In-Situ products overview
#MarineData4SouthAmerica

Fernando Manzano Muñoz

Puertos del Estado

On behalf of the Copernicus Marine In Situ Component team

Copernicus Marine Service

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noLogin

In-Situ data

in situ

Loc. lat.

1. loc. adv. En el lugar, en el sitio.

One of the marks of human civilisation is the desire to observe and record the environment around us

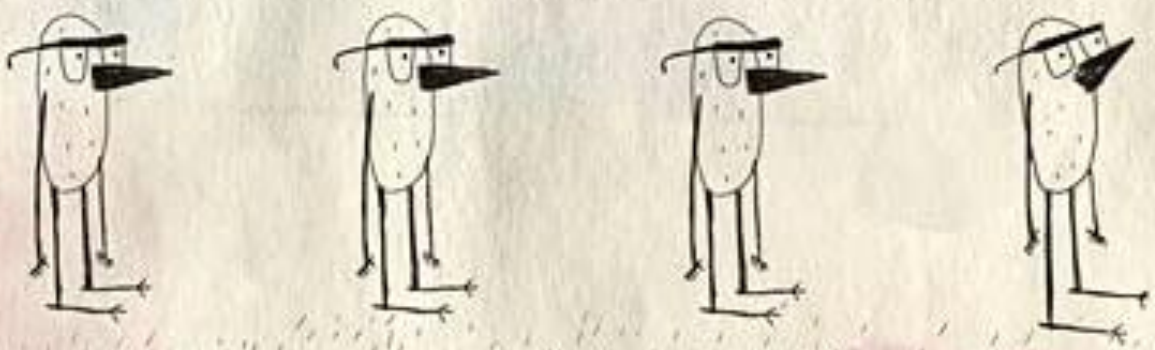
In-situ ocean observations are crucial for understanding the ocean, improving the quality of models and forecasts, validating satellite data...

The field truth that is closest to reality

In-Situ Component

She was PINK and everyone else was white.

In-Situ Products are the "pink monster" in Copernicus Marine



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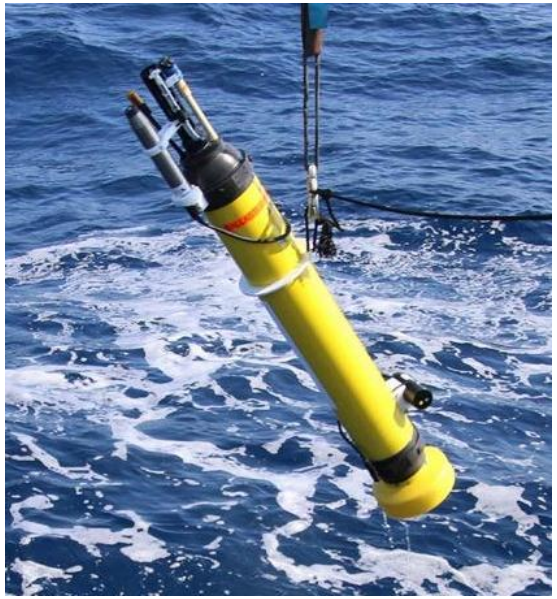
In-Situ stations



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In-Situ organisation

Management & Operations
7 Regions

Scientific Expertise Cross Cutting

System Evolution

Ifremer

AZTI
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

INSTITUTE OF MARINE RESEARCH

SMHI

BSH BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

hcmr
ΕΛΚΕΘΕ

Puertos del Estado

CLS
COLLECTE LOCALISATION SATELLITES

SOCIB

SYKE

OCEANSCOPE

Consiglio Nazionale delle Ricerche

POKaPOK

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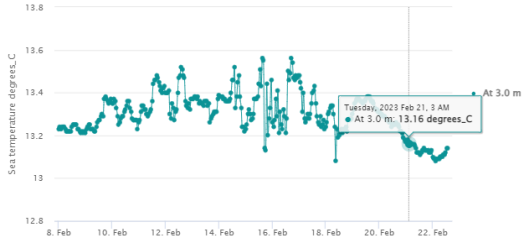
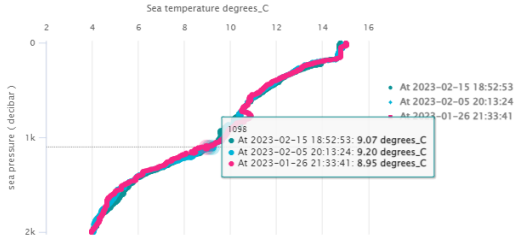
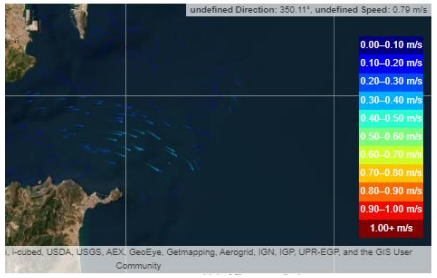
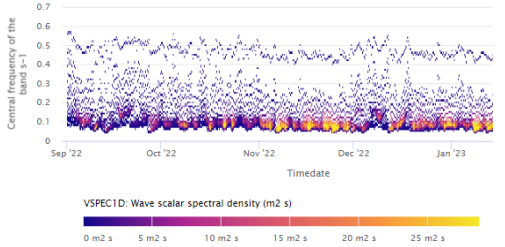
In-Situ products

- **Not homogeneous**: time series, profiles, grids (HF radars), wave spectra, trajectories.

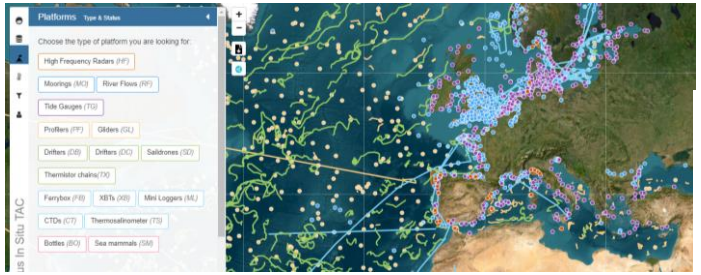


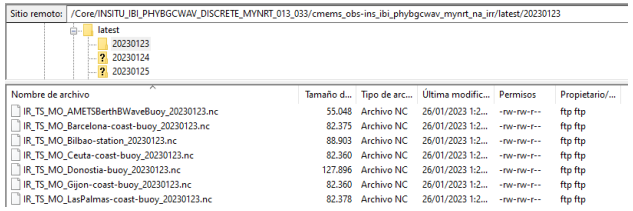






- **Own site:**
  - Web site
  - Viewer
  - KPIs





- **Files by platform**

** Exceptions:*
- *Objective Analysis (OA)*
- *EasyCORA and CORA (SST MY)*

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In-Situ products

Product family	MY (Multi-year)	MY-NRT (Near-real-time)
Update	Every 6 months	Every hour
Scope	Global	Global and regional
Quality Mode	Delayed mode	Delayed mode + Real Time (when delayed mode is not available)
Target	One variable	One or more variables
Products	INSITU_GLO_BGC_CARBON_DISCRETE_MY_013_050 INSITU_GLO_BGC_DISCRETE_MY_013_046 INSITU_GLO_PHY_SSH_DISCRETE_MY_013_053 INSITU_GLO_PHY_TS_DISCRETE_MY_013_001 INSITU_GLO_PHY_TS_OA_MY_013_052 INSITU_GLO_PHY_UV_DISCRETE_MY_013_044 INSITU_GLO_WAV_DISCRETE_MY_013_045	INSITU_ARC_PHYBGCWAV_DISCRETE_MYNRT_013_031 INSITU_BAL_PHYBGCWAV_DISCRETE_MYNRT_013_032 INSITU_BLK_PHYBGCWAV_DISCRETE_MYNRT_013_034 INSITU_IBI_PHYBGCWAV_DISCRETE_MYNRT_013_033 INSITU_MED_PHYBGCWAV_DISCRETE_MYNRT_013_035 INSITU_NWS_PHYBGCWAV_DISCRETE_MYNRT_013_036 **INSITU_GLO_PHYBGCWAV_DISCRETE_MYNRT_013_030** INSITU_GLO_PHY_TS_OA_NRT_013_002 INSITU_GLO_PHY_UV_DISCRETE_NRT_013_048

Documents associated with each product:

- **PUM** Product User Manual
- **QuID** Quality Information Document

Other documents (In Situ TAC): Format Manual, Parameters List, Useful Code…
http://www.marineinsitu.eu/documentation/

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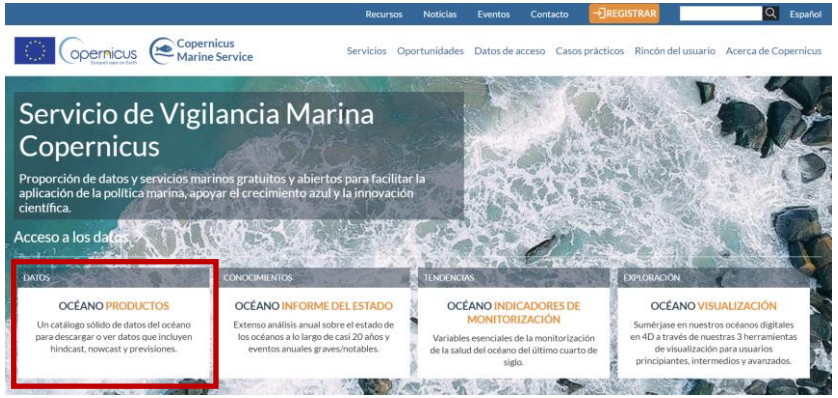
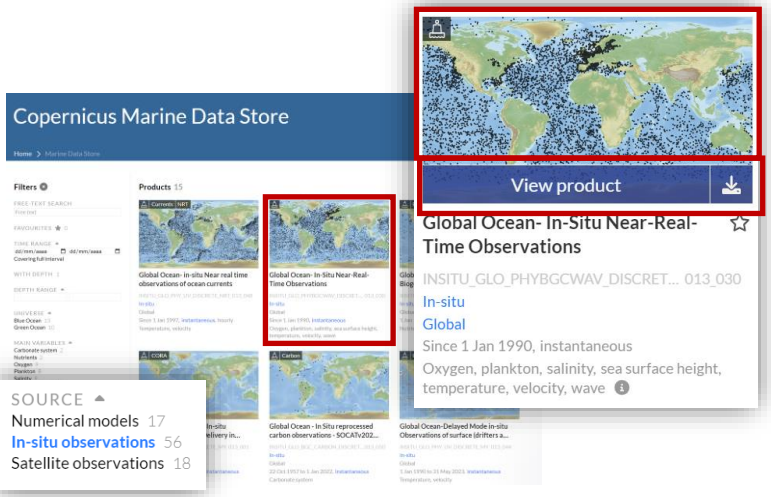
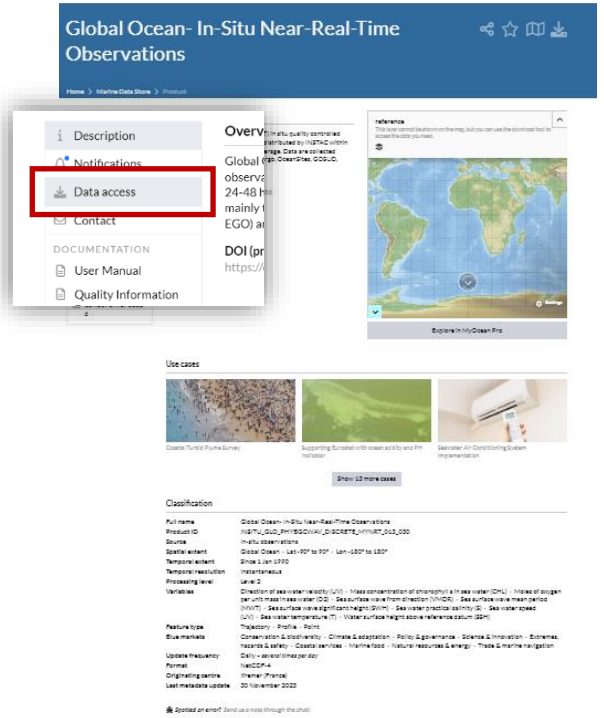
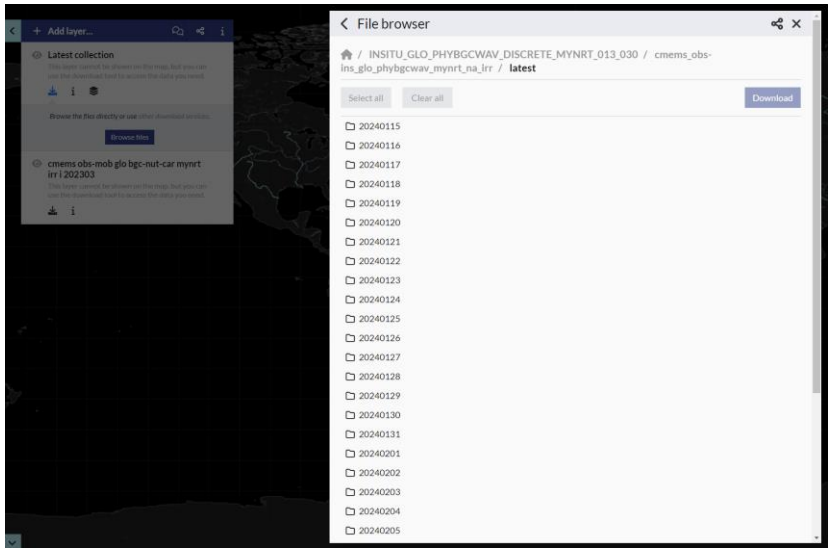
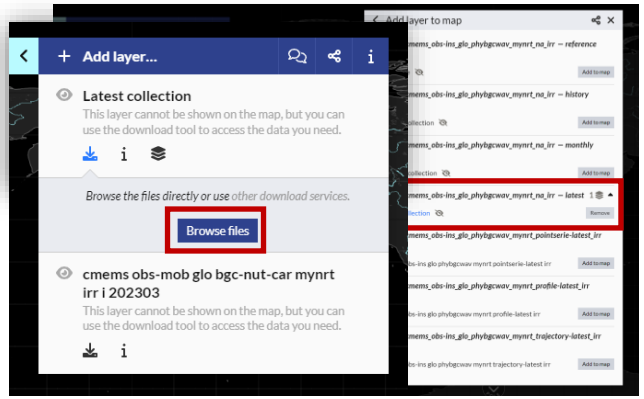
In-Situ access I

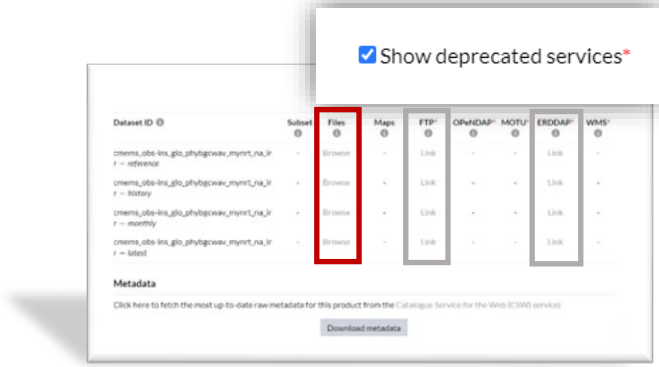












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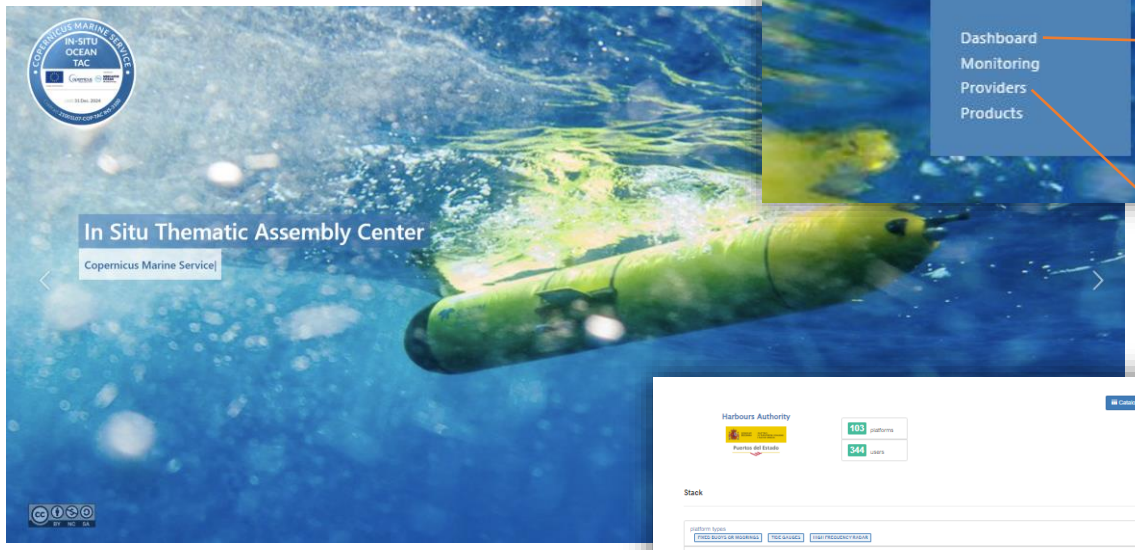
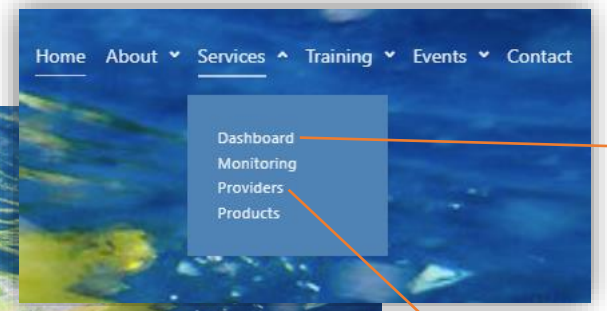
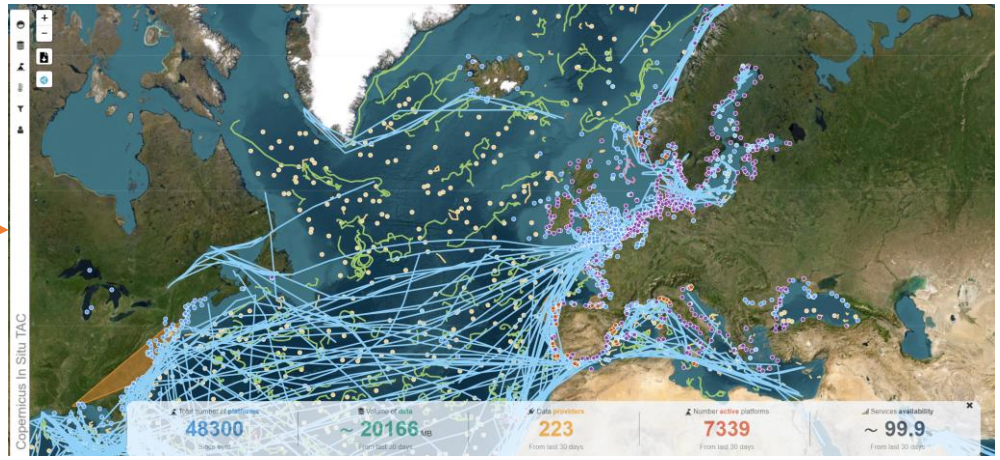
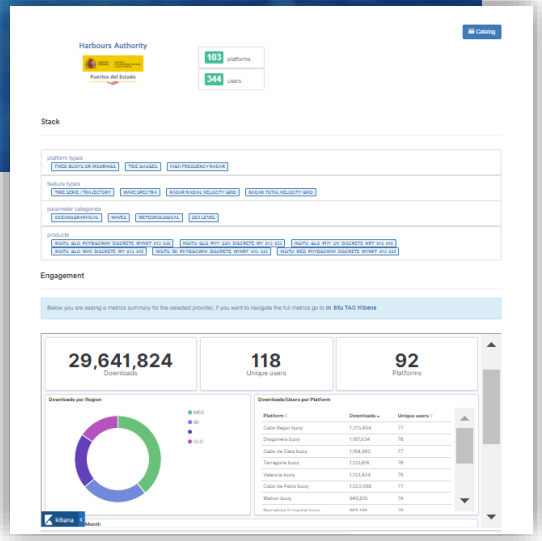
In-Situ access II

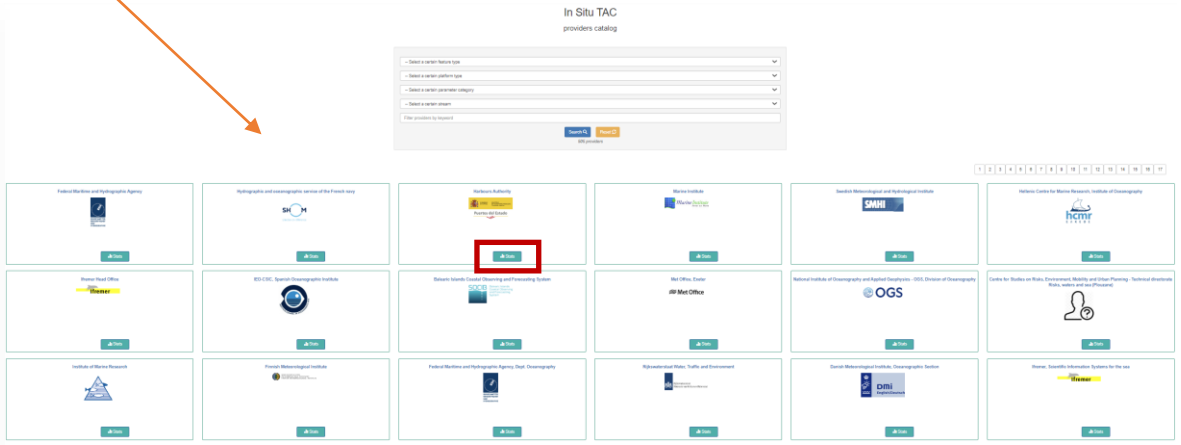
https://marineinsitu.eu/











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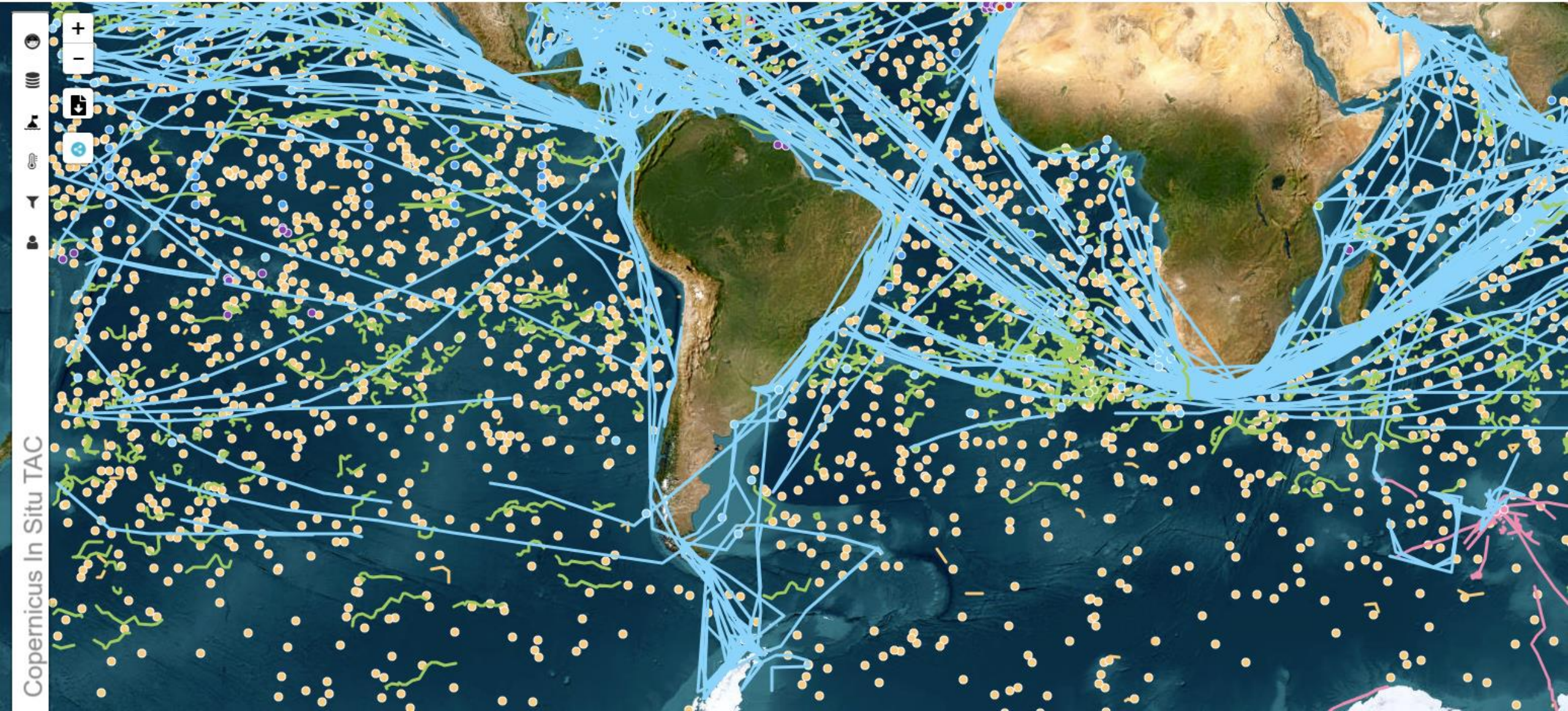
In-Situ Dashboard

https://marineinsitu.eu/dashboard

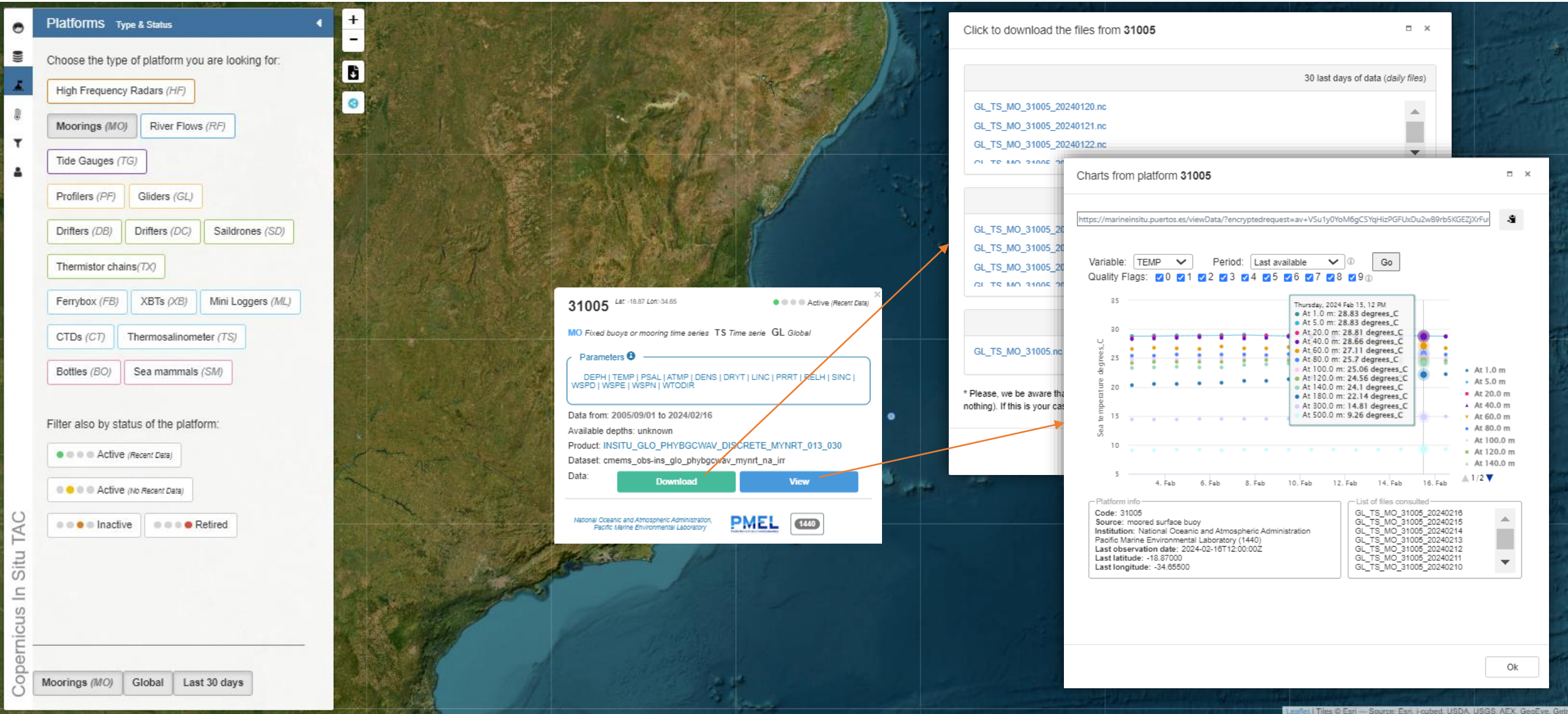


In-Situ Dashboard

https://marineinsitu.eu/dashboard

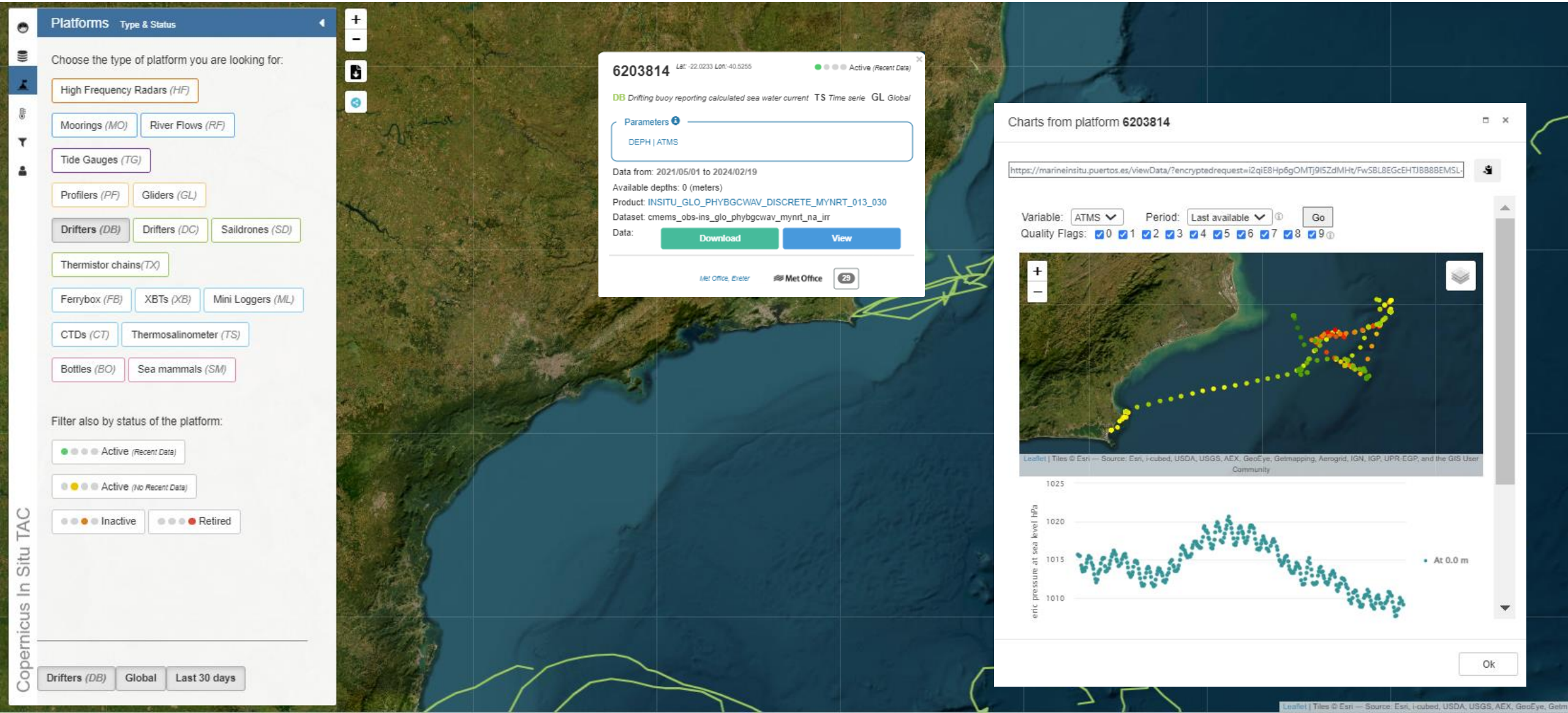
In-Situ Dashboard

https://marineinsitu.eu/dashboard



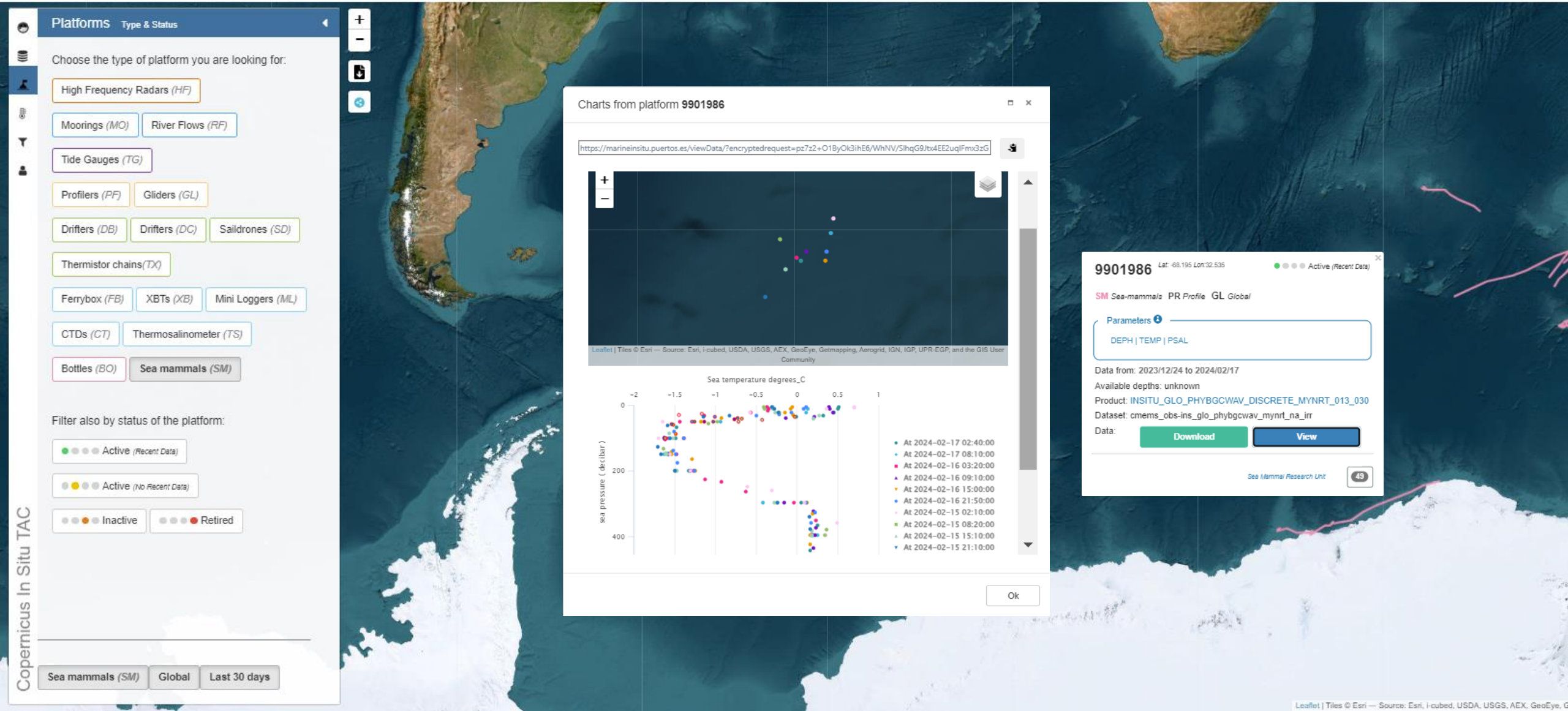
In-Situ Dashboard

https://marineinsitu.eu/dashboard



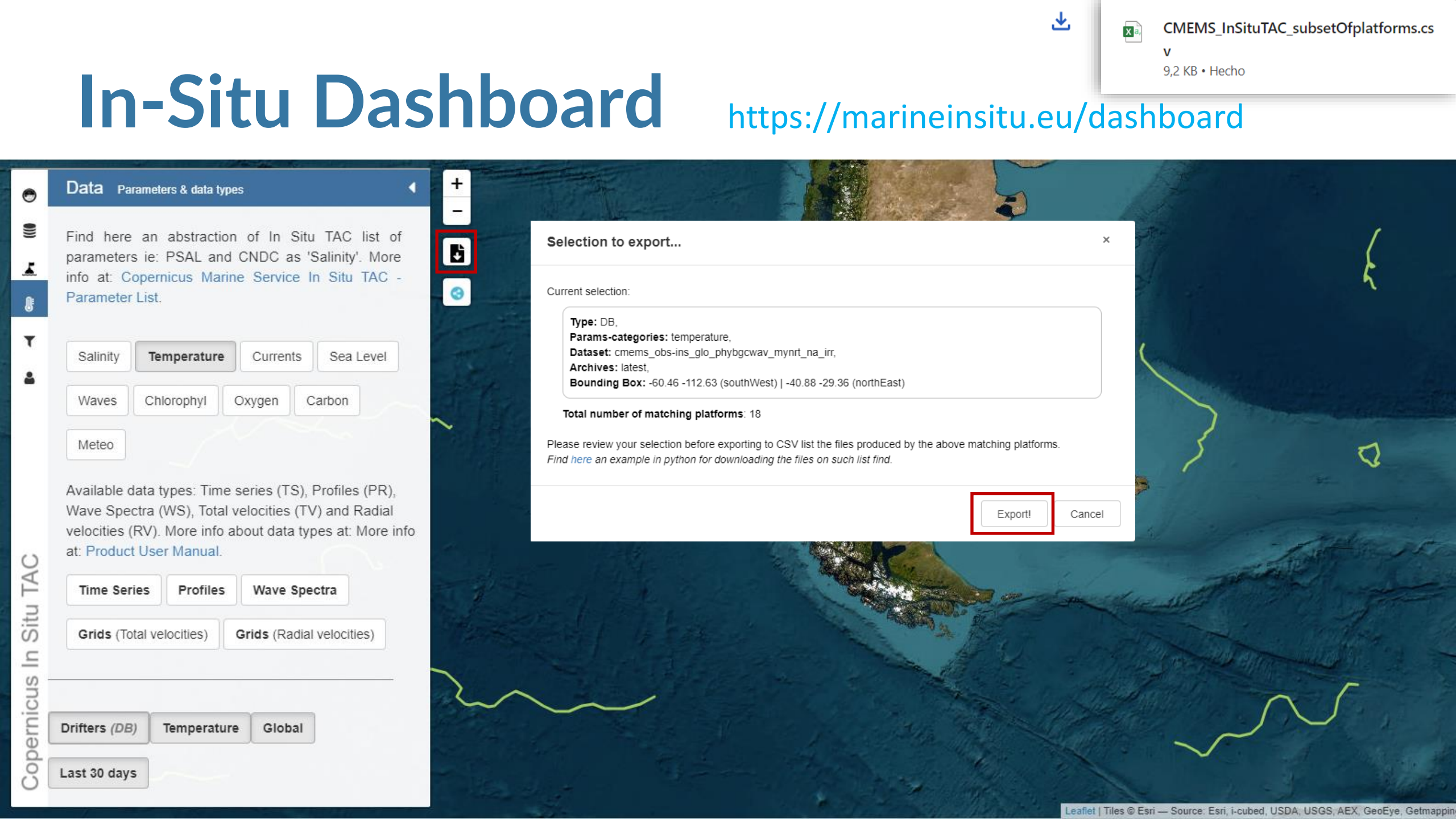
In-Situ Dashboard

https://marineinsitu.eu/dashboard



In-Situ Dashboard

https://marineinsitu.eu/dashboard



In-Situ FTP

ftp://nrt.cmems-du.eu/
ftp://my.cmems-du.eu

Sitio remoto: /Core/INSITU_IBI_PHYBGCWAV_DISCRETE_MYNRT_013_033/cmems_obs-ins_ibi_phybgcwav_mynrt_na_irr

- INSITU_IBI_PHYBGCWAV_DISCRETE_MYNRT_013_033
  - cmems_obs-ins_ibi_phybgcwav_mynrt_na_irr
  - cmems_obs-ins_ibi_phybgcwav_mynrt_na_irr_Prev

Nombre de archivo	Tamaño de archivo	Tipo de arc	Última modificación
..			
index_platform.txt	2,8 MB	txt-archivo	19/02/24 15:56:00
index_monthly.txt	25,5 MB	txt-archivo	18/02/24 18:55:00
index_latest.txt	9,3 MB	txt-archivo	19/02/24 15:56:00
index_history.txt	4,0 MB	txt-archivo	17/02/24 12:09:00
monthly		Directorio	23/11/23 18:04:00
latest		Directorio	19/02/24 02:48:00
history		Directorio	24/11/23 12:41:00

Sitio remoto: /Core/INSITU_IBI_PHYBGCWAV_DISCRETE_MYNRT_013_033/cmems_obs-ins_ibi_phybgcwav_mynrt_na_irr/monthly/MO

- history
- latest
- monthly
  - BO
  - CT
  - DB
  - FB
  - GL
  - HF
  - ML
  - MO

Nombre de archivo	Tamaño de archivo	Tipo de arc	Última modificación
..			
202401		Directorio	18/02/24 18:13:00
202312		Directorio	08/02/24 18:09:00
202311		Directorio	08/02/24 18:09:00
202310		Directorio	08/02/24 18:09:00
202309		Directorio	08/02/24 18:09:00
202308		Directorio	08/02/24 18:09:00
202307		Directorio	08/02/24 18:09:00
202306		Directorio	08/02/24 18:09:00
202305		Directorio	08/02/24 18:09:00

Nombre de archivo	Tamaño de archivo	Tipo de arc	Última modificación
IR_WS_MO_6100198_202401.nc	289,7 KB	nc-archivo	18/02/24 17:57:00
IR_WS_MO_6100197_202401.nc	191,4 KB	nc-archivo	18/02/24 17:57:00
IR_WS_MO_6100196_202401.nc	286,3 KB	nc-archivo	18/02/24 17:57:00
IR_WS_MO_1300131_202401.nc	286,3 KB	nc-archivo	18/02/24 17:57:00
IR_WS_MO_1300130_202401.nc	282,0 KB	nc-archivo	18/02/24 17:57:00
IR_TS_MO_Tenerife-coast-buoy_202401.nc	210,8 KB	nc-archivo	18/02/24 17:57:00
IR_TS_MO_Tarragona-coast-buoy_202401.nc	209,8 KB	nc-archivo	18/02/24 17:57:00
IR_TS_MO_Tarifa-coast-buoy_202401.nc	213,4 KB	nc-archivo	18/02/24 17:57:00
IR_TS_MO_SmartBayWaveBuoy_202401.nc	178,2 KB	nc-archivo	18/02/24 17:57:00
IR_TS_MO_PasaiaII-coast-buoy_202401.nc	211,9 KB	nc-archivo	18/02/24 17:57:00

Sitio remoto: /Core/INSITU_IBI_PHYBGCWAV_DISCRETE_MYNRT_013_033/cmems_obs-ins_ibi_phybgcwav_mynrt_na_irr/history/PF

- cmems_obs-ins_ibi_phybgcwav_mynrt_na_irr
  - history
    - BO
    - CT
    - DB
    - FB
    - GL
    - HF
    - ML
    - MO
    - PF

Nombre de archivo	Tamaño de archivo	Tipo de arc	Última modificación
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GL_PR_PF_7901142.nc	55,3 KB	nc-archivo	17/02/24 11:52:00
GL_PR_PF_7901093.nc	249,9 KB	nc-archivo	17/02/24 11:52:00
GL_PR_PF_7901066.nc	138,2 KB	nc-archivo	17/02/24 11:52:00
GL_PR_PF_7901037.nc	558,5 KB	nc-archivo	17/02/24 11:52:00
GL_PR_PF_7900588.nc	2,0 MB	nc-archivo	04/02/24 12:00:00
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Sitio remoto: /Core/INSITU_IBI_PHYBGCWAV_DISCRETE_MYNRT_013_033/cmems_obs-ins_ibi_phybgcwav_mynrt_na_irr/latest/20240120

- INSITU_GLO_PHY_UV_DISCRETE_NRT_013_048
- INSITU_IBI_PHYBGCWAV_DISCRETE_MYNRT_013_033
  - cmems_obs-ins_ibi_phybgcwav_mynrt_na_irr
    - history
    - latest
      - 20240120
      - 20240121
      - 20240122
      - 20240123
      - 20240124
      - 20240125

Nombre de archivo	Tamaño de archivo	Tipo de arc	Última modificación
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IR_TS_TG_Dingle_20240120.nc	47,0 KB	nc-archivo	23/01/24 00:48:00
IR_TS_TG_Cromer_20240120.nc	47,0 KB	nc-archivo	23/01/24 00:48:00
IR_TS_TG_CorunaTG_20240120.nc	50,7 KB	nc-archivo	23/01/24 00:48:00
IR_TS_TG_Coruna2TG_20240120.nc	51,0 KB	nc-archivo	23/01/24 00:48:00
IR_TS_TG_CascaisTG_20240120.nc	83,9 KB	nc-archivo	23/01/24 00:49:00
IR_TS_TG_CartagenaTG_20240120.nc	51,1 KB	nc-archivo	23/01/24 00:47:00
IR_TS_TG_CarboneraTG_20240120.nc	51,2 KB	nc-archivo	23/01/24 00:47:00
IR_TS_TG_Bournemouth_20240120.nc	47,0 KB	nc-archivo	23/01/24 00:48:00
IR_TS_TG_BonanzaTG_20240120.nc	50,7 KB	nc-archivo	23/01/24 00:47:00

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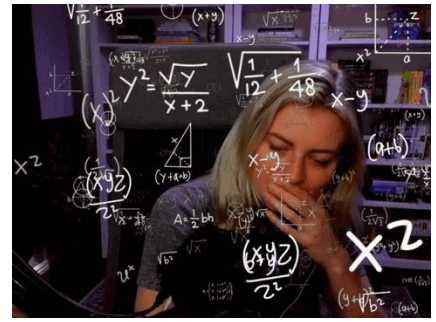
In-Situ Files



index_latest.txt

```
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# Description : catalog of available in-situ files
# Project : Copernicus Marine In Situ TAC
# Format version : 1.4
# Date of update : 2023-02-22T15:29:23Z

#
product_id,file_name,geospatial_lat_min,geospatial_lat_max,geospatial_lon_min,geospatial_lon_
max, time_coverage_start,time_coverage_end,institution,date_update,data_mode,parameters

COP-IR-01,ftp://nrt.cmems-du.eu/Core/INSITU_IBI_PHYBGCWAV_DISCRETE_MYNRT_013_033/cmems_obs-
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COP-IR-01,ftp://nrt.cmems-du.eu/Core/INSITU_IBI_PHYBGCWAV_DISCRETE_MYNRT_013_033/cmems_obs-
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…
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NEW

Nov23 release:

NetCDF Climate and Forecast (CF) Metadata Conventions

Brian Eaton · Jonathan Gregory · Bob Drach · Karl Taylor · Steve Hankin · Jon Blower · John Caron · Rich Signell · Phil Bentley · Greg Rappa · Heinke Höck · Alison Pamment · Martin Juckes · Martin Raspaud · Randy Horne · Timothy Whiteaker · David Blodgett · Charlie Zender · Daniel Lee · David Hassell · Alan D. Snow · Tobias Kölling · Dave Allured · Aleksandar Jelenak · Anders Meier Soerensen · Lucile Gaultier · Sylvain Herlédan – Version 1.11 Draft, 31 August, 2022

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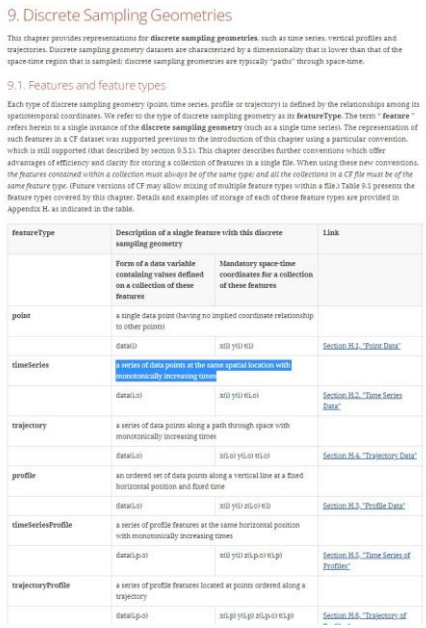

9. Discrete Sampling Geometries

This chapter provides representations for **discrete sampling geometries**, such as time series, vertical profiles and trajectories. Discrete sampling geometry datasets are characterized by a dimensionality that is lower than that of the space-time region that is sampled; discrete sampling geometries are typically "paths" through space-time.

9.1. Features and feature types

Each type of discrete sampling geometry (point, time series, profile or trajectory) is defined by the relationships among its spatiotemporal coordinates. We refer to the type of discrete sampling geometry as its **featureType**. The term " **feature** " refers herein to a single instance of the **discrete sampling geometry** (such as a single time series). The representation of such features in a CF dataset was supported previous to the introduction of this chapter using a particular convention, which is still supported (that described by section 9.5.1). This chapter describes further conventions which offer advantages of efficiency and clarity for storing a collection of features in a single file. When using these new conventions, *the features contained within a collection must always be of the same type; and all the collections in a CF file must be of the same feature type.* (Future versions of CF may allow mixing of multiple feature types within a file.) Table 9.1 presents the feature types covered by this chapter. Details and examples of storage of each of these feature types are provided in Appendix H, as indicated in the table.

featureType	Description of a single feature with this discrete sampling geometry		Link
	Form of a data variable containing values defined on a collection of these features	Mandatory space-time coordinates for a collection of these features	
point	a single data point (having no implied coordinate relationship to other points)		
	data(i)	x(i) y(i) t(i)	Section H.1, "Point Data"
timeSeries	a series of data points at the same spatial location with monotonically increasing times		
	data(i,o)	x(i) y(i) t(i,o)	Section H.2, "Time Series Data"
trajectory	a series of data points along a path through space with monotonically increasing times		
	data(i,o)	x(i,o) y(i,o) t(i,o)	Section H.4, "Trajectory Data"
profile	an ordered set of data points along a vertical line at a fixed horizontal position and fixed time		
	data(i,o)	x(i) y(i) z(i,o) t(i)	Section H.3, "Profile Data"
timeSeriesProfile	a series of profile features at the same horizontal position with monotonically increasing times		
	data(i,p,o)	x(i) y(i) z(i,p,o) t(i,p)	Section H.5, "Time Series of Profiles"
trajectoryProfile	a series of profile features located at points ordered along a trajectory		
	data(i,p,o)	x(i,p) y(i,p) z(i,p,o) t(i,p)	Section H.6, "Trajectory of

```
netcdf IR_TS_MO_Gijon-coast-buoy_20240220 {
dimensions:
        TIME = 7 ;
        DEPTH = 2 ;
        STRLEN = 64 ;
variables:
        double TIME(TIME) ;
                …
        float DEPH(DEPTH) ;
                DEPH:axis = "Z" ;
        char STATION(STRLEN) ;
                STATION:long_name = "station" ;
                STATION:cf_role = "timeseries_id" ;
        float LATITUDE ;
                LATITUDE:axis = "Y" ;
        float LONGITUDE ;
                LONGITUDE:axis = "X" ;
        float PRECISE_LATITUDE(TIME) ;
                …
        float PRECISE_LONGITUDE(TIME) ;
                …
        float VTZA(TIME, DEPTH) ;
                …
```

Example: **timeSeries DSG**
LATITUDE & LONGITUDE are scalar. A mooring (by definition) is deployed in a fixed position.

Thank you very much!

¿Alguna pregunta? Alguma dúvida?

servicedesk.cmems@mercator-ocean.eu
fmanzano@puertos.es

#MarineData4SouthAmerica

2-Day Workshop

Session 1 – Products & Use Cases

22 February 3:00 pm (CET)