Establishing the European Geological Surveys Research Area to deliver a Geological Service for Europe

Technical review report for project GIP-P

This report is part of a project that has received funding by the European Union's Horizon 2020 research and innovation programme under grant agreement number 731166.

INTRODUCTION

Technical review report is part of GeoERA's Monitoring and evaluation process for co-funded projects (*hereinafter: project*). The aim of a technical review is to assess the work carried out under the project over a certain period and provide recommendations. Such technical review evaluates the project reports and deliverables, the proper use of resources, the management of the project and the expected impact.

Technical review report consists of four sections, each representing one level of monitoring and/or evaluation of the project:

Level	Monitor / Reviewer	Input	Aim
1 – Monitoring of progress indicators	Monitoring and reporting officer (GeoZS)	MPPR* FPPR**	Monitoring of the effectiveness of implementation of selected projects with respect to finance, time and administration.
2 – Scientific review	Reviewers (GeoZS)	Submitted deliverables MPPR FPPR	Quality review of the deliverables and review of achieving scientific and professional goals.
3 – Review of the theme progress	Theme coordinators	MPPR FPPR	Review of achieving theme objectives.
4 – GeoERA Progress evaluation	Stakeholder Council member(s)	Sections 1 and 2 of this report Review meetings	Overall project progress and general recommendations.

*MPPR = Midterm Project Progress Report (see PI doc no 2)
**FPPR = Final Project Progress Report (see PI doc no 2)

Monitoring and evaluation process:

M0 = End of reporting period
M1 = Submitted (Final) Project progress Report (MPPR / FPPR)
M2 = 1 – Monitoring & 2 – Evaluation
M3 = 3 – Evaluation of the theme progress
M3 = (Final) Review Meeting & 4 – Progress evaluation

Each project will be reviewed twice: for first project period M1-M18 – Technical review report, and second project period M19-M36 – Final review report.
Technical review report is based on Horizon 2020 templates but adopted to GeoERA needs. Technical reviews of projects shall be carried out on a confidential basis.

GENERAL INFORMATION

ERA-NET Cofund Grant Agreement:	731166
ERA-NET Cofund acronym:	GeoERA
Call identifier:	H2020-LCE-2016-2017/H2020-LCE-2016-ERA
Project full title:	GeoERA Information Platform project
Project acronym:	GIP-P
Project reference number:	GEoE.171.014
Project topic:	Information platform
Project specific topic:	IP1 - Development of an information platform to support management and provision of data for the three other themes
Lead partner:	GEUS Geological Survey of Denmark and Greenland
Project website:	http://geoera.eu/projects/

☒ Technical review report

☐ Final review report

Period covered	01/07/2018 – 31/12/2019
Review meeting date	31.01.2020

Contributor:	Role:	Approved on:
Barbara Simić	Monitoring and reporting officer	12.02.2020
Maja Ilić	Monitoring and reporting officer	13.02.2020
Jasna Šinigoj	Scientific reviewer	11.03.2020
Matija Krivic	Scientific reviewer	10.03.2020
Antje Wittenberg	Theme coordinator RawMaterials	16.03.2020
Klaus Hinsby	Theme coordinator Groundwater	20.03.2020
Serge van Gessel	Theme coordinator Geothermal Energy	17.03.2020
Jørgen Tulstrup	Theme coordinator Information Platform	01.04.2020
Dominique Darmendrail	Stakeholder Council member	31.03.2020
Andrée Bolduc	Stakeholder Council member	31.03.2020

1 LEVEL 1 – MONITORING OF PROGRESS INDICATORS

In this section the project is monitored "remotely" on the basis of the respective reports. This part is filled in by Monitoring and reporting officer with aim to monitor the effectiveness of implementation of the selected projects with respect to finance, time and administration, based on submited MPPR and FPPR.

	Yes	Partially (comment needed)	No
PROJECT MANAGEMENT			
Has the MPPR / FPPR report been submitted on time?	☒		☐
Have there been any changes in project partnership?	☐		☒
Has the project management been performed as required?	☒		☐
Has the collaboration between partners been effective?	☒		☐
Do you identify evidence of underperforming partners, lack of commitment or change of interest of any partners?	☒ (see comment)	See comment no.1	☐
DELIVERABLES and MILESTONES			
Have the planned deliverables for the period been submitted on time according to timeline in Project Agreement?	☐	See comment no.2	☒
Have the planned deliverables for the period been completed (from MPPR / FPPR, sheet 4)	☐	See comment no.3	☒
Have any changes to deliverables occurred (type/ dissemination level)? (from MPPR / FPPR, sheet 4 and 5)	☒	See comment no.4	☐
Have planned milestones been achieved for the reporting period? (from MPPR / FPPR, sheet 4)	☒		☐
Have the project partnership identify any difficulties achieving any of the deliverables / milestones?	☐		☒
DEVIATIONS (from MPPR / FPPR, sheet 5)			
Has the project partnership identify any deviations that will not affect projects outputs?	☒		☐
Have any deviations occur on the project, with impact on project outputs?	☐		☒
In case of deviations, have the project adopted corrective measures?	☒		☐
DISSEMINATION, COMMUNICATION			
Has the project adopted its dissemination plan?	☒		☐

Have the planned dissemination activities been completed for the reporting period? (from MPPR / FPPR, sheet 6)	☒		☐
Have the partners' disseminated project results and information adequately?	☒		☐
Is the project following dissemination plan?	☒		☐
Is the project interacting in a satisfactory manner with other GeoERA projects?	☒		☐
Is the project interacting in a satisfactory manner with national/international bodies?	☒		☐

FINANCE			
To the best of your estimate, have the resources used been utilised for achieving the project? (according to MPPR / FPPR, sheet 9)	☒		☐
To the best of your estimate, have the resources used been in a manner consisted with the principle of economy, efficiency and effectiveness? *	☒		☐
Are there any major deviations in the budget consumptions from the financial plan? (zero consumption in M18; deviation from plan exceeding 20% in M36)	☐		☒
Are there any major deviations in the Person - Months consumptions from the plan? (zero consumption in M18; deviation from plan exceeding 20% in M36)	☐		☒
Are any budget modifications for the project needed? (from MPPR / FPPR, sheet 5)	☐		☒

***The principles of economy, efficiency and effectiveness** refers to the standard of "good housekeeping" in spending public money effectively. Economy can be understood as minimizing the costs of resources used for an activity (input), having regard to the appropriate quality and can be linked to efficiency, which is the relationship between the outputs and the resources used to produce them. Effectiveness is concerned with measuring the extent to which the objectives have been achieved and the relationship between the intended impact and the actual impact of an activity. Cost effectiveness means the relationship between project costs and outcomes, expressed as costs per unit of outcome achieved.

Comments (highlighting the project progress) / deviations / recommendations:

Comment no.1: Project partner Geological Survey of Finland GTK did not participate in project activities in the first reporting period. At the review meeting Lead partner stressed that the project partner will begin with activities in the second period.
Comment no.2: In the first reporting period 31 deliverables were due:
22 deliverables were submitted in time
4 deliverables were submitted with eligible delay (amendment 1)
5 deliverables are in delay
Comment no.3: 5 deliverables are not completed:
D3.2.2 Technical requirements due M18 (with amendment 1)
D6.3 Demonstrator portals, Version 1 due M16
D10.2 Report covering limitations on free movement of geodata due M17

D3.3 Validation service specification and requirements due M18
D9.1 Report on the analysis of possible funding sources due M18
Comment no.4: Changes to deliverables:
D10.1: postponed from M4 → M7
D3.1: postponed from M9 → M11
D3.2.1: postponed from M12 → M14
D3.2.2: postponed from M15 → M18
D5.1: changed from M18 → M16
The changes have no impact on the project outputs.

The project is supporting all of the three scientific themes, connecting all projects in one information system. At the beginning, GIP-P connectors for other 14 GeoERA projects were identified. The project support for scientific projects has shown to be challenging, since the data used in projects differs in type and theme from project to project.
At the review meeting, the Project lead identified the project delays, 4 delayed deliverables were completed and submitted day before the review meeting, so the evaluation was not possible. Deliverable D6.3 is still in delay, deliverables D3.2.2, D10.2, D3.3 and D 9.1 were submitted and are to be evaluated at the final review meeting. Deliverables that are in delay are insufficiently described in the MPPR and corrective measures are missing. This aspect has been discussed at the review meetings. The possibility of new risks is recognized by the lead partner, who is working on the corrective measures.

Overall financial consumption at the end of the first reporting period is 35 %, which is a bit low. According to the project plan, the majority of activities will be done in the second reporting period. Consequently, the financial consumption will increase.

The communication manual has been adopted but lacks specific communication and dissemination activities. Although it is understood from the project plan and Internal project progress report that the cooperation with other projects is routine, the communication and dissemination activities were inadequately described in the MPPR. GeoZS Monitoring team asked Project lead for sheet 6. Communication and dissemination activities in the MPPR to be corrected and resubmitted. A new sheet 6 was submitted on 6th of February and is annexed to this report.

Recommendations to the project is to:
- pay attention to the work implementation and deviations from the project plan – try to tackle deviations as soon as you can to minimize the consequences on the project plan,
- keep track of the communication and dissemination activities and try to count or estimate the number of people reached with these activities. The same is applicable for the meetings.

Overall assessment of the project:

☐ 5 - **Overachiever** (the project has achieved all objectives and goals for the period and has even exceeded expectations)

☐ 4 - **Excellent progress** (the project has fully achieved its objectives and goals for the period)

☒ 3 - **Good progress** (the project has achieved most of its objectives and goals for the period with relatively minor deviations)

☐ 2 - **Acceptable progress** (the project has achieved some of its objectives; however corrective action will be required)

☐ 1 - **Unsatisfactory progress** (the project has failed to achieve critical objectives and/or is not at all on schedule)

Summary of dissemination activities submitted on 6th of February (detailed activities are annexed to this report):

Activity	Target audience	Number of people reached
Events	EU institution	~250
Events	Non-EU institution	200
Events	Policy makers	200
Events	Scientific community	~952
Events	General public	700
Meetings	Scientific community	393
Meetings	Other	233
Media	General public	>18.850
Media	Other	1.241
		23.019

Are the dissemination activities adequate? (link to GeoERA WP5)

☐ 5 - **Overachieved** (the projects dissemination activities have exceeded expectations)

☒ 4 - **Excellent** (the projects dissemination activities have fully achieved its expectations)

☐ 3 - **Good** (the projects dissemination activities are adequate; however, some additional activities are needed)

☐ 2 - **Acceptable** (the projects dissemination activities need corrective actions; additional activities are needed)

☐ 1 - **Unsatisfactory** (the project has failed to disseminate)

Cummulative financial statement:

	Person months	Total eligible costs	Reimburs-ement rate	GeoERA contribution	In-kind contribution
Plan	521,15	3.860.803,75	29,7%	1.146.658,71	2.714.145,04
1st period consumption	202,79	1.362.063	29,7%	404.532,71	957.530,29
2nd period consumtion					

2 LEVEL 2 – SCIENTIFIC REVIEW

In this section the project is reviewed "remotely" on the basis of the respective reports. This part is filled in by reviewer with aim to review the quality of the deliverables and review of achieving scientific and professional goals. Scientific review is based on submitted deliverables and reported Impact statement in MPPR/FPPR.

Impact statement (from MPPR / FPPR, sheet 8):

According to the GeoERA Programme Specific Research Topic "IP1 - DEVELOPMENT OF AN INFORMATION PLATFORM TO SUPPORT MANAGEMENT AND PROVISION OF DATA FOR THE THREE OTHER THEMES" the GIP-P should "first of all add value by supporting the GSPs in structuring and disseminating their results in an up-to-date, user-friendly and harmonised form thereby strengthening the scientific and societal impact of those". This is exactly what has had the highest priority of the GIP-P so far through the strong focus on mapping and harmonising the requirements of the GSPs and by the selection and extension of the EGDI for the user access. Currently – however – the GSPs are only beginning to produce results so the real societal and scientific impact has not been achieved yet.

In the longer perspective it is a requirement that the GIP-P shall "pave the way for the establishment of a single access point to the combined European geological knowledge base that links the harmonised national information systems at Europe's GSOs". The strong focus on standards is also expected to ensure this, using EGDI as this single access point, although this too cannot be documented yet.

The extension of the EGDI "is in itself expected to have huge scientific and societal impacts in that it must enable scientists, public and private decision makers as well as industries to get a vastly improved access to the geological information to better solve their needs regarding geological issues but also in combining the geology with information from other domains like land use, physical infrastructure, transportation, environment, biology, etc." This again is being ensured by the emphasis on standard, FAIR data principles and the easy and user friendly access via the EGDI.

Finally, it is required that the GIP-P "must contribute to the general Spatial Data Infrastructure of Europe by establishing or extending standards for data exchange of 3D/4D geology, etc. This is expected to enable stakeholders, like SMEs or consultants, to be able to develop services based on the GeoERA data and information results to thereby creating economic growth for Europe". The GIP-P is not only promoting and using the established standards it also works on extending those where the GSPs' needs require that. The Partners of the GIP-P include individuals and institutions who are familiar with and strongly involved in standardisation initiatives and bodies like INSPIRE, CGI and OGC, and suggestions for enhancing the standards will be forwarded to them.

Expected impact (from Project Proposal):

The primary impact of the GIP-P will be indirect as the project's primary goal is to support the GSPs and thereby the scientific and sociatal impacts that will result from those. The GSPs' impacts are expected to be considerably higher than they would have been without the GIP-P because the GIP will ensure a common access point to the GeoERA results and a much higher degree of harmonisation of the data and information making this much more useful for users working cross thematic and cross border or even pan-European. In the past, user-friendly access to geological data and information from across Europe has been very limited. A number of European data harmonisation projects successfully developed web portals, but these were never maintained after the end of the project. With the establishment of version 1 of the EGDI in 2016 by the EuroGeoSurveys members, the foundation for a long-term sustainable infrastructure was made. The first version was basic, but well-functioning, and basing the GIP-P on the EGDI will be an valuable and cost efficient instrument for advancing the developments and ensure that a number of different stakeholders in Europe will not only get user-friendly access to the results of the GSPs through a common access point, but that they will also be able to combine these results with data from numerous previous European and regional projects. By building on EGDI the GIP will furthermore bring additional value for scientists, decision makers and other stakeholders by giving access to the GeoERA results through the same portal as a wide range of other data and information about geology and related topics from the European Geological Surveys, including geohazards, geochemistry, geophysics and basic geology. This will significantly increase the value of the GeoERA results for the mentioned stakeholders. As EGDI, and the extensions to this through the GIP, adheres to established European and international standards, the GeoERA results will also be interoperable with data and information from other domains than geology like biology, land use, physical infrastructure and others. This will greatly increase the impact of the GSPs' results for a broad range of stakeholders. In addition to the support of the GSPs, the GIP/EGDI will however also in itself have great impact by enabling SMEs like software companies, consultants and similar to develop advanced services on top of the platform as the project will establish new or extend existing standards for data exchange of geoscientific data. An important example of this will be 3D/4D geological models where no standard exists today making it difficult to build sustainable software for this kind of information. As EGDI originates from the EGS and is backed by this organisation, the platform can be considered sustainable also beyond the lifetime of the GeoERA programme itself. This will make it much more valuable for the SMEs as they can develop their services with a long-time frame.

Evaluation of deliverables

Deliverables list status			
No.	Title	Status (Approve/ Reject)	Comments
D1.1	Project guidelines including procedures for QA, reporting and risk management (M5)	Approve	See below
This deliverable describes the development process, configuration management, development, test and production environment, documentation, quality and reporting procedures and risk management. Given that it was submitted in M5 it is expected to be quite general, so suggestion is to update documentation relating to software quality assurance and configuration management.			
D1.2	Internal progress reports_month7	Approve	/
D1.2	Internal progress reports_month13	Approve	/
D1.3	Project progress meeting minutes_month3	Approve	/
D1.3	Project progress meeting minutes_month8	Approve	/
D1.3	Project progress meeting minutes_month14	Approve	/
D2.1.1	Highlights of the potential synergies and overlaps between the projects in terms of geoinformation.	Approve	See below
This report highlights the overlaps between projects in terms of geoinformation in order to identify possible synergies. The list of geoinformation that various projects was made and grouped in 61 different categories. The most obvious potential overlaps were identified. It is necessary to ensure that these identified overlaps become synergies.			
D2.2.1	Description of the requirements to the Information Platform by the GeoEnergy, Groundwater and Raw Materials themes	Approve	See below
This report provides a draft of requirements and expected functionalities of the webGIS platform made by the 14 thematic projects. They were harvested using questionnaires, a workshop and direct contacts with the projects. Most of the thematic projects were at an early stage and are mainly working on the scientific contents hence they did not define yet their targets in terms of information technology. An overview of the expressed functionalities by all the thematic projects was made.			
D2.2.2	Refinements of the requirements after feedback exchanges related to the prototypes of the EGDI database and the display interface	Approve	See below
This deliverable provides good overview on the datatypes that each GeoERA project will submit to EGDI and functionalities needed. To meet various GSPs requirements EGDI extensions are identified. Summarized information is provided in Annex A. Despite the efforts made by the team it could be expected that some information provided in this deliverable is not final, as some projects could still be refining the definition of products hence this report may be subject to updates in the future.			
D2.3.1	Mapping and description of the needed extensions to EGDI	Approve	See below

This report describes and evaluates the feasibility of the necessary extensions that should be implemented within the EGDI platform in order to meet the specific requirements of the various GeoERA projects. Also, the requirements that cannot be developed within GIP-P were identified. Given that this deliverable relies heavily on D 2.2.1 it should be harmonized with D.2.2.2 as this document is one of the inputs for D.5.2. This harmonization will hopefully be present in D2.3.2.			
D3.1	Data models standards guidelines and toolkits	Approve	See below
This deliverable contains the good overview of the existing reference standards that can be used in the GeoERA projects and that can be implemented in EGDI. It also provides toolkits, guidelines and examples for datasets and metadata harmonisation. For schema mapping Hale solution is presented however a lot of data providers already use GeoKettle as ETL tool. Examples of data harmonisation are presented however not from EGDI where you can also find various harmonized geological data. It is important that the recommendations outlined in this document are properly communicated with GSPs.			
D3.2.1	Gap analysis and path extension	Approve	See below
This deliverable provides a gap analysis between GeoERA projects requirements (D.2.1.1) and best candidate data models and standards to expose the data (D.3.1). It also includes a proposition of a roadmap to enhance standard capacities to cover GeoERA project's needs. Given that this deliverable relies on D 2.2.1 it should be harmonized with D.2.2.2.			
D3.2.2	Technical requirements	Approve	See below
This deliverable provides technical requirements and guidance to expose the data identified in D2.2.1 with technologies identified by D3.1, applying the expected conceptual mapping described in D3.2.1. It describes the technical interoperability and functionality and the technical requirements for the architecture and provides a set of recommendations for the GeoERA projects however connection to WP4 is missing (D.4.3 GeoERA Project Vocabularies). The report recommends choosing a distributed approach for the delivery of data however only 6 GSPs according to D2.2.2 will support direct access via web services and 12 GSPs expressed that Direct upload into EGDI Database is their preference.			
D3.3	Validation service specification and requirements		In delay
D4.1	Keyword Thesaurus (RDF file)	Approve	/
D4.2	Keyword Thesaurus	Approve	See below
This deliverable describes the establishment of a keyword thesaurus based on SKOS/RDF to support the semantic text search functionality for metadata concerning GeoERA project datasets. Evaluation of existing vocabularies applicable for subject headings was made and a keyword thesaurus was compiled. Also, the Governance plan for a keyword thesaurus including workflows for application, crosslinking to other Linked Data resources, and thesaurus maintenance was proposed. It is indicated in the deliverable that it will be finalized for the D4.4 and reconciled together with the deliverables D4.1. and D4.3 (GeoERA project vocabulary) in June 2021.			
D4.3	Report - GeoERA project vocabulary	Approve	See below
This deliverable describes how to use project vocabularies suitable for semantic harmonization purposes. It evaluates Linked Data resources, the SKOS ontology, SKOS examples and best practices, define entity and relationship types, with restriction to a			

scientific use and shows the differences between knowledge representations and standardized code lists like INSPIRE/GeoSciML. It is indicated in the deliverable that it will be finalized for D4.4 and reconciled together with the deliverables D4.1. and D4.2 (Keyword Thesaurus) in June 2021.			
D5.1	GIP Blueprint	Approve	See below
This deliverable is preliminary version as is depending on the needs arising from WP2. It must be consolidated with D2.1.1, D2.2.1, D2.3.1 and to a higher degree reflect the decision to build on EGDI. The need for close cooperation with other WPs should be emphasized.			
D5.2	GeoERA Central System specification	Approve	See below
This deliverable is preliminary version and it should to a higher degree reflect the decision to build on EGDI. The need for close cooperation with other WPs should be emphasized.			
D6.1	Portal version 1	Approve	See below
Portal viewer version 1 is running on the GeoERA web page at sub-pages for 13 projects. The current view is not showing results of the project yet. Portal is embedded on the project web pages and it is very simple to use with fast response. The background map is nice.			
D6.2	Portal version 1.1	Approve	See below
Portal version 1.1 is running and provide 3D viewer pilot. A beta version of the EGDI administration module, file manager and digital archive for georeferenced reports was established.			
D6.3	Demonstrator portals, Version 1	Approve	In delay
D7.1	Working version Metadatabase	Approve	See below
EGDI Metadata Catalogue is running on https://egdi.geology.cz/ and on the project portal http://www.europe-geology.eu/metadata/.). It provides the central access point to metadata described in the standardized form.			
D8.3.1	A functioning support network	Approve	See below
This deliverable presents a support network incorporating buddy system and email-based helpdesk. For Data Provider Support GitHub is used mostly for Cookbooks and issue tracking. Links to the available support network have been placed on the GeoERA website. https://github.com/GeoEra-GIP/Project-Support-WP8			
D9.1	Report on the analysis of possible funding sources	Approve	See below
This deliverable describes potential funding options for sustaining the information platform (EGDI) after GeoERA. A long-term sustainable funding model for EGDI is the key to sustaining the results from the GeoERA scientific projects however such a model is currently not in place.			
D10.1	Report on questionnaire and interviews_month7	Approve	See below
This deliverable and questionnaire were created to facilitate the investigation of intellectual property and data policy issues to support the release of project results of GeoERA.			
D10.1	Report on questionnaire and interviews_month11	Approve	See below
This deliverable describes Science Group Feedback. It is difficult to understand the perspective of this report.			
D10.2	A report covering limitations on free movement of geodata		In delay
D10.5	Data Management Plan	Approve	See below

This deliverable provides a first version of the GIP-P Data Management Plan. It follows from the Overall GEOERA Data Management Plan. It is very general and should be updated in cooperation with other WPs.			
D11.1	Communication Manual	Approve	See below
This deliverable describes the Dissemination Plan for GIP-P, that shall serve as a guideline for communication activities. Target audience are identified however, they could be more clearly defined and grouped. Other infrastructure (EPOS, RMIS, …) and geoscience projects could also be target audience. Communication and dissemination tools are defined, but maybe Direct communication (refers to letters, emails, phone calls or face-to-face discussions, whether formal or informal) could be added. For each target group dissemination objective should be defined as well as the appropriate communication channels to reach them. The timetable of communication activities is missing.			
D11.2	Report on website content determination	Approve	/

Has the quality as a whole been achieved according the objectives? Has the project as a whole been making satisfactory progress?

☐ 5 - **Overachiever** (the project has achieved all objectives and goals for the period and has even exceeded expectations)

☒ 4 - **Excellent progress** (the project has fully achieved its objectives and goals for the period)

☐ 3 - **Good progress** (the project has achieved most of its objectives and goals for the period with relatively minor deviations)

☐ 2 - **Acceptable progress** (the project has achieved some of its objectives; however corrective action will be required)

☐ 1 - **Unsatisfactory progress** (the project has failed to achieve critical objectives and/or is not at all on schedule)

Comments (highlighting the project progress) / deviations / recommendations:

Digital geological data and information play a vital role in responding to the key social and economic European challenges and the need for uniform access to multi-domain data is drastically increasing. With establishing a single access point to harmonized GeoERA projects data GIP-P will definitively meet this need.

The overall aim of the GIP-P is to support the GeoERA Geoscientific Projects (GSPs) in organising, disseminating and sustaining their results in terms of digital data, interpretations, reports and services and reviewer acknowledge that. This includes the development of a central database, a meta-database, a user-friendly web-portal (EGDI), and a digital archive for organising reports and unstructured data.

The main focus of this period was on identification of the requirement from GSPs. To facilitate communication between the GSPs and the GIP-P a liaison officer for each theme was assigned and on the other side all GSPs have dedicated WP for the

communication with GIP-P. Mapping and harmonisation of these requirements was done. However, despite the efforts made by the team it could be expected that some projects could still refining the definition of products.

The reviewer recognises that this task is very complex and demanding and the projects has done an impressive job.

An overview of the existing reference standards, a gap analysis, technical requirements and guidance to expose the data was made. To support the semantic text search functionality for metadata concerning GeoERA project datasets a new multilingual keyword thesaurus and project specific vocabularies was established. A full system architecture is not described yet, however Portal version 1.1 is running and already provides a 3D viewer pilot. The EGDI Metadata Catalogue is running and provides the central access point to metadata described in the standardized form. A Data Provider Support network is established, and a questionnaire was created to facilitate the investigation of intellectual property and data policy issues to support the access to project results of GeoERA. Potential funding options for sustaining the information platform (EGDI) after GeoERA were identified however a long-term sustainable funding model is currently not in place yet. The communication manual has been adopted but lacks specific communication and dissemination activities. During this period, most communication took place between the GIP and the GSPs, which is expected as there are no results to disseminate yet. That will change when the infrastructure will be up and running so it is recommended to define the timetable of communication activities.

The project consists from 24 partners and it is organised in 11 Work Packages. The reviewer recognises the complexity. There is clearly a need for close cooperation between all WPs, especially WP2, WP3, WP4, WP5, WP6, WP7 and WP8, but it seems that the organisation of the work, management, internal communication and communication with other GSPs is the right approach and is ensuring the progress.

In general, all work packages are well in progress although WP2 is to some degree delayed and that affected the other WP activities as well. Therefore a few deliverables are a preliminary version.

For the next period, the reviewer suggest that the project continue paying attention to find a sustainable solution for Information Platform (EGDI) both in terms of funding and governance of the platform (operation, maintenance and further development).

3 LEVEL 3 – REVIEW OF THE THEME PROGRESS

In this section the project is reviewed ”remotely” on the basis of the respective reports. This part is filled in by Theme coordinator with aim to review the achieved scientific goals in accordance with theme objectives, on the basis of Sheet 3 in MPPR / FPPR – Project contribution to GeoERA project.

Project contribution to GeoERA project (from MPPR / FPPR, sheet 3):

The overall aim of GeoERA – to integrate European GSOs’ information and knowledge on subsurface energy, water and raw material resources to contribute to sustainable use and management of the subsurface – is to a high degree being supported by the GIP-P. Not only is the information and knowledge being made useful for all relevant stakeholders like national and regional policy makers, industry, science, SMEs and consultants by making it standardised and interoperable at a pan-European level. It is also made easily accessible through a single point of access – the user friendly EGDI platform – and through the fact that for instance all maps data will also be accessible through web map services (INSPIRE compliant if possible).
The scope described for projects under the GeoERA Programme Specific Research Topic “IP1 - DEVELOPMENT OF AN INFORMATION PLATFORM TO SUPPORT MANAGEMENT AND PROVISION OF DATA FOR THE THREE OTHER THEMES” is to a high degree being fulfilled in the GIP-P. The platform contains a central database, a web-portal and a digital archive. The content and functionality is to a very high degree based on the requirements from the other GeoERA projects. The principles and structures for the exchange of information and collaboration between the GIP-P and the GSPs is well defined and efficient. The project to a high degree supports cross-domain integration through the standardisation tasks and data and information is made easily findable via a metadata system and a free text searching system connected to the geospatial as well as other kinds of data like reports, spreadsheets, local database, etc.

Theme objectives:

Theme Raw Materials: The provision and dissemination of spatial information and public information on resources based on geological data is a common goal of GeoERA's geoscientific resource projects, which is based on GIP-P.

GIP-P must ensure that all IT-related and technical problems (database, distribution of data and access to data) are effectively integrated and continuity and interoperability is guaranteed. Subsequent adjustments with regard to the integration of new data sets must be possible (especially geochemical data sets of newer analysis techniques). This is a particularly outstanding problem of database migration, which GIP-P already has to think about. In the field of raw materials, GIP-P largely builds on

the knowledge of previous raw material projects (i.e.Mintell4EU and PROSUM), and can therefore concentrate on the interface problem, the inclusion of newcomers and the documentation - description of procedures, plausibility check.

Theme Groundwater: The objective of the GeoERA groundwater theme is to provide data, information and decision-support tools for the long-term protection, sustainable management and improvement of groundwater resources across Europe, within the framework of societal challenges and EU policies.

Innovative digital and numerical methodologies will be required to tackle the diversity of hydrogeological settings and the range of scales – regional to pan-European. By developing effective tools and methodologies for monitoring, modelling, data management and visualization, in close collaboration with the other GeoERA themes, especially GIP, this work will improve our understanding of groundwater systems and their interaction with different subsurface activities as well as surface water, ecosystems and the built environment. The common information platform / EGDI will be a very important gateway to important information on the evolution of groundwater quantity and quality and climate change impact assessment and adaptation. The GIP project already contributed with new options for data visualizations and access, which were not known by most of the groundwater scientists involved in GeoERA, and which we believe will be the first of its kind, globally.

Theme GeoEnergy: EGDI already provides a sound basis for systems for integrating and consolidating data from regional/national level to EU level, at least for the more common outcomes of the GSPs (GIS datasets and maps). For the Energy Theme, there are several projects with more challenging requirements (3D models, Fault databases, Knowledge Share Points, Policy support systems based on structural framework, subsurface information and management systems for urban shallow geothermal and interference of other uses).
The GIP project incorporates the appropriate WPs and tasks to develop these functionalities. There is a subdivision between more generic aspects where GSP's simply rely on GIP (e.g. INSPIRE standards, data transfer, metadata, etc.) and tailor-made elements where GIP strongly relies on adequate specifications from GSP side. GIP is an important partner to inform and advise GSPs on possible IT solutions for their deliverables and products.

The required IP elements are covered by the thematic objectives and scope as described in the GeoERA proposal and call document. In the first half of GeoERA progress has been made on the required developments. Specific GSP requirements progressively become clearer, yet this remains a point of attention, as well as the timing and interaction between GIP en GSPs

Theme Iinformation Platform: The geo-energy, groundwater and raw materials challenges share the common objective to provide and disseminate spatial information on their respective resources and underpinning geological data. GIP-P has the task to effectively integrate all ICT-related and technical issues (database and dissemination) from the three challenges. The Spatial Information theme will address the development of a common geoscience information platform capable of integrating up-to-date data, interpretations and models from different and distributed sources, both within and across the three main geo-scientific themes of GeoERA.

Has the project as a whole achieved the objectives and expected impact of the theme?

☐ 5 - **Overachiever** (the project has achieved greater impact on project theme and/or other themes than expected)

☒ 4 - **Excellent progress** (the project has fully achieved its objectives and goals towards the theme as expected)

☒ 3 - **Good progress** (the project has achieved most of its impact towards the theme for the period with relatively minor deviations)

☐ 2 - **Acceptable progress** (the project has minor impact; corrective action will be required)

☐ 1 - **Unsatisfactory progress** (the project has failed to achieve critical objectives and/or is not at all on schedule and/or has no impact on the theme; corrective actions are required)

Comments / deviations / recommendations:

Theme Raw Materials: 3 – Good progress
The enormous interdependency between GIP-P and all other geoscientific GeoERA projects is extremely challenging as these projects are constantly evolving.
Data integration and a common thesaurus / glossary, central structure, easily accessible (one click - * .rdf may not work for all partners), which can also be used by those who are not familiar with EGDI, are of central importance for success.

Workshops are recommended to invite newcomers (other projects - except GIP-P contacts / IT staff) to use the established platform to identify deficiencies and improve their usability.

Systems / tools that ensure quality check of data and provided information as well as check for plausibility are needed to avoid inconsistency within the theme (close interaction with MINTELL4EU WP3 in particular) but is also needed across the themes

and towards the required RMIS interface. As easy access to coherent data that are accessible via the RMIS 2.0 is obligatory.

Theme Groundwater: 3-5, good to overachiever, progress
3-4) In terms of general communication and guidance
4-5) In terms of openness to new possibilities and deliverables not originally described in project descriptions of the groundwater projects

This is the first time the groundwater theme partners collaborate in a common EU project on groundwater related issues and the first time we as groundwater scientists collaborate with the data scientists of the information platform theme to produce relevant information products. It is not an easy task to develop efficient collaboration between different countries and disciplines with different national and technical languages and interests, and many resources are used to establish a common understanding, explain products and possibilities and correct misunderstandings.

Generally, the collaboration with the information Platform and Liaison officer is excellent, and considering communication difficulties we believe that we are making good to excellent progress in describing and developing groundwater products for the information platform and we may end up being overachievers.

As groundwater scientists we have to balance between 1) conducting relevant research and disseminating it by traditional research publications etc. and 2) providing easy access to research based data and knowledge on water resources for the information platform in collaboration with GIP. Both activities provide easy and open access to data and information of relevance to many different stakeholders including e.g. research partners, authorities and SME's in Europe and abroad, which will be sustained and further developed in the future. This will hopefully happen through a new European Partnership on a Geological Service for Europe within the next Horizon Europe programme. We will work hard on that together with GIP, and the other GeoERA themes.

In some frontline research areas we currently explore possibilities with GIP for collaboration and harmonisation of databases and information products with our colleagues working on related tasks in the American and Canadian surveys with the intention of agreeing on common standards, which may ultimately be adopted as global standards. This work involves partners from all four groundwater projects and the GIP project. Another product/deliverable resulting from close collaboration between the groundwater and GIP projects, which was not originally planned is a map viewer showing data and location from near real-time sensors presenting near real-time data on the evolution of groundwater quantity and quality on the project websites and GIP / EGDI.

We recommend and expect to keep the close contact and organize workshops between the groundwater TL and PLs and the GIP project and liaison officer; and to establish closer contacts between the GIP WPs implementing the requested services and the groundwater projects WPs requesting these services for the coming period. We expect to finally develop some really nice and relevant services on project websites and EGDI for all stakeholders in collaboration with GIP.

Theme GeoEnergy:

4 – Excellent in terms of contributing to theme objectives
3 – Good progress in terms of shaping the interaction between GIP and GSPs

The huge interdependence of GIP and all other GeoERA geoscientific projects is extremely challenging as those projects are continuously developing further. In that sense the GIP is probably the most complex project to manage. Especially timing seems a challenge as GIP needs IT-requirements at an early stage, while the GSPs are working on the development of concepts, results and specifications throughout the entire project life time. Another challenge is mutual understanding of concepts and communication. IT people and geoscientists do not always speak the same language, and each may have a different understanding of what is a best-approach or most important (e.g. scientific content vs. specific IT standards).

Based on the presentations and results, we can see that IP developments and plans progressively take shape. It is very positive to see that central concepts like semantics, knowledge share points and document management systems can be implemented for the entire group rather than just individual projects. This highlights the benefit and relevance of having a central IP project in the first place. Yet a level of uncertainty remains with regards to what can finally be realized and to what extent. All parties (GIP and GSP) bear responsibility to manage these uncertainties.

It is highly recommended to strengthen the direct project-to-project communication. Direct involvement of GIP members in some GSP projects may be needed, especially in the case of project-specific products. This responsibility rests at both GIP and GSP sides. Both project groups should focus on creating clarity regarding possibilities and limitations of the IT end-products (based on two-way-communication). How are priorities eventually determined (by whom, criteria), and how can limitations be mitigated (e.g. alternative development options).

4 LEVEL 4 – GEOERA PROGRESS EVALUATION

In this section the project is reviewed on the Review meetings, where projects present their overall progress and achievements. This section relates to particular project, broader impact of GeoERA as a whole on policies will be covered at the Final Review meeting with questionnaire and interview with Evaluator.

Based on technical review summaries provided by Sections 1 – 3 of this report, and project presentation on the (Final) Review meeting:

Has the project as a whole been making satisfactory progress according to your own understanding and expectations of the GeoERA project?

☐ 5 - **Overachiever** (the project has exceeded expectations)
☒ 4 - **Excellent progress** (as expected)
☒ 3 - **Good progress** (minor recommendations given below)
☐ 2 - **Acceptable progress** (below expectations; minor corrective action will be required)
☐ 1 - **Unsatisfactory progress** (the project has failed; corrective actions are required)

Overall comments for the project (overall recommendations, modifications, corrective actions, or re-tuning the objectives to optimize the impact or keep up with the State of the Art, re-focusing, or a simple praise)

Stakeholder one feedback:
The GIP-P is the GEOERA project which will bring the global added-value, by providing the dissemination and exploitation tool of all sub-projects (products and data). Therefore there are a lot of expectations on its development, integration of tools, and production which is a complex process, considering the number of data / methods / guidance documents gathered by the GEOERA projects. It also relies on the quality and "standardization" of the original data provided by the GEOERA projects.

The GIP-P project team has been able to cope with the projects proposals, needs, additional demands (e.g. for the GW projects) and delays. This flexibility, essential for the success of GEOERA should be recognised.

It was difficult to assess what are the concrete developments compared to the existing EGDI platform that serves as basis for GIP-P. The incremental developments should be presented in a clearer manner.

Considering the importance of GEOERA data for some policy development (e.g. those on Groundwater), the efforts for harmonising approaches / data and their validation, as well as the interoperability with policy systems using the INSPIRE Directive and

related tools are crucial. This should be better highlighted in the report. Discussions with other research infrastructures (EPOS, eLTER, …) which are also proposing access to data should be considered during the second phase of the project to maximise its impact. As these questions are also assessed by other beyond Europe communities, it could be wise to consider to promote the new standards and products to the International committees.

The Deliverable on Sustainability of the platform (uploaded the day of the mid-term review meeting) should be further developed, with an assessment of the proposed options. Efforts will be needed after the end of the GEOERA project for maintaining & upgrading the developed platform and updating data. Therefore, relying mainly on a proposal of non – institutionalised partnership under Horizon Europe could be detrimental if the proposal is delayed (to second wave – 2023 – 2024) or even not finally supported by the Member States (financial commitment consultation during Summer 2020). One of the EC principles for funding being having an Exit Strategy should be reminded.

The Data Management Plan is still very general and should be complemented by inputs from GEOERA projects and provisions on data ownerships (vs. basic data provided by the different projects), and possibly IPR. In addition, as for all EC funded projects, it should include a GDPR chapter for covering all types of exchanges of personal data as foreseen in GIP-P (e.g. surveys mentioned in some activities, event registration, database management) and the rights of data owners (e.g. access to personal data relating to owners; update personal data or correct any mistakes in your personal data; complaints, …).

The Communication Plan should also include, as for all EC funded projects, a chapter related to Exploitation (Data, Services). It could also be recommended to separate internal GEOERA communication activities (most of the meetings/events reported) and the external ones (fundamental for this project, for connecting to the relevant stakeholders and potential end-users of the platform.

Stakeholder two feedback:
This project, as has been stated many times, is very different in that it is providing the means to disseminate the scientific results of other projects, rather than doing science in itself. However, I consider that this function under Open Science is crucial and warrants all efforts made to make it happen. The challenges faced by the project are numerous, tackled by other jurisdictions (such as the Federal Geospatial Platform in Canada) and rest on the quality and “standardization” of the original data, the rigorous input of the associated metadata, and the sustainability of the platform over time. I know the project lead and participants are concerned with what will happen after GeoERA is over, the maintenance of the platform and the data needs to continue otherwise all these great efforts will have been done for nothing shortly after the end.

It's almost as if this project should have had a head-start one year prior to the start of the GSPs, and one year after the end of the 14 science projects in order to properly enter and link data as necessary.

I recall from the review meeting that new standards are being developed. If that is so, are there plans to promote these new standards to the international geoscience community? Is there a mitigation strategy to make sure GIP-P and GSPs speak the same language?

Good job!

Annex 1: Review meeting list of participants

Name	Role	Organisation
Tessa Witteman	GeoERA coordinator	Netherlands Organisation for Applied Scientific Research
Wolfgang Schneider	GeoERA Project Officer	European Commission
Barbara Simić	Monitoring and Reporting Officer	Geological Survey of Slovenia
Jasna Šinigoj	Scientific Reviewer	Geological Survey of Slovenia
Antje Wittenberg	Raw Materials Theme coordinator	Federal Institute for Geosciences and Natural Resources, Germany
Klaus Hinsby	Groundwater Theme coordinator	Geological Survey of Denmark and Greenland
Serge van Gessel	GeoEnergy Theme coordinator	Netherlands Organisation for Applied Scientific Research
Dominique Darmendrail	Stakeholder council member	Water JPI
Andrée Bolduc	Stakeholder council member	Geological Survey of Canada
Jørgen Tulstrup	GIP-P Project manager	Geological Survey of Denmark and Greenland
Lisbeth Flindt Jørgensen	GIP-P Project member	Geological Survey of Denmark and Greenland
David Garcia	GIP-P Project member	Royal Belgian Institute of Natural Sciences
Carlo Cipolloni	GIP-P Project member	Italian Institute for Environmental Protection and Research
Martin Schiegl	GIP-P Project member	Geological Survey of Austria
Jean-Baptiste Roquencourt	GIP-P Project member	French Geological Survey
Martin Hansen	GIP-P Project member	Geological Survey of Denmark and Greenland
Andrej Vihtelič	GIP-P Project member	Geological Survey of Slovenia

Annex 1: Review meeting list of participants

Patrick Bell	GIP-P Project member	British Geological Survey
Edd Lewis	GIP-P Project member	British Geological Survey
Chris Luton	GIP-P Project member	British Geological Survey
Alicia González	GIP-P Project member	Spanish Geological Survey
Margarita Sanabria	GIP-P Project member	Spanish Geological Survey
Ángel Prieto	GIP-P Project member	Spanish Geological Survey
Dana Čápová	GIP-P Project member	Czech Geological Survey

Annex 2: Communication and dissemination activities

Please select activity	Subcategory	Date	Target audience	Number of people reached	Short name of project participant	Author(s)	Link (if applicable)
MEETINGS	Meeting with international body	28 February 2018	SCIENTIFIC COMMUNITY	35	GEUS	Jørgen Tulstrup	EGS National Delegates meeting
MEETINGS	Meeting with international body	14 September 2018	OTHER (customers)	5	GEUS, GeoZS, TNO		Meeting with EPOS coordinator
MEETINGS	Internal project meeting	23 October 2018	SCIENTIFIC COMMUNITY	20	GIP-P WP leaders	Pierre-Yves Declercq	GIP-P internal meeting,
EVENTS	PITCH EVENT	09-Nov-18	SCIENTIFIC COMMUNITY	25	GeoZS	Andrej Vihtelič	
EVENTS	OTHER (please specify: internships, consultation, presentations,...)	12-16 November 2018	POLICY MAKERS	100	GEUS, GeoZS	Jørgen Tulstrup	Raw Materials Week, poster
EVENTS	OTHER (please specify: internships, consultation, presentations,...)	12-16 November 2018	POLICY MAKERS	100	GEUS, GeoZS	Jørgen Tulstrup	Raw Materials Week, abstract
MEETINGS	Meeting with other GeoERA projects	30 November 2018	OTHER (customers)	10	VoGERA partners	VoGERA	VoGERA project
MEETINGS	Meeting with other GeoERA projects	3 December 2018	SCIENTIFIC COMMUNITY	4	RBINS	Pierre-Yves Declercq	meeting with GeoConnect3d project leader
MEETINGS	Meeting with other GeoERA projects	20 February 2019	OTHER (customers)	24	RESOURCE partners	RESOURCE project	RESOURCE project
EVENTS	MEETINGS	14 March 2019	NON-EU INSTITUTION (national, regional, local)	120	GBA, Ministry, Stakeholders,..	Martin Schiegl	National GeoERA Kick-off meeting Austria, Vienna, GIP-P presentation
MEDIA	ONLINE MEDIA	23 March 2019	OTHER (customers)	406	All partners		GeoERA Newsletter #7

MEETINGS	Meeting with international body	28 March 2019	SCIENTIFIC COMMUNITY	60	GEUS	Jørgen Tulstrup	EGS General Assembly
MEETINGS	Meeting with other GeoERA projects	28 March 2019	SCIENTIFIC COMMUNITY	60	GEUS	Jørgen Tulstrup	GeoERA General Assembly
EVENTS	CONFERENCE (tele-conference)	28 March 2019	SCIENTIFIC COMMUNITY	20	RBINS, All MUSE partners	David Garcia Moreno	Participation one of MUSE's general meetings,
EVENTS	CONFERENCE (tele-conference)	29-May-19	OTHER (customers)		GeoZS, IGME-ES, GEUS, GBA, CGS, ...	Andrej Vihtelič	SOLR overview
EVENTS	WORKSHOP	11 June 2019	SCIENTIFIC COMMUNITY	30	GEUS	Jørgen Tulstrup	EGS Directors Workshop
EVENTS	CONFERENCE (tele-conference)	28 June 2019	SCIENTIFIC COMMUNITY	20	RBINS, all GeoConnect3d partners	GeoConnect3d	Participation one of GeoConnect's internal seminar.
MEDIA	ONLINE MEDIA	28 June 2019	OTHER (customers)	410	All partners		GeoERA Newsletter #8
EVENTS	CONFERENCE (tele-conference)	1 July 2019	SCIENTIFIC COMMUNITY	7	RBINS, IGME, GEUS, BGS, BRGM, TNO	Klaus Hinsby	Participation one of Groundwater theme meeting.
MEETINGS	Meeting with international body	3 September 2019	SCIENTIFIC COMMUNITY	35	GEUS	Jørgen Tulstrup	EGS National Delegates meeting
EVENTS	CONFERENCE (tele-conference)	3 September 2019	SCIENTIFIC COMMUNITY	5	TNO, GEO-ZS, RBINS, GEUS, LfU	David Garcia Moreno	Meeting with HotLime's project leader and GIP-P contacts
EVENTS	CONFERENCE (tele-conference)	9 September 2019	SCIENTIFIC COMMUNITY	6	NGU, BRGM, GEO-ZS, RBINS, GEUS, GSA	David Garcia Moreno	Meeting with EuroLithos's project leader and GIP-P contacts
EVENTS	CONFERENCE (tele-conference)	10 September 2019	SCIENTIFIC COMMUNITY	6	IGME, GEO-ZS, RBINS, GEUS, GSA	David Garcia Moreno	Meeting with TACTIC project leader and GIP-P contacts
MEETINGS	Internal project meeting	11-Sep-19	OTHER (customers)	20	GeoZS, IGME-ES, GEUS, GBA, CGS, ...	Andrej Vihtelič	Presenting possibilities of Solr search engine with examples

EVENTS	CONFERENCE (tele-conference)	12 September 2019	SCIENTIFIC COMMUNITY	6	GEO-ZS, RBINS, GEUS, LfU	David Garcia Moreno	Meeting with GeoConnect3d's project leader and GIP-P contacts
EVENTS	CONFERENCE (tele-conference)	20 September 2019	SCIENTIFIC COMMUNITY	5	IGME, GIS, BRGM, RBINS, GSA	David Garcia Moreno	Meeting with MINDeSEA's project leader and GIP-P contacts
EVENTS	CONFERENCE (tele-conference)	23 September 2019	SCIENTIFIC COMMUNITY	7	RBINS, BRGM, GEUS, GSA	David Garcia Moreno	Meeting with Mintell4EU's project leader and GIP-P contacts
EVENTS	CONFERENCE (tele-conference)	24 September 2019	SCIENTIFIC COMMUNITY	7	BRG, LAGB, GEUS, GSA, RBINS	David Garcia Moreno	Meeting with 3DGEO-EU's project leader and GIP-P contacts
EVENTS	WORKSHOP	25 September 2019	SCIENTIFIC COMMUNITY	15	GEUS, IGME, GeoZS, BRGM, CGS		Workshop searching
EVENTS	CONFERENCE (tele-conference)	26 September 2019	SCIENTIFIC COMMUNITY	5-10	TNO, RBINS, GEUS, and some other institutions participating in HIKE and the GIP-P	HIKE	Seminar on HIKE's knowledge SharePoint.
EVENTS	CONFERENCE (tele-conference)	27 September 2019	SCIENTIFIC COMMUNITY	3	IGME, BRGM RBINS	David Garcia Moreno	Meeting with HOVER's project leader and GIP-P contacts
MEETINGS	Meeting with other GeoERA projects	October 2019	OTHER (customers)	30	TACTIC partners and stakeholders	TACTIC project	TAcTIC project
EVENTS	CONFERENCE (tele-conference)	7 October 2019	SCIENTIFIC COMMUNITY	9	BGS, GEUS, IGME, GEO-ZS, TNO, RBINS	David Garcia Moreno	Meeting with VoGERA's project leader and GIP-P contacts
EVENTS	CONFERENCE (tele-conference)	7 October 2019	SCIENTIFIC COMMUNITY	6	TNO, GEUS, IGME, GEO-ZS, RBINS	David Garcia Moreno	Meeting with RESOURCE's project leader and GIP-P contacts
MEETINGS	Meeting with international body	8 October 2019	SCIENTIFIC COMMUNITY	60	GEUS	Jørgen Tulstrup	EGS General Assembly
EVENTS	CONFERENCE (tele-conference)	9 October 2019	SCIENTIFIC COMMUNITY	5	GEUS, GEO-ZS, RBINS	David Garcia Moreno	Meeting with GARAH's project leader and GIP-P contacts
EVENTS	CONFERENCE (tele-conference)	10 October 2019	SCIENTIFIC COMMUNITY	7	LNEG, GEUS, GEO-ZS, BRGM, RBINS	David Garcia Moreno	Meeting with FRAME's project leader and GIP-P contacts

EVENTS	CONFERENCE (tele-conference)	14 October 2019	SCIENTIFIC COMMUNITY	5	GEUS, RBINS, TNO, GBA	David Garcia Moreno	Meeting with MUSE's project leader and GIP-P contacts
EVENTS	CONFERENCE (tele-conference)	22 October 2019	NON-EU INSTITUTION (national, regional, local)	80	GEUS	Jørgen Tulstrup	Danish "Hydrology Day"
MEETINGS	Meeting with other GeoERA projects	November 2019	OTHER (customers)	30	RESOURCE partners	RESOURCE project	RESOURCE project
MEDIA	ONLINE MEDIA	8 November 2019	OTHER (customers)	425	All partners		GeoERA Newsletter #9
MEETINGS	Meeting with international body	27 November 2019	SCIENTIFIC COMMUNITY	23	Most partners		EGS Spatial Information Expert Group
MEETINGS	Meeting with international body	28 November 2019	SCIENTIFIC COMMUNITY	13	GEUS, CGS, GeoZS, BRGM and BGS		TCS for Geological Information and Modelling
MEDIA	ONLINE MEDIA	1 December 2019	OTHER (customers)		BGS		https://youtu.be/Bmf0efZ1rSE
EVENTS	OTHER (please specify: internships, consultation, presentations,...)	19 December 2019	GENERAL PUBLIC	600 via website + 100 live	IGME	Manuel Regueiro/ Alicia González	https://pressroom.mediatoolstv.com/expedicion-oceania--en-el-cop25/ source: https://www.youtube.com/watch?v=orYOKgqldqc&t)
MEETINGS	Internal project meeting	13 January 2020	OTHER (customers)	10	Work Package Members		Inter work package teleconference
EVENTS	WORKSHOP	10-11 October 2018	SCIENTIFIC COMMUNITY	19	GBA, GIU, IGME, SGU, MBFSZ, CGS, ISPRA, GeoZS, TNO, BGR, LfU, LNEG, BRGM		GeoERA WP4 Workshop Vienna
EVENTS	MEETINGS	11 - 12 April 2019	SCIENTIFIC COMMUNITY	26	GBA, CGS, SGUDS, MBFSZ, GIR, HGI	Martin Schiegl	CE-GIC (central European Geoscience Information Consortium) Praha
MEETINGS	Meeting with international body	11-12 april 2019	SCIENTIFIC COMMUNITY	40	GeoZS, CGS, GBA, MBFSZ, HGI + others	Andrej Vihtelič	CE-GIC 2019

EVENTS	WORKSHOP	11-12 March 2019	SCIENTIFIC COMMUNITY	30	GIP-P-participants GBA, TNO, BRGM		common Workshop organized by TNO(HIKE, GIP-P) in Vienna
EVENTS	WORKSHOP	11-12 September 2018	SCIENTIFIC COMMUNITY	35	GEUS	Jørgen Tulstrup	EGS National Delegates Workshop
MEETINGS	Meeting with national body	11-14 Januar 2019	OTHER (customers)	8x 2-5	GeoZS	GIP-P with Hover,Resources, Hike, Eurolithos, Frame, GeoConnect3d, Mintell4EU, Hotlime	
EVENTS	PITCH EVENT	17-18 January 2017	EU INSTITUTION	50	All partners		GeoERA Kick Off
MEETINGS	Internal project meeting	18 October 2018 - 22 January 2020	OTHER (customers)	10	Work Package Members	Patrick Bell	6 meetings. Minutes on GeoERA Intranet
MEETINGS	Internal project meeting	2-4 July 2019	SCIENTIFIC COMMUNITY	28	all GIP-P partners		GIP-P general assembly
EVENTS	WORKSHOP	24-25 October 2018	SCIENTIFIC COMMUNITY	17	RBINS, BGR, GSA, LfU, GEUS, TNO, GSI, LNEG, IGME, BGS	Pierre-Yves Declercq	Workshop liaison officers GIP-P - Geoscientific projects
EVENTS	PITCH EVENT	2-5 July 2018	EU INSTITUTION	100 - 200	All partners	Jørgen Tulstrup	GeoERA Project Kick Off plus GIP-P Project Assembly
MEETINGS	Meeting with other GeoERA projects	27-28 November 2018	SCIENTIFIC COMMUNITY	15	RBINS, all MUSE partners	Pierre-Yves Declercq	Participation one of MUSE's general meetings,
EVENTS	CONGRESS	3-5 Octtober 2018	SCIENTIFIC COMMUNITY	>200	GeoZS + international community	GeoZS	http://www.geo-zs.si/5SGK/index_en.html
EVENTS	WORKSHOP	9 - 10 April 2019	SCIENTIFIC COMMUNITY	15	GEUS, GBA, IGME, CGS		Workshop on metadata and searching

MEETINGS	Meeting with other GeoERA projects	Mar-Jun-Sep-Dec 2019 HOVER Project Board	OTHER (customers)	8	HOVER WP leads and GW liasons	HOVER	HOVER Project Board
MEETINGS	Meeting with other GeoERA projects	Monthly GW Project Board	OTHER (customers)	6	GW project leads and GW liasons	GW theme	GW theme
MEETINGS	Internal project meeting	Monthly since start of project	OTHER (customers)	20	WP leads plus others		Project Board meetings
EVENTS	OTHER (please specify: internships, consultation, presentations,...)	Monthly since start of project	SCIENTIFIC COMMUNITY	406	GeoERA project leaders and GIP-P contacts appointed for each project.	Pierre-Yves Declercq/David Garcia Moreno	Official communications from the GIP-P to the Geoscientific projects and vice versa transferred by WP2 by email.
MEETINGS	Meeting with other GeoERA projects	Monthly VoGERA Project Board	OTHER (customers)	5	VoGeRA WP leads and GW liasons	VoGERA	VoGERA Project Board
MEETINGS	Internal project meeting	Ocasual meeting with project partners	OTHER (customers)	8-10	Project members		
MEETINGS	Internal project meeting	Regular Weekly since q3 2019	OTHER (customers)	15	WP7 and WP6 team members + others	A. Vihtelič, M. Hansen	WP7, WP6 technical meeting
MEDIA	ONLINE MEDIA		GENERAL PUBLIC	>10,000	IGME		https://twitter.com/IGME1849
MEDIA	ONLINE MEDIA		GENERAL PUBLIC	>1,800	IGME		https://www.youtube.com/channel/UCBXTmq9ryRBL3NhJwRGJ3jg
MEDIA	ONLINE MEDIA		GENERAL PUBLIC	>50	IGME		https://www.pinterest.es/IGME1849/geoera/
MEDIA	ONLINE MEDIA		GENERAL PUBLIC	>7,000	IGME		https://www.facebook.com/Instituto-Geol%C3%B3gico-y-Minero-de-Espa%C3%B1a-224837040875505/