GEOSS Platform Plus

D2.1

Use Cases Description and User Requirements Document – v1.0

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Abstract:

This document describes high level user scenarios from the user communities' point of view, and corresponding requirements in response to the objectives of the project, which has the aim to arrive in real-life implementations for user-communities in order to make them discover, access and use actionable information. GPP will consider four drivers for the evolution of the platform, which are the basis to derive project objectives, which drive the definition of user scenarios.

The overall scenarios described in this document are driven by the GPP objectives:

- Deliver services and knowledge, including for climate change adaptation and mitigation with a view to science-based decision making;
- Exploit the potential of the GEOSS infrastructure to the maximum extent
- Improve the experience of the users of GEOSS, in particular as regards the accessibility and usage of services and knowledge infrastructure to the maximum extent;
- Increase access to and use of heterogeneous data, including in situ measurements and data from regional and national GEOSS;
- Reinforce European leadership in GEOSS.

The requirements connected to the scenarios described in this document represent an input to the functional analysis that leads to the system requirements definition.

The approach adopted for eliciting the requirements highly relies on communication with the GEO stakeholders and their direct involvement, to ensure that their actual needs and problems in line with the objectives of this project are well understood, and the best solutions are found and put into practice.

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Executive Summary

This document describes high level user scenarios from the user communities' point of view, and corresponding requirements in response to the objectives of the project, which has the aim to arrive in real-life implementations for user-communities in order to make them discover, access and use actionable information. GPP will consider four drivers for the evolution of the platform, which are the basis to derive project objectives, which drive the definition of user scenarios.

The requirements described in this document represent an input to the functional analysis that leads to the definition of generic scenarios (abstracting from the user community-specific use cases described in the present document) and corresponding system requirements.

The approach adopted for eliciting the scenarios highly relies on communication with the GEO stakeholders and their direct involvement, to ensure that their actual needs and problems in line with the objectives of this project are well understood, and the best solutions are found and put into practice.

Several different case studies are presented, each focusing on different dimensions of Earth and human society and showcasing the diverse contribution and community needs.

The actors in the use cases described in this document represent the various user communities from the various GEOSS thematic areas.

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1. Introduction

1.1. Document Purpose and Scope

This document describes high level user scenarios from the Earth Observation user communities, which are varying from data scientists to application scientists to decision and policy makers up to citizens. But as well resource (data, information, services, infrastructure) providers, developers and value adders that shall interface with the system.

As said, the document describes high level user scenarios derived from the project objectives and the corresponding use cases and requirements, elicited in the first project cycle.

These are input to the functional analysis which leads to the definition of system requirements for the possible evolution of the Platform components and their possible integration in the user infrastructure.

The approach adopted for eliciting of the scenarios highly relies on the communication with the GEO stakeholders and their direct involvement, to ensure that their actual needs and problems in line with the objectives of this project are well understood, and the best solutions are found and put into practice.

1.2. Document Organization

The document is organised as follows:

Section 1: Introduction: describes the purpose and scope of the document and its organisation.

Section 2: Rationale and context: it contextualises the content of this document by providing background information and details on the operational landscape encompassing the system (the GEOSS Platform) that is being enhanced to support the implementation of the scenarios described in this document.

Section 3: Approach and methodology: describes the approach adopted for the elicitation and the definition of the user scenarios. It also briefly introduces the end-to-end validation and user assessment approach.

Section 4: User Scenarios: explains the differences between scenario and use cases and gives the scenarios list.

Section 5: Use cases: describes high level community-specific use cases, involving the enhanced GEOSS Platform.

Section 6: User requirements: describes the detailed, specific requirements deriving from the above-mentioned use cases.

Section 7: GEOSS platform usability enhancements: shows the requirements to improve GEOSS usability.

Section 8: Preliminary contacts with GEO Work Programme activities: describes the preliminary contacts with each GEO Work Programme and shows an overview of the first needs elicited.

Section 9: Requirements traceability matrix: Traces the requirements to the use cases.

Annex A. References: List the references used in the document.

Annex B. Figures and Tables: Provides links to figures and tables in the document.

Annex C. Terminology: explains the meaning of the acronyms and definitions used in the document.

2. Rationale and Context

2.1. Background and operational context

Climate change is one of the major environmental issues of our time and Earth Observation (EO) technology provides precious information about its research while promoting its development. The European Space Agency (ESA) and the Group on Earth Observations (GEO) are strongly promoting the use of such EO technology since it captures environmental and socio-economic data over a range of spatial, spectral and temporal resolutions and provides almost endless capabilities to deal with issues related to climate change, sustainable development and disaster risks management.

The GEOSS (Global Earth Observation System of Systems) Platform, through the GEOSS Platform, enables users to access worldwide Earth observation data and information. As one of the official GEOSS Platform components providers, ESA ensures the short and medium-term operational development of the GEOSS Portal, the unique web-based entry-point to EO-data.

Through the GEOSS Platform Plus (GPP) project, ESA, in close collaboration with the GEO partners, will contribute to the evolution of the GEOSS Platform and the GEOSS infrastructure from a functional and architectural viewpoint with the aim respectively:

1) to make accessible tailor-made information and actionable knowledge by users, focusing, in particular, on services to non-specialists in the domain of adaptation to extreme climatic events and to changes in climatic conditions, and
2) to enable full exploitation of the GEOSS infrastructure and its components, in particular, the GEOSS Infrastructure Development Task Team (GIDTT) accepted evolutions, and by driving the use of current trends in information technology, so that users can experience a user-friendly, up-to-date and therefore familiar environment.

2.2. The GPP Drivers and deriving objectives

GPP will consider four drivers for the evolution of the platform, which are the basis to derive project objectives, which drive the definition of user scenarios. The drivers are linked to the scenarios derived in the Table 2 Scenarios. The drivers are shown in the following table, grouped by the above-mentioned viewpoints.

Table 1 **Main drivers for the evolution of the GEOSS Platform**

Functional evolution	***Lessons-learned from the evaluation of the implementation of the EU Strategy on Adaptation to climate change***
	In 2005, the Commission began to consider the need to adapt to changes in Europe's climate. As a result, a White Paper[1] was adopted in 2009, and an EU adaptation strategy ('the strategy') in 2013[2]. The lessons-learned from the evaluation of its implementation, reported in the corresponding report, show, among other things, that, though knowledge gaps on adaptation may never be entirely closed, *it may be time now to switch focus from generating knowledge to applying it for decision-making.* Moreover, the reports high-lights that climate resilience requires, *among others specific adaptation standards[3], EO data, other space data and space-based services, citizen science and guidelines that are accessible to both experts and decision-makers.* The strategy is expected to be able *to deliver more in the future in certain areas*, including Disaster risk reduction, EU maritime and fisheries policy, and coastal areas in general, in the assessment and mapping of social vulnerability to climate-related events, in *reinforcing the links between public health and adaptation, notably to improve cross-sectoral cooperation on risk assessment and surveillance and to increase the awareness and capacity of the health sector, including at local level, to address current and emerging climate-related health risks.*
	The priorities identified under the European Green Deal
	Climate change is a global threat and can only be addressed by a global response. The EU actively engages and supports its international partners on climate action, in particular through the UN Framework Convention of Climate Change (UNFCCC) and its Paris Agreement. In parallel to mitigation actions, the EU is taking action on climate adaptation, to face the unavoidable impacts of climate change. The European Green Deal will transform the EU into a modern, resource-efficient and competitive economy, ensuring *(i) no net emissions of greenhouse gases by 2050, (ii) economic growth decoupled from resource use, (ii) no person and no place left behind.* The European Commission adopted a set of proposals to make the EU's climate, energy, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels.
	Objectives of the Mission on Adaptation to Climate Change including Societal Transformation
	The overall objective of the Mission is to support at least 150 European regions and communities in becoming climate resilient by 2030. In doing so, the Mission will engage local actors, notably in climate-vulnerable regions, as well as citizens by funding projects facilitating and requiring their involvement. Considering that the level of preparedness for climate impacts varies substantially between regions in Europe, this R&I support will be provided in different ways. The following specific objectives are identified: *(i) Preparing and planning for climate resilience - provide general support to European regions and communities to better understand, prepare for and manage climate risks and opportunities; (ii) Accelerating transformations to climate resilience - work with at least 150 regions and communities to accelerate their transformation to a climate resilient future, supporting them in the co-creation of innovation pathways and the testing of solutions; (iii) Demonstrating systemic transformations to climate resilience - deliver*

[1] Adapting to climate change: Towards a European framework for action. COM (2009) 147 final: https://ec.europa.eu/health/ph_threats/climate/docs/com_2009_147_en.pdf

[2] An EU strategy on adaptation to climate change. COM (2013) 0216 final: https://ec.europa.eu/clima/policies/adaptation/what_en#tab-0-1

[3] The Commission has requested the European Standardisation Organisations to update standards for climate-resilient infrastructure in the transport, energy and building sectors. See Commission Decision (C(2014)3451).

	at least 75 large-scale demonstrations of systemic transformations to climate resilience across European regions and communities.
Architecture and Infrastructure evolution	***Recommendations for GEOSS Platform Evolutions resulting from the Mid Term Evaluation***
	The Mid Term Evaluation has highlighted that GEO should review the content of the GEOSS Implementation Plan to make sure it: (i) has good links with key global, regional and national data portals (also focussing on carrying out more training activities in developing countries to bridge the digital literacy gap); (ii) addresses the gaps in the integration and availability of in situ data working with in situ terrestrial, freshwater, coastal, ocean and atmospheric observation systems and new in situ initiatives such as GBON and others. In particular, the work of the In Situ Subgroup of the Data Working Group should be strengthened; (iii) plans for appropriate use of the Knowledge Hub within the GEOSS overarching structure to demonstrate the value of Earth observation to decision makers. Moreover, the report points out that the Portal, specifically shall: (i) Improve the quality of the metadata (solve missing/non-functioning links); (ii) Improve the filtering options to allow users to select information based on their needs; (iii) Pay more attention to visualization tools; (iv) Provide context and tools to better understand the data (which is the main reason why users sometimes prefer to access data directly from the source rather than through GEOSS); (v) Consider the use of cloud technologies to address existing gaps in the GEOSS system. It was noted that GEO should be aware of the strong evolution of cloud-based data processing environments provided by the commercial sector and how these can interact with government funded cloud offerings especially as it focuses more on engaging the commercial sector.

GPP will consider the four drivers identified in Table 1, which have been the basis for deriving the five mentioned above project objectives, and initial high-level scenarios at proposal time. These scenarios, are further refined following communication with the involved stakeholders, are described in this document. GPP will continue engaging the GEO stakeholders in the development of the GEOSS infrastructure, working in close collaboration with them and leveraging the results of legacy projects, focusing on H2020, or in the near future Horizon Europe, projects, whenever possible and sensible.

In particular, GPP will build on the results of the H2020 co-funded project EDGE (2017-2020), a European contribution to GEOSS led by ESA. Moreover, the GPP project considers ongoing initiatives, including All Atlantic, Eiffel and AfriGEOSS, especially as sources of use cases and requirements.

The project objectives can be summarised in the following 5 points:

OBJ 1. Deliver services and knowledge, including for climate change adaptation and mitigation with a view to science-based decision making; GEOSS needs to evolve from a data-oriented system towards a knowledge-oriented one. In the context of climate change adaptation and mitigation, specialised algorithms and dedicated tools are often available for deriving information and knowledge from the data, therefore decision makers and government authorities have the potential to benefit from the knowledge needed to take adapted actions.

OBJ 2. Exploit the potential of the GEOSS infrastructure to the maximum extent; Starting from the elicitation of the user requirements and taking into account the outcomes of the discussions, the GPP project wants to make sure that the potential of the GEOSS Infrastructure is exploited to the maximum extent, building on past results, and ensuring that all the infrastructure components functionalities which are relevant for the users are made available to them opportunely evolved where necessary.

OBJ 3. Improve the experience of the users of GEOSS, in particular as regards the accessibility and usage of services and knowledge; Particular attention shall be paid to data and metadata quality and, in particular, to the integrity of the information provided, which, as a result of a fruitful cooperation with the other actors (especially the resource providers), shall be correct, verifiable and appropriate for

the purpose. Moreover, the user interface shall offer improved functionalities, especially for filtering and visualising data, with an appealing and familiar look & feel, using modern and well-known graphic elements and media.

OBJ 4. Increase access to and use of heterogeneous data, including in situ measurements and data from regional and national GEOSS; Starting from the user needs, the GPP project will strengthen the links with the global, regional and national initiatives and will enlarge the data providers base of GEOSS, to better respond to user requirements. This will include tackling interoperability with heterogeneous sources of data, including in situ, and considering the work done in the context of the In Situ Subgroup of the Data Working Group.

OBJ 5. Reinforce European leadership in GEOSS; several ongoing and envisaged initiatives aim to contribute to position Europe as a global force in Earth observation. The European Commission (EC) has recognized the need to improve and streamline access to and use of Copernicus data and information, by appointing ESA to design and procure four of the five Data and Information Access Services (DIAS) which ESA did in the meantime.

3. Approach and Methodology: user centrality

The elicitation of the user's needs, specification of user scenarios, end-to-end validation, and assessment of the developed solutions, are achieved through a user-centric approach, focused on an iterative involvement of the users. The purpose is to minimise requirement misunderstandings and to guarantee the ability to quickly adjust to changing requirements, within the time and budget limits.

3.1. Use Case Definition Approach

The scenarios described in this document, and the corresponding more detailed use cases (see section 5) respond to the GPP objectives, whose identification has been guided at proposal time by the drivers recommended in the call to which the GPP project responds, i.e.

- lessons-learned from the evaluation of the implementation of the EU Strategy on Adaptation to climate change (COM(2018)738))[1],
- priorities identified under the European Green Deal[2] and
- requirements expressed by the Mission on Adaptation to Climate Change[3] including Societal Transformation.

The objectives of the project are:

- Deliver services and knowledge, including for climate change adaptation and mitigation with a view to science-based decision making;
- Exploit the potential of the GEOSS infrastructure to the maximum extent
- Improve the experience of the users of GEOSS, in particular as regards the accessibility and usage of services and knowledge;
- Increase access to and use of heterogeneous data, including in situ measurements and data from regional and national GEOSS;
- Reinforce European leadership in GEOSS.

The use cases definition approach is depicted in Figure 1. As a first step, it is necessary to liaise with the identified users to understand their needs, problems, domain and working habits.

An analysis phase follows, focused on brainstorming on the user needs, defining the preliminary scenarios and, if needed, sketching mock-ups of the proposed solution, for easier user evaluation.

In the *Analysis* process, different elements are considered for each user objective, to understand how the Project, by pursuing its objectives, can best serve the user's needs.

Precisely, the following elements, per objective, are considered of critical importance.

OBJ1 – What is **actionable knowledge**?

OBJ2 – Is the full potential of the GEOSS infrastructure exploited, so that any scientist can benefit from it? In particular, can scientists easily take advantage of the work done by other scientists? Is there support for enabling **reproducibility, reusability, replicability**? [4]

[4] The terms reproducibility, replicability and reusability (or generalizability) are used in the sense defined by the *National Science Foundation's Subcommittee on Replicability and Science (2015):*

- **Reproducibility** refers to the ability of a researcher to duplicate the results of a prior study using the *same materials and procedures* as were used by the original investigator.
- **Replicability** refers to the ability of a researcher to *duplicate* the results of a prior study if the *same procedures* are followed but *new data* are collected.

OBJ3 – What is considered missing in terms of **accessibility** and **usability** of services and knowledge?

OBJ4 – What are the **data, services, knowledge sources** (including in situ) of interest to the users?

OBJ5 – What is the (expected) role, in terms of **impact**, of the use case in question and of the involved community in the European landscape?

An answer to the above identified questions is sought through the interaction with the involved stakeholders.

In the first project cycle, attention is mainly focussed on the following elements:

- **actionable knowledge** (obj 1)
- **reproducibility, reusability, replicability** (obj 2)
- **data, services, knowledge sources (**obj 4**)**

The aspects relevant to accessibility and user friendliness (**obj 3**) have been analysed in part on high level (see section 7) and will be further addressed in the second project cycle, when a first version of the proposed solutions will be available to users.

The aspects concerning the impact (**obj 5**) will be analysed later in the project life, and towards the end of the project.

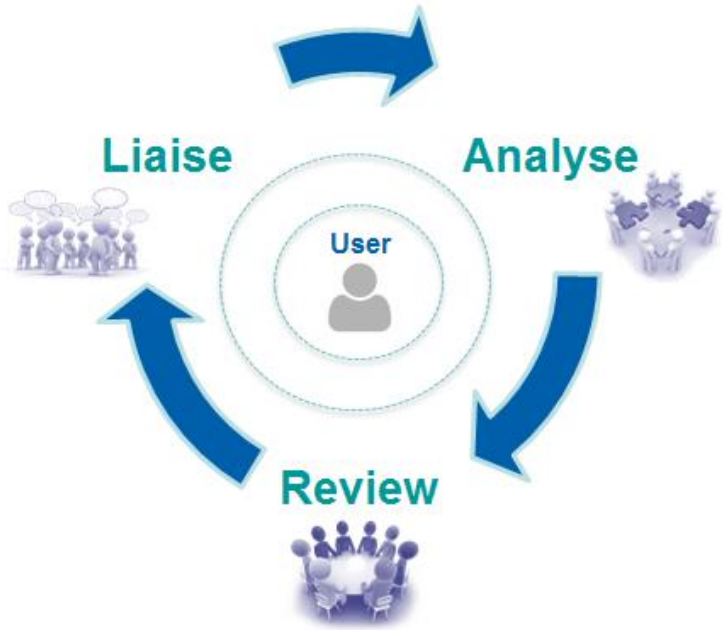


Figure 1 GPP use case definition approach

- **Generalizability** (**reusability or reuse**) refers to whether the results of a study apply in *other contexts or populations* that differ from the original one.

In short, *reproducibility* involves the original data and code; *replicability* involves new data collection(s) to test for consistency with previous results of a similar study; *reusability* (*reuse* for short) involves the original code (or a slightly modified version) with data for a different region of study, to aim to obtain similar results.

Scenarios and mock-ups are then reviewed with the user and refined, until the needs of the users are correctly and comprehensively captured, and their interest and satisfaction are met, in accordance with the project objectives.

The user community-specific scenarios are then analysed to derive system requirements, to be implemented to respond to the user needs.

4. User Scenarios

GEOSS is opening to a wider spectrum of data providers and users, ranging from specialists and researchers to non-scientists, including decision makers from the public and the private sector. The GEOSS Community has evolved by including stakeholders from non-EO domains and new user categories. Main sources of the requirements and use cases are the application owners involved in the consortium as subcontractors of ESA and that will be involved in a subsequent phase through an Invitation to Tender, and the GEO Work Programme (GWP) activities, with which the GEOSS Platform team interacts on a continuous basis. Other sources of requirements for enhancements of the Platform are the above-mentioned MTR and the needs deriving from discussions in the GIDTT.

Scenarios are intended as high-level descriptions of the context, thematic and needs of a selected user community.

Each scenario is declined into one or more detailed use cases. A **use case** corresponds to a set of behaviours and interactions expected among involved *actors*, which produces an observable result that contributes to the scenario's goals. *Actors* represent the role those human users or other entities have in the interaction. The table below introduces the identified scenarios; the subsequent section describes the use cases, grouped by scenario.

Table 2 Scenarios

Scenario #	Scenario Title	Scenario Description	Main Driver
1	Community Portal	This scenario describes a community with the need to discover earth observation and/or other (e.g. in situ) data of own interest through a dedicated portal.	GEOSS Enhancement
2	Yellow Pages Management	This scenario describes a data provider (not registered in the GEOSS platform) that should be able (through a dedicated widget) to register itself and the different (meta)data sources/services.	GEOSS Enhancement
3	Climate Change impact on pandemic risk	It is expected that climate change may affect the onset of epidemic outbreaks in different geographical regions. This scenario will produce norovirus epidemic/pandemic risk maps based on environmental changes and ecological niche changes depending on temporal projections of climate change scenarios.	Lessons-learned COM(2018)738: "... reinforcing the links between public health and adaptation"

4	SDG 15.3.1 "Proportion of land that is degraded over total land area"	Trends.Earth is expanding on other SDG indicators. We might investigate the use for generating other SDG indicators with a similar approach used for SDG15.3.1.	European Green Deal priority Mission on Adaptation to Climate Change Lessons-learned from the evaluation of the implementation of the EU Strategy on Adaptation to climate change (COM(2018)738))
5	Green Spaces Accessibility: from Cities/Country to EU/global scale	Scenario on green spaces accessibility, based on the work UNIGE have done for the SDG 11.7, relates to climate change, urban sustainability, and health. The methodology uses a mix of NDVI data together with OpenStreetMap data and an accessibility model, and it envisages deployment at different scales.	European Green Deal priority
6	Resilient Cities and Human Settlements	This scenario foresees to collaborate with SMURBS, building urban resilience against environmental pressures and to calculate the population weighted air pollution (SDG 11.6.2) over EU cities.	European Green Deal priority
7	Copernicus Climate Change	This scenario foresees smart and customised functionality for the Copernicus Climate Change as well as for the Copernicus Land Monitoring Service (data and services), and to improve GCOS essential climate variable search functionality.	European Green Deal priority
8	Water and Land-Use Management	Decision Support System to assess the impact of potential measures focusing on water management, land use and soil carbon changes within a river basin. Regional and cross-border scale: Netherlands-	Mission on Adaptation to Climate Change

		Belgium, a river basin and Noord-Brabant.	
9	Sustainable Agriculture	This scenario foresees to monitor system for crop carbon accountability and crop diversification assessment to support sustainable agriculture. National scale: Lithuania and National Paying Authority.	Mission on Adaptation to Climate Change
10	Infrastructure and Transport Management	Port activity Climate Change impact assessment tool correlating the cruise and vessel traffic to the atmospheric quality. Regional scale: Spain and Balearic Islands Port Authority.	Mission on Adaptation to Climate Change
11	Sustainable Urban Development	Impact assessment tool for urban GHG mitigation scenarios: building energy efficiency, photovoltaic penetration, adoption of e-mobility in urban regions. Local to regional scale: Greece and Attica Prefecture (Athens).	Mission on Adaptation to Climate Change
12	Disaster Resilience Framework	Develop a risk assessment framework for droughts, forest fires and pests. Regional to national scale: Finland and Finnish Environment Institute.	European Green Deal priority
13	Improved Resilience and Sustainable Urban areas to cope with Climate Change and Extreme Events	This scenario foresees the development of a Support System for Improved Resilience and Sustainable Urban areas to cope with Climate Change and Extreme Events based on GEOSS and Advanced Modelling Tools. It will leverage existing tools, services and innovative technologies to deliver an interoperable service in GEOSS, address multi-hazard risk factors and streamline the process of preparing for & responding to Climate Change-related events.	European Green Deal priority

14	Global Carbon and Greenhouse Gas Emissions	This E-Shape pilot from the SC-7 Climate showcase will: ● support the Global Carbon Project ● use the COPERNICUS and its DIAS platform ● provide NRT (year-1) land carbon fluxes at high spatial and temporal resolution based on integrating ecosystem measurements, remote sensing, and machine learning, ● create a big merged Essential Ocean Variable (EOV) Inorganic Carbon data products and link data from various ocean observing systems (Argo, OceanSites, GO-SHIP, SOCONET) Strong links with AllAtlantic use case are envisaged, especially from a data integration on ocean carbon sink estimates.	European Green Deal priority
15	Urban resilience to extreme weather - climate service	This E-Shape pilot from the SC-7 Climate showcase will serve mainly end users from municipalities entrusted with urban and environmental planning, climate adaptation, municipal utilities and risk management.	European Green Deal priority
16	Forestry conditions - climate service	This pilot from the SC-7 Climate showcase will forecast frozen soil depth and soil moisture from Copernicus C3S seasonal predictions, estimate carbon emission impacts of harvesting with several different management options and raise awareness and train foresters regarding their carbon footprint and motivate them to adopt low carbon, climate smart harvesting.	European Green Deal priority

17	Hydropower in snow reservoir – climate service	This E-Shape pilot from the SC-7 Climate showcase will decrease the vulnerability of energy companies to variations in meteorological and hydrological conditions through improved seasonal forecast products, using products derived from Sentinel-1/-2/-3 data.	European Green Deal priority
18	Seasonal preparedness	This E-Shape pilot from the SC-7 Climate showcase will help to co-design and develop extended and long-range forecasted climate outlooks on onset and offset of seasons including uncertainty information for selected regions building on Copernicus services, identifying the correlations between climate change and touristic sector.	European Green Deal priority
19	Ocean physical and chemical changes and their impact on global climate and marine carbon storage	The distributed arrays and other measurements from stationary and mobile platforms distributed throughout the global ocean, helps the carbon community to understand ocean physical and chemical changes and their impact on global climate and marine carbon storage. Data from these arrays and platforms are widely distributed and therefore difficult to discover and aggregate, and the discovery and access of Atlantic basin wide data (near real time) relevant to the carbon community, would greatly improve model predictions and speed their discovery and understanding of ocean related climate change mechanisms.	Lessons-learned COM(2018)738: "... deliver more in the future in certain areas incl. DRR, EU maritime and fisheries policy"
20	Marine ecosystem and biodiversity	Seabed habitat data and products to aid marine spatial planning and marine habitat assessments.	Lessons-learned COM(2018)738: "... deliver more in the future in certain areas incl. DRR, EU maritime and fisheries policy"

21	Marine chemistry	Marine chemistry data sets and data products related to eutrophication, contaminants, and marine litter, etc.	Lessons-learned COM(2018)738: "... deliver more in the future in certain areas incl. DRR, EU maritime and fisheries policy"
22	Marine Bathymetry	Bathymetry is the information that describes the topography of the seabed. It is an essential component in understanding the dynamics of the marine environment, both in terms of sediment transport but also in the prediction of tides, currents and waves.	Lessons-learned COM(2018)738: "... deliver more in the future in certain areas incl. DRR, EU maritime and fisheries policy"
23	AfriGEOSS	The AfriGEOSS initiative seeks to identify challenges and put in place measures to enhance Africa's participation in, and contribution to, GEOSS. This participation will support the continent's efforts to bridge the digital divide and build a knowledge-based economy using GEO networks and GEOSS infrastructure.	European Green Deal priority Mission on Adaptation to Climate Change Lessons-learned from the evaluation of the implementation of the EU Strategy on Adaptation to climate change (COM(2018)738))

5. Use Cases

The following sections report the use cases descriptions resulting at the end of the use cases definition process presented in 3.1. When necessary for easier communication with the stakeholders, mock-ups have been developed in the process: an excerpt of them is reported, along with a reference to the full version.

5.1. Introduction

This section describes use cases from the user communities' point of view, in response to the objectives of the project, which has the aim to arrive in real-life implementations for user-communities in order to make them discover, access and use actionable information. The use cases are grouped by thematic area/context and have the following attributes:

- 'Identifier': a code following the naming convention UC-<Theme>-<Counter>, where:
  - <Theme> is a three-letter identifier of the thematic area/context to which the use case refers. It could be one of the following: GEN (Generic use cases that apply to all communities), CCP (grouping all scenarios related to the Climate Change impact on pandemic risk), LDN (grouping all scenarios related to Land degradation), GSA (grouping all scenarios related to Green Spaces Accessibility);
  - <Counter> is a two-digit counter that uniquely identifies the use case;
- 'Title': a very concise textual description of the use case;
- 'Background and Rationale': a description of the context in which the use case finds its application and of the rationale at its basis.

'Use Case': full specification of the use case (actors involved, brief description, data domain, use case flow, etc. - this will be more or less detailed according to the maturity of the use case itself). In particular, this section will provide details, where applicable, for the above identified elements, i.e**. actionable knowledge** (obj 1); **reproducibility, reusability, replicability** (obj 2) **data, services, knowledge sources (**obj 4**)**.

It must be noted that the first two scenarios and corresponding (see 5.2, 5.3) are generic, cross-community, while the above elements are defined for the thematic- specific ones (from section 5.4) where applicable.

- Excerpts of the mock-ups could be used here for better conveying the information.
- 'Related user requirements': the list of the identifiers of the user requirements (fully described in Section 6) that derive from the use case.
- 'Related Drivers': an indication of the drivers (see section 2.2, to which the use case responds).

5.2. Community Portal provision

5.2.1. UC-COM-01 – Community Portal self-creation

Identifier

UC-COM-01

Title

Community portal self-creation

Background and Rationale

A developer of a given community shall be enabled to set-up/implement a community portal him/herself to allow a given community to discover, access and use Earth observations of interest and according to the needs of that specific community.

Use Case

Actors

Community's developers

Any registered and authorized user

GEOSS Platform Administrator

GEOSS Governance Body representative

Brief description

Any registered and authorized user is enabled to create a community-specific portal, through a dedicated template, providing capabilities for discovering and accessing data of interest for their community.

Input

User's information required parameters to define a new community portal (see the *Flow*).

Output

A dedicated community portal as requested by the user, corresponding to the specification given.

Data sources

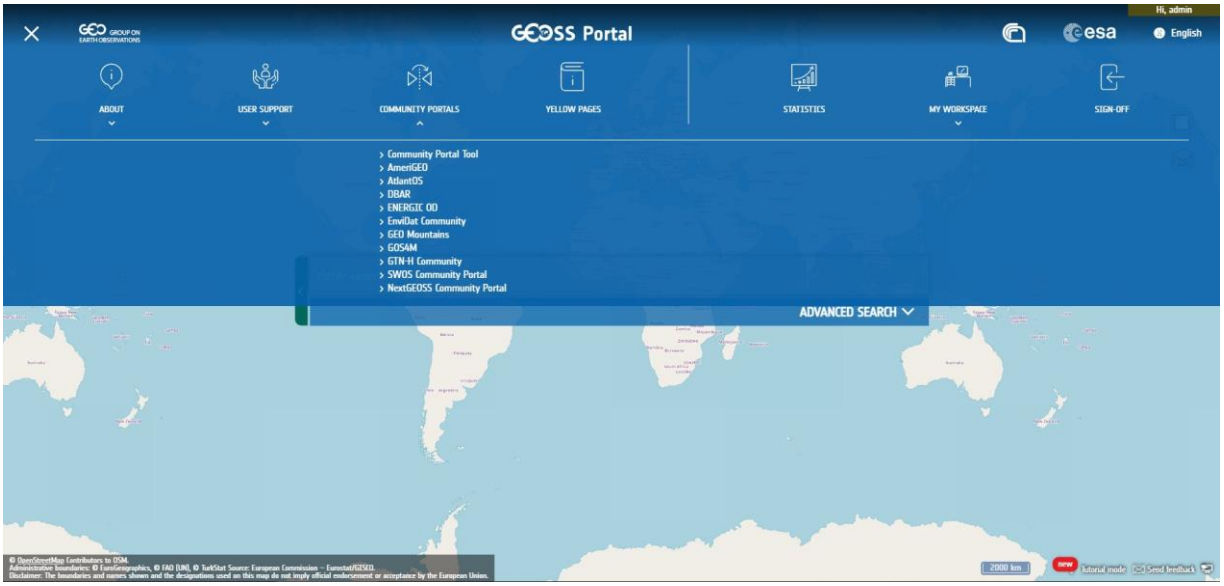
Any data domain selected by the user.

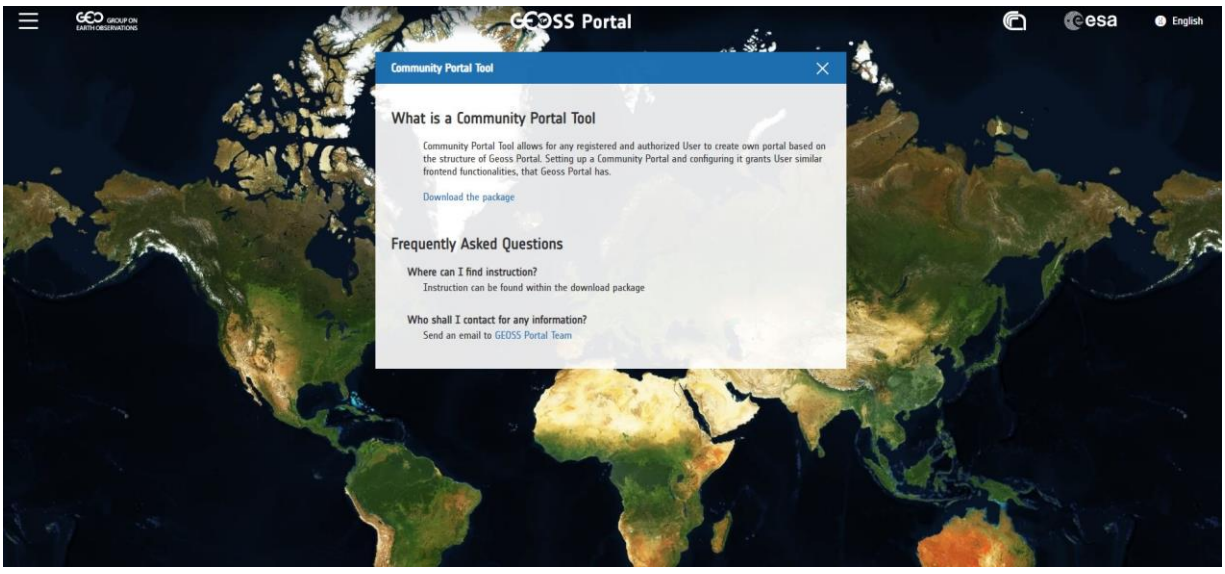
Flow

The flow identifies the steps required for the creation of a Community Portal.

1) The User must log in to the Geoss Portal to have access to the download page where the tool/package link is present. If the User does not have an account on the Portal User will need to create one.
2) The user can download a ready-to-be-installed web page template in order to configure the Community Portal
3) The user is enabled to install the downloaded, above mentioned, tool
4) The user can customize the graphic user interface (GUI) according to the user's preference, specified in the user requirements.
5) The user can select among a list of predefined views (currently existing in the GEOSS portal) or can select the default one

Mockups





Related User Requirements

- UR-CSP-01 – Community Portal package access
- UR-CSP-02 – Community Portal General Configuration
- UR-CSP-03 – Views Selection
- UR-CSP- 04 - Views Setup

Related Drivers

GEOSS Enhancement

5.2.2. UC-COM-02 - Community-specific portal registration on GEOSS

Identifier

UC-COM-02

Title

Community-specific portal registration on GEOSS

Background and Rationale

A community needs to make available their Community Portal on the GEOSS Community portal.

Use Case

Actors

A representative of a specific community

GEOSS Platform Administrator

GEOSS Governance Body representative

Brief description

Representatives of a specific community are enabled, previa acceptance by the opportune governance body, to make available a community specific portal providing capabilities for discovering and accessing data of interest for their community.

Input

Community information (name, logo, data and search criteria of interest)

Output

The community-specific portal on the GEOSS portal.

Data domain

Any data domain selected by the user.

Flow

The Community Portal registration flow aims at defining the steps needed for the request and approval (by the opportune GEOSS Governance body) of a new Community Portal on the GEOSS platform.

Registered users only can request to be included in the list of official GEOSS Community Portals accessible through the GEOSS portal.

Community Portal registration flow

1) The representative community user sends a request to create a new community portal to the GEO Governance Body representative.
    a. The representative community user provides an explanation of why and for which a community-specific portal should be generated, the community logo and the name.
2) The GEOSS Governance Body representative reviews the request.
    a. If needed, the GEOSS Governance Body representative can request an update of the provided information.
    b. The representative community user provides the requested updates.

3) The GEOSS Governance Body representative accepts the request.
4) The representative community user and the GEOSS Platform Administrator are notified that the request was accepted and the Community Portal will be made available on the GEOSS Community Portals.

Related User Requirements

- UR-CSP-05 – Link to the Community Portal
- UR-CSP-06 – Community Portal information
- UR-CSP-07 – Administration rights
- UR-CSP-08 – Add Community Portal

Related Drivers

GEOSS Enhancement

5.3. Yellow Pages Management

5.3.1. UC-YGP-01 - Registration to the GEOSS Yellow Pages

Identifier

UC-YGP-01

Title

Registration to the GEOSS Yellow Pages

Background and Rationale

A data provider (not registered in the GEOSS platform) should be able to register itself and the different (meta)data sources/services.

Precondition

Data provider is not yet registered in GEOSS Yellow Pages.

Use Case

Actor

Data provider representative

Brief description

A data provider is enabled to register to the GEOSS Yellow Pages

Input

Administrative and Technological description of the provider, link to the website, information about their data as regards discoverability, accessibility, preservation, refreshing, and quality of the metadata.

Output

The Providers is registered in the GEOSS Yellow pages (and is able to administer/modify its profile)

Data domain

Descriptive information about the providers and their data

Flow

1) The Data provider is given a link to a website where registration can be done.
2) The Data provider provides information into the form presented on the website (e.g. description of the provider, link to the website, information about their data as regards geographical coverage, discoverability, accessibility, preservation, refreshing, quality of the metadata, etc.).
3) The Data provider agrees to the ToS by checking a checkbox.
4) The user (data provider) submitted the registration in the GEOSS Yellow Pages.

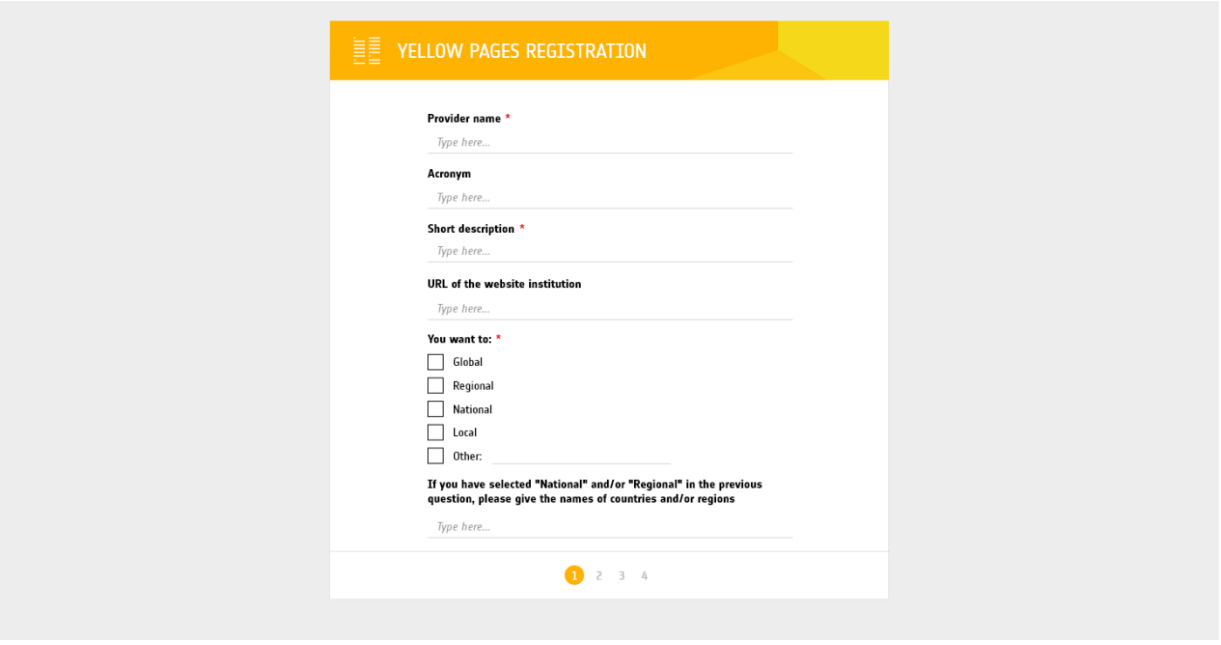
Postcondition:

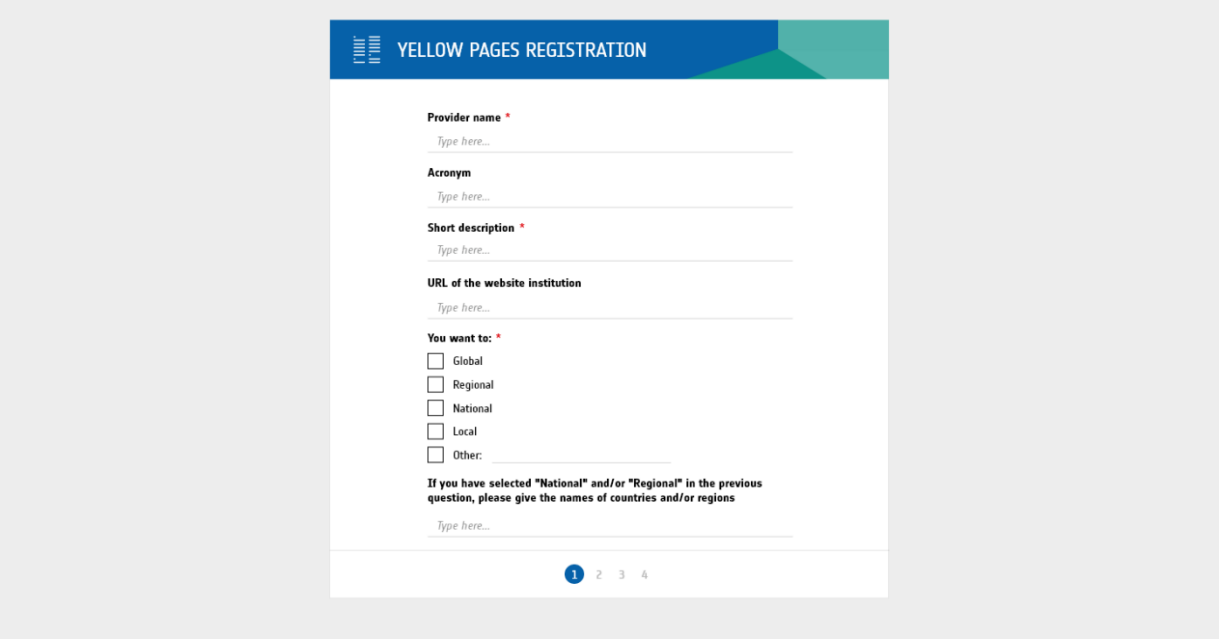
The User is informed that the submission was successful and, that Use should wait for a decision on consideration.

Open Issues and assumptions

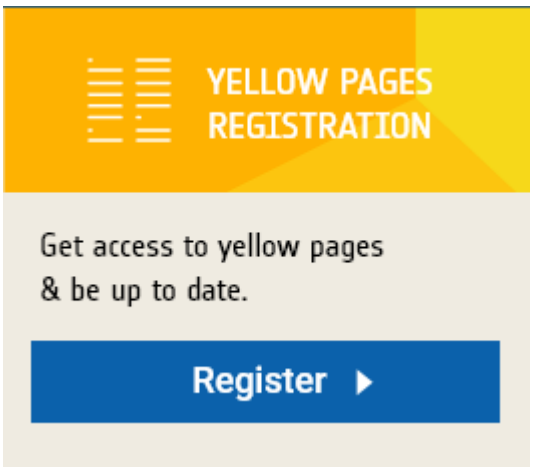
- It is assumed that the registration request is sent to a dedicated system in which it will be processed;
- Provision of the YP registration capability as a Widget is under discussion.
- What kind of traffic the form should with stand (this decision will have an impact on the API, Database requirements).
- We are assuming that Terms and Conditions of this form will be provided in text form when the implementation will begin.

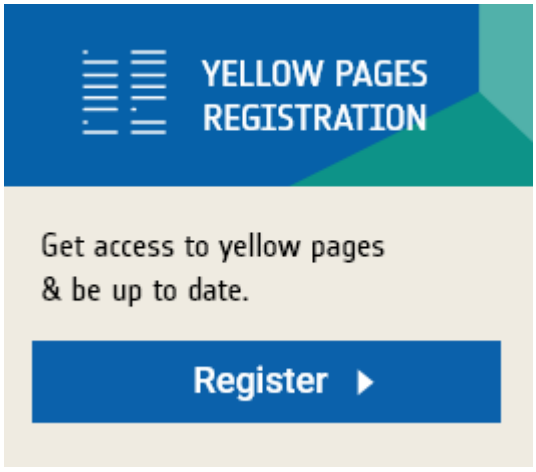
Mockups


YELLOW PAGES REGISTRATION
Provider name *
Type here...
Acronym
Type here...
Short description *
Type here...
URL of the website institution
Type here...
You want to: *
Global
Regional
National
Local
Other:
If you have selected "National" and/or "Regional" in the previous question, please give the names of countries and/or regions
Type here...
1 2 3 4


YELLOW PAGES REGISTRATION
Provider name *
Type here...
Acronym
Type here...
Short description *
Type here...
URL of the website institution
Type here...
You want to: *
Global
Regional
National
Local
Other:
If you have selected "National" and/or "Regional" in the previous question, please give the names of countries and/or regions
Type here...
1 2 3 4

YELLOW PAGES REGISTRATION
Get access to yellow pages & be up to date.
Register





Related User Requirements

- UR-YPG-01- Graphic Banner
- UR-YPG-02- Wizard Registration
- UR-YPG-03- Terms of Service Acceptance
- UR-YPG-04- User Notifications
- UR-YPG-05- Data Modification\Deletion
- UR-YPG-06 – Data Provider Account Request
- UR-YPG-07- Search and Visualization of Registered Data Providers

Related Drivers

GEOSS Enhancement

5.3.2. UC-YGP-02 – Management of the GEOSS Yellow Pages Widget

Identifier

UC-YGP-02

Title

Management of the GEOSS Yellow Pages

Background and Rationale

The Yellow Pages is the historical GEOSS component that enables and manages the registration of the Data Providers in GEOSS. It is currently hosted at the UNIGE premises and needs to be re-adapted so that it is GDPR-compliant. Considering that such component could also be needed at regional level (I.e. by the various Regional GEOSS to enable registration and management of the Regional GEOSS Data Providers), it has been decided to provide it as a Widget, that could be easily installed where needed.

Use Case

Actor

The Authorized Yellow Pages owners

Brief description

The authorized Yellow Pages owners should be able to access and download the Yellow pages Widget, and shall make available the registration function to data providers and shall store and process information provided.

Input

Form and related information, protocol to communicate to the Database.

Output

Widget

Data domain

Descriptive information about the providers and their data

Flow

1) The authorized Yellow Pages owner can download the widget.
2) The Yellow Pages owner can install the widget on their premises.
3) The wizard form is made available to the data provider.
4) The information provided by the data provided are stored in the Yellow Pages Database
5) The YP owner will inform the GEO Bodies about the new provider request in order to authorize them.
6) The provider will be informed for the request outcome (Approved/deny).

Open Issues and assumptions

GDPR aspects needs to be further investigated;

The Yellow Pages must be created outside the GOESS Platform and have to be resident in the UNIGE platform. The main point is to avoid to have any personal data on the GEOSS Portal except the one for the registration to the portal and its usage.

Related User Requirements

- UR-YPG-08- Widget download
- UR-YPG-09- Widget Installation
- UR-YPG-10 – Yellow Pages Authorization
- UR-YPG-11 – Yellow Pages Authorization Response

- UR-YPG-12 – Data Modification
- UR-YPG-13 – Data Provider Account Management
- UR-YPG-14 – Data Provider Registration Process Status

Related Drivers

GEOSS Enhancement

5.4. Land Degradation

5.4.1. UC-LDG-01 – SDG15.3.1 Towards knowledge generation on Land Degradation

Identifier

UC-LDG-01

Title

SDG15.3.1 Towards knowledge generation on Land Degradation

Background and Rationale

Avoiding, reducing and reversing land degradation and restoring degraded land is an urgent priority to protect the biodiversity and ecosystem services that are vital to life on Earth. There is an immediate

need to enhance national capacities to undertake quantitative assessments and corresponding mapping of their degraded lands.

Use Case

Actor

User from a national SDG-related agency

Brief description

The user wants to calculate the related SDG indicator 15.3.1 at the national scale, based on the official GPG 2.0 guidance document from UNCCD, using the GEOSS platform.

Input

Land degradation keywords, user selection on system results

Output (actionable knowledge)

Dashboard providing directly usable information for land degradation

Data sources

(1) Land Cover
(2) Land Productivity
(3) Carbon Stocks (soil organic carbon stocks)

Support for Reproducibility, Reusability, Replicability

This case is particularly fit for Reproducibility

Flow

1. The user connects to the GEOSS platform and does a search for “Land degradation”.
2. The user obtains a number of resources that matches his search criteria.
3. The user can discover (or a pre-selection can be made) of the required sub-indicators (see data domain) available in the GEOSS platform and selects the most suitable for his/her needs.
4. The user can discover different data, services and knowledge and their relationship associated to the SDG 15.3.1 indicator. The user can then navigate deeper into the different sources.
5. The user discovers a dedicated model to compute the SDG indicator
6. The user realizes that there is a Service associated to this model. The GEOSS Platform associates the model to the actual processing services that enable its computation, which the user can access and run in a user-friendly way. In particular, the user can inspect the process workflow and search and select data as input to the service. In addition, the user has the capability to choose a Cloud computing platform of preference among the available (these include all the DIAS Platforms and Amazon Web Services).
7. The user can now start the computation on the selected infrastructure and wait for the results
8. The user can visualize the outputs in a dedicated dashboard (that can be further elaborated/modified and shared afterwards).
9. The created dashboard can be added in My Workspace, the user who created the dashboard can chose between sharing his work with other specific users or to render it accessible to all

the platform users. In this case the User who created the dashboard should become a data provider or need the Administrator authorization.

The procedure regarding the acceptance or rejection by the Administrator is the following :

a. Administrator can reject the dashboard creation and provide information why the rejection happened. User, that created the dashboard can then update it according to the provided information or discard the whole process.
b. Administrator can accept the dashboard and in this case this dashboard will be accessible for both User, that created it and Users, that are looking for similar data in within the system. The data will be obtainable within the information tab.

Related User Requirements

- UR-LDG-01 – SDG indicator 15.3.1 computation service discovery
- UR-LDG-02 – SDG indicator 15.3.1 computation service execution
- UR-LDG-03 – Visual representation of SDG indicator 15.3.1 computations
- UR-LDG-04 – My Workspace Dashboard
- UR-LDG-05- Acceptance of the visualizations

Related Drivers

European Green Deal priority

Mission on Adaptation to Climate Change

Lessons-learned from the evaluation of the implementation of the EU Strategy on Adaptation to climate change (COM(2018)738))

5.5. EMODnet All Atlantic

5.5.1. UC-ATC-01 – EMODnet Physics experiment access

Identifier

UC-ATC-01

Title

EMODnet Physics experiment access

Background and Rationale

The EMODnet Physics portal is an excellent place to find and access ocean observations of known quality all around the world. By searching the portal, CSCS (Cyprus Subsea Consulting and Services) are able to build and save searches, request and receive data, and verify our calculations for density stratification and current magnitude and direction (and the spatial and seasonal variability of those). Combined with modelling and remote sensing data from Copernicus Marine Service (CMEMS), they become familiar with the oceanographic conditions of the operational area before they even deploy the glider. By using EMODnet, CSCS has a much better track record of glider operations, which will help them gain more customers. Producing and providing a well-supported mission plan also indicates our

level of professionalism and attention to detail, which instils confidence in our customers. The commercial sector has been slow to accept gliders for environmental monitoring but with professional and sea-proven missions, this is changing. Our success will mean that more oceanographic data at lower cost can be collected compared to most other means. If gliders become a more commonplace operational tool, then marine safety and security will improve (e.g., better knowledge of currents for pollution fate modelling, better storm forecasts, and better ecosystem management). CSCS plans to continue to use EMODnet, which grows more and more useful as more data are included.

Use Case

Actor

The actor in this use case is any user willing to access to the EMODnet Physics data.

Brief description

This actor shall be enabled to search for data relevant to EMODnet, among the other available in GEOSS.

Input

Users' search criteria for physics data

Output (actionable knowledge)

EMODnet datasets and related articles

Data sources

(1) Marine physics data
(2) Article: Glider Mission Planning with Historical Data

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data/products responding to the search criteria, including the data provided by the EMODnet Physics Catalogue.
4) The user can visualize details (metadata) regarding the data found;
5) The user can access the catalogue through a link and related articles

Related User Requirements

UR-ATL-01 – Discovery and Access to the EMODnet Marine Physics

Related Drivers

Lessons-learned COM(2018)738

5.5.2. UC-ATC-02 – Joint Copernicus Marine – EMODnet experiment: Use of Global Ocean Model, satellite-derived and in situ data by the Brazilian Sea Observatory

Identifier

UC-ATC-02

Title

Joint Copernicus Marine – EMODnet experiment: Use of Global Ocean Model, satellite-derived and in situ data by the Brazilian Sea Observatory

Background and Rationale

BSO (Brazilian Sea Observatory) is a prototype of a coastal monitoring service, including an operational modelling system for the Brazilian coast and a WebGIS platform aiming to integrate: forecast results, in situ measurements, satellite data, vessel positions, on demand tool to predict the drift of oil spills. Multiscale oil spill detection and 34lavate34g system supported by Brazilian Navy: (1) Oil spill drift model coupled with an oil spill detection tool based on satellite observations; (2) Extend the operational modelling system along Brazilian coast; (3) Improve atmospheric forcing resolution with the support of Brazilian meteorological forecasting centres; (4) Forecasts available for downloading (e.g., ERDDAP data server). Multi-user detection, forecasting and Monitoring of Oil Spills at Sea SisMOM.

Use Case

Actor

The actor in this use case is any user willing to access to Brazilian Observatory service.

Brief description

This actor shall be enabled to search for Brazilian Observatory service.

Input

Users' search criteria for Brazilian observatory service

Output (actionable knowledge)

Brazilian observatory service and related articles

Data sources

(1) Coastal monitoring

(2) EU Marine data services for All Atlantic and Global Oceans data Spaces

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data/products responding to the search criteria, including the Brazilian Observatory service and related articles

4) The user can visualize details (metadata), including links to service and articles;
5) The user clicks on the provided link and is redirected to the Brazilian Observatory service.
6) If interested, the user can access the article by clicking on the provided link.

Related User Requirements

UR-ATL-02 – Discovery and Access to the Brazilian Observatory

Related Drivers

Lessons-learned COM(2018)738

5.6. EMODnet marine ecosystem and biodiversity

5.6.1. UC-MEB-01 – EMODnet Seabed Habitats - Ospar experiment access

Identifier

UC-MEB-01

Title

EMODnet Seabed Habitats - Ospar experiment access

Background and Rationale

The main areas where disturbance from bottom-contact fishing was predicted to cause the most significant impact to benthic marine habitats were identified. This work fed directly into the OSPAR Intermediate Assessment (2017) with future implications towards the Marine Strategy Framework Directive assessments.

The EMODnet Seabed Habitats helped saving time and resources on data collection, the supply of confidence maps enabled users to provide more detailed and transparent predictions to their deliverables. Th spatial distribution of aggregated disturbance from bottom-contact fishing using the 2010–2015 data series are collected in OSPAR Assessment portal.

Use Case

Actor

The actor in this use case is any user willing to access to the EMODnet Seabed Habitats, Ospar data.

Brief description

This actor shall be enabled to search for Ospar data.

Input

Users' search criteria for Ospar data

Output (actionable knowledge)

Ospar datasets and related articles

Data sources

(1) OSPAR – Oslo/Paris Convention (for the protection of the Marine Environment of the North-East Atlantic)
(2) Extent of Physical Damage to Predominant and Special Habitats
(3) Article: OSPAR intermediate assessments: evaluation the ecological status of the marine environment in the NE Atlantic

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data/products responding to the search criteria, including the Ospar data.
4) The user can visualize details (metadata) regarding the data found;
5) The user can access the data and article through links.

Related User Requirements

UR-MEB-01 – Discovery and Access to the Ospar Data

Related Drivers

Lessons-learned COM(2018)738

5.6.2. UC-MEB-02 – EMODnet Seabed Habitats experiment access: helping to identify previously unknown soft coral habitats

Identifier

UC-MEB-02

Title

EMODnet Seabed Habitats experiment access: helping to identify previously unknown soft coral habitats

Background and Rationale

Ecological Niche Model was used to identify overlooked areas of the Mediterranean and Eastern Atlantic in this article, as areas containing soft coral habitats. The model could then be used for future surveys to target areas predicting presence of coral habitats and identify new priority conservation areas. Data on the locations of rocky-bottomed habitats across the study area were used in combination with other environmental predictors to undertake Ecological Niche Modelling, in order to investigate the distribution of suitable habitat of Paramuricea clavata.

Use Case

Actor

Any user willing to search soft corals articles

Brief description

Any user willing to search for EMODnet soft corals articles.

Input

Users' search criteria for soft corals articles

Output (actionable knowledge)

EMODnet soft coral articles

Data sources

(1) EMODnet seabed Habitats
(2) Soft Corals Habitats
(3) Identifying previously unknown soft coral habitats

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data, products responding to the search criteria, including the Soft Coral Habitats article provided by EMODnet;

4) The user can visualize detailed metadata concerning the article;
5) The user can access the article through the link.

Related User Requirements

UR-MEB-06 – Discovery and Access to the Soft Corals Article

Related Drivers

Lessons-learned COM(2018)738

5.6.3. UC-MEB-03– EMODnet Seabed Habitats experiment access: mapping ecosystem services provided by benthic habitats in the European North Atlantic Ocean

Identifier

UC-MEB-03

Title

EMODnet Seabed Habitats experiment access: mapping ecosystem services provided by benthic habitats in the European North Atlantic Ocean

Background and Rationale

The authors of the paper were able to map and assess the ecosystem services provided by habitats in the European North Atlantic Ocean, providing a point for further research and discussion on ecosystem services contribution of benthic habitats in Europe.

Use Case

Actor

Any user willing to access this article concerning the ecosystem services provided by benthic habitats

Brief description

Any user willing to access to this article.

Input

Users' search criteria for this article

Output (actionable knowledge)

EMODnet ecosystem services articles

Data sources

(1) EMODnet seabed Habitats
(2) Ecosystem services
(3) Mapping ecosystem services provided by benthic habitats in the European North Atlantic Ocean

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data/products responding to the search criteria, including the ecosystem services article provided by EMODnet;
4) The user can visualize details metadata concerning the article;
5) The user can access the document through the link.

Related User Requirements

UR-MEB-07 – Discovery and Access to the Ecosystem Services Article

Related Drivers

Lessons-learned COM(2018)738

5.6.4. UC-MEB-04 – EMODnet Seabed Habitats experiment access – Ospar intermediate assessment

Identifier

UC-MEB-04

Title

EMODnet Seabed Habitats experiment access – Ospar intermediate assessment

Background and Rationale

EMODnet Seabed Habitats data enabled the mapping of potential disturbance to benthic habitats due to fishing in the north-east Atlantic. The assessment was part of the wider OSPAR Intermediate Assessment 2017, which evaluates the status of the marine environment of the North-East Atlantic. The assessment contributes to delivery of both the OSPAR North-East Atlantic Environment Strategy (The OSPAR Strategy) and the European Union Marine Strategy Framework Directive.

The authors assessed physical damage by using habitat distribution maps at EUNIS Level 3, combined with maps of fishing pressures and information on habitat sensitivities to fishing. The majority of the habitat data used in this assessment are derived from the EMODnet Seabed Habitats portal, including EMODnet broad-scale seabed habitat map (EUSeaMap) and more detailed habitat maps from survey.

Furthermore, the confidence maps provided with EMODnet Seabed Habitats maps were used to calculate confidence in the predictions of physical disturbance. The EMODnet Seabed Habitats portal provided a one-stop shop for finding and downloading this data, saving the authors time and effort on data collection.

Use Case

Actor

The actor in this use case is any user willing to access to the EMODnet Seabed Habitats, Ospar Intermediate Assessment

Brief description

Any user willing to search for Ospar Intermediate Assessment

Input

Users' search criteria for Ospar Intermediate Assessment

Output (actionable knowledge)

Ospar intermediate assessment datasets, articles and reports

Data sources

(1) OSPAR Intermediate Assessment 2017
(2) European Marine Observation and Data Network
(3) EMODnet Seabed Habitats is crucial in assessing the extent of physical damage to benthic habitats in the North-East Atlantic

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data/products responding to the search criteria, including the Ospar Intermediate Assessment metadata.
4) The user can visualize details (metadata) regarding the Ospar Intermediate Assessment portal found;
5) The user can access the catalogue and articles through links.

Related User Requirements

UR-MEB-02 – Discovery and Access to the Ospar Intermediate Assessment

Related Drivers

Lessons-learned COM(2018)738

5.6.5. UC-MEB-05 – EMODnet Biology experiment access

Identifier

UC-MEB-05

Title

EMODnet Biology experiment access

Background and Rationale

Copepods are the most abundant members of the zooplankton family and the major source of food for many fish, whales and seabirds. Their importance to the global marine ecosystem cannot be overstated; both in the ocean food web and in the carbon cycle. Since the 1930s their abundance has been measured by the Continuous Plankton Recorder which is towed behind merchant ships and is one of the longest running biological monitoring programmes in the world.

The analysis method has remained unchanged since the 1950s and the results are unique in providing comparable data on the geographical distribution, seasonal cycles and year-to-year changes in abundance of plankton over a large spatial area.

Geospatial modelling by the EMODnet biology team turned these data into Operational Oceanographic Products and Services (OOPS) which are gridded map layers showing the average abundance of marine species for different time windows.

In turn, these OOPS feed into the "Ecosystem Overviews" of the International Council for the Exploration of the Sea (ICES) which describe the trends in pressures and state of regional ecosystems and underpin ICES's scientific advice on the exploitation and stewardship of the marine ecosystem and marine living resources in the North Atlantic.

Use Case

Actor

The actor in this use case is any user willing to access to the EMODnet Biology.

Brief description

This actor shall be enabled to search for EMODnet Biology data.

Input

Users' search criteria for EMODnet Biology data

Output (actionable knowledge)

EMODnet Biology datasets and related articles

Data sources

(1) EMODnet Biology
(2) Zooplankotn
(3) Article: Operational zooplankton data service: a long-term monitoring programme

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data/products responding to the search criteria, including the EMODnet Biology data provided by the link;
4) The user can visualize details (metadata) regarding the data found;
5) The user can access the catalogue and articles through links.

Related User Requirements

UR-MEB-03 – Discovery and Access to the EMODnet Biology

Related Drivers

Lessons-learned COM(2018)738

5.6.6. UC-MEB-06 – EMODnet Biology experiment access: Preventing the introduction of non-indigenous species

Identifier

UC-MEB-06

Title

EMODnet Biology experiment access: Preventing the introduction of non-indigenous species

Background and Rationale

Non-indigenous species (NIS) introduced by human activities are organisms moved into new areas outside their natural range by, for example, transfer of ships' ballast water, biofouling (accumulation of organisms on ships' hulls) and aquaculture.

The presence of NIS can exert pressures on the marine environment with possible social, economic or environmental impacts. Invasive NIS are one of the most significant threats to global biodiversity. Removing NIS subsequent to introduction is very difficult, which means preventing their introduction is the most cost-effective approach to management, thus avoiding costs and the need for eradication measures.

The EMODnet biology data were used to assess the trends in new records of NIS introductions into the OSPAR Maritime Area, to determine the effectiveness of measures aimed at reducing NIS introductions. The results of the study are published in the OSPAR Intermediate Assessment 2017, which evaluates the status of the marine environment of the North-East Atlantic.

Use Case

Actor

The actor in this use case is any user willing to access to the EMODnet Biology, non-indigenous species report and articles.

Brief description

This actor shall be enabled to search the EMODnet Biology.

Input

Users' search criteria for non-indigenous species report and articles

Output (actionable knowledge)

Non-indigenous species report and articles

Data sources

(1) EMODnet Biology;
(2) non-indigenous species;
(3) EMODnet Biology helps preventing the introduction of non-indigenous species.

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data/products responding to the search criteria, including the EMODnet Biology, non-indigenous species data provided by the link;
4) The user can visualize details (metadata) regarding the data found;
5) the user can access the catalogue and articles through links.

Related User Requirements

UR-MEB-04 – Discovery and Access to the EMODnet Biology - non-indigenous species

Related Drivers

Lessons-learned COM(2018)738

5.6.7. UC-MEB-07 – Joint Copernicus Marine - EMODnet experiment access: Tracking whales in the North Atlantic

Identifier

UC-MEB-07

Title

Joint Copernicus Marine - EMODnet experiment access: Tracking whales in the North Atlantic

Background and Rationale

Whales move across ocean basins as they travel between critical habitats used for feeding and breeding. Migrations are closely tied to the distribution of their prey, which is highly dynamic in time and space. However, prey is the missing link to understand the distribution and behaviour of whales and other predators. There is limited information on their migratory habitats in the mid-Atlantic region because sampling are logistically complex and expensive. Therefore, it is necessary to develop species distribution models (SDMs) incorporating model-derived prey data. To track whales in the North Atlantic, the mid-Atlantic Ridge was highlighted as a relevant habitat for fin and blue whales during their northward movement. Core habitat for sei whales above 45° N onwards, between Canada and Greenland. Movement patterns were mainly influenced by the interaction of temperature and the zooplankton biomass; however, this relationship differed substantially among species.

Use Case

Actor

The actor in this use case is any user willing to access to the EMODnet, Copernicus Marine, whales data.

Brief description

This actor shall be enabled to research the data of interest.

Input

Users' search criteria for Copernicus Marine, whales' data

Output (actionable knowledge)

Copernicus Marine, whales' datasets and related articles

Data sources

(1) EMODnet
(2) Copernicus Marine
(3) Joint Copernicus Marine - EMODnet use case: Tracking whales in the North Atlantic

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data/products responding to the search criteria, including the Joint Copernicus Marine, whales metadata provided by link;
4) The user can visualize details metadata;
5) The user can access the datasets and articles through the links.

Related User Requirements

UR-MEB-05 – Discovery and Access to the Joint Copernicus Marine – tracking whales' data

Related Drivers

Lessons-learned COM(2018)738

5.7. EMODnet Marine chemistry

5.7.1. UC-MAC-01 – EMODnet Chemistry experiment access: Supporting the analysis of EU baselines

Identifier

UC-MAC-01

Title

EMODnet Chemistry experiment access: Supporting the analysis of EU baselines

Background and Rationale

The first pan-European Marine Litter database, carried out by EMODnet Chemistry, has been used to compute EU Marine Litter quantitative Baseline. The latters are performed by the European Commission Joint Research Centre (EC JRC) and represent a fundamental step of the MSFD Implementation Strategy to provide comparable assessments and to monitor the effectiveness of litter-reduction measures.

A subset of the pan-European Marine Litter database forms the Baselines dataset: the official monitoring data regarding litter on beaches. EMODnet Chemistry partnership along with Member States' authorities, the Regional Sea Conventions, and some non-governmental organizations provided data and related information.

EMODnet Chemistry has been in charge of collecting and processing data in cooperation with the EC JRC and the MSFD Technical Group on Marine Litter (TG Litter), set up as part of the MSFD Implementation Strategy to support and advise the policy development and implementation process.

The baselines dataset includes a total 3,063 surveys on 389 European beaches over the period 2012 to 2016. It involves data from 22 European countries and all EU regions: Baltic Sea, Greater North Sea, Mediterranean Sea, Black Sea, and NorthEast Atlantic Ocean.

Delivering a single database able to handle marine litter data at pan-European scale required a strict cooperation among involved parties to define the best possible data management strategy and to identify the most valuable methodology, as better explained in Marine litter database: Lessons learned in compiling the first pan-European beach litter database (Addamo et al., 2018).

Use Case

Actor

The actor in this use case is any user willing to access to the EMODnet Chemistry, EU baselines, Marine Litter articles.

Brief description

This actor shall be enabled to search for EMODnet Chemistry, EU baselines, Marine Litter articles.

Input

Users' search criteria for EU baselines, Marine Litter articles.

Output (actionable knowledge)

EMODnet Chemistry, EU baselines article, Marine Litter database report.

Data sources

(1) EMODnet Chemistry;

(2) EMODnet Chemistry supports the analysis of EU baselines.

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data, products responding to the search criteria, including the Chemistry marine litter article provided by EMODnet;
4) The user can visualize detailed metadata concerning the article;
5) The user can access the report and related articles through the link.

Related User Requirements

UR-MAC-01 – Discovery and Access to the EMODnet Chemistry, EU baseline

Related Drivers

Lessons-learned COM(2018)738

5.7.2. UC-MAC-02 – EMODnet Chemistry experiment access: Marine Litter - action on single use plastics and fishing gear (contribution to EC impact assessment)

Identifier

UC-MAC-02

Title

EMODnet Chemistry experiment access: Marine Litter - action on single use plastics and fishing gear (contribution to EC impact assessment)

Background and Rationale

EMODnet Chemistry contributed to the Commission Staff Working Document IMPACT ASSESSMENT (Reducing Marine Litter: action on single use plastics and fishing gear), SWD (2018) 254 final, with an analysis of plastics distribution coming from for 2 "metacategories", namely fishing gear and single use plastics. The study uses the ICES DATRAS available data aggregated per MSFD regions and years.

Data are provided by different sampling devices (gear types) and are not directly comparable between them. For the same gear type, data are normalized in items/km2 in order to improve the comparison through years, reducing the effect of differences in sampling efforts along time, as suggested in recent

publications (e.g., Schulz, Marcus, et al. "OSPAR standard method and software for statistical analysis of beach litter data." Marine pollution bulletin 122.1-2 (2017): 166-175).

Most importantly, the definition of "fishing gear" and "single use plastic" "metacategories" is approximate, since these "attributes" are not considered during the sampling.

Overall distribution of seafloor litter categories per MSFD regions (for the moment, North East Atlantic Ocean and Baltic Sea data have been analysed) was also provided.

Use Case

Actor

The actor in this use case is any user willing to access to the EMDOnet Chemistry, Marine Litter reduction

Brief description

This actor shall be enabled to search for EMDOnet Chemistry, Marine Litter reduction

Input

Users' search criteria for marine litter reduction

Output (actionable knowledge)

Marine Litter reduction reports and articles

Data sources

(1) EMODnet Chemistry contributed to EC IMPACT ASSESSMENT (Reducing Marine Litter: action on single use plastics and fishing gear);
(2) Reducing Marine Litter: action on single use plastics and fishing gear.

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;
2) The User sets the search criteria;
3) The System replies with a list of data/products responding to the search criteria, including the EMODnet Chemistry, Marine Litter reduction articles;
4) The user can visualize detailed metadata regarding the articles;
5) The user can access the articles and reports through the link.

Related User Requirements

UR-MAC-02 – Discovery and Access to the EMODnet Chemistry, Marine Litter

Related Drivers

Lessons-learned COM(2018)738

5.8. EMODnet Marine Bathymetry

5.8.1. UC-MAB-01 – EMODnet bathymetry experiment access: Enhancing marine topographical data discovery and access in the North Atlantic

Identifier

UC-MAB-01

Title

EMODnet bathymetry experiment access: Enhancing marine topographical data discovery and access in the North Atlantic

Background and Rationale

The digital topographic map layers produced by EMODnet do not only show the depth of water, they also indicate where surveys are sparse and confidence in data is low. Extending this analysis for more distant waters requires collaboration with countries outside the EU who have similar programmes.

The Galway Statement signed by the European Union, Canada, and the United States in May 2013 facilitates this. Its Implementation Committee mandated an Atlantic Seabed Mapping International Working Group to take care of the issue. As a result, a prototype map viewer was developed showing EMODnet map layers together with those produced by Norway, Canada and the United States. This provides a basis for setting priorities for further surveys.

Use Case

Actor

The actor in this use case is any user willing to access to EMODnet Bathymetry services.

Brief description

This actor shall be enabled to search for EMODnet Bathymetry services.

Input

Users' search criteria for EMODnet Bathymetry service

Output (actionable knowledge)

EMODnet Bathymetry service and related articles

Data sources

(1) Bathymetry service

(2) Enhancing marine topographical data discovery and access in the North Atlantic

Support for Reproducibility, Reusability, Replicability

This case (under discussion) fit for Reproducibility, Reusability, Replicability scenarios by giving the possibility to link data with scientific articles.

Flow

1) The User accesses the GEOSS Portal;

2) The User sets the search criteria;
3) The System replies with a list of data/products responding to the search criteria, including the EMODnet Bathymetry service and articles;
4) The user can visualize detailed metadata, including links to service and articles;
5) The user clicks on the provided link and is redirected to the EMODnet Bathymetry services;
6) If interested, the user can access the article by clicking on the provided link.

Related User Requirements

UR-MAB-01 – Discovery and Access to the EMODnet Bathymetry

Related Drivers

Lessons-learned COM(2018)738

5.9. Access to the Eiffel Pilots

5.9.1. UC-EIF-01 – Access to the Eiffel Pilot 3 Infrastructure & Transport Management Regional Scale and corresponding data

Identifier

UC-EIF-01

Title

Access to the Eiffel Pilot 3 Infrastructure & Transport Management Regional Scale and corresponding data

Background and Rationale

The European Sea Ports Organisation's (ESPO) 2018 environmental report shows that air quality continues to be the main priority for European ports. The Port Authority of the Balearic Island is aware of this and has been working hard since 2016 to establish the level of air quality in its ports and to find out how port activity may be involved in this rating, in line with the Port Authority of the Balearic Island's Environmental Policy.

A total of 25 stations have been deployed across the public ports on the Balearic Islands. Each of these stations also has sensors for measuring atmospheric pressure, humidity, temperature and noise. All the ports have additionally been equipped with an anemometer which provides constant wind speed and direction readings.

A total of 250 sensors have been installed in the ports of Palma, Alcudia, Mahon, Ibiza and La Savina that record data every ten minutes. The air quality rating has been established based on the same criteria as those set by the Balearic Island Regional Government for its reference stations across the region.

Use Case

Actor

The actor in this use case is any user willing to access data produced in the context of the Eiffel Pilot 3

Brief description

This actor shall be enabled to search for data relevant to Infrastructure & Transport Management according to defined keywords and find as results, among the other available in GEOSS, also data from Eiffel Pilot 3 Infrastructure & Transport Management Regional Scale, focused in the Balearic Porth Authority and city of Palma de Mallorca responding to the search criteria.

Input

User search criteria, as defined in the user requirements

Output (actionable information)

Infrastructure & Transport Management Regional Scale data produced by the Eiffel Pilot 3

Data sources

(1) Ports;
(2) Air-quality data;
(3) In-situ sensors.

Preconditions

Data from the Eiffel Pilot 3 Infrastructure & Transport Management Regional scale have been registered in GEOSS

Flow

1) The User accesses the GEOSS Portal;
2) The User selects an area of interest;
3) The User sets the search criteria using the defined keywords;
4) The System replies with a list of data and products responding to the search criteria, including the data produced by the Eiffel Pilot 3;
5) The user can visualize details (metadata) regarding the data found;
6) The user can access and visualize them in the map viewer.

Related User Requirements

- UR-EIF-01 – Discovery of Eiffel Pilot 3 data
- UR-EIF-02 – Access and visualization of Eiffel Pilot 3 data

Related Drivers

Mission on Adaptation to Climate Change

5.9.2. UC-EIF-02 - Access to the Eiffel Pilot 4 Sustainable Urban Development Local | Regional Scale and corresponding data

Identifier

UC-EIF-02

Title

Access to the Eiffel Pilot 4: Sustainable Urban Development Local | Regional Scale and corresponding data.

Background and Rationale

The National Observatory of Athens (NOA), with support from the Eiffel project introduces the first "solar cadastre" for the city of Athens. The term refers to the geometric description and illustration of the solar energy potential that can be exploited by the respective urban building block with the use of rooftop photovoltaic systems. This service is an operational information platform aiming to support the penetration of solar systems into the urban fabric, while it will contribute to the decision making regarding the energy transition by offering environmentally friendly solutions.

The technology developed is based on the use of ultra-high-resolution Earth Observation data, advanced graphic creation platforms for three-dimensional ray tracing, radiative transfer models and supercomputer cloud architectures. It operates both climatically and in real-time, with the ultimate goal of facilitating urban planning, supporting the electricity distribution system operators of the produced energy and its efficient integration in the smart grids. Initial results show that the total rooftop usable area is able to massively host dispersed photovoltaics that can produce up to 4.3 terawatt hours (TWh) of energy per year, which in a hypothetical scenario of full rooftop coverage of buildings, can cover up to 49% of the total energy demand of Athens.

Use Case

Actor

The actor in this use case is any user willing to access data produced in the context of the Eiffel Pilot 4

Brief description

This actor shall be enabled to search for data relevant to Sustainable Urban Development according to defined keywords and find as results, among the other available in GEOSS, also data from Eiffel Pilot 4 Sustainable Urban Development Local | Regional Scale, responding to the search criteria, as well as the link(s) to the actual Eiffel Pilot/application (s).

Input

User search criteria, as defined in the user requirements

Output (actionable information)

Sustainable Urban Development Local and Regional Scale data produced by the Eiffel Pilot 4

Data sources

(1) Solar Energy
(2) Climatology

Preconditions

Data from the Eiffel Pilot 4 Sustainable Urban Development Local | Regional Scale have been registered in GEOSS

Flow

1) The User accesses the GEOSS Portal;

2) The User selects an area of interest;
3) The User sets the search criteria;
4) The System replies with a list of data, products responding to the search criteria, including the data produced by the Eiffel Pilot 4;
5) The user can visualize details (metadata) regarding the data andproducts found;
6) The user is redirected to the Eiffel Application that allows viewing the data.

Related User Requirements

- UR-EIF-03 – Discovery of Eiffel Pilot 4 data
- UR-EIF-04 – Access and visualization of Eiffel Pilot 4 data

Related Drivers

Mission on Adaptation to Climate Change

5.10. AfriGEOSS Community Portal

5.10.1. UC-AFG-01 – AfriGEOSS Community Portal

Identifier

UC-AFG-01

Title

AfriGEOSS Community Portal

Background and Rationale

The AfriGEOSS is an initiative to reinforce earth observation in Africa.

Use Case

Actor

The actor in this use case is any user who wants to explore geospatial data and information regarding Africa.

Brief description

This actor shall be enabled to access a dedicated portal offering ad-hoc functionalities for discovering, accessing and visualizing these data.

Input

User search criteria, to be defined

Output (actionable information)

Data from AfriGEOSS responding to the search criteria

Data sources

The search domain shall include resources and data TBD.

Flow

The user accesses the AfriGEOSS Portal and performs a search, within the above mentioned data domain, by using capabilities that mirror the ones offered by the GEOSS Portal. The user can then filter, browse through, select and access or visualize the search results.

Related User Requirements

- UR-AFG-01 - A dedicated portal for the AfriGEOSS community
- UR-AFG-02 - The AfriGEOSS search keywords
- UR-AFG-03 - The AfriGEOSS Region of Interest
- UR-AFG-04 – The AfriGEOSS search domain
- UR-AFG-05 - The AfriGEOSS filtering capabilities

Related Drivers

European Green Deal priority

Mission on Adaptation to Climate Change

Lessons-learned from the evaluation of the implementation of the EU Strategy on Adaptation to climate change (COM(2018)738))

5.10.2. UC-AFG-02 – Discovery and visualization of resources from AfriGEOSS

Identifier

UC-AFG-02

Title

Discovery and visualization of resources from AfriGEOSS

Background and Rationale

The AfriGEOSS is an initiative to reinforce earth observation in Africa.

Use Case

Actor

The actor in this use case is any user willing to access data, information or knowledge from AfriGEOSS.

Brief description

This actor shall be enabled to discover data in AfriGEOSS.

Input

User search criteria, to be defined

Output (actionable information)

Data from AfriGEOSS responding to the search criteria

Data sources

The search domain shall include data and information made available by AfriGEOSS.

Flow

The user performs a search for resources in AfriGEOSS and finds, browses and visualizes them.

Related User Requirements

- UR-AFG-06 - Accessing data, information and knowledge from AfriGEOSS

Related Drivers

European Green Deal priority

Mission on Adaptation to Climate Change

Lessons-learned from the evaluation of the implementation of the EU Strategy on Adaptation to climate change (COM(2018)738))

6. User Requirements

6.1. Introduction

The following sections provide detailed descriptions of the user requirements that will drive the GEOSS Platform Enhancements. The following definitions apply:

- 'Shall': Requirements containing 'shall' are considered essential, i.e. mandatory
- 'Should': These are strongly recommended requirements although non-mandatory;
- 'Could': These are nice-to-have requirement (time and resources permitting), but the solution will still be accepted if the functionality is not included
- 'Will': this can be used in a requirement text to provide additional information such as background or rationale, to help understand the requirement genesis and meaning. Will statements are not subject to verification.

User requirements are categorized by thematic area/context from which they arise

Each requirement has the following attributes:

- 'Identifier': Symbolic identifier following the convention: UR-<Theme>-<Counter>, where:
  - <Theme> is a three letter identifier of the thematic area/context to which the requirement refers. It could be one of the following: CSP(Community-specific portal), YPG (Yellow Pages), CCP(Climate change impact on pandemic), LDG(Land Degradation), GSA (Green Spaces Accessibility)
  - <Counter> is a two-digit counter that uniquely identifies the requirement.

6.2. Requirements for Community-specific portal

6.2.1. UR-CSP-01 – Community Portal package access

Identifier

UR-CSP-001

Title

Community Portal package access

Requirement Description

Any registered and authorized user must be enabled to access the Community portal package (tool). After logging in User can enter dedicated page referring to Community Portal package and download it.

Source

UC-COM-01 - Community Portal self-creation

Priority

High

Stability

Stable

6.2.2. UR-CSP-02 – Community Portal General Configuration

Identifier

UR-CSP-02

Title

Community Portal General Configuration

Requirement Description

The user is enabled to configure the Community Portal according the user's preferences, including graphical look and feel. Details will be defined in the Functional Analysis phase.

Source

UC-COM-01 – Community Portal self-creation

Priority

High

Stability

To be further refined

6.2.3. UR-CSP-03 – Views Selection

Identifier

UR-CSP-03

Title

Views Selection

Requirement Description

The user must be enabled to select the views for a Community Portal among the available or request a new one.

Source

UC-COM-01 - Community portal self-creation

Priority

Medium

Stability

Stable

6.2.4. UR-CSP- 04 - Views Setup

Identifier

UR-CSP-04

Title

Views Setup

Requirement Description

The user must be enabled to provide the parameters (data sources, keywords, spatial extent) to define a new view.

Source

UC-COM-01 - Community Portal self-creation

Priority

Medium

Stability

Stable

6.2.5. UR-CSP-05 – Link to the Community Portal from GEOSS Portal

Identifier

UR-CSP-05

Title

Link to the Community Portal from GEOSS Portal

Pre-condition

Registered user

Requirement Description

The representative of the community user must be enabled to make available their Community Portal in the list of official GEOSS Community Portal through the GEOSS Portal.

Source

UC-COM-02 - Community-specific portal registration on GEOSS

Priority

High

Stability

Stable

6.2.6. UR-CSP-06 – Community Portal information

Identifier

UR-CSP-06

Title

Community Portal information

Requirement Description

The representative community user must provide:

- an explanation of why and for which a community-specific portal should be generated
- the community logo
- the name of the community portal the user wants to create

Source

UC-COM-02 - Community-specific portal registration on GEOSS

Priority

Medium

Stability

Stable

6.2.7. UR-CSP-07 – Administration rights

Identifier

UR-CSP-007

Title

Administration rights

Requirement Description

If everything is in order, the representative community user must be enabled as Community portal administrator, with administrator functionalities.

Source

UC-COM-02 - Community-specific portal registration on GEOSS

Priority

High

Stability

Stable

6.2.8. UR-CSP-08 – Add Community Portal in the Community Portal Section

Identifier

UR-CSP-08

Title

Linking a Community Portal

Requirement Description

The user shall be notified when the Community Portal has been added in the Community Portal section.

Source

UC-COM-02 - Community-specific portal registration on GEOSS

Priority

High

Stability

Stable

6.3. Requirements for Yellow Pages

6.3.1. UR-YPG-01- Graphic Banner

Identifier

UR-YPG-01

Title

Graphic Banner

Requirement Description

The user must visualize a graphic banner, which can be found on the website, which lead to the registration form.

Source

UC-YGP-01- Registration to the GEOSS Yellow Pages

Priority

Medium

Stability

Stable

6.3.2. UR-YPG-02- Wizard Registration

Identifier

UR-YPG-02

Title

Wizard Registration

Requirement Description

The user (data provider) must be enabled to insert the provider information through a predefined form accessible throught a banner. Registration form should consider of the same fields as the current one placed in Google Docs:

Provider name *

Acronym
Please specify your acronym

Short description *
Summary of provider objectives and goals

URL of the website institution

Geographical coverage to the organization *
Choose as many as you like
Global
Regional
National
Local
Other:

If you have selected "National" and/or "Regional" in the previous question, please give the names of countries and/or regions

GEO affiliation *
Member
Participating Organisation
Observer
Non GEO

What is the name of the Official Focal point? *

What is the email of the Official Focal point? *

What is the name of the Technical focal point? *

What is the email of the Technical focal point? *

Type of online resource? *
Data (including imagery)
Knowledge body

Type of Knowledge Body
If your online resource is a Knowledge Body, which type is it?

Data accessibility *
Is your data accessible?
Yes - without restrictions
Yes - with login/credentials
No - but metadata available

Data policy *

The GEOSS Data Collection of Open Resources for Everyone (Data Core) is a distributed pool of documented datasets with full and open unrestricted access at no more than the cost of reproduction and distribution. More information: https://www.earthobservations.org/geoss_dsp.shtml

GEOSS Data Core

Restricted

Other:

GEOSS Data Management Principles label

This is a self-assessment done by the data provider

Discoverable - http://geolabel.info/Discoverable.htm

Accessible - http://geolabel.info/DataAccess.htm

Standard encoding using - http://www.geolabel.info/Encoding.htm

Well documented metadata- http://geolabel.info/Metadata.htm

Traceable - http://geolabel.info/Provenance.htm

Quality documented - http://geolabel.info/Quality.htm

Preserved - http://geolabel.info/Preservation.htm

Periodically verified - http://geolabel.info/Verified.htm

Reviewed and refreshed - http://geolabel.info/Processing.htm

Tagged with permanent ID - http://geolabel.info/Identifier.htmhttp://geolabel.info/Identifier.htm

Relevant SBA

Biodiversity and Ecosystem Sustainability - http://earthobservations.org/area.php?a=bes

Disaster Resilience - http://earthobservations.org/area.php?a=dr

Energy and Mineral Resource Management - http://earthobservations.org/area.php?a=emrm

Food Security and Sustainable Agriculture - http://earthobservations.org/area.php?a=fssa

Infrastructure and Transportation Management - http://earthobservations.org/area.php?a=itm

Public Health Surveillance - http://earthobservations.org/area.php?a=phs

Sustainable Urban Development - http://earthobservations.org/area.php?a=sud

Water Resources Management - http://earthobservations.org/area.php?a=wrmhttp://earthobservations.org/area.php?a=wrm

Relevant SDG

Please choose one or more Sustainable Development Goals (SDG)

Goal 1: No Poverty

Goal 2: Zero Hunger

Goal 3: Good Health and Well-being

Goal 4: Quality Education

Goal 5: Gender Equality

Goal 6: Clean Water and Sanitation

Goal 7: Affordable and Clean Energy

Goal 8: Decent Work and Economic Growth

Goal 9: Industry, Innovation and Infrastructure
Goal 10: Reduced Inequalities
Goal 11: Sustainable Cities and Communities
Goal 12: Responsible Consumption and Production
Goal 13: Climate Action
Goal 14: Life Below Water
Goal 15: Life on Land
Goal 16: Peace, Justice and Strong Institutions
Goal 17: Partnerships for the Goals

Other initiative

Service endpoint *

Organization Logo URL *

Additionally to fields, that were currently present in the form User will have additional two new ones:

Email address*
Password*

These two fields shall support account creation for the User within the Yellow Pages in case of positive consideration of the application.

Source

UC-YGP-01- Registration to the GEOSS Yellow Pages

Priority

medium

Stability

To be better detailed how to provide the wizard

6.3.3. UR-YPG-03- Terms of Service Acceptance

Identifier

UR-YPG-03

Title

Terms of Service Acceptance

Requirement Description

After the information has been entered, the user (data provider) must be enabled to agree to the Terms of Service (ToS).

Source

UC-YGP-01- Registration to the GEOSS Yellow Pages

Priority

medium

Stability

Stable

6.3.4. UR-YPG-04- User Notifications

Identifier

UR-YPG-04

Title

User Notifications

Requirement Description

Upon submitting the data, the User should be notified that the registration request has been 1) processed and 2) accepted.

Source

UC-YGP-01- Registration to the GEOSS Yellow Pages

Priority

medium

Stability

Stable

6.3.5. UR-YPG-05- Data Modification\Deletion

Identifier

UR-YPG-05

Title

Data Modification\Deletion

Requirement Description

The user must have the possiility to modify or delete the data provided for the registration.

Source

UC-YGP-01- Registration to the GEOSS Yellow Pages

Priority

medium

Stability

Stable

6.3.6. UR-YPG-06 – Data Provider Account Request

Identifier

UR-YPG-06

Title

Data Provider Account Request

Requirement Description

The data provider must be enabled to request a user account.

Source

UC-YGP-01- Registration to the GEOSS Yellow Pages

Priority

high

Stability

To be better detailed

6.3.7. UR-YPG-07- Search and Visualization of Registered Data Providers

Identifier

UR-YPG-07

Title

Search and Visualization of the Registered Data Providers

Requirement Description

The GEOSS portal user must be enabled to discover and visualize the information about the registered data providers.

Source

UC-YGP-01- Registration to the GEOSS Yellow Pages

Priority

medium

Stability

Stable

6.3.8. UR-YPG-08- Widget download

Identifier

UR-YPG-08

Title

Widget download

Requirement Description

The Yellow Pages owner must be able to access and download the widget.

Source

UC-YGP-02 - Management of the GEOSS Yellow Pages

Priority

high

Stability

To be better detailed

6.3.9. UR-YPG-09- Widget Installation

Identifier

UR-YPG-09

Title

Widget installation

Requirement Description

The Yellow Pages owners must be able to install the widget on their own premises.

Source

UC-YGP-02 - Management of the GEOSS Yellow Pages

Priority

high

Stability

To be better detailed

6.3.10. UR-YPG-10 – Yellow Pages Authorization

Identifier

UR-YPG-10

Title

Yellow Pages Authorization

Requirement Description

The Yellow Pages owner should be enabled to send the authorization request to the GEO Bodies in order to be authorized.

Source

UC-YGP-02 - Management of the GEOSS Yellow Pages

Priority

high

Stability

To be better detailed

6.3.11. UR-YPG-11 – Yellow Pages Authorization Response

Identifier

UR-YPG-11

Title

YP Authorization Response

Requirement Description

The Yellow Pages owner should be enabled to send the Response of the YP authorization to the Provider.

Source

UC-YGP-02 - Management of the GEOSS Yellow Pages

Priority

high

Stability

To be better detailed

6.3.12. UR-YPG-12 – Data Modification

Identifier

UR-YPG-12

Title

Data Modification

Requirement Description

The YP owner must be enabled to modify the information requested to the users (e.g. adding new fields and type of questions).

Source

UC-YGP-02 - Management of the GEOSS Yellow Pages

Priority

high

Stability

To be better detailed

6.3.13. UR-YPG-13 – Data Provider Account Management

Identifier

UR-YPG-13

Title

Data Provider Account Management

Requirement Description

The YP ower must be enabled to manage a new user account request from the data provider.

Source

UC-YGP-02 - Management of the GEOSS Yellow Pages

Priority

high

Stability

To be better detailed

6.3.14. UR-YPG-14 – Data Provider Registration Process Status

Identifier

UR-YPG-14

Title

Data Provider Registration Process Status

Requirement Description

The entitled user could be enabled to check the status and progress of the data provider registration requests.

Source

UC-YGP-02 - Management of the GEOSS Yellow Pages

Priority

high

Stability

Stable

6.4. Requirements for Land Degradation

6.4.1. UR-LDG-01 – SDG indicator 15.3.1 computation service discovery

Identifier

UR-LDG-01

Title

SDG indicator 15.3.1 computation service discovery

Requirement Description

When searching for the SDG indicator 15.3.1, the user shall receive a results list including the resources (knowledge, data and services) associated to this indicator.

Source

UC-LDG-01 - SDG15.3.1 - Towards knowledge generation on Land Degradation

Priority

High

Stability

Stable

6.4.2. UR-LDG-02 – SDG indicator 15.3.1 computation service execution

Identifier

UR-LDG-02

Title

SDG indicator 15.3.1 computation service execution

Requirement Description

The user shall be enabled to select the SDG indicator 15.3.1 calculation service, define/refine the area of interest (this depending of the level – global, regional or country, at which the indicator is provided, and inside the service-specific macro-area) and time range, select computing platform of preference among the available, and start the service execution.

Source

UC-LDG-01 - SDG15.3.1 - Towards knowledge generation on Land Degradation

Priority

High

Stability

Stable

6.4.3. UR-LDG-03 – Visual representation of SDG indicator 15.3.1 computations

Identifier

UR-LDG-03

Title

Visual representation of SDG indicator 15.3.1 computations

Requirement Description

The user must be able to visualize a customizable dashboard as the service output, where it is possible to extract additional information and to generate report, statistics about land degradation. The user shall be enabled to visualize the values resulting from the calculation of SDG indicator 15.3.1 as a layer on the map, with storytelling feature.

Source

UC-LDG-01 - SDG15.3.1 - Towards knowledge generation on Land Degradation

Priority

High

Stability

Stable

6.4.4. UR-LDG-04 – My Workspace Dashboard

Identifier

UR-LDG-04

Title

Acceptance of the visualizations

Requirement Description

The users must be able to add the dashboard in My Workspace menu and share it with the specified users.

Source

UC-LDG-01 - SDG15.3.1 - Towards knowledge generation on Land Degradation

Priority

High

Stability

Stable

6.4.5. UR-LDG-05- Acceptance of the visualizations

Identifier

UR-LDG-05

Title

Acceptance of the visualizations

Requirement Description

User, upon finishing working on dashboard, can send it over for verification by administrator of the portal. Administrator can accept the dashboard which will make it accessible within search (tab information) for other Users. It is also possible for Administrator to reject publication of such dashboard and provide reasons why this action has taken place to the User. User can update the dashboard according to information provided by Administrator or discard the whole process.

Source

UC-LDG-01 - SDG15.3.1 - Towards knowledge generation on Land Degradation

Priority

Medium

Stability

Stable

6.5. Requirements for EMODnet All Atlantic

6.5.1. UR-ATL-01 – Discovery and Access to the EMODnet Marine Physics Datasets

Identifier

UR-ATL-01

Title

Access to the EMODnet Marine Physics Datasets

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) to find the EMODnet Physics Datasets.

The user shall be enabled to access the following data and information:

- Data provided by EMODnet physics catalogue:

  https://catalogue.emodnet-physics.eu/geonetwork/srv/dut/catalog.search#/home
- Articles:

  https://emodnet.ec.europa.eu/en/use-case/glider-mission-planning-historical-data

Source

UC-ATC-01 – EMODnet Physics experiment access

Priority

High

Stability

Unstable – discussions still ongoing

6.5.2. UR-ATL-02 – Discovery and Access to the Brazilian Observatory Service

Identifier

UR-ATL-02

Title

Access to the Brazilian Observatory Service

Requirement Description

The User shall be enabled to set the search criteria and to access to the Brazilian Obervatory service. The user is enabled to visualize details (metadata) regarding the data\products found.

The user shall be enabled to access the following data and information:

- Link to Brazilian Obervatory service:
  https://portal.brazilianseaobservatory.org/
- link to the article:
  https://marine.copernicus.eu/sites/default/files/media/pdf/2022-05/GFRANZ-All-Atlantic-Webinar-2022.pdf

Source

UC-ATC-02 – Joint Copernicus Marine – EMODnet experiment: Use of Global Ocean Model, satellite-derived and in situ data by the Brazilian Sea Observatory

Priority

High

Stability

Unstable – discussions still ongoing

6.6. Requirements for EMODnet marine ecosystems and biodiversity

6.6.1. UR-MEB-01 – Discovery and Access to the Ospar Data

Identifier

UR-MEB-01

Title

Data access to the Ospar Data

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) to find the Ospar Data and the related article.

The user shall be enabled to access the following data and information:

- Link to Ospar Assessment Portal and Ospar:

  https://www.ospar.org/

  https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/biodiversity-status/habitats/extent-physical-damage-predominant-and-special-habitats/
- Articles:

  https://emodnet.ec.europa.eu/en/use-case/ospar-intermediate-assessments-evaluation-ecological-status-marine-environment-ne-atlantic

Source

UC-MEB-01 – EMODnet Seabed Habitats - Ospar experiment access

Priority

High

Stability

Unstable – discussions still ongoing

6.6.2. UR-MEB-02 – Discovery and Access to the Ospar Intermediate Assessment

Identifier

UR-MEB-02

Title

Access to the Ospar Intermediate Assessment

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) to find the Ospar Intermediate Assessment metadata.

The user shall be enabled to access the following data and information:

- Link to Ospar portal:

  https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/

- Article:

  https://emodnet.ec.europa.eu/en/use-case/emodnet-seabed-habitats-crucial-assessing-extent-physical-damage-benthic-habitats-north

Source

UC-MEB-04 – EMODnet Seabed Habitats experiment access – Ospar intermediate assessment

Priority

High

Stability

Unstable – discussions still ongoing

6.6.3. UR-MEB-03 – Discovery and Access to the EMODnet Biology

Identifier

UR-MEB-03

Title

Access to the EMODnet Biology

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) to find EMODnet Biology datasets.

The user shall be enabled to access the following data and information:

- Link to EMODnet Biology website:

https://www.emodnet-biology.eu/geoviewer/#!/

- Article:

  https://emodnet.ec.europa.eu/en/use-case/operational-zooplankton-data-service-long-term-monitoring-programme

- Datasets from EMODnet Biology

Source

UC-MEB-05 – EMODnet Biology experiment access

Priority

High

Stability

Unstable – discussions still ongoing

6.6.4. UR-MEB-04 – Discovery and Access to the EMODnet Biology - non-indigenous species

Identifier

UR-MEB-04

Title

Access to the EMODnet Biology – non-indigenous species

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) to find EMODnet Biology, non-indigenous species articles\report.

The user shall be enabled to access the following report and articles:

- Link to EMODnet Ospar Assessment Portal:

  https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/pressures-human-activities/non-indigenous/

- Article:

  https://emodnet.ec.europa.eu/en/use-case/emodnet-biology-helps-preventing-introduction-non-indigenous-species

Source

UC-MEB-06 – EMODnet Biology experiment access: Preventing the introduction of non-indigenous species

Priority

High

Stability

Unstable – discussions still ongoing

6.6.5. UR-MEB-05 – Discovery and Access to the Joint Copernicus Marine – tracking whales' data

Identifier

UR-MEB-05

Title

Access to the Joint Copernicus Marine – tracking whales' data

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) to find Joint Copernicus Marine.

The user shall be enabled to access the following data and articles:

- Link to Joint Copernicus Marine:

  https://resources.marine.copernicus.eu/product-detail/GLOBAL_MULTIYEAR_BGC_001_033/INFORMATION

- Link to Article:

  https://marine.copernicus.eu/sites/default/files/media/pdf/2022-05/SPEREZ-All-Atlantic-Webinar-2022.pdf

- Datasets from the Joint Copernicus Marine

Source

UC-MEB-07 – Joint Copernicus Marine - EMODnet experiment access: Tracking whales in the North Atlantic

Priority

High

Stability

Unstable – discussions still ongoing

6.6.6. UR-MEB-06 – Discovery and Access to the Soft Corals Article

Identifier

UR-MEB-06

Title

Access to the Soft Corals Article

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) to find Soft Corals Article.

The user shall be enabled to access the following information.

- Link to the following articles and report:

  https://www.nature.com/articles/srep36460.pdf

  https://emodnet.ec.europa.eu/en/use-case/identifying-previously-unknown-soft-coral-habitats

Source

UC-MEB-02 – EMODnet Seabed Habitats experiment access: helping to identify previously unknown soft coral habitats

Priority

High

Stability

Unstable – discussions still ongoing

6.6.7. UR-MEB-07 – Discovery and Access to the Ecosystem Services Article

Identifier

UR-MEB-07

Title

Access to the Ecosystem Services Article

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) to find Ecosystem Services Article.

The user shall be enabled to access the following articles.

- Link to find Ecosystem Services Articles:

  https://www.frontiersin.org/articles/10.3389/fmars.2014.00023/full

  https://emodnet.ec.europa.eu/en/use-case/mapping-ecosystem-services-provided-benthic-habitats-european-north-atlantic-ocean

Source

UC-MEB-03 - EMODnet Seabed Habitats experiment access: mapping ecosystem services provided by benthic habitats in the European North Atlantic Ocean

Priority

High

Stability

Unstable – discussions still ongoing

6.7. Requirements for EMODnet Chemistry

6.7.1. UR-MAC-01 – Discovery and Access to the EMODnet Chemistry, EU baseline

Identifier

UR-MAC-01

Title

Access to the EMODnet Chemistry, EU baseline

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) to find EMODnet Chemistry, EU baseline article and Marine litter database report.

The user shall be enabled to access the following information.

- Link to the EU baseline report:

  https://www.emodnet-chemistry.eu/repository/2018_Addamoetal_JRC_Report_MLDatabse_EUR29469_final.pdf

- Link to the EU baseline article:

  https://emodnet.ec.europa.eu/en/use-case/emodnet-chemistry-supports-analysis-eu-baselines

Source

UC-MAC-01- EMODnet Chemistry experiment access: Supporting the analysis of EU baselines

Priority

High

Stability

Unstable – discussions still ongoing

6.7.2. UR-MAC-02 – Discovery and Access to the EMODnet Chemistry, Marine Litter

Identifier

UR-MAC-02

Title

Access to the EMODnet Chemistry, Marine Litter

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) to find EMODnet Chemistry, Marine Litter reduction reports and articles.

The user shall be enabled to access the following information.

- Link to the following articles:

  https://ec.europa.eu/environment/pdf/circular-economy/single-use_plastics_impact_assessment.pdf

  https://emodnet.ec.europa.eu/en/use-case/emodnet-chemistry-contributed-ec-impact-assessment-reducing-marine-litter-action-single-use

Source

UC-MAC-02 - EMODnet Chemistry experiment access: Marine Litter - action on single use plastics and fishing gear (contribution to EC impact assessment)

Priority

High

Stability

Unstable – discussions still ongoing

6.8. Requirements for EMODnet Bathymetry

6.8.1. UR-MAB-01 – Discovery and Access to the EMODnet Bathymetry services

Identifier

UR-MAB-01

Title

Access to the EMODnet Bathymetry services

Requirement Description

The User shall be enabled to set the search criteria and to access to the EMODnet Bathymetry service and articles. The user is enabled to visualize metadata regarding the service and article found.

The user shall be enabled to access the following data and information.

- Link to EMODnet Bathymetry service:
  https://tiles.emodnet-bathymetry.eu/
  Link to the article:
  https://emodnet.ec.europa.eu/en/use-case/enhancing-marine-topographical-data-discovery-and-access-north-atlantic
  Datasets resulting from the service

Source

UC-MAB-01- EMODnet bathymetry experiment access: Enhancing marine topographical data discovery and access in the North Atlantic

Priority

High

Stability

Unstable – discussions still ongoing

6.9. Requirements for EIFFEL

6.9.1. UR-EIF-01 – Discovery of Eiffel Pilot 3 data

Identifier

UR-EIF-01

Title

Discovery of Eiffel Pilot 3 data

Requirement Description

The User shall be enabled to set the search criteria (search text, time range, etc,) and to use the following keywords: ports, air-quality data, in-situ sensors, NO2, SO2, O3 forecast, to discover the Copernicus Eiffel Pilot 3 data.

The search domain shall include the following data and information.

- Link to Eiffel Pilot website:
  https://www.portsdebalears.com/en/air-quality

- The following data:
  NO2 24-48 hour forecast
  SO2 24-48 hour forecast
  O3 24-48 hour forecast

Source

UC-EIF-01 – Access to the Eiffel Pilot 3 Infrastructure & Transport Management Regional Scale and corresponding data

Priority

High

Stability

Stable

6.9.2. UR-EIF-02 – Access and visualization of Eiffel Pilot 3 data

Identifier

UR-EIF-02

Title

Access and visualization of Eiffel Pilot 3 data

Requirement Description

The user shall be enabled to visualize in the map viewer and access the data, as provided by the Copernicus Eiffel Pilot 3.

Source

UC-EIF-01 – Access to the Eiffel Pilot 3 Infrastructure & Transport Management Regional Scale and corresponding data

Priority

High

Stability

Stable

6.9.3. UR-EIF-03 – Discovery of Eiffel Pilot 4 data

Identifier

UR-EIF-03

Title

Discovery of Eiffel Pilot 4 data

Requirement Description

The User shall be enabled to set the search criteria and to access to the Eiffel Pilot4 metadata using the following keywords: Solar, solar energy, real time, cadastre, photovoltaic, energy, rooftop, climatology. The user is enabled to visualize details (metadata) regarding the data and products found.

The search domain shall include the following data, service and information.

- Link to Eiffel Pilot service: http://solea.gr/athens-solar-cadastre/
- The following data:

  Solar energy potential real-time (Wh/m2)

  Solar energy potential climatology (kWh/m2)

Source

UC-EIF-02 - Access to the Eiffel Pilot 4 Sustainable Urban Development Local | Regional Scale and corresponding data

Priority

High

Stability

Stable

6.9.4. UR-EIF-04 – Access and visualization of Eiffel Pilot 4 data

Identifier

UR-EIF-04

Title

Access and visualization of Eiffel Pilot 4 data

Requirement Description

When selecting the Eiffel Pilot 4 data resulting from the search, the user shall be redirected to the Eiffel Application that allows viewing the data.

Source

UC-EIF-02 - Access to the Eiffel Pilot 4 Sustainable Urban Development Local | Regional Scale and corresponding data

Priority

High

Stability

Stable

6.10. Requirements for AfriGEOSS Community Portal

6.10.1. UR-AFG-01 - A dedicated portal for the AfriGEOSS community

Identifier

UR-AFG-01

Title

A dedicated portal for the AfriGEOSS community

Requirement Description

The AfriGEOSS users shall be enabled to access a dedicated Portal, the AfriGEOSS Portal, providing search capabilities that mirror the ones offered by the GEOSS Portal, in particular as regards the search criteria, the filtering criteria, the results browse, selection and visualization capabilities.

Source

UC-AFG-01 – AfriGEOSS Community Portal

Priority

High

Stability

Unstable – discussions still ongoing

6.10.2. UR-AFG-02 - The AfriGEOSS search keywords

Identifier

UR-AFG-02

Title

The AfriGEOSS search keywords

Requirement Description

The AfriGEOSS users shall be enabled to perform their searches based at list on the keywords still to be defined.

Source

UC-AFG-01 – AfriGEOSS Community Portal

Priority

High

Stability

Unstable – discussions still ongoing

6.10.3. UR-AFG-03 - The AfriGEOSS Region of Interest

Identifier

UR-AFG-03

Title

The AfriGEOSS Region of Interest

Requirement Description

The AfriGEOSS users shall be enabled to select as Region of Interest for their searches, in particular any geographical area in the entire Africa.

Source

UC-AFG-01 – AfriGEOSS Community Portal

Priority

High

Stability

Unstable – discussions still ongoing

6.10.4. UR-AFG-04 – The AfriGEOSS search domain

Identifier

UR-AFG-04

Title

The AfriGEOSS search domain

Requirement Description

The AfriGEOSS users shall be enabled to search in a domain that includes all the GEOSS resources over the Africa and, in particular, data from National, Regional and Global providers of Social, Economic, Environmental and other data, tools, applications and services (specific data still to be defined).

Source

UC-AFG-01 – AfriGEOSS Community Portal

Priority

High

Stability

Unstable – discussions still ongoing

6.10.5. UR-AFG-05 - The AfriGEOSS filtering capabilities

Identifier

UR-AFG-05

Title

The AfriGEOSS filtering capabilities

Requirement Description

AfriGEOSS users should be enabled to filter the search results based on customized filter criteria including:

- Filter by Country;
- Filter by AfriGEOSS Providers
- Filter by AfriGEOSS topics
- Filter by AfriGEOSS Communities (if any, to be defined)

Source

UC-AFG-01 – AfriGEOSS Community Portal

Priority

Medium

Stability

Unstable – discussions still ongoing

6.10.6. UR-AFG-06 - Accessing data, information and knowledge from AfriGEOSS

Identifier

UR-AFG-06

Title

Accessing data, information and knowledge from AfriGEOSS

Requirement Description

Users shall be enabled to search in the AfriGEOSS Community Portal, explore the relevant data with the possibility to filter by the organizations that provide them and visualize and/or access the results.

Source

UC-AFG-02 – Discovery and visualization of resources from AfriGEOSS

Priority

High

Stability

Unstable – discussions still ongoing

7. GEOSS Platform Usability Enhancements

The GEOSS team gathered some ideas to enhance the usability of the GEOSS platform, which are described in the table below, where the first column indicates the components to be enhanced and the second column describes details.

Table 3 Needs to enhance the GEOSS platform usability

First requirements identified	
Search results	Titles should be understandable by users. This action may require changes on the data provider side.
	The description of datasets should be easy to understand by users. This action may require changes on the data provider side.
	It should be necessary a sorting option (relevance, a-z, z-a, top views). This action may require changes on the data provider side.
	An option for users to decide how the search results should be displayed, in order to improve the Thumbnails visualization, should be added. This may require Data provider to force Users uploading data to insert thumbnail pictures.
	It could be necessary to expand the space for search results - from the portal (expand the page in its length to present more results).
Homepage	It could be necessary to add "sign in" option next to langue choice in the header of the page.
Tools	It should be necessary to redesign the icons of the tools.
	It should be necessary to enhance the search via AOI: instead of displaying search portlet as soon as Users chooses to search with AOI the search should slide off the page. After User is done with checking the AOI.
Shape files usage	It should be necessary to inform Users about the shape drag and drop on the map.

8. Preliminary contacts with GEO Work Programme activities

8.1. Introduction to the GEO Work Programme Activities Engagement calls

The identification of the preliminary needs of the different GWP is performed through calls with a representative member of the GWP. In the following paragraphs it will be explained the information gathered through the meetings with each GWP team.

8.2. TWIGA (Transforming Water, Weather, and Climate Information through In Situ observations for Geo-Services in Africa)

8.2.1. Overview and objectives

TWIGA (Transforming Water, Weather, and Climate Information through In Situ observations for Geo-Services in Africa) connected to GEO Global Water Sustainability (GEOGloWS) Initiative, is a Horizon 2020 project with the aim to provide currently unavailable geo-information on weather, water, and climate for sub-Saharan Africa by enhancing satellite-based geo-data with innovative in situ sensors and developing related information services that answer the needs of African stakeholders and the GEOSS community.

The concept is to create a systematic feedback loop to reciprocally validate in situ measurements and satellite data in one integrated model with over 500 in-situ measurement stations using citizen science.

TWIGA also works with the Trans-African Hydro-Meteorological Observatory (TAHMO) to implement new weather stations with atmospheric measurements running at low cost (50$ per month per station). Using these measurements, TWIGA develops services that are suitable for commercial exploitation.

8.2.2. Needs and GEOSS Platform role

The meeting with TWIGA team revealed the following aspects in which the GEOSS Platform team can provide support:

- the need to improve the discoverability of TWIGA/TAHMO resources, in particular: stations description; keywords and metadata optimization.
- the possibility to add new information (such as the early warning flood system and short-term solar energy prediction) which could represent good advertising for TWIGA.
- the possibility of a Community Portal creation.
- the possibility to utilise “Services with a fee” as part of the discoverable data and services.

8.3. EO4HEALTH (Earth Observations for Health)

8.3.1. Overview and objectives

The use of Earth observation (EO) data among interdisciplinary and multi-agency teams can significantly advance scientific knowledge of existing public health threats to human, animal, and ecosystem health. The analysis of these geospatial data can enhance the understanding of the dynamic processes of the surrounding ecosystem and influence on human health. These data can also support disease preparedness and response actions in disease epidemic or humanitarian efforts.

The Earth Observations for Health (EO4HEALTH) Initiative aims to serve a global network of governments, organizations, and observers to improve health decision-making at the international, regional, country, and district levels.

The overall goal is to support the systematic collection, analysis, and application of relevant information about areas of impending risk that inform the development of strategic responses to anticipate risks and opportunities and their evolution and communicate options to critical actors for the purposes of decision-making and response.

8.3.2. Needs and GEOSS Platform role

The meeting with EO4HEALTH revealed the following aspects in which the GEOSS Platform team can provide support:

- The need to filter and refine the results with cross referencing parameter with location, in order to not have too many results during the search
- The idea to make some data open and to provide additional input – output data.
- The possibility to have a community portal (this information is written in the survey they completed).

8.4. Global Crop Pest and Disease Habitat Monitoring & Risk Forecasting

8.4.1. Overview and objectives

Pests and diseases are major threats to food security in the world, especially for wheat, rice, and soybeans, the world's dominant food crops. More than 10 percent yield loss is caused by pests and disease every year, while in some regions the loss may be higher than 30 percent. Crop pests and diseases habitat monitoring and risk forecasting at continental and global scale are important to assess the effect of global change on agriculture production. Earth observation is very important for global crop monitoring and pest & disease forecasting due to its capability of collecting large scale data quickly and efficiently.

In 2018 and 2019, Global Crop Pest and Disease Habitat Monitoring & Risk Forecasting integrated satellite images, meteorological data (temperature, humidity, wind, radiation, etc.), and plant protection datasets to monitor global wheat, rice, and soybeans growth, habitat of main pests and diseases, and then released the first global crop pest and disease monitoring and forecasting products and reports. This project focuses on the dominant food crops, such as wheat, rice, soybeans etc., aiming to map main pests and diseases for these crops.

8.4.2. Needs and GEOSS Platform role

The meeting with Global Crop Pest and Disease Habitat Monitoring & Risk Forecasting revealed that there is the idea to share data on the platform and tools to make their products accessible; they also mentioned the possibility to provide different level of generalization of the service.

From their side, they could provide an end to end software packages included the needed datasets, to be run on the platform, or integrate somehow the GEOSS Platform with their service, or provide API in order to integrate with GEOSS platform.

To achieve these goals, follow up contacts and discussions need to be checked through dedicated technical meeting to understand the integration approaches, the datasets and services that can be made discoverable and or accessible, communication protocols, APIs etc.

Lastly, in the survey, they mentioned that they would benefit from a community portal.

8.5. Forest Biomass Reference System

8.5.1. Overview and objectives

The aim of GEO-TREES is to support the establishment and development of a global activity of in situ biomass reference measurement sites, the Forest Biomass Reference System (FBRS), in order to complement existing and planned space-based forest biomass observation instruments.

The objective is to provide integrated, multi-observational, multi-scale reference data to support global space-based forest biomass mapping and to include high-quality georeferenced data on tree biodiversity. Climate change concerns impose an immediate and urgent demand for verifiable and consistent measures of forest biomass in order to reduce the major uncertainties in calculations of carbon stocks and fluxes associated with the terrestrial biosphere. International agreements have made it imperative to obtain accurate estimates of biomass and its changes: under the Paris Agreement (Article 4, paragraph 2) each nation needs to prepare, communicate and maintain successive Nationally Determined Contributions (NDCs) that it intends to achieve.

8.5.2. Needs and GEOSS Platform role

The meeting with GEO-TREES revealed the following aspects:

- The idea to harvest GEO-TREES data, coming from different providers, on the GEOSS platform.
- The need to investigate a bit more into the GEOSS Platform functionalities and have a follow-up discussion.

8.6. GOS4M (Global Observation System for Mercury)

8.6.1. Overview and objectives

The Global Observation System for Mercury (GOS4M) is part of the GEO Work Programme (2016-2025) and Group on Earth Observation (GEO – www.earthobservations.org). GOS4M has a strong foundation on the outcomes of the former GEO Task on Health Surveillance [HE-02 “Tracking Pollutants”] established as a part of the GEO Work Plan (2009-2015). GOS4M is aimed to support all interested Parties in the implementation of the Minamata Convention. The overarching goal of GOS4M is to promote actions aiming to provide comparable global monitoring mercury data and validated modelling frameworks. In order to achieve this objective, GOS4M’s key goal is to promote the establishment of a federation of existing regional and global monitoring networks that would allow to provide global comparable monitoring data for the purpose of the Minamata Convention on Mercury (MCM). The availability of comparable mercury monitoring data would foster the validation of numerical and statistical models used to assess the fate of mercury from local to global scales with changing emission regimes and climate, and source-receptor relationships. Another important goal of GOS4M is to support Nations and all interested Parties in developing their own national or/and regional monitoring programme by providing technical assistance and promoting capacity building initiatives for setting up new monitoring sites in areas where no mercury monitoring facilities and expertise are available.

8.6.2. Needs and GEOSS Platform role

The meeting with GOS4M revealed the following aspects:

- The need to understand how discovery and access of GEOSS services can be enhanced to support GOS4M activities.
- The idea that GOS4M team would think about further improvements for GEOSS platform.

8.7. GEOGLAM (Group of Earth Observation Global Agricultural Monitoring Initiative)

8.7.1. Overview and objectives

The purpose of Group on Earth Observations Global Agricultural Monitoring Initiative (GEOGLAM) is to increase market transparency and improve food security by producing and disseminating relevant, timely, and actionable information on agricultural conditions and outlooks of production at national, regional, and global scales. It achieves this by strengthening the international community's capacity to utilize coordinated, comprehensive, and sustained Earth observations.

The GEOGLAM policy mandate initially came from the Group of Twenty (G20) Agriculture Ministers during the French G20 Presidency in 2011. The mandate has expanded parallel to the G20 mandate to include food security concerns and we now work to support early warning for international agency response to emerging food emergencies. GEOGLAM has produced Stocktaking reports for the G20 in recent years. These reports are available for 2018, 2019 and 2020.

GEOGLAM is working on a response to the three big policy drivers of our time: UN Sustainable Development Goals; the Paris Accord on Climate Change; and the Sendai Framework on Disaster Risk Reduction. Through the development of quantified metrics GEOGLAM will be able to work with other science communities and statistical agencies to develop policy relevant information in support of sustainable food production.

8.7.2. Needs and GEOSS Platform role

The meeting with GEOGLAM revealed the following aspects:

- The need to start a dialog and provide requirements to the GEOSS team, in order to understand how the GEOSS portal can support their work.
- The idea to create a Community Portal.

8.8. GEO VENER (GEO Vision for Energy)

8.8.1. Overview and objectives

The GEO-VENER initiative was launched in September 2016, to ensure a more efficient link between the renewable energy community and the GEO Community and to stress the benefits of Earth Observation (EO) data for decision-making in the development of renewable energies (RE). GEO-VENER built on the community portal Webservice-energy.org, to serve the development of RE by providing an easy interoperable and GEOSS compliant access to documented, precise, trustable (or bankable) data, observation, information, knowledge and services related to RE.

Five key objectives were defined in the 2017-2019 implementation plan, including: 1) Define structures of governance, 2) Define essential renewable energies variables (EREV), 3) Conduct gap analysis, 4) Develop in-situ meta-networks for RE, and 5) further develop the webservice-energy.org platform. Some progresses have been achieved, but there is a need to revisit and to adapt them to the new vision of a results-oriented GEOSS and expanding opportunities and challenges in the energy sector (e.g., infrastructure resilience).

8.8.2. Needs and GEOSS Platform role

The meeting with GEO VENER revealed that some data transformation services are already available in the GEO Knowledge Hub and could be possibly connected to the GEOSS Platform.

The GEO VENER activity is not interested in a Community Portal, since they have their own HCI, which could be linked to the GEOSS Portal (in the Community Portal section). In particular the meeting revealed the following aspects:

- GEOSS Platform team should connect to the GEO VENER team for the e-shape knowledge package and pilots, in order to start a collaboration.
- GEOSS Platform team should discuss with GEO VENER on the creation of a Community Portal that will include the web service energy portal.

8.9. GEO BLUE PLANET ("Oceans and Society: Blue Planet" Initiative)

8.9.1. Overview and objectives

GEO Blue Planet is a network of ocean and coastal-observers, social scientists and end-user representatives from a variety of stakeholder groups, including international and regional organizations, NGOs, national institutes, universities and government agencies. GEO Blue Planet aims to ensure the sustained development and use of ocean and coastal observations for the benefit of society.

GEO Blue Planet's mission is to:

- advance and exploit synergies among the many observational programmes devoted to ocean and coastal waters;
- improve engagement with a variety of stakeholders for enhancing the timeliness, quality and range of services delivered; and
- raise awareness of the societal benefits of ocean observations at the public and policy levels

8.9.2. Needs and GEOSS Platform role

The meeting with GEO BLUE PLANET revealed the following aspects:

- The idea to create a community portal.
- The possibility to harvest some data sources on GEOSS, like optical water quality validation for inland and coastal waters, and to provide a wish list of currently unavailable datasets and critical datasets that are currently being used for optical water quality validation data.
- Work towards the registration of those existing data sources in the GEOSS portal.
- The idea to make some data OGC interoperable (WaterML) and connect with webservices with GEOSS.
- Organize another call once the list is received to follow up and coordinate future actions.

8.10. GEO Mountains

8.10.1. Overview and objectives

GEO Mountains – officially, the Group on Earth Observations (GEO) Global Network for Observations and Information in Mountain Environments – is a GEO Work Programme Initiative that seeks to identify, collate, and make accessible transboundary and inter- and transdisciplinary data and information pertaining to environmental, ecological, and societal systems and their changes in mountainous regions globally.

In so doing, it hopes to increase the ease with which the scientific research community, local, national, and regional decision makers, and other interested parties can access and use such data and information.

8.10.2. Needs and GEOSS Platform role

The meeting with GEO Mountains revealed the following aspects:

- GEO Mountains team is interested to improve the usage of the Community Portal already existing in the uat environment.
- There is the idea to integrate other interoperable and freely accessible data on the platform.
- The possibility to provide algorithms and services to make them available on GEOSS.
- GEOSS Platform and GEO Mountains teams should have a follow up meeting on requirements
- GEOSS Platform team should send the users requirements form to GEO Mountains
- GEOSS Platform team to investigate about integrating the GEO Mountains knowledge package.

9. Requirements Traceability Matrix

	Req. Code	Req Title	Source Use Case
1.	UR-CSP-01	Community Portal package access	UC-COM-01 – Community Portal self-creation
2.	UR-CSP-02	Community Portal General Configuration	UC-COM-01 – Community Portal self-creation
3.	UR-CSP-03	Views Selection	UC-COM-01 – Community Portal self-creation
4.	UR-CSP-04	Views Setup	UC-COM-01 – Community Portal self-creation
5.	UR-CSP-05	Link to the Community Portal from the GEOSS Portal	UC-COM-02 - Community-specific portal registration on GEOSS
6.	UR-CSP-06	Community Portal information	UC-COM-02 - Community-specific portal registration on GEOSS
7.	UR-CSP-07	Administration rights	UC-COM-02 - Community-specific portal registration on GEOSS
8.	UR-CSP-08	Add Community Portal in the Community Portal section	UC-COM-02 - Community-specific portal registration on GEOSS
9.	UR-YPG-01	Graphic Banner	UC-YGP-01- Registration to the GEOSS Yellow Pages
10.	UR-YPG-02	Wizard Registration	UC-YGP-01- Registration to the GEOSS Yellow Pages
11.	UR-YPG-03	Terms of Service Acceptance	UC-YGP-01- Registration to the GEOSS Yellow Pages
12.	UR-YPG-04	User Notifications	UC-YGP-01- Registration to the GEOSS Yellow Pages
13.	UR-YPG-05	Data Modification\Deletion Identifier	UC-YGP-01- Registration to the GEOSS Yellow Pages
14.	UR-YPG-06	Data Provider Account Request	UC-YGP-01- Registration to the GEOSS Yellow Pages
15.	UR-YPG-07	Search and Visualization of Registered Data Providers	UC-YGP-01- Registration to the GEOSS Yellow Pages
16.	UR-YPG-08	Widget download	UC-YGP-02 - Management of the GEOSS Yellow Pages
17.	UR-YPG-09	Widget Installation	UC-YGP-02 - Management of the GEOSS Yellow Pages
18.	UR-YPG-10	Yellow Pages Authorization	UC-YGP-02 - Management of the GEOSS Yellow Pages

	Req. Code	Req Title	Source Use Case
19.	UR-YPG-11	Yellow Pages Authorization Response	UC-YGP-02 - Management of the GEOSS Yellow Pages
20.	UR-YPG-12	Data Modification	UC-YGP-02 - Management of the GEOSS Yellow Pages
21.	UR-YPG-13	Data Provider Account Management	UC-YGP-02 - Management of the GEOSS Yellow Pages
22.	UR-YPG-14	Data Provider Registration Process Status	UC-YGP-02 - Management of the GEOSS Yellow Pages
23.	UR-LDG-01	SDG indicator 15.3.1 computation service discovery	UC-LDG-01 - SDG15.3.1 - Towards knowledge generation on Land Degradation
24.	UR-LDG-02	SDG indicator 15.3.1 computation service execution	UC-LDG-01 - SDG15.3.1 - Towards knowledge generation on Land Degradation
25.	UR-LDG-03	Visual representation of SDG indicator 15.3.1 computations	UC-LDG-01 - SDG15.3.1 - Towards knowledge generation on Land Degradation
26.	UR-LDG-04	My Workspace Dashboard	UC-LDG-01 - SDG15.3.1 - Towards knowledge generation on Land Degradation
27.	UR-LDG-05	Acceptance of the visualizations	UC-LDG-01 - SDG15.3.1 - Towards knowledge generation on Land Degradation
28.	UR-EIF-01	Discovery of Eiffel Pilot 3 data	UC-EIF-01 – Access to the Eiffel Pilot 3 Infrastructure & Transport Management Regional Scale and corresponding data
29.	UR-EIF-02	Access and visualization of Eiffel Pilot 3 data	UC-EIF-01 – Access to the Eiffel Pilot 3 Infrastructure & Transport Management Regional Scale and corresponding data
30.	UR-EIF-03	Discovery of Eiffel Pilot 4 data	UC-EIF-02 - Access to the Eiffel Pilot 4 Sustainable Urban Development Local | Regional Scale and corresponding data

	Req. Code	Req Title	Source Use Case
31.	UR-EIF-04	Access and visualization of Eiffel Pilot 4 data	UC-EIF-02 - Access to the Eiffel Pilot 4 Sustainable Urban Development Local | Regional Scale and corresponding data
32.	UR-ATL-01	Discovery and Access to the EMODnet Marine Physics Datasets	UC-ATC-01 – EMODnet Physics experiment access
33.	UR-ATL-02	Discovery and Access to the Brazilian Observatory Service	UC-ATC-02 – Joint Copernicus Marine – EMODnet experiment: Use of Global Ocean Model, satellite-derived and in situ data by the Brazilian Sea Observatory
34.	UR-MEB-01	Discovery and Access to the Ospar Data	UC-MEB-01 - EMODnet Seabed Habitats - Ospar experiment access
35.	UR-MEB-6	Discovery and Access to the Soft Corals Article	UC-MEB-02 – EMODnet Seabed Habitats experiment access: helping to identify previously unknown soft coral habitats
36.	UR-MEB-07	Discovery and Access to the Ecosystem Services Article	UC-MEB-03– EMODnet Seabed Habitats experiment access: mapping ecosystem services provided by benthic habitats in the European North Atlantic Ocean
37.	UR-MEB-02	Discovery and Access to the Ospar Intermediate Assessment	UC-MEB-04 – EMODnet Seabed Habitats experiment access – Ospar intermediate assessment
38.	UR-MEB-03	Discovery and Access to the EMODnet Biology	UC-MEB-05 – EMODnet Biology experiment access
39.	UR-MEB-04	Discovery and Access to the EMODnet Biology - non-indigenous species	UC-MEB-06 – EMODnet Biology experiment access: Preventing the introduction of non-indigenous species
40.	UR-MEB-05	Discovery and Access to the Joint Copernicus Marine – tracking whales data	UC-MEB-07 – Joint Copernicus Marine - EMODnet experiment access: Tracking whales in the North Atlantic

	Req. Code	Req Title	Source Use Case
41.	UR-MAC-01	Discovery and Access to the EMODnet Chemistry, EU baseline	UC-MAC-01 – EMODnet Chemistry experiment access: Supporting the analysis of EU baselines
42.	UR-MAC-02	Discovery and Access to the EMODnet Chemistry, Marine Litter	UC-MAC-02 – EMODnet Chemistry experiment access: Marine Litter - action on single use plastics and fishing gear (contribution to EC impact assessment)
43.	UR-MAB-01	Discovery and Access to the EMODnet Bathymetry services	UC-MAB-01 – EMODnet bathymetry experiment access: Enhancing marine topographical data discovery and access in the North Atlantic
44.	UR-AFG-01	A dedicated portal for the AfriGEOSS community	UC-AFG-01 – AfriGEOSS Community Portal
45.	UR-AFG-02	The AfriGEOSS search keywords	UC-AFG-01 – AfriGEOSS Community Portal
46.	UR-AFG-03	The AfriGEOSS Region of Interest	UC-AFG-01 – AfriGEOSS Community Portal
47.	UR-AFG-04	The AfriGEOSS search domain	UC-AFG-01 – AfriGEOSS Community Portal
48.	UR-AFG-05	The AfriGEOSS filtering capabilities	UC-AFG-01 – AfriGEOSS Community Portal
49.	UR-AFG-06	Accessing data, information and knowledge from AfriGEOSS	UC-AFG-02 – Discovery and visualization of resources from AfriGEOSS

Annex A. References

[1] GPP: GEOSS Platform Plus – GPP

Annex B. Figures and Tables

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Annex C. Terminology

Acronyms and Abbreviations

CNR-IIA	Consiglio Nazionale delle Ricerche – Istituto per l'Inquinamento Atmosferico
EC	European Commission
EO	Earth Observation
EOP	Earth Observation Programme
ESA	European Space Agency
ESRIN	European Space Research Institute
EU	European Union
GEO	Group on Earth Observation
GEO DAB	GEO Discovery and Access Broker
GEOSS	Global Earth Observation System of Systems
GPP	GEOSS Platform Plus
H2020	Horizon 2020
MOM	Minutes of Meeting
PQMP	Project Quality Management Plan
QA	Quality Assurance
SDG	Sustainable Development Goal
WBS	Work Breakdown Structure
WGISS	Working Group on Information Systems and Services
WP	Work Package
WPL	Work Package Leader