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arrival databases for Ground Truth infrasound events

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Seismo-acoustic waveform model development serves to improve both precision and accuracy in event characterization estimates through the application of more robust travel time models for infrasound signal propagation. Development requires the ability to validate models with real data against meaningful metrics. Comparisons across a suite of ground truth (GT) events provides the ability to evaluate model performance across a broad spectrum in both space and time. Current infrasound GT data is limited for several reasons, including but not limited to, a lack of acoustic signals from naturally occurring events and a lack of broad global network coverage. Data is particularly limited for regional networks where sensors are located between 100-600 km from a source of interest. Numerous boutique experiments have historically been conducted by researchers with varying degrees of openly available data; however, none of these datasets exist in a singular place. Here, we present a curated dataset of 119 GT infrasound events suitable for algorithm evaluation. Our database identifies signal arrivals and characteristics for each of the GT events, capturing all available regional signal arrivals in an open-source repository.

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