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The contribution of the Volcano Observations Work Package to the implementation of the European Plate Observing System

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The overall aim of the implementation phase of European Plate Observing System (EPOS) is to make the integrated platform operational in order to guarantee seamless access to the data provided by the European Solid Earth communities. The Volcano Observations Work Package (WP11) contributes to this objective by implementing a Thematic Core Service (TCS) which is planned to give access to the data and services provided by the European Volcano Observatories (VO) and some Volcanological Research Institutions (VRI; such as university departments, laboratories, etc.). Both types are considered as national research infrastructures (RI) which the TCS will integrate. Currently, monitoring networks on European volcanoes consist of thousands of stations or sites where volcanological parameters are continuously or periodically measured. These sites are equipped with instruments for geophysical (seismic, geodetic, gravimetric, electromagnetic), geochemical (volcanic plumes, fumaroles, groundwater, rivers, soils), environmental observations (e.g. meteorological and air quality parameters), as well as various prototypal monitoring systems (e.g. Doppler radars, ground based SAR). Across Europe several laboratories provide sample characterization (rocks, gases, isotopes, etc.), quasi-continuous analysis of space-borne data (SAR, thermal imagery, SO_2 and ash), as well as high-performance computing facilities. All these RIs provide high-quality information (observations) on the current status of European volcanoes and the geodynamic background of the surrounding areas.

The implementation of the Volcano Observations TCS will address technical as well as managerial issues, both considering the current heterogeneous state-of-the-art of the volcanological research infrastructures in Europe. Indeed, the current arrangement of individual VO and VRI is considered too fragmented to be considered as a unique distributed infrastructure. Therefore, the main effort in the framework of the EPOS-IP is focused towards creating services aimed at providing an improved and more efficient access to the volcanological facilities and observations at active volcanoes.

The fragmentation reflects in the heterogeneity of the technical solutions to provide the access and in the managerial issues, particularly in the data policies, governance structures and financial perspectives. Indeed, each research infrastructure currently adopts its own data policy (moreover, in some cases it is difficult to define a proper data policy), refers to different financial models and follows different organization. This is partly also due to the different formal commitments and mandates of VO and/or VRI within their own jurisdictions.

Thus the main challenge of the WP11 in the framework of EPOS-IP is to overcome the current fragmentation and to strengthen the construction of the European volcanological community. Its current world-leading reputation is confirmed by the fact that three out of four Volcanic Supersites are located in Europe, are managed by European institutions and are studied by two EC-FP7 Projects (Futurevolc and MED-SUV).