Copernicus Marine Training Workshop

QGIS installation notes and plugin configuration

PROGRAMME OF THE EUROPEAN UNION

opernicus
Europe's eyes on Earth

Copernicus Marine Service

implemented by

MERCATOR OCEAN INTERNATIONAL

MERCATOR OCEAN
INTERNATIONAL
2 avenue de l'Aérodrome de Montaudran, 31400 Toulouse, FRANCE
Tél : +33 5 61 39 38 02 - Fax : +33 5 61 39 38 99
Société civile de droit français au capital de 2 000 000 € - 522 911 577 RCS Toulouse - SIRET 522 911 577 00024

marine.copernicus.eu
mercator-ocean.eu

TABLE OF CONTENTS

1. Introduction

This document is aimed at supporting a new user in installing and configuring QGIS for being used to manipulate and analyze Copernicus Marine data. It is based on information shared with the community from **official QGIS webpage**:

https://qgis.org/en/site/index.html

Some of the information contained in this document is also reported in the QGIS documentation, that the author suggests consulting for having a more comprehensive overview of additional features and supported operating systems.

In the next sections, it will be discussed:

- **How to install QGIS in Windows operating system** (but QGIS can run also on macOS, Linux, BSD and mobile devices and for these OS please visit the QGIS website).
- **How to install plugins** that can be relevant for the execution of the Copernicus Marine Training proposed exercises.
- **How to download Copernicus Marine products from the Data Store,** focusing on the capabilities as provided by the GUI.

Please note that information and access to relevant online resources have been performed on **08/06/2024**.

This document has been prepared by Dr. Stefania A. Ciliberti (NOW Systems, Madrid).

2. How to install QGIS

2.1. Standalone installation

In the following, a list of steps for installing QGIS on Windows OS laptop in standalone mode is given.

Step 1:

- Go to https://qgis.org/en/site/index.html
- Click on “Download now”
- You will be redirected to a new webpage, https://qgis.org/en/site/forusers/download.html. It requires for the following information:
    - For which operating system you want to download QGIS (“Installation Downloads”).
    - Which release you are interested in (“All releases”).
    - Access to source code (“Sources”).

In this case, we are interested in downloading the QGIS application for Windows (Figure 1).

- The QGIS provides you always:
    - The last available release: in this case, it is **QGIS 3.36**.
    - The long term stable release: it is **QGIS 3.34 LTR**.

For the scope of the Copernicus Marine Training Session, we suggest referring to the long-term stable release.

- Click then to “**Looking for the most stable version? Get QGIS 3.34 LTR**”. The download of the **OSGeo4W** installer will start automatically, and the corresponding executable will be saved in your local folder.

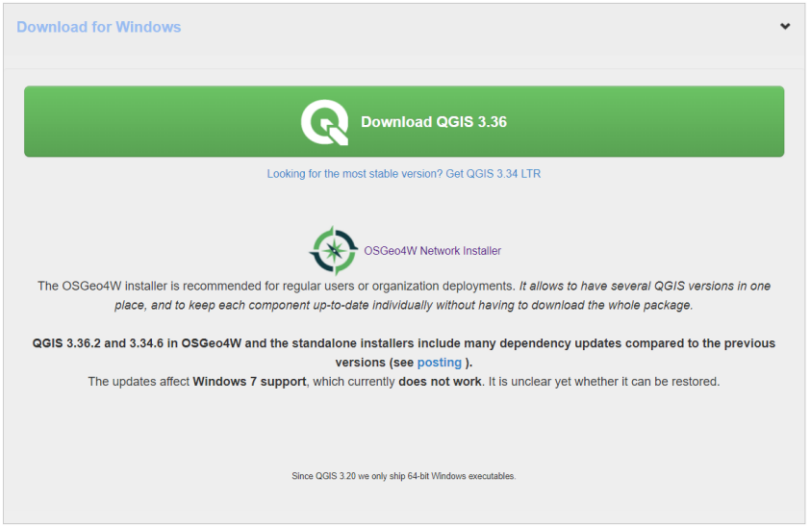

Figure 1. QGIS download webpage. Selection of QGIS application for Windows OS.

Step 2:

- Once the executable is ready, double click on QGIS-OSGeo4W-3.34.7-2.msi. A setup wizard is launched automatically, asking you:
    - To proceed with the installation: click on ”Next”.

- To accept licences as displayed in the wizard:
  - Check the box “I accept the terms in the License Agreement”.
  - Click on “Next”.
- To specify the path where the QGIS 3.34 will be installed: “Next”.
- To launch the installation: click on “Install”. Warning: due to security reason, you may be asked to allow the execution as administrator (tested with Windows OS).
- After launching the installation, a window will appear, showing you the installation process until the end.
- Click on “Next” once the installation is completed.
- Once completed, you will see the refreshed wizard: click on “Finish”.

Steps are shown in Figure 2.

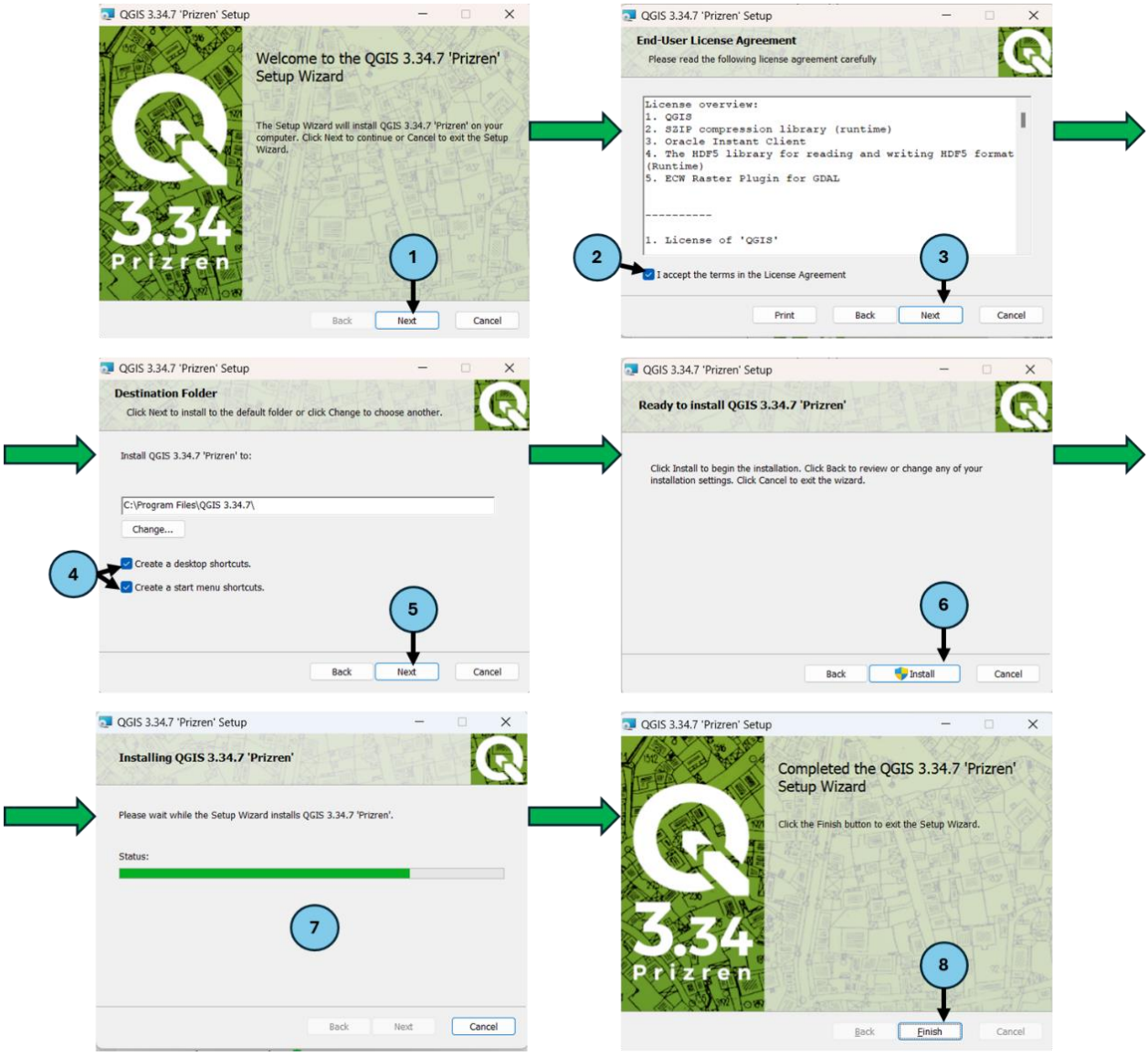

Figure 2. Step 2 workflow: installation of QGIS 3.34 LTR.

Step 3:

- In your desktop, you will see now a new folder, named “QGIS 3.34.7”, containing a list of applications that are ready to be used (Figure 3).
- Double click on “QGIS Desktop 3.34.7". It will launch QGIS and the QGIS board will be displayed in your computer. You are now ready to use QGIS (Figure 4).

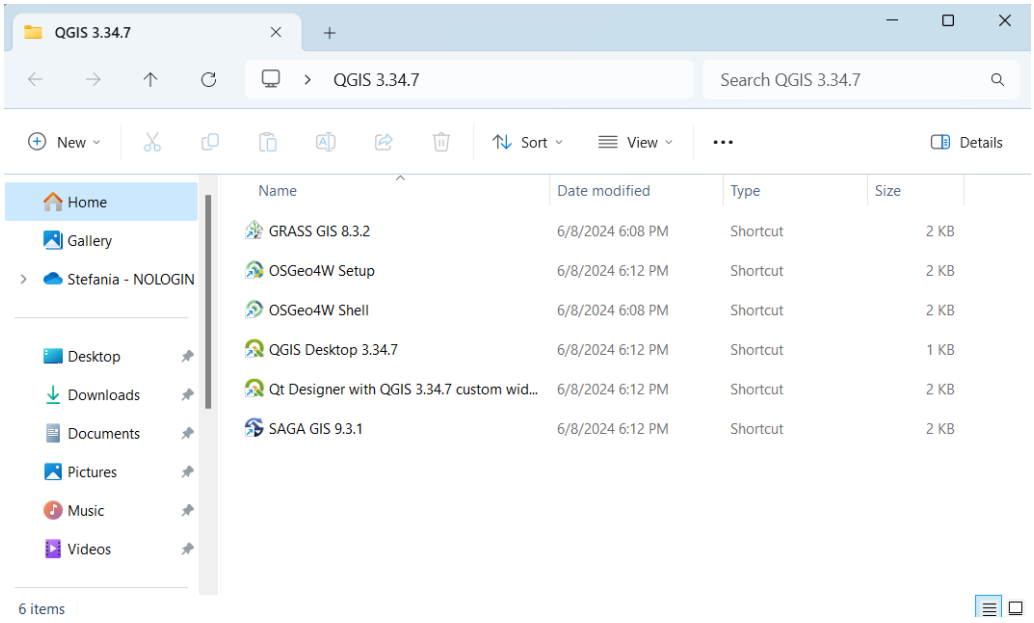

Figure 3. List of applications belonging to QGIS available in the dedicated folder after installation.

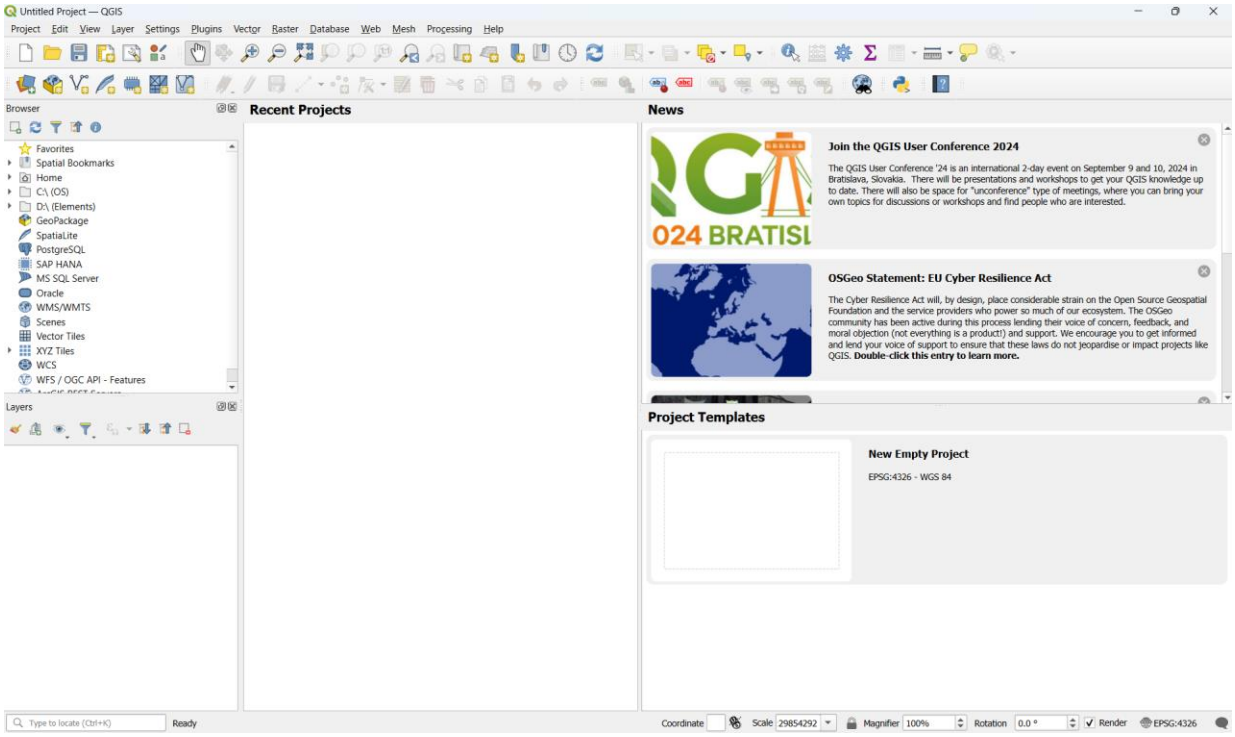

Figure 4. QGIS 3.28.14 ready to be used.

2.2. Installation through OSGeo4W installer

Step 1:

- Go to https://qgis.org/en/site/index.html
- Click on “Donwload now”.
- You will be redirected to a new webpage, https://qgis.org/en/site/forusers/download.html. It requires for the following information:
  - For which operating system you want to download QGIS (“Installation Downloads”).
  - Which release you are interested in (“All releases”).
  - Access to source code (“Sources”).

  In this case, we are interested in downloading the QGIS through the OSGeo4W installer, that is recommended for more advanced users.
- As shown in Figure 1, click on “OSGeo4W Network Installer”.
- You will be redirected to a new webpage, https://qgis.org/en/site/forusers/alldownloads.html#osgeo4w-installer. It gives very detailed information for users as shown (partially) in Figure 5.

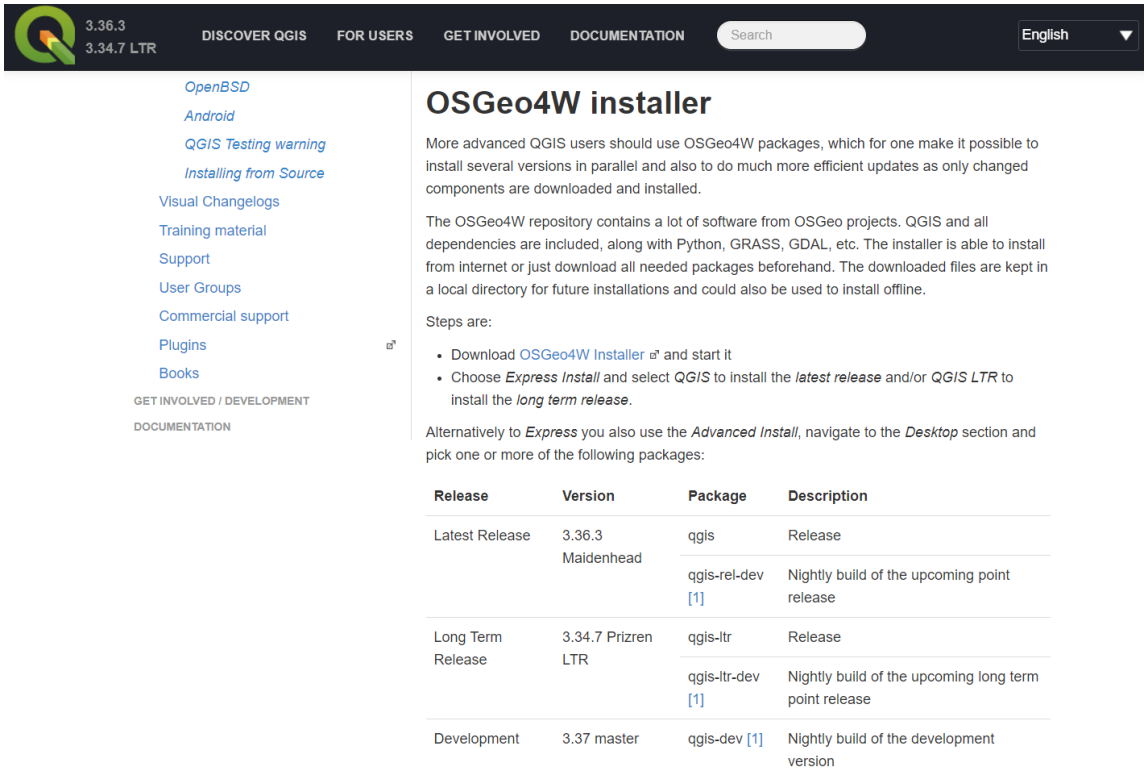

Figure 5. QGIS installation using OSGeo4W installer. An extract from the main page that describes QGIS installation types for different OS.

- From the Table of Contents of the QGIS Installers webpage as reported in Figure 5, select “OSGeo4W installer” topic. It downloads automatically an executable called **osgeo4w-setup** that is saved in your local folder.

Step 2:

- Once the executable is available in your local folder, double click to **osgeo4w-setup**. A setup wizard is launched automatically, asking you:
    - To choose among “Express Install” or “Advanced Install”. Select “Express Install” and then click on “Next”.
    - To select the packages: select “QGIS LRT, GDAL, GRASS GIS” and then click on “Next”.
    - The installation will be automatically completed.

Step 3:

- After the installation is completed, the **QGIS 3.34.7** is available and is shown in the list of applications installed in your local. Then, launch it through the Windows Starter and you will display the QGIS board as previously shown in Figure 4.

3. How to install QGIS plugins

3.1. Installation of the CMEMS-NetCDF plugin

The Copernicus Marine Service makes available the CMEMS-NetCDF plugin, which enables the handling of data in NetCDF format.

The user can follow the instructions on how to install it in QGIS by accessing this dedicated webpage at the E-Learning section.

In brief, after downloading in your local folder, to install and configure the CMEMS-NetCDF plugin to be used in QGIS, it is necessary to follow these steps:

- From the top menu of QGIS, select ***Plugins > Manage and Install Plugins….***
- Then, a window ***Plugin | Install from ZIP*** at the left panel appears, and you can browse through your personal folder to select the zip file containing the CMEMS-NetCDF plugin as downloaded from the Copernicus Marine E-Learning Section.
- Finally, select Install Plugin. Figure 6 schematized the main steps as performed though the QGIS GUI. The same steps can be performed in case an update of the plugin through a new zip file needs to be done. Once installed/updated, the CMEMS-NetCDF icon appears in the QGIS toolbar, and it is ready to be used.

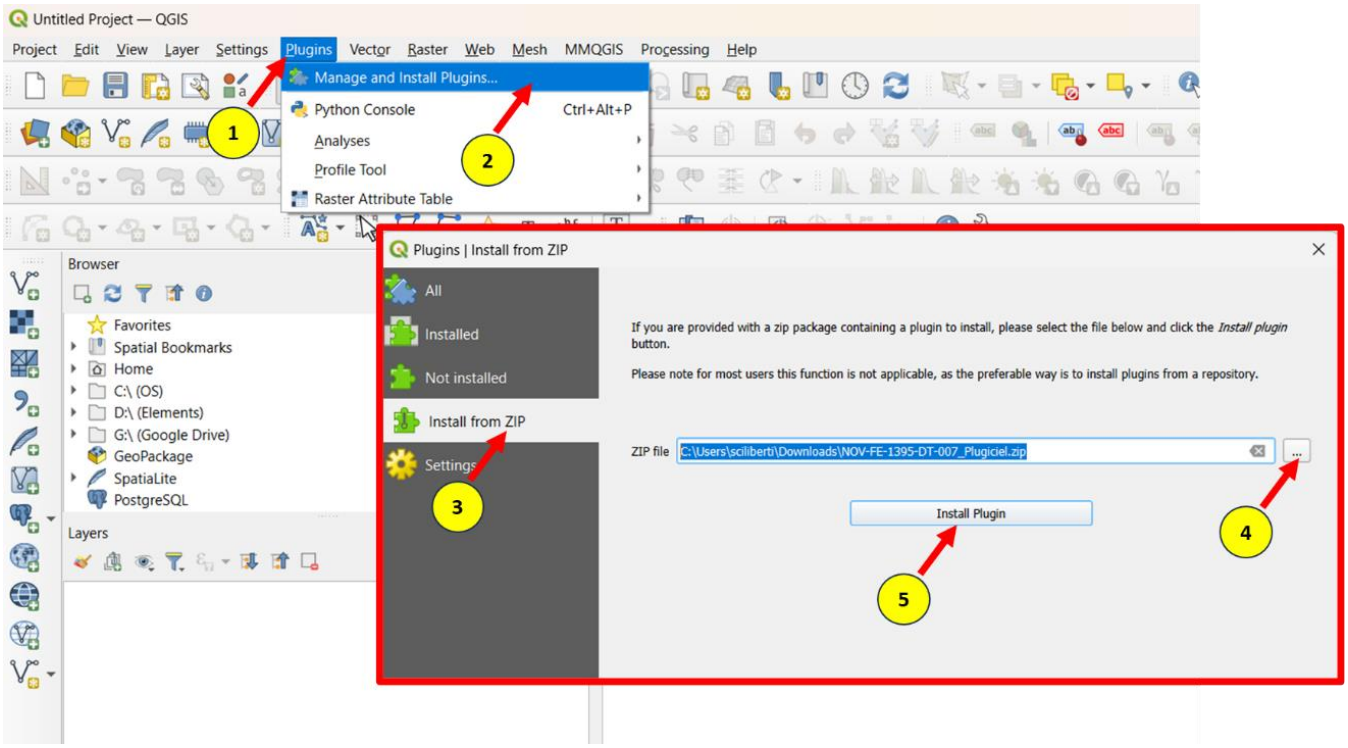

Figure 6. Step for installing / updating the CMEMS-NetCDF plugin in QGIS.

Once clicking on the CMEMS-NetCDF icon available in the toolbar or selecting ***Plugins > NetCDF2GIS > Import NetCDF files*** from the QGIS top menu, a GUI appears with functions to load and explore the NetCDF file structure and semantic, as schematized in Figure 7.

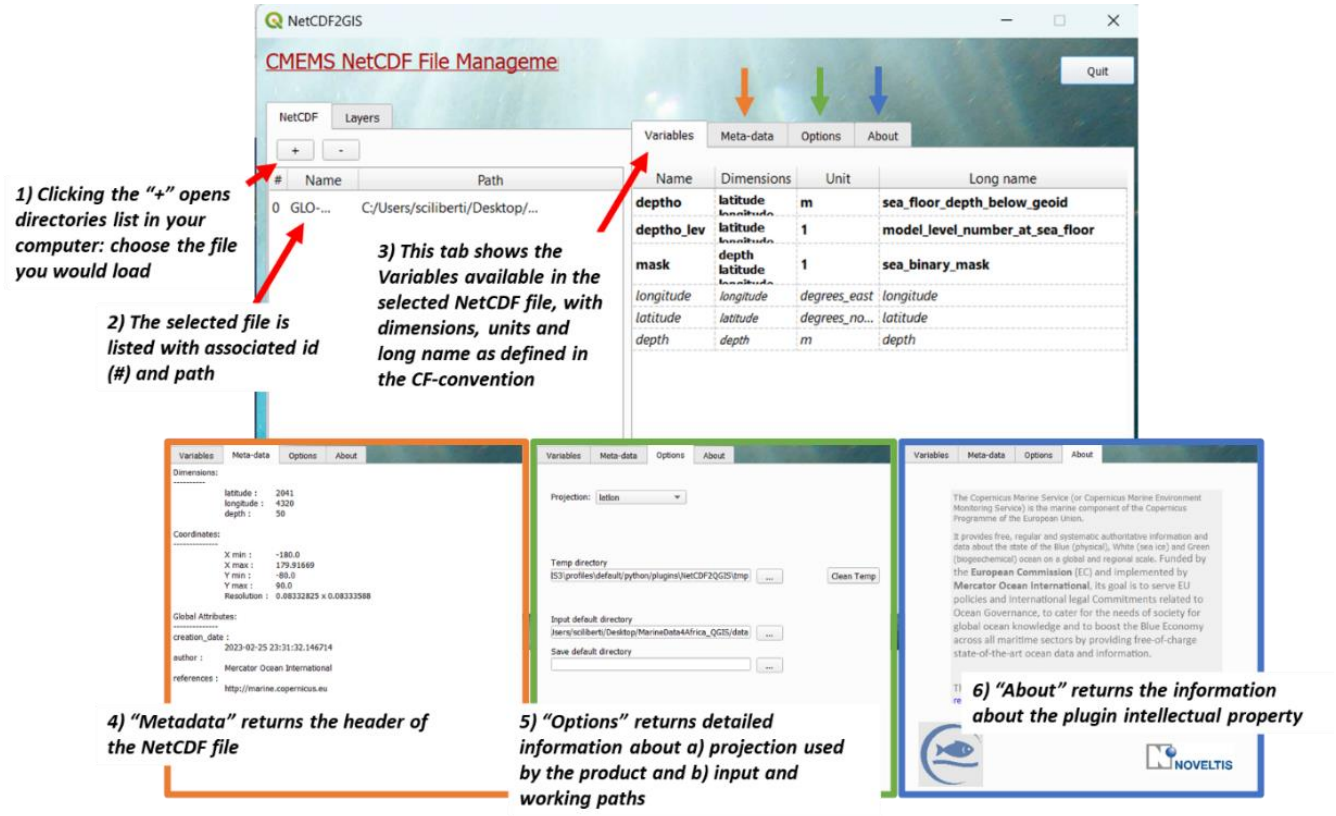

Figure 7. Overview of the CMEMS-NetCDF plugin functionality for loading a NetCDF file.

3.2. Installation of the additional plugin useful for Copernicus Marine Training exercises

In the following, the list of additional plugins that can support the implementation of the proposed exercises.

To install them, open the QGIS software and click on ***Plugins > Manage and install Plugins*** in the top menu. Once opened, it is necessary to type the name of the plugin of interest, search among the listed of proposed ones and launch the installation by clicking on ***Install Plugin*** (or ***Reinstall Plugin*** to refresh it in case already present in the local computer).

- The QuickMapService is developed by NextGIS and allows to easily add basemaps and geoservices. Details are given on the QuickMapServices webpage.
- Lat Lon Tools is a plugin that facilitates the query, capture and zoom to coordinates of your selected region. Details are given on the Lon Lat Tools plugin webpage.
- Terrain Profile is a plugin that allows you to extract profiles over a raster. This can be extremely useful for a first outlook of the general information provided by a given field or for intercomparing different datasets on the same track. Details are given in the dedicated Terrain Profile plugin webpage.

4. How to download Copernicus Marine products

In this section, we illustrate how to download the monthly chlorophyll for Jun 2023 as provided by the OCEANCOLOUR_GLO_BGC_L4_NRT_009_102 product directly from the Copernicus Marine Data Store by using the GUI.

Step 1: Access to product main page from the Copernicus Marine Data Store. Visualization of the options for accessing relevant information about the selected product. As shown in Figure 8, the **OCEANCOLOUR_GLO_BGC_L4_NRT_009_102** main page provides an overview of the most relevant information related to the Global Ocean Color L4 satellite product, including the options for accessing the data.

Option 1: by clicking on "Data Access" tab, you will be redirected to a second page that gives the list of available datasets with interfaces for downloading associated data (Figure 9):

- **Subset**, which is the new function for interactively selecting total or a portion of the interested region.
- **Files**, that returns the data archive structure of the selected dataset.
- **Maps**, that returns WMTS file that you might export to use in your dedicated webservice.

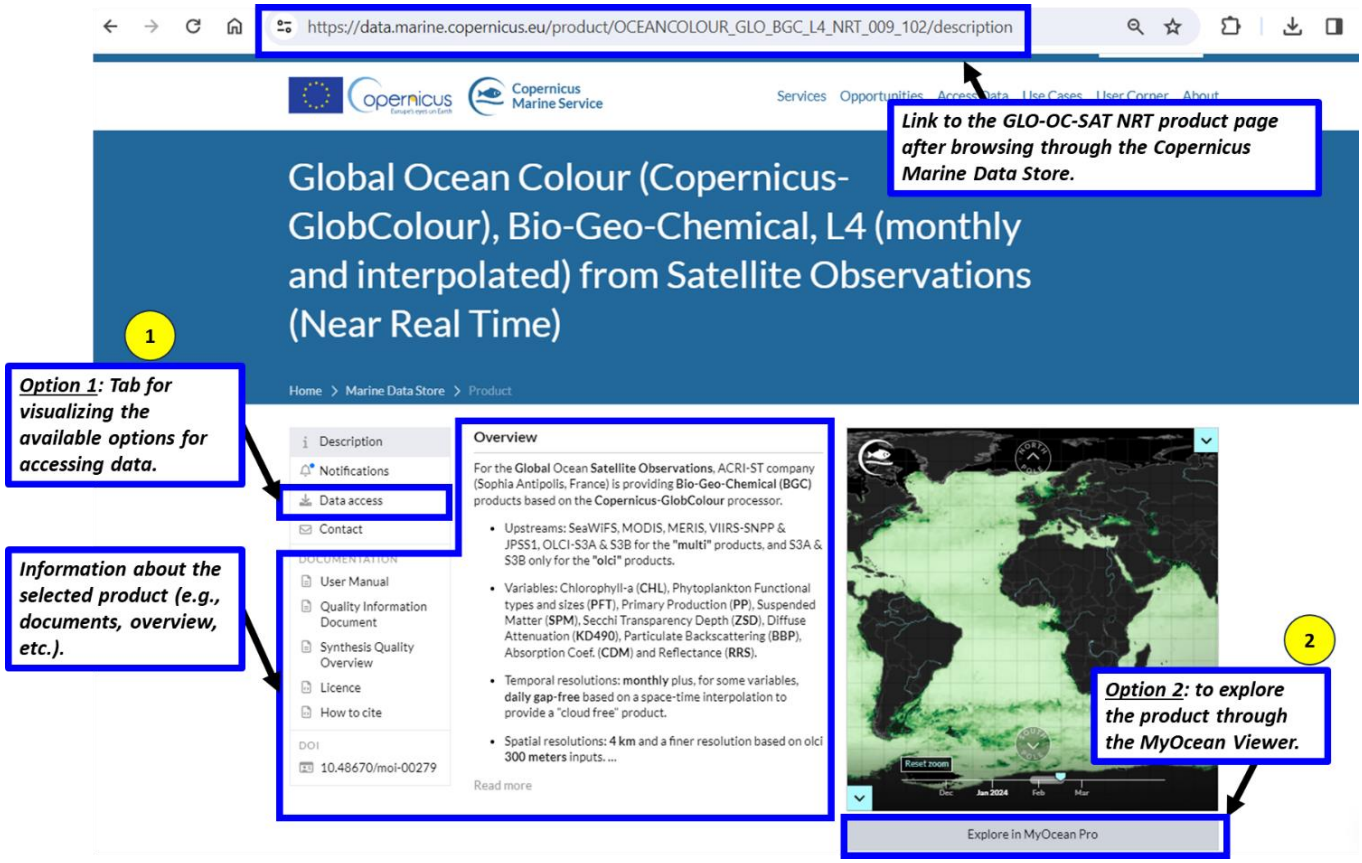

Figure 8. OCEANCOLOUR_GLO_BGC_L4_NRT_009_102 product main page through the Copernicus Marine Service

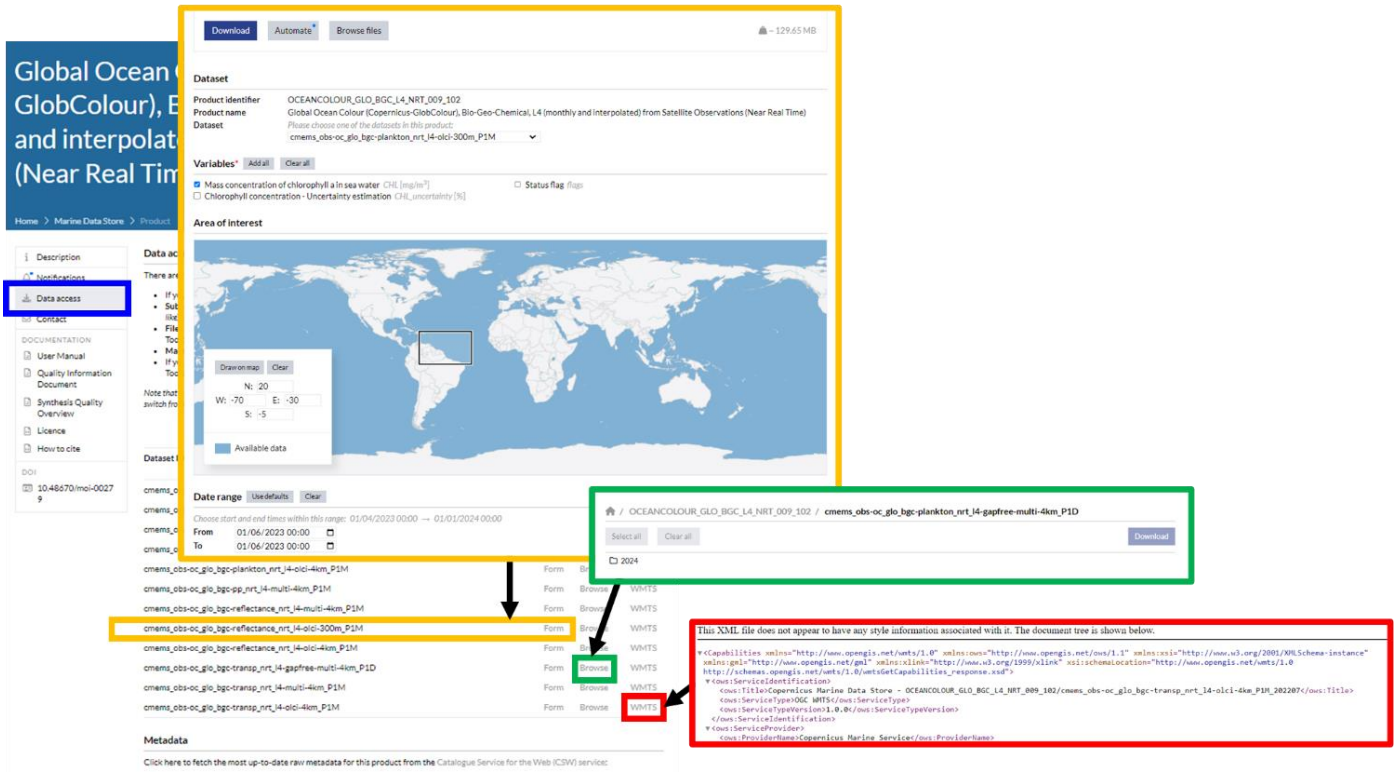

Figure 9. Option 1 for accessing Copernicus Marine data using a) subset (in orange), b) files (in green) or c) maps (in red).

Option 2: by clicking on "Explore in MyOcean Pro" tab, you will be redirected to the MyOcean Pro Viewer webpage that shows the 2D map of the selected field (Figure 10). The viewer gives the opportunity to:

- Add any new field as a new layer.
- Download the file by selecting the bounding box and the range of dates.
- Access to information about the product/dataset, customize the map, save, and export for next uses.

Once the spatio-temporal information for the selected variables is inserted into the GUI, you might launch the download of the file.

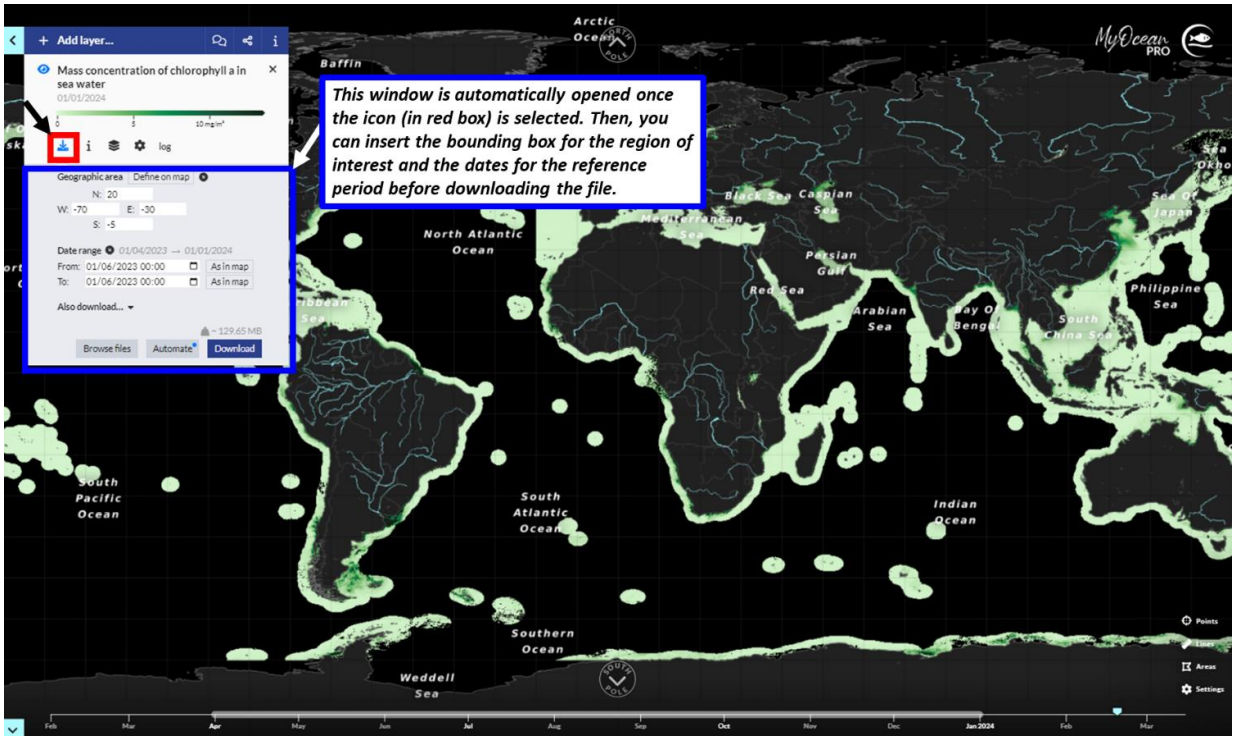

Figure 10. Option 2 for accessing Copernicus Marine data using the MyOcean Pro Viewer functionalities.

Additional information on how to access and download Copernicus Marine data is provided in the Copernicus Marine E-Learning Material (including how to use the Copernicus Marine Toolbox) and at the page dedicated to the specific training event.