



## **Reconstruction of the strain pattern in the Somma-Vesuvius area: field and remote sensing analyses**

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This study presents a detailed structural analysis of the Somma-Vesuvio (SV) volcanic complex that couples field data about faults, fractures and dykes with the analysis of lineaments identified from high-resolution (1m) DTM deriving from LiDAR data. Field data were collected within the SV caldera, in some quarries along the volcano flanks, and in few outcrops along the carbonate reliefs bounding the southern sector of the Campania plain. A total of 8,500 orientation data have been analyzed through rose diagrams and inversion methods while a total of more than 4,000 lineaments were identified after the analyses of multiple hill shades obtained by applying different pseudo-illuminations (from NW, NE, SE and SW) and appropriate filters to the original DTM. Results indicate a complex interaction between volcanic (local) and tectonic (regional) stress fields. The preliminary analysis of lineaments indicates that most of them are radial with respect to the center of the caldera, however a "tectonic" component is present, mainly represented by the NNE-SSW, ENE-WSW and the well-known Apenninic (NW-SE) direction.