Session ID: GEO-10

Title
DISCUSSIONS ON STATE OF PRACTICE/KNOWLEDGE/ART IN SPECTRAL ANALYSES FOR INFORMING SITE RESPONSE

Convenors
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Description
Seismic site conditions can have an enormous effect on the character of recorded earthquake motions. These so-called site effects are predominantly related to the mechanical response of local geology to incoming seismic waves, which can significanlty modify (amplify and/or attenuate) the resultant ground shaking. To study these site effects, earthquake spectra from recordings can be analyzed using partially non-ergodic procedures to infer site response. However, recorded ground motions are often not either (a) available at a site of interest, and/or (b) not of sufficient intensity to elucidate site effects at strain levels consistent with design. When data is lacking, site response is estimated using models, which in turn are informed by geophysical field measurements, with horizontal-to-vertical spectral ratios (HVSRs) being a promising technique that is the focus of this session. Because our motivation is to foster discussions and debate, we convene an open debate/panel discussion session and solicit presentations that particularly describe the state of practice/knowledge/art on estimating site response using earthquake and/or microtremor (ambient noise) spectra via direct and/or indirect methods. We encourage participants who will highlight current and emerging technologies in hardware and software, as well as advancements in data processing and analytical procedures, esp., that are based on frameworks involving machine learning and artificial intelligence, for applications in earthquake and/or microtremor HVSR analyses. We also welcome presentations on traditional spectral methods that include approaches that use soil/rock spectral ratios, as well as recently developed novel techniques.

Invited Speakers
C. Cornou [4], S. Matsushima [5], A. Askan [6], S. Parolai [7], F. Bonilla [8], H. Kawase [5]

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