

## A Case of Integrated Geomechanical Characterization for Well Placement and Production Improvement in the Montney Formation

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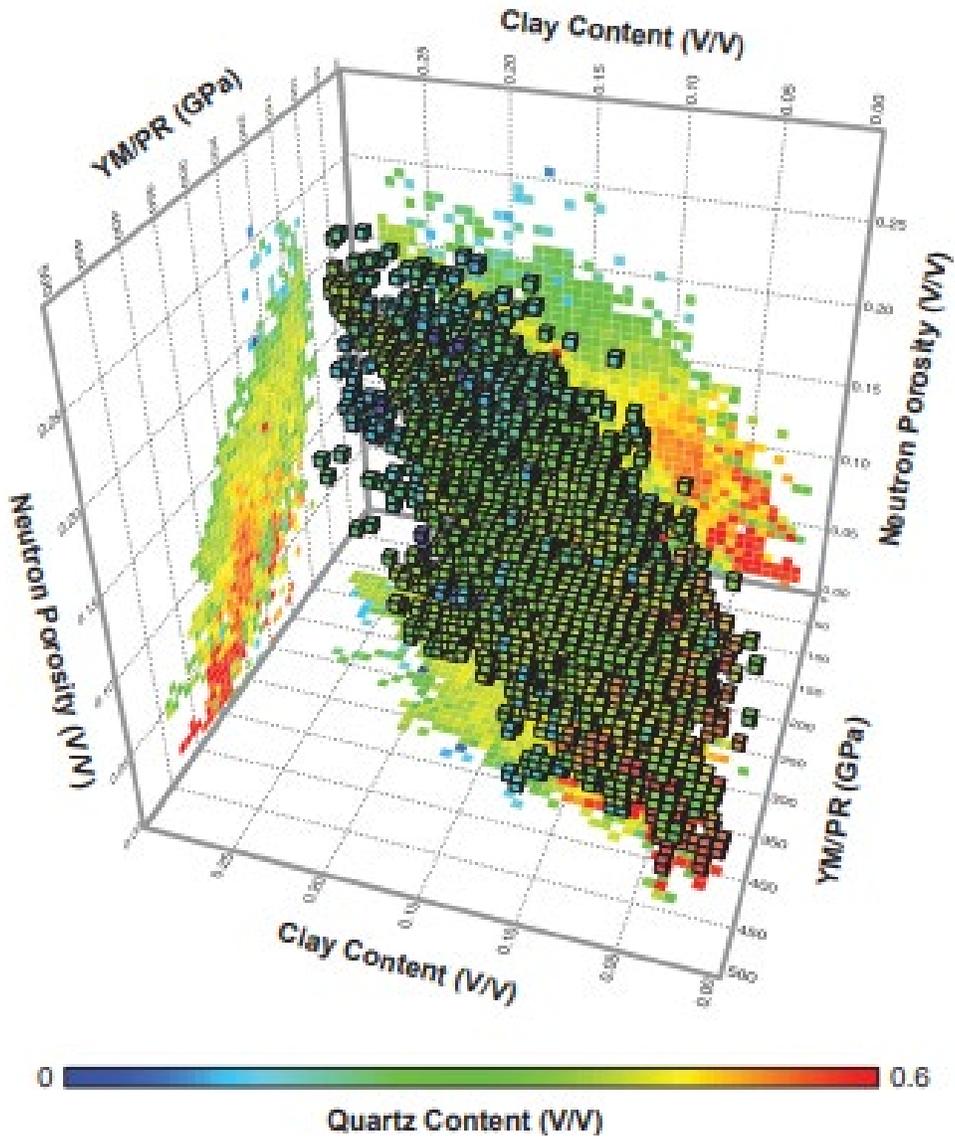
### Summary

The Montney Formation records deposition in a structurally active, mid-latitude west-facing continental margin/pull-apart basin that was influenced by coastal aridity, prevailing easterly winds and storm-dominated shoreface conditions. The result is a complex siliciclastic and locally carbonate reservoir system composed of various sedimentary facies, ranging from distal shoreface siltstones with numerous turbidite complexes in the west to upper shoreface-associated fine-grained sandstones and coquinas near the Montney's eastern edge. This complexity results in high variability in the mechanical behaviour of this formation which needs special attention when it is considered for hydraulic fracturing. This variable mechanical behaviour influences the decisions made for well placement and hydraulic fracturing and the completion practices for better production.

Characterization of geomechanical properties is necessary to predict the mechanical response to drilling, hydraulic fracturing and production. For complex formations such as Montney, proper characterization is only possible through combination of data from different sources and disciplines. This study shows how geomechanical, hydrogeological, petrophysical and geological data are combined to characterize the rock mechanical behaviour in specific field in the Montney in NE British Columbia. It also tries to identify how this characterization can influence well placement, hydraulic fracture initiation and propagation, proppant placement and productivity.

### Acknowledgements

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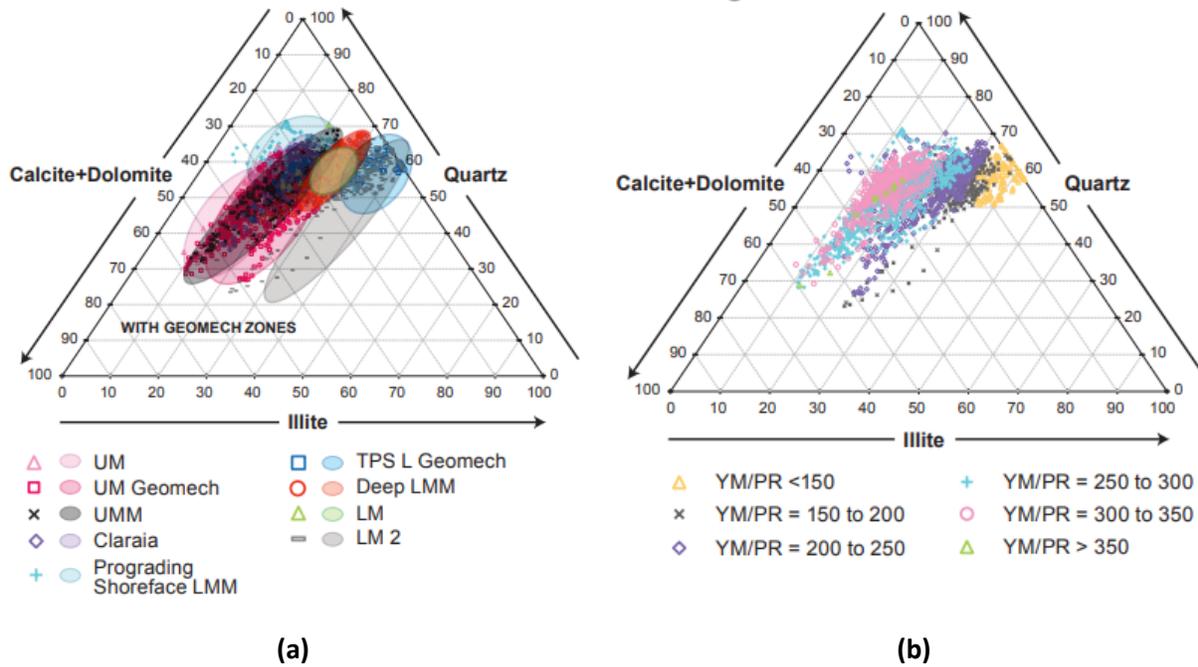


Figure 2. (a) Mineralogy of identified geomechanical units in the Montney Formation and (b) their brittleness based on YM/PR ratio

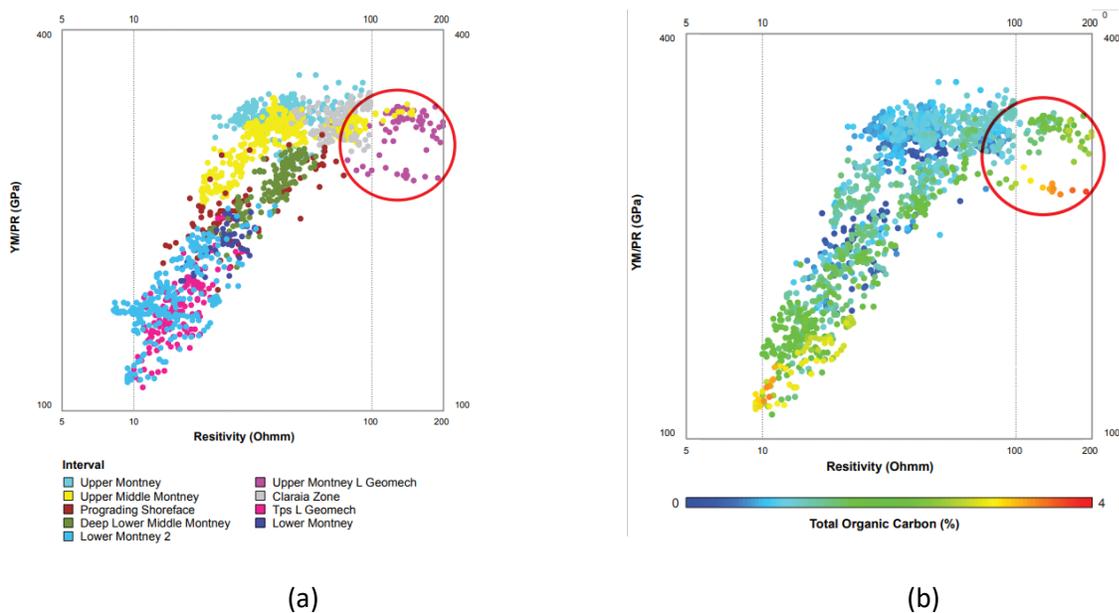


Figure 3. Cross-plots of rock brittleness factor (YM/PR) and resistivity which is influenced by total organic carbon (TOC)