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Contribution of Infrasound to IDC Reviewed Event Bulletin

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Until 2003 two waveform technologies, i.e. seismic and hydroacoustic were used to detect and locate events included in the International Data Centre (IDC) Reviewed Event Bulletin (REB). The first atmospheric event was published in the REB in 2003 but infrasound detections could not be used by the Global Association (GA) Software due to the unmanageable high number of spurious associations. Offline improvements of the automatic processing took place to reduce the number of false detections to a reasonable level. In February 2010 the infrasound technology was reintroduced to the IDC operations and has contributed to both automatic and reviewed IDC bulletins.

The primary contribution of infrasound technology is to detect atmospheric events. These events may also be observed at seismic stations, which will significantly improve event location. Examples of REB events, which were detected by the International Monitoring System (IMS) infrasound network were fireballs (e.g. Bangkok fireball, 2015), volcanic eruptions (e.g. Calbuco, Chile 2015) and large surface explosions (e.g. Tjanjin, China 2015).

Query blasts and large earthquakes belong to events primarily recorded at seismic stations of the IMS network but often detected at the infrasound stations. Presence of infrasound detection associated to an event from a mining area indicates a surface explosion. Satellite imaging and a database of active mines can be used to confirm the origin of such events.

This presentation will summarize the contribution of 6 years of infrasound data to IDC bulletins and provide examples of events recorded at the IMS infrasound network. Results of this study may help to improve location of small events with observations on infrasound stations.