



Interferometric imaging of the 2011-2013 Campi Flegrei unrest

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After its 1983-84 seismic and deformation crisis, seismologists have recorded very low and clustered seismicity at Campi Flegrei caldera (Italy). Hence, noise interferometry imaging has become the only option to image the present volcano logical state of the volcano. Three-component noise data recorded before, during, and after Campi Flegrei last deformation and geochemical unrest (2011-2013) have thus been processed with up-to-date interferometric imaging workflow based on MSNoise. Noise anisotropy, which strongly affects measurements throughout the caldera at all frequencies, has been accounted for by self-correlation measurements and smoothed by phase weighted stacking and phase-match filtering. The final group-velocity maps show strong low-velocity anomalies at the location of the last Campi Flegrei eruption (1538 A.D.). The main low-velocity anomalies contour Solfatara volcano and follow geomorphological cross-faulting. The comparison with geophysical imaging results obtained during the last seismic unrest at the caldera suggest strong changes in the physical properties of the volcano, particularly in the area of major hydrogeological hazard.