

**CSEG Technical Luncheon  
Wednesday, May 22, 2024  
Presented by: Zahra Esmaeilzadeh**

**Sealing Faults and Fluid Induced Seismicity in the Montney Formation, North East British Columbia.**

Abstract:

This study investigates the impact of sealing faults and lateral pore-pressure gradients on induced seismicity and hydraulic fracturing (HF) operations in the Montney Formation, Western Canada. By integrating statistical analysis, numerical simulation of hydraulic fracturing, and modeling of fault activation, it explores how pressure gradients affect fault behavior and fracture propagation. The study confirms that pressure discontinuities are generally fault-bounded and that earthquakes cluster in high-pressure gradient areas. It also reveals previously unrecognized behavior of sealing faults, crucial for understanding induced seismicity risk during HF operations.

