

Brittleness value in the Duvernay Formation

Carmen C. Dumitrescu

Terra-IQ Ltd.

Summary

The Duvernay Formation is one of the hottest plays in Alberta, Canada. It is developed with horizontal wells and completed using hydraulic fractures. Brittleness is a key property for horizontal well placement, fracture development and production assessment, because brittle rocks are easier to fracture. Brittleness distribution within the reservoir is based on Poisson's ratio and Young's modulus. These geomechanical properties were estimated as three-dimensional seismic volumes from quantitative interpretation, a technology that integrates the wireline logs with prestack time migrated seismic data. The excellent subsurface imaging provided by these cubes can help with better placement of horizontal wells, allowing for a reduction in capital expenditure with less pilot wells required.