



EUROVOLC – A European Network of Observatories and Research Infrastructures for Volcanology

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With over 60 active volcanic systems in Europe (e.g. Vesuvius and Etna in Italy, Bárðarbunga in Iceland, Santorini in Greece etc.), and numerous others in member states' overseas territories (e.g. Guadeloupe, Martinique, Réunion, Montserrat, Macaronesian islands), volcanic hazards present an acute threat to Europe. Predicting, preparing for and recovering from volcanic disasters and disruption therefore is a pressing concern, where the European volcanology research community plays a key role in mitigating volcanic risk and providing key scientific information and interpretation during eruption crises. This role was exemplified in the 2010 Eyjafjallajökull eruption, which despite its modest size caused € 1.3 billion direct costs to the airline industry and significant impacts to general economic activity in Europe. Volcanic systems are inherently complex, difficult to predict, present multiple hazards, and eruptions often result in cascading effects. Advances in volcanological research can therefore lead to improvements in risk assessment and crises management, with significant positive impacts on European society. In practice however, this does not happen efficiently due to: fragmentation of the volcanological community; limited time-frame of research projects retarding knowledge transfer from these projects to the wider community; wide variety of disciplines in Earth and atmospheric sciences comprising the volcanological community; lack of community test beds.

A new Horizon2020 I3 Infrastructure project, EUROVOLC has been established by a large group of Earth and atmospheric scientists from 9 European countries, represented by 18 partners comprising research and monitoring institutions, civil protection and companies from the IT and geothermal industry. Four main themes are addressed by the project: Community building, volcano-atmosphere interaction, sub-surface processes and volcanic crisis preparedness and risk management. The aims are to (i) integrate and harmonize the presently fragmented volcanological community to enhance knowledge transfer, (ii) advance research on specific topics, (iii) establish access to volcanological data from Volcano Observatories (VO) and Volcanic Research Institutions (VRI) as well as (iv) opening access during the project to the multidisciplinary Research Infrastructures themselves, (v) drive best practice at VOs, (vi) link scientists and stakeholders and (v) open pathways for enterprise to better exploit georesources such as geothermal energy in volcanic areas. The project will exploit and build-upon existing and emerging national and pan-European research infrastructures, such as EPOS and the European volcanological supersites, FUTUREVOLC and MedSUV.

Examples of networking activities include collaboration and networking between VOs, VRIs and civil protection agencies, networking of atmospheric gas and aerosol observations as well as observations of subsurface processes, and initiation of access to multidisciplinary observations from the Krafla Volcano Laboratory as a test bed. Joint research activities include production of services to initialize volcanic ash transport and dispersal models during eruptions, integrated modelling of pre-eruption data, a catalogue of European Volcanoes and an assembly of tools for volcano monitoring, assessment and hazard management. Trans-national access will be established to European VOs in Iceland, Italy, Azores, Reunion and the Caribbean and to modeling facilities at VRIs. Virtual access will be offered to various modelling and assessment tools for responding to volcanic unrest and eruptions.