

Infrasound Monitoring in South America through Automated Algorithms

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In this study, we focus on recent advancements in infrasound research and the operational capabilities of regional networks in South America. Our work involves developing an innovative algorithm using the ObsPy library and custom Python routines to enhance the analysis of infrasound data from the International Monitoring System (IMS) network. By applying techniques similar to Progressive Multi-Channel Correlation (PMCC), the algorithm autonomously processes time-series data to identify consistent signals across various frequencies. It calculates key parameters such as backazimuth and signal characteristics, enabling reliable detection and characterization of infrasound events. Additionally, the algorithm evaluates detection parameters like signal-to-noise ratio and consistency, logging timestamps, key features, and graphical outputs for each event. It also identifies operational issues at specific infrasound stations, ensuring data integrity.

Our work aims to develop Chilean monitoring capabilities while expanding the analysis to the broader South American network, thus enhancing event detection in the Global South. A new agreement between the Chilean National Data Center (NDC) and the University of Concepción (UdeC) establishes UdeC as an Establishment of the NDC, thereby enhancing the NDC's infrasound monitoring capabilities. This partnership highlights the importance of our efforts to improve infrasound monitoring and data processing across South America.

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