



## **The influence of topography and volcano tectonic structures on the ground deformation field at Vesuvius volcano**

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Theoretical ground displacements at Vesuvius volcano have been computed with a boundary element method to simulate a set of possible pre-eruptive processes.

Four different source models have been used and three different volcano models have been built: an half space model, a volcano model including topography and a volcano model including the topography and the main ring-fault structures around the cone.

The real topography, crucial in the deformation field analysis for a strato-volcano such as Vesuvius, has been included in the volcano model using the digital terrain model of the area.

The ring fault structures have been inferred from tomographic data, which refine the structural information.

For each source model both the effect of topography and of the ring-fault structures on ground deformation field at Vesuvius volcano can be analysed comparing theoretical displacements for the three volcano models.

The models give a rather complete picture of what could be the evolution of ground displacements during pre-eruptive periods at Vesuvius volcano.