

## INSIGHTS INTO SOURCE PARAMETERS OF SEISMICITY CAUSED BY HYDRAULIC FRACTURING AT THE HORN-RIVER BASIN, BRITISH COLUMBIA

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In recent years there has been increasing public concern regarding ground motions caused by induced seismicity (Ellsworth, 2013). These earthquakes have led to abandonment of projects, investment losses and litigation issues regarding compensation for damage (Ellsworth, 2013). It is still debated as to whether induced seismicity is caused by significantly different rupture physics compared to natural seismicity. This is critical in forming accurate Ground Motion Prediction Equations (GMPE's) for hazard assessments. This study investigates stress drops and key source parameters from seismicity caused by hydraulic fracturing of tight shale at the Horn-River basin, British Columbia. We calculate stress drops for 100 events ( $-0.9 < M_w < 0.5$ ) using 1100 high quality SV phase-arrivals. Our preliminary results suggests an average stress drop of 0.3 MPa which is below the global average of 4 MPa (Allmann and Shearer, 2009). This could suggest distinctly different physics for induced seismicity. However, it is likely that attenuation is playing a key role which could result in apparent corner frequencies.

