ID: Type: **Poster**

sensing earthquake ground motions using seismo-acoustic coupled signals

A key component in the initial relief efforts following an earthquake disaster is the ShakeMap, which depicts the distribution of shaking intensity in the struck region and is usually available within minutes of an earthquake. In regions where seismic instrumentation is limited, such ShakeMaps are poorly constrained. In Haiti for example, there were no seismometers operating during the 2010 Mw 7.0 Port-au-Prince earthquake. After days of surveying the damage on the ground an estimated ShakeMap was available. This dramatically hampered the post-disaster response and proved costly in societal terms. In this study, we develop a backprojection technique to infer earthquake ground motions using infrasonic signals generated by the earthquake and recorded at one or more infrasound arrays. Due to the low frequency nature of such signals and the existence of waveguides in the atmosphere, these signals are hardly attenuated during propagation and can be detected over long ranges. We show that infrasonic signals recorded during the 2010 Haiti earthquake by an IMS array IS51 in Bermuda, more than 1700 km away from Haiti, could have been used to generate a ShakeMap minutes, not days, after the earthquake.

Primary author: SHANI-KADMIEL, Shahar (Delft University of Technology)

Presenter: SHANI-KADMIEL, Shahar (Delft University of Technology)

Track Classification: Theme 5. CTBT in a Global Context