



Coordinating and integrating state-of-the-art Earth Observation Activities in the regions of North Africa, Middle East and Balkans and Developing Links with GEO related initiatives toward GEOSS

*Funded under H2020 - Climate action,
environment, resource efficiency and raw
materials*

*ACTIVITY: Developing Comprehensive and
Sustained Global Environmental
Observation and Information Systems*

*CALL IDENTIFIER: H2020 SC5-18b-2015
Integrating North African, Middle East and
Balkan Earth Observation capacities in
GEOSS*

Project GA number: 690133

Total Budget: 2,910,800.00 €

GEO-CRADLE:

Fostering regional cooperation and roadmap for GEO and Copernicus implementation in N. Africa, Middle East, and the Balkans



Raw Materials Workshop, 17/10/2016, Rabat





The role of Geological Surveys in the GEO-CRADLE project and scope of the workshop

Luca Demicheli

Secretary General

EuroGeoSurveys – The Geological Surveys of Europe

EuroGeoSurveys

37 Geological Surveys

**Work force of
SEVERAL THOUSANDS**

**Over 1 billion euro (1,13 billion USD)
annual turnover**

- 
- Albania
 - Austria
 - Belgium
 - Bosnia & Herzegovina
 - Croatia
 - Cyprus
 - Czech Republic
 - Denmark
 - Estonia
 - Finland
 - France
 - FYROM
 - Germany
 - Greece
 - Hungary
 - Ireland
 - Italy
 - Kosovo
 - Latvia
 - Lithuania
 - Luxembourg
 - The Netherlands
 - Malta
 - Norway
 - Poland
 - Portugal
 - Romania
 - Russian Federation
 - Serbia
 - Slovakia
 - Slovenia
 - Spain
 - Sweden
 - Switzerland
 - Ukraine
 - United Kingdom



**SPATIAL INFORMATION
(INSPIRE)**



**MINERAL
RESOURCES**



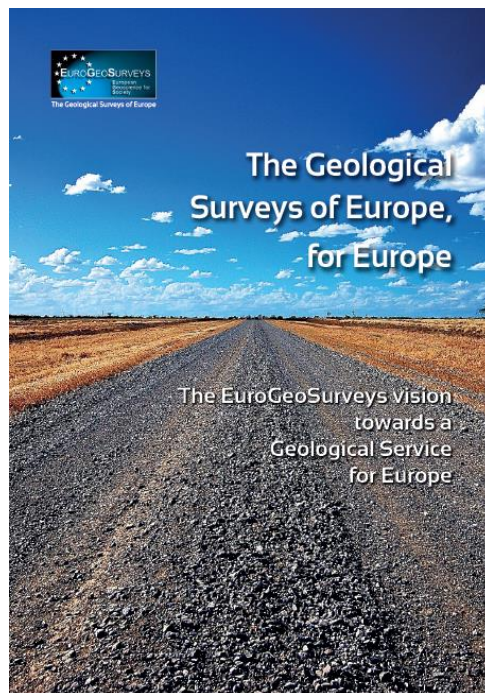
**MARINE
GEOLOGY**



GEOCHEMISTRY



**SOIL RESOURCES
(SUPERFICIAL DEPOSITS)**



**INTERNATIONAL
COOPERATION AND
DEVELOPMENT**



**EARTH OBSERVATION
AND GEOHAZARDS**



GEUS

WATER RESOURCES



GEOENERGY



STRATEGY



EuroGeoSurveys - The Geological Surveys of Europe





The Geological Surveys of Europe

The Geological Surveys of Europe, for Europe

The EuroGeoSurveys vision
towards a
Geological Service
for Europe



Euro



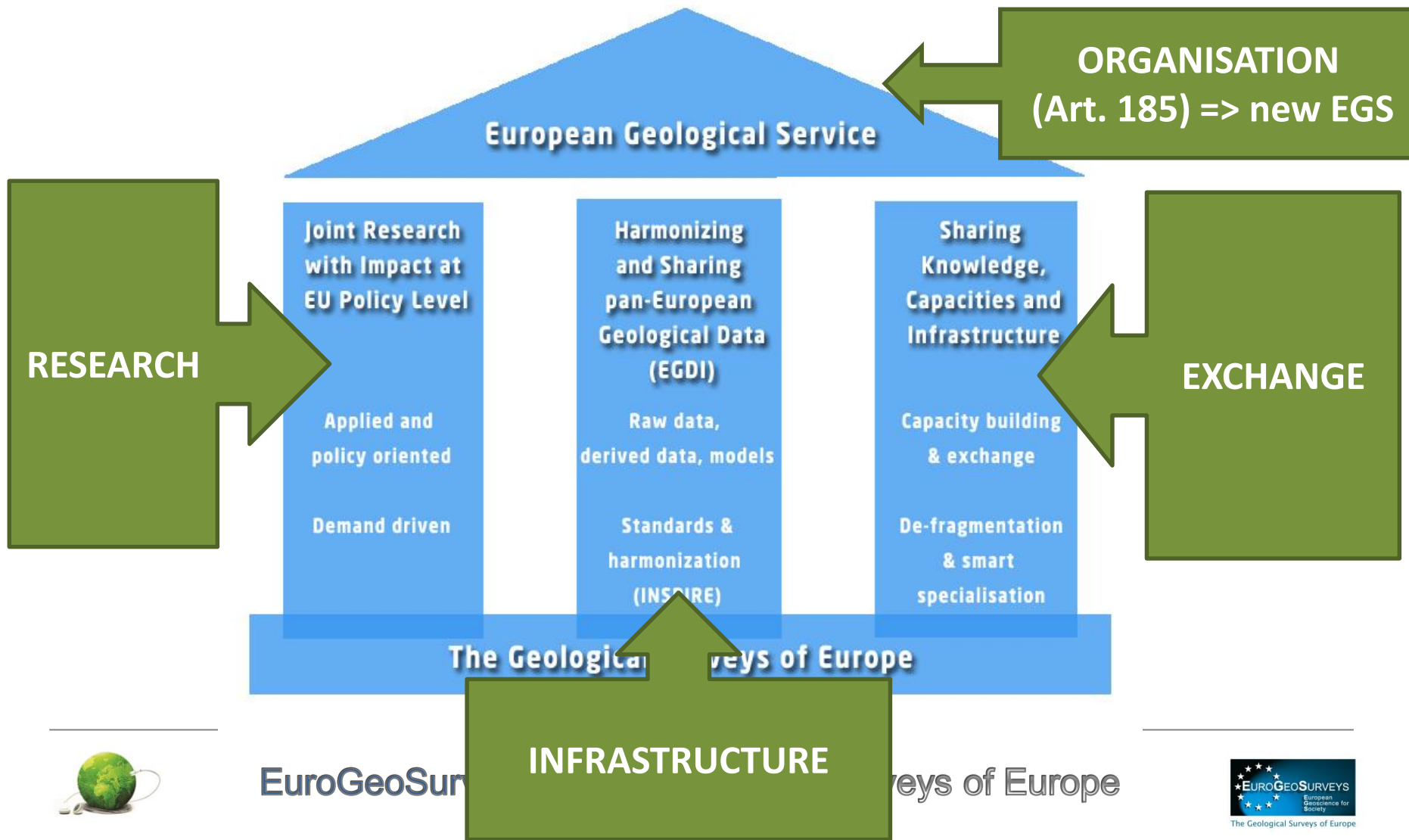
The Geological Surveys of Europe

THE CONCEPT

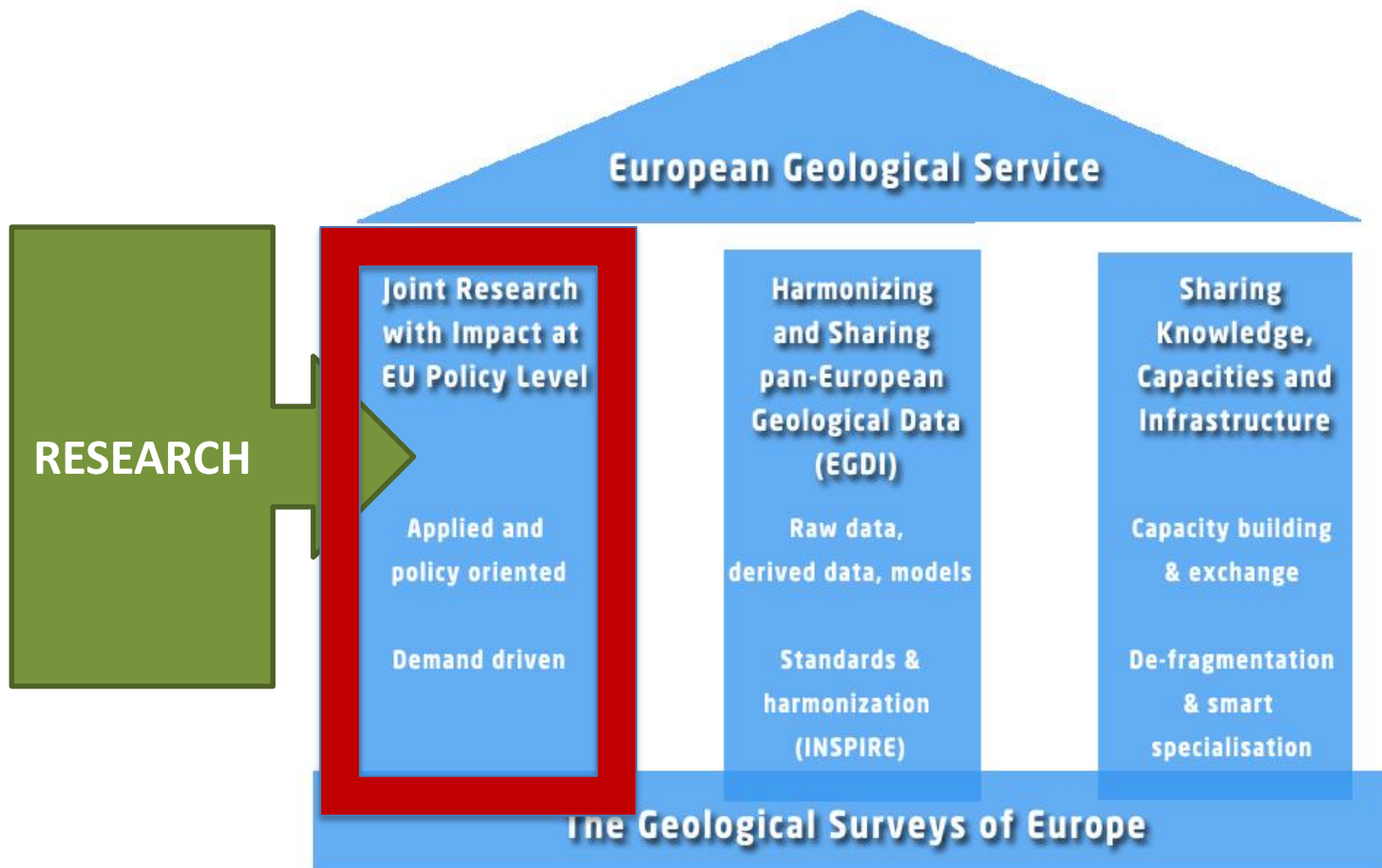
To establish and provide a
European Geological Service
based on a
cross-challenge research programme
on applied geoscience



EGS Strategic Vision: towards a European Geological Service



EGS Strategic Vision: towards a European Geological Service



EuroGeoSurveys - The Geological Surveys of Europe

GeoERA is just starting: FORMALLY APPROVED

Division of budget over 4 call themes:

	THEME	BUDGET* (EUR million)
GeoERA	Theme 1: Geo-Energy	10,2 (~85% of 12 million)
	Theme 2: Groundwater	7,6 (~85% of 9 million)
	Theme 3: Raw Materials	8,3 (~92,5% of 9 million)
	Theme 4: Information Platform	3,9 (~13% of 30 million)
	Total	30

50 Partners (National and Regional Surveys) from 31 countries:

	Geo-Energy	Ground-water	Minerals	Inform. Platform	Total
Effort (PM/yr)	971	709	669	363	2664
In kind co-funding (million EUR)	11,5	8,1	8,8	5,1	33,1
Target	8	6	6	(0)	20

V

$\mu\text{g/L}$

- 48.9
- 2.14
- 1.13
- 0.41
- 0.08
- < 0.01

0 500 1000 km



Vanadium in bottled water: young volcanic centres



Unique pan-European datasets (mineral resources)

MINERALS 4EU HOME DATA SEARCH MAP VIEWER **YEARBOOK**

MINERALS 4EU HOME DATA SEARCH MAP VIEWER **YEARBOOK**

Minerals Intelligence Network for Europe

Simplified, user-friendly and efficient access to all available and new data related to mineral resources through the EU-MKDP (European Minerals Knowledge Data Platform)

DATA SEARCH
Search into the EU-MKDP (Mineral Resources Database and Knowledge Documents) to find the best data

MAP VIEWER
View the data inside the EU-MKDP and combine them with other data to create decision support maps

MINERALS YEARBOOK
View data for primary minerals production, trade, resources and reserves; and for secondary materials

NEWS
March 9, 2015
European Minerals Yearbook pre-version available
The pre-version of the new Electronical European Minerals Yearbook is available on the EU-MKDP
September 30, 2014
EU-MKDP presentation @

MINERALS 4EU HOME DATA SEARCH MAP VIEWER **YEARBOOK**

[Back to Menu](#)

EUROPEAN MINERALS YEARBOOK

Welcome to the first edition of the new 'European Minerals Yearbook'!

This Yearbook contains data for primary minerals production, trade, resources and reserves; and for secondary materials it contains data for mineral-based waste generation, treatment and trade. It also contains case studies relating to the recovery of 10 commodities from key waste streams.

Please select the data you wish to view from one the following 4 options (primary minerals by country or by commodity; or secondary materials by category or case study).

We would be pleased to receive any comments you may have relating to this Yearbook, please send them to ... << contact e-mail to be inserted here >>

BY COUNTRY
Albania
VIEW

BY COMMODITY FOR PRIMARY MINERALS
Aggregates and rel
VIEW

BY CATEGORY FOR MINERAL-BASED WASTE FLOWS
Batteries and accur
VIEW

DATA SEARCH FOR CASE STUDIES ON COMMODITIES FROM WASTE AND OTHER YEARBOOK-RELATED DOCUMENTS
VIEW

ACKNOWLEDGEMENTS **DISCLAIMER** Copyright ©2014 Minerals4eu.eu



Unique pan-European datasets (mineral deposits)

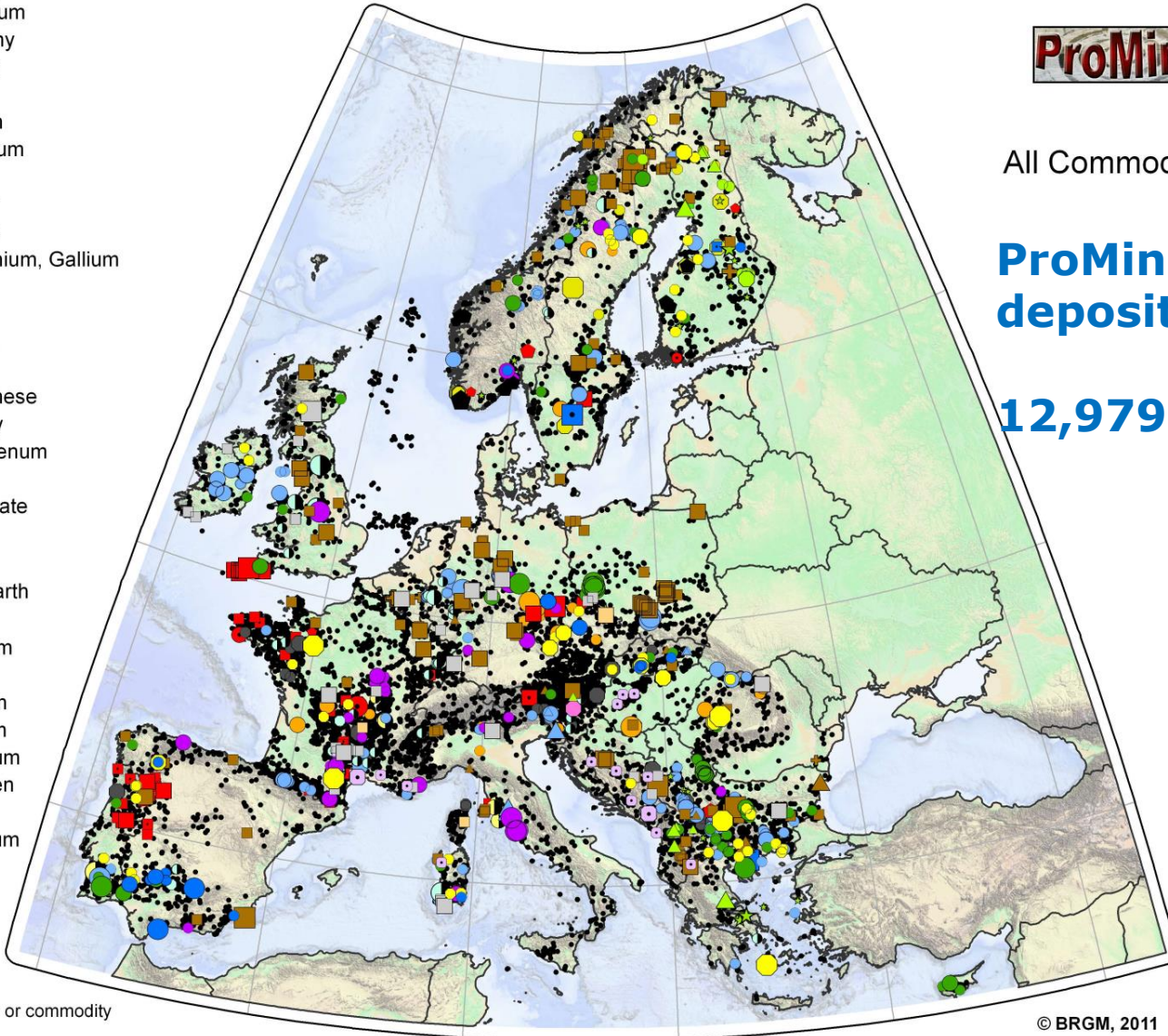


All Commodities

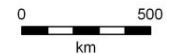
**ProMine mineral
deposits database**

12,979 records

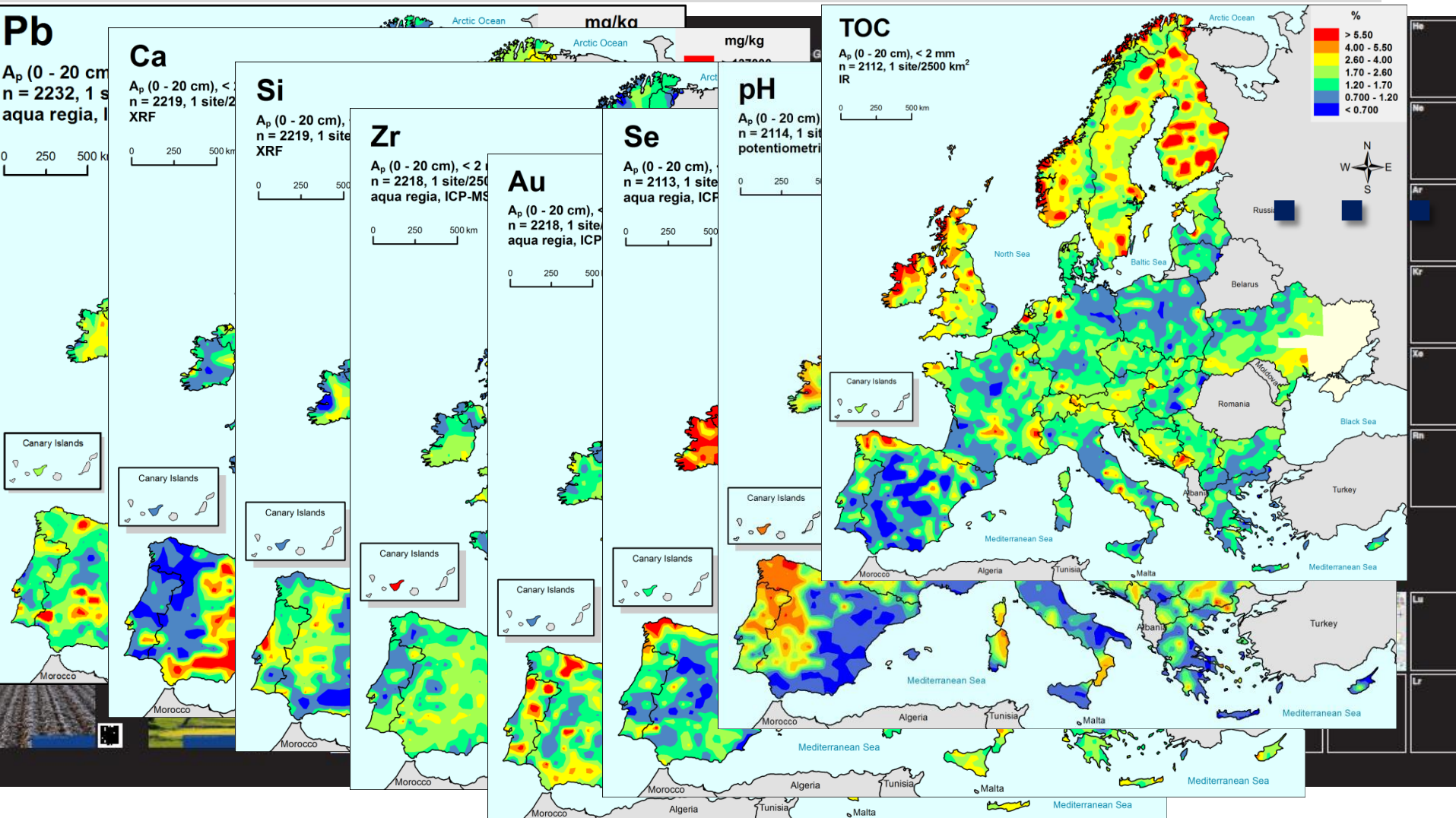
- Aluminium
 - Antimony
 - Arsenic
 - Barite
 - Bismuth
 - ▲ Chromium
 - Cobalt
 - Copper
 - Fluorite
 - ⊕ Germanium, Gallium
 - Gold
 - Iron
 - Lithium
 - Lead
 - ▲ Manganese
 - ▲ Mercury
 - ◆ Molybdenum
 - ★ Nickel
 - ⊕ Phosphate
 - PGE
 - Pyrite
 - Rare Earth
 - Silver
 - Tantalum
 - Tin
 - Titanium
 - Uranium
 - Vanadium
 - Tungsten
 - Zinc
 - Zirconium
-
- Class A
 - Class B
 - Class C
 - Other class or commodity



© BRGM, 2011

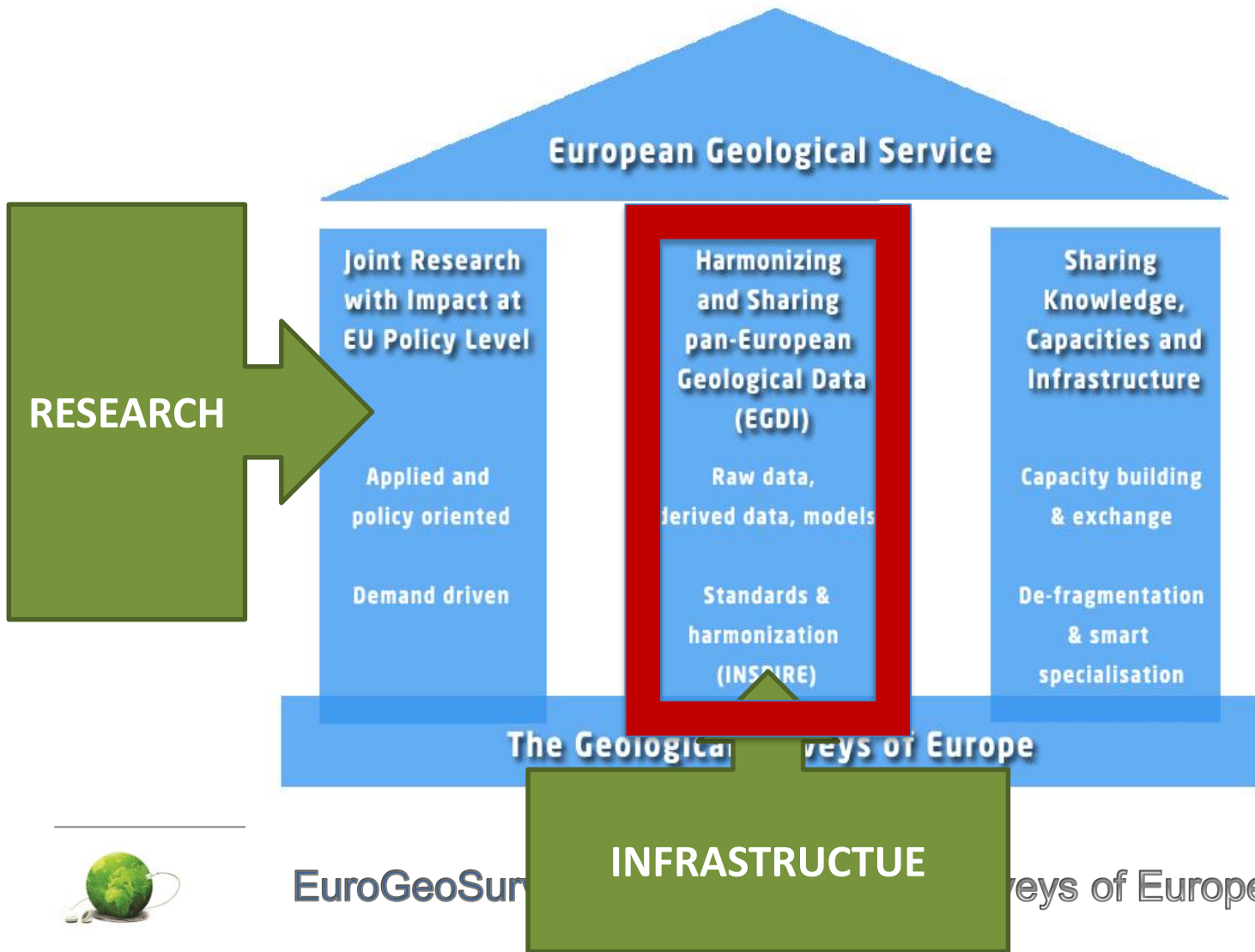


Unique pan-European datasets (soils geochemistry)



EuroGeoSurveys - The Geological Surveys of Europe

EGS Strategic Vision: towards a European Geological Service





SAVE THE DATE

14 JUNE 2016, Brussels

The European Geological Data Infrastructure is now becoming a REALITY

2016
February

EGDI, until now first of all described in a scoping study, funded by the European Commission through the FP7 project EGGI-Scope (<https://www.egdi.europa.eu/>), is now becoming a reality.

The 14th June the EGGI team will launch the first version of a web-portal giving access to a number of pan-European geological data sets created during previous data harmonization projects as well as to a very large number of national data sets from the European Geological Surveys.

This infrastructure will enable European Geological Surveys to serve and maintain INSPIRE-compliant, interoperable geological data and information reflecting our understanding of the subsurface.

The 14th June will be the starting point and over the time EGGI will become the central junction for all relevant pan-

European interoperable, harmonised geological information for stakeholders from policy, industry and the general public. Subsequent extensions of the EGGI will be based on results from past, current and future EU-projects.

The aim is that the EGGI portal in the long term will give access to a very wide range of geological data, becoming the Pan-European platform for geological data and the natural and obvious platform for storage and/or dissemination of harmonized data sets from the geological surveys of EuroGeoSurveys and other institutions that produce similar data.

The EGGI Team has the pleasure to invite you to attend the launch for having a better understanding of the benefits of EGGI.

More information will follow in the next weeks.



<http://www.europe-geology.eu>



V 1.0 is here!





Start page

You are here: [Home](#)

Welcome to EGDI

EGDI is EuroGeoSurveys' European Geological Data Infrastructure. It provides access to Pan-European and national geological datasets and services from the Geological Survey Organizations of Europe.

EGDI builds on the concepts described in the EU co-funded EGDI-Scope project and will be launched in a first version 14 June 2016 in Brussels.

Want to be informed about EGDI?
Subscribe to our newsletter.

Interactive Maps



Mineral Resources




Layer chooser

▼ Critical Raw Materials 1

Mineral occurrences

Project page:



Name:

Commodity:

Predictive map (ProMine)

► Precious Metals

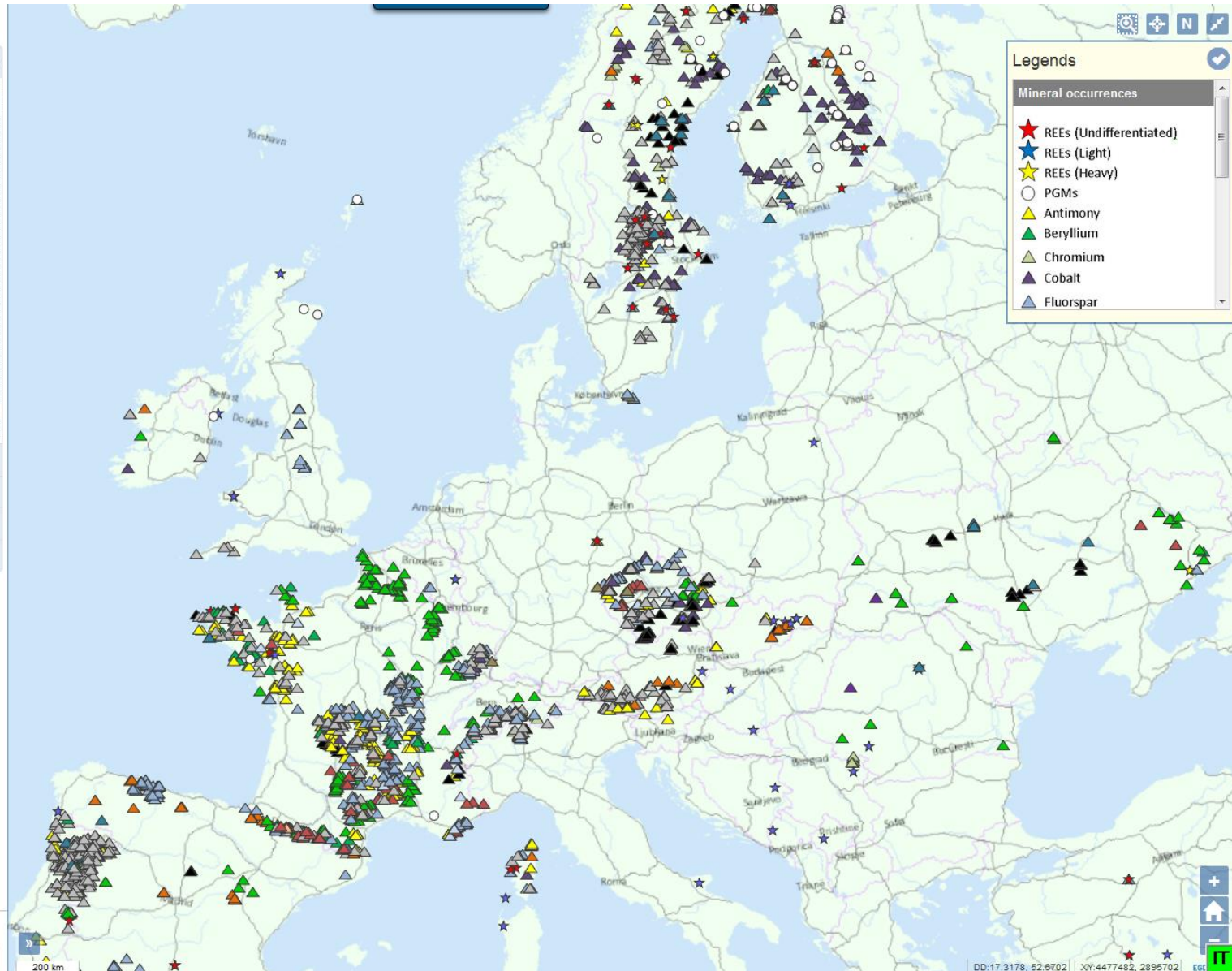
► Base Metals

► Energy Metals

► Precious Stones

Base map:

Optional layers:




EuroGeoSurveys - The Geological Surveys of Europe



Layer chooser

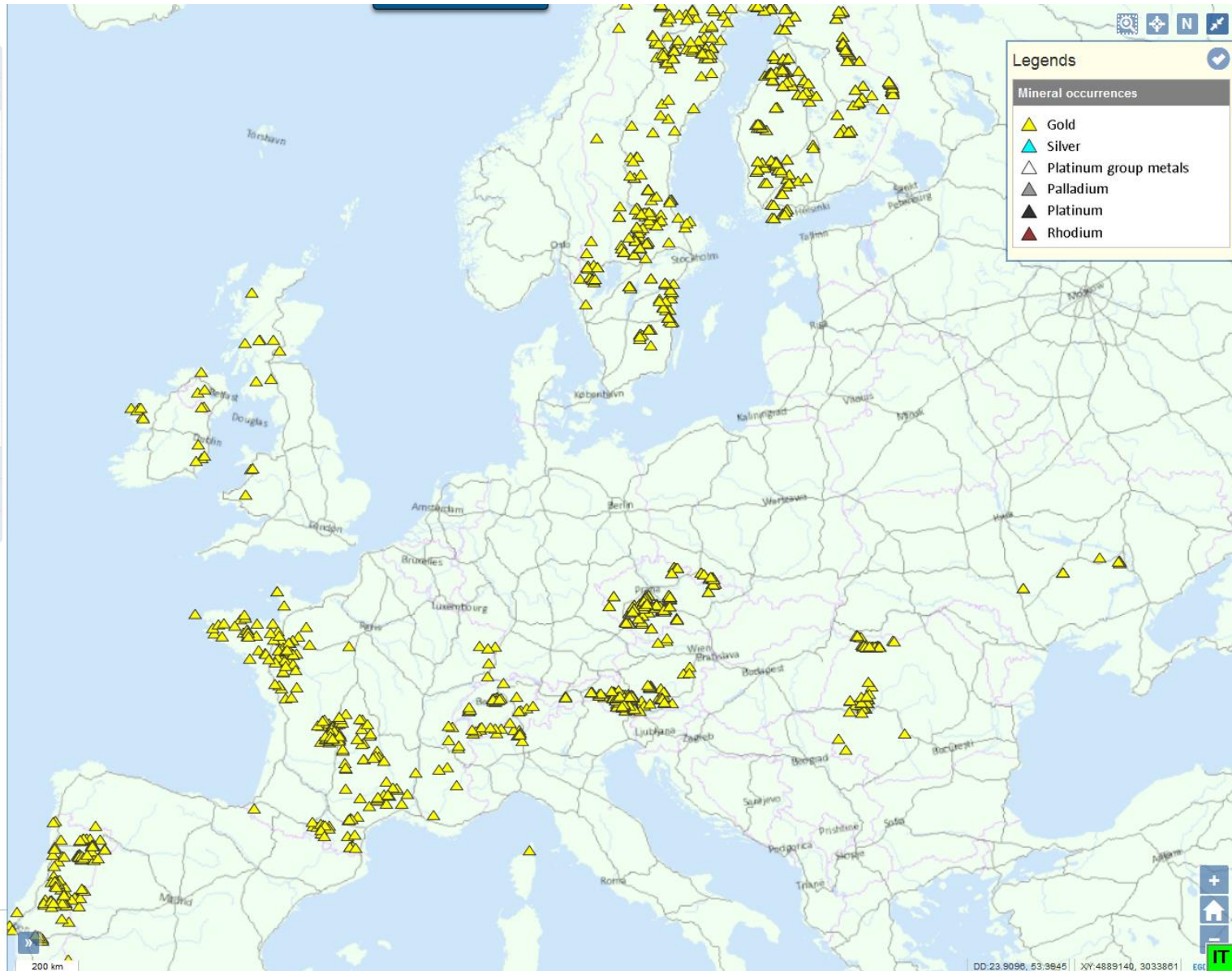
- Critical Raw Materials
- Precious Metals
 - Mineral occurrences
- Base Metals
- Energy Metals
- Precious Stones

Project page:



Name:


Commodity:



Layer chooser

- > Geological Map 1:5M
- > Geological Map 1:1M 1
- Lithology (INSPIRE)
- Age (INSPIRE)
- Sandstones (INSPIRE)
- > Geological Map 1:100k
- > Aggregate occurrences

Project page:

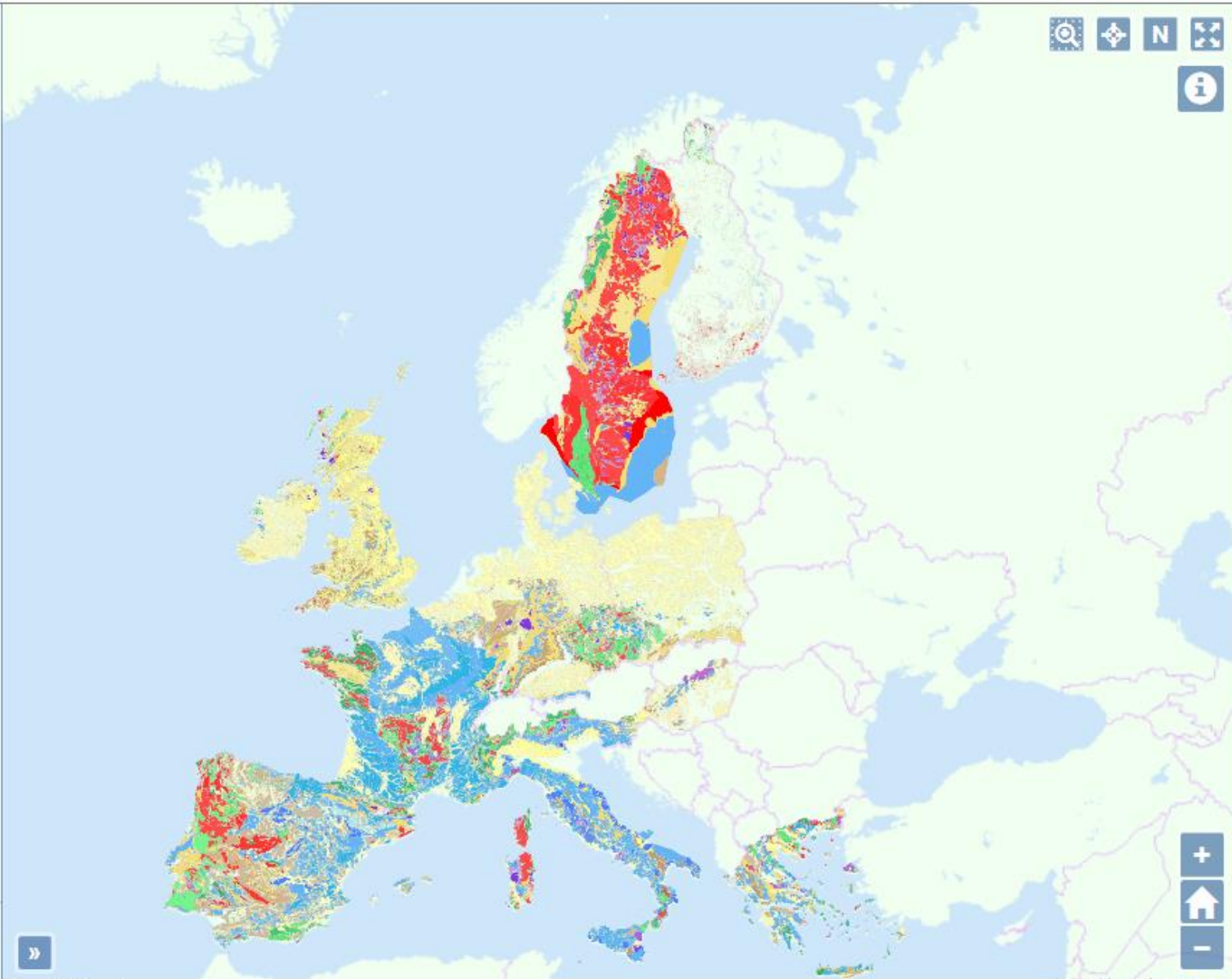


Base map

OSM hosted by GEU: ▾

Optional layers

▾

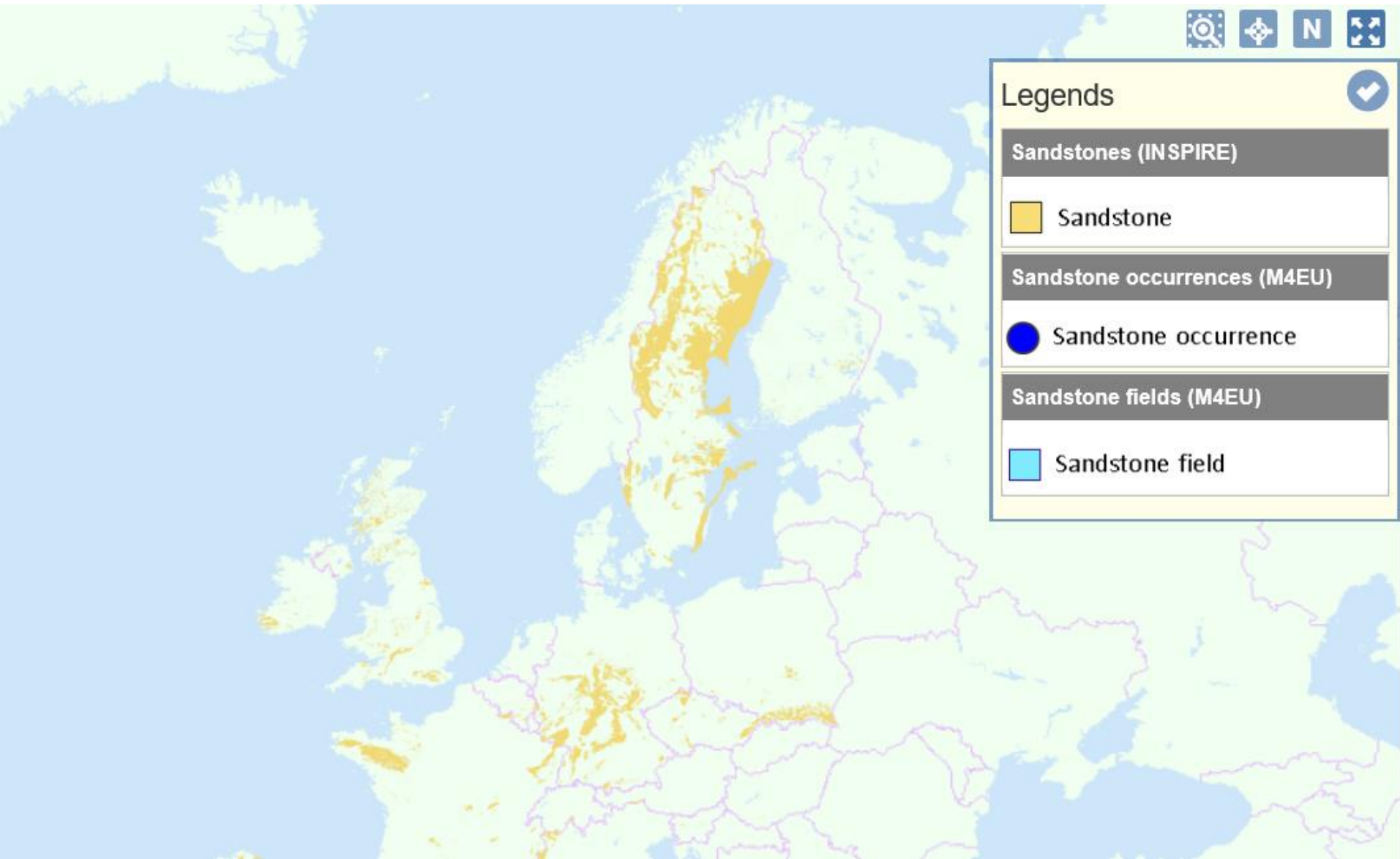


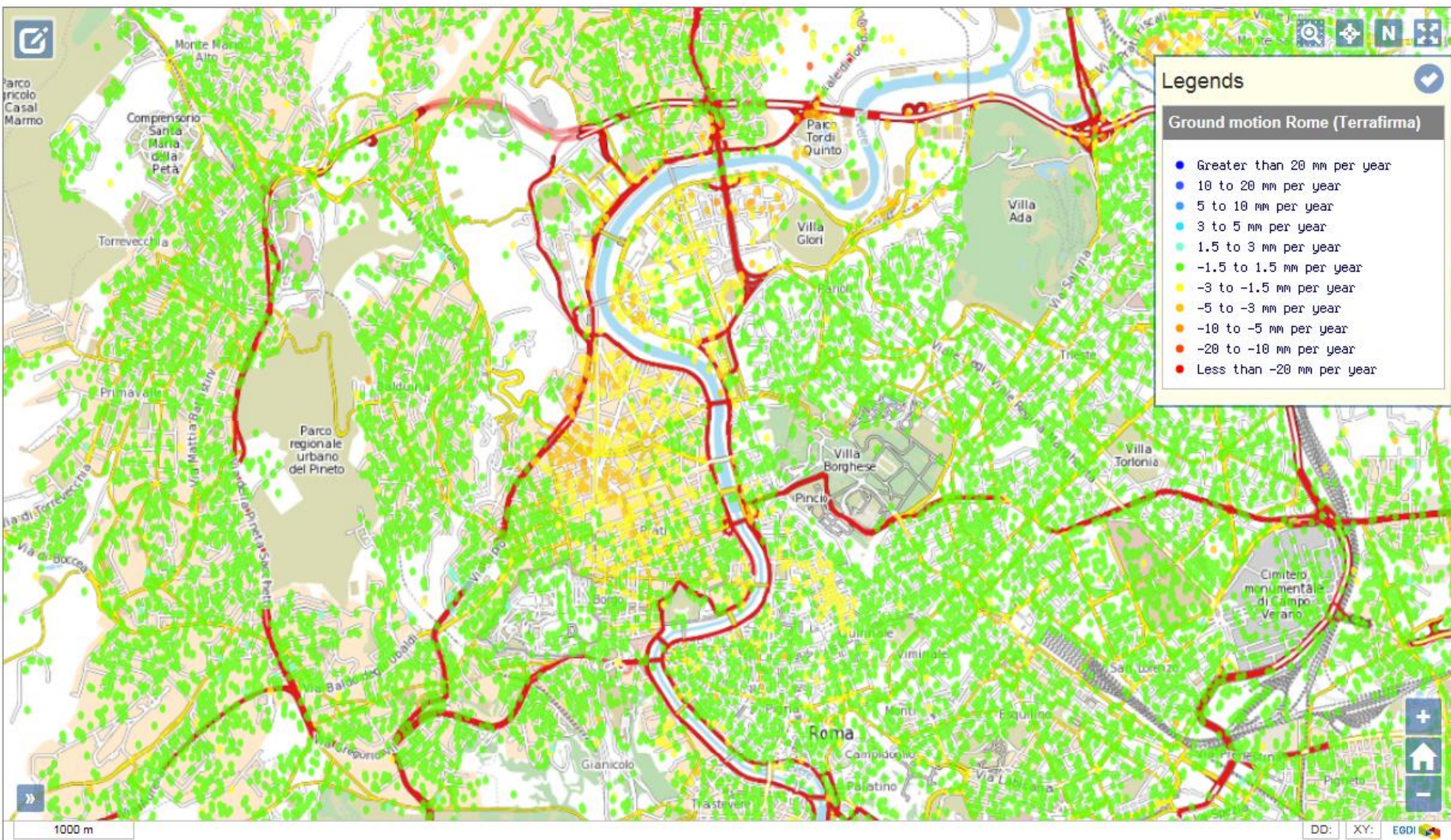
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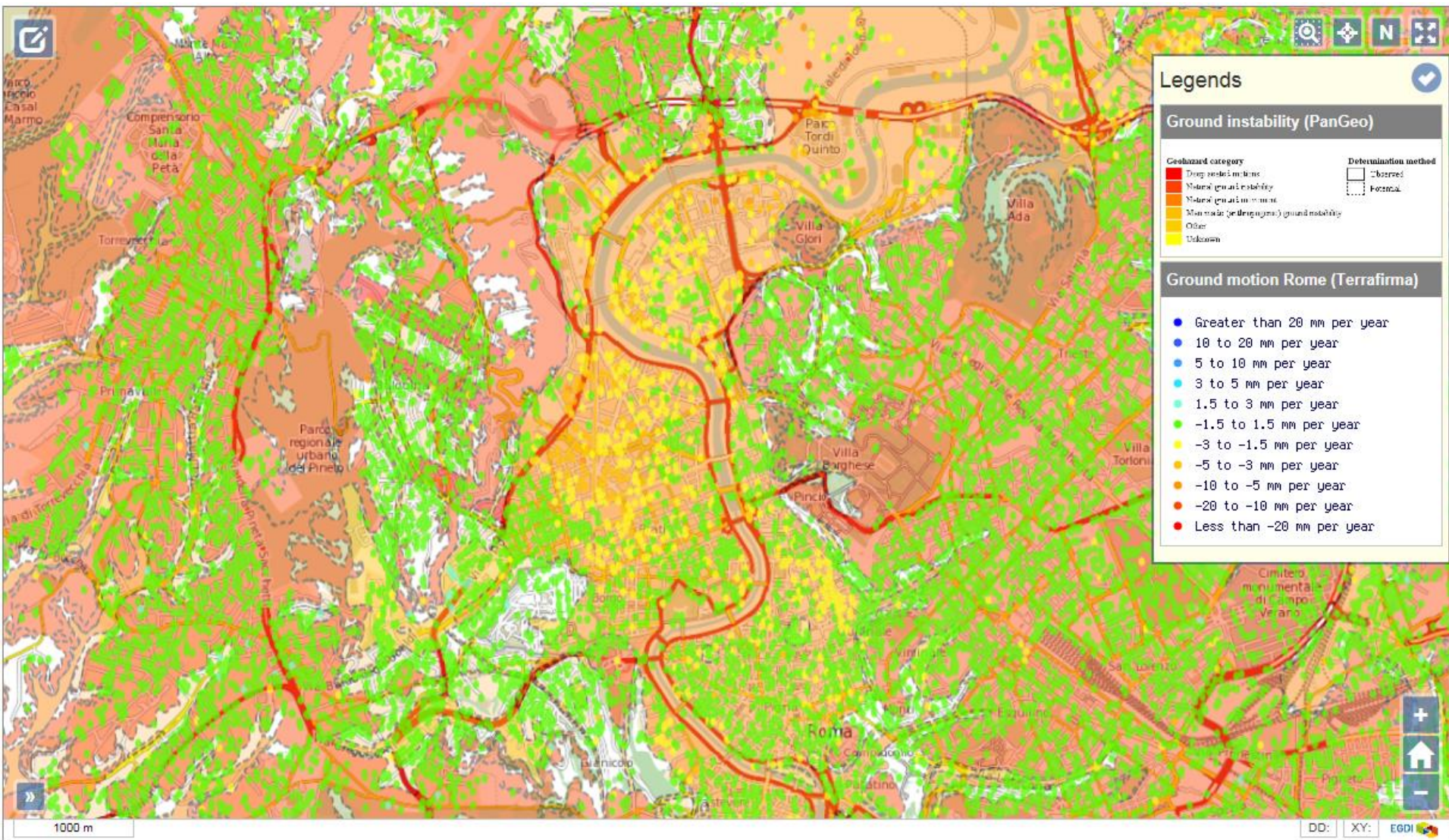
DD: XY: EGDI

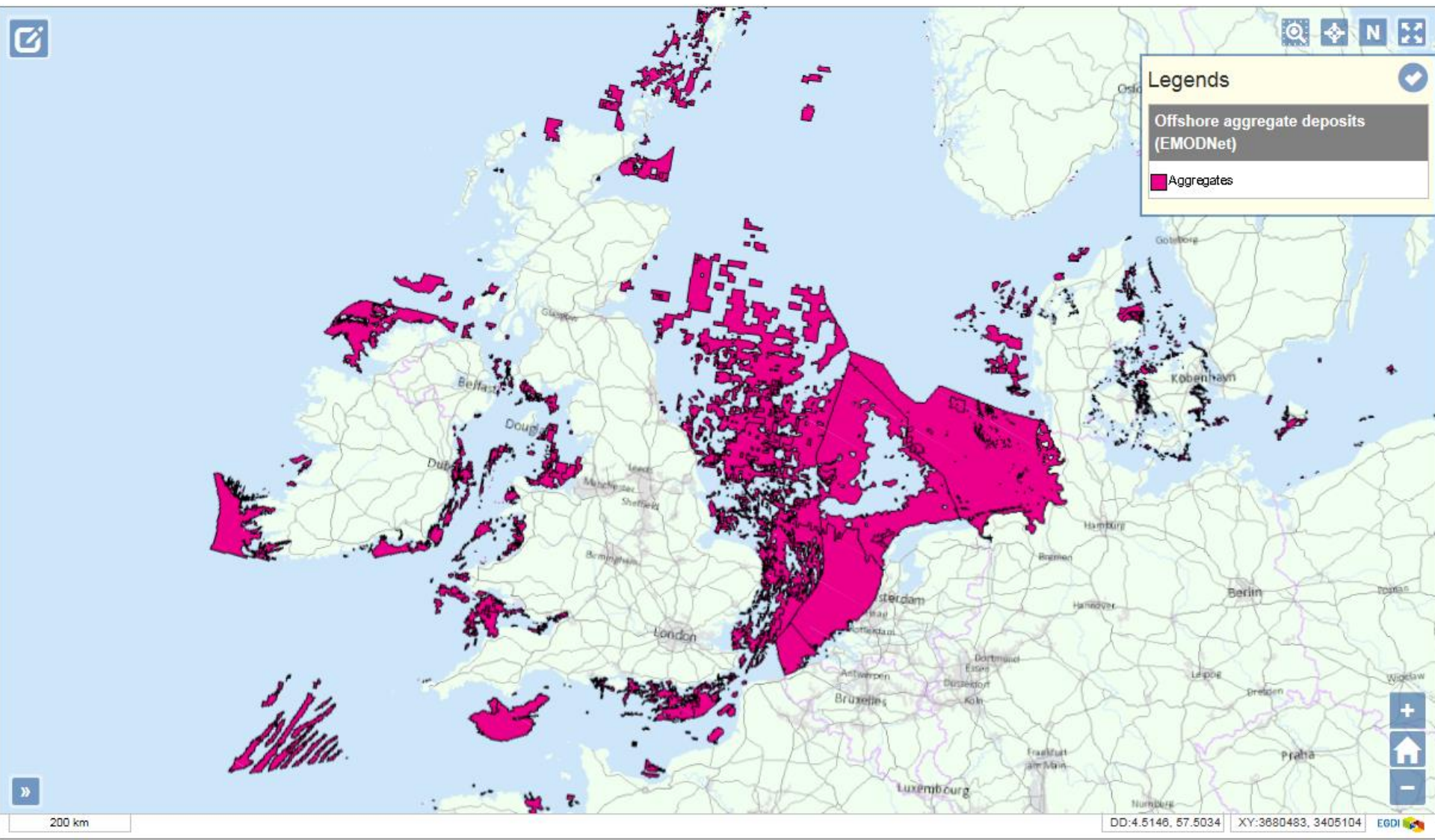


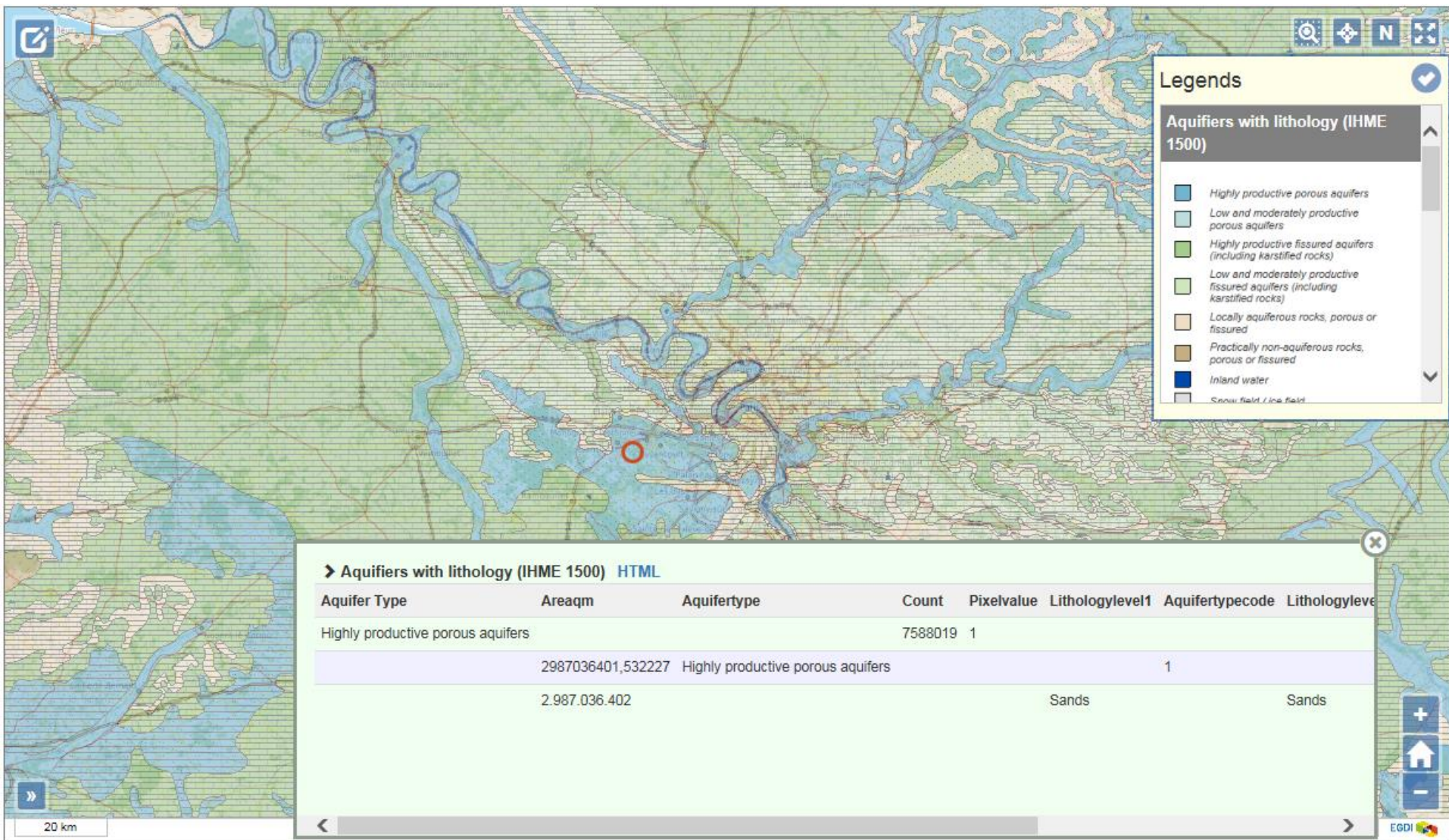
EuroGeoSurveys - The Geological Surveys of Europe

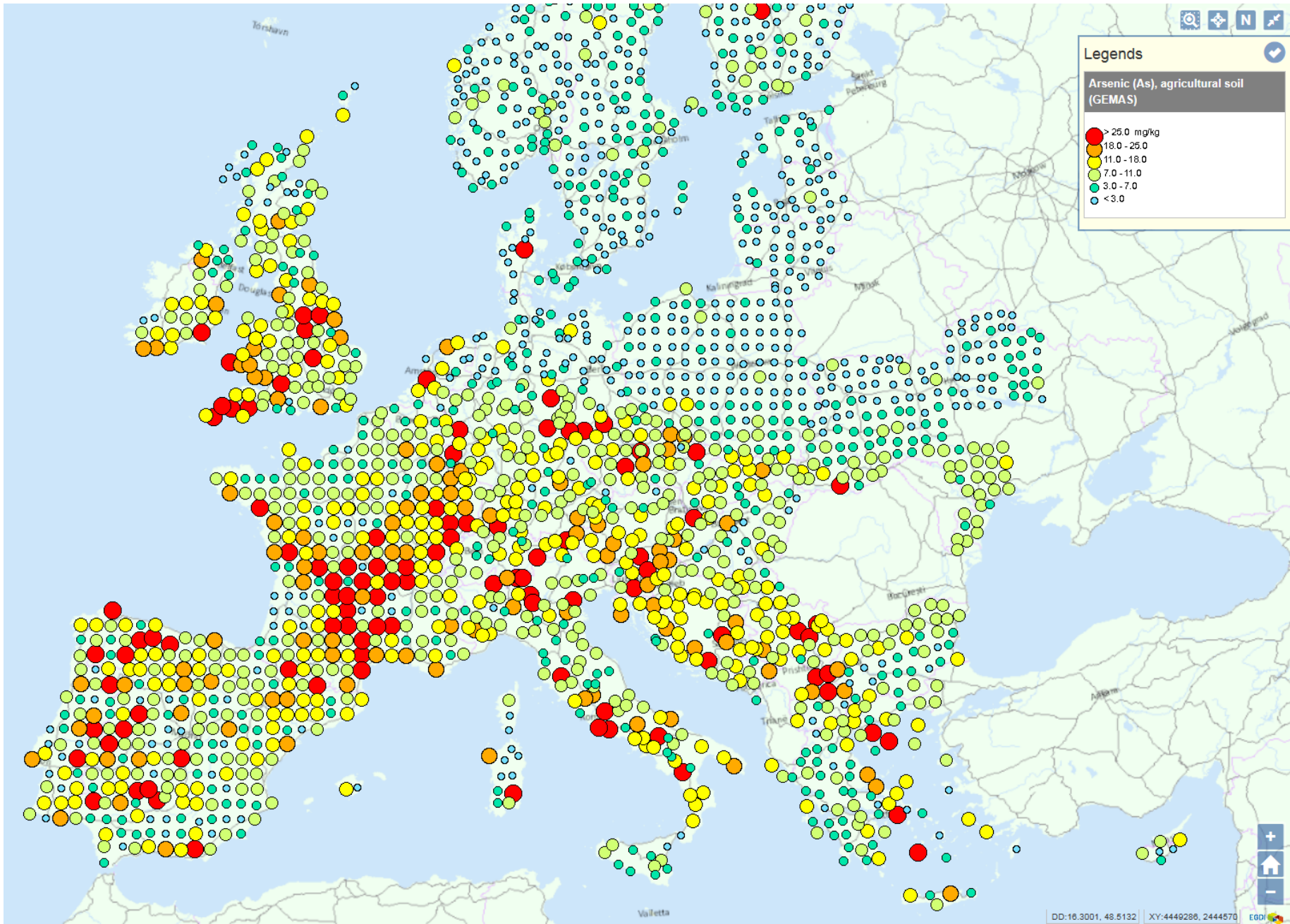








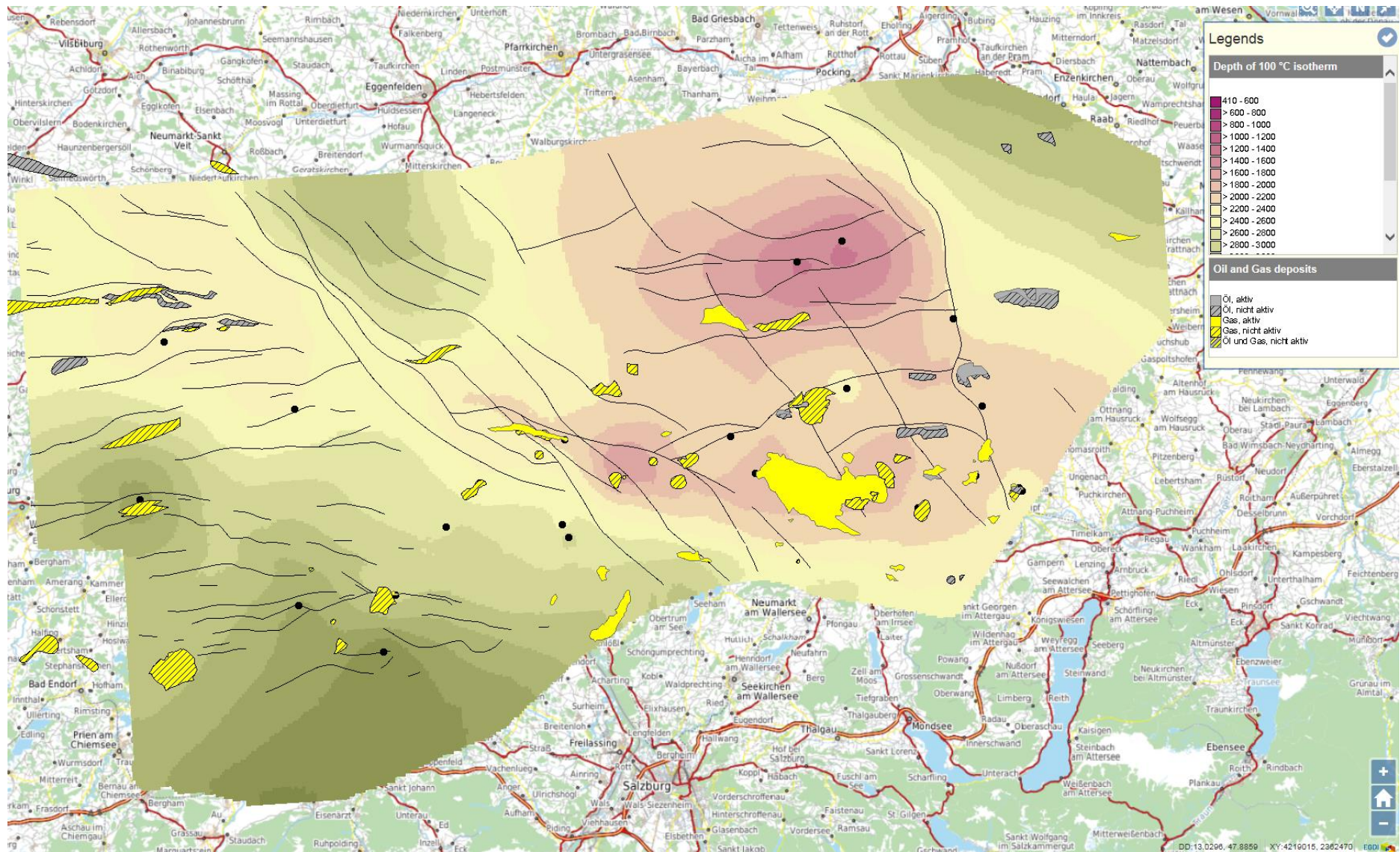




Legends

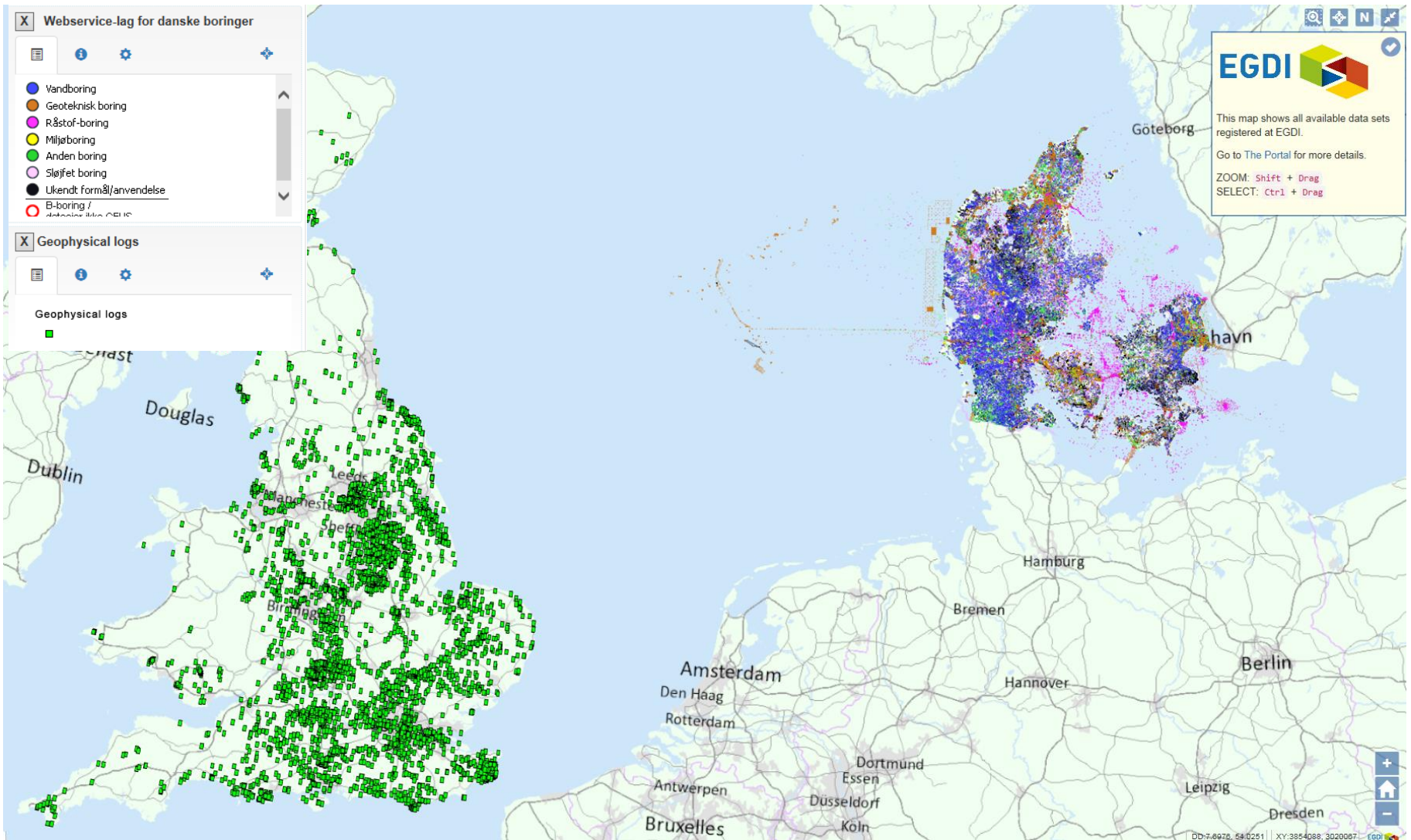
Arsenic (As), agricultural soil (GEMAS)

- > 25.0 mg/kg
- 18.0 - 25.0
- 11.0 - 18.0
- 7.0 - 11.0
- 3.0 - 7.0
- < 3.0



EuroGeoSurveys - The Geological Surveys of Europe





EuroGeoSurveys - The Geological Surveys of Europe

RESULTS

There is now a home for pan-European geological datasets and services from past and coming projects.

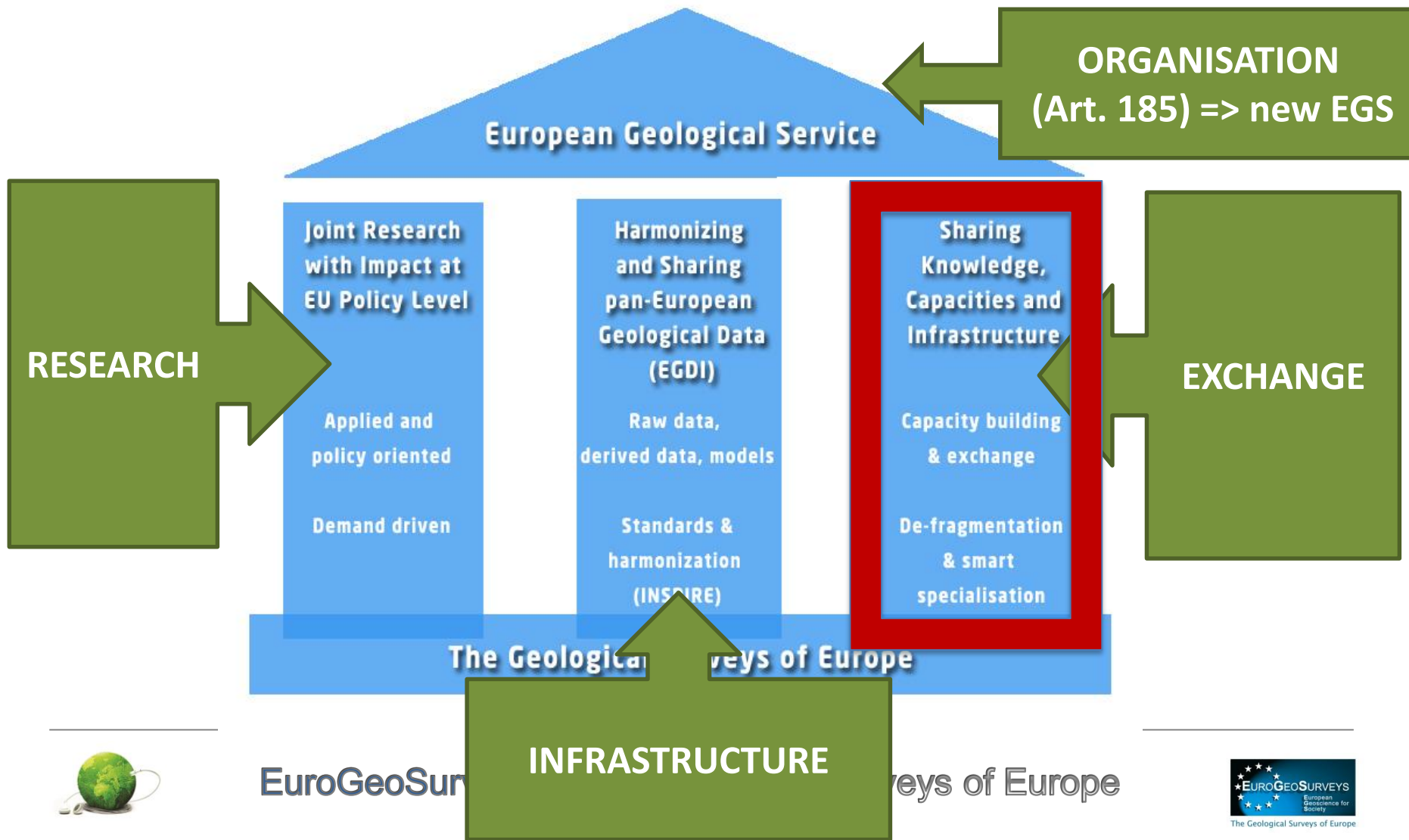
Data from 13 projects and from thousands of national datasets are already available on a common platform with more than 600 data layers, covering Energy, Groundwater, Mineral Resources, Geohazards and Soil, **but many others are not yet there.**

EGDI is supporting the implementation of EU Directives, such as INSPIRE.

EGDI is ready to support other infrastructures like EPOS.



EGS Strategic Vision: towards a European Geological Service



Sharing knowledge, capacities and infrastructures



Sharing knowledge, capacities and infrastructures

Micro – area analysis laboratory – SHRIMP IIe/MC Ion Microprobe Section

Definition:

Sensitive
High
Resolution
Ion
Micro
Probe

For microsamples
in solid state:

- single grains (e.g. zircon),
- micro-fossils,
- rock chips etc.



SIMS Secondary Ion Mass Spectrometer



EuroGeoSurveys - The Geological Surveys of Europe

GEO GROUP ON EARTH OBSERVATIONS



EuroGeoSurveys - The Geological Surveys of Europe



Geological continental cooperation



EuroGeoSurveys - The Geological Surveys of Europe



External relations

AGSMI General Meeting – June 2014



External relations

CCOP General Meeting – November 2015



CCOP 51st Annual Session and 65th Steering Committee Meeting

External relations

Joint EGS-AGSMI General Meeting – October 2015









The Geological Surveys of Europe

EuroGeoSurveys
The Geological Surveys
of Europe



ASGMI

Asociación de Servicios
de Geología y Minería
Iberoamericanos

ASGMI
Asociación de Servicios
de Geología y Minería Iberoamericanos

Memorandum of Understanding

Closer Ties: International Cooperation in Earth Sciences between
Ibero-America and Europe
Estrechando Lazos: Cooperación Internacional en Ciencias de la Tierra entre
Iberoamérica y Europa

20th and 21st October 2015
IGME | Madrid, 23, Rios Rosas ES-28003, Spain

A 25 millions euro (28 millions USD) EGS-OAGS project is now starting



Implementation



Governance

Workshop on Mining Taxation

"Transforming mineral wealth into sustainable development", Addis Ababa on 9-10 December 2011

Investment and infrastructure

AU-EU joint event on infrastructure for extractive industries, Brussels, 19-20 March 2015

Geological knowledge and skills

Support for the **EGS-OAGS scoping study** on geological co-operation from the JAES support mechanism

When cooperation is real, it brings results!



Organisation of African Geological Surveys
Organisation des Services Géologiques Africains
Organização de Serviços Geológicos Africanos

[HOME](#) [ABOUT US](#) [UPCOMING EVENTS](#) [PROJECTS](#) [TRAINING INFORMATION](#) [REPOSITORY](#) [CONTACT](#)



EGS-OAGS Workshop Brussels 2014

Geoscientific knowledge and skills in African Geological Surveys

SERVICE CONTRACT FOR EUROPEAN UNION
EXTERNAL ACTIONS
N° 323 - 534
FINANCED FROM THE EDF
FINAL REPORT



E



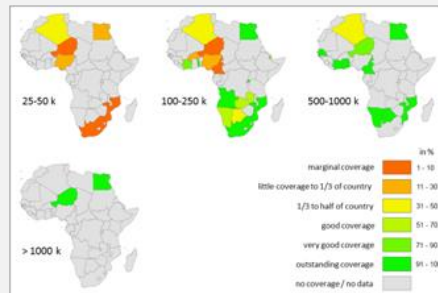
irope



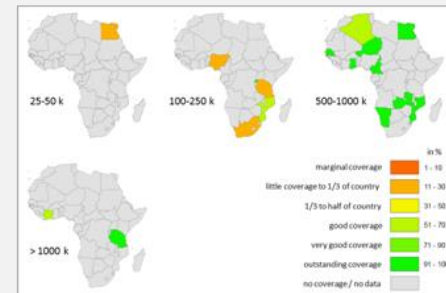
A success story - Gap analysis results

Estimated coverage of geoscientific maps for different scale ranges

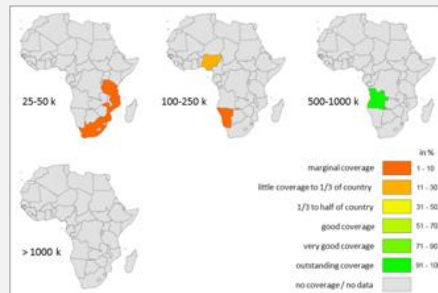
Geology



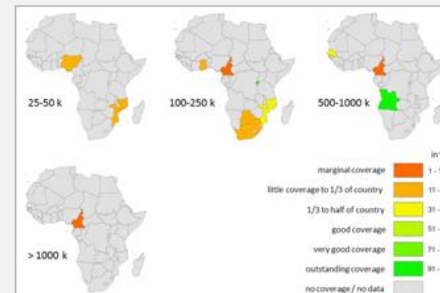
Mineral resources



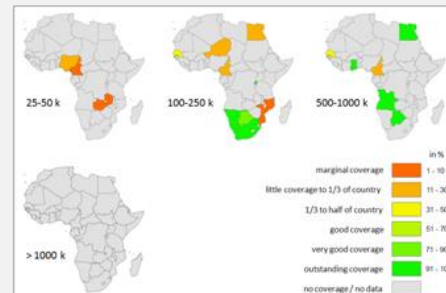
Engineering geology



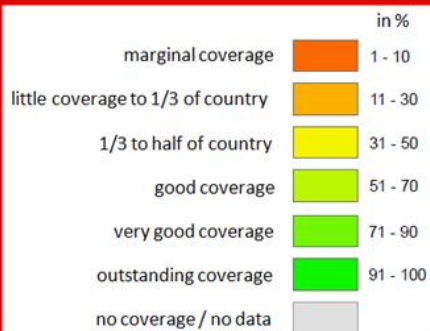
Geochemistry



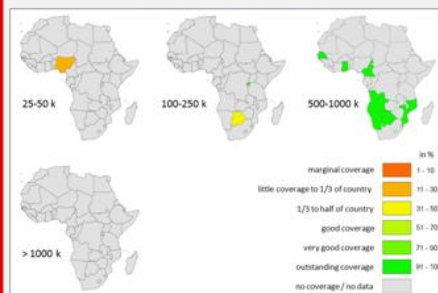
Geophysics



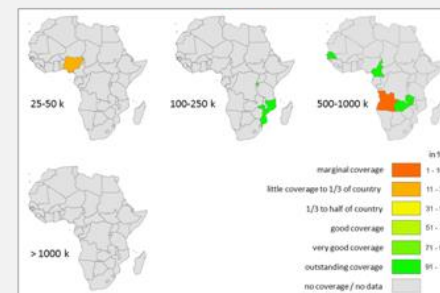
Coverage in %



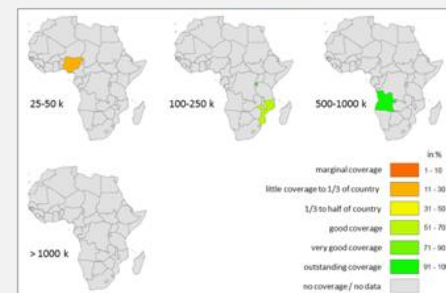
Groundwater



Soil



Land use



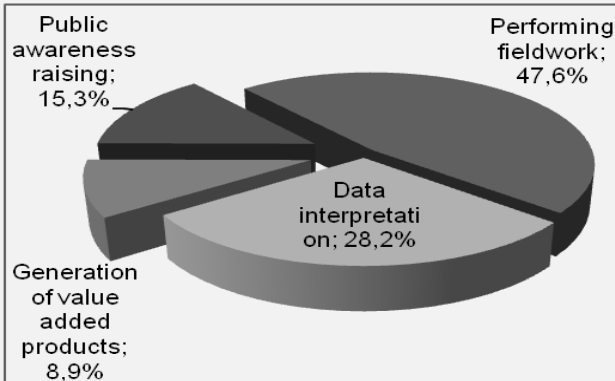
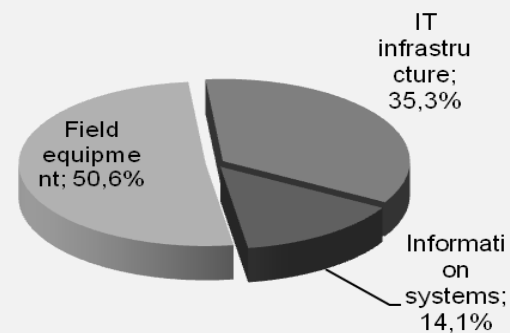
A success story - Gap analysis results

Obstacles to performing geoscientific mapping

Reasons for reduced field activities



Lack of equipment



Staff not adequately skilled

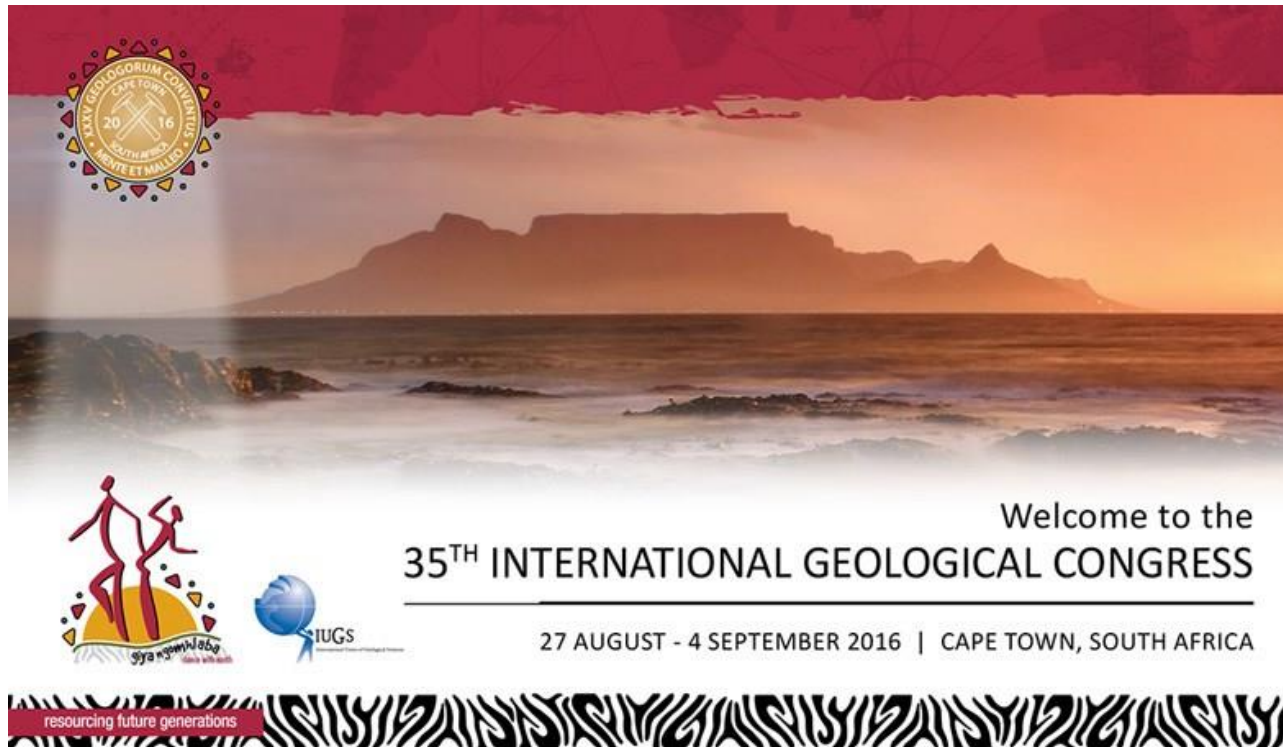
Lack of **skilled staff and technical resources** in the field and in the laboratory;

Not enough **expertise** to do data analysis and interpretation;

Quality and availability of data on mineral resources doesn't cover the needs of exploration and mining



LAUNCHED AT IGC35 ON 29TH AUGUST 2016



Special Symposium:

PanAfGeo: a major initiative to strengthen the geoscientific public sector in Africa



EuroGeoSurveys - The Geological Surveys of Europe



Besides PanAfGeo

How to work together?



Concrete opportunities

European Innovation Partnership on Raw Materials (EIP):

- *Advancing the idea of a World Forum on Raw Materials*
- International Network of Raw Materials Training Centres

Development and Cooperation:

- PanAfGeo (together with UNESCO, UNEP, UNDP)



The project Towards a World Forum on Raw Materials (FORAM) will develop and set up an EU-based platform of international experts and stakeholders that will advance the idea of a World Forum on Raw Materials (WFRM) and enhance the international cooperation on raw material policies and investments. The global use of mineral resources has drastically increased and supply chains have become ever more complex. A number of global initiatives and organizations have been contributing to knowledge and information transfer, including the EC, UNEP International Resource Panel, the World Resources Forum, the World Material Forum, the OECD and others. It is widely felt that improved international resource transparency and governance would be beneficial for all, since it would lead to stability, predictability, resource-efficiency and hence a better foundation for competitiveness on a sustainable basis. **The FORAM project will contribute to consolidate the efforts towards a more joint and coherent approach towards raw materials policies and investments worldwide,** by closely working with the relevant stakeholders in industry, European and international organisations, governments, academia and civil society. Synergies with relevant EU Member States initiatives will be explored and fostered. The project will in particular seek to engage the participation of G20 Member countries and other countries active in the mining and other raw materials sectors, so that experiences will be shared and understanding of all aspects of trade in raw materials will be increased. **By implementing this project an EU-based platform of international key experts and stakeholders is created, related to the entire raw materials value chain. This platform will work together on making the current complex maze of existing raw material related initiatives more effective. As such, the FORAM project will be the largest collaborative effort for raw materials strategy cooperation on a global level so far.**



Membership of the Advisory Board

Association of Ibero-American Geological and Mining Surveys (ASGMI)

Committee for Mineral Reserves International Reporting Standards (CRIRSCO)

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP)

Department of Science and Technology, International Cooperation and Resources, South Africa

Ellen MacArthur Foundation (EMAF)

European Association of Mining Industries (Euromines)

European Commission - DG Joint Research Centre (DG JRC)

European Institute of Innovation & Technology / KIC Raw Materials (EIT)

European Technology Platform on Sustainable Mineral Resources (ETP SMR)

G7 CONNEX Initiative (CONNEX), represented through Columbia University, New York, USA

Institute for Global Environmental Strategies (IGES), Japan

UN International Study Groups (ISG) on Lead, Copper and Zinc

Organisation of African Geological Surveys (OAGS)

UN Economic Commission for Europe - Expert Group on Resource Classification (UNECE EGRC)

United Nations Environment Programme International Resource Panel (UNEP IRP)

United States Geological Survey (USGS)

European Waste Electrical and Electronic Equipment Forum (WEEE)

World Bank (WB)

World Materials Forum (WMF)

Yale School of Forestry & Environmental Studies (F&ES)



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SC5-16 c) International network of raw materials training centres (2017)

- **To create a self-sustainable long-term lasting international network of training centres for professionals.**
 - involve educational and research institutions in the EU and **the leading counterparts in third countries,**
 - based on specific country expertise in the **primary and secondary raw materials sectors.**
 - **map skills and knowledge in the EU and the third countries,**
 - **identify key knowledge gaps and emerging needs,**
 - **develop roadmap for improving skills and knowledge,**
 - **establish common training programmes in the raw materials sectors.**
- Indicative size of proposals: up to EUR 1 million



**EGS is advancing at high speed.
We want to advance geology together with you!**



thank you!
شكرا

