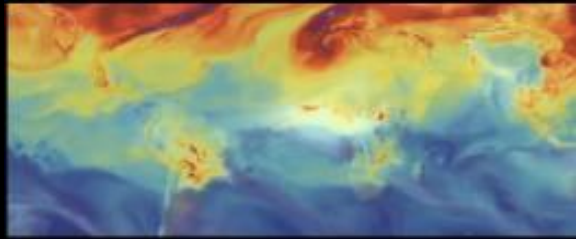


Copernicus Marine Toolbox: Demo

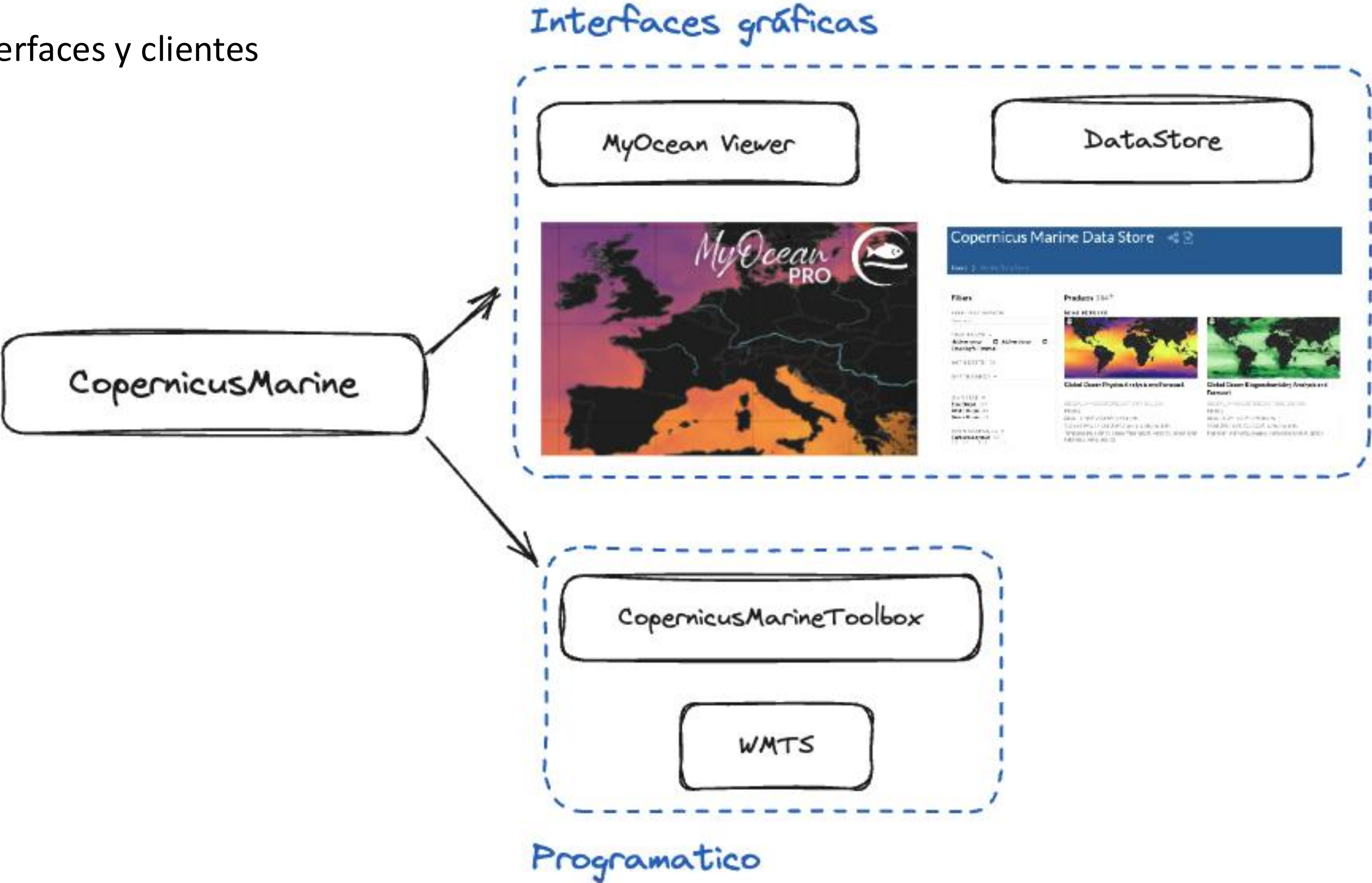


FPCUP for Spain (online)
16 October 2024



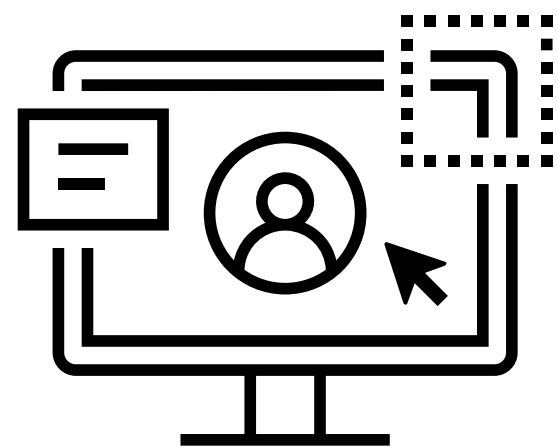
Introducción

Interfaces y clientes

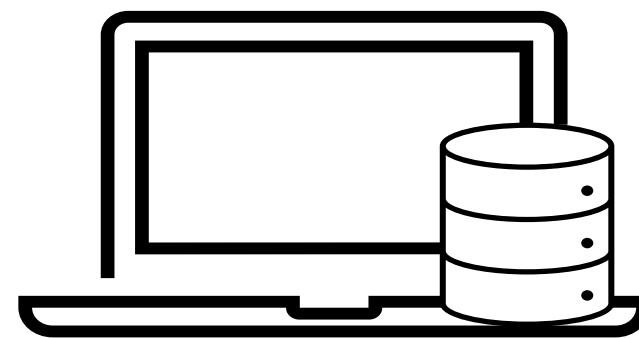


Copernicus Marine Toolbox

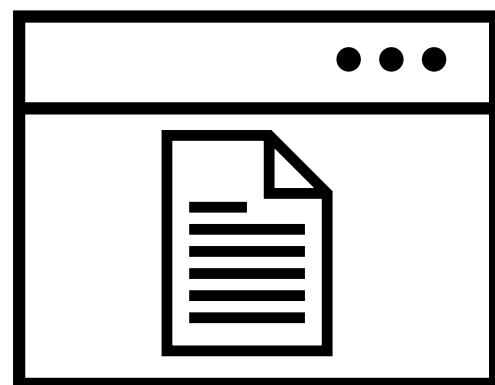
Funciones principales, interfaces y beneficios



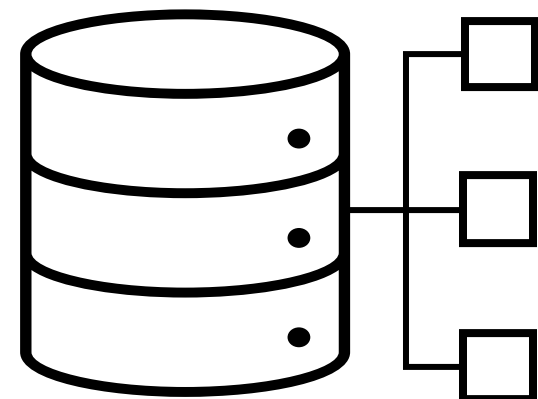
Login



Get



Describe



Subset

Command Line
Interface (CLI)

```
edimedio@edimedio-mac ~ % conda activate cmems  
(cmems) edimedio@edimedio-mac ~ % copernicusmarine --version  
copernicusmarine, version 1.3.3  
(cmems) edimedio@edimedio-mac ~ %
```

Python (API)

Filter and download dataset

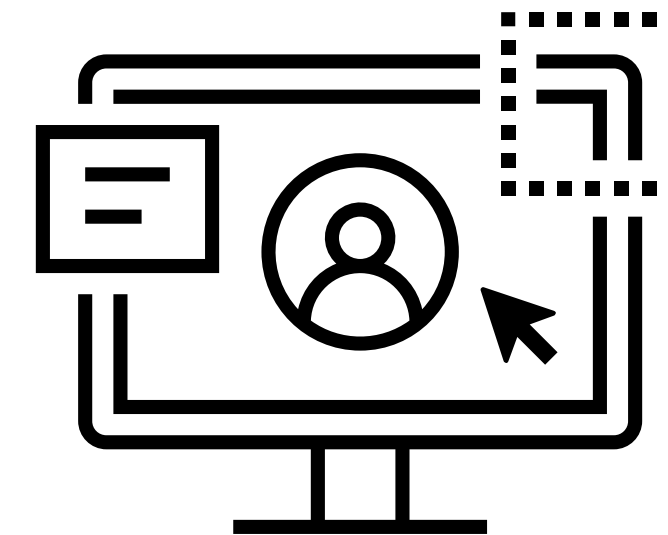
```
[ ]: cm.subset(  
    dataset_id="cmems_mod_ibi_phy_my_0.083deg-3D_P1M-m",  
    dataset_version="202012",  
    variables=["thetao"],  
    minimum_longitude=-14.250000476837167,  
    maximum_longitude=-14.250000476837167,  
    minimum_latitude=41.03125,  
    maximum_latitude=41.03125,  
    start_datetime="1993-01-01T00:00:00",  
    end_datetime="2021-12-01T00:00:00",  
    minimum_depth=0.5057600140571594,  
    maximum_depth=0.5057600140571594,  
)
```

Filter and load dataset

```
[12]: dataset = cm.open_dataset(  
    dataset_id="cmems_mod_ibi_phy_my_0.083deg-3D_P1M-m",  
    dataset_version="202012",  
    variables=["thetao"],  
    minimum_longitude=-14.250000476837167,  
    maximum_longitude=-14.250000476837167,  
    minimum_latitude=41.03125,  
    maximum_latitude=41.03125,  
    start_datetime="1993-01-01T00:00:00",  
    end_datetime="2021-12-01T00:00:00",  
    minimum_depth=0.5057600140571594,  
    maximum_depth=0.5057600140571594,  
)
```

- Autenticación de usuarios
- Facilitar el acceso, la exploración y la descarga de los datos
- Valor añadido de la comunidad

Login



- **Autenticación de usuarios**

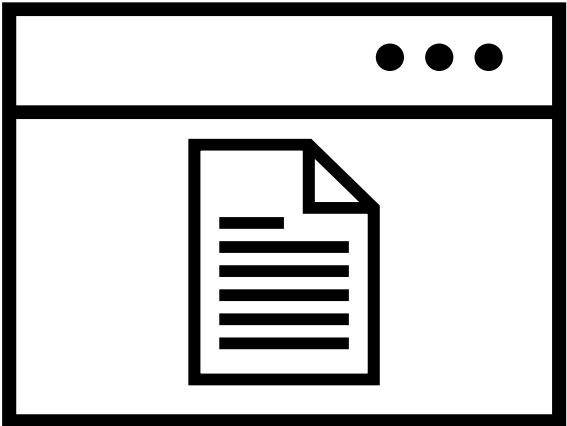
Command Line
Interface (CLI)

```
copernicusmarine login --username <USERNAME> --password  
<PASSWORD>
```

Python (API)

```
copernicusmarine.login(  
    username=<USERNAME>,  
    password=<PASSWORD>)
```

Describe



- **Conseguir metadata sobre los productos y datasets**

Command Line
Interface (CLI)

```
copernicusmarine describe [OPTIONS]
```

Python (API)

```
copernicusmarine.describe(OPTIONS)
```

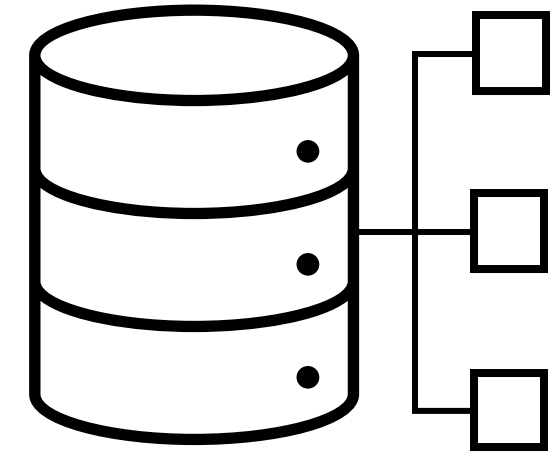
Open Dataset y Read Dataframe

- **Operar con datos sin descargarlos**
 - `open_dataset` → `xarray.Dataset`
 - `read_dataframe` → formato de tabla (e.g. CSV o Excel)

Python (API) `copernicusmarine.open_dataset(OPTIONS)`

Python (API) `copernicusmarine.read_dataframe(OPTIONS)`

Subset



- **Descargar los datos de forma rápida y eficaz**
 - Datos distribuidos con zarr → máxima rapidez para mapas pero también para time-series!

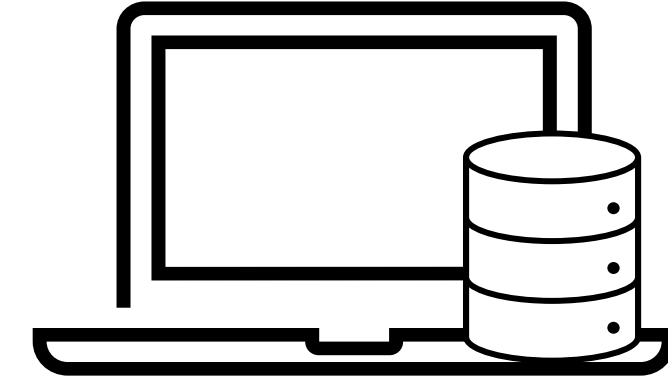
Command Line
Interface (CLI)

```
copernicusmarine subset OPTIONS
```

Python (API)

```
copernicusmarine.subset(OPTIONS)
```


Get



- **Descargar los datos nativos**
 - Acceso a los datos INSITU

Command Line
Interface (CLI)

```
copernicusmarine get OPTIONS
```

Python (API)

```
copernicusmarine.get(OPTIONS)
```


Lobelia.

Demo

