



## **Automatic seismic network-based monitoring of Tenerife (Canary Islands, Spain)**

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We apply an automatic network-based method for detecting and locating different kind of seismic signals. Two years of seismic data of the island of Tenerife (Canary Islands, Spain) continuously recorded by the Red Sísmica Canaria (C7), a permanent monitoring network composed of 17 broadband stations operated by the Instituto Volcanológico de Canarias (INVOLCAN), are analysed. The method is based on the analysis of eigenvalues and eigenvectors of the seismic network covariance matrix, the equivalent in the frequency domain of the cross-correlation matrix. First, the width of the network covariance matrix eigenvalues distribution, that is a proxy of the number of acting sources, is used to detect events. Then, the first eigenvector of the covariance matrix corresponding to each event is used to locate it, using the moveout information of this first eigenvector. The main hypothesis is that, by representing the principal component of the recorded wavefield, this first eigenvector characterizes the dominating event filtering the information related to the seismic noise. Oceanic, tectonic and volcanic seismic sources are efficiently detected and located. This data feature extraction method has the advantage of not requiring a priori knowledge, to be fully automatic and to be able to analyse large amounts of data.