

OBJECTIVES

The participant countries in EPOS embody a wide range of world-class laboratory infrastructures. Most data produced by the various laboratory centres and networks are presently available only in limited "final form" in publications. Many data remain inaccessible and/or poorly preserved. However, the data produced at the participating laboratories are crucial to serving society's need for geo-resources exploration and for protection against geo-hazards. Indeed, to model resource formation and system behaviour during exploitation, we need an understanding from the molecular to the continental scale, based on experimental data. This contribution will describe the plans that the laboratories community in Europe is making, in the context of EPOS. The main objectives are:

• To collect and harmonize available and emerging laboratory data on the properties and processes controlling rock system behaviour at multiple scales, in order to generate products accessible and interoperable through services for supporting research activities. • To co-ordinate the development, integration and trans-national usage of the major solid Earth Science laboratory centres and specialist networks. The length scales encompassed by the infrastructures included range from the nano- and micrometer levels (electron microscopy and micro-beam analysis) to the scale of experiments on centimetre sized samples, and to analogue model experiments simulating the reservoir scale, the basin scale and the plate scale.

• To provide products and services supporting research into Geo-resources and Geo-storage, Geo-hazards and Earth System Evolution. If the EPOS Implementation Phase proposal presently under construction is successful, then a range of services and transnational activities will be put in place to realize these objectives.



WP16 COMMUNITY

HPT Experimental Laboratories	UU, NERC,
Electron Microscopy, Micro-beam Analysis	NERC,
Physical Analogue Modelling Laboratories	UU, R3, (
Paleomagnetism Laboratories	ING\

EPOS-WP16: A Platform for Multi-scale Laboratories

C. Spiers ¹, M. Drury¹, M. van Kan-Parker¹, O. Lange¹, E. Willingshofer¹, F. Funiciello², M. Rosenau³, P. Scarlato⁴, L. Sagnotti⁴ & WP16 participants ¹ Faculty of Geosciences, University of Utrecht, The Netherlands; ² Roma 3, Italy; ³ GFZ, Germany; ⁴ INGV, Italy

TASK 1 - STRATEGIC ACTIVITIES AND GOVERNANCE (UU+ ALL)

- Interstation of the existing EPOS legal and IP framework to provide access rules for mutual access to experimental facilities and sharing of relevant data throughout the EPOS community.
- Verifying the proper and timely release of deliverables concerning legal, governance and financial information for WP4 and WP5 activities.

TASK 2 - COORDINATION AND INTERACTION WITH THE COMMUNITY (UU + ALL)

- Coordinating activities on measuring the impact of the services and data provided, using the metrics elaborated upon in WP3.

TASK 3 - INTEROPERABILITY WITH EPOS ICS AND TESTING (UU + ALL)

Coordination of activities aimed at guaranteeing the access to lab data and the provision of product generated in the lab involved in this WP. A key function of this task is to contribute to validation and testing of the EPOS ICS system.

TASK 4 - DATA SERVICES (R3/INGV + ALL)

	a. Volcanic Ash from explo		
I - Analytical and Properties Data	b. Magmas in the context of		
	c. Rock Systems of key imp		
	a. Rock & Fault Properties		
II - Experimental Data	b. Rock & Fault Properties		
n - Experimental Data	c. Crustal and upper Mant		
	d. on Composition, Poros		
III - Analogue Models and Materials	on Tectonic Processes , fro		
m - Analogue models and materials	geo-energy (RM3, GFZ, UU,		
IV - Paleomagnetic Data	a. for understanding the e		
rv - raieomagnetic Data	b. for charting geo-hazard		

TASK 5 - PROOF OF CONCEPT AND TESTING PHASE OF MULTI-SCALE LABORATORIES SERVICES (GFZ + ALL)

This task will coordinate activities to conduct a pilot phase to test, validate and consolidate the services identified and implemented for the experimental facilities, and provide a proof of concept for the services to be offered beyond the completion of the Implementation Phase.

Irans-national access of individual investigators to multi-scale laboratories and coordinated access to the involved facilities to host experiments to be conducted by researchers and business partners (GFZ + all) ✓ Virtual access to data (GFZ + all).

To provide products and services supporting research in the key strategic areas of:



C, INGV, LMU, ETH, CNRS CSIC, UBI, UU, CNRS GFZ, LMU, CSIC CNRS V, CNRS, CSIC, UU

DESCRIPTION OF WORK

Coordinating the strategic activities necessary to establish the governance structure for guaranteeing the long-term sustainability of the involved RIs for the data provision through EPOS.

Establishing communication channels for interaction with the whole TCS community and, working in close cooperation with WP2, at contributing to supporting the EPOS communication strategy.

osive eruptions; of interest to the aviation industry, meteorological and government institutes (INGV, LMU, CSIC)

of eruption and lava-flow hazard evaluation (LMU, INGV, CSIC)

portance in mineral exploration and mining operations (UBI, CSIC) ; modelling and forecasting natural and induced subsidence, seismicity and hazards (INGV, NERC, UU)

; relevant for modelling the containment capacity of rock systems for CO2, energy sources and wastes (NERC, UBI, UU),

Itle Rheology as needed for modelling sedimentary basin formation and crustal stress distributions (ETH, UU)

sity, Permeability & Frackability of Reservoir Rocks; for unconventional resources and geothermal energy (NERC, INGV, ETH, UU). om the plate to the reservoir scale, relevant to the understanding of Earth dynamics, geo-hazards and

volution of sedimentary basins and associated resources, and

frequency (INGV, CNRS, CSIC, UU).







Earth System Evolution





LINKS TO OTHER WPs

DELIVERABLES

- D16.1 Report on Governance and legal framework for TCS implementation (UU)
- D16.2 Report on financial work and sustainability for TCS implementation (UU)
- D16.3 Report on Dissemination and Impact assessment (UU)
- D16.4 Report on Use Cases, Requirements, Metadata and Interoperability (UU & NERC)
- D16.5 Implementation Status Report for Laboratory Services and Products (RM3 & INGV)
- D16.6 Service Validation Report for Laboratory Infrastructures (GFZ & NERC)

D16.7 Evaluation Report for Testing Phase of Laboratory Services (GFZ, NERC, INGV, RM3 & UU)

Month	6	12	18	24	30	36	42	48
D16.1	\rightarrow		\rightarrow					
D16.2	\rightarrow		\rightarrow					
D16.3			\rightarrow		\rightarrow			
D16.4	\rightarrow		\rightarrow		\rightarrow			
D16.5		\rightarrow		\rightarrow				
D16.6						\rightarrow		
D16.7								\rightarrow