Geophysical Research Abstracts
Vol. 14, EGU2012-11191, 2012
EGU General Assembly 2012

Monitoring Mt. Etna volcano from "Envisat Extended Orbit"

A. Bonforte, F. Guglielmino, and G. Puglisi

Istituto Nazionale di Geofisica e Vulcanologia, Osservatorio Etneo, Catania, Italy (alessandro.bonforte@ct.ingv.it, +39 095 7165826)

The Envisat mission extension beyond the end of 2010 allows to (a) operate the mission for an additional 3 years (until end of 2013 or early 2014) and (b) ensure the continuity of the maximum number of Envisat applications, with the exception of ASAR Interferometry.
The change of orbit, indeed, degraded the interferometric capabilities. Nevertheless, the new orbit configuration of Envisat has been refined, in order to ensure that the InSAR baselines will be kept at a minimum value at specific latitude, around 38° North for descending passes and 38° South for ascending passes.
Etna area (latitude 37.5 °) is favored by this new orbital configuration of Envisat, and the new orbital repeat cycle of 30 days (instead of 35) will ensure more frequent acquisitions.
In the framework of the CAT-1. 5843, we continued to monitor the volcano by Envisat interferometry. In the last year Mt. Etna was characterized by several fire fountains episodes at the New South Eastern Crater (NSEC). In particular we analyzed a fire fountain episode occurred on 12 January which produced an eastward flowing lava field, within the Valle del Bove area and a large volcanic plume several kilometers high. The episode started at about 22:00 local time and ended at about 00:50 of 13 January (Behncke et al., internal report INGV-CT).
The deformations recorded in the interferogram are relatively small and limited around the summit
area, at elevations above the 1500-2000 m. The data modeling results detected a depressurizing source representing the emptying of the shallow magmatic reservoir.
Furthermore the coherence analysis of interferometric products was able to well image the new lava field and the fallout deposit providing a new complementary mapping tool. These preliminary analyses are in good agreement with the data acquired by the monitoring systems managed by the Osservatorio Etneo of the INGV (GPS, tilt, seismic networks) and field surveys.