

Advances on the Volcanic Parameter System with Infrasound Data

Powerful volcanic eruptions, such as those of Calbuco in 2015, or Eyjafjallajökull in 2010, may cause disturbances in the different atmospheric layers. These eruptions are measured by infrasound stations and analyzed in order to extract parametric data best characterize the volcanic source. The remote monitoring of volcanic activity with infrasound is of interest to Volcanic Ash Advisory Centres (VAACs) that are responsible for monitoring, modelling and disseminating information on volcanic ash clouds that may endanger aviation. The synergy between the CTBTO and ARISE (Atmospheric dynamics Research Infrastructure in Europe) partners offers a unique opportunity for the establishment of a Volcanic Parameter System (VPS) using infrasound data from a global station network. The VPS makes best use of the infrasound component of the IMS together with the operational capabilities of the IDC. ARISE advanced products provides valuable parametric inputs on the atmosphere dynamics driving infrasound wave propagation. These results may serve as quality indicators increasing VAACs confidence when receiving notification messages. The proposed approach is tested on CTBTO vDEC (virtual Data Exploitation Centre) with VAAC Toulouse, designated by the International Civil Aviation Organization (ICAO), and demonstrates on a specific dataset the usefulness of infrasonic data to International Airways Volcano Watch.

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