

The Global and Coherent Infrasound Field: Revisiting the Reprocessing of the Full International Monitoring System Infrasound Data, Part 1: Processing

In this study we are going to present results of global coherent infrasound measured at IMS infrasound stations and its correlation with atmospheric dynamics. A new implementation of the Progressive Multi-Channel Correlation (PMCC) algorithm enables characterization, with a single processing run, of coherent noise in log-spaced frequency with one-third octave bands from 0.01 to 5 Hz. Such a new array processing algorithm enables a better characterization of all received signals in their wave parameter space (e.g. frequency-azimuth space, frequency trace-velocity space). This, in turn, enables more accurate signal discrimination, and source and propagation studies. We are currently performing re-processing of the entire previous IMS infrasound database covering the time period from April 2005 to November 2018; whereas the number of stations has increased from 30 to 50. The obtained results clearly indicate a continuous spectrum of coherent signals at IMS stations within the 0.01 to 5.0 Hz frequency range; especially when comparing the recent results with those of previous re-processing approaches as well as the standard IDC products.

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