

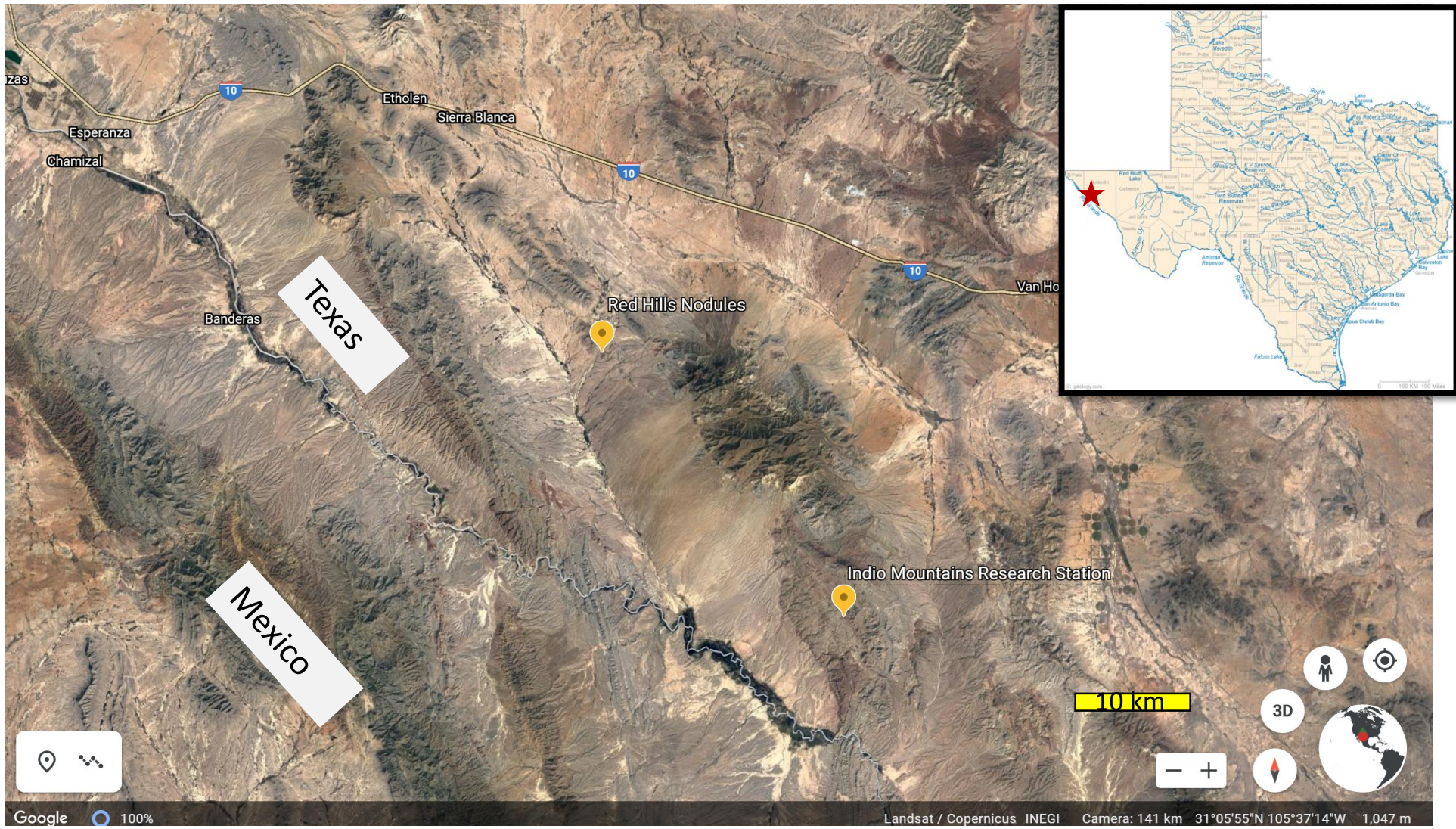
BULK SEDIMENTARY ORGANIC CARBON CHEMOSTRATIGRAPHY OF DINOSAUR-BEARING STRATA IN THE YUCCA FORMATION OF WEST TEXAS

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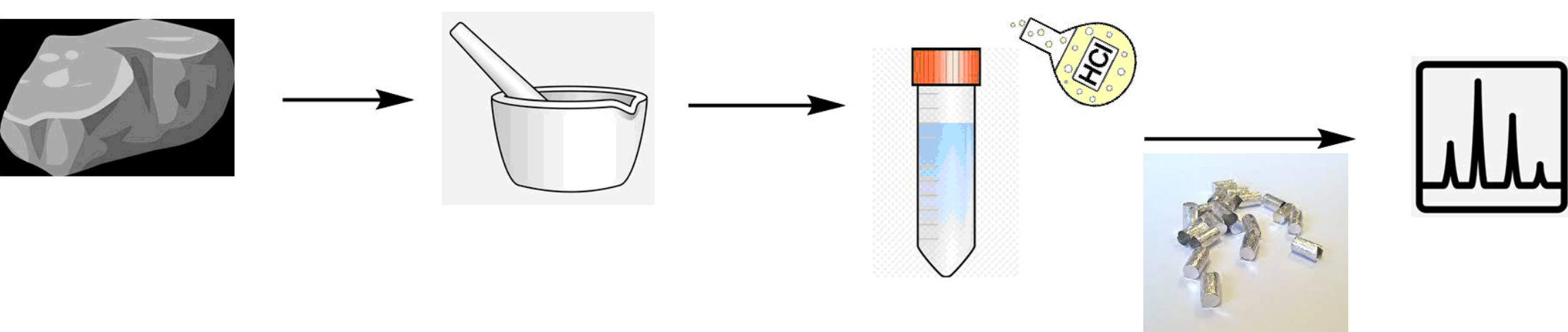
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Introduction



- The Yucca Formation is thought to be Early Cretaceous (Campbell, 1980)
- Preliminary field work resulted in a collection of samples in an attempt to provide a chemostratigraphic record. In addition, partial dinosaur remains were collected
- The goal of this project was to correlate the chemostratigraphic record with better dated chemostratigraphic records in marine formations

Methods



- Samples were crushed to a powder and reacted with 0.5M HCl until no reaction occurred
- Samples were then rinsed and dried
- ~40 to 60 mg of decarbonated powder were weighted into tin capsules
- Samples combusted on Costech EA
- CO₂ measured on Thermo MAT 253 isotope ratio mass spectrometer

Results

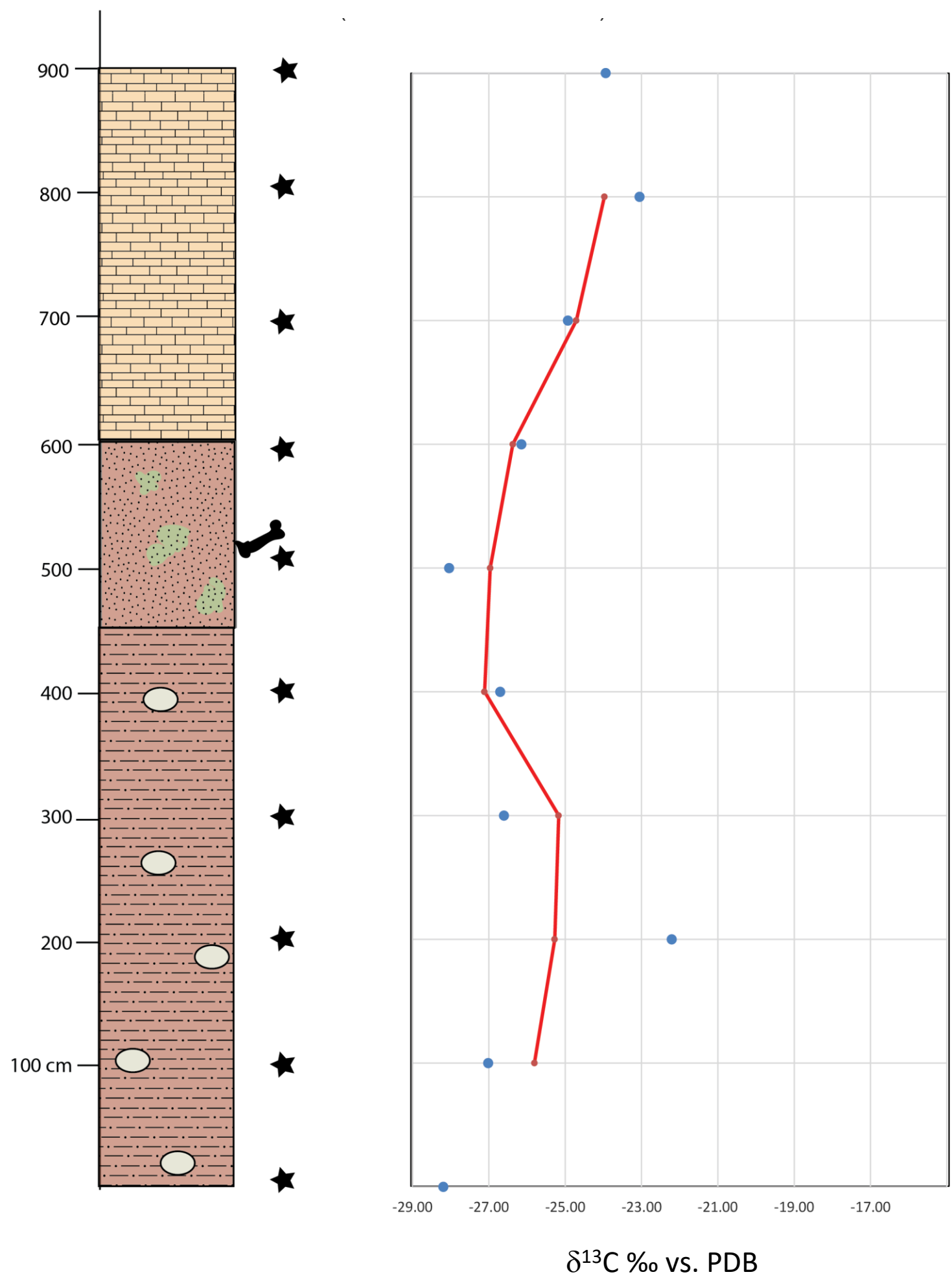


Figure 1: Yucca formation, Dino section Carbon isotope values. Red Hills nodules pin on map.

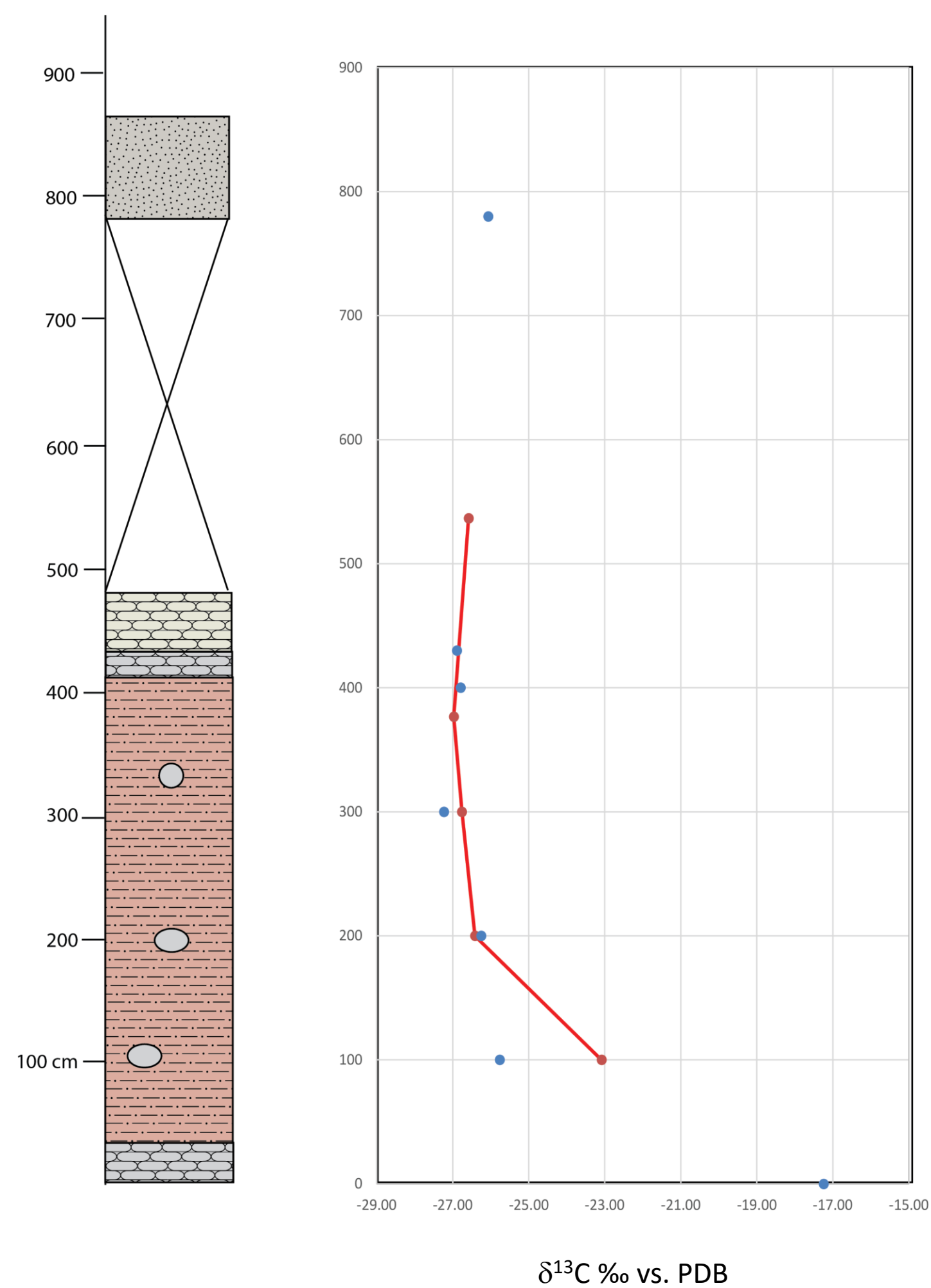


Figure 2: Yucca formation, IMFS section carbon isotope values. IMFS pin on map. An anomalously high value at the base is likely not completely decarbonated

Interpretations

- Organic carbon isotope values are consistent with C3 vegetation values (Sharp, 2017)
- However, the carbon isotope values are not varied enough or from a long enough section to be compared to long term chemostratigraphic trends
- Future work should include longer sections and more detailed study of soil carbonates

References

Campbell, D. H. 1980, The Yucca Formation – Early Cretaceous continental and transitional environments, southern Quitman Mountains, Hudspeth County, Texas *in* Dickerson, P.W., Hoffer, J.M., and Callender, J.F., eds. Trans Pecos Region (West Texas): New Mexico Geological Society 31st Annual Fall Field Conference Guidebook. p159-168

Sharp, Z., 2017, Principles of Stable Isotope Geochemistry

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Figure 3: Yucca Formation outcrop (left) and paleosol carbonates (right)