Seismic Monitoring in Kansas

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January 26, 2015

Earthquake Statistics

Statistics for earthquakes detected by the Kansas-Nebraska seismic network (1977-1989) and USGS (1990-present)

Statewide

Increase in magnitude 2.5 earthquakes

1977 to 2012: **34**

2013 to present: **115**

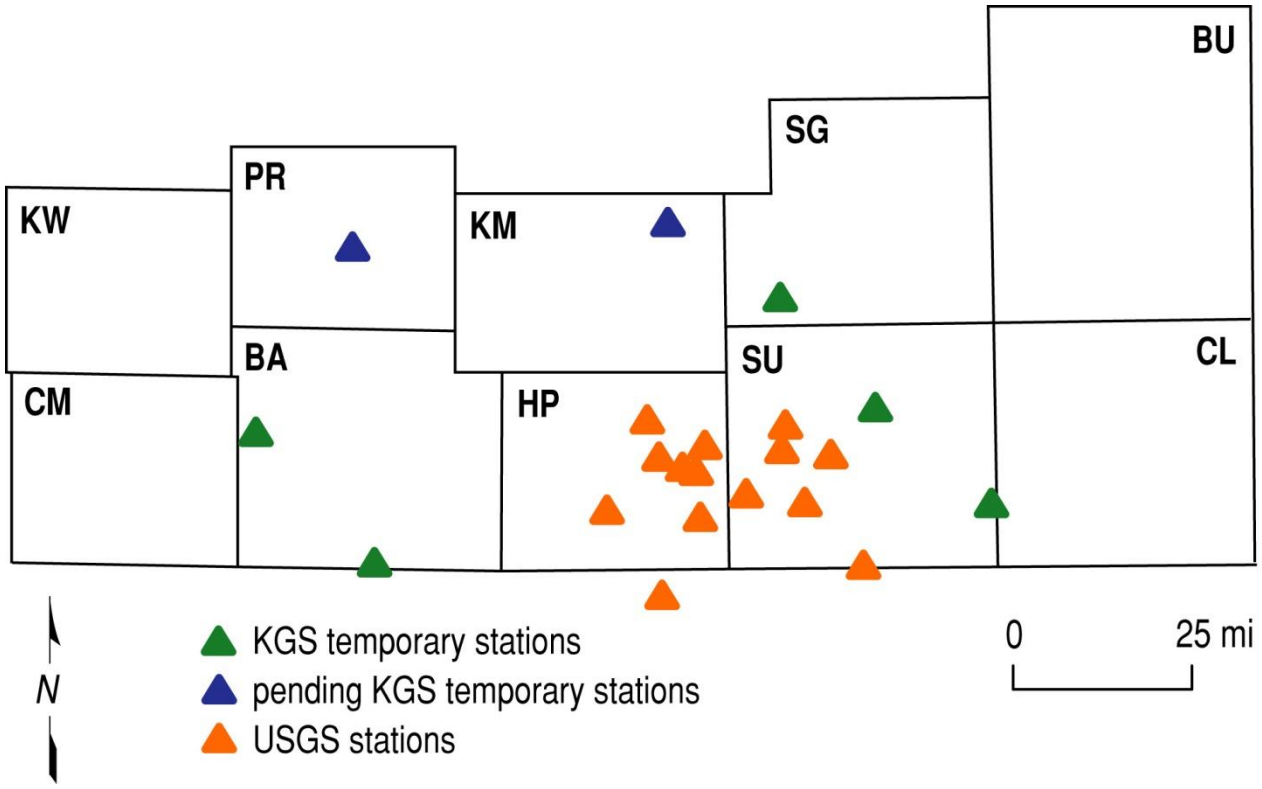
Harper and Sumner Counties

Increase in magnitude 2.0 earthquakes

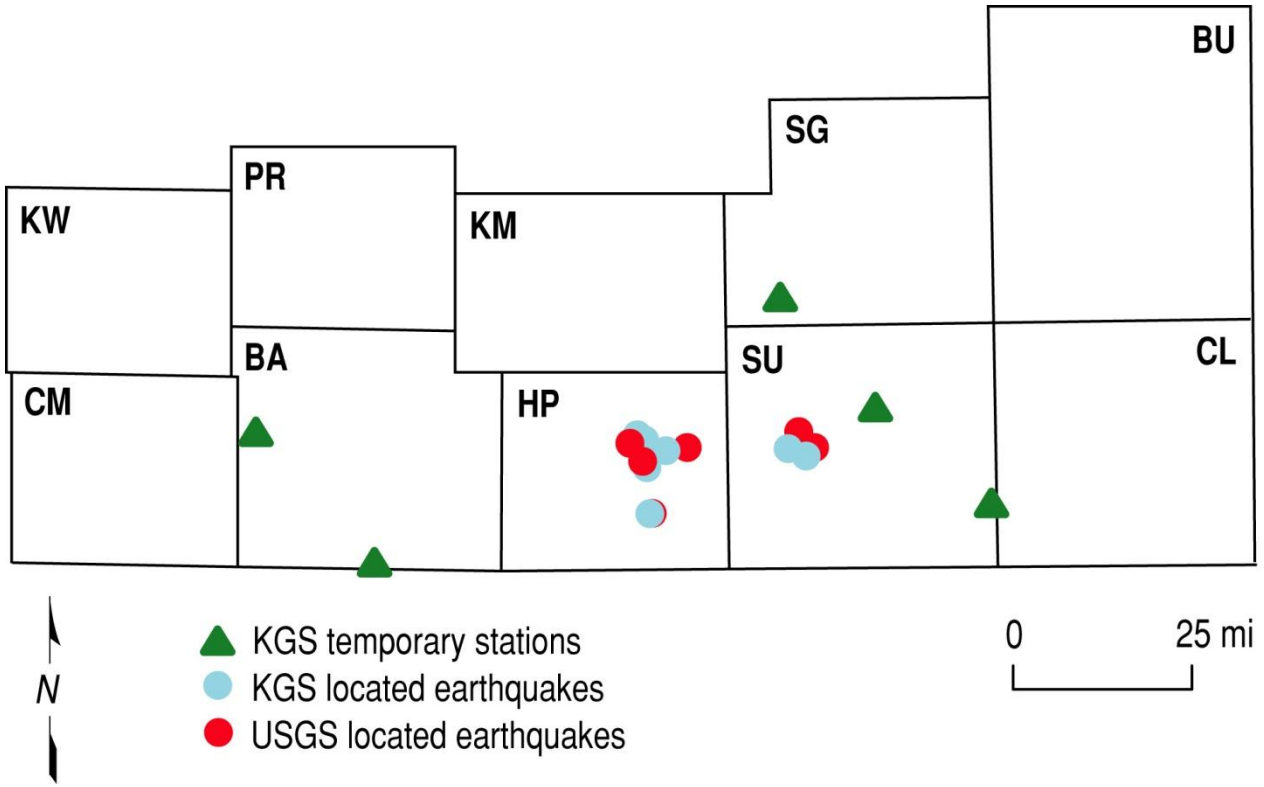
1977 to 2012: **2**

2013 to present: **138**

KGS and USGS Temporary Networks

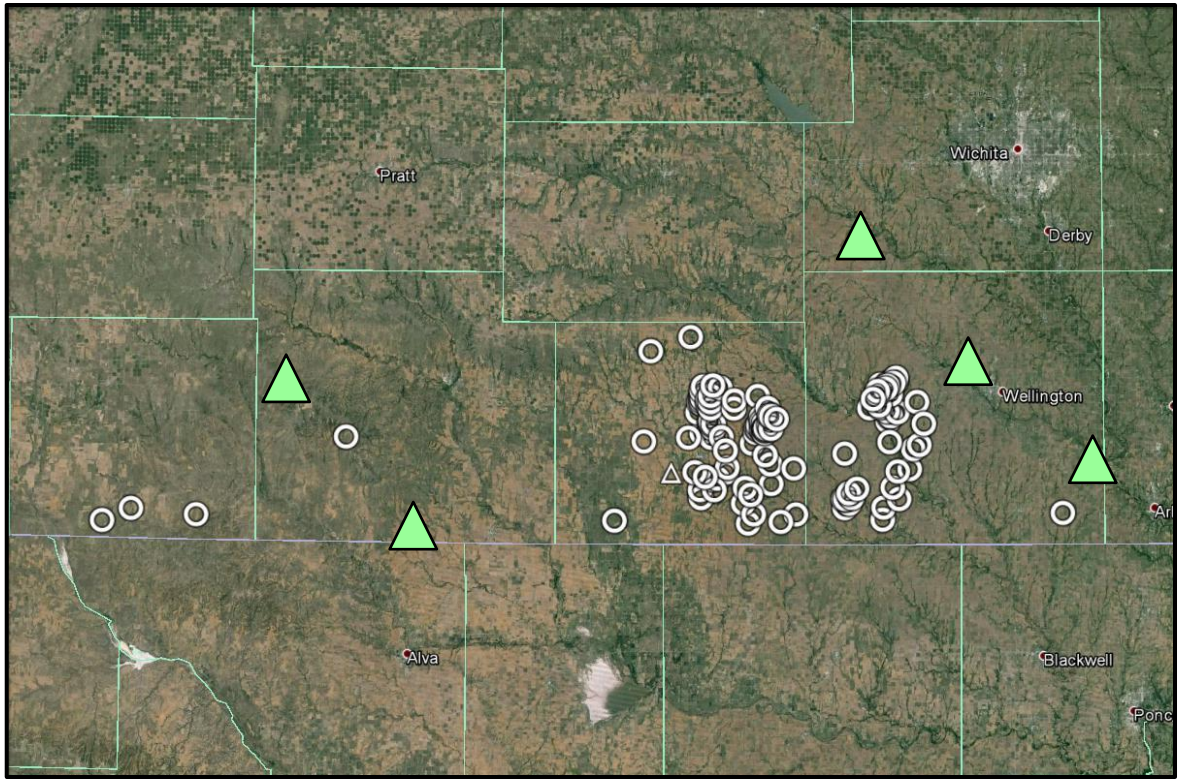


KGS and USGS earthquakes



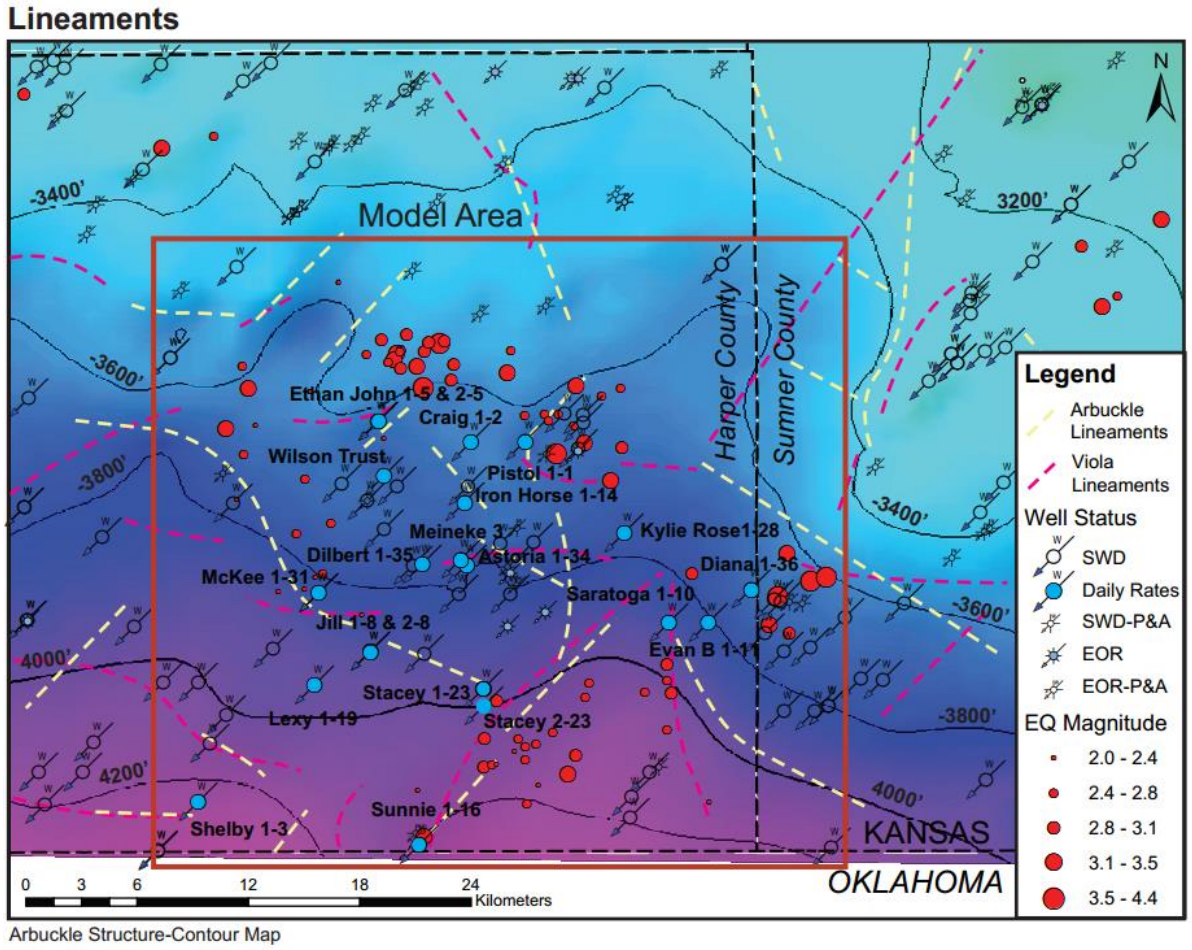
Earthquakes detected by both the USGS and KGS networks. KGS locations (blue) are within 2 miles of the USGS locations (red) for the same event.

Earthquakes detected using only the KGS Temporary Network



A total of 123 earthquakes (white circles) were detected by the KGS temporary network (green triangles) during the first 16 days of recording.

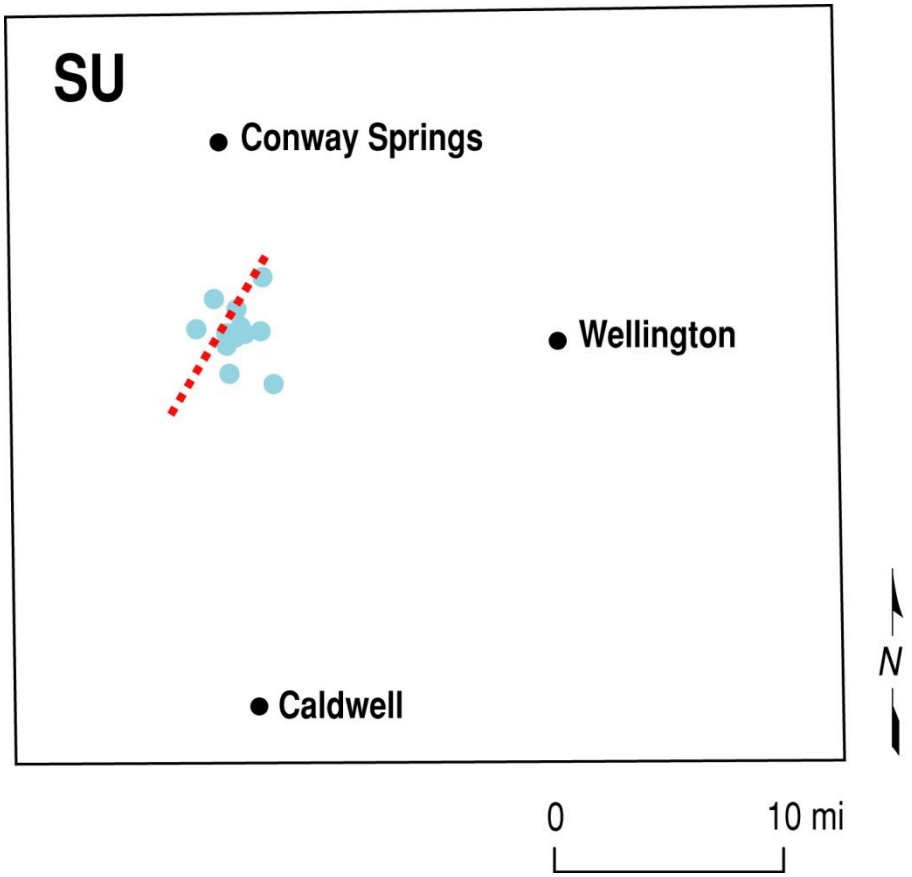
Lineament Map



Arbuckle Structure-Contour Map

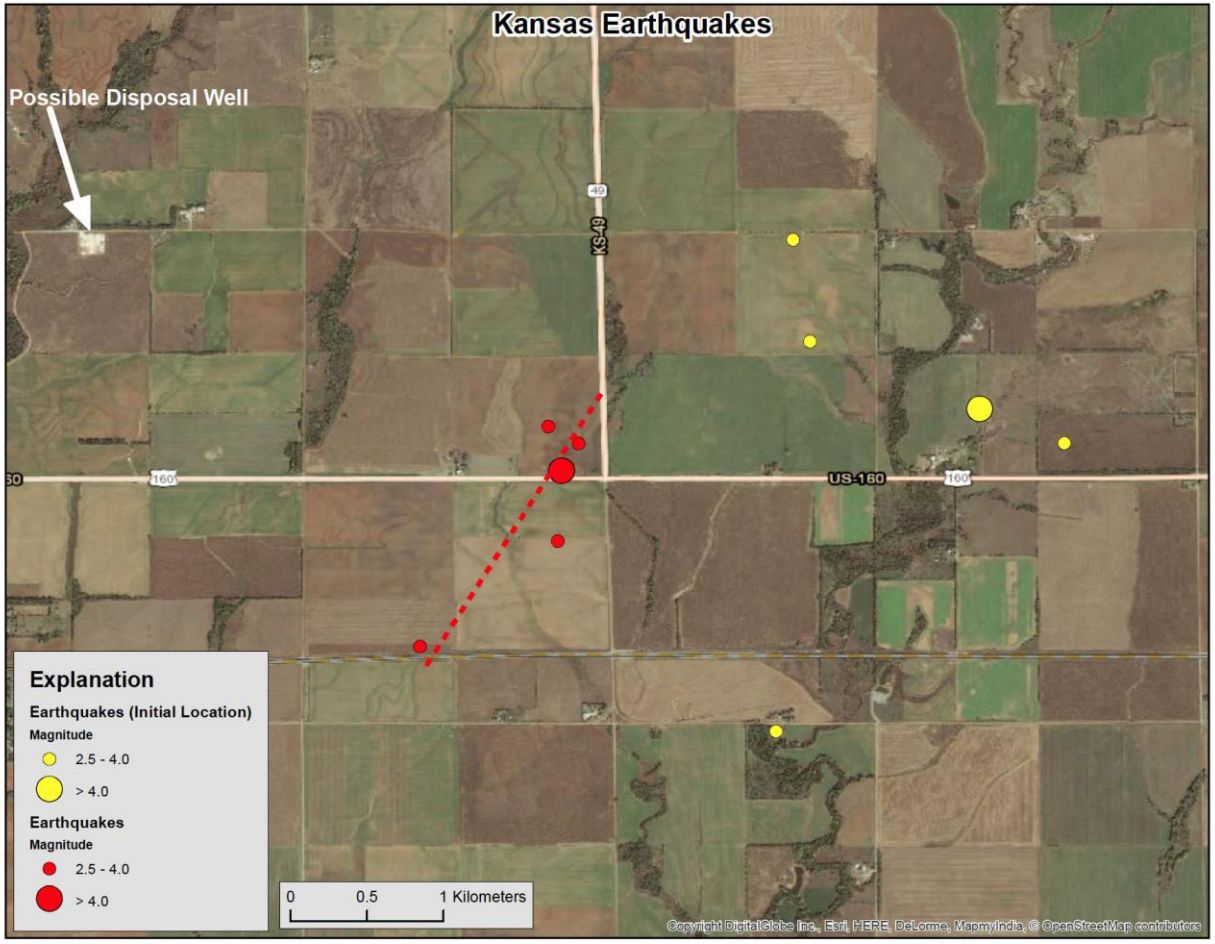
Earthquakes detected by the USGS in 2014 (prior to November) and map of lineaments interpreted by scientists at KGS.

USGS Proposed Fault near M 4.9 in Sumner Co.



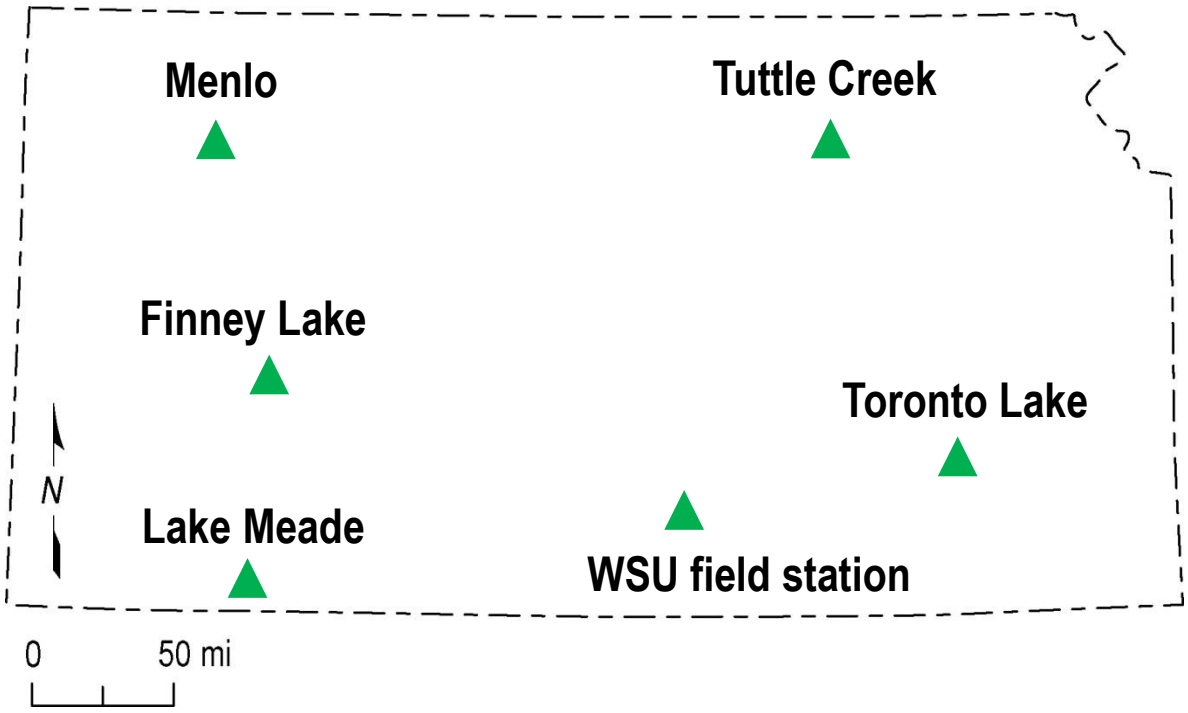
Earthquakes detected by the USGS near Conway Springs in 2014 (blue circles) and possible fault interpreted by scientists at USGS (dashed red line).

USGS Proposed Fault near M 4.9 in Sumner Co.

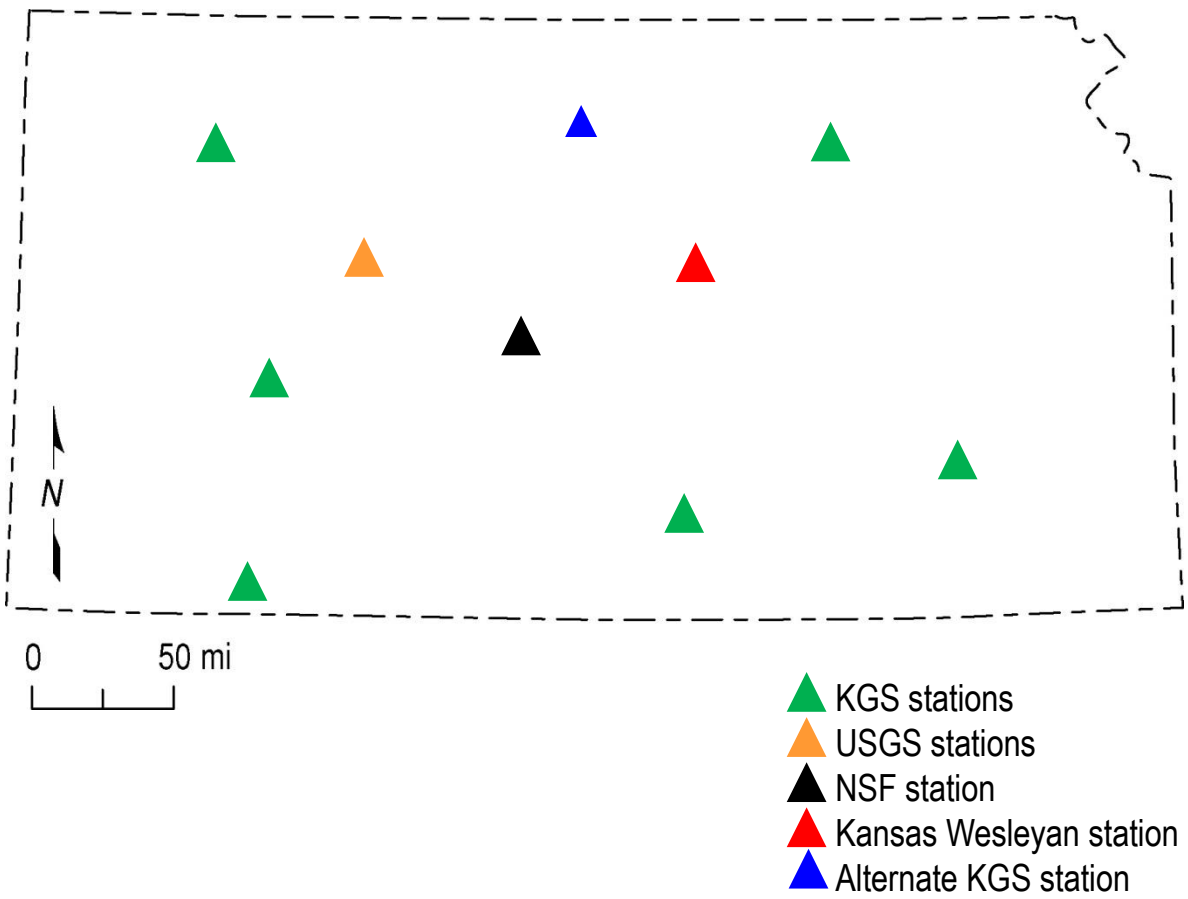


Earthquakes in the M 4.9 sequence (red and yellow circles) and fault interpreted by scientists at USGS (dashed red line). Courtesy of USGS.

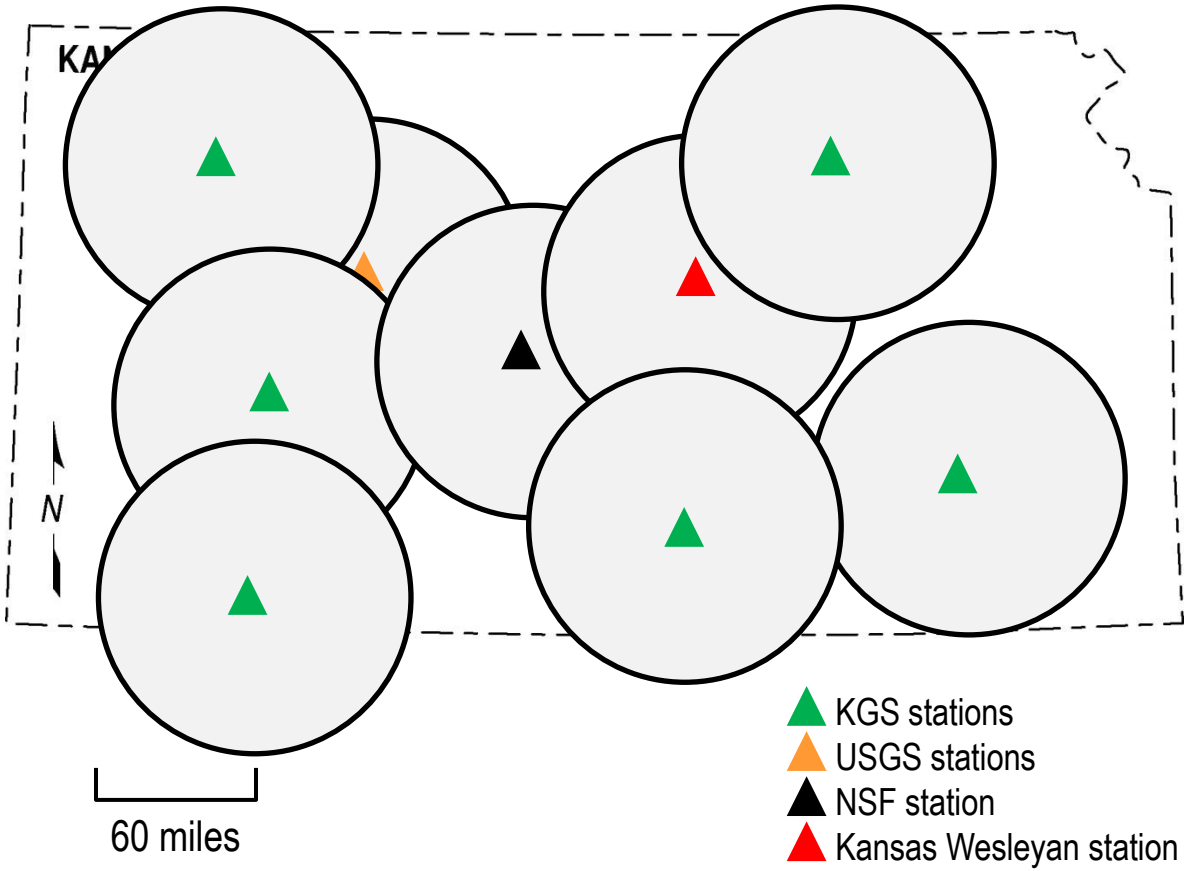
Proposed Permanent Network



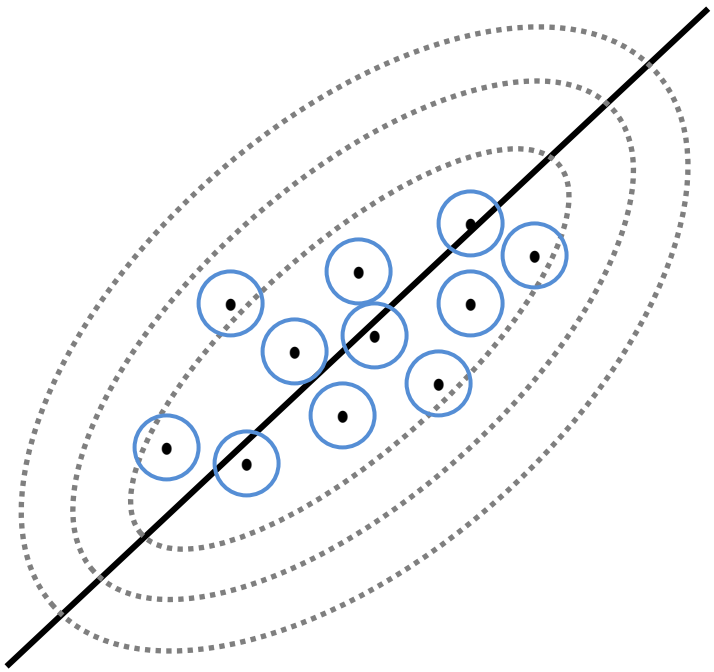
Proposed Permanent Network



Network Sensitivity to M 1.5



Potential Utility of Collected Data



- Reduce injection volume
- Constrain locations for approving new permits
- Define zones of increased risk