

Cyclothem Characterization for the Eastern Edge of the Cherokee Basin

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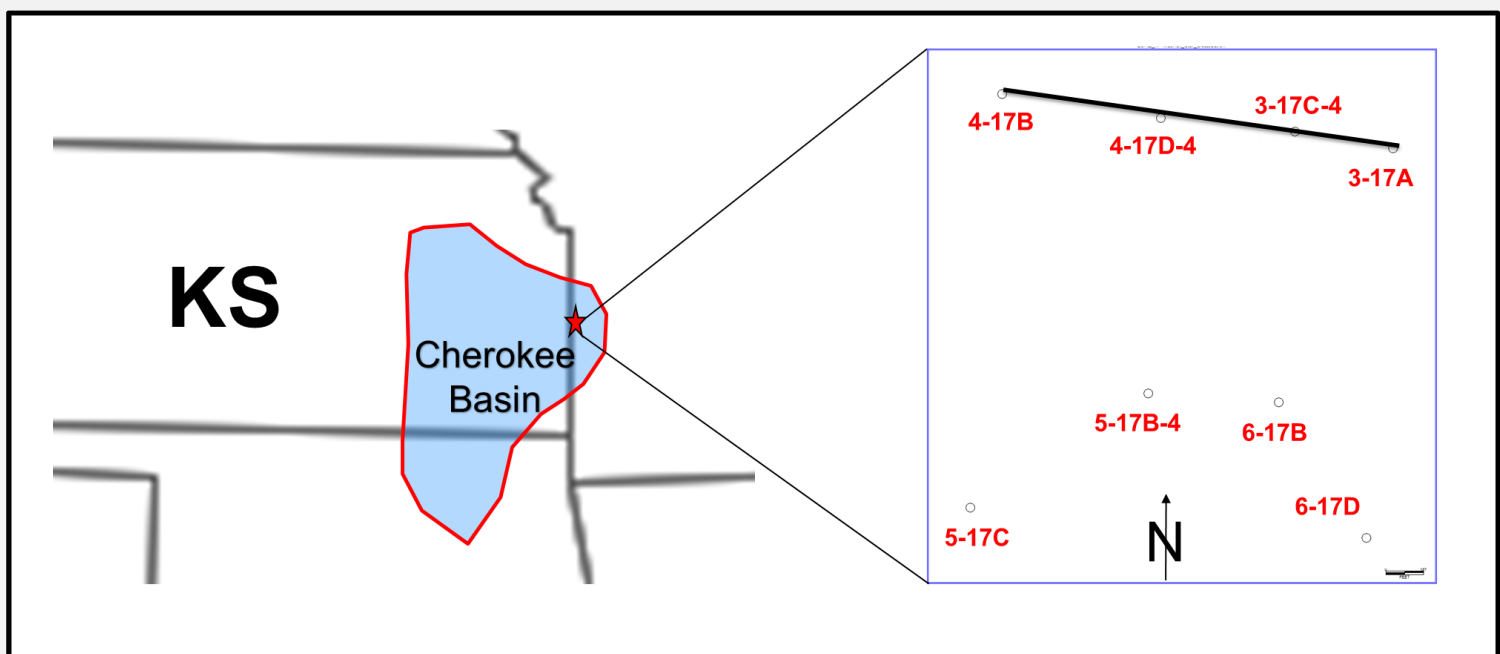
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Abstract

The purpose of this project is to interpret lithologic units using geophysical data obtained from 8 wells in the Cherokee Basin. Results show Gamma Ray (GR) values range from less than 20 to 300 degree API, Photo-electric (PE), values range from 1.5 to 5.5 b/e, and Bulk Density (RHOB) values range from 1.5 to 2.8 g/cc. 5 major facies were identified and recognized 27 lithology units, including 10 coal beds. The other facies include Sandstone, Shale and Limestone. The abundance of interbedded coal layers indicate cyclical deposition, alternating between high and low energy deposits.

Introduction



The Cherokee Basin is located in parts of Kansas, Missouri and Oklahoma. The study area lies on the southern edge of the Bourbon arch which separates the Forest City Basin from the Cherokee Basin. The study area covers 8 wells but 4 were studied. All wells reach the Mississippian Limestone Formation, which reach depths of approximately 350' from the surface.

Objective

- Picked formation tops
- Identify lithology from GR, PE, and RHOB
- Determine litho-facies

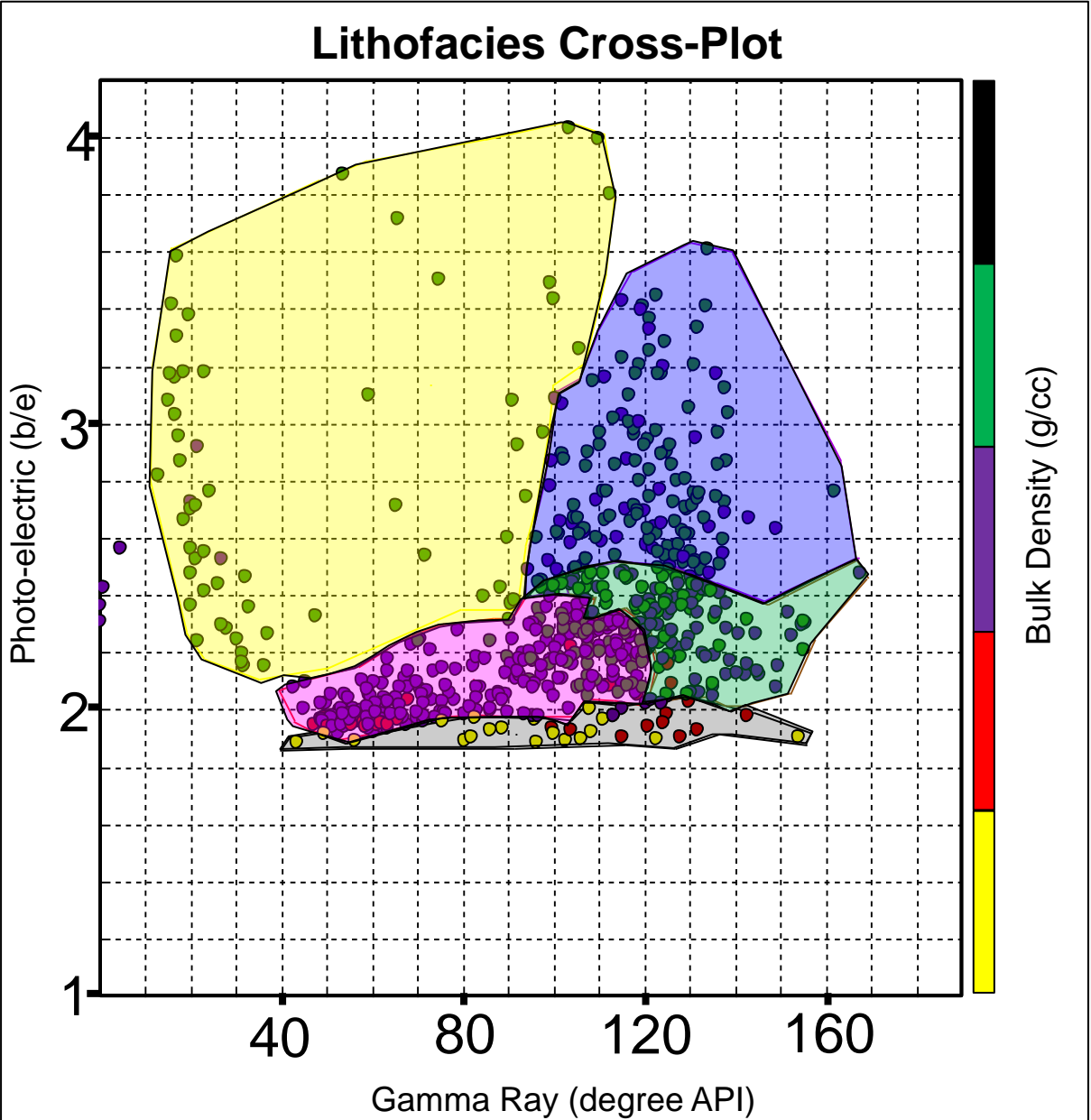
Methods

Geophysical well log analysis

- Identified formation tops
- Analyzed trends/patterns
- Litho-identification
- Cross section correlation
- Facies cross-plot analysis

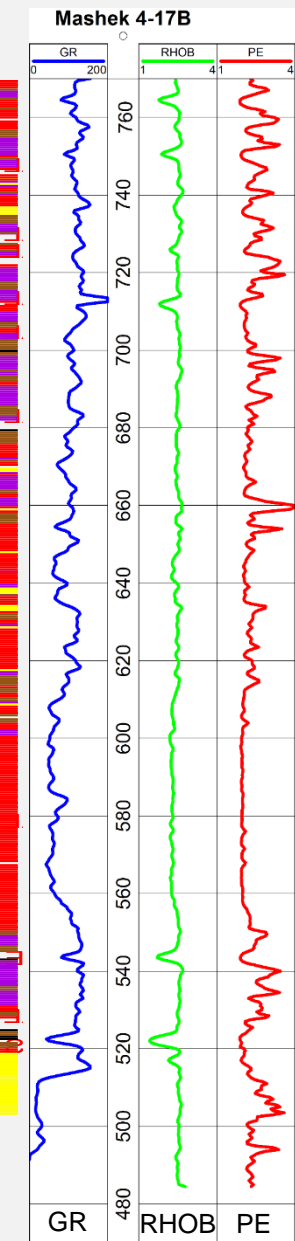


Results

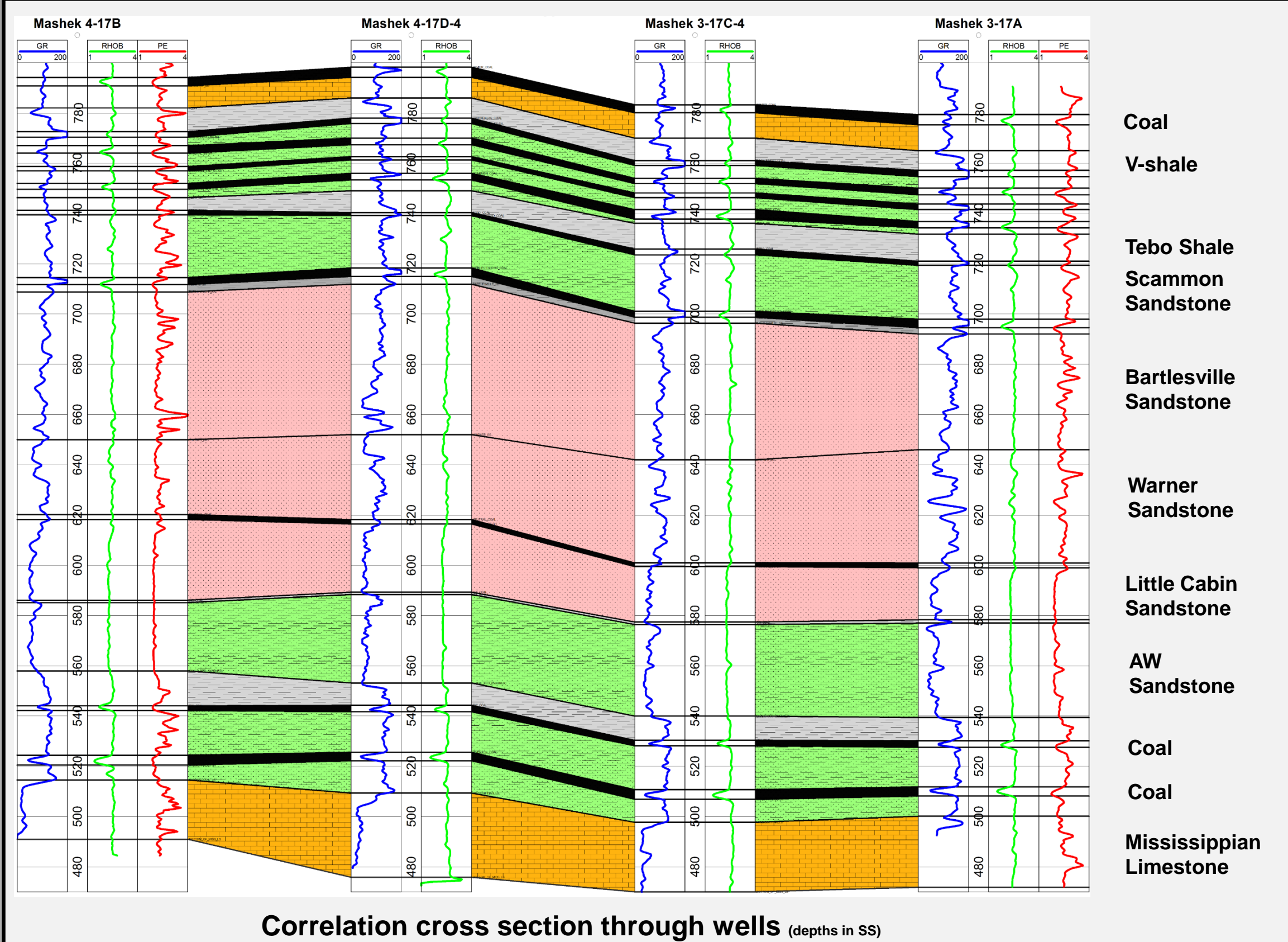


Facies Key

- Limestone (low GR & High PE)
- Sandstone (moderate GR, PE, RHOB)
- Shale (high GR and RHOB)
- Coal (low PE with low RHOB)
- Mixed (high GR and low RHOB)



Results



Conclusions

In this study 5 main facies were identified, the thickest units were sandstone and the thinnest units were coal. The succession of sandstones, shales, limestones, siltstones and coal layers suggest that this area was a fluctuating low energy transitional continental-marine environment.

Acknowledgements & References

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- Thank you Running Foxes Petroleum Inc. for providing the data and my lab partners at the FHSU Geoscience Department