

InfraPy – An Open Source Signal Analysis Toolkit for Infrasound Research

Infrasound researchers at Los Alamos National Laboratory have been actively developing and evaluating signal analysis tools for detecting, associating, localizing, and characterizing infrasonic signals and sources. The algorithms developed during these efforts have been combined into a suite of Python libraries and recently made available as an Open Source software toolkit. The detection methods are based on adaptive Fisher detection methods previously developed for inclusion in the InfraMonitor tool, while the association, localization, and characterization methods leverage Bayesian algorithms and statistical propagation models to accurately identify and characterize infrasonic events. A number of interface options have been developed including a command line interface (CLI) for large-scale batch processing and a graphical user interface (GUI) for interactive analysis of infrasonic data. An overview of the InfraPy signal analysis algorithms will be presented along with highlights of ongoing research aimed to further improve the underlying propagation models as well as continue developing and evaluating the analysis algorithms.

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