EUROPEANPLATEOBSERVINGSYSTEM EPOS-Netherlands

Making it easy:

accessing Earth science laboratory data through EPOS Multi-scale laboratories

EPOS-NL Annual Meeting – November 8th 2022

Richard Wessels – EPOS-NL Data Scientist – r.j.f.wessels@uu.nl

Content

Introduction
- Publishing Earth science laboratory data
- What happens thereafter?

How to find data
- Different ways to find data
- The EPOS Multi-scale laboratories data portal
- Making it easy
- The importance of keywords

Challenges and the future
- Interoperability of Earth science laboratory data
- The EPOS Central data portal

Publishing Earth science laboratory data

DATA PUBLICATION PROCESS:

1. Collect data

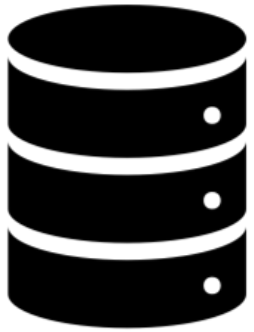
Laboratory
+ Researcher(s)
+ Instrument(s)

2. Create dataset

inc. keywords

3. Publish data

Datasets & metadata

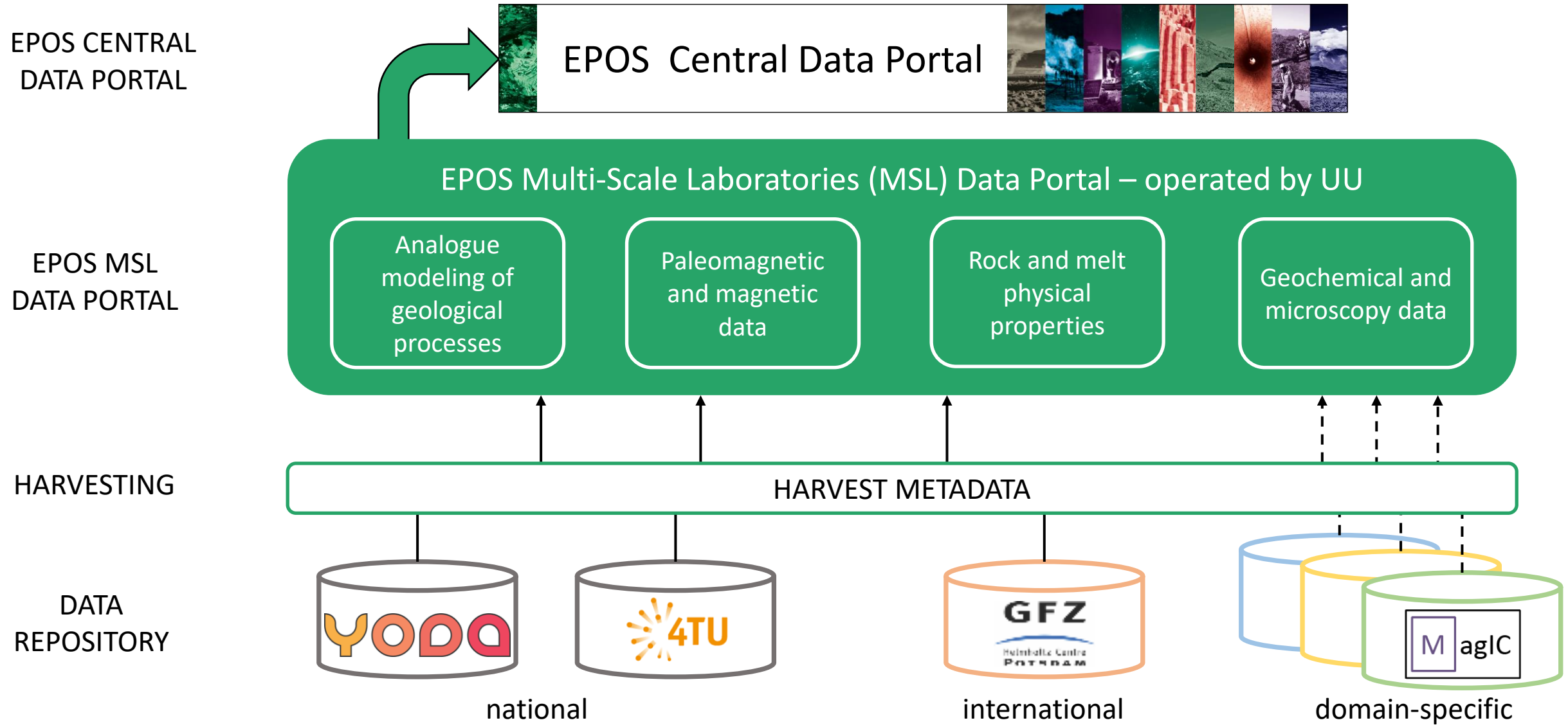


Data repository

- Your dataset gets a permanent identifier (DOI) that links to it on the web

What happens after you publish your data

✓ Metadata is harvested and made available in the EPOS Multi-scale laboratories data portal and EPOS Central data portal



Discover (find) published Earth science laboratory data

SCENARIO:	SOLUTION:	EXAMPLE:
"I know exactly which dataset I'm looking for"	Use the identifier	Google the DOI
"I know the author/title and repository in which it is published"	Search through that repository	- 4TU.ResearchData: https://data.4tu.nl/portal - Yoda: https://search.datacite.org/repositories/delft.uu
"I'm interested in specific data belonging to a certain scientific domain"	Search through a domain-specific repository	- Geochemistry > EarthChem: https://www.earthchem.org/ - Paleomagnetism > MagIC: https://www2.earthref.org/MagIC
"I'm interested in data on my research topic (that I did not know existed)"	Search the EPOS MSL data portal	**EPOS Multi-Scale Laboratories portal:** https://epos-msl.uu.nl/
"I want to do multi-disciplinary research across domains	Search the central EPOS data portal	**EPOS Central data portal:** https://www.ics-c.epos-eu.org/

Discover (find) published Earth science laboratory data

SCENARIO:	SOLUTION:	EXAMPLE:
"I know exactly which dataset I'm looking for"	Use the identifier	Google the DOI
"I know the author/title and repository in which it is published"	Search through that repository	- 4TU.ResearchData: https://data.4tu.nl/portal - Yoda: https://search.datacite.org/repositories/delft.uu
"I'm interested in specific data belonging to a certain scientific domain"	Search through a domain-specific repository	- Geochemistry > EarthChem: https://www.earthchem.org/ - Paleomagnetism > MagIC: https://www2.earthref.org/MagIC
"I'm interested in data on my research topic (that I did not know existed)"	Search the EPOS MSL data portal	**EPOS Multi-Scale Laboratories portal:** https://epos-msl.uu.nl/
"I want to do multi-disciplinary research across domains	Search the central EPOS data portal	**EPOS Central data portal:** https://www.ics-c.epos-eu.org/

Discover (find) published Earth science laboratory data

SCENARIO:	SOLUTION:	EXAMPLE:
"I know exactly which dataset I'm looking for"	Use the identifier	Google the DOI
"I know the author/title and repository in which it is published"	Search through that repository	- 4TU.ResearchData: https://data.4tu.nl/portal - Yoda: https://search.datacite.org/repositories/delft.uu
"I'm interested in specific data belonging to a certain scientific domain"	Search through a domain-specific repository	- Geochemistry > EarthChem: https://www.earthchem.org/ - Paleomagnetism > MagIC: https://www2.earthref.org/MagIC
"I'm interested in data on my research topic (that I did not know existed)"	Search the EPOS MSL data portal	**EPOS Multi-Scale Laboratories portal:** https://epos-msl.uu.nl/
"I want to do multi-disciplinary research across domains	Search the central EPOS data portal	**EPOS Central data portal:** https://www.ics-c.epos-eu.org/

Discover (find) published Earth science laboratory data

SCENARIO:	SOLUTION:	EXAMPLE:
"I know exactly which dataset I'm looking for"	Use the identifier	Google the DOI
"I know the author/title and repository in which it is published"	Search through that repository	- 4TU.ResearchData: https://data.4tu.nl/portal - Yoda: https://search.datacite.org/repositories/delft.uu
"I'm interested in specific data belonging to a certain scientific domain"	Search through a domain-specific repository	- Geochemistry > EarthChem: https://www.earthchem.org/ - Paleomagnetism > MagIC: https://www2.earthref.org/MagIC
"I'm interested in data on my research topic (that I did not know existed)"	Search the EPOS MSL data portal	**EPOS Multi-Scale Laboratories portal:** https://epos-msl.uu.nl/
"I want to do multi-disciplinary research across domains	Search the central EPOS data portal	**EPOS Central data portal:** https://www.ics-c.epos-eu.org/

Discover (find) published Earth science laboratory data

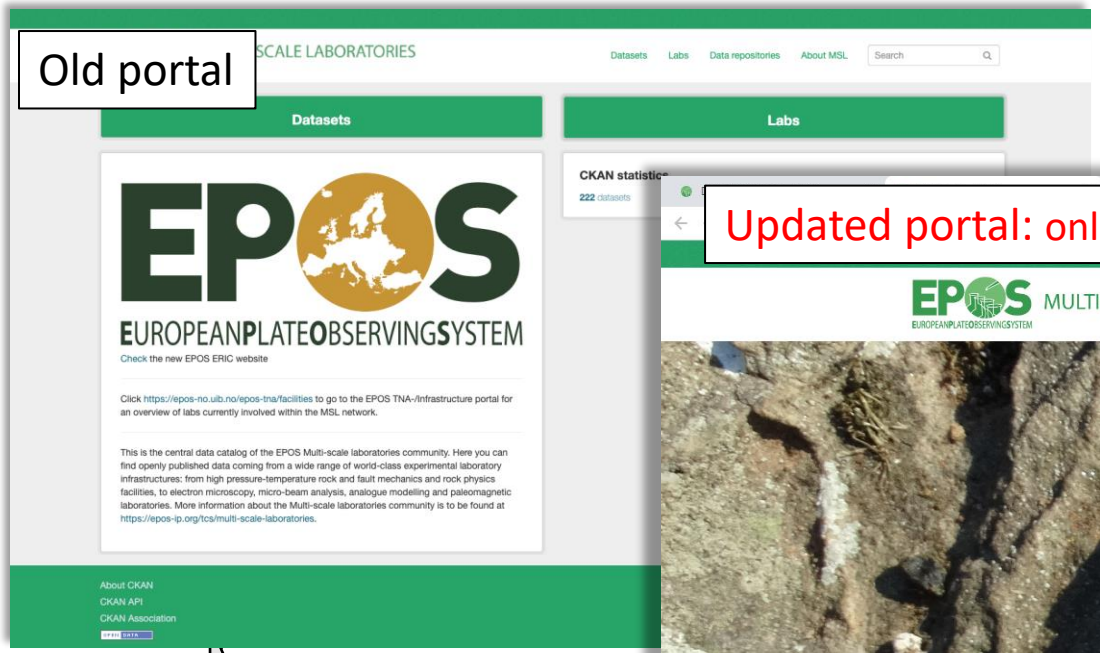
SCENARIO:	SOLUTION:	EXAMPLE:
"I know exactly which dataset I'm looking for"	Use the identifier	Google the DOI
"I know the author/title and repository in which it is published"	Search through that repository	- 4TU.ResearchData: https://data.4tu.nl/portal - Yoda: https://search.datacite.org/repositories/delft.uu
"I'm interested in specific data belonging to a certain scientific domain"	Search through a domain-specific repository	- Geochemistry > EarthChem: https://www.earthchem.org/ - Paleomagnetism > MagIC: https://www2.earthref.org/MagIC
"I'm interested in data on my research topic (that I did not know existed)"	Search the EPOS MSL data portal	**EPOS Multi-Scale Laboratories portal:** https://epos-msl.uu.nl/
"I want to do multi-disciplinary research across domains	Search the central EPOS data portal	**EPOS Central data portal:** https://www.ics-c.epos-eu.org/

Discover (find) published Earth science laboratory data

SCENARIO:	SOLUTION:	EXAMPLE:
"I know exactly which dataset I'm looking for"	Use the identifier	Google the DOI
"I know the author/title and repository in which it is published"	Search through that repository	- 4TU.ResearchData: https://data.4tu.nl/portal - Yoda: https://search.datacite.org/repositories/delft.uu
"I'm interested in specific data belonging to a certain scientific domain"	Search through a domain-specific repository	- Geochemistry > EarthChem: https://www.earthchem.org/ - Paleomagnetism > MagIC: https://www2.earthref.org/MagIC
"I'm interested in data on my research topic (that I did not know existed)"	Search the EPOS MSL data portal	**EPOS Multi-Scale Laboratories portal:** https://epos-msl.uu.nl/
"I want to do multi-disciplinary research across domains	Search the central EPOS data portal	**EPOS Central data portal:** https://www.ics-c.epos-eu.org/

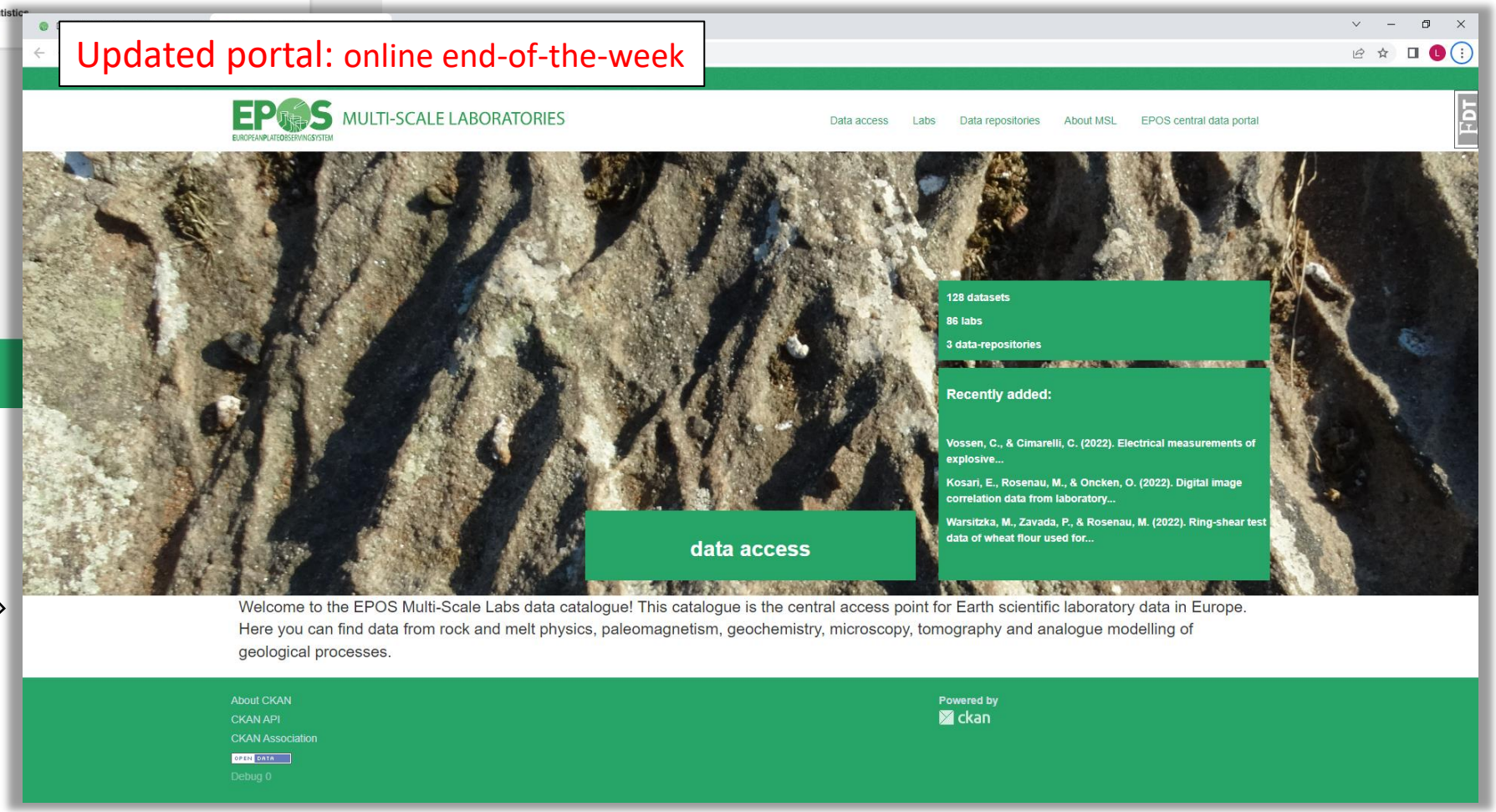
The EPOS Multi-scale laboratories data portal - updated

Old portal



✓ Updated structure of the portal and the GUI

Updated portal: online end-of-the-week

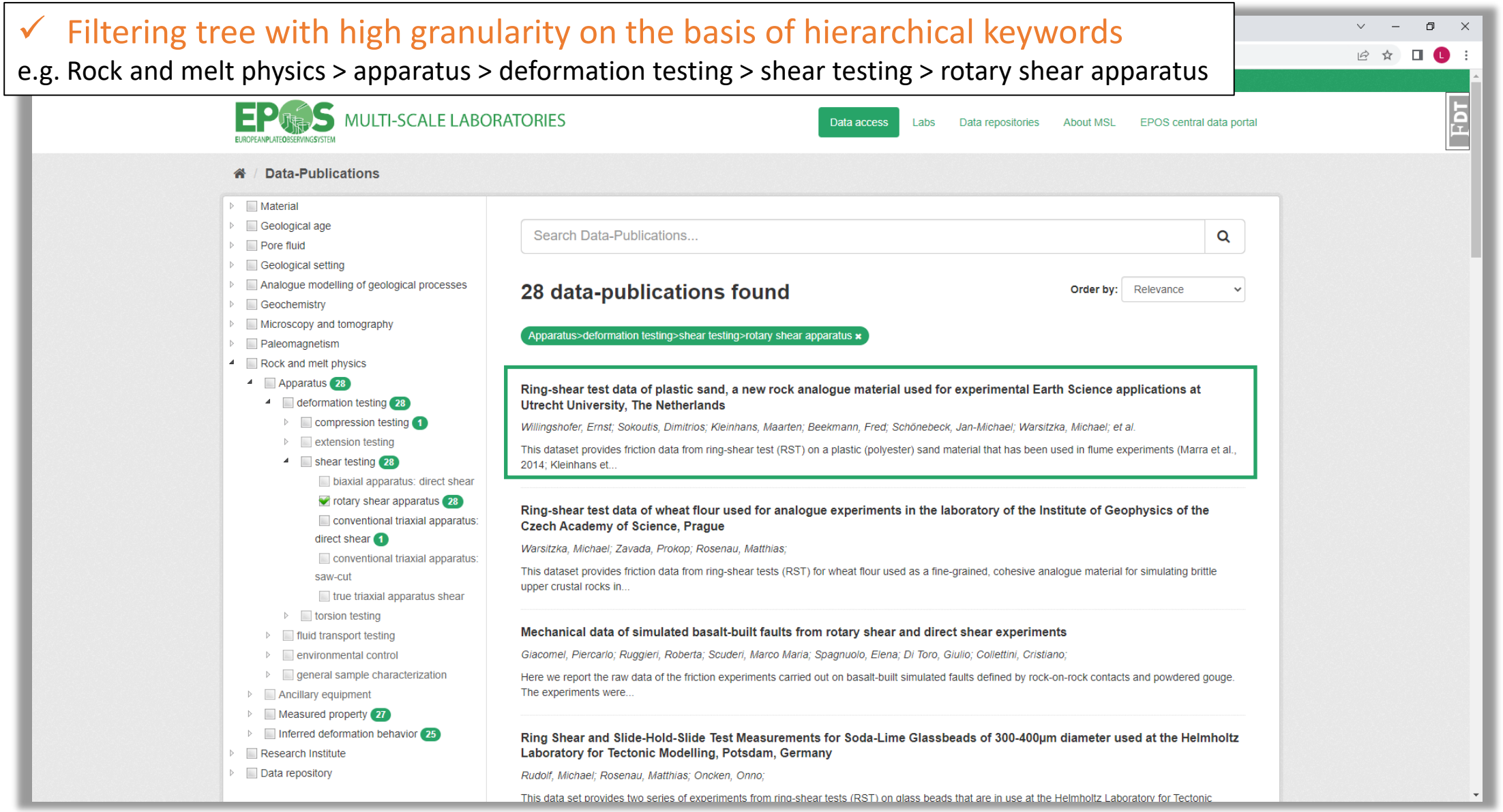


https://epos-msl.uu.nl/

Making it easy – improved search functionality

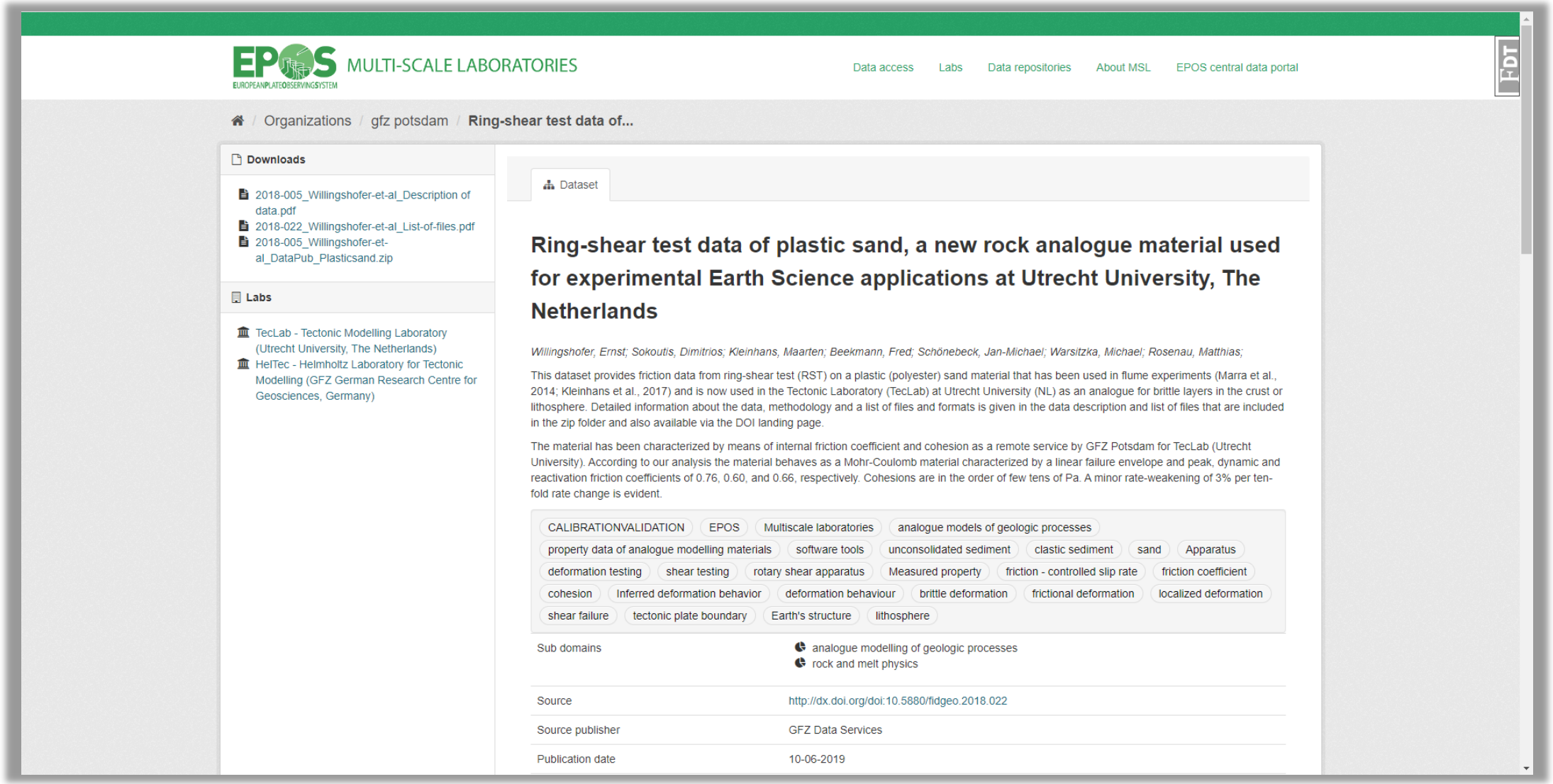
✓ Filtering tree with high granularity on the basis of hierarchical keywords

e.g. Rock and melt physics > apparatus > deformation testing > shear testing > rotary shear apparatus



➢ Keywords help you explore the available data and find the datasets you are looking for!

Making it easy – accessing datasets

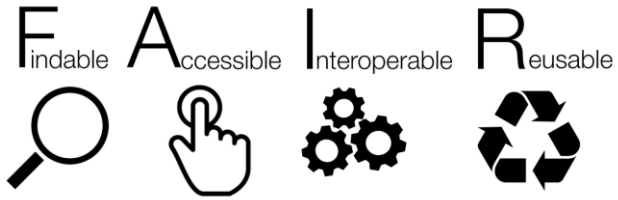


Challenges

https://www.go-fair.org/fair-principles/

We've come al long way, and have reached FAR in doing so….

….but we are not yet FAIR!



- Making Earth science laboratory data truly **Interoperable*** is a big challenge

  **Interoperability concerns the integration of (meta)data with other (meta)data.*

Why is it a challenge:

- relatively heterogeneous data
- non-standard (meta)data formats

- What is needed: standardize the way in which laboratory data is collected and described

Why interoperability matters: the EPOS Central data portal

Goal: combining multi-disciplinary datasets!

✓ Spatial, temporal, and topical filtering

Operational in Q1 2023: https://www.ics-c.epos-eu.org/

Steps towards interoperability of laboratory data:

- ❖ Harmonize metadata >> common metadata editor
- ❖ Standardize data formats >> machine-readible data templates

Summary

- Laboratory datasets are published in data repositories with a DOI
- The EPOS MSL data portal allows the discovery of a wide variety of Earth science datasets
- Keywords are the backbone to finding data
- Earth science laboratory data is Findable, Accessible, and Reusable, but not fully Interoperable
- The EPOS Central data portal is the place to find and combine multi-disciplinary datasets