



## **Geodetic observation in Tenerife Island for volcano monitoring 2000-2006. Results and interpretation.**

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The Canary Islands, located less than 100 km off the African continent, are in a passive margin, a special tectonic setting, from a volcanic point of view. At least a dozen eruptions occurred on the islands of Lanzarote, Tenerife, and La Palma between 1500 and 1971. Tenerife is one of the Canaries' most well monitored islands, but the surveillance generally was centered on Las Cañadas Caldera, where the Teide volcano is located. In the last 180,000 years the eruptions on Tenerife Island have never occurred in the same volcanic structure, except for Teide and Pico-Viejo central volcanic system, so that a complete monitoring network would have to cover the whole island. Since 2000 geodetic techniques has been applied to solve that problem. Six GPS surveys have been done in Tenerife (2000, 2001, 2002, 2004, 2005 and 2006) with together efforts from different institutions IAG (CSIC-UCM), ITER, UPM, IGN and in early 2004 a permanent Continuous GPS network has been implemented covering most of the island. This network has became a reality in the framework of the ALERTA project, an initiative from UE INTERREG III-B (Azores-Canarias-Madeira) to reduce the volcanic risk in oceanic islands. The CGPS network is composed by 7 stations (4 belong to ITER and 3 to Nagoya University). Using Bernese v4.2 and v5, time series of coordinates changing in three components are presented and studied. Parallel research has been carried out to proof the viability of the use of InSAR products from ENVISAT ASAR imagery from which several interferograms have been created spanned from Sept 2003 to Oct-Nov 2005. Those were processed with EPSIE software, as well as previous presented results from ESA satellites ERS-1 and ERS-2. Attending to the anomalous seismic activity recorded in Tenerife Island from April 2004, volcano-tectonic sources are discussed as possible explanations.