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Microseismicity in Tenerife and its relation with the volcanic activity in the last 20 years.

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During the last 20 years, the island of Tenerife (Canary Islands) has suffered some low magnitude and sporadic seismic swarms related with its volcanic activity. The most intense and longer swarm was registered from April to October 2004, when more than 120 earthquakes were located in the center of the island, less than 30 km away from Teide volcano. A previous work showed out that during 2004-2005 at least 3600 earthquakes were manually detected at the seismic station of CCAN belonging to the Instituto Geográfico Nacional (IGN). However, apart from this period, very little is known about Tenerife's microseismicity. Moreover, the seismic network at the island has changed in the last 20 years being CCAN the only permanent station during the whole period. Thus, the seismic catalog may have important gaps of information, mostly before 2004 when the seismic network in the island included only two seismic stations.

In order to complete and homogenize the seismic catalog, we have performed a manual detection of seismicity at CCAN station. We combine these detections with seismic locations obtained during periods when temporal seismic networks were deployed. These periods include 18 months from June 2007 to December 2008 and also the whole year of 2010.

The resulting catalog shows a background seismic activity of around 1000 microearthquakes per year, most of them with magnitudes lower than 1. The peak of the microseismicity was 2004, with more than 2000 events detected. Periods with improved seismic network show few hundreds of earthquakes located with enough quality (observed at least in three seismic stations). There is some seismicity located under the summit of Teide peak and also under NE Rift. We compare these results with the seismicity detected and located during the last year in Tenerife thanks to the new IGN's seismic network.