# Texas University Lands: History, Opportunities and Geoscience Vision*

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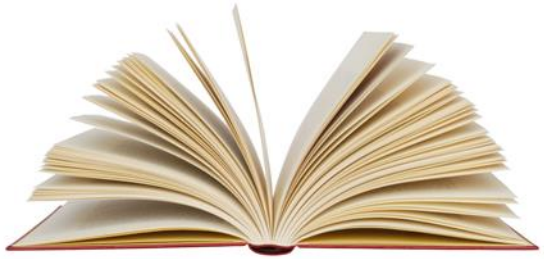
## Abstract

The creation of TOGI began in 2012 when the University of Texas System Board of Regents formed the Task Force on Engineering Education for Texas in the 21st Century. An early recommendation by the Task Force was to develop greater ties to industry, and thus provide a resource for research and for hands-on educational opportunities. A second recommendation was to improve and increase internships that directly connect students with industry, and thus develop more opportunities to practice engineering and geoscience skills while pursuing a degree. The Texas Oil and Gas Institute was approved in 2015, and Dr. Jeff Spath, the 2014 SPE President and a former executive advisor at Schlumberger, was named as CEO.

Almost one year later we exist as an industry-centric and Houston-based, multi-disciplinary educational and research institute. Our initial client is University Lands, also part of the University of Texas System, and we are focused on improving the value of their oil and gas royalty assets for the benefit of the University of Texas and Texas A&M University, Permanent University Fund.



TOGI

FOR THE BENEFIT OF THE UNIVERSITY OF TEXAS AND TEXAS A&M SYSTEMS

TEXAS OIL & GAS INSTITUTE

EDUCATION · ENGINEERING · RESEARCH

Brian Casey

# Opportunities and Geoscience Vision

*An Introduction To Our Geoscience Projects*

02 May 2017

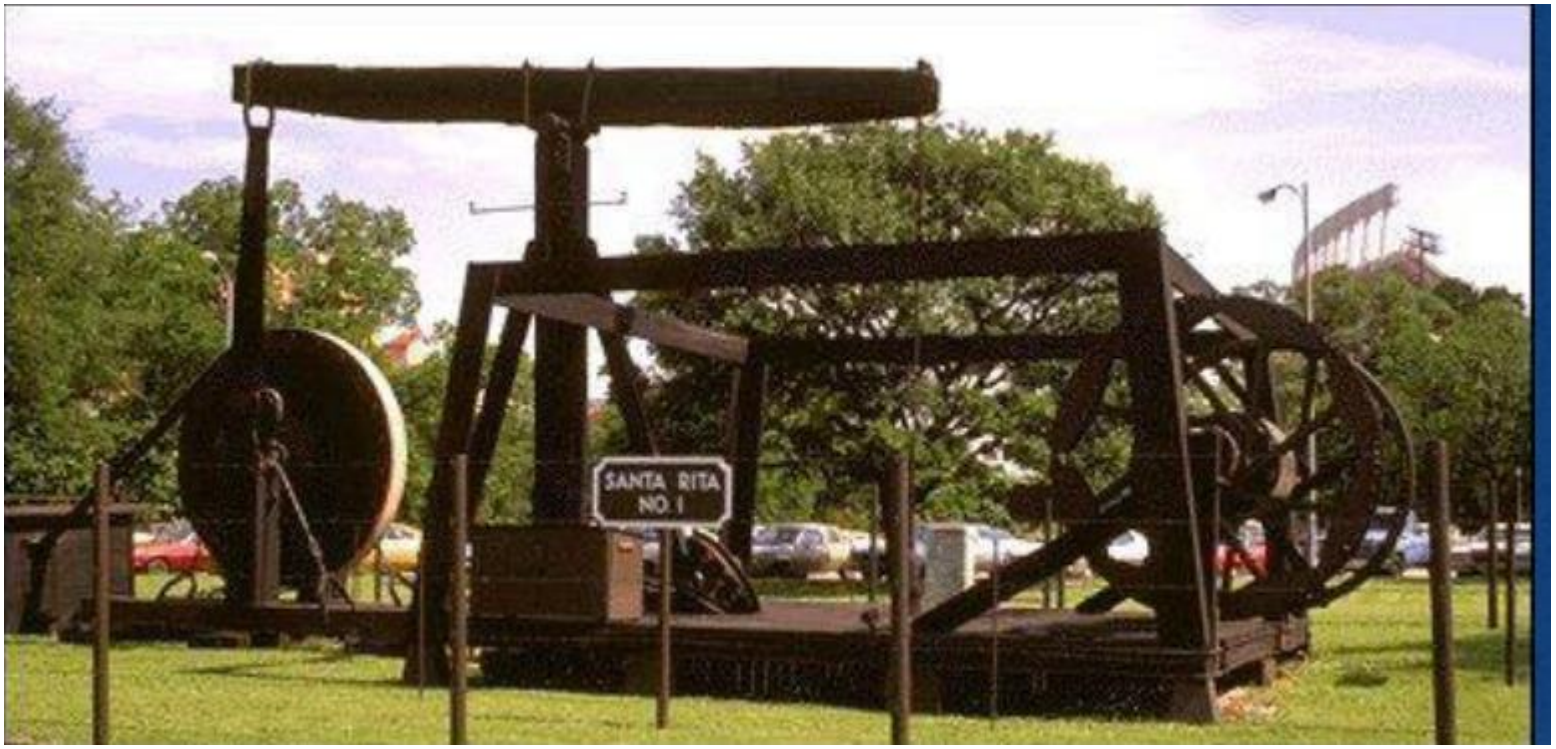
# Who\What Is TOGI?



- 2014: Proposed by "Task Force on Engineering Education for Texas"
  - EREEI - Energy Research, Engineering and Education Institute
- 2015: Board of Regents Approval
- Sep. 2015: Jeff Spath, CEO hired
  - Renamed TOGI - Texas Oil & Gas Institute
- Conduct Industry-Sponsored Research
  - Use Permian Basin data from University Lands – Initial Client
    - Optimize Resource and Reserves to accelerate growth of Permanent University Fund
  - Utilize Student Interns and University Research Vehicles

# Permian Basin Geology

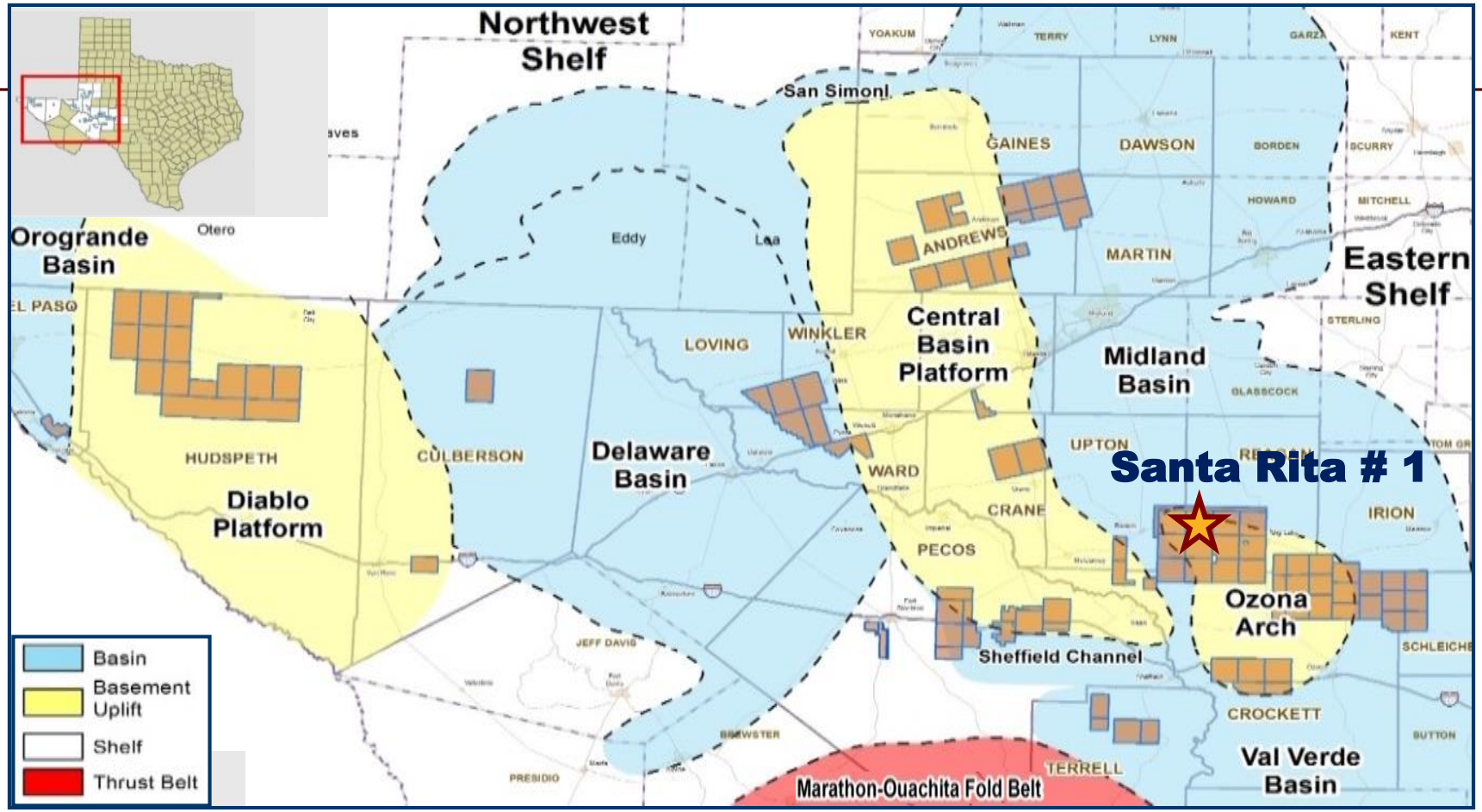
*"It made a rich school of the University of Texas." Texas Bob.*




Santa Rita Well No. 1 – University Lands Discovery Well
Original equipment on campus at UT Austin

# University Lands Assets

## 2.1 million acres




- Total Net Reserves (Aug-2016)
  - 1.5 Billion barrels of oil equivalent
- 2016 Gross Daily Production
  - ~ 203,000 BOE per day (60% oil)
- 2016 Net Daily Production
  - ~ 40,500 BOE per day

- **2016 Net Revenue: ~ $535 M**

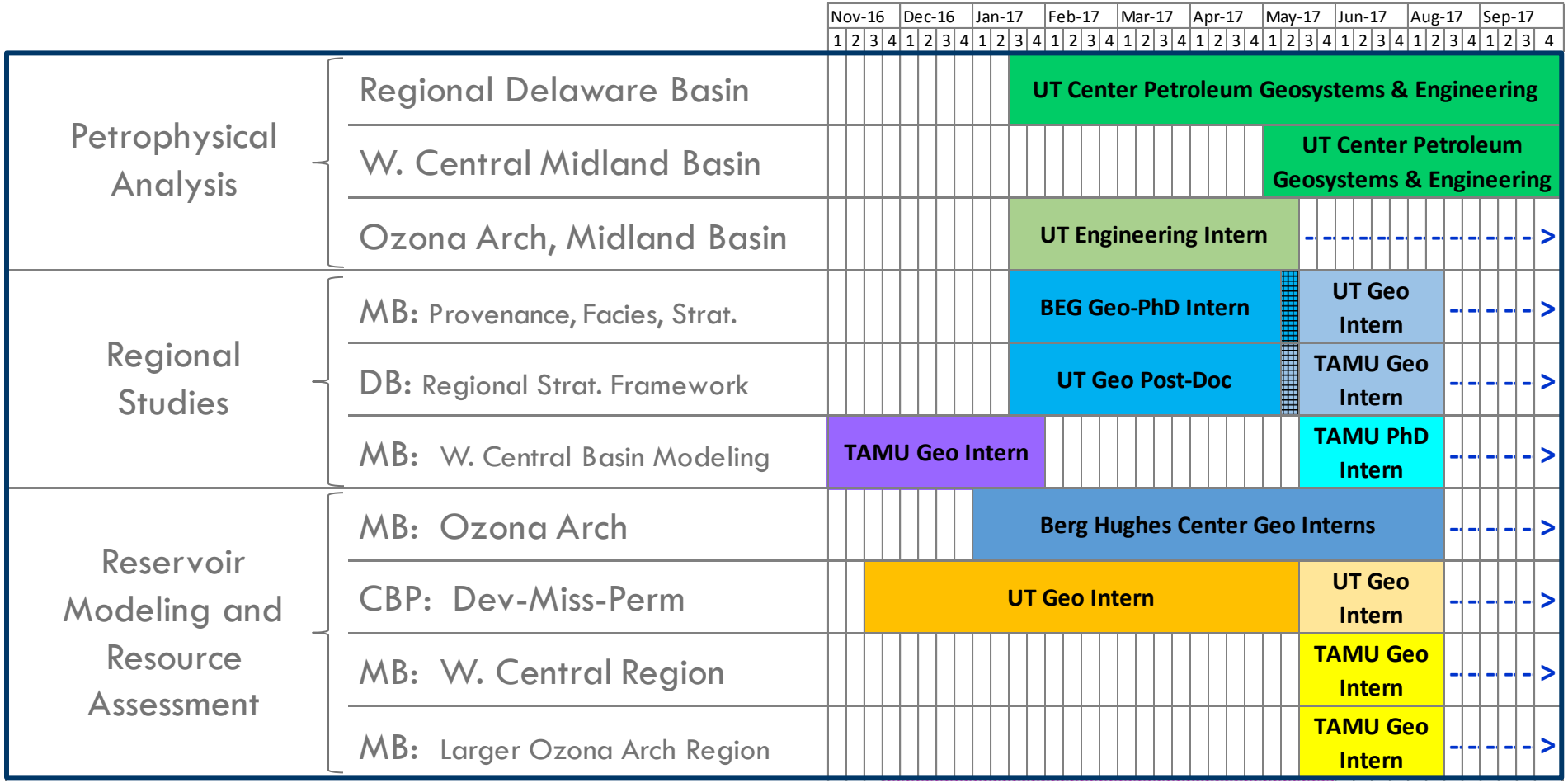
**>20,000 Identified Drilling Locations on Current Leases**

# TOGI Geoscience Vision 101

- Build a composite, scientific, and quantitative understanding of the Permian Basin
  - Unique access to large University Lands database and University research.
  - Honor the serious limits on how data and research can be used, shared, and published.
- UL benefits through resource and reserve optimization.
- Mentoring required: Intern labor is not experienced, so having very experienced TOGI staff and *University researchers* are essential.

# TOGI Petrophysical - Geologic Intern Projects

## Fall 2016 Through Sept 2017




**COLLABORATION**

# Permian Basin

## Long Term Prioritization of Reservoir Analysis *

1st Priority

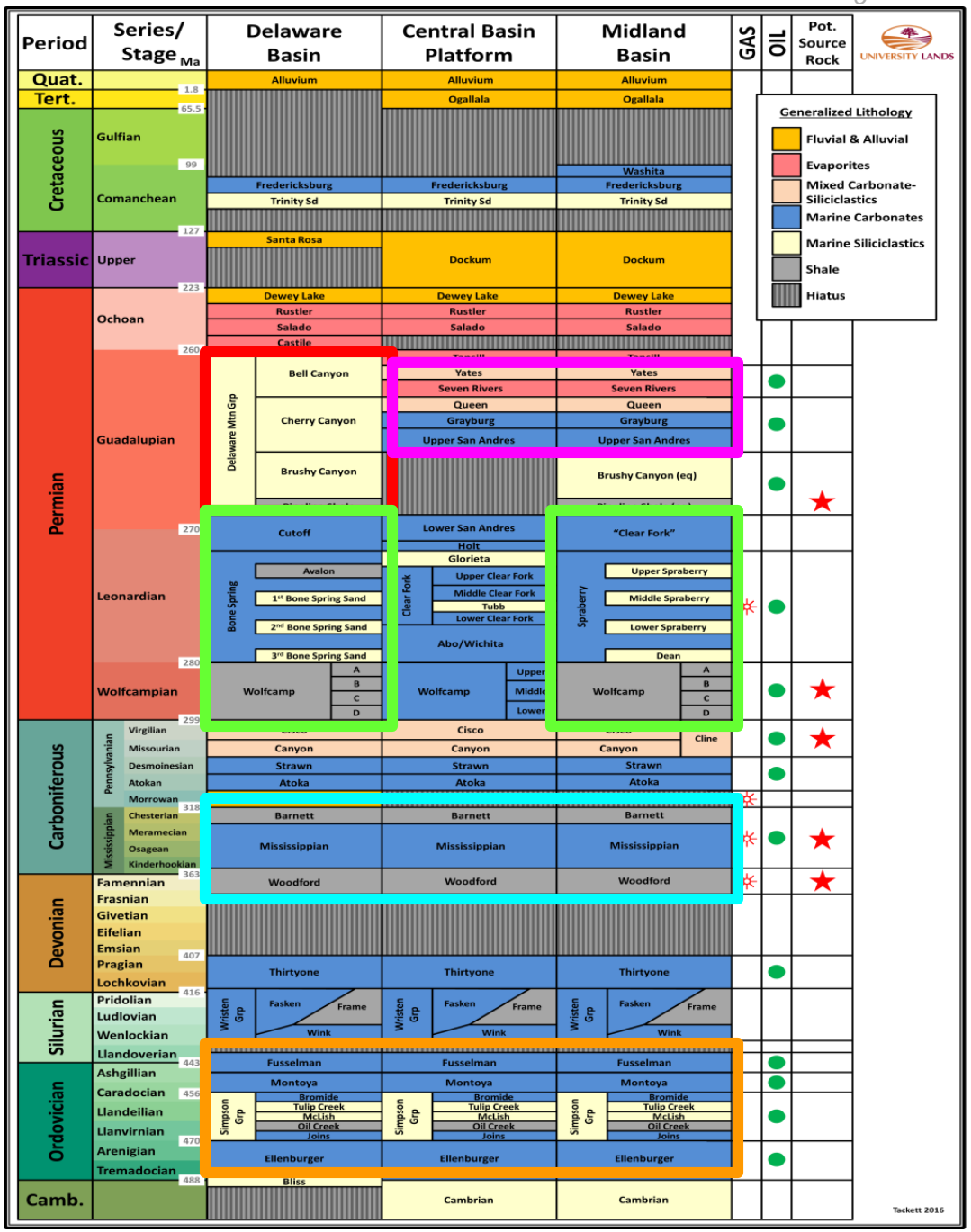
2nd Priority

3rd Priority

4th Priority

5th Priority

* First pass stab at relative importance



# Delaware Basin Petrophysical Study

- Wells inside and outside University Lands

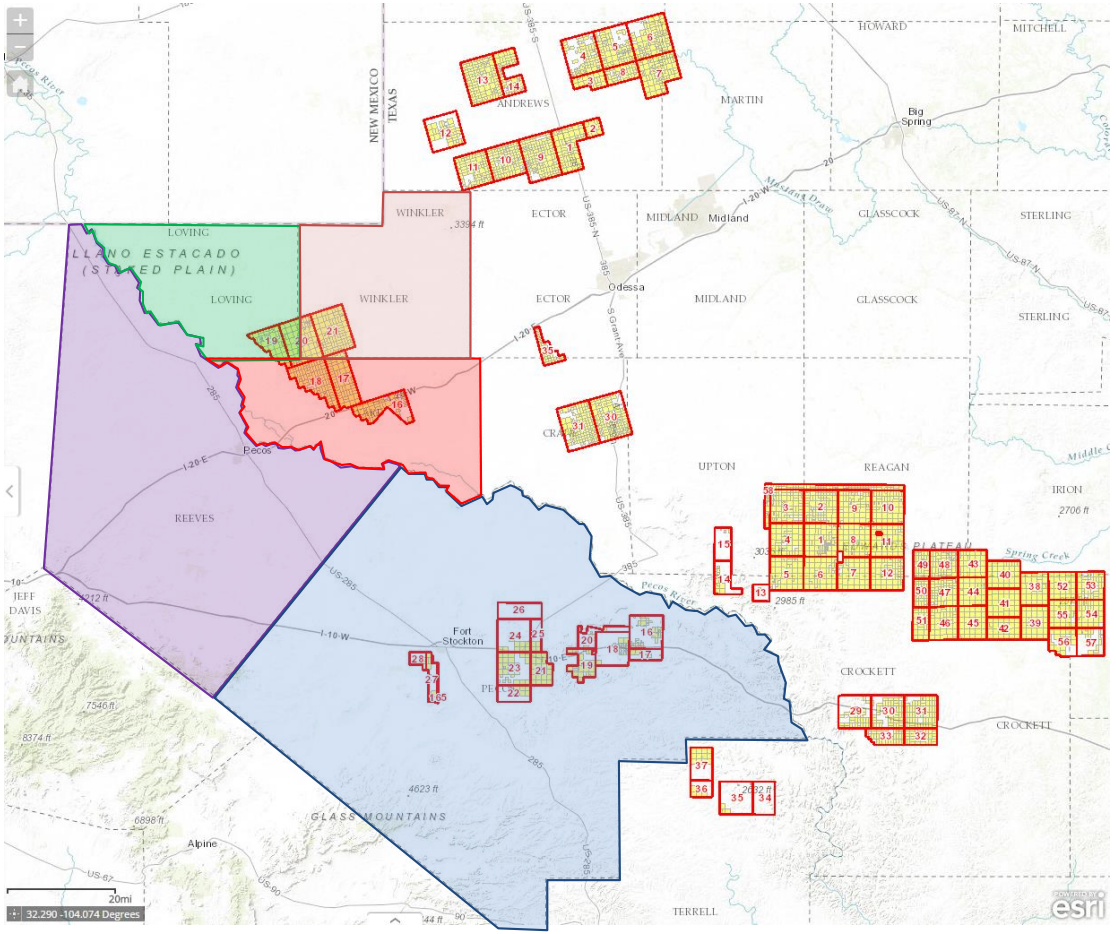
**Ward County**

**Winkler County**

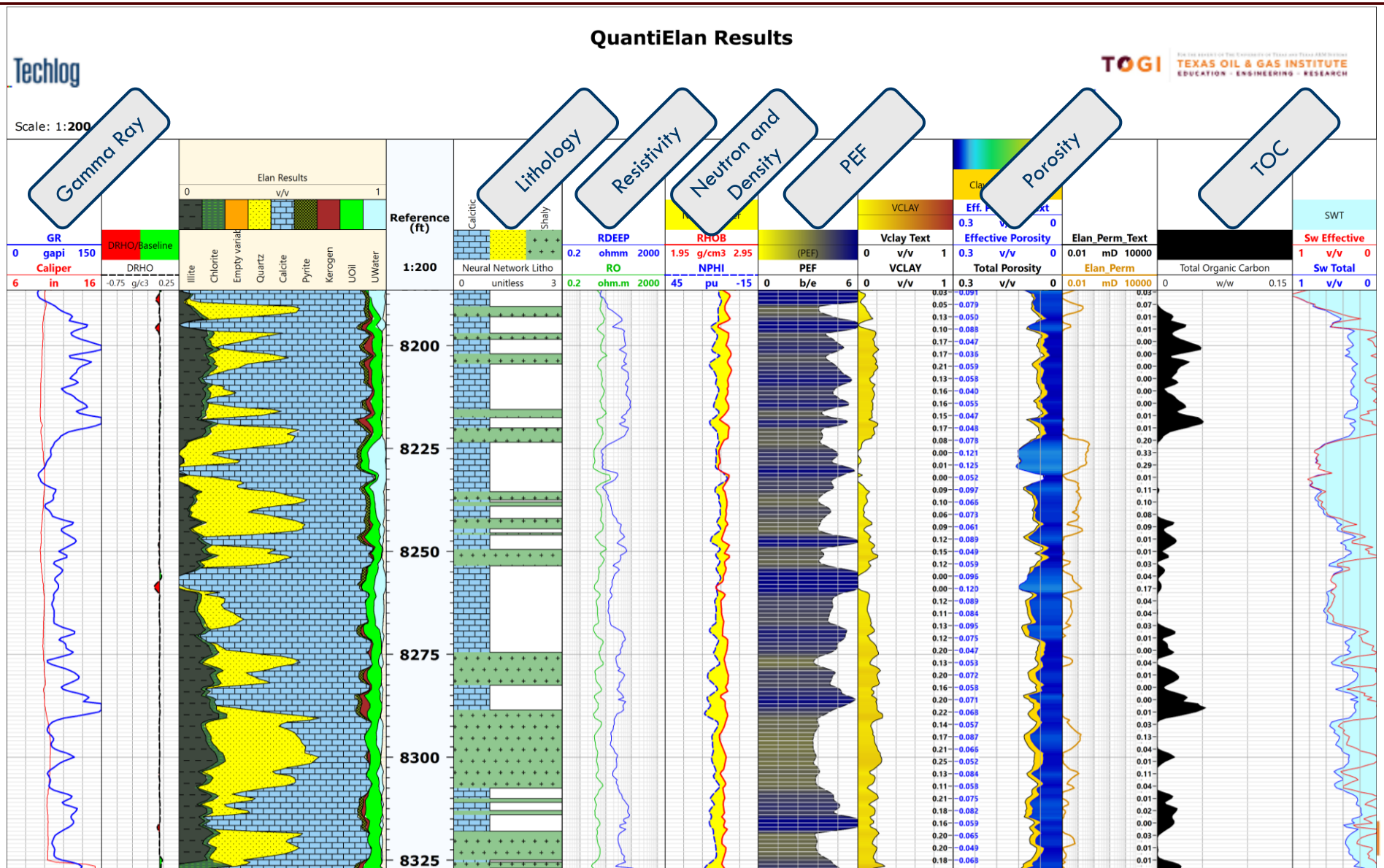
**Loving County**

**Reeves County**

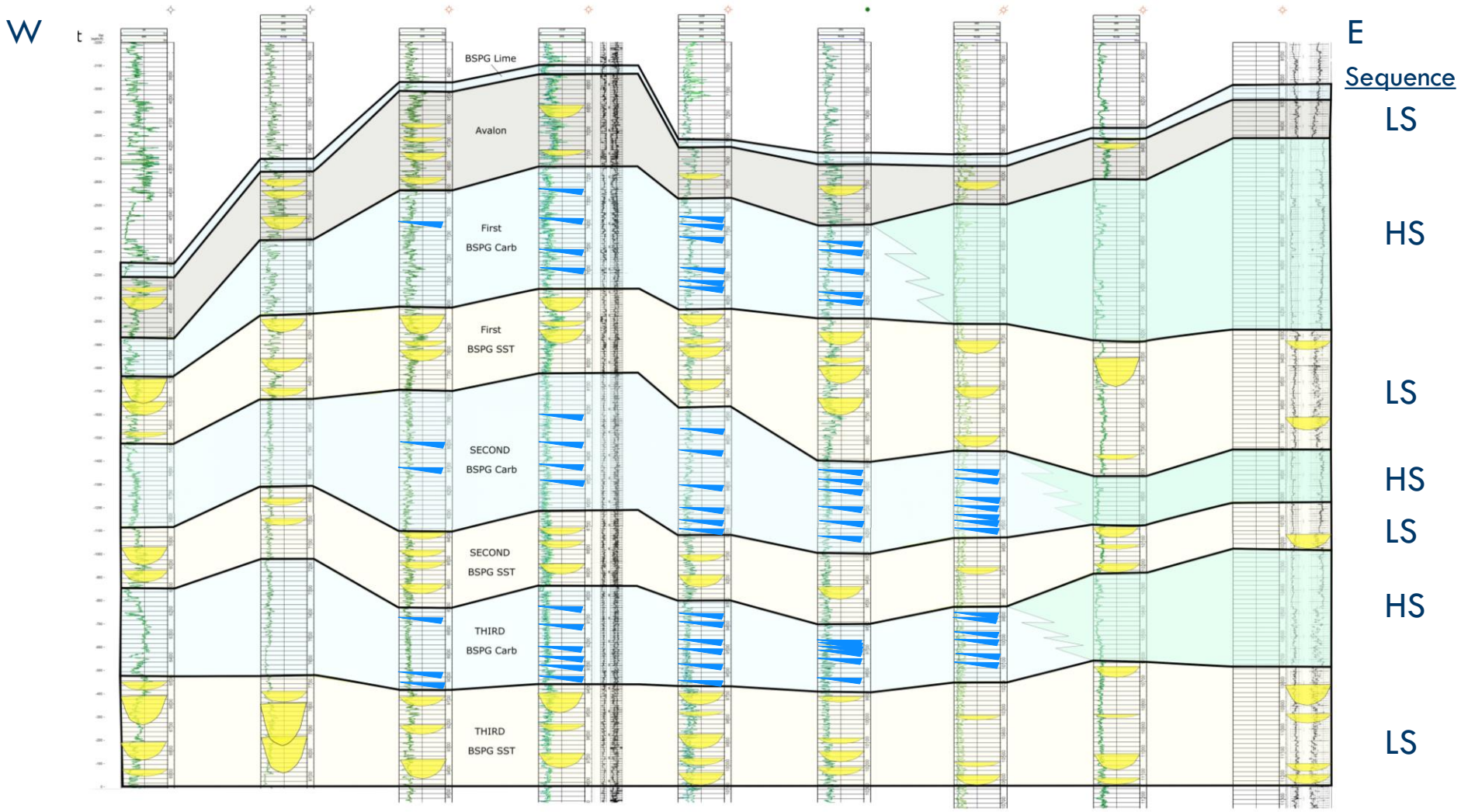
**Pecos County**



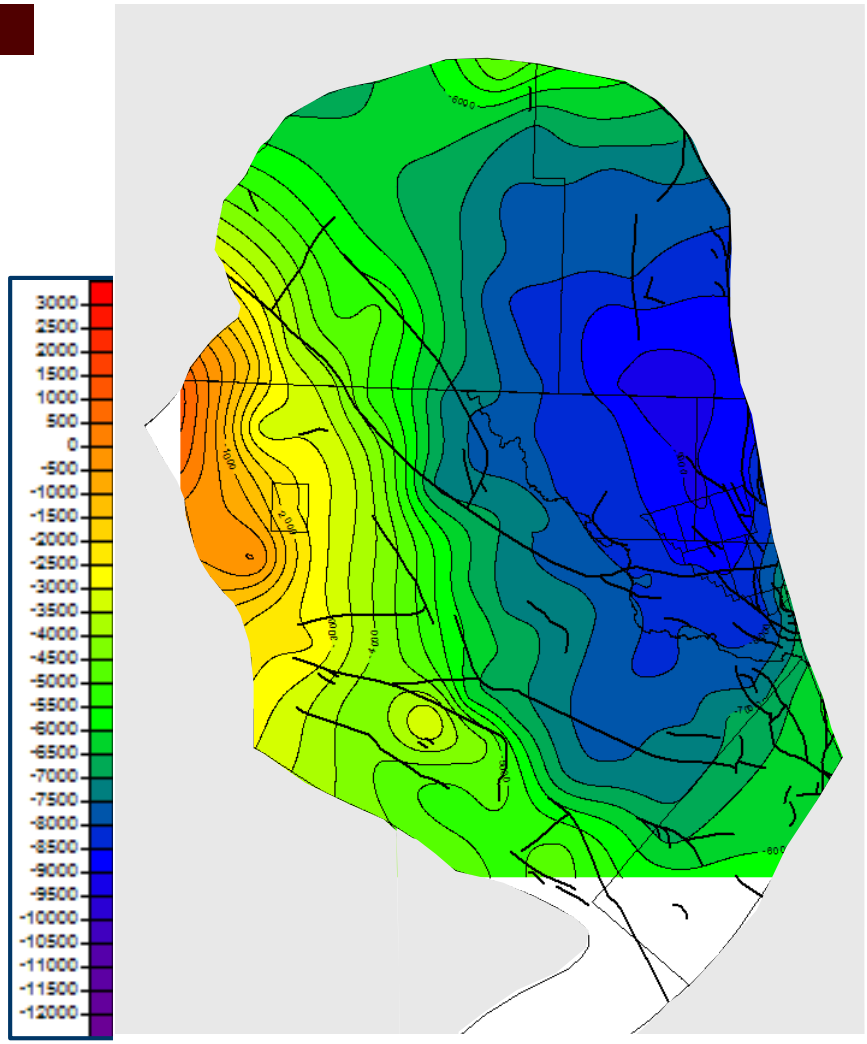
# Delaware Basin Petrophysical Interpretation



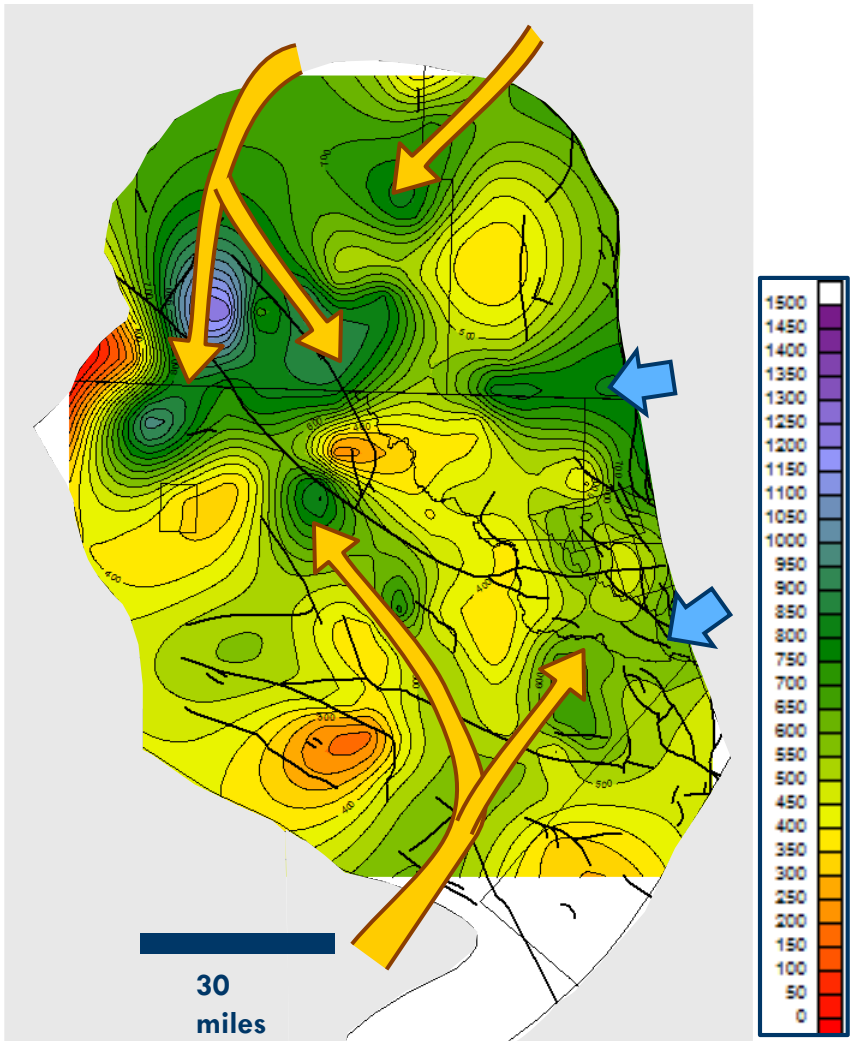
# Delaware Basin Bone Spring Correlation



# Delaware Basin Bone Spring

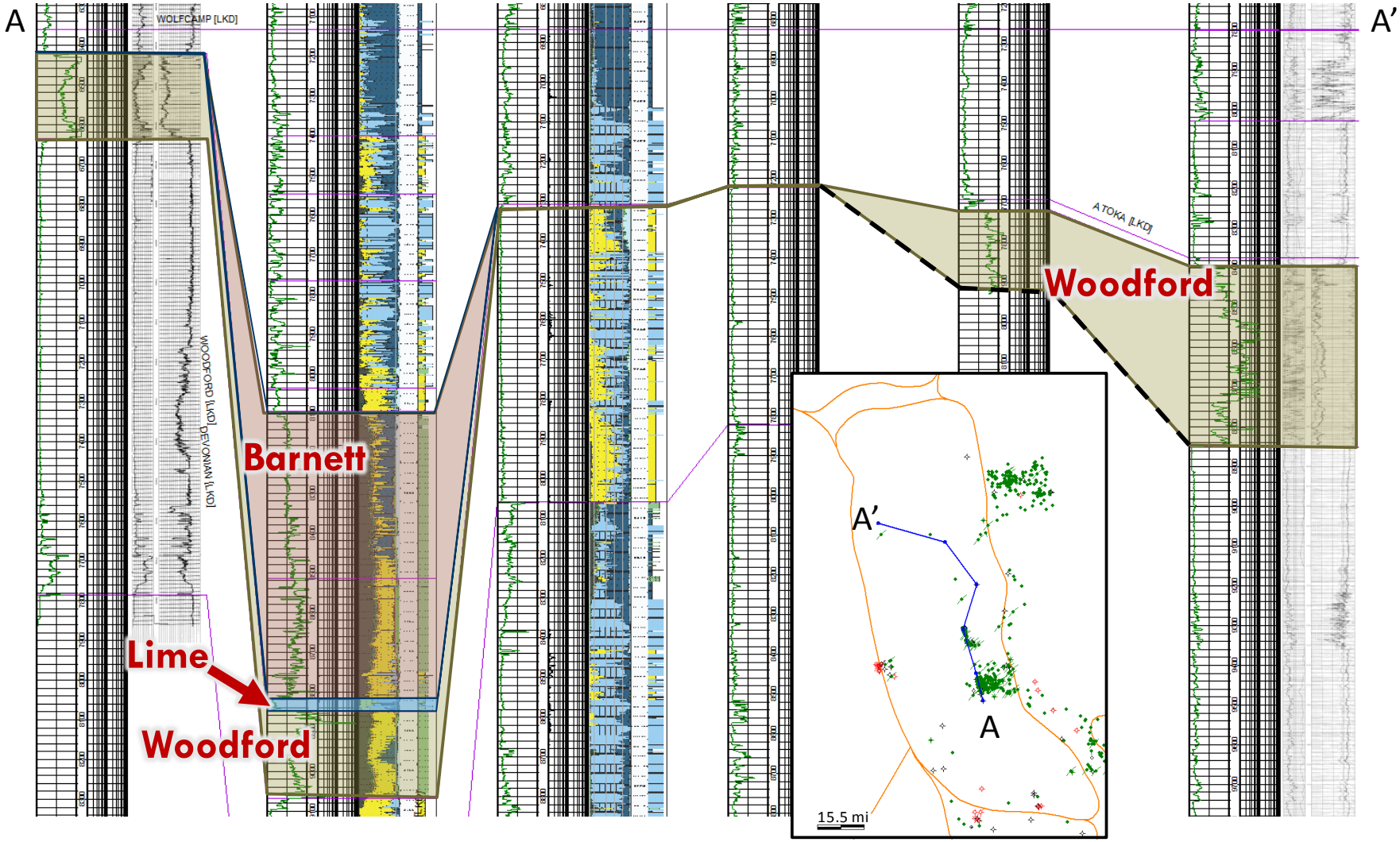



Top Wolfcamp



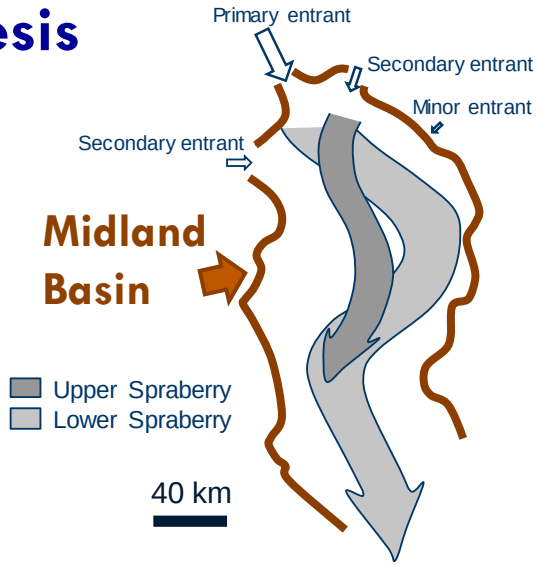

Third Bone Spring Sand Isochore

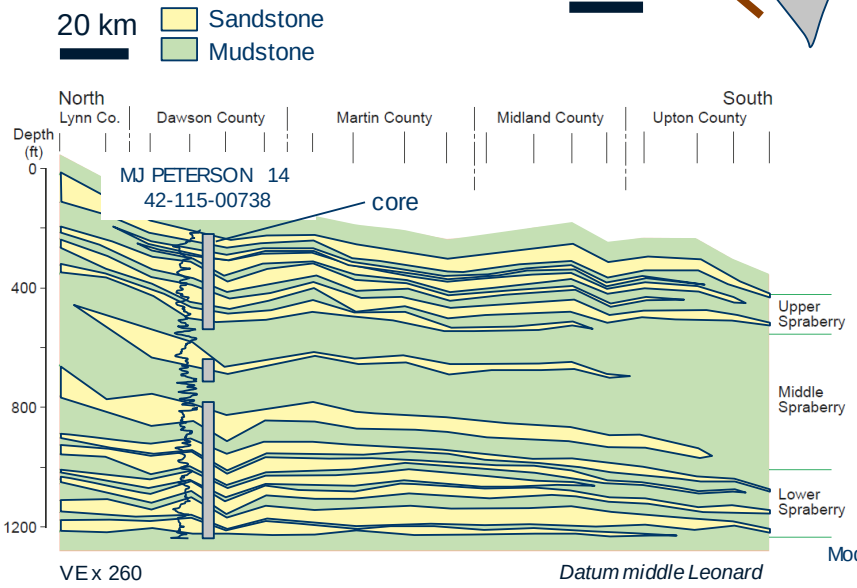
# Central Basin Platform Mississippian-Devonian

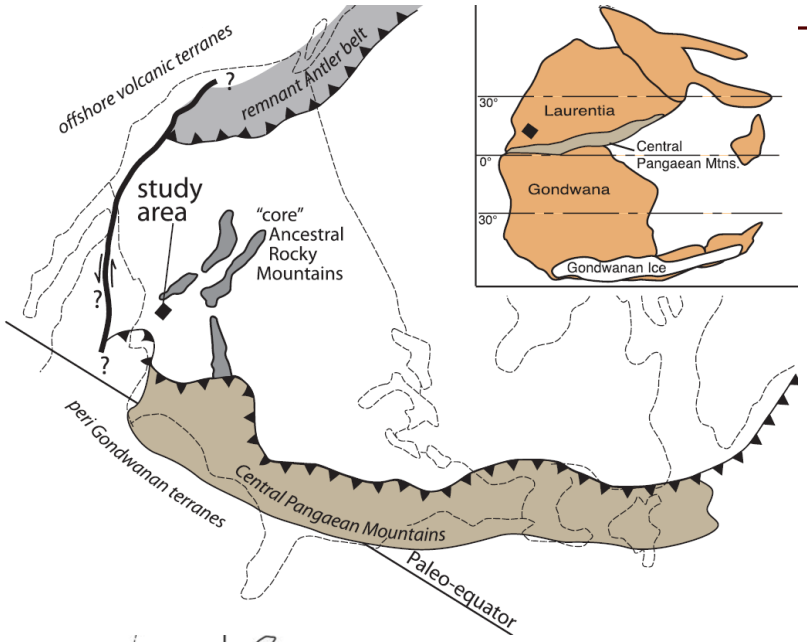


# Midland Basin
# Spraberry Provenance, Facies Types & Patterns

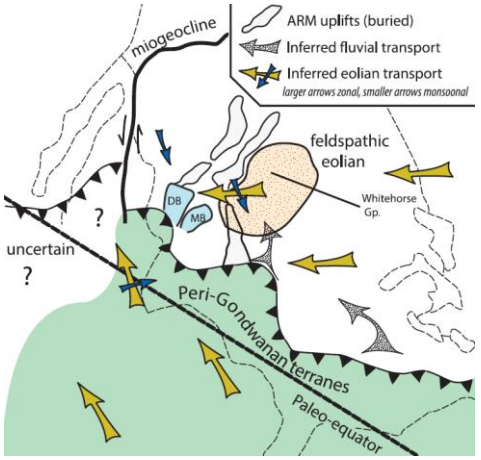
## Hypothesis 1



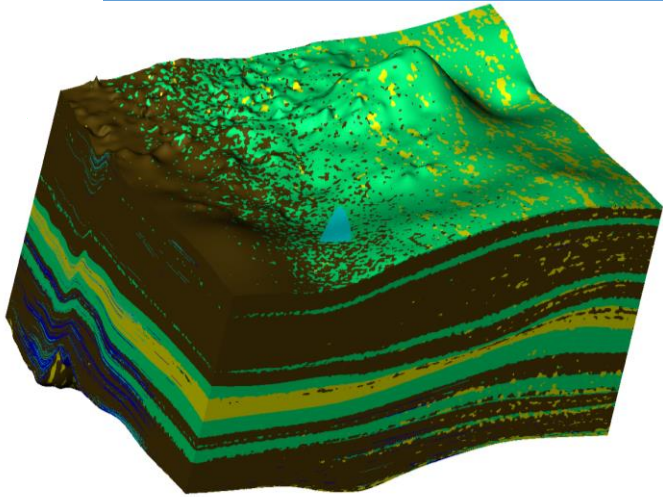




## Hypothesis 2

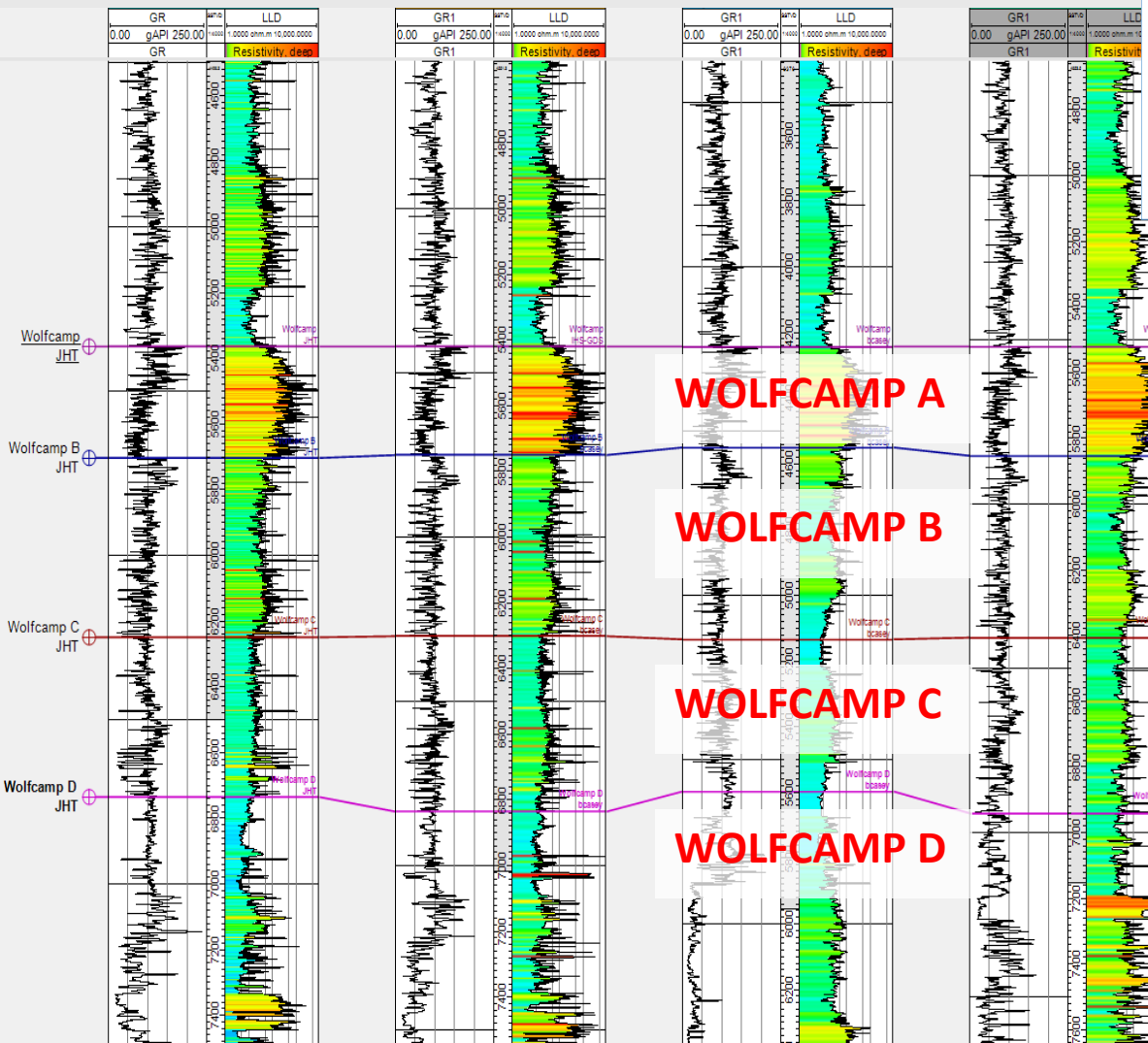


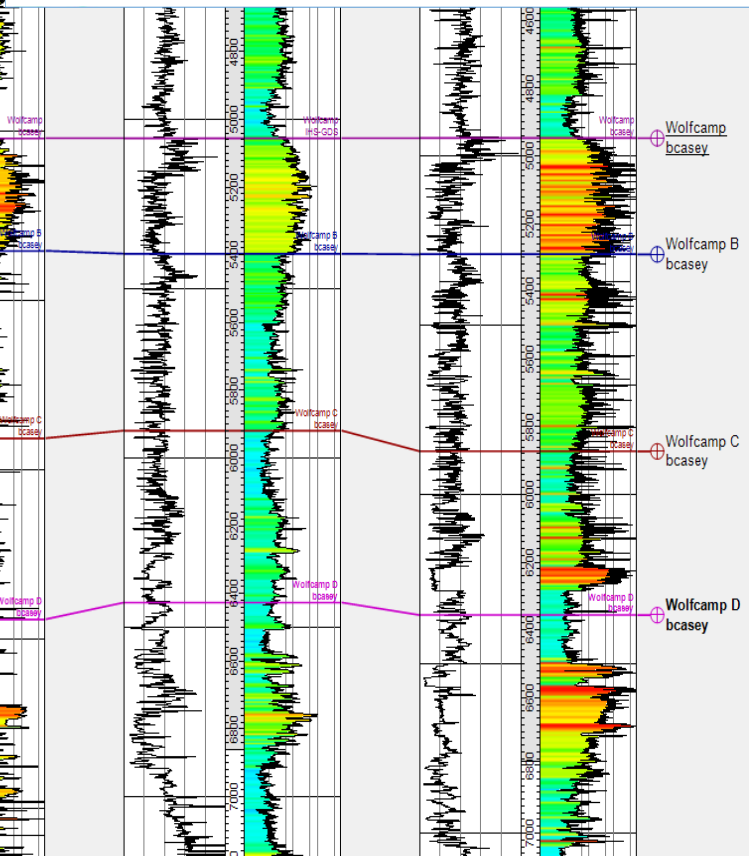

Modified from Tyler et al. (1997): *BEG, The University of Texas at Austin*
Modified from Hamlin & Baumgardner (2012): *BEG, University of Texas at Austin*
Soreghan & Soreghan (2013): *Journal of Sedimentary Research*

# Ozona Arch Correlations



Facies Model



# Summary

- Build a more in-depth understanding of the Permian Basin Geology – Data & collaboration intensive
- Carefully honor proprietary data and research
- Mentor and train a ton of interns from those Universities to do this work
- Integrate regional geologic and petrophysical interpretations with sophisticated geologic models for resource and reserves assessment

TOGI