

# Breaking the barriers to interdisciplinarity: Contributions from the ENVRI

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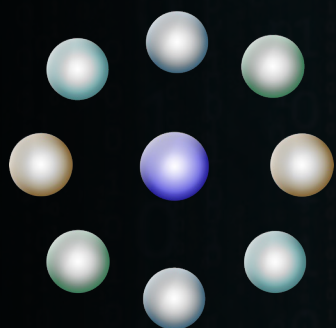


ENVRI-FAIR has received funding from the European Union's Horizon 2020 Research and Innovation program under Grant Agreement No 824068

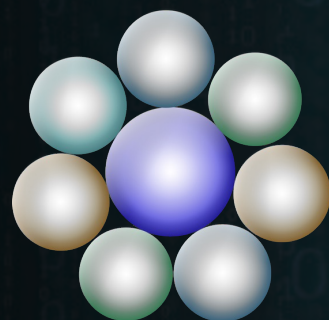
# Interdisciplinarity | The need to break the barriers

*Interdisciplinarity has evolved from a “buzzword” to necessity*

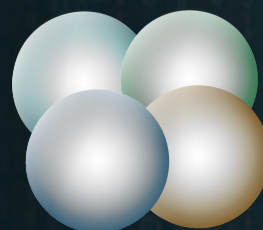
*(Tripp & Shortlidge, 2019; and references therein)*



**Multi-disciplinary**



**Cross-disciplinary**

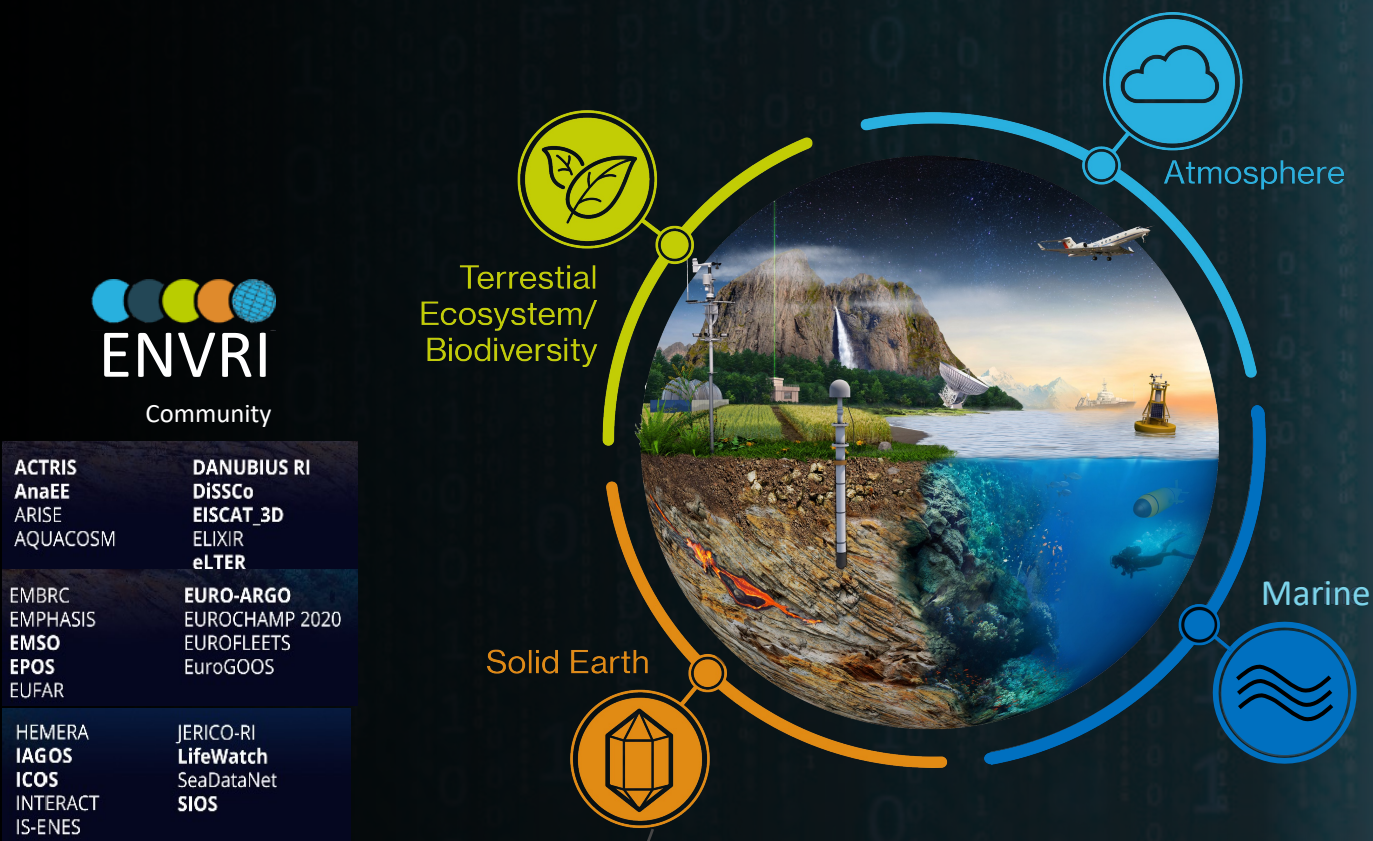


**Inter-disciplinary**

- ❑ Problem oriented research
- ❑ Complex problems vital for the society
- ❑ Integration of multiple disciplines to propose solutions
- ❑ Leading funding agencies calling for shifts
- ❑ Data Science has emerged as an interdisciplinary field
- ❑ The aim is to complement and not replace disciplinary research

# ENVRI-FAIR | Environmental RIs in Europe

*Environmental Research Infrastructures - ENVRI  
Operating in 4 subdomains of the earth system*



- ☐ Provide easy-to-use FAIR data and services
- ☐ Support Open Science practices
- ☐ Increase scientific collaborations to benefit science and society
- ☐ Improve reproducibility of research results
- ☐ Contribute to the development of the EOSC
- ☐ Increase society's trust in science

# ENVRI-FAIR | Cross-RI Use Cases

*Demonstrators of environmental science stories within subdomain boundaries using FAIR services*

Findable Accessible Interoperable Reusable



## ENVRI Science Demonstrators

Use reliable Jupyter Notebooks to support interactive data science and scientific computing.

Enter



ENVRI  
FAIR  
EVIB

# ENVRI-FAIR | Cross-RI Use Cases

*In data science, once a data/research question is defined, the next step requires data discovery and access*



ENVRI-Hub

## How to plot a multi-domain station list using the Catalogue of Services

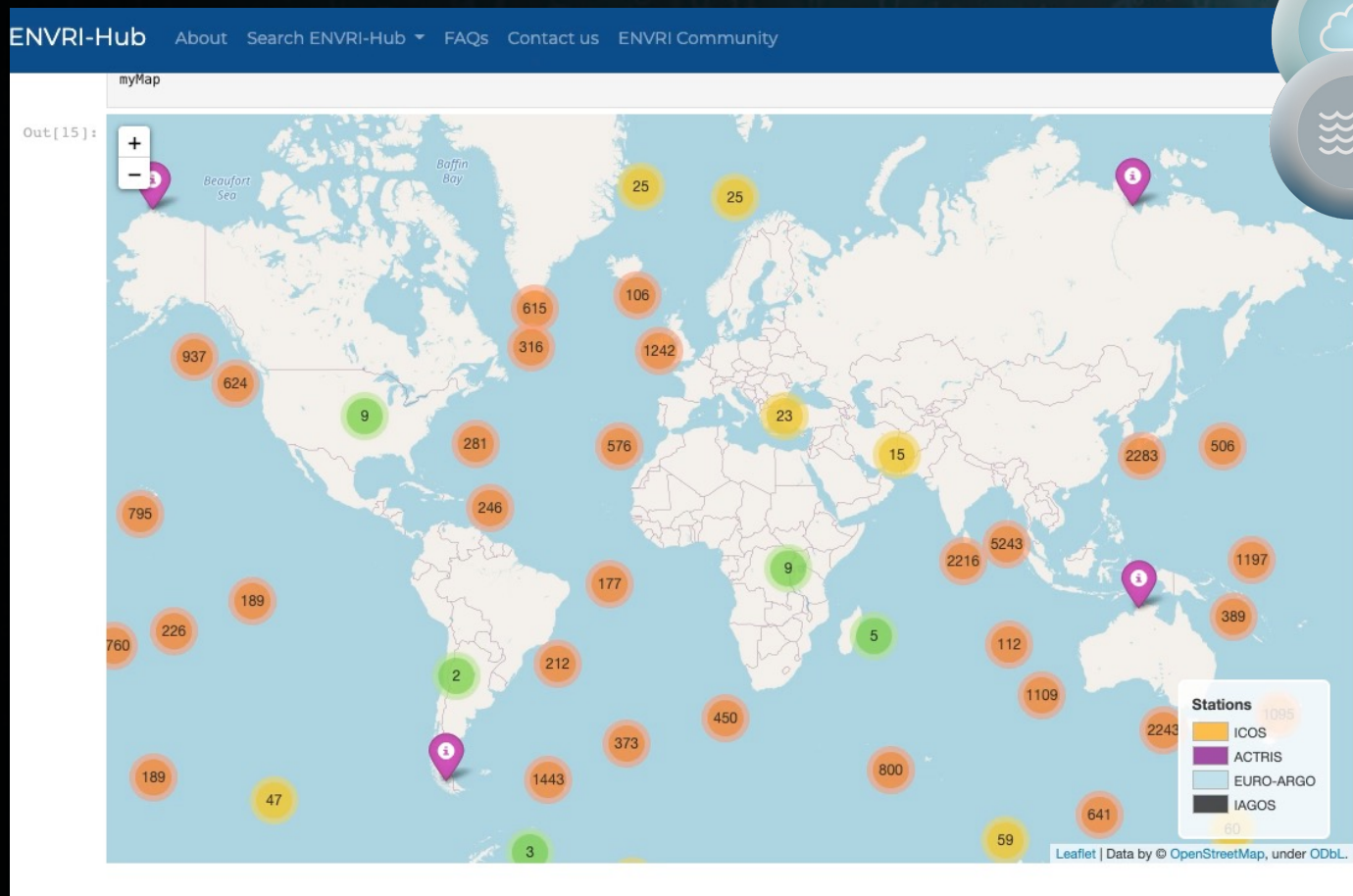
An example of how to use the ENVRI Catalogue of Services to plot stations from several research domains

### STATION LIST - MULTISOURCE

Combining Atmospheric and Marine subdomains

```
In [1]: # import libraries
from icoscp.station import station
from branca.element import Template, MacroElement
import pandas as pd
import folium
from folium.plugins import MarkerCluster
import requests
```

# ENVRI-FAIR | Cross-RI Use Case



## ENVRI-Hub

### How to plot a multi-domain station list using the Catalogue of Services

An example of how to use the ENVRI Catalogue of Services to plot stations from several research domains

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# [EOSC] Future Work

*ENVRI-Hub:  
A Hub of FAIR ENVRI services*



**EOSC Future Science Projects**  
developed by the Science Clusters for  
the European Open Science Cloud



**State of the Environment**



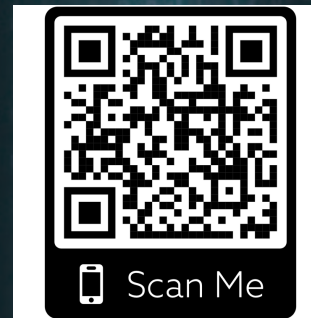
**Climate Neutral and Smart Cities**

# Thank you!

The design of the ENVRI-Hub  
in the following presentation by Rita Gomes!

*ENVRI-Hub demonstrator available here:*

<https://hubtest.envri-fair.eu> ➤



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“

Our responsibility is to do  
what we can, learn what we  
can, improve the solutions,  
and pass them on.



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RICHARD FEYNMAN

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