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The Coherent Infrasond Wavefield: New IMS Broadband Bulletin Products for Atmospheric Studies and Civilian Applications

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Our latest comprehensive reprocessing of the IMS infrasound database covers the period from January 2003 to December 2020, representing up to 53 stations considered. The resulting catalogue of coherent signals obtained using the Progressive Multi-Channel Correlation (PMCC) array processing algorithm with a one-third octave frequency band configuration permits more accurate signal and source discrimination. Here we focus on the relation of coherent ambient infrasound to middle atmosphere dynamics and present advanced bulletin products tailored to frequency bands of specific interest by relevant user groups. These bulletin data products consist of mountain-associated wave events (0.01-0.05 Hz), a low-frequency (0.1-0.3 Hz) and a high-frequency (0.4-0.6 Hz) microbarom dataset, and observations with centre frequencies of around 1 to 2 Hz. The latter include, for instance, large fireballs and volcanic eruptions and thus provide information relevant to dedicated applications for civil security. We present selected aspects of these data products and highlight potential applications for atmospheric studies.

Promotional text

This study builds upon the new global dataset of reprocessed IMS infrasound data (SnT poster by Hupe et al.). Here, we highlight applications and present tailored products being appropriate and useful for atmospheric studies and civil security.

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