Geophysical Research Abstracts, Vol. 7, 04171, 2005
SRef-ID: 1607-7962/gra/EGU05-A-04171

The potential causes of Mt. Epomeo flank failure, Ischia island (Southern Italy)

S. Carlino(1), E. Cubellis (1)

(1). INGV - Osservatorio Vesuviano, Volcano Physics Department, Via Diocleziano 328, 80124 Napoli (Italy)

Flank failure of many volcanic edifices in the world is testified by typical morphological and depositional features. The most frequent among them are the horseshoe-shaped craters, open at one end, and the presence of hummocky deposits of volcanic debris at the base of volcano. They are associated to caldera avalanches processes, following flank failure of volcanic edifice. The Mt. Epoemo (787 m a.s.l.), in the volcanic island of Ischia, is characterized by the presence of horseshoe-shaped morphology, open towards south-east, and debris deposits with hummocky topography. These deposits are also present in the south off shore of Ischia. The morphology of Mt. Epomeo and the characteristic of deposits show that the structure had a dismantlement due to avalanching processes. The Mt. Epomeo is a resurgent structure in the central sector of the island, whose uplift is correlated to the caldera resurgence process, for the increase of pressure of shallow magma reservoir. The caldera was formed after the Mount Epomeo Green Tuff ignimbritic eruption, about 55 ka B.P. The uplift of the mount, which started about 30 ka B.P., was of about 900 meters. The resurgent structure is bordered by a system of significant fault and fractures, with NW-SE, NE-SW and N-S strike. Along these faults, in the northern sector, the seismicity of the island has been localized since 1228. The causes of the flank failure are not yet fully understood, and probably different factors had contributed it (magmatic push, volcanic and hydrothermal activity, thermal alteration of rocks, seismicity). Furthermore, the orientation of the avalanche caldera is probably influenced by the direction of regional stress field, which shows the maximun tensile component towards NW-SE, in the same direction of the caldera opening. In this study, our purpose is to understand the processes generating the flank failure of Mt. Epomeo, through integrated analysis of the morphology and tectonic features of the resurgent area, recognized using 3D terrain

model, and geological and geophysical data.