



Session 28 & 40

Seismic interferometry, ambient noise and seismo-acoustic: From theory to monitoring

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Passive seismic records carry information about the sources of the ambient seismic wavefield, the subsurface structure of Earth and its time-varying properties. The dominant imaging and monitoring strategies today rely on these information, particularly at crustal or smaller scale, and are driven by theoretical and methodological developments, such as seismic interferometry. Earthquakes represent another form of passive sources. Utilizing their wavefields, we can gather comprehensive insights about the Earth across various scales employing interferometric methods like cross-correlation of Pand S-coda waves.

This session offers a broad space for discussing recent advances in ambient noise seismology and seismic interferometry in general, from theoretical and methodological developments and investigations of passive sources to novel imaging and monitoring applications. Topics may include, but are not limited to, strategies to better incorporate the complex distribution of ambient noise sources in seismic interferometry, locating and identifying sources, models of seismic noise generation, advances and applications of seismic imaging in complex media, extracting weak earthquake phases using cross-correlation techniques, monitoring environmental fluctuations, for example groundwater level, permafrost, or seasonal variations, as well as monitoring natural hazards, like landslides and volcanic activity. We also encourage studies using opportune noise sources, such as urban seismic noise sources or ambient noise body waves from localized storms.

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Seismological data and methods have proven their efficiency in the characterization of various natural hazards and surficial environmental processes. Over the past decade, the combined use of seismological and acoustic (infrasound) methods, if applicable, has gained increasing attention in the scientific community, with a variety of study cases showing its vast potential. This session aims at fostering the discussion on recent advancements in seismo-acoustic research with focus on natural hazards and environmental processes from local to regional/global scale. We seek contributions showcasing the breath of seismological and/or acoustic applications in their monitoring and study, with a particular emphasis on the cutting-edge developments in seismo-acoustic deployments, data processing and analysis (e.g., machine learning, ambient noise, DAS, etc.). Possible study cases include but are not limited to volcanic or glacial processes; surficial mass movements such as landslides, debris flows or rockfalls; or sediments transport in rivers. We also encourage submissions involving numerical modeling of seismic and acoustic signals in such settings for better understanding the role of sources and path/topography effects.

