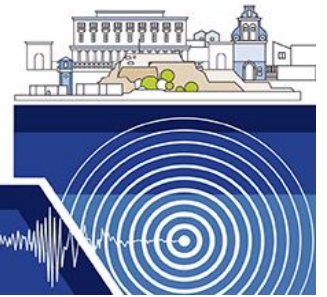


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Session 04

Passive and active seismological methods for imaging and monitoring of shallow geological structures

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There is an increasing need for high-resolution imaging of shallow geological structures as well as the characterization of their physical properties. This affects not only purely scientific perspectives, but also the correct land planning in areas subject to a wide range of environmental risks. In this regard, passive and active seismological methods and, more in general, geophysical techniques represent a reliable and cost-effective tool for the investigation of the subsurface. The improvement of such imaging techniques is related to the diffusion of cost-effective acquisition devices, to the growth of the computational capability in the solution of inverse problems, and to the theoretical development of modelling algorithms. Moreover, in addition to the classical methods based on the analysis of seismometer recordings, new techniques have been developed recently for considering large amounts of data acquired by distributed acoustic sensing and massive nodal array. Among their countless applications, we seek contributions describing developments on: seismological engineering problems (site effects, site characterization, liquefaction and ground-shaking amplification at local and regional scale, nonlinear soil response); shallow high-resolution geophysical investigation of active faults (crucial in tectonic geomorphology, surface-faulting hazard and fluid flows); fracture network characterization (in reservoirs, volcanic areas and geothermal fields); landslide hazards (from shallow fractured rock masses to deep sliding surfaces). Contributions related to site characterization with passive and active seismological methods in aquatic environments are also welcome.

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