



Infrasound detections and calibration experiments

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The development of infrasound research experienced a significant revival about 10 years ago thanks to the first steps made at that time for the establishment of the International Monitoring System infrasound network in the framework of the Comprehensive Test-Ban Treaty activities.

The IMS infrasound network, which, as of today, counts 42 operational stations (i.e. the 70% of the network) has provided the infrasound community with an amount of information about natural and man-made sources without precedent. In parallel, several research groups around the world have developed projects to establish local infrasound networks which have been instrumental for the observation of events recorded at local and regional distances and have complemented, several times, the information retrieved through the IMS infrasound network.

The infrasound research groups in Europe have been particularly active in the last years and, acting in close collaboration with CTBTO, have significantly contributed to the progress in understanding the generation and propagation of infrasound waves through the atmosphere, using both permanent and portable infrasound arrays.

In order to assess the performance of the portion of the IMS infrasound network currently established and to develop new engineering solutions to improve the efficiency of the IMS infrasound arrays it is of crucial importance to perform calibration test of the network. This can be achieved through the use of infrasound sources of known yield. Some natural sources, like large volcanic explosive eruptions, might contribute to this scope, whenever the information about the yield of the explosion could be retrieved with some reliability.

Another contribution could come from man-made sources, in particular from scheduled detonation of explosives. An example of the jointed observations retrieved by IMS network, by European networks and by portable infrasound arrays is presented. The infrasound records have been generated on Aug. 26 2009 by a scheduled detonation of out-of-date explosives at the Israeli Sayarim Military Range as part of normal munitions disposal. The yield of the detonation was of approximately 80-tons TNT.

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