Geophysical Research Abstracts,
Vol. 11, EGU2009-9793-2, 2009
EGU General Assembly 2009

Ground deformation of Tenerife volcano island revealed by 1992-2005 DInSAR time series:

P. Tizzani (1,2) and the Tenerife Volcano Team

(1) INGV -Osservatorio Vesuviano, Naples,Italy, (2) IREA-CNR, Naples, Italy

We study the state of deformation of Tenerife Island using Differential Synthetic Aperture Radar Interferometry (DInSAR). We apply the Small BAseline Subset (SBAS) DInSAR algorithm to radar images acquired from 1992 to 2005 by ERS sensors to determine the deformation rate distribution and the time series for the coherent pixels identified in the island. Our analysis reveals that the summit area of the volcanic edifice is characterized by a continuous subsidence extending well beyond Las Cañadas caldera rim and corresponding to the intrusive core of the island. These results, coupled with GPS ones, structural and geological information and deformation modelling, suggest that the intrusive complex is subsiding into a weak lithosphere and that the volcanic edifice is in a state of compression. We also detect more localized deformation patterns correlated with water table changes and variations in the time deformation associated with the seismic crisis in 2004.