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Analysis of multiple detections of Mount Etna eruptive activity at different IMS infrasound stations compared with near source observations

Mount Etna, the largest and most active volcano of Europe, is located on the NE region of Sicily Island, southern Italy. Its recent volcanic activity is typically effusive with explosive episodes and lava fountaining able to produce high (up to 15 km) eruptive plumes. On the behalf of the ARISE2 project, the universities of the Azores (UAc) and Florence (UniFI) carried out a collaborative research on the IS42 infrasound detections in particular on the Far-Field detections of explosive volcanic activity. On that behalf, we compared infrasound detections of the IMS station IS42, at a distance of 3,700 km, with data recorded near the source (aprox. 5km) by the ETN local UniFI infrasonic array related to Etna 2011 and 2016 volcanic activity. In the present study we extended the long-range observations to the IMS infrasound stations at IS48, IS26, IS42, and IS17, at source-to-receiver distances ranging from approximately 550 km to 3,980 km, with a maximum azimuthal gap of approximately 200°. We compared the detections obtained with the events described in the Reviewed Event Bulletin (REB) of the CTBTO International Data Center (IDC), in order to evaluate the potential of the IMS network in detecting and identifying sources of volcanic activity.

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