MELOA Catalogue and Geoportal: A modern approach for open access and visualization of in-situ drifter data

WAVY
A DRIFTER BY MELOA CONSORTIUM

EuroGOOS
European Global Ocean Observing System

EuroGOOS 2021

Félix Pedrera

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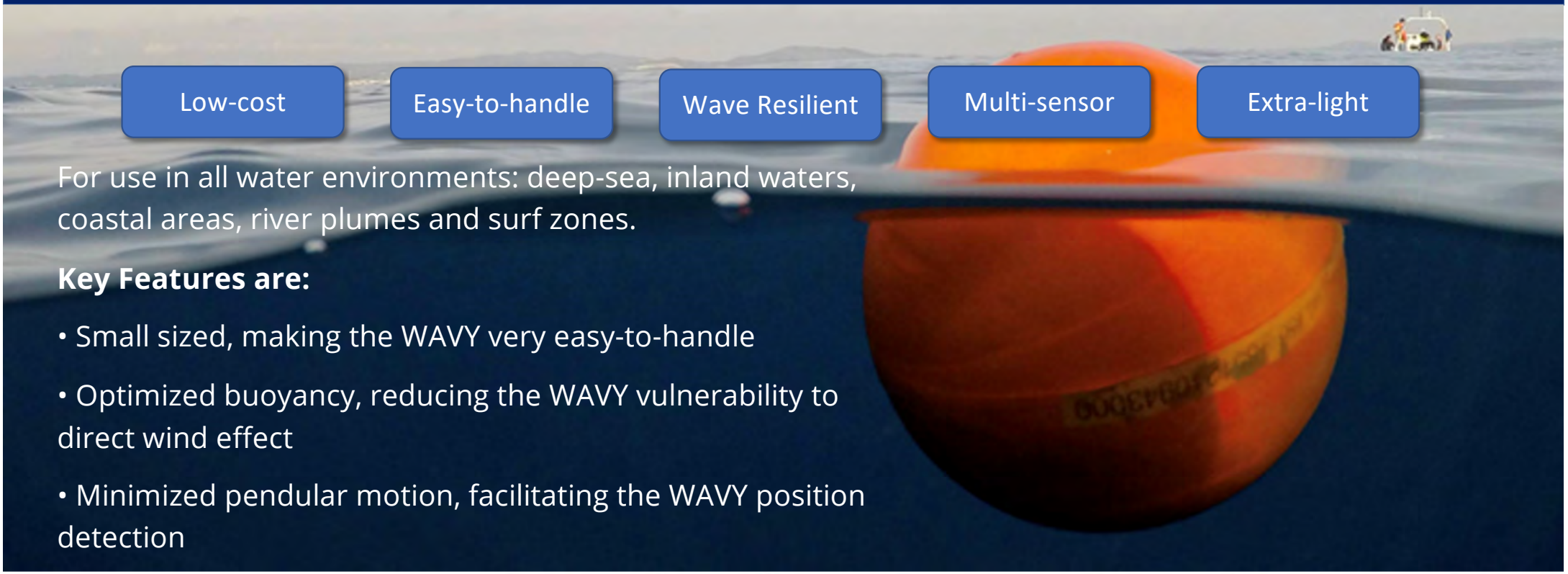
This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement no 776280

Overview

- MELOA: Proposed objectives and focus
- The WAVY Family
- MELOA Software Ecosystem
- MELOA Catalogue
- MELOA Geoportal
- MELOA OGC Data Services
- Conclusions and next steps

MELOA | Project Focus



Low-cost | Easy-to-handle | Wave Resilient | Multi-sensor | Extra-light

For use in all water environments: deep-sea, inland waters, coastal areas, river plumes and surf zones.

Key Features are:

- Small sized, making the WAVY very easy-to-handle
- Optimized buoyancy, reducing the WAVY vulnerability to direct wind effect
- Minimized pendular motion, facilitating the WAVY position detection

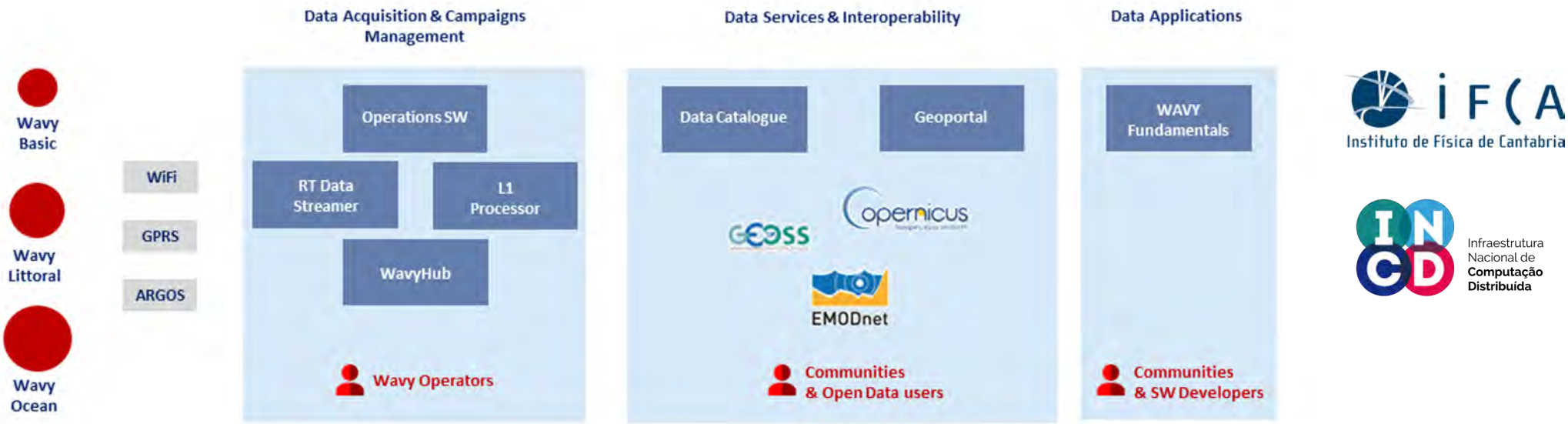
MELOA | WAVY Family

WAVY Version	Main features
WAVY Littoral	GNSS, GPRS, IMU (MEMS)
WAVY Ocean	GNSS, adjustable ballast module, 2 thermistors (near sea-surface temperatures), satellite communications, IMU, solar pannels
WAVY Ocean-plus	GNSS, adjustable ballast module, 2 thermistors (near surface sea-temperatures), satellite communications, IMU, solar pannels and wave energy harvesting
WAVY Ocean-Atmo	Equatorial floating (wind exposure), GNSS, adjustable ballast module, 4 thermistors (near surface sea- and air-temperatures), atmospheric pressure, satellite communications, IMU, solar pannels and wave energy harvesting
WAVY Basic	GNSS, GPRS, 1 thermistor

More details: Breakout Session 6 - Part I: Ocean Observing Technologies at 10:20 - 11:25 h

“The WAVY drifters and their role in Ocean Observation” by Rogério Chumbinho (BlueWise Marine)

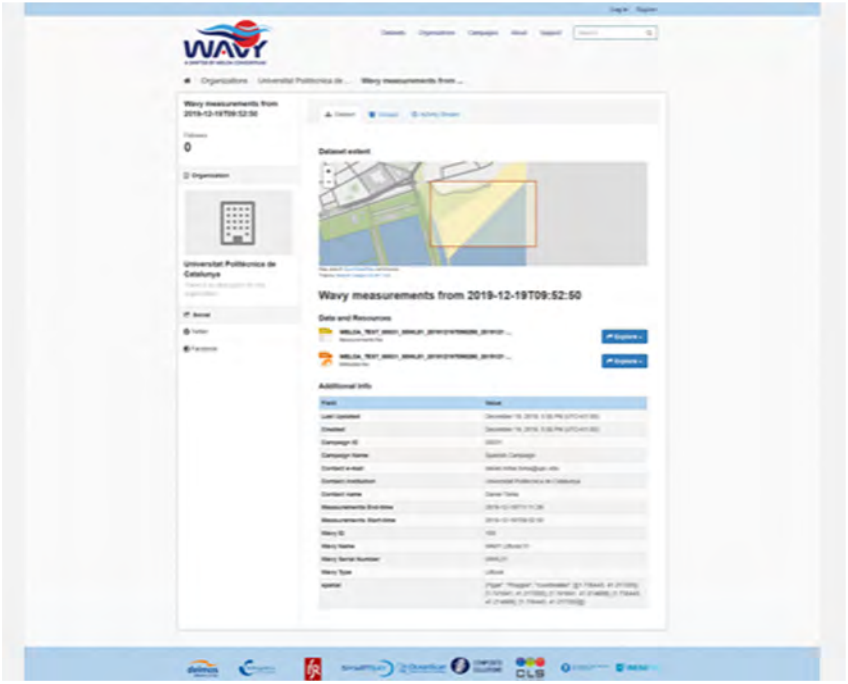
MELOA | SW Ecosystem

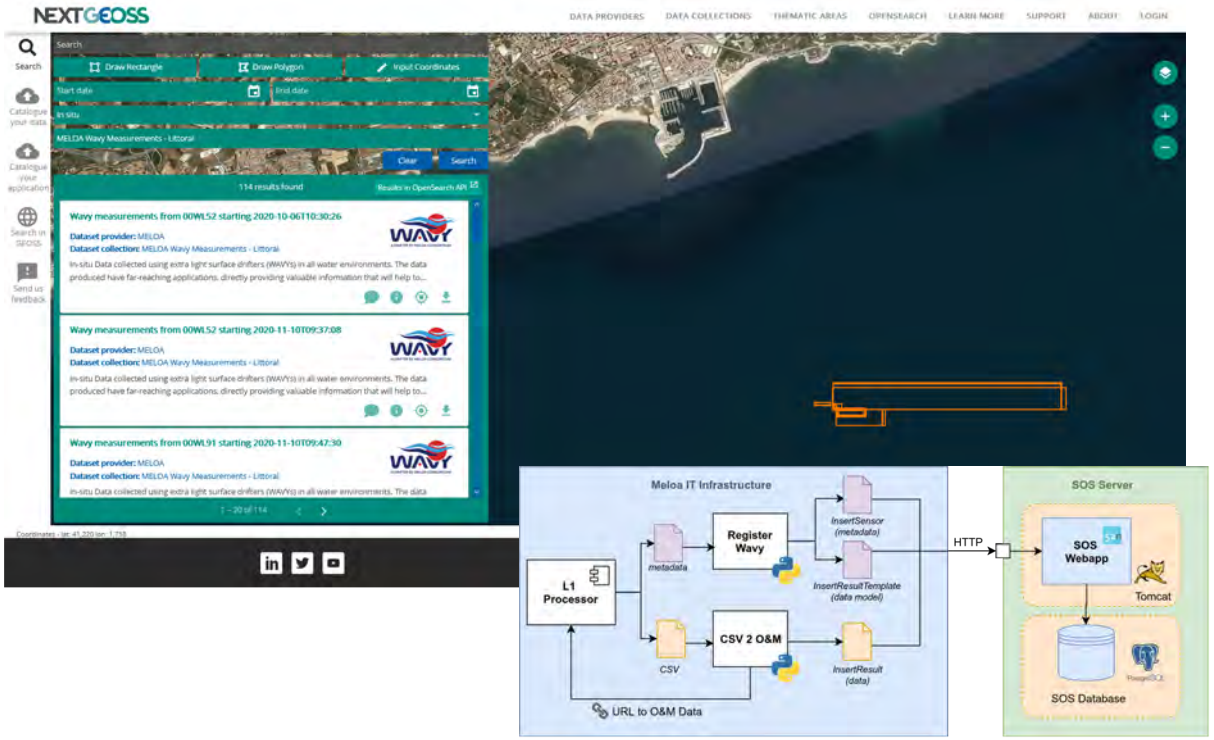


Infrastructure support from the Advanced Computing and e-Science group at the Institute of Physics of Cantabria (IFCA CSIC-UC) from Spain and the National Distributed Computing Infrastructure from Portugal (INCD)

http://ec-meloa.eu

MELOA | Catalogue (http://catalogue.ec-meloa.eu)





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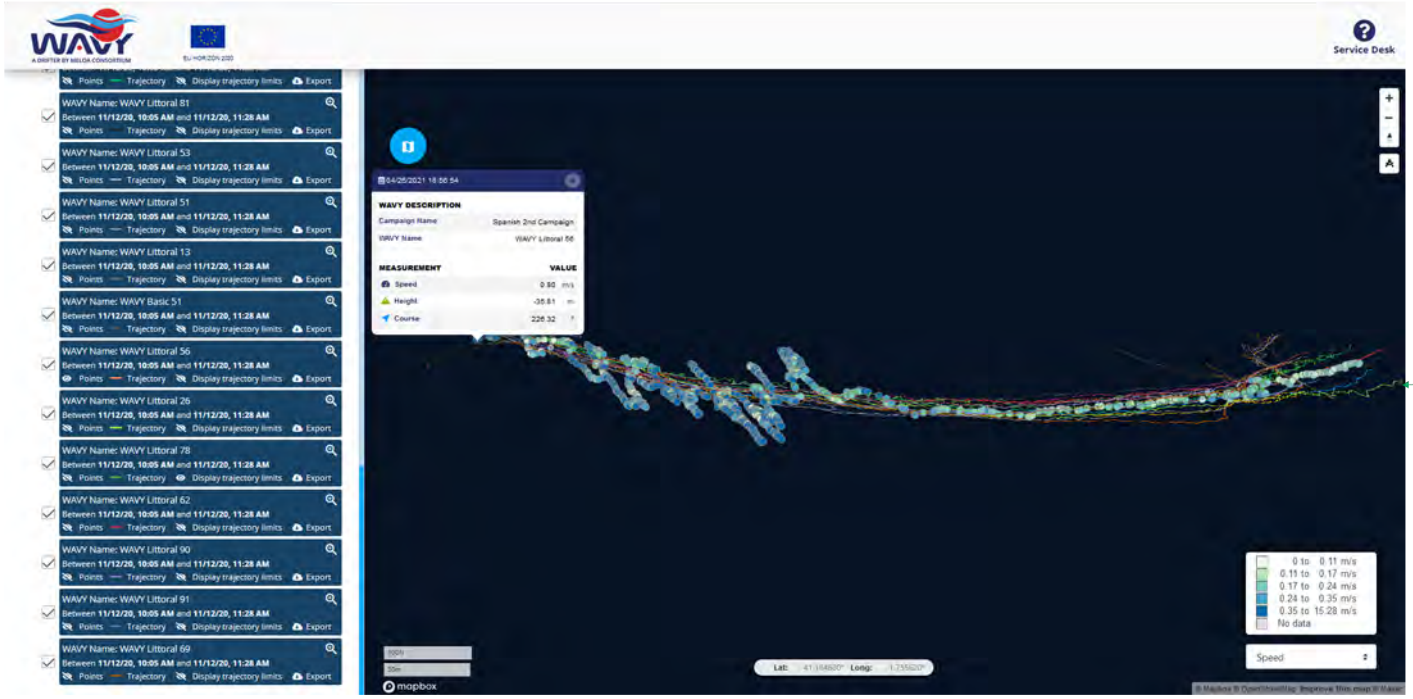
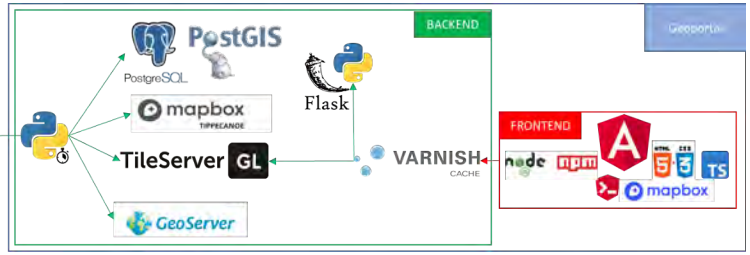
MELOA | Geoportal (https://geoportal.ec-meloa.eu)





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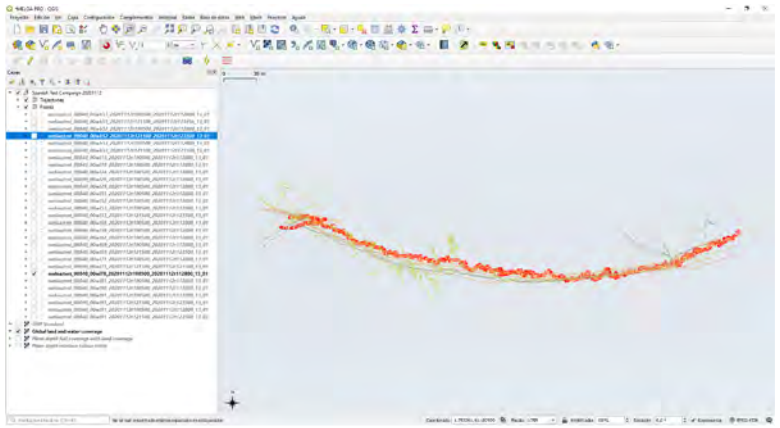
MELOA | OGC Data Services

Web Map Services (WMS)	Web Feature Services (WFS)	Sensor Observarion Services (SOS)	SensorThings Service
• Suitable for view services and integration with GIS applications and other geoportals • Limited in terms of interactivity (Vector Tiles is better).	• Suitable for download services in different GIS formats (GeoJSON, GML, etc). • Limited in terms of time-series analysis and performance.	• Focused on management of sensor data and metadata and time series analysis. • O&M data model in JSON format • Semantically robust SensorML description of the sensors. • Limited on performance due to the high volume of observations per dataset of MELOA	• Focused on easy-to-use REST style to manage data. • Data model less restrictive. • Compliant with the O&M data model. • Better performance for the MELOA use cases and characteristics.



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MELOA | Conclusions and next steps

Conclusions

- The MELOA Catalogue and Geoportal are a **modern approach for data sharing and visualization** of marine in-situ drifter data for different audiences and communities
- **Catalogue** based on CKAN **for easy search and federation** with other data catalogues such as NextGEOSS.
- **Geoportal** based on Vector Tiles technologies to enhance **user experience and data visualization and interaction capabilities**
- **Data Services** in different formats: **WMS/WFS** for GIS integration and **SOS/SensorThings** focused on the oceanography domain and semantic interoperability.

Next steps and future work

- **Sensor calibration**, **Quality Checks** and **flagging** to ensure quality of data.
- Provide data to **CMEMS** and **EMODNet** through the Catalogue interfaces.
- Improvement and full publication of the OGC Data Services and documentation.
- Data visualization of relevant scientific variables (**Wave parameters**, **Sea Surface Temperature**, **Pressure**) and value added data products.

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