ODYSSEA

OPERATING A NETWORK OF INTEGRATED OBSERVATORY SYSTEMS IN THE MEDITERRANEAN SEA

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COASTAL & MARINE ENVIRONMENT

MARITIME SAFETY

MARINE RESOURCES

WEATHER CLIMATE & SEASONAL FORECASTING

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ODYSSEA – The Objective

ODYSSEA is a user-centred project aiming to make Mediterranean marine data easily accessible and operational to multiple end-users, by

- harmonizing existing Earth Observing systems,
- upgrading operational oceanographic capacities,
- supporting EU policy implementation,
- improving interoperability in monitoring,
- fostering blue growth jobs creation, and
- opening participation to non-EU member states.

ODYSSEA Overview

1. Develop a platform to discover, integrate and process datasets obtained from an expanded range of existing observation platforms
2. Fill-in data gaps & increase spatial and temporal resolution by establishing ODYSSEA Observatories
3. Develop a prototype ‘chain’ of models providing data never previously reported
4. Expand existing operational monitoring systems capacity
5. Emphasize on biological datasets
6. Combine data to extract secondary indicators
7. Link indicators to EU policies
8. Involve end-users on platform design, data collection and day-to-day operations
9. Train and educate policy-makers and end-users on platform usage
10. Improve professional skills and competences - focus on Northern Africa capacity building

ODYSSEA in Action

A network of nine observing and forecasting systems (Observatories) to fill-in data gaps & increase spatial and temporal resolution

ODYSSEA Novelty

Microplastics sensor developed by LEITAT during JERICO-Next Project

Observational Systems Expansion

In ODYSSEA Observational Systems are expected to expand their operational capacity testing the integration of existing sensors, such as micro-plastics, submarine cameras (for benthic organisms and fish species recognition, classification and tracking) and acoustic sensors for mammals and marine noise monitoring.

ODYSSEA Novelty

- An in-situ **Microplastics Sensor Device** able to detect and quantify up to 70% common microplastics

polystyrene, polyester, polypropylene, polyamide

- The new device can **reduce drastically the amount of time needed in the process of sampling and analysis**

DEVELOPMENT

•Redesign the microplastics sensor to be waterproof and assure operation on high pressures

•Resize to fit in the vehicle

•Reduce the power consumption

•Optimize algorithms to data limitations

INTEGRATION

•Adapt the mechanical usability of the microplastics sensor to specific platforms

•Make a custom integration for every case without disturbing the functionality of the vehicle

•Communicate with the main control board of the vehicle

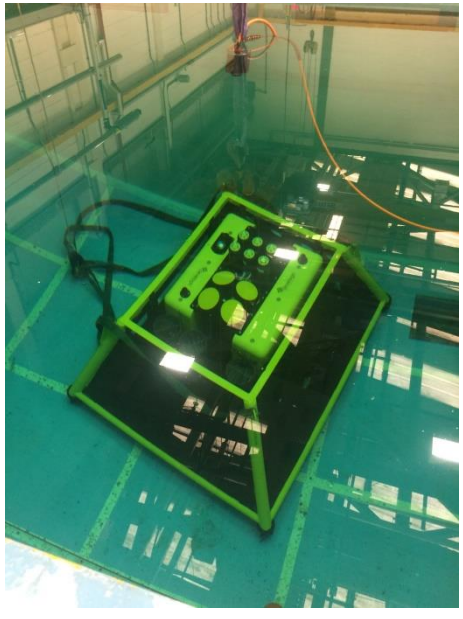
ODYSSEA in Action

ODYSSEA will deploy at each Observatory:

- Two data collecting systems: static and mobile
- Continuous real-time monitoring at each site
- Surface platforms include typical sensors for: temperature, salinity, pH, DO, turbidity, chl-a.
- Bottom platforms additionally will include ADCP and novel sensors for emerging pollutants, such as micro-plastics, submarine cameras and hydrophones.
- To reduce costs and to ensure active participation of end-users on ODYSSEA platform, existing facilities (onshore and offshore) will be used to deploy static sensors.

ODYSSEA in Action

- Develogic develops, manufactures, installs and operates customer specific environmental monitoring systems (Surface platform and Seafoor Lander).
- The focus within ODYSSEA is to develop and deliver robust monitoring systems that are easy to deploy, operate and inexpensive to maintain.

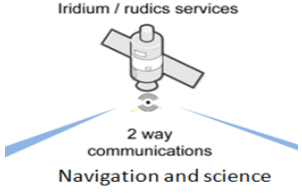


Contributions to Microplastic Sensor development, manufacturing and integration

ODYSSEA in Action

- Alseamar will develop a series of gliders be used to monitor physical, chemical, biological and acoustic parameters at selected Observatories
- SEA EXPLORER will move at a speed of 1 knot, covering the surface, the whole water column and the benthos.
- Three glider payloads will be tailored:

1. GPCTD, DO, Phyto, SPM, Turbidity
2. Passive acoustic monitoring
3. CTD, micro plastic



Data
Collection

Glider
Piloting

ODYSSEA in Action

Table 1: Parameters measured per Observatory (Surface deployments) - Develogic surface instrument package

	Temp	Cond/Sal	DO	Turb	Chl-a	Camera	Microplastics
Thracian Sea	X	X	X	X	X	X	X
Gulf of Gökova	X	X	X	X	X		
Valencia coastline	X	X	X	X	X		
North Adriatic Sea	X	X	X	X	X		
Arzew Bay/Stora Gulf	X	X	X	X	X		
Gulf of Gabes	X	X	X	X	X		
Al-Hoceima	X	X	X	X	X	X	X
Israel coastline	X	X	X	X	X		X
Nile zone of influence	X	X	X	X	X		

Table 2: Parameters measured per Observatory (Glider deployments) - Alseamar Sea Explorer Glider

	CTD	DO	Chlorophyll/CDOM/Turbidity	Echosounder	Micro-plastics
Thracian Sea	X	X	X	X	X
Arzew Bay/Stora Gulf	X	X	X	X	X
Al-Hoceima	X	X	X	X	X
Israel coastline	X	X	X	X	X

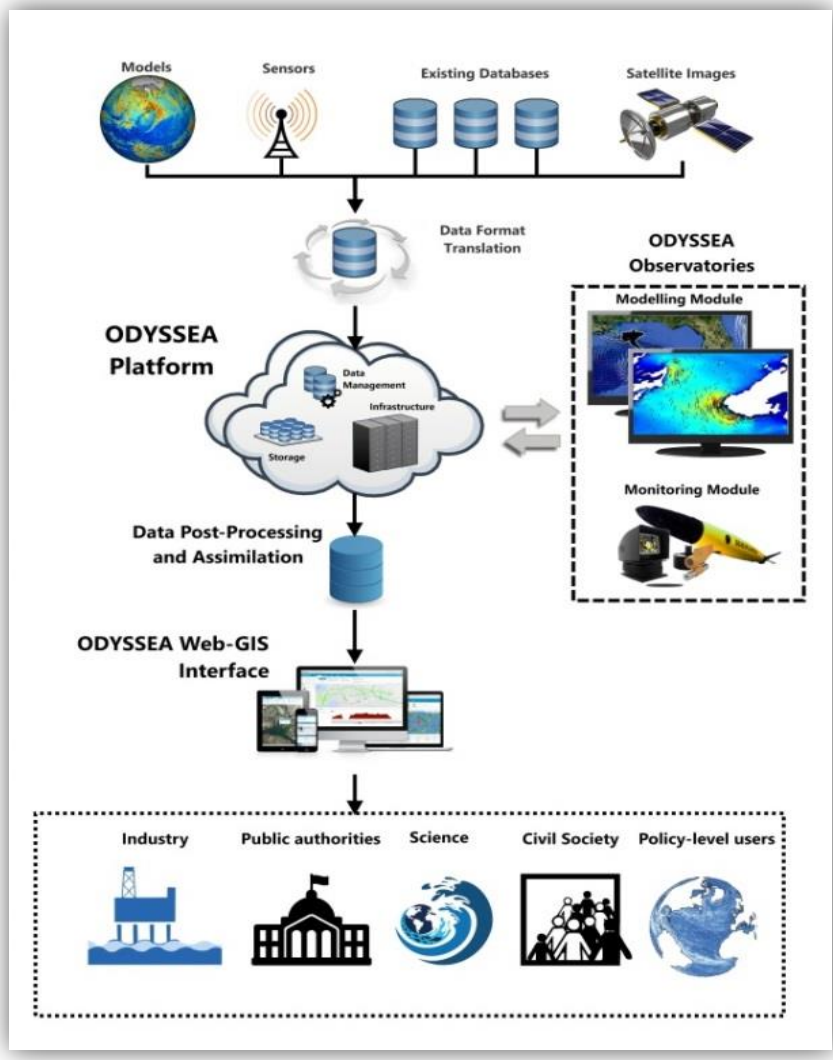
ODYSSEA in Action

WP5		2017							2018												2019						
		6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Task 5.1	Sensor development																										
Task 5.2	Sensor integration on static and mobile platform																										
Task 5.3	Training																										
Task 5.4	Instrumentation installation, opération and maintenance																										

ODYSSEA platform

ODYSSEA is a system bridging the gap between operational oceanography capacities and the need for information on marine conditions from the community of end-users.

ODYSSEA's ambition is to develop an **interoperable, fully-integrated and cost-effective multiplatform network of observing and forecasting systems** across the Mediterranean basin.



CONCLUSION

To contribute to the implementation of the BLUEMED Initiative's vision and its related Strategic Research and Innovation Agenda and Implementation Plan, ODYSSEA will:

- ***Provide an additional European contribution to established global observing systems e.g. Copernicus and GEOSS***
- ***Contribute to increasing temporal and spatial coverage of observational data in the Mediterranean Sea and identify data gaps***
- ***Provide qualified data to improve the predictive capacity of model products and improve the cost effectiveness of data collection in support of ocean-related industrial and societal activities***
- ***Improve implementation European maritime and environmental policies and international agreements by providing a knowledge base needed to support policy decisions towards sustainable growth of the EU Mediterranean marine and maritime economy***
- ***Improve the professional skills and competences of those working and being trained to work within the blue economy***

THANKS FOR YOUR ATTENTION

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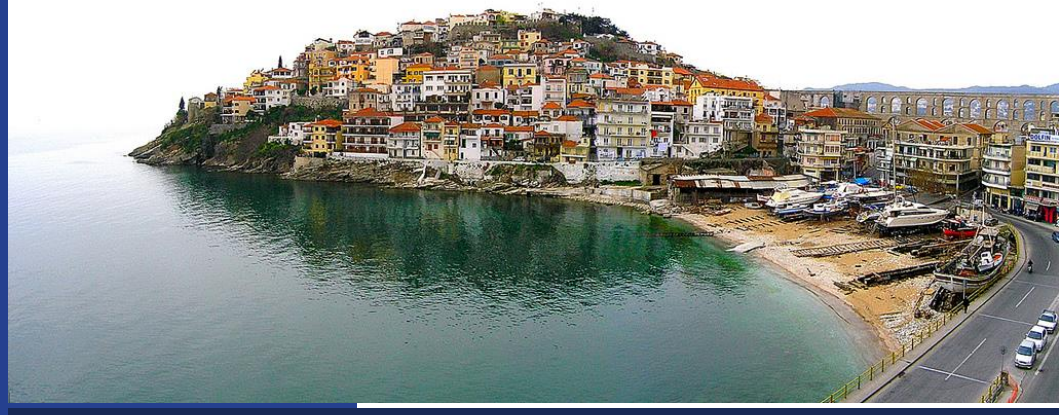

Kavala, Greece!

North Aegean's best kept secret, finally revealed

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