BrineRIS

Project Meeting 04.12.2024 Wraclaw

WP6: Interactive Platform Development

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EUROPEAN LITHIUM INSTITUTE

Connecting Europe with the World of Lithium

Aalto University · ARCORE · brgm · cea · Fraunhofer ISC · Fraunhofer IST · Ghent University · HZDR Helmholtz Zentrum · KU Leuven · Spectral Industries · BLB Battery Laboratory Braunschweig · TU Delft · université de Bordeaux · Université de Lorraine · european Lithium Institute eLi

OUR INSTRUMENTS

Six active platforms along the lithium value chain chaired by our members BRGM, University of Lorraine, University of Bordeaux, CEA, Helmholtz Institute Freiberg and Fraunhofer ISC

Sustainable lithium value chain (editing and completion of the original image of EIT RawMaterials)

- **Exploration and Mining**
- **Processing and Recycling**
- **Materials and Components**
- **Design and Manufacturing**
- **Circular Economy and Predictive Modelling**
- **Business Models and Applications**

european eLi Lithium Institute

WP06 Interactive Platform Development

- **Goals of WP:** Overarching interactive knowledge and data platform that incorporates all results developed in the project or creates links between them
- **Overview Tasks**
  - Discussion of the data with the providers and derivation of a suitable structure
  - Implementation of a shared web platform
  - Training of the partners how to use and contribute to the platform
- **Overview Deliverables, Outputs, Milestones**
  - **Taskforce (O6.1, Done), Specification (O6.2, MS6.1, Done), Platform (O6.4, In Work), Lecture (O6.5, Done)**
  - **Handbook on Data Standards for the BrineRIS platform (O6.3, Done)**
  - **Documentation and User Guide (D6.1, In Work)**

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WP06 Interactive Platform Development - Results

- **Platform software framework configured and installed**
- **Already accessible under** https://brine-ris.eu
- **Hosts also general project information**

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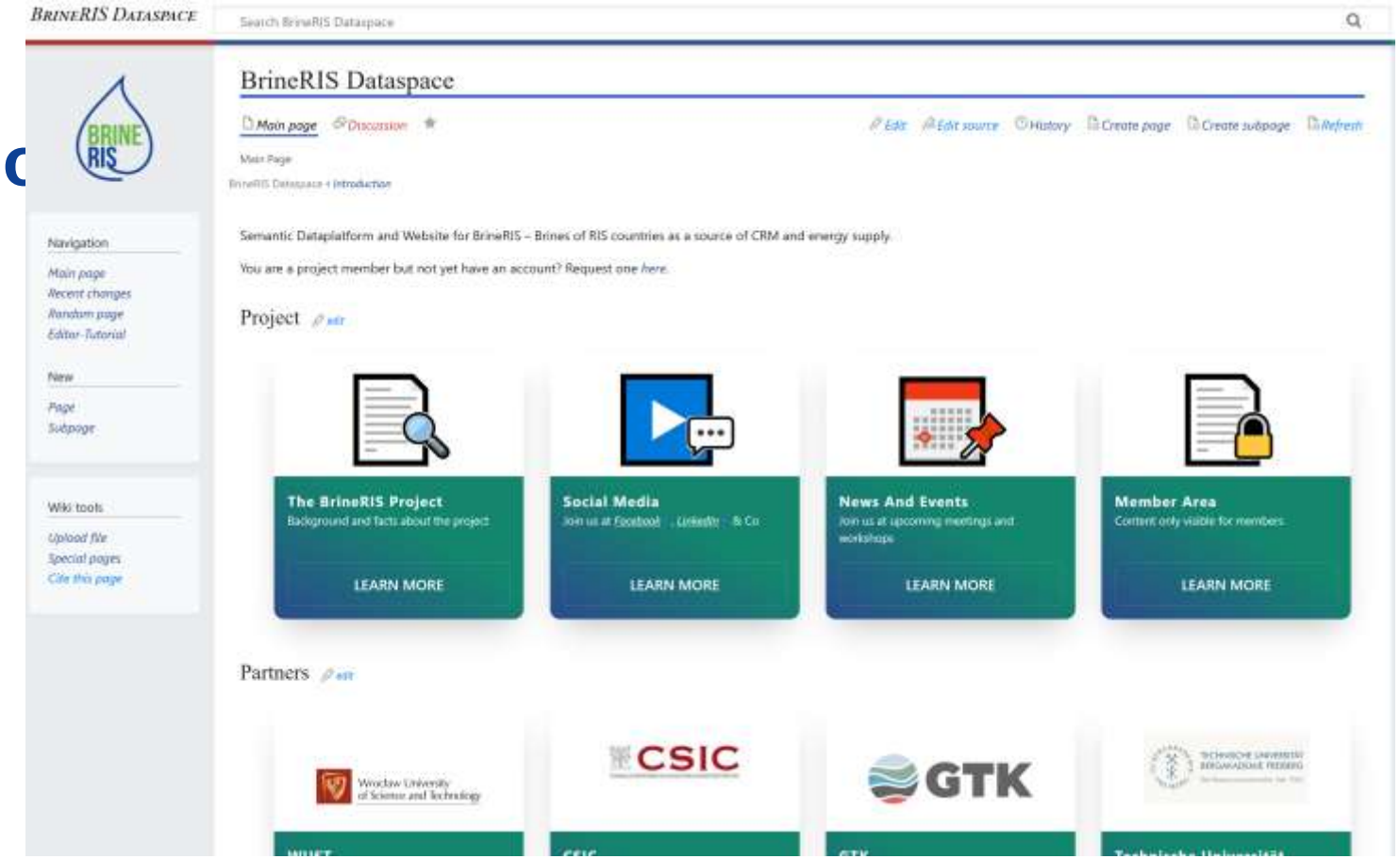
WP06 Interactive Platform Development - Results

- General project informatic



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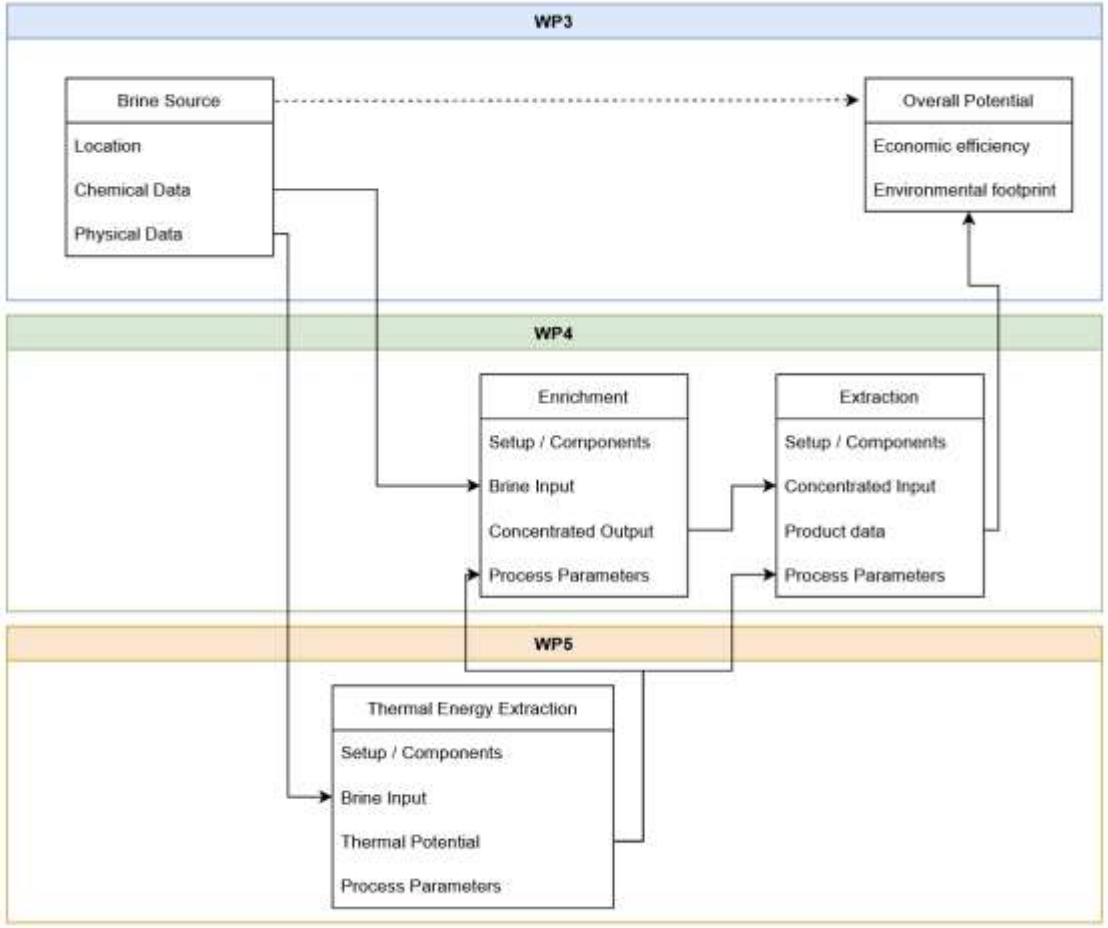
WP06 Interactive Platform Development – Cross WP tasks

- Create data structures
- Import & link existing data
- Build an interactive visualization



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WP06 Interactive Platform Development – Results

- Create data structures
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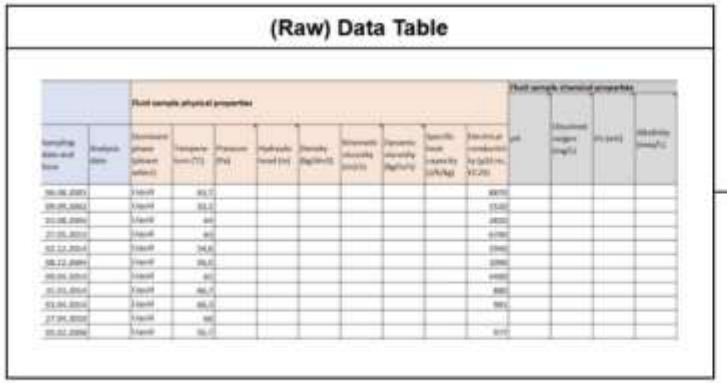

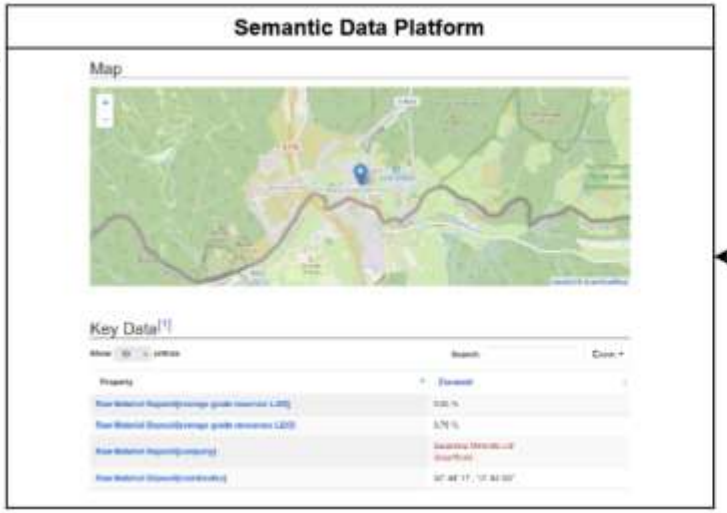

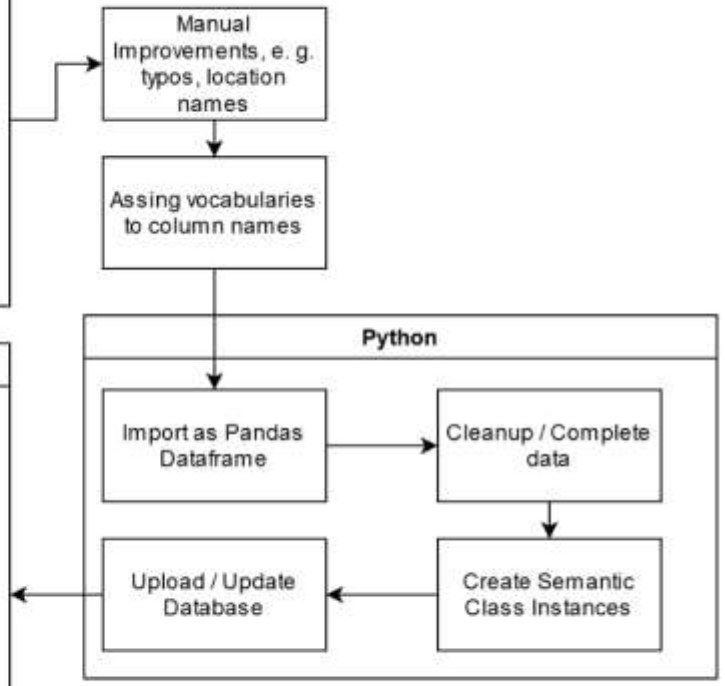

API & Interactive Web Dashboard

WP08
e. g. OnePager

- Follow up project
- Gain industry interest

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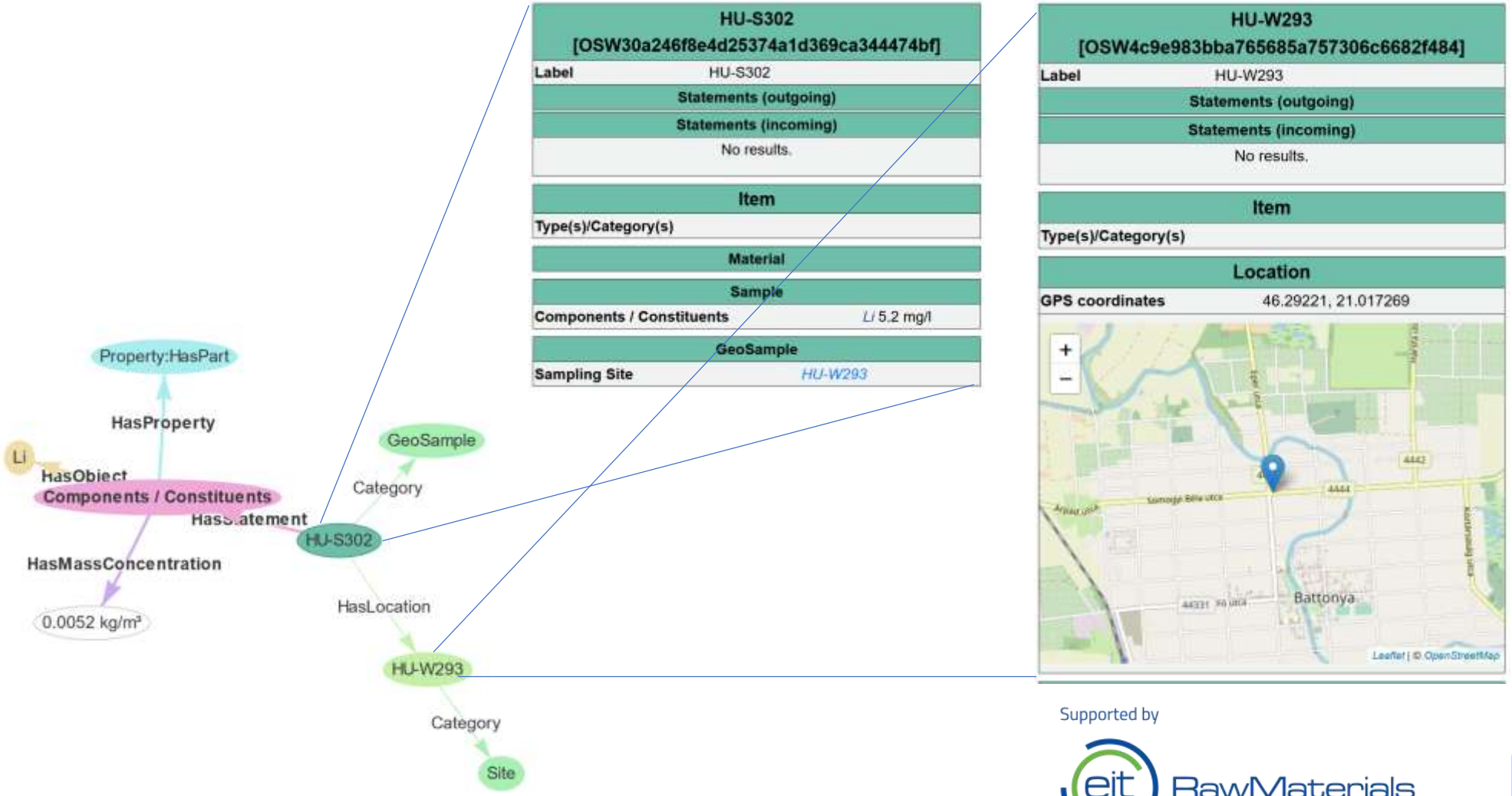
Data Structure and Visualization



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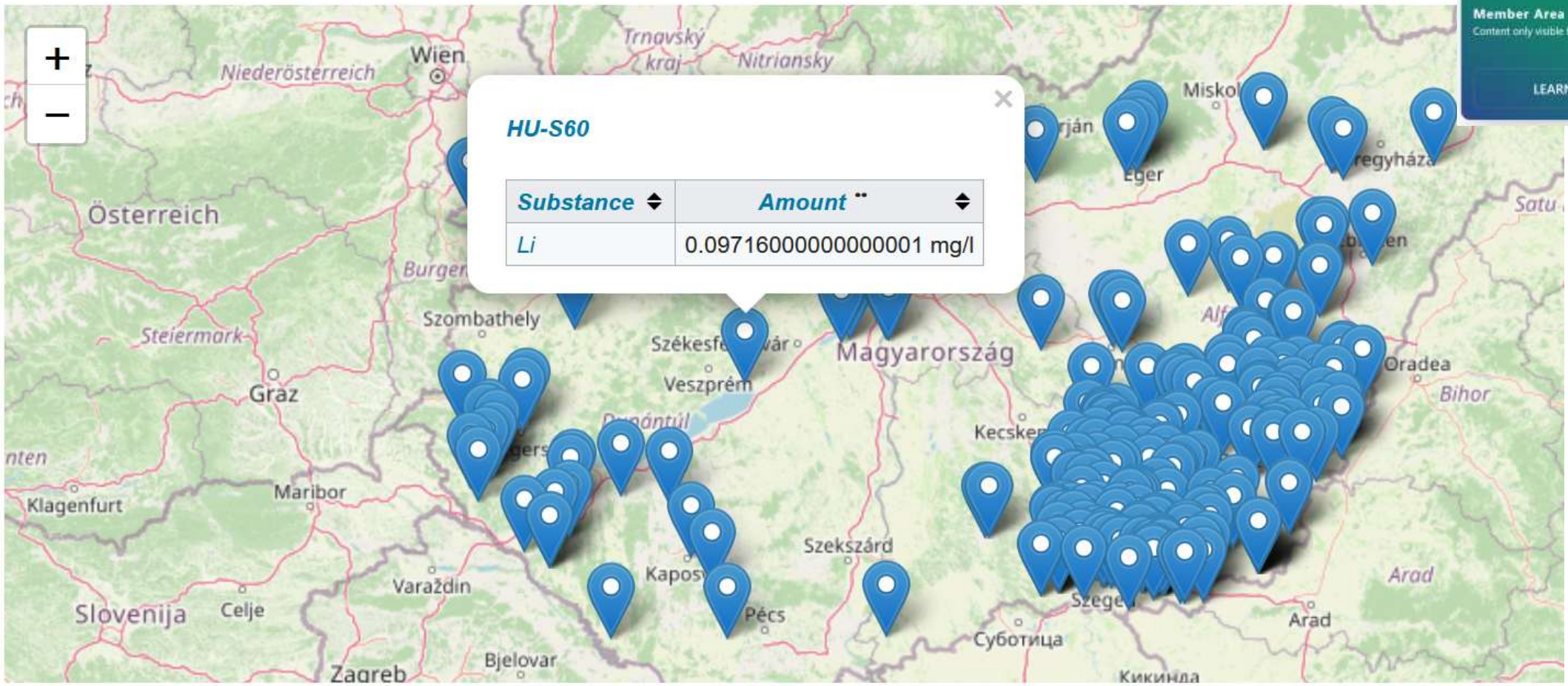
Data Structure and Visualization



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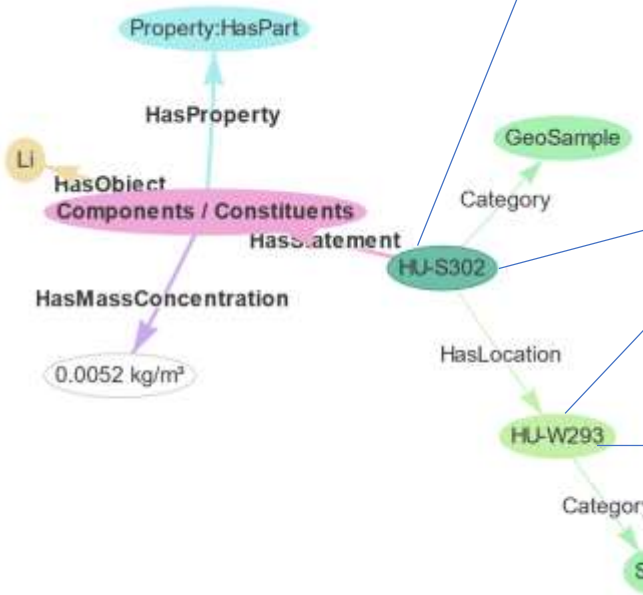
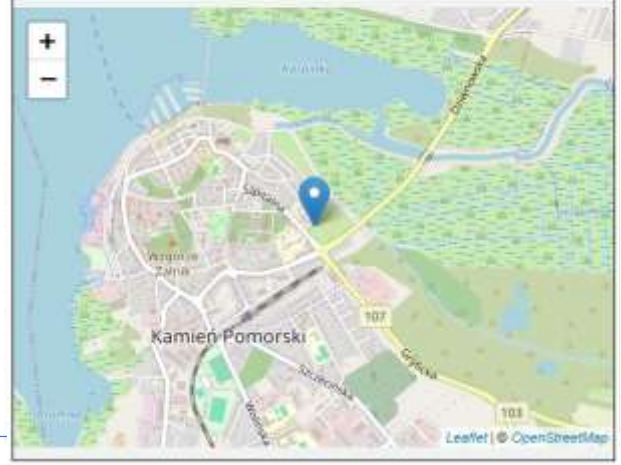
Data Structure and Visualization



PO-S1 [OSW02485d8024425cbea901147a71757876]	
Label	PO-S1
Statements (outgoing)	
Statements (incoming)	
No results.	
Item	
Type(s)/Category(s)	*GeoSample*
Material	
Sample	
Components / Constituents	*Li* <1 mg/l *Mn* 0.835 mg/l
GeoSample	
Sampling Site	*PO-W1*

PO-W1 [OSW1281107815e7545d959e8a2878471130]	
Label	PO-W1
Statements (outgoing)	
...HasMassFlowRate 0.1358447488584475 kg/s	
...Property:Temperature 14.1 °C	
Statements (incoming)	
No results.	
Item	
Type(s)/Category(s)	*Site*
Location	
GPS coordinates	53.969777777778, 14.778666666667



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Brine Dashboard

Alpha: **0.70**

Li lower limit in mg/l: **0**

Mn lower limit in mg/l: **0**

Temperatur lower limit in °C: **2.80**

Flow rate lower limit in kg/s: **0**

Geoth. pot. (->6°C) lower limit in kW: **0**

Dataset

All

Country

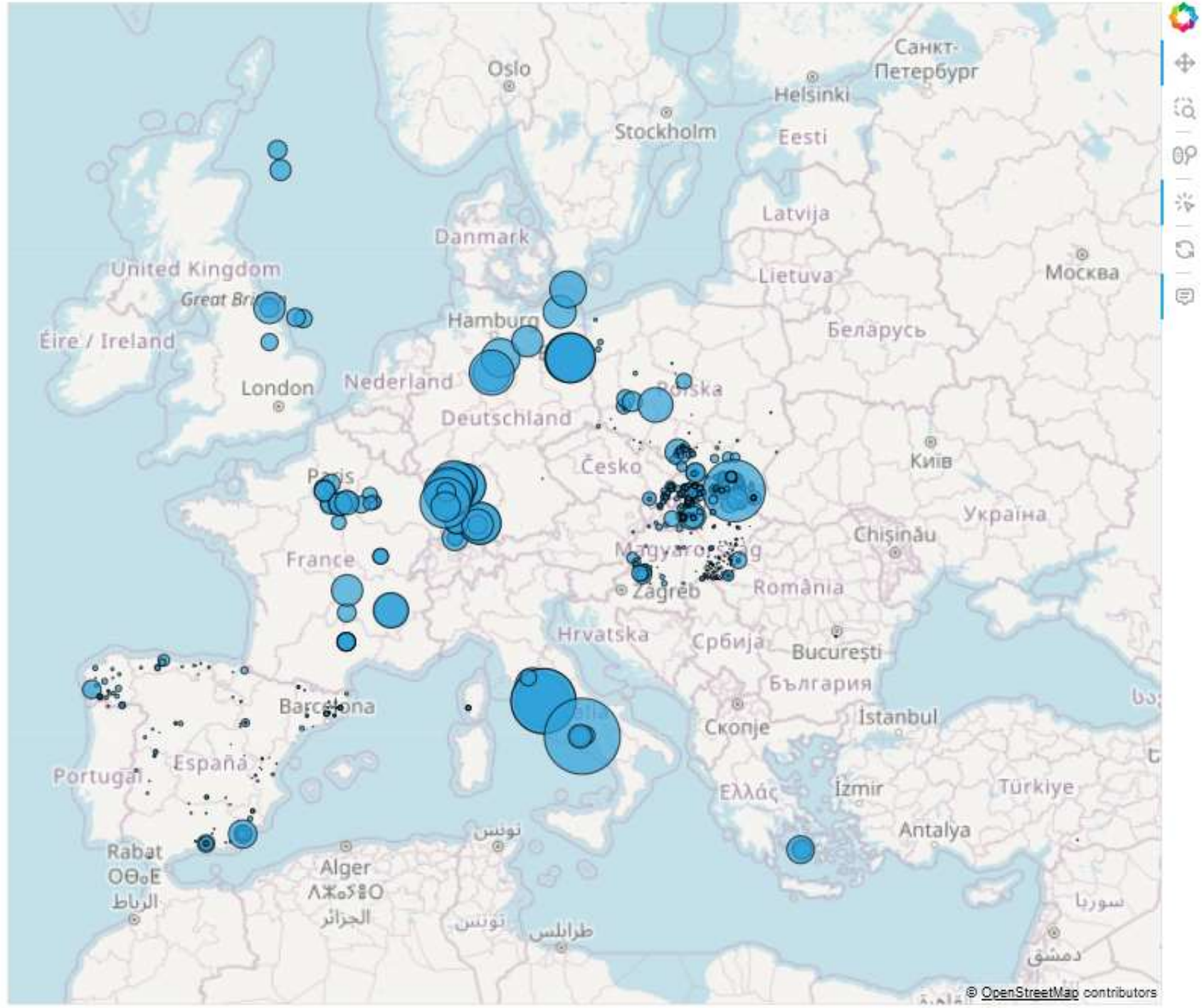
All

Characteristic

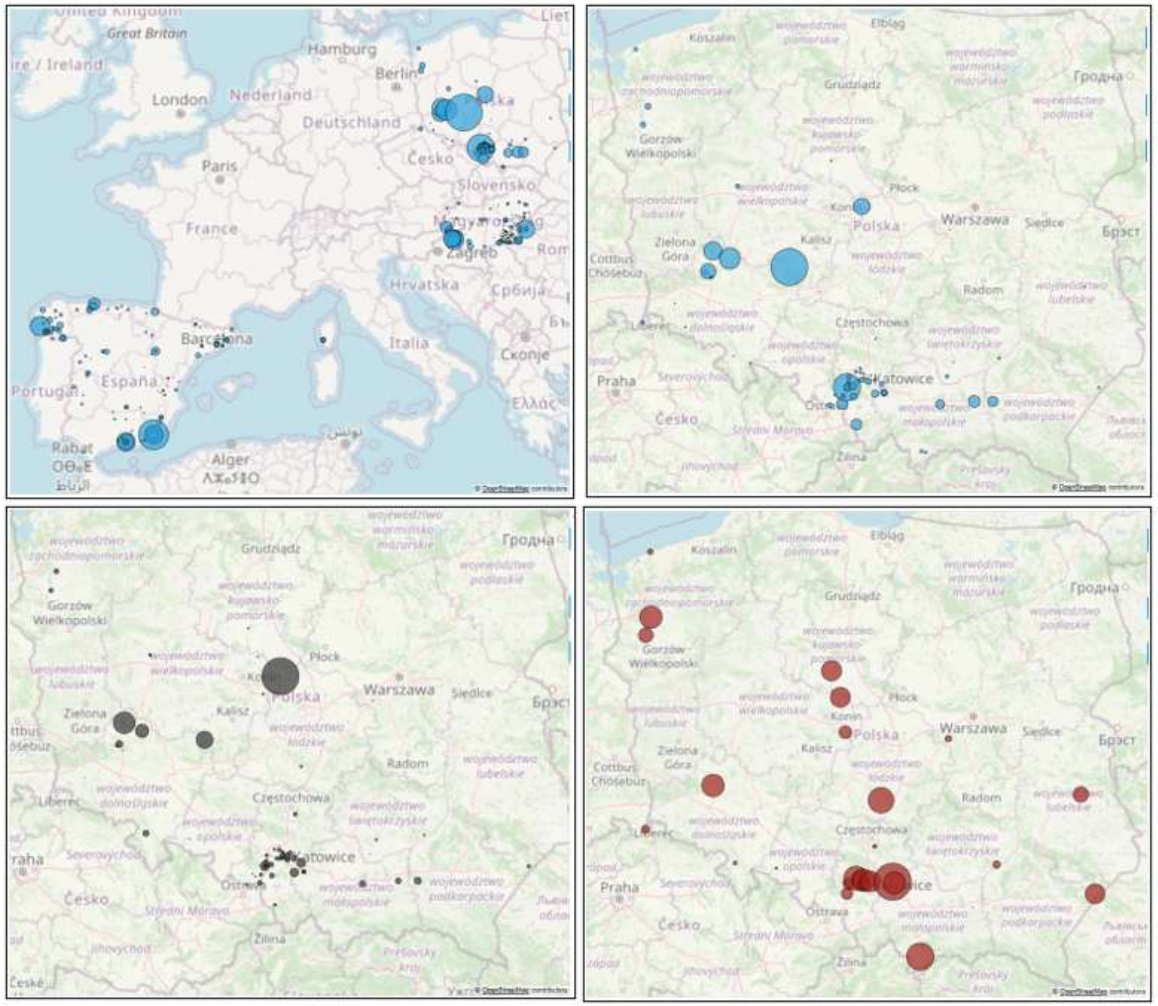
Li

Background map

OSM



Data Structure and Visualization



Brine resources in Europe / RIS Countries. Top left: Overview map Europe, Lithium content. Top right: Detail map Poland: Lithium content. Bottom left. Detail map Poland: Manganese Content. Bottom right: Detail map Poland: Geothermal potential

- **Different Characteristics, e.g. Lithium, Manganese, Geothermal Potential**

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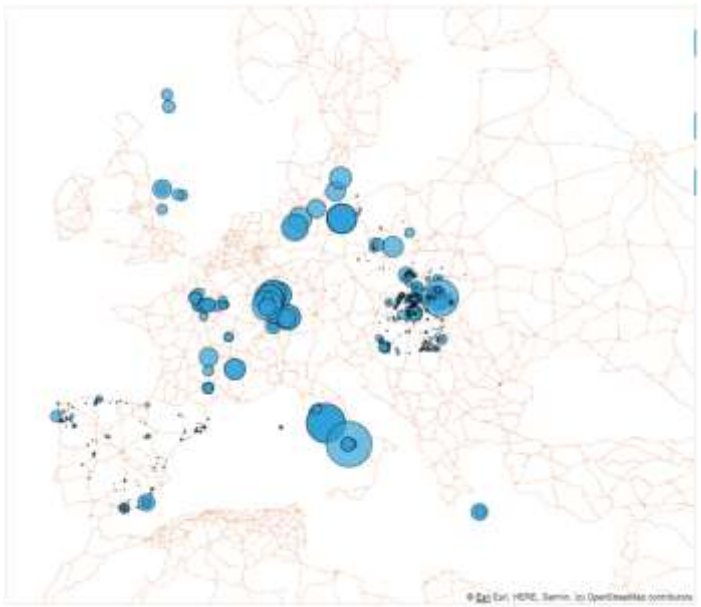
Background Maps



- **Different Background Maps, e. g. Topographic, Imagery, Transportation – not yet Geologic**

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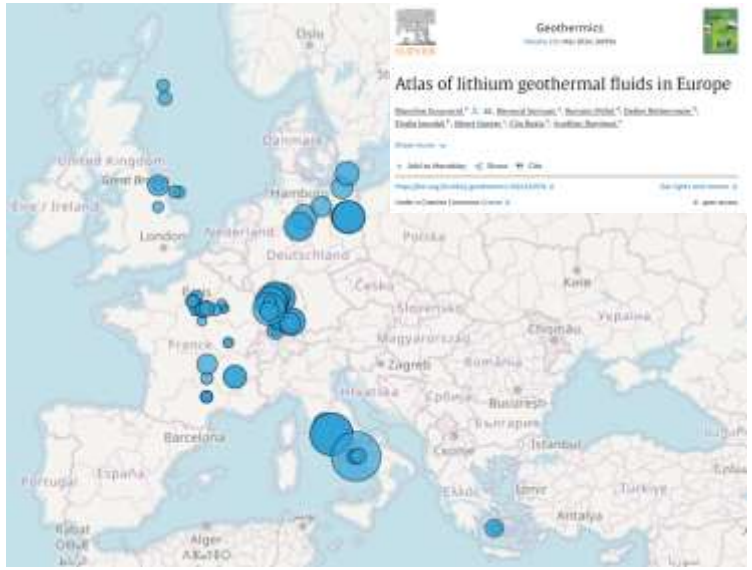
A complete Brine Atlas for Europe

+



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- **BrineRIS Project: ~2500 Samples from PO, HU, ES, SK(, PT, CZ, RO)**
- **EuGeLi Project: 208 Samples from UK, North See (NS), FR, DE, CH, GR(, TK)**

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Data Access

- **Internal (consortium): all data on map + raw data**
- **Registered external users: Map with aggregated data, raw data only from own samples (future perspective)**
- **Public: Map with aggregated data (concentrations and positions on map), no detailed information like GPS coords**

=> Create Map dashboard with 3 access levels / aggregations

=> Add public map as image to paper

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Data Access – Internal: All Data

Brine Dashboard

User role
internal

Alpha: **0.70**

Li lower limit in mg/l: **0**

Mn lower limit in mg/l: **0**

Temperature lower limit in °C: **2.80**

Flow rate lower limit in kg/s: **0**

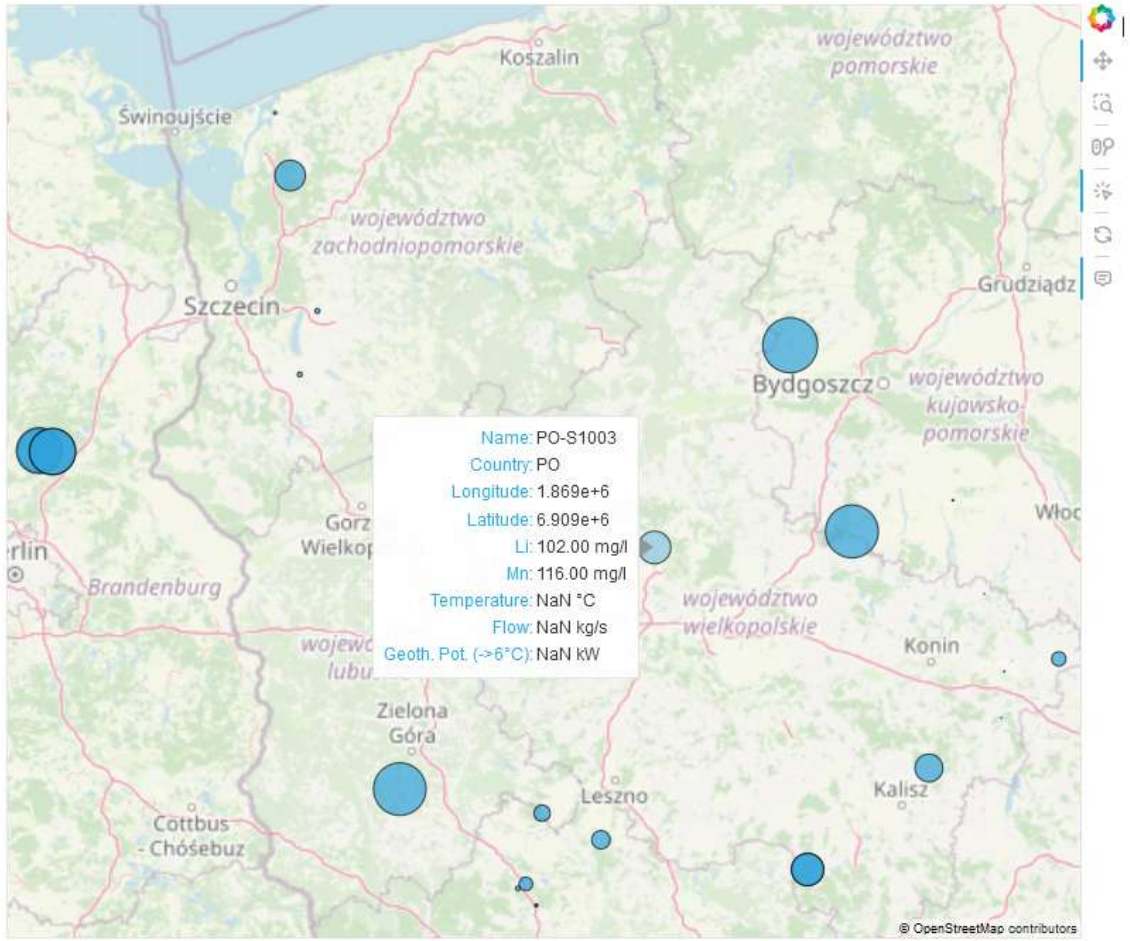
Geoth. pot. (->6°C) lower limit in kW: **0**

Dataset
All

Country
All

Characteristic
Li

Background map
OSM



- Li: 1 - 3 mg/l
- Li: 3 - 11 mg/l
- Li: 11 - 40 mg/l
- Li: 40 - 139 mg/l
- Li: 139 - 479 mg/l

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Data Access – External/Guest: Aggregated primary concentrations + Metadata

Brine Dashboard

User role
external

Alpha: **0.70**

Li lower limit in mg/l: **0**

Mn lower limit in mg/l: **0**

Temperature lower limit in °C: **2.80**

Flow rate lower limit in kg/s: **0**

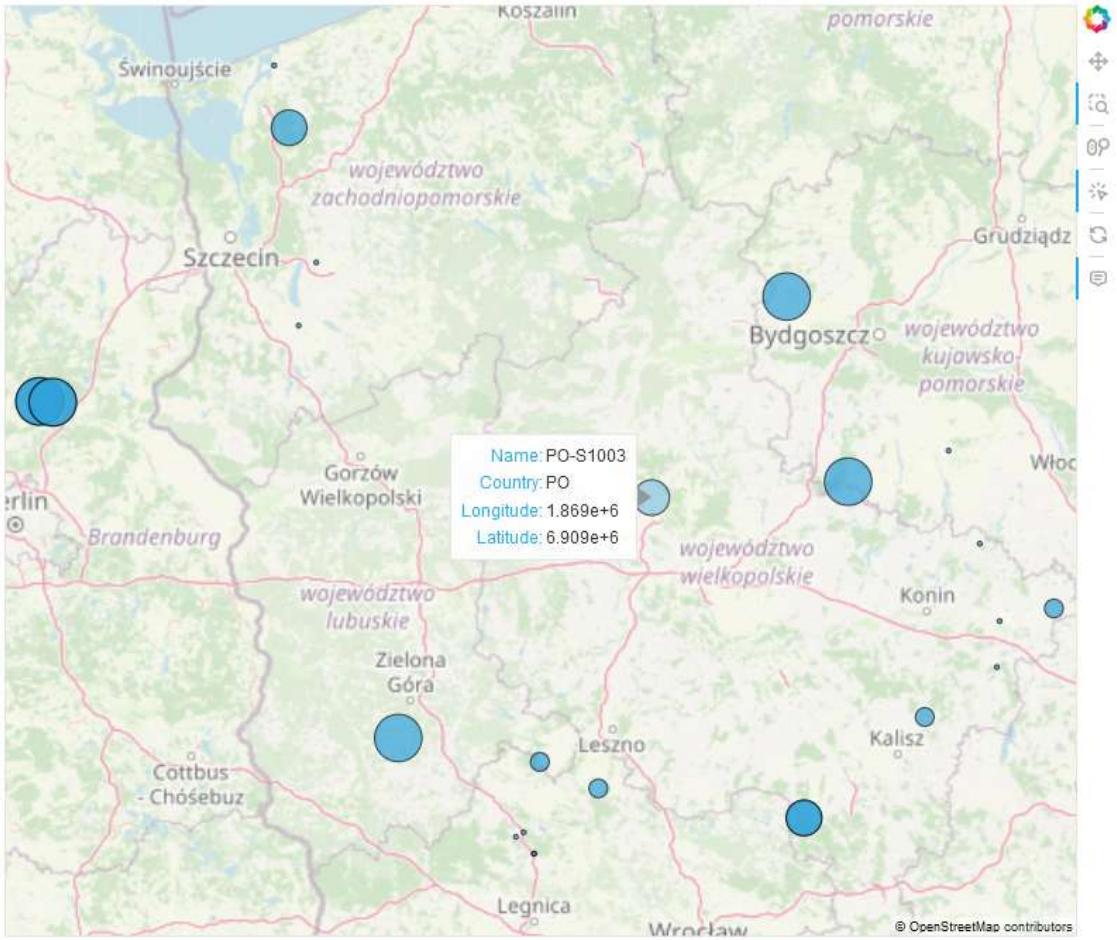
Geoth. pot. (->6°C) lower limit in kW: **0**

Dataset
All

Country
All

Characteristic
Li

Background map
OSM



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Data Access – External/Guest: Aggregated primary concentrations

Brine Dashboard

User role
public

Alpha: **0.70**

Li lower limit in mg/l: **0**

Mn lower limit in mg/l: **0**

Temperature lower limit in °C: **2.80**

Flow rate lower limit in kg/s: **0**

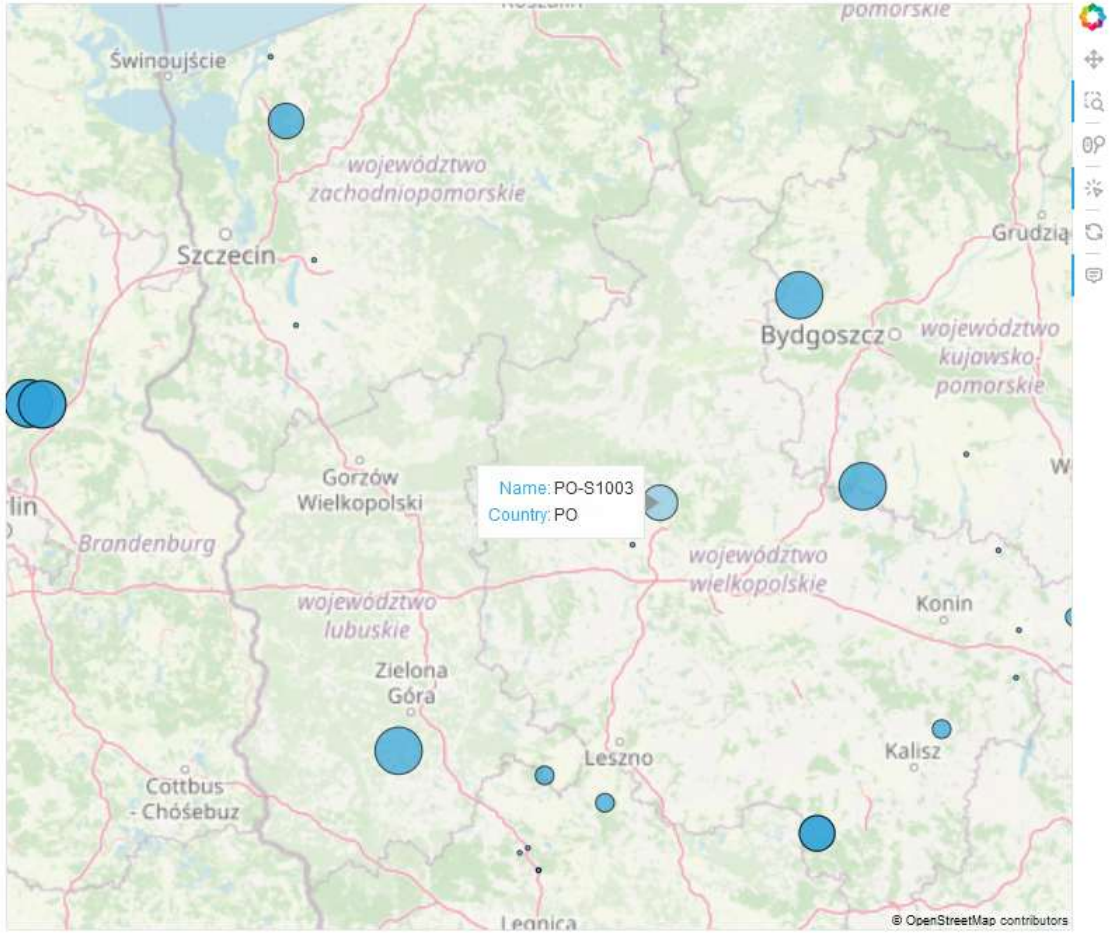
Geoth. pot. (->6°C) lower limit in kW: **0**

Dataset
All

Country
All

Characteristic
Li

Background map
OSM



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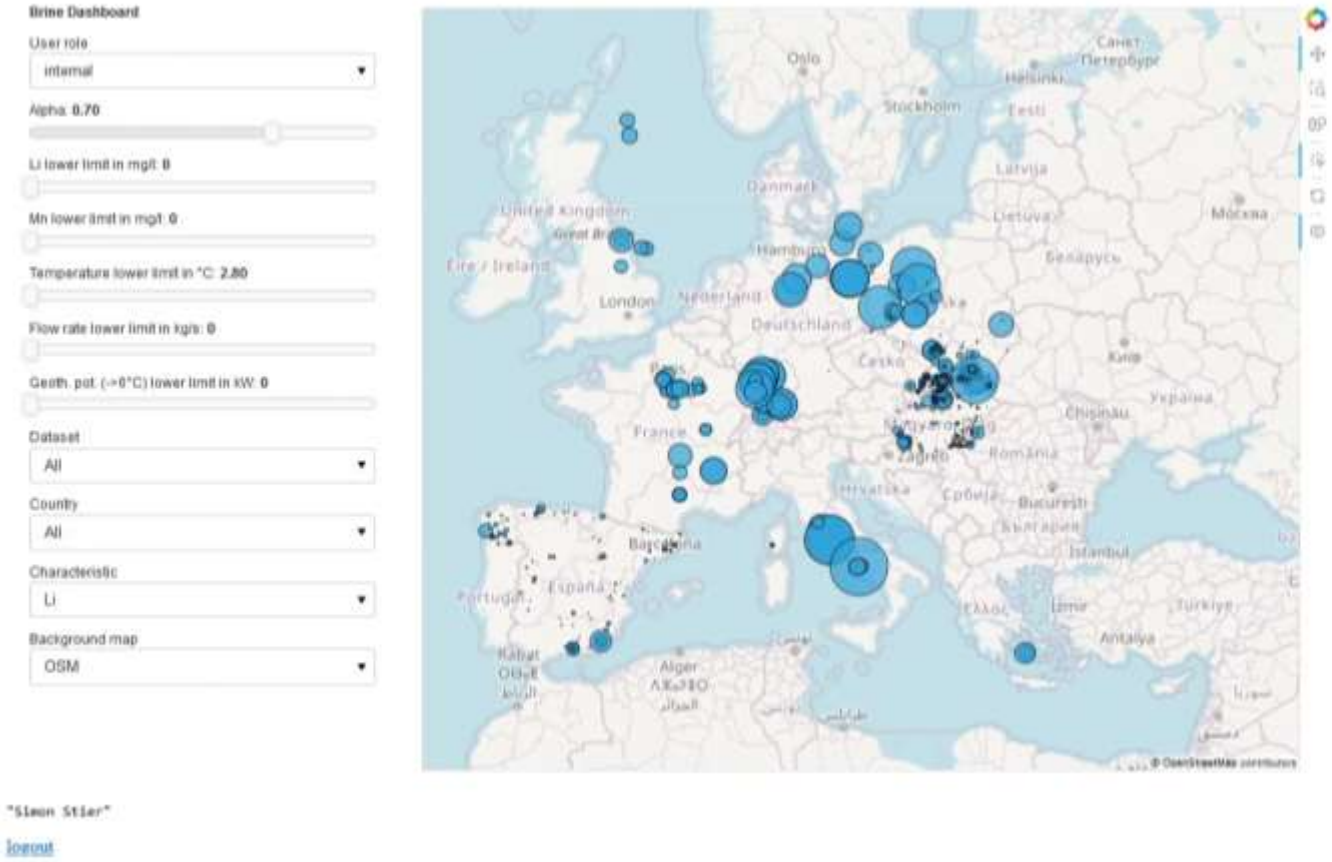
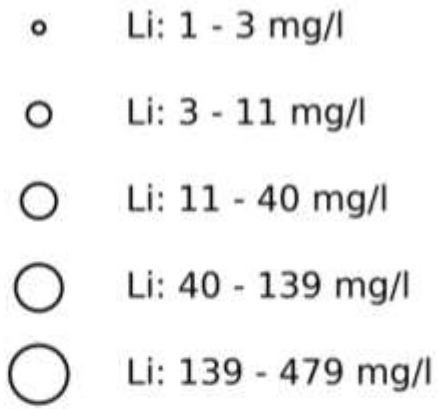
Demo





[Dashboard URL]

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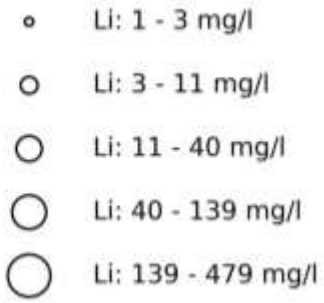
Outlook



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THANKS FOR YOUR ATTENTION

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WP06 Interactive Platform Development – Data Taskforce / Workshop with WP3

- 14.9.22
- Current state of Geochemical data about Europe
  - Hungary: Detailed data already available
  - Poland (information is stored in Papers / PDFs), no access to Geological Survey yet
  - Spain: Databases-Access or Excel-Export from Geological Survey
  - Portugal: Map-based-Dataset available, but no raw dataset
  - Samples collected during the project: More detailed chemical analysis (see Field Guide)
- Identified critical properties
  - Location
  - Data-Quality, e.g. Grade A-C (defined by experts / data analysts)
  - Chemistry (=> WP4: Process requirements)
  - **Temperature**, Physical Volume flow! (=> WP5: Geothermal potential)

Stier, Simon
Daniel Marcin
Zuzana Kollová
Krzysztof Chudy (WUST)
Karolina Szostak
Viktor Mádai
Cyprian Long
Jan Maule
Magdalena Worsa-Kozak
Maria Jose Jurado
Klára Králková
Joanna Krupa-Kurzynowska

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WP06 Interactive Platform Development – Data Taskforce / Workshop with WP4

- 19.9.22
- Process related data (depends on available chemical data)
  - Enrichment
    - Brine-Composition (List of Components + Concentration)
    - Electrode setup
    - Potentials U(t)
    - Input and output Li-Concentration
  - Extraction / Electrolization
    - Membrane setup
    - Current
    - Time
    - CO_2-Concentration
    - Temperature
    - Energy per Mass Li_2CO_3) [kWh/kg]
    - Purity [%]
  - Solvent extraction modelling
    - Solvent setup
    - Phase diagrams

Stier, Simon
Luiza Bonin
Petr Rambousek
Zuzana Kollová
Cyprian Long
Magdalena Worsa-Kozak

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WP06 Interactive Platform Development – Data Taskforce / Workshop with WP5

- 20.9.22
- Process related data
  - depends on physical properties / volume flow of the brine source
  - depends on physical specifications of WP4
  - Chemical data nice-to-have for side effects on construction materials
  - Setup / process definition (e. g. heat pumps)
  - Thermal Potentials

Stier, Simon
Thomas Grab (TUBAF)
Timm Wunderlich (TUBAF)
Daniel Marcin
Jan Maule
Jan Buda (CGS)
Natália Bačová

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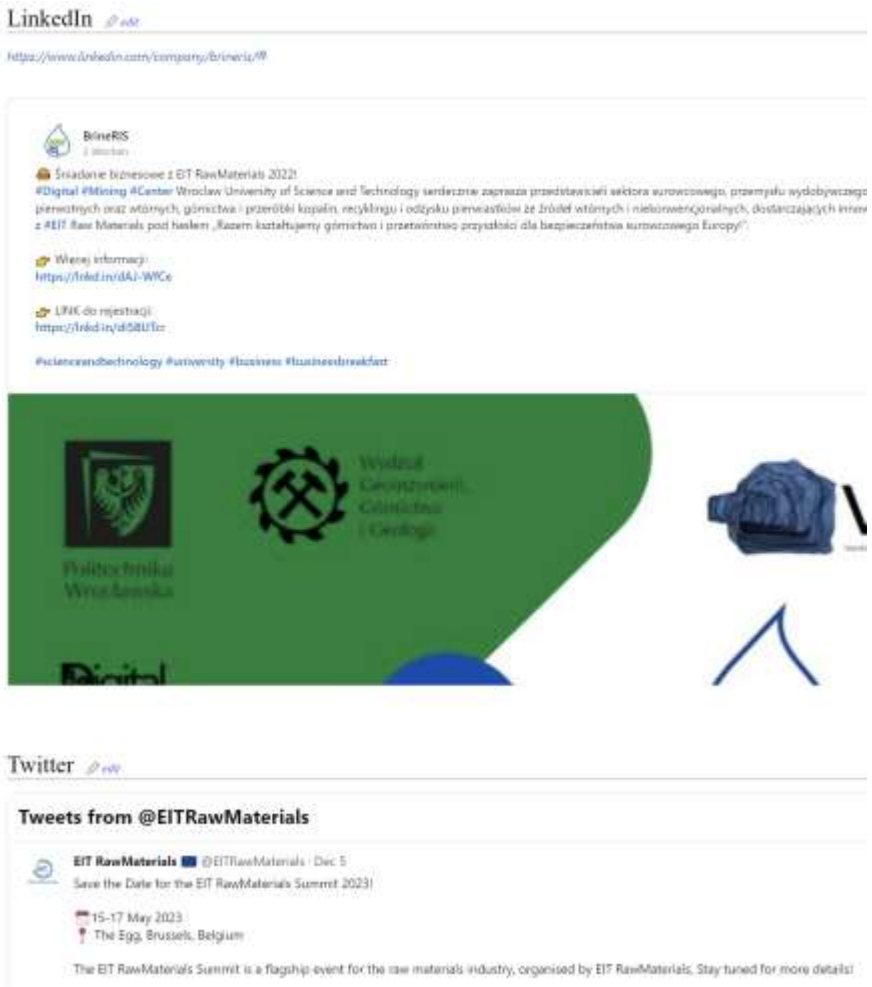
WP06 Interactive Platform Development - Results

- Improved layout to structure content of the platform
- Integration of social media content (twitter, linkedin, etc.)



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