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RESECAN: citizen-driven seismology on an active volcano (Cumbre Vieja, La Palma Island, Canaries)

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During the last decades, countless seismic sensors have been deployed throughout the planet by different countries and institutions. In recent years, it has been possible to manufacture low-cost MEMS accelerometers thanks to nanotechnology and large-scale development. These devices can be easily configured and accurately synchronized by GPS. Customizable microcontrollers like Arduino or RaspBerryPI can be used to develop low-cost seismic stations capable of local data storage and real-time data transfer. Such stations have a sufficient signal quality to be used for complementing conventional seismic networks.

In recent years Instituto Volcanológico de Canarias (INVOLCAN) has developed a proprietary low-cost seismic station to implement the Canary Islands School Seismic Network (Red Sísmica Escolar Canaria - RESECAN) with multiple objectives:

- supporting the teaching of geosciences.
- promoting the scientific vocation.
- strengthening the resilience of the local communities by improving awareness toward volcanism and the associated hazards.
- Densifying the existing seismic networks.

On Sept. 19th 2021, a volcanic eruption started on the Cumbre Vieja volcano in La Palma. The eruption was proceeded and accompanied by thousands of earthquakes, many of them felt with intensities up to V MCS. Exploiting the attention drawn by the eruption, INVOLCAN started the deployment of low-cost seismic stations in La Palma in educational centres. In this preliminary phase, we selected five educational centres on the island.

The project's objective is to create and distribute low-cost stations in various educational institutions in La Palma and later on the whole Canary Islands Archipelago, supplementing them with educational material on the topics of seismology and volcanology. Each school will be able to access the data of its station, as well as those collected by other centres, being able to locate some of the recorded earthquakes. The data recorded by RESECAN will also be integrated into the

broadband seismic network operated by INVOLCAN (Red Sísmica Canaria, C7). RESECAN will be an instrument of scientific utility capable of contributing effectively to the volcano monitoring of the Canary Islands, reinforcing its resilience with respect to future volcanic emergencies.