GROUP ON EARTH OBSERVATIONS

The GEO-CRADLE Regional Data Hub tool: Utilizing the GEO DAB APIs for easy access and discovery of regional EO data

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2nd GEO Data Providers workshop (20th-21st April 2017, Florence, Italy)

Introduction to GEO-CRADLE project

- ...is a unique EU funded Coordination Action running at regional level
- ...is looking at the N. Africa, Middle East, and the Balkan territories

objectives

- **Promote** the uptake of EO services and data in response to regional needs
- **Support** the effective integration of existing Earth Observation Capacities in the region
- **Facilitate** the engagement of the complete ecosystem of EO stakeholders in the region
- **Enhance** the participation in and contribution to the implementation of **GEOSS** and **Copernicus** in **North Africa**, **Middle East** and the **Balkans**

Introduction to GEO-CRADLE project

- Funded under H2020 - Climate action, environment, resource efficiency and raw materials
- ACTIVITY: Developing Comprehensive and Sustained Global Environmental Observation and Information Systems
- CALL IDENTIFIER: H2020 SC5-18b-2015 Integrating North African, Middle East and Balkan Earth Observation capacities in GEOSS
- Project GA number: 690133
- Total Budget: 2,910,800.00 €

Introduction to GEO-CRADLE project

- GEO-Cradle project is coordinated by Dr. Haris KONTOES of the Institute for Astronomy, Astrophysics, Space Applications, and Remote Sensing (IAASARS) of the National Observatory of Athens (NOA).
- The various software components (**GEO-CRADLE Portal**, **Network of Stakeholders** and **Regional Data Hub**) are development from the NOA IT team.

Introduction to GEO-CRADLE project

The project has brought together **25 partners from 3 continents**, to work in a highly-complementary team that combines a strong background in EO coordination activities with proven scientific excellence in four key thematic areas

Introduction to GEO-CRADLE project

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- A key output of GEO-CRADLE that can contribute to the long-term uptake of EO activities in the region is the operation of the Regional Data Hub.
- Provide access to region-related datasets and services, directly fed from the GCI, and at the same time being the centralised gateway for regional data providers to contribute easily and timely their products to GEOSS
- A successful example of being implemented Community Portal leveraging GEO DAB APIs.

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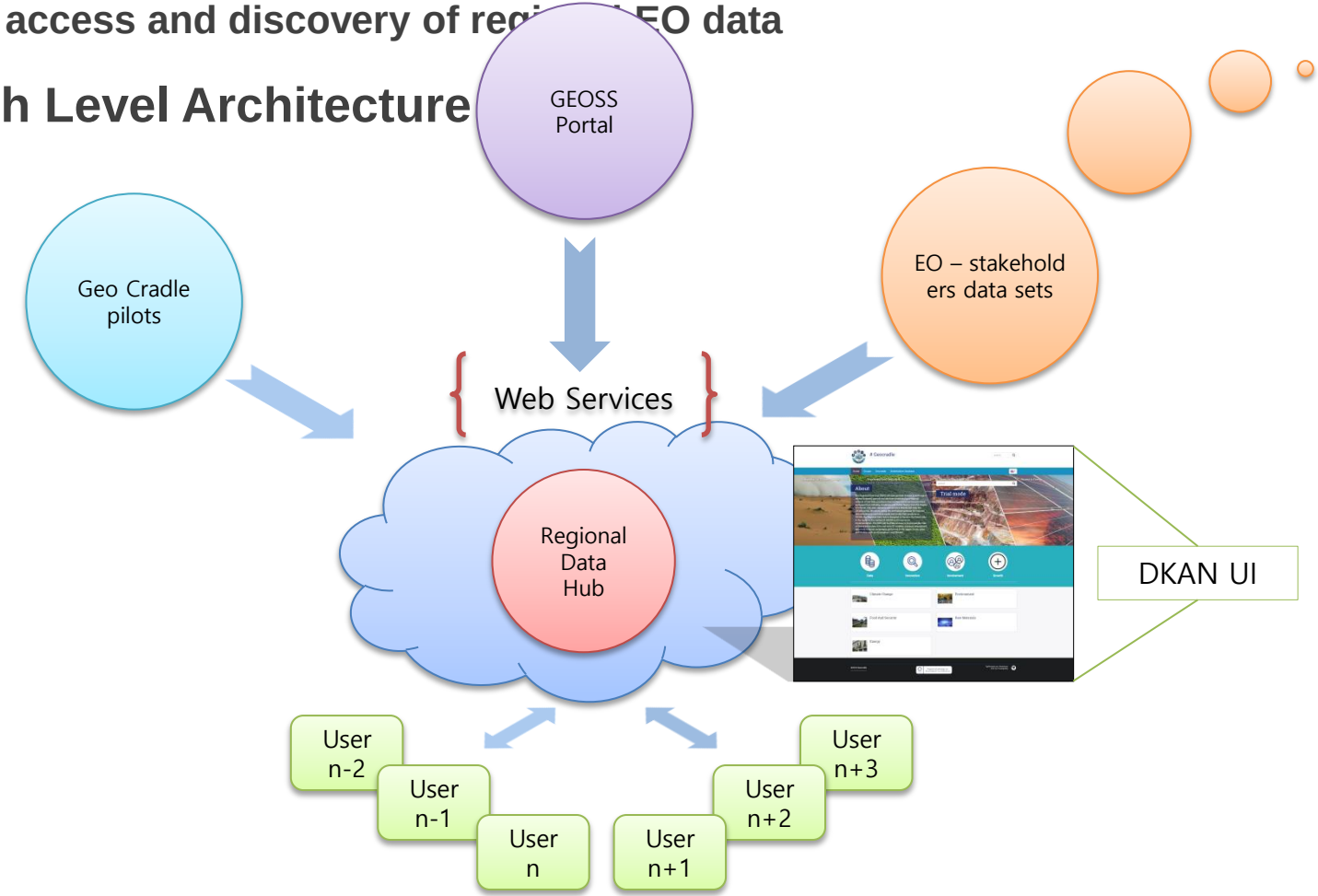
High Level Architecture



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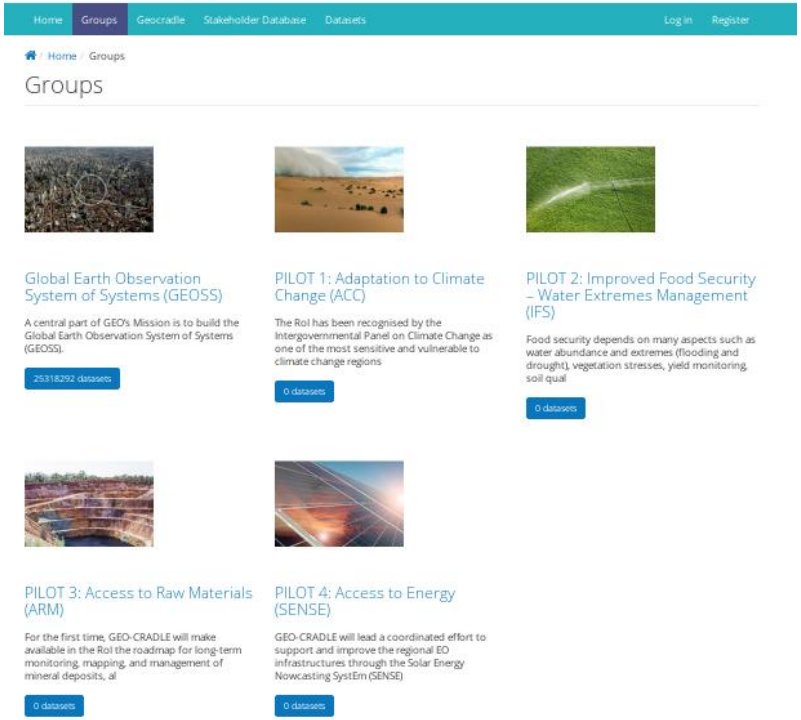
Print Screens



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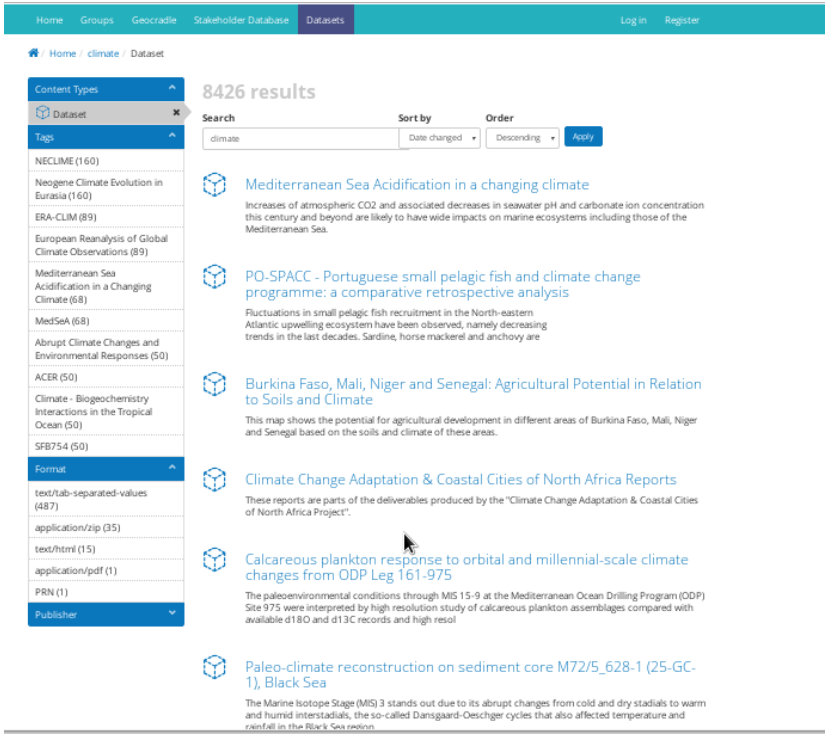
Print Screens cont'd



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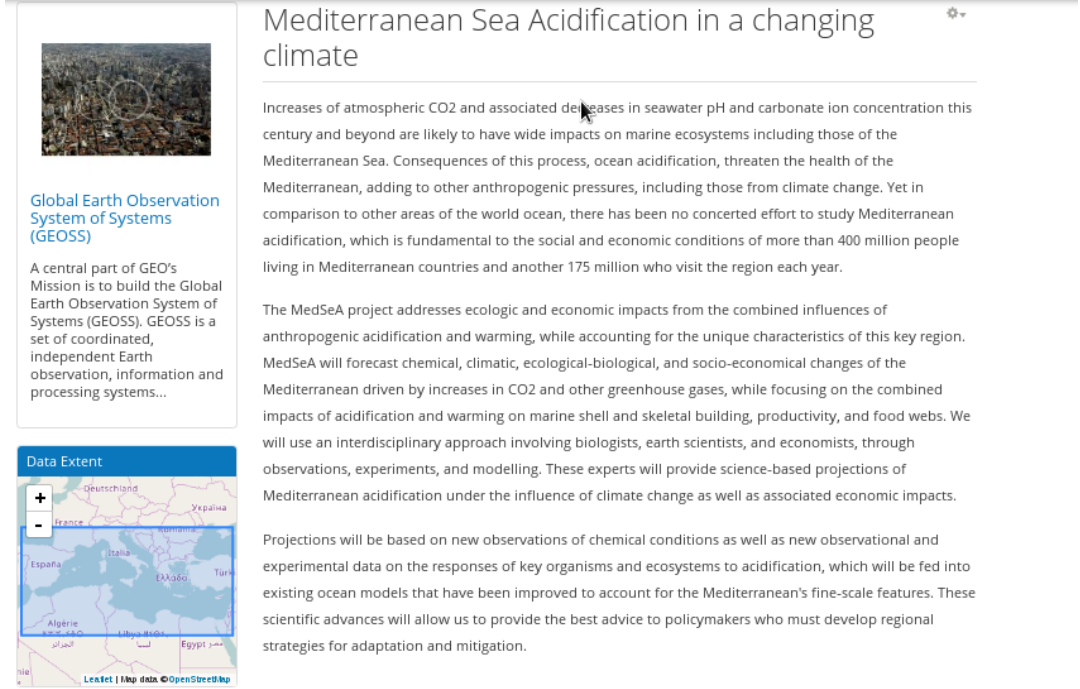

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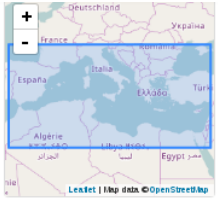

License

License not specified

Other Access

The information on this page (the dataset metadata) is also available in these formats.

JSON | RDF

via the DKAN API

Social

- Twitter
- LinkedIn
- Reddit
- Google+
- Facebook

Mediterranean acidification under the influence of climate change as well as associated economic impacts.

Projections will be based on new observations of chemical conditions as well as new observational and experimental data on the responses of key organisms and ecosystems to acidification, which will be fed into existing ocean models that have been improved to account for the Mediterranean's fine-scale features. These scientific advances will allow us to provide the best advice to policymakers who must develop regional strategies for adaptation and mitigation.

Data and Resources

Dataset Info

These fields are compatible with DCAT, an RDF vocabulary designed to facilitate interoperability between data catalogs published on the Web.

Field	Value
Publisher	Global Earth Observation System of Systems (GEOSS)
Modified Date	2012-03-02
Release Date	2012-03-02
Identifier	C1214598306-SCIOPS
Spatial / Geographical Coverage Area	POLYGON ((-8 28, 36 28, 36 46, -8 46, -8 28))
Temporal Coverage	Tuesday, February 1, 2011 - 02:00 to Saturday, February 1, 2014 - 01:59

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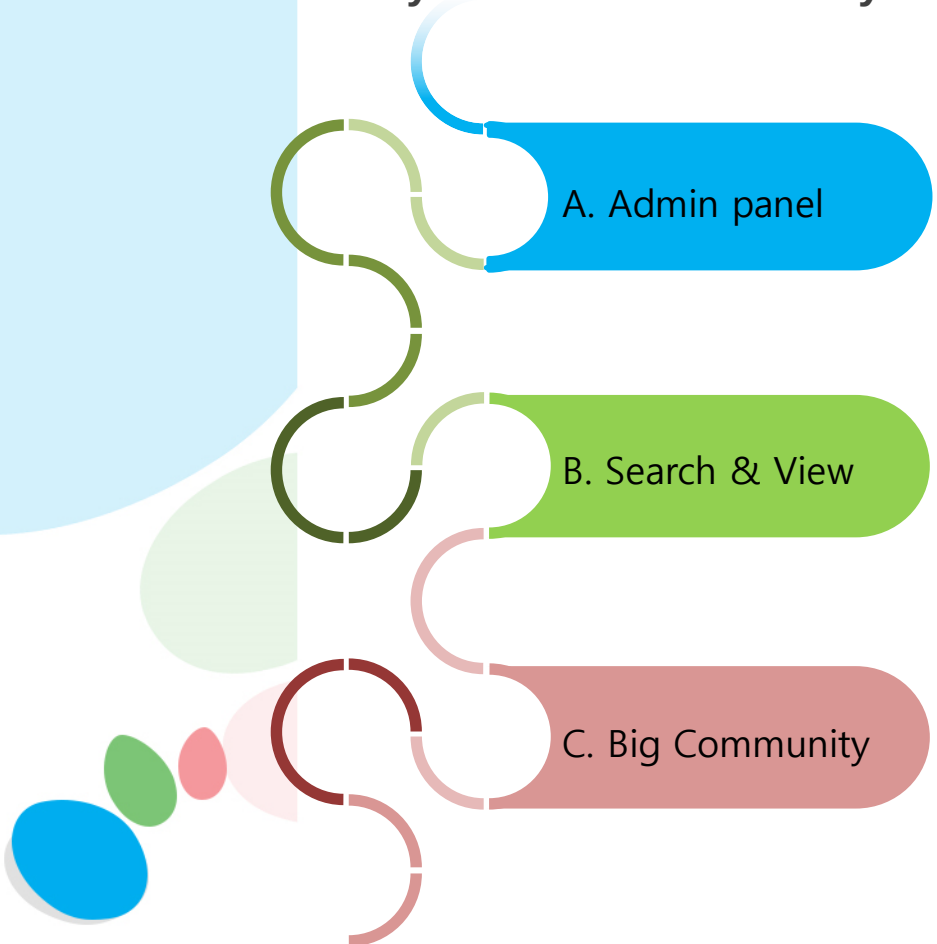

Why DKAN?

Powerful, ready to use admin panel

- Easy to define content types
- Easy to add content (e.g. Datasets, resources)
- Manage users, accessibility, taxonomies, etc.

Ready to use/customize search and view of data

- Fully customizable page layout through panels
- A multitude of APIs in order to implement various functionalities
- Faceted full-text search through Facet, Views and Search APIs

Big open-source Community

- DKAN is a complimentary offering to CKAN.
- Integrates open data catalog features into Drupal CMS, which is build upon PHP.
- PHP powers a significant percentage of Web, while Drupal powers ~2% of the Internet as a whole.
- Has a wide community of active users/developers.

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The challenge

DKAN
DKAN admin, search & display functionalities ready to use. A multitude of modules for the open data purposes.

GEO DAB APIs
The GEO DAB APIs are very easy to use. You just plug and play!

Two mature systems
However, the eventual integration of GEO DAB APIs into the DKAN ecosystem was a great challenge itself!

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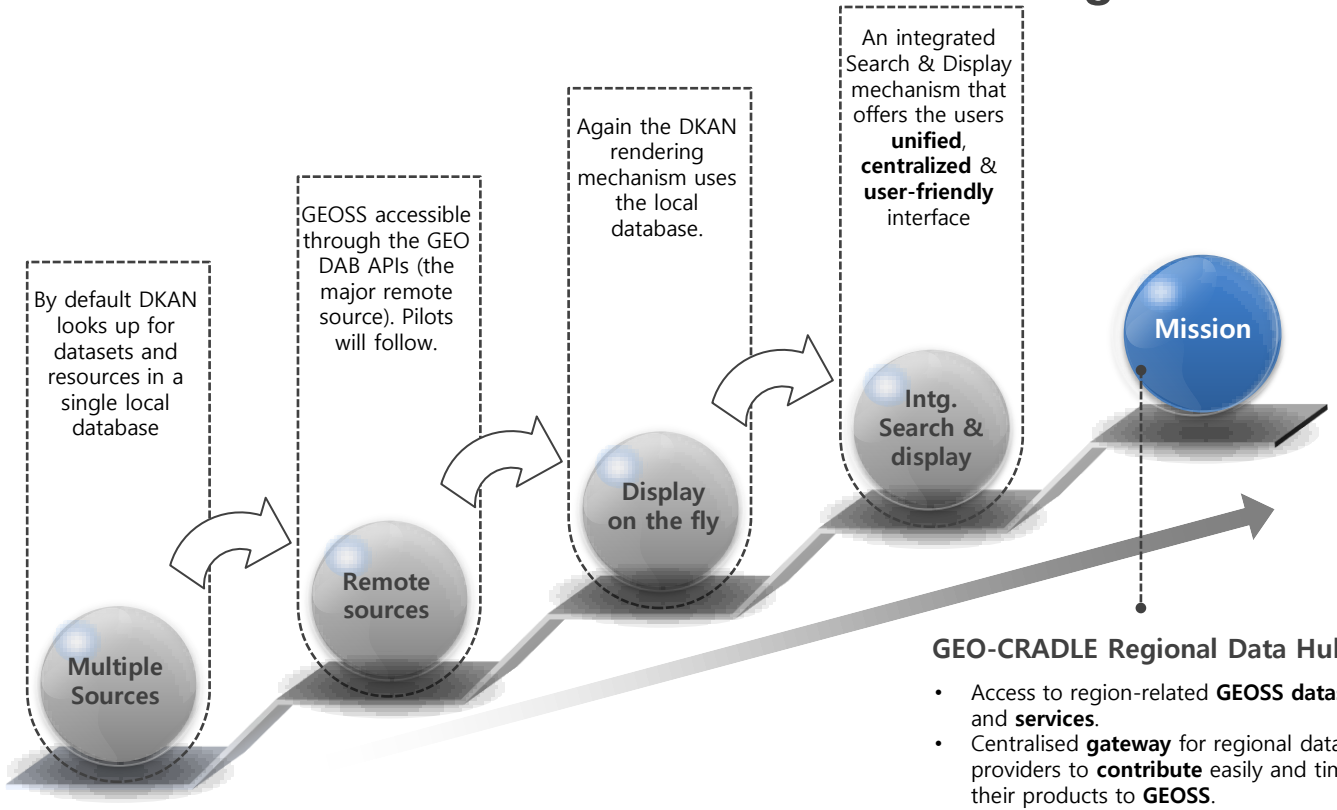
Innovation towards Challenges



GEO-CRADLE Regional Data Hub

- Access to region-related **GEOSS datasets** and **services**.
- Centralised **gateway** for regional data providers to **contribute** easily and timely their products to **GEOSS**.

Conclusions

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- GEOSS is a vital component for the creation of a universe of open EO data, together with other initiatives including NextGEOSS, DIAS platform, etc.
- The GEOSS Common Infrastructure (GCI) comprises the backbone and the necessary toolbox for the uptake of EO services & applications.

Conclusions

- The GEO Discovery and Access Broker (DAB) is a subtle component for accessing EO data.
- Offers a rich suite of standard protocols (a.k.a. interfaces).
- It's really plug and play; once you read the documentation it requires the minimum effort to integrate those in your development.
- Its **discovery**, **access** & **semantics** functionalities support properly the development of regional data hubs.

Conclusions

DKAN is suggested to be used because:

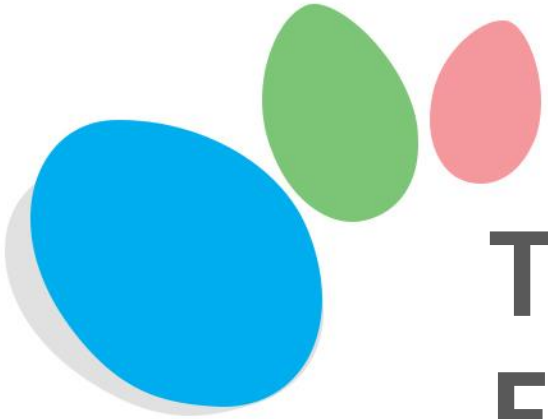
- Provides powerful plug-in modules for **access**, **discovery** of open data, as well as for the **visualization, registration** of them.
- Greatly decouples the data model from the data rendering mechanism.
- Enhances existing GEO discovery and access mechanisms like the ones provided by the GEO DAB APIs.

Conclusions

- The development of GEO-CRADLE Regional Data Hub revealed issues that made evident the difficulty of integrating the GEO DAB APIs in DKAN, especially in our attempt to display "**on-the-fly**" the brokered information of GEOSS, because DKAN is a **strict** system designed to "**ingest**" content either manually or through harvesting other DKAN installations, whereas on the other hand GCI is an **abstract** system designed to broker datasets from "everywhere" and mostly in a distributed mode.
- In addition DKAN uses **taxonomies** (taxonomy **terms** & **vocabularies**) in order to classify the content according to **format**, **keywords**, **topics**, etc. While **GCI** users free text.
- The solution to problems like these should likely be the provision of tools that could bridge gap between those systems.
- For example GCI could provide an **analytics** tool allowing applications to periodically poll for statistics regarding formats, topics, keywords and other meaningful data patterns related with the GEOSS brokered resources.

Roadmap

- Continue the developments for the GEO-CRADLE Regional Data Hub, making it the gateway of GEOSS portal in the region and operating it as a focal node towards GEOSS and Copernicus implementation.
- Use the Data Hub as a platform for making available the GEO-CRADLE pilots' data and results and allow the regional stakeholders to harvest them.
- Bring third-party data providers suitable for registration in GCI (e.g. JRC Danube Portal and some tenths of regional portals) in the course of the project. Connect Data Hub with these providers too.
- Facilitate the exchange of knowledge on existing EO capacities (data, services, models, etc.) in the region.
- Showcase concrete examples of tackling regional challenges related to adaptation of climate change, improved food security & water extremes management, better access to raw materials and energy.



THANK YOU FOR YOUR ATTENTION