27-29 May 2024


# International conference on Marine Data and Information Systems

SeaDataNet AISBL · Havforskningsinstituttet · Ifremer · MARIS · MEDIN · National Oceanography Centre · INGV · iMagine · ICDE · eosc Blue-Cloud2026

# EMODnet near real time river data and land boundary condition services

Francisco Campuzano, Antonio Novellino, Patrick Gorringe, Caio Fonteles, Luís Figueiredo, Marco Alba

# EMODnet Physics

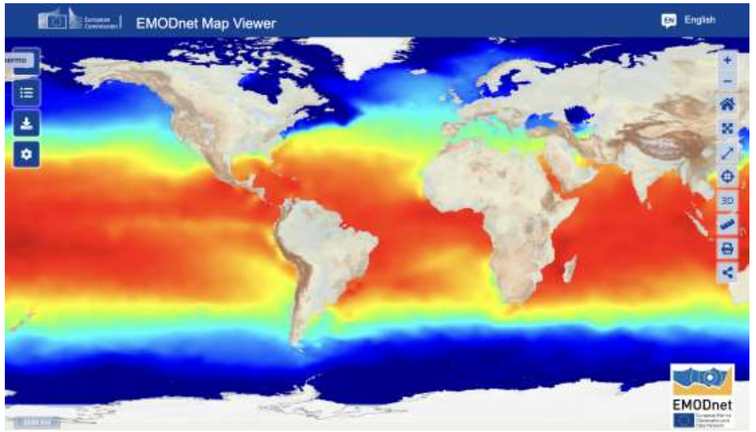
- **focus on coastal offer**

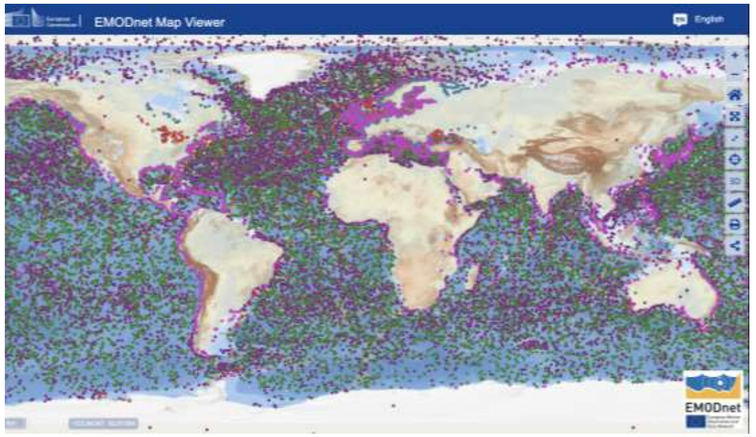
- **in situ FAIR** data and products
- integrates and makes available **near real time and delayed** mode data on ocean physics
- builds on **marine data infrastructures and programs**
- **common standards** and tools

**Parameters**

Temperature, Salinity, Sea Level, Currents, Waves and Winds, Optical properties of the water, Under water noise, Ice data, River runoff, Meteorological data at sea level

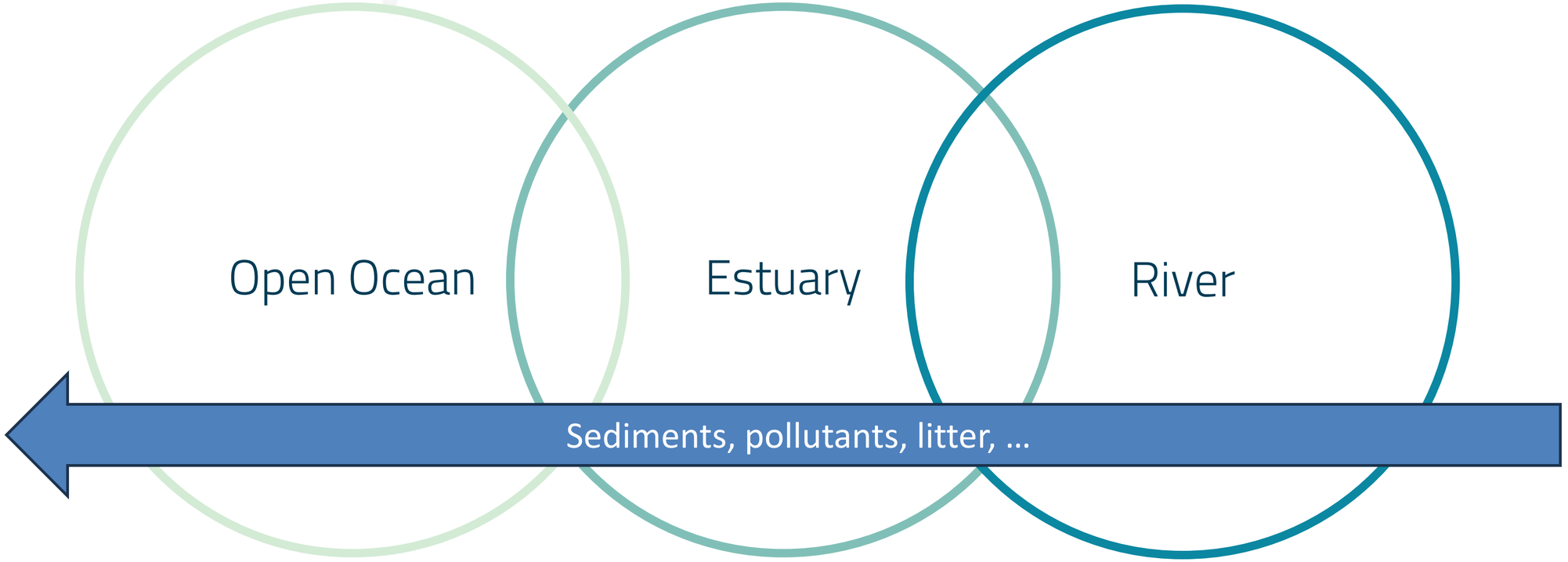
- **continuous data flow**
  - 950 Rivers, 2200 Sea Level stations, 2300 Mooring, …
  - 330 Vessels data, …



## Integrated water cycle approach/Water Continuum

- **Coastal water are deeply influenced by river outflow**



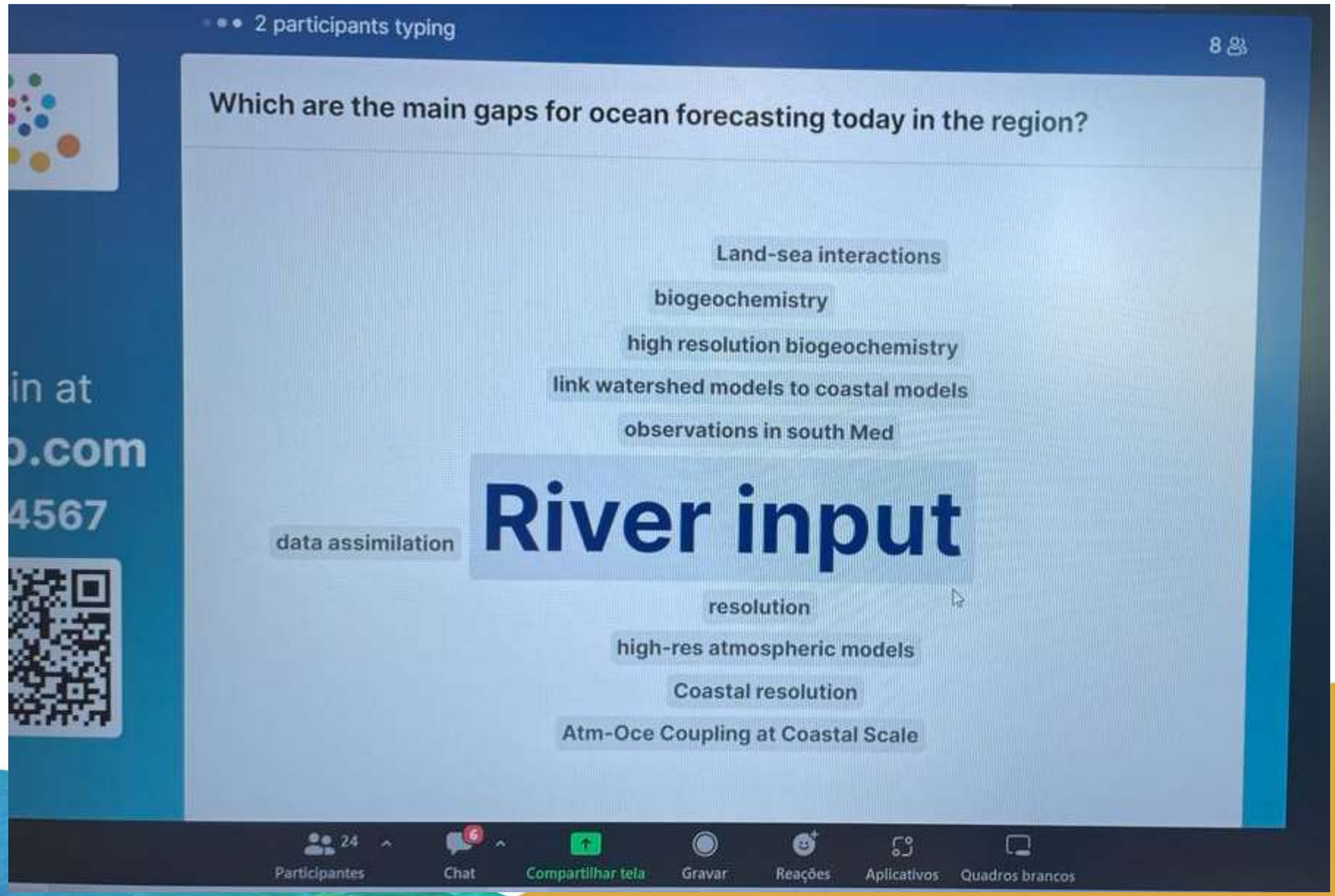

Complete description at:

Campuzano F (2018). Coupling watersheds, estuaries and regional seas through numerical modelling for Western Iberia. PhD Thesis, Instituto Superior Técnico, Universidade de Lisboa, Portugal.

# Ocean (modeling) community needs

- **OceanPrediction Workshop 15th June 2023**

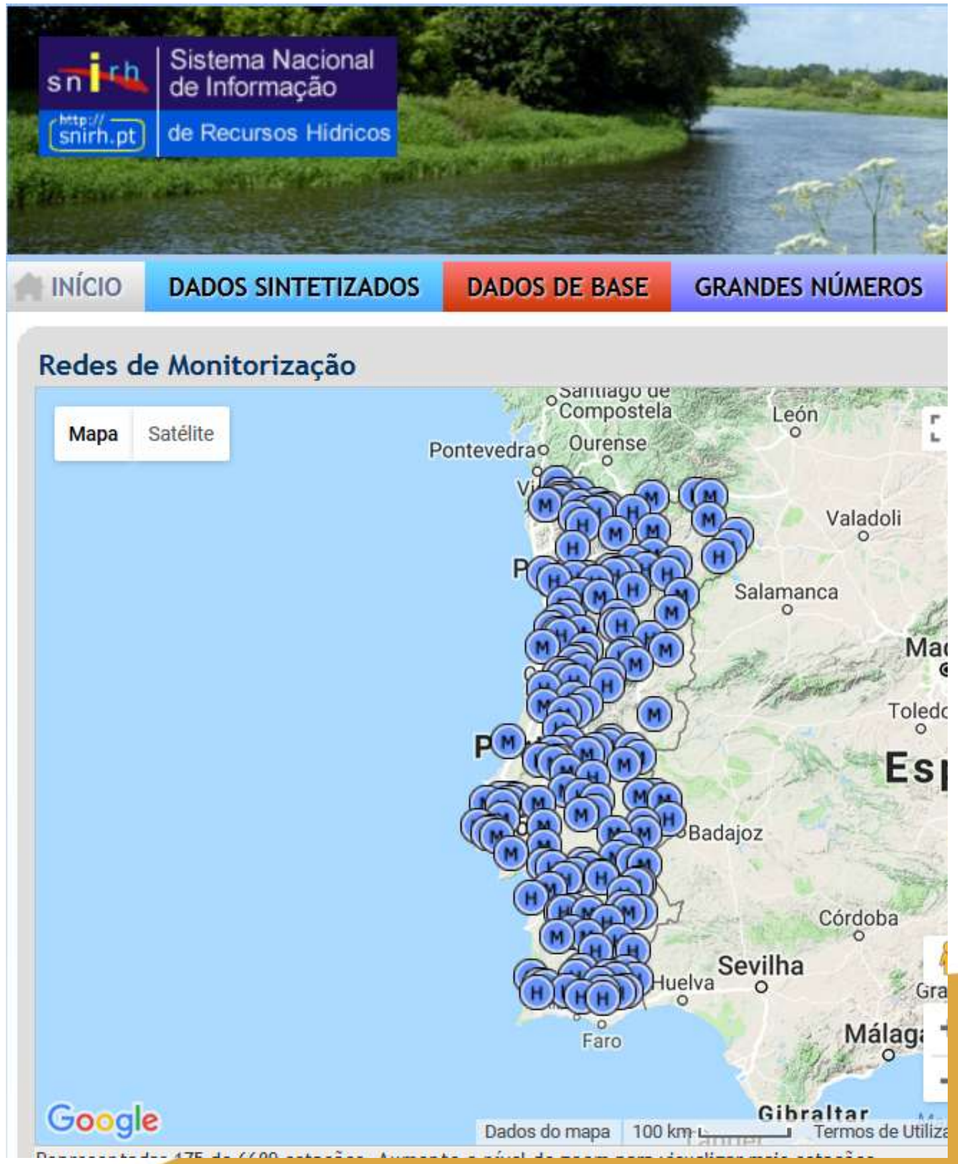
improving the coastal circulation in regional ocean model needs a better characterisation of the land-ocean boundary conditions



# EMODnet Physics

## Setting up the EU River node

- Identify the **main river** inputs and the **institutions** responsible for setting up and maintaining the hydrographic networks;
- Select the **most reliable stations** near the coastal area. Coastal/ocean **local experts'** contribution is important;
- Provide the river observations in a one stop shop and with a common format and metadata information;
- **operational** service for **daily** river data
- **Comprehensive** river data trying to estimate properly freshwater budget. Not only major rivers;
- Include estuarine mixing with proxies;
- Complete the observations with complementary properties.



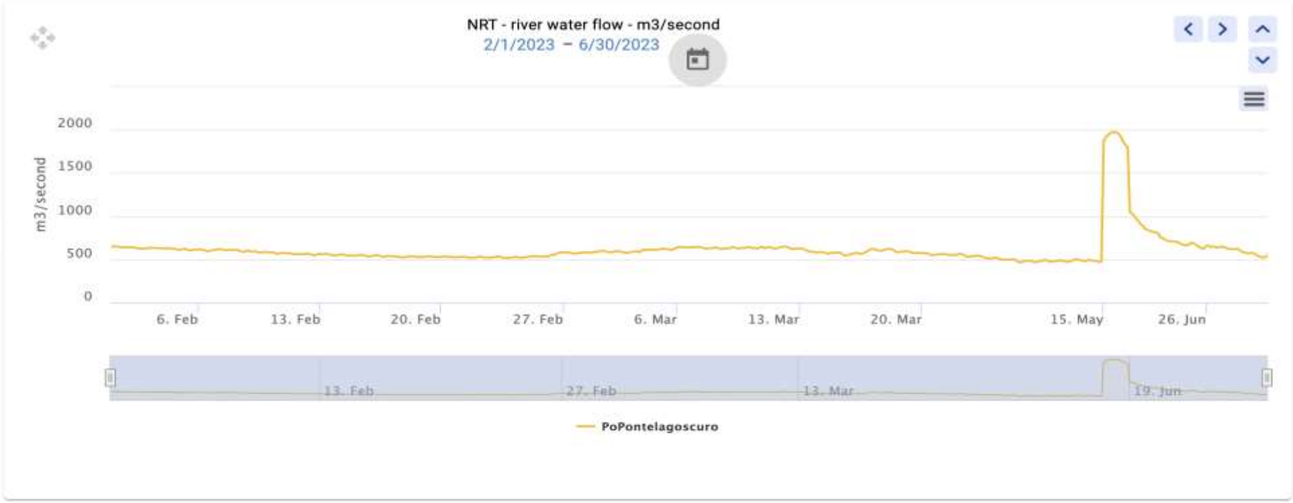
# EMODnet Physics

- **Why an operational river data node?**


**Last Observation:**
2023-11-27T11:00:00.000Z

arpae
agenzia prevenzione ambiente energia emilia-romagna

**Platform Name:**
PoPontelagoscuro





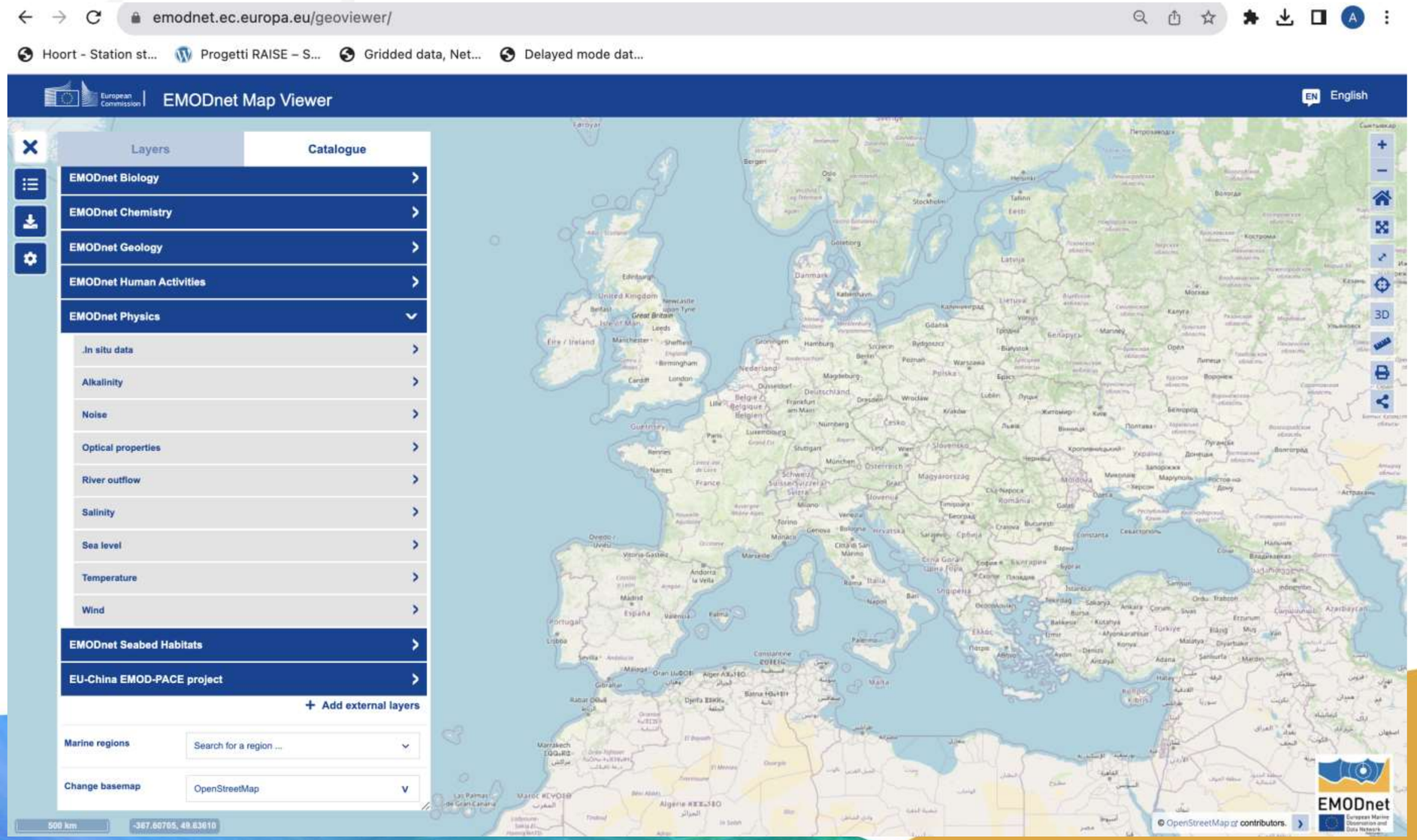
## Alluvione in Emilia Romagna, il meteorologo: "Danni dell'acqua aggravati dalla siccità"

di Giacomo Talignani

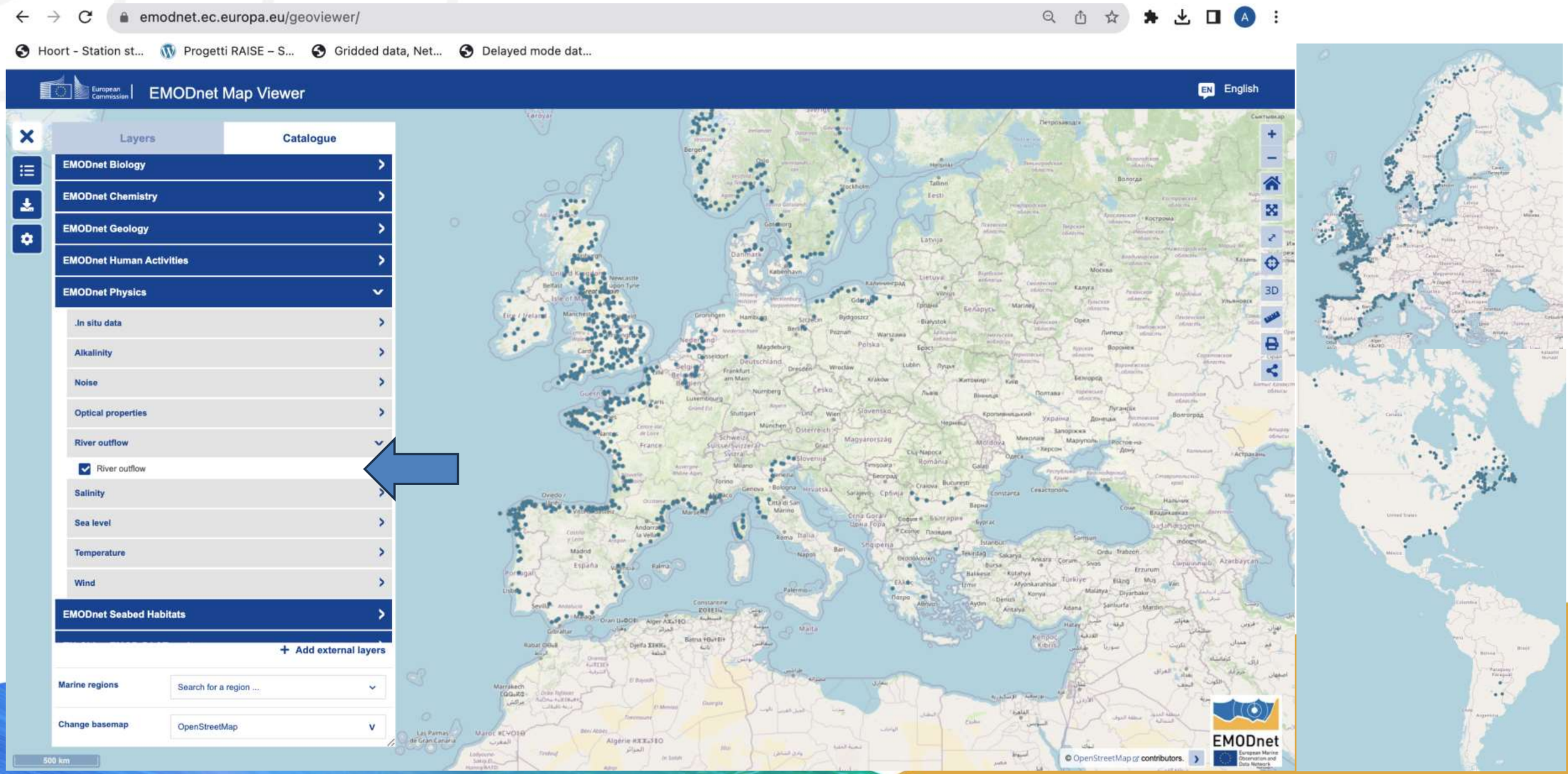
*Secondo Pierluigi Randi "in tre giorni è caduta la pioggia di tre mesi. Ma questo è il nuovo clima, ormai non è più un modello ma una realtà. Dobbiamo prepararci con tutti i mezzi"*

# EMODnet Physics

- https://emodnet.ec.europa.eu/geoviewer/



# EMODnet Physics



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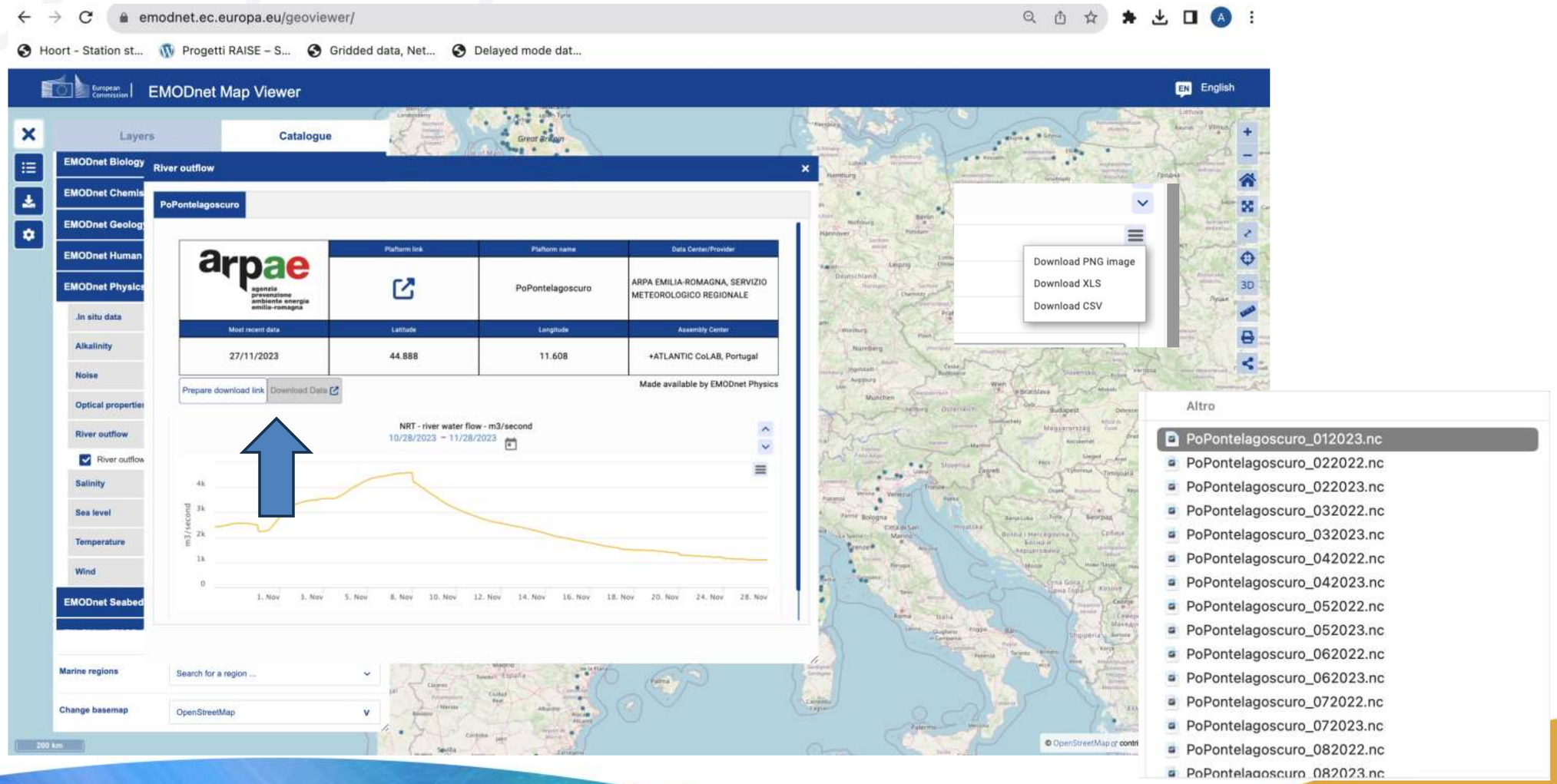


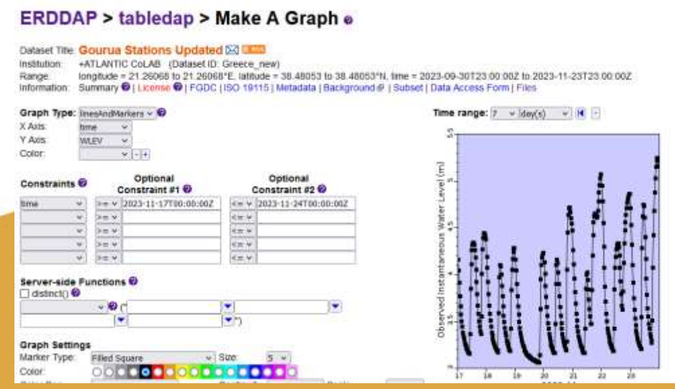
# EMODnet Physics

| Grid DAP Data | Sub-set | Table DAP Data | Make A Graph | WMS | Source Data Files | Title | Sum-mary | FGDC, ISO, Metadata | Back-ground Info | RSS | E mail | Institution | Dataset ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | set | data | graph | | | EMODnet Physics - Collection of river flow (SDN:P02::RVDS) variables - MultiPointsObservation | | F I M | background | RSS | | EMODnet Physics | ERD_EP_RVDS_INSITU |
| | set | data | graph | | files | EMODnet Physics - Collection of river flow (SDN:P02::RVDS) variables - MultiPointsObservation - METADATA | | F I M | background | RSS | | EMODnet Physics | ERD_EP_RVDS_INSITU_METADATA |

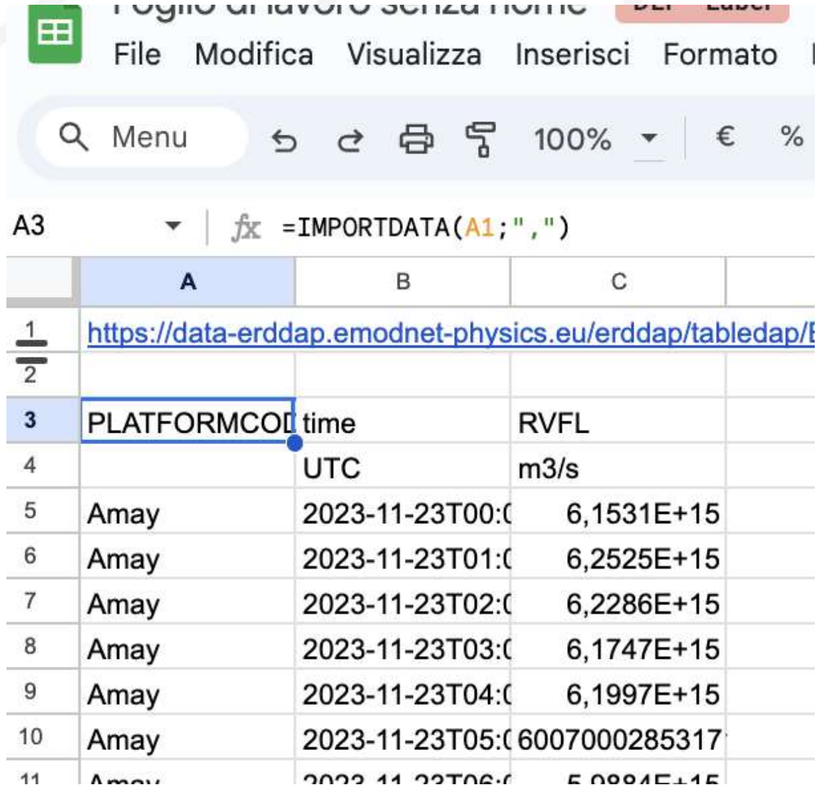
- https://data-erddap.emodnet-physics.eu/erddap/tabledap/ERD_EP_RVDS_INSITU_METADATA.html
- https://data-erddap.emodnet-physics.eu/erddap/tabledap/ERD_EP_RVDS_INSITU.html

| | | | | | |
|---|---|---|---|---|---|
| Anker-Polesworth | Anker river at Polesworth station (GRDC code 6606660) | 52.627223 | -1.613106 | timeSeries | 2022-12-14T09:0( |
| Anllons-Carballo | Anllons-Carballo | 43.21009826660156 | -8.692700386047363 | timeseries | 2023-07-18T02:0( |
| AnnevilleSaire | AnnevilleSaire | 49.635066986083984 | -1.2891345024108887 | timeseries | 2021-12-22T00:4( |
| AnthiliSpercheios | AnthiliSpercheios | 38.856300354003906 | 22.466999053955078 | timeseries | 2022-03-16T00:0( |
| AntisantiTavignano | AntisantiTavignano | 42.18162155151367 | 9.386916160583496 | timeseries | 2021-12-22T00:0( |
| ArboriLiamone | ArboriLiamone | 42.11641311645508 | 8.818493843078613 | timeseries | 2021-12-22T00:0( |

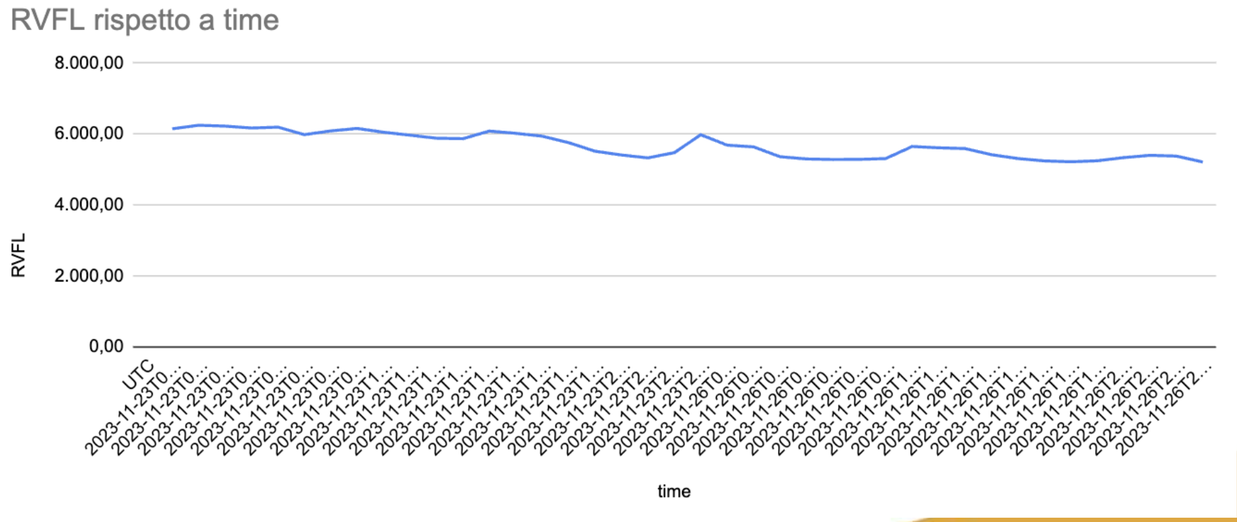
| PLATFORMCODE | time | TIME_QC | depth | DEPTH_QC | latitude | longitude | POSITION_QC | RVFL | RVI |
|---|---|---|---|---|---|---|---|---|---|
| | UTC | 1 | m | 1 | degrees_north | degrees_east | 1 | m3/s | |
| AbromollaVegea | 2023-06-11T23:00:00Z | | 0.0 | 0 | 56.07419967651367 | 12.974499702453613 | 0 | 0.10199999809265137 | |
| AbromollaVegea | 2023-06-12T23:00:00Z | | 0.0 | 0 | 56.07419967651367 | 12.974499702453613 | 0 | 0.10000000149011612 | |
| AbromollaVegea | 2023-06-13T23:00:00Z | | 0.0 | 0 | 56.07419967651367 | 12.974499702453613 | 0 | 0.09019999951124191 | |
| AbromollaVegea | 2023-06-14T23:00:00Z | | 0.0 | 0 | 56.07419967651367 | 12.974499702453613 | 0 | 0.08659999817609787 | |
| AbromollaVegea | 2023-06-15T23:00:00Z | | 0.0 | 0 | 56.07419967651367 | 12.974499702453613 | 0 | 0.09430000185966492 | |
| AbromollaVegea | 2023-06-21T23:00:00Z | | 0.0 | 0 | 56.07419967651367 | 12.974499702453613 | 0 | 0.12099999934434891 | |



# EMODnet Physics



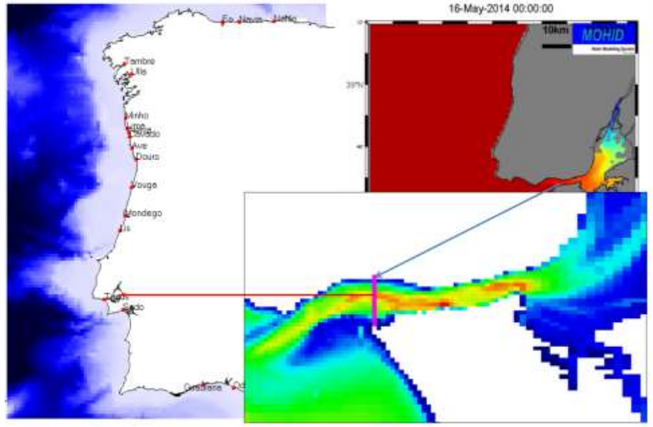

https://data-erddap.emodnet-physics.eu/erddap/tabledap/ERD_EP_RVDS_INSITU.csv?PLATFORMCODE%2Ctime%2CRVFL&PLATFORMCODE=%22Amay%22&time%3E=2023-11-19T00%3A00%3A00Z&time%3C=2023-11-26T23%3A00%3A00Z



# What's next

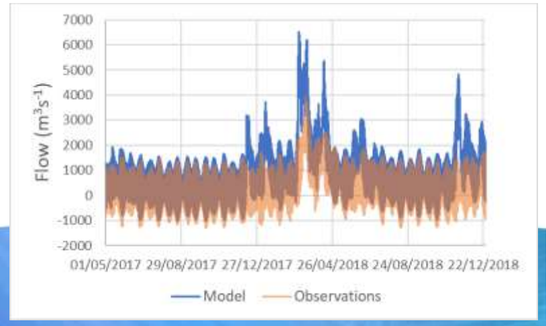
Keep consolidating and expanding:

- Time and Space
- Complementary features:
  - DB of estuarine main features (length, depth, width, mouth orientation, etc..)
  - water temperature
  - water level
  - nutrients and other periodically observed properties.

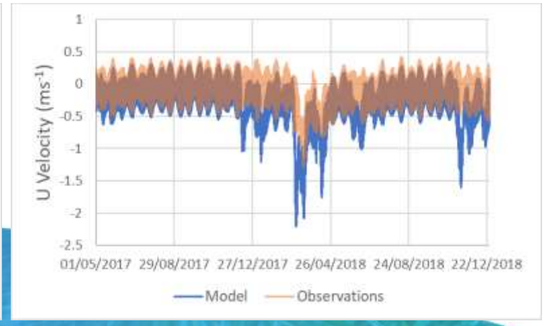



proxy is the virtual gate where you have the mixing between ocean and fresh water (tides + flow constrains + salinity + …)

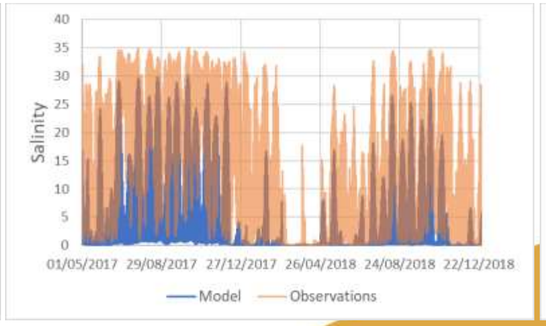
## Douro (B)



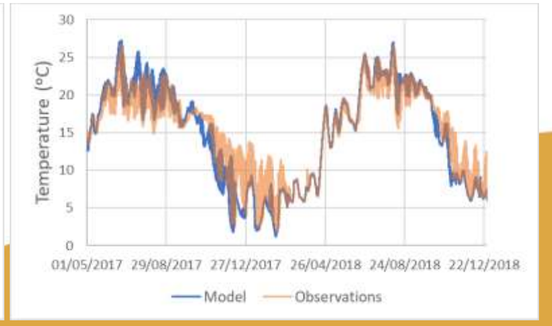

Outflow




Velocity Y




Salinity




Temperature

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