

## **SE05: Induced earthquakes: Source processes and hazard assessment**

**Conveners:** Yajing Liu<sup>1</sup>, and Rebecca Harrington<sup>2</sup>

**Co-chairs:** Yajing Liu<sup>1</sup>, and Rebecca Harrington<sup>2</sup>

<sup>1</sup> Dept. of Earth and Planetary Sciences, McGill University, Montreal, QC, H3A 0E8  
Phone: 514-398-4085 E-mail: [yajing.liu@mcgill.ca](mailto:yajing.liu@mcgill.ca)

<sup>1</sup> Dept. of Earth and Planetary Sciences, McGill University, Montreal, QC, H3A 0E8  
Phone: 514-398-2722 E-mail: [Rebecca.harrington@mcgill.ca](mailto:Rebecca.harrington@mcgill.ca)

### **Session Description**

In the past decade, there has been a drastic increase in seismicity associated with fluid injection during unconventional oil and gas extraction in North America, including previously seismically quiescent areas. While pore pressure increase due to fluid diffusion is a commonly recognized conceptual mechanism for inducing earthquakes, the complex interaction between pore fluids, solid matrix stress and, if applicable, strength of a pre-existing fault, remains unclear. Regional seismic network and local dense arrays have been established and are starting to provide detailed information about the source process and ground motion of induced earthquakes. In this session, we invite contributions from studies on earthquakes potentially induced by various anthropogenic causes, including but not limited to, wastewater disposal, hydraulic fracturing, geothermal energy extraction, CO<sub>2</sub> sequestration and natural gas underground storage, and reservoir impoundment. We welcome studies using seismological and geodetic observations, geomechanical modeling, statistical analysis and laboratory experiments to address the source mechanism of induced seismicity, their distinctions and/or similarities to natural tectonic earthquakes, and seismic hazard assessment and mitigation.

**Primary Affiliation:** Solid Earth / Geodesy / Hydrology