



EPOS Multi-Scale Laboratory platform: a long-term reference tool for experimental Earth Sciences

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With continuous progress on scientific research, a large amount of datasets has been and will be produced. The data access and sharing along with their storage and homogenization within a unique and coherent framework is a new challenge for the whole scientific community. This is particularly emphasized for geo-scientific laboratories, encompassing the most diverse Earth Science disciplines and typology of data. To this aim the “Multiscale Laboratories” Work Package (WP16), operating in the framework of the European Plate Observing System (EPOS), is developing a virtual platform of geo-scientific data and services for the worldwide community of laboratories.

This long-term project aims at merging the top class multidisciplinary laboratories in Geoscience into a coherent and collaborative network, facilitating the standardization of virtual access to data, data products and software. This will help our community to evolve beyond the stage in which most of data produced by the different laboratories are available only within the related scholarly publications (often as print-version only) or they remain unpublished and inaccessible on local devices. The EPOS multi-scale laboratory platform will provide the possibility to easily share and discover data by means of open access, DOI-referenced, online data publication including long-term storage, managing and curation services and to set up a cohesive community of laboratories.

The WP16 is starting with three pilot cases laboratories: (1) rock physics, (2) palaeomagnetic, and (3) analogue modelling. As a proof of concept, first analogue modelling datasets have been published via GFZ Data Services (<http://doidb.wdc-terra.org/search/public/ui?&sort=updated+desc&q=epos>). The datasets include rock analogue material properties (e.g. friction data, rheology data, SEM imagery), as well as supplementary figures, images and movies from experiments on tectonic processes. A metadata catalogue tailored to the specific communities will link the growing number of datasets to a centralized EPOS hub. Acknowledging the fact that we are dealing with a variety in levels of maturity regarding available data infrastructures within the different labs, we have set up an architecture that provides different scenarios for participation. Thus, research groups which do not have access to localized repositories and catalogues for sustainable storage of data and metadata can rely on shared services within the Multi-scale Laboratories community.

As an example of the usage of data retrieved through the community, an experimentalist willing to decide which material is suitable for his experimental setup can get “virtual lab access” to retrieve information about material parameters with a minimum effort and then may decide to move in a specific laboratory equipped with the instruments needed.

The currently participating and collaborating laboratories (Utrecht University, GFZ, Roma Tre University, INGV, NERC, CSIC-ICTJA, CNRS, LMU, UBI, ETH, CNR) warmly welcome everyone who is interested in participating at the development of this project.