Gypsum deposits in New Mexico and West Texas

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Gypsum and anhydrite have been deposited in New Mexico and Texas as thick banded beds. How did they get there? They did not form in Noah's flood. Gypsum lakes forming today show how the ancient deposits were formed.

Gypsum beds near Turkey, Texas

In July of 2021, my wife and I drove through some great geologic exposures in New Mexico and Texas. Some had very clear implications for Flood Geology. This post will highlight beds of gypsum. We saw these beds in several places. For this post, the beds of gypsum that form with red shale and siltstone beds, known as "redbeds", come from the Permian Seven Rivers formation. **(Figure 1 & 2**). All indications are that both the gypsum and the red beds formed in non-marine settings. They typically have few fossils, all of non-marine varieties, mudcracks and many features that we find in arid terrestrial

environments today. Most geologists consider gypsum as one of a suite of rocks formed as seawater or lake water evaporates over long periods of time. We find an intimate association of redbeds, gypsum, halite (rock salt), anhydrite, that at times, transitioning into dolomite. This is just like what we see forming today in places such as around the Persian Gulf. Many of the crystal forms are distinctive and identical.

Driving on, we saw gypsum beds depositing today in similar ways and forms to some of the Permian examples. We drove across remnants of what was Lake Estancia, an ancient lake that filled during glacial periods and dried between them. (**Figure 3 & 4**). It has been a wet year, so some water was present. Looking in ravines there, I was struck by the alternating beds of gypsum and shaly material. Investigating, I read up on the lake. It was active from about 69,000 to 10,000 years ago, based on a combination of radiocarbon and uranium-thorium dating. What we saw there was just a small remnant of that earlier lake. References to the key articles that I found are below. Similar climate effects are found over the same time periods in other lakes in N.M., Arizona and in ice cores in Greenland. Here we see repeated wet and dry periods, corresponding to multiple ice ages.

How are gypsum deposits like these explained by flood geology? Long periods of evaporation don't really work in any of the proposed YEC flood models. As per **Figure 5**, most YEC authors put the Permian gypsums near the middle of the flood. If gypsum nor anhydrite nor halite or any of the other similar rocks did not form as evaporites, how did they form? Here are proposals that I have found from Scheven (1990):

1. turbidity current deposits of evaporites that were created as gypsum, salt, etc

- None of these represent turbidites as these gravity deposits have distinctive sedimentary structures that are missing in all gypsum deposits that I have seen or read about.

2. rapid precipitation around hydrothermal vents

Snelling (2009) and Morris (2010) use this second explanation, and it is a fact that some local deposits of these lithologies apparently developed as supercritical water rose from volcanic vents on the seafloor on oceanic crust. Such proposals have no real bearing on explaining Permian evaporites, or probably any of the major evaporite exposures around the world. The comparison to modern salt flats (sabkhas) provides a much simpler explanation.

Estancia Lake provides an analog for some of the Permian rocks. The lake sediments themselves do not fit YEC timelines. Is there any data to support their deposition over a few hundred years? How would it have happened? If this is post-flood, then a lot had to happen in a few years. South of the area I visited is one of America's newest national parks: White Sands National Park. The gypsum sand dunes that are found there were created by wind blowing out of another ancient Pleistocene lake, Lake Otero. It is not hard to imagine that it took thousands of years for the dunes to accumulate, but just a few years? The post-flood explanation would need to explain not just the dunes, but the layers of gypsum lake deposits that provided the source for the sand and many older sediments underneath.

Lake Estancia:

Allan, B.D., 2005, Ice Age Lakes in New Mexico in eds Lucas, S.G., et al, New Mexico's Ice Ages, *New Mexico Museum of Natural History and Science Bulletin*

Menking, KM, et al, 2018, Climate history of the southwestern United States based on Estancia Basin hydrologic variability from 69 to 10 ka, *Quaternary Science Reviews*

YEC data:

Morris, JD, 2010, Evaporites and the Flood, from *Institute for Creation Research* website, https://www.icr.org/article/evaporites-flood

Scheven, J. 1990. "The Geological Record of Biblical Earth History." *Origins, Journal of the Creation Research Society*

Snelling, A. 2009, *Earth's Catastrophic Past, Vol. 2*. Dallas: Institute for Creation Research.

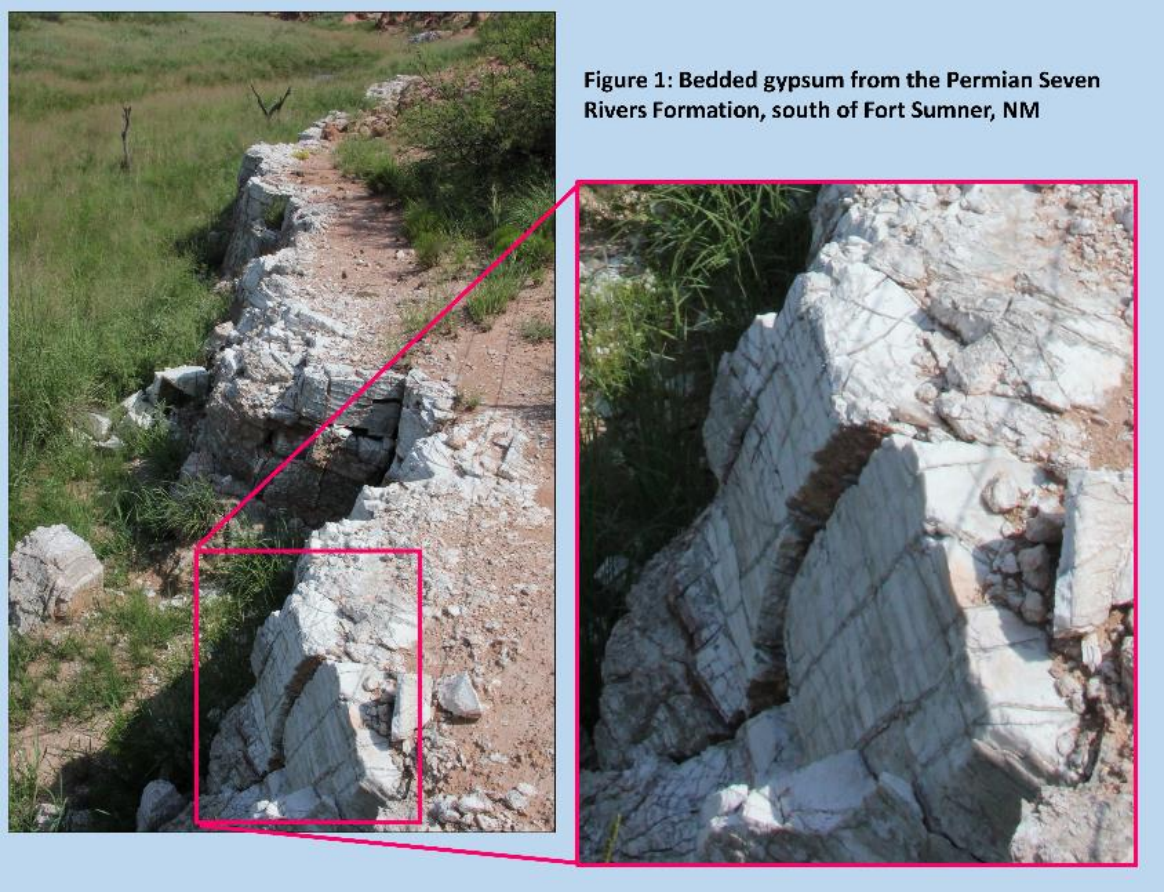


Figure 1: Bedded gypsum from the Permian Seven Rivers Formation, south of Fort Sumner, NM

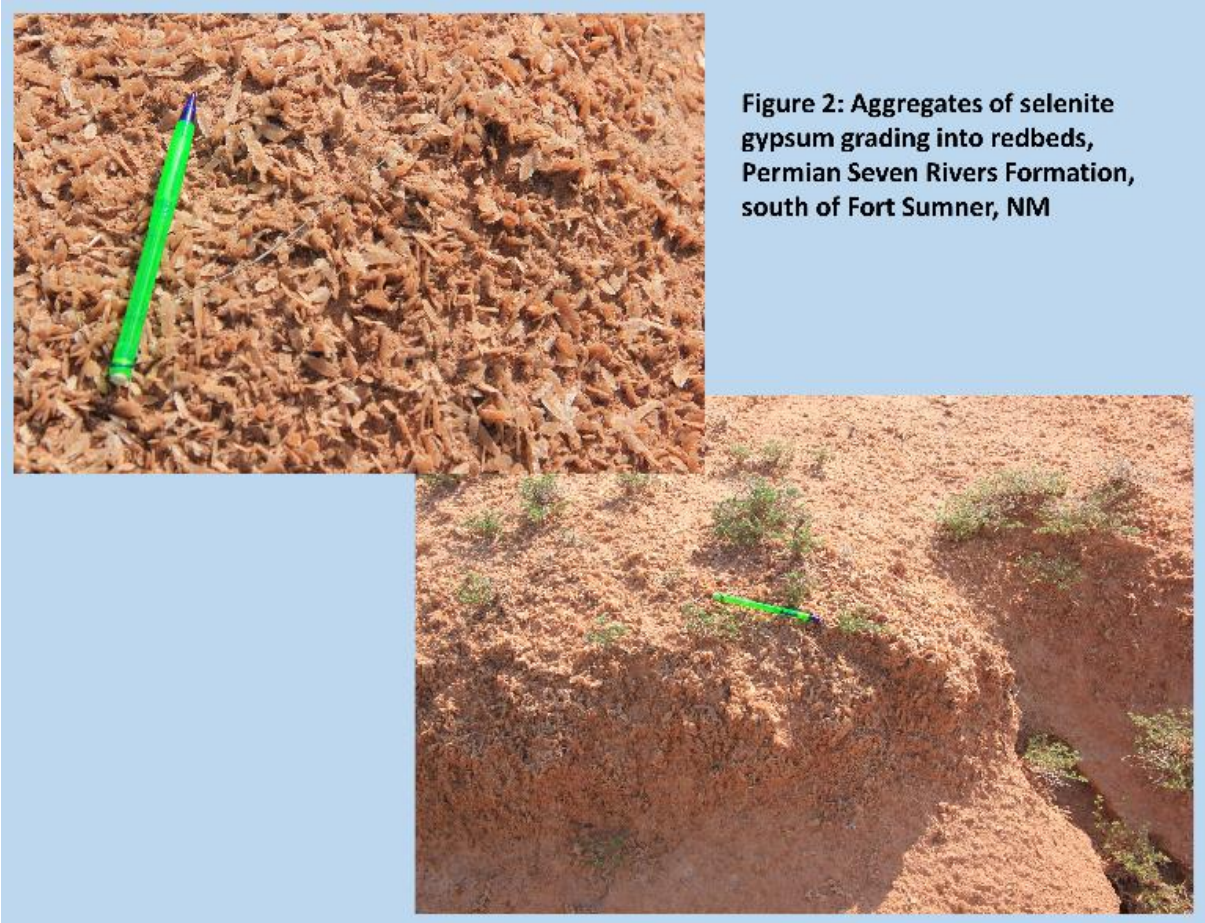


Figure 2: Aggregates of selenite gypsum grading into redbeds, Permian Seven Rivers Formation, south of Fort Sumner, NM

Figure 3: Las Salinas, remnant of the ancient Estancia Lake, East of Willard, NM

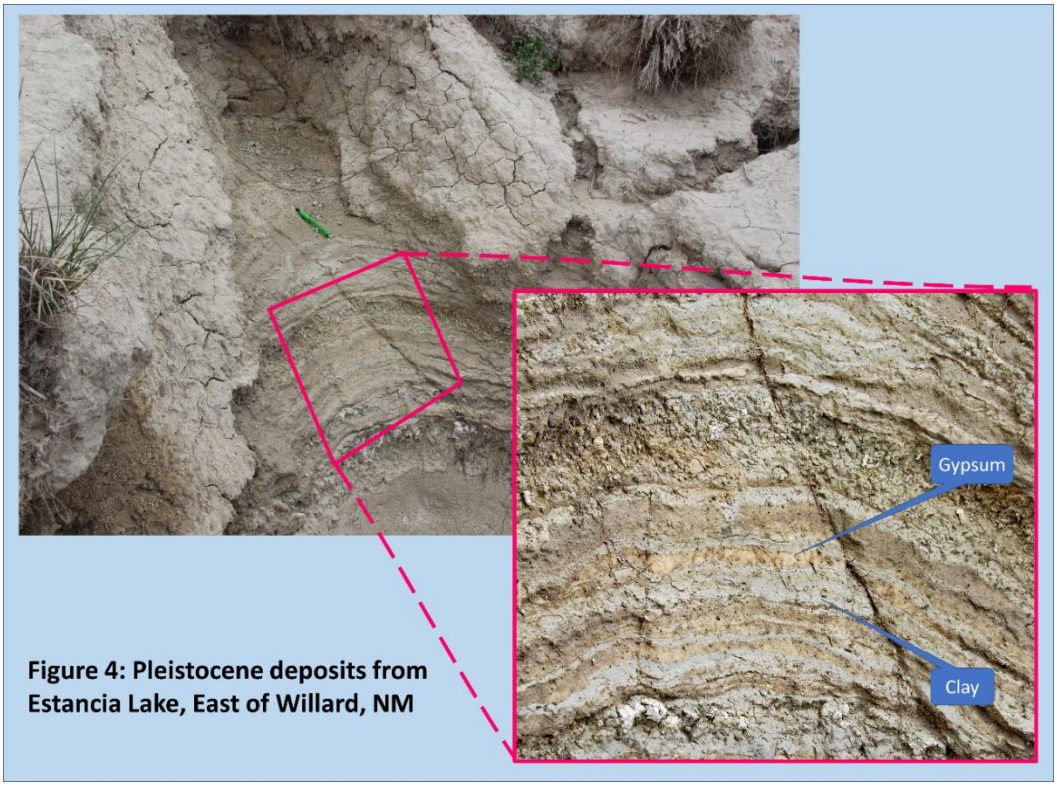
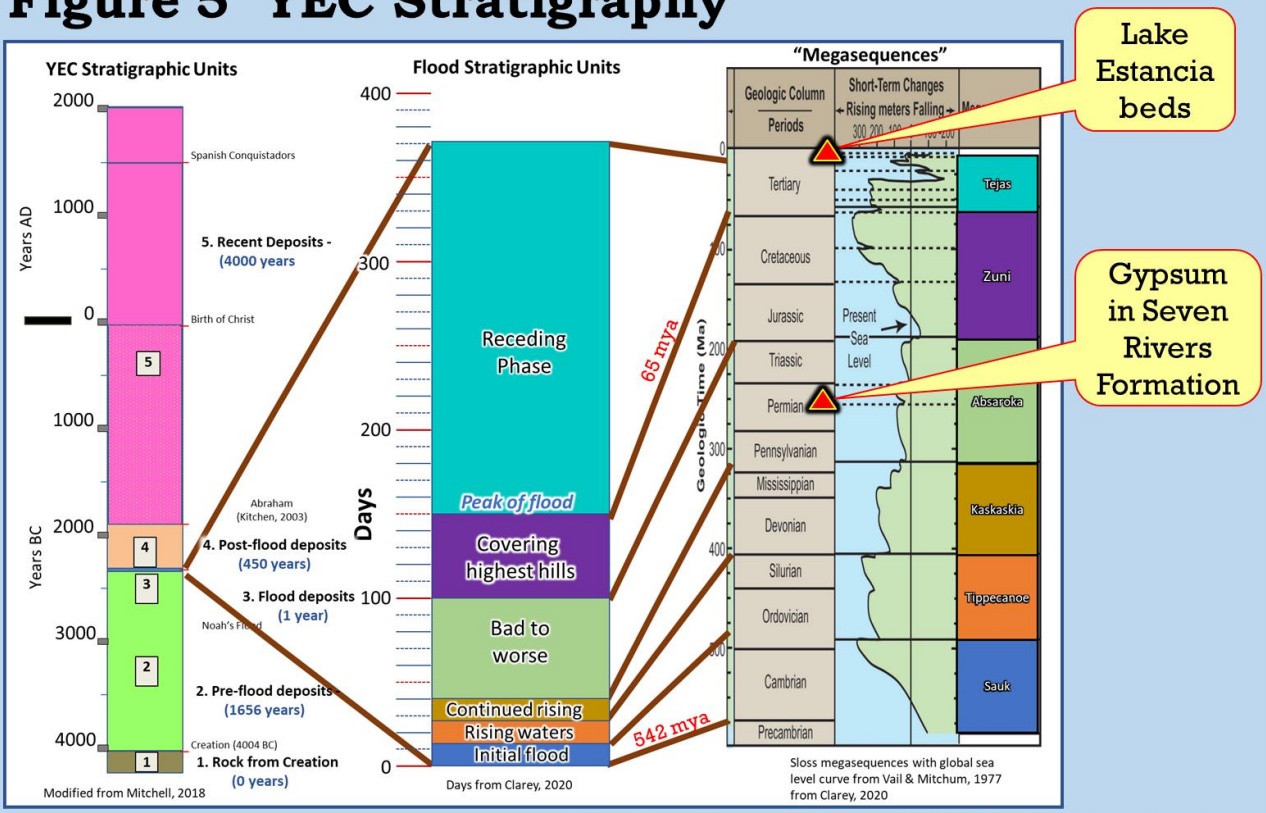


Figure 4: Pleistocene deposits from Estancia Lake, East of Willard, NM

Figure 5 YEC Stratigraphy



***Based on Carved in Stone* (2020) by Dr. Timothy Clarey**