

CLEANATLANTIC CONFERENCE

Vigo, 21st June

09.00 – 16.30 h
(UTC+2h00, Madrid, Bruselas)

Advances on modelling and mapping marine litter

Silvia Allen-Perkins, Silvia Calvo, Garbiñe Ayensa, Pedro Montero (Intecmar)
Sara Cloux, José Antonio Moares, Vicente Pérez-Muñuzuri (USC)
Hilda de Pablo, João Sobrinho, Ramiro Neves (IST)



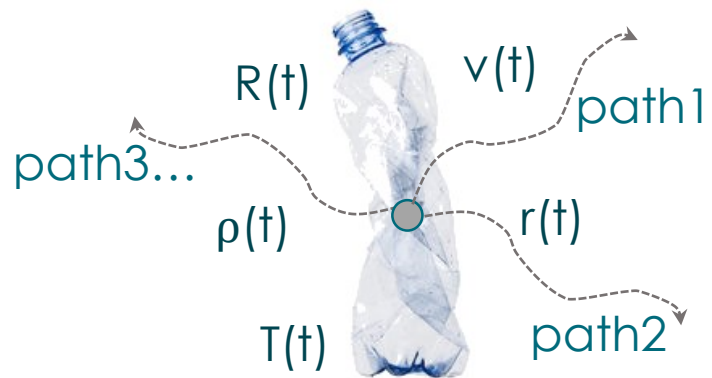


Objective:

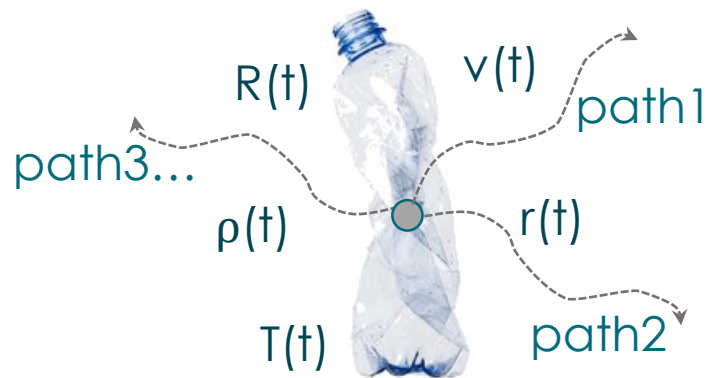
The aim of this WP is to develop sub regional or regional maps of hotspots of floating litter, based on models mapping of circulation of floating masses of marine litter, and identification of hotspots of accumulation on coastal areas and the role of prevailing currents and winds.



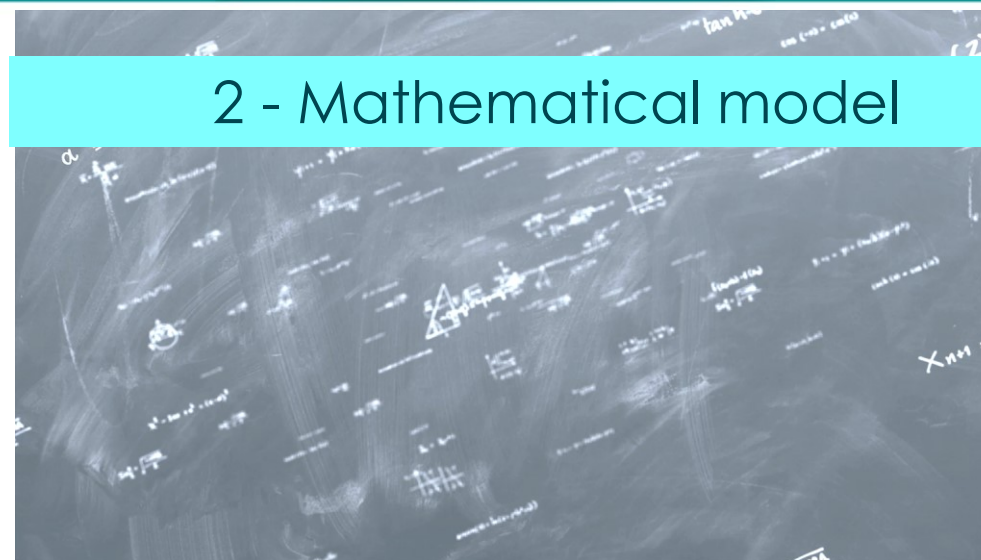
1- Conceptual model



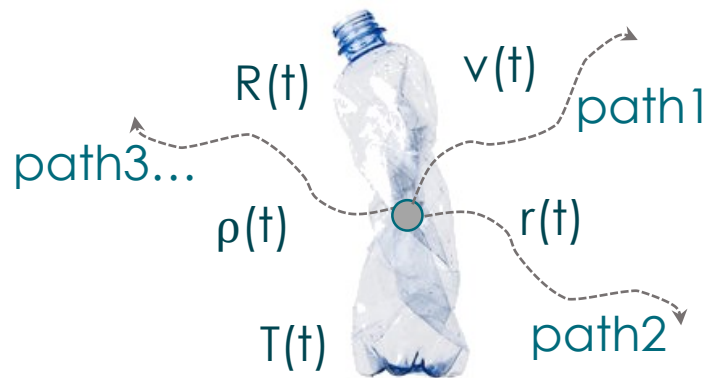
1- Conceptual model



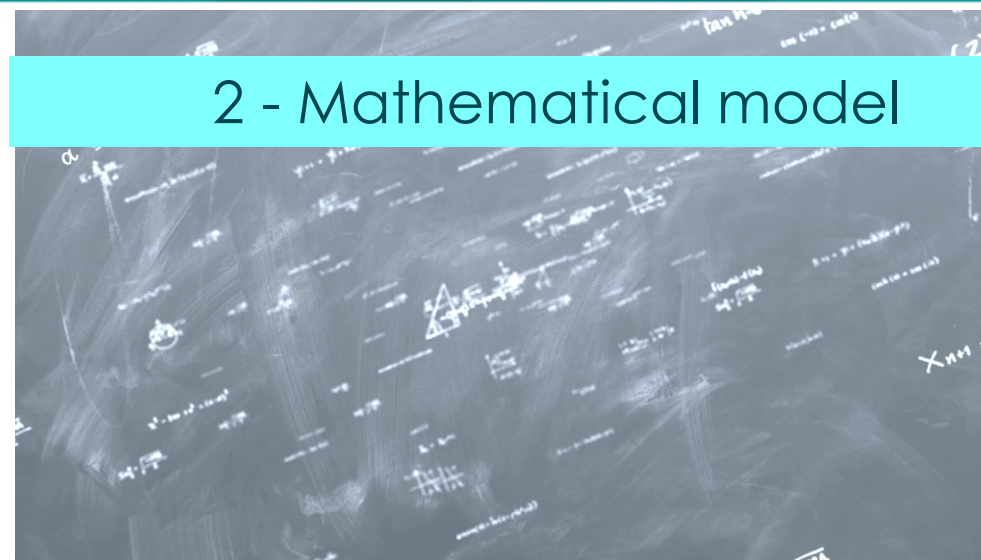
2 - Mathematical model



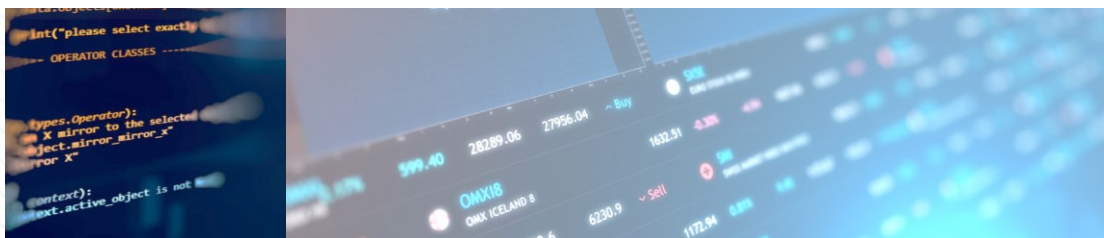
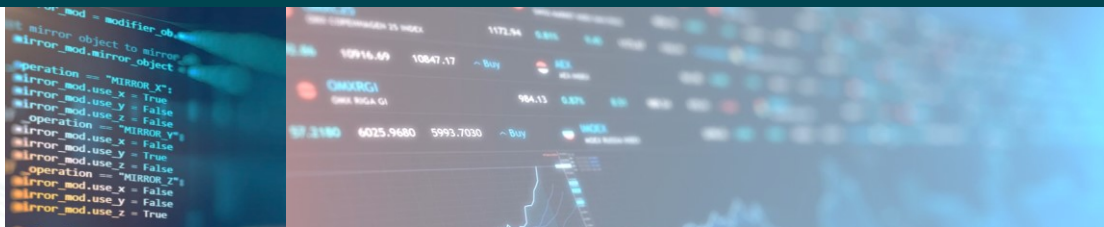
1- Conceptual model



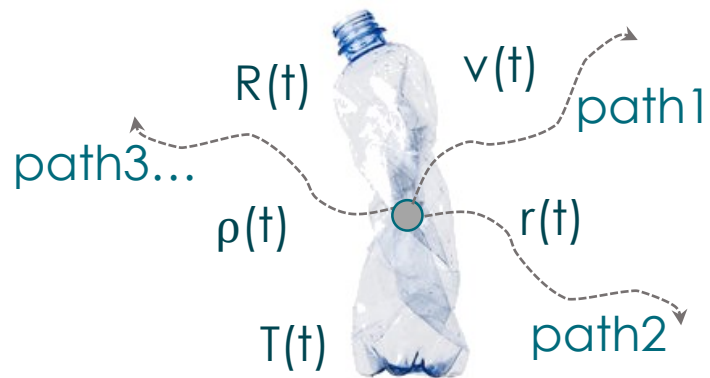
2 - Mathematical model



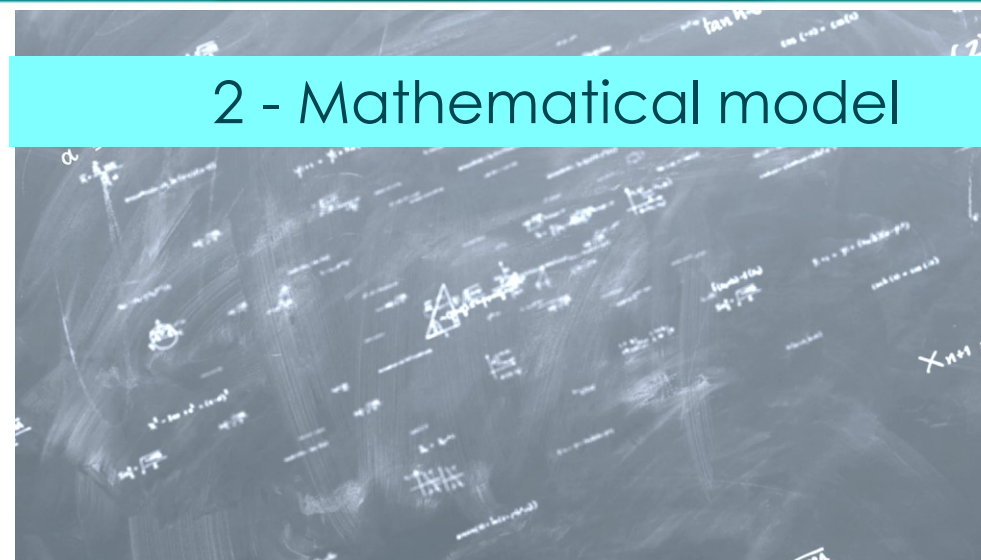
3 - Computational model



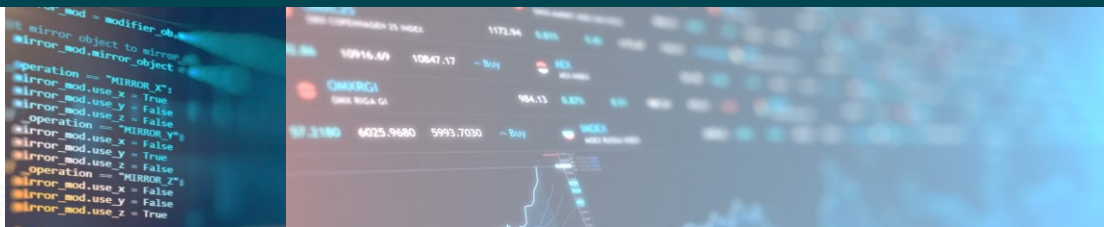
1- Conceptual model



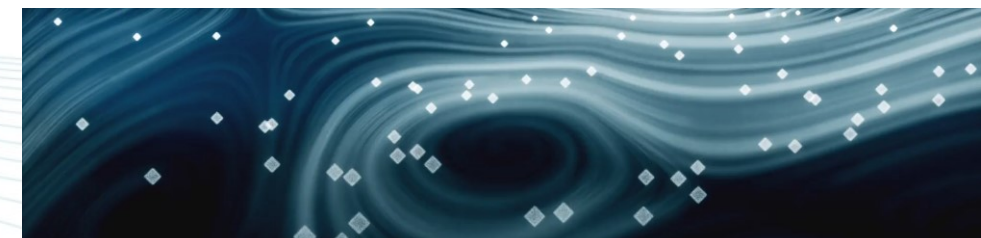
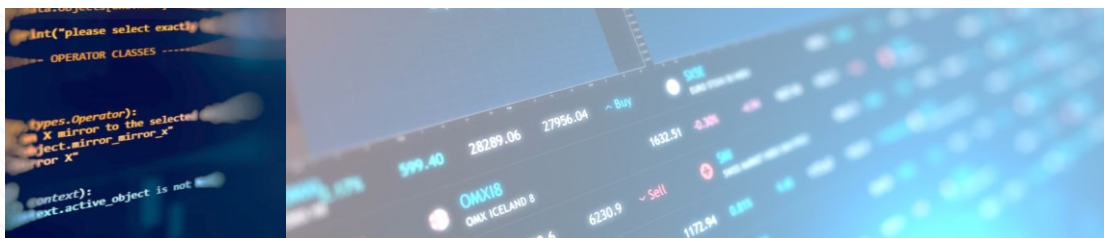
2 - Mathematical model



3 - Computational model



4 - Results



Modeling Tool

MOHID
Water Modelling System

Home | Models | Software | Tools | Learning

MOHID Water
MOHID Land
MOHID Lagrangian

MOHID Lagrangian

2018-09-05 18:36:00

3D passive tracers using currents from a MOHID operational at in Vigo coastal area, Galicia, Spain.

The **MOHID Lagrangian** include among its characteristics:

- Multi-threaded code, designed for shared memory machines;
- Robust pre-processing, modelling and post-processing tools;

The first version of this model was developed during the CleanAtlantic project (EAPA_165/2016) funded by INTERREG Atlantic Area programme



CleanAtlantic

DELIVERABLE 6.3
the marine
WP 6: Marine

Annex I: MOHID-LAGRANGIAN INSTALLATION-GUIDE

PROLOGUE
This installation guide is done with the guide for Windows 3. More case files/exceptions based on the case are at 4.1. Without platform dependence, the on published at the time you are reading this guide, please verify it.

WINDOWS Installation

1. INTRODUCTION
On the installation step we will listing:

- End users: people who just use
- Developer: people who want kind of installation will be done

This installation guide is intended for Windows version or 32 system version, software required: Linux installation g in the case of the End users the list of:

- Software req:
 - Python 3.7 with the following:
 - numpy, numba, Mplpy
 - Paraview
- Software req:
 - The previous software for end
 - Conda
 - Visual Studio
 - Intel Fortran Compiler
 - Recommended: Anaconda or

2. INSTALLATION STEPS FOR 3.1.1. The MOHID-Lagrangian code

Annex II: MOHID-LAGRANGIAN SHORT-GUIDE

PROLOGUE
This manual is a short guide in order to operate with MOHID-Lagrangian code and start to produce some outputs and exploration the different setups and options in a fast way.

1. INTRODUCTION:
The way to use MOHID - Lagrangian is following the scheme:

- Clone template
- Copy it
- Personalize it

That is, you need copy a folder with a template on other working simulation test. And then, modify the setup and files inside to fit in your needs.

Let's go step by step how to prepare a working simulation:

- Test working simulations or template folder

In order to get MOHID-Lagrangian/Short_Guide, we provide different working examples in the path: /MOHID-Lagrangian/Short_Guide/

Inside, there are the following cases:

- Along_2D_test_case
- POCAS_test_case
- Tegua3D_test_case
- Vigo_3D_test_case
- Case_Template_test_case

The four first cases are working setups of MOHID-Lagrangian with the files configured to work properly and test these MOHID-Lagrangian models. If something is flow and there are not problems at the installation stage each case should run fine just by running the scripts inside each test_case folder:

RunCases.bat (Windows)

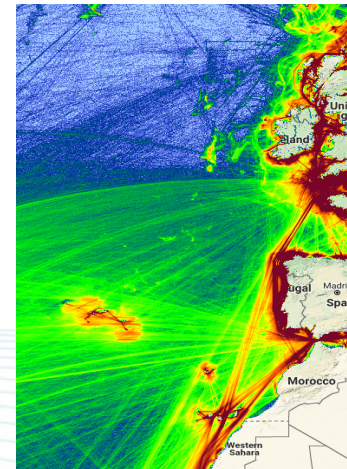
RunCases.sh (Linux)

Sources

Land-based

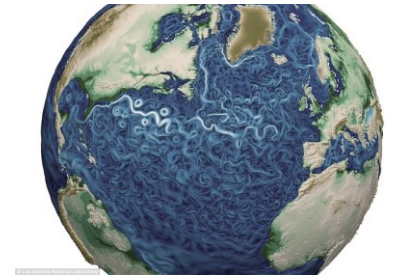


Ocean-based



Domains

Global domain



Regional domain

CLEANATLANTIC CONFERENCE
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JRC-IMM, Madrid, Spain

Advances on modelling and mapping marine litter:
A Regional Lagrangian Model for Assessing the Dispersion of Floating Macroplastics from Different Source Types over the Iberian Peninsula

Silvia Allen-Perkins, Silvia Calvo, Gatañe Ayesta, Pedro Montero (Intecmar), Sara Cloux, José Antonio Moares, Vicente Pérez-Muñizuri (USC), Hilda de Pablo, João Sobrinho, Ramiro Neves (IST)

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Local domain

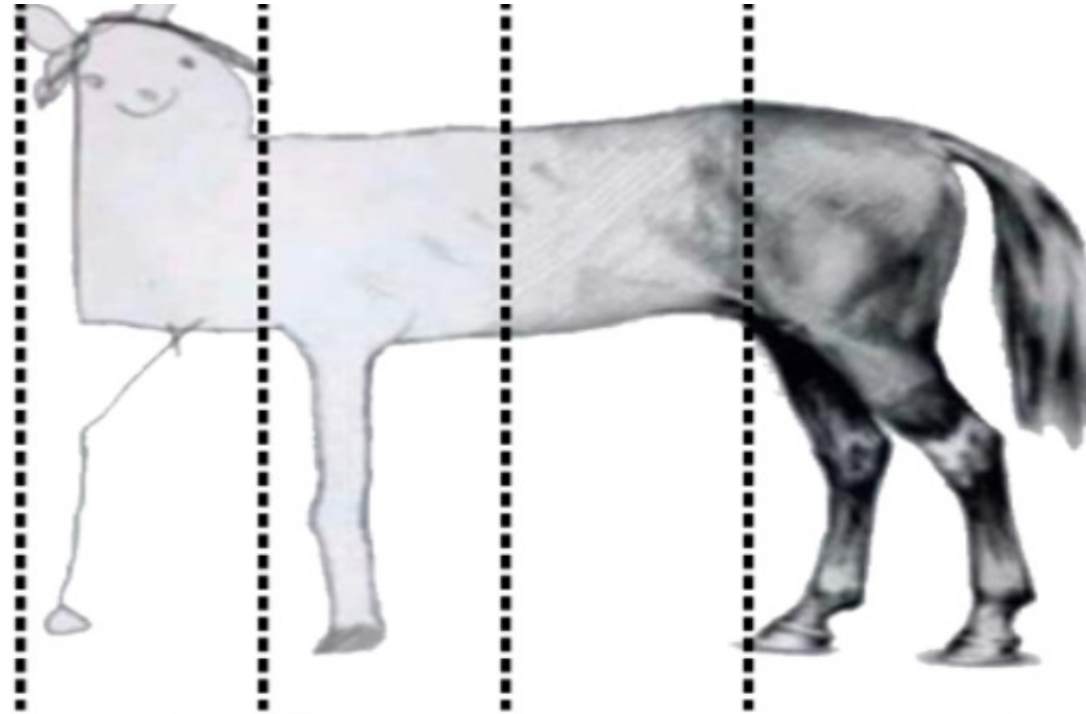
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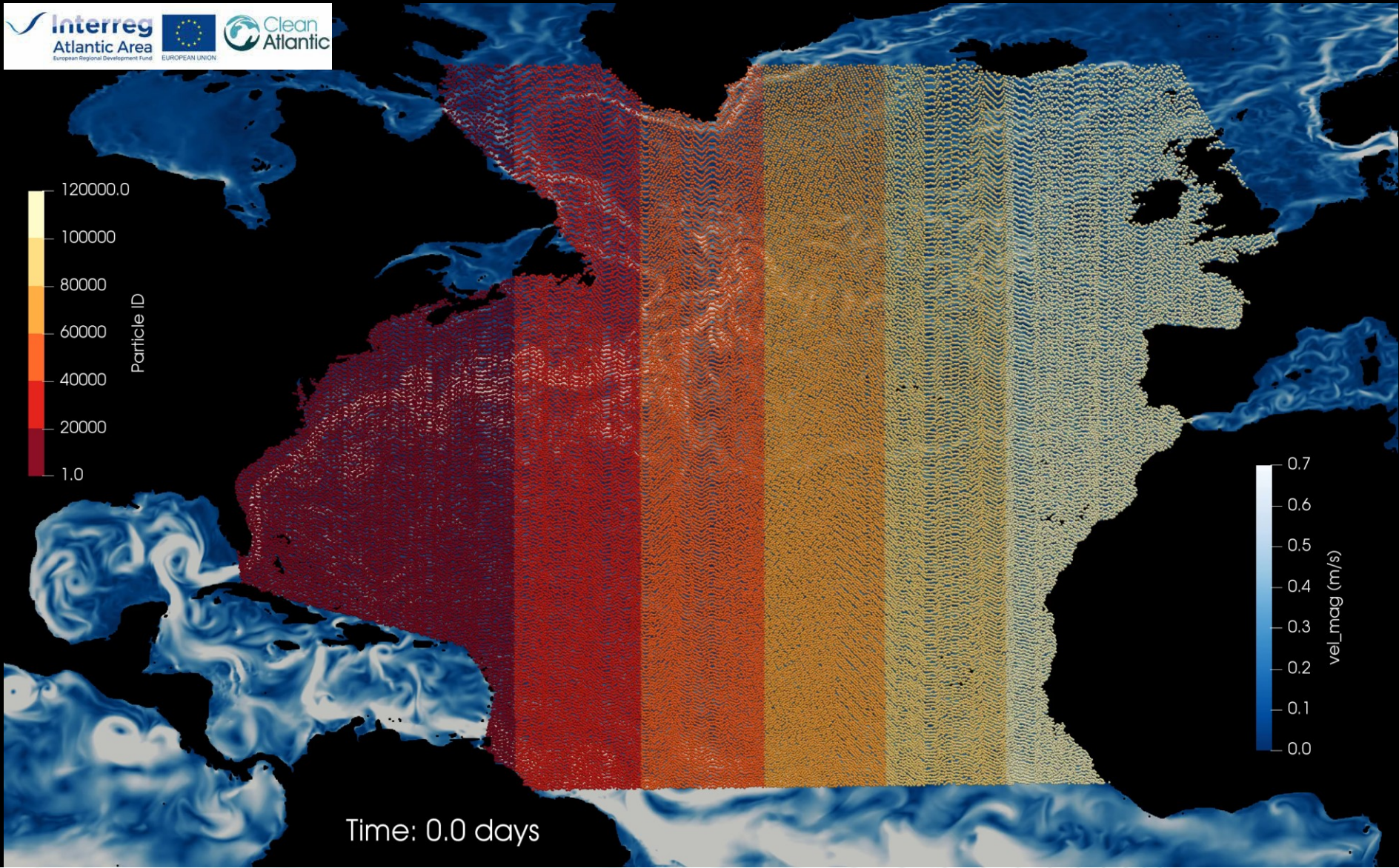
Advances on modelling
A Regional Lagrangian Model of Floating Macroplastics from the Iberian Peninsula

Silvia Allen-Perkins, Silvia Calvo, Gatañe Ayesta, Pedro Montero (Intecmar), Sara Cloux, José Antonio Moares, Vicente Pérez-Muñizuri (USC), Hilda de Pablo, João Sobrinho, Ramiro Neves (IST)

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MODEL  REALITY





ATLANTIC Rivers

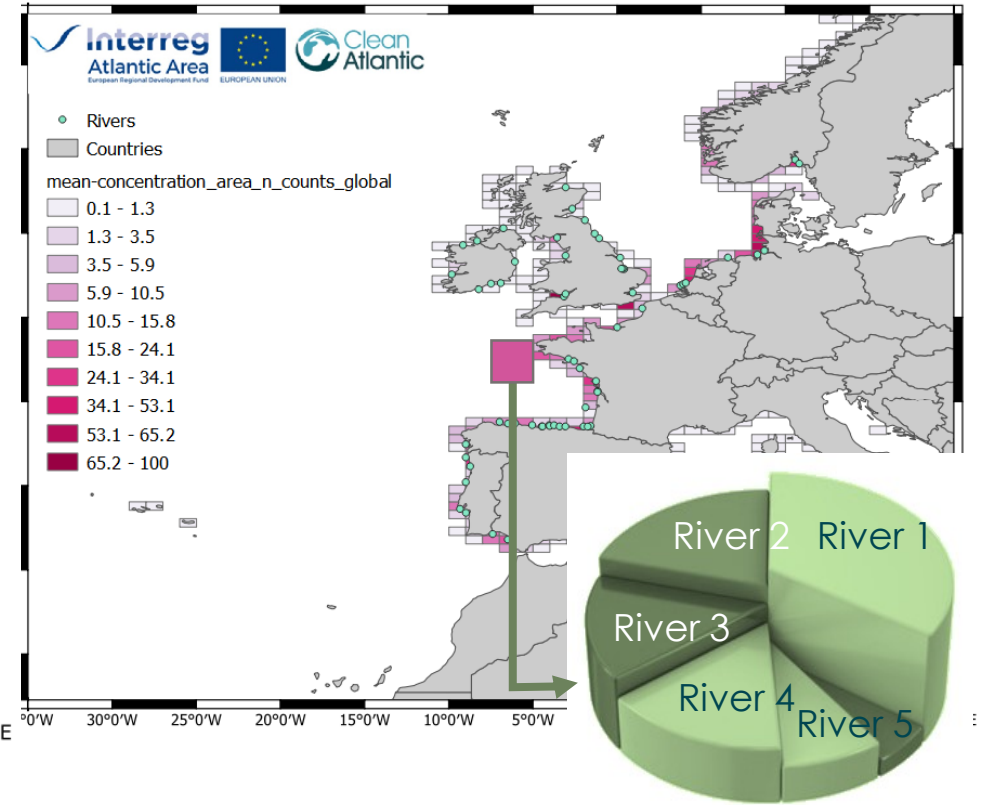
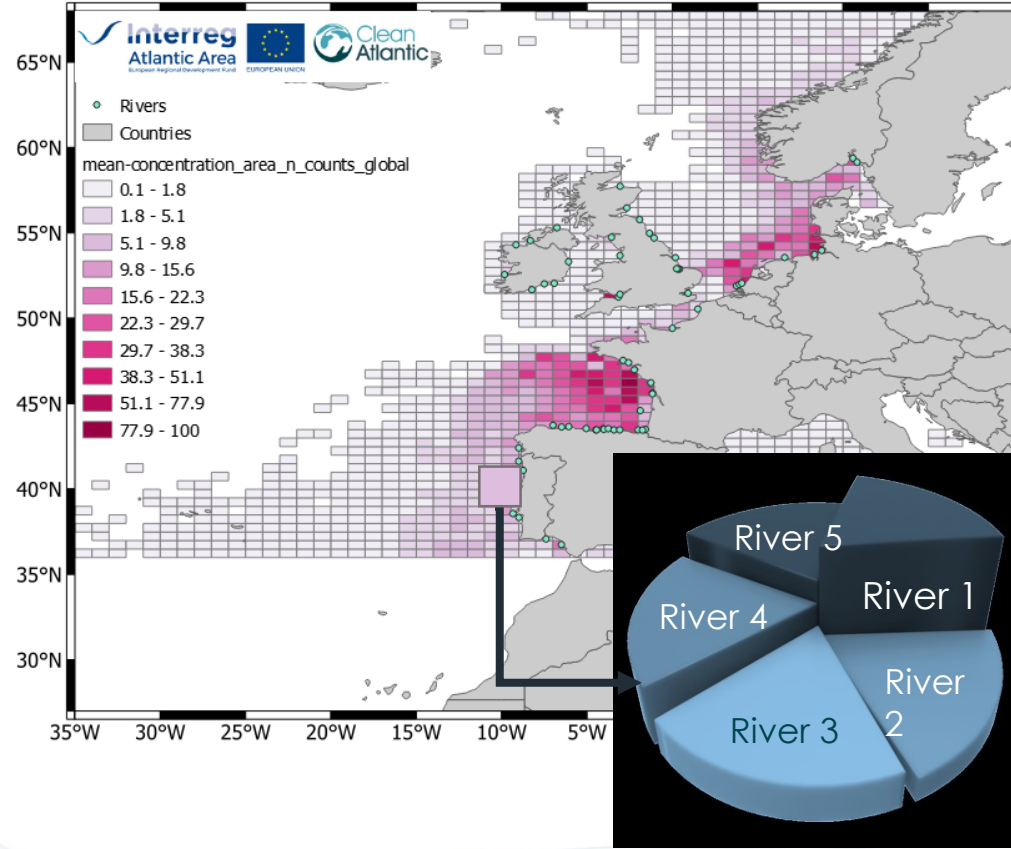
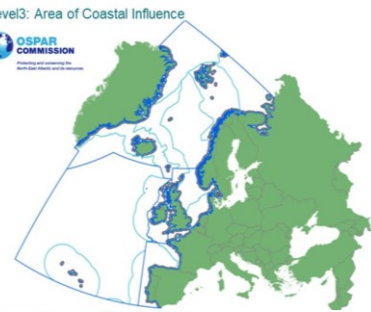
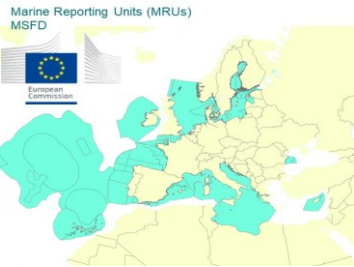
2016-02-01 12:00:00



64 EUROPEAN RIVERS

Simulation: 3 years

Maps:



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Powered by ATLANTIC

Satellite | Grey Canvas

OPACITY

Clean Atlantic

Final Results | River Sources | Learn More

Standardised Relative Accumulation

Type: floating particles
Source: 64 European rivers
Number of particles as a function of river flow
Resolution of the areas of interest: 0.5°
Simulation Time: 7 years (2016 - 2022)
Eulerian: CMEMS

Relative Accumulation: 103.58

River	Percentage
Loire	26.8%
Minho	13.6%
Douro	13.4%
Garonne	9.82%
Ulla	5.74%
Adour	5.33%
Dordogne	4.88%
Charente	2.83%
Vilaine	2.72%
Sevre-Niortaise	2.10%
Mondego	2.00%
Nalon	2%
Eo	1.4%
Esva	1.15%
Bidasoa	1.15%
Ason	1.15%
Barrow	1.15%
Blackwater	0.965%
Other Rivers	0.965%

03h | 06h | 09h | 12h | 15h | 18h | 21h

20 / 6 / 2023

300 km

