EGU21-7876, updated on 01 Dec 2022
https://doi.org/10.5194/egusphere-egu21-7876
EGU General Assembly 2021

How to publish your data with the EPOS Multi-scale Laboratories

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EPOS (the European Plate Observing System) is a pan-European e-infrastructure framework with the goal of improving and facilitating the access, use, and re-use of Solid Earth science data. The EPOS Thematic Core Service Multi-scale Laboratories (TCS MSL) represent a community of European Solid Earth sciences laboratories including high-temperature and high-pressure experimental facilities, electron microscopy, micro-beam analysis, analogue tectonic and geodynamic modelling, paleomagnetism, and analytical laboratories.

Participants and collaborating laboratories from Belgium, Bulgaria, France, Germany, Italy, Norway, Portugal, Spain, Switzerland, The Netherlands, and the UK are already represented within the TCS MSL. Unaffiliated European Solid Earth sciences laboratories are welcome and encouraged to join the growing TCS MSL community.

Laboratory facilities are an integral part of Earth science research. The diversity of methods employed in such infrastructures reflects the multi-scale nature of the Earth system and is essential for the understanding of its evolution, for the assessment of geo-hazards, and the sustainable exploitation of geo-resources.

Although experimental data from these laboratories often provide the backbone for scientific publications, they are often only available as images, graphs or tables in the text or as supplementary information to research articles. As a result, much of the collected data remains unpublished, not searchable or even inaccessible, and often only preserved in the short term.

The TCS MSL is committed to making Earth science laboratory data Findable, Accessible, Interoperable, and Reusable (FAIR). For this purpose, the TCS MSL encourages the community to share their data via DOI-referenced, citable data publications. To facilitate this and ensure the provision of rich metadata, we offer user-friendly tools, plus the necessary data management expertise, to support all aspects of data publishing for the benefit of individual lab researchers via partner repositories. Data published via TCS MSL are described with the use of sustainable metadata standards enriched with controlled vocabularies used in geosciences. The resulting data publications are also exposed through a designated TCS MSL online portal that brings together DOI-referenced data publications from partner research data repositories (https://epos-msl.uu.nl/). As such, efforts have already been made to interconnect new data (metadata

exchange) with previous databases such as MagIC (paleomagnetic data in Earthref.org), and in the future, we expect to enlarge and improve this practice with other repositories.

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