

BUSINESS CASE: MARINE LITTER

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Ghada El Serafy

Deltares

Ghada.ElSerafy@deltares.nl



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Marine Litter

- Global concern → affecting all the oceans of the world.
- Every year, millions of tonnes of litter end up in the ocean worldwide, affecting:

Marine environment

Tourism

Fishing and aquaculture

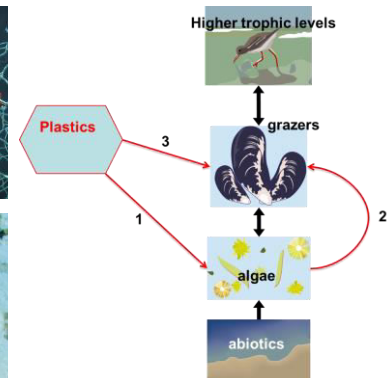
Human health

Aesthetics

ODYSSEA solution proposes:

Monitor the effects of plastic pollution on marine ecosystems and local economies

Timely information to coastal communities on marine litter washed ashore



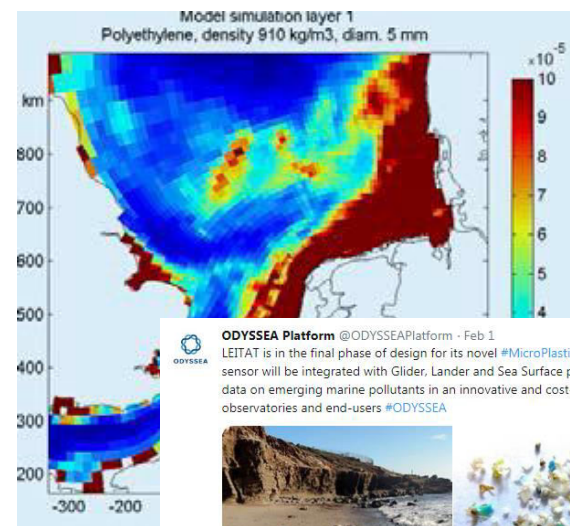
Solution

Operational and unique service to:

1. Mapping macro and micro plastic hotspots in the Mediterranean
2. Provide early warning of marine litter washed ashore

ODYSSEA expertise in:

- Setting up and running operational numerical models in hindcast and forecast mode
- Deploying and operating novel microplastics sensors
- Harvesting citizen science information
- Operating a user friendly web platform to easily access information (ODYSSEA platform)



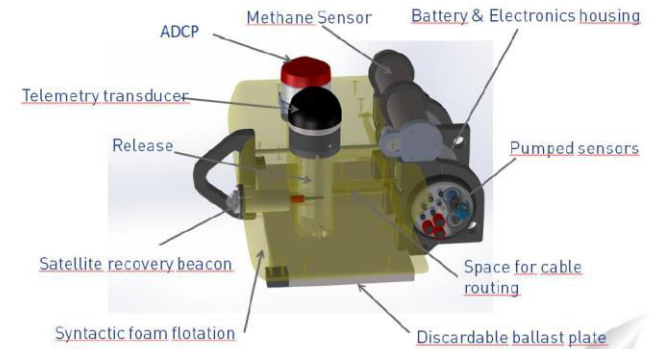
ODYSSEA Platform @ODYSSEAPlatform · Feb 1
LEITAT is in the final phase of design for its novel #MicroPlastics sensor. The sensor will be integrated with Glider, Lander and Sea Surface platforms to provide data on emerging marine pollutants in an innovative and cost-effective way for observatories and end-users #ODYSSEA



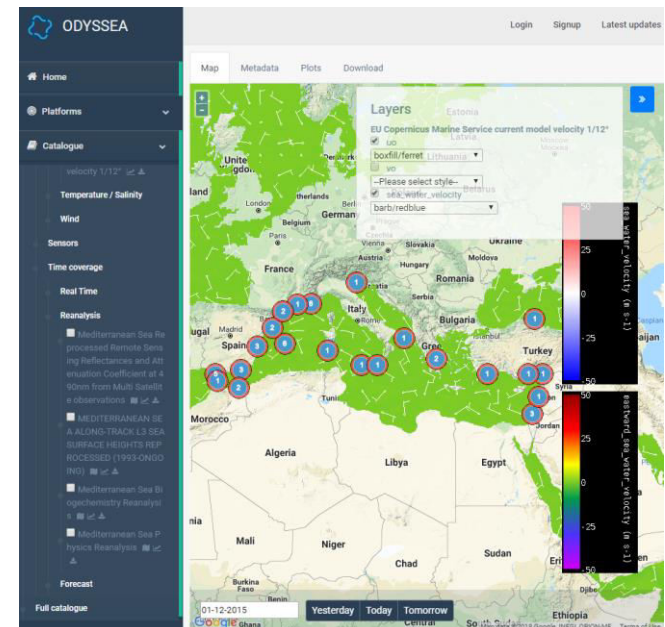
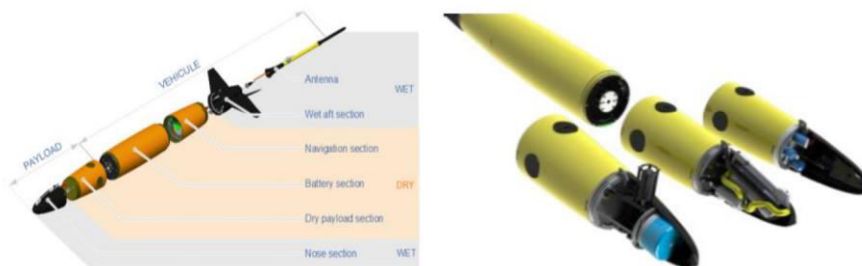
Source: OSPAR

Service description


- Deploying and operating microplastics sensors at coastal observatories:
 - **Glider payload 3:** Microplastic count and classification
 - **MSL type B:** Microplastic count and classification
 - **Surface monitoring type A**

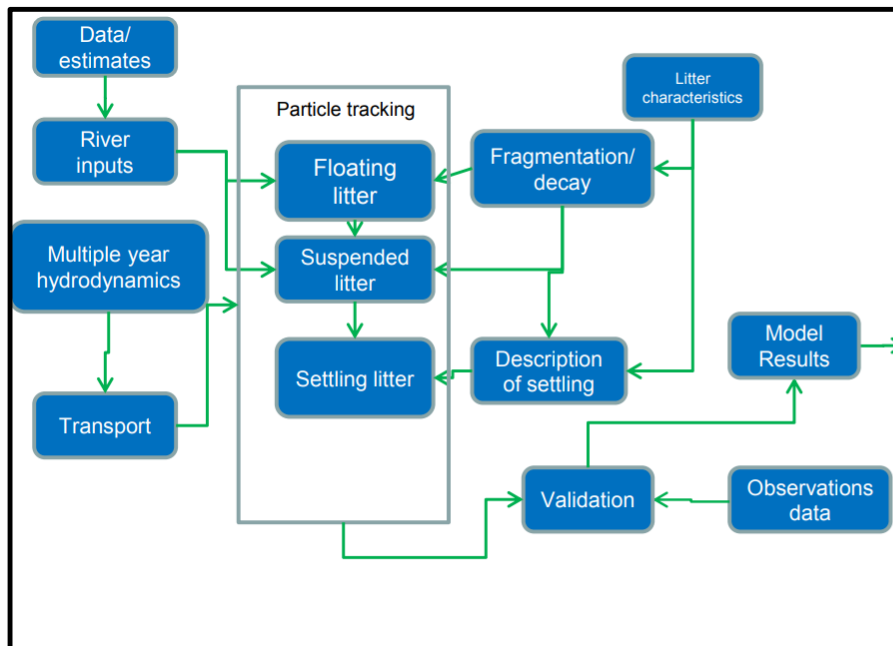


Characteristic	Information
Manufacturer	Leitat
Power consumption	450mW
Operation mode	continuous measurements, synchronous or asynchronous data notification
Sampling rate	3x channels at 5 KHZ (200ms)
Size detection	Detects MP from 0.5 mm to 5 mm

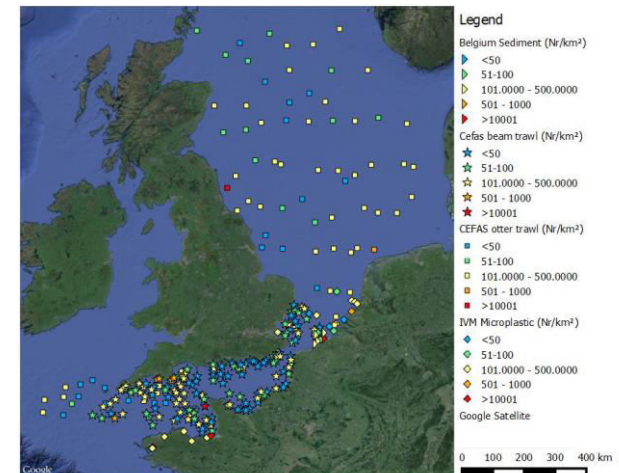


Service description

- Operational Transport model for plastic distribution using **Delft3D-PART** 
- High resolution hindcast and forecast models provide information to find plastic convergence zones

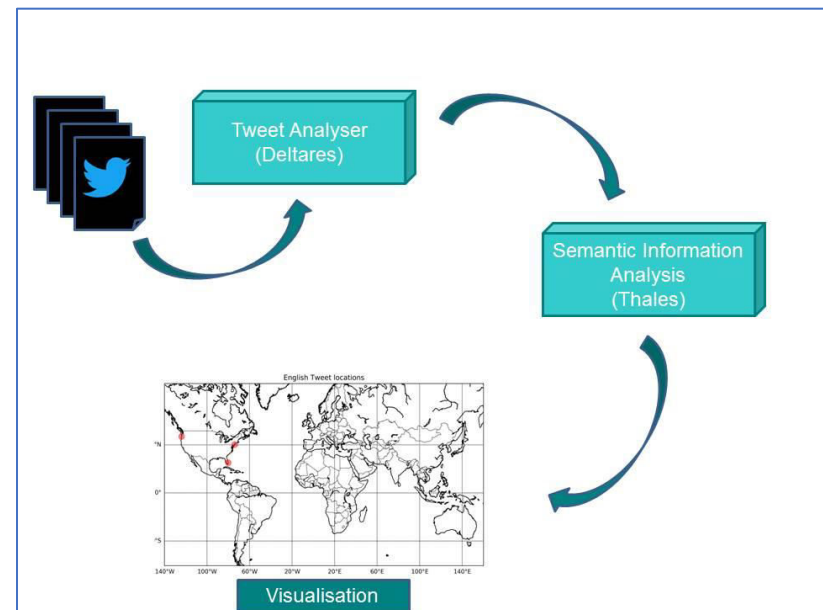


- Model simulations
- Multiple years
- Accumulation
- Sensitivity
- Type of material
- Hot spots



Service description

- Mapping plastic litter in surface waters of the Mediterranean Sea using citizen science
- Test the potential of using information reported by citizens for:
 - Collecting marine litter monitoring data
 - Model calibration and validation



Expected outcomes for society



ODYSSEA

Potential sectors	Benefits of provided service
<u>Tourism:</u> Many countries around the Mediterranean Sea heavily depend on tourism. Clean beaches and sea are important for the local economy. Marine litter affects the aesthetics of a beach and is a nuisance for recreational activities such as bathing, snorkelling, or surfing.	The service will warn stakeholders from the industry (e.g. beachfront resorts, diving centers, sailing center) on occurrences to help them optimize possible response (private beach cleaning operations, reallocation of excursions, etc.).
<u>Offshore and onshore recycling companies:</u> Sustainable operation of recycling industry can be enhanced by mapping the marine litter in the Mediterranean Sea	Identifying accumulation areas will help companies which turn trash into products.
<u>NGOs/Environmental organisations:</u> Cleaning operations rely on timely and accurate information of the marine litter.	Optimize cleaning operations to reduce the effects of plastic pollution on marine ecosystems and local economies
<u>Public authorities:</u> Public authorities are responsible for issuing early warnings and implementing protection and preparedness plans	Informed decision making. Authorities can provide early warning to coastal communities on marine litter washed ashore