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Sharing experimental data and facilities in EPOS: Updates on services for the analogue modelling community in the TCS Multi-scale Laboratories

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EPOS, the European Plate Observing System, is a unique e-infrastructure and collaborative environment for the solid earth science community in Europe and beyond. A wide range of world-class experimental (analogue modelling and rock and melt physics) and analytical (paleomagnetic, geochemistry, microscopy) laboratory infrastructures are concerted in a “Thematic Core Service” (TCS) labelled “Multi-scale Laboratories” (MSL). Sharing experimental facilities and data on analogue modelling of tectonic processes as well as on properties and applicability of different rock analogue materials are among the thematic areas that have been achieved during the current implementation phase of EPOS. The TCS Multi-scale Laboratories offers coordination of the laboratories’ network, data services, and trans-national access to laboratory facilities.

In the framework of Transnational Access (TNA), TCS Multi-scale laboratories’ facilities are accessible to researchers across the world, creating new opportunities for synergy, collaboration and scientific innovation, according to trans-national access rules. TNA can be realized in the form of physical access (in-situ experimenting and analysis), remote service (sample analysis) and virtual access (remote processing). After three successful TNA calls, the 2020 and 2021 TNA calls have been suspended due to Covid-19 pandemic restrictions. A TNA call is now foreseen for 2022 offering access to a variety of experimental facilities and complementary expertise.

In the framework of data services, TCS Multi Scale Laboratories promotes FAIR (Findable-Accessible-Interoperable-Re-Usable) sharing of experimental research data sets through Open Access data publications. Data sets are assigned with digital object identifiers (DOI) and are published under open CC BY licences. They are thus citable in all relevant scientific journals. A dedicated metadata schema (following international standards that are enriched with disciplinary controlled community vocabulary) eases exploration of the various data sets in a TCS catalogue. With respect to analogue modelling, a growing number of analogue modelling data sets include analogue material properties (friction and rheology data) and modelling results (images, maps, graphs, animations) as well as software (visualization and analysis). The main repository for data sets is currently GFZ Data Services, a domain repository for Geosciences, hosted at GFZ German Research Centre for Geosciences, but others are planned to be implemented within the next years.

The EPOS TCS Multiscale Laboratories framework will lay the foundation for a comprehensive database of rock analogue materials, a dedicated bibliography, and will facilitate the organization of community wide activities (eg. meetings, benchmarking, etc.) to stimulate collaboration among analogue laboratories and the exchange of know-how.

EPOS TCS MSL analogue modelling team: EPOS TCS MSL analogue modelling team