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 towards GEOSS

Deliverable D7.2: IPR issues (I)

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Full title	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 towards GEOSS.		
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Executive Summary

This document (D7.2) is the first issue of the IPR issues Report of the GEO-CRADLE project, aimed at outlining the **methodology** for the knowledge management and IPR activities to be carried out in the course of the project.

GEO-CRADLE is a Coordination and Support Action, and such projects do not typically entail the development of new technologies or models. Nonetheless, the project will give rise to a number of opportunities for academic research surrounding the measures it implements. These will be primarily driven by the execution of feasibility studies in four different thematic areas and the establishment of a Regional Data Hub.

Therefore, any potential IP considerations related to the above activities shall be identified and managed based on an overall approach described in this deliverable and in line with the provisions made in the Grant Agreement (GA) and the Consortium Agreement (CA).

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1 Introduction

This document D7.2 is the first issue of the Intellectual Property Rights (IPR) Issues Report of the GEO-CRADLE project. This report will discuss the background and the methodology for knowledge management and IPR. The second version of this document, due in M29, will report on the results of the implementation of this methodology, and supply substantive recommendations on knowledge management and the exploitation of IPR generated during the project (if relevant).

Taking all this into account, this report follows the structure presented below:

Chapter 2 presents the context in which GEO-CRADLE operates.

Chapter 3 provides a table of relevant definitions.

Chapter 4 provides an overview of the legal basis for the management of IPR in GEO-CRADLE.

Chapter 5 presents the methodology that will be followed for the management of IPR in GEO-CRADLE.

Chapter 6 provides conclusions and perspectives for the next steps.

2 Context

GEO-CRADLE brings together key players fully representing the Region of Interest (Balkans, N. Africa and M. East) and the complete EO value chain therein, with the **overarching objective of establishing a multi-regional coordination network** that:

i. Supports the **effective integration of existing EO capacities** (space/air-borne/in-situ monitoring networks, modelling and data exploitation skills, and past project experience),

ii. Provides the interface for the **engagement of the complete ecosystem of EO stakeholders** (scientists, service/data providers, end-users, governmental organisations, and decision makers),

iii. Promotes the **concrete uptake of EO services and data in response to regional needs**, relevant to four thematic priorities: adaptation to climate change, improved food security, access to raw materials and energy,

iv. Contributes to the **improved implementation of and participation in GEO, GEOSS, and Copernicus in the region**.

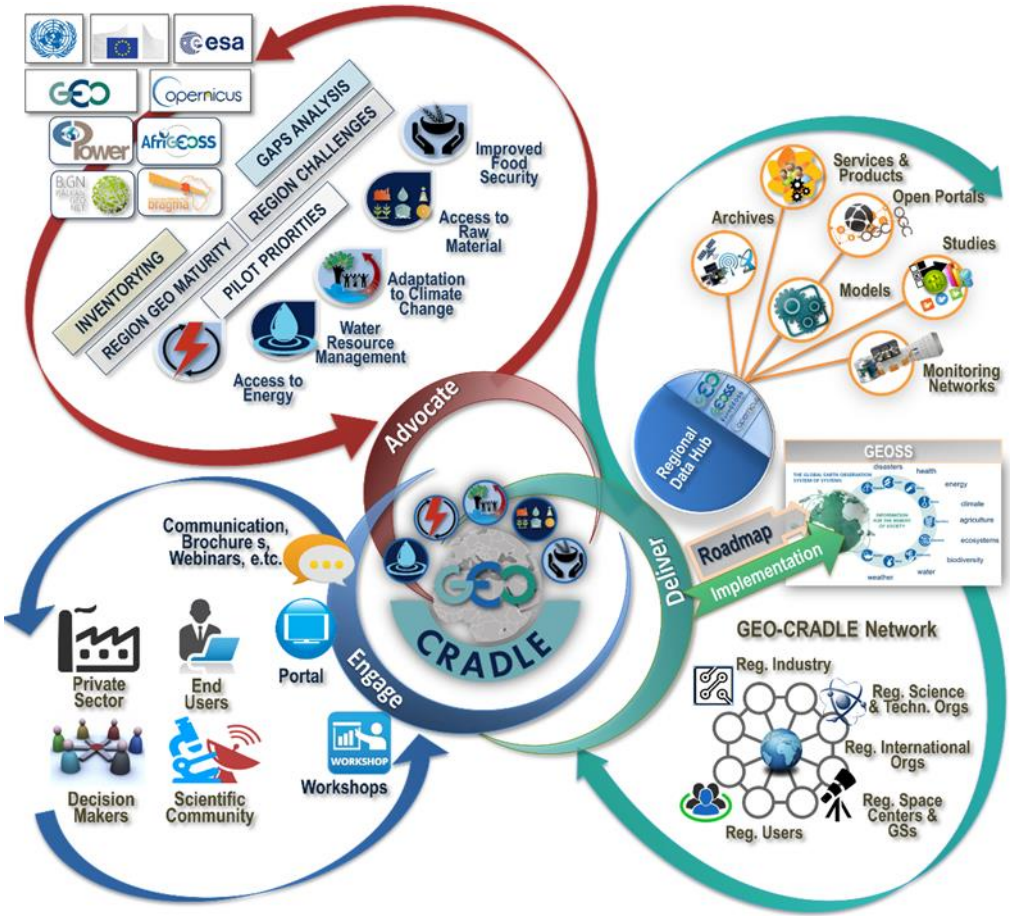

Figure 1: The GEO-CRADLE ecosystem

In this context, GEO-CRADLE has started by inventorying the regional EO capacities and user needs, through **targeted interviews with key actors in the region and through the dissemination of dedicated surveys**. The findings of these activities have been combined within a gap analysis that enables the definition of region specific (**G)EO Maturity Indicators** and **common priority needs**.

This is **followed by four feasibility studies**, demonstrating how the regional priorities can be tackled by the GEO-CRADLE Network. In parallel, GEO-CRADLE is setting up a **Regional Data Hub**, which abides by the GEOSS Data Sharing Principles and facilitates access to and dissemination of region-related data.

Finally, the project will elaborate a roadmap for the future implementation of GEOSS and Copernicus in the region, with the ultimate aim to enable sustainable exploitation of the regional infrastructures and capacities as well as informed decision-making.

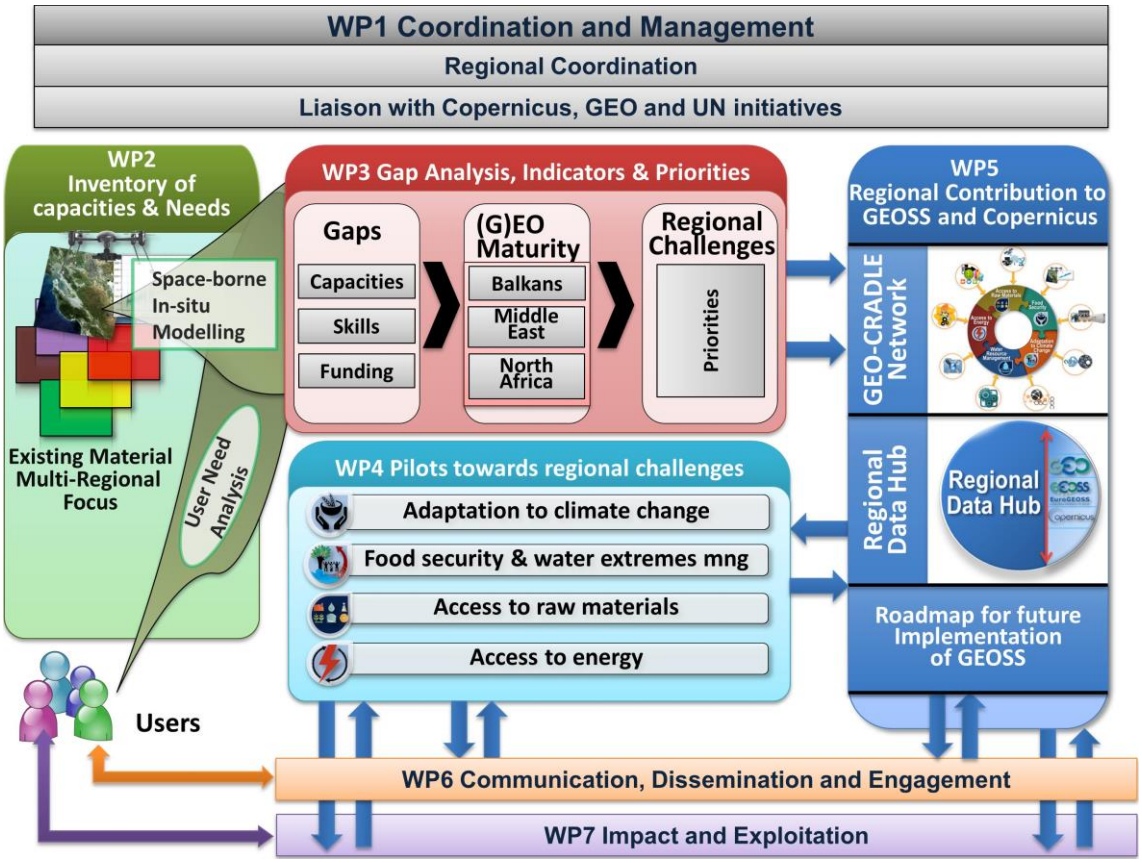

Figure 2: The GEO-CRADLE work breakdown structure

More information can be found online at http://www.geocradle.eu/

3 Definitions

The following definitions are adopted in this deliverable, as per those found in the Regulation on participation rules for Horizon 2020 (European Commission, 2013):

Term	Definition
Access rights	Rights to use results or background under the terms and conditions laid down in accordance with Regulation 1290/2013.
Background	Any data, know-how or information whatever its form or nature, tangible or intangible, including any rights such as intellectual property rights, which is: (i) held by participants prior to their accession to the action; (ii) needed for carrying out the action or for exploiting the results of the action; and (iii) identified by the participants according to Regulation 1290/2013, Article 45.
Sideground[1]	Data, knowledge and information which are outside of the objectives of an action and which are not needed for implementing and exploiting the action.
Results	Any tangible or intangible output of the action, such as data, knowledge or information, that is generated in the action, whatever its form or nature, whether or not it can be protected, as well as any rights attached to it, including intellectual property rights.
Dissemination	Public disclosure of the results by any appropriate means (other than resulting from protecting or exploiting the results), including by scientific publications in any medium.
Exploitation	The use of results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardisation activities.

Table 1: Key Definitions

[1] Although this term is not officially defined in Article 2 of Regulation 1290/2013, it used in Article 3(c)(iii)) and the definition supplied therein is repeated here.

4 Legal Basis

This section outlines the sources of applicable documentation serving as the legal basis for the management of IPR in the GEO-CRADLE project. Rules on intellectual property rights are indicated in the following background sources:

- The **Horizon 2020 Rules for Participation**, which are applicable to all funding programmes carried out under Horizon 2020;
- The applicable **work programme**, which in the case of GEO-CRADLE is the **Horizon 2020 Work Programme 2014–2015**;
- The **Grant Agreement** signed between the beneficiaries and the European funding body;
- The **Consortium Agreement** signed by the beneficiaries;
- Any other bilateral or multilateral agreements signed between the beneficiaries, which is not the case for GEO-CRADLE at the time of writing.

4.1 Horizon 2020 Participation Rules

The Horizon 2020 rules for participation are laid down in *Regulation (EU) No 1290/2013 of the European Parliament and of the Council of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006* (referenced as European Commission, 2013). The rules are described in Title III, “Rules Governing the Exploitation and Dissemination of Results, Chapter I “Grants”.

Article	Subject
41	Ownership of results
42	Protection of results
43	Exploitation and dissemination of results
44	Transfer and licensing of results
45	Background
46	Access rights principles
47	Access rights for implementation
48	Access rights for exploitation
49	Access rights for the Union and the Member States

Table 2: Relevant articles in Regulation 1290/2013

4.2 Work programme

The work programme "12. Climate action, environment, resource efficiency and raw materials" and more specifically the call "SC5-18b: Integrating North African, Middle East and Balkan Earth Observation capacities in GEOSS", against which the GEO-CRADLE project was funded, does not contain any specific provisions related to IPR management.

4.3 Grant Agreement

Provisions on IPR management in the GEO-CRADLE Grant Agreement are found in the following Articles:

- **Article 23a,** which lays out the obligations in relation to management of intellectual property;
- **Article 24.1,** which specifies the agreement on background (between the beneficiaries);
- **Article 25.1,** which describes the provisions for access rights to background and how they shall be exercised, waived and not sub-licensed;
- **Article 25.2,** which provides the basis for beneficiaries to give each other access rights (on a royalty-free basis) for the implementation of the action;
- **Article 25.3,** according to which beneficiaries have to grant access rights to their results to other beneficiaries when they need such access rights to implement the project and/or to exploit their own results;
- **Article 25.4,** which describes how the access rights for affiliated entities is following the same principles as for consortium members unless otherwise specified;
- **Article 26.1,** according to which the results are owned by the beneficiary that generate them;
- **Article 26.2,** which foresees a default regime applicable to situations of joint ownership;
- **Article 26.3,** which specifies that if third parties (including personnel) may claim rights to the results, the beneficiary concerned must ensure that it complies with its obligations under the Agreement;
- **Article 26.4,** which clarifies the provisions related to the protection of results through Agency ownership;
- **Article 27,** which deals with the protection of results by each beneficiary;
- **Article 28,** which specifies the beneficiaries' obligations vis-à-vis the exploitation of results[2];
- **Article 29,** which foresees the dissemination of results and open access to scientific publications and research data;
- **Article 30,** which addresses the transfer and licensing of results;
- **Article 31,** which describes the access rights to results for the beneficiaries and third parties.

[2] See relevant section in "Definitions".

4.4 Consortium Agreement

The GEO-CRADLE Consortium Agreement defines the basis for IPR management of both background and results in Section 8 “Results” and Section 9 “Access Rights”. Attachment 1 to this document specifies the background of the GEO-CRADLE project, in which beneficiaries identify and agree on the project background (as defined in Table 1) and specify any limitations or conditions for implementation of exploitation.

5 Methodology

The GEO-CRADLE Intellectual Property Rights methodology is comprised of the following activities:

1. **Identification:** Enumerating the IP (background and results) and determining ownership;
2. **Protection:** Evaluating the options for the protection of the IP, and selection and execution of appropriate IP protection measures (taking into account the strategy outlined in the Sustainability Plan (D7.6));
3. **Management:** Implementation of day-to-day management processes, roles and procedures.

Each of these will be dealt with in turn in the sections which follow. In practice, there is a fourth element, "Exploitation", but this will be dealt with in the context of a separate deliverable (D7.6), into which the outputs of this report will feed (and of its update at M29). In addition, D7.1 Data Management Plan, has already been delivered specifying the aspects relevant to Data Management (in relation to the data gathered and/or generated throughout the various activities of the project); these considerations are thus not part of the IPR issues discussed here. The overall methodology is summarised in the below diagram. It **must be underlined that, given the project's nature as a CSA, some of these steps might turn out not to be applicable. Nonetheless the project will follow a robust methodology for IP considerations.**

Figure 3: Summary of IPR issues methodology

5.1 Identification

It is essential to compile a complete list of both the **background** and the expected **results** of the project in order to properly manage intellectual property rights, both during the project and in preparation of the exploitation of its results.

Project **background** has been identified in the context of the signature of the GEO-CRADLE Consortium Agreement. Partners retain the right to propose new elements of background,

which must be submitted to the General Assembly for review, as per Section 9.1.2 of the Consortium Agreement. It is therefore necessary to ensure that the list of project background (contained in Annex 1 to the Consortium Agreement) be updated, if necessary. A list of the background indicated in the Consortium Agreement is supplied in Annex I of this document. Further to this, a comprehensive list of the intellectual property ("results") generated **during** the GEO-CRADLE project must be compiled.

To achieve both goals, an **IP Audit** will be undertaken in the form of a questionnaire to be issued to all partners, with the aim of developing a comprehensive IP inventory. The questionnaire will request information on any new IP assets (with respect to Annex 1 of the Consortium Agreement) and their conditions for implementation and exploitation, as well as any results **produced, or foreseen to be produced**, over the course of the project. Partners involved in joint ownership should be specified where applicable.

To set up the baseline asset inventory, an initial version of the questionnaire will be issued at M24, which coincides with the finalisation of the pilot activities. At M30 of the project, coinciding with the end of project activities, partners will be requested to confirm that the foreseen results were indeed produced (i.e. that the plan matched the actual deliveries), and that joint production of results took place with the same partners as indicated in the initial survey. Any discrepancies with respect to the initial list will thus be corrected, and a definitive and comprehensive assets inventory will become available.

Non-technical IP assets such as the GEO-CRADLE logo and interface designs will also be included in the list of assets.

The IP Audit provides a structured way of compiling, and then validating the set of IP assets relevant to the (potential) exploitation of GEO-CRADLE's results. A complementary process of ad-hoc reporting (see Section 5.3) will also be established to allow action on IP protection to be taken in-between the two stages of the IP Audit (if necessary).

5.2 Protection

Beneficiaries are required to examine the possibility of protecting their results and must do so, for an appropriate period and with appropriate territorial coverage if the following conditions are met (UKRO, 2014):

- The results can reasonably be expected to be commercially or industrially exploited, and;
- Protecting them is possible, reasonable and justified (given the circumstances).

When deciding on protection, the beneficiary must consider its own interests and the interests (especially commercial) of the other beneficiaries.

Given this requirement, an assessment of the extent to which certain assets require legal protection will be carried out on the basis of the initial IP audit (**IP Protection Requirements Analysis**). The assets will be **evaluated** on the basis of their subject matter (e.g. software, design, website, etc.) and **classified** according to their significance for the sustainable exploitation (and potentially commercialisation) of the GEO-CRADLE results.

Assets will be evaluated and classified on the basis of a custom-built IP Protection Requirements Analysis tool, which is effectively a database of key characteristics defining each IP asset, such as its type, whether it is already protected, who the current/future owner is or will be, and how critical it is for the core mission of GEO-CRADLE. In addition, the tool will request details on the assets' market value and production cost, its replicability in the open market, and other factors influencing the decision on whether to protect the asset, and if so, how. The resulting classification will categorise each asset as either "unlikely", "likely", or "highly likely" to require protection. The following is an excerpt from the IP Protection Requirements Analysis tool which will be used for this purpose.

Asset Id	Type of Asset	Existing Protection	Description of protection	Mission-criticality	Replica-bility	Production cost	Market value	…
#	Invention Software Article Design Name Know-how Website	YES | NO	Patent Utility Model Industrial Design Copyright Trade Mark Confidential Information	HIGH MEDIUM LOW	HIGH MEDIUM LOW	[VALUE]	[VALUE]	…

Figure 4: IP Protection Requirements Analysis tool (excerpt)

Once the assets have been classified using the tool, the Task Leader (T7.2) together with NOA will be in a position to express an opinion on whether and how to protect each IP asset. Examples of potential protection for different kinds of assets are shown in the table below, with those most relevant to GEO-CRADLE shown in bold:

Asset	Patent	Utility Model	Industrial Design	Copyright	Trade Mark	Confidential Information
Invention (e.g. device, process, method)	**x**	x				**x**
Software	**x**	**x**		**x**		**x**
Scientific article				**x**		
Design of a product			x	x	x	
Name of a technology/product					**x**	
Know-how						x
Website			**x**	**x**	**x**	**x**

Table 3: Protection options for IP assets

If protection by one of more means is deemed necessary, the appropriate **follow-up actions** (applications for relevant protection modes) will be undertaken by the responsible partner (normally the owner). In cases of joint ownership, the partner in charge of this undertaking should be indicated within the provisions of a joint ownership agreement (see Section 5.3.1, below). Freedom-to-operate and patent searches will be carried out, in order to determine whether any competing technologies exist which may create legal obstacles for GEO-CRADLE. Similar due diligence will also be carried out for the selection of the commercial name of the GEO-CRADLE services to avoid any possibility of trademark infringement.

It must be noted however, that due to GEO-CRADLE's nature as a CSA, i.e. a project in which the development of new technologies is not foreseen, the scope of the description presented herein may be significantly reduced.

5.3 Management

In complement to the two-stage IP assets audit, procedures for day-to-day management of IPR generated throughout the course of the project may be required. These should address, at a minimum, the following issues:

- **Dissemination policy:** A consortium-wide policy on the dissemination of scientific results, including provisions on confidentiality for those elements deemed mission-critical to GEO-CRADLE.
- **Overall IPR policy** will be circulated to partners for consultation by M24, and annexed (in final form) to the second version of this deliverable.

5.3.1 Ownership of jointly-produced IP

The GEO-CRADLE consortium agreement contains the following provisions on jointly-produced IPR:

> - each of the joint owners shall be entitled to use their jointly owned Results for non-commercial research activities on a royalty-free basis, and without requiring the prior consent of the other joint owner(s), and
> - each of the joint owners shall be entitled to otherwise Exploit the jointly owned Results and to grant non-exclusive licenses to third parties (without any right to sub-license), if the other joint owners are given: (a) at least 45 calendar days advance notice; and (b) Fair and Reasonable compensation.
>
> **The joint owners shall agree on all protection measures and the division of related cost in advance.**

It is not, however, specified on what basis the agreement on joint ownership should be drafted, how proportional contributions to the production of specific IP should be evaluated, and what mediation measures should be taken in the event of conflicts or disagreements. Furthermore, the requirement to agree on "all protection measures and the division of the related cost in advance" does not specify the event or milestone of which such agreement occurs "in advance" (production of asset, protection of asset, etc.).

It is necessary that these issues are addressed in an agreement on joint ownership, as per the above clause. The joint ownership agreement should address the following issues (based on European IPR HelpDesk, n.d.):

- **Parties**: identification of the participants - joint owners;
- **Object of the contract:** the joint ownership of the project results (results);
- **Shares:** assignment of shares within the joint ownership;
    - Shares split equally among all joint owners or
    - Shares split in proportion to the joint owners' contributions;
- **IP management:** indication of the partner responsible for filing and maintaining (including the costs incurred) of the IP rights over the results;
- **Protection of rights:** obligation imposed on all participants to monitor and report any infringements of the results; indication of the partner empowered to conduct legal actions for protection of the results;
- **Conditions** of the use of the results;
- **Use in further research:** conditions for use of the results for further research carried out with third parties, i.e. joint owners may be required to inform each other of such plans and sign respective confidentiality agreements with the third parties;
- **Individual exploitation:** conditions for exploitation of the common results individually in participant's own commercial activities;
- **Licensing:** possibilities to license (sublicense) the common results. This possibility may be totally restricted (i.e. licensing upon agreement of all joint owners) or subject to certain conditions;
- **Transfer:** Determining whether and under what conditions a joint owner may transfer its share to third parties. The rest of the joint owners may reserve the right to be informed of any such plans and/or be given a right to object such transfer;
- **Dispute resolution:** Processes governing the resolution of disputes;
- **Additional clauses:** standard contractual matters, i.e. applicable law, jurisdiction, etc.

It may be necessary to adapt the joint ownership agreement (and/or sign additional, asset-specific agreements) **after** jointly-owned results are produced, in particular with regard to:

- The **assignment of ownership** for the particular asset;
- The **means and protection** of the asset, including issues related to the cost of protection (e.g. patent filing and examination fees, renewal fees, prior state-of-the-art searches, infringement actions, etc.),
- The **sharing of revenues or profits**;
- **Modes of exploitation** of the joint results.

6 Conclusions

This document has outlined the legal background on which the analysis of IPR issues is grounded, and described the methodology to be applied to the management of IPR for the GEO-CRADLE project. Identification, protection and management activities are defined, which include the development of an IP asset inventory, an analysis of IP protection requirements, and the establishment of a consortium-wide IPR policy.

The next update of this deliverable (M29) will detail the results of the application of this methodology amongst the GEO-CRADLE partners and across the GEO-CRADLE activities.

ANNEX I: GEO-CRADLE project background

The following table presents the project background of GEO-CRADLE as declared in the Consortium Agreement Version 1, December 2015.

Partner	Background	Limitations for implementation	Limitations for exploitation
NOA and PMOD/WRC	A system for the calculation of the now-casting solar energy. The system is based in online satellite data, used in a radiative transfer model and neural network model system. The product consists of a high temporal (15 min) and spatial (0.05 degrees) resolution nowcasting solar energy map.data.	n/a	n/a
IBEC and TAU	Know-how thus processing and elaborating soil spectral data with the respective soil spectral libraries in a geodatabase. Specialised equipment required are available, meaning spectroradiometers that cover the range of 350 to 2500 nm wavelengths	n/a	n/a
CERT	n/a	n/a	n/a
TAU	Soil spectral measurement in the laboratory and field. Remote Sensing data processing from all domains (radiometric atmospheric calibration and thematic mapping), Soil spectral libraries Soil Spectroscopy background Protocols for flight campaigns arrangement and field study. Theoretical and practical knowhow in hyperspectral remote sensing *	Access Rights to Background will only be granted to the extent is not subject to terms and conditions in other agreements. Access Rights to Background will only be granted to the extent that is Needed for the implementation of the Project.	Access Rights to Background will only be granted to the extent is not subject to terms and conditions in other agreements. Access Rights to Background will be subject to written requests, will only be granted to the extent Needed for Exploitation of a Party's own Results and will only be granted on Fair and Reasonable conditions.
CUT	CUT will provide Lidar datasets (aerosol properties vertical profiles) prior of the project period for the implementation of the pilot study to the RoI.	Will be available to the project beneficiaries under request for the implementation of the WP-4	No data will be available to external end users.

	Data collected by CUT's external collaborators and are available to CUT team for the project implementation.	The data can be used only for the project's purposes and only during the life time of the project under the approval of the Responsible authority.	No data will be available to external end users.
INOE	National Institute Of Research and Development for Optoelectronics shares, within the GEO-CRADLE consortium, all data and other information necessary to carry out GEO-CRADLE activities.	Access rights to background created by personnel or research groups not explicitly involved in the project or to background created in the framework of other collaborations may be limited if subject to related third party rights or confidentiality obligations	
IPB	Dust Regional Atmospheric Model (DREAM)	The DREAM model as a intellectually protected software of Dr Slobodan Nickovic (the participant in the project) can be used only for the project purposes during its duration. For any other model use, an agreement with the author will be needed	n/a
	Hydrology Prognostic Model (HYPROM)	The HYPROM model as a intellectually protected software of Dr Slobodan Nickovic and Goran Pejanovic (the participants in the project) can be used only for the project purposes during its duration. For any other model use, an agreement with the authors will be needed	
CIMA	n/a	n/a	n/a
INOSENS	n/a	n/a	n/a
EARSC	n/a	n/a	n/a
EURISY	User needs analysis – methodology	n/a	n/a
	Communication, dissemination and stakeholder involvement methodology	n/a	n/a
EGS	n/a	n/a	n/a

Table 4: GEO-CRADLE project background (as of December 2015)

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