



Infrasound research of volcanic eruptions

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Volcanic eruptions are efficient sources of infrasound produced by the rapid perturbation of the atmosphere by the explosive source. Being able to propagate up to large distances from the source, infrasonic waves from major (VEI 4 or larger) volcanic eruptions have been recorded for many decades with analogue micro-barometers at large regional distances. In late 1980s, near-field observations became progressively more common and started to have direct impact on the understanding and modeling of explosive source dynamics, to eventually play a primary role in volcano research.

Nowadays, infrasound observation from a large variety of volcanic eruptions, spanning from VEI 0 to VEI 5 events, has shown a dramatic variability in terms of signature, excess pressure and frequency content of radiated infrasound and has been used to infer complex eruptive source mechanisms for the different kinds of events. Improved processing capability and sensors has allowed unprecedented precise locations of the explosive source and is progressively increasing the possibility to monitor volcanoes from distant records. Very broadband infrasound observations is also showing the relation between volcanic eruptions and the atmosphere, with the eruptive mass injection in the atmosphere triggering acoustic-gravity waves which eventually might control the ash dispersal and fallout.