



New insight in the seismicity pattern at the Campi Flegrei caldera

Francesca Bianco, Mario Castellano, Paola Cusano, Luca De Siena, and Simona Petrosino
INGV - Osservatorio Vesuviano, INGV, Napoli, Italy (bianco@ov.ingv.it, + 39 0816108351)

Campi Flegrei (CF) volcanic complex is a nested caldera located in a densely populated area (~1.5 million inhabitants) west of Naples, Southern Italy. Its evolution has been characterized by many eruptive episodes, the last one occurred in 1538 a.d. The most prominent feature of CF activity is the widely known phenomenon called “bradyseism”, consisting of noticeable, fast ground uplifts followed by slow subsidence phases. The most recent bradyseismic crisis occurred in 1982–1984, during which a net uplift of 1.8m centered on Pozzuoli town was accompanied by more than 16,000 earthquakes ($M_{max} = 4.0$) mostly located beneath the Pozzuoli–Solfatara area. After that, two episodes of bradyseism with a net uplift of 6 cm occurred in 2000 and in 2002 - 2006. In order to define the seismogenetic volume related to the 3 crisis occurred in the last 30 years, we evaluated the locations of the recorded VT seismicity by inverting P- and S-wave arrival times following a probabilistic grid search approach. Theoretical travel times at the different stations are obtained in a 3D velocity structure derived from a recent tomographic experiment. The source parameters share compatible values for the 3 crisis suggesting, together with a general agreement in the spatial distribution of the sources, a common mechanism for the 3 bradyseismic episodes.