

## Long-Range Infrasound Detections of Volcanic Activity by IS42 Station, Azores, Portugal

IS42 is located in the Azores islands, in the middle of the North Atlantic and is one of International Monitoring System (IMS) infrasound stations, able to detect reliably 1-kiloton explosions at ranges of up to 3000 km or more. On the behalf of the ARISE2 project, collaborative research between UNIFI and the University of the Azores, towards the characterization of extreme atmospheric events, allow to analyze detections on the station records attributed to the eruptive activity of Grímsvötn and Mt. Etna volcanoes, in Iceland and Italy respectively.

Grímsvötn volcano is the most active Icelandic volcano, located under the Vatnajökull glacier on the center of the active NE rift zone of Iceland. Its last eruption, on May 2011, caused severe impact in the aviation traffic in Northwestern Europe and the North Atlantic. The eruption broke the ice cover and became subaerial explosive, ejecting volcanic ash into the atmosphere. A network of 4 infrasound arrays is installed in Iceland to monitor volcanic activity on the behalf of the collaboration between the Icelandic Meteorological Office (IMO) and the University of Florence (UNIFI) (Kristin, et al., 2015). We present the long-range detections of the May 2011 eruptive activity recorded at IS42.

Mt. Etna is the largest and most active volcano of Europe, located in NE region of Sicily Island, Southern Italy. Its recent volcanic activity is typically effusive with explosive episodes and lava fountaining, with often-large ash ejection in the atmosphere which generate weak ( $<20$  Pa at 6 km) infrasound (Ulivieri, et al. 2013). In the period between December 2015 and May 2016, two large explosive phases occurred. We show how the second episode

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