

of the International Monitoring System Seismic Event Location Capability Improvement with Ambient Noise Tomography

Thursday 22 June 2023 09:23 (1 minute)

CTBTO observation and processing systems are required to be sensitive to low magnitude events. A promising way to increase system sensitivity and improve station tuning is to refine the receiver velocity models underneath International Monitoring System (IMS) stations by incorporating a number of ambient noise processing techniques into the International Data Centre (IDC) practice. In particular, this approach should lead to reduction of arrival time residuals between empirical and observed onset times of seismic waves. A basis for that is a vast amount of seismic noise data acquired in the IDC for more than 20 years. We conducted a case study for ARCIS IMS array in Northern Norway, which consists of 4 rings of 3C broadband shallow vault seismometers. In addition to building an averaged uppermost ARCIS velocity model, we demonstrate the trial application of Ambient Noise Tomography methods for the individual model retrieval at different flanks of spatially distributed sensors comprising seismic arrays as a generalized way to aggregate the block velocity models. Examples for other geometries and regions are also provided. For enhancement of CTBTO on-site inspection seismic aftershock monitoring system, the same approach can be utilized by retrofitting velocity models produced with the noise data collected from the temporarily on-site inspection array.

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Promotional text

The work described in the abstract contributes to the conference objectives in a way of enhancement of the IMS station tuning to improve seismic events location capability.

Oral preference format

in-person

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Session Classification: Lightning talks: P3.5, P5.1

Track Classification: Theme 3. Monitoring and On-Site Inspection Technologies and Techniques: T3.5
Analysis of Seismic, Hydroacoustic and Infrasound Monitoring Data