



Shallow crustal structure of Solfatara Volcano (Campi Flegrei) from microtremor analysis.

S. Petrosino (1), N. Damiano (2), P. Cusano (1), and E. Del Pezzo (1)

(1) INGV - Sezione di Napoli Osservatorio Vesuviano, (2) Università degli Studi di Salerno

In the period 2-6 April 2007 a seismic survey was carried out at Solfatara Volcano, (Campi Flegrei, Southern Italy) with the aim of inferring the shallow structure.

Five circular seismic arrays equipped with 1-Hz 3-component Mark LE3Dlite sensors, were installed in the Solfatara crater. Each array consisted of 4 sensors, 3 of them evenly spaced (120°) around the circumference and the fourth placed at its center. The arrays were designed with radii of 5, 10, 25, 50 and 100 m.

Different array techniques (Frequency-wavenumber analysis, Spatial Autocorrelation method and its modification) were applied to the data recorded by each array to obtain the phase velocity dispersion curves and to infer the shear-wave velocity models for different areas of the crater. Further information about the shallow structure has been retrieved from the application of Nakamura's technique to microtremor recorded at each sampled site.

The results from both Nakamura and array techniques indicate differences in the resonance frequencies, amplifications values and phase velocity curves, that could be due to the presence of horizontal velocity contrasts and/or to variations of the thickness of the shallower layers. In particular the most evident differences are observed in the Northern and Eastern part of the crater. This is confirmed by shear-wave velocity profiles obtained from the inversion of the dispersion curves.