Introduction to EPOS and the TCS MSL

Richard Wessels

EPOS Multi-scale Laboratories

Wishes you a merry Christmas and a happy 2019!

June 12th 2019 | Montpellier | France
Outline presentation:

- EPOS: Mission, Governance, Legal
- EPOS service validation
- Multi-scale laboratories (MSL): Mission, Governance, Legal
- What’s in it for laboratories?
- What’s in it for researchers?
- Technical side of the equation (Otto)

Let's keep it interactive!
**EPOS** = *European Plate Observing System*

Pan-European project with the goal:
Improving and facilitate the integration, access, use, and re-use of solid Earth science data, data products, services and facilities

**Method:**
Harmonizing and integrating the mosaic of distributed but separated solid Earth sciences Research Infrastructures within Europe
➢ networks, observatories, temporary instrumentation, laboratories and modelling facilities, etc.

**Deliverable:**
A single sustainable, permanent and distributed infrastructure that integrates the diverse and advanced European Research Infrastructures for solid Earth science under a common framework
➢ EPOS ICS-C Portal
EPOS timeline


CONCEPTION PHASE PREPARATORY PHASE IMPLEMENTATION PHASE START OPERATIONAL PHASE

https://www.epos-ip.org/
EPOS Architecture

EPOS = European Plate Observing System
ERIC = European Research Infrastructure Consortium
TCS = Thematic Core Services
ICS = Integrated Core Service

Data generation
Data collection
Responsible of sustainability and operation

The governance framework where data and services are provided by communities

Interoperability Layer
Access to multidisciplinary data, products and tools for different stakeholders

Source: Presentation IPC 1, EPOS-IP 3rd Annual Meeting
EPOS Implementation Phase architecture (1)

Source: Presentation IPC 1, EPOS-IP 3rd Annual Meeting

IP = Implementation Phase
WP = Work Package
TCS = Thematic Core Services
**EPOS Implementation Phase architecture (2)**

**WP = Work Package**

**SCB = Service Co-ordination Board** (Leaders WP 6 – 17 + Massimo (WP1), Lilli (WP2), Jörn (BNSR), Helle (SCB))

**BNSR = Board of National Scientific Representatives**

**BGR = Board of Governmental Representative**

**IPC = Implementation Phase Council** (1 representative per 47 EPOS-IP partner institutes)

**PDB = Project Development Board** (Leaders WP 1 – 7 + Chairs IPC, SCB, and BNSR)

**Source:** Presentation IPC 1, EPOS-IP 3rd Annual Meeting
Governance structure EPOS IP → ERIC

- General Assembly (GA)
  - Member and Observer Countries
- Advisory Boards
- Services Coordination Committee
  - Representatives from Core Services (TCS - ICS coordination)
- ECO
  - Executive Director & Office
  - Senior Scientific Manager, Senior Technical Manager, Senior Administrative Manager
- TCS Governance
  - TCS 1, TCS 2, TCS 3, TCS...
- ICS-C Office
- National networks & RIls, Data Centers, Observatories
- BGR + BNSR
- PDB
- SCB

Source: Presentation IPC 1, EPOS-IP 3rd Annual Meeting

ERIC
Governance structure EPOS IP → ERIC Interim Phase

- **Time**
  - April 2018
  - May 2018
  - October 2018
  - January 2019
  - September 2019
  - January 2020
  - December 2020

- **EPOS-ERIC**
  - EPOS-ERIC Starts
  - 1st Financial Plan
  - EPOS-ERIC YEAR 1
  - 2nd Financial Plan
  - EPOS-ERIC YEAR 2
  - EPOS-ERIC General Assembly
  - Nomination of Executive Director

- **EPOS IP**
  - M36
  - Year 4 Pre-operational Phase
  - M48 END
  - Final Report
  - 2020 Start Operational Phase

- **Financial Eligibility of EPOS services**

Source: Presentation IPC 6, EPOS-IP 3rd Annual Meeting

Disclaimer: the content of this presentation reflects only the author's view and the Commission is not responsible for any use that may be made of the information it contains.
Legal

**Legend**

- **TCS Governance & Legal Framework**
  - TCS 1
  - TCS 2
  - TCS N
  - Transnational Access
- **Service Coordination Committee**
- **Service Provider 1**
- **Service Provider 2**
- **Service Provider N**
- **DDSS**
- **DDSS elements**
- **National Consortium**
- **Joint Research Units**
- **National Research Infrastructures (NRIs): Data Providers**

**Legal framework**

- governed by the TCS Consortium Agreement
- ruled by the Service Contracts signed with EPOS-ERIC for service provision

**Source:** Presentation IPC 1, EPOS-IP 3rd Annual Meeting
LEGAL STRUCTURES RELATED TO TCS

- **Consortium Agreements (CA)** among participating organizations enable each TCS to have transparent decision processes and organize the interaction with EPOS-ERIC and the TCS community (users, DDSS providers).

- **Service Contracts** between Service Providers and EPOS ERIC.

- **Supplier Letters** allow data redistribution respecting Intellectual Property Rights (IPR).

**From WP3/4 (Legal)**

- **Be pragmatic** in the legal approach!
- **Online agreement form** between uploader and repository (Service Provider)
- **No Data Provider Letter needed** from EPOS perspective
- Data Provider Letter can be signed by labs that want this, but Online Agreement Form will make it easier to attract new users/datasets

*Source: Presentation IPC 1, EPOS-IP 3rd Annual Meeting*
Validation of EPOS Services

We are here!

Source: Presentation A2, EPOS-IP 3rd Annual Meeting

Board of Governmental Representatives → ERIC General Assembly
Validation: What & Why?

What is Validation?

Validation is the assurance that a product, service, or system meets the needs of the customer and other identified stakeholders. It often involves acceptance and suitability with external customers.


Purpose of the Validation process:

Validation serves to identify which services will enter in the pre-operational phase, becoming financially eligible for the General Assembly of the future EPOS-ERIC. The others will remain in the TCS roadmaps for further developments and future validations.

Source: EPOS Validation Secretariat

Process for Validation of services:

➢ Internal verification
➢ External validation

Source: Presentation B3, EPOS-IP 3rd Annual Meeting
Validation WP16 services: Outcome

Purpose of the Validation process:
Validation serves to identify which services will enter in the pre-operational phase, becoming financially eligible for the General Assembly of the future EPOS-ERIC. The others will remain in the TCS roadmaps for further developments and future validations.

Source: EPOS Validation Secretariat

<table>
<thead>
<tr>
<th>EPOS SERVICES</th>
<th>Governance Data Policy</th>
<th>Financial</th>
<th>Technical</th>
<th>PDB Point of View</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCS Seismology</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to enter into Testing and pre-Operation</td>
</tr>
<tr>
<td>TCS Near Fault Observatories</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Suitable to enter into Testing and pre-Operation (proof-of-concept required)</td>
</tr>
<tr>
<td>TCS GNSS Data &amp; Products</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to enter into Testing and pre-Operation</td>
</tr>
<tr>
<td>TCS Volcano Observations</td>
<td>NOT Ready to be validated</td>
<td>INCOMPLETE</td>
<td>NOT Ready to be validated</td>
<td>Further implementation necessary</td>
</tr>
<tr>
<td>TCS Satellite Data</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to enter into Testing and pre-Operation</td>
</tr>
<tr>
<td>TCS Geomagnetic Observations</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to enter into Testing and pre-Operation</td>
</tr>
<tr>
<td>TCS Anthropogenic Hazards</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>Ready to enter into Testing and pre-Operation</td>
</tr>
<tr>
<td>TCS Geological Information and Modeling</td>
<td>NOT Ready to be validated</td>
<td>INCOMPLETE</td>
<td>Ready to be validated</td>
<td>Further implementation necessary</td>
</tr>
<tr>
<td>TCS Multi-scale Laboratories</td>
<td>Ready to be validated</td>
<td>Ready to be validated</td>
<td>NOT Ready to be validated</td>
<td>Further implementation necessary</td>
</tr>
<tr>
<td>TCS Geo-Energy Test Beds</td>
<td>NOT Ready to be validated</td>
<td>INCOMPLETE</td>
<td>NOT Ready to be validated</td>
<td>Further implementation necessary</td>
</tr>
<tr>
<td>ICS-C</td>
<td>NOT REQUIRED</td>
<td>NOT REQUIRED</td>
<td>Ready to be validated</td>
<td>Ready to enter into Testing and pre-Operation</td>
</tr>
</tbody>
</table>

Source: PDB Final Report, V5
Validation WP16 services: Background

Validation WP16 services: Background

Purpose of the Validation process:
Validation serves to identify which services will enter in the pre-operational phase, becoming financially eligible for the General Assembly of the future EPOS-ERIC. The others will remain in the TCS roadmaps for further developments and future validations.

Source: EPOS Validation Secretariat
**Validation: Pre-Operational Phase**

<table>
<thead>
<tr>
<th>Window 1</th>
<th>Preparation</th>
<th>ICS-TCS Internal Testing</th>
<th>Bug fix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Window 2</td>
<td>UFG Testing</td>
<td>Bug fix</td>
<td></td>
</tr>
<tr>
<td>Window 3</td>
<td>External Evaluators testing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In EPOS-ERIC: Only internal verification is needed for validation!

1st round: TRA + Validation

Sept.2017

EPOS SQAP

In each TRA+Validation timeline, there will be several SQAPs

Sept.2018

2nd round: TRA + Validation

EPOS SQAP

Transition from EPOS-IP to EPOS-ERIC

Sept.2019

Source: Presentation A2, EPOS-IP 3rd Annual Meeting
Multi-scale laboratories (MSL) network - mission reminder

- Creating a coherent and well-organized network of solid Earth Science laboratories
- Developing a Trans-national Access (TNA) program, that will increase European state-of-the-art solid Earth science laboratories’ attractiveness for researchers and contribute to increased researcher’s mobility, cooperation and exchange
- Implementing dedicated data services that will guarantee laboratory data harmonization for re-usability and interoperability with other solid Earth Science data

Network?!
- Researchers
- Data publications
- Laboratories
- Equipment
- Repositories
- Etc.
Multi-scale laboratories (MSL)

That’s us!
Multi-scale laboratories (MSL)

Consortium:
- 11 institutes
- 10 countries

Governance

86 European laboratories

https://www.epos-ip.org/tcs/multi-scale-laboratories
**MSL Governance – Implementation Phase**

**MSL governance structure EPOS-IP**

**WP16 tasks:**
- Task 16.1 – Strategic activities and governance
- Task 16.2 – Coordination and Interaction with the community
- Task 16.3 – Interoperability with ICS
- Task 16.4 – Data services
- Task 16.5 – Trans-national Access (TNA)

➢ Task leaders (UU, GFZ, ROMA3, INGV) hold monthly telecon meetings

**WP16 community**

- **WP Leader**
  - Otto Lange

- **Proxy (WP Coordinator)**
  - Richard Wessels

- **Legal and Governance**
  - UU
  - Task 1.1

- **Financial**
  - UU
  - Task 1.2

- **Communication**
  - UU
  - Task 2

- **IT**
  - UU
  - Task 3

- **Data Services**
  - GFZ
  - Task 4

- **Trans-national access (TNA)**
  - ROMA3/INGV
  - Task 5
MSL Governance – Operational Phase

MSL governance structure EPOS-OP

**Fully operational after October 2019**

- **Consortium Board**: UU, GFZ, ROMA3, INGV, CNRS, ETHZ, CSIC, UBI, NERC, CNR, LMU

**Operational after IP-phase**

- **Executive Committee**: Management & Representation

- **User Committee**: In progress

- **Data Provider Committee**: In progress

- **TNA Committee**: 3rd TNA Call:
  - 2 external
  - 1 internal
Legal – Consortium Agreement

- All TCS will have their own agreements for cooperation – in which the participating organizations define common goals
- For TCS Multi-scale labs we have chosen for a consortium agreement (CA)
- This Consortium consists of 11 institutes representing most of the labs
- The Consortium will open up to new members in the Operational Phase (i.e. from October 2019 onwards), after the CA is signed by all its members

Status
- The CA is in the process of being signed by the Consortium Members
- To date (June 12th 2019) 6 out of 11 signed copies have been received
Service Providers (SPs) are legal entities that will provide a service of pan-European interest; SPs will sign Service contracts directly with EPOS-ERIC;

SPs are represented in the Consortium Board.

In the TCS Multi-scale laboratories we identified the following SPs:
UU: TCs Governance, TCS catalog and repository
GFZ: GFZ data repository
RomaTRE, INGV, and UU: TNA coordination

Service providers will sign service contracts once we enter the Operational Phase (>October 2019)
Data Provider Letter

Data providers (DPs) are all laboratories that will provide datasets; the laboratories are entities that provide a framework (guidelines) for the scientists working with their facilities. Laboratories are responsible for providing the scientists with clear guidelines for handling and sharing data with EPOS. DPs will sign “Data provider letter”.

Data providers (labs) can/cannot be a full consortium members; They are represented in the TCS consortium by the data provider committee.

Purpose:
Protect EPOS from lawsuits when redistributing datasets

Shooting a cannon at a mosquito?
Online Agreement Form

**Online Agreement form** is signed by **individual users that upload datasets** by means of ticking-off a checkbox. This can be done when uploading the dataset / entering the metadata. Uploader agrees to a) holding the intellectual property rights to upload the dataset and b) allows redistribution of the dataset with an appropriate open source license (CC:BY 4.0) by EPOS.

**Purpose:**
Protect EPOS from lawsuits when redistributing datasets

**Roadmap:**
- Set up Terms and Conditions (Disclaimer) with help of WP3&4
- Check with GFZ legal department if this is sufficient
- Implement during OP
What’s in it for laboratories?

Become part of the MSL network

86 laboratories & growing!

Visibility within the community

https://epos-mls.uu.nl
Open your lab for foreign researchers

What’s in it for laboratories?
Share your research output

Four subdomains (38 labs):

- Analogue modeling:
  - https://www.epos-ip.org/sites/default/files/repository/3rd_TNA_Call_Suppliers_Info_Analog_modelling.pdf

- Analytical & Microscopy:
  - https://www.epos-ip.org/sites/default/files/repository/3rd_TNA_Call_Suppliers_Info_Analytical%26Microscopy.pdf

- Paleomagnetism:
  - https://www.epos-ip.org/sites/default/files/repository/3rd_TNA_Call_Suppliers_Info_Paleomagnetism.pdf

- Rock/melt physics:
  - https://www.epos-ip.org/sites/default/files/repository/3rd_TNA_Call_Suppliers_Info_RockMelt.pdf

What's in it for laboratories?

- Share your research output

Equipment

<table>
<thead>
<tr>
<th>RI/TNA Supplier (Country Code)</th>
<th>Facility</th>
<th>Contact</th>
<th>Apparatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFZ Potsdam (DE)</td>
<td>Potsdam Imaging and Spectral Analysis (PIA) Facility</td>
<td>Liane G. Benning</td>
<td>FIB, Focused ion beam</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TEM, Transmission electron microscope</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SEM-CL, Scanning electron microscope-cathodoluminescence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SEM-EBSD, Scanning electron microscope-electron backscatter diffraction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SEM-EDX, Scanning electron microscope-energy dispersive X-ray spectrometry</td>
</tr>
<tr>
<td>IACT Instituto Andaluz de Ciencias de la Tierra (CSIC), Granada (ES)</td>
<td>ANDALCHRON</td>
<td>Carlos Garrido</td>
<td>LA, ICP-MS, Laser ablation inductively coupled plasma mass spectrometer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SEM-EBSD, Scanning electron microscope-electron backscatter diffraction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SEM-EDX, Scanning electron microscope-electron backscatter diffraction</td>
</tr>
<tr>
<td>IGG Istituto di Geoscienze e Georisorse, CNR, Pavia (IT)</td>
<td>Laboratory of Geochemical Microanalysis</td>
<td>Alberto Zanetti</td>
<td>ICP-MS, Inductively coupled plasma mass spectrometer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ICP-MS, Inductively coupled plasma mass spectrometer</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>HR-ICP-MS, High-resolution inductively coupled plasma mass spectrometer</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>LA, Laser ablation system</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>LA, Laser ablation system</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>SIMS, Secondary ion mass spectrometer</td>
</tr>
</tbody>
</table>

https://epos-msl.uu.nl
What’s expected from laboratories?

Provide information on your lab (location, contact, equipment)

<table>
<thead>
<tr>
<th>2: Practical info</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facility type</strong></td>
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<tr>
<td><strong>Facility ID</strong></td>
</tr>
<tr>
<td><strong>Facility Name</strong></td>
</tr>
<tr>
<td><strong>Facility Name</strong> (if other)</td>
</tr>
<tr>
<td><strong>Facility address (street + number)</strong></td>
</tr>
<tr>
<td><strong>Facility address (postcode)</strong></td>
</tr>
<tr>
<td><strong>Facility address (city)</strong></td>
</tr>
<tr>
<td><strong>Facility country</strong></td>
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<tr>
<td><strong>Facility phone (decimal degree)</strong></td>
</tr>
<tr>
<td><strong>Facility email (decimal degree)</strong></td>
</tr>
<tr>
<td><strong>Facility research field</strong></td>
</tr>
<tr>
<td><strong>Facility website</strong></td>
</tr>
<tr>
<td><strong>Facility contact person (first name)</strong></td>
</tr>
<tr>
<td><strong>Facility contact person (family name)</strong></td>
</tr>
<tr>
<td><strong>Facility contact person (ID)</strong></td>
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<tr>
<td><strong>Facility contact person (email)</strong></td>
</tr>
<tr>
<td><strong>Affiliation of Facility contact person</strong></td>
</tr>
<tr>
<td><strong>Affiliation of Facility contact person (if other)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3: Lab services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In the section below please specify the information about each lab equipment in different rows</strong></td>
</tr>
<tr>
<td><strong>Equipment type</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
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<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

| **In the section below please specify the information about each material used in the lab in different rows** |
| **Material** | **Material (if other)** |
| | |
| | |
| | |

| **In the section below please specify the information about each measured property in different rows** |
| **Measured property** | **Measured property (if other)** |
| | |
| | |
| | |

**TCS Multi-scale laboratories: Analogue modelling**

1: Lab information

- Limit 4000 characters (including spaces).
- Example: 1200 characters in total.

Simulating geodynamic processes is a challenging task because of the non-linearity and spatially associated processes. A great challenge is the multiscale nature of processes like fault rupture, earthquake generation, and fault zone evolution (millions of years). Recent advances in high-resolution monitoring and complex analogue rheologies make it possible to develop deformation on all relevant timescales with high spatial resolution. We follow an integrative approach involving structural-kinematic modeling, analogue experiments, and numerical simulations.

European Plate Observing System (EPOS), the European Training Networks (TDPMAO), and the ETH Institute for Geology and the ETH Collaborative Research Center (CRC) in the year 2014 we hosted the EUG30 conference at ETH Zürich and edited the corresponding special issue. Please find an introductory text to our lab here. Our lab facility consists of:

- Analogue rock physics lab featuring all kinds of experimental devices for measuring rock properties including friction, elasticity, viscosity, etc.
- A geotechnical laboratory featuring a suite of customizable deformation devices for all other geologic processes.
- An experimental monitoring lab providing the means of quantifying deformation in analogue experiments using state-of-the-art high-resolution digital image correlation methods, force, stress, MEMS accelerometers, etc.
- A Numerical simulation and analysis lab allowing to cross-validate and analyze in great detail experiments using state-of-the art numerical simulation and data analysis tools.

What’s expected from laboratories?

Choose level of involvement within the MSL network:

- **Level 1a** – *Data provider*: a laboratory can join EPOS TCS MSL activities sharing its data via TCS compliant repositories linked to the TCS catalogue.

- **Level 1b** – *TNA provider*: a lab can join EPOS TCS MSL activities sharing its facilities.

- **Level 2** – *Member* (possible only after the start of the EPOS Operational Phase, from October 2019 onwards): the lab can be associated to EPOS TCS MSL if Level 1a and/or 1b are satisfied and if the lab has the "green flag" from its institution and EPOS national contact point.

- All TCS will have their own agreements for cooperation – in which the participating organizations define common goals
- For TCS Multi-scale labs we have chosen for a **consortium agreement (CA)**
What’s expected from laboratories?

Legal formalities (Level 1a/b)

- CC-BY 4.0 license or compliant
- no ‘private copy’ sharing
- embargo period maximized to 3yrs

Purpose: Protect EPOS from lawsuits when redistributing datasets

Future: ‘Disclaimer format’

Online Agreement form is signed by individual users that upload datasets by means of ticking-off a checkbox. This can be done when uploading the dataset / entering the metadata. Uploader agrees to a) holding the intellectual property rights to upload the dataset and b) allows redistribution of the dataset with an appropriate open source license (CC:BY 4.0) by EPOS.
What’s expected from laboratories?

Do you want to open your lab to other researchers? – Trans-national access (TNA)

List your facilities:

<table>
<thead>
<tr>
<th>RI/TNA Supplier (Country Code)</th>
<th>Facility</th>
<th>Contact</th>
<th>Apparatus</th>
<th>Additional Apparatus information</th>
<th>Type of access</th>
<th>Unit of access</th>
<th>Quantity of access to be provided</th>
<th>Estimated number of users</th>
<th>Type of support to user</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFZ- Potsdam (DE)</td>
<td>Frenslam Imaging and Spectral Analysis (PISA) Facility</td>
<td>Lasse G. Banzinger</td>
<td>SEM, Transmission electron microscope; TEM, Scanning electron microscope cathodoluminescence; TEM-EDX, Scanning electron microscope-energy dispersive X-ray spectrometry</td>
<td>Physical</td>
<td>Day</td>
<td>10 (but ideally not in one block)</td>
<td>2 to 3</td>
<td>Instrument and lab access as well as FIB sample preparation free of charge; No support for user travel and accommodation</td>
<td></td>
</tr>
</tbody>
</table>

Access type, quantity, and type of user support:

1. **Free access**
   Only access to the lab is free of charge

2. **Free of charge**
   Lab access and lab costs are waived for the user

3. **Free of charge + support**
   Lab access and lab costs waived for the user, financial support for travel, accommodation, and food

Free of charge to use lab, but consumables (analogous material) and X-ray CT scanning time needs to be paid; costs of X-ray CT is Euro 100 per hour

Free of charge (lab costs are waived for the user); No support for user travel and accommodation

Lab costs charged according to academic rate but can be put on EPOS grant; User travel: max 500€ (within Europe), max 1000€ (outside Europe); User accommodation & food: max 100€/day
What’s in it for researchers?

Why publish your research data through the EPOS Multi-scale labs?

✓ Make your research data Findable, Accessible, Interoperable, Reusable (FAIR) and citable for other scientists!
✓ Prevents you and your fellow scientists from re-inventing the wheel
✓ Stop a large part of your data ending up in the ‘bottom-drawer’, but getting used by colleagues instead

❖ Because the funder (and/or journal) requires you to publish your data in a FAIR manner...
What’s in it for researchers?

Collaborations with other labs/researchers
What’s in it for researchers?

Currently two types of services:

Physical access
- e.g. experimenting in the lab

Remote service
- e.g. mechanical characterization of rock analogue materials

EPOS MSL is developing a Trans-national Access (TNA) program, that will increase European state-of-the-art solid Earth science laboratories’ attractiveness for researchers and contribute to increased researcher’s mobility, cooperation and exchange.
What’s in it for researchers?

Visibility within the community

Citation index:

- Journals (such as Elsevier) add links to the datasets (DOI) to already published papers!

https://epos-msl.uu.nl

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Experimental rock deformation/HPT-Lab (Utrecht University, The Netherlands)
HPT Laboratory, Faculty of Geosciences, Utrecht University
https://www.uu.nl/en/organisations/geosciences/collaboration/labs-and-facilities/hpt-lab

The zip-file contains a Python script (render_figures.py) that is used to generate the data figures as reported by Van den Ende & Niemeijer (2018), auxiliary script files in the scripts directory, and the original model data in ASCII and HDF format in the data directory. The main Python script file render_figures.py will read and process the original model data and generate the interactive data figures. These figures are automatically saved in PDF format. More information is given in Van den Ende & Niemeijer (2018) to which these data and scripts are supplementary material to.

Additional Info

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Author</td>
<td>van den Ende, Martijn (Utrecht University)</td>
</tr>
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<td>2018-02</td>
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<td>Dataset contact</td>
<td>van den Ende, Martijn (Utrecht University PhD candidate <a href="mailto:martijnende@gmail.com">martijnende@gmail.com</a> <a href="http://https://www.uu.nl/staff/MPavandenEnde">http://https://www.uu.nl/staff/MPavandenEnde</a> )</td>
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<td><a href="http://www.gfz-potsdam.de/">http://www.gfz-potsdam.de/</a></td>
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Create data publication:

- Collect data for publication *(raw or processed data)*
- Data in convenient format *(Findable, Accessible, Interoperable, Reusable)*
- Explanatory text *(what information is in the publication)*
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What’s expected from researchers?

Use standard metadata and data templates

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