Rock fabric and microseismic: an integrated approach

Martin Haege[1], Shawn Maxwell[2], Lars Sonneland[1], and Mark Norton[3]

[1]*Schlumberger, Stavanger, Norway*
[2]*Schlumberger, Calgary, Canada*
[3]*Progress Energy Resources, Calgary, Canada*

Abstract

This paper presents a new approach where subtle discontinuities mapped on 3D reflection seismic are integrated with the microseismic information from three multi-stage hydraulic stimulations. Regions with a high degree of rock fabric correlate with microseismic events with a high seismic moment and a tectonic b-value of around 1. Fracture complexity increases as a result of changing rock properties and/or perturbations of in-situ stresses in areas with a high degree of rock fabric. The differing production behavior between the three wells could be explained by the changing degree of rock fabric.