



Campi Flegrei seismic attenuation image: evidences of gas reservoirs, hydrothermal basins and feeding systems.

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Passive, high resolution attenuation tomography is used here to image the geological structure in the first upper 5 km of the Campi Flegrei caldera at a resolution of 500 m in the inner part of the Caldera, where the active volcanic areas of Solfatara, Mofete and Agnano are located. The attenuation images are compared with velocity images obtained by Battaglia et al. (2008); this comparison show a general positive correlation between low (or high) velocity and low (or high) Q . High attenuation vertical structures extend between the surface and a depth of about 3000 m below sea level, where there is the hard rock layer. This is well revealed by the velocity tomography, and corresponds to a sharp contrast of the quality factor extended laterally beneath the whole area under study, to a depth of 3000 m below sea level. The interpretation based on evidence from geological, volcanological and geochemical investigations, indicates that the vertically extending, high attenuation structures correspond to gas reservoirs beneath Solfatara and San Vito, and to intense fluid circulation beneath Mofete, Mt. Nuovo and Astroni-Agnano. The area investigated with a 500m resolution appears densely fractured and possibly connected with the deeper magma sill (at about 7000 m in depth) that was recently revealed by passive travel-time tomography.