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Brief Introduction of the CCLME Eco-GIS Viewer

Dr. Stelios Contarinis – IOC Consultant – 20.11.2023

CCLME Eco-GIS Viewer

Enhancing Oceanography Capacities in the CCLME



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Ministerio de Ciencia e Innovación
Ministerio de Educación, Juventud y Deportes
Ministerio de Sanidad y Consumo

CCLME ECO-GIS VIEWER Tools ▾ Clear Legend About The Project Contact

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SUSTAINABLE DEVELOPMENT GOALS

CCLME Eco-GIS Viewer is a web-based geospatial information portal designed to support environmental and oceanographic research in the Canary Current Large Marine Ecosystem.

CCLME Eco-GIS Viewer

Enhancing Oceanography Capacities in the CCLME



CCLME Eco-GIS Viewer: <http://www.ideo-cclme.ieo.es>

Launched in 2017 (Project's Phase II)

Current Project's Phase IV

Implementing Body: IOC-UNESCO

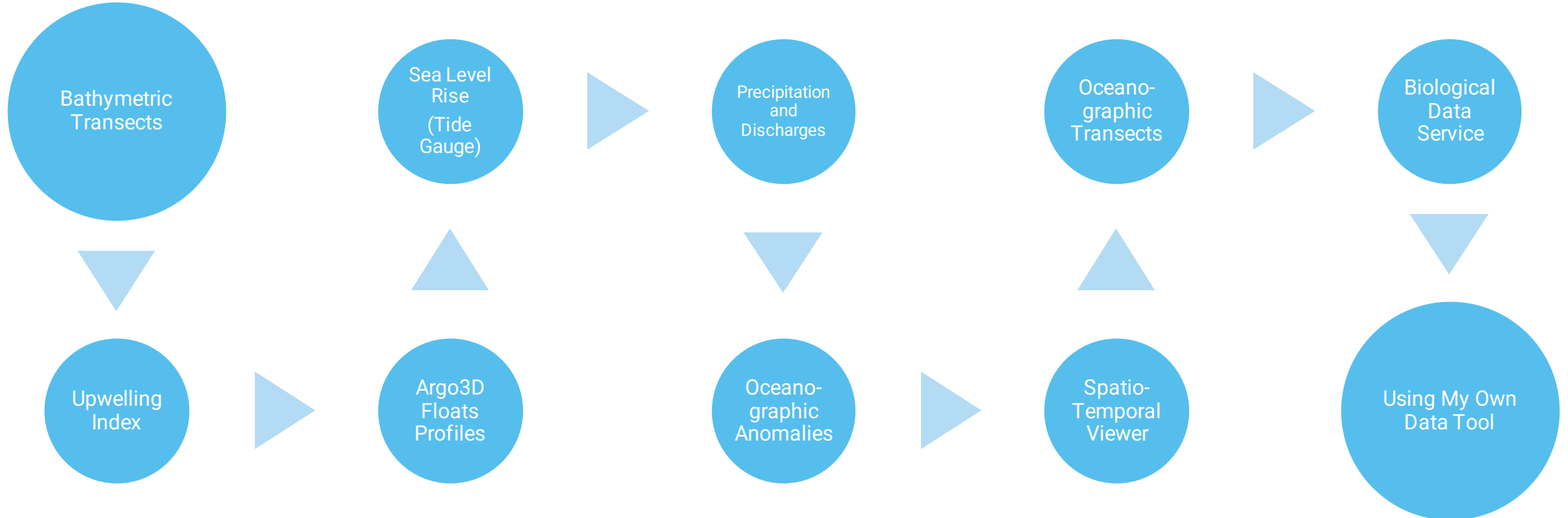
Hosting Partner: Instituto Español de Oceanografía -IEO-

Funding: 100% Spanish Agency for International Development Cooperation -AECID-



CCLME Eco-GIS Viewer Analysis Tools

10 Analysis Tools



CCLME Eco-GIS Viewer

Functionalities



The platform provides a range of functionalities and tools, that allow:

- **Spatial Data Visualization:** to visualize various spatial data layers on a map, such as bathymetric profiles, biological data, and oceanographic transects.
- **Environmental Study:** to study various ocean stressors, and their impact on the marine ecosystem.
- **Educational and Decision-Making Support:** to serve as an educational resource and aids in decision-making processes for marine resource management and conservation efforts.
- **Custom Data Analysis:** users can upload and analyse their own datasets within the viewer.
- **Data Download:** it provides options to download data in several formats like CSV, PNG, JPEG, PDF, and SVG for offline analysis and use in publications or reports.



Bathymetry Mapping and Transects Analysis Tool

Understanding Bathymetry in the CCLME region

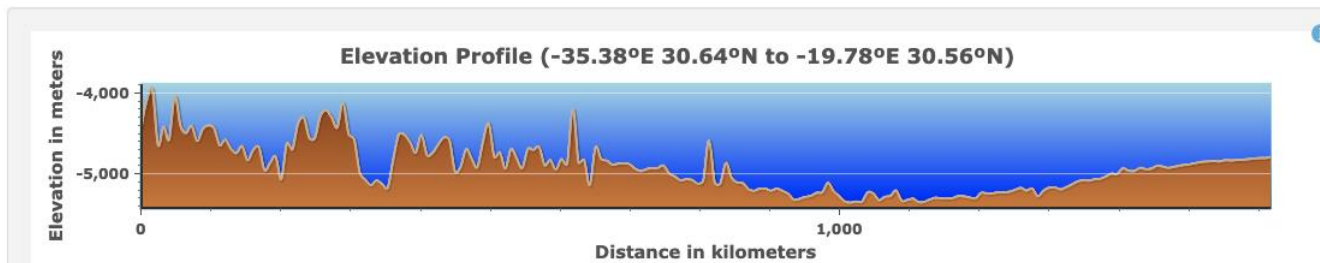
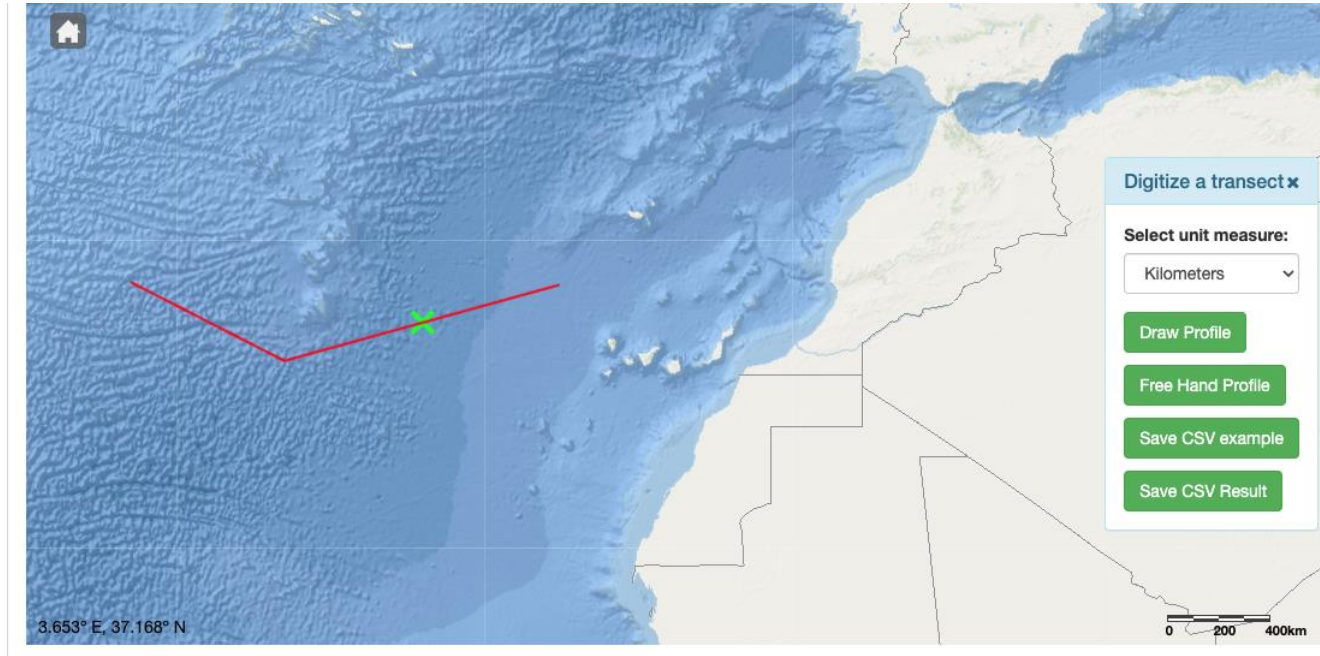


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The tool provides the capability to create detailed bathymetric profiles utilizing ESRI's elevations service.

It leverages a comprehensive digital elevation model (DEM), incorporating data from the Shuttle Radar Topography Mission (SRTM), the USGS's GTOPO30, and the General Bathymetry Chart of the Oceans (GEBCO).

Data Sources: SRTM, GTOPO30, and GEBCO datasets, offer high-resolution topographic and bathymetric data globally.

Upwelling Index Analysis Tool

Understanding Ocean Upwelling in the CCLME Region



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Spatio-temporal data viewer

Oceanographic transects

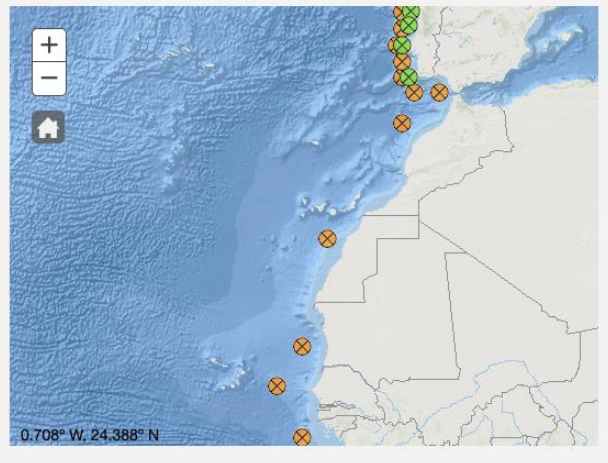
Biological data

Using my own data

Useful links



CCLME Upwelling index



FNMOC Bilbao

Several years

2012

2018

Insert

Remove

HBilbao 2012-2018

Click and drag in the plot area to zoom in

Zoom 6m 1y 5y All

From Jan 1, 2012 To Dec 1, 2018



The tool provides monthly and annual data, facilitating the exploration and analysis of upwelling data.

The upwelling index time series, used in this tool, is provided by the Spanish Institute of Oceanography (IEO)

Analysis Capabilities: Users can create annual series graphs for different stations and years, enabling comparative analysis.

Data Sources: Includes Meteogalicia and FNMOC series.

Sea level time series Analysis Tool

Monitoring Sea Level Changes in the CCLME Region



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SUSTAINABLE
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Sea level time series

5.685° E, 29.158° N

Show / Hide Data Insert

Country	Name	Code	Years
Portugal	FUNCHAL II	2024	2003-2014
Portugal	FUNCHAL	1030	1963-2008
Portugal	PORTO GRANDE (ST. VINCENT) 2	1769	1990-1995
Senegal	DAKAR	476	1942-1966
Spain	SANTA CRUZ DE LA PALMA	585	1949-1960
Spain	LA PALMA	2064	2007-2015
Spain	SANTA CRUZ DE LA PALMA B	568	1949-2016
Spain	HIERRO	2051	2004-2015
Spain	LA GOMERA	2065	2007-2015
Spain	SANTA CRUZ DE TENERIFE I	303	1927-1990
Spain	TENERIFE	1803	1992-2015
Spain	GRANADILLA	2050	2003-2011
Spain	LAS PALMAS, PUERTO DE LA LUZ	590	1949-1955
Spain	LAS PALMAS C (PUERTO DE LA LUZ)	565	1949-2016
Spain	LAS PALMAS D	1802	1992-2015
Spain	ARINAGA	2049	2003-2011
Spain	ARRECIFE	593	1949-2016
Spain	ARRECIFE-D	1710	1992-2001
Spain	FUERTEVENTURA	2048	2004-2015

Showing 1 to 21 of 21 entries

Sea Level Data

monthly FUNCHAL II/Portugal (Code: 2024)

Click and drag in the plot area to zoom in

Trends & Linear Regression

Zoom 6m 1y 5y All

From Nov 1, 2003 To Jan 1, 2015

The tool offers access to sea level data collected from tide gauges and bottom pressure recorders, enabling the study of sea level changes over time.

Data Source: [Permanent Service for Mean Sea Level \(PSMSL\)](#), is the global data bank for long-term sea-level change information from tide gauges and bottom pressure recorders.

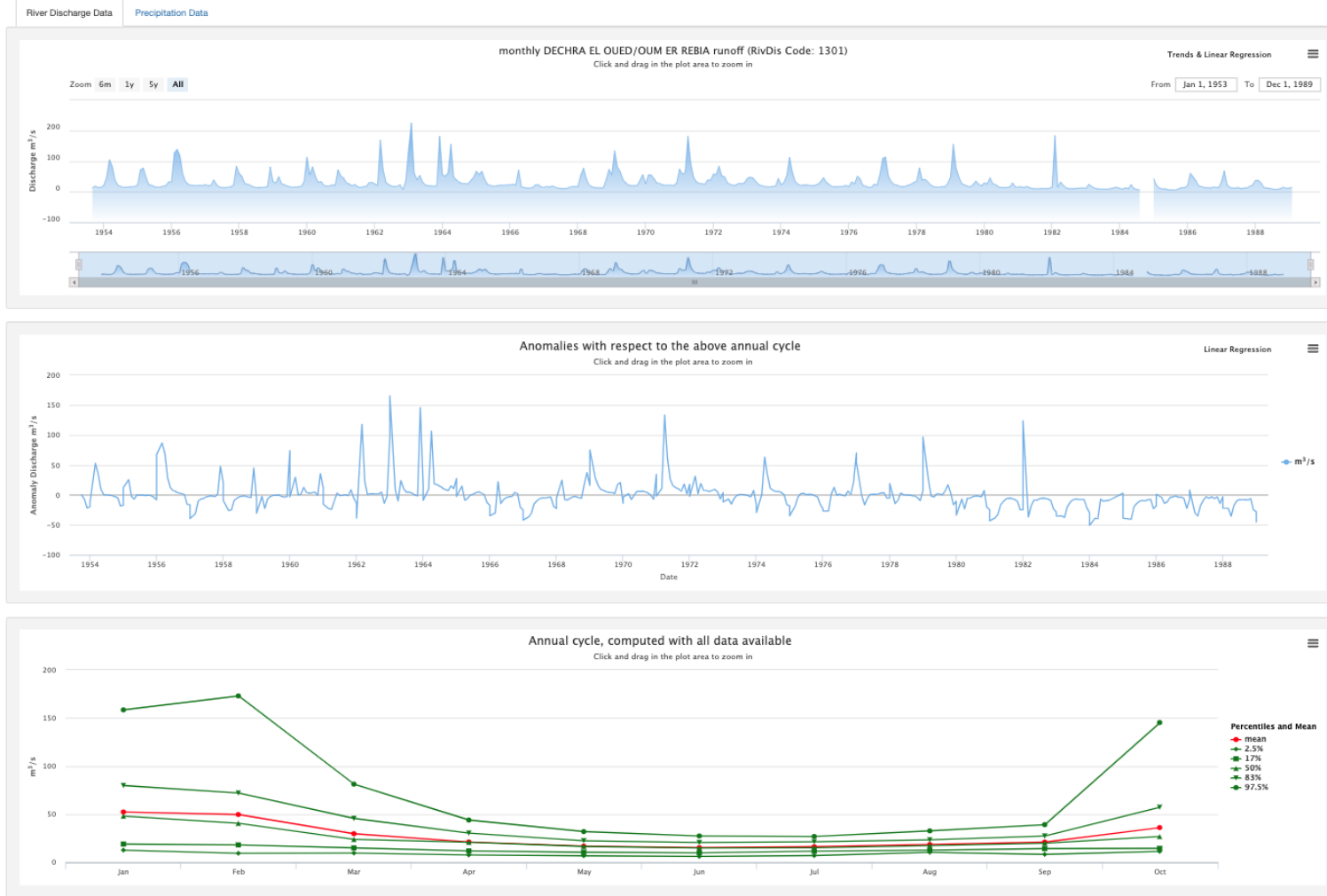
Precipitation and River Discharges Analysis Tool

Understanding Precipitation and River Discharges in the CCLME region



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The tool offers access to Northwest Africa Rivers Discharge stations from the Global River Discharge Database and the Global Historical Climatology Network-Monthly (GHCN-M), providing historical data for the region.

Analysis Capabilities: Users can generate and analyze graphs for precipitation and river discharges, aiding in the understanding of regional water cycles and climate patterns.

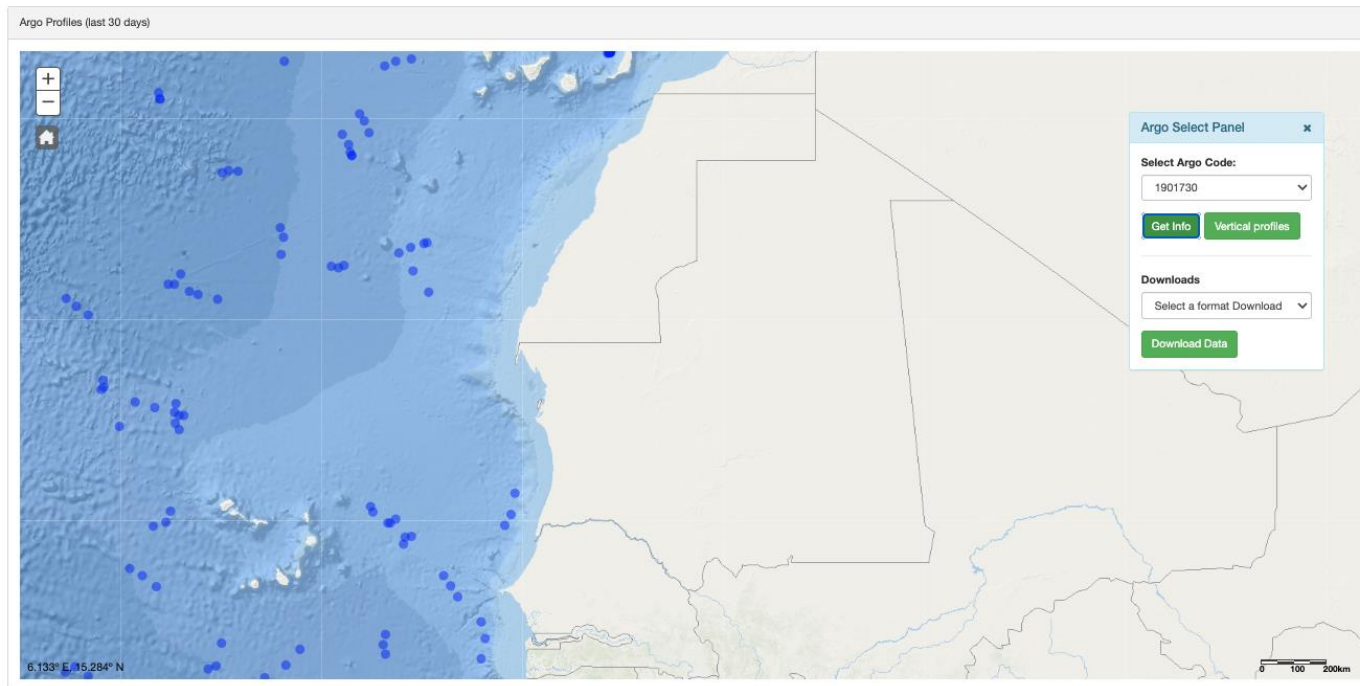
Argo3D Profiles Analysis Tool

Exploring Ocean Dynamics with Argo3D in the CCLME region



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The tool provides comprehensive oceanographic data from the Argo float network.

It uses services provided by Euro-Argo, including fleet monitoring and data selection services.

Analysis Capabilities: Selection and retrieval of data from the Argo float network for targeted oceanographic research.

Download Options: Data available for download in CSV and JSON formats.

SST and Chl differences Analysis Tool

Understanding Oceanographic Anomalies in the CCLME Region



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Sustainable Development GOALS

SST and Chl data and differences analysis

Compare Parameters Panel

Layer One

Oceanographic Parameter: Chlorophyll

Month: February

Year: 2020

Layer Two

Oceanographic Parameter: Temperature

Month: February

Year: 2020

OK

The tool enables the analysis of sea surface temperature and chlorophyll concentration, aiding in the study of marine ecosystem health and dynamics.

Data Sources: AQUA MODIS Satellite Data by NASA provide oceanographic parameters like sea surface temperature and chlorophyll concentration.

SST and Chl differences Analysis Tool

Understanding Oceanographic Anomalies in the CCLME Region



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SUSTAINABLE DEVELOPMENT GOALS

SST and Chl data and differences analysis

Feature Information

SST Value: -0.93

[Zoom to](#)

0 150 300km

The tool assists in monitoring environmental changes and their potential impacts.

Analysis Capabilities: Users can explore anomalies in oceanographic parameters.

Download Options: Oceanographic data can be downloaded in formats such as CSV, PNG, JPEG, PDF, and SVG, facilitating various uses in research and presentation.

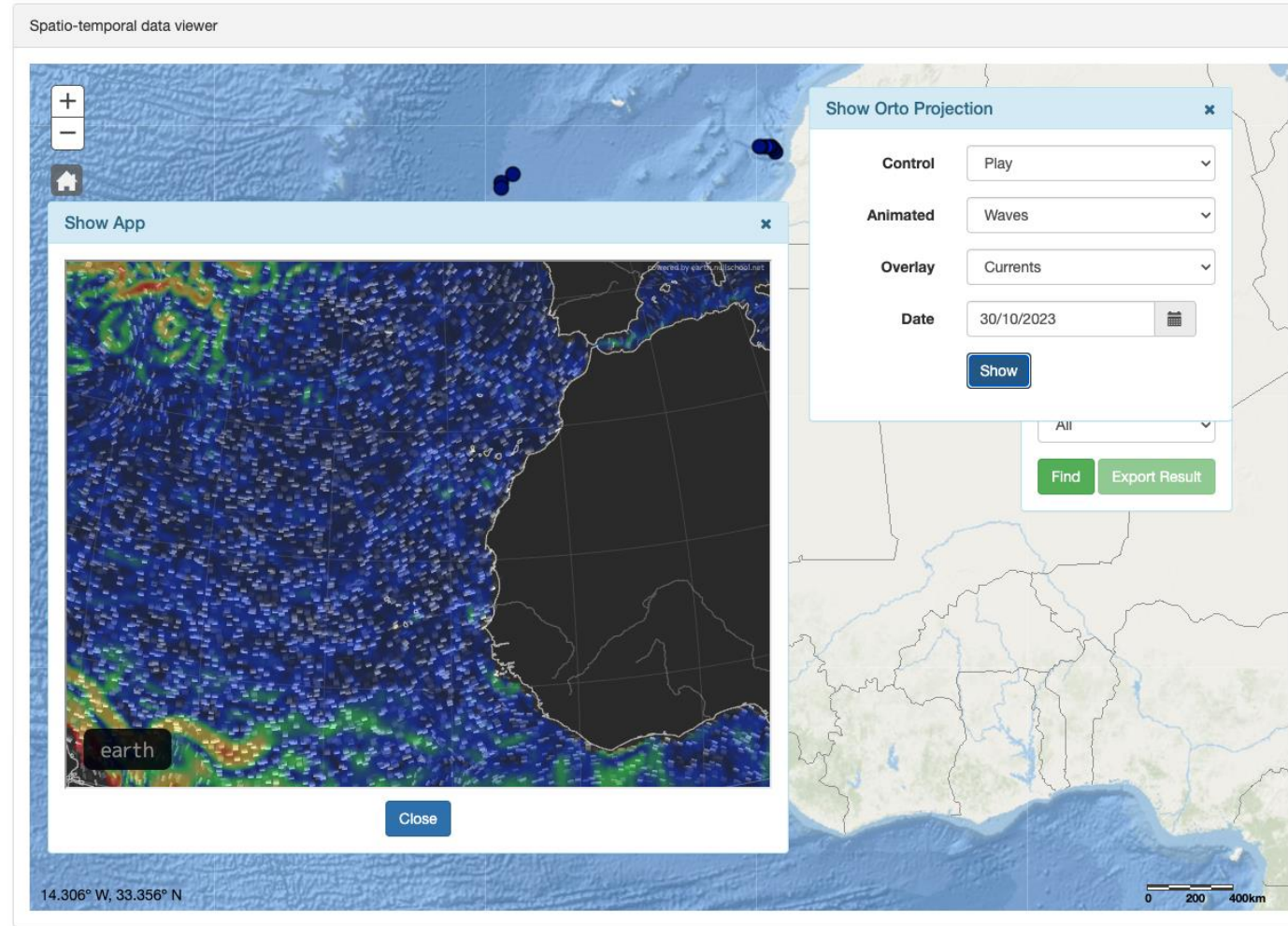
Spatio-Temporal Data Viewer Analysis Tool

Exploring Oceanographic Data in the CCLME Region



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The tool provides access to the Earth Viewer and Windytv Viewer and interact with both through the CCLME GIS Viewer.

The Earth Viewer shows information about SST, waves, currents, and significant wave height, and it is possible to select the date of the layers loaded.

Analysis Capabilities: Users can interact with the tool to explore and analyze spatio-temporal data layers.

The tool assists in understanding the dynamic processes of the ocean and atmosphere.

Oceanographic Transects Analysis Tool

Exploring Oceanographic Transects in the CCLME Region

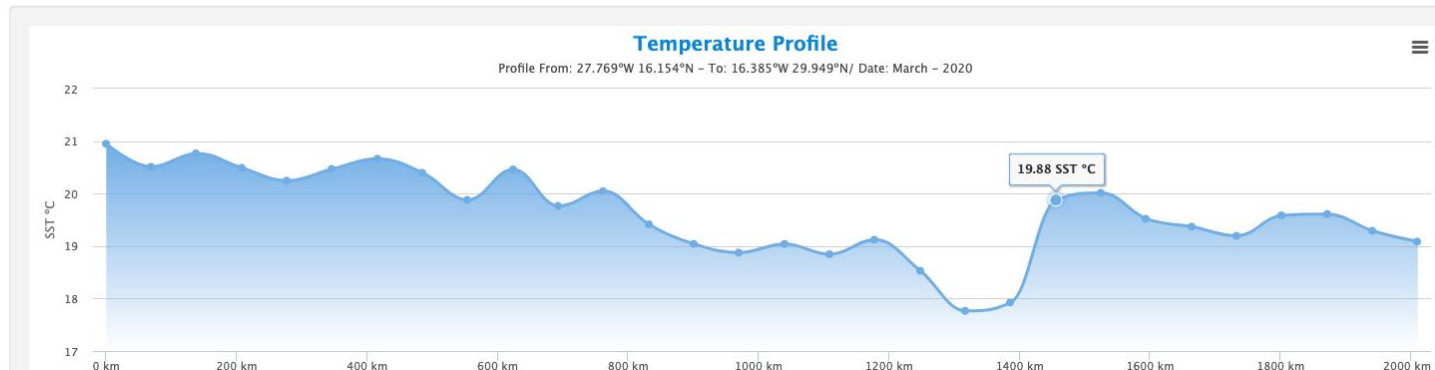
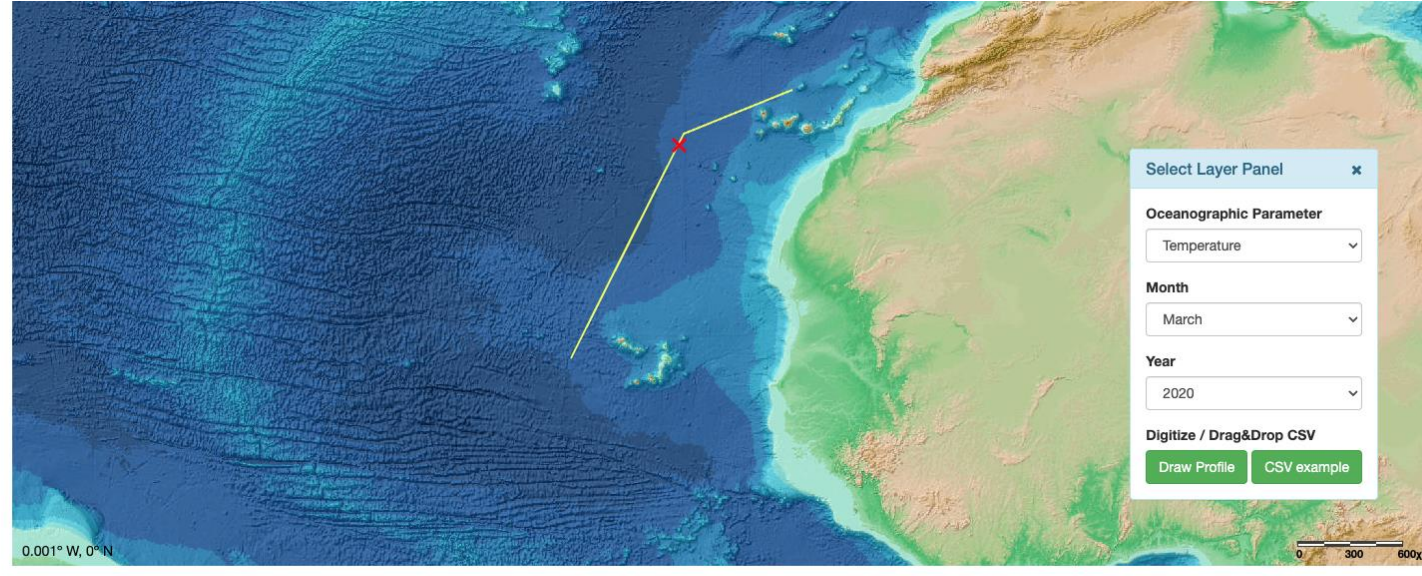


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-



The tool provides detailed insights into Sea Surface Temperature (SST) and Chlorophyll concentration in the Canary Current Large Marine Ecosystem, using satellite-based data from NASA's Ocean Color datasets.

Analysis Capabilities: Ability to create transects and analyze spatial variations in SST and Chlorophyll over time.

Data Sources: Utilizes AQUA MODIS Satellite Data provided by NASA.

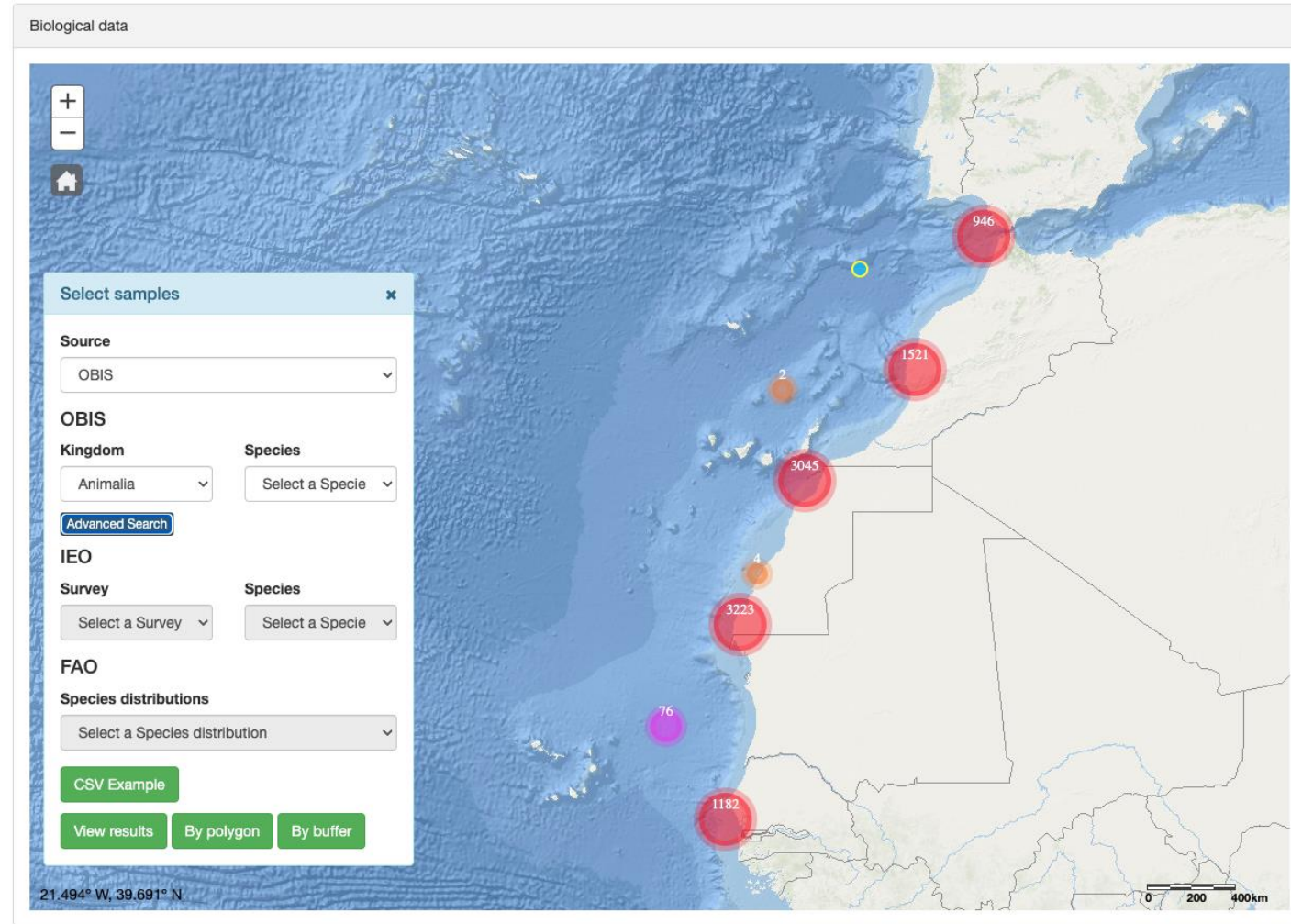
Biological Data Analysis Tool

Analyzing Marine Biodiversity in the CCLME Region



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The tool provides analysis of biological data from the Instituto Español de Oceanografía's SIRENO database, OBIS API, and FAO maps, focusing on indices like abundance.

Analysis Capabilities: Examination of species distribution and abundance patterns.

Data Sources:

- SIRENO Database from the IEO
- OBIS API for marine species records
- FAO Aquatic Species Distribution Maps

Using My Own Data Analysis Tool

Empowering Analysis with Personal Data in the CCLME Region



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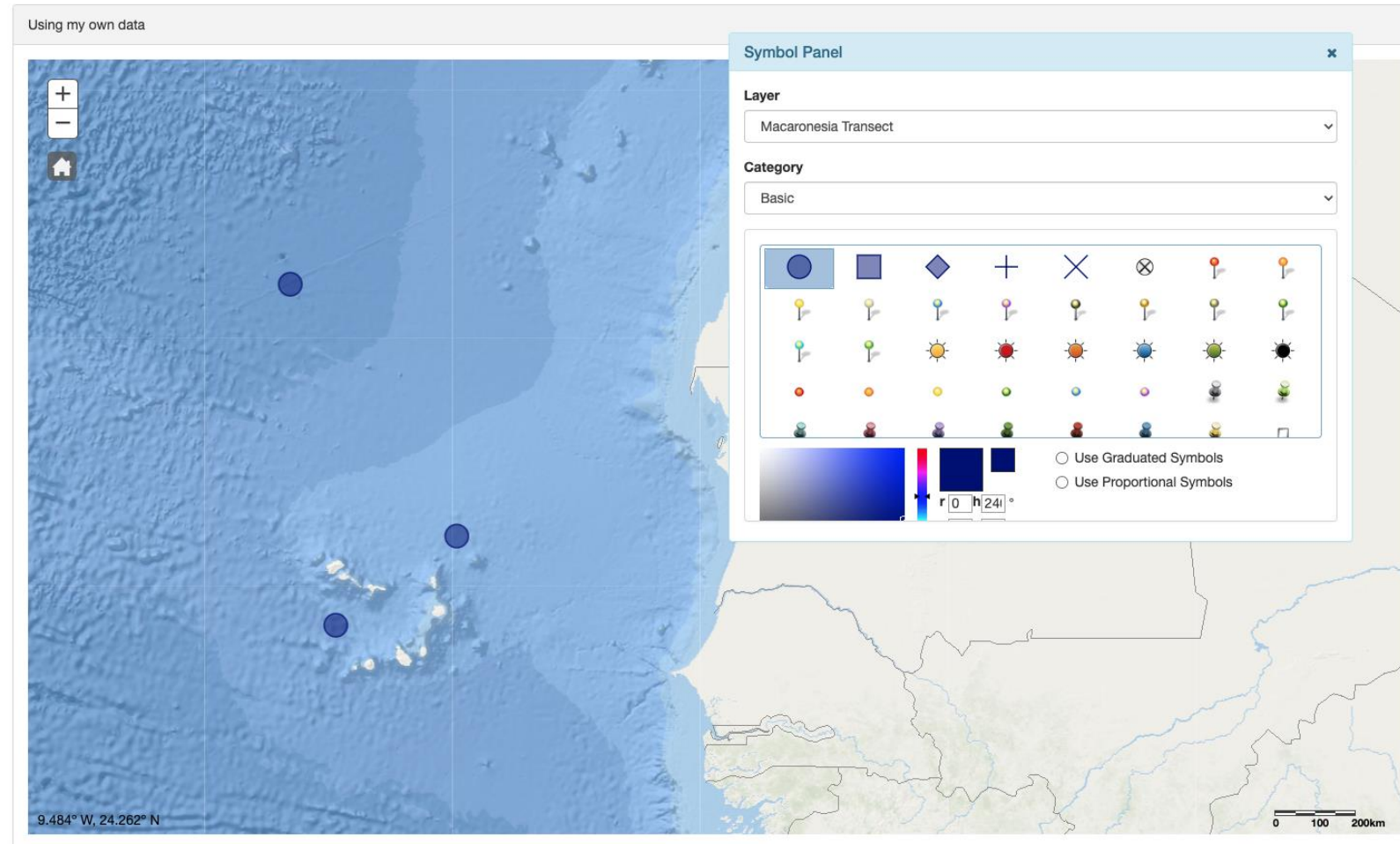
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The tool enables users to upload and analyze their CSV-formatted data within the CCLME ECO-GIS Viewer. Supports integration of user-provided data with existing functionalities, facilitating personalized analysis and comparison.

Features:

- Interactive map for user data visualization.
- Drag and drop CSV files onto the map to create a point layer representing the data.
- Various tools available for further analysis, including Geodesic Tools, Graph Tool, and Interpolation Tool.

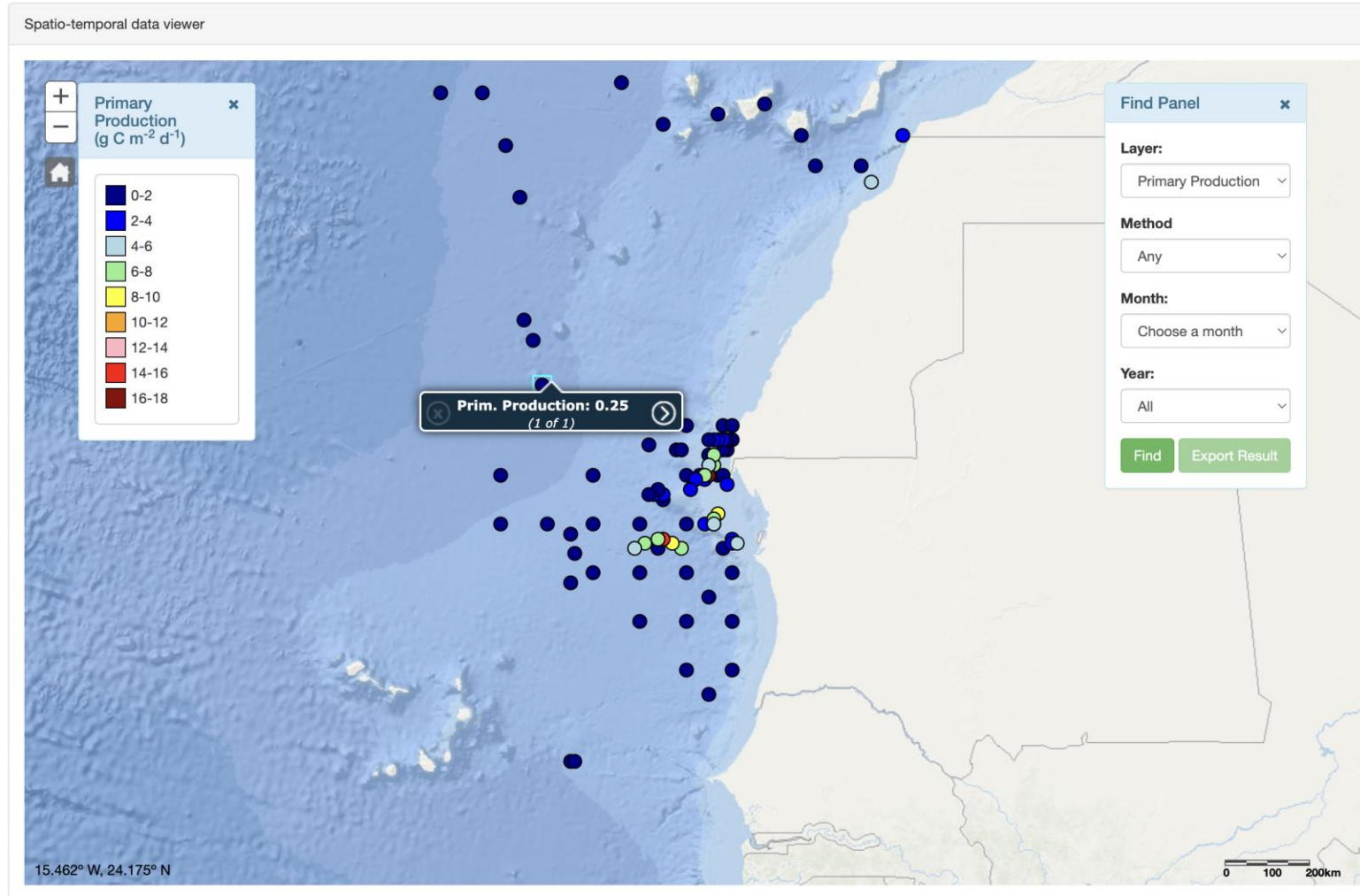
PHASE III

Results Primary production database



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EBUS primary production database prepared, compiling 327 primary production *in situ* data points from 20 studies.

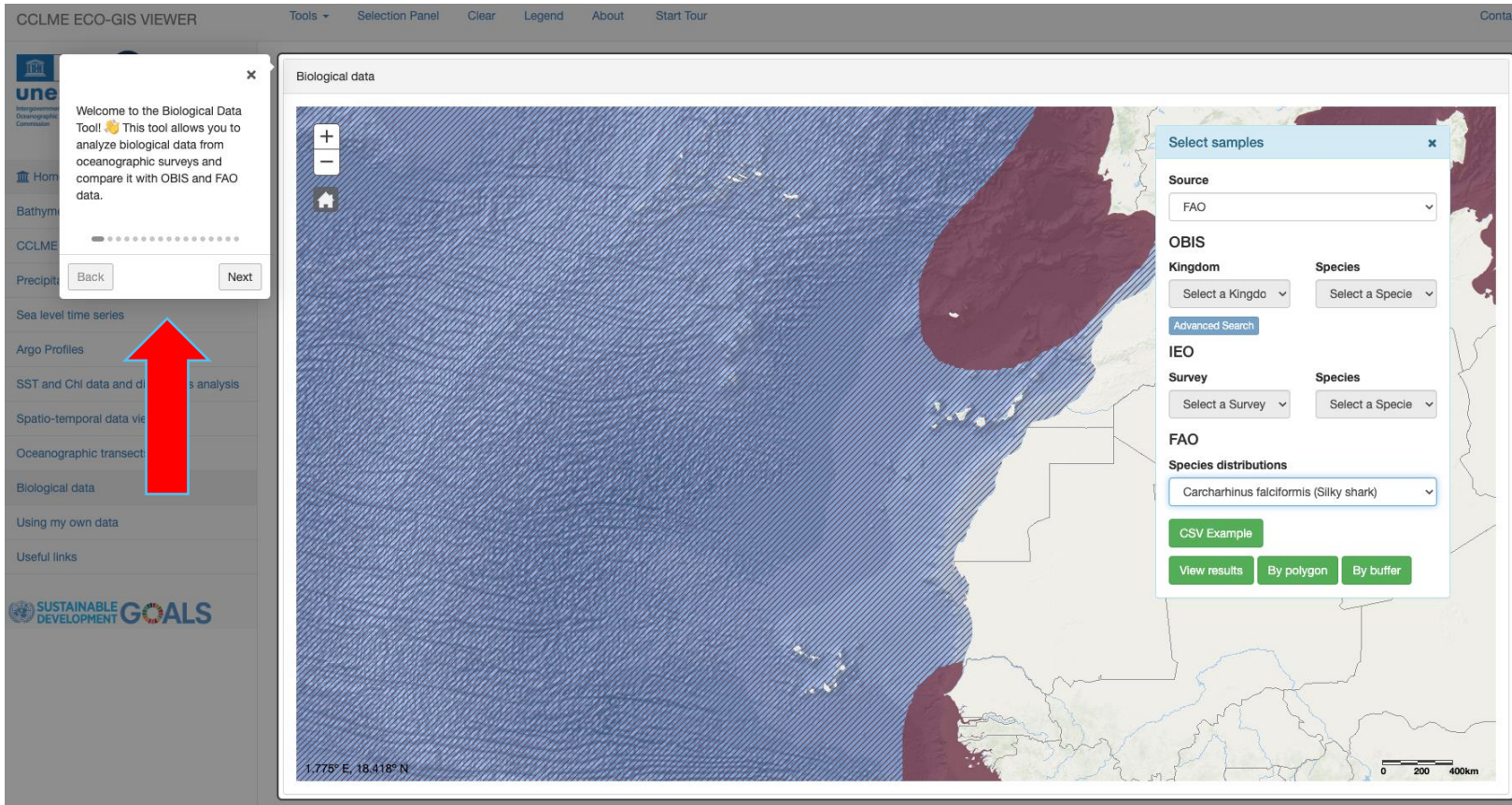
The archive contains: **164 measurements for the CCLME**

Data was prepared in an additional data archive for integration in the CCLME Eco-GIS Viewer.

The data will be available to search and analyse at the **Spatio-Temporal Data Viewer**

Recent improvements for a more user-friendly approach

Introducing Guiding Tours for each Analysis Tool



CCLME ECO-GIS VIEWER

Tools Selection Panel Clear Legend About Start Tour Contact

Welcome to the Biological Data Tool 🎉 This tool allows you to analyze biological data from oceanographic surveys and compare it with OBIS and FAO data.

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Biological data

Select samples

Source: FAO

OBIS
Kingdom: Select a Kingdo Species: Select a Specie

Advanced Search

IEO
Survey: Select a Survey Species: Select a Specie

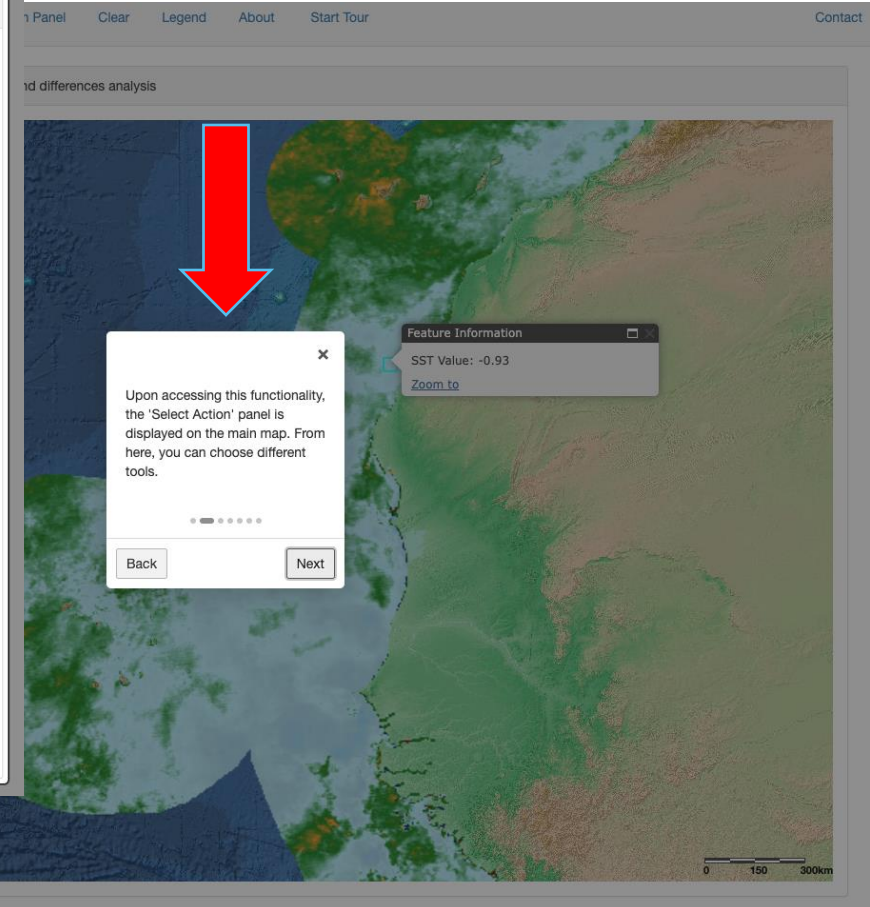
FAO
Species distributions: Carcharhinus falciformis (Silky shark)

CSV Example

View results By polygon By buffer

1.775° E, 18.418° N

0 200 400km



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SST differences analysis

Feature Information

SST Value: -0.93

Zoom to

Upon accessing this functionality, the 'Select Action' panel is displayed on the main map. From here, you can choose different tools.

Back Next

0 150 300km

Recent improvements for a more user-friendly approach

TimeSlider & Sweet Alerts



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SST and Chi data and differences analysis

Legend

Chlorophyll Concentration MODIS-A

Chlorophyll Concentration, OCI Algorithm (mg m^{-3})

Units: mg.m^{-3}

Info Layer:

Now showing: March 2019

Oceanographic transects

Select Layer Panel

Oceanographic Parameter

Temperature

Month

March

Year

2020

Digitize / Drag&Drop CSV

Draw Profile CSV example

Loading...

Please wait a moment

Loaded!

Sea Surface Temperature (degree_C)

Units: °C

Now showing: August 2021

Listed in ODIS Catalogue

As 1 project with 10 services (the viewer tools)



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← previous record next record →

CCLME ECO-GIS VIEWER (ODIS ID: 3276)

This resource is online	Last check was 18/11/2023 10:26
First entry: 26/10/2023	Last update: 26/10/2023
Submitter/Owner of this record	Stelios Contarinis (OceanExpert : 51022)
Submitter/Owner Role	IOC Secretariat
Datasource URL	http://www.ideo-cclme.ieo.es
Parent Project URL	https://www.ioc.unesco.org
ODIS-Arch URL	http://www.ideo-cclme.ieo.es/odis/odis_sitemap.xml
ODIS-Arch Type	Sitemap
English name	CCLME ECO-GIS Viewer
Original (non-English) name	
Acronym	
Citation	
Abstract	Invasive alien species and other ocean stressors: Furthering the scientific knowledge and capacity basis in the Canary Current Large Marine Ecosystem

ODIS Catalogue is part of the Ocean Data and Information System (ODIS) architecture, an integrated strategy to support interoperability and integration of ocean data and information services.

The ODIS Catalogue serves as a registry and directory of ocean-related data sets, services, and systems.

It includes metadata information that makes it easier to discover, access, and use the oceanographic data.

It aligns with international efforts to promote the sharing of ocean data, following the FAIR principles (Findable, Accessible, Interoperable, Reusable).

CCLME Eco-GIS Viewer Improvements

Proposal of an Internal Workshop



We are thinking about the possibility of organizing a project meeting to present of the updates and improvements, as an “Avant première”.

It could be a full day hands-on workshop. This will be an opportunity to:

- Showcase the improvements
- Collect your feedback and spot any details before launching the communication campaign

If you are interested, please let us know so that we can fix a date:

- i.deniz-gonzalez@unesco.org
- s.contarinis@unesco.org

You may contact us with your ideas.





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CCLME Alien Species Database

Discussion on the presentation of the data in the CCLME
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THANK YOU



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