
Geophysics

Expertise Microseismic and Acoustic Emission (AE) Monitoring, Processing and Interpretation, Geomechanical Numerical Modeling, Seismology, Weak Seismic Signal Detection

Education Ph.D. (Geophysics), 2010, University of Toronto, Canada
Ph.D. (Seismology), 2006, Jilin University, China
B.S. (Applied Geophysics), 1997, Jilin University, China.

Honors & Awards National Graduate Scholarship, Jilin University, 2001-2006

Affiliations Member, Society of Exploration Geophysicists (SEG)
Member, Society of Petroleum Engineers (SPE)
Member, American Geophysical Union (AGU)

Professional Experience

2010 - Present *Applied Seismology Consultants, Toronto, Canada*
2009 - 2010 *Applied Seismology Consultants, Toronto, Canada*
Consultant Geophysicist
2006 - 2010 *Department of Physics, University of Toronto, Canada*
Research Assistant, Teaching Assistant
2001 - 2006 *Department of Geophysics, Jilin University, China*
Research Associate

Project Experience

Microseismics: Processing and interpretation of microseismic and acoustic emission (AE) data from petroleum, mining, radioactive waste and laboratory experiments.

Geomechanical Numerical Modeling: Numerical modeling research on hydraulic fracturing in naturally fractured reservoirs with dynamic solutions using *PFC2D* and *PFC3D*. Risk assessment of CO₂ injection for enhanced oil recovery and permanent geological storage using synthetic seismicity.

Weak Seismic Signal Detection: Investigation and application of reconstructing weak seismic signals from a common shot record, with the potential to detect and locate seismic events whose amplitudes are less than background noise, which is a common situation in hydraulic fracturing due to the high amplitude ratio of S-wave to P-wave generally found in the recorded microseismic signals.

Reflection Seismology: Processing and interpretation of geophysical and geological data for hydrocarbon potential evaluations, including remote sense, gravitational, magnetic, stratigraphical and seismic datasets.

Development: Algorithm development of location routines using only S-wave in order to retrieve additional microseismic data from hydraulic fracturing with linear receiver arrays. Code development of the fully fluid-mechanical coupling in *PFC* at laboratory and field scales. Design and validation of the weak signal detection method using the chaotic theory.