



Ground-based InSAR and Forward Looking Infrared: improving the time/space resolution of traditional monitoring technique at volcanoes.

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Ground deformation and thermal anomalies might be detectable evidence for fluid migration within magmatic systems. The accurate monitoring of these parameters at reasonable temporal and spatial scales is one important requirement for hazard assessment.

Deformation measurements by GPS allow high temporal but poor spatial sampling, whilst deformation measurements by satellite-based InSAR allow high spatial but poor temporal sampling. This study shows the high value of ground based InSAR, where both high temporal and high spatial samples are achievable. We find especially the combination of ground based InSAR and infrared imaging of use, as similar viewing geometries and therefore comparative pixel analysis are performable. This we tested at the fumarolically active caldera of Nisyros, previously recognized to experience hourly deformation cycles. Our test suggests that the instruments are robust and capable to provide reliable information, the processed data suggest that, currently, Nisyros is in a stable state as neither periodic nor transient ground deformation nor temperature changes were detected.