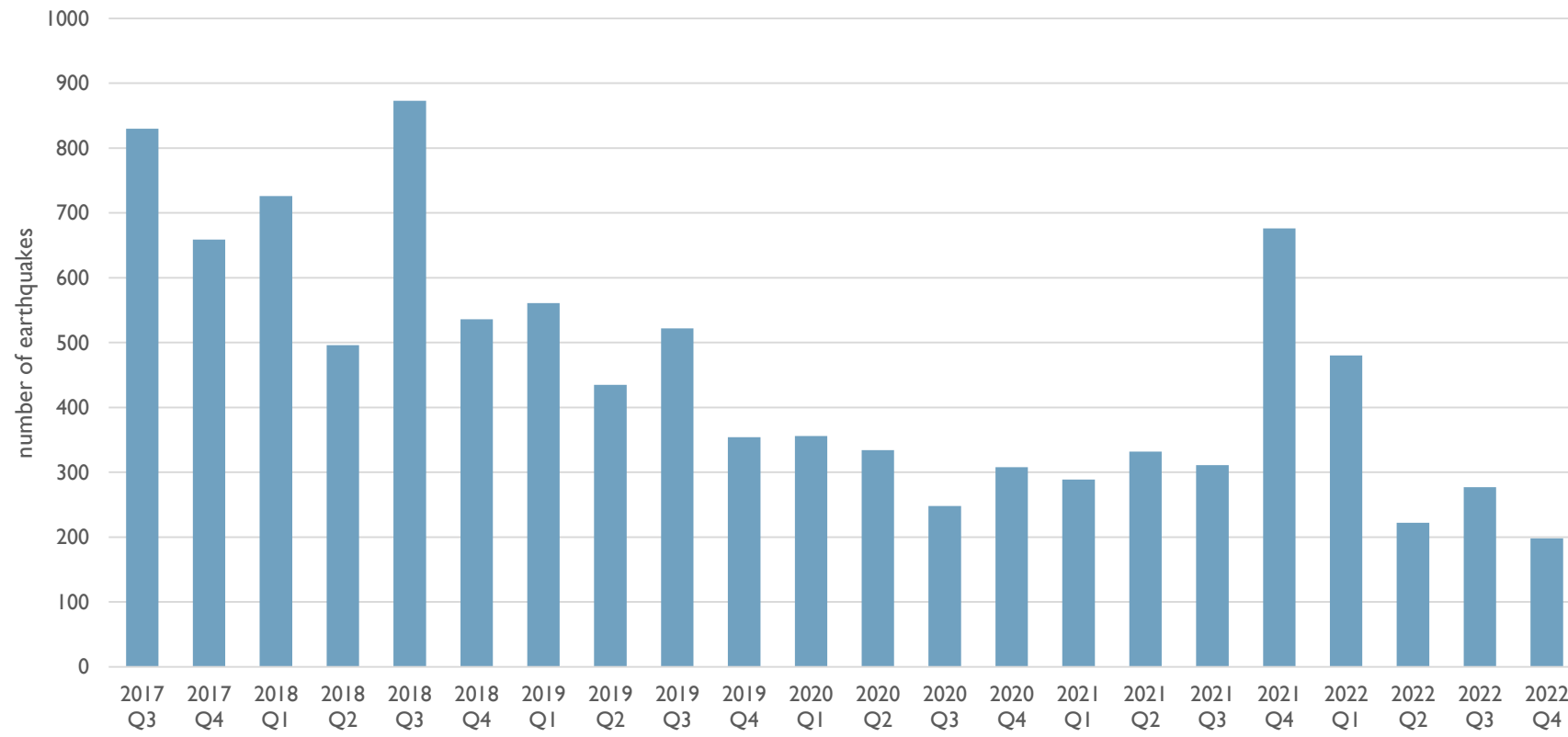


# Statewide Earthquakes

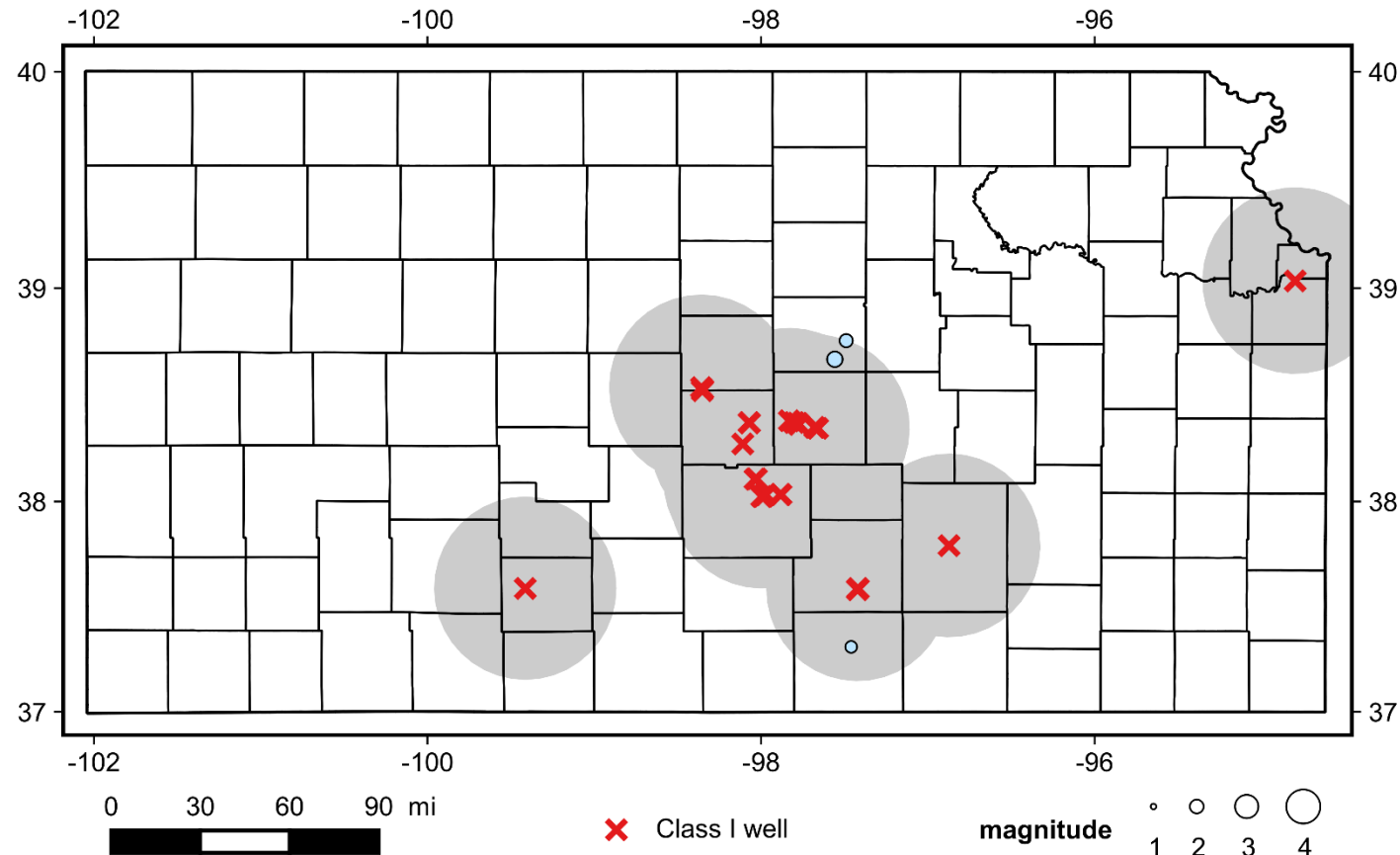


- Statewide earthquakes
  - This quarter: 198
  - Last quarter: 277
  - Largest = M 3.4 in HP
- 28 earthquakes in SA
  - largest: M 2.8
- First earthquake in Franklin Co: M 1.4
- Upticks
  - two dozen in HP
  - one dozen in MN
  - CKU about the same

# Quarterly Statewide

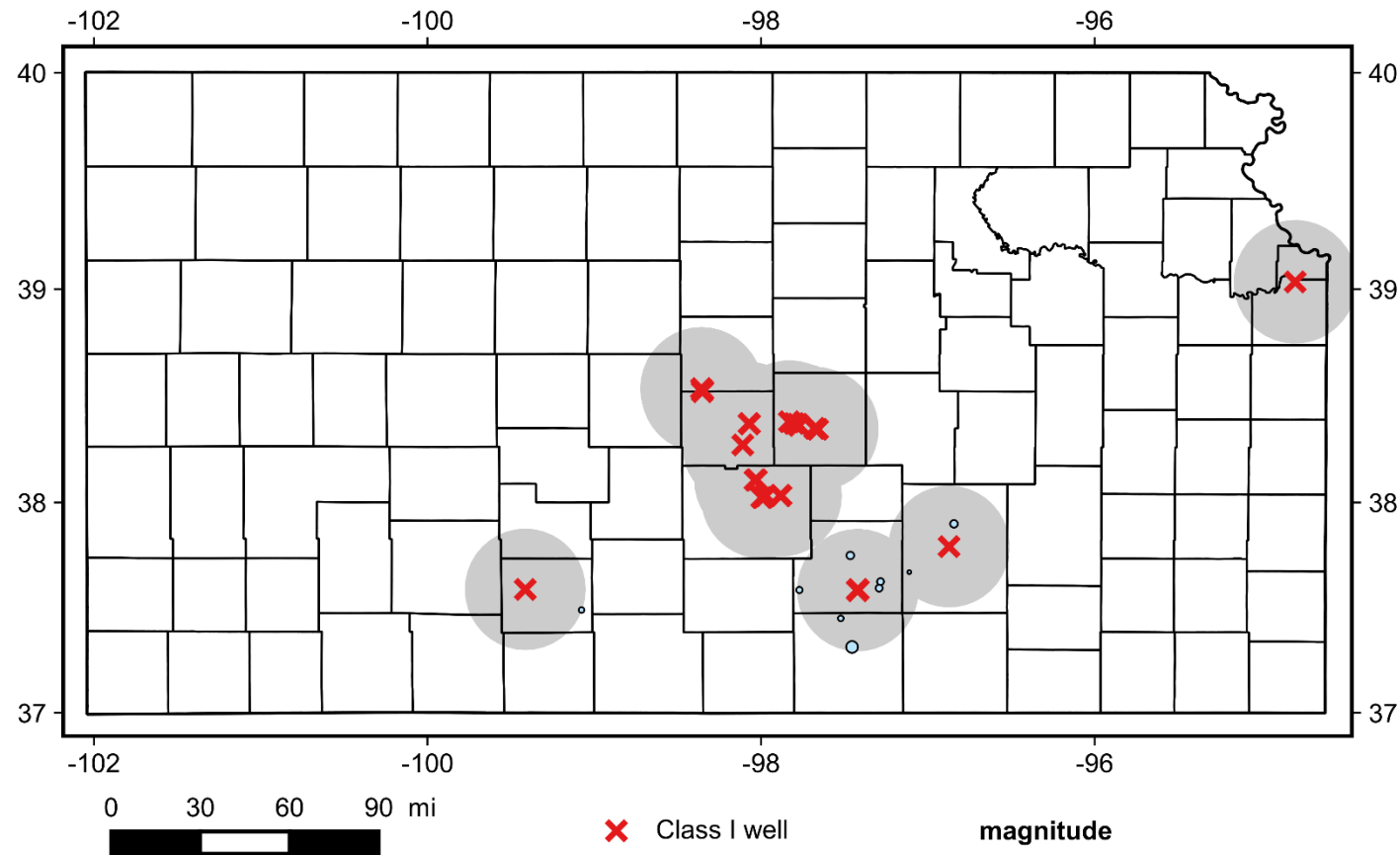


# CSTS Alerts



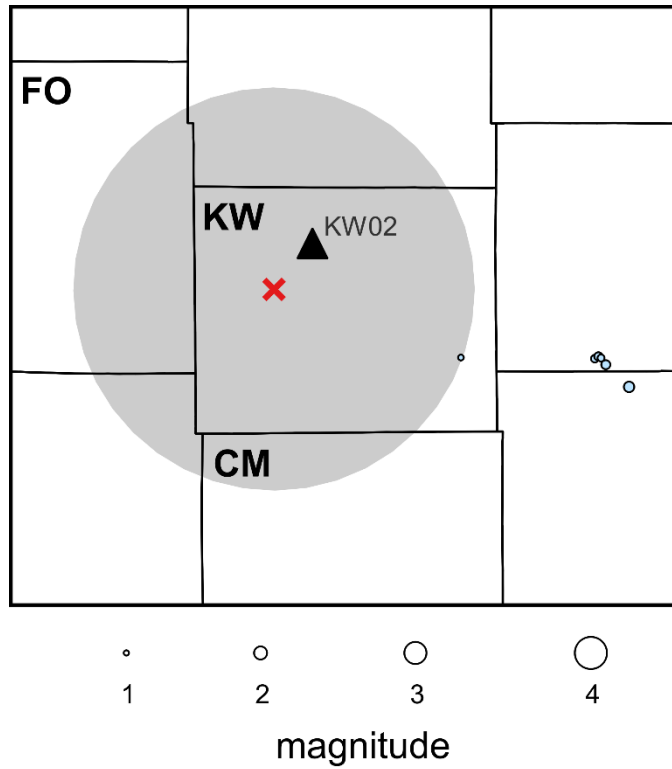
- Criteria
  - $M \geq 2$
  - 30 mi of tier I wells
- Alerts
  - This quarter: 3
  - Last quarter: 10

# Earthquakes Within 20 miles



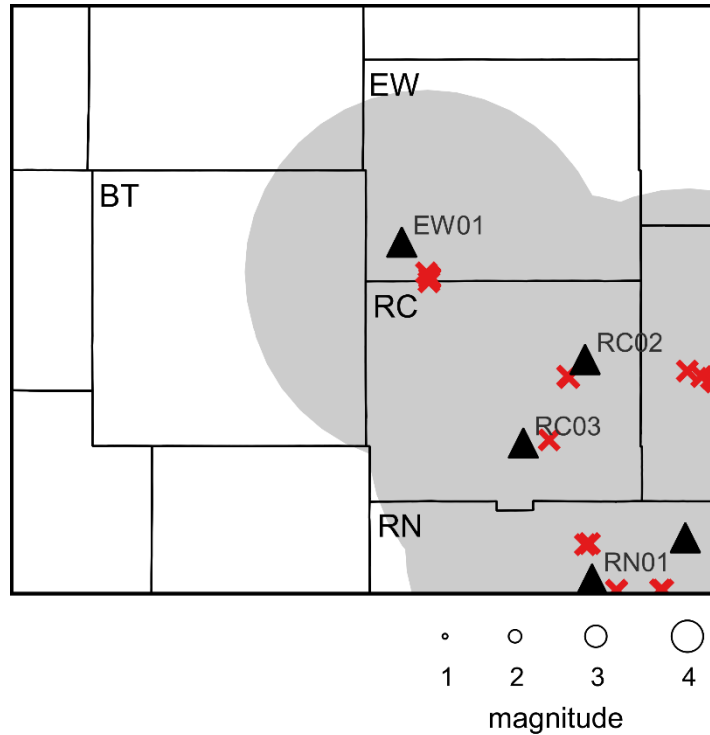
- Earthquakes w/in 20 mi
  - This quarter: 19
  - Last quarter: 12

# Kiowa County



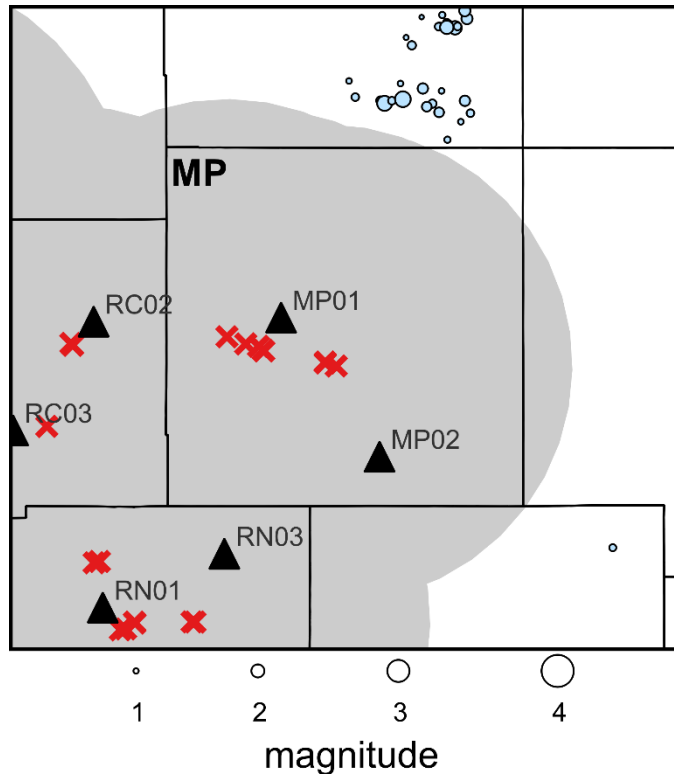
- Located earthquakes
  - 1 within 20 miles
- Subnetwork events
  - 2 M 0.4 and M 0.2

# Rice and Ellsworth Counties



- Located earthquakes
  - None w/in 20 mi
- Subnetwork events
  - 2 at RC03 M 0.5 and M 0.1
  - 1 at RC02 M 0.4
  - 1 at EW01 M 0.6

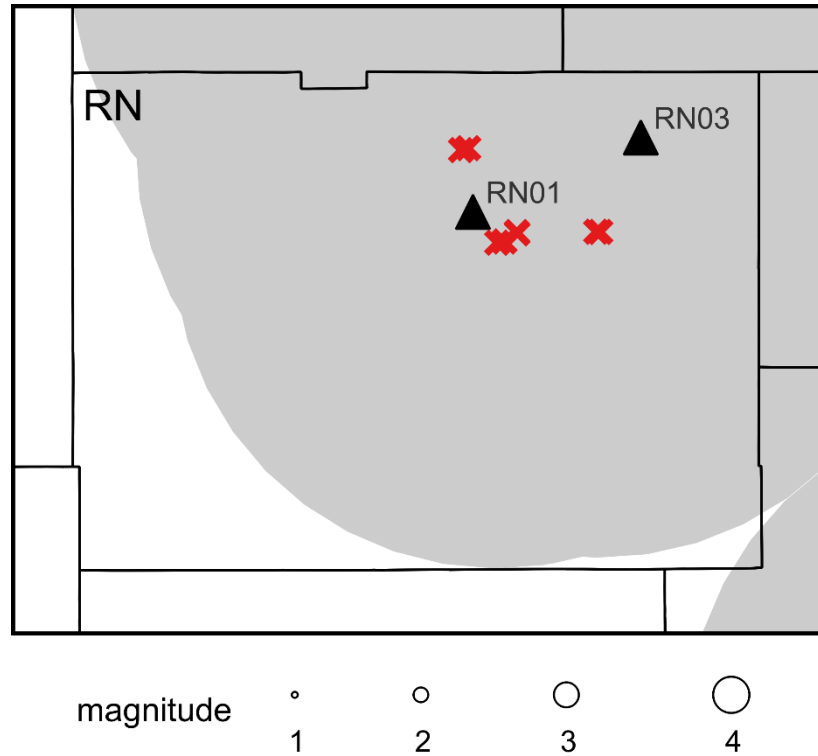
# McPherson County



- Located earthquakes
  - None within 20 miles
- Subnetwork events
  - 1 M 0.1

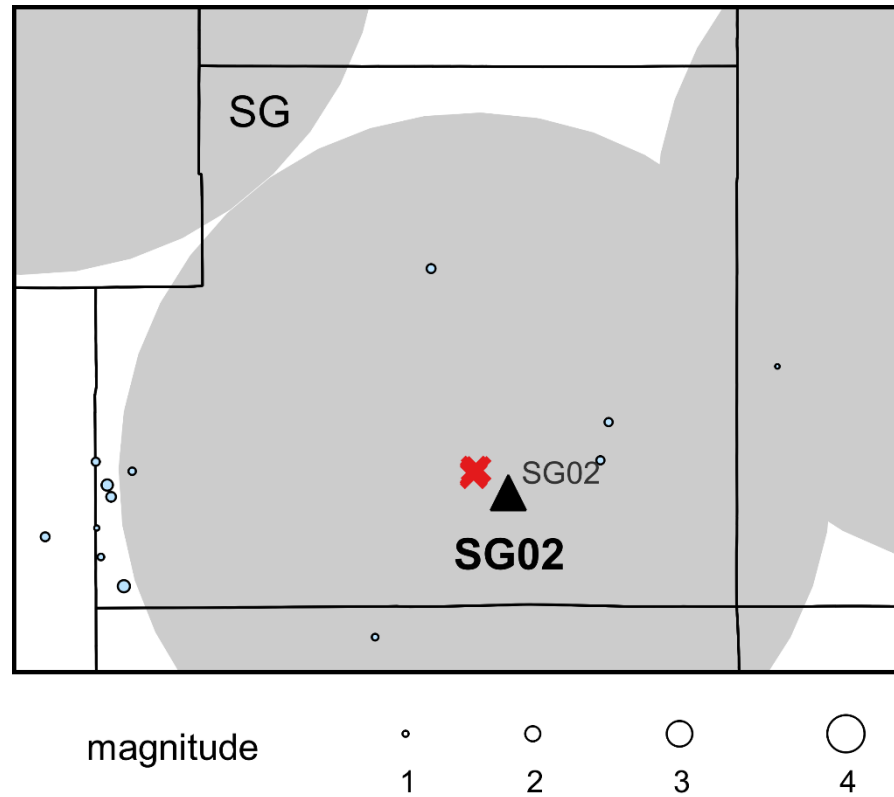


# Reno County



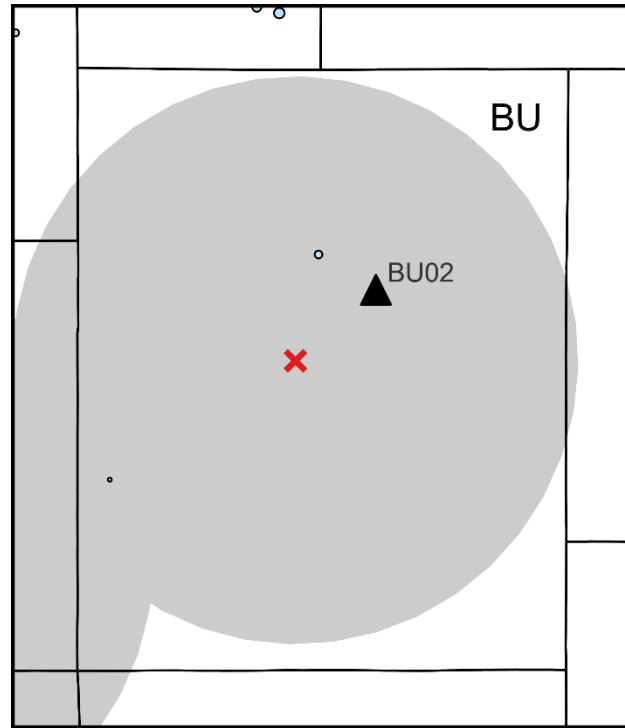
- Located earthquakes
  - None
- Subnetwork events
  - None

# Sedgwick County



- Located earthquakes
  - 6 within 20 miles
    - M 0.9-2.1
- Subnetwork events
  - 1 M -0.6

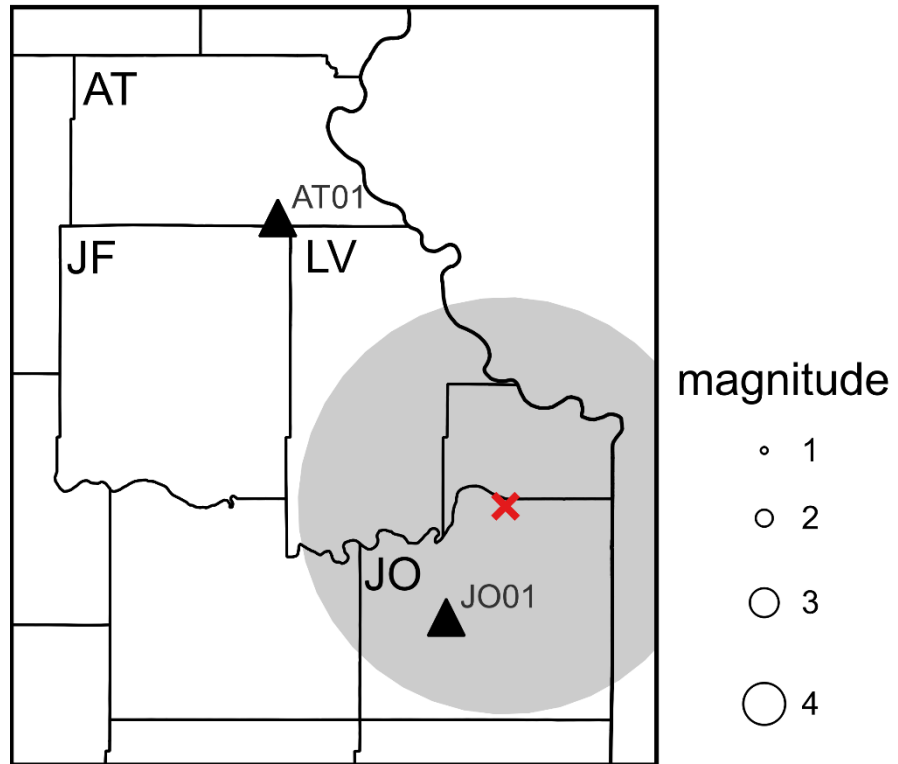
# Butler County



magnitude

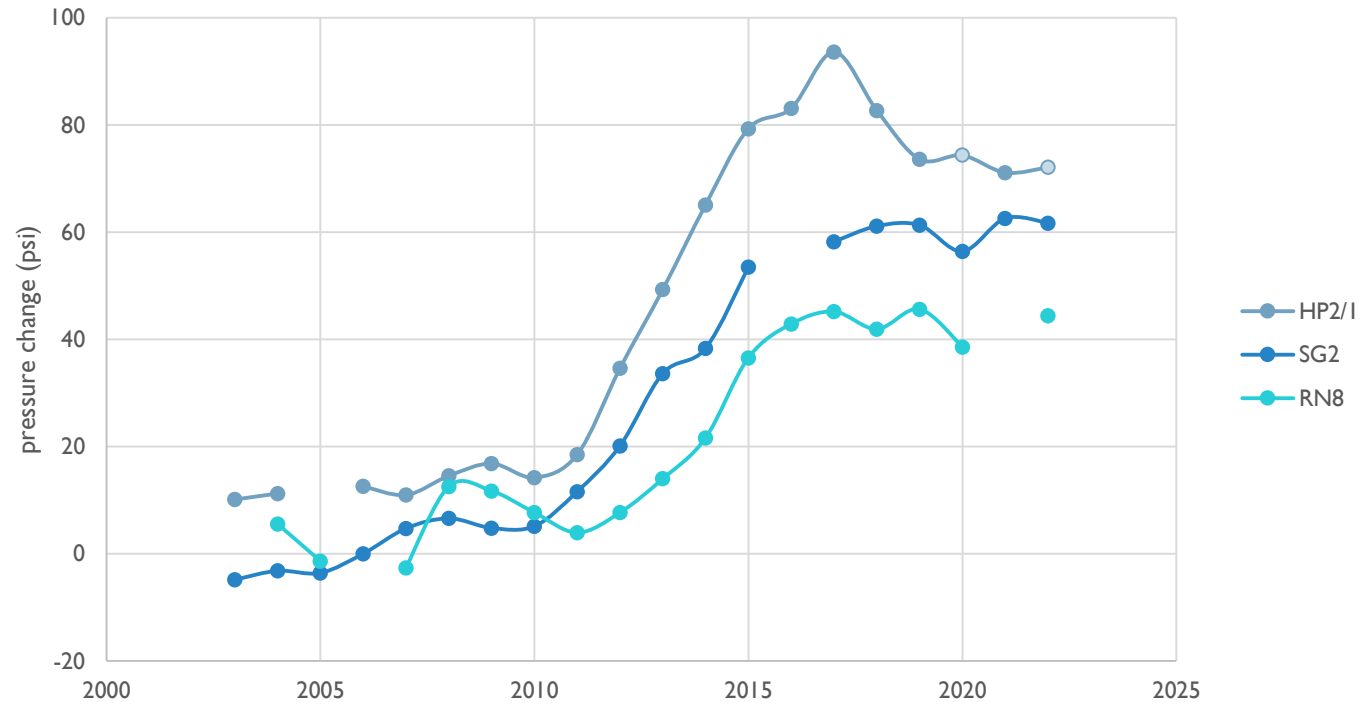
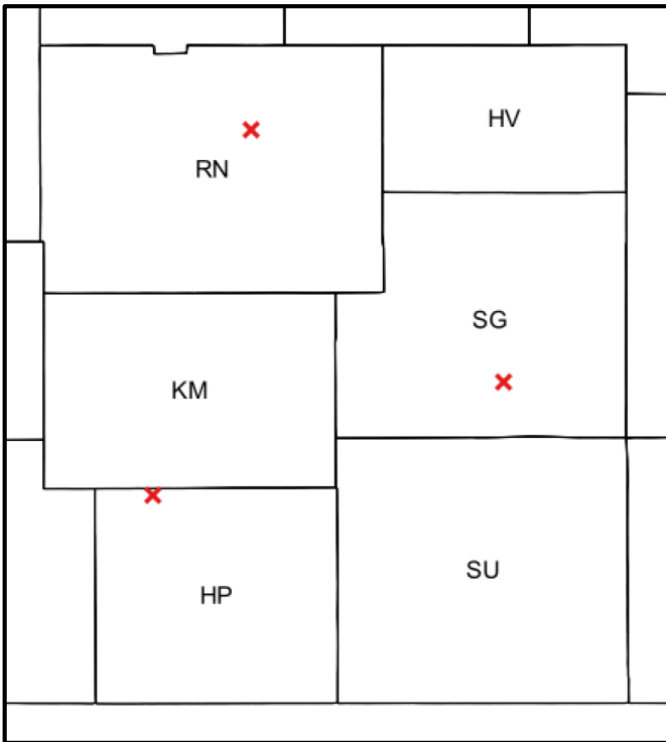
- Located earthquakes
  - 2, M 0.9 and M 1.5
- No subnetwork events

# Johnson and Atchison Counties

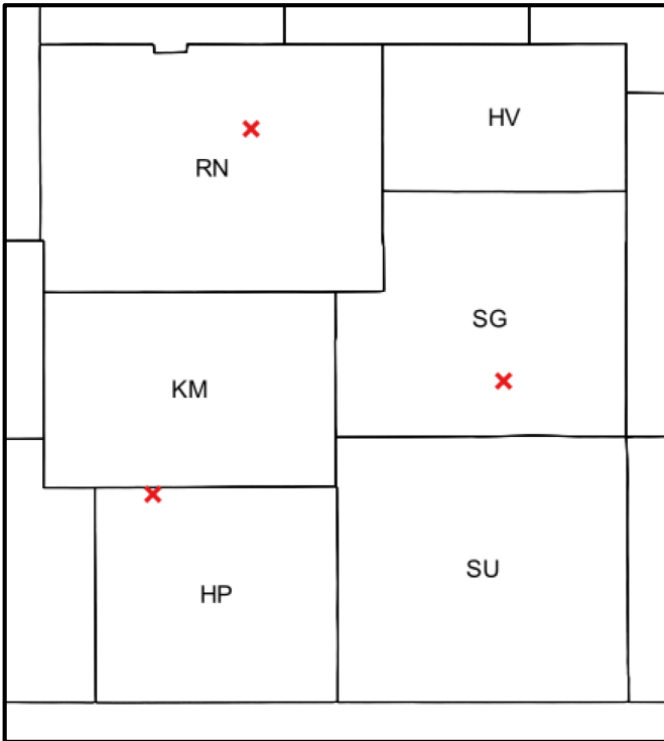


- Located earthquakes
  - None
- Subnetwork events
  - 1 at AT01 M 0.2

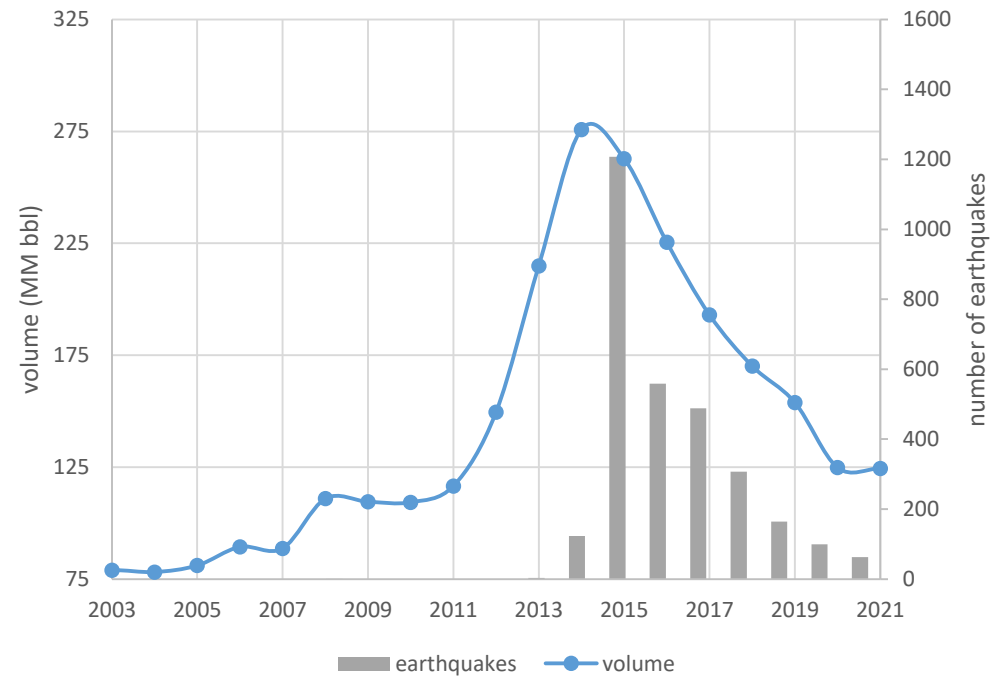
# South-Central Kansas Pressure



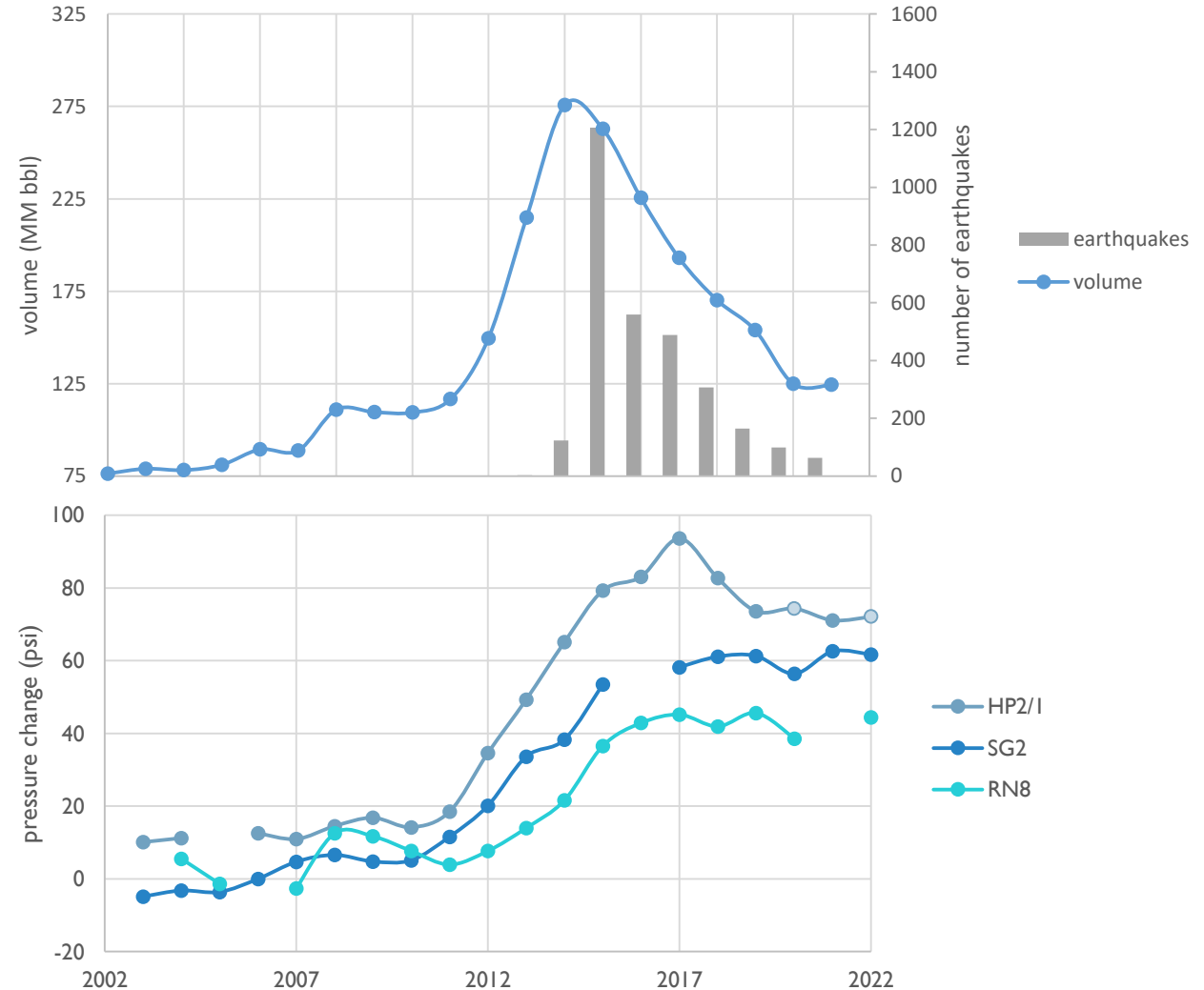
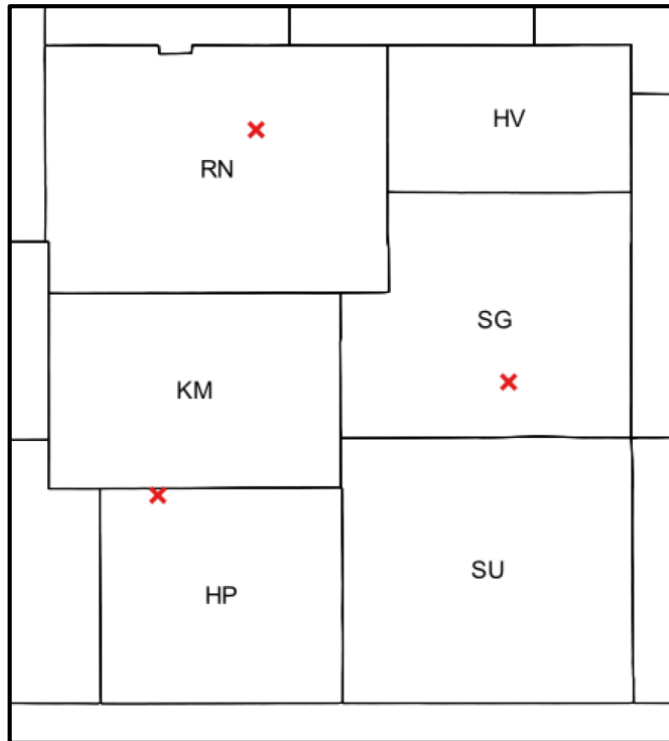
# South-Central Kansas Disposal Volume



*annual disposal volume and annual number of M2+ earthquakes*



# South-Central Kansas Disposal Volume



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