Comparative Microseismic Interpretation of Hydraulic Fractures

Shawn Maxwell[1]
[1]*Schlumberger, Calgary, Alberta, Canada*

Abstract

Microseismic monitoring is often used to evaluate differences in hydraulic fracturing, that result from either changes in the stimulation or geologic setting. Often the various microseismic images of individual fracs are each separately interpreted for fracture geometry, and then these absolute interpretations of the various fracs are compared. However, comparisons can be made of variations in specific fracture dimensions between each image, including using statistical tests to quantify significance of relative differences. Such a relative comparative interpretation is more robust and relies on a simpler assessment of the location precision, in contrast to the need to consider all aspects of location accuracy for absolute interpretations. The resulting comparative microseismic interpretation can be used as part of a comparative hydraulic fracture evaluation to test the response to different designs and ultimately optimize the stimulation.