SESSION 20- Deep Earthquakes – From Minerals to Slabs

Conveners
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Session Description

Traditionally, subduction zone processes that occur over millions of years have been studied separately from deep earthquake ruptures that occur within seconds. In modern geophysics, we move towards a more integrated perspective that has the potential to deepen our understanding of earthquake faulting under pressure and temperature conditions that supposedly preclude brittle rupture.

This session will bring together a wide variety of studies that illuminate the occurrence of deep seismicity from a number of different angles. Examples include observational seismology studies of earthquake source processes (e.g., hypocenter distribution, stresses, moment tensor observations, finite-fault models), investigations of the structure of downgoing lithosphere (e.g., tomography), numerical subduction models that attempt to simulate the mineralogy and (de)hydration effects at depth, as well as the study of exhumed traces of deep earthquakes in the geological rock record. We welcome case studies from regions of active deep seismicity within Europe, such as the Hellenic Arc, Vrancea, or the Calabrian subduction, as well as contributions that concentrate on present and past deep earthquakes in other subduction zones around the world. Contributions focused on the effect of wave propagation through the subducting plate on strong ground-motion modeling and prediction will provide a link to the field of earthquake hazard assessment. With the aim to promote interdisciplinary perspectives, we hope for stimulating discussions and integration between the seismological, geodynamic, and petrophysical communities.