



## **Signature of magmatic processes in strainmeter records at Campi Flegrei (Italy)**

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Volcanic unrest at Campi Flegrei caldera is characterized by episodes of ground deformation, seismicity and enhanced fumarolic activity; whether its origin is purely hydrothermal or magmatic is highly debated. We have analyzed ground deformation patterns in strainmeter records, focusing on a heightened unrest period in late 2006. These data have been compared to synthetic signals obtained from simulations of shallow magma chamber replenishment and mixing at Campi Flegrei. Our results show that discrete transients can be identified in the monitoring records, that strongly resemble the synthetics in both time and frequency domains, pointing to a magmatic contribution to the unrest.

Together with other recent findings, our results depict a situation whereby periodic arrivals of deep magma feed a shallow intrusion at 3-4 km depth. These results suggest that the analysis of strainmeter records, coupled with advanced numerical simulations of magma dynamics, could lead to new approaches in imaging subsurface dynamic processes in volcanic areas.