



Marine Data 4 Sustainable Oceans

Training Workshop
8 & 10 April 2025



PROGRAMME OF
THE EUROPEAN UNION



Implemented by
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Introduction

Here you will find the unanswered questions of the training workshop “Marine Data 4 Sustainable Oceans” held the 8th and 10th of April 2025. More than 1300 people took part of the event, hence this post-event report. You can also have a look at the replays on our YouTube Channel [here](#).

Please keep in mind that some questions asked were very similar, as a result we've summarized the different topics you covered in the Q&A 😊

We thank you again for your presence and hope to see you again!

1) Session #1 – Products & Use Cases

General questions about the Copernicus Marine Service

Some useful links :

- [Home | CMEMS](#)
- Products catalogue : [Copernicus Marine Data Store | Copernicus Marine Service](#)
- Past use cases : [Use Cases | CMEMS](#)
- Everything you need as a user : [User Corner | CMEMS](#)
- Tutorials from past events : [E-learning materials | CMEMS](#)
- Is the data freely available or do we need to pay? Can it be use for commercial purposes or to inform policy makers ?

The vizualisation, the access and the download of data are totally free: [Access data | CMEMS](#).

Once it is downloaded, you can do whatever you want with the data, you just need to cite the Copernicus Marine Service in your work (the citations are pre-made on each product to facilitate the task).

- Is it possible to use a format other than netcdf ?

Yes, it is possible to use a data format other than .nc for Copernicus Marine products. You can specify the format of the downloaded data to be either NetCDF or Zarr. To do this, you can use the following options:

- For the Command Line Interface (CLI), use `--file-format <format>` where `<format>` can be `[netcdf | zarr]`.
- For the Python Library (API), use `file_format=<format>` where `<format>` can also be `[netcdf | zarr]`.

By default, the data is delivered in NetCDF format, but if you specify Zarr format, you can download the data in that format as well. Additionally, the majority of Copernicus Marine products are produced in NetCDF format, but they can also be downloaded

in Zarr format via the Copernicus Marine Toolbox, and some datasets provide GeoTIFF and Shapefile data.

Here is a link to an article to look into it in detail:

[What are the formats of Copernicus Marine products? | Copernicus Marine Help Center](#)

- How can you be sure about Copernicus data accuracy ?

Copernicus data come from several sources : satellite, in-situ and model data. All of them are tested, updated, scientifically-driven data. Useful information, such as error levels of observations or indicators on the reliability of forecasts is provided consistently and effectively.

- Do I need to be part of an institution to have access to your software and data ?

Not at all. The data are accessible to everyone, it doesn't matter if where and with who you work. All the data are free of charge to access and download, everything is open source.

MyOceanPro Viewer Demonstration : [MyOcean Viewer | CMEMS](#)

- Can we save our progress or history to continue our work later or to make some corrections or edits?

Yes, in MyOcean Pro Viewer, you can save your work progress. The tool allows you to save graphs in your session, which means you can continue your work later or make corrections and edits as needed. Additionally, you can minimize and expand graph windows, which can be useful for managing your workspace and focusing on specific data or analyses.

- What is the programming language used to analyze the ocean data using Myocean Viewer? Are the results justifiable?

Most of MyOcean is in JavaScript/TypeScript, including the data analysis the user refers to. There is a small amount of Python in the viewer, which is the part that creates the netCDF subset files.

The only data analysis done are statistics : averages (geographic and temporal), minimum, maximum, very basic calculation.

We'd like to see examples of calculations that could be questioned.

- Is it possible to download data in CSV or JSON format?

It is possible to download data from objects drawn directly from the Viewer (point, line, area) in CSV format by clicking on the "... " icon in the graphics window > Export to CSV

You can download data in their NetCDF native format and convert them into CSV as explained [in this article](#).

It's not possible to download data as JSON, except when downloading the metadata of the Copernicus Marine catalogue via the [describe function](#) of the Toolbox (cf. [self-versioned documentation](#) to see JSON as output dictionary).

Ocean Reporting – Karina Von Schuckmann

- Useful links mentioned during the live :

Last issue of the Ocean State Report : [Copernicus Ocean State Report 8 Release | CMEMS](#)

Karina's IPCC working group : [Working Group I — IPCC](#)

Stockholm Resilience Center : [Stockholm Resilience Centre - Stockholm Resilience Centre](#)

Rockström's paper about Earth's boundaries : [Safe and just Earth system boundaries | Nature](#)

User testimony #1 – Manel Grifoll (UPC-Barcelona Tech)

Link : <https://doi.org/10.1016/j.oceaneng.2022.111427>

- Can the model predict shipping routes then ?

Yes, the system predicts shipping routes in function of the wave information provided by Copernicus Marine System.

- Could the actual routes that the ships take be affected by regulations on where they can transit ? Do you take this into account ?

Currently, the system does not include any navigation regulation but can be introduced easily subtracting computational nodes.

User testimony #2 – Achille Ciappa (former e-GEOS)

Link :

https://www.researchgate.net/publication/369644718_Oil_trajectory_analysis_for_oil_spill_surveillance_by_SAR_in_the_Mediterranean_Sea

We've covered all of Manel's questions during the Q&A session.

2) Session #2 – Practical session

General questions

- How do I download CMEMS data directly using R?

You can refer to this article to look into this in detail!
<https://help.marine.copernicus.eu/en/articles/8638253-how-to-download-data-via-the-copernicus-marine-toolbox-in-r>

- How can a user navigate all of this for different data/analysis alone, without any prepared code ?

You can find on our website articles about everything : technical issues, how to use our tools, how to download the data and others here : [User Corner | CMEMS](#)

If you don't find the information you want, you can also contact our user support 😊

- How can I look at bathymetry data ?

A lot of Copernicus Marine products provide a [bathymetry dataset](#) (i.e. sea floor topology). You can download this dataset to do the analysis.

The Copernicus Marine Toolbox

Some useful links :

- [Copernicus Marine Toolbox - Introduction | Copernicus Marine Help Center](#)
- [Copernicus Marine Toolbox - Installation | Copernicus Marine Help Center](#)

- Can I use Mamba in the terminal of VS Code to try downloading my data ?

If you download Mamba, you will get the mamba's miniforge prompt. This is where you should be downloading the data.

- Is it possible to connect MATLAB data to Jupyter Notebook? If I have image processing data in MATLAB, can I visualize it within Jupyter? If so, how can I do?

Although User Support does [not guarantee MATLAB support](#), it is perfectly possible to import and visualize MATLAB data in a Jupyter Notebook, provided you export it in a Python-compatible format (e.g. CSV, MAT via the [scipy.io](#) library, etc.). Once the data has been exported, you can load it into Jupyter using Python libraries adapted to image processing and visualization.

Jupyter Notebooks – Alexandre Homerin (Noveltis)

All of the questions were answered during the event. You can watch the replay if you wish or download the tutorial if you didn't yet 😊 : [Jupyter Notebook tutorial](#)

QGIS – Daria Andrievskaia (Noveltis)

All of the questions were answered during the event. You can watch the replay if you wish or download the tutorial if you didn't yet 😊 : [QGIS tutorial](#)

R Studio – Simon Millet (Noveltis)

All of the questions were answered during the event. You can watch the replay if you wish or download the tutorial if you didn't yet 😊 : [R Studio tutorial](#)

Thanks again for your participation 😊

