

Localization of Mining Activities Using Infrasond and Seismic Data: A Case for I35NA and I47ZA

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Seismological bulletins from local and regional seismic stations have identified signals associated with mining explosions in the Orapa mining area, Botswana. Here we present the results of integrating detections from regional seismic networks and the International Monitoring System (IMS) network. Using the local bulletins and catalogs, we requested IMS data via the Extended NDC-in-A-Box (ENIAB) and retrieved local station data using the Obspy library. The combined analysis of seismic and infrasond signals gave additional information about the origin time and location of events as well as distinguishing mine explosions from natural events. Infrasond detections were generated using the ENIAB's DTK-GPMCC whereas Geotool was used to analyse seismic data. Geotool was also used to create a final integrated bulletin. Combining the infrasond stations of IS47 (South Africa) and IS35 (Namibia) with the local seismic stations improved the location of these seismoacoustic events.

Promotional text

The infrasond network of the International Monitoring System (IMS) developed for the verification of the Comprehensive Nuclear-Test-Ban Treaty showed a high capacity to detect, localize and identify most of these seismoacoustic events.

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