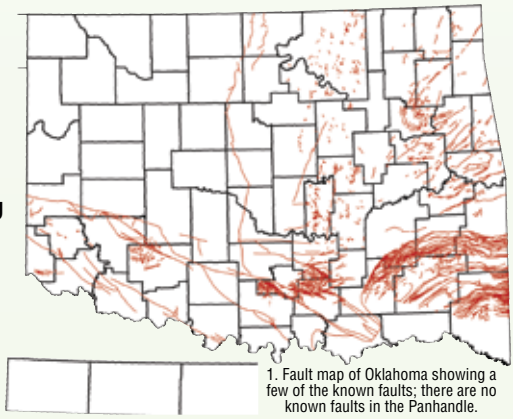
EARTHQUAKE

Lesson 3: It's Oklahoma's Faults

Statewide, Oklahoma has more faults than are possible to count (Image 1). As most of these faults are buried under dirt and rock, and are extremely small, not much is known about them and many remain hidden until some form of movement occurs on that specific fault. Scientists do not believe that any of Oklahoma's faults are capable of producing a magnitude 9 earthquake like the one that hit Japan on March 11, 2011. The most common faults active in Oklahoma today are strike-slip faults formed as the state is being compressed in a generally east-west direction. In the past, other types of faults were active. For example, southern Oklahoma was experiencing significant normal faulting 550 million years ago, and thrust faulting occurred through much of southern Oklahoma about 300 million years ago.



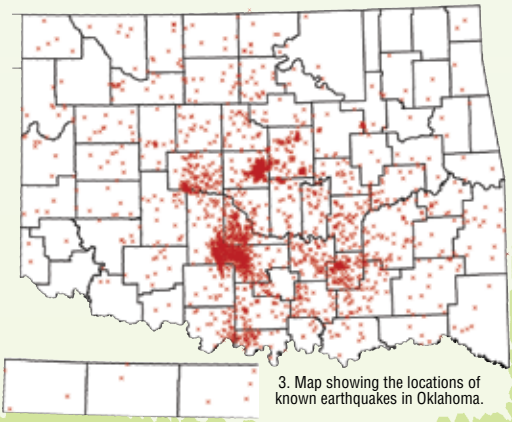
1. Fault map of Oklahoma showing a few of the known faults; there are no known faults in the Panhandle.

2. Looking North, Meers fault running top left - bottom right

Oklahoma's most famous fault, the Meers fault (Image 2), is regarded as the only known fault to have caused a large earthquake in the recent geological past, about 1200-1300 years ago. It is estimated that a magnitude 7 earthquake is possible on this fault line which could cause damage in both Oklahoma and Texas. Located in southwestern Oklahoma, it is visible from the ground, air and space

Further study:

The largest recorded earthquake in Oklahoma occurred on April 9, 1952. Where did this earthquake occur and what magnitude was it? How far away was the earthquake felt? Do scientists know on what fault line this earthquake occurred?



3. Map showing the locations of known earthquakes in Oklahoma.

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