## SESSION 24- Earthquake Source Mechanics

**Conveners**
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### Session Description

Recent high-quality seismic and geodetic observations provide large data volumes, which enable accurate determination of earthquake source parameters (locations, magnitudes, durations, moment tensors, etc.) and detailed imaging of spatio-temporal deformation processes. In addition to traditional earthquakes including foreshocks, aftershocks, swarms, repeaters, deep-focus events, volcanic, and induced events, we now observe various slow earthquakes such as tectonic tremors, low-frequency earthquakes, and slow slip events. Furthermore, techniques for extracting information using inverse problems and machine learning have improved substantially, enhancing in turn the available information to infer stress state, fault geometry, and fluid movement around seismogenic regions. Based on such observations, we can numerically simulate the entire earthquake process from long-term tectonic loading and slow nucleation to rapid rupture propagation with strong motion radiation, utilizing high-performance computing. The validity of assumptions in these simulations is tested by data assimilation, laboratory experiments, and field observations. In this symposium, we invite contributions on data analysis and interpretation of earthquake source mechanics, on improvement and validation of analysis techniques, on theoretical and numerical modeling of dynamic ruptures and earthquake sequences as well as observational and experimental studies on the physics of earthquakes. Studies of recent large earthquakes and noteworthy seismic sequences are also welcome.