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Data Analytics: An Innovative Tool for Unconventional Plays.

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Summary

Extracting hydrocarbons from unconventional reservoirs using horizontal drilling and multi-stage fracking is more complex and generates more data than traditional E&P activities. Accordingly, shale focused operators and investors are no longer able to maximize their competitive advantage using conventional data analysis techniques. This works presents the general characteristics of new analytics tools that allows operators to predict production maps and volumes. These tools also provides the ability to compare a variety of geological, geophysical, drilling, and completion parameters with results from areas with varied production.
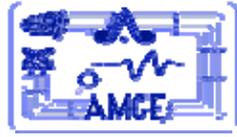
Introduction

Extracting hydrocarbons from unconventional reservoirs using horizontal drilling and multi-stage fracking is more complex and generates more data than traditional E&P activities. Accordingly, shale focused operators and investors are no longer able to maximize their competitive advantage using conventional data analysis techniques. Especially in the current oil market, advanced statistical modelling can be the most effective way to create competitive advantage across the shale asset lifecycle.

Asset teams are spending increasing amounts of time outside their areas of core competence attempting to manage the increasingly unwieldy unconventional reservoir data. Manage and application of this high volume, variety, and velocity of today's data is a necessary, though not sufficient, condition for creating strategic competitive advantage for shale-focused operators and investors. The foundation of data-driven analysis is the availability and quality of the underlying data. The companies with automated processes that continuously update, aggregate, normalize, and "QC" data from all available sources are already enjoying increased efficiency and, perhaps more importantly, are in a unique position to maximize the value of big data-specific analysis techniques like data analytics.

Method and/or Theory

Traditional bivariate analysis is highly ineffective for large data sets, especially when parameters are highly auto-correlated, i.e. interrelated; contemporary upstream data is highly auto-correlated.

Shale analytics tools provides linear and non-linear multivariant analysis to predict production maps and volumes. This provides the ability to compare a variety of geological, geophysical, drilling, and completion parameters with results from areas with varied production.

Conclusions

These type of analysis/methodologies allows the execution of linear and non-linear multivariant analysis to predict production maps and volumes. This provides the ability to compare a variety of geological, geophysical, drilling, and completion parameters with results from areas with varied production.

References

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