

Title: reconstruction of the volcano-tectonic structure of the Campi Flegrei caldera through multidisciplinary investigations

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Proposal:

The Campi Flegrei caldera is one of the most dangerous active volcanoes in the world due to intense urbanization. It is the result of the eruptions of Ignimbrite Campana (40 ka) and Neapolitan Yellow Tuff (15 ka). Subsequently, volcanic activity was focused along the caldera rims and inside it with more than 70 eruptions, including the event of Agnano-Monte Spina (4.55 ka), which generated the minor caldera of the Agnano Plain. The aim of the present research project is the study of volcano-tectonic structures associated with the formation of these calderas through a multidisciplinary approach that includes structural field surveys and geophysical and geochemical investigations.

Research Program

The PhD project involves the study of the main structures bounding the caldera through a field survey of fractures and faults and the reconstruction in map and depth of these structures using geochemical investigations, such as mapping CO₂ flows, and geophysical such as the reconstruction of resistivity anomalies. To this aim, the project involves collaboration with the Osservatorio Vesuviano. The research will have the financial support of the research funds of the tutor and co-tutor (Roberto Isaia), the latter coordinator of the project "multidisciplinary investigations to elucidate the deep structure and volcanic evolution of Campi Flegrei caldera (INSIDE OUT)", within the INGV project "Pianeta Dinamica".

The timetable includes in the first two years the structural survey and acquisition of geochemical and geophysical data along transects that cross the edges of the main caldera and the minor ones. In the second and third years, the data will be analyzed and produced maps and cross-sections in order to reconstruct the volcano-tectonic architecture in depth. The third year also involves the definition of a structural model of the caldera.

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