UN environment programme

Mediterranean Action Plan
Barcelona Convention

info RAC
INFORMATION AND COMMUNICATION REGIONAL ACTIVITY CENTER

INFO/RAC National Focal Points Meeting

Palermo, Italy **20-21 May 2025**

MAP Knowledge Management Strategy for the Mediterranean Sea

Annalisa Minelli, Knowledge Management Officer

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INFO/RAC
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Summary

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  - Objectives
  - Principles
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- Strategy implementation: the Data Policy
- Strategy implementation: the Knowledge Management Platform
- Networking activities

Part #2

- From principles and tools to practice: an exercise of Knowledge Management
  - A dataset from «outside»
  - Check after data policy prescription
  - Upload and metadatation into the KMaP
  - Example of use of uploaded data in the KMaP

Part #1

The Strategy in brief

(UNEP/MED WG.623/4)

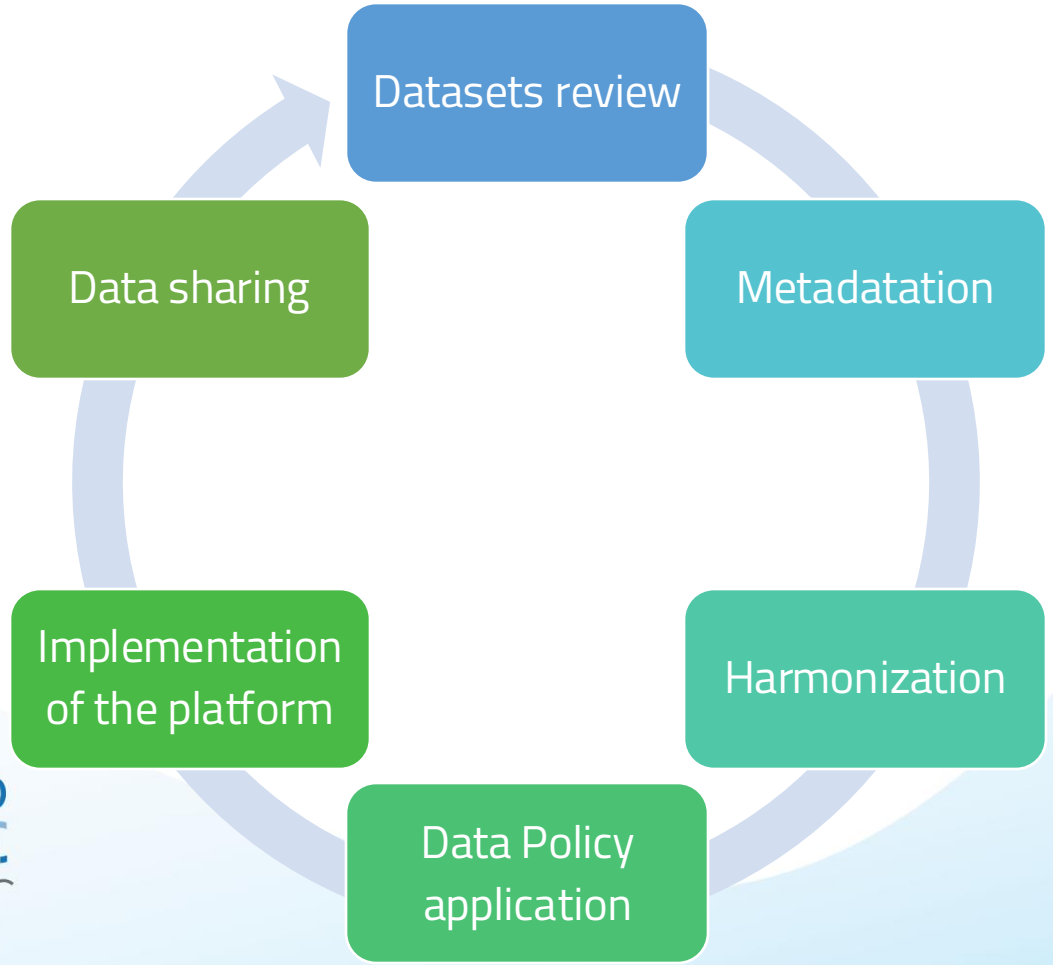
Why do we need a Knowledge Management Strategy?

At a global level, the Knowledge Management practices are subjected to rapid changes, within a context of fast technological evolution:

- Information overflow Vs critical approach to news
- Big data Vs computation capacity
- Need for canalization of potential of AI
- Need for capitalization of multi-source and interdisciplinary information for decision making
- Decentralized data management models
- Gaps among countries in accessing knowledge

Why do we need a Knowledge Management Strategy?

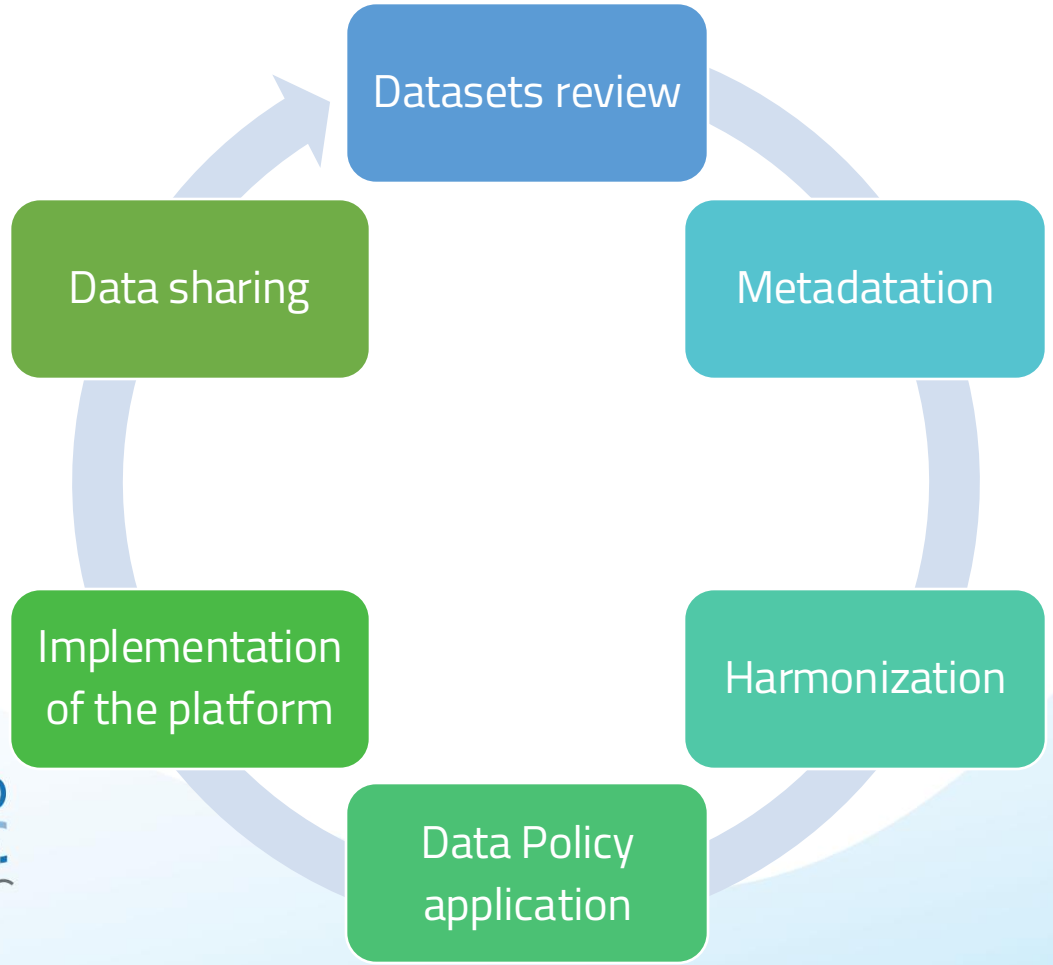
At a regional level, UNEP-MAP is pursuing its own work on data/information/knowledge since years.



Why do we need a Knowledge Management Strategy?

At a regional level, UNEP-MAP is pursuing its own work on data/information/knowledge since years.

Same **objectives** and **vision** from the beginning to the end.



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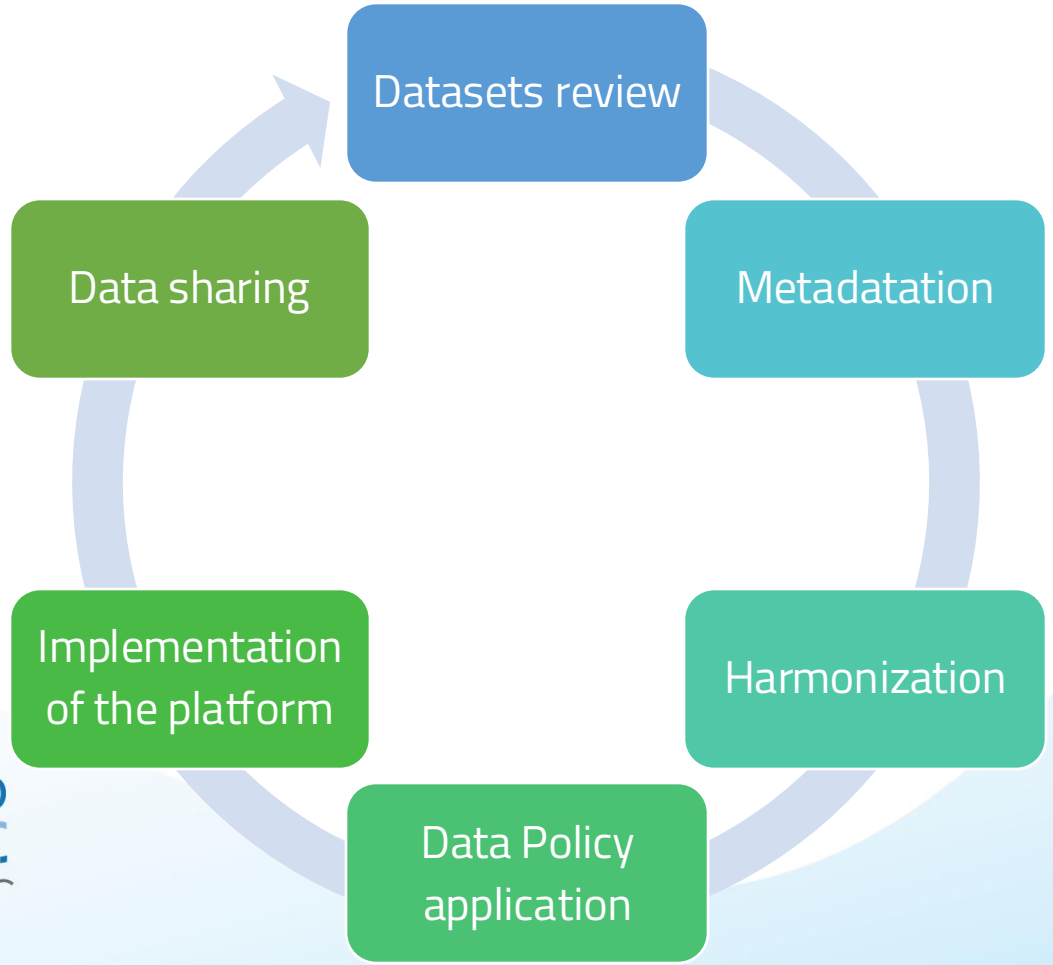

Need for **monitoring**, while **guaranteeing** the safeguard of the knowledge heritage!

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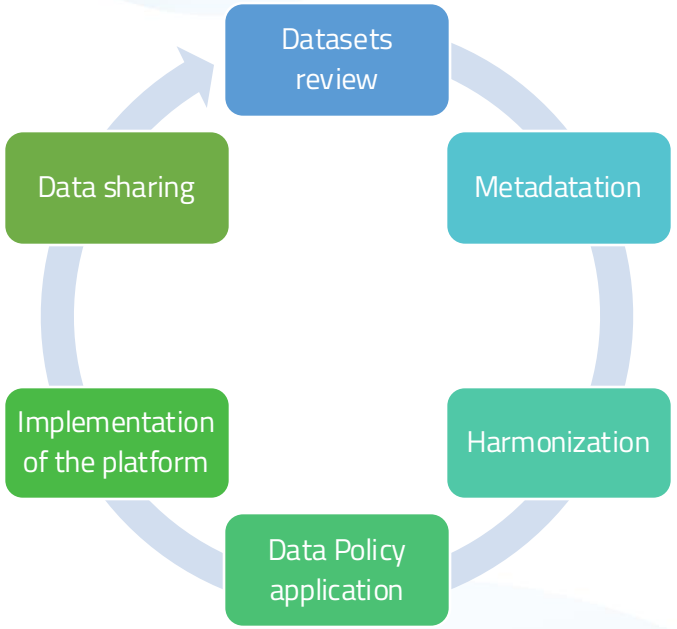

The strategy puts black on white **principles** we've always pursued, which are at the base of our Knowledge Management System, helping us **monitoring** advacements, and **preventing** risks

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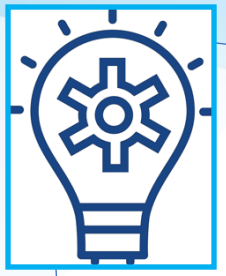
Objectives of KMS



Strengthen knowledge dissemination

Raise public awareness

Create a single access point to Med Knowledge heritage

Facilitate timely exchange of knowledge

Promote the adoption of efficient communication models

Provide a reference platform for stakeholders

The principles and their implementation

Findable

- give data an identifier (e.g. DOI)
- ensure data indexing

Accessible

- evaluate presence of sensitive data
- eventual commercial interests or patents
- provide remote access, if needed
- individuate data owner
- individuate a data access manager
- ensure long term accessibility

Interoperable

- choice of shared file formats (standard)
- use of multiplatform means (services/instruments)
- eventual furniture of software with data

Reusable

- wide metadatation and comments (software)
- presence of a README (parameters, methods, etc.)
- respect of files and folders naming conventions
- eventual presence of a data paper
- liberal license

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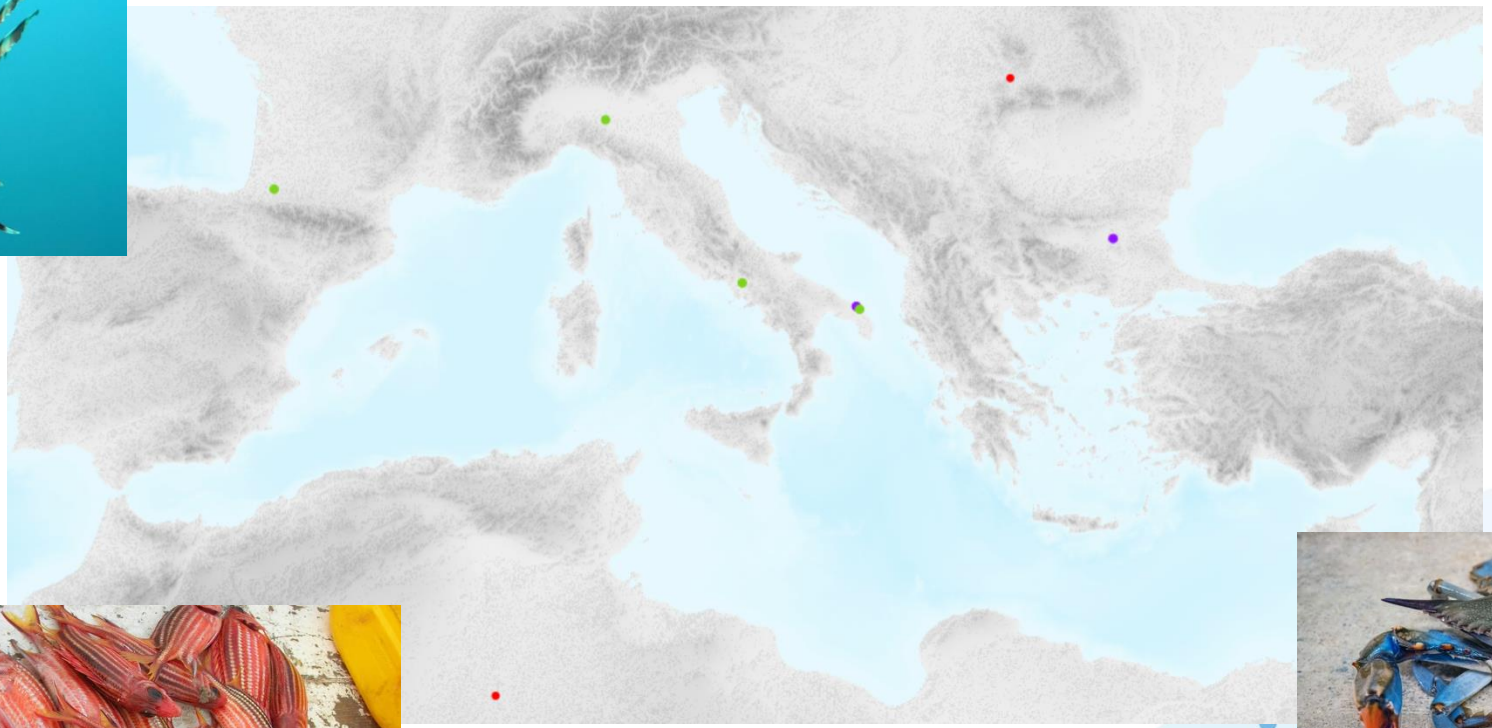
A measurable vision for the Mediterranean

Mediterranean Sea can be considered as a unique environment because of its geographical configuration and a **sentinel** for upcoming environmental challenges and climate change.



UN environment programme

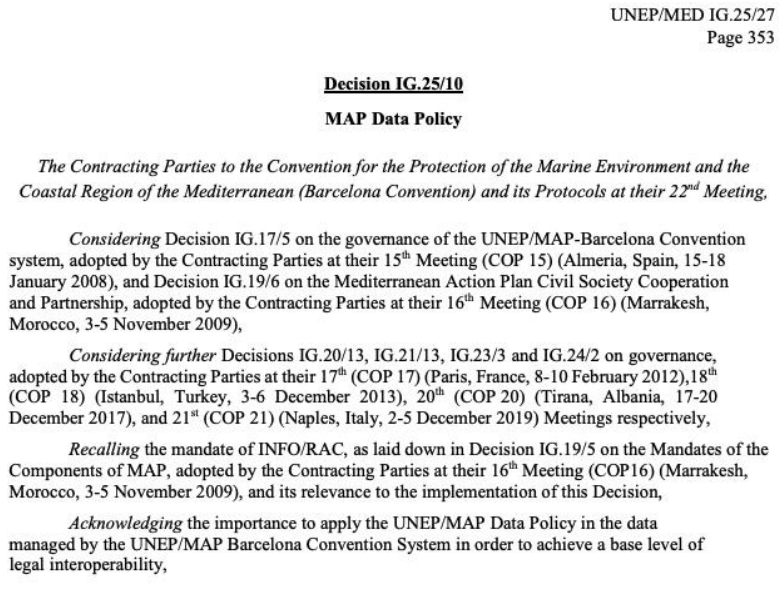
A measurable vision for the Mediterranean

Mediterranean Sea can be considered as a unique environment because of its geographical configuration and a **sentinel** for upcoming environmental challenges and climate change.

At **political level** is also challenging putting together different background and practices on data management, this is the reason why UNEP-MAP experience is unique in this sense.

A measurable vision for the Mediterranean

- The strategy is a **living document**
- The strategy acts via its **two implementation tools**: the Data Policy and the Knowledge Management Platform (KMaP)
- The monitoring should happen through **indices** based on implementing tool's **outreach capacity** and their **compliance with the principles**



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Decision IG.25/10

MAP Data Policy

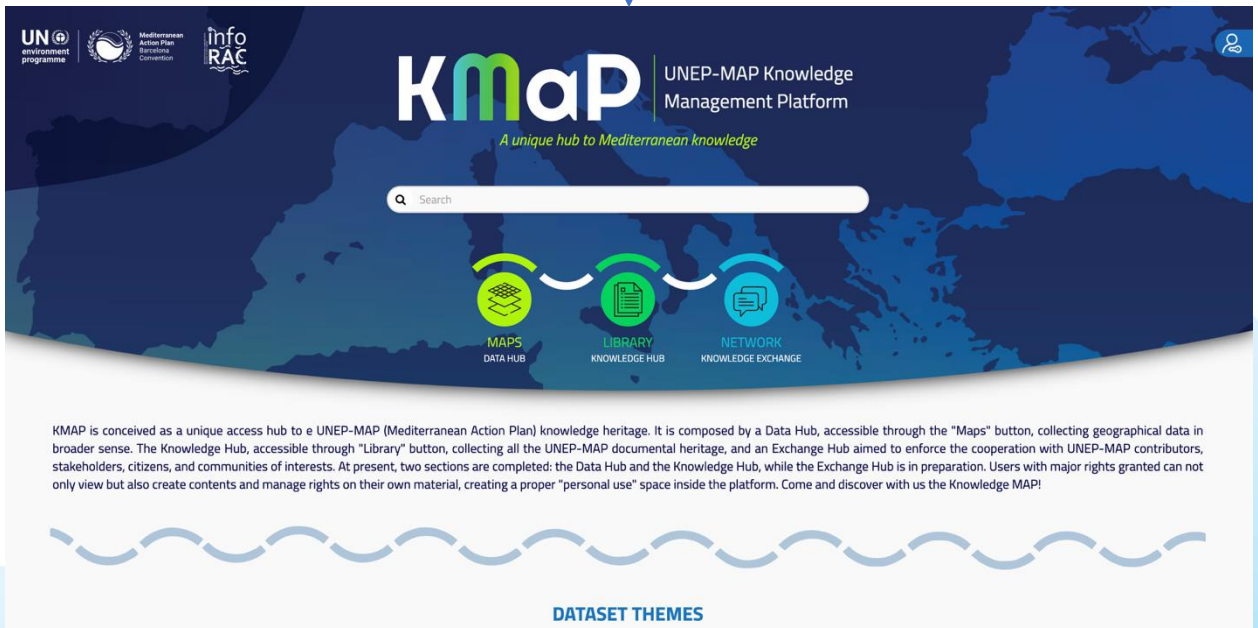
The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Considering Decision IG.17/5 on the governance of the UNEP/MAP-Barcelona Convention system, adopted by the Contracting Parties at their 15th Meeting (COP 15) (Almeria, Spain, 15-18 January 2008), and Decision IG.19/6 on the Mediterranean Action Plan Civil Society Cooperation and Partnership, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November 2009),

Considering further Decisions IG.20/13, IG.21/13, IG.23/3 and IG.24/2 on governance, adopted by the Contracting Parties at their 17th (COP 17) (Paris, France, 8-10 February 2012),18th (COP 18) (Istanbul, Turkey, 3-6 December 2013), 20th (COP 20) (Tirana, Albania, 17-20 December 2017), and 21st (COP 21) (Naples, Italy, 2-5 December 2019) Meetings respectively,

Recalling the mandate of INFO/RAC, as laid down in Decision IG.19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP16) (Marrakesh, Morocco, 3-5 November 2009), and its relevance to the implementation of this Decision,

Acknowledging the importance to apply the UNEP/MAP Data Policy in the data managed by the UNEP/MAP Barcelona Convention System in order to achieve a base level of legal interoperability,



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Digital transformation represents a **mindset** characterized by proactivity, responsiveness to latest technologies, and efficiency in problem solving while identifying the best technical solution to complex problems.

Implementing KMS: the Data Policy

UNEP-MAP Data Policy (in force since 2021) aims to achieve a base level of cooperation with national and international legislation (legal interoperability) and states…

- **Qualities** of involved elements, such as:
  - Data should be available at no cost, at the most updated version and in the lesser time than the possible.
  - Long term data series should remain available in long term repositories.
  - Quality assessment and control procedures should be put in place.

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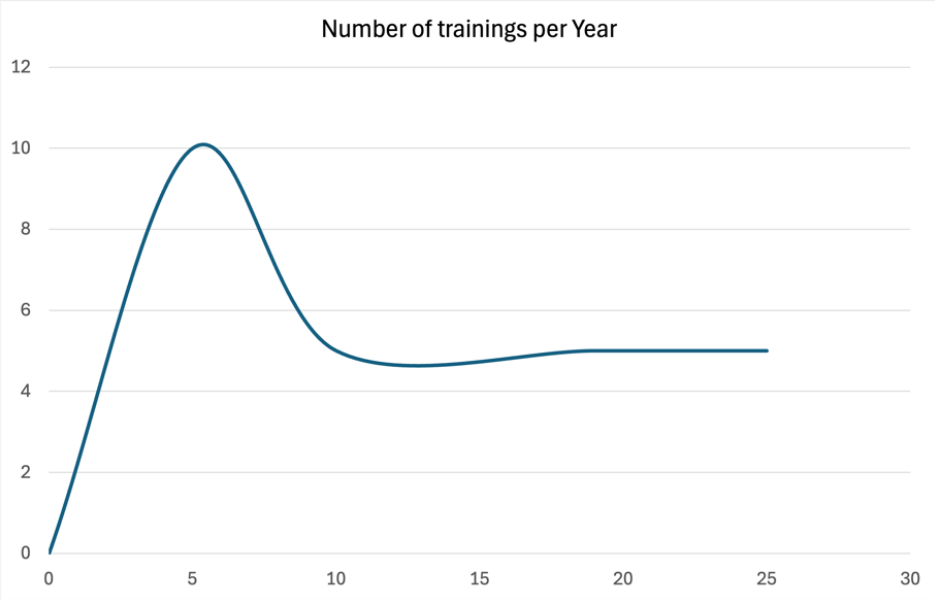
Paying attention to:
- Open Access
- Sensitive data (both environmental or personal)

Effectiveness of the Data Policy

- Strategy Effectiveness assessed through its **implementation tools**
- Data Policy evaluated using an **Outreach Index**

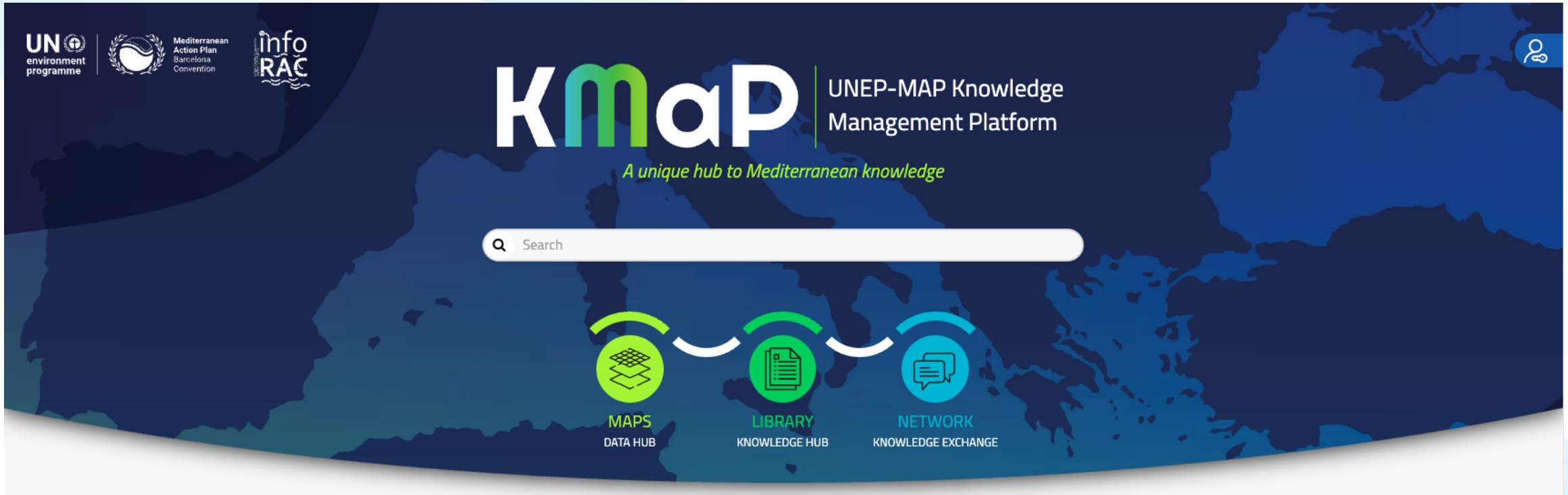
  Defined as the number of dissemination activities over time (in years)



- Included **training delivered** to the CPs, interventions to conferences, scientific contributions
- Considering the size of the user base, the index should grow up to 10 in the first five years and then diminish, stabilizing around 5 form the 10th year.
- The index should be assessed each 2 years.

Implementing KMS: the KMaP

KMaP is the environment where data/information/knoweldge sharing practically occurs.



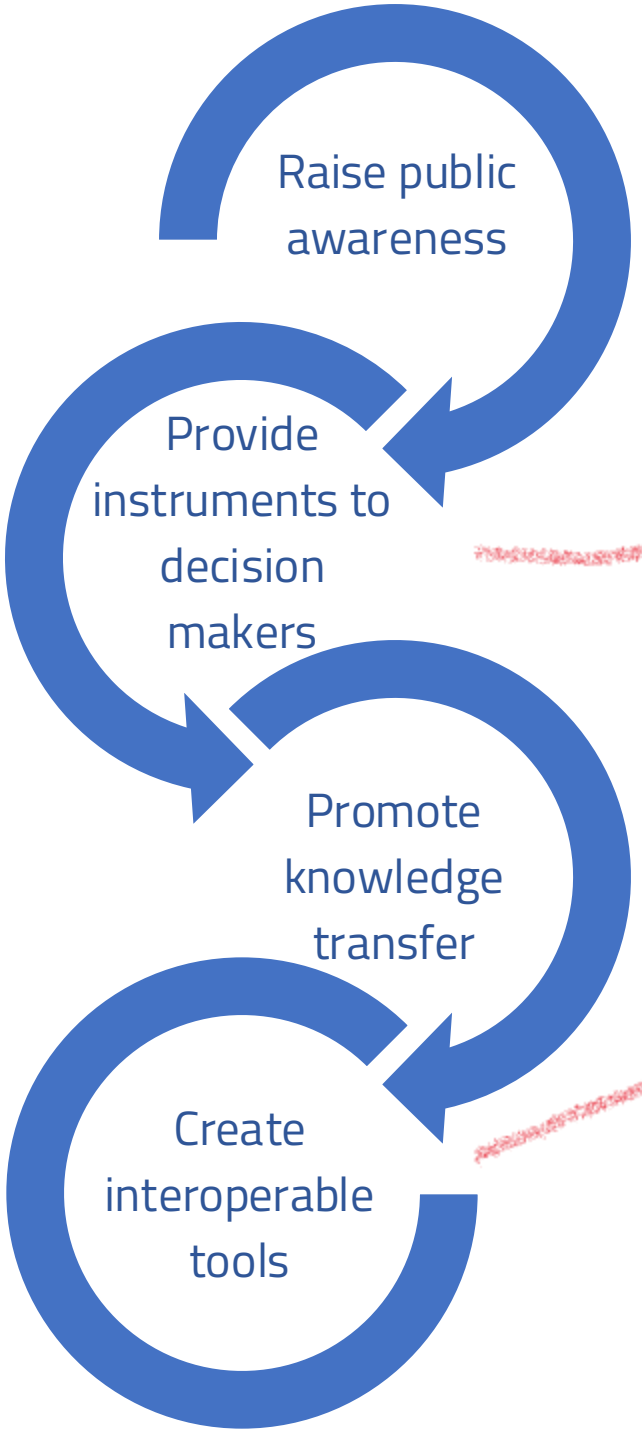
KMAP is conceived as a unique access hub to e UNEP-MAP (Mediterranean Action Plan) knowledge heritage. It is composed by a Data Hub, accessible through the "Maps" button, collecting geographical data in broader sense. The Knowledge Hub, accessible through "Library" button, collecting all the UNEP-MAP documental heritage, and an Exchange Hub aimed to enforce the cooperation with UNEP-MAP contributors, stakeholders, citizens, and communities of interests. At present, two sections are completed: the Data Hub and the Knowledge Hub, while the Exchange Hub is in preparation. Users with major rights granted can not only view but also create contents and manage rights on their own material, creating a proper "personal use" space inside the platform. Come and discover with us the Knowledge MAP!

Implementing KMS: the KMaP

KMaP is the environment where data/information/knoweldge sharing practically occurs.

- Prototype is up and running since **1.5 years**.
- Contents grew **from about 12k** elements at the launch **to more than 16k** elements now.
- The number of dataset particularly increased due to the use of the platform as a reference for handling data connected to the last **MED-QSR**
- Activities on the KMaP are constantly growing due to its use for **many agreements** where UNEP-MAP is involved (e.g. Pelagos Agreement, NW Med PSSA).
- Its use is foreseen to increase due to the use of KMaP as geographical **data viewer for IMAP** data, and the publication of the **new «Network» page** (Knowledge Exchange Hub), whose first protoype has just been released.

Implementing KMS: the KMaP objectives



to parse and interpret data

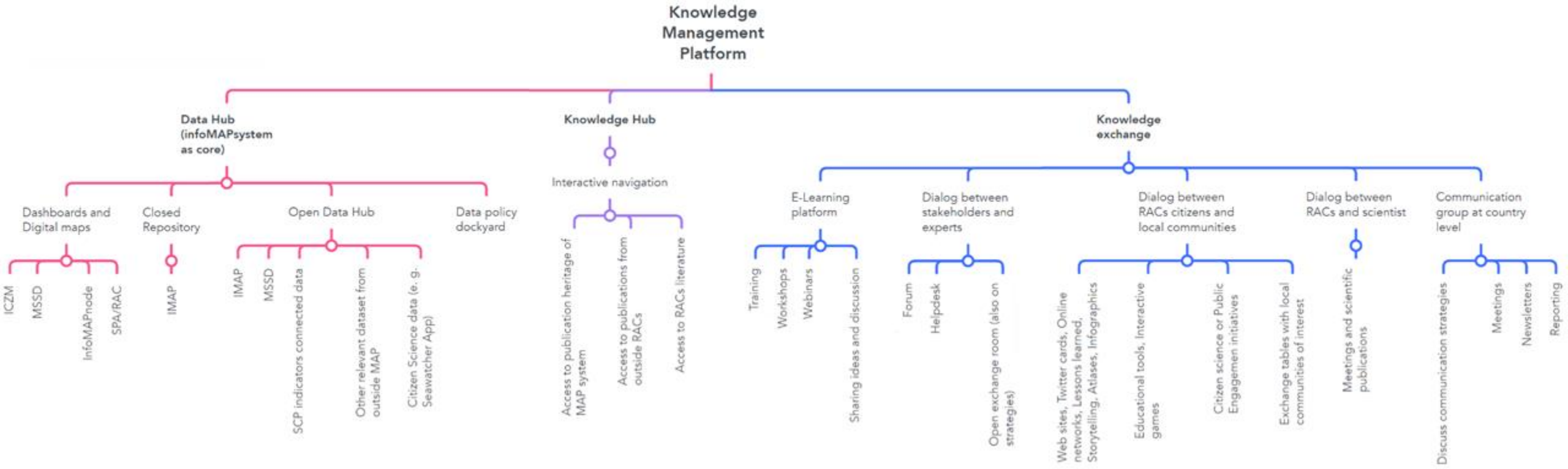
from academia to the civil society by creating a link among science and policy

to make available institutional data to scientists in co-creation contexts

Implementing KMS: the KMaP structure

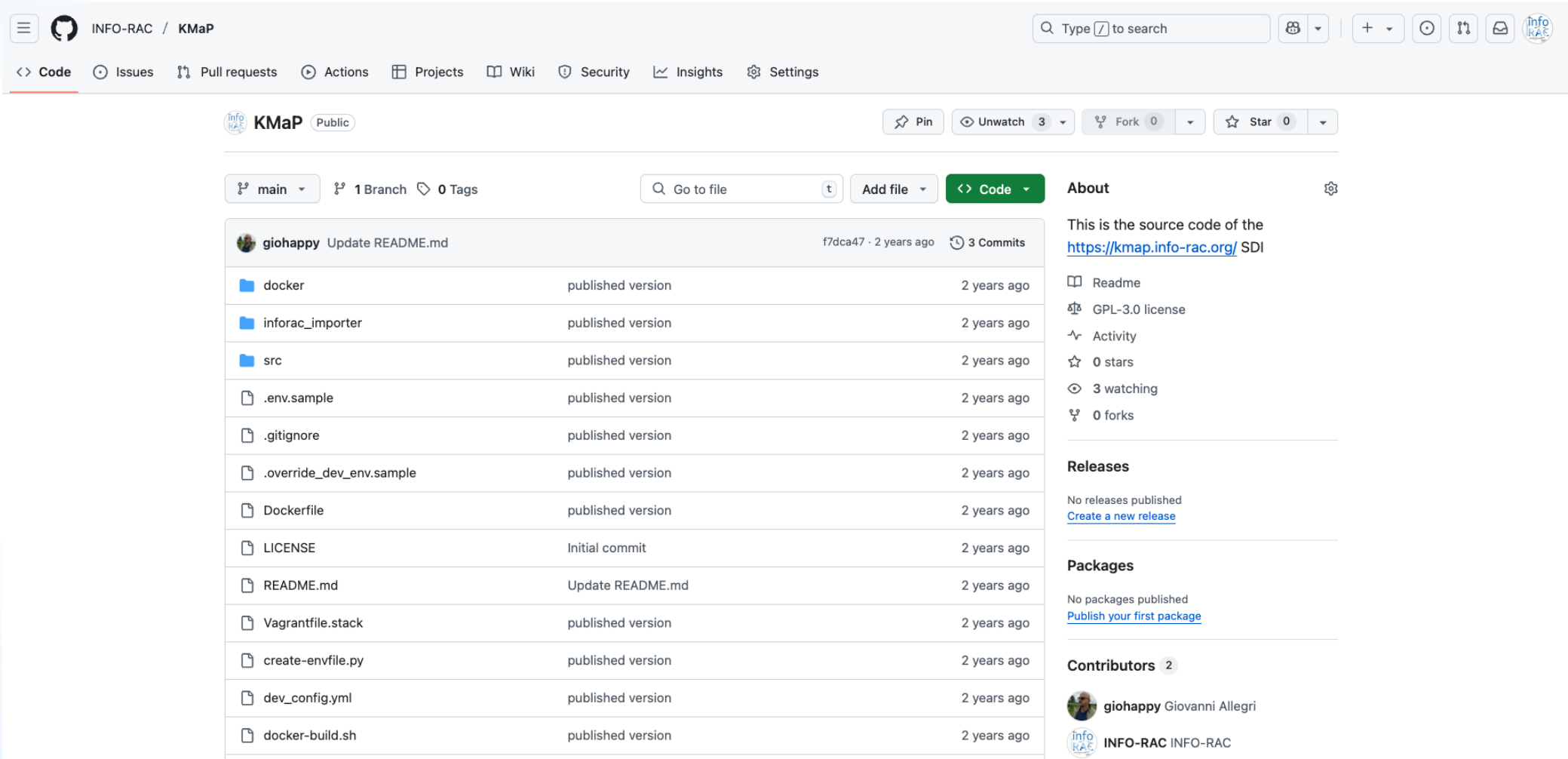
It is composed by three parts:

- **Data Hub**, collecting all the geographical or geo-related resources of UNEP-MAP.
- **Knowledge Hub**, that collects UNEP-MAP documental assets.
- **Knowledge Exchange Hub**, that houses some user-specific instruments to raise awareness on UNEP-MAP works.



Implementing KMS: the KMaP code

Entirely relying on Open Source software, and all the code has been released via INFO/RAC Github channel, so its' easy to learn from its structure:



Implementing KMS: the KMaP features

Built from the effort of the **Data management task force** to recognise all the available data/infromation/knowledge to be put together in the KMaP.

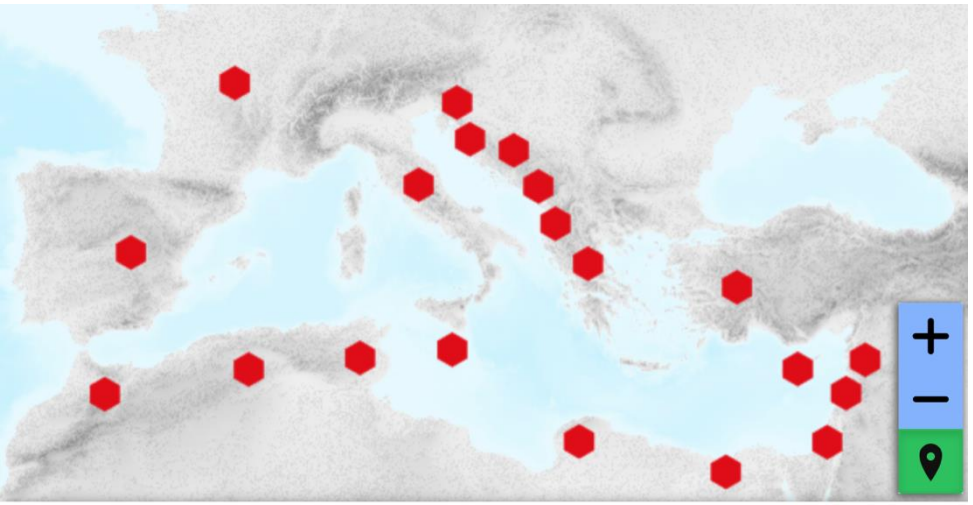
Deepen of **user requirements** individuation, definition of **different access levels** to the platform and drafting of a **logic behind the platform navigation**.

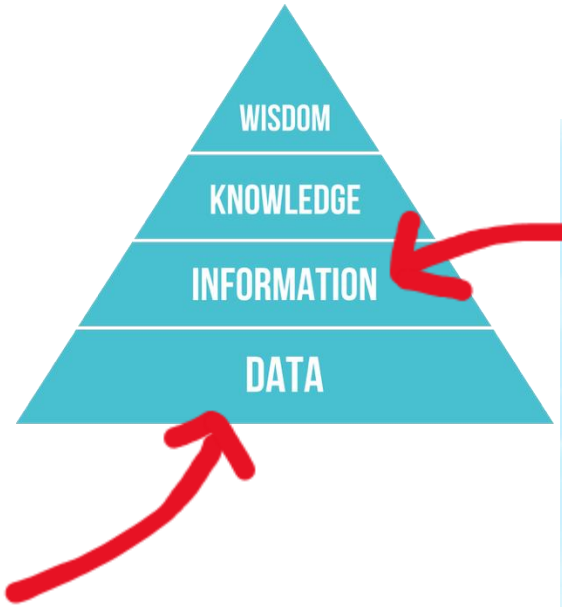
	User	Is registered?	Can Upload?	Can Edit/Delete?	Can View?	Can Download?	Can Set Privileges?
Contracting Parties	CP	Yes	Yes	Yes, their data	Yes. Public and restricted material (following sharing regulations)	Yes. Public and restricted material (following sharing regulations)	No
MAP components	MAP CU and RACs (except INFO/RAC)	Yes	Yes	Yes, their data	Yes. Public and restricted material (following sharing regulations)	Yes. Public and restricted material (following sharing regulations)	No
	INFO/RAC	Yes	Yes	Yes, all the material on platform	Yes, all the material on platform	Yes, all the material on platform	Yes
MAP partners	Stakeholders and researchers	Yes	No	No	Yes, Public and restricted material (following sharing regulations)	Yes, Public and restricted material (following sharing regulations)	No
Other users	Anonymous	No	No	No	Yes, only public material	Yes, only public material	No

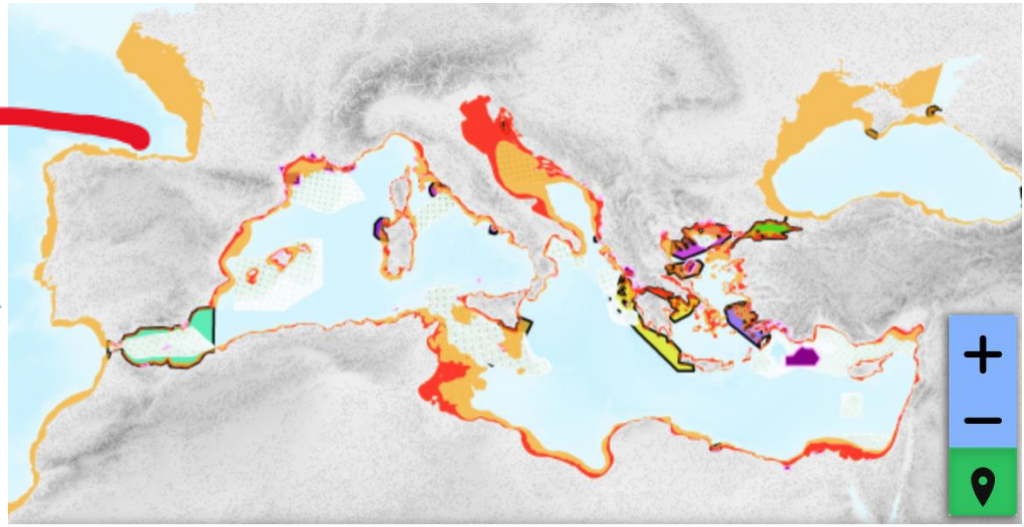
Implementing KMS: the KMaP products

Available products type are:

1. **Layers and maps**: shared via the Data Hub, a layer is a single dataset while a map is a superimposition of layers resulting in a combination of datasets, with a specific communication aim.







Coastday - past events

View dataset

a dataset from PAPRAC - / May 12th 2023

This dataset refers to all the past Coastday events country by country. Coastday is an event of awareness rising organized yearly by PAP/RAC and involves Contracting Parties from the whole MAP.

Category: MSP

Species distribution analysis

View map

a map from INFORAC Editor / February 13th 2023

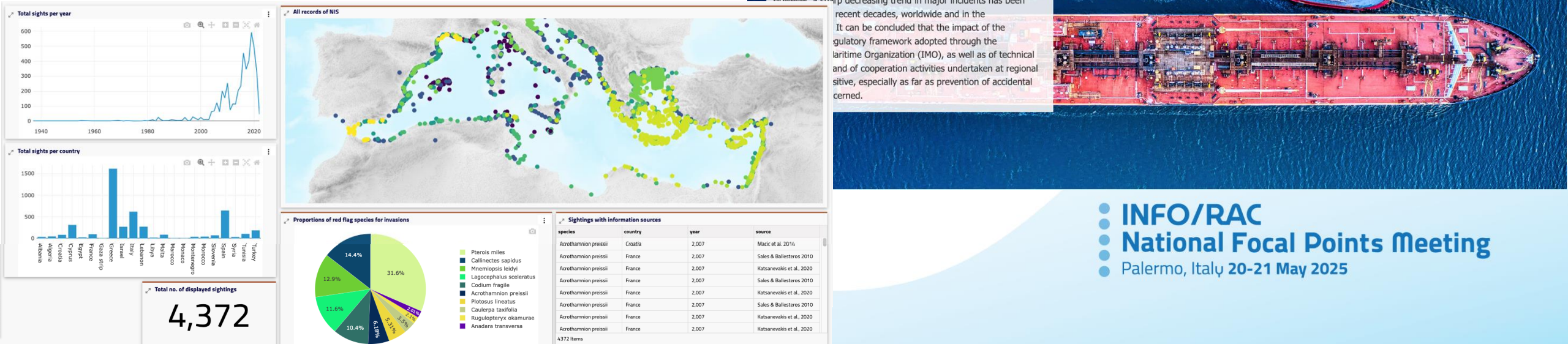
Spatial analysis of species distribution by crossing SPAMI areas, species distributions of horse mackerel and Mediterranean mussel.

Category: Species

Implementing KMS: the KMaP products

Available products type are:

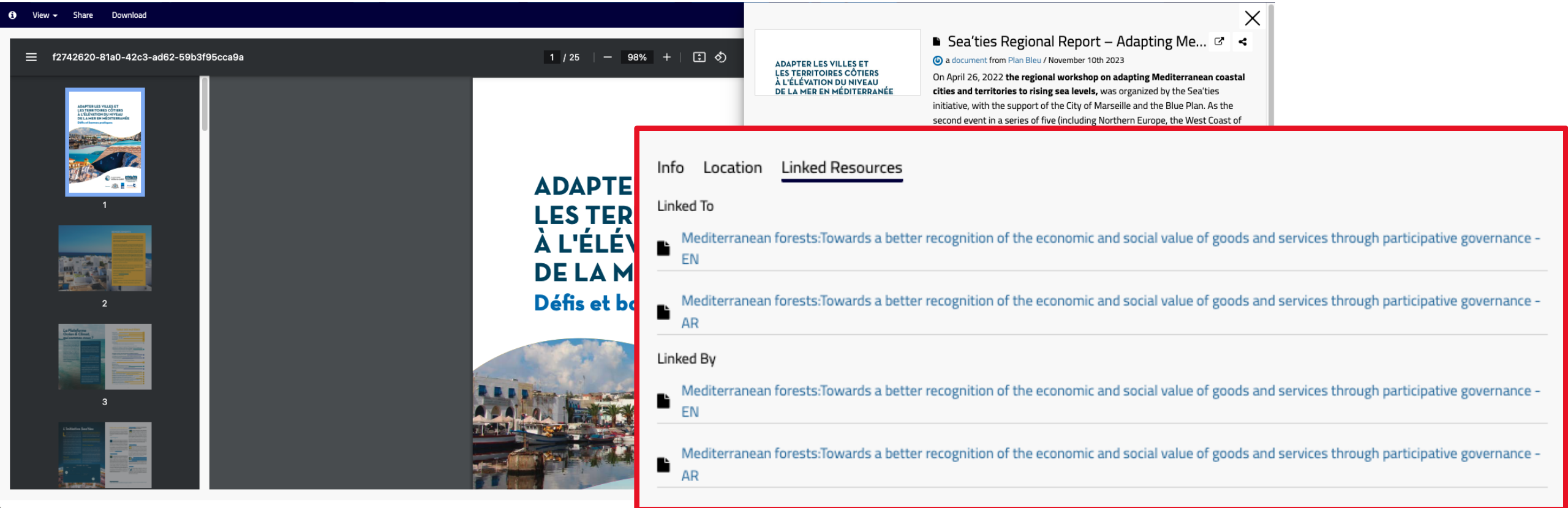
2. **Geostories and Dashboards**: shared via the Data Hub, geostories are powerful divulgation instruments that combine text, interactive maps, and other multimedia content like images and video or other third-party contents; dashboards provide charts, maps, tables, texts and counters attached to datasets with the aim to visualize specific data in context, interact spatially and analytically with the data by creating connections between widgets, perform a first analysis on involved data/layers.



Implementing KMS: the KMaP products

Available products type are:

3. **Documents**: shared via the Knowledge Hub, the library implements a full text search functionality able to retrieve documents also based on their contents. All the documents have been linked to their sources, not harvested, where sources are RAC's libraries, UNEP and UNEP-MAP libraries

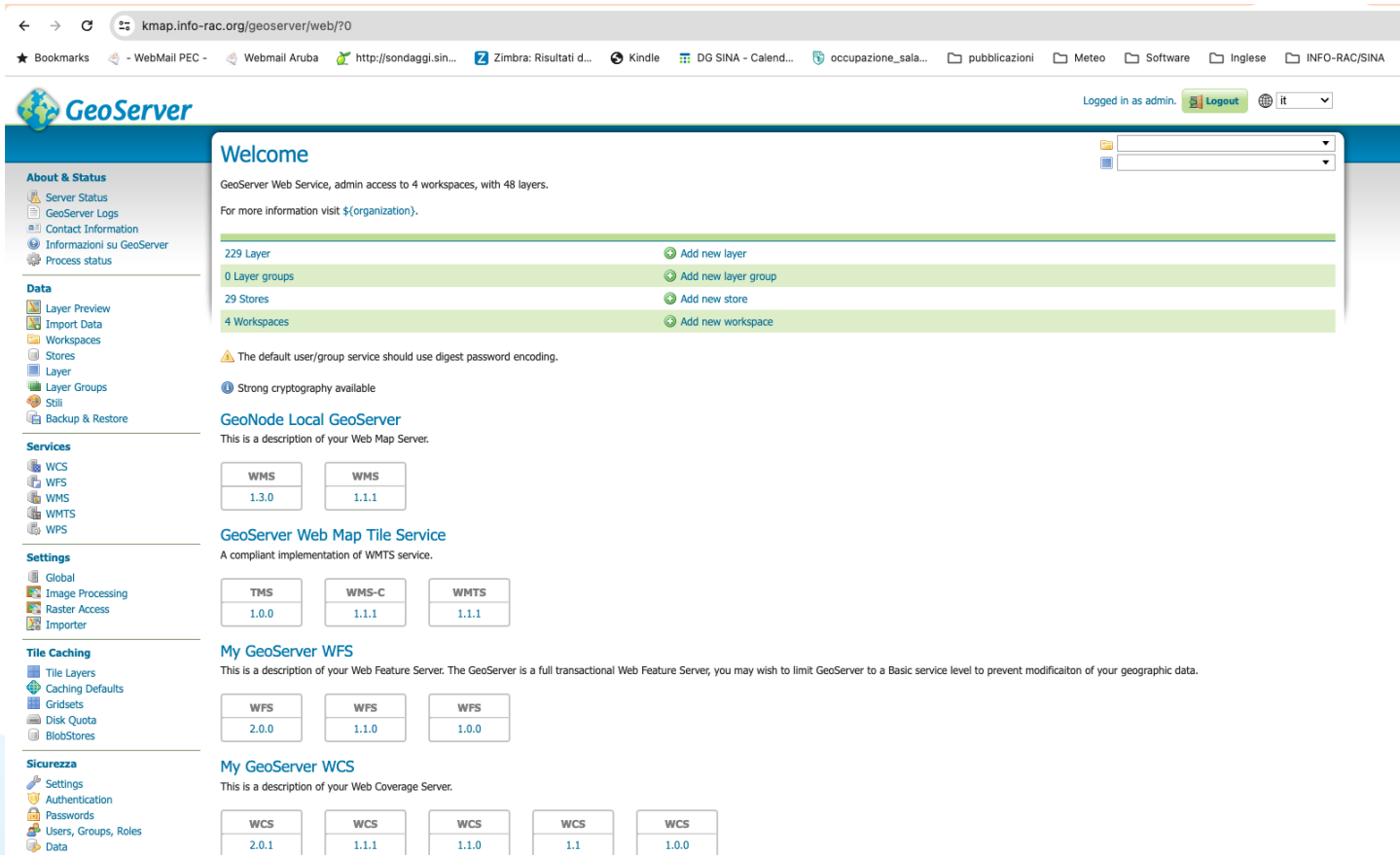


Implementing KMS: the KMaP products

Available products type are:

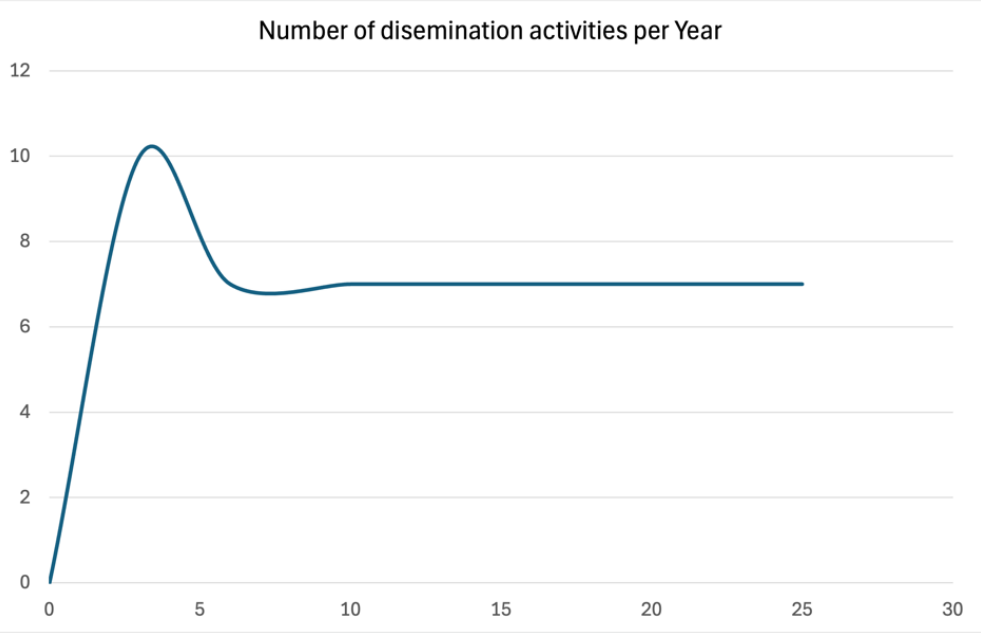
4. **Remote services**: via the Data Hub, KMaP links numerous remote layers from other portals and, conversely, KMaP public geographic data is available to be shared by means of remote services working with OGC standards WMS and WFS. In this way other portals/platforms, but also desktop GIS, can exploit UNEP-MAP data

Here is where interoperability practically occurs!



Effectiveness of KMaP

To measure the effectiveness of the Strategy we should measure the effectiveness of its implementing tools. For KMaP an **outreach index** has been identified, defined as the number of dissemination activities pursued in time (measured in years).



- Included training delivered to the CPs, interventions to conferences, scientific contributions
- Considering the size of the user base, the index should grow up to 10 in the first three years and then diminish, stabilizing around 7 from the 5th year.
- The index should be assessed each 2 years.

Effectiveness of KMaP

Moreover a set of numerical indices are put in place to evaluate outreach and compliance with principles of the Strategy:

- Number of new items (all products are counted) – outreach measure
- Number of remote services made available – compliance measure
- Completeness of metadata – compliance measure

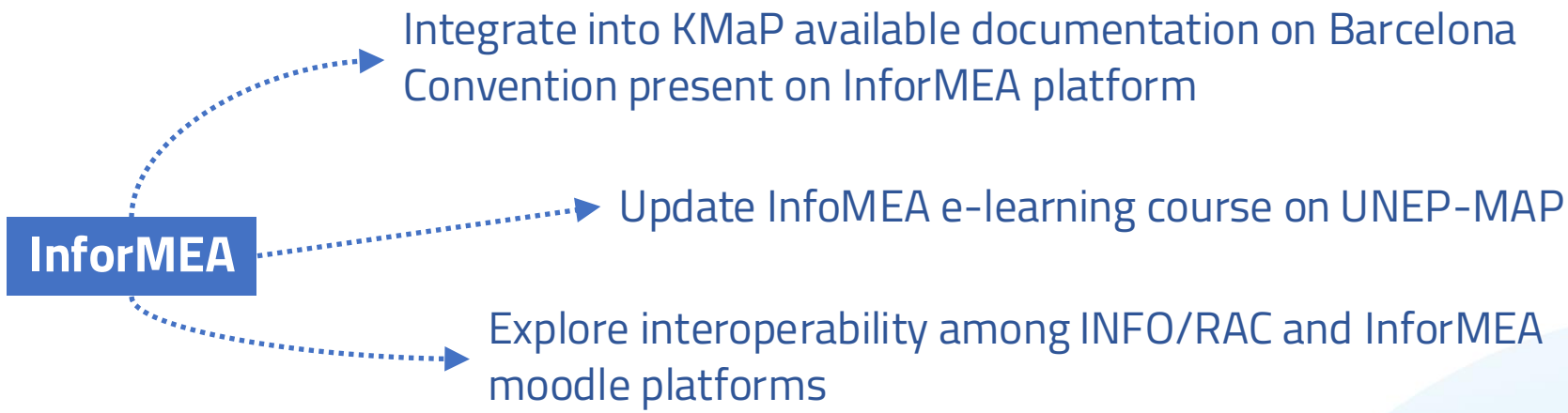
All of them are meant to be assessed each 2 years.

A complete risk assessment on both the Data Policy and the KMaP is supposed to be delivered each two years, together with the assessment of individuated indices, to prevent the misuse of the tools, enhance their operationality and identify eventual risks and countermeasures

Sharing Knowledge IS cooperate

Sharing Knowledge in an open access frame MEANS cooperate with others and create a network of knowledge sharing with other relevant bodies and stakeholders.

UNEP-MAP built its own network in the years and now we are working in synergy with:



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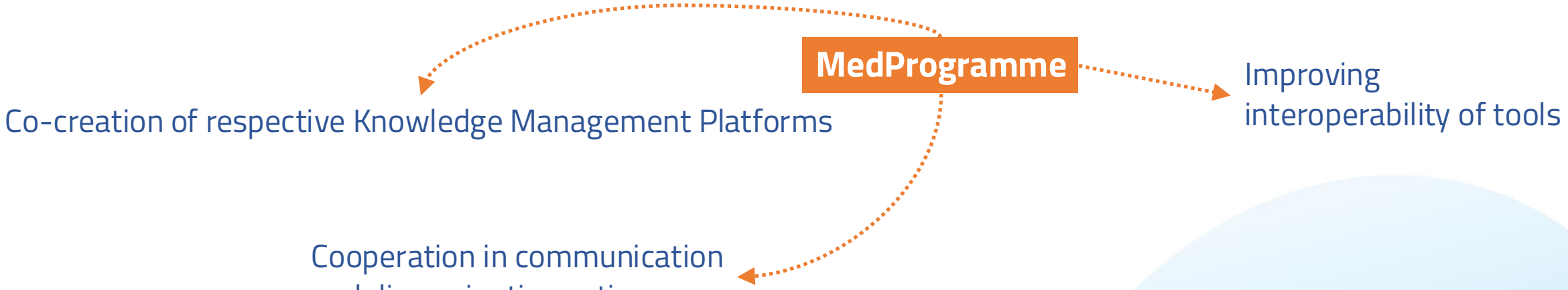

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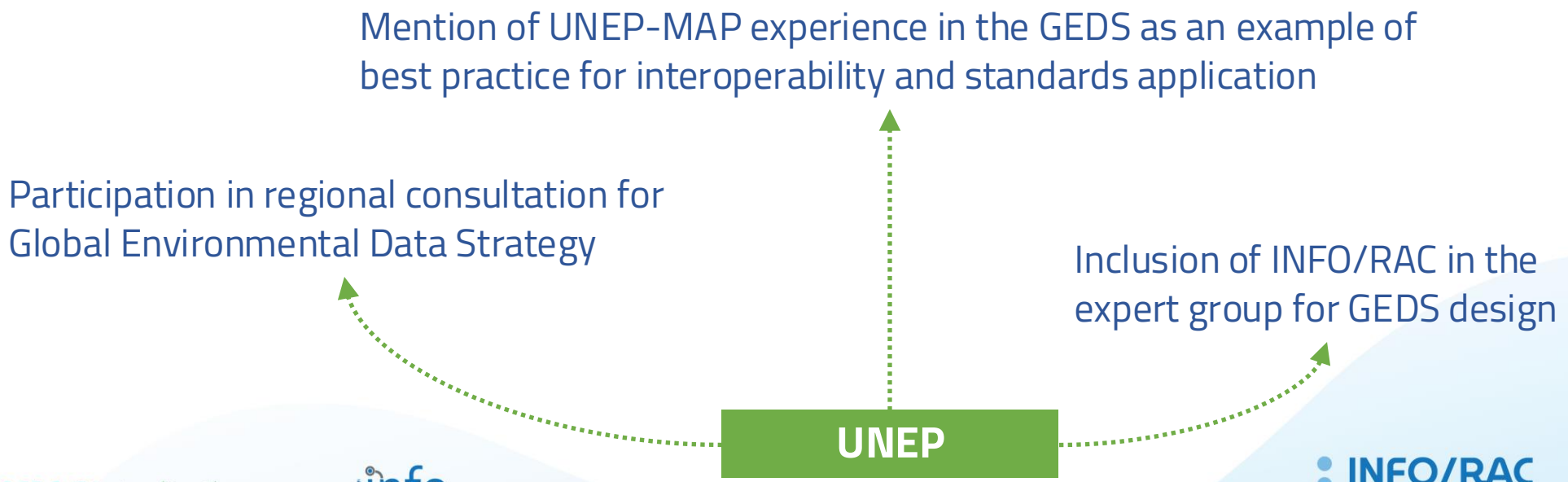
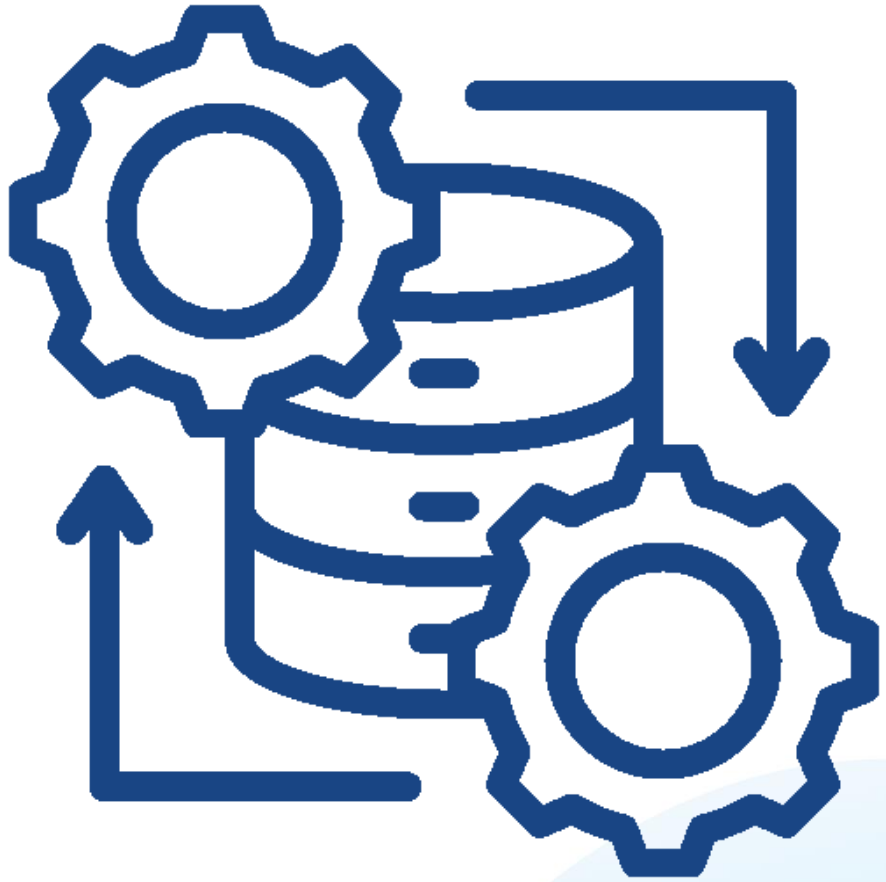


Part #2

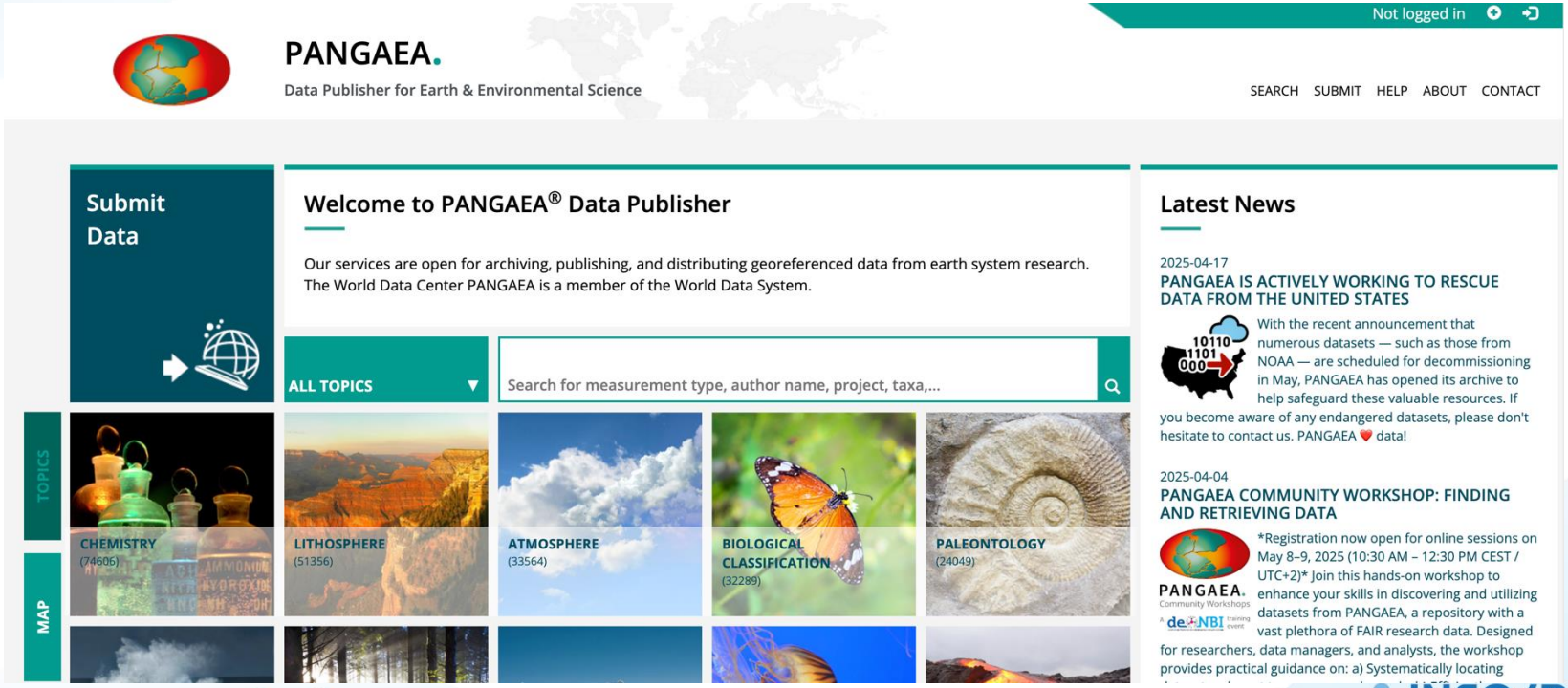
From theory
To practice!



Individuation of a dataset

Many repositores hold interesting data, Pangea is one of them.

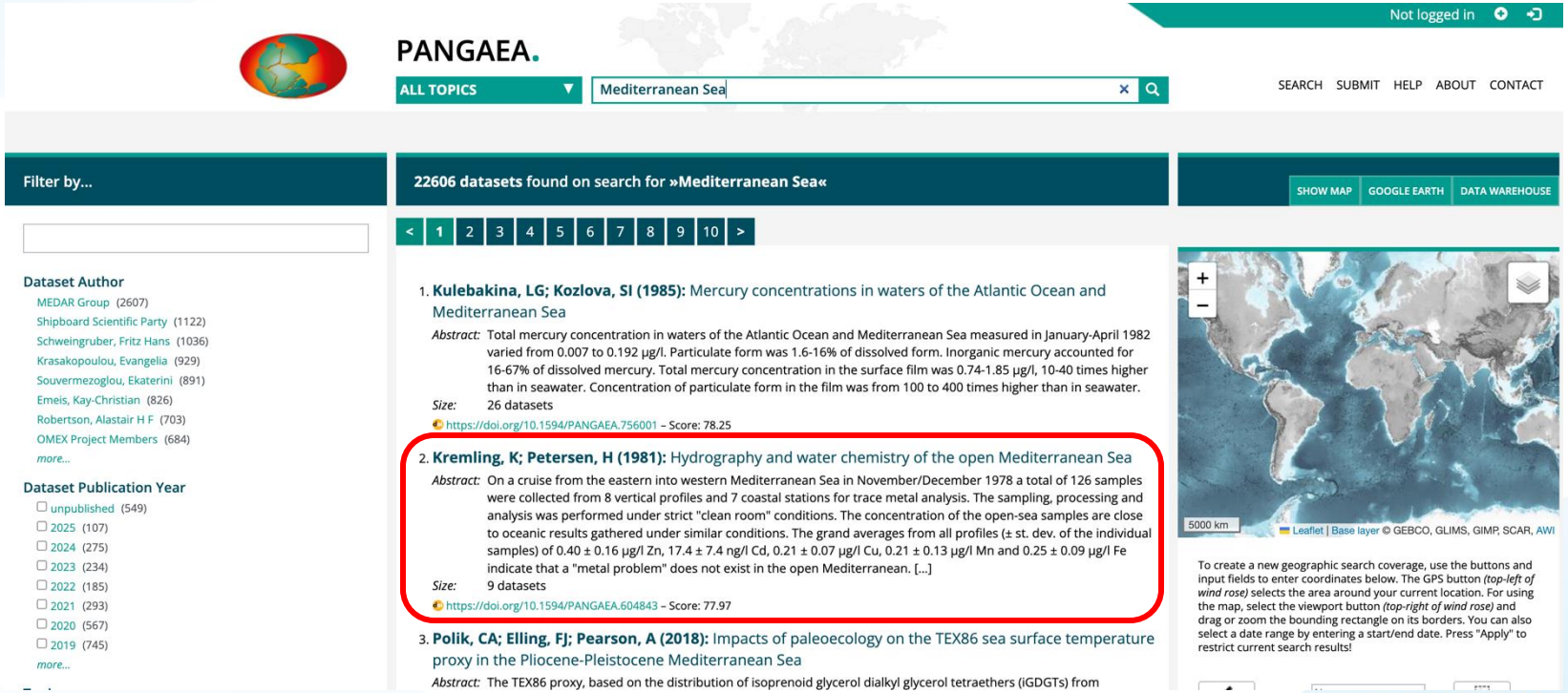
Let's go to *www.pangea.de* and type «Mediterranean Sea» on the Search bar



Individuation of a dataset

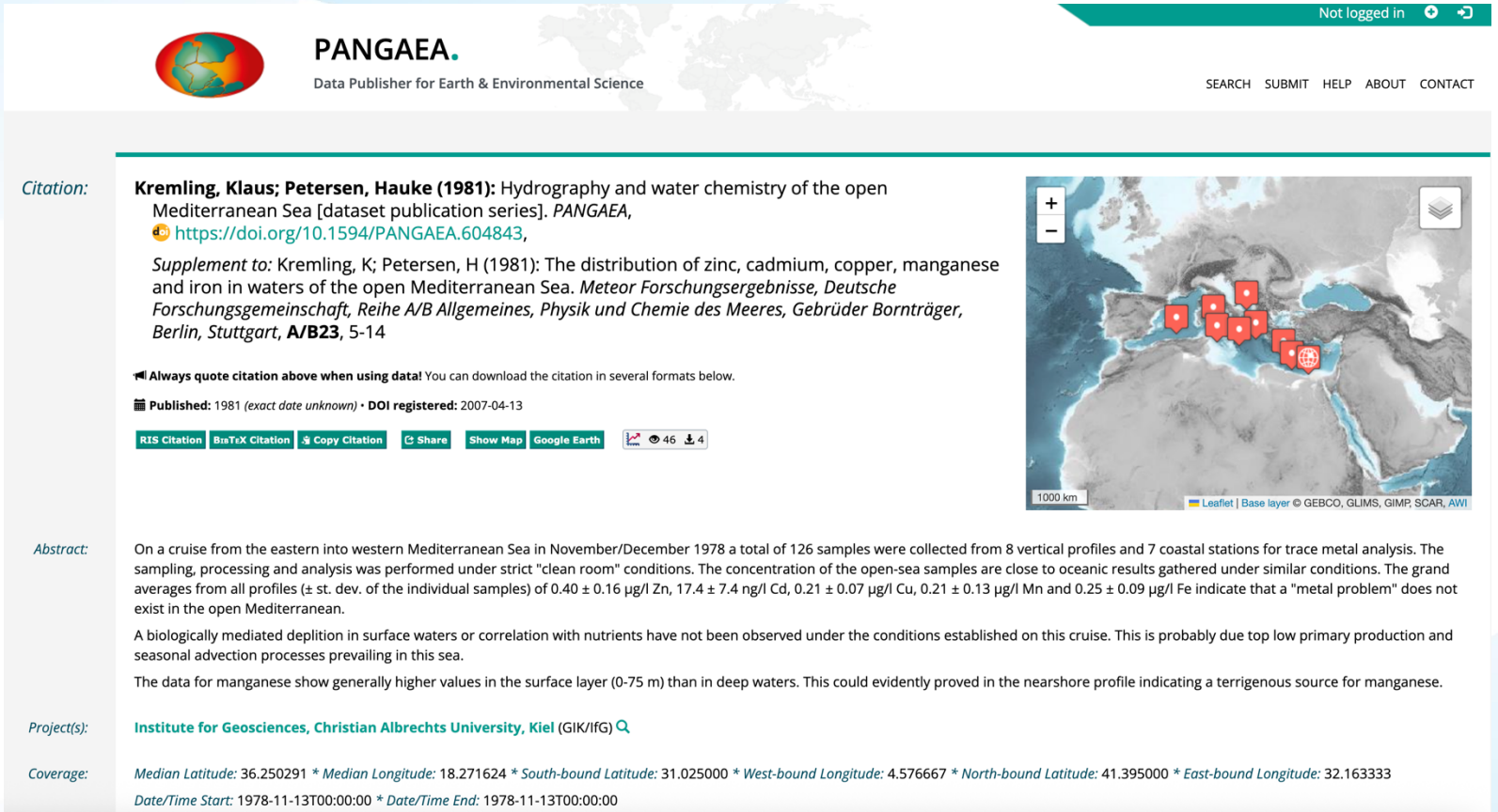
Some results will pop-up.

Let's choose the **Kremling and Petersen** datasets (https://doi.org/10.1594/PANGAEA.604843)



Individuation of a dataset

As we can see, there's data distributed almost all across Med Sea



PANGAEA.
Data Publisher for Earth & Environmental Science

Not logged in

SEARCH SUBMIT HELP ABOUT CONTACT

Citation:

Kremling, Klaus; Petersen, Hauke (1981): Hydrography and water chemistry of the open Mediterranean Sea [dataset publication series]. *PANGAEA*, https://doi.org/10.1594/PANGAEA.604843,

Supplement to: Kremling, K; Petersen, H (1981): The distribution of zinc, cadmium, copper, manganese and iron in waters of the open Mediterranean Sea. *Meteor Forschungsergebnisse, Deutsche Forschungsgemeinschaft, Reihe A/B Allgemeines, Physik und Chemie des Meeres, Gebrüder Bornträger, Berlin, Stuttgart*, **A/B23**, 5-14

Always quote citation above when using data! You can download the citation in several formats below.

Published: 1981 *(exact date unknown)* • **DOI registered:** 2007-04-13

RIS Citation | BibTeX Citation | Copy Citation | Share | Show Map | Google Earth | 46 | 4

1000 km

Leaflet | Base layer © GEBCO, GLIMS, GIMP, SCAR, AWI

Abstract:

On a cruise from the eastern into western Mediterranean Sea in November/December 1978 a total of 126 samples were collected from 8 vertical profiles and 7 coastal stations for trace metal analysis. The sampling, processing and analysis was performed under strict "clean room" conditions. The concentration of the open-sea samples are close to oceanic results gathered under similar conditions. The grand averages from all profiles (± st. dev. of the individual samples) of 0.40 ± 0.16 µg/l Zn, 17.4 ± 7.4 ng/l Cd, 0.21 ± 0.07 µg/l Cu, 0.21 ± 0.13 µg/l Mn and 0.25 ± 0.09 µg/l Fe indicate that a "metal problem" does not exist in the open Mediterranean.

A biologically mediated deplition in surface waters or correlation with nutrients have not been observed under the conditions established on this cruise. This is probably due top low primary production and seasonal advection processes prevailing in this sea.

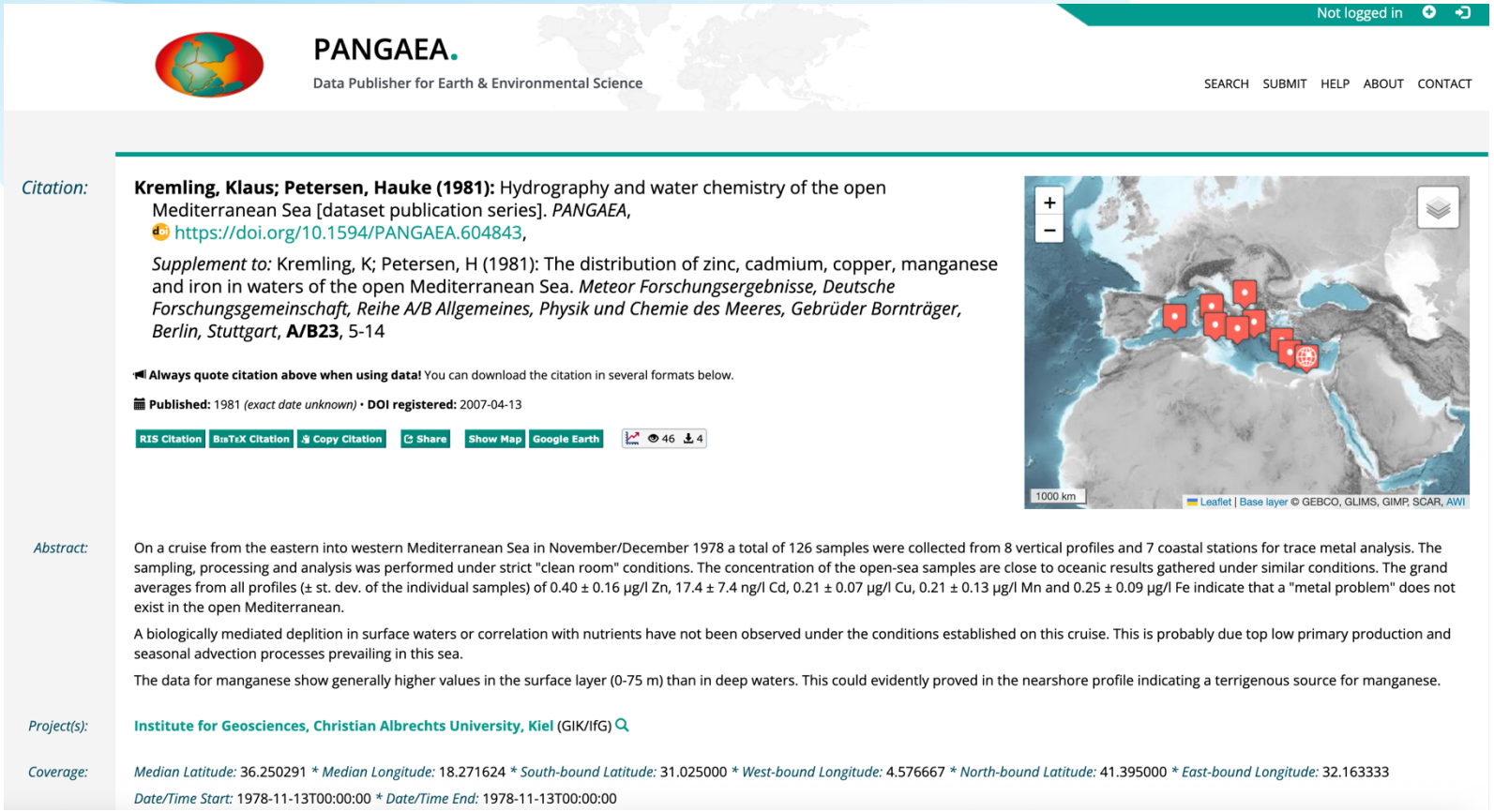
The data for manganese show generally higher values in the surface layer (0-75 m) than in deep waters. This could evidently proved in the nearshore profile indicating a terrigenous source for manganese.

Project(s): **Institute for Geosciences, Christian Albrechts University, Kiel** (GIK/IfG)

Coverage: *Median Latitude:* 36.250291 * *Median Longitude:* 18.271624 * *South-bound Latitude:* 31.025000 * *West-bound Longitude:* 4.576667 * *North-bound Latitude:* 41.395000 * *East-bound Longitude:* 32.163333

Date/Time Start: 1978-11-13T00:00:00 * *Date/Time End:* 1978-11-13T00:00:00

Individuation of a dataset



PANGAEA.
Data Publisher for Earth & Environmental Science

Not logged in

SEARCH SUBMIT HELP ABOUT CONTACT

Citation:

Kremling, Klaus; Petersen, Hauke (1981): Hydrography and water chemistry of the open Mediterranean Sea [dataset publication series]. *PANGAEA*, https://doi.org/10.1594/PANGAEA.604843,

Supplement to: Kremling, K; Petersen, H (1981): The distribution of zinc, cadmium, copper, manganese and iron in waters of the open Mediterranean Sea. *Meteor Forschungsergebnisse, Deutsche Forschungsgemeinschaft, Reihe A/B Allgemeines, Physik und Chemie des Meeres, Gebrüder Bornträger, Berlin, Stuttgart*, **A/B23**, 5-14

Always quote citation above when using data! You can download the citation in several formats below.

Published: 1981 *(exact date unknown)* • **DOI registered:** 2007-04-13

RIS Citation | BibTeX Citation | Copy Citation | Share | Show Map | Google Earth | 46 | 4

1000 km | Leaflet | Base layer © GEBCO, GLIMS, GIMP, SCAR, AWI

Abstract:

On a cruise from the eastern into western Mediterranean Sea in November/December 1978 a total of 126 samples were collected from 8 vertical profiles and 7 coastal stations for trace metal analysis. The sampling, processing and analysis was performed under strict "clean room" conditions. The concentration of the open-sea samples are close to oceanic results gathered under similar conditions. The grand averages from all profiles (± st. dev. of the individual samples) of 0.40 ± 0.16 µg/l Zn, 17.4 ± 7.4 ng/l Cd, 0.21 ± 0.07 µg/l Cu, 0.21 ± 0.13 µg/l Mn and 0.25 ± 0.09 µg/l Fe indicate that a "metal problem" does not exist in the open Mediterranean.

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Coverage: *Median Latitude:* 36.250291 * *Median Longitude:* 18.271624 * *South-bound Latitude:* 31.025000 * *West-bound Longitude:* 4.576667 * *North-bound Latitude:* 41.395000 * *East-bound Longitude:* 32.163333

Date/Time Start: 1978-11-13T00:00:00 * *Date/Time End:* 1978-11-13T00:00:00

Pangea, specifically, is a really good portal to search data since data shared here is made available after FAIR data management and Open Science principles.
E.g. we have:

- The **citation**: including Author, Title, reference publication(s), and the DOI
- An **abstract** of data
- Eventual connected **projects**
- Spatial **coverage**
- Information on **license**
- The **data download** section

UN environment programme | Mediterranean Action Plan Barcelona Convention | info RAC

INFO/RAC
National Focal Points Meeting
Palermo, Italy 20-21 May 2025

Check after UNEP-MAP Data Policy

Our interest in this case is in the «reuse» of data, which is stated in the license.

Let's go verify if it's possible to reuse them and if license is compatible with UNEP-MAP data policy…

License: Creative Commons Attribution 3.0 Unported (CC-BY-3.0)

OK!

- It's the same license identified as the preferred from our data policy
- It allows us to take the dataset and reuse it as we want (resample, add, remove parts, share in different contexts) **upon citation** of the original source - > using the same citation we found at the top of the page:

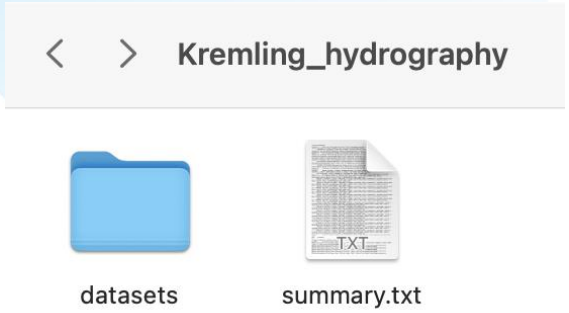
Citation:

Kremling, Klaus; Petersen, Hauke (1981): Hydrography and water chemistry of the open Mediterranean Sea [dataset publication series]. *PANGAEA*, https://doi.org/10.1594/PANGAEA.604843,

Supplement to: Kremling, K; Petersen, H (1981): The distribution of zinc, cadmium, copper, manganese and iron in waters of the open Mediterranean Sea. *Meteor Forschungsergebnisse, Deutsche Forschungsgemeinschaft, Reihe A/B Allgemeines, Physik und Chemie des Meeres, Gebrüder Bornträger, Berlin, Stuttgart*, **A/B23**, 5-14

Check formal compatibility

Downloading the dataset, we have to make sure we can integrate it into our systems



There's a folder «dataset» and a file summary – let's open this first!

There's a quite complete and machine-actionable summary describing in detail all the characteristics of the datasets both for formal and thematic part, also URIs* of insturments used are given!

*URI: Uniform Resource Identifier

summary.txt

```
/* DATA DESCRIPTION:
Citation:       Kremling, Klaus; Petersen, Hauke (1981): Hydrography and water chemistry of the open Mediterranean Sea [dataset publication series]. PANGAEA, https://doi.org/10.1594/PANGAEA.604843,
        Supplement to: Kremling, K; Petersen, H (1981): The distribution of zinc, cadmium, copper, manganese and iron in waters of the open Mediterranean Sea. Meteor Forschungsergebnisse, Deutsche Forschungsgemeinschaft,
Reihe A/B Allgemeines, Physik und Chemie des Meeres, Gebrüder Borntträger, Berlin, Stuttgart, A/B23, 5–14
Abstract:       On a cruise from the eastern into western Mediterranean Sea in November/December 1978 a total of 126 samples were collected from 8 vertical profiles and 7 coastal stations for trace metal analysis. The
sampling, processing and analysis was performed under strict "clean room" conditions. The concentration of the open-sea samples are close to oceanic results gathered under similar conditions. The grand averages from all
profiles (± st. dev. of the individual samples) of 0.40 ± 0.16 µg/l Zn, 17.4 ± 7.4 ng/l Cd, 0.21 ± 0.07 µg/l Cu, 0.21 ± 0.13 µg/l Mn and 0.25 ± 0.09 µg/l Fe indicate that a "metal problem" does not exist in the open
Mediterranean.
        A biologically mediated deplition in surface waters or correlation with nutrients have not been observed under the conditions established on this cruise. This is probably due top low primary production and
seasonal advection processes prevailing in this sea.
        The data for manganese show generally higher values in the surface layer (0–75 m) than in deep waters. This could evidently proved in the nearshore profile indicating a terrigenous source for manganese.
Project(s):     Institute for Geosciences, Christian Albrechts University, Kiel (GIK/IfG) (URI: https://www.ifg.uni-kiel.de/)
Coverage:       MEDIAN LATITUDE: 36.250291 * MEDIAN LONGITUDE: 18.271624 * SOUTH-BOUND LATITUDE: 31.025000 * WEST-BOUND LONGITUDE: 4.576667 * NORTH-BOUND LATITUDE: 41.395000 * EAST-BOUND LONGITUDE: 32.163333
        DATE/TIME START: 1978-11-13T00:00:00 * DATE/TIME END: 1978-11-13T00:00:00
Event(s):       M50_390 * LATITUDE: 31.905000 * LONGITUDE: 31.325000 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://
de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_395 * LATITUDE: 31.913333 * LONGITUDE: 32.163333 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://
de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_407 * LATITUDE: 31.746667 * LONGITUDE: 30.150000 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://
de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_409 * LATITUDE: 31.333333 * LONGITUDE: 29.845000 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://
de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_415 * LATITUDE: 31.025000 * LONGITUDE: 28.926667 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://
de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_421 * LATITUDE: 31.295000 * LONGITUDE: 28.075000 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://
de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_424 * LATITUDE: 31.373333 * LONGITUDE: 27.740000 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://
de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_428 * LATITUDE: 32.245000 * LONGITUDE: 26.616667 * DATE/TIME: 1978-11-13T00:00:00 * ELEVATION: -3125.0 m * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964)
(URI: https://de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_430 * LATITUDE: 34.161667 * LONGITUDE: 25.000000 * DATE/TIME: 1978-11-13T00:00:00 * ELEVATION: -3035.0 m * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964)
(URI: https://de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_432 * LATITUDE: 36.986667 * LONGITUDE: 19.611667 * DATE/TIME: 1978-11-13T00:00:00 * ELEVATION: -3480.0 m * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964)
(URI: https://de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_436 * LATITUDE: 41.395000 * LONGITUDE: 18.001667 * DATE/TIME: 1978-11-13T00:00:00 * ELEVATION: -1137.0 m * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964)
(URI: https://de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_437 * LATITUDE: 36.000000 * LONGITUDE: 16.553333 * DATE/TIME: 1978-11-13T00:00:00 * ELEVATION: -3473.0 m * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964)
(URI: https://de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_440 * LATITUDE: 36.653333 * LONGITUDE: 12.311667 * DATE/TIME: 1978-11-13T00:00:00 * ELEVATION: -1296.0 m * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964)
(URI: https://de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_450 * LATITUDE: 39.346667 * LONGITUDE: 11.625000 * DATE/TIME: 1978-11-13T00:00:00 * ELEVATION: -3220.0 m * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964)
(URI: https://de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
        M50_453 * LATITUDE: 37.916667 * LONGITUDE: 4.576667 * DATE/TIME: 1978-11-13T00:00:00 * ELEVATION: -2790.0 m * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964)
(URI: https://de.wikipedia.org/wiki/Meteor_(Schiff,_1964)) * METHOD/DEVICE: Water sample (WS)
License:        Creative Commons Attribution 3.0 Unported (CC-BY-3.0) (URI: https://creativecommons.org/licenses/by/3.0/)
Size:   9 datasets
*/
/* TABULAR SUMMARY OF DATASETS LISTED IN THIS COLLECTION: */
Filename        Citation of child dataset
M50_424_trace_metal.tab Kremling, Klaus; Petersen, Hauke (1981): Trace metal concentrations of Egyptian coastal waters (Table 2). https://doi.org/10.1594/PANGAEA.602516
M50_428_hydrography.tab Kremling, Klaus; Petersen, Hauke (1981): Physical and chemical hydrography measured on Mediterranean water samples at station M50_428 (Table 1). https://doi.org/10.1594/PANGAEA.602508
M50_430_hydrography.tab Kremling, Klaus; Petersen, Hauke (1981): Physical and chemical hydrography measured on Mediterranean water samples at station M50_430 (Table 1). https://doi.org/10.1594/PANGAEA.602509
M50_432_hydrography.tab Kremling, Klaus; Petersen, Hauke (1981): Physical and chemical hydrography measured on Mediterranean water samples at station M50_432 (Table 1). https://doi.org/10.1594/PANGAEA.602510
M50_436_hydrography.tab Kremling, Klaus; Petersen, Hauke (1981): Physical and chemical hydrography measured on Mediterranean water samples at station M50_436 (Table 1). https://doi.org/10.1594/PANGAEA.602511
M50_437_hydrography.tab Kremling, Klaus; Petersen, Hauke (1981): Physical and chemical hydrography measured on Mediterranean water samples at station M50_437 (Table 1). https://doi.org/10.1594/PANGAEA.602512
M50_440_hydrography.tab Kremling, Klaus; Petersen, Hauke (1981): Physical and chemical hydrography measured on Mediterranean water samples at station M50_440 (Table 1). https://doi.org/10.1594/PANGAEA.602515
M50_450_hydrography.tab Kremling, Klaus; Petersen, Hauke (1981): Physical and chemical hydrography measured on Mediterranean water samples at station M50_450 (Table 1). https://doi.org/10.1594/PANGAEA.602513
M50_453_hydrography.tab Kremling, Klaus; Petersen, Hauke (1981): Physical and chemical hydrography measured on Mediterranean water samples at station M50_453 (Table 1). https://doi.org/10.1594/PANGAEA.602514
```

Check formal compatibility

Opening the datasets we find that the dataset is composed by a set of .tab files, which is not among the file formats accepted by the KMaP.

The .tab format is essentially a tabular file delimited by <tab>, so it could be reduced to a .csv file by simply substituting the <tab> character with a comma (and saving it accordingly).

Opening the trace metal file with a text editor we will notice a long header.

M50_424_trace_metal.tab

```
/* DATA DESCRIPTION:
Citation:   Kremling, Klaus; Petersen, Hauke (1981): Trace metal concentrations of Egyptian coastal waters (Table 2) [dataset]. PANGAEA, https://doi.org/10.1594/PANGAEA.602516,
    In supplement to: Kremling, K; Petersen, H (1981): The distribution of zinc, cadmium, copper, manganese and iron in waters of the open Mediterranean Sea. Meteor Forschungsergebnisse, Deutsche Forschungsgemeinscha
Project(s): Institute for Geosciences, Christian Albrechts University, Kiel (GIK/IfG) (URI: https://www.ifg.uni-kiel.de/)
Coverage:   MEDIAN LATITUDE: 31.513095 * MEDIAN LONGITUDE: 29.746429 * SOUTH-BOUND LATITUDE: 31.025000 * WEST-BOUND LONGITUDE: 27.740000 * NORTH-BOUND LATITUDE: 31.913333 * EAST-BOUND LONGITUDE: 32.163333
    DATE/TIME START: 1978-11-13T00:00:00 * DATE/TIME END: 1978-11-13T00:00:00
    MINIMUM DEPTH, water: 20 m * MAXIMUM DEPTH, water: 20 m
Event(s):   M50_390 * LATITUDE: 31.905000 * LONGITUDE: 31.325000 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://de
    M50_395 * LATITUDE: 31.913333 * LONGITUDE: 32.163333 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://de.wikipec
    M50_407 * LATITUDE: 31.746667 * LONGITUDE: 30.150000 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://de.wikipec
    M50_409 * LATITUDE: 31.333333 * LONGITUDE: 29.845000 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://de.wikipec
    M50_415 * LATITUDE: 31.025000 * LONGITUDE: 28.926667 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://de.wikipec
    M50_421 * LATITUDE: 31.295000 * LONGITUDE: 28.075000 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://de.wikipec
    M50_424 * LATITUDE: 31.373333 * LONGITUDE: 27.740000 * DATE/TIME: 1978-11-13T00:00:00 * LOCATION: Mediterranean Sea * CAMPAIGN: M50 (URI: hdl:10013/epic.28122.d001) * BASIS: Meteor (1964) (URI: https://de.wikipec
Parameter(s):   Event label (Event)
    Latitude of event (Latitude)
    Longitude of event (Longitude)
    DEPTH, water [m] (Depth water) * GEOCODE
    Cadmium [nmol/l] (Cd) * PI: Kremling, Klaus
    Zinc [nmol/l] (Zn) * PI: Kremling, Klaus
    Copper [nmol/l] (Cu) * PI: Kremling, Klaus
    Iron [nmol/l] (Fe) * PI: Kremling, Klaus
    Manganese [nmol/l] (Mn) * PI: Kremling, Klaus
License:    Creative Commons Attribution 3.0 Unported (CC-BY-3.0) (URI: https://creativecommons.org/licenses/by/3.0/)
Size:   34 data points
*/
Event   Latitude    Longitude   Depth water [m] Cd [nmol/l] Zn [nmol/l] Cu [nmol/l] Fe [nmol/l] Mn [nmol/l]
M50_390 31.9050 31.3250 20  0.191   3.365   3.462   5.909   22.207
M50_395 31.9133 32.1633 20  0.239   5.659   3.305   3.223   14.198
M50_407 31.7467 30.1500 20  0.200   3.671   5.193   6.267   15.836
M50_409 31.3333 29.8450 20  0.127   3.671   5.665   7.879   8.737
M50_415 31.0250 28.9267 20  0.294   15.448  3.462   6.088   12.014
M50_421 31.2950 28.0750 20  0.112   3.212   4.406   14.862  12.560
M50_424 31.3733 27.7400 20      6.118   5.665   7.879   13.652
```

Check formal compatibility

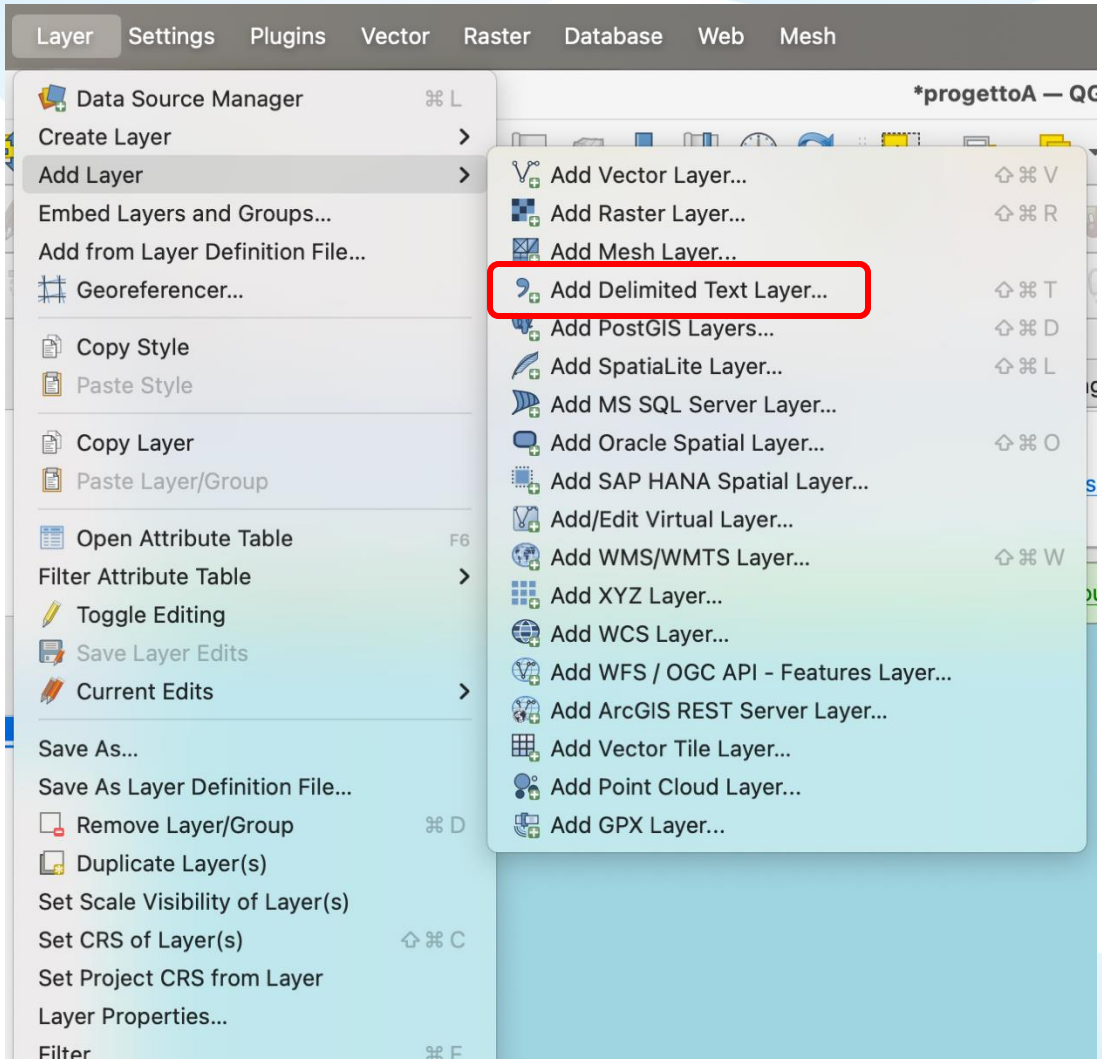
Given that data is contained in the tabular lines at the end of the header (delimited by characters /* and */), we remove the header, then substitute all the tabs with a comma. Also name of the fields could generate problems, so we leave only names, without spaces or other characters (such as [] or /) and save the file as .csv.

M50_424_trace_metal_3.csv

```
1  Event,Latitude,Longitude,Depth,Cd,Zn,Cu,Fe,Mn
2  M50_390,31.9050,31.3250,20,0.191,3.365,3.462,5.909,22.207
3  M50_395,31.9133,32.1633,20,0.239,5.659,3.305,3.223,14.198
4  M50_407,31.7467,30.1500,20,0.200,3.671,5.193,6.267,15.836
5  M50_409,31.3333,29.8450,20,0.127,3.671,5.665,7.879,8.737
6  M50_415,31.0250,28.9267,20,0.294,15.448,3.462,6.088,12.014
7  M50_421,31.2950,28.0750,20,0.112,3.212,4.406,14.862,12.560
8  M50_424,31.3733,27.7400,20,,6.118,5.665,7.879,13.652
```

Check formal compatibility

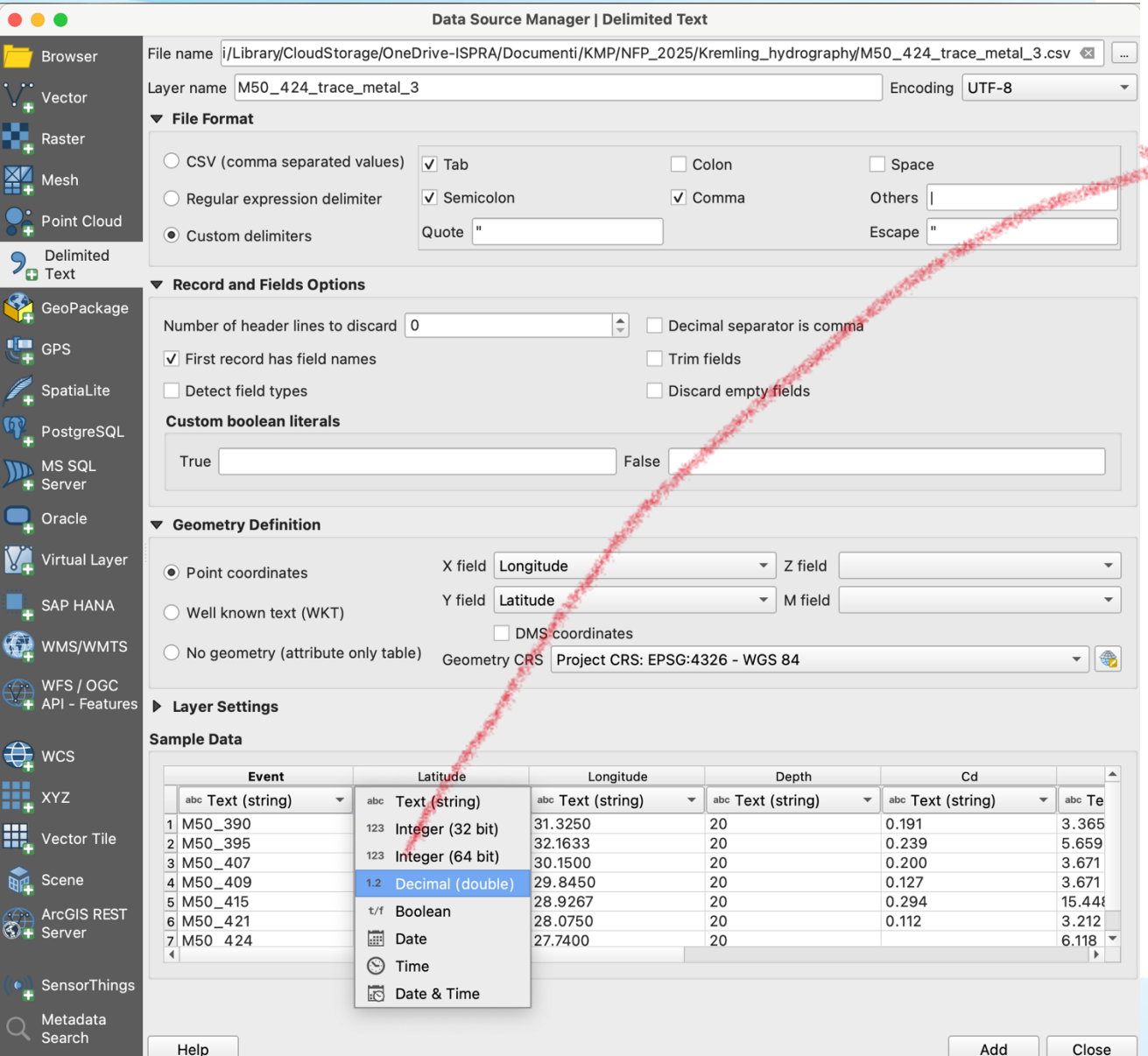
Since the exercise will involve stylization, we have to make sure each field is recognised for its format (numbers or strings). We shortly open the file in QGIS to impose the format of each field.

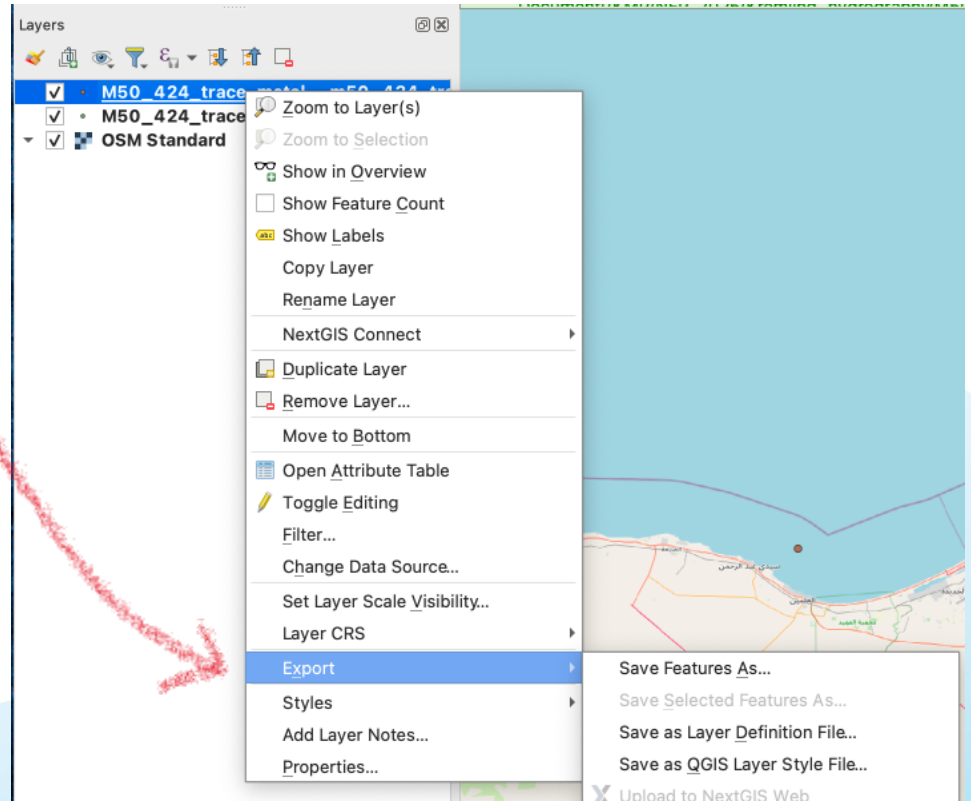


Check formal compatibility

We search the file, make sure the coordinate reference system is fine, turn each numerical parameter in decimal format, and we press «Add».

The layer will appear on the Table of Contents of QGIS, we can export it as a Geopackage.



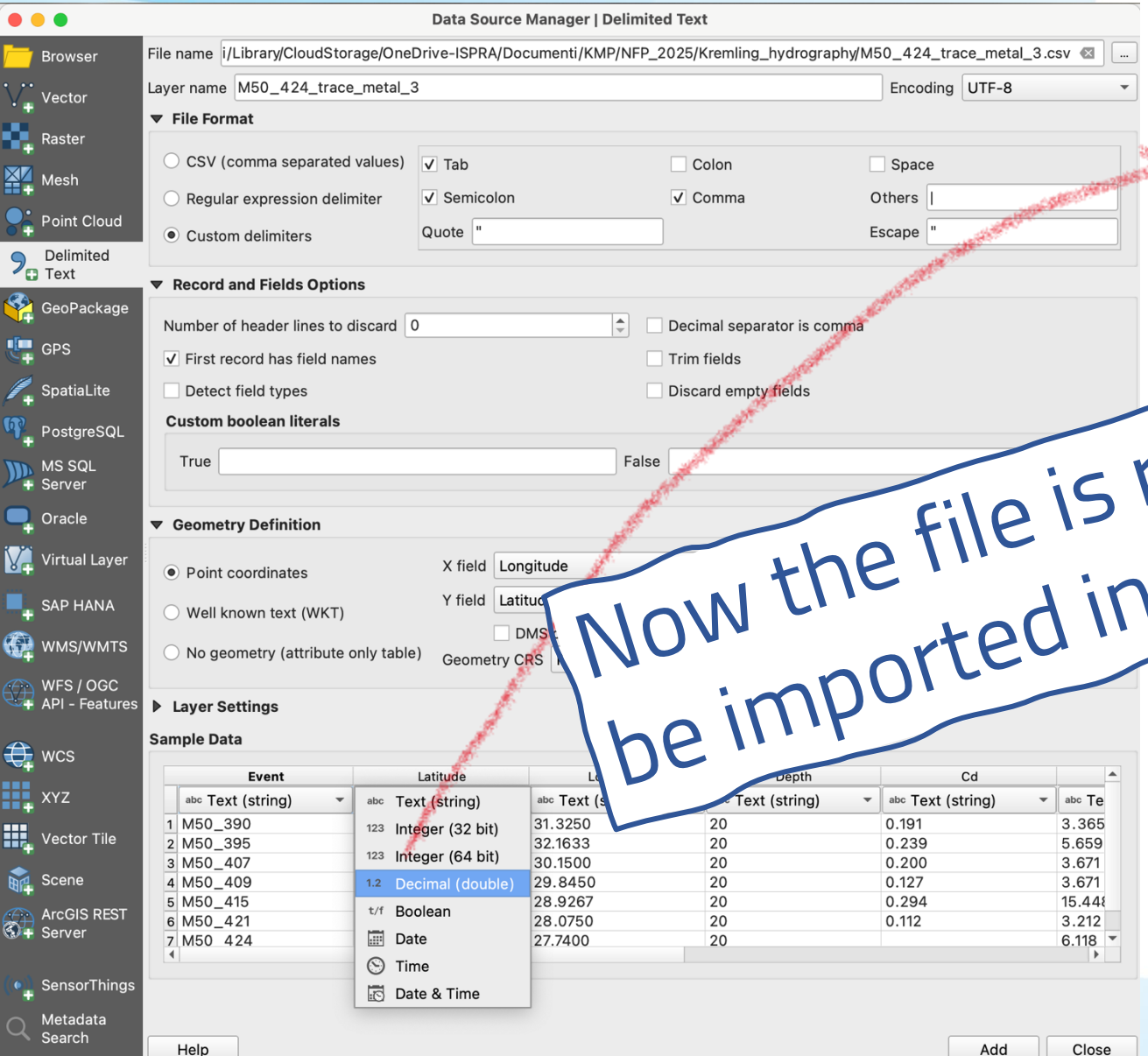


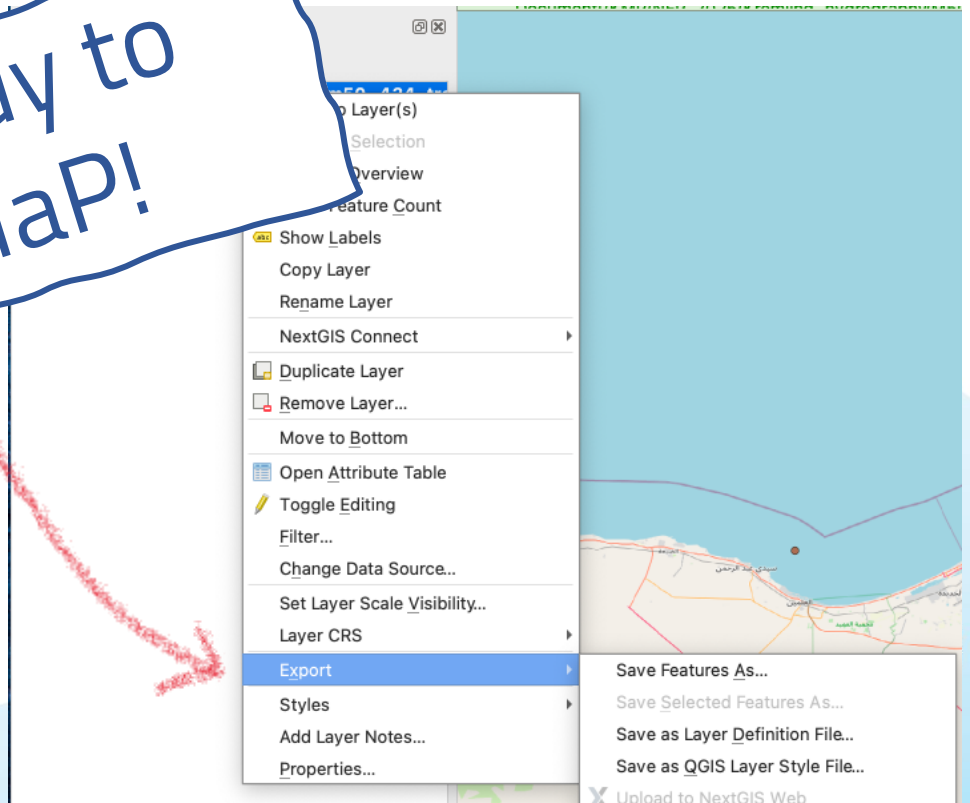
Check formal compatibility

We search the file, make sure the coordinate reference system is fine, turn each numerical parameter in decimal format, and we press «Add».

The layer will appear on the Table of Contents of QGIS, we can export it as a Geopackage.

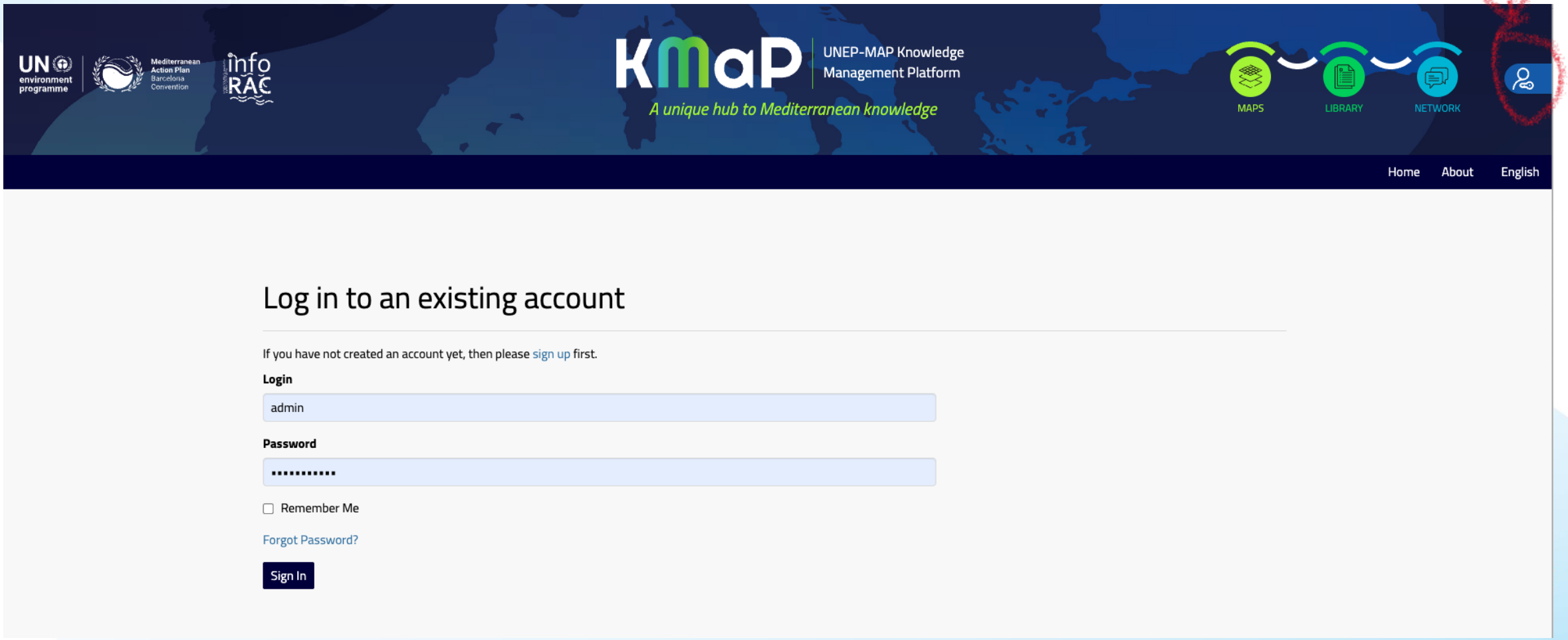
Now the file is ready to be imported in KMaP!





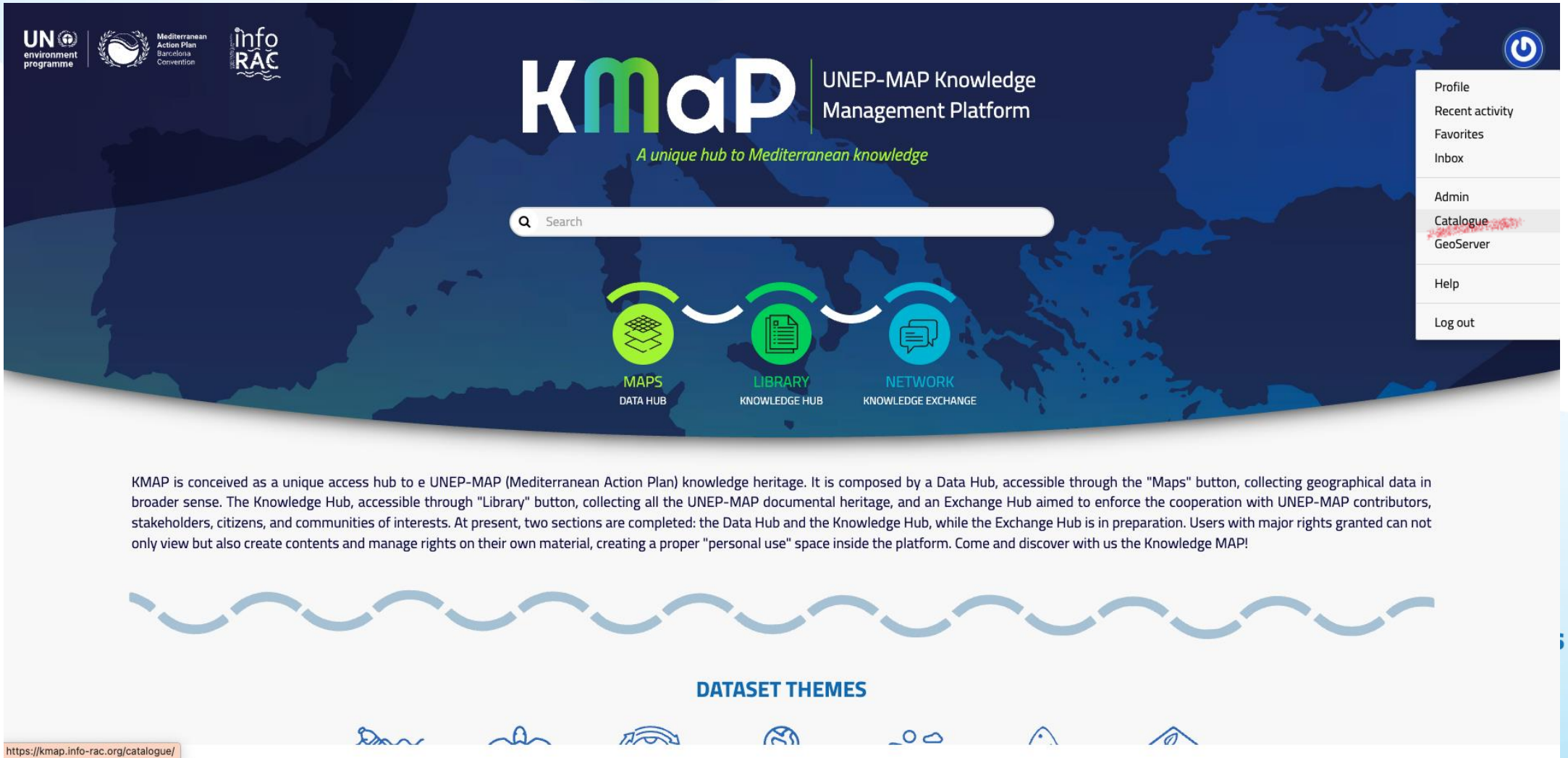
Data import in KMaP and customization

By clicking on the sign-in button, in the homepage, you will be redirected to login form. Enter your credentials as sent by mail



Data import in KMaP and customization

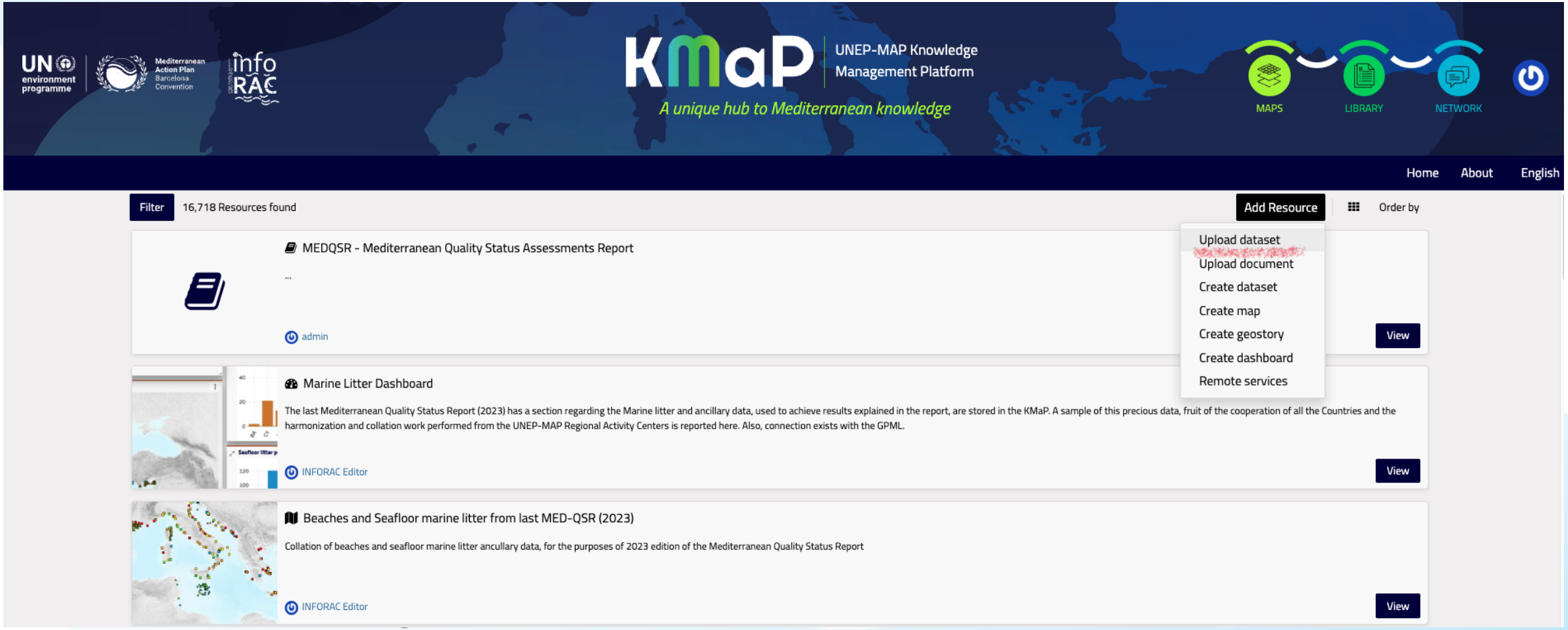
Once logged in the button changes shape, let's click on it and choose «Catalogue».
This is the section reserved for **editing**.



s Meeting

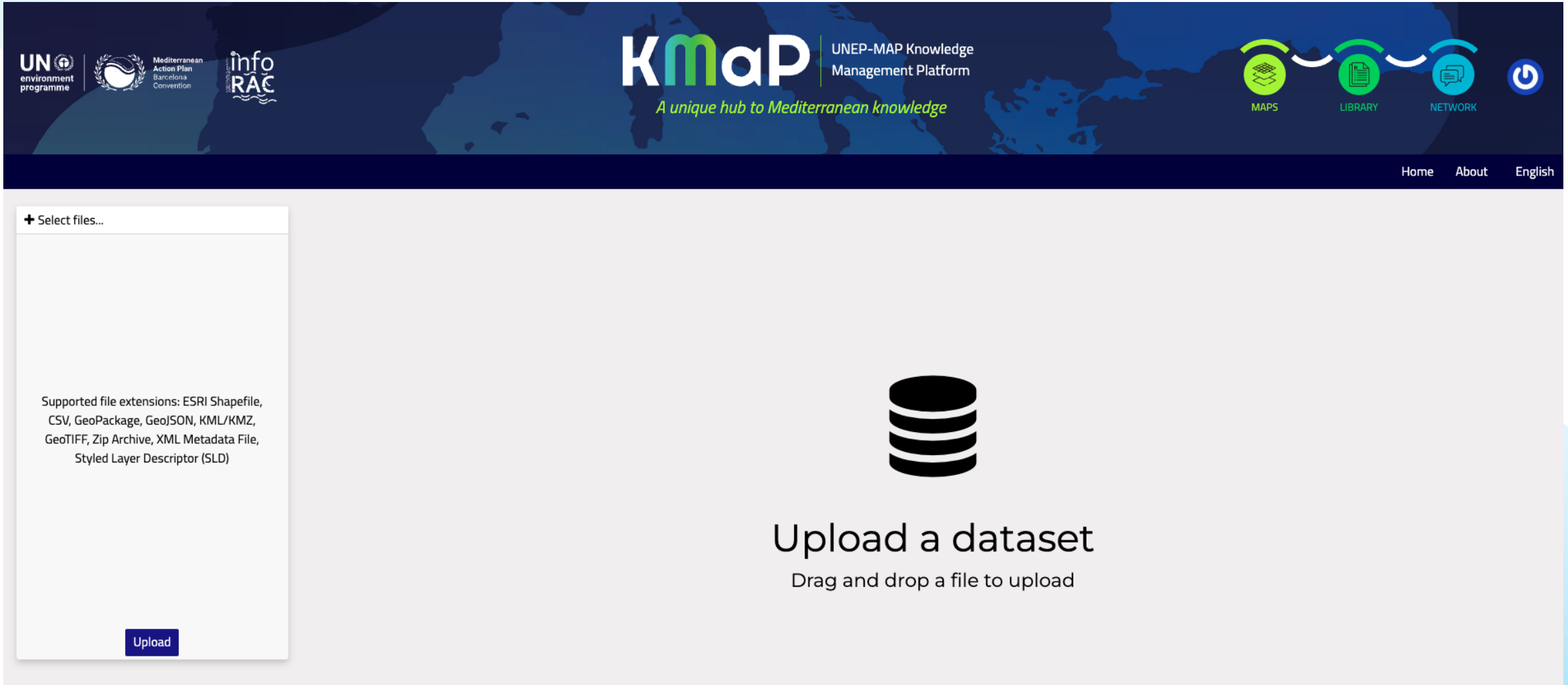
Data import in KMaP and customization

In the catalogue, let's click on «Add Resource» and choose «Upload dataset» to enter the upload interface



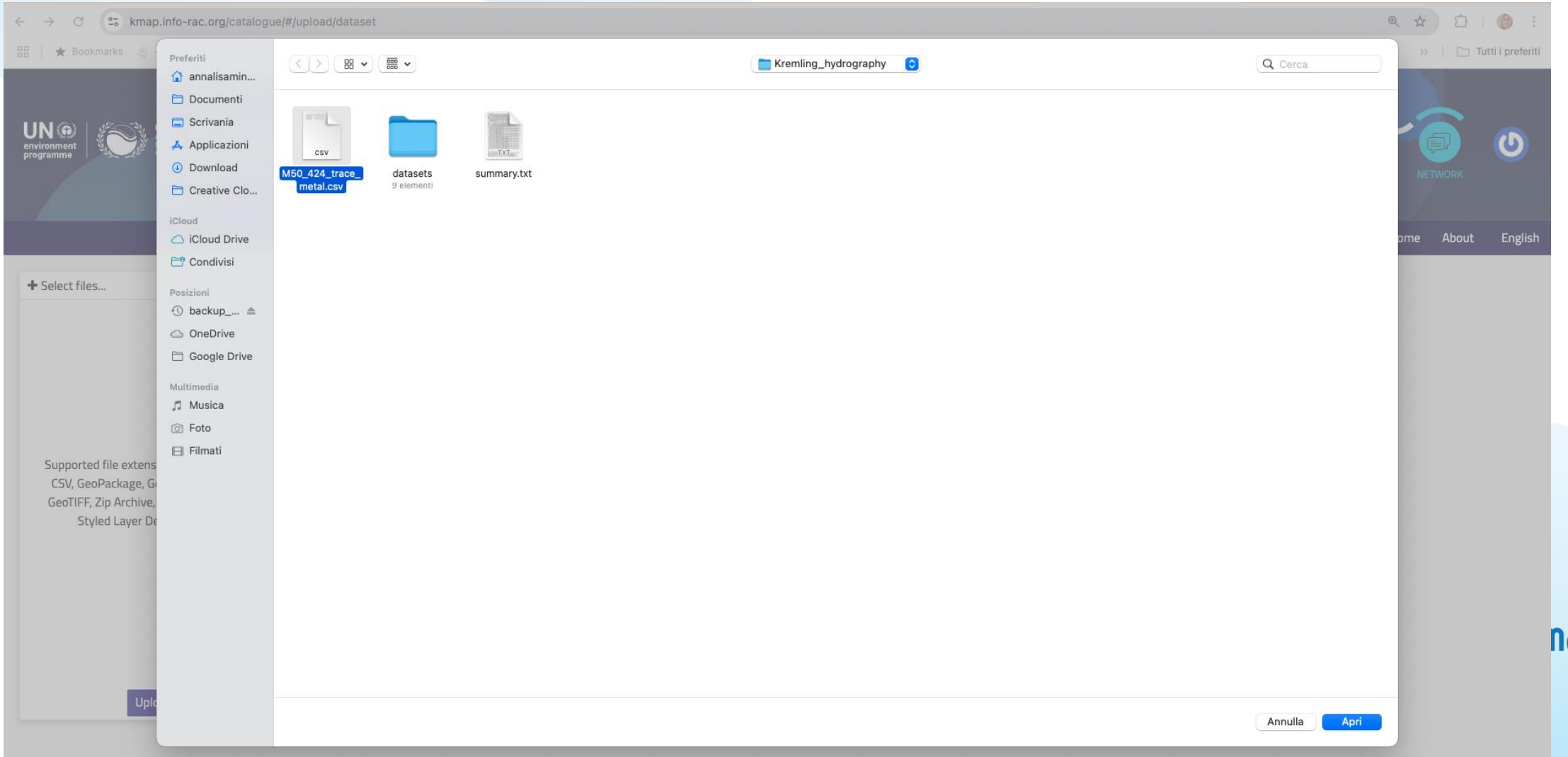
Data import in KMaP and customization

In the catalogue, let's click on «Add Resource» and choose «Upload dataset» to enter the upload interface



Data import in KMaP and customization

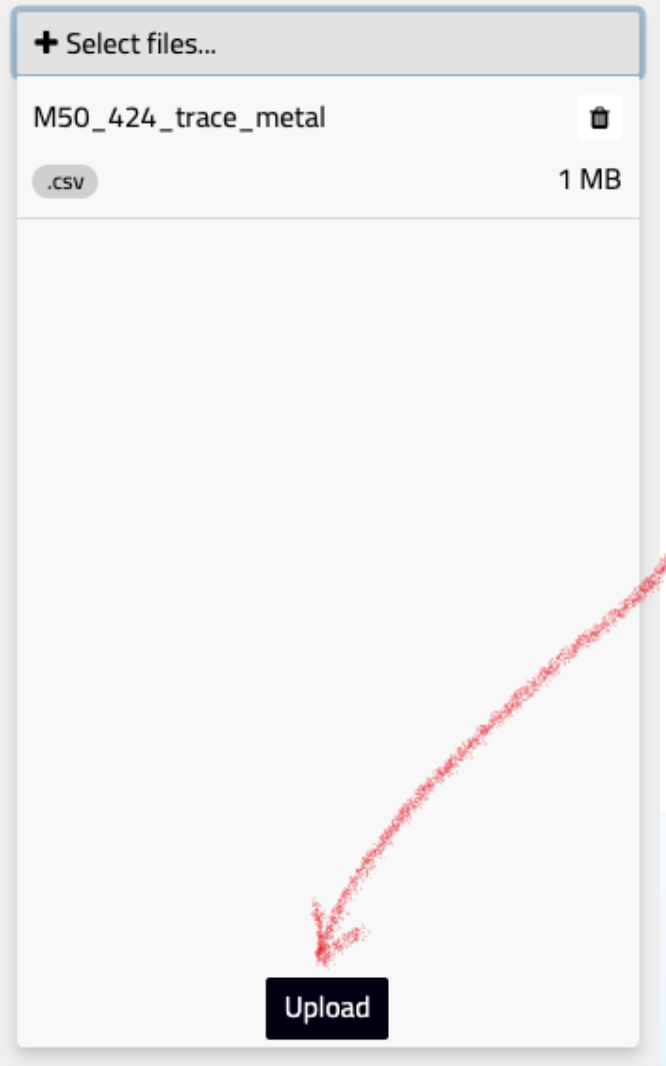
Through the «+ Select files» button let's select the .gpkg file



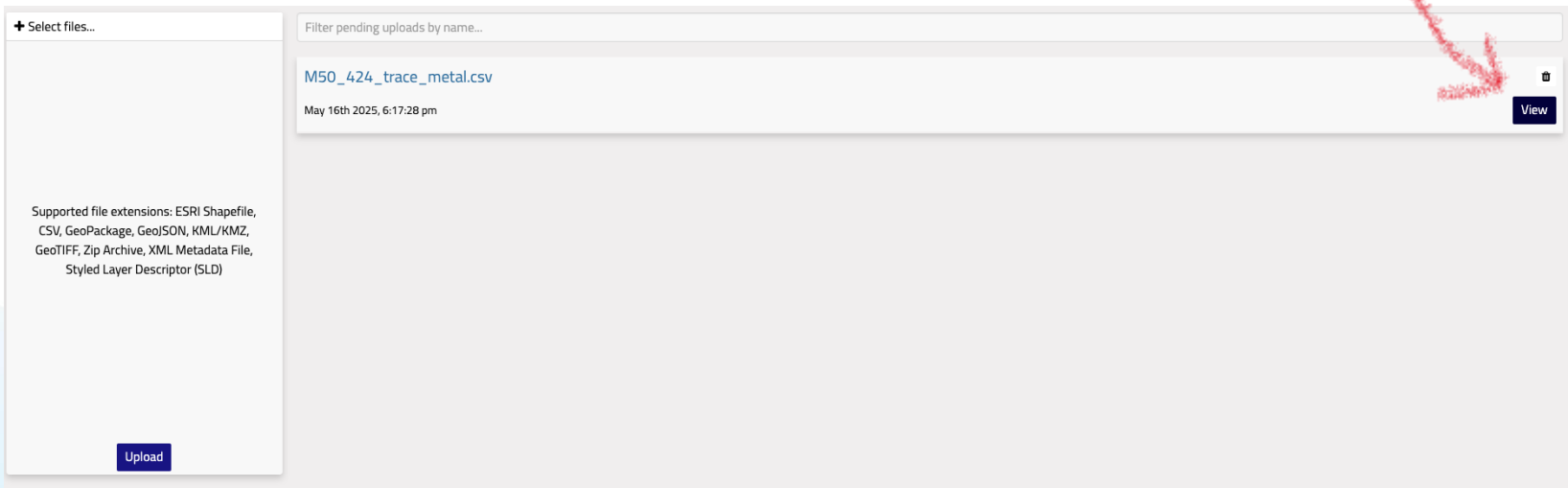
Meeting

Data import in KMaP and customization

The file is selected. By clicking on upload the uploading process starts…

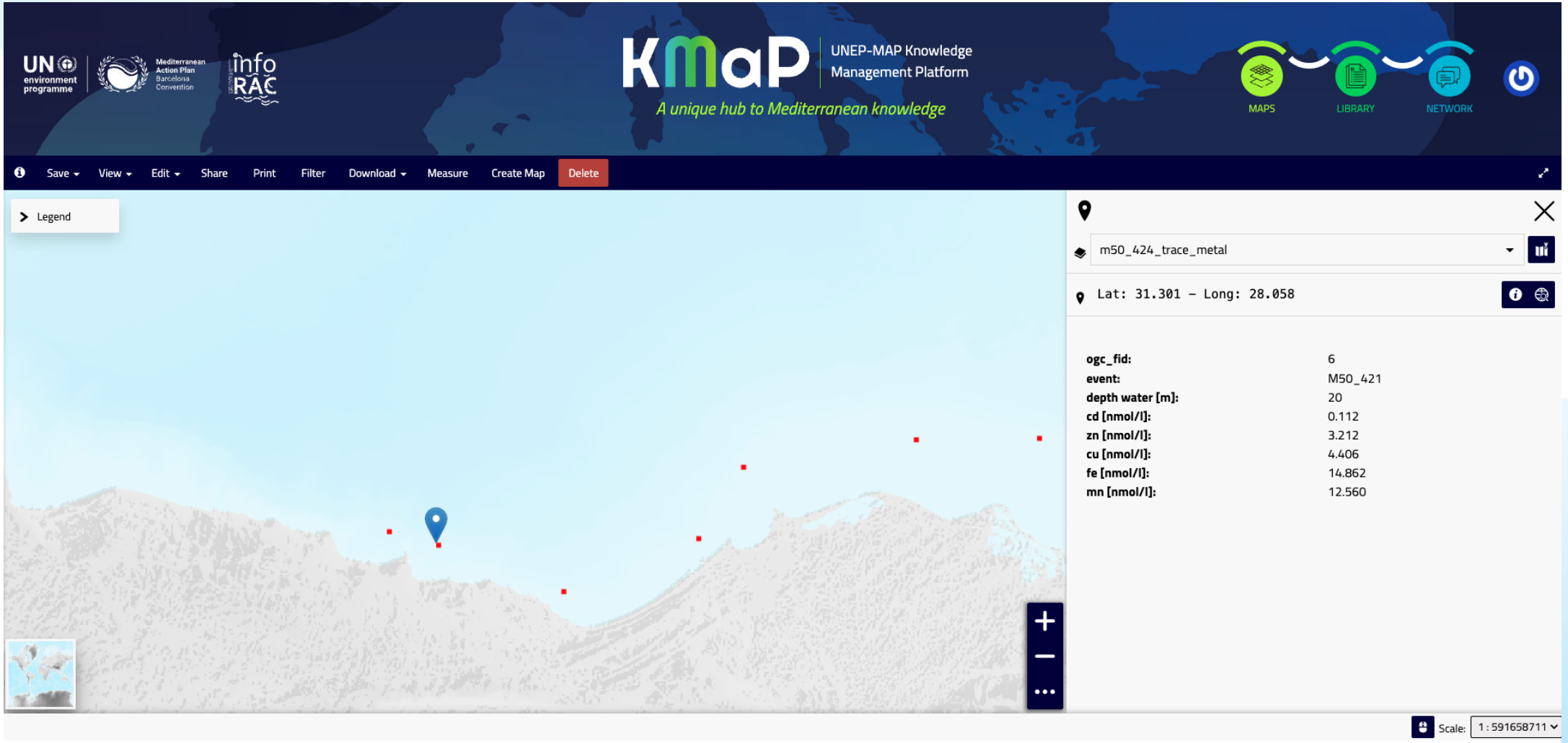


…and it ends when the file name is evidenced in blue (while uploading is black). Now we can view the result:



Data import in KMaP and customization

The map is visualized with a very basic symbology. We can query the points and see that all the fileds have been automatically recognised.



Meeting

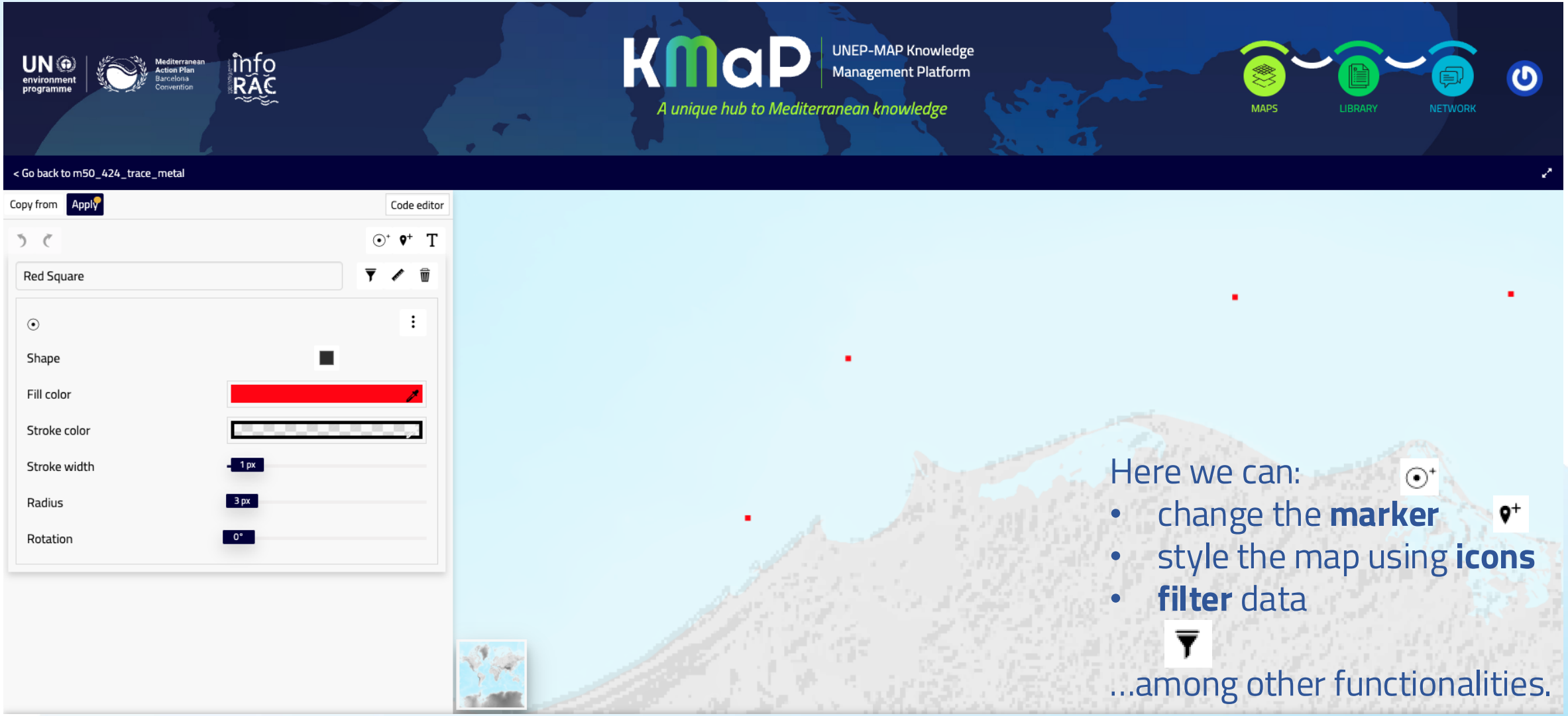
Data import in KMaP and customization

Now we can stilyse the map by clicking on Edit > Style

The Style editing could be done visually from screen (as in this case) or by code (useful when we create a style e.g. in a desktop GIS, and we can export it as a .sld – Styled Layer Descriptor – standard file)

Data import in KMaP and customization

Now we can stilyse the map by clicking on Edit > Style



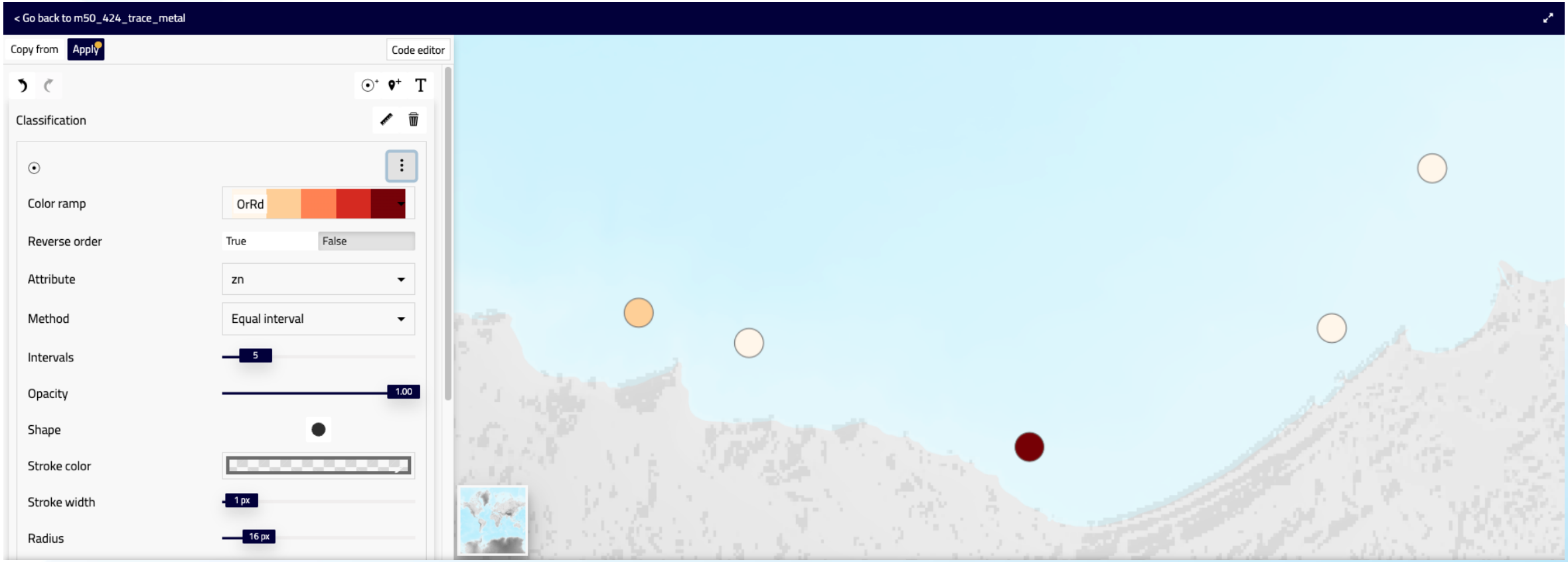
Here we can:

- change the **marker**
- style the map using **icons**
- **filter** data

...among other functionalities.

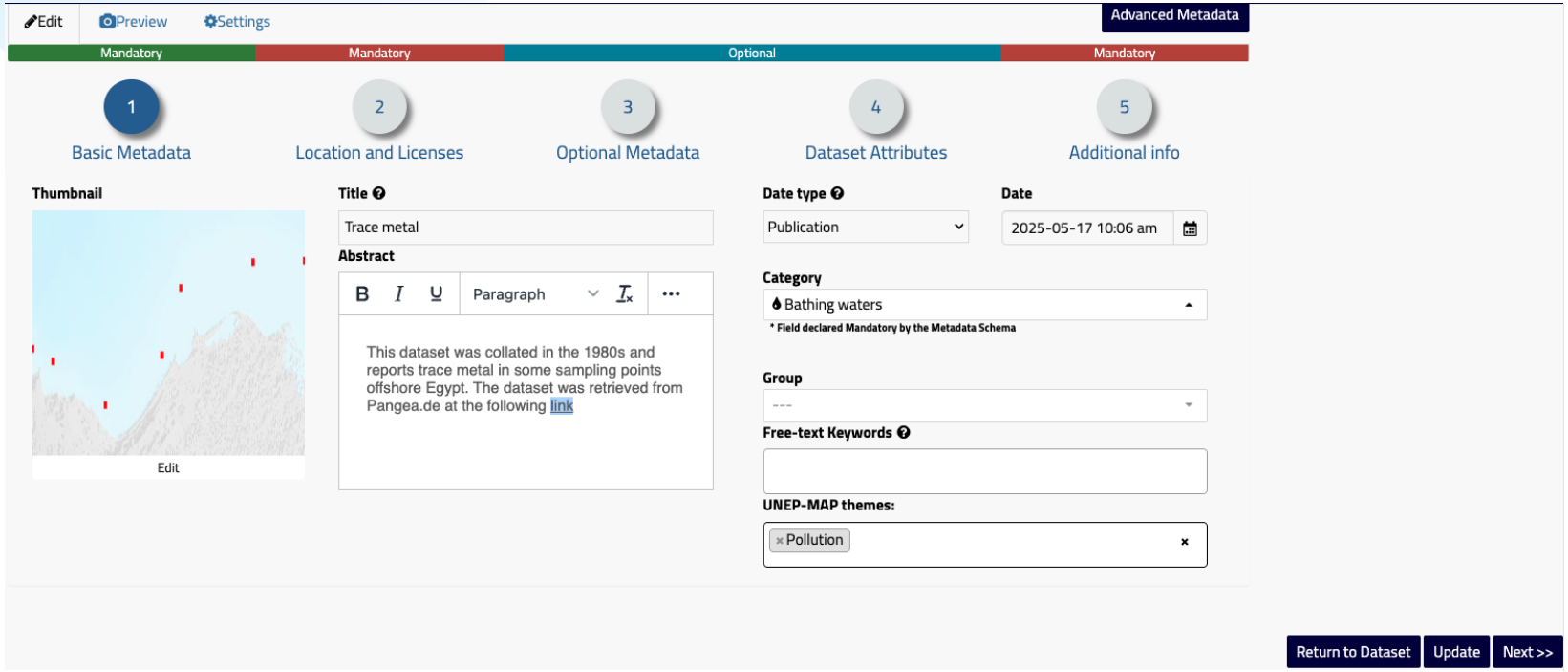
Data import in KMaP and customization

For this map we stylise the points growing the symbol and colouring it in reason of «zn» values.
So we choose «Classification style», select the attribute «zn» and we observe the result.
If the style is satisfying we press «Apply».



Metadata filling

Once we stilysed our dataset we should complete the Metadata. So let's go to «Edit > Metadata». Mandatory metadata are highlighted in red. Let's fill them together.

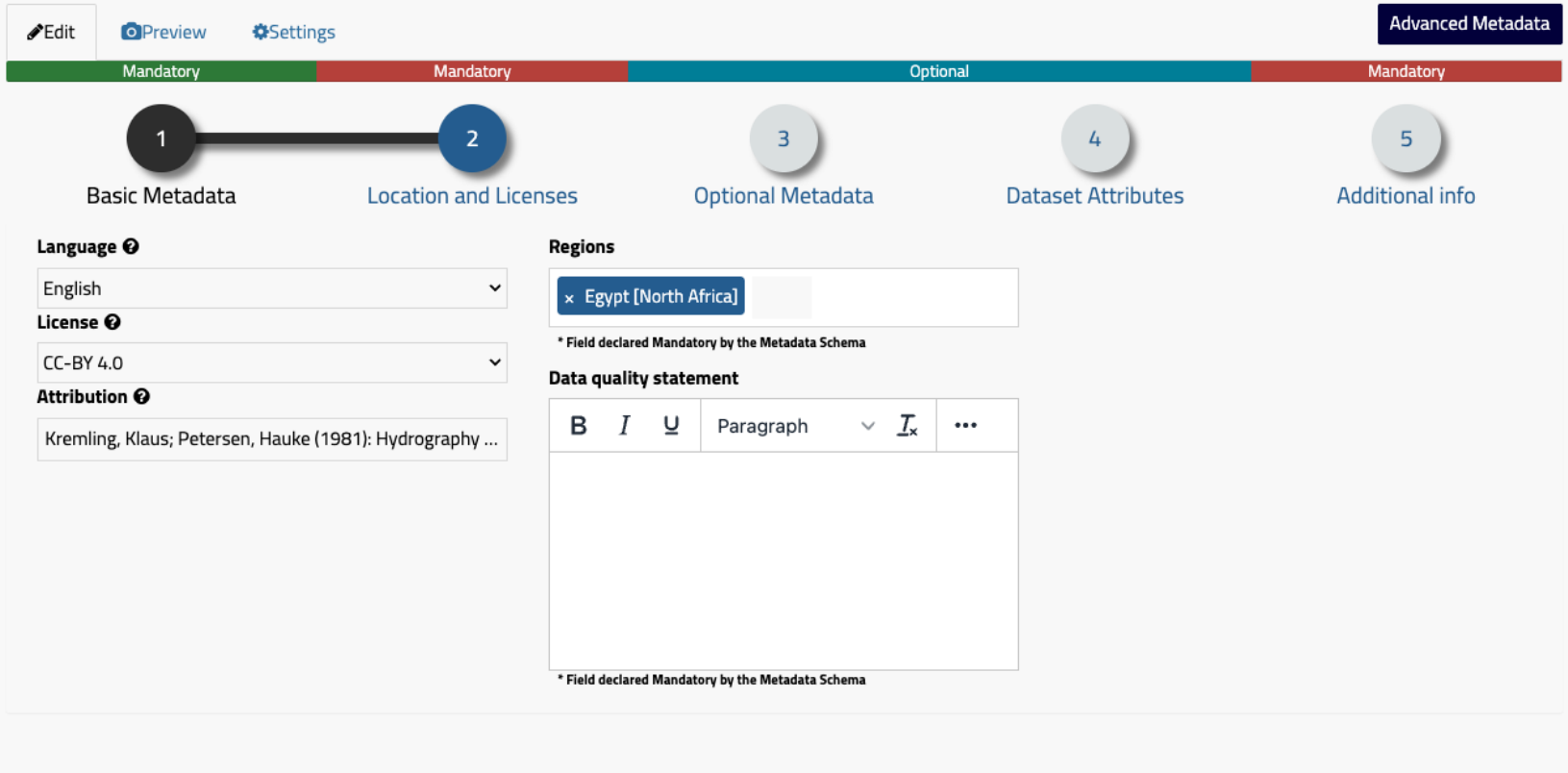


Some hints:

- Choose a meaningful title
- Write a brief description (including topic, type of data and origin of the dataset)
- Choose an INSPIRE category
- Choose a UNEP-MAP theme

Metadata filling

Once we stilysed our dataset we should complete the Metadata. So let's go to «Edit > Metadata». Mandatory matadata are highlighted in red. Let's fill them together.

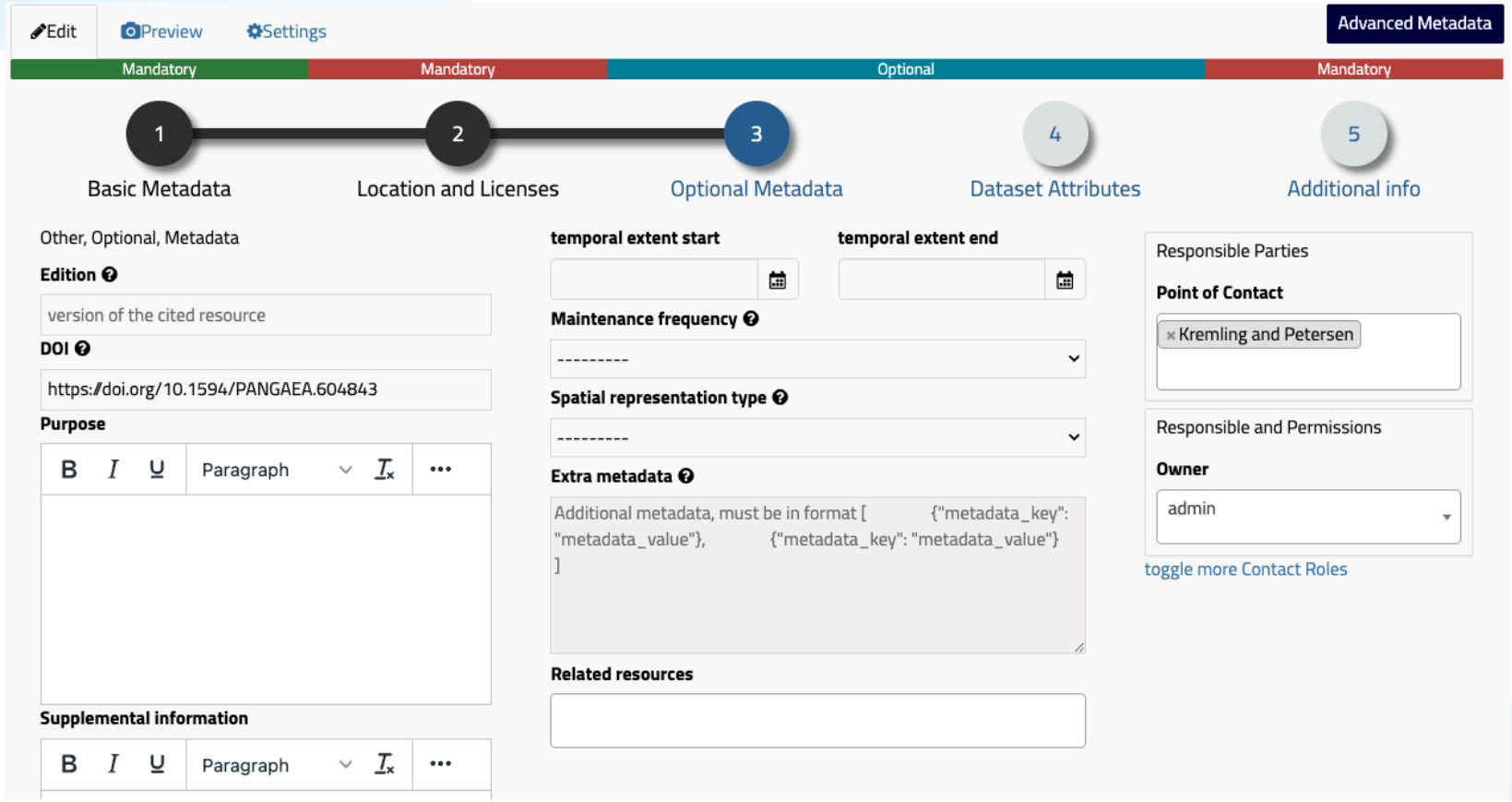


Some hints:

- Choose the right license
- Fill the Attribution filed with the correct citation
- Select the geographical region

Metadata filling

Once we stilysed our dataset we should complete the Metadata. So let's go to «Edit > Metadata». Mandatory matadata are highlighted in red. Let's fill them together.



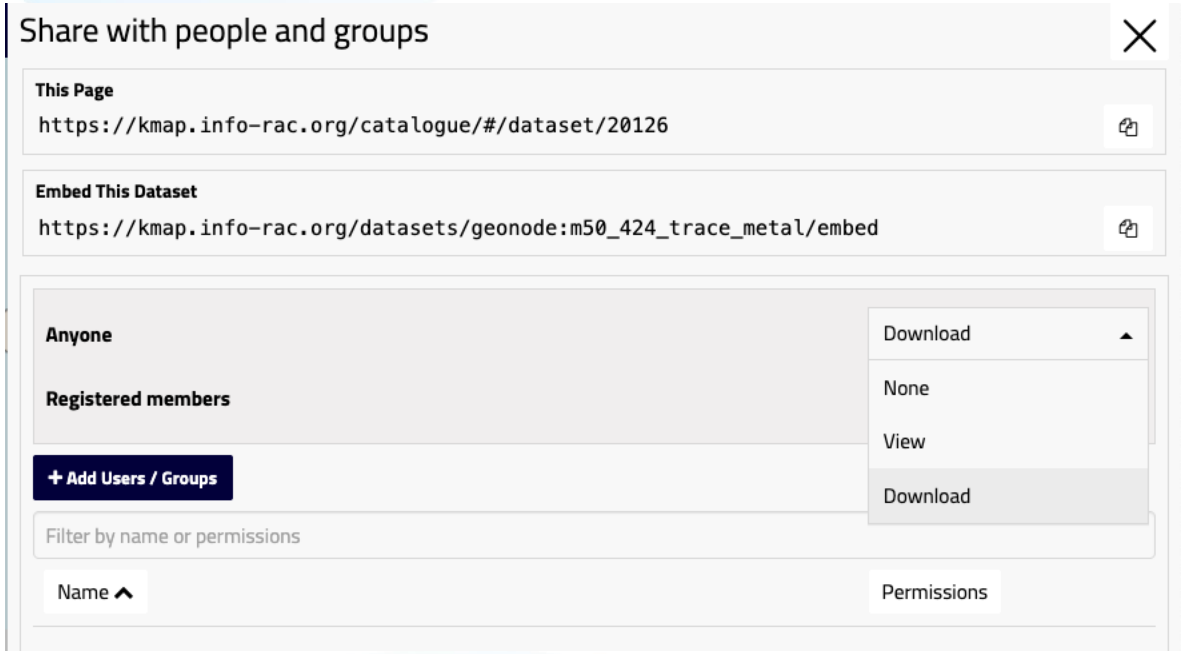
Some hints:

- We fill up the DOI of the publication
- We add the authors as Point of Contact
- We leave our user as responsible for the publication inside the KMaP (in my case «admin»)
- We press «Update»

Now metadata are complete.

Setting permissions on the dataset

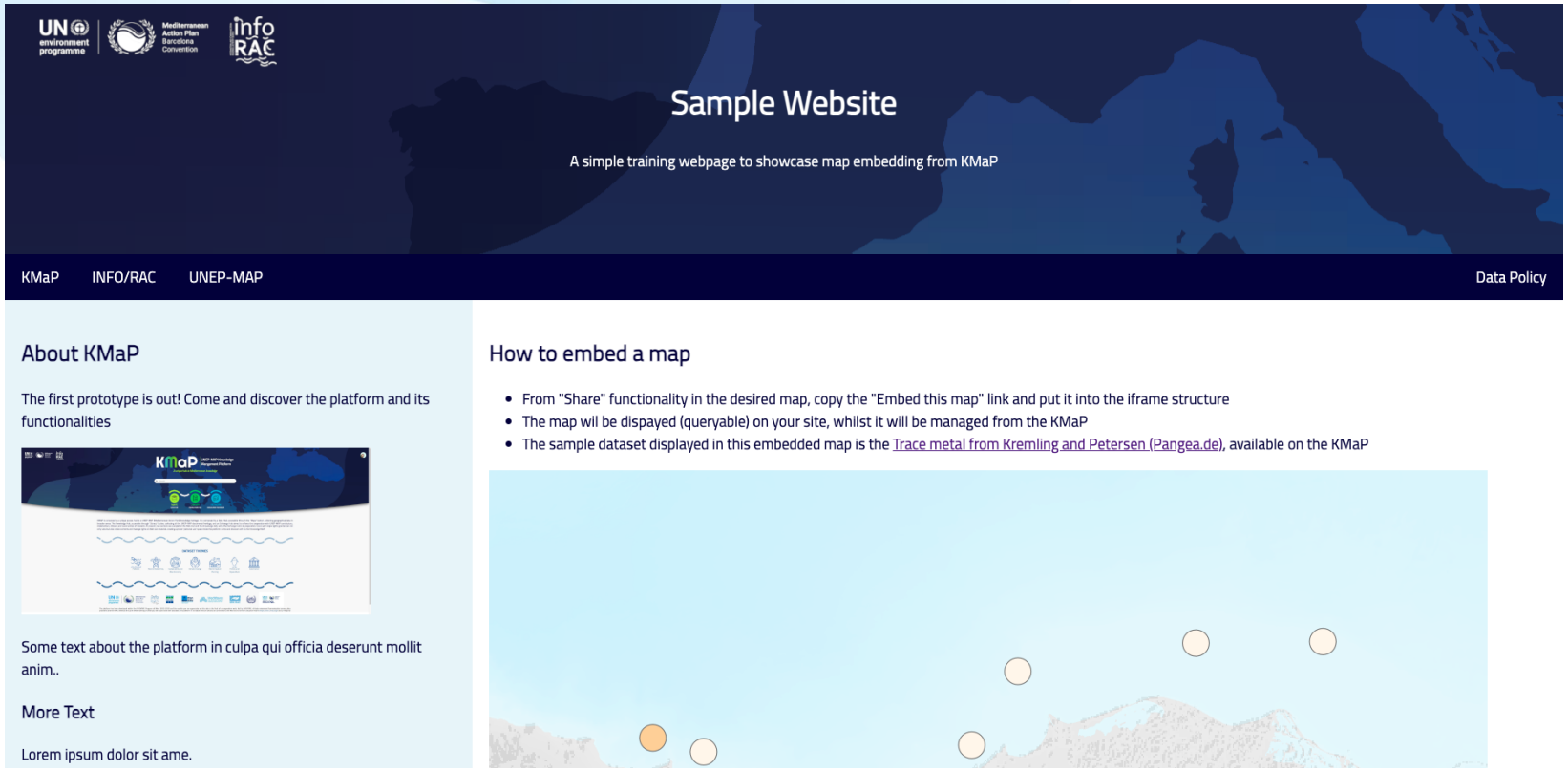
Once the dataset is ready to be shared, we can set permissions on it. Going into Share folder we can set specific rules on what Anyone or registered members or a specific User or Group of users can or cannot do with the new dataset.



The default is «Anyone can Download», and it's fine since also the original dataset is freely available upon attribution. The registered members have slightly more possibilities (Edit and Manage).

From here we can also decide how to use our data. By copying and pasting the link pointing to «Embed this dataset» we can embed the map into a website!

Use the dataset



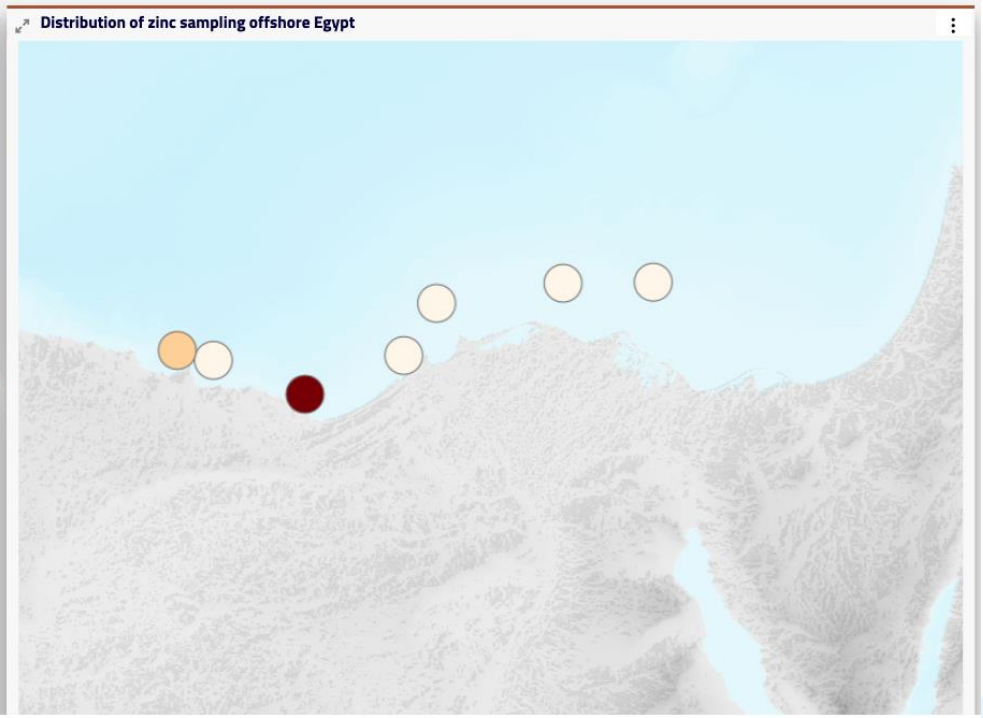
An example of use is reported here: https://info-rac.github.io/test_website/

The dataset is queryable on the website, but it's still managed by KMaP.

Use the dataset

Another use of the dataset could be to create a dashboard starting from the dataset. We can add a **line graph** of Zinc concentration upon events, we can add a **table** with all the dataset's information , we can add a **map** of the dataset we've just imported.

event	latitude	longitude	depth	cd	zn	cu
Type text t	Type numt	Type numt	Type numt	Type numt	Type numt	Type nı
M50_390	31.905	31.325	20	0.191	3.365	3.462
M50_395	31.9133	32.1633	20	0.239	5.659	3.305
M50_407	31.7467	30.15	20	0.2	3.671	5.193
M50_409	31.3333	29.845	20	0.127	3.671	5.665
M50_415	31.025	28.9267	20	0.294	15.448	3.462
M50_421	31.295	28.075	20	0.112	3.212	4.406



Data in the widgets could be configured to be **responsive** with respect to the zoom level of the map. Also the Dashboard could be **embedded** in a website, using the same «Share» functionalities.

Thank you for the attention!

annalisa.minelli@info-rac.org