



Marinomica PLATFORM USER GUIDE

Access the Marinomica Platform using this link: <http://fs-141-0-206-225.fullsave.info/>.

User account management and profile

1. Sign up: Create a user account.
2. Modify your profile.
 - a. Click on your user name, select Profile.
 - b. Change your country and select sectors that you are interested in. Save the information.

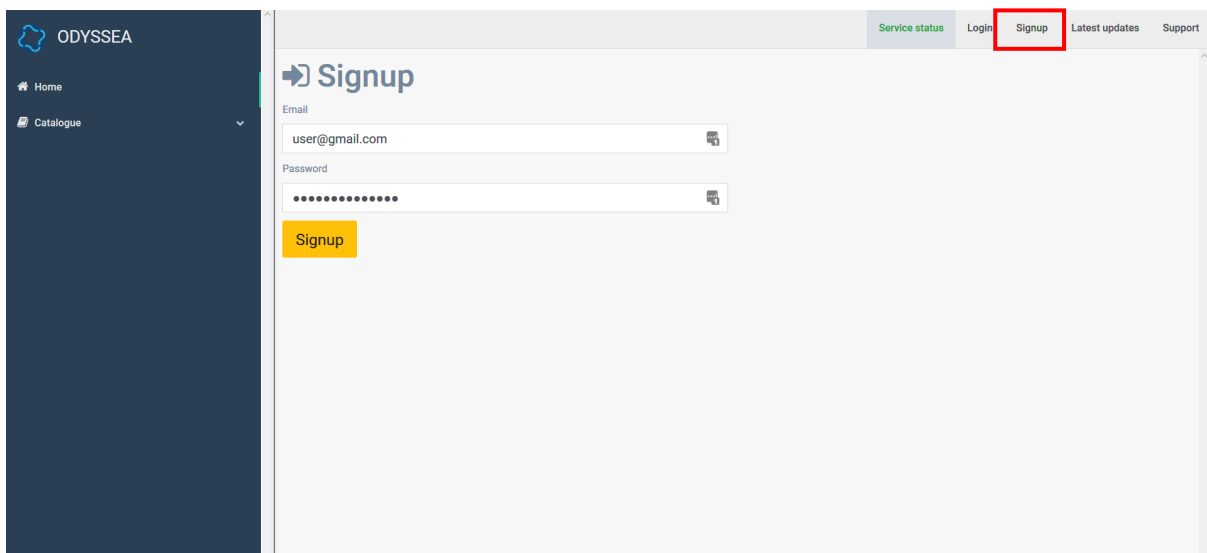


Figure 1. Sign up screen.

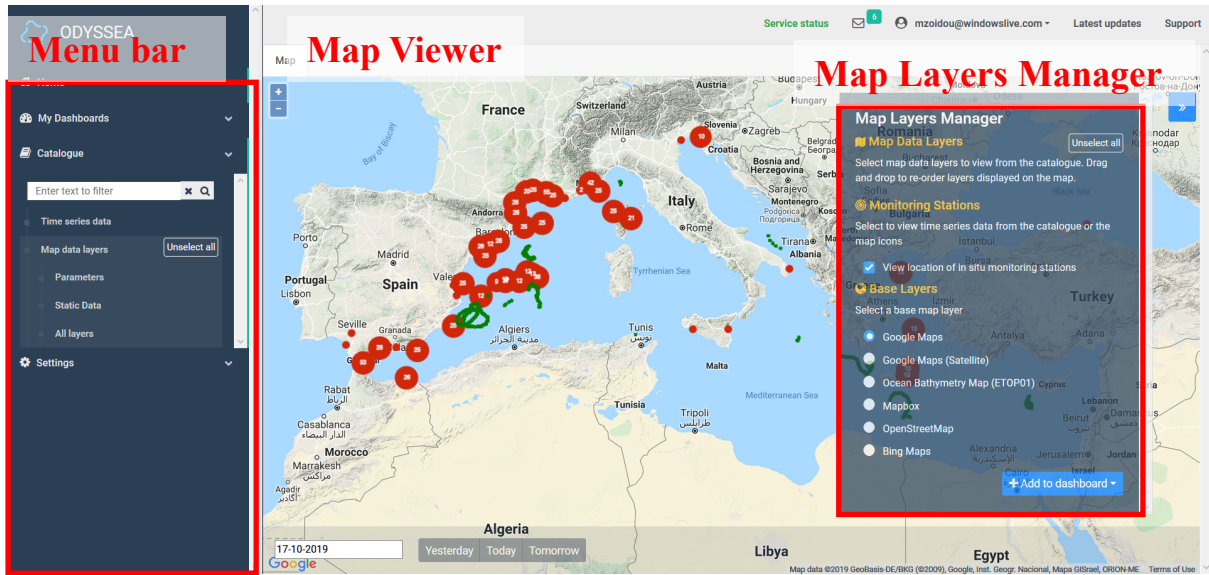


Figure 2. Platform layout.

In [Figure 2](#), you can see, the **Menu bar** on the left, the **Map Viewer** on the main screen and the **Map Layers Manager** on the right. You can customize your **Map Viewer** by switching the Base map Layer in the **Map Layers Manager**.

The main components of the Marinomica Platform in the Menu bar, are the: **My Dashboards**, **Time series data** and **Map data layers**. The **My Dashboard** option gives the end-users the opportunity to create a personalized list of datasets. The **Time series data** consists of **Tide gauges** (red dots on the Map Viewer) and **Trajectory data** (green lines on the Map Viewer). The **Map data layers** comprises the **Parameters** drop-down menu which gives the list of the parameters given by the Platform, and the **Static Data** drop-down menu which gives the **Bathymetry** data.

1. Time Series Data

The **Time series data** consists of **Tide gauges** (red dots on the Map Viewer) and **Trajectory data** (green lines on the Map Viewer).

Tide gauges data are derived from Permanent Service for Mean Sea Level (PSMSL) buoys, consisting of near real time data of tide and other parameters. **Trajectory data** provides a series of points with time series such as drifters and gliders.

By clicking on the Tide gauge or Trajectory data of your choice, a window opens. For more information about the station, click on the “View Sensor Information”. To visualize the time series, click on “View Time Series Data” (Figure 3). The time range can be set by dragging the scale at “Select data range” or by filling the fields manually. The time series values can be exported to CSV files by clicking on “Save as CSV”, and the plot as shown in Figure 3 can be saved as image to PDF or PNG files by clicking on “Save as PDF” or “Save as PNG”. The plot is interactive and you can zoom in/out. It can also be added to your personal Dashboard by clicking on the “Add to Dashboard” button.

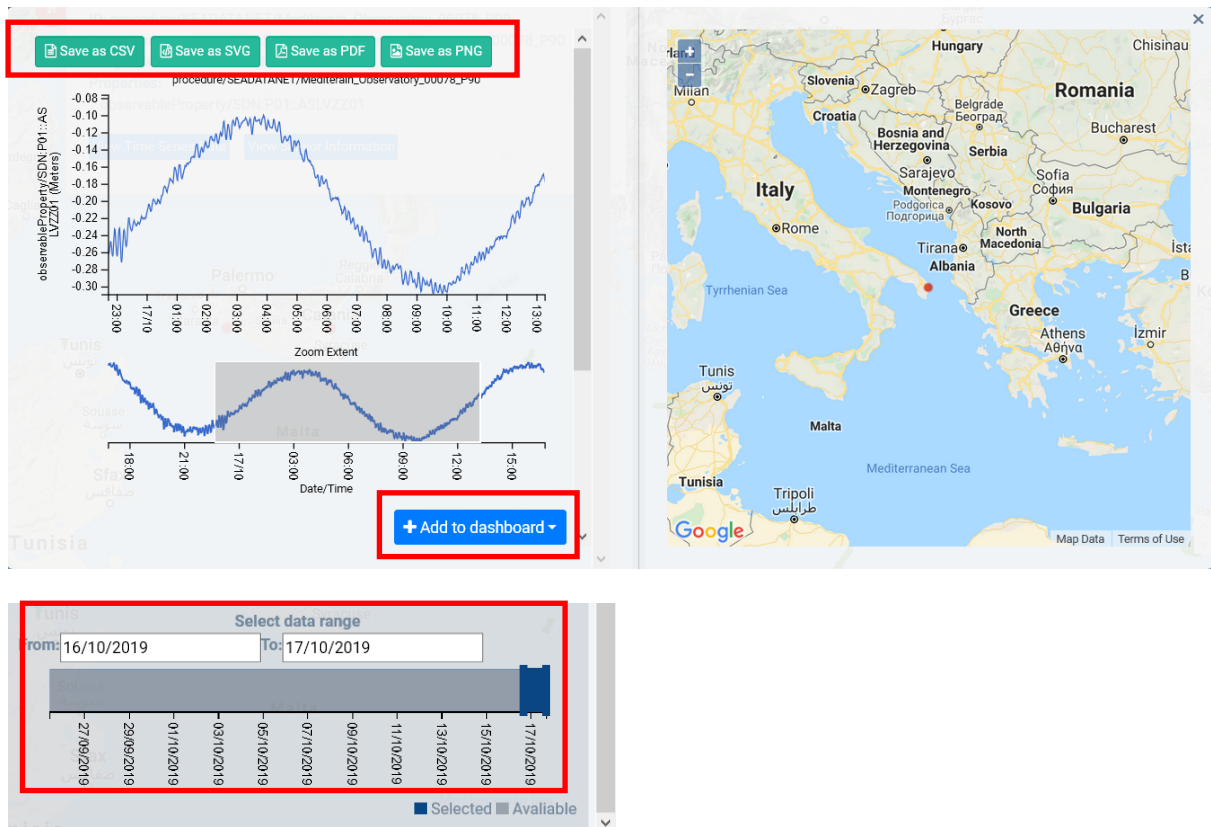


Figure 3. Time series window of a Tide gauge.

2. Map data layers

2.1 Parameters

In the **Menu** bar, under the product **Catalogue/Map data layers/Parameters**, you can find the list of the parameters given by the Platform.

2.1.1 Chlorophyll

In [Figure 4](#), all the product options for chlorophyll are presented and some of them are further discussed.

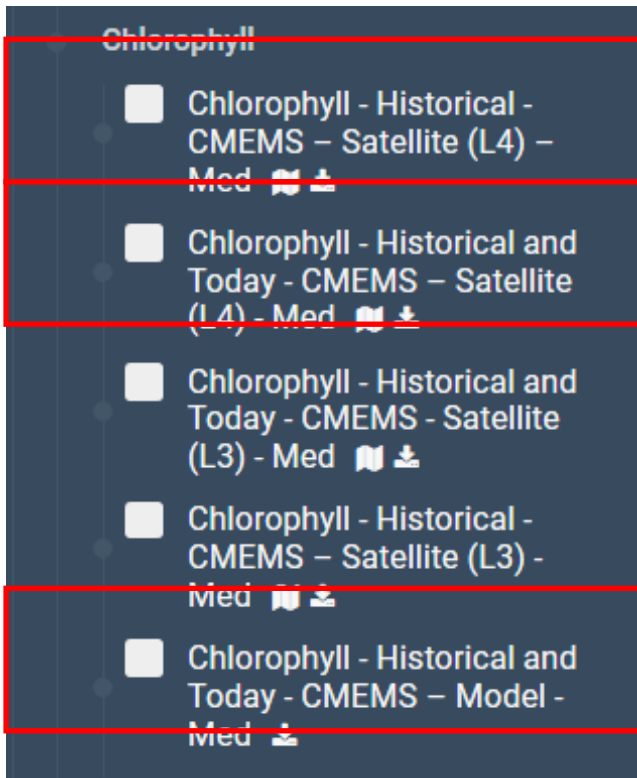


Figure 4. Given product options for Chlorophyll.

Surface chlorophyll concentration data (mg/m^3), are derived from Copernicus - Marine environment monitoring service. You can see more details about every product on the **Metadata** tab on the top of the **Map Viewer**.

Chlorophyll – Historical - CMEMS – Satellite (L4) - Med

Historical data from September 1997 until the end of 2017 at Level-4. The product includes both time averaged (8-days and monthly) datasets and climatological fields, all at 1 km spatial resolution.

Chlorophyll – Historical and Today - CMEMS – Satellite (L4) - Med

Data from January 2017 until the present day at Level-4, including both time averaged (8-days and monthly) datasets and the daily interpolated chlorophyll field with no data voids, all at 1 km spatial resolution.

Chlorophyll – Historical and Today - CMEMS – Model - Med

Biogeochemical analysis and forecasts for the Mediterranean Sea at ~4 km resolution. Seven days of analysis/hindcast and ten days of forecast are bi-weekly produced. Dissolved oxygen, net primary production, pH, dissolved inorganic carbon, nitrate phosphate, phytoplankton and chlorophyll datasets are available on daily and monthly basis.

For every Chlorophyll product, there are several layers in the **Map Layers Manager**. By clicking the wanted layer, you can choose the time of the data product displayed at the bottom of the **Map Viewer** ([Figure 5](#)). You can add a map layer in your dashboard. Scroll down in the **Map Layers Manager** and click on “Add to dashboard / New Dashboard”.

On the right of the screen you can see the legend which can be customised by changing the ColorRamp, the minimum or maximum value and the opacity ([Figure 6](#)).

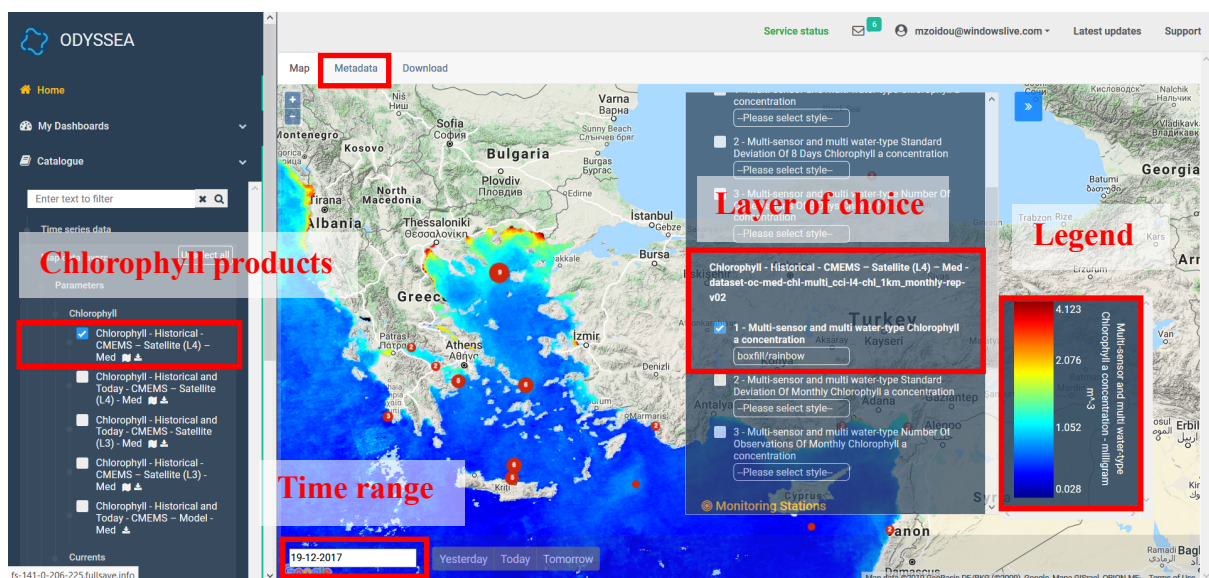


Figure 5. Spatial distribution of Chlorophyll, using the monthly dataset.

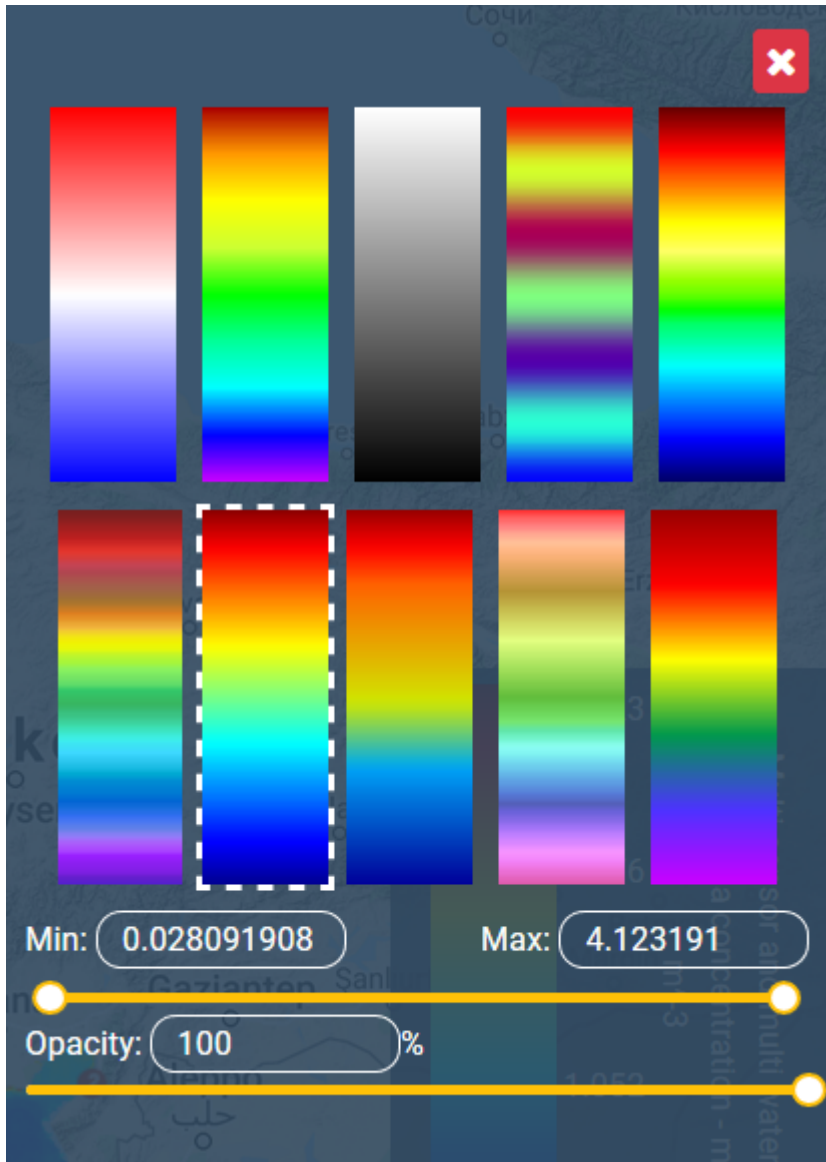


Figure 6. Legend options.

By clicking at any point on the map, a time series plot appears ([Figure 7](#)). The time range can be set by dragging the scale at “Select data range”. The time series can be exported to CSV, PDF or PNG files by clicking on “Save as CSV”, “Save as PDF” or “Save as PNG”. The plot is interactive and you can zoom in/out. You can add the time series plot in your dashboard.



Figure 7. One-point time series plot.

2.1.2 Currents

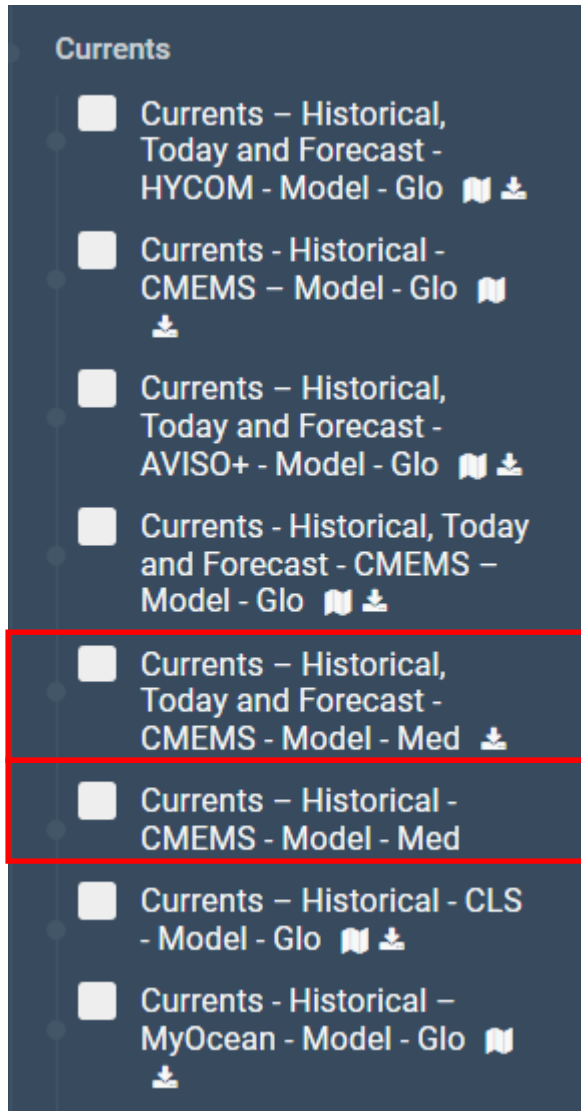


Figure 8. Given product options for Currents.

Currents – Historical, Today and Forecast – CMEMS – Model – Med

Output from a coupled hydrodynamic-wave model implemented over the Mediterranean Sea, with 4 km horizontal grid resolution. Data from January 2017 and 10 days forecast, including daily, hourly and monthly datasets. The datasets provided are zonal and meridional currents

and the vector field generated from the combination of the zonal and meridional currents, salinity, sea surface height and surface and bottom temperature.

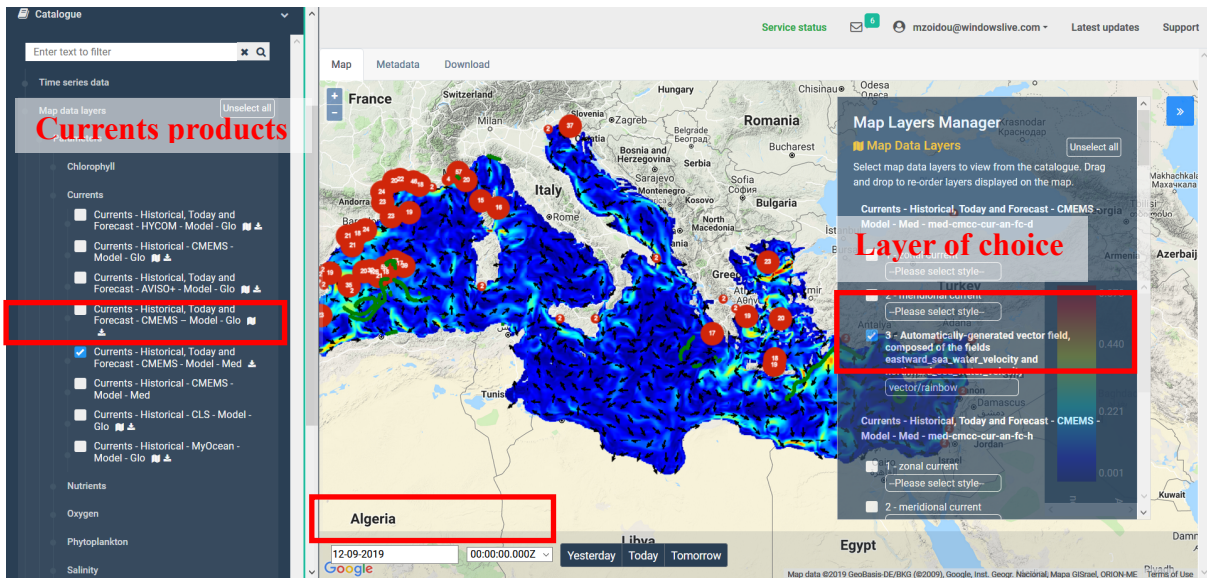


Figure 9. Spatial distribution of Current speed and generated vector field, using the daily dataset.

2.1.3 Nutrients

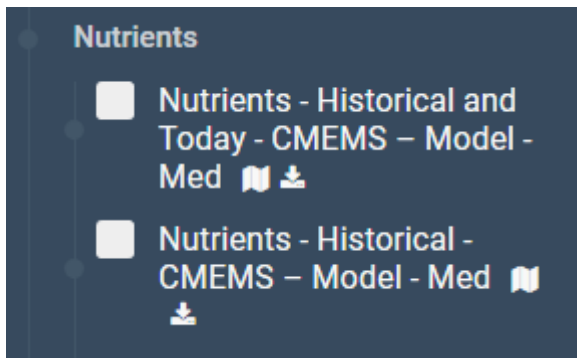


Figure 10. Given product options for Nutrients.

Nutrients – Historical and Today – CMEMS – Model – Med

This product is the same as the one described in chlorophyll section (Chlorophyll – Historical and Today - CMEMS – Model – Med).

Nutrients – Historical – CMEMS – Model - Med

Historical data (from January 1999 until December 2017) derived from a biogeochemical model with a 7 km resolution. This database provides monthly means of dissolved oxygen concentrations, net primary production, ocean pCO₂ and ocean pH, nutrients (phosphate and nitrate), chlorophyll, and, phytoplankton biomass.

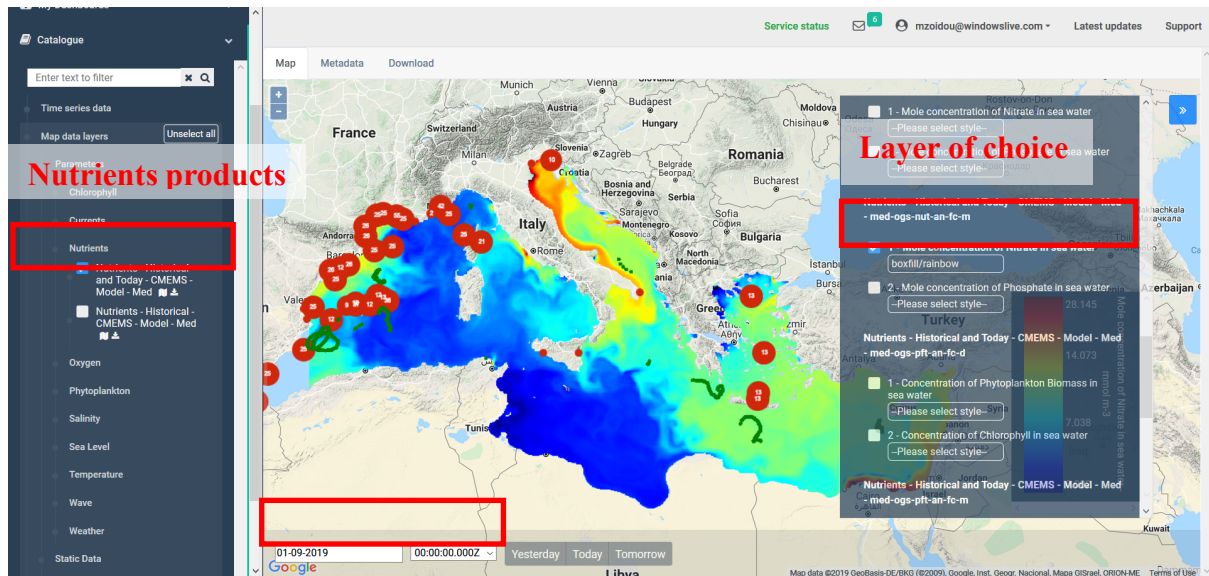


Figure 11. Spatial distribution of Nitrates using the daily dataset.

2.1.4 Oxygen

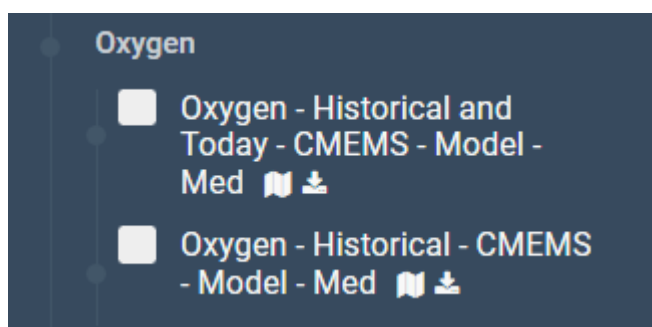


Figure 12. Given product options for Oxygen.

Both products for the parameter Oxygen (Oxygen – Historical and Today – CMEMS – Model – Med and Oxygen – Historical – CMEMS – Model – Med) are the same described in the Nutrients section.

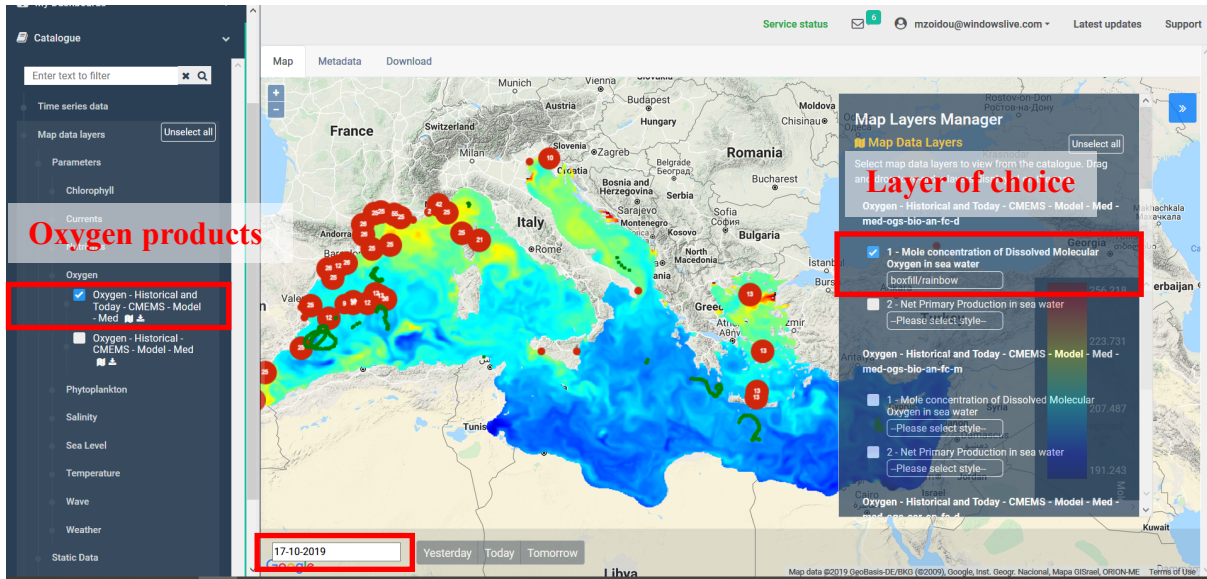


Figure 13. Spatial distribution of Oxygen, using the daily dataset.

2.1.5 Phytoplankton

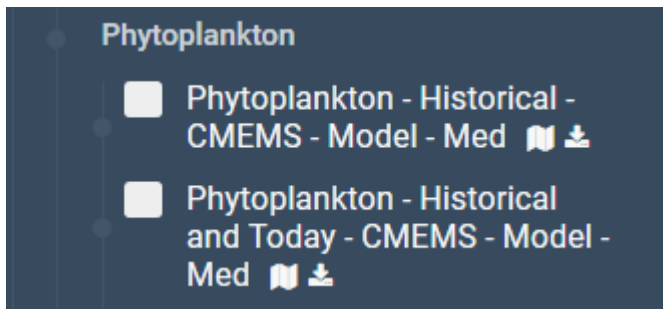


Figure 14. Given product options for Phytoplankton.

Both products for the parameter Phytoplankton (Phytoplankton – Historical and Today – CMEMS – Model – Med and Phytoplankton – Historical – CMEMS – Model – Med) are the same described in the Nutrients section.

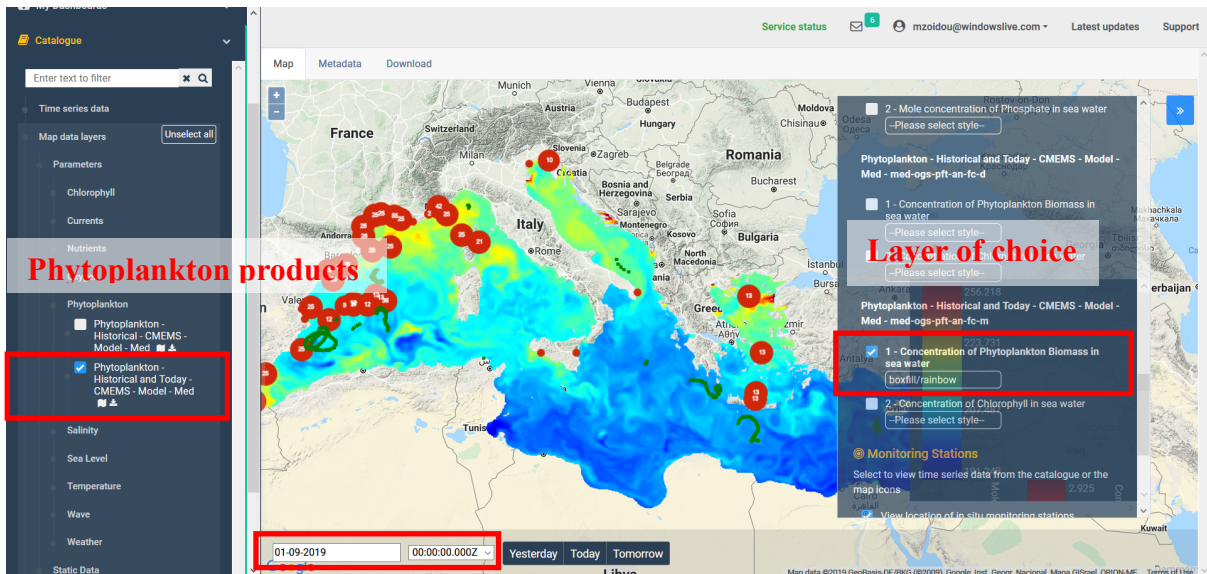


Figure 15. Spatial distribution of Phytoplankton, using the monthly database.

2.1.6 Salinity

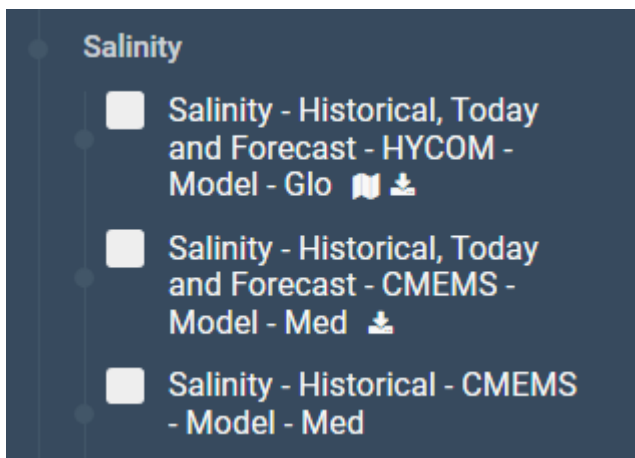


Figure 16. Given product options for Salinity.

Salinity – Historical, Today and Forecast – CMEMS – Model - Med

Salinity is given by the same database as the one described in the section Currents (Currents – Historical, Today and Forecast – CMEMS – Model – Med).

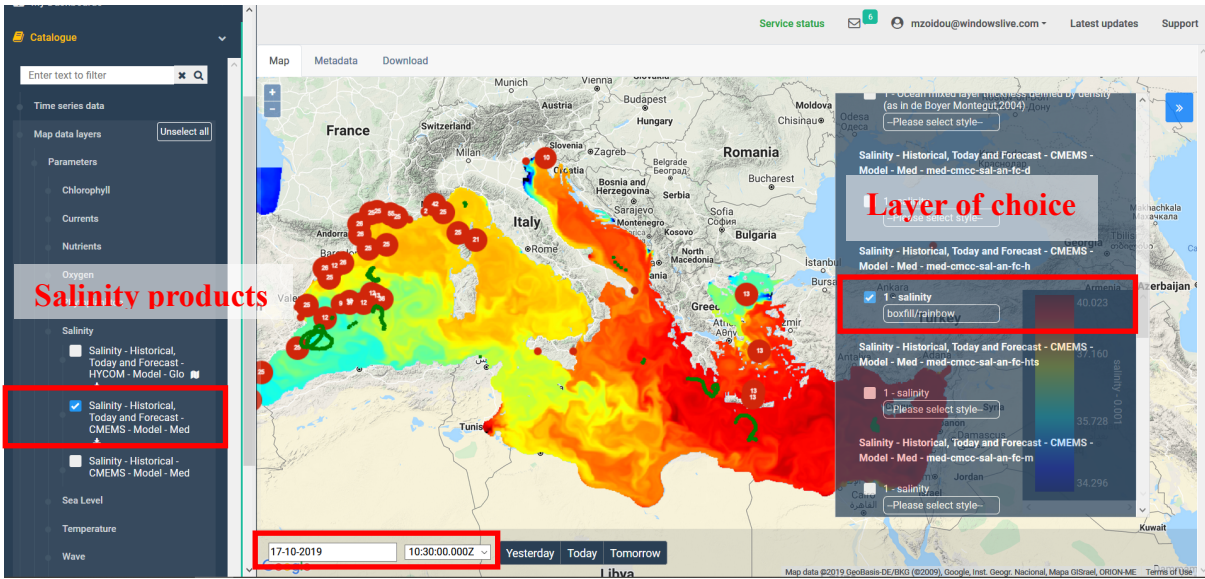


Figure 17. Spatial distribution of Salinity, using the hourly dataset.

2.1.7 Sea Level

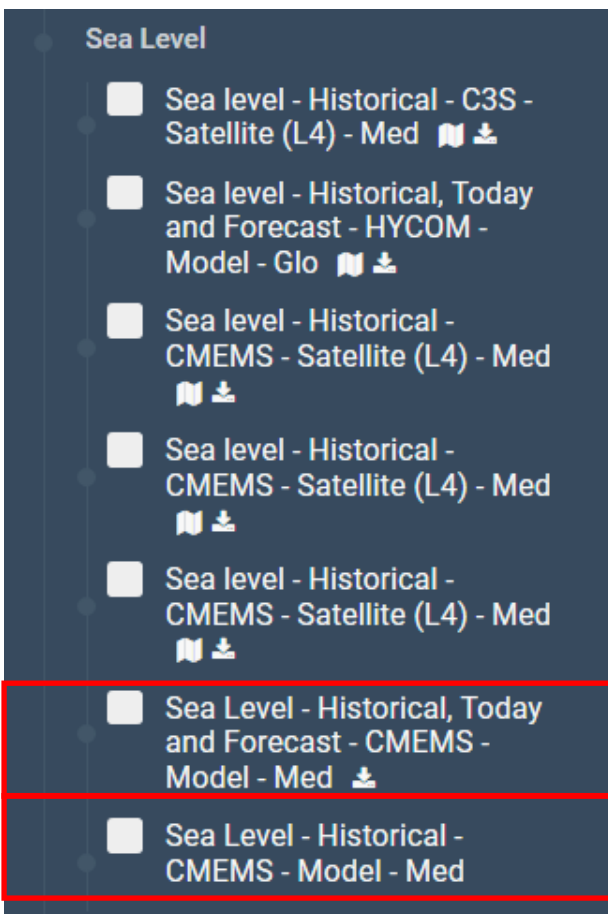


Figure 18. Given product options for Sea Level.

Sea Level – Historical - CMEMS – Model - Med

This is the same product as described in the Currents section (Currents – Historical, Today and Forecast - CMEMS – Model – Med)

Sea Level – Historical - CMEMS – Model - Med

This is the same product as described in the Currents section (Currents – Historical - CMEMS – Model – Med),

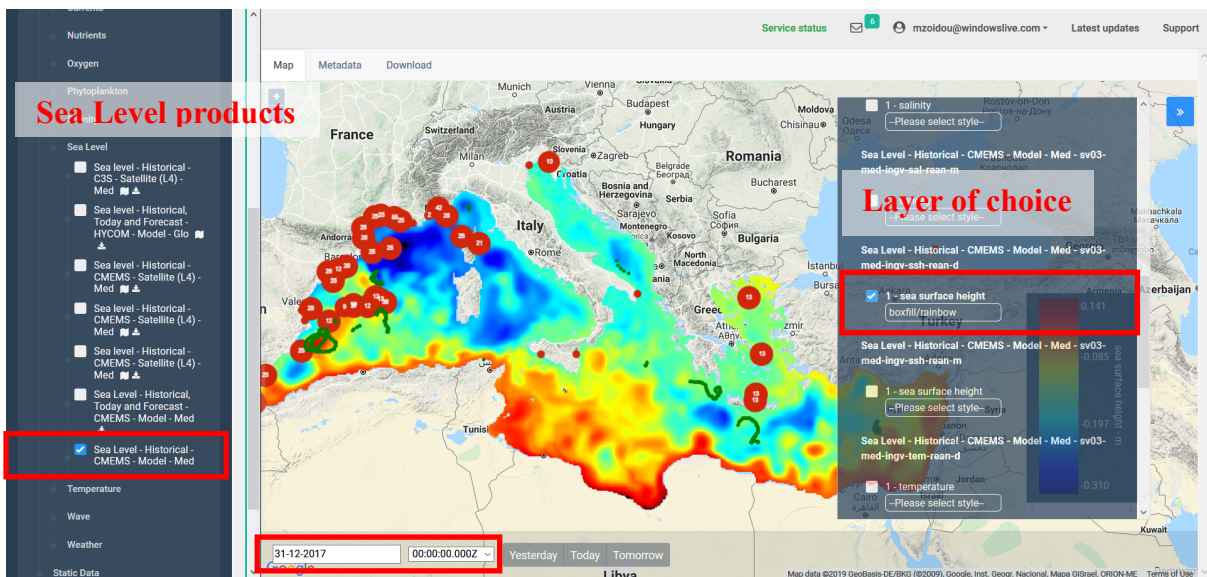


Figure 19. Distribution of Sea surface height, using the daily dataset.

2.1.8 Temperature

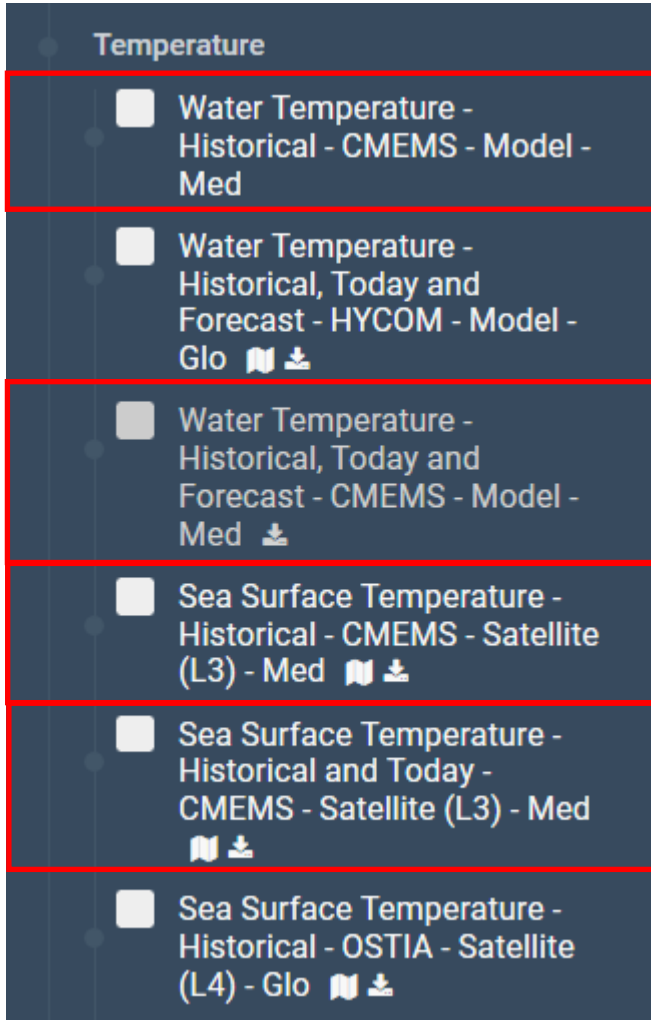


Figure 20. Given product options for Temperature.

Water Temperature – Historical – CMEMS – Model – Med

This is the same product as described in the Currents section (Currents – Historical - CMEMS – Model – Med) ([Figure 21](#)).

Water Temperature – Historical, Today and Forecast – CMEMS – Model – Med

This is the same product as described in the Currents section (Currents – Historical, Today and Forecast - CMEMS – Model – Med).

Sea Surface Temperature – Historical – CMEMS – Satellite (L3) – Med

Interpolated data with 4.5 km spatial resolution, up to 2018.

Sea Surface Temperature – Historical and Today – CMEMS – Satellite (L3) - Med

Supercollated (merged-multisensor), SST data remapped over the Mediterranean Sea at high (6.9 km) and Ultra High (1.11 km) spatial resolution. Data from January 2016 until the present day.

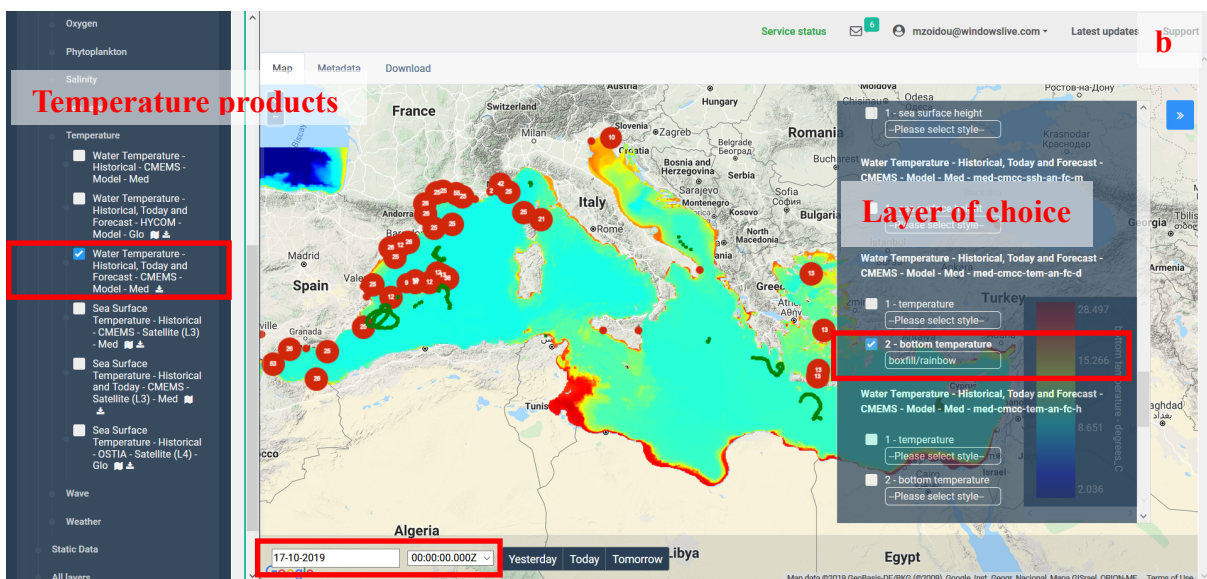
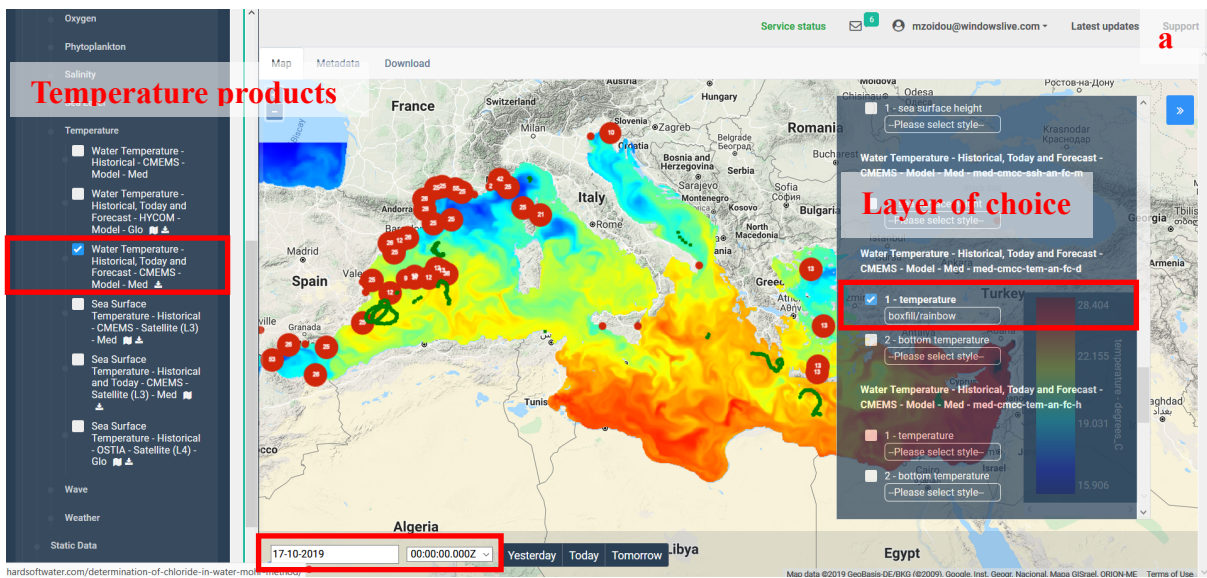


Figure 21. Spatial resolution of a) Sea Surface and b) Bottom Temperature.

2.1.9 Waves

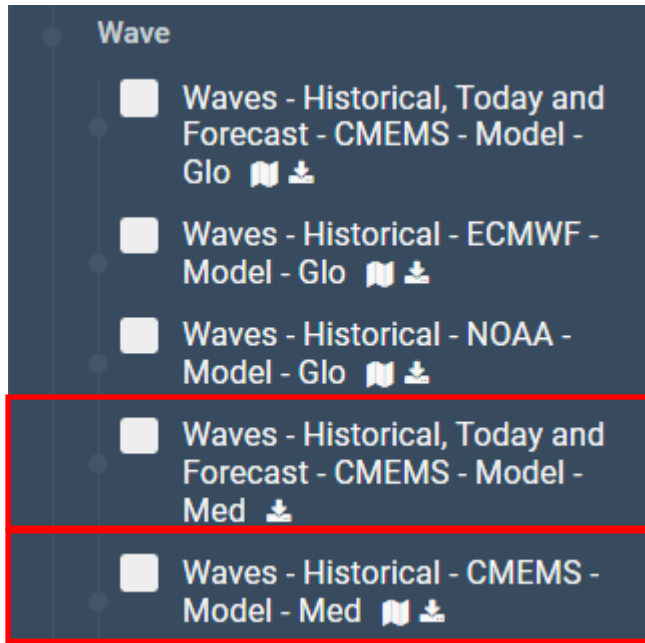


Figure 22. Given product options for Waves.

Waves – Historical, Today and Forecast – CMEMS – Model – Med

Product of a wave model with ~4.6 km horizontal resolution, provides a Mediterranean hourly wave analysis and 10 days Mediterranean wave forecasts updated daily (since January 2017). The model provides significant wave height, wave period, mean wave direction etc.

Waves – Historical – CMEMS – Model – Med

A 12-year wave hindcast (February 2006 - December 2017), produced from a wave model composed by hourly wave parameters at ~4.6 km horizontal resolution.

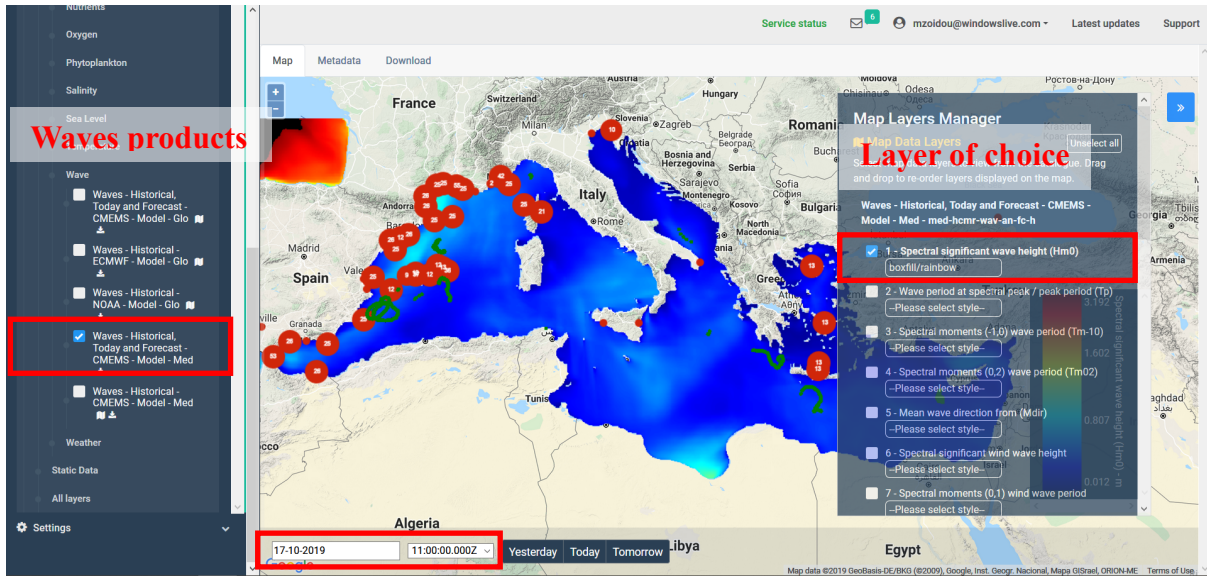


Figure 23. Spatial distribution of Significant wave height, using the hourly dataset.

2.1.10 Weather

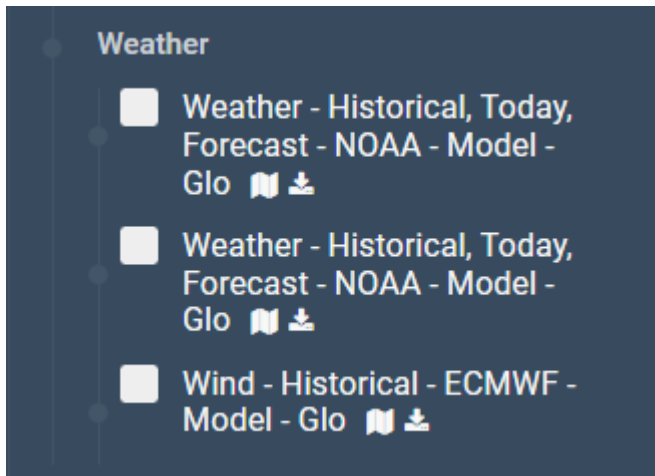


Figure 24. Given product options for Weather.

Weather – Historical, Today and Forecast – NOAA – Model - Glo

Product of the Global Forecast System (GFS) with a base horizontal resolution of 27 km. Data starts from August 13th and provides 5 days forecast. The database provides northward component of wind at 10 m, eastward component of wind at 10 m, wind speed, vector field wind speed, pressure at ground or water surface and visibility.

Weather – Historical, Today and Forecast – NOAA – Model - Glo

Product of the Global Forecast System (GFS) with a base horizontal resolution of 13 km. Data starts from August 13th and provides 5 days forecast. The database provides temperature at 2 m, northward component of wind at 10 m, eastward component of wind at 10 m, wind speed, vector field wind speed, pressure at ground or water surface, ice cover and total cloud cover.

Wind – Historical – ECMWF – Model - Glo

Product from ERA-Interim, from January 1990 – December 2016. The spatial resolution of the data set is approximately 80 km. The database provides U wind component at 10 m, V wind component of wind at 10 m and wind speed.

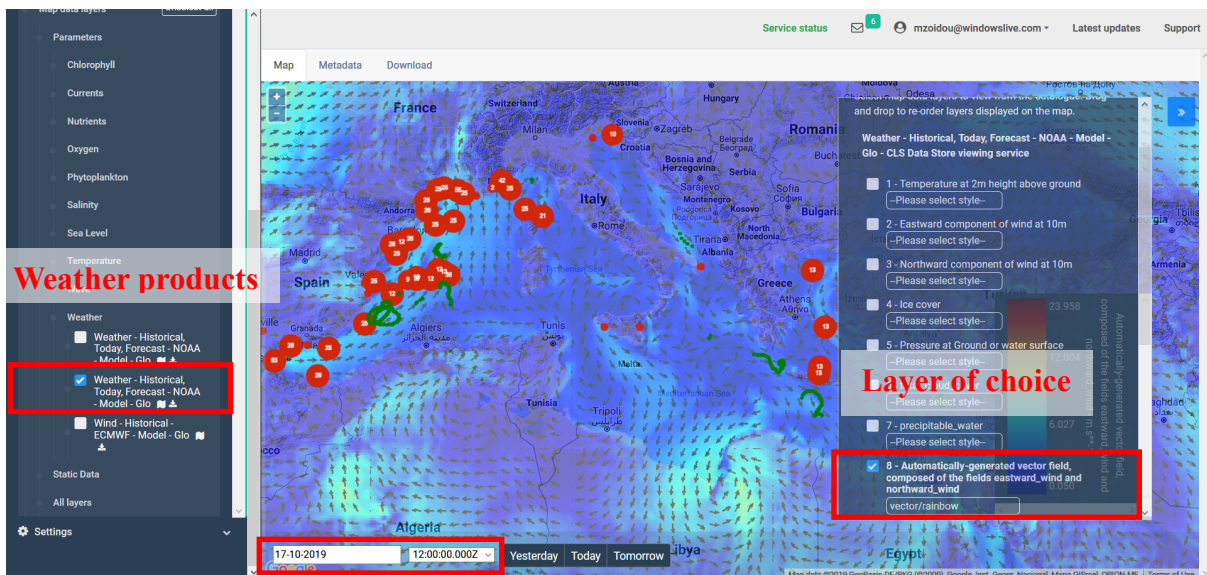


Figure 25. Spatial distribution of wind speed.

2.2 Static Data

2.2.1 Bathymetry

Land and ocean topography, with 1.9 km spatial resolution, derived from ETOPO1 model that integrates global and regional data sets.

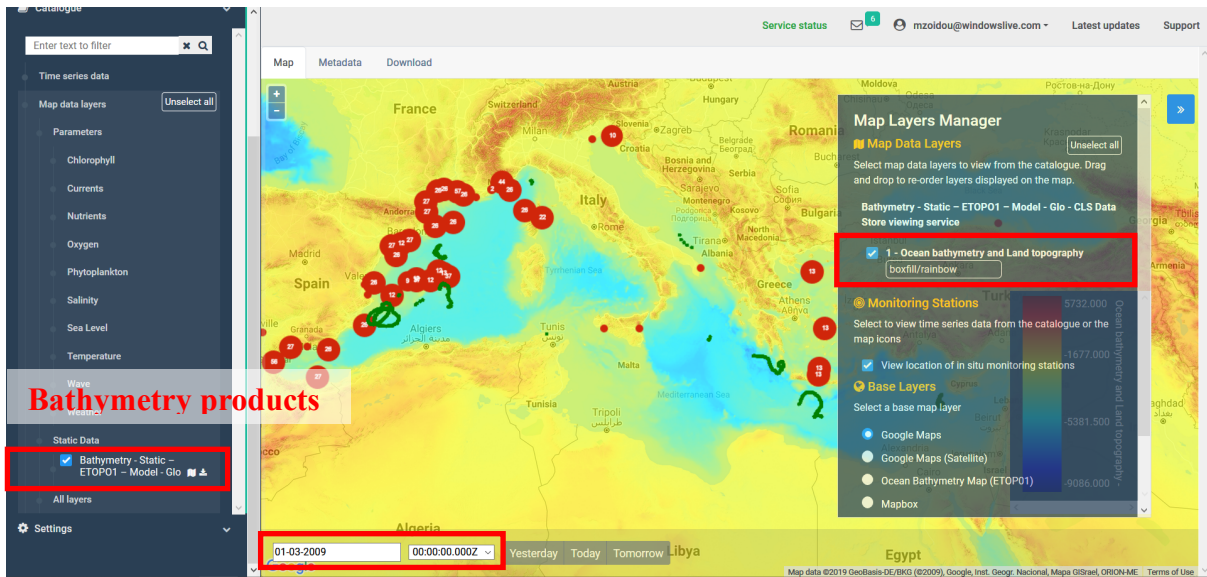


Figure 26. Ocean bathymetry and land topography.

3. Data download

The Marinomica Platform allows the user to download his data of choice.

1. Choose the desired parameter and press the **Download** button on the top of the **Map Viewer** (Figure 27). The list of the datasets appears. The first or second part of the name stands for the region (Mediterranean Sea or Global), the third for the institution producing the data, the fourth for the specific variable (currents, sea surface height, temperature etc.), the fifth for the type of the simulation (reanalysis, hindcast and forecast) and the sixth for the time step of the dataset (hourly, daily, monthly etc.) (Figure 28). In case of reanalysis and hindcast datasets the first part stands for the version of the dataset.

{version}-{region}-{institution}-{parameter}-{type}-{timestep}

Reanalysis

sv03-med-ingv-cur-rean-d

Hindcast

sv03-med-hcmr-wav-hi-h

Analysis-Forecast

med-cmcc-cur-an-fc-d

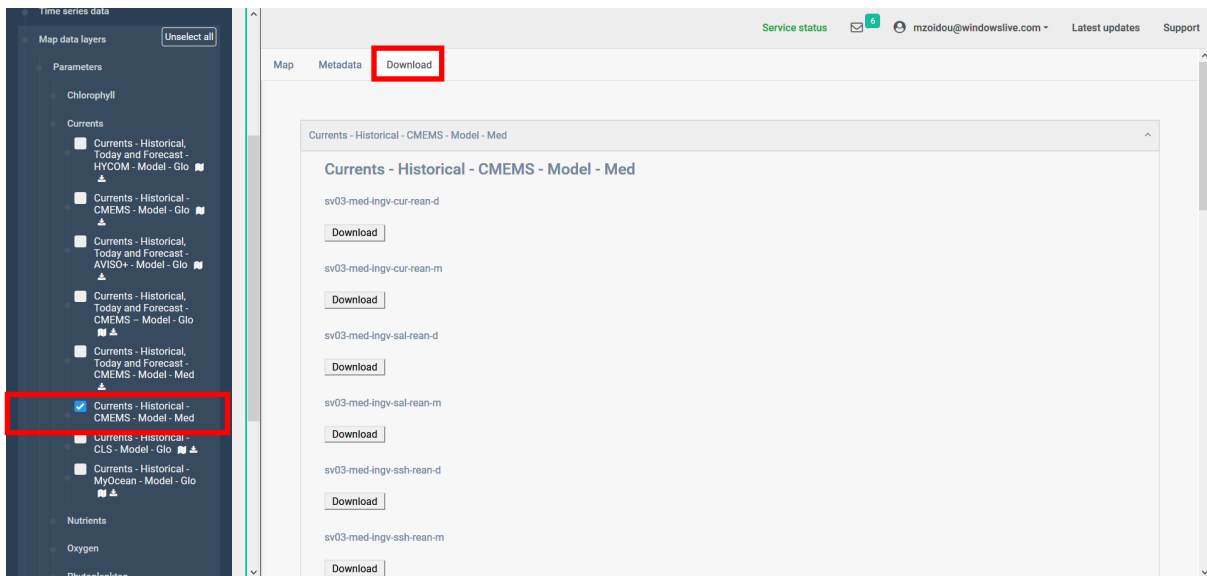


Figure 27. Download tab.

sv03-med-ingv-cur-rean-d	med: Mediterranean Sea, cur: Currents, d: daily
Download	
sv03-med-ingv-cur-rean-m	m: monthly
Download	
sv03-med-ingv-sal-rean-d	sal: Salinity
Download	
sv03-med-ingv-sal-rean-m	rean: Reanalysis
Download	
sv03-med-ingv-ssh-rean-d	ssh: Sea surface height
Download	
sv03-med-ingv-ssh-rean-m	
Download	
sv03-med-ingv-tem-rean-d	
Download	
sv03-med-ingv-tem-rean-m	tem: Temperature
Download	

Figure 28. Explanation of the different parts of the datasets name.

2. Click on the “Download” tab of the first dataset (sv03-med-ingv-cur-rean-d), which consists of the historical data of the daily values of the x- and y- component of currents. Options for the sub setting appear ([Figure 29](#)). You can choose the time range, depth (if available), the region, and the variables. The region can be chosen either by typing the coordinates, or by forming a rectangular with the mouse (BBox).
3. Click on the “Download” button. A netCDF file will be downloaded. netCDF files can be opened with a range of free tools and programming languages such as NetCDF4Excel.

Period


01-01-2015 12:00:00 to 31-12-2017 00:00:00 **Time range**

Depth

1.4721 to 4.58748 **Depth**

Region

Minimum longitude: 24.1127935051918 Maximum longitude: 26.0903325676918
 Minimum latitude: 40.201254112799376 Maximum latitude: 41.2337579276132 **Coordinates of the region**



Variables

Download	Name	Description	Standard Name	Long Name	Units
<input checked="" type="checkbox"/>	vomecrtx	meridional current	northward_sea_water_velocity	meridional current	m/s
<input checked="" type="checkbox"/>	vozocrtx	zonal current	eastward_sea_water_velocity	zonal current	m/s

Download

Figure 29. Options for the sub setting.

4. Dashboard

As mentioned before, map layers and time series plots can be added to your personal Dashboard. Two Dashboards can be combined into a new one, the dashboard panels can be upsized or reduced and the Dashboard can be shared/embed into websites as iframes.

4.1 Edit/Share My Dashboards

The following Dashboard named North Aegean, consists of two map panels, one named “Chlorophyll” and the other named “Sea Surface Temperature”. By clicking the edit icon (first icon) next to the Dashboard’ name, the Dashboard can be renamed. The second icon (embed icon) generates an html code which can be used to embed the maps into a website of social media. The third icon (delete icon) deletes the Dashboard (Figure 30).

The same three icons exist for every different map panel or time series panel. By clicking on the Edit button of the panel, except of the name, the width of the panel can be altered. Every panel in the Dashboard can be downloaded as an image (PNG file) by the “Download Map” button on the top of the panel.

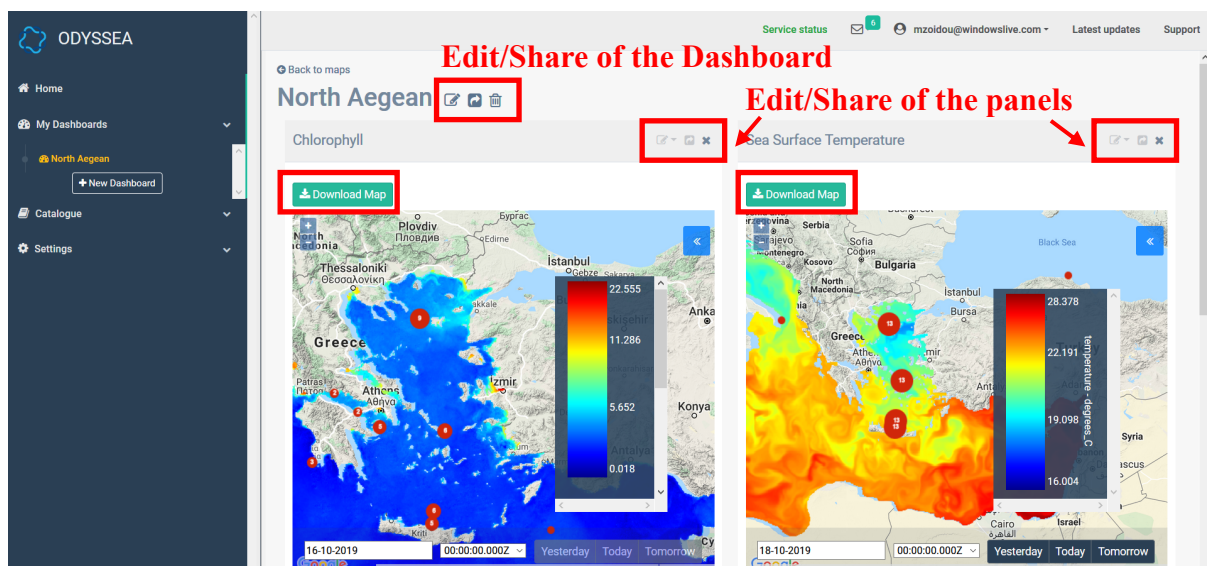


Figure 30. Edit/Share option for the Dashboards and panels.



ODYSSEA



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