

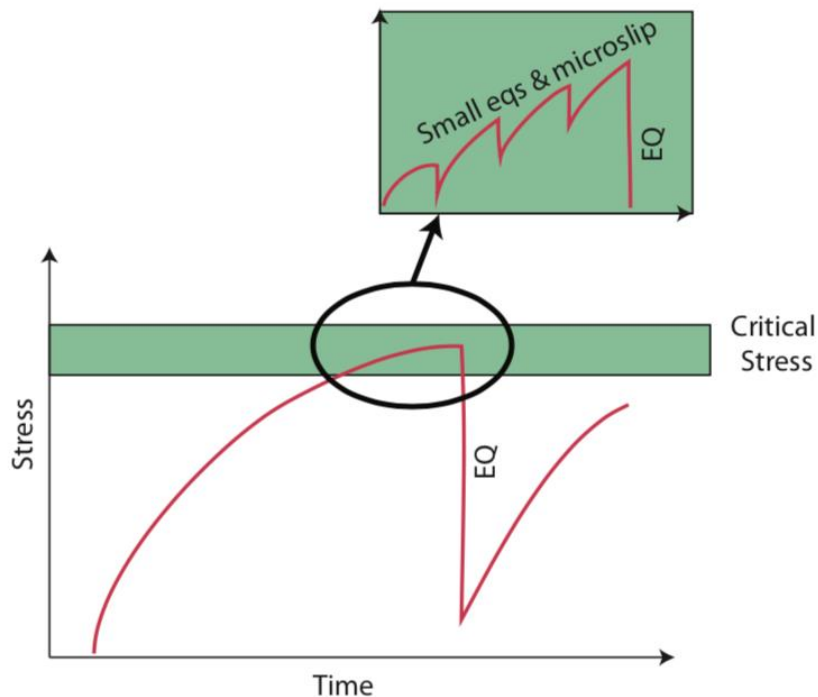
Seminario

Monitoring real faults towards their critical state

Giovedì, 31 ottobre – ore 16:30, Aula Arduino

Relatore: **Dr. Piero Poli**

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Abstract

The last (2016) seismic sequence in Italy, responsible for 298 fatalities and important economic loss, reminds us how urgent it is to improve our knowledge of earthquake physics, to in turn advance earthquake forecasting capabilities. While direct observations of “laboratory earthquakes” allow us to derive exhaustive physical models describing the behaviour of rocks, and to forecast incoming events (within the laboratory setup), the complex physics governing the nucleation/preparation of earthquakes remains poorly understood in the real Earth, which limits our ability to forecast earthquakes. I posit that this “ignorance” results from our limited ability to unravel information about fault physics from geophysical data. In this seminar I will present some preliminary analysis and results of an integrated research effort aimed at monitoring the spatiotemporal evolution of elastic properties on real faults, via seismological and geodetic data. The integrated monitoring approach is applied to study how faults respond to known stress perturbations (e.g., seasonal loadings). I will particularly focus on periods preceding significant earthquakes, to assess how elastic properties and deformation evolve while a fault is approaching a critical (near rupture) state. The study area is Italy (mainly the L’Aquila region, focusing on the 2009 event), where excellent geodetic and seismological arrays are available, and fault geometries are well known. This research is starting to provide new insights about the complex physics of faults at critical state, necessary to understand the real earthquake preparation phase.

Proponente: **Lapo Boschi**