

infrasound signal durations provide constraints for network signal association algorithms?

Signal association across the International Monitoring System (IMS) infrasound network is challenging. Several factors contribute to the difficulty in identifying events that generate multiple observed infrasound signals across the IMS including: the sparseness of the network, the variability in signal propagation speed (celerity), and the lack of signal characteristics that contain information about source-to-receiver range. One signal characteristic that has not been subject to extensive investigation is signal duration. Here we test the hypothesis that signal duration contains information about source-to-receiver range, despite the expected complications due to propagation variability. We present a methodology for objectively measuring signal duration, which is applied to a suite of over 40 ground truth signals recorded on IMS infrasound arrays during the past 15 years. Preliminary results suggest that signal duration has a weak relationship with source-to-receiver range. Nevertheless, this allows bounds to be placed on the likelihood of a short duration signal being associated with an event at a large distance away from the array. The effects of signal-to-noise ratio will also be discussed.

Primary author: GREEN, David (AWE Blacknest)

Presenter: GREEN, David (AWE Blacknest)

Track Classification: 3. Data Processing and Station Performance