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The Mediterranean Supersite Volcanoes (MED-SUV) Project: an overview

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The EC FP7 MEDiterranean SUpersite Volcanoes (MED-SUV) EC-FP7 Project, which started on June 2013, aims to improve the capacity of the scientific institutions, end users and SME forming the project consortium to assess the volcanic hazards at Italian Supersites, i.e. Mt. Etna and Campi Flegrei/Vesuvius. The Project activities will focus on the optimisation and integration of ground and space monitoring systems, the breakthrough in understanding of volcanic processes, and on the increase of the effectiveness of the coordination between the scientific and end-user communities in the hazard management.

The overall goal of the project is to apply the rationale of the Supersites GEO initiative to Mt. Etna and Campi Flegrei/Vesuvius, considered as cluster of Supersites. For the purpose MED-SUV will integrate long-term observations of ground-based multidisciplinary data available for these volcanoes, i.e. geophysical, geochemical, and volcanological datasets, with Earth Observation (EO) data. Merging of different parameters over a long period will provide better understanding of the volcanic processes. In particular, given the variety of styles and intensities of the volcanic activity observed at these volcanoes, and which make them sort of archetypes for 'closed conduit ' and 'open conduit' volcanic systems, the combination of different data will allow discrimination between peculiar volcano behaviours associated with pre-, syn- and post-eruptive phases. Indeed, recognition of specific volcano patterns will allow broadening of the spectrum of knowledge of geo-hazards, as well as better parameterisation and modelling of the eruptive phenomena and of the processes occurring in the volcano supply system; thus improving the capability of carrying out volcano surveillance activities.

Important impacts on the European industrial sector, arising from a partnership integrating the scientific community and SMEs to implement together new observation/monitoring sensors/systems, are also expected. MED-SUV proposes the development and implementation of a state-of-the-art e-infrastructure for the data integration and sharing and for volcanic risk management life-cycle, from observation to people preparedness. Experiments and studies will be devoted to better understanding of the internal structures and related dynamics of the case study volcanoes, as well as to recognition of signals associated with to impending unrest or eruptive phases. Hazard quantitative assessment will benefit by the outcomes of these studies and by their integration into the cutting edge monitoring approaches, thus leading to a step-change in hazard awareness and preparedness, and leveraging the close relationship between scientists, SMEs, and end-users.

The applicability of the project outcomes will be tested on the cluster of Supersite itself during a Pilot phase, as well as on other volcanic systems with similar behaviours like Piton de la Fournaise (Reunion Island) and Azores.