



## **Gran Canaria temporary broadband seismic network: an study of the seismicity and Earth structure**

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The present project is a joint effort between different institutions to deploy a dense seismic network at Gran Canaria island (Canary Islands, Spain). The interstation distance is around 20 km. The broadband seismic network is composed of one permanent (Guralp CMG-3T 120 s) and five temporary stations (Guralp CMG-3ESP 60 s). The permanent station is a 120 s Guralp CMG-3T and belongs to the Canary Island Seismic Network, run by the Instituto Geográfico Nacional (IGN) of Spain. The temporary stations are 60 s Guralp CMG-3ESP, provided by the GFZ seismic pool. The deployment was carried out in December 2009. The stations will be recording during two years.

The improvement of the seismic network allow us to tackle the following issues: the detection and analysis of any local seismicity of tectonic and/or volcanic origin at Gran Canaria island; to contribute to the understanding of the regional seismicity with special interest in the oceanic channel between Tenerife and Gran Canaria Island in collaboration with a project running a dense temporary seismic network in Tenerife; to study the crustal and upper mantle structure, under Gran Canaria to constrain the crustal structure, the source of the volcanism, and better sample the mantle discontinuities and anisotropy. To study the Earth structure, we use receiver function analysis, ambient seismic noise and SKS anisotropy techniques,

This project is part of a long-term research of the crustal and the mantle structure of the Canary Islands, which has started with Gran Canaria and Tenerife Islands and will eventually continue with the rest of the archipelago. The origin of the Canary Islands is generally attributed to a broad mantle upwelling under a slow moving plate, resulting in spatially and temporally distributed volcanic activity and a large number of seamounts and islands. A controversial discussion has been going on about the factors that control the evolution of the volcanic edifices, the type of the melting anomaly (a single, well defined mantle plume of a larger area of diffuse mantle upwelling), and the tectonic control of this evolution. This study is foreseen to provide important clues to understand the volcanic structure and tectonic evolution of the Gran Canaria Island.