



EuroGOOS

European Global Ocean
Observing System

Webinar

12 March 2026 | 14:00-15:30 CET

Ocean Observers Webinars Integration of Coastal Ocean Observations along Europe

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eosc | Blue-Cloud2026



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Nikos Zarokanellos, *Balearic Islands Coastal Observing*
and Forecasting System (SOCIB- Spain)



Jay Pearlman, René Garelo, Sigmund Kluckner
IEEE France Section (IEEE - France)





To support coastal ocean researchers and general users in the
**IDENTIFICATION, ACCESS, PROCESSING,
ANALYSIS, INTEGRATION AND VISUALIZATION**
of Coastal Ocean Observations and Complementary Information

3 THEMATIC SERVICES OFFERED:

TS#1: Transboundary Processes
& Connectivity



TS#2: Extreme Events



TS#3: Ocean Glider



THE ICOOE Virtual Lab

Home /

Virtual labs

The Blue-Cloud thematic Virtual Labs (V.Labs) are the main test beds for users to get the hang of the Blue-Cloud framework. Each V.Lab comprises a series of applications for data access and processing, publishing of data results, and managing computation routines as well as services for collaboration. We are providing open science-friendly working environments for its users to analyse datasets and (re)generate research products.

[Blue-Cloud2026 Virtual Labs & Data Lakes Booklet \(May 2025\) @](#)

Carbon-Plankton Dynamics

This model will use carbon units to study nutrient availability, productivity, organic matter, and interactions in marine regions beyond MEDANARE.

Global Fisheries Atlas

Explore the operational GISF and FA V.Labs in Blue-Cloud, enabling global access to fisheries data. Experience enhanced knowledge management and spatial data interoperability for impactful research and insights.

Coastal currents from observations

Improve integration and accuracy of ocean surface current data with Blue-Cloud 2026. Generate integrated maps using HF radar, drifter, and satellite altimetry data.

Integration of coastal ocean observations along Europe

Integrate diverse ocean data for enhanced knowledge base. Blue-Cloud 2026 combines WCO2-RI data, advanced visualizations, and expanded functionalities for valuable coastal insights.

Plankton Genomics

Enabling scientific exploration of plankton, including its distributions, dynamics and fine-grained diversity to molecular resolution, through genomics analysis.

Marine Environmental Indicators

This V.Lab enables monitoring, assessment, and decision-making for marine areas. Exploit diverse data sources in a unique analysis service for online computation of indicators.

Zoo and Phytoplankton EOQ products

Processing several data resources available under different European marine networks to produce unique zoo and phytoplankton EOQ products.

Fish, a matter of scales

Improving data management and analytic capabilities for fisheries by expanding the Virtual Lab for the Fisheries Atlas and the Global Record of Stocks and Fisheries.

Aquaculture Monitor

Delivering a tool to produce national aquaculture sector overviews for monitoring aquaculture in marine cages and in coastal areas.

Admin Go to 16 Vânia Lima

Coastal oceans observations along Europe Virtual Laboratory

Welcome to the **Coastal oceans observations along Europe** Virtual Laboratory.

This Virtual Laboratory (V.Lab) provides you with an environment that is specifically designed to support you in your explorations of the available coastal ocean information, developing and implementing tools to facilitate the access to different types of data, to data processing and quality control when needed, to exploitation of individual datasets and to integrated analysis of different types of data. It brings together observations collected by partners of the Joint European Research Infrastructure for Coastal Observatories (JERICO-RI) with other available data from international data repositories.

V.Lab 1 will support the coastal ocean users through three Thematic Services:

- Thematic Service 1**, addressing **"Transboundary processes and connectivity along the European margins"**, aims to support user interest in processes such as biological connectivity, contaminants spread, and impacts of river outflows along margins.
- Thematic Service 2**, **"Extreme Events"**, focusing on impacts of major storms on the coastal ocean environment.
- Thematic Service 3**, **"Ocean glider"** will show the added value of repeated glider sections.

The documentation for them are linked below. Enjoy!

[Edit](#)

How-tos

- Thematic Service 1
- Thematic Service 2
- Thematic Service 3
- Future improvements

JupyterHub

About ICOOE VLAB

This VLAB will implement 3 Thematic Services (Transboundary Processes and Connectivity, Extreme Events, Ocean Glider) that will widely expand users' ability to access and integrate observations collected along Europe's coastal ocean, building new knowledge on key scientific and societal questions and challenges, supporting researchers, Blue Economy actors, environmental managers and crisis responses ...

[See more](#) [Edit this text](#)

Other options ...

VRE Managers and Groups

[View Managers](#)

Workspace view

ICOOE [Recent](#)

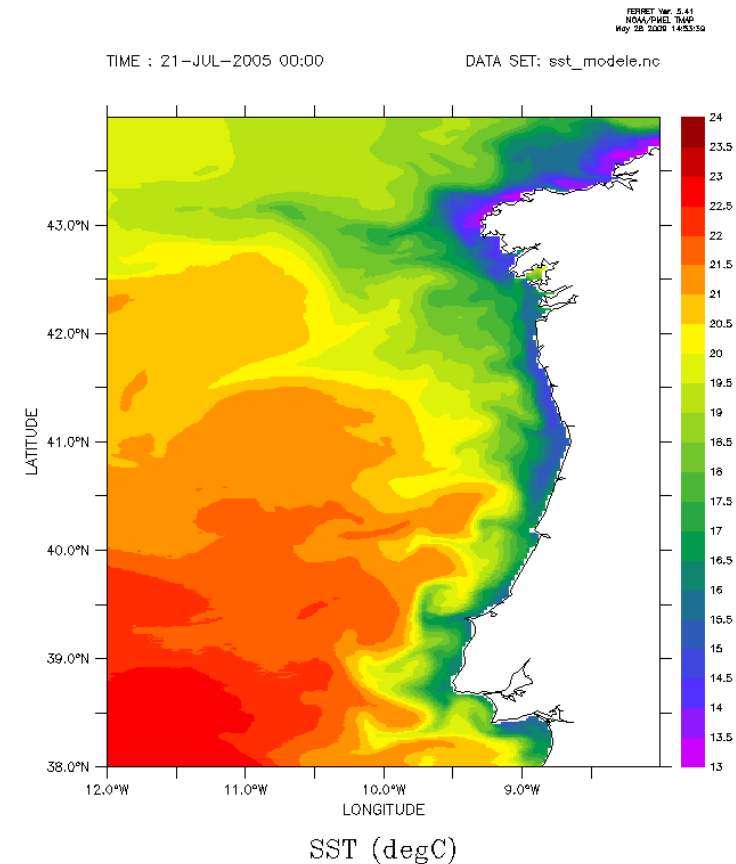
BACKGROUND

The coastal ocean hosts a broad range of mechanisms promoting the long distance transport of disturbances, water properties, contaminants and biological species.

STRATEGY

Allowing users to identify and access the relevant observations and complementary information provided by aggregators and available for analysis and integration.

Development &
Implementation Team



The pilot demonstrator is focused on:

- The Iberian coastal ocean, in which monitoring infrastructures are operated by partners in Portugal (IH) and Spain (SOCIB, Puertos del Estado, PLOCAN).
- Surface currents, either:
 - measured by HF radars, provided by the European HF Radar Node
 - simulated by numerical models and provided by CMEMS



Infrastructures contributing to JERICO

ICOOE Thematic Service 1 - Transboundary Processes and Connectivity

Transboundary Processes and Connectivity Dashboard

USER OPTIONS

User selection of area of interest, time range and parameters.

Coordinates

Select area

Latitude

Min

Max

Longitude

Min

Max

Time range

Start Date

→ 2026-03-11

×

Select parameters

surface currents

▼

AVAILABLE DATA

Check the Overlap Area (OA) and Overlap Time (OT)

The data available is (%):



ADVANCED ANALYSIS OPTIONS

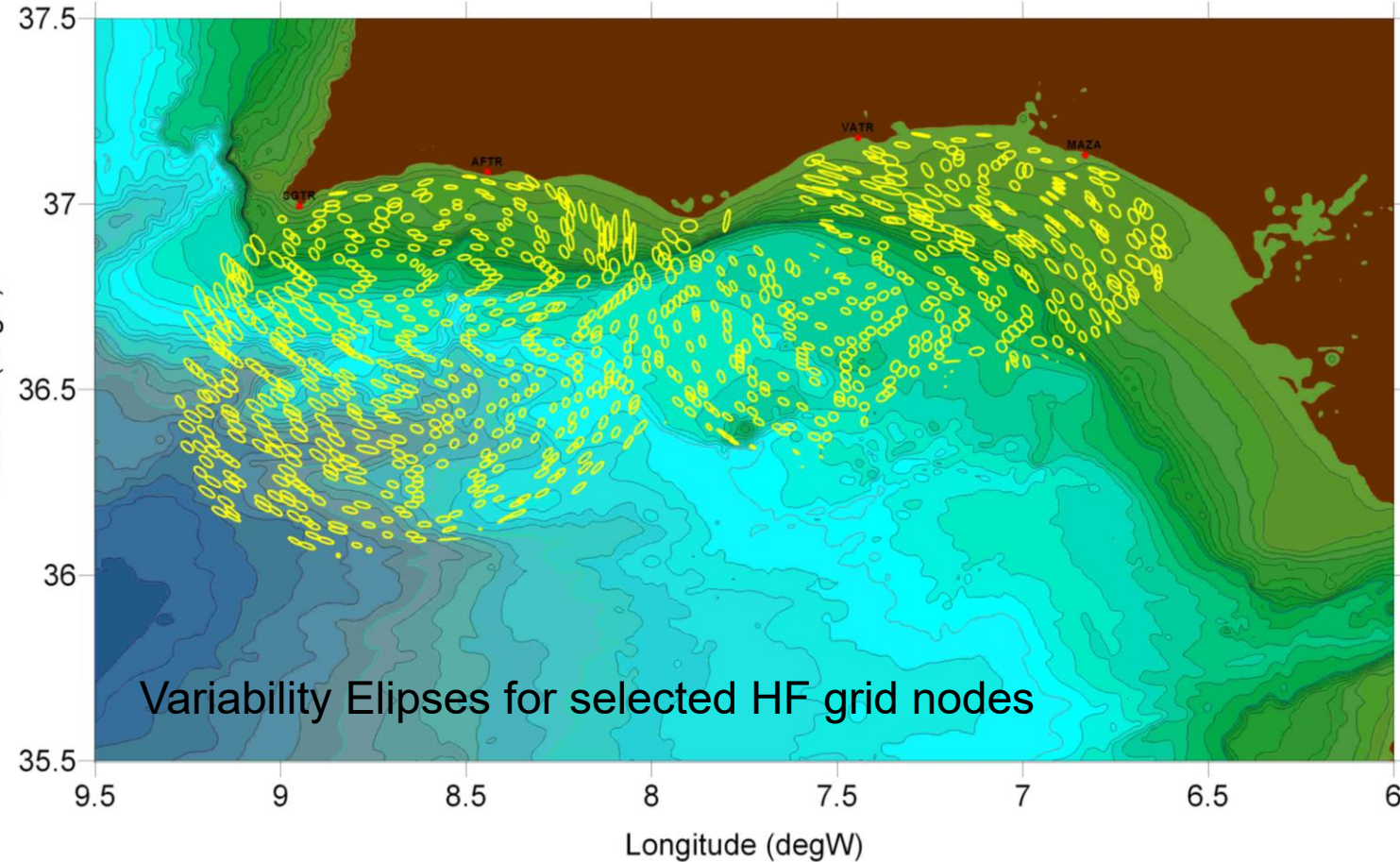
For Exploration, Integration and Advanced Integration Tools

EXPLORATION OF INDIVIDUAL DATASETS

➤ BASIC STATISTICS FOR SELECTED DATASETS

SCALAR STATISTICS									
LONGITUDE	LATITUDE	Umin	Umean	Umax	Uvar	Ustd	Usem	Uskew	UI
(degE)	(degN)	(m/s)	(m/s)	(m/s)	(m ² /s ²)	(m/s)	(m/s)		
-9.48973	38.17931	-0.086	0.089	0.217	0.006	0.075	0.005	-0.093	-1.0
-9.53781	38.19192	0.003	0.115	0.214	0.002	0.047	0.003	0.188	-1.0
-9.48973	38.19192	-0.088	0.080	0.184	0.003	0.059	0.004	-0.332	-1.0
-9.47370	38.19192	-0.115	0.048	0.150	0.004	0.061	0.004	-0.252	-1.0
-9.42562	38.19192	-0.217	-0.019	0.084	0.004	0.064	0.004	-1.016	-1.0
-9.60192	38.20453	0.017	0.088	0.146	0.001	0.034	0.002	-0.485	-1.0
-9.58589	38.20453	0.041	0.108	0.164	0.001	0.035	0.002	-0.377	-1.0
-9.53781	38.20453	-0.011	0.117	0.201	0.002	0.043	0.003	-0.523	-1.0
-9.52178	38.20453	-0.034	0.107	0.192	0.002	0.045	0.003	-0.694	-1.0

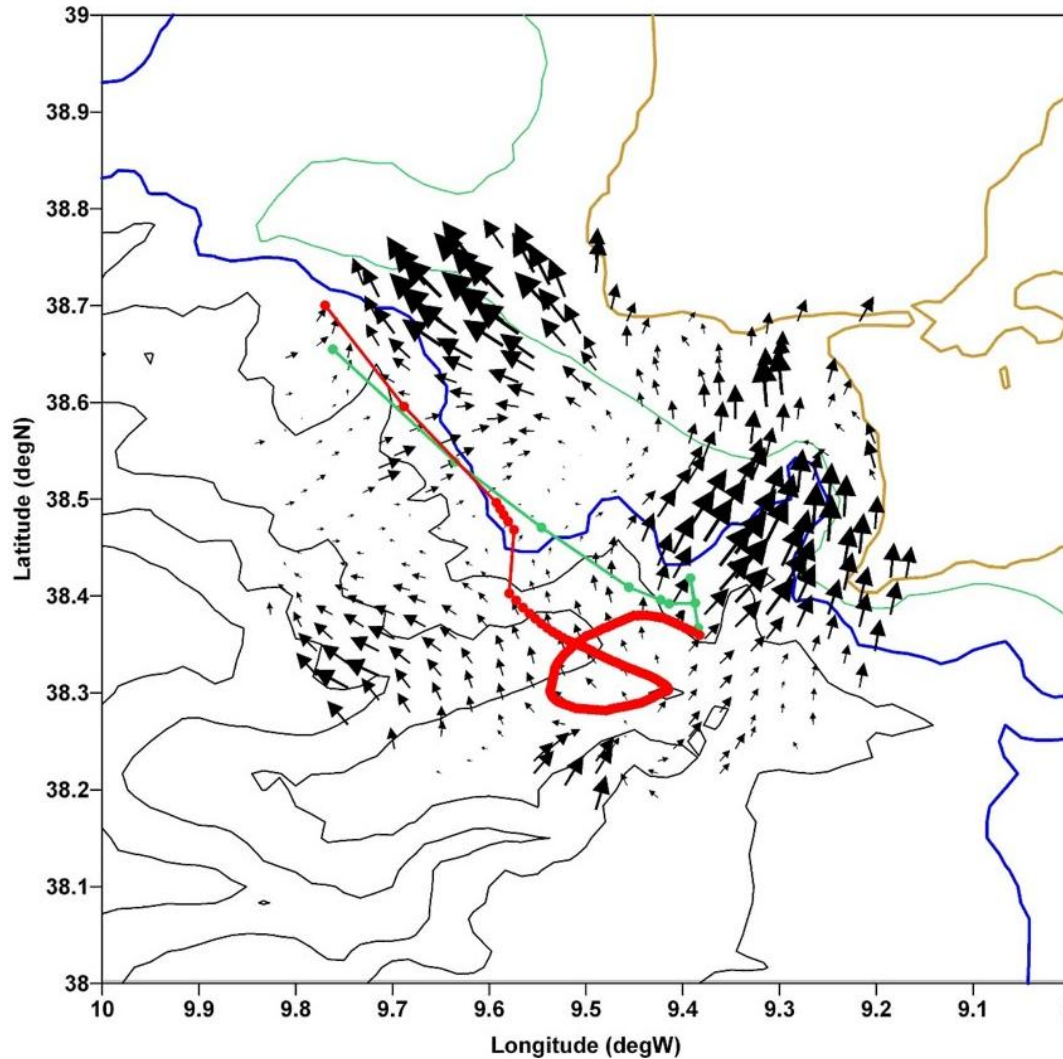
VECTORIAL STATISTICS								
LONGITUDE	LATITUDE	VMean	MVDir	MVVar	MVStd	MVStErr	PDir	StabE
(degE)	(degN)	(m/s)	(deg)	(m ² /s ²)	(m/s)	(m/s)	(deg)	(%)
-9.48973	38.17931	0.107	123.340	0.005	0.069	0.004	142.224	84.8
-9.53781	38.19192	0.162	134.869	0.003	0.050	0.003	128.663	96.9
-9.48973	38.19192	0.100	126.556	0.003	0.059	0.004	134.892	85.1
-9.47370	38.19192	0.056	120.425	0.004	0.060	0.004	135.851	62.0
-9.42562	38.19192	0.037	329.536	0.004	0.061	0.004	139.411	48.5
-9.60192	38.20453	0.157	145.911	0.002	0.040	0.002	91.517	96.6
-9.58589	38.20453	0.175	141.819	0.002	0.041	0.003	103.861	97.4
-9.53781	38.20453	0.170	136.573	0.002	0.048	0.003	123.749	96.7
-9.52178	38.20453	0.152	135.297	0.003	0.051	0.003	123.306	94.9
-9.50576	38.20453	0.136	132.210	0.003	0.055	0.003	125.091	92.6



INTEGRATION OF DATASETS

➤ TRANSPORT PATHWAYS

Promoted by
Subinertial Surface Currents



Trajectories calculated
using:

NEMO (daily)

**Combining
NEMO (daily)
&
HF radar (hourly)**



*Development &
Implementation Team*



BACKGROUND

Extreme events promote severe impacts in the coastal ocean, changing dramatically the conditions of the water column, shelf and slope floor and coastal boundary.

STRATEGY

The Thematic Service explores 3 major storm events that impacted the Iberian coastal ocean area, providing, for each, the relevant datasets for analysis and integration.

Storm Ophelia
9 – 18 Oct 2017

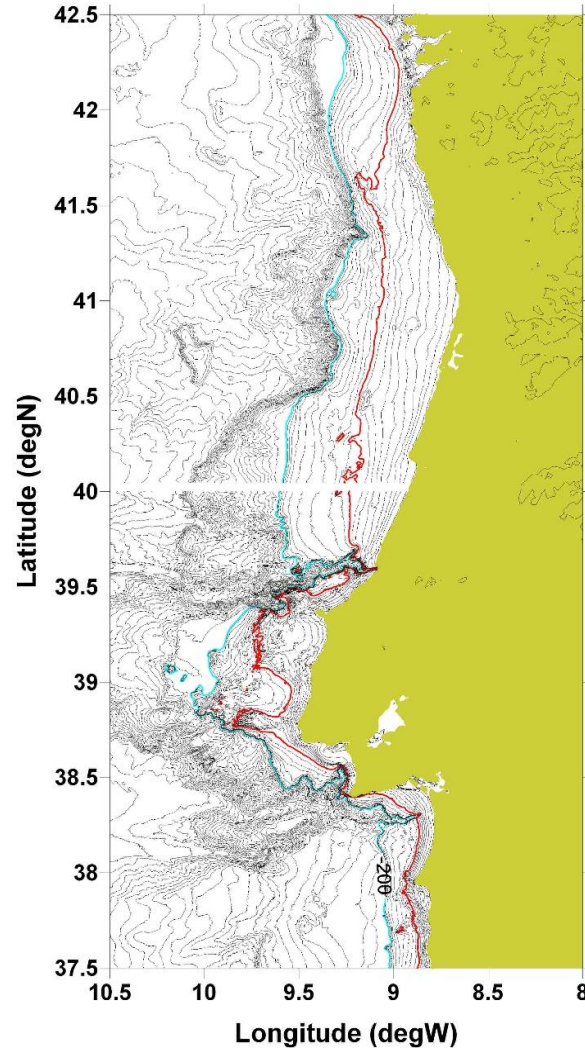
Storm Emma
28 Feb – 10 Mar 2018

Hurricane Leslie
10-20 Oct 2018

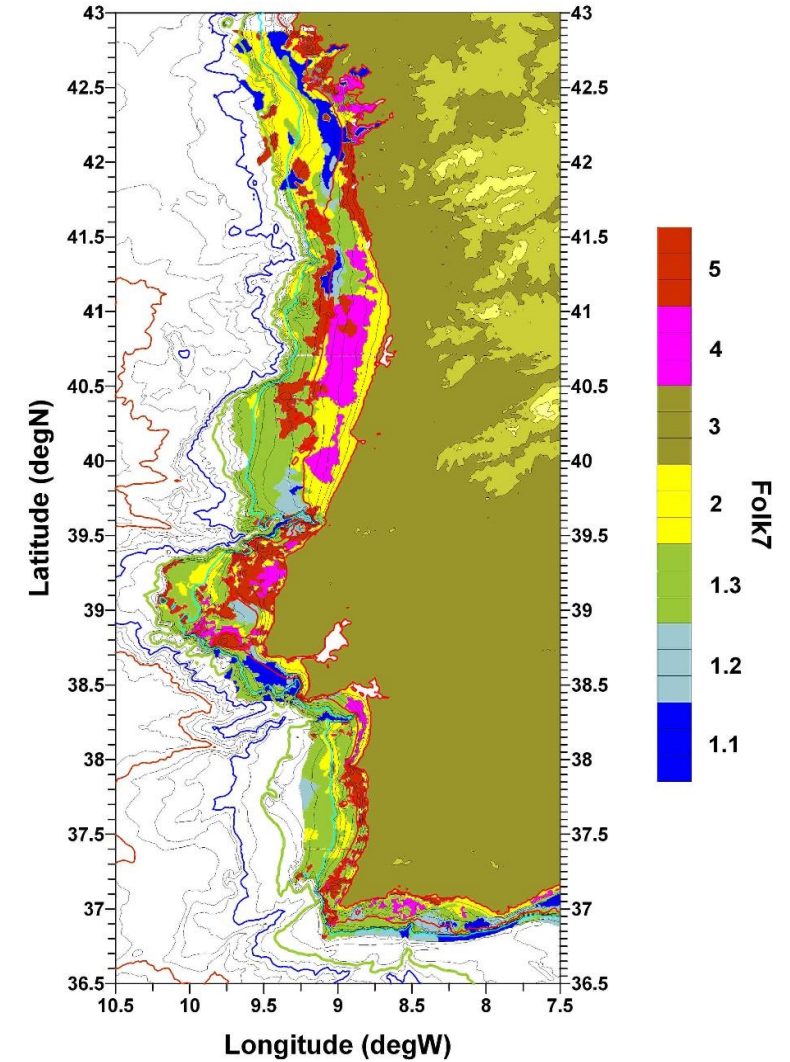
DATASETS

Bottom Characterization

EMODNET
DTM2024
Bathymetry
(res.115m)



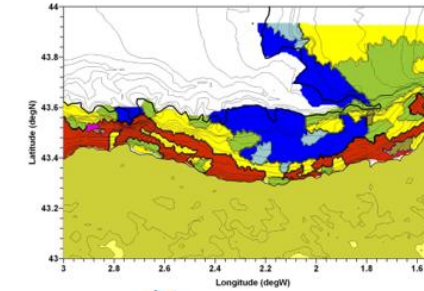
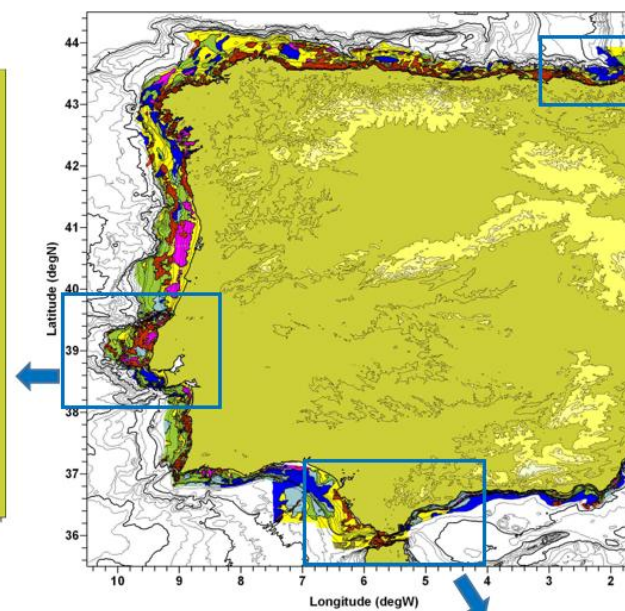
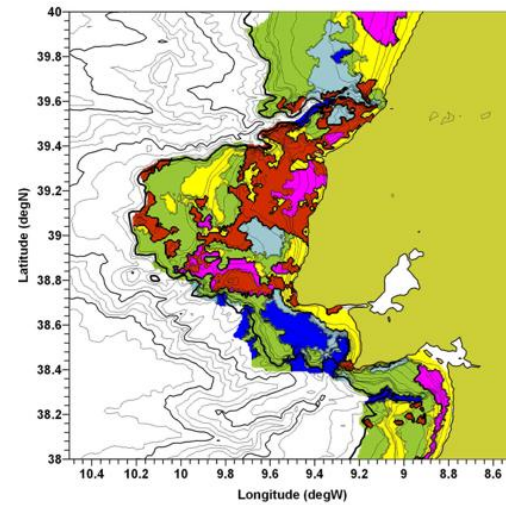
EMODNET
Bottom Sedimentary Cover
(Seabed Substate Folk7)



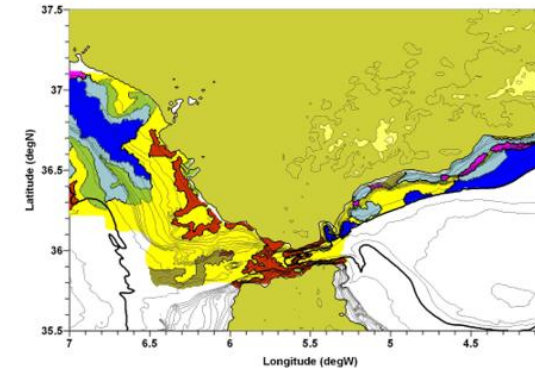
TS#2 - EXTREME EVENTS

EMODNET

Bottom Sedimentary Cover
(Seabed Substate Folk7)



- Mud (Folk7 : 1.1)
- Sandy Mud (Folk7 : 1.2)
- Muddy Sand (Folk7 : 1.3)
- Sand (Folk7 : 2)
- Coarse Substrate (Folk7 : 3)
- Mixed Sediments (Folk7 : 4)
- Rocks & Boulders (Folk7 : 5)



DATASETS

Environmental Conditions

- CMEMS MFWAM Wave Model

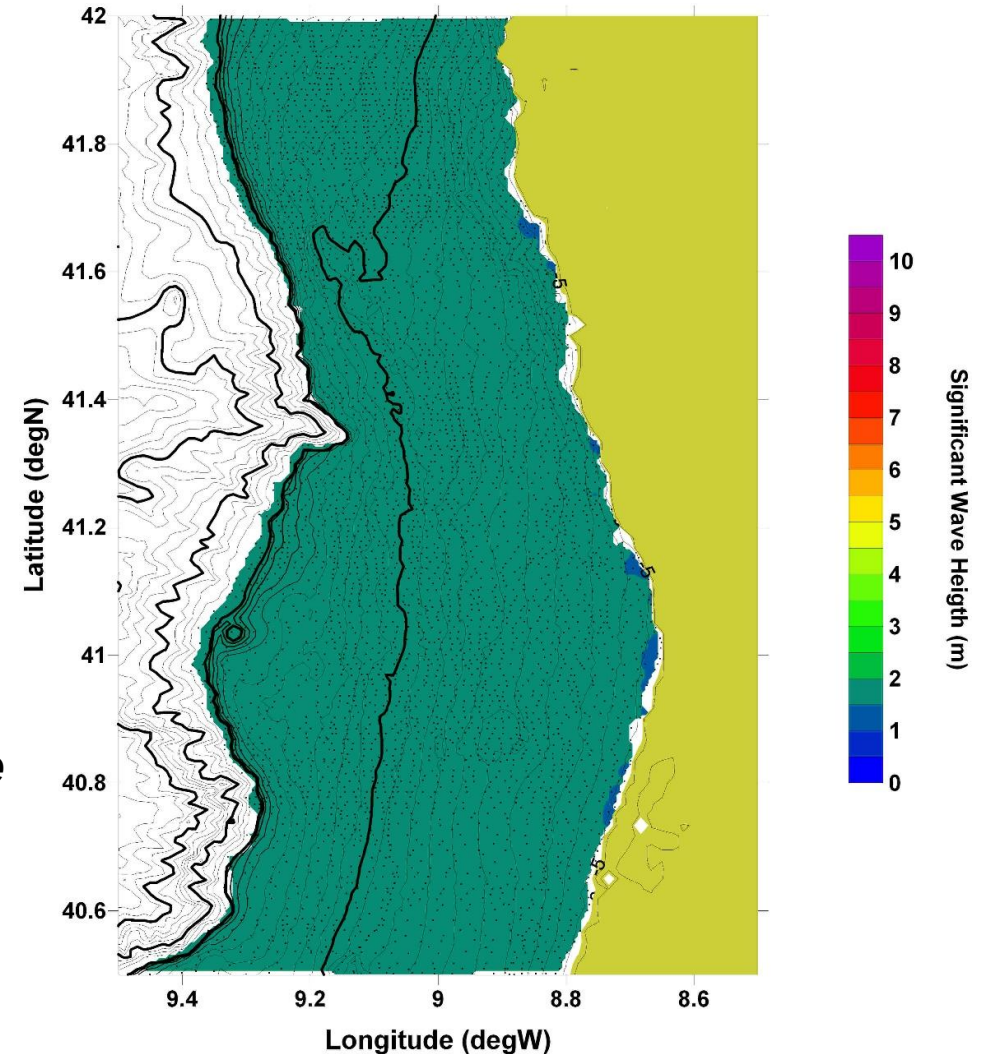
Hourly fields of the main wave parameters

- CMEMS NEMO Model

Hourly fields of barotropic current

Focus on how these conditions affect the shelf-upper slope areas during the periods of

Highest Waves and Lowest Waves



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ICOOE Thematic Service 2 - Extreme Events

Extreme Events Impact Analysis Dashboard

USER OPTIONS

User selection of 1 area of interest (yellow rectangles) and 1 extreme event episode (from 3 possible).

Coordinates

Select area



Latitude

Min

Max

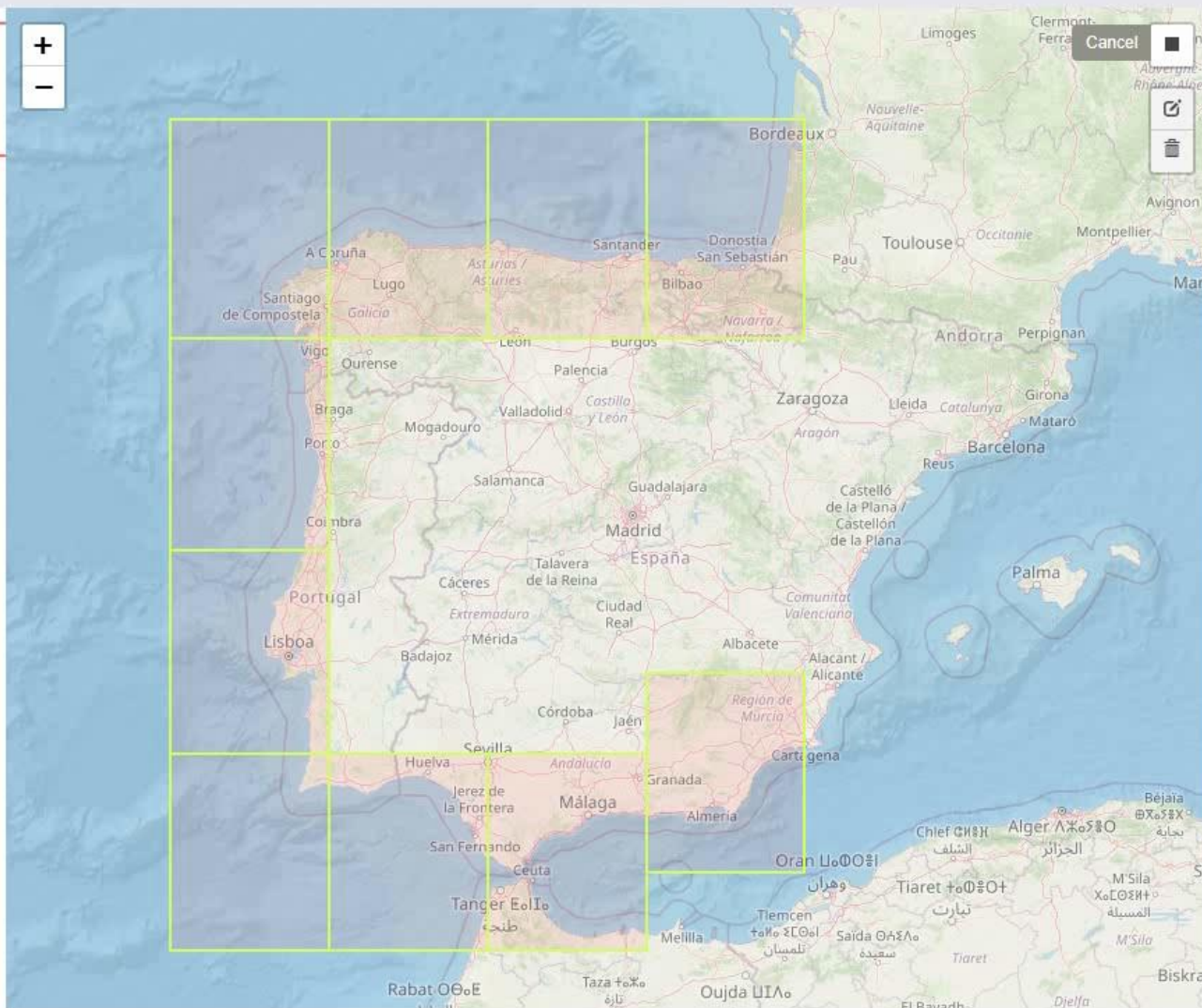
Longitude

Min

Max

Select Extreme Event

Storm Emma (March 2018) ▾



INTEGRATION OPTION 1:

Impacts on Bottom Sedimentary Cover

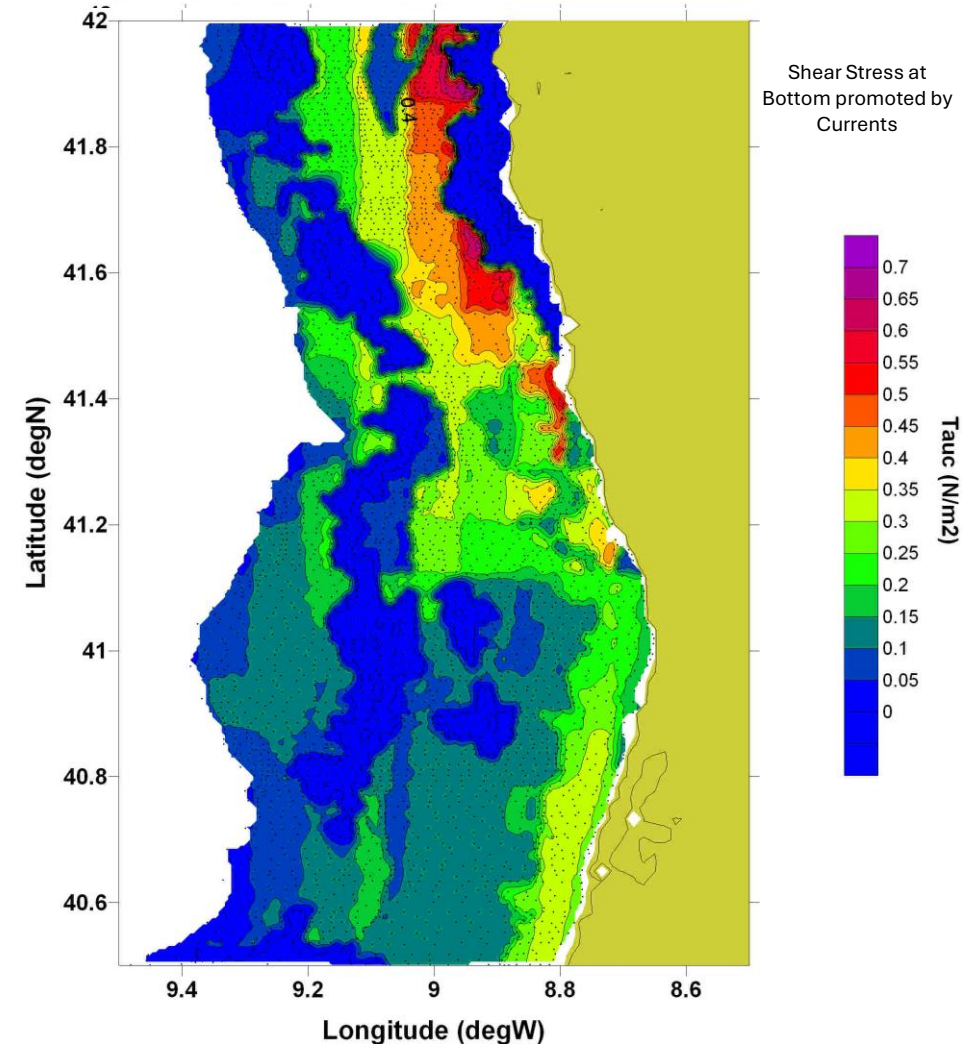
Products offered

Characterization of waves parameters & barotropic currents at each node of the bottom sedimentary cover

Characterization of bottom shear stresses associated with waves, currents, combined effect of currents & waves and critical shear stresses for remobilization

Characterization of bedform features promoted by currents & waves forcing

Characterization of bedload and suspended transport promoted by currents & waves forcing



Extreme Events Impact Analysis Dashboard

User selection of 1 area of interest (yellow rectangles) and 1 extreme event episode (from 3 possible).

Coordinates

Select area



Latitude

Min

Max

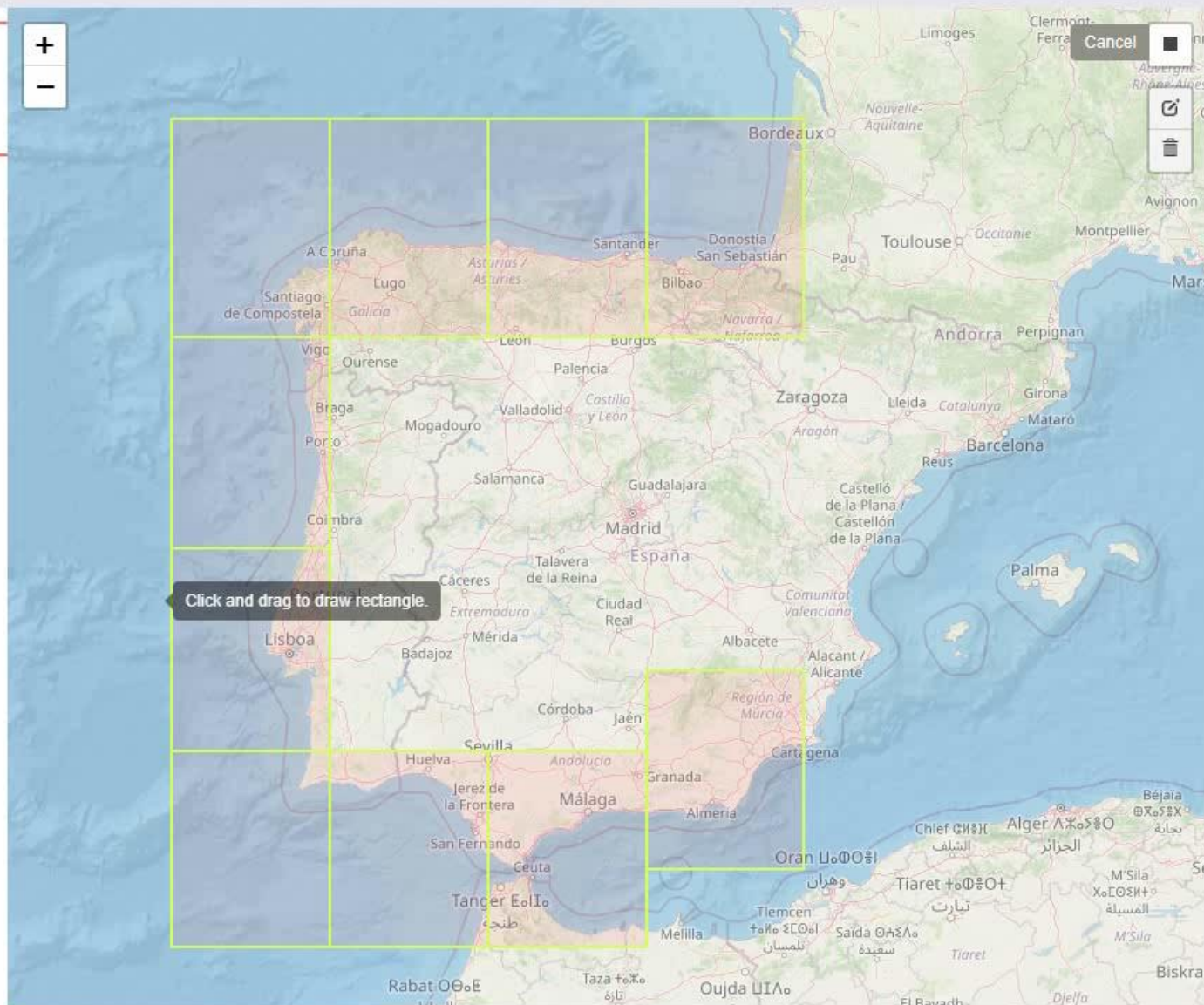
Longitude

Min

Max

Select Extreme Event

Storm Emma (March 2018)



TS#3 - Ocean Glider

Development &
Implementation Team

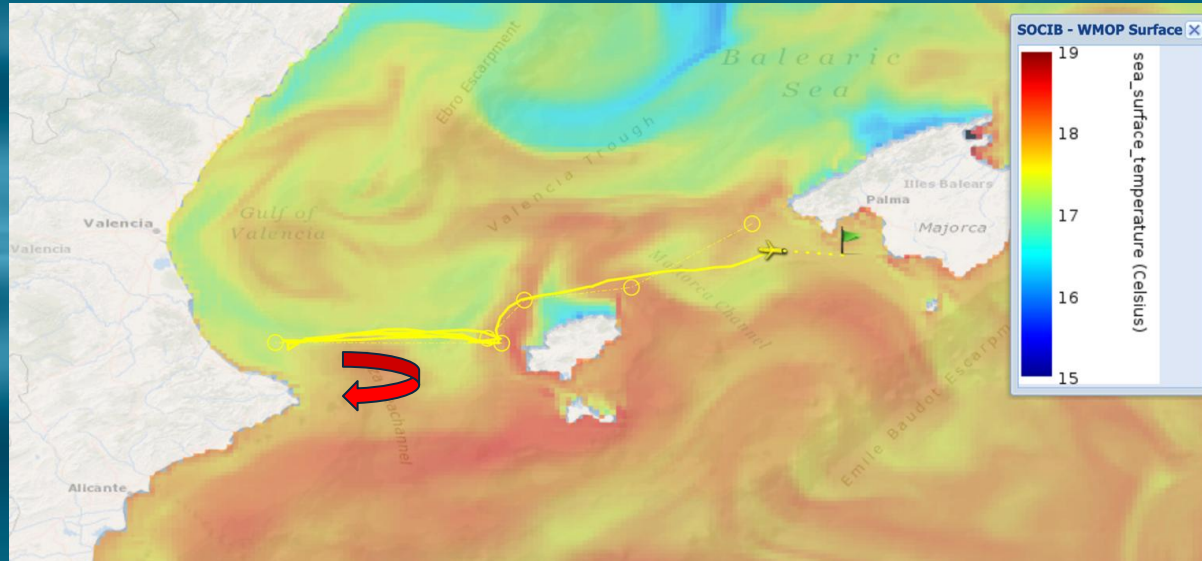
SOCIB Balearic Islands
Coastal Observing
and Forecasting System



Showcases the value of ocean glider missions: from data acquisition to advanced products & visualisations to deliver better coastal information of ocean state and variability from repeated & sustained glider transects in European Seas.



Repeated
Glider
transects



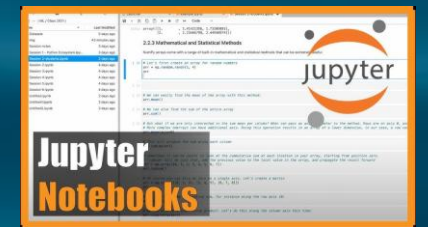
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Data
products



Methods



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Thank you



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