



OSCARS Webinar 17 February 2026

ENVRI @ OSCARS

Open Science projects and the ENVRI-Hub

Marta Gutierrez David, EGI Foundation

Ulrich Bundke, FZJ

Anca Hienola, FMI

Andreas Petzold, FZJ



The ENVRI Community

27 Large Environmental Research Infrastructures in Europe



14 years of collaborations



ENVRI
2011.11-2014.10



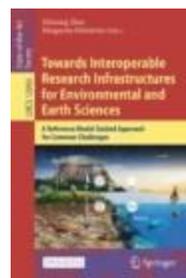
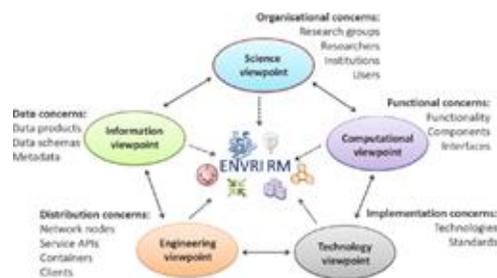
ENVRI-plus
2015.3-2019.2



ENVRI-FAIR
2019.3-2023.6



ENVRI-Hub NEXT
2024.2-2027.1



Welcome to the data access and services hub of the European environmental research infrastructures

The Competence Center for the **ENVRI Community**

Search within the ENVRI-Hub website content:



<https://envri-hub.staging.envri.eu/>



Catalogue of Services

Explore the Research Infrastructures services that provide access to data, metadata, semantic assets, taxonomic information and more, and visualise them on a world map.



Knowledge Base

Search in a natural language the environmental research infrastructures web-exposed information (web pages, datasets, library and notebooks, web APIs and more).



Training Gateway

Access training resources developed by and for the ENVRI Community.



Innovation Hub

The central platform for driving Innovation in environmental research infrastructures



AI Environmental Expert

Search in a natural language the environmental research infrastructures web-exposed information (web pages, datasets, library and notebooks, web APIs and more).



Programmatic access to the ENVRI-Hub services

Access the ENVRI-Hub services Applicable Programming Interfaces (APIs) and libraries.



Science Demonstrators

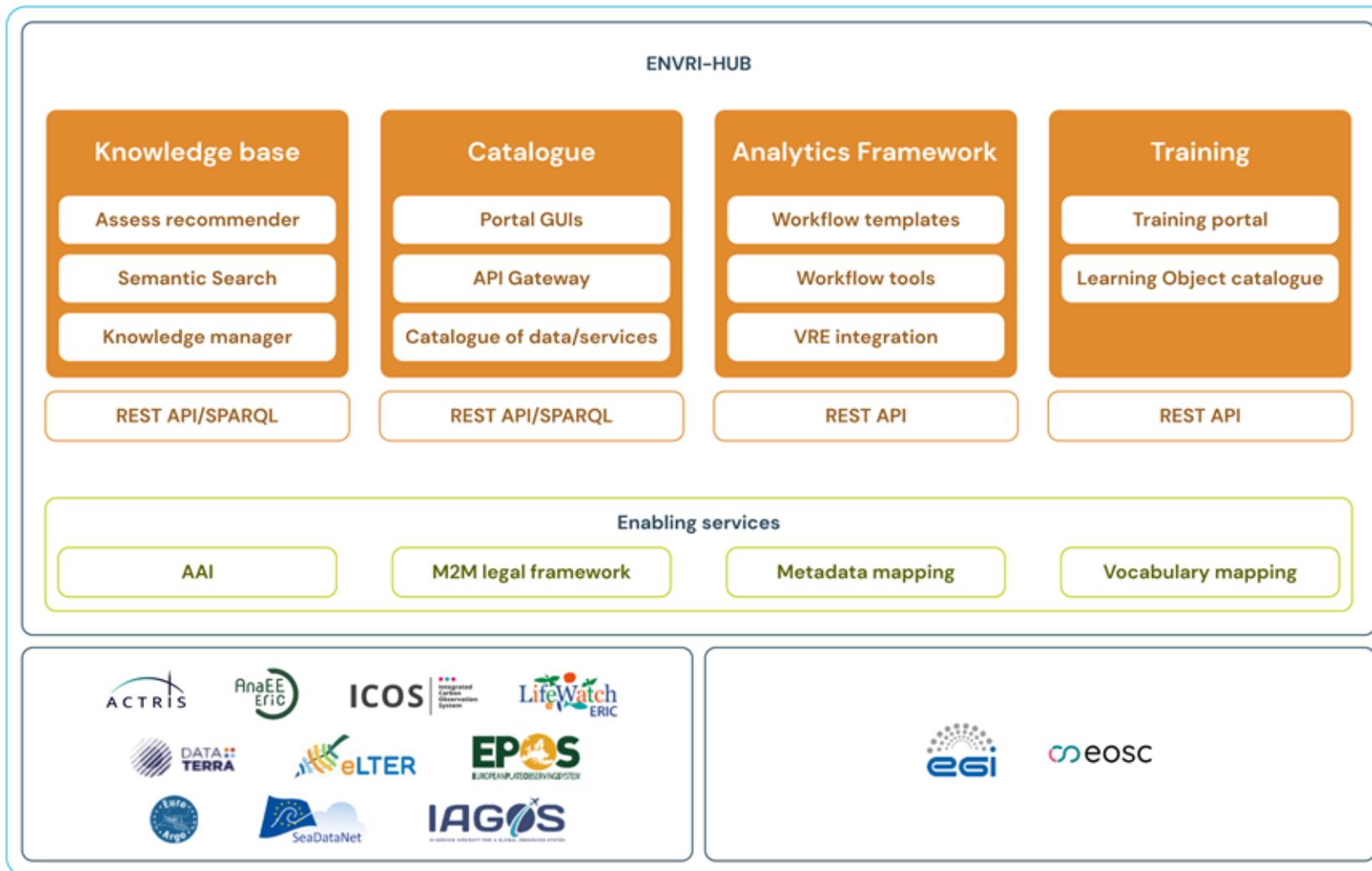
Access to science demonstrators from the ENVRI community: interactive web services, example notebooks, and more.



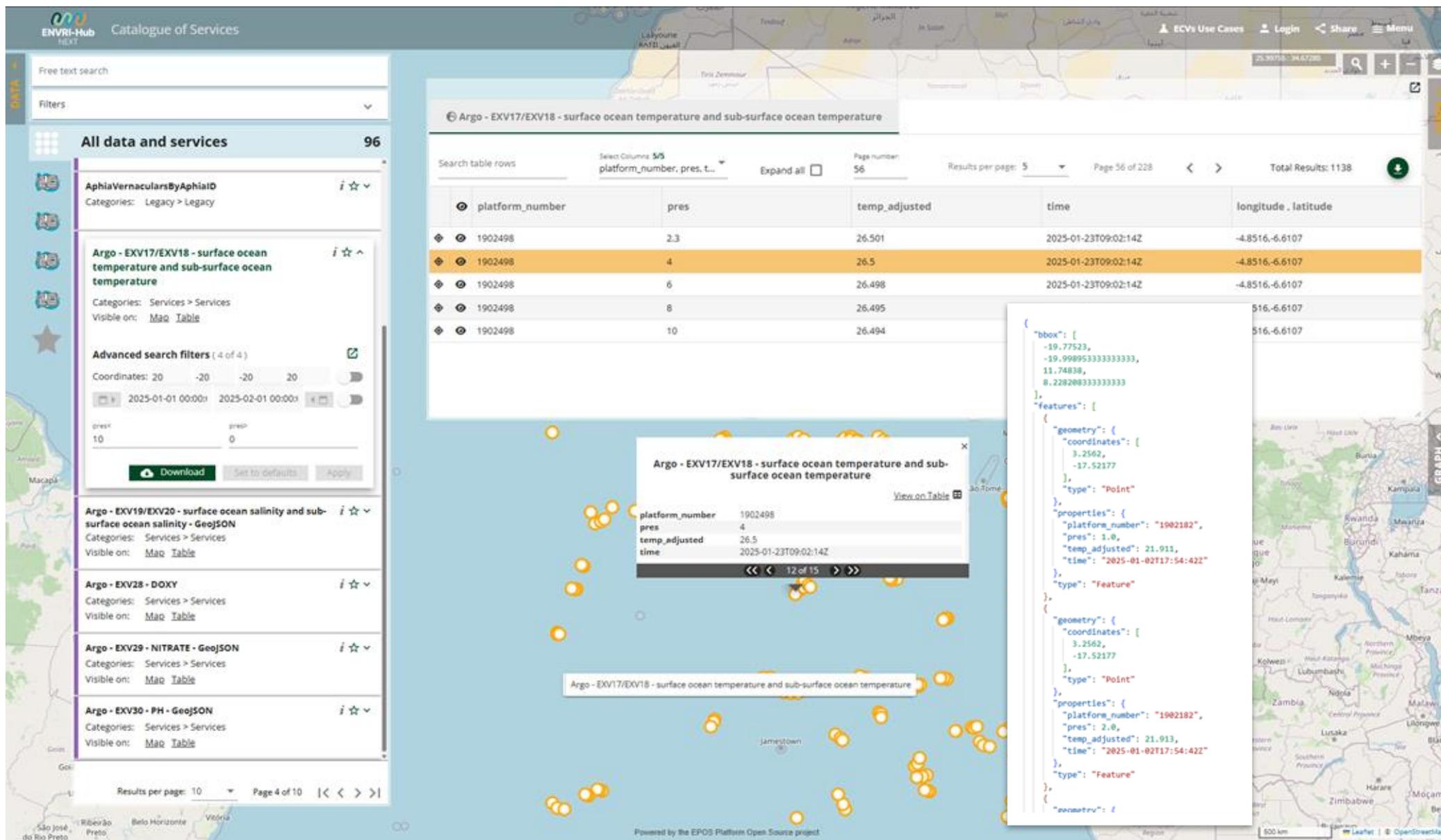
Dashboards for the State of the Environment

Under one easy-to-use interface, access crucial European environmental variables indicators.

Under the surface: A service journey



ENVRI Catalogue of Services

The screenshot displays the ENVRI Catalogue of Services interface. On the left, a sidebar lists various services, including 'Argo - EXV17/EXV18 - surface ocean temperature and sub-surface ocean temperature'. The main area shows a table of data for this service, with columns for platform number, pressure (pres), adjusted temperature (temp_adjusted), time, and longitude/latitude. A map below the table shows the geographic distribution of these data points. A popup window provides detailed information for a specific data point, including its coordinates and properties.

platform_number	pres	temp_adjusted	time	longitude , latitude
1902498	2.3	26.501	2025-01-23T09:02:14Z	-4.8516,-6.6107
1902498	4	26.5	2025-01-23T09:02:14Z	-4.8516,-6.6107
1902498	6	26.498	2025-01-23T09:02:14Z	-4.8516,-6.6107
1902498	8	26.495	2025-01-23T09:02:14Z	-4.8516,-6.6107
1902498	10	26.494	2025-01-23T09:02:14Z	-4.8516,-6.6107

```

{
  "bbox": [
    -19.77523,
    -19.998953333333333,
    11.74838,
    8.228283333333333
  ],
  "features": [
    {
      "geometry": {
        "coordinates": [
          3.2562,
          -17.52177
        ],
        "type": "Point"
      },
      "properties": {
        "platform_number": "1902182",
        "pres": 1.0,
        "temp_adjusted": 21.911,
        "time": "2025-01-02T17:54:42Z"
      },
      "type": "Feature"
    },
    {
      "geometry": {
        "coordinates": [
          3.2562,
          -17.52177
        ],
        "type": "Point"
      },
      "properties": {
        "platform_number": "1902182",
        "pres": 2.0,
        "temp_adjusted": 21.913,
        "time": "2025-01-02T17:54:42Z"
      },
      "type": "Feature"
    }
  ]
}
    
```

ENVRI Catalogue of Data (FDP)



ENVRI Catalogue of Data

The tab "Data catalogs" lists catalogs of datasets and collections of datasets made available by some of the research infrastructures (RIs) that are part of ENVRI. The tab "Variables" contains the definition of variables included in the datasets listed under "Data catalogs". The definitions use the I-ADOPT vocabulary and link to external controlled vocabularies. The tab "Data services" lists services provided by some of the RIs that are part of ENVRI.

Data catalogs Variables Data services

Data catalogs

+ Create

ACTRIS data

ACTRIS data products catalog

Issued 24-11-2024 Modified 24-11-2024

Argo marine data

All data collected by Argo floats

InSitu Ocean 720a52b0-e991-4b0c-b2d1-c6863918186d

Issued 25-11-2024 Modified 20-12-2024

EPOS Sea level

18 21 f41aadd0-dab-42d2-9713-d68e972263f4

Issued 10-12-2024 Modified 10-07-2025

ICOS data

ICOS data products catalog

6a43782b-13da-40a0-a65c-63480a940231 9150a404-40eb-41ae-b835-4077b989713f
c0b74231-0790-469b-9886-f8ff15eed5b atmosphere
8b61fc50-1c1d-4c58-8934-7e3d236b7ef7 ecosystem

Issued 24-11-2024 Modified 31-01-2025

Conforms to

- [FAIR Data Point Profile](#)

Metadata modified
10-07-2025

Metadata issued
24-11-2024

Endpoint description
ENVRI FDP Demo

Endpoint url
ENVRI Catalogue of Data

Version
1.0

Language
English

License
CC0

Rights
public

Start date
24-11-2024

UI language
English

Metadata identifier
identifier

RDF metadata for machines
rdf:type envri:icon:Id

Programmatic access to the ENVRI-Hub services



use your own VRE
or
check our our test VRE

```
plot_f1 X gantt_X create_X co2_GX contri_X ICOSs_X noteb_ era5_ij_X ICOS_X alex@X atmol_X doi2hr_X test2.i_X emissi_X
Python 3 (pykernel)

[14]: 1 #!pip install matplotlib cartopy numpy pandas

Proof of concept notebook of notebooks
This notebook shows the PoC python library (ehnpy) in action.

[5]: 1 import ecv_data_access.functions as functions
2 import matplotlib.pyplot as plt
3 import cartopy.crs as ccrs
4 import cartopy.feature as cfeature
5 import numpy as np
6 import pandas as pd

[6]: 1 ## Argo & SDN
2 REXV017 Sea-surface temperature (SDN / Euro-Argo) -->
3 REXV018 Subsurface temperature (SDN / Euro-Argo) -->
4 REXV019 Sea Surface Salinity (SDN / Euro-Argo) -->
5 REXV020 Subsurface Salinity (SDN / Euro-Argo) -->
6 REXV028 Oxygen (SDN / Euro-Argo) -->
7 REXV029 Nutrients (SDN / Euro-Argo) -->
8 REXV033 Ocean color (SDN / Euro-Argo) -->
9
10 ## ACTRIS & SDN
11 REXV011 Cloud properties (ACTRIS / SDN) ?
12 REXV016 Aerosol properties (ACTRIS / SDN) -->
13
14 ## ICOS & SDN
15 REXV013 Carbon dioxide, methane and other greenhouse gases (ICOS / SDN) -->
16
17 ## EPOS & SDN
18 REXV023 Sea Level (SDN / EPOS) -
19
20 ## Individual #Is
21 REXV014 Ozone ?
22 REXV015 Precursors (supporting the aerosol and ozone ECVs) (IAGOS) -->
23 REXV022 Subsurface Currents (Euro-Argo) -
24 REXV030 Ocean Inorganic Carbon (SDN) -
25 REXV039 Soil moisture (ICOS) -

[7]: 1 exv = "EXV015"
2 region=(10, 20, 45, 65)
3 time=("2020-01-01", "2020-01-10")
4 samplingheight=(0, 100)

[8]: 1 data = functions.get_data(
2     exv_variable=exv,
3     region=region,
4     time=time,
5     samplingheight=samplingheight
6 )

[2025-09-05 12:30:47] [seadatanet.py:get_data] Fetching data from SeaDataNet CDI Beacon API...
[2025-09-05 12:30:47] [seadatanet.py:filter_unavailable_columns] Filtering available columns...
[2025-09-05 12:30:49] [seadatanet.py:get_data] Variables: []
[2025-09-05 12:30:49] [seadatanet.py:get_data] No valid variables found. Please check the provided variables.
[2025-09-05 12:30:50] [argo.py:get_data] Fetching data from Argo using Argopy...
[2025-09-05 12:30:50] [argo.py:get_data] No variables
Enter your username: alex.vermeulen@nateko.lu.se
Enter your password: .....
[2025-09-05 12:31:47] [icos.py:get_data] Fetching data from ICOS...
[2025-09-05 12:31:47] [icos.py:exec_icos_sparql_query] SPARQL query status code: 200
[2025-09-05 12:31:47] [icos.py:get_data] Found 0 data objects.
[2025-09-05 12:31:47] [icos.py:get_data] No data objects found for the given query parameters.
[2025-09-05 12:31:48] [iagos.py:get_data] Fetching data from IAGOS...
CO
[2025-09-05 12:31:57] [iagos.py:download_to_file] Downloading https://services.iagos-data.fr/prod/v2.0/13/loadNetcdf#file?fileId=https://doi.org/10.25326/6
```


Try something more fancy will it work?



AI Environmental
expert

envri-hub-next.eu

Environmental Expert

Ask any question about the Environment and Earth Science



Write a python program to plot the sea surface temperature of the atlantic ocean using argopy



To plot the sea surface temperature (SST) of the Atlantic Ocean using the argopy library in Python, follow these steps:

1. Install the required packages (argopy, xarray, matplotlib, cartopy).
2. Use argopy to fetch data from the Atlantic region.
3. Select data for sea surface temperature.
4. Plot the data.

Here's a complete example:

```
import matplotlib.pyplot as plt
import cartopy.crs as ccrs
import xarray as xr
from argopy import DataFetcher

# Define the Atlantic Ocean region (lat/lon bounds)
atlantic bounds = [
```

Write a python program to plot the sea surface temperature of the atlantic ocean using argopy|





Thank you

Andreas Petzold

a.petzold@fz-juelich.de

 [LinkedIn.com/company/envri-community](https://www.linkedin.com/company/envri-community)

 bsky.app/profile/envri.bsky.social

 [@envricommunity](https://www.youtube.com/@envricommunity)



Funded by
the European Union