Geophysical Research Abstracts, Vol. 8, 04840, 2006
SRef-ID: 1607-7962/gra/EGU06-A-04840

A Multisciplinary Study of the Pantelleria Island Plumbing System in the Structural Framework of the Sicily Channel (Italy)

F. Guglielmino, G. Lanzafame, M. Mattia, S. Spampinato, **A. Ursino**

Istituto Nazionale di Geofisica e Vulcanologia - Sezione di Catania, Italy (ursino@ct.ingv.it /Fax: +39-095-435801)

Sicily Channel is a NW-SE estensional tectonic structure located between Sicily and north-eastern Africa, controlled by two systems of faults trending WNW-ESE and about N-S. These structural lineaments allow the rising of deep magmas feeding an alkaline, per-alkaline and tholeiitic volcanism. This activity begun 8 Ma, is in part still active, and has formed several submarine seamounts and the two composite volcanoes of Pantelleria and Linosa. In particular, the island of Pantelleria, the largest and active volcanic complex of this region, has been monitored since the 1980s with geodetic techniques by Istituto Nazionale di Geofisica e Vulcanologia (INGV), Sezione di Catania. In this study, deformation data are compared with geological and structural information, in order to interpret the important anomalies recorded by both geodetic (GPS and InSAR) and other geophysical and geochimical measurements performed in the past years. These investigations highlight that the volcanic complex of Pantelleria island is characterized by: i) a large deformation rate measured during the last 30 years; ii) a marked subsidence, detected by all geodetic monitoring systems; and iii) an important fast uplift of ground, observed by stratigraphic and tectonic studies. Moreover, an analysis of the seismicity of Pantelleria and of the whole Sicily Channel, on the basis both of seismic catalogues and instrumental data recorded by National Seismic Network managed by INGV in the last 20 years, is carried out. These data allow us to highlight the main seismic features of this important volcano-tectonic region. The preliminary results of this multidisciplinary study will allow us to better characterizing the plumbing system of Pantelleria island and to improving the knowledge of Sicily Channel.