

Supercomputing of Earthquakes: Unraveling the Dynamics of Multi-Fault Rupture Cascades, Tsunami Earthquakes and Induced Seismicity



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Earthquakes are highly non-linear and multiscale processes fracturing the Earth's crust, while large and small events can have socio-economically destructive consequences. Using a physics-based description of earthquakes, high-performance computing and modern numerical methods sheds light on the dynamics, and severity of earthquake behaviour and enables an unparalleled degree of realism in forward modeling. I will demonstrate the potential of Solid Earth community software for: (i) performing data-integrated large-scale scenarios of recent powerful multi-fault earthquake cascades; (ii) simulating 3D fully-coupled Earth and ocean models of tsunami generated during earthquakes; and (iii) understanding small earthquakes linked to geothermal exploration; using petascale supercomputers.

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Zoom Link: [Here](#)



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