



Data Services and Transnational Access for European Geosciences Multi-Scale Laboratories

Francesca Funiciello (1), Matthias Rosenau (2), Leonardo Sagnotti (3), Piergiorgio Scarlato (3), Telemaco Tesei (3), Daniele Trippanera (1), Chris Spires (4), Martyn Drury (4), Mirjam Kan-Parker (4), Otto Lange (4), Ernst Willingshofer (4), and the EPOS-IP WP16 Team

(1) Università "Rome TRE", Dipartimento di Scienze, Roma, Italy, (2) GFZ, Potsdam, Germany, (3) Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy, (4) Utrecht University, Utrecht, the Netherlands

The EC policy for research in the new millennium supports the development of European-scale research infrastructures. In this perspective, the existing research infrastructures are going to be integrated with the objective to increase their accessibility and to enhance the usability of their multidisciplinary data. Building up integrating Earth Sciences infrastructures in Europe is the mission of the Implementation Phase (IP) of the European Plate Observing System (EPOS) project (2015-2019). The integration of European multiscale laboratories - analytical, experimental petrology and volcanology, magnetic and analogue laboratories - plays a key role in this context and represents a specific task of EPOS IP.

In the frame of the WP16 of EPOS IP working package 16, European geosciences multiscale laboratories aim to be linked, merging local infrastructures into a coherent and collaborative network. In particular, the EPOS IP WP16-task 4 "Data services" aims at standardize data and data products, already existing and newly produced by the participating laboratories, and made them available through a new digital platform. The following data and repositories have been selected for the purpose:

- 1) analytical and properties data a) on volcanic ash from explosive eruptions, of interest to the aviation industry, meteorological and government institutes, b) on magmas in the context of eruption and lava flow hazard evaluation, and c) on rock systems of key importance in mineral exploration and mining operations;
- 2) experimental data describing: a) rock and fault properties of importance for modelling and forecasting natural and induced subsidence, seismicity and associated hazards, b) rock and fault properties relevant for modelling the containment capacity of rock systems for CO₂, energy sources and wastes, c) crustal and upper mantle rheology as needed for modelling sedimentary basin formation and crustal stress distributions, d) the composition, porosity, permeability, and frackability of reservoir rocks of interest in relation to unconventional resources and geothermal energy;
- 3) repository of analogue models on tectonic processes, from the plate to the reservoir scale, relevant to the understanding of Earth dynamics, geo-hazards and geo-energy;
- 4) paleomagnetic data, that are crucial a) for understanding the evolution of sedimentary basins and associated resources, and b) for charting geo-hazard frequency.

EPOS IP WP16 – task 5 aims to create mechanisms and procedures for easy trans-national access to multiscale laboratory facilities. Moreover, the same task will coordinate all the activities in a pilot phase to test, validate and consolidate the over mentioned services and to provide a proof of concept for what will be offered beyond the completion of the EPOS IP.