Skill assessment service
for real-time ranking of met-ocean data products
in the IBI area
for emergency and SAR operators

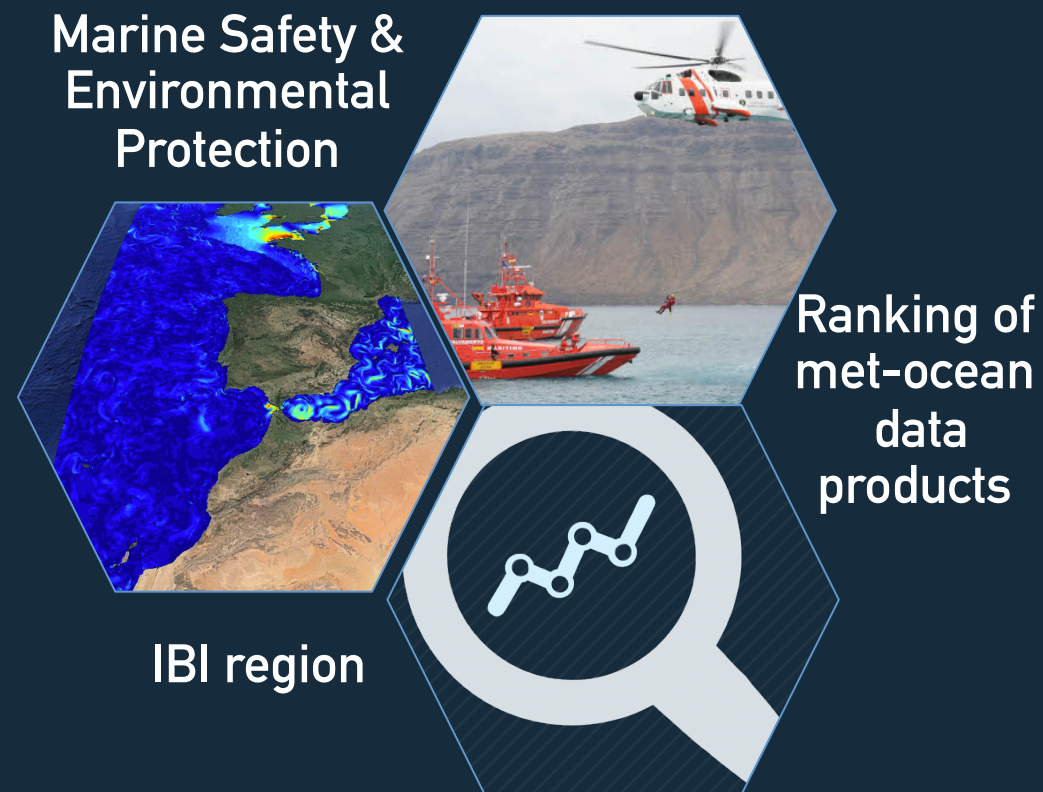## IBISAR DOWNSTREAM SERVICE
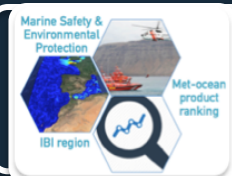
Emma Reyes Reyes / Project IP

SOCIB

OUTLINE

Marine Safety & Environmental Protection

Ranking of met-ocean data products

IBI region

SOCIB

01 IBISAR HIGHLIGHTS

PROPOSAL GOAL

- Improve, validate and promote the skill assessment service IBISAR

SERVICE MAIN AIM

- Provide real-time met-ocean product ranking in the IBI area for emergency responders

SAR OPERATORS NEEDS

- User-friendly automated skill assessment
- Confidence indicator of the forecast >> Easily interpretable metrics
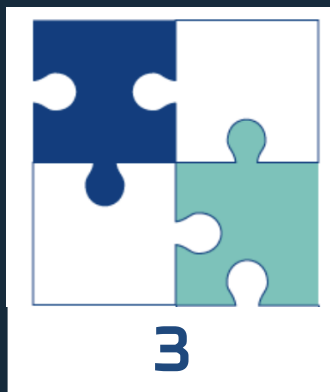
CMEMS products

- CMEMS MFCs: current velocity forecast within the IBI region
- CMEMS INSITU & Satellite TACs: current velocity (IBI)
- Upcoming High-Frequency Radar surface currents (IBI)

TEAM

- SOCIB : advanced MRI1 & data provider (public)
- AZTI   : technological centre (private NPO[2])
- RPS   : downstream service provider (private)

[1] Marine Research Infraestructure; [2] Non-Profit Organization

3
Public and private institutions

10
Scientists

5
Working packages

4
IBI-subregions

150 KEur
Budget

18
Months

1
Downstream service

COASTAL & MARINE ENVIRONMENT

MARINE SAFETY

2
Areas of benefits

SAR

RESPONSE

TRAINING

Legend:
- COPERNICUS IBI
- COPERNICUS MEDITERRANEO
- WMOP ROMS
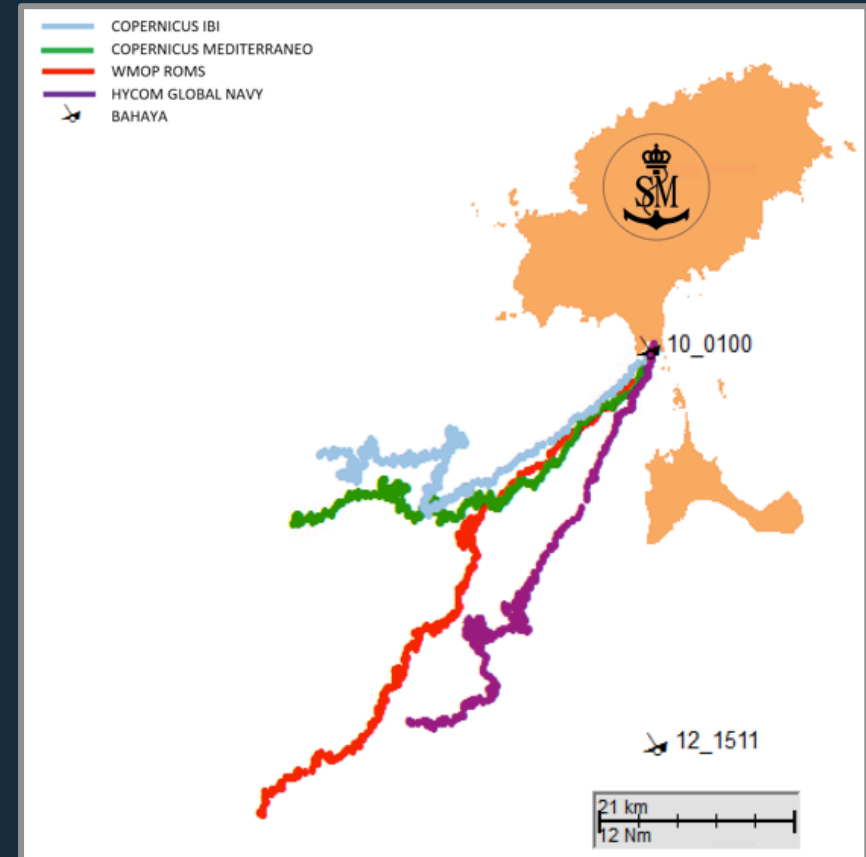- HYCOM GLOBAL NAVY
- BAHAYA

10_0100

12_1511

21 km
12 Nm

Reliable met-ocean observations and forecasting are essential

Easily interpretable metrics

User-friendly automated skill assessment

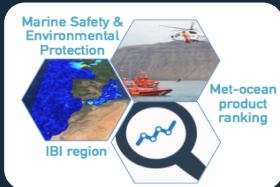Simulated trajectories from different models

WP1: Data Inventory & collection

T1.1: Identification and compilation of CMEMS products

T1.2: Identification and compilation of complementary database

WP2: Service improvement, activation, test and maintenance

T2.1: Development & processing methods to obtain the datasets

T2.2: Activation of IBISAR service

T2.3: Monitoring and maintenance of IBISAR service

WP3: Skill assessment validation

T3.1, 3.2, 3.3 & 3.4: SA Validation in the IBI subregions (WSMED; NIBSH; GIBS; CADIZ)

WP4: Service Promotion

T4.1: Communication actions (Official mailing; video-tutorial; leaflet; conferences)

T4.2: Creation of IBISAR Dedicated Webpage

T4.3: Edition of the Use Case

WP5: Project Management

T5.1: Technical and administrative coordination

T5.2: Establishment and provision of the Action Plan

T5.3: Production of reports

T5.4: Organization of meetings

WP	TASK	May T0+	Jun 01	Jul 02	Aug 03	Sep 04	Oct 05	Nov 06	Dec 07	Jan 08	Feb 09	Mar 10	Apr 11	May 12	Jun 13	Jul 14	Aug 15	Sep 16	Oct 17	Nov 18	Nov 30	March 2021
		[2018]								[2019]											[2020]	[2021]
1	DATA INVENTORY & COLLECTION							M1.1						M1.2								
	Task 1.1 CMEMS products																					
	Task 1.2 Complementary Data base						D1.1							D1.2								
2	SERVICE IMPROVEMENT, ACTIVATION, TEST & MAINTENANCE							M2.2									M2.1					M2.3
	Task 2.1 Processing methods to obtain datasets & integration of datasets						D2.1										D2.1'					
	Task 2.2 Activation of IBISAR							D2.2											D2.2'		D2.2'	D2.2'
	Task 2.3 Monitoring & maintenance																					
	Subtask 2.3.1. User support service during the contract																	D2.3				
	Subtask 2.3.2. User support service after the end of the contract																					D2.3'
3	SKILL ASSESSMENT VALIDATION					M3.1				M3.2				M3.3			M3.4					
	Task 3.1 SA Validation in the IBI-subregion WSMED (Ibiza Channel)																					
	Task 3.2 SA Validation in the IBI-subregion NIBSH (Biscay Bay)																	D3.1				
	Task 3.3 SA Validation in the IBI-subregion GIBS (Strait of Gibraltar)																					
	Task 3.4 SA Validation in the IBI-subregion CADIZ (Gulf of Cadiz)																					

[4] Month T0 corresponds to May 2018, expected date of notification of the contract.

[5] Month T0+18 corresponds to November 2019 and to the end of the contract.

[6] Month T0+30 corresponds to November 2020 (12 months after the end of the contract).

		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11
4	**SERVICE PROMOTION**									M4.1 M4.2		M4.3
	Task 4.1 Communication Actions											
	Subtask 4.1.1. Official mailing[7]									L4; P2		
	Subtask 4.1.2. Video tutorial & short videos of targeted users									D4.2		
	Subtask 4.1.3. Leaflet											
	Subtask 4.1.4. Meetings & Conferences[8]				C1					C2		
	Task 4.2 Dedicated Webpage[9]				P1					P1'	P1'	P1'
	Task 4.3 Use case form[10]									L5		
5	**PROJECT MANAGEMENT**		M5.1					M5.2			M5.3	M5.4
	Task 5.1 Technical and administrative coordination		1st[11]			2nd		3rd		4th		
	Task 5.2 Provision of the Action Plan[12]		L1					L1'				
	Task 5.3 Production of reports[13]					L2				L2'	L3	L3
	Task 5.4 Organization of meetings[14]	KO		MM			MM		FM		EP	

[7] **P2**= letter to the Member States; **L4** = copy of the letter informing about the demonstration. [Service and Deliverables required for this lot-7]

[8] **C1**=EOOS Conference, 21-23 November 2018, Brussels (to start presenting the recently launched Dedicated Webpage and the service itself) or **C2**= attendance to the National User Forum Meeting celebrated on an annual basis during the last quarter of the year. Attendance to an additional relevant conference (**C3**) is going to be considered over the year 2019.

[9] **P1**= hyperlink to the draft of dedicated webpage; **P1'**=hyperlink to the dedicated web page. [Services required for this lot -7]

[10] **L5**= "Use Case" form. [Deliverable required for this lot -7]

[11] **Invoicing Management: 1st**= first advance payment (20%) depends on the validation of the Action plan (L1); **2nd**= second advance payment (30%) after the validation of the intermediate report (L2) and the hyperlink to the draft of the dedicated webpage (P1); **3rd**=third advance payment (20%) after the validation of the update of the action plan (L1'); **4th**= last payment (30%) depends on the validations of the final report (L2'); the hyperlink pointed on the dedicated webpage (P1'); the delivery of the "Use Case" form (L5) and of a copy of the Letter sent to the Member States (P2)

[12] **L1**=action plan over the 18-month period. **L1'**= updated version of L1. [Deliverables required for this lot -7]

[13] **L2** = intermediate report. **L2'** = final report. **L3** = report with annual user statistics. [Deliverables required for this lot -7]

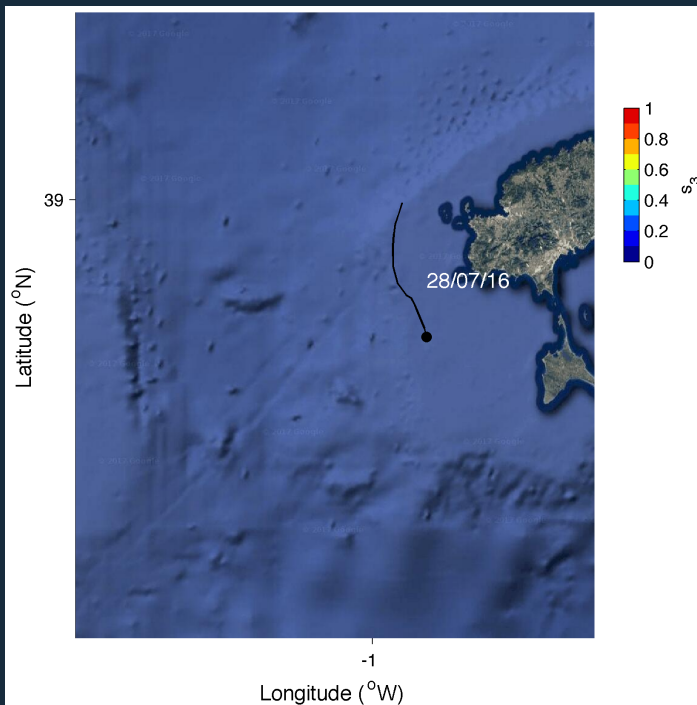[14] **Meetings** will take place via videoconference. **KO** = Kick-off meeting planned just after the notification of the contract. **MM**= Mid-term meetings (one of them will be a face-to-face meeting). **FM**= Final meeting. **EP** = End of action.
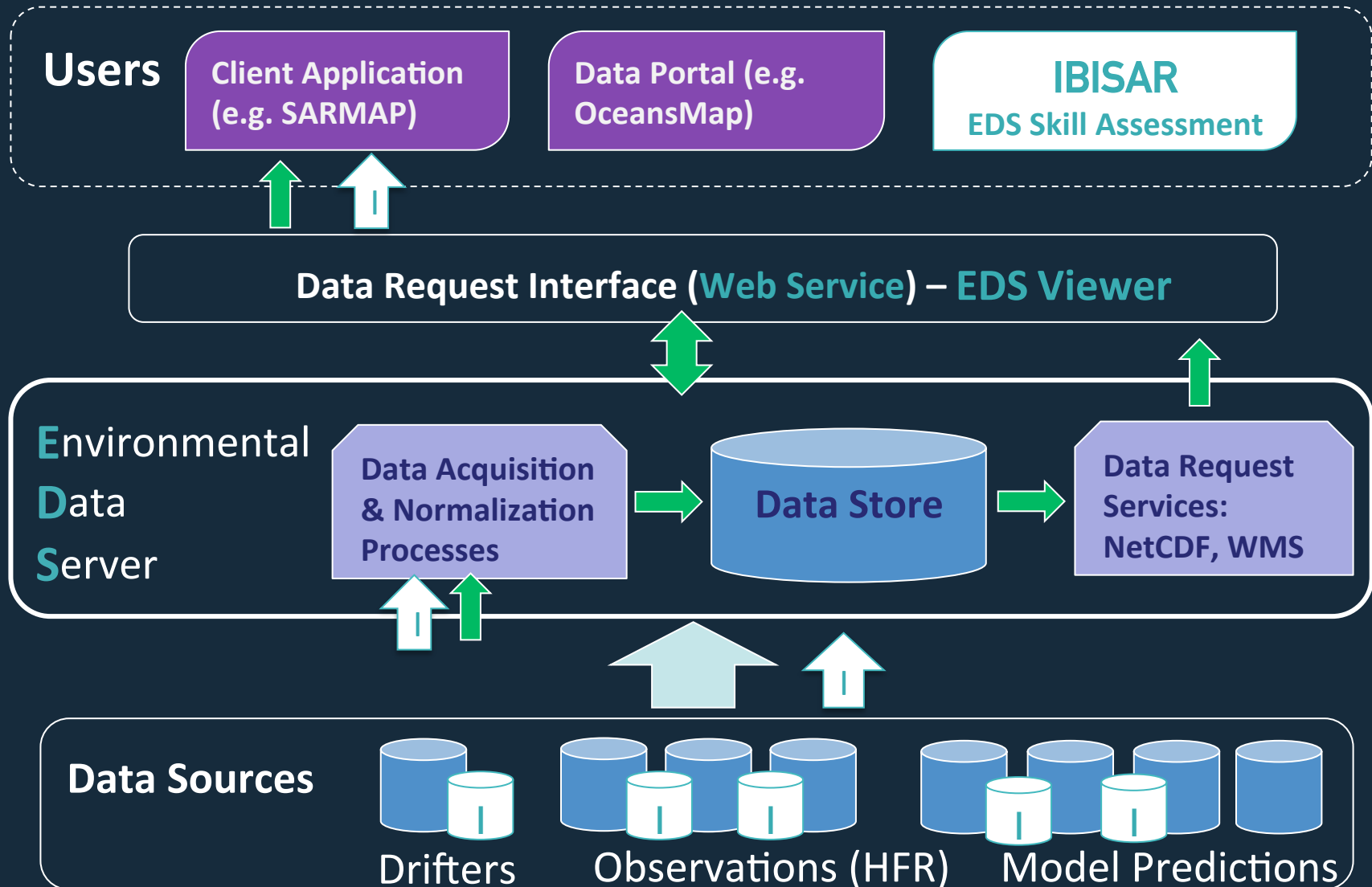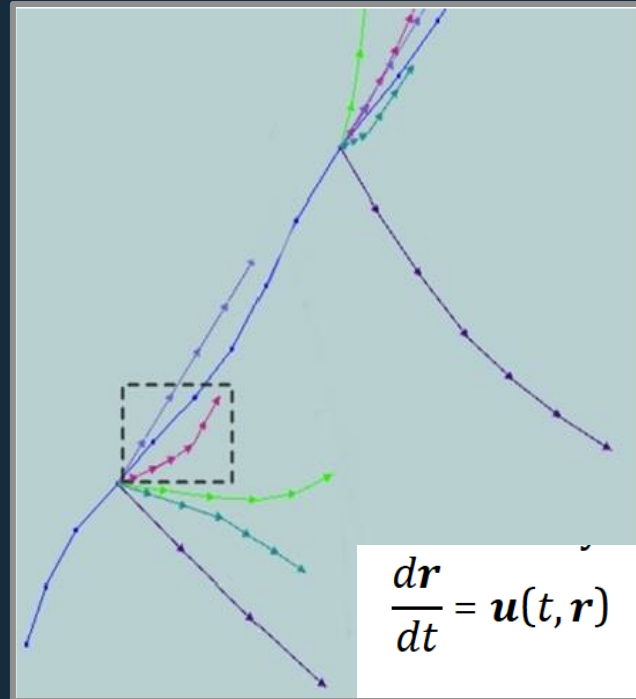
06   IBISAR SERVICE: SKILL ASSESSMENT IMPLEMENTATION

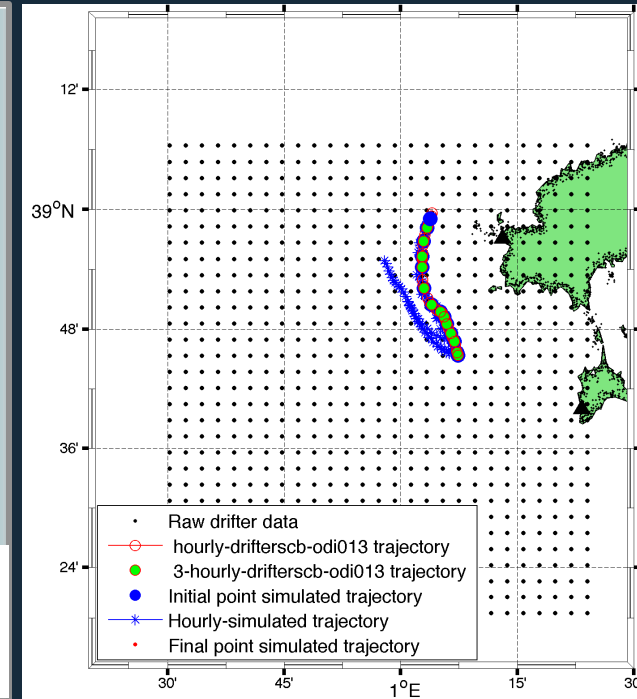**1) Subset model datasets (position & time of drifter data)**

2) Trajectory simulation (for all available datasets)

$$\frac{d\boldsymbol{r}}{dt} = \boldsymbol{u}(t, \boldsymbol{r})$$

3) Compare pairs observed vs. predicted drifter trajectories

- · Raw drifter data
- —○— hourly-drifterscb-odi013 trajectory
- 3-hourly-drifterscb-odi013 trajectory
- Initial point simulated trajectory
- —*— Hourly-simulated trajectory
- · Final point simulated trajectory

EDS Catalogue → **Ocean model data** → **Lagranian Trajectory model** →

$$s = \sum_{i=1}^{N} d_i \bigg/ \sum_{i=1}^{N} l_{oi}$$

Liu and Weisberg (2011)

SOCIB

Intersectoral PPP (Public-Private Partnership)

SOCIB — Balearic Islands Coastal Observing and Forecasting System

- Project Coordinator
- WP leader 1, 4 and 5
- Scientific excellence with impact on society
- Data management capacities
- Products and services strategy
- Outreach Service

RPS

- Project Co-Contractor
- WP leader 2
- Technical skills (ICT tools)
- Tailor-made products
- User-friendly tools
- Seamless service
- Industry involvement
- Ensure user uptake
- Large client base (25 countries)
- Australia & Asia Pacific, Europe and North America
- > 5000 employers

azti tecnalia

- Project Co-Contractor
- WP leader 3
- EU Projects coordination experience
- Coordination of HFR activities at EU level
- Leaders of CMEMS-SE INCREASE

Salvamento Marítimo

- Main targeted user
- User-Feedback
- User-engagement

Puertos del Estado

- Collaborator
- Responsible for IBI INSTAC and MFC
- Key actor in CMEMS, IBI region.

07 MULTIDICIPLINARY WORKING TEAM

ADVANCED MRI[1] & DATA PROVIDER (PUBLIC)

- Emma Reyes (Coastal HF Radar, PI)
- Joaquín Tintoré (SOCIB's Director, Co-IP)
- Baptiste Mourre (Modelling and Forecasting)
- Paz Rotllán (Data Centre – Frontend developer)
- Ismael Hernández (PostDoc IBISAR)

TECHNOLOGICAL CENTRE (PRIVATE NPO)

- Julien Mader (Head of Marine Technologies Area)
- Anna Rubio (Senior Researcher)
- Luis Ferrer (Senior Researcher)
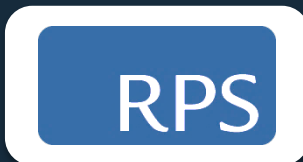
DOWNSTREAM SERVICE PROVIDER (PRIVATE)

- Eric Comerma (Senior Research Scientist)
- Tayebeh S. Tajalli Bakhshsh (Senior Research Scientist)

SPANISH SAR AGENCY (TARGETED USER)

Puertos del Estado

SPANISH PORT SYSTEM

08 IMPACT ON CMEMS

- In line with the user-uptake tenders objectives:
  - Current user's loyalty reinforcement:
    - Data accuracy and confidence increase
    - Data potential unlocking
  - New communities attraction:
    - Links with potential users
    - Engaging with public authorities and civil society
    - Address potential private sector users
- In line with user-uptake priorities:
  - An easy access to CMEMS products
  - More verification and validation of CMEMS products
- Promotion of HFR data and its benefits for:
  - INSTAC: surface currents crucial to improve CMEMS areas of benefits
  - MFCs: as keystone for validating models and improving them

- New innovative service:
  - to respond to targeted users
  - to increase applications of CMEMS products
  - to complement other assessment tools (i.e. NARVAL)
- Scientific activities contributing :
  - to the methodologies for surface current assessment
  - to the homogenization of metrics and accuracy values

09 BENEFITS FOR TARGETED USERS

- Single & user-friendly access point to reliable information.

- Updated inventory of datasets.

- Model evaluation error easily interpretable metrics.

- Better preparation at sea.

- Immediate & more secured response.

- Optimal search area planning.

- Effective resource allocation and search effort.

- Complement of decision-making support tools

SOCIB

- Highly functional and user-friendly
- Multi-lingual (EN, ES, FR?)
- Content:
  - Service Overview
  - CMEMS products used
  - Benefits for users
- Link to IBISAR private service
- Contact details
- Link to active social media accounts
- "News" section or embedded Twitter timeline
- "Other related services" section
- Tutorial-video, videos of targeted users

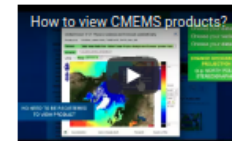**IBISAR: a real-time met-ocean product ranking for emergency & SAR operators.**
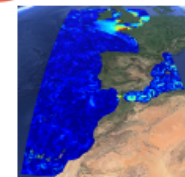
COASTAL & MARINE ENVIRONMENT

MARINE SAFETY

- **Service overview.** A Environmental Data Server dashboard skill assesment service for real-time met-ocean product ranking in the IBI region for emergency responders & SAR operators.

- **CMEMS products used:**
  - CMEMS MFCs current velocity forecast available in the IBI region:
    GLOBAL   NWS   IBI   MED
  - CMEMS TACs NRT current velocity & satellite sea level products in the IBI region:

    GLOBAL   NWS   IBI   MED
  - Upcoming High-Frequency Radar Ocean surface currents

- **Benefits for users:**
  - get information instead of data
  - get user-friendly access to met-ocean products at 3 clicks
  - get support to select the best met-ocean product available
  - get access to easily interpretable & understable information metrics
  - support planning for effective resource allocation & search effort

How to discover and search for... AND FORECAST

How to view CMEMS products?

Show me IBISAR!

Illustrations | Video | News | Related Services | Contact Us

| IBISAR contact | ibisar@socib.es |
| MERCATOR OCEAN | servicedesk.cmems@mercator-ocean.eu |

Show me IBISAR!

Illustrations | Video | News | Related Services | Contact Us

"Better met-ocean products, for better response"