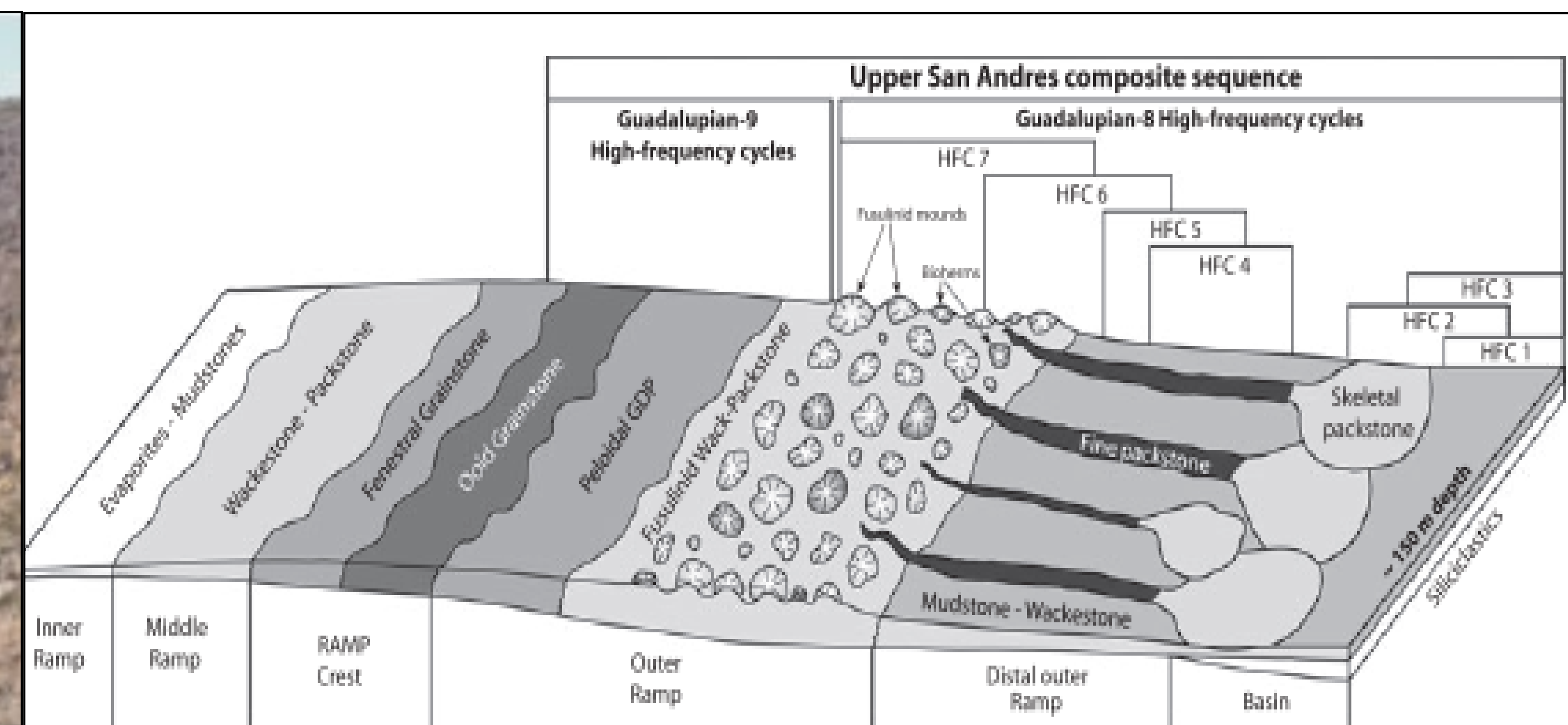
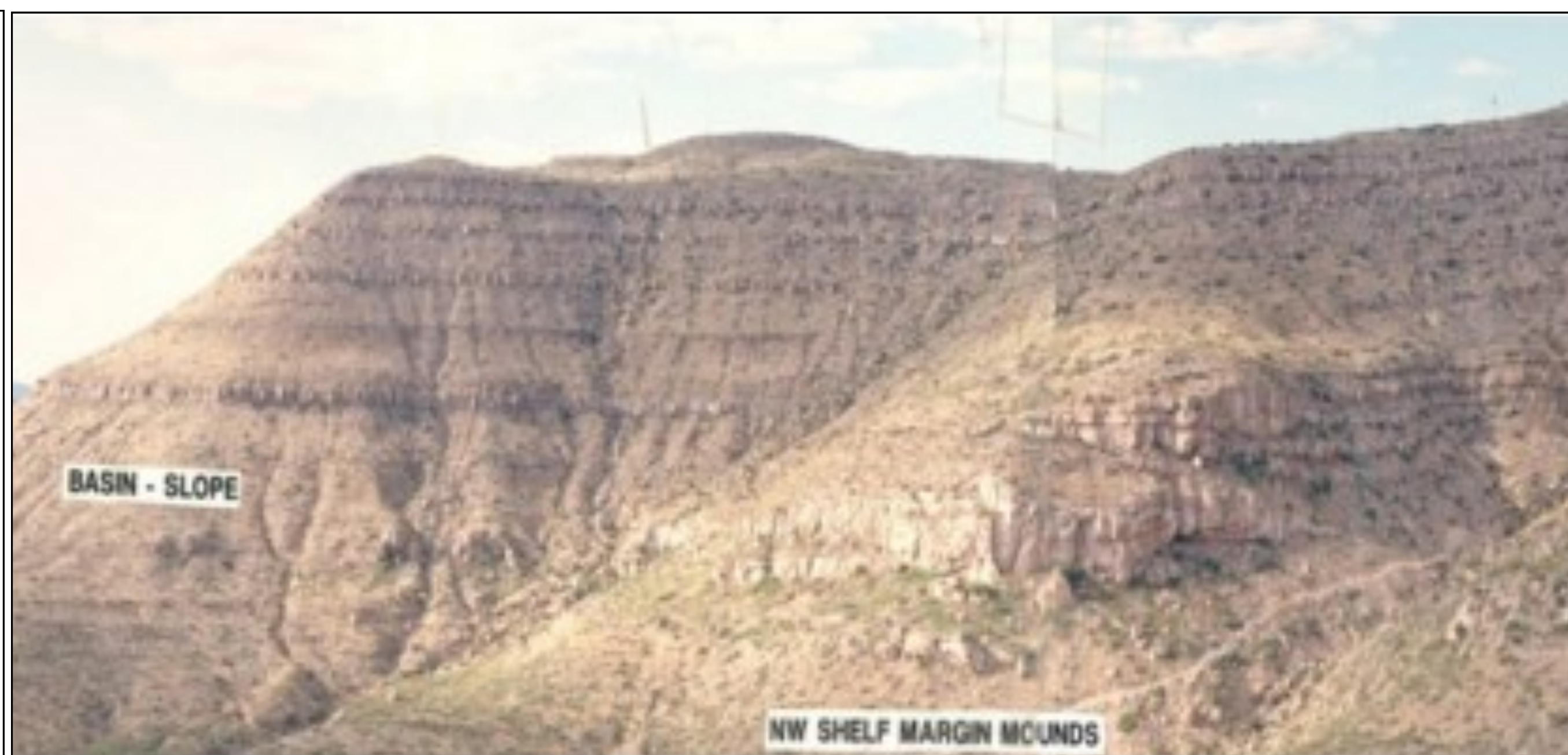
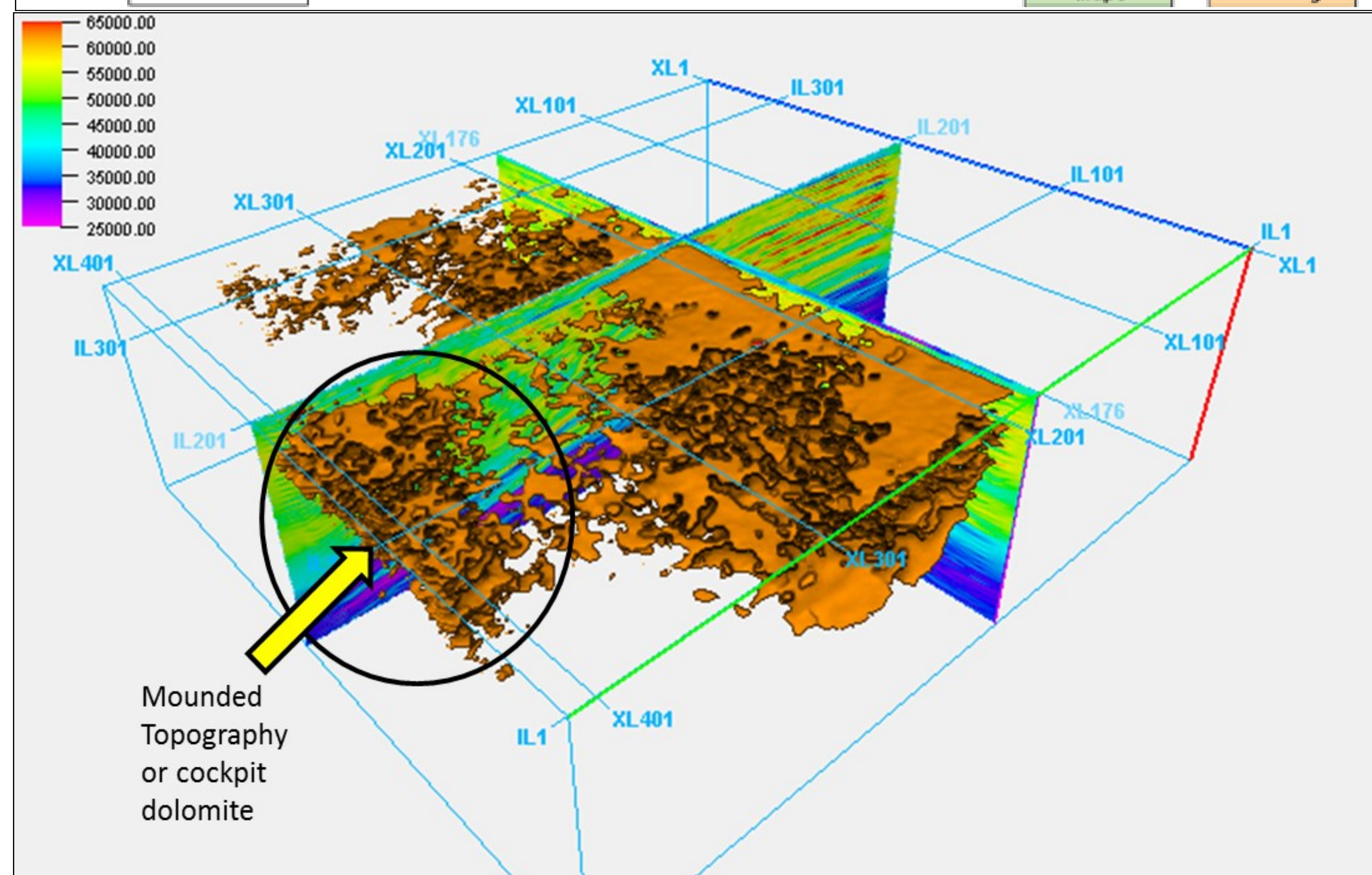
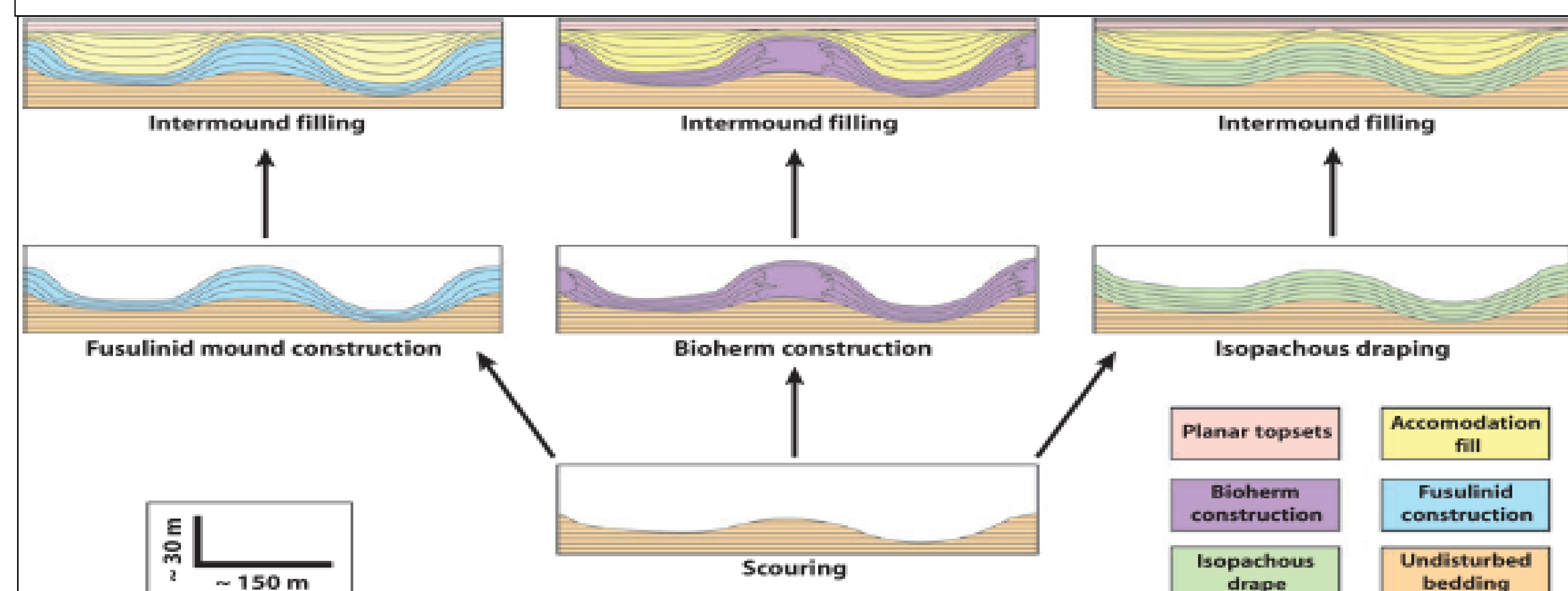




(1) Introduction

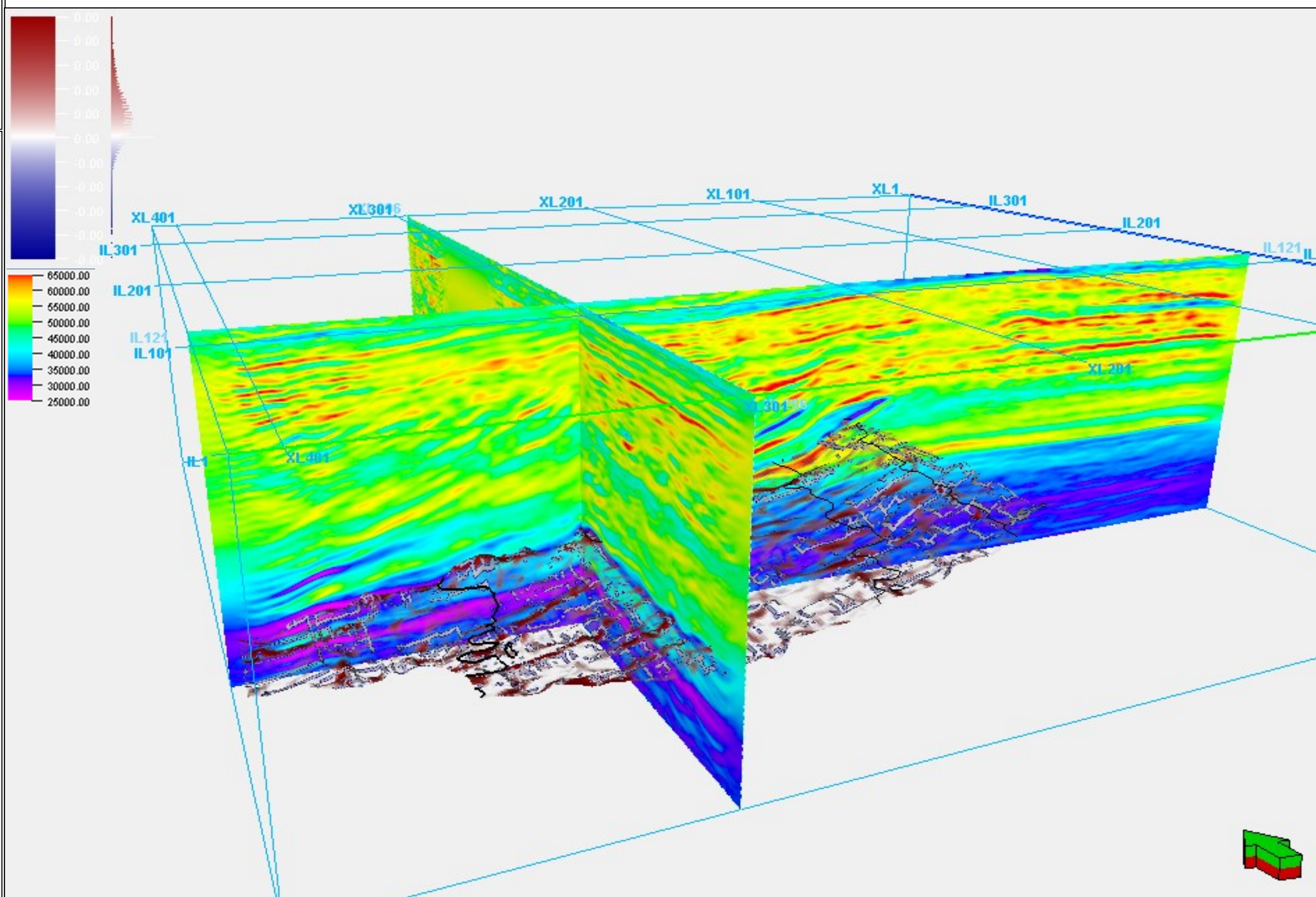
The Permian aged San Andres formation in Texas is highly recognized for its most prolific oil production of all the Permian Basin. This formation also has excellent ramp to basin exposure. For these reasons industry and research attention has risen due to this prolific oil producing formation.

The area of interest is the Diamond M field which sits atop the Horseshoe Atoll reservoir of west Texas. The Diamond M field has been producing oil since 1942. The mounded topography located on the outer ramp is of interest for potential reservoir and sequence stratigraphic purposes to enhance predictability.



(2) Development of Mounded Topography

The formation of the mounded topography on the distal ramp begins with scouring due to a storm surge ebb flow. Isopachous draping above the scours of dolomudstones, wackestones, and packstones are deposited. Aggradation of bioherms occurred on bathymetric highs which enhance the mounded topography growth and terminated due to mound intersection. Another procedure of mound construction was through the development of fusulinid mounds on bathymetric highs. Note that Isopachous draping, bioherm construction, and fusulinid mound construction are not mutually exclusive. Lastly, accommodation filling of fusulinid peloidal packstones and rare chert fusulinid wackestones occurs thickening the intermounded areas and thinning over the mounded structures. (Phelps et al., 2008)



(3) Conclusions & Future Work

The seismic inversion and the most positive curvature attribute show a potential area for the mounded topography described in Phelps paper. The most positive curvature attribute did not have as strong of a response as we had anticipated. This may be due to a low seismic resolution possibly because of the mounded topography carbonate build ups.

The next step is to observe and interpret existing core from the Diamond M field and compare the seismic inversion and attributes results with the Phelps paper.

References:

- Phelps, R. M., Kerans, C., Scott, S. Z., Janson, X., & Bellian, J. A. (2008). Three-dimensional modelling and sequence stratigraphy of a carbonate ramp-to-shelf transition, Permian Upper San Andres Formation. *Sedimentology*, 55(6), 1777-1813.
- Davogustto Cataldo, O. E. (2013). Quantitative geophysical investigations at the Diamond M field, Scurry County, Texas.