

# Deployment of a portable low-cost infrasound array on Terceira Island, Azores, Portugal

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Two seismo-volcanic crises are ongoing on the Azores. A volcanic unrest on a fissural system begun on March 19, 2022, on a São Jorge Island. On June 24 seismicity increased in Santa Bárbara central volcano, on Terceira Island, followed by ground deformation. A portable four-element infrasound array (SJ1) was deployed on São Jorge Island in collaboration with the University of Florence. Learning from this experience, a six-element portable infrasound array (TER) was designed, built and deployed on Terceira Island, in April 2024.

TER is composed of differential sensors, five with a sensitivity of 800 mV/Pa (0.04-100 Hz) and one with a sensitivity of 25mv/Pa (0.1-100 Hz). The potential locations were selected mainly based on its distance from the volcano, the SNR, and GSM coverage. However, due to noise sources, terrain surface and land-permits, the array deployment was not located on none the planned sites.

The array is located 6 km apart from the volcano caldera, although without the ideal SNR. TER has a centred pentagonal geometry, with a maximum aperture of 105 m, positioning the less sensitive at the centre.

Background noise was evaluated, and efforts are being made to move the array to a less noisy site.

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