Infrasound research conducted at Los Alamos National Laboratory (LANL) in recent years has included development of tools for signal analysis, propagation modeling, and uncertainty quantification. Many of these tools have been licensed as open source software, made available for download at the LANL Seismoacoustics Github page (https://github.com/LANL-Seismoacoustics), and are utilized by scientists across the globe for a variety of national security, civil, and scientific applications. The InfraPy signal analysis suite includes state-of-the-art detection, association, localization, and yield estimation algorithms accessible through Python-based scripting and notebooks, a command line interface, as well as the InfraView graphical user interface. The InfraGA/GeoAc software is a propagation modeling tool capable of simulating the propagation of infrasonic signals through the atmosphere in the limit of geometric acoustics and includes a number of unique features such as eigenray identification, weakly non-linear waveform calculation, and propagation over realistic terrain. The stochprop library is an in-development tool that includes methods enabling quantification and reduction of propagation uncertainties for infrasound analysis. The capabilities of these tools and their application to recent seismoacoustic events of interest will be presented.

Promotional text

Open-source signal analysis and propagation tools for infrasound, particularly those quantifying uncertainty, support the international explosion monitoring community, promote wider civil and scientific applications, and provide LANL researchers with feedback on algorithms.

Primary author: Mr BLOM, Philip (Los Alamos National Laboratory (LANL), Los Alamos, NM, USA)
Co-author: Mr WEBSTER, Jeremy (Los Alamos National Laboratory (LANL), Los Alamos, NM, USA)
Presenter: Mr BLOM, Philip (Los Alamos National Laboratory (LANL), Los Alamos, NM, USA)
Session Classification: T1.1 e-poster session

Track Classification: Theme 1. The Earth as a Complex System: T1.1 - The Atmosphere and its Dynamic