

EGU24 Media Tip Sheet: Ingenious Seismic Studies

Seismology and earthquakes go hand-in-hand, but seismic stations have sensors that can detect a variety of important phenomena. From war to carbon storage to concerts, data from this field help scientists understand both the natural and anthropogenic environment.

Infrasound analysis of break-off events from Planpincieux glacier, Mount Blanc, Italy

As the world warms, glacier break-off events will become more common in Alpine regions. Monitoring these events and implementing warning systems will be critical for safety. To that end, scientists analyze infrasound data from avalanching activity at Planpincieux glacier in Italy using signals from confirmed events to find other potential collapses.

Mon, 15 Apr, 09:35–09:55 CET, Room 1.15/16

Session [NH3.5](#)

Quantifying spatial peat depth with seismic micronodes and the implications for carbon stock estimates

Peatlands contain high concentrations of decayed plant material, and therefore are important stores of soil carbon. Accurate assessment of peat volumes are important for carbon budgets. Scientists consider how to use seismic sensors to quantify peat depth, as opposed to mechanical probing or electromagnetic geophysical methods.

Tues, 16 Apr, 09:05–09:15 CET, Room 2.95

Session [BG3.18](#)

Observations of ambient vibrations at the archaeological site of Circus Maximus (Rome, Italy) induced by the rock and pop concerts held in the adjacent Circus Maximus Arena in the summer of 2023

The Circus Maximus is an ancient Roman stadium whose first construction dates to 329 BCE. Today, the main structure of the stadium is buried under a green lawn that is open to the public. The southeastern archaeological area is protected by a metal fence. At the other end is a concert stage where, in 2023, artist Travis Scott's concert alarmed Roman citizens who reported feeling an earthquake. Scientists analyze the vibrations from several concerts from 2023, with a focus on shaking in the archeological area.

Wed, 17 Apr, 09:05–09:15 CET, Room 0.16

Session [ERE1.3](#)

[Ambient seismic noise tomography for mineral exploration in the Irish Midlands](#)

Are there nondestructive means to explore raw materials needed for renewable energy? One place to look is the Irish midlands, a region that contains potential deposits of zinc—a mineral needed for green technologies. Scientists test the application of passive seismic imaging here, finding distinct velocity anomalies at relatively shallow depth.

Wed, 17 Apr, 17:30–17:40 CET, Room G2

Session [SM5.2](#)

[Studying field-scale dam breach due to overtopping by using seismic signals](#)

Natural dams can result from earth surface processes like landslides and debris flows. Complete erosion or overtopping of such dams can lead to catastrophic flooding of the downstream area. Conventional monitoring approaches use image-based analyses, but in this work, scientists explore the possibility of using seismic signals as a way to detect—and warn—for dam breach.

Thurs, 18 Apr, 16:15–18:00 CET, Hall X4, X4.188

Session [GM2.1](#)

[How trees sway and what it tells us about their overall vitality](#)

Monitoring changes in tree characteristics like sap flow or leaf angle are critical to tracking vitality, but can be expensive and intensive endeavors. Instead, scientists propose to measure seismic oscillations generated by trees swaying in certain weather conditions. Dry trees may have distinct seismic signatures, signaling stress.

Thurs, 18 Apr, 16:15–18:00 CEST, Hall X4, X4.191

Session [GM2.1](#)

[Near-real time detection of conflict-related explosions or suspicious events using seismological data](#)

Explosions produce seismic signals that can be detected in near real-time at both the regional and global scale. In this work, scientists explore a variety of explosive signals, including the underwater explosions at the Nord Stream pipeline in Sept. of 2022, a separate event that may be associated with damage along the Balticconnector pipeline, and numerous ground explosions related to the Russia-Ukraine conflict.

Fri, 19 Apr, 10:05–10:15 CET, Room -2.47/48

Session [SM1.1](#)