"Surface drifters have been used for a long time to gather information about Ocean motion. A significant evolution has occurred since the message-in-a-bottle to present day's high accuracy GPS-positioned, multi-sensor, real-time tracked drifters. Different float designs have been tested over the last decades, mainly for deep-sea, and such approach was not followed by a similar drifter development for the nearshore dynamics. To our knowledge, WAVY is the first drifter to have been designed specifically to carry out measurements in the surf zone. It is a product being developed in the MELOA project, with its foundations in RAIA Regional Oceanographic Observatory (www.marnaraia.com).

The main distinguishing characteristics of the WAVY drifters are their small size, making them very easy-to-handle; their optimized buoyancy, minimizing their vulnerability to direct wind effect; and the mass distribution inside them, that minimizes the pendular motion, making them particularly stable, thereby allowing a very high rate of position acquisition. MELOA seeks to preserve these characteristics, while promoting the upgrade of the present WAVY and developing a family of drifters, which will range from small drifters suitable for beach and surf zone studies, to somewhat larger drifters tailored for coastal and long-term open ocean observations. The family will consist of five members, namely WAVY Basic, WAVY Littoral, WAVY Ocean, WAVY Ocean-plus and WAVY Ocean-Atmo, at different technology readiness levels (TRL).

MELOA is developing the prototypes for the different WAVY configurations and engaging with the marine community to test them in different marine environments. Results of test campaigns will be made widely available and used to develop the first products and services to showcase the usefulness of the WAVY data.

Focused on providing solutions to cover ocean observation gaps, MELOA (www.ec-meloa.eu) will address different use cases of marine in-situ measurements, while increasing the availability of in-situ data for coastal and open ocean zones. WAVY is laying the foundations of marine observation systems based on low-cost devices, while fostering innovation and contributing to the Sustainable Development Goals 9, 13 and 14."

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Theme: Sharing efforts and collaboration across sectors and communities

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

"Reliable near-real time (NRT) operational data and model forecasts are crucial to provide useful technical support to improve the Maritime Safety Agencies (MSA) response capacity in case of maritime emergencies, Search and Rescue (SAR) operations and marine environment protection. SAR and environmental risk simulations are mostly based on Lagrangian trajectory models. The accuracy of oil spill tracking and trajectory forecast of a drifting target depends on the integration scheme and on the wind and sea surface velocity field used in the Lagrangian model. Therefore different forecast of currents can result in disparate trajectories that together with the growing number of available ocean observation and model products can hinder the consensus on which model should be used.

In this regard, skill assessment (SA) methods are required to quantify model performance, by providing easily interpretable and understandable metrics, to be used as a confidence indicator of the forecast in a systematic and long-term routine manner. The IBISAR SA service, built on an existing operational service, executes first an automated process to simulate trajectories from the available met-ocean datasets and procure next an evaluation of the model performance. In this evaluation, observed and predicted trajectories are compared to provide a dimensionless skill score metric. Surface current data from multi-platform observing systems (e.g. drifting buoys, satellite-derived observations, High-Frequency Radar - HFR- and moorings) are used to estimate errors in the forecast model outputs.

Through the IBISAR service, users will be able to easily access the met-ocean data for downloading, visualizing and comparing different data products, assessing the quality of different model predictions and HFR performance in comparison with real-time or historical measurements. The service focuses on the IBI (Iberian-Biscay-Ireland) region, supporting a myriad of socio-economically important activities including fisheries, oil and gas shipping, commercial ship traffic, coastal and marine environment management and protection, marine safety and energy production. IBISAR service can be used by targeted users (e.g. SAR operators, emergency responders and other maritime safety, coastal and marine environment actors) as a decision-support tool to choose on-the-fly the best available met-ocean product as input for their SAR and environmental risk modelling applications.

The improvement and validation of IBISAR service are being carried out by a Public-Private Partnership between an advanced Marine Research Infrastructure and data provider (SOCIB, public sector), a Technological Centre with expertise on marine and food research (AZTI, private non-profit organization) and a Downstream Service Provider (RPS Ocean Science, private sector), under the umbrella of CMEMS (Copernicus Marine Environment Monitoring Service) User Uptake programme. This service relies on tight collaboration across ocean-related institutions and sectors working on marine safety and environmental protection, in particular with the Spanish Maritime Safety and Rescue Agency. Furthermore Puertos del Estado (Spanish Port System), key actor in the Copernicus Marine Service structure, actively collaborate providing best practices exchanges regarding coastal observations and model datasets integration into the service and synergies with existing assessment tools."