Geophysical Research Abstracts,
Vol. 10, EGU2008-A-00965, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-00965
EGU General Assembly 2008

Statistical analysis of the volcanic eruption frequency in the Azores islands: a contribution to risk assessment

G. Caniaux

CNRM (caniaux@meteo.fr)

All the available radiometric ages and stratigraphic informations of the past Holocene eruptions, which have occurred on 13 active volcanic complexes of the Azores archipelago, have been systematically collected from the literature. We suppose that, for each volcanic complex, these events follow a statistical Poisson distribution. This law is relatively well suited for describing the stochastic behavior of most volcanic systems from the Azores, as proved by Khi2 tests performed on well documented eruption series. From this hypothesis, the mean occurrence rate of these events and the eruption probabilities for the next 500 years have been estimated following the methodology proposed by Jones et al. (1999). The results allow to evaluate and compare the volcanic risk associated with each system. Pico Mountain, a recent basaltic stratovolcano from Pico Island, Regiao dos Picos (a linear monogenic volcano field on Sao Miguel Island), the trachyte central volcano of Sete Cidades (Sao Miguel Island), the linear fields of alkali basalt cinder cones and associated lava flows of Sao Roque (Pico Island) and of Capelo (Faial Island) are by decreasing order the most active volcanoes of the archipelago. All these complexes will experience at least one eruption before year 2050, 2110, 2120, 2150 and 2160 respectively, with a probability higher than 50%. The eruption styles of these future eruptions can also be specified.