

Geothermal ERA-NET
Final Project Meeting
Moravske Toplice, Slovenia
13-14/10/2016



EGIP Expert Group – Final status

Philippe Calcagno*
with Þorvaldur Bragason, Christian Minnig,
Laszlo Sores, and Eugenio Trumpy

*BRGM, Orléans, France (p.calcagno@brgm.fr)



Why EGIP?

- > Help for harmonization of the geothermal sector at the European level**

- > Retrieve, view and access information from**
 - Investors
 - Policy makers
 - National programme managers (Joint Actions?)
 - Geothermal players

- > Investment for harmonizing at national level**



Genesis of the Expert Group (end 2015)

> How to capitalize the work done for EGIP in Geo ERA-NET?

- D3.1 State of the art report (04/2013)
- D3.2 Feasibility study report (10/2013)
- Pilot (2014)
- Paper “Building a European geothermal information network using a distributed e-Infrastructure” (Trumpy et al., 2015, International Journal of Digital Earth)
- Tuning EGIP JA report (incl. Web survey) (01/2016)

> Towards a call for tender to develop a web based user friendly front end for EGIP



The EGIP Expert Group – Core Group

- > **Philippe Calcagno**
(BRGM, France) **Lead of expert group**
- > **Þhorvaldur Bragason**
(OS, Iceland) **INSPIRE expertise**
- > **Christian Minnig**
(swisstopo, Switzerland) **Geothermal expertise**
- > **Laszlo Sores**
(MFGI, Hungary) **INSPIRE expertise**
- > **Eugenio Trumpy**
(CNR, Italy) **EGIP pilot expertise**

The EGIP Expert Group – Extended Group

- > **Stephan Schreiber**
(FZ Jülich, Germany) **Geothermal expertise**
- > **Paul Ramsak**
(RVO, Netherland) **overall expertise**
- > **Gerdi Breembroek**
(RVO, Netherland) **overall expertise**
- > **Sylvain Grellet**
(BRGM, France) **INSPIRE expertise**
- > **Joseph Weber**
(LIAG, Germany) **INSPIRE and general
data management expertise**
- > **Inga Moeck**
(LIAG, Germany) **Geothermal expertise**

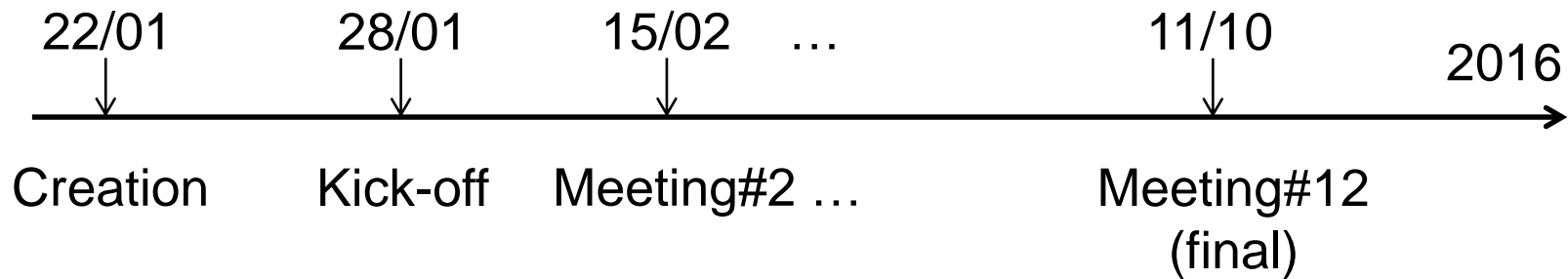


Objectives

- > Task 1 - To formulate INSPIRE oriented guidelines for the harmonization of geothermal data**
- > Task 2 - To write technical specifications for the call for tender to develop a web based user friendly front end for EGIP**
- > Task 3 - To support the EGIP steering committee with the writing of the call**

Time line

> **Created on 22/01/2016 by the coordination team**



> **Telephone conferences**

> **Minutes distributed to the Geo ERA-NET consortium**

February 2016 - No more call for tender

- > **The possibility of a call for tender is abandoned by the Geo ERA-NET consortium, due to national decisions.**

- > **Consequently the EG took the following decisions (minutes of the 15/02/2016 meeting):**
 - Task 3 is abandoned (support the EGIP steering committee with the writing of the call).
 - Task 2 (technical specifications for the call for tender) is reoriented to a note describing the important functionalities of the front end.

An overview of EGIP to prepare its implementation

- > The EG decided (minutes of the 16/03/2016 meeting) to produce a single overall document to**
 - Give coherence to the overall work of the EG (Task 1 and Task 2)
 - Avoid duplication of information
 - Prepare the work for the people in charge of the future implementation.

- > The INSPIRE oriented guidelines (Task 1) to be an appendix of the overall document**

- > Document validated by the EGIP Extended Expert Group**

Table of contents

1 Introduction to the EGIP concept

2 Intended architecture (INSPIRE compliant)

▾ 3 Intended implementation (INSPIRE compliant)

3.1 Data model

3.2 Metadata

3.3 Services

▾ 4 Open issues and recommendations

4.1 Recommended geothermal data themes and relevant INSPIRE guidelines

4.2 Geodata and non-geodata

4.3 European harmonization

4.4 Stakeholders' involvement

4.5 Sustainable governance

4.6 Border harmonization, cross-border discontinuity and interpolation issue

5 References

Appendix Recommended geothermal data themes and relevant INSPIRE guidelines

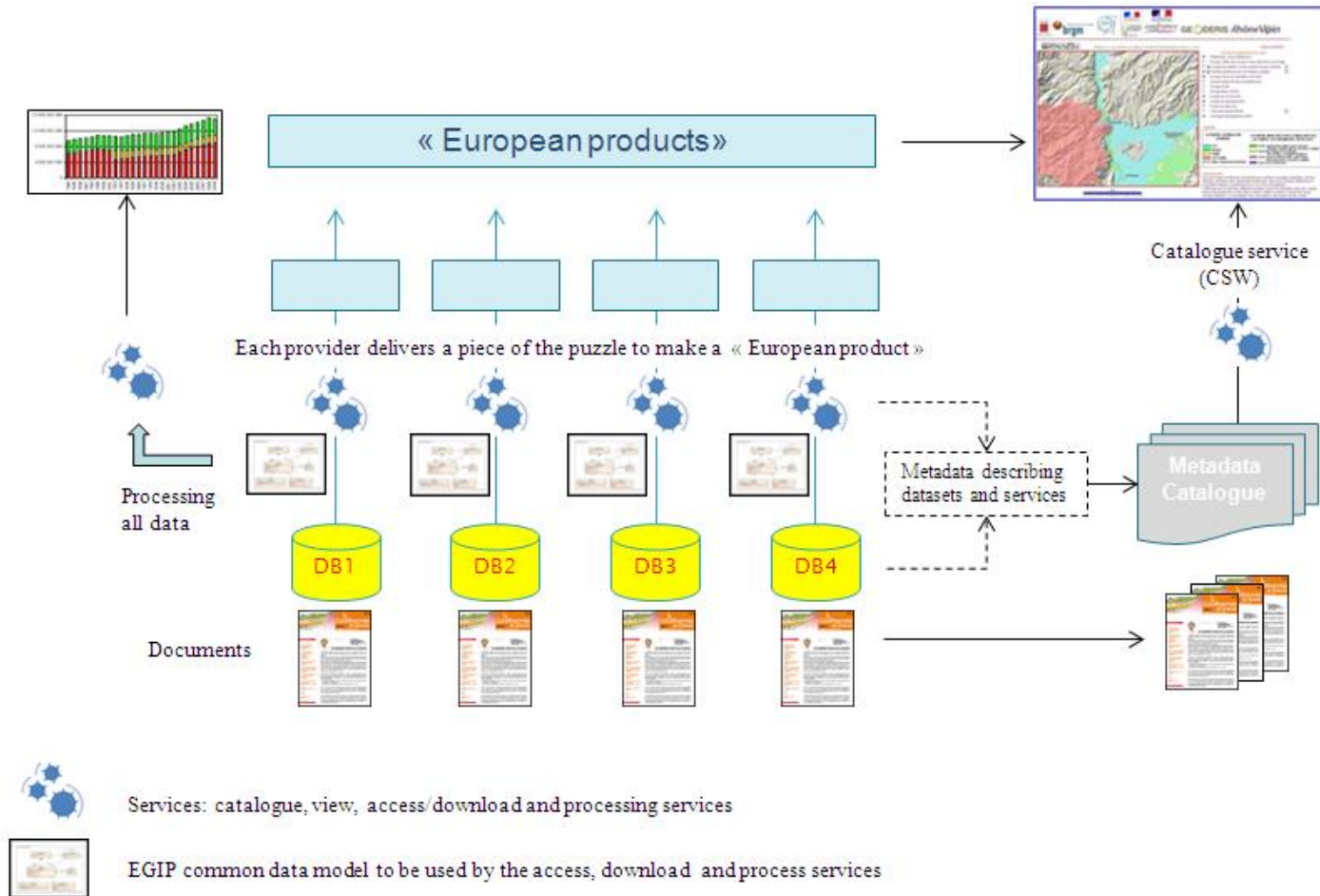
Introduction

▷ Table

1. Introduction to the EGIP concept



2. Intended architecture (INSPIRE compliant)



For performance or availability reasons, the data could be cached into a central database to deliver the products

3. Intended implementation (INSPIRE compliant)

Information	INSPIRE Services
<i>Temperature map</i>	WMS: Colour map based on temperature values CS-W: Find and access the map in the catalogue
<i>Surface Heat Flow</i>	WMS: Colour map based on temperature values CS-W: Find and access the map in the catalogue
<i>Exploration and production licenses and (projected) power production</i>	WMS: Colour map based on typology of the licence CS-W: Find and access the map in the catalogue WPS: Chart for licencing expiration WPS: Chart for licencing start WPS: Chart for licencing area
<i>Environmental impact law</i>	CS-W: Find and access the map in the catalogue
<i>Rules of licencing (exploration/exploitation)</i>	CS-W: Find and access the map in the catalogue
<i>Legal condition for grid access</i>	CS-W: Find and access the map in the catalogue

4. Open issues and recommendations

4.2 Geodata and non-geodata

EGIP deals with geodata that is spatial data (e.g. subsurface temperature) usually managed by geological surveys, and non-geodata that are unstructured data and documents (e.g. national incentives for geothermal energy) usually managed by program and funding agencies. The Annex gives a comprehensive overview of the geothermal data themes for geodata and non-geodata.

Knowing the (estimated) subsurface temperature is crucial for the development of a geothermal project but knowing the country incentives for geothermal energy is as much crucial for the developer. Consequently, the EGIP Expert Group strongly recommends considering at the same level geodata and non-geodata in the EGIP implementation.

5. References

<http://egip.igg.cnr.it/index.php/join-egip/527-egip-xsu>

EGIP - Scientific publication (2015)

Trumpy, E., Coro, G., Manzella, A., Pagano, P., Castelli, D., Calcagno, P., Nador, A., Bragason, T., Grellet, S., Siddiqi, G., 2015. Building a European geothermal information network using a distributed e-Infrastructure. International Journal of Digital Earth, Volume 9, Issue 5, 499-519, DOI: 10.1080/17538947.2015.1073378.

Link: <http://www.tandfonline.com/doi/full/10.1080/17538947.2015.1073378>

Tuning EGIP Joint Action report (inc. Web survey) (01/2016)

Trumpy, E., Minnig, C., Bragason, T., Calcagno, P., Grellet, S., Ingolfsson, H.P., Jamshidnia, H.R., Nador, A., Lapange, A., Manzella, A., Petursson, B., 2016. Geothermal ERA NET Joint Activity - Tuning EGIP for Target Users - EGIP Web Survey Results. Publisher: Coordination Office, Geothermal ERA NET, ISBN: 978-9979-68-389-6.

Link: <http://www.geothermaleranet.is/media/publications/Geothermal-ERA-NET-JA-REPORT-EGIP.pdf>



Appendix - Recommended geothermal data themes and relevant INSPIRE guidelines (42)

Nr.	Geothermal data theme	INSPIRE				EGIP WG3 Feasibility study D 3.2	EGIP Pilot	EGIP - Web survey 2015	IRENA Global Renewable Energy Atlas
		Data Specification DS & Guidelines GL	Application Schema	Feature Type	comments				
GEODATA – Maps and Models									
1	Temperature maps at depth (1, 2, 3 ...)	DS_Energy Resources D.2.8.III.20	Energy Resource Coverage, p.40	RenewableAndWastePotentialCoverage, p.41-46, 91	Codelist „GeothermalPotentialValue“	Stage 1 (Appendix 2 p.11) (Appendix 2 p.18)	x	Priority 1	x
		GL_Observations & Measurements D2.9	Sampling p. 8	SF_SamplingFeature and derived classes	result is grid coverage – may also be RenewableAndWastePotentialCoverage				
		DS Base Models– Coverage Types D2.10.2							
2	Surface heat-flow density	DS_Energy Resources D.2.8.III.20	Energy Resource Coverage, p.40	RenewableAndWastePotentialCoverage, p.41-46, 91	Not yet in open Codelist „GeothermalPotentialValue“	Stage 1 (Appendix 2 p.11)	x	Priority 1	x
		GL_Observations & Measurements D2.9	Sampling p. 8	SF_SamplingFeature and derived classes	result is grid coverage, may also be RenewableAndWastePotentialCoverage				
		DS Base Models– Coverage Types D2.10.2							
NON GEODATA- unstructured - documents									
30	Environmental impact laws	Generic Conceptual Model D2.5	Base Types 2 p.67	Class Document and legislation citation p.67		Stage 1 (Appendix 2 p.17, 22)	x	Priority 2	
		DS_Area Management/Restrictions/Regulation D.2.8.III.11	Area Management Restriction and Regulation Zones (p.25)	ManagementRestrictionOrRegulationZone (p.32,33)					
31	Licensing, drilling and production regulations	Generic Conceptual Model D2.5	Base Types 2 p.67	Class Document and legislation citation p.67		Stage 1 (Appendix 2 p.17, 22)	x	Priority 2	
		DS_Area Management/Restrictions/Regulation D.2.8.III.11	Area Management Restriction and Regulation Zones (p.25)	ManagementRestrictionOrRegulationZone (p.32,33)					
		Generic Conceptual Model D2.5	Base Types 2 p.67	Class Document and legislation citation p.67					

Why such an overview of EGIP?

- > **To give EGIP more chance to happen!**
- > **EGIP has not been implemented so far but a pilot has been set up**
- > **The document is dedicated to whom the EGIP implementation may concern**
- > **It is not a ready-to-use procedure**
- > **It gathers the main insights to be considered and adapted to the context where EGIP will be implemented**

How to realize EGIP? A perspective...

> **GEOthermica**

- Program and founding agencies
- Non-geodata handlers

> **GeoERA**

- Geological Surveys
- Geodata handlers

> **Stakeholders and investors need non-geodata AND geodata**

> **EGIP as a collaborative Geothermal Energy use case bridging both ERA-NET?**



... linked with...

> EERA-JPGE

(European Energy Research Alliance – Joint Programme on Geothermal Energy)

- SubProgramme 1 – Resource Assessment

> ETIP on deep geothermal

(European Technology Innovation Platform)

- Launch in April 2016
- Chaired by Ruggero Bertani

