



Geophysical effects of the lava fountain episodes at Mt. Etna: insights on the shallow plumbing system

Marco Aliotta, Andrea Cannata, Daniele Carbone, Giuseppe Di Grazia, Salvatore Gambino, Francesco Guglielmino, Placido Montalto, Domenico Patanè, and Giuseppe Puglisi
Istituto Nazionale di Geofisica e Vulcanologia, Sezione di Catania, Italy

Mt. Etna is characterized by almost continuous volcanic activity at the summit craters, which ranges from quiet degassing to periodic explosions. Intensity of the explosions varies from strombolian activity to fire fountains. Lava fountain episodes are controlled by processes that originate in the shallow part of the plumbing system and their geophysical effects may give information on the eruptive dynamics, as well as on the geometry of conduits and stocking volumes in the plumbing system. Recent improvements in the monitoring system of Mt. Etna have allowed to collect high-quality seismic and ground deformation data during lava fountain episodes. Cross analysis of these data can be exploited to investigate the spatial-temporal evolution of the underground source processes. In this contribution, dynamic modelling of the most recent fire fountain episodes is performed using seismic and tilt data, with the aim of setting new constraints on the driving mechanisms.