ENVRI-Hub NEXT

D7.3

First Release of the Map-based User Interface

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Abstract	
Keywords	Catalogue of Metadata, Graphical User Interface, User Guide, EXV
This deliverable states the deployment of the first release of the ENVRI-Hub Catalogue of Services map-based graphical user interface. It includes the URL to access the software, a screenshot of the landing page, a user guide and a service provider guide to further enrich the list of available services in the second half of the project. References to the technical description of the software are provided.	

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V 0.2	01/07/2025	First Review	Federico Drago (EGI)
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V1.0	**20/07/2025**	**Final Version**	Alessandro Turco (EPOS ERIC)

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Terminology / Acronyms	
Term/Acronym	**Definition**
CoS	Catalogue of Services
ECV	Essential Climate Variable
EXV	Essential Variable concepts in domains such as Climate, Ocean and Biodiversity sciences.
GUI	Graphical User Interface
EHN	ENVRI-Hub NEXT
DCAT-AP	Data Catalogue Vocabulary - Application Profile
EPOS-DCAT-AP	EPOS extension of DCAT-AP
RI	Research Infrastructure
VRE	Virtual Research Environment

Useful Reference: https://doi.org/10.5281/zenodo.14794634

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Executive Summary

This brief report is intended as a simple user guide for the map-based user interface of the ENVRI-Hub Catalogue of Services (CoS). The report also includes instructions for data/service providers entering the CoS. Technical details are discussed in other deliverables, such as:

- D5.1 *"Software Architecture Design"*
- D7.1 *"Report on Metadata Catalogue Development"*
- D7.2 *"First Report on Integration of Catalogue with the Analytical Framework"*
- D11.2 *"Metadata and Vocabularies Harmonisation"*

1. How to use the Map-based User Interface

The map-based user interface of the Catalogue of Services is accessible at the following URL: https://catalogue.staging.envri.eu/, and it appears as in Figure 1.

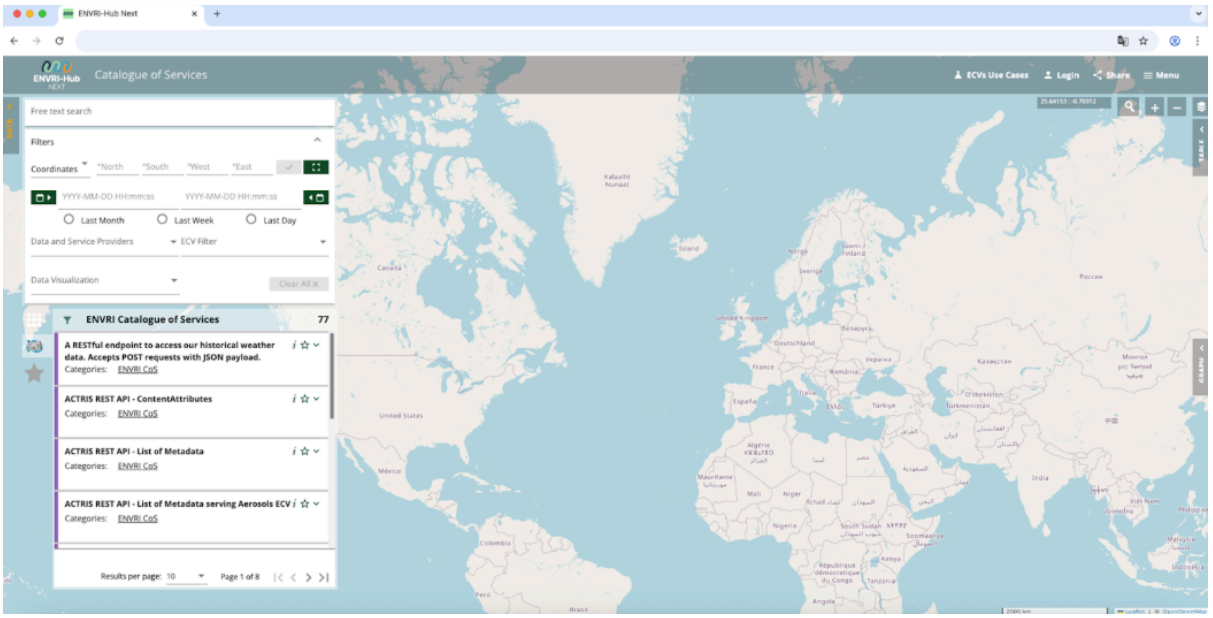

***Figure 1**: The Map-based Interface of the Catalogue of Services*

1.1. Filtering, Saving and Downloading Search Results

The interface shows a map and a collection of collapsible lateral panels, such as Data, Graph, and Table. The Data panel contains filtering features and the list of available services. Graph and Table panels display data for the services that support such a visualisation. In the upper part of the interface, there are several informative links and the "Scientific Examples" section, containing templates for Essential Variables (ECV/EXVs) studies.

The filter offers several possibilities for search services, as shown in Figure 2:

- Free text search (among the metadata of the services);
- Geographical bounding box;
- Time restriction;
- Data and service provider;
- Services offering specific visualisations (map, graph, table);
- ECV.

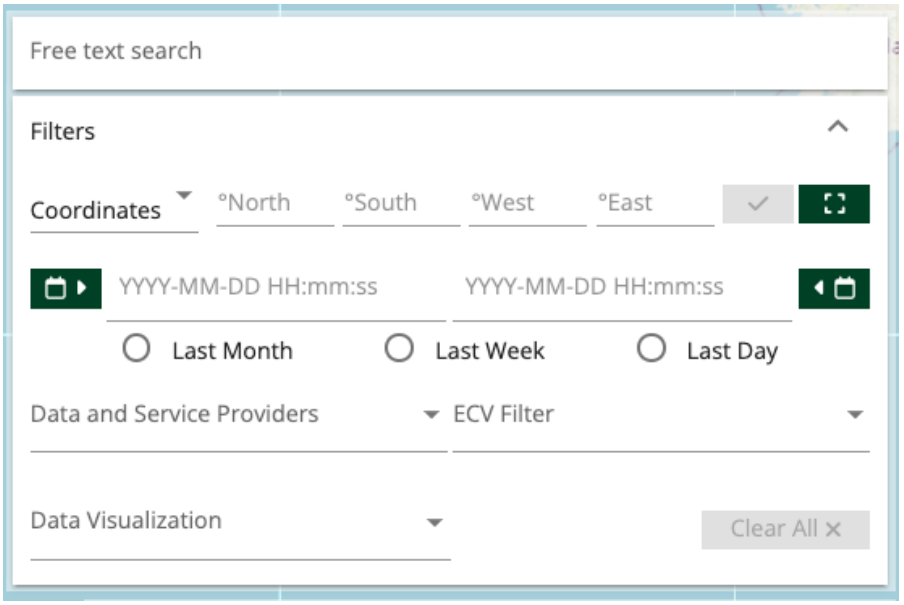

***Figure 2**: Available Filters to Search for Services*

The filters are additive and allow users to restrict the list of services shown in the lower part of the panel. Each service card has an "*i*" icon that opens a detailed description of the service (basically including all the metadata collected in the CoS) and a "star" icon to add the service to the favourites list. Services in the favourites list are invoked, and the corresponding payload is displayed on the GUI when a dedicated Converter [**R1**] is provided. Some services require the user to enter some additional parameters to refine the payload request. Some services have a "download" icon to export the payload (either directly or by accessing a dedicated website, such as GitLab[1] for the Analytical Framework notebooks [**R2**]).

[1] https://gitlab.a.incd.pt/envri-hub-next/analytical-workflow-templates

1.2. Walkthrough Example

We describe here how to reach the visualization of the map shown in Figure 3.

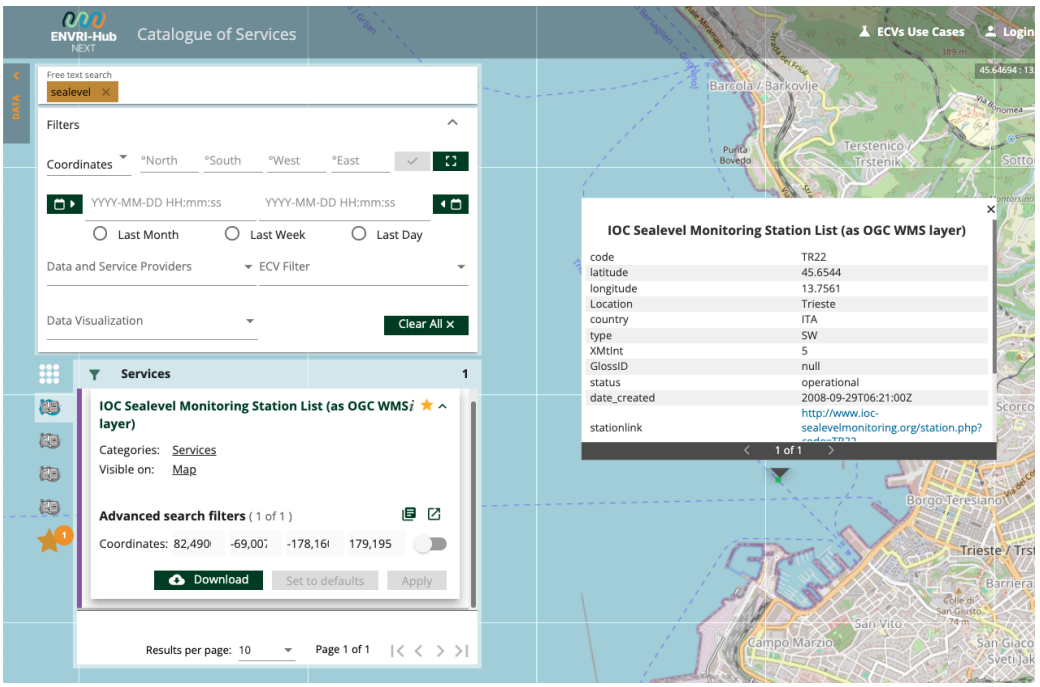

***Figure 3**: Walkthrough example with Sealevel Monitoring Station List*

The necessary steps are:

- Write "*sealevel*" in the "*Free text search*" field; the corresponding services appear in the lower-left panel;
- Click on the "*Star*" icon to add the "*IOC Sealevel Monitoring Station List*" to the "Favourites"; green dots appear around the coasts.
- (optional) Enlarge the service card to access the Advanced search filters;
- Zoom in on the map near a green dot. In Figure 3, we zoomed near Trieste (Italy);
- Click on the dot to see the station details with the link to the measurements.

1.3. Sharing Search Results

Users can adjust how data appears on the map by clicking the "Layer" icon in the top-right corner. Once they have set up the interface to their liking (including filters, favourites, the zoom level, and other customisations), they can generate a permanent web link (URL) by clicking the "Share" button. This link will recreate the same view anytime it is opened, on any computer.

The "Share" function is also the foundation of the "Scientific Examples" section. Clicking this button reveals a list of preconfigured study templates. Users can browse these templates, read their descriptions, and see which data services they use. To activate a specific example, the user clicks the button next to it; a pop-up message confirms that this will reset all current filters and favourites. After accepting, the interface reloads to display the selected study. Within the context of ENVRI-Hub Next (EHN), this CoS GUI feature is specifically used to showcase Environmental Science Variables (EXVs).

2. Service Provider Guide

The present section is dedicated to current and future service providers and, in particular, to developers/data managers within them. We include the steps to add a service and to improve its visualisation.

2.1. Onboarding New Services in the CoS

The Catalogue of Service allows for the onboarding of new services through its back-end (Cos-BE). The requirements for onboarding are:

- The subject requesting the onboarding must either be the service owner or be licensed by the service owner to perform onboarding;
- Service description in EPOS-DCAT-AP format. The documentation of the EPOS-DCAT-AP is available on GitHub, and it includes a UML diagram, ontology definition, examples and more details: https://github.com/epos-eu/EPOS-DCAT-AP/blob/EPOS-DCAT-AP-shapes/docs/EPOS-DCAT-AP_extension_v1.0.pdf[2].

The onboarding procedure is the following:

- RI Services must be described using the EPOS-DCAT-AP and serialised in RDF/Turtle format (.ttl files);
- EPOS-DCAT-AP enables integrity checks and validation of metadata content by using a set of SHACL constraints (https://shacl.org/playground/);
- Metadata needs to be pushed to the ENVRI-Hub GitLab repository: https://gitlab.a.incd.pt/envri-hub-next/metadata-collection. This will automatically trigger a pipeline for ingestion in a test environment;
- Service owners can check the test environment through the API: once the pipeline has finished, GitLab offers an "Access URL testing" to access the test environment;
- After testing, the service owner can open a merge request to integrate the service into the production environment. This step requires a manual inspection by a dedicated person in the ENVRI-Hub NEXT consortium.

Once onboarded on the Catalogue of Services, services will be visible to ENVRI-Hub users through the CoS interface and the VRE-LIB.

2.2. Refining Visualisation

The quality of the visualisation of services on the CoS GUI depends on two main elements: metadata and converters.

Service providers can improve the metadata description by enriching information and providing more detailed specifications. For example, accurately setting the spatial and temporal availability of data ensures that filters provide useful suggestions.

[2] At the moment, v1 is used as it has been tested and validated for the EPOS Platform. Version 3, compliant with DCAT-AP v3, is under testing https://epos-eu.github.io/EPOS-DCAT-AP/v3/

The CoS GUI natively supports only certain data formats. If a service provides data in an unsupported format, a dedicated converter plug-in can translate it for display. Technical details for converters are in Deliverable D7.1, and additional converters may be developed later in the project.

2.3. Populating Scientific Examples

The procedure to populate the scientific example with a new study is much simpler than the service onboarding one. Four elements are required:

- The name of the study (possibly referring to an EXV);
- A brief text (around 100 words) describing the study;
- The URL to the study, obtained through the sharing feature described above;
- A list of the services included in the study.

The addition of a scientific example does not require a new deployment of the CoS, just pushing a JSON file with the mentioned information to a specific repository.

2.4. Responsibilities

The development of the Catalogue of Services is under the responsibility of Work Packages 7 and 8. EPOS ERIC (and INGV) mainly contributed to the current implementation and will be the primary reference for adding new services or new scientific examples. Dissemination activities among the consortium are envisaged.

3. References

References	
No	**Description/Link**
R1	D7.1 - Report on Metadata Catalogue Development
R2	D7.2 - First report on Integration of Catalogue with the Analytical Framework