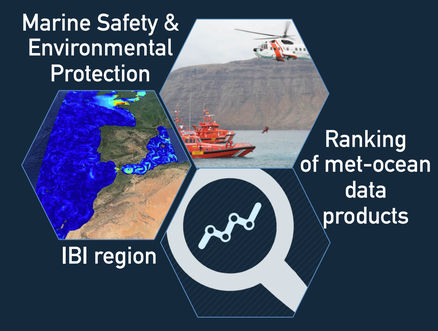
IBISAR: service for real-time ranking of met-ocean data products for emergency and SAR operators



Emma Reyes[1], Baptiste Mourre[1], Paz Rotllán[1], **Ismael Hernández-Carrasco**[1], Eric Comerma[2], Tayebeh Tajalli Bakhsh[2], Anna Rubio[3], Julien Mader[3], Luis Ferrer[3], Christian De Lera Fernández[4], Enrique ÁlvarezFanjul[5], Alejandro Orfila[6] and Joaquín Tintoré[1,6]

[1]SOCIB, Parc Bit, Naorte, Bloc A, 2ºp, pta 3. Palma, Spain. [2]RPS Ocean Science, South Kingstown, USA. [3]AZTI Marine Research, Pasaia, Spain.
[4]Centro de Seguridad Marítima Integral Jovellanos, Salvamento Marítimo, Gijón, Spain. [5]Puertos del Estado, Madrid, Spain. [6]IMEDEA (CSIC-UIB), Esporles, Spain.
(ihernandez@socib.es)

01 Motivation: Needs of targeted users

- **Users:**
  - Agencies in charge of Search and Rescue (SAR) missions, marine pollution response and maritime traffic control.
- **Key concern:**
  - Impact of inaccurate data on decision-making process.
  - Lack of available user-friendly automated data quality assessment.
- **Needs:**
  - Reliable observations and model forecasts for improving emergency response missions
  - Increasing demand of easy to use indicators developed to assess ocean model performance.

02 IBISAR service overview

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

2.2 Skill assessment:
Lagrangian approach comparing virtual and real drifter trajectories.

2.3 SAR operators needs:
User-friendly automated confidence indicator of forecast >>> Easily interpretable metrics

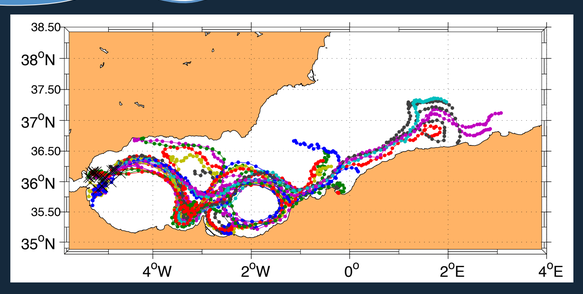
2.4 CMEMS products:
MFCs: current forecast
INSITU & Satellite TACs: current data
Upcoming HF radar currents

Goal: IBISAR service will provide user-friendly quantitative ranking metrics of real-time met-ocean CMEMS data products available in the Iberia-Biscay-Ireland (IBI) region. IBISAR will guide SAR operators in selecting the most accurate met-ocean product on-the-fly, as input for their SAR and environmental modelling applications.

Turning data into information for specific users

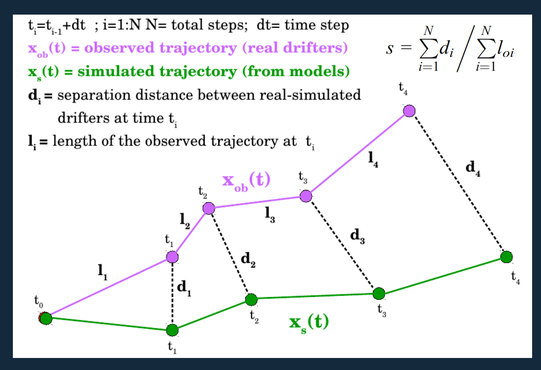
03 IBISAR service: Skill assessment implementation

3.1 Trajectory simulation from all available datasets



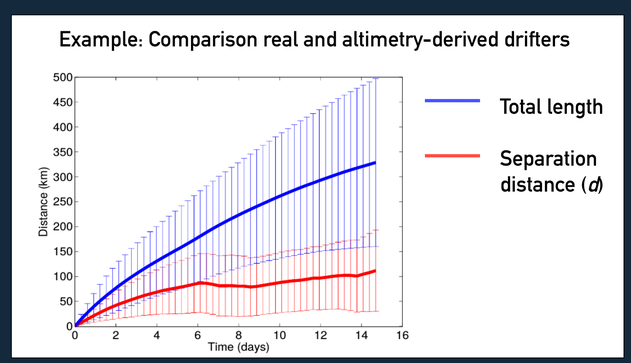
Sotillo et al., 2016, *Earth Syst. Sci. Data*

3.2 Comparison of simulated *vs.* real drifter trajectories



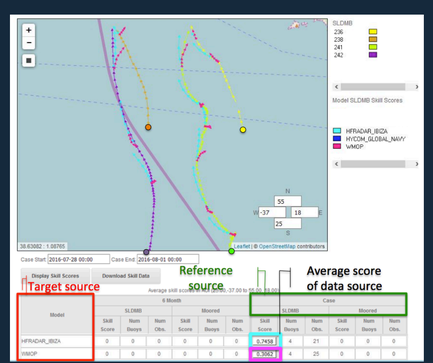
Liu and Weisberg, 2011, *J. Geophys. Res*

3.3 Separation distances between trajectories



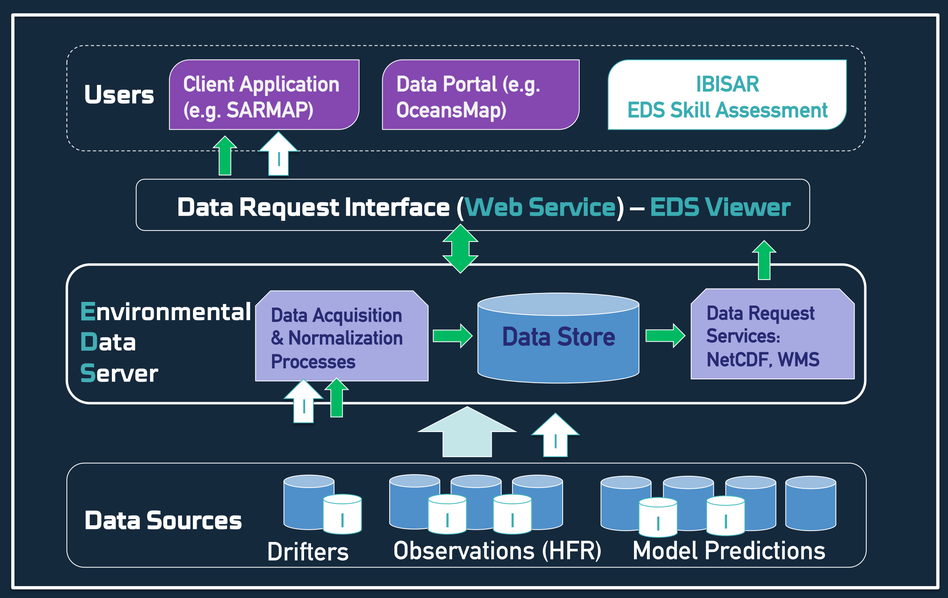
Hernández-Carrasco and Orfila, 2018, *J. Geophys. Res*

3.4 Final IBISAR user information



Quantification and visualization of model skills by means of easily interpretable metrics

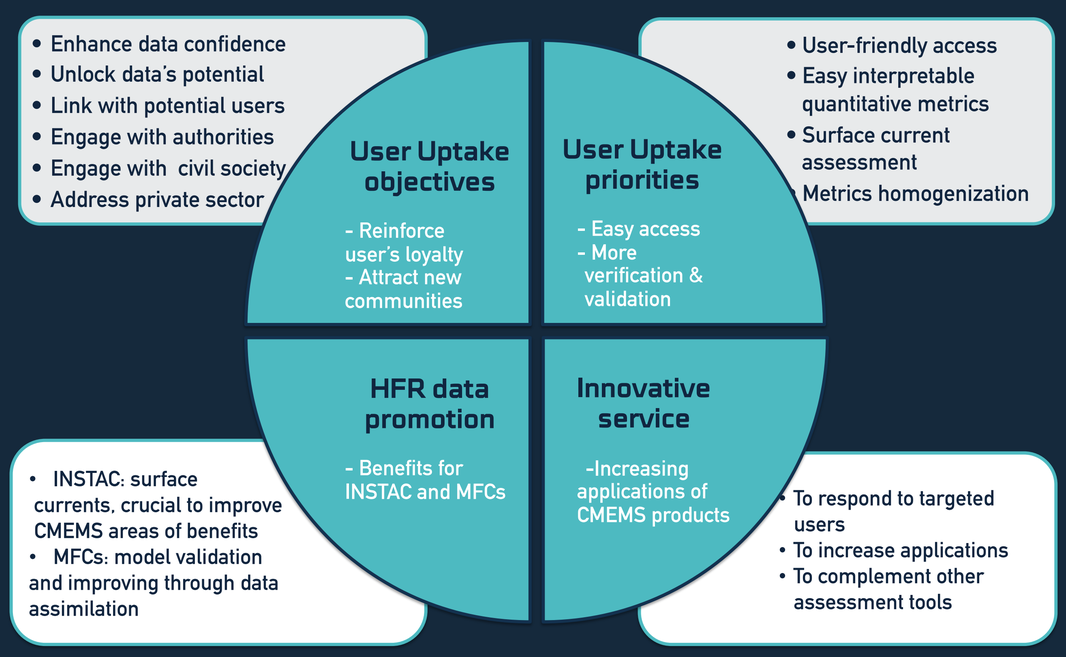
04 Elements of the service implementation



05 Benefits for targeted users

- Single & user-friendly access point
- Updated catalogue
- Easily interpretable metrics
- Improve rescue operations & pollution mitigation
- Immediate & more secure response
- Optimal search area planning
- Effective resource allocation
- Complement of decision-making support tools

06 Impact on CMEMS



07 IBISAR key numbers

3	10	5	4	1	2
Public and private institutions	Scientists	Working packages	IBI-subregions	Downstream service	CMEMS Areas of benefits

08 Acknowledgements

This work is supported by Copernicus Marine Environment Monitoring Service (CMEMS) IBISAR project (User Uptake, contract 67-UU-DO-CMEMS-DEM4_LOT7).
The Copernicus Marine Service is implemented and operated by Mercator Ocean in the framework of a delegation agreement with the European Union. In addition, the work is being developed in synergy with CMEMS In Situ TAC Phase 2 (contract 82-CMEMS) and thanks to the outputs of CMEMS INCREASE project (Service Evolution, 2016-18).
This service is being generated using E.U. Copernicus Marine Service Information.

www.socib.es