

3.3-P06. Could the IMS Infrasound Stations Support a Global Network of Small Aperture Seismic Arrays?

The IMS infrasound arrays have up to 15 sites with apertures up to 3 km. They are distributed remarkably uniformly over the globe, providing excellent coverage of South America, Africa, and Antarctica. Therefore, many infrasound arrays are in regions thousands of kilometers from the closest seismic array. Existing 3-component seismic stations, co-located with infrasound arrays, show how typical seismic signals look at these locations. We estimate a theoretical array response assuming a seismometer at each infrasound sensor, although the true performance would depend upon both SNR and coherence. These properties can however only be determined experimentally and borehole deployments may be needed to record seismic data of sufficient quality. We demonstrate, from a purely geometrical perspective, that essentially all IMS infrasound array configurations would provide seismic arrays with acceptable slowness resolution. Such arrays in many regions would likely enhance significantly the seismic monitoring capability in parts of the world where only 3-component stations are currently available. Co-locating seismic and infrasound sensors would mitigate the development and operational costs due to shared infrastructure, and hosting countries might find such added capabilities valuable from a national perspective. The seismic data may allow far more information to be gleaned from the infrasound data.

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