



**Creating products and knowledge  
for the Mediterranean**



# Marinomica

Simon Keeble

Simon Keeble - Blue Lobster IT Limited

[simon@bluelobster.co.uk](mailto:simon@bluelobster.co.uk)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727277

# Defining Marinomics



## **marinomics**

/mə'ri:n'nɒmɪks/

1. The science of decision making in the marine environment.
2. The branch of knowledge concerned with the production, consumption, and transfer of wealth in the marine environment.

We see this as an opportunity to create and manage a Wikipedia definition and to take this definition forward and, hopefully, spread the definition.

By defining a new field appropriately, this will give us a superb marketing opportunity to talk about a the field, what it includes (data science, economics, intelligent product design etc) and how the platform fills this space.

We have therefore branded the application as ***Marinomica***

# Marinomica

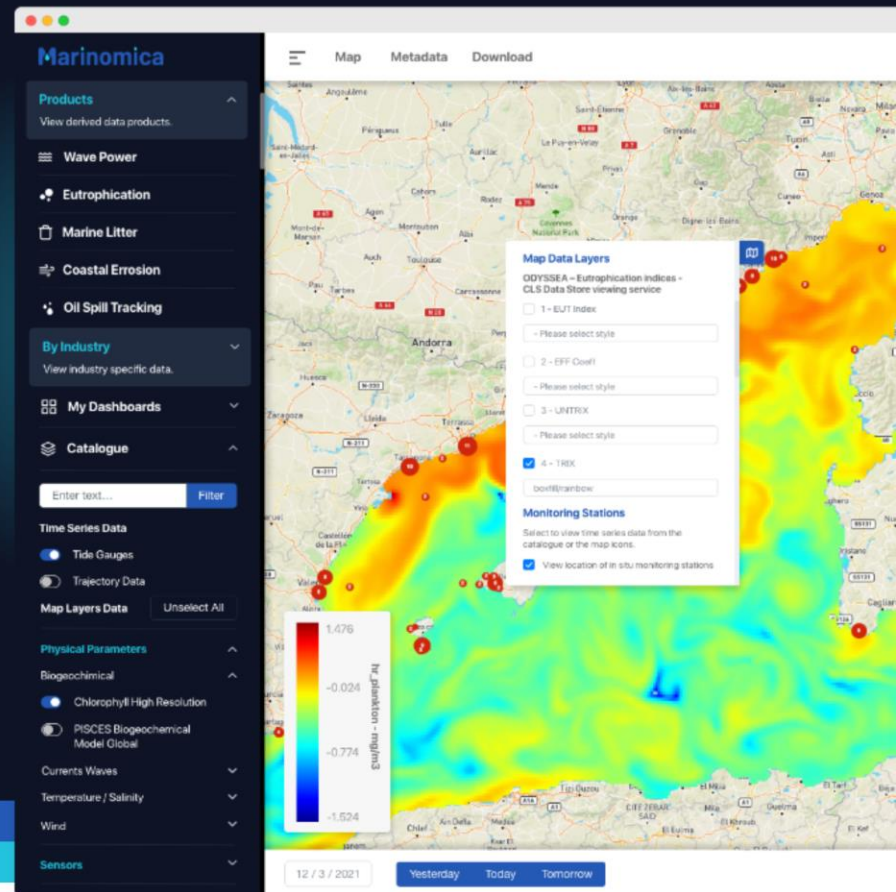
## ~~The Mediterranean's~~ ~~Europe's~~ Digital Twin

Forecasting and simulations to enable decision making and expand knowledge concerned with the production, consumption, and transfer of wealth in the marine environment.

# Creating products and knowledge for the coastal and offshore seas

Marinomica transforms knowledge into valuable information that can be used to increase revenues, attract investment and manage ecological challenges.

Get Started



## What is Marinomica?

The platform provides state of the art on-demand data services and forecasts to a wide range of users managing and mitigating challenges arising from changes in the water. Marinomica has brought data acquisition, usage of AI, modern modelling capabilities and visualisation to a next level.

For all interested parties in accessing knowledge concerned with the production, consumption, and transfer of wealth in the marine environment, the Marinomica Platform will provide a single portal by applying advanced



## Jellyfish Swarm Forecast

---

Marinomica services include early warnings of jellyfish blooms and potential stranding locations. Historical data, real-time and forecasting data are presented in maps for each pixel point of coastline, near- and offshore areas.



## Ocean Energy Potential

---

Wind and wave energy potential mapping and forecasts; forces exerted on piles and platforms; extreme events analysis; potential for H2 production from H2S.



## Maritime Safety

---

Vessel routes optimisation; dispersion of both accidental and non-accidental oil spill releases; dispersion of accidental litter release. Definition of areas in which ballast water exchange and/or open loop scrubber effluent discharge is allowed and defining "same location" as defined by the BWMC.



## Aquaculture & Algae

---

Analysis on probability of occurrence of storm events, extreme waves and surges; Recommendations on cage siting, configuration and anchoring. Analysis on probability of occurrence of eutrophication incidents; early-warnings on algal blooms and toxic blooms.



## Fisheries Exploitation

---

Marine safety and security of fishers; dynamic estimation of the probability of occurrence of certain species; stock assessments and management recommendations; probability of occurrence of invasive species.



## Plastic Pollution Monitoring

---

Potential to identify sources of rubbish and locate and map polluted stretches of the sea and coastline. Will provide permanent and real-time access to information and data from noval plastic monitoring sensors and (in the future) reported sightings and incidents.



## Leisure & Tourism

---

Historic and forecast shoreline erosion/deposition changes; Coastal Vulnerability Indices; metocean conditions monitoring and forecasting for safe leisure activities; potential jellyfish outbreak forecasts and tracking.

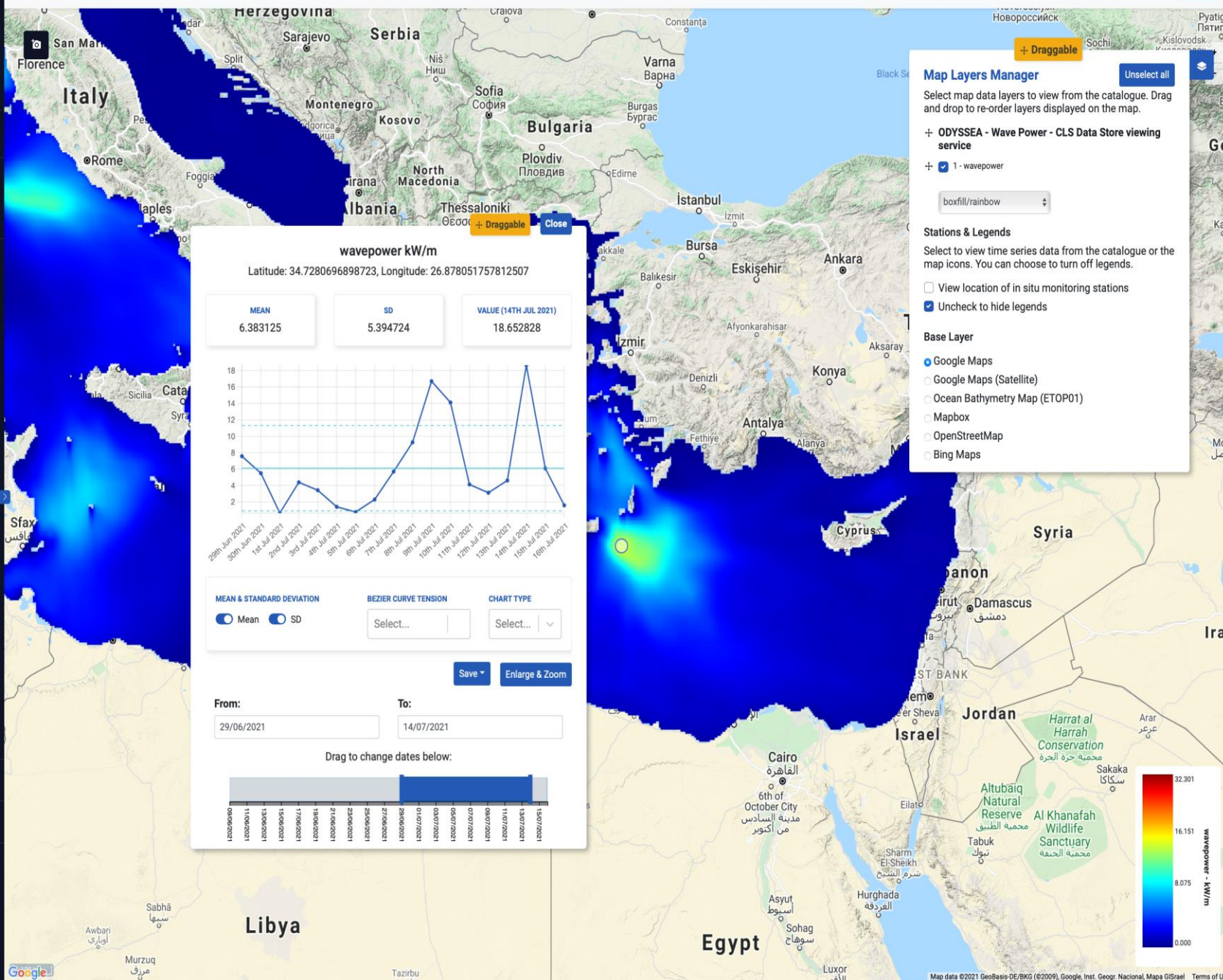


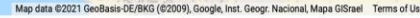
## Coastal Erosion

---

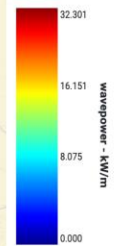
Identifies coastal erosion 'hotspots' in specific areas along the shoreline and obtain forecasts about potential coastal retreat and loss of land. Results are presented in maps. Historical data, real-time and forecasting data for each pixel point of coastline, near- and offshore areas.



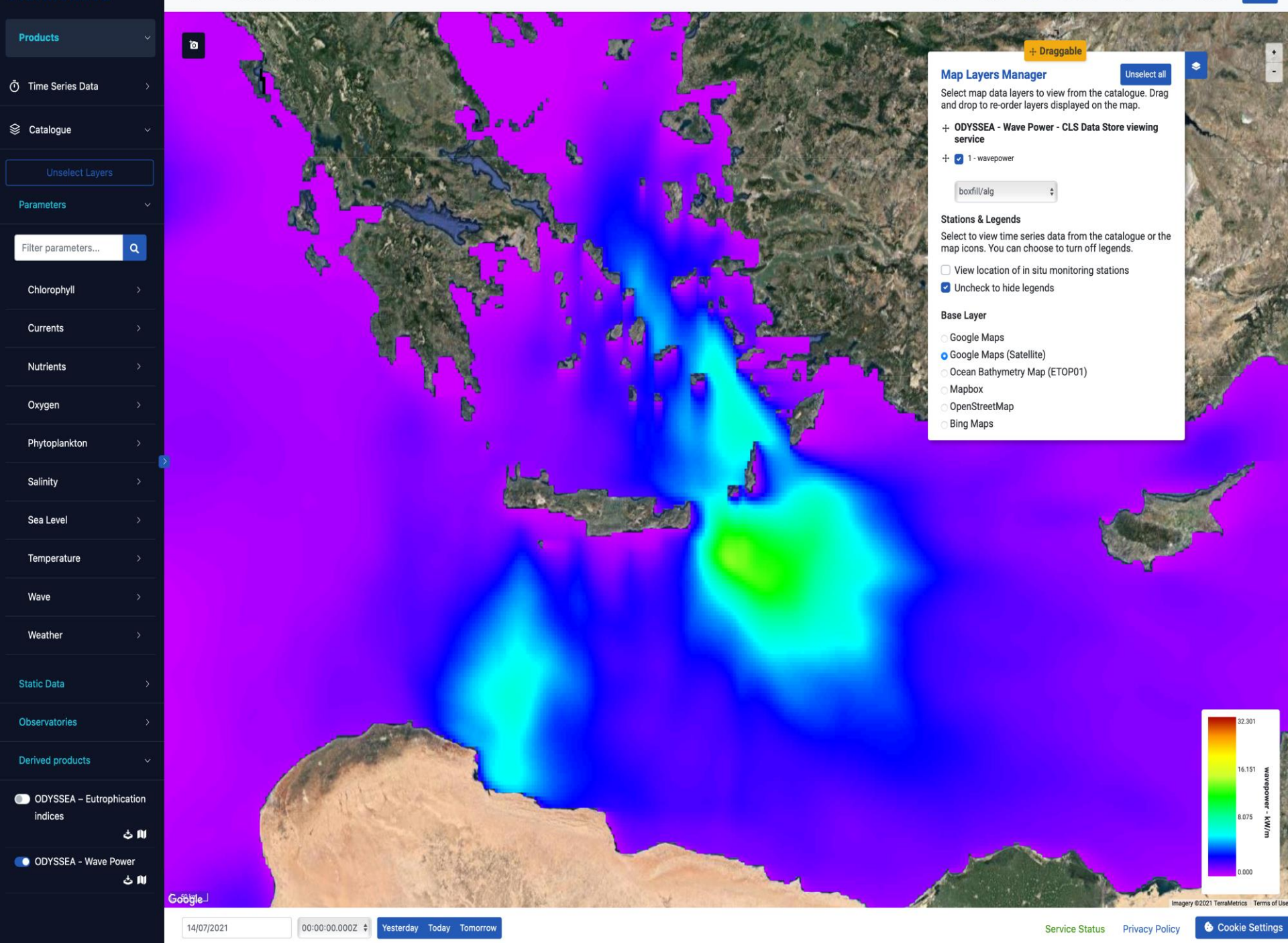




- Bing Maps









Products

Time Series Data

Catalogue

Unselect Layers

Parameters

Filter parameters...

Chlorophyll

Currents

Nutrients

Oxygen

Phytoplankton

Salinity

Sea Level

Temperature

Wave

Weather

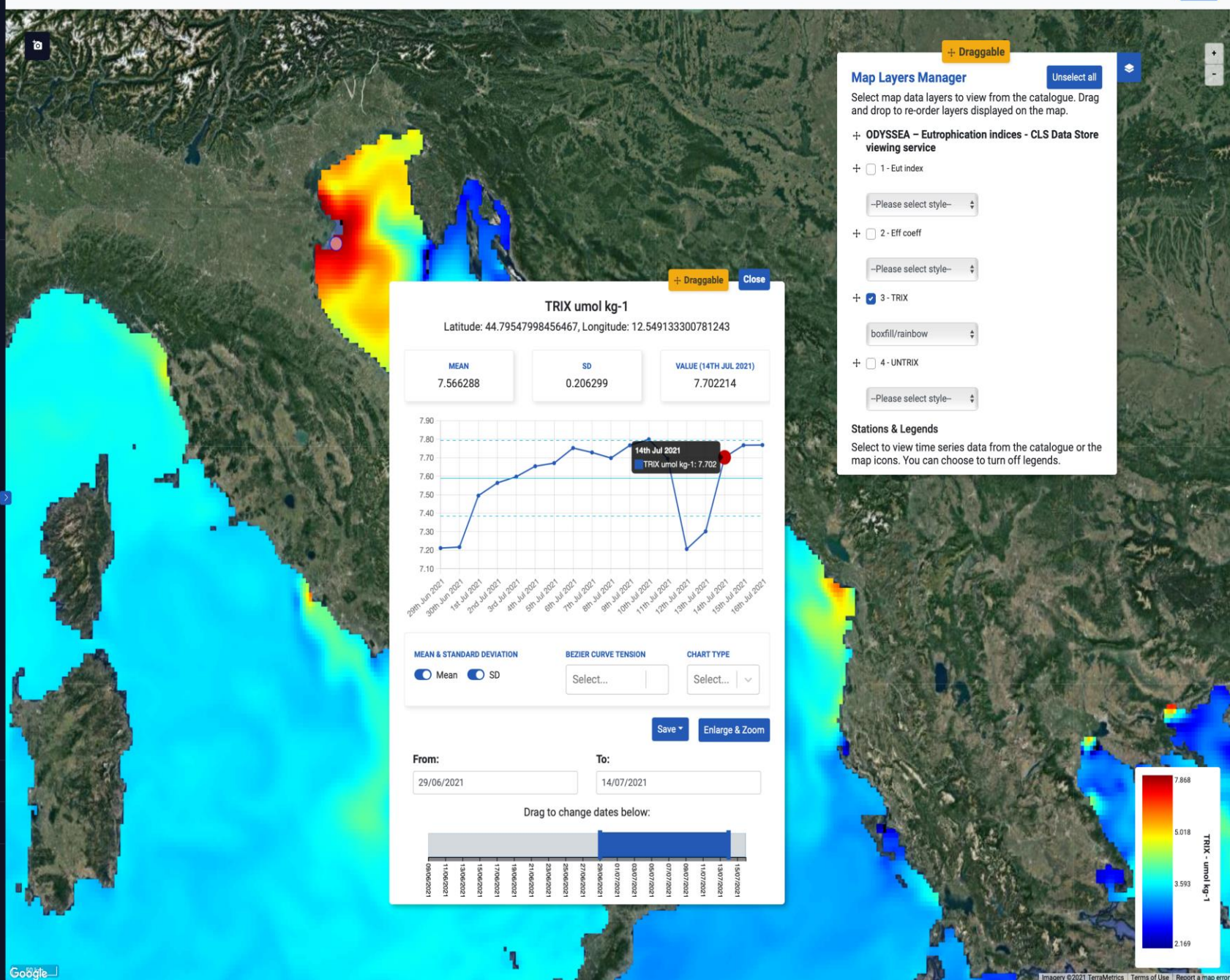
Static Data

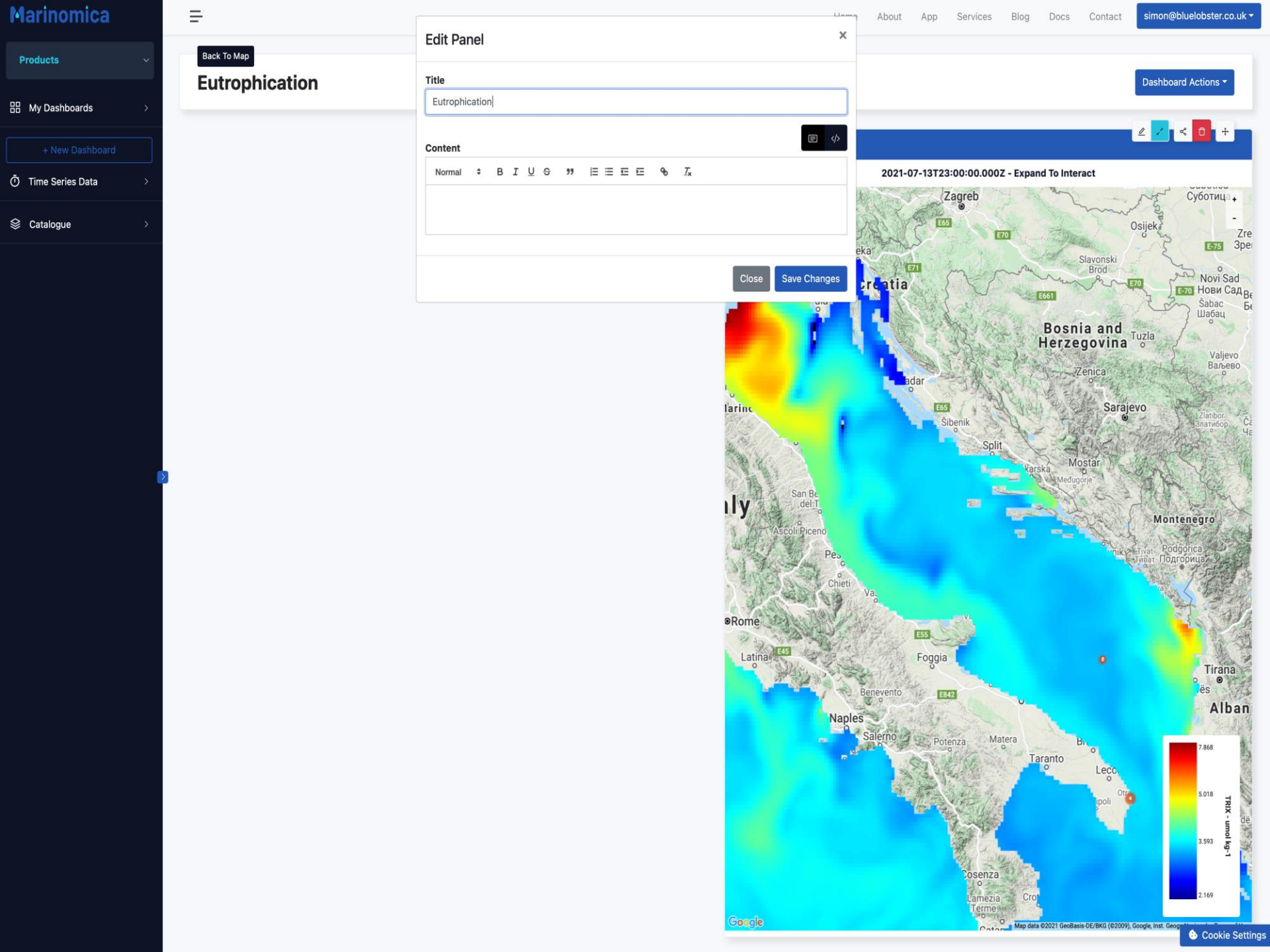
Observatories

Derived products

ODYSSEA – Eutrophication indices

ODYSSEA - Wave Power

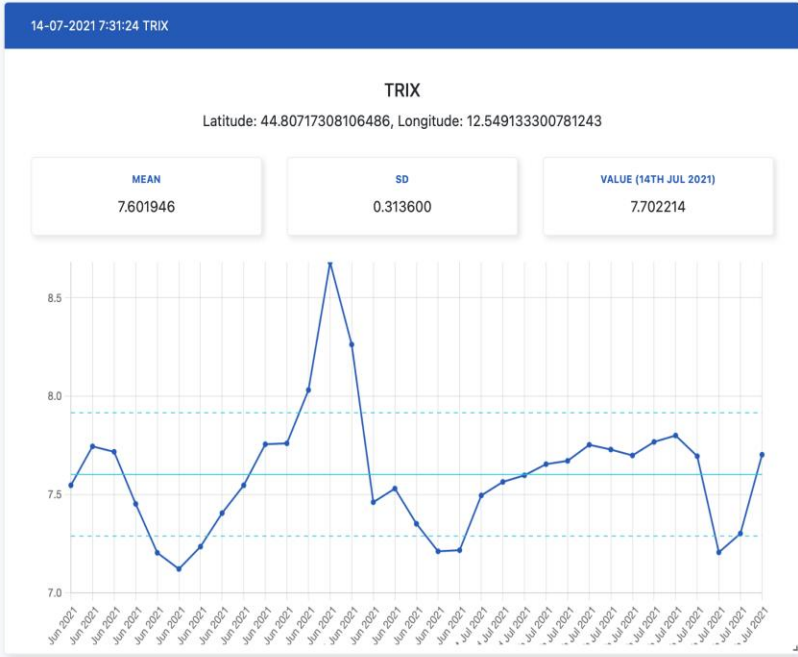












Eutrophication

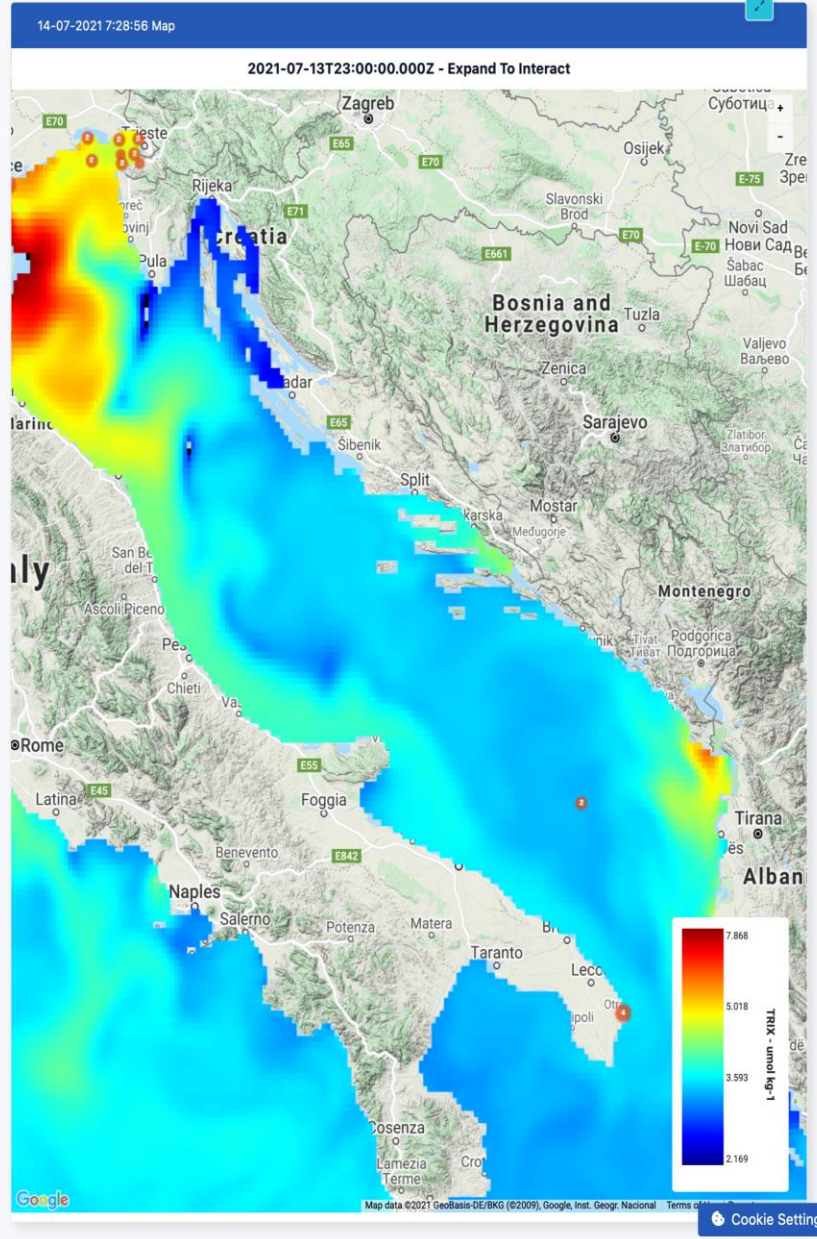
### The standard Lorem Ipsum passage, used since the 1500s

"Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum."

### Section 1.10.32 of "de Finibus Bonorum et Malorum", written by Cicero in 45 BC

"Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla pariatur?"

### 1914 translation by H. Rackham

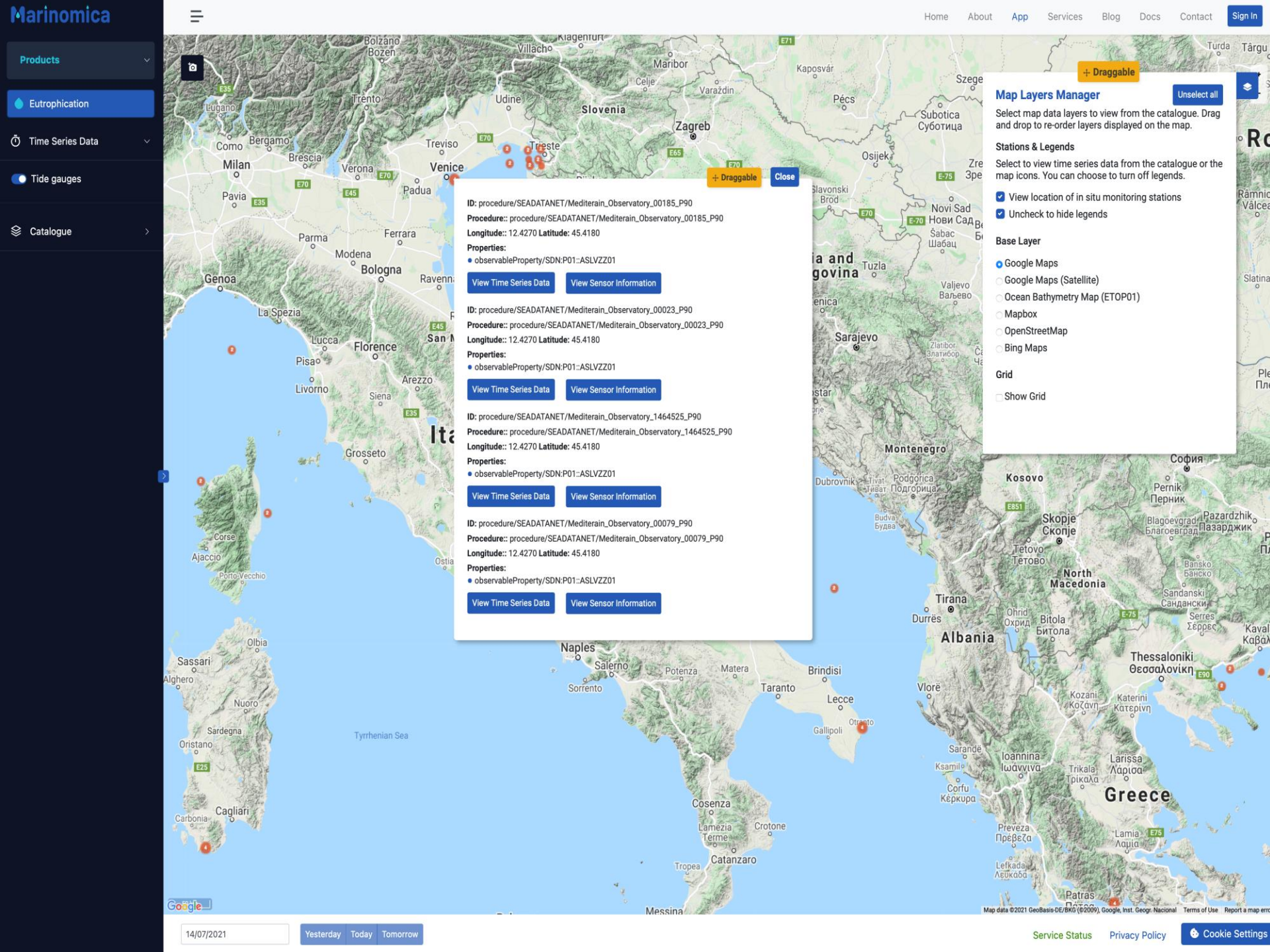




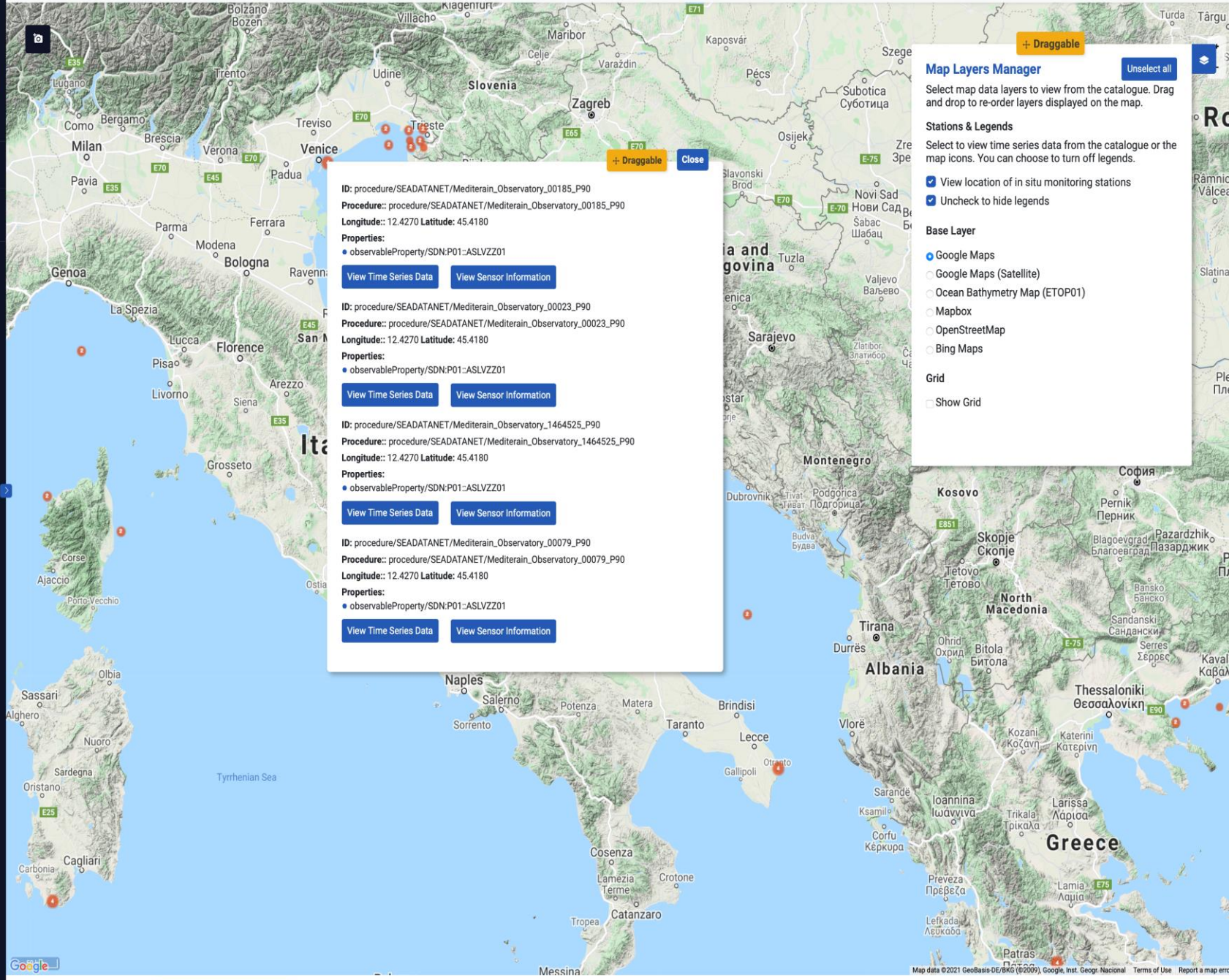


Yesterday Today Tomorrow





- Products
- Eutrophication
- Time Series Data
- Tide gauges
- Catalogue



ID: procedure/SEADATANET/Mediterrain\_Observatory\_00185\_P90  
Procedure:: procedure/SEADATANET/Mediterrain\_Observatory\_00185\_P90  
Longitude:: 12.4270 Latitude: 45.4180  
Properties:  
• observableProperty/SDN:P01::ASLVZZ01  
View Time Series Data View Sensor Information

ID: procedure/SEADATANET/Mediterrain\_Observatory\_00023\_P90  
Procedure:: procedure/SEADATANET/Mediterrain\_Observatory\_00023\_P90  
Longitude:: 12.4270 Latitude: 45.4180  
Properties:  
• observableProperty/SDN:P01::ASLVZZ01  
View Time Series Data View Sensor Information

ID: procedure/SEADATANET/Mediterrain\_Observatory\_1464525\_P90  
Procedure:: procedure/SEADATANET/Mediterrain\_Observatory\_1464525\_P90  
Longitude:: 12.4270 Latitude: 45.4180  
Properties:  
• observableProperty/SDN:P01::ASLVZZ01  
View Time Series Data View Sensor Information

ID: procedure/SEADATANET/Mediterrain\_Observatory\_00079\_P90  
Procedure:: procedure/SEADATANET/Mediterrain\_Observatory\_00079\_P90  
Longitude:: 12.4270 Latitude: 45.4180  
Properties:  
• observableProperty/SDN:P01::ASLVZZ01  
View Time Series Data View Sensor Information

Map Layers Manager

Select map data layers to view from the catalogue. Drag and drop to re-order layers displayed on the map.

Unselect all

Stations & Legends

Select to view time series data from the catalogue or the map icons. You can choose to turn off legends.

☒ View location of in situ monitoring stations

☒ Uncheck to hide legends

Base Layer

☒ Google Maps

☐ Google Maps (Satellite)

☐ Ocean Bathymetry Map (ETOP01)

☐ Mapbox

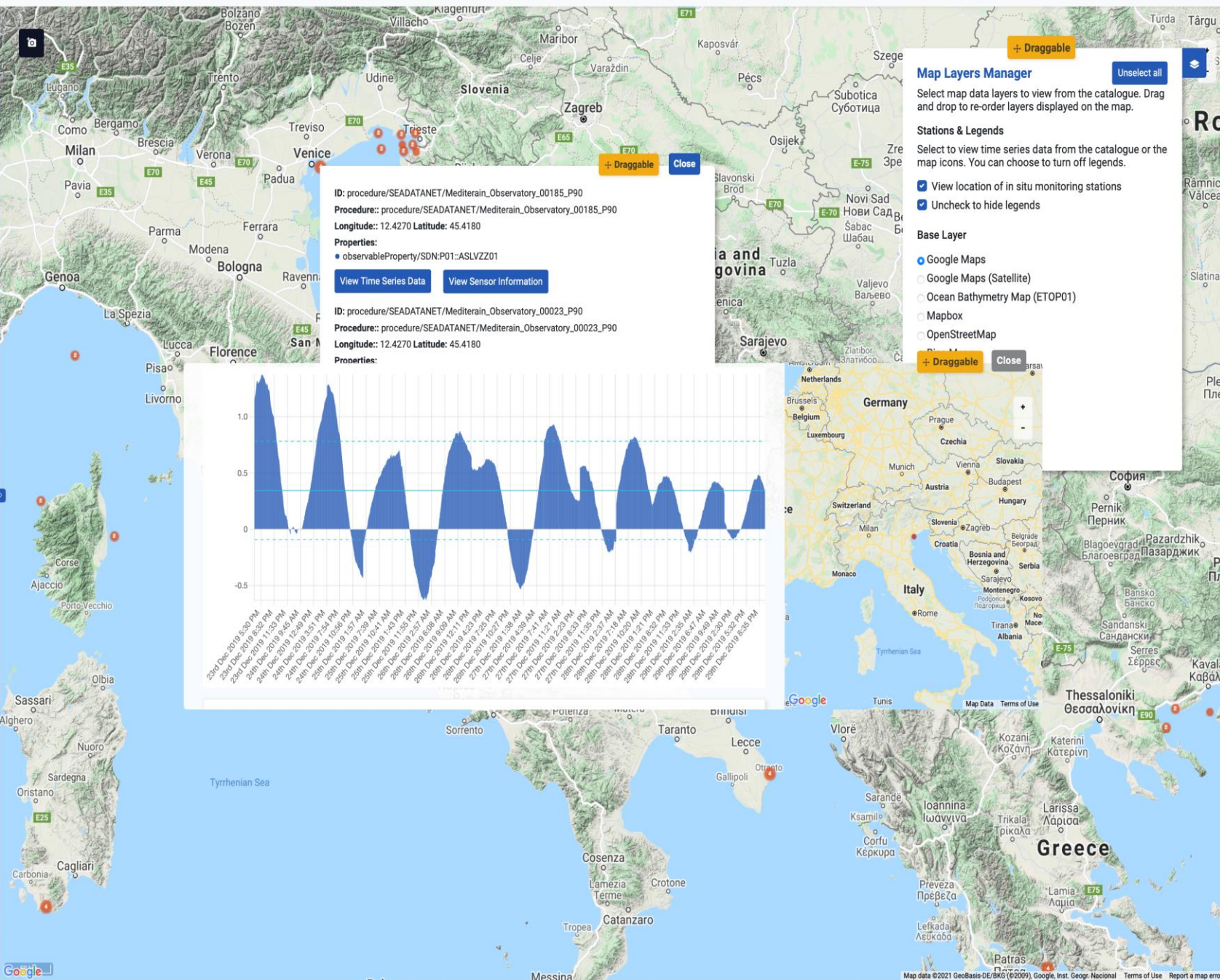
☐ OpenStreetMap

☐ Bing Maps

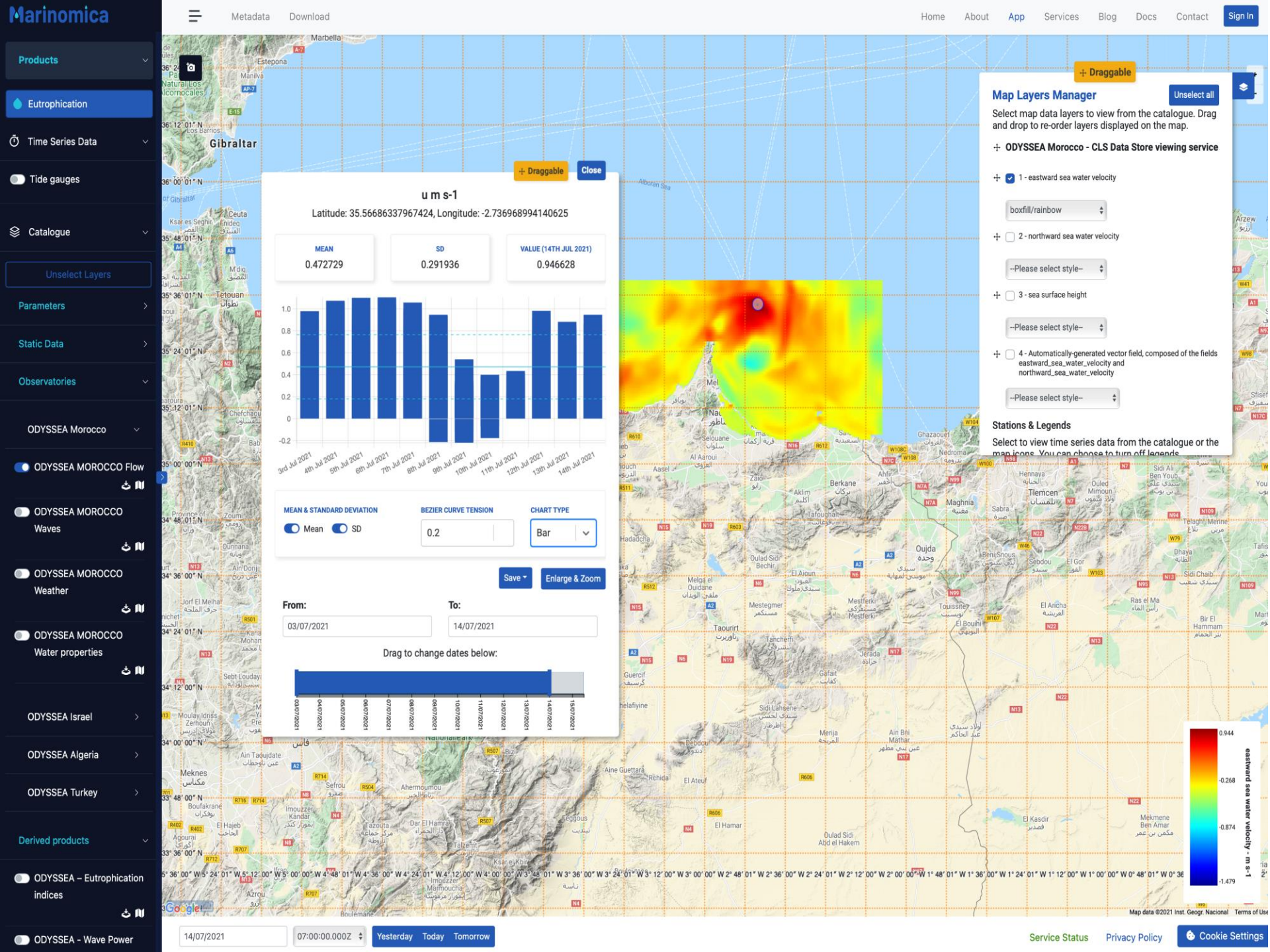
Grid

☐ Show Grid

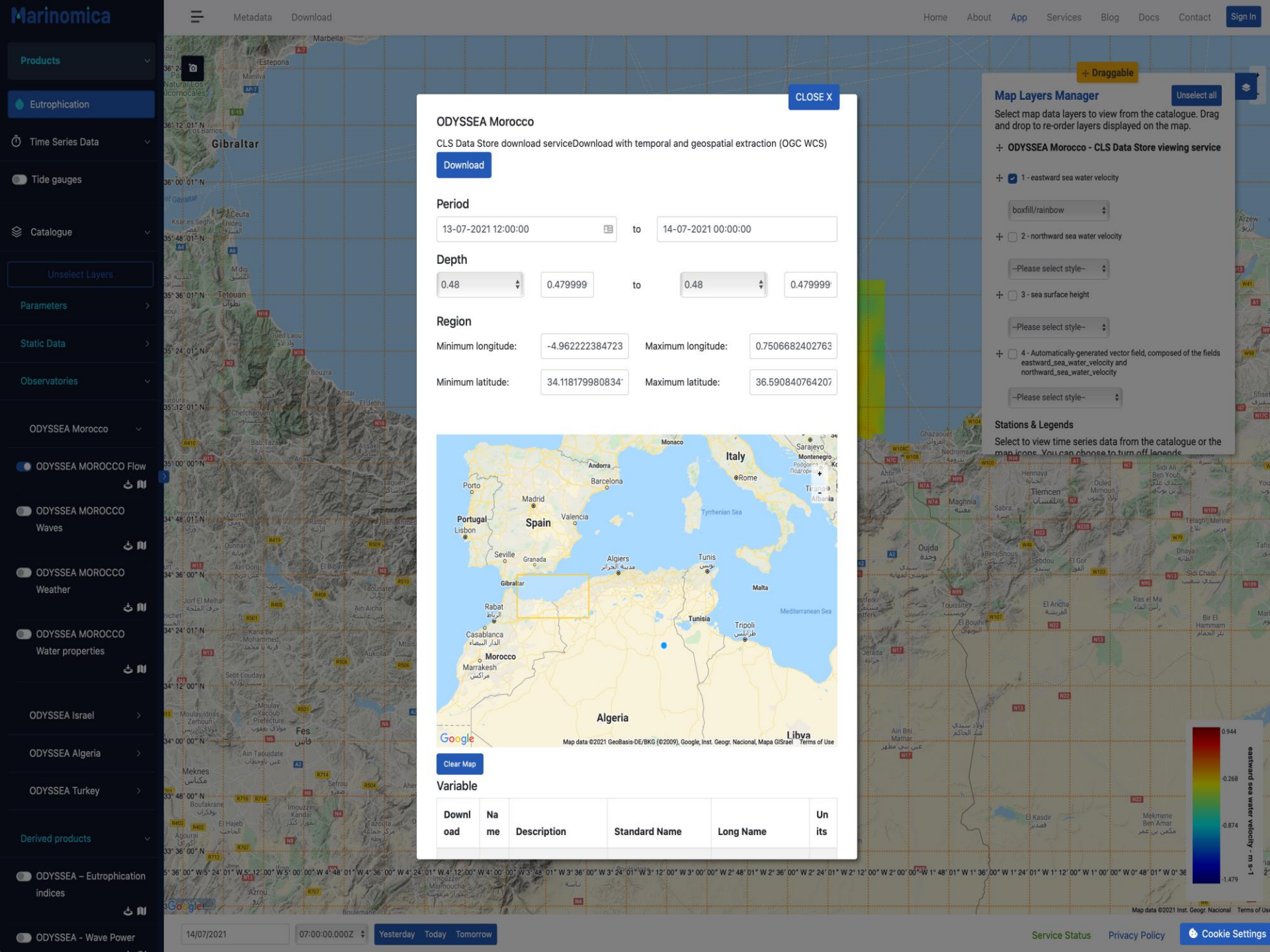














Products

Eutrophication

Time Series Data

Tide gauges

Catalogue

Unselect Layers

Parameters

Static Data

Observatories

ODYSSEA Morocco

ODYSSEA MOROCCO Flow

ODYSSEA MOROCCO Waves

ODYSSEA MOROCCO Weather

ODYSSEA MOROCCO Water properties

ODYSSEA Israel

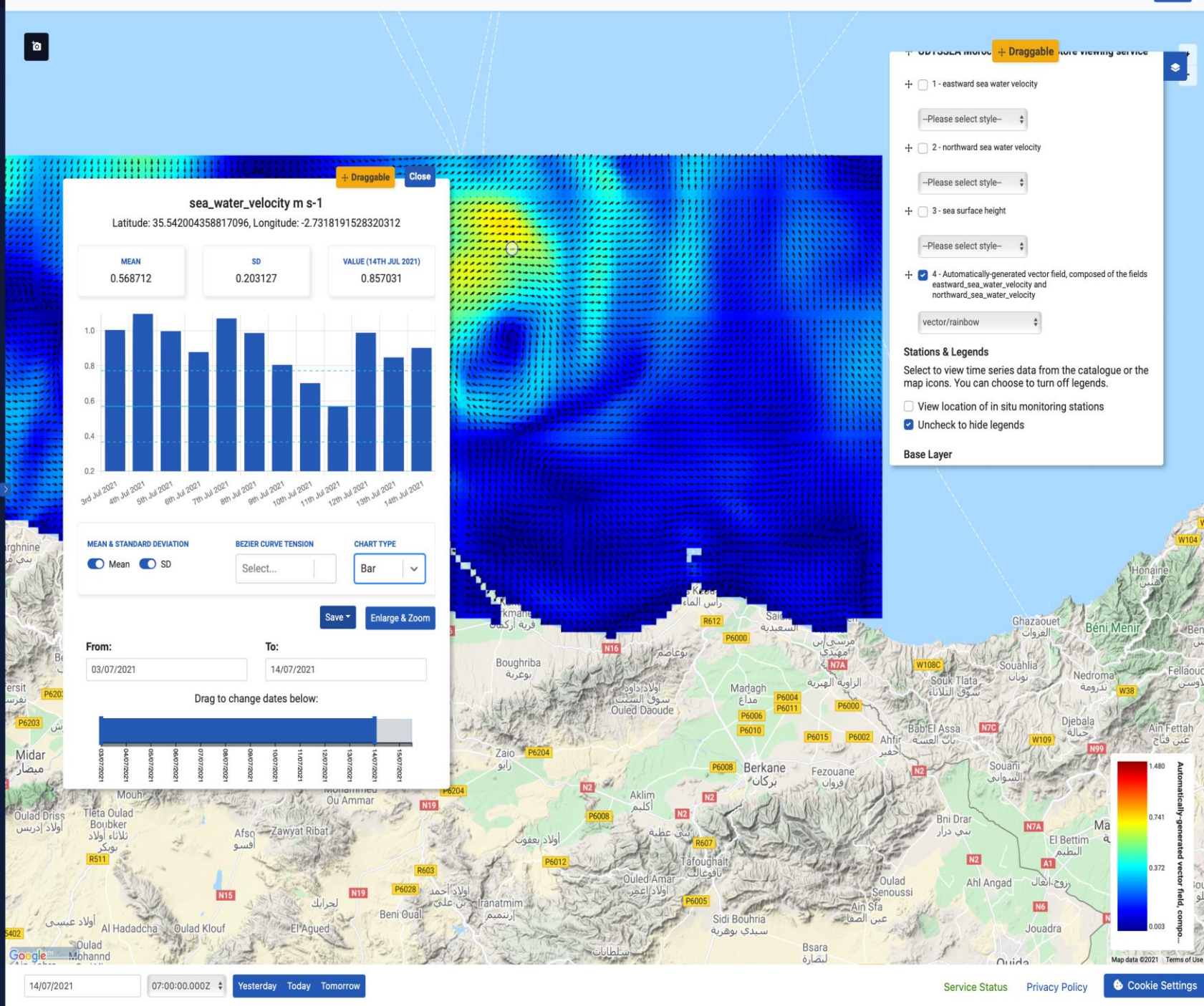
ODYSSEA Algeria

ODYSSEA Turkey

Derived products

ODYSSEA - Eutrophication indices

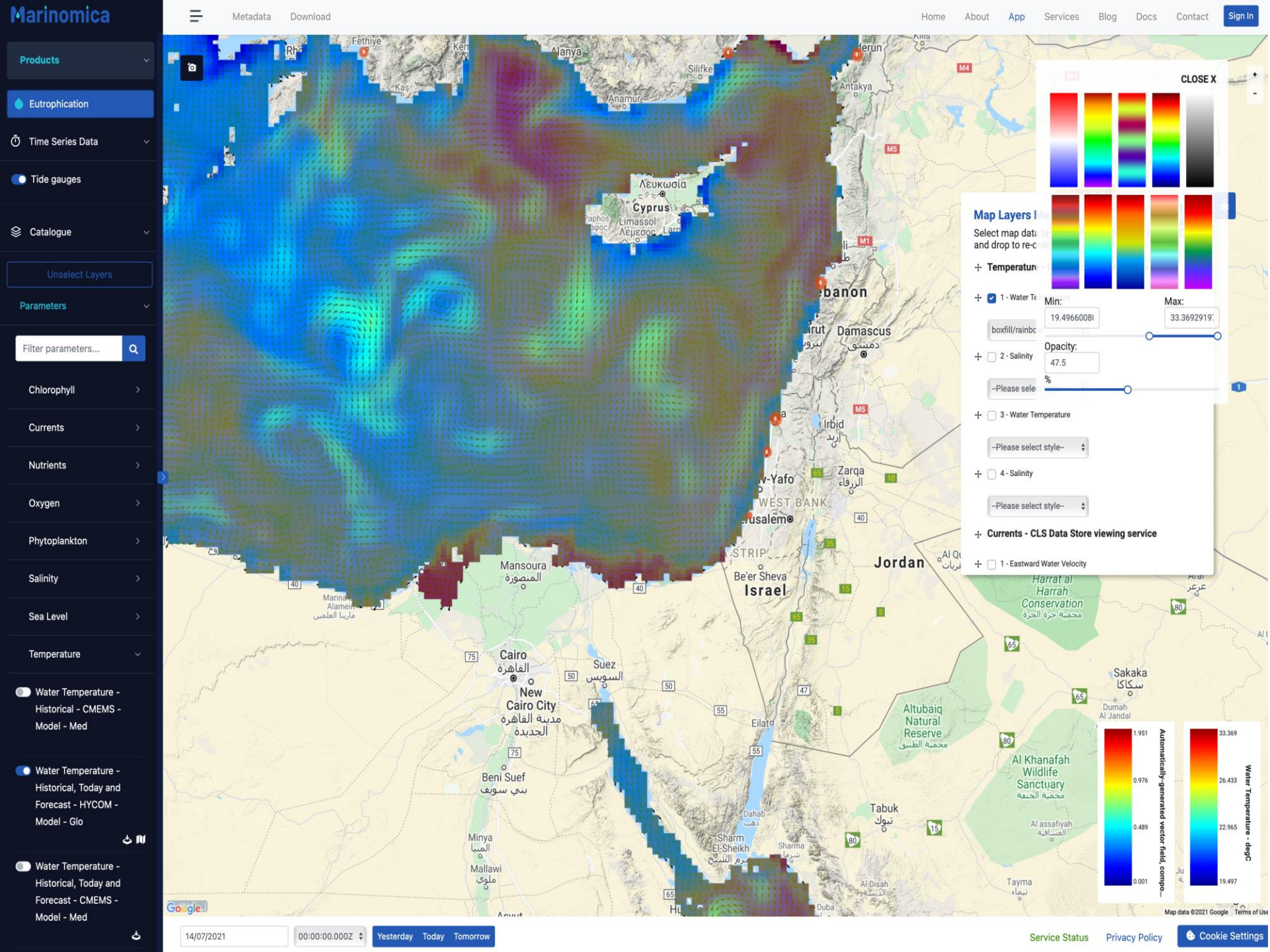
ODYSSEA - Wave Power













Products ▾

Eutrophication

Time Series Data ▾

Tide gauges

Catalogue ▾

Unselect Layers

Parameters ▾

Filter parameters... 🔍

Chlorophyll >

Currents >

Nutrients >

Oxygen >

Phytoplankton >

Salinity >

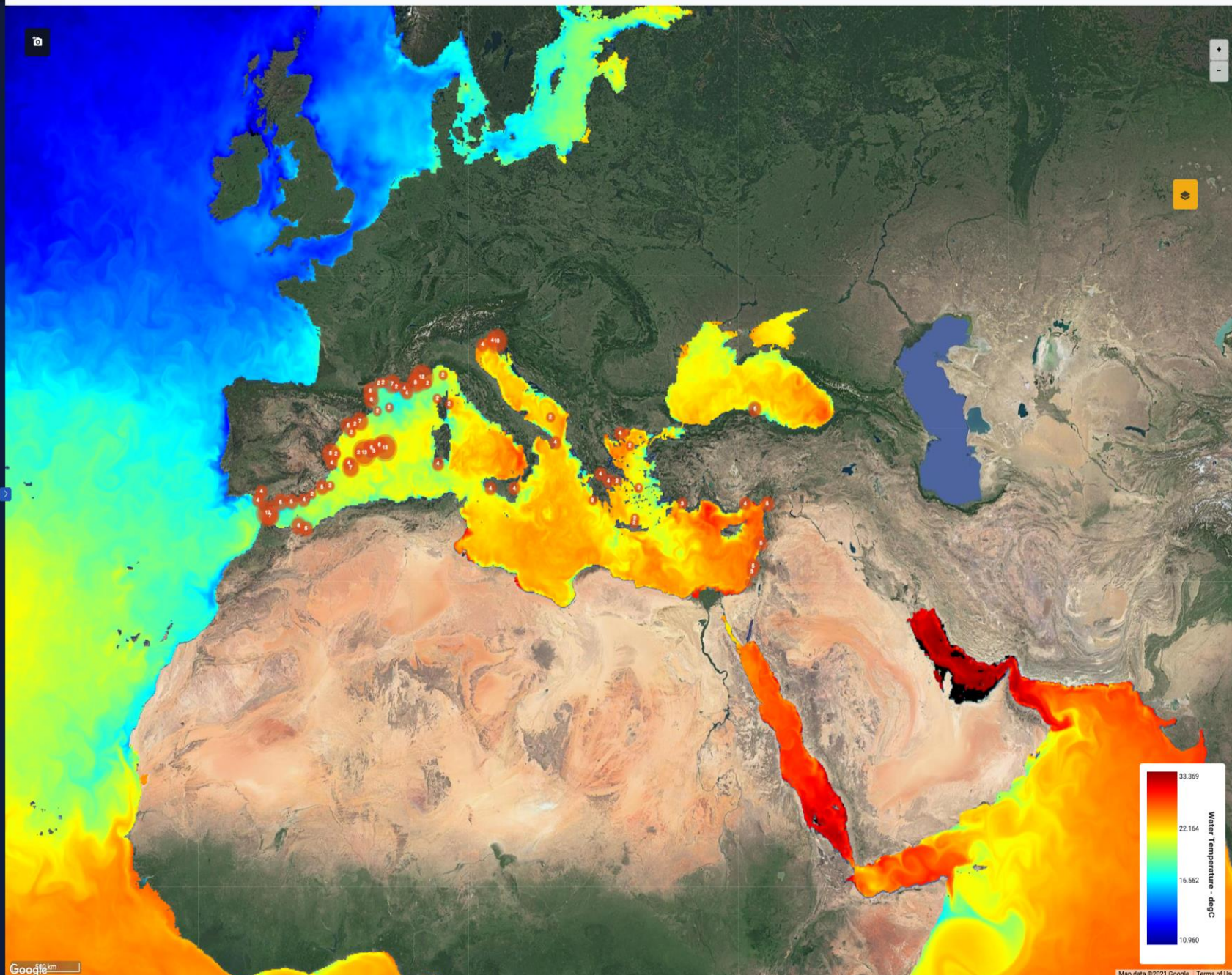
Sea Level >

Temperature ▾

Water Temperature -  
Historical - CMEMS -  
Model - Med

Water Temperature -  
Historical, Today and  
Forecast - HYCOM -  
Model - Glo

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



14/07/2021

00:00:00.000Z

Yesterday Today Tomorrow

Service Status Privacy Policy

Cookie Settings

# Where are we now

- Beta version live at **marinomica.com**
- Receiving feedback
- Embarking on next evolution of development
- Mobile app in development, combining citizen science data
- Launching early 2021 <- Launched!
- Business establishing to take forward



# New features in next evolution (in addition to fixes!)



## Enhanced dashboard functionality

- New visualisations
- Improved performance and user experience
- Simplified visualisations for specific user types
- Pre-configured dashboards for specific fields of interest (Eutrofication, Wave Power, Jellyfish, Marine litter, Climate etc.)
- Sharing dashboards (inside and outside of the application)

## **New user signup and controls**

- Enhanced user signup: Google, Twitter, Facebook
- Profile configuration: Location, areas of interest. Dashboards automatically customised.



## Alerts

- Set alert conditions: “Wave height  $> x$ ” for example
- Customisable – WHERE  $x > y$  AND  $a < b$
- Alerts sent to multiple users
- Via website, email, SMS, mobile app



ODYSSEA

## **Advanced processing: The Product Factory**

- Choose processing and algorithms to run
- Processes triggered by alerts



# New projects



## **EcoScope**

The EcoScope project will develop an interoperable platform and a robust decision-making toolbox, available through a single public portal, to promote an efficient, ecosystem-based approach to the management of fisheries.

## **Digital Twin(s)**

To be announced...

## **Commercialisation**

In discussions...



**Creating products and knowledge  
for the Mediterranean**



# THANK-YOU

Simon Keeble

Blue Lobster IT Limited

simon@bluelobster.co.uk



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727277