

Progress of Use Cases up to M18

4rd Project Meeting Manchester



24 | 06 | 2026

Project: 101188248 – HORIZON-INFRA-2024-EOSC-01



Funded by
the European Union

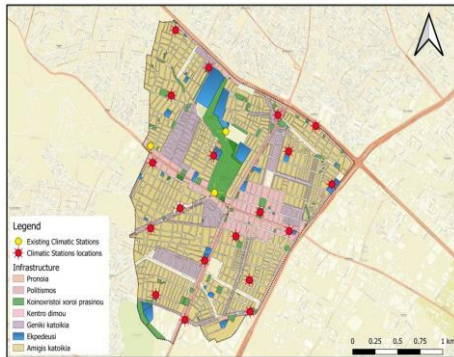
UC1 – Digital Twins for Just Climate Urban Resilience Service (Just-CURS)

4rd Project Meeting Manchester

UC1 Partners: [EGL, NCSR, NOA]



UC1 AGL: Digital Twins for Just Climate Urban Resilience Service (Just-CURS) in Socially Vulnerable Communities



AGL Case Study



- Egaleo faces extreme heat (up to 45°C), fire, and flood risks.
- The city is updating its SECAP plan for the next decade.

Smart climate stations, Rock the Block, Environmental & climatic stations network

Replicators

GK-1 (demo r2): Aveiro Port, Portugal



- Climate risk assessment
- Resilience assessment for port personnel and commuters.
- Digital twin to optimize climate adaptation NBS

GK-2 (demo r3): West Athens, Greece



- Climate risk assessment
- Digital Twin
- Assessment of the benefits from implementing large scale ecological corridors

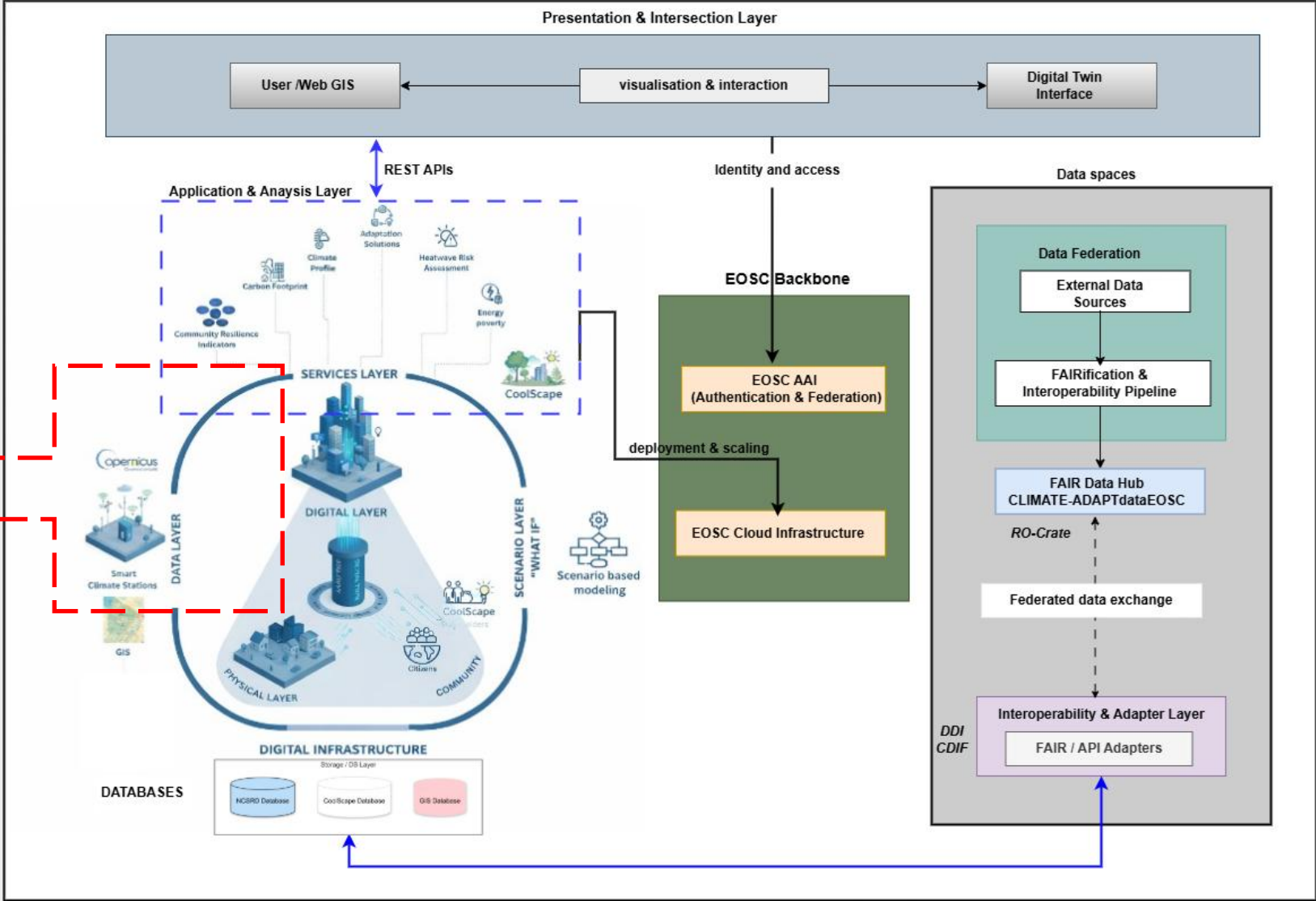
GK-3 (demo r3): Aradippou, Cyprus



- Climate risk assessment
- Community Resilience assessment for the local vulnerable groups
- Digital twin for identifying CCA interventions

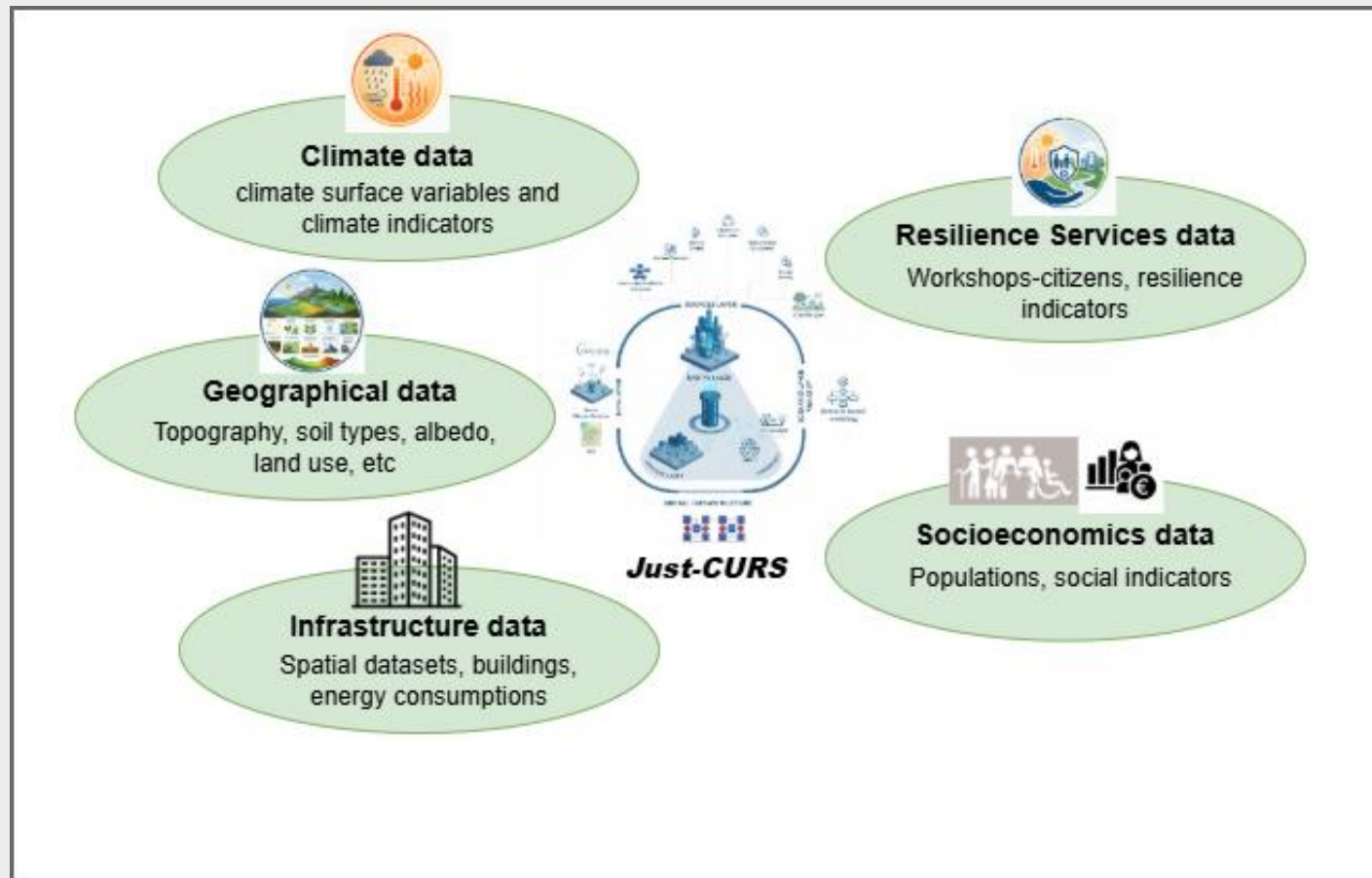
UC1 - Just-CURS description under EOSC framework

T2.1 Data analysis from different dataspaces



UC1 - Just-CURS description under EOSC framework

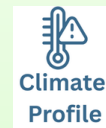
D2.1 Report on data analysis at use case level



Categories of datasets implemented into the 8 sub-services of Just-CURS

UC1 Just-CURS Services

1. CLIMATE PROFILE AND HEAT-RELATED INDICATORS



2. SUMMER ENERGY POVERTY ASSESSMENT



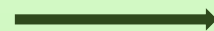
3. HEAT RISK ASSESSMENT – CLIMAAX



4. CARBON FOOTPRINT



5. CITIZENS' ENGAGEMENT



Green areas, as input in CoolScape

6. GIS TOOL



7. COOLSCAPE

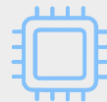


8. COMMUNITY RESILIENCE ASSESSMENT





Explore **urban overheating mitigation and adaptation strategies** and quantify their impact on near-surface air temperature (T2) and human outdoor thermal comfort (OTC) for Aigaleo and greater West Athens area.



Run **Numerical Model*** simulations for a baseline and mitigation and adaptation scenarios and compare T2 and OTC outputs.

- * **1. WRF model: cool roofs**
- 2. ENVI-met model: Greening**



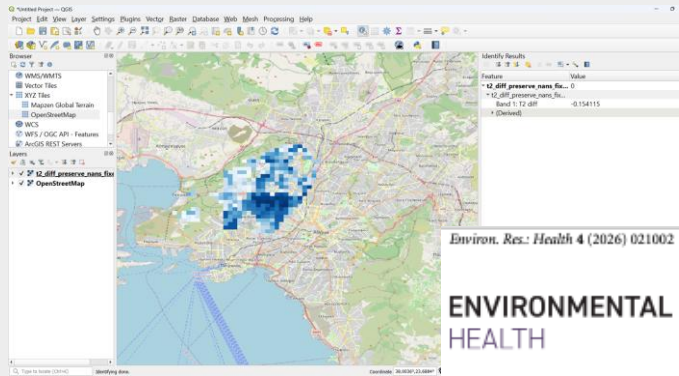
1. T2 differences (scenario – baseline) in the area of interest for key periods (day/night means), delivered as **GeoTIFF** and **CSV**.
2. T2 and OTC differences (scenario – baseline) in the area of interest delivered as GeoTIFF.



UC1 Just-CURS Services: CoolScape

1. WRF model: cool roofs

OUTPUT a1-2: Atmospheric data in GeoTIFF & CSV format (OGC): (i) T2 m difference (scenario – baseline) – **COMPLETED**



Environ. Res.: Health 4 (2026) 021002 <https://doi.org/10.1088/2752-5309/ae6095>

ENVIRONMENTAL RESEARCH HEALTH

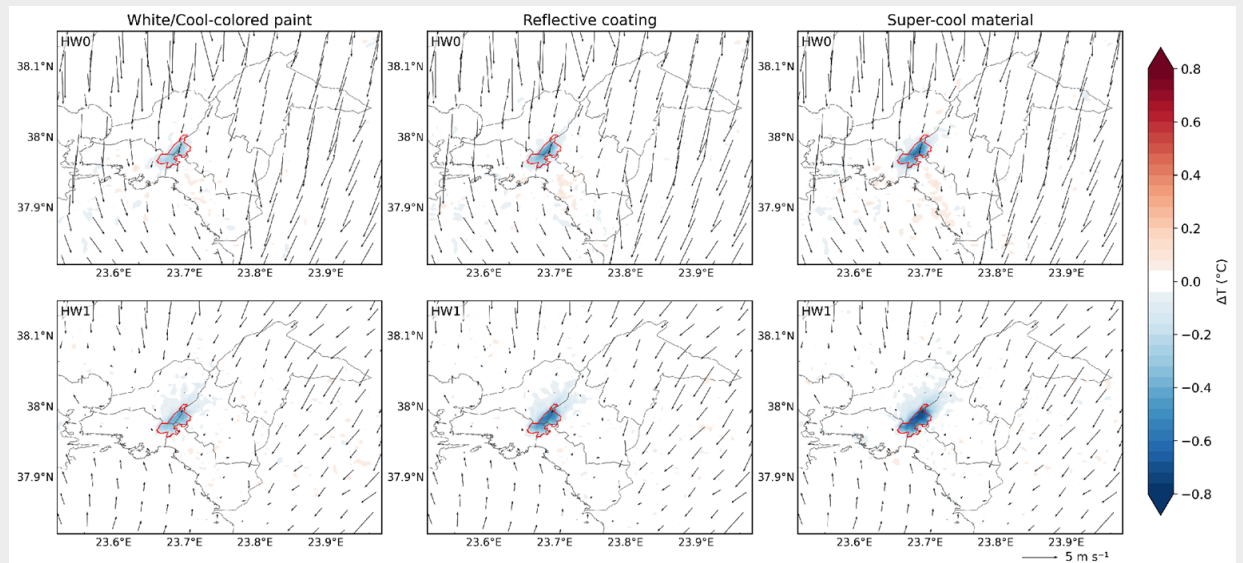
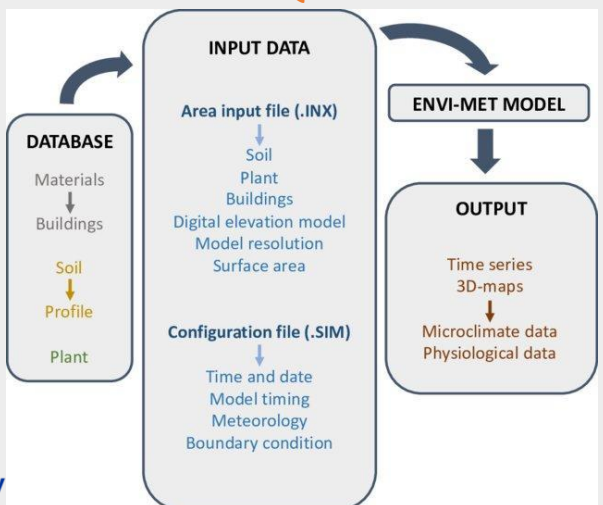
LETTER

Scenario-based modeling for exploring urban cooling pathways: a targeted, health-relevant approach toward just resilience

Christos Giannaros^{1,2,*}, Vassiliki Kotroni² and Konstantinos Lagouvardos²
¹ Laboratory of Meteorology and Climatology, Department of Physics, University of Ioannina, Ioannina, Greece
² National Observatory of Athens, Institute for Environmental Research and Sustainable Development, Palea Penteli, 15236 Athens, Greece
 * Author to whom any correspondence should be addressed.
 E-mail: chris.giannaros@uoi.gr
 Keywords: urban overheating, human thermal comfort, health, cool roofs, targeted mitigation and adaptation, WRF, urban climate modeling
 Supplementary material for this article is available online

2. ENVI-met model: Greening

OUTPUT b1: Atmospheric & Biometeorological data in GeoTIFF format (OGC): (i) 2 m temperature, (ii) PET, (iii) UTCI – **ENVIMET LICENCE ACQUIRED AND WORK INITIATED**



Summary

- Start collecting input datasets for Replicator (Cyprus)
 - Climate data, buildings etc.
- Citizen engagement workshop at 17 Feb
- FAIRification template with of input/output
 - UC1 - DDI Fairification of Climate Data (DDI harmonisation to support structured, interoperable, and policy-aware metadata)
 - UC1 - GSBPM-Based FAIRification Workshop
- User's perspective questionnaires for UC1, for users access control, authorization, operate with independent databases /APIs

GK-3 (demo r3): Aradippou, Cyprus



- Climate risk assessment
- Community Resilience assessment for the local vulnerable groups
- Digital twin for identifying CCA interventions



Summary

Just-Curs In progress 8,33 1 de enero de 2026 → 31 de diciembre de 2027

1. Climate Profile Service 1	Just-Curs	Prototype (25%)
2. Summer Energy Poverty Assessment 1	Just-Curs	Prototype (25%)
3. Heatwave risk assessment service 1	Just-Curs	Prototype (25%)
4. Carbon Footprint 1	Just-Curs	Prototype (25%)
5. Citizen Engagement 1	Just-Curs	Prototype (25%)
7. Community Resilience Assessment	Just-Curs	Prototype (25%)

Application -> Functional component code exists and produces outputs.
 -> Component outputs have been verified for accuracy and technical standards in a standalone setup.

T4.1/T4.2 Provide details for UC1 services, frequent meetings with NOA partners, preparing the D4.1

T4.3 Description of variables, uploaded in sharepoint -> Ontology



Future work

- Services for replicator (Cyprus)

Participation in Medclivar Conference (September 2027): “*Just CURS and FAIR data management: Application in Aigaleo and Replication in Cyprus*”

- Preparation for Aveiro – West Athens replicators

- Processing of AGL social data

- Just-CURS platform design and integration (*under development*)

- Paper under review “*Fair Digital Services and data for adapting to extreme heat in an urban area.*”



**Just Climate Urban Resilience and FAIR data management:
Application in Aigaleo (Greece) and Replication in Strovolos
(Cyprus)**

Barri E.¹, Pitsillos L.², Sfetsos A.¹, Vlachogiannis D.¹, Tzempelikos D.², Bakogianni E.³, Panou D.¹, Panou M.¹, Papagiannopoulos K.¹, Politi N.¹ and Markantonis I.²





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UC2 – A Climate Change Adaptation Service for Ports and Coastal Areas (OPENHIDRA)

4rd Project Meeting Manchester

UC2 Partners: [LNEC, APA]

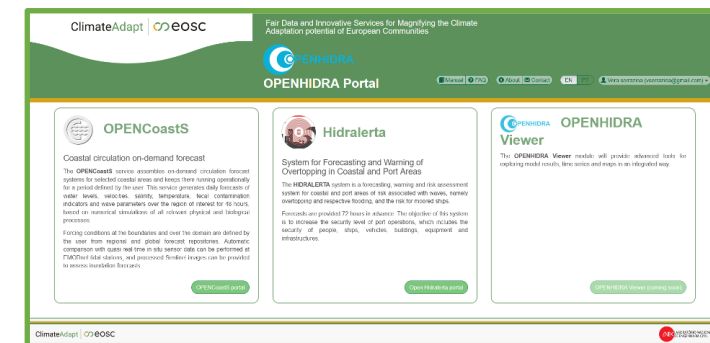


OPENHIDRA - A Climate Change Adaptation Service for Ports and Coastal Areas

- **OPENHIDRA** is envisioned as an **innovative climate adaptation service** designed to enhance the resilience of **European ports and coastal areas** against climate-related hazards
- By integrating **HIDRALERTA** (a port alert system) with **OPENCoastS** (an EOSC-based coastal forecasting service), **OPENHIDRA** aims to provide **on-demand, high-resolution simulations** for coastal and lagoon circulation, overtopping assessment, and port operations, enabling both **long-term climate adaptation planning** and **real-time early warning systems**
- Once developed, this **open-access service** will empower **port authorities, coastal managers, and communities** to make **data-driven decisions**, reducing risks from **coastal flooding, sea-level rise, and extreme weather events** while fostering collaboration through the **European Open Science Cloud (EOSC)**

WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).



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Fair Data and Innovative Services for Magnifying the Climate Adaptation potential of European Communities

OPENHIDRA

OPENHIDRA Portal

[Manual](#)
[FAQ](#)
[About](#)
[Contact](#)
EN
PT

[Vera Semazina \(vserrazina@gmail.com\)](#)




OPENCoastS

Coastal circulation on-demand forecast

The **OPENCoastS** service assembles on-demand circulation forecast systems for selected coastal areas and keeps them running operationally for a period defined by the user. This service generates daily forecasts of water levels, velocities, salinity, temperature, fecal contamination indicators and wave parameters over the region of interest for 48 hours, based on numerical simulations of all relevant physical and biological processes.

Forcing conditions at the boundaries and over the domain are defined by the user from regional and global forecast repositories. Automatic comparison with quasi-real time in situ sensor data can be performed at FIMODnet tidal stations, and processed Sentinel images can be provided to assess inundation forecasts.

[OPENCoastS portal](#)




Hidralerta

System for Forecasting and Warning of Overtopping in Coastal and Port Areas

The **HIDRALERTA** system is a forecasting, warning and risk assessment system for coastal and port areas of risk associated with waves, namely overtopping and respective flooding, and the risk for moored ships.

Forecasts are provided 72 hours in advance. The objective of this system is to increase the security level of port operations, which includes the security of people, ships, vehicles, buildings, equipment and infrastructures.

[Open Hidralerta portal](#)



OPENHIDRA Viewer

The **OPENHIDRA Viewer** module will provide advanced tools for exploring model results, time series and maps in an integrated way.

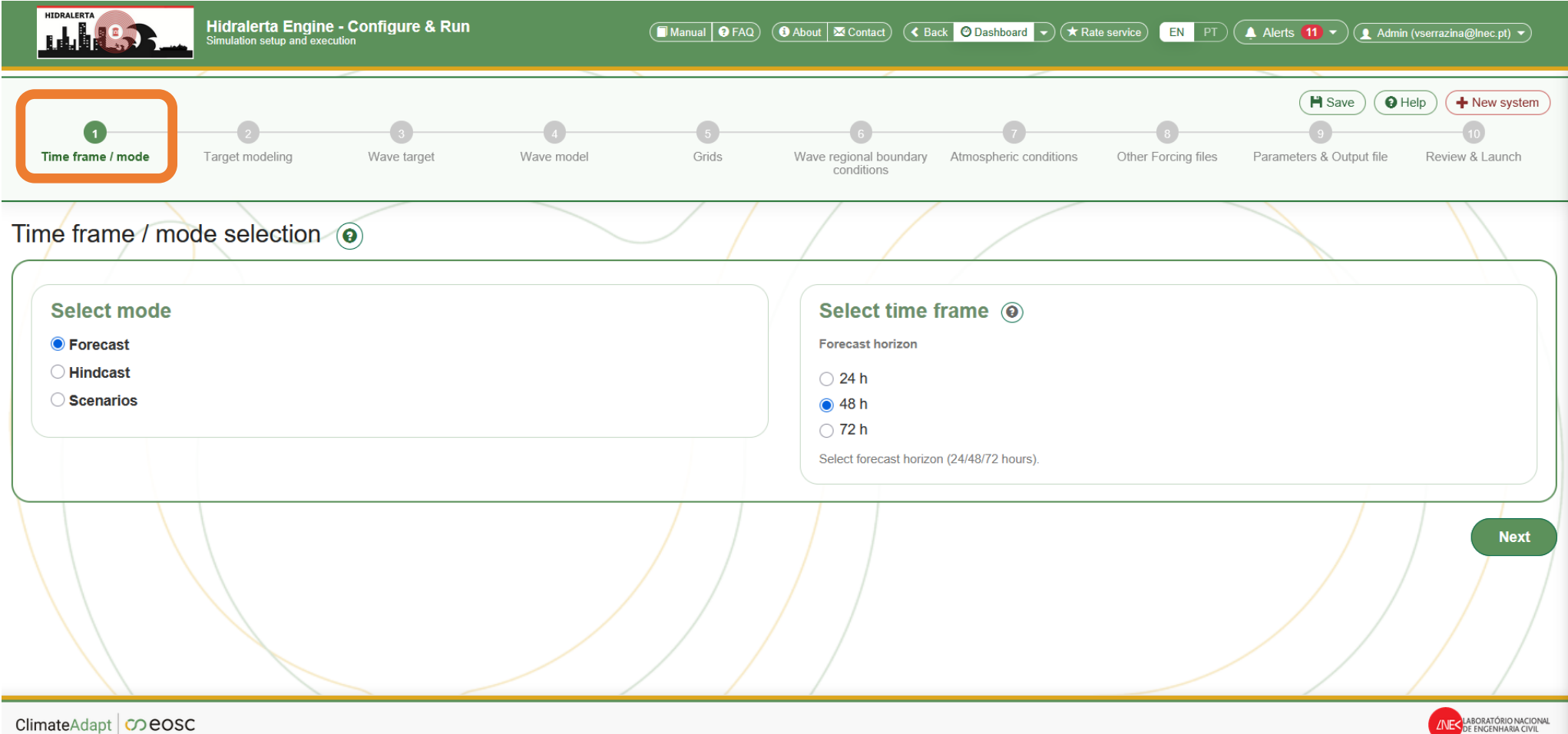
[OPENHIDRA Viewer \(coming soon\)](#)

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).



Hidralerta Engine - Configure & Run
Simulation setup and execution

Manual | FAQ | About | Contact | Back | Dashboard | Rate service | EN | PT | Alerts 11 | Admin (vserrazina@lnec.pt)

1 **Time frame / mode** | 2 Target modeling | 3 Wave target | 4 Wave model | 5 Grids | 6 Wave regional boundary conditions | 7 Atmospheric conditions | 8 Other Forcing files | 9 Parameters & Output file | 10 Review & Launch

Save | Help | + New system

Time frame / mode selection

Select mode

- Forecast
- Hindcast
- Scenarios

Select time frame

Forecast horizon

- 24 h
- 48 h
- 72 h

Select forecast horizon (24/48/72 hours).

Next

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The screenshot displays the 'Hidralerta Engine - Configure & Run' web interface. At the top, there is a navigation bar with links for Manual, FAQ, About, Contact, Back, Dashboard, Rate service, language options (EN, PT), Alerts (11), and a user profile (Admin (vserrazina@lneec.pt)). Below this is a progress bar with 10 steps: 1. Time frame / mode (Forecast - 48 h), 2. Target modeling, 3. Wave target, 4. Wave model, 5. Grids, 6. Wave regional boundary conditions, 7. Atmospheric conditions, 8. Other Forcing files, 9. Parameters & Output file, and 10. Review & Launch. Steps 1 and 2 are highlighted with an orange box. The main content area is titled 'Target modeling selection' and contains a 'Select target model' section with four radio button options: Waves (selected), Overtopping, Ship Mooring, and Ship Manoeuvring. Below the options is the instruction 'Choose one target model.' At the bottom of the selection area are 'Back' and 'Next' buttons. The footer includes the ClimateAdapt | eosc logo and the INEC logo.

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

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Hidralerta Engine - Configure & Run
Simulation setup and execution

Manual | FAQ | About | Contact | Back | Dashboard | Rate service | EN | PT | Alerts 11 | Admin (vserrazina@inec.pt)

Save | Help | New system

1 Time frame / mode (Forecast - 48 h) | 2 Target modeling (Waves) | 3 Wave target (Nearshore wave) | 4 Wave model | 5 Grids | 6 Wave regional boundary conditions | 7 Atmospheric conditions | 8 Other Forcing files | 9 Parameters & Output file | 10 Review & Launch

Wave model selection ?

Select Wave model

SWAN
 OPENCoastS (reuse)

Back | Next

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).

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Simulation setup and execution

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Save | Help | New system

1 Time frame / mode (Forecast - 48 h) | 2 Target modeling (Waves) | 3 Wave target (Nearshore wave) | 4 Wave model (SWAN) | 5 Grids | 6 Wave regional boundary conditions | 7 Atmospheric conditions | 8 Other Forcing files | 9 Parameters & Output file | 10 Review & Launch

Upload the optional Nested1 grid file when the selected setup requires an additional nesting level.
Required: upload Main and Nested. Nested 1 is optional.

Grid preview (demo)
Prototype: shows a geospatial frame and a stylised bathymetry mesh overlay (for demonstration only).

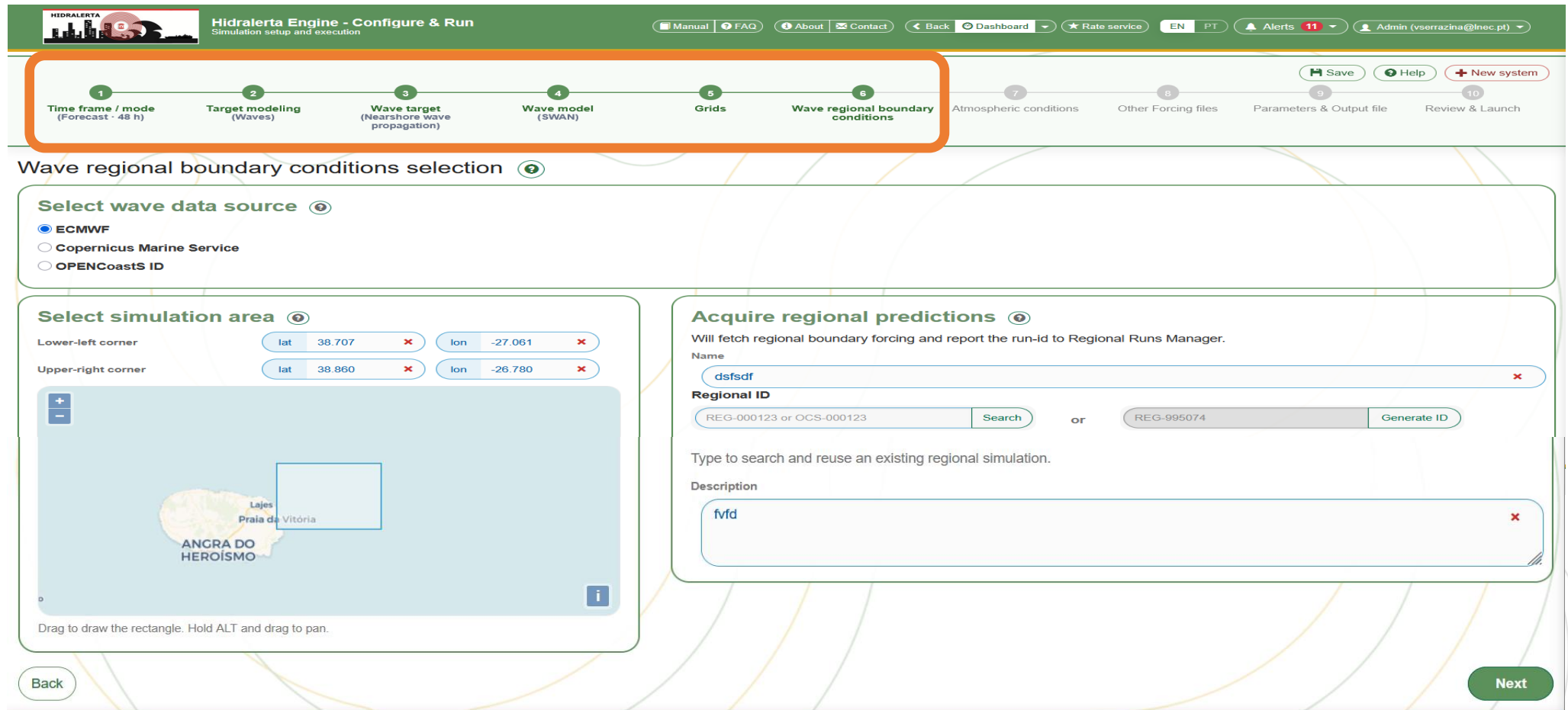
Grid preview: 84 points loaded. Main: 42 points, structured grid 7 x 6 (aveiro_grid_preview_points_demo_main.txt). Nested: 42 points, structured grid 7 x 6 (aveiro_grid_preview_points_demo_nested.txt).

Map showing a grid overlay on a coastal region (Aveiro/Viseu area).

Back | Next

WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).



The screenshot displays the 'Hidralerta Engine - Configure & Run' web interface. A progress bar at the top highlights six steps: 1. Time frame / mode (Forecast - 48 h), 2. Target modeling (Waves), 3. Wave target (Nearshore wave propagation), 4. Wave model (SWAN), 5. Grids, and 6. Wave regional boundary conditions. The current step, 'Wave regional boundary conditions selection', includes three main sections:

- Select wave data source:** Radio buttons for ECMWF, Copernicus Marine Service, and OPENCoastS ID.
- Select simulation area:** Input fields for 'Lower-left corner' (lat: 38.707, lon: -27.061) and 'Upper-right corner' (lat: 38.860, lon: -26.780). Below is a map of Angra do Heroísmo with a blue rectangle indicating the selected area. A note says: 'Drag to draw the rectangle. Hold ALT and drag to pan.'
- Acquire regional predictions:** A text box for 'Name' containing 'dsfsdf'. A 'Regional ID' section has a search field with 'REG-000123 or OCS-000123' and a 'Generate ID' button with 'REG-995074'. A 'Description' field contains 'fvfd'.

Navigation buttons 'Back' and 'Next' are visible at the bottom of the interface.

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Hidralerta Engine - Configure & Run
Simulation setup and execution

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Save | Help | New system

1 Time frame / mode (Forecast - 48 h) | 2 Target modeling (Waves) | 3 Wave target (Nearshore wave) | 4 Wave model (SWAN) | 5 Grids | 6 Wave regional boundary conditions | 7 Atmospheric conditions | 8 Other Forcing files | 9 Parameters & Output file | 10 Review & Launch

Atmospheric conditions selection

Select Atmospheric data source

- ECMWF
- Copernicus Marine Service
- OPENCoastS / MeteoFrance
- OPENCoastS / MeteoGalicia

Back | Next

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

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Hidralerta Engine - Configure & Run
Simulation setup and execution

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1 Time frame / mode (Forecast - 48 h) | 2 Target modeling (Waves) | 3 Wave target (Nearshore wave propagation) | 4 Wave model (SWAN) | 5 Grids | 6 Wave regional boundary conditions (ECMWF) | 7 Atmospheric conditions (ECMWF) | 8 Other Forcing files | 9 Parameters & Output file | 10 Review & Launch

Save | Help | New system

Other Forcing files Selection

Select Other Forcing files

Currents source

- Upload currents file
- OPENCoastS ID**

OPENCoastS ID

Search OPENCoastS deployments...

Selected: OpenCoastS nearshore forecast mock #10021

ID	Label	Info
OCS-10021	OPENCoastS nearshore forecast mock #10021	OPENCoastS mock • nearshore wave propagation • completed • PV • 2026-02-02
OCS-10022	OPENCoastS nearshore forecast mock #10022	OPENCoastS mock • nearshore wave propagation • completed • PV • 2026-02-03

Water Levels

- Upload water levels file
- XTide**
- OPENCoastS ID

XTide will be used as the water-level source for this run.

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

HIDRALERTA
Manual | FAQ | About | Contact | Back | Dashboard | Rate service | EN | PT | Alerts 11 | Admin (vserrazina@lnec.pt)

1
Time frame / mode
(Forecast - 48 h)

2
Target modeling
(Waves)

3
Wave target
(Nearshore wave propagation)

4
Wave model
(SWAN)

5
Grids

6
Wave regional boundary conditions
(ECMWF)

7
Atmospheric conditions
(ECMWF)

8
Other Forcing files
(OPENCoastS ID · XTide)

9
Parameters & Output file

10
Review & Launch

Save Help New system

Parameters & Output file Selection ?

Select Parameters & Output file

Upload Parameter file

No file selected.

Upload the main parameter file required before launch.

Upload Output points file


aveiro_output_points_preview_demo.txt ✕


Upload the output-points file that defines where model results are extracted or reported.

Output points preview (demo)

Prototype: shows a stylised mesh preview with example output points for demonstration only.

Output points preview: 5 output points loaded. 5 output points (aveiro_output_points_preview_demo.txt).





WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

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The background interface shows a progress bar with steps 1-10. Step 1 is 'Time frame / mode Forecast · 48', step 2 is 'Target modeling Waves', and step 3 is 'Wave target'. Below the progress bar is a 'Review & launch' section with a 'Summary' table:

1. Time frame / mode	Time frame / mode
2. Target modeling	Mode: Forecast
3. Wave target	Horizon: 48 h
4. Wave model	Target modeling selection
5. Wave regional boundary conditions	Model type: Waves
6. Atmospheric conditions	Wave target selection
7. Grids	Wave target: Nearshore wave propagation
8. Parameter File	Wave model selection
9. Other Files	

At the bottom of the interface, there are buttons for 'Save', 'Help', 'New system', and 'Launch'. The user's name 'Vera serrazina (vserrazina@gmail.com)' is visible in the top right corner.

WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)



Hidralerta Engine - Configure & Run
Simulation setup and execution

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1
Time frame / mode
(Forecast · 48 h)

2
Target modeling
(Waves)

3
Wave target
(Nearshore wave)

4
Wave model
(SWAN)

5
Grids

6
Wave regional boundary
conditions

7
Atmospheric conditions
(ECMWF)

8
Other Forcing files
(OPENCoastS ID · XTide)

9
Parameters & Output file

10
Review & Launch

[Save](#) [Help](#) [New system](#)

Review & launch ?

Summary

1. Time frame / mode
2. Target modeling
3. Wave target
4. Wave model
5. Grids
6. Wave regional boundary conditions
7. Atmospheric conditions
8. Other Forcing files
9. Parameters & Output file
10. Review & launch

Time frame / mode

Mode: Forecast
Horizon: 48 h

Target modeling

Model type: Waves

Wave target

Wave target: Nearshore wave propagation

Wave model

Run details ?

Run name

Bulk Carrier1 ✕

Description

Short description

Run availability

User only

Selected groups

I accept the [Terms & Conditions of Use](#).

Launch

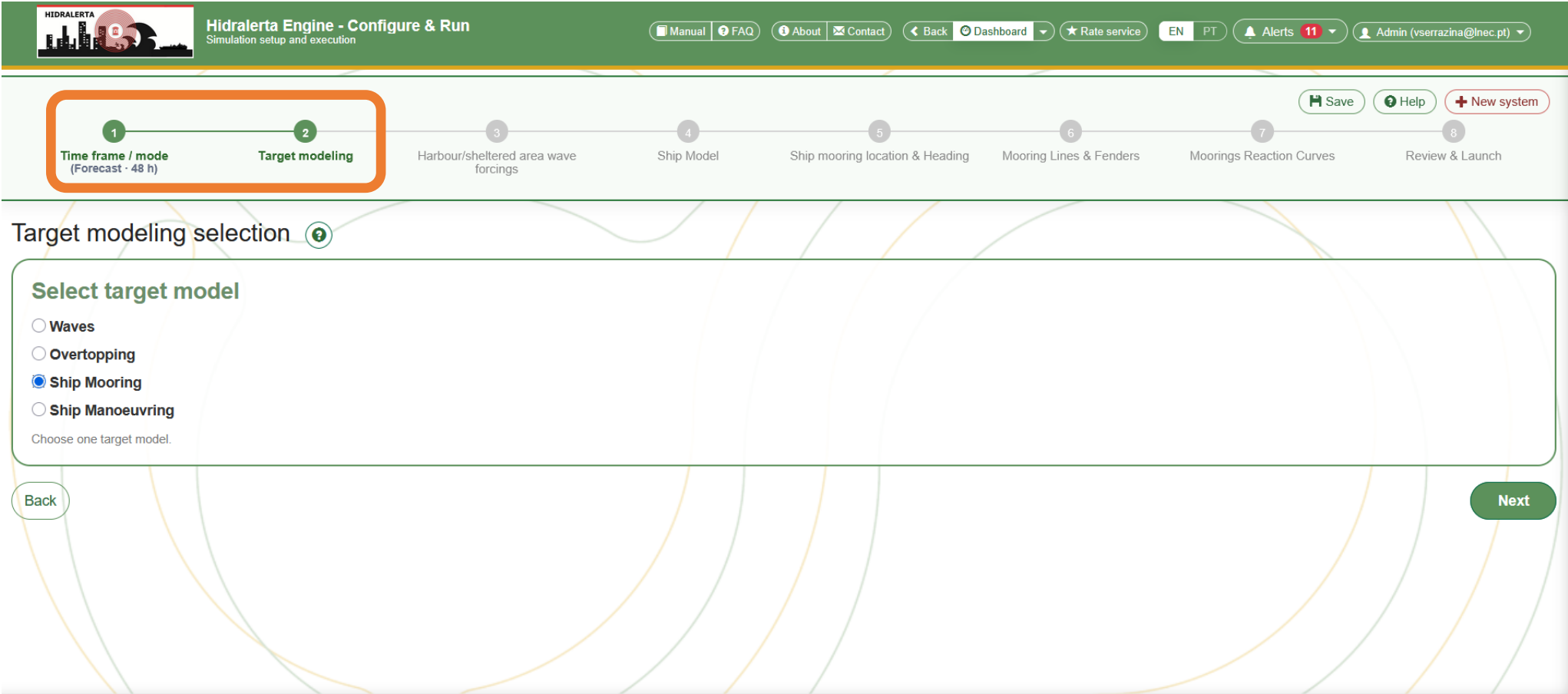


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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).



Hidralerta Engine - Configure & Run
Simulation setup and execution

Manual | FAQ | About | Contact | Back | Dashboard | Rate service | EN | PT | Alerts 11 | Admin (vserrazina@lneec.pt)

Save | Help | New system

1 Time frame / mode (Forecast - 48 h) | 2 Target modeling | 3 Harbour/sheltered area wave forcings | 4 Ship Model | 5 Ship mooring location & Heading | 6 Mooring Lines & Fenders | 7 Moorings Reaction Curves | 8 Review & Launch

Target modeling selection

Select target model

- Waves
- Overtopping
- Ship Mooring
- Ship Manoeuvring

Choose one target model.

Back | Next

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).

HIDRALERTA Hidralerta Engine - Configure & Run
Simulation setup and execution

Manual | FAQ | About | Contact | Back | Dashboard | Rate service | EN | PT | Alerts 11 | Admin (vserrazina@lnec.pt)

1 Time frame / mode (Forecast - 48 h) | 2 Target modeling (Waves) | 3 Wave target | 4 Nearshore Wave Forcing | 5 Harbour Wave model | 6 Grid & Parameter files | 7 Atmospheric conditions | 8 Other Forcing files | 9 Review & Launch

Save | Help | New system

Wave target selection

Select Wave target

- Nearshore wave propagation
- Harbour/sheltered area wave disturbance
- OPENCoastS output

Back | Next

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).

Hidralerta Engine - Configure & Run
Simulation setup and execution

Manual | FAQ | About | Contact | Back | Dashboard | Rate service | EN | PT | Alerts 11 | Admin (vserrazina@lnecc.pt)

Save | Help | New system

1 Time frame / mode (Forecast - 48 h) | 2 Target modeling (Ship Mooring) | 3 Harbour/sheltered area wave forcings | 4 Ship Model | 5 Ship mooring location & Heading | 6 Mooring Lines & Fenders | 7 Moorings Reaction Curves | 8 Review & Launch

Ship Model(s) Selection

Select Ship Model(s)

ID	Type	LPP (m)
<input type="radio"/> 1	General Cargo	156
<input checked="" type="radio"/> 2	Bulk carrier	200
<input checked="" type="radio"/> 3	Passenger/Ro-Ro	40
<input type="radio"/> 4	Oil Tanker	250
<input type="radio"/> 5	VLCC	350
<input type="radio"/> 6	Container-240	240
<input type="radio"/> 7	Container-120	120
<input type="radio"/> 8	Fishing ship	70

Select one or more predefined ships. The following steps can be scoped to each selected ship.
Select the ship or ships to configure. If a ship is removed later, review the following steps because route, tolerance and mooring data are scoped to the selected ship set.

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).

Hidralerta Engine - Configure & Run
Simulation setup and execution

Manual | FAQ | About | Contact | Back | Dashboard | Rate service | EN | PT | Alerts 11 | Admin (vserrazina@lneec.pt)

1 Time frame / mode (Forecast - 48 h) | 2 Target modeling (Ship Mooring) | 3 Harbour/sheltered area wave forcings | 4 Ship Model (Bulk carrier · Passenger/Ro-Ro) | 5 Ship mooring location & Heading | 6 Mooring Lines & Fenders | 7 Moorings Reaction Curves | 8 Review & Launch

Save | Help | New system

Ship mooring location & Heading Selection

Select Ship mooring location & Heading
Define the mooring point and the ship heading for each selected ship.

Configure ship

- 2 Bulk carrier
- 3 Passenger/Ro-Ro

Use this selector to view/define the values for each ship selected in the previous step.

Mooring point map
Click on the map to set latitude/longitude, or type the coordinates on the left.

Point picker

Mooring point values

Latitude *
37.697331

Enter the latitude of the mooring point for the selected ship.

Longitude *

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).

HIDRALERTA
Manual | FAQ | About | Contact | Back | Dashboard | Rate service | EN | PT | Alerts 11 | Admin (vserrazina@lnec.pt)

Hidralerta Engine - Configure & Run

Simulation setup and execution

1 Time frame / mode
(Forecast - 48 h)

2 Target modeling
(Ship Mooring)

3 Harbour/sheltered area wave forcings

4 Ship Model
(Bulk carrier · Passenger/Ro-Ro)

5 Ship mooring location & Heading

6 Mooring Lines & Fenders

7 Moorings Reaction Curves

8 Review & Launch

Configure ship

2 Bulk carrier

3 Passenger/Ro-Ro

Use this selector to view/define the values for each ship selected in the previous step.

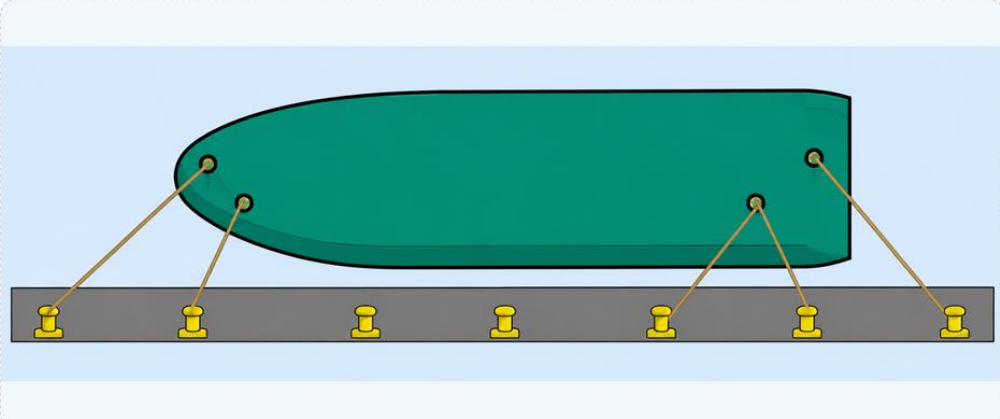
Predefined mooring layout — Bulk carrier — LPP 200 m

Bulk carrier — LPP 200 m

Selected layout

Generic mooring layout for Bulk carrier

Large fixed mooring layout image configured.



Back
Next

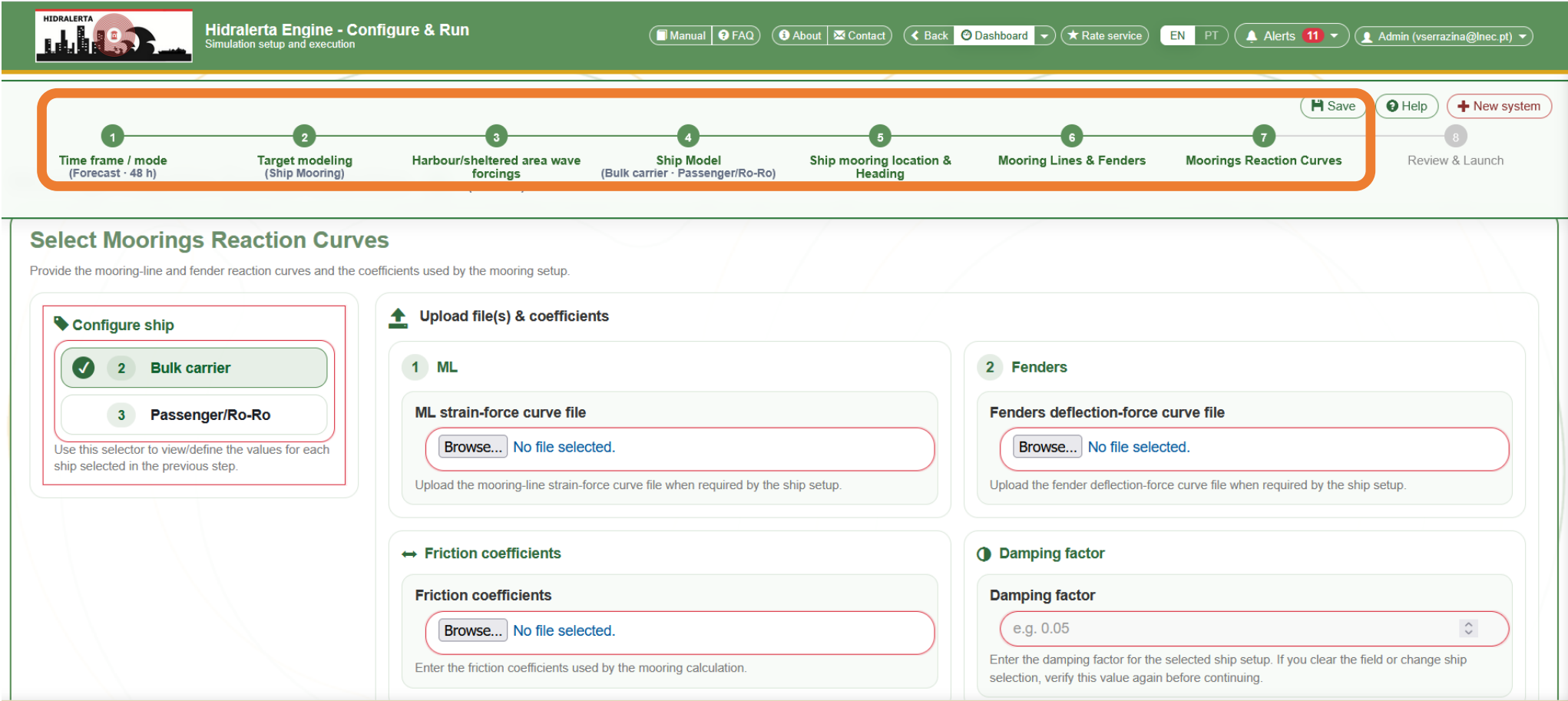
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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).



Hidralerta Engine - Configure & Run
Simulation setup and execution

Manual | FAQ | About | Contact | Back | Dashboard | Rate service | EN | PT | Alerts 11 | Admin (vserrazina@lnecc.pt)

Save | Help | New system

1 Time frame / mode (Forecast - 48 h) | 2 Target modeling (Ship Mooring) | 3 Harbour/sheltered area wave forcings | 4 Ship Model (Bulk carrier · Passenger/Ro-Ro) | 5 Ship mooring location & Heading | 6 Mooring Lines & Fenders | 7 Moorings Reaction Curves | 8 Review & Launch

Select Moorings Reaction Curves

Provide the mooring-line and fender reaction curves and the coefficients used by the mooring setup.

Configure ship

- 2 Bulk carrier
- 3 Passenger/Ro-Ro

Use this selector to view/define the values for each ship selected in the previous step.

Upload file(s) & coefficients

1 ML

ML strain-force curve file

Browse... No file selected.

Upload the mooring-line strain-force curve file when required by the ship setup.

2 Fenders

Fenders deflection-force curve file

Browse... No file selected.

Upload the fender deflection-force curve file when required by the ship setup.

Friction coefficients

Friction coefficients

Browse... No file selected.

Enter the friction coefficients used by the mooring calculation.

Damping factor

Damping factor

e.g. 0.05

Enter the damping factor for the selected ship setup. If you clear the field or change ship selection, verify this value again before continuing.

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).

Hidralerta Engine - Dashboard
Create and monitor runs.

Manual | FAQ | About | Contact | Hub | Dashboard | Rate service | EN | PT | Alerts 11 | Admin (vserrazina@lnec.pt)

Wizard
Configure Forecast / Hindcast / Scenarios. [Open Wizard](#)

Manager
Monitor runs, regional runs, logs and outputs. [Open Manager](#)

Viewer (soon)
Explore maps, tables and plots for stored forecast results. [Open Viewer \(soon\)](#)

Analytics
View platform KPIs, charts and service insights. [Open Analytics](#)

Runs catalog

Search runs: Search any field (ID, name, mode, status, de) | Mode: All modes | Status: All statuses | Period extension: All | Created on: dd/mm/yyyy | Search | Reset filters

[All 50](#) |
 [Regional Waves 7](#) |
 [Nearshore Waves 8](#) |
 [Harbour Sheltered Waves 4](#) |
 [Overtopping 14](#) |
 [Ship Mooring 4](#) |
 [Ship Manoeuvring 13](#)

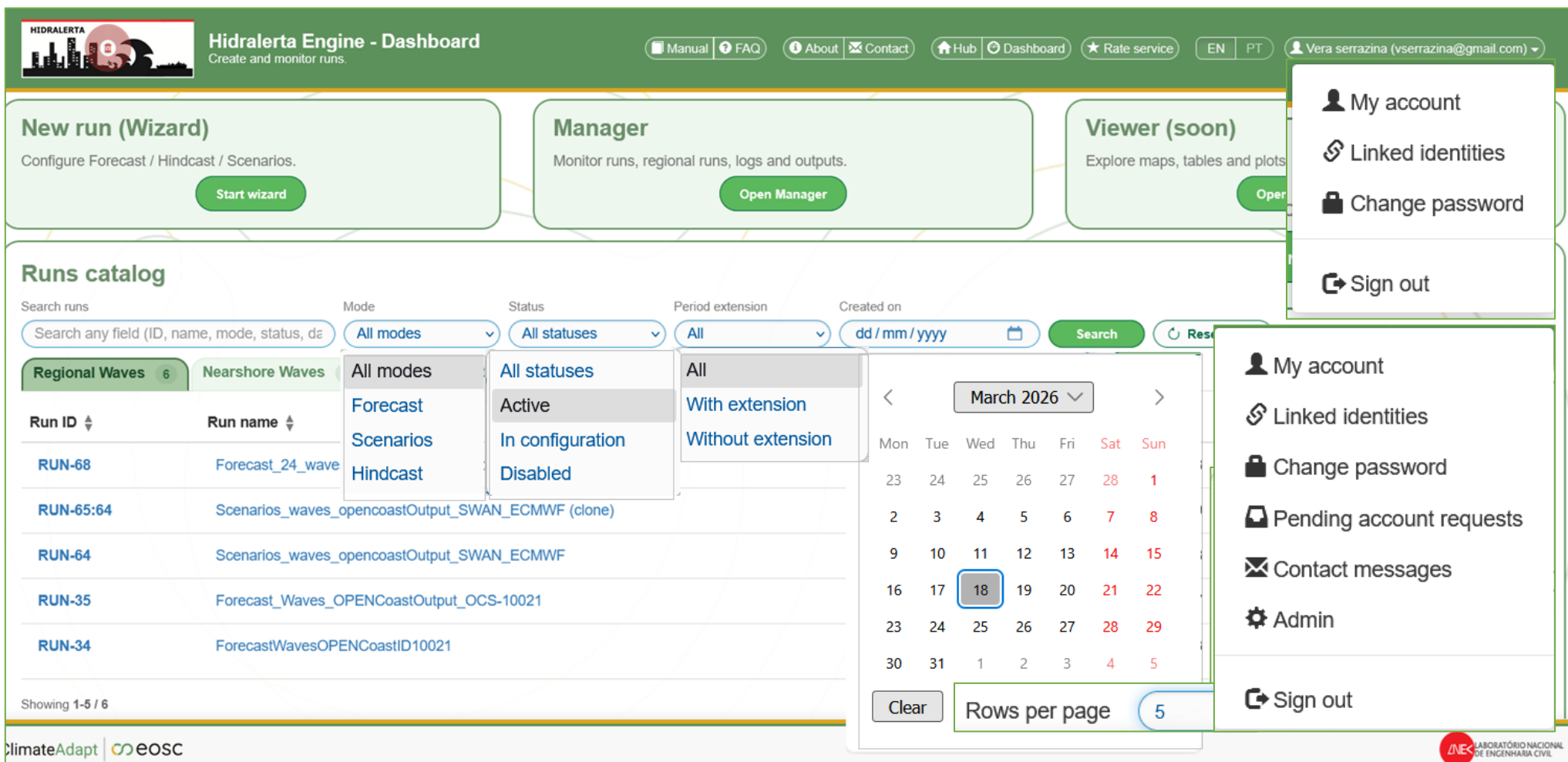
Run ID	Run name	Mode	Created	Status	Actions
RUN-129	Teste_verificação	Forecast	2026-04-17 16:35	In configuration Step 10 - Review & Launch	
RUN-126	Teste_Gravar_com_nome2	Forecast	2026-04-17 14:21	Expiring	
RUN-125:22	MD_Scenarios_Overtopping_clone2	Scenarios	2026-04-17 12:26	Expired	
RUN-124:115	Teste_versoes_xbeach2	Forecast	2026-04-17 12:15	In configuration Step 10 - Review & Launch	
RUN-123	Overtopping_Dreams	Forecast	2026-04-17 11:14	Active	

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WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).



Hidralerta Engine - Dashboard
Create and monitor runs.

Manual | FAQ | About | Contact | Hub | Dashboard | Rate service | EN | PT | Vera serrazina (vserrazina@gmail.com)

New run (Wizard)
Configure Forecast / Hindcast / Scenarios. [Start wizard](#)

Manager
Monitor runs, regional runs, logs and outputs. [Open Manager](#)

Viewer (soon)
Explore maps, tables and plots. [Open](#)

Runs catalog

Search runs: Search any field (ID, name, mode, status, da...)

Mode: All modes | Status: All statuses | Period extension: All | Created on: dd / mm / yyyy

Run ID	Run name
RUN-68	Forecast_24_wave
RUN-65:64	Scenarios_waves_opencoastOutput_SWAN_ECMWF (clone)
RUN-64	Scenarios_waves_opencoastOutput_SWAN_ECMWF
RUN-35	Forecast_Waves_OPENCoastOutput_OCS-10021
RUN-34	ForecastWavesOPENCoastID10021

Showing 1-5 / 6

Rows per page: 5

Calendar: March 2026

- My account
- Linked identities
- Change password
- Sign out
- Pending account requests
- Contact messages
- Admin
- Sign out

WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).

RUN-155
 Created: 2026-05-15 15:31 · Start: 2026-05-15 16:26 · End: 2026-06-14 16:26 · Last run: 2026-05-15 16:26

Summary

- Run
- 1. Time frame / mode
- 2. Target modeling
- 3. Harbour/sheltered area wave forcings
- 4. Ship Model
- 5. Ship Route
- 6. Tolerance Distances

Run

ID: **RUN-155**

Name: Teste_Grupos_ships

Mode: forecast

Shared with groups: Grupo_Testes_5, TESTE_DEMO

Created: 2026-05-15 15:31

Start: 2026-05-15 16:26

End: 2026-06-14 16:26

Last run: 2026-05-15 16:26

Active wizard v1

Time frame / mode

Print Close

Showing 1-5 / 149 Rows per page 5 Previous Page 1/30 Next

WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).

Pending extension requests
✕

Search extension requests

User

Date type

Date

Search visible columns (run, name, user, date, mot)

Email or name

Select date type

dd / mm / yyyy

Search

Reset filters

🕒 Pending 102

🕒 Approved 9

🕒 Rejected 6

Run	Run name	Requested by	Requested until	Motive	Requested at	Reviewed at	Status	Change status
RUN-139	Ship_Manoeuvring_6	vserrazina@lnecc.pt	2026-07-05T22:59:59+00:00	gsdffg	2026-05-06T08:46:50.793493+00:00	—	Pending	<div style="background-color: white; color: #4CAF50; padding: 2px;">Pending</div> <div style="background-color: #4CAF50; color: white; padding: 2px;">Approved</div> <div style="background-color: #f44336; color: white; padding: 2px;">Rejected</div>
RUN-108	teste_wizard_1	vserrazina@lnecc.pt	2026-05-29T22:59:59+00:00	fgfd	2026-04-15T10:51:56.472411+00:00	—	Pending	<div style="background-color: white; color: #4CAF50; padding: 2px;">Pending</div> <div style="background-color: #4CAF50; color: white; padding: 2px;">Approved</div> <div style="background-color: #f44336; color: white; padding: 2px;">Rejected</div>
RUN-100	Teste_Forecast_overtopping_Dreams_id98	vserrazina@lnecc.pt	2026-05-24T22:59:59+00:00	ghjg	2026-03-25T22:23:08.497969+00:00	—	Pending	<div style="background-color: white; color: #4CAF50; padding: 2px;">Pending</div> <div style="background-color: #4CAF50; color: white; padding: 2px;">Approved</div> <div style="background-color: #f44336; color: white; padding: 2px;">Rejected</div>
RUN-91	Run_Demonstração_3	vserrazina@lnecc.pt	2026-05-17T22:59:59+00:00	sdfd	2026-03-24T17:24:06.132165+00:00	—	Pending	<div style="background-color: white; color: #4CAF50; padding: 2px;">Pending</div> <div style="background-color: #4CAF50; color: white; padding: 2px;">Approved</div> <div style="background-color: #f44336; color: white; padding: 2px;">Rejected</div>
RUN-56	Forecast_48_Waves_Nearshore_SWAN_ECMWF_CMS	Vera serrazina	2026-05-15T22:59:59+00:00	fdgdfg	2026-03-16T18:23:35.974093+00:00	—	Pending	<div style="background-color: white; color: #4CAF50; padding: 2px;">Pending</div> <div style="background-color: #4CAF50; color: white; padding: 2px;">Approved</div> <div style="background-color: #f44336; color: white; padding: 2px;">Rejected</div>

Showing 1-5 / 102

Rows

5

Previous

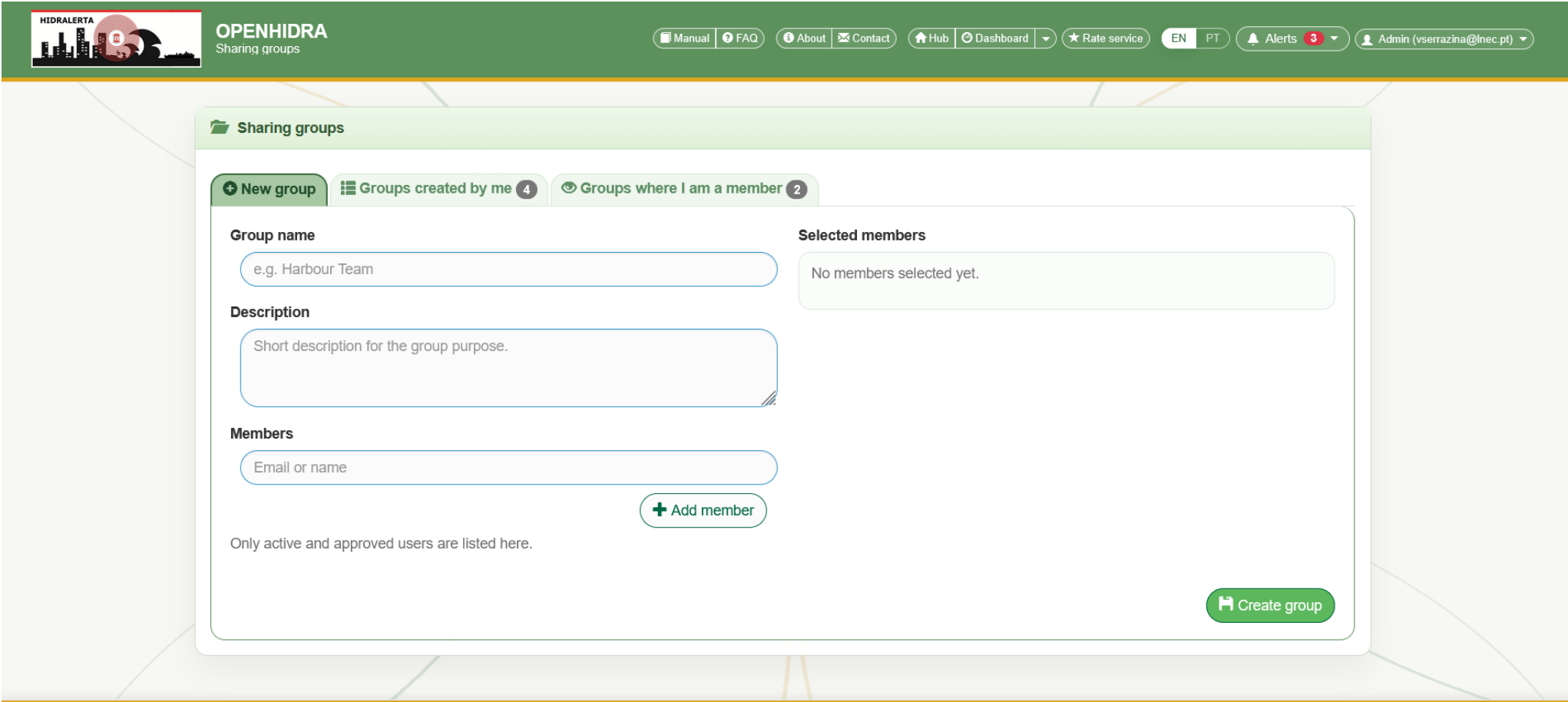
Page 1/21

Next

Close

WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).



The screenshot displays the 'Sharing groups' interface in the OPENHIDRA application. The header includes the 'HIDRALERTA' logo, the application name 'OPENHIDRA Sharing groups', and navigation links for Manual, FAQ, About, Contact, Hub, Dashboard, Rate service, and language options (EN, PT). It also shows an Alerts notification with 3 items and a user profile for Admin (vserrazina@lneec.pt).

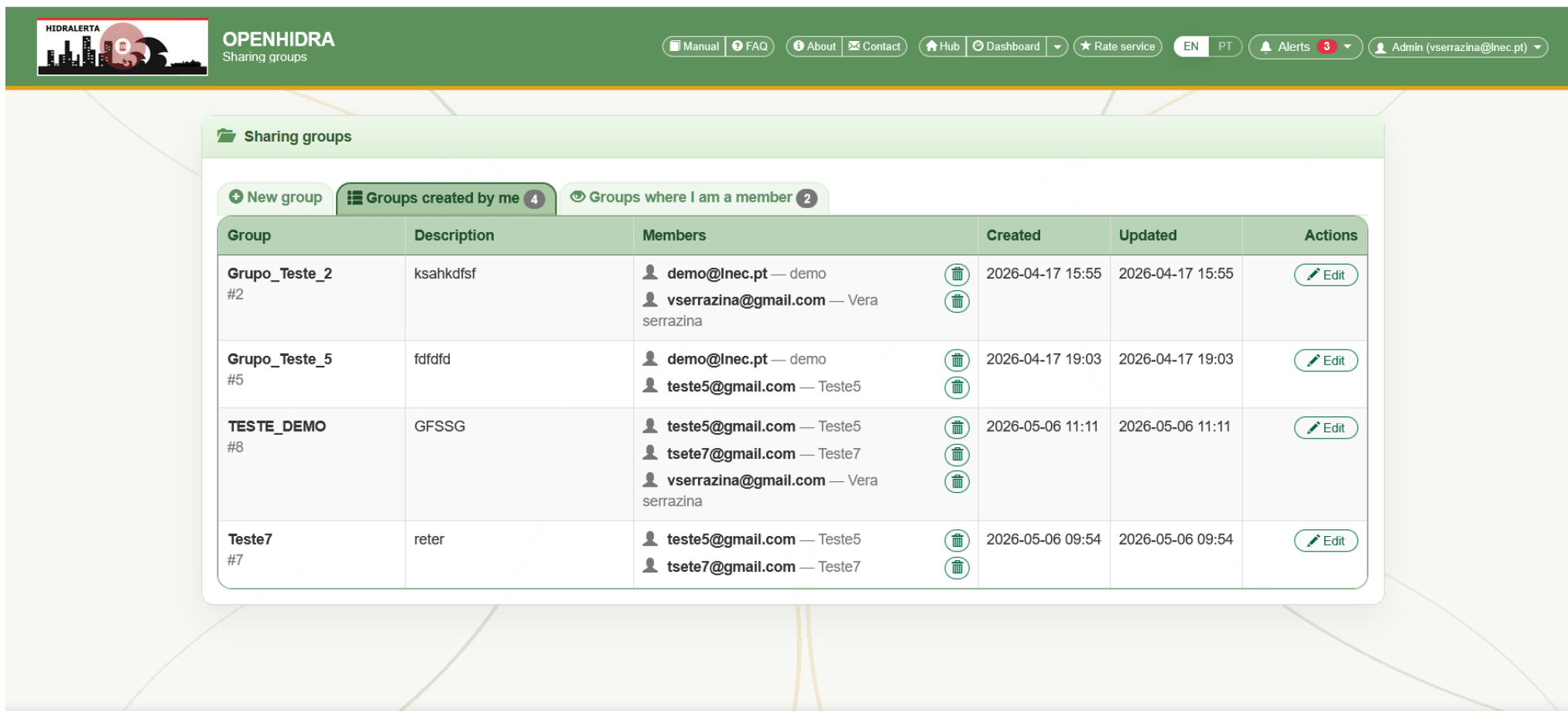
The main content area is titled 'Sharing groups' and features three tabs: '+ New group', 'Groups created by me 4', and 'Groups where I am a member 2'. The 'New group' tab is active, showing a form with the following fields:

- Group name:** A text input field with the placeholder 'e.g. Harbour Team'.
- Description:** A larger text area with the placeholder 'Short description for the group purpose.'
- Members:** A text input field with the placeholder 'Email or name' and a '+ Add member' button below it.
- Selected members:** A box containing the text 'No members selected yet.'

A 'Create group' button is located at the bottom right of the form. A note at the bottom of the form states: 'Only active and approved users are listed here.'

WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).

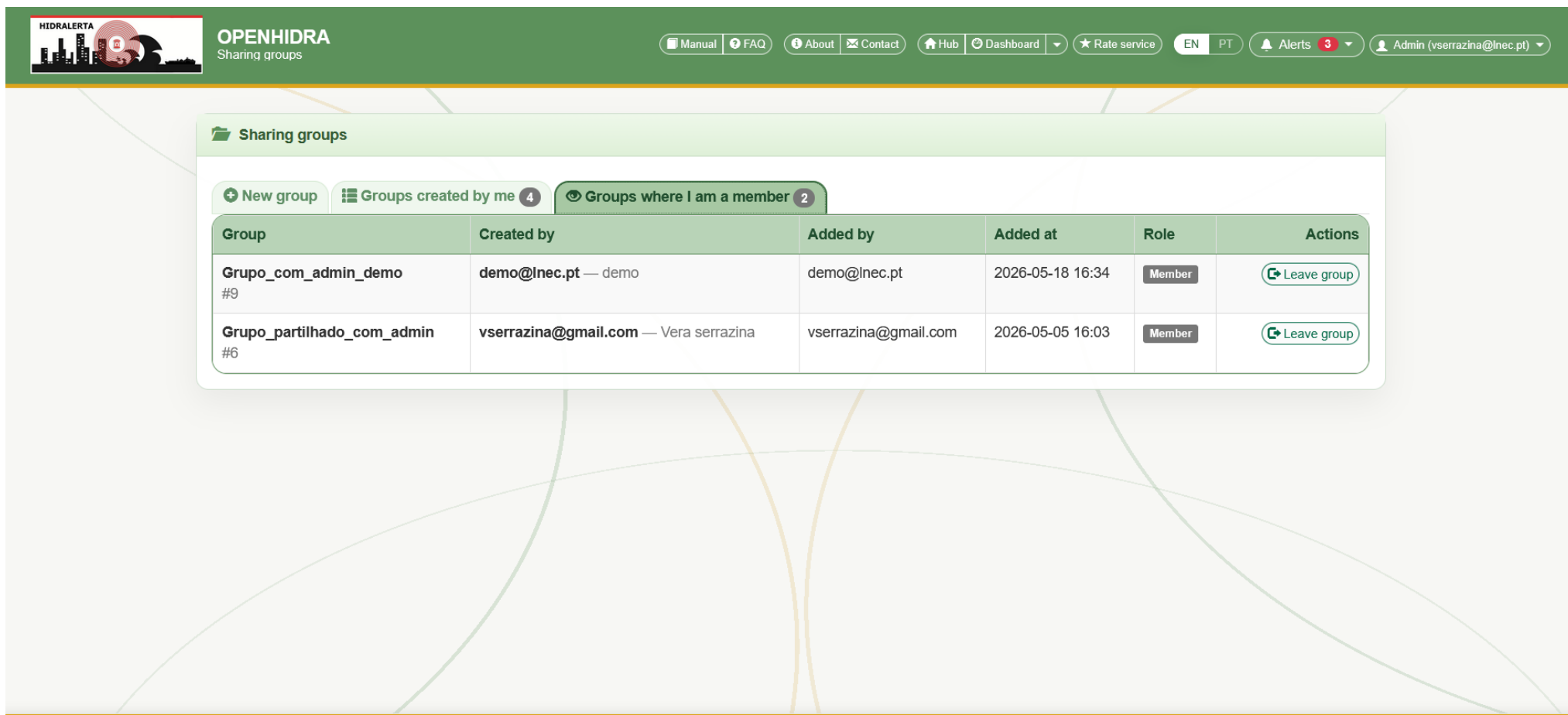


The screenshot shows the 'Sharing groups' page in the OPENHIDRA application. The page header includes navigation links (Manual, FAQ, About, Contact, Hub, Dashboard), a 'Rate service' button, language options (EN, PT), an 'Alerts' notification (3), and a user profile (Admin vserrazina@lnec.pt). The main content area features a table of sharing groups with the following data:

Group	Description	Members	Created	Updated	Actions
Grupo_Teste_2 #2	ksahkdfs	demo@lnec.pt — demo vserrazina@gmail.com — Vera serrazina	2026-04-17 15:55	2026-04-17 15:55	Edit
Grupo_Teste_5 #5	fdfd	demo@lnec.pt — demo teste5@gmail.com — Teste5	2026-04-17 19:03	2026-04-17 19:03	Edit
TESTE_DEMO #8	GFSSG	teste5@gmail.com — Teste5 tsete7@gmail.com — Teste7 vserrazina@gmail.com — Vera serrazina	2026-05-06 11:11	2026-05-06 11:11	Edit
Teste7 #7	reter	teste5@gmail.com — Teste5 tsete7@gmail.com — Teste7	2026-05-06 09:54	2026-05-06 09:54	Edit

WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Task 4.2: Development of the details of each service (use case level).

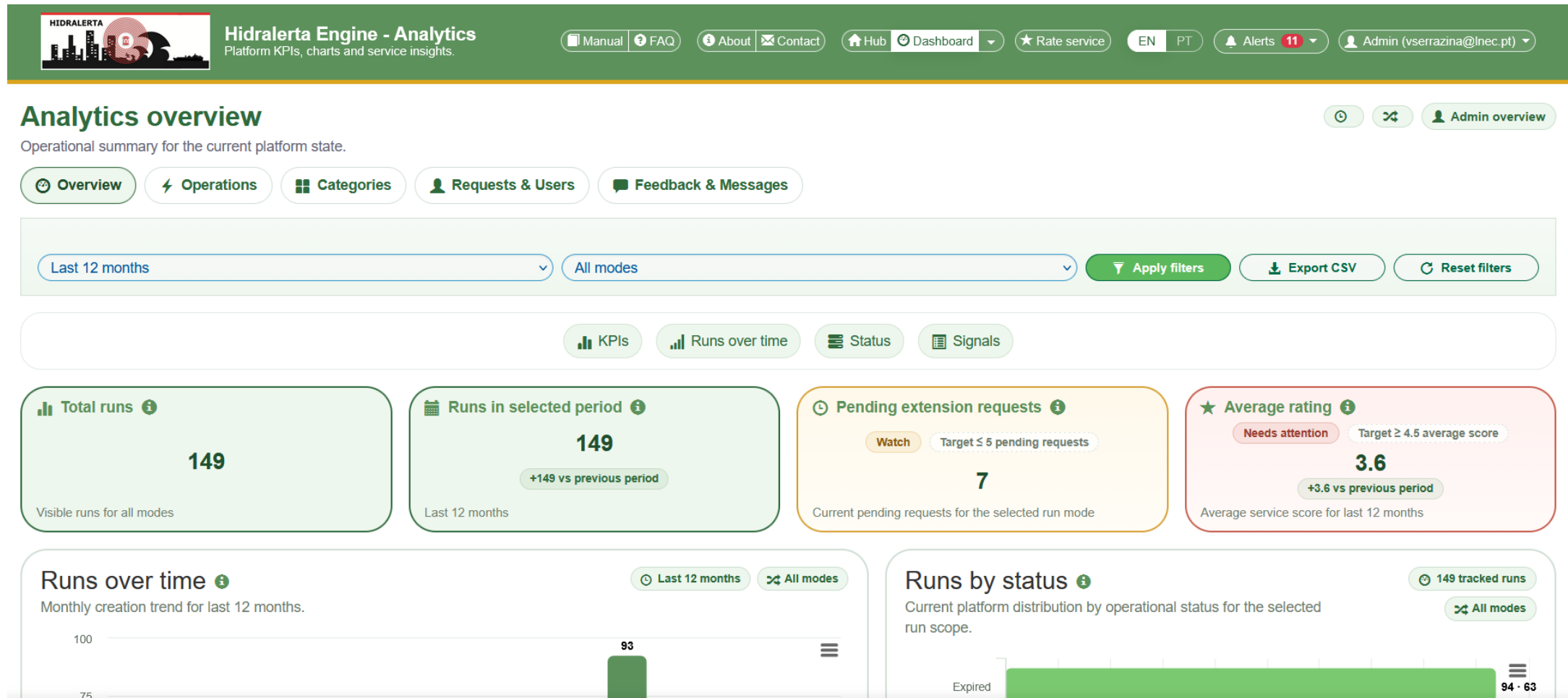


The screenshot shows the 'Sharing groups' section of the OPENHIDRA application. The interface includes a navigation bar with links for Manual, FAQ, About, Contact, Hub, Dashboard, Rate service, and language options (EN, PT). There are also notification alerts (3) and a user profile dropdown for Admin (vserrazina@lnecc.pt).

Below the navigation bar, there are tabs for 'New group', 'Groups created by me' (4), and 'Groups where I am a member' (2). The main content is a table listing the groups:

Group	Created by	Added by	Added at	Role	Actions
Grupo_com_admin_demo #9	demo@lnecc.pt — demo	demo@lnecc.pt	2026-05-18 16:34	Member	Leave group
Grupo_partilhado_com_admin #6	vserrazina@gmail.com — Vera serrazina	vserrazina@gmail.com	2026-05-05 16:03	Member	Leave group

WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)



WP4: CLIMATE-ADAPTservice4EOSC: Service Providers and interoperability for the Exchange and for the EOSC-core (M3-M36)

Hidralerta Engine - Analytics
Platform KPIs, charts and service insights.

[Manual](#)
[FAQ](#)
[About](#)
[Contact](#)

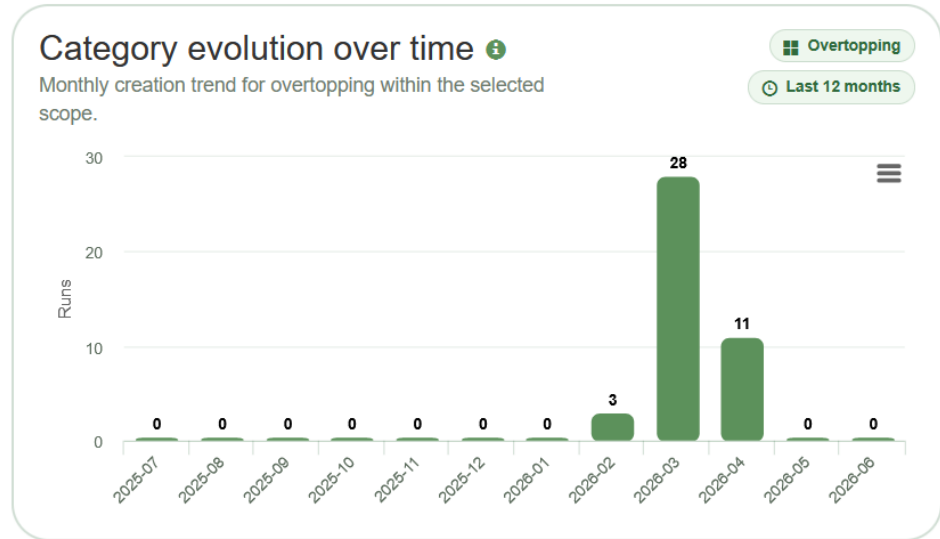
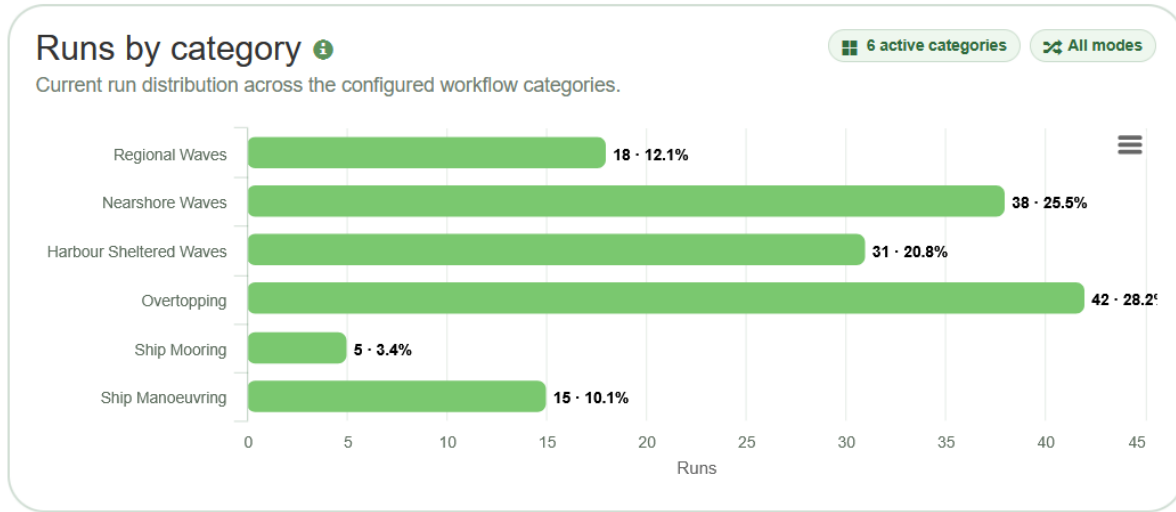
[Hub](#)
[Dashboard](#)

[★ Rate service](#)

EN
PT

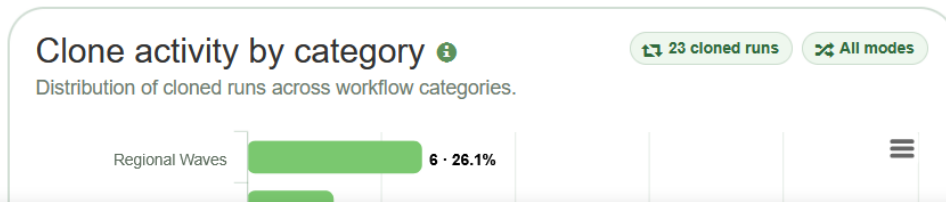
🔔 Alerts 11

👤 Admin (vserrazina@lnec.pt)



Category operations

Clone activity and current operational balance for each workflow family.



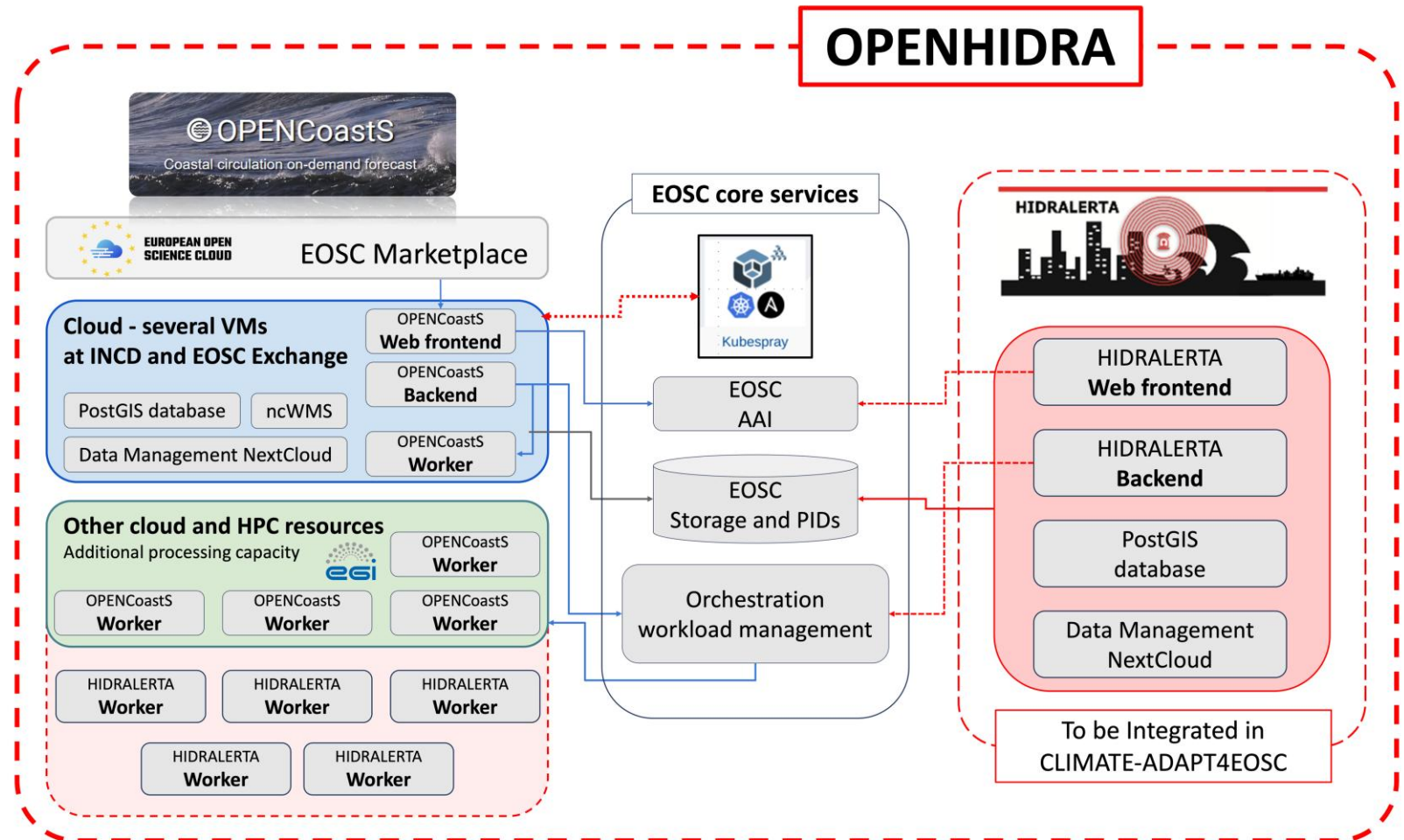
Category operational summary

Current run, status and clone breakdown for each workflow category.

Category	Total	Active	In configuration	Disabled	Expiring	Cloned
Regional Waves	18	0	7	0	0	6

EOSC services adaptation and infrastructure integration

- AAI Federated Authentication
- Storage and PIDs
- Orchestration and workload balance
- Data management



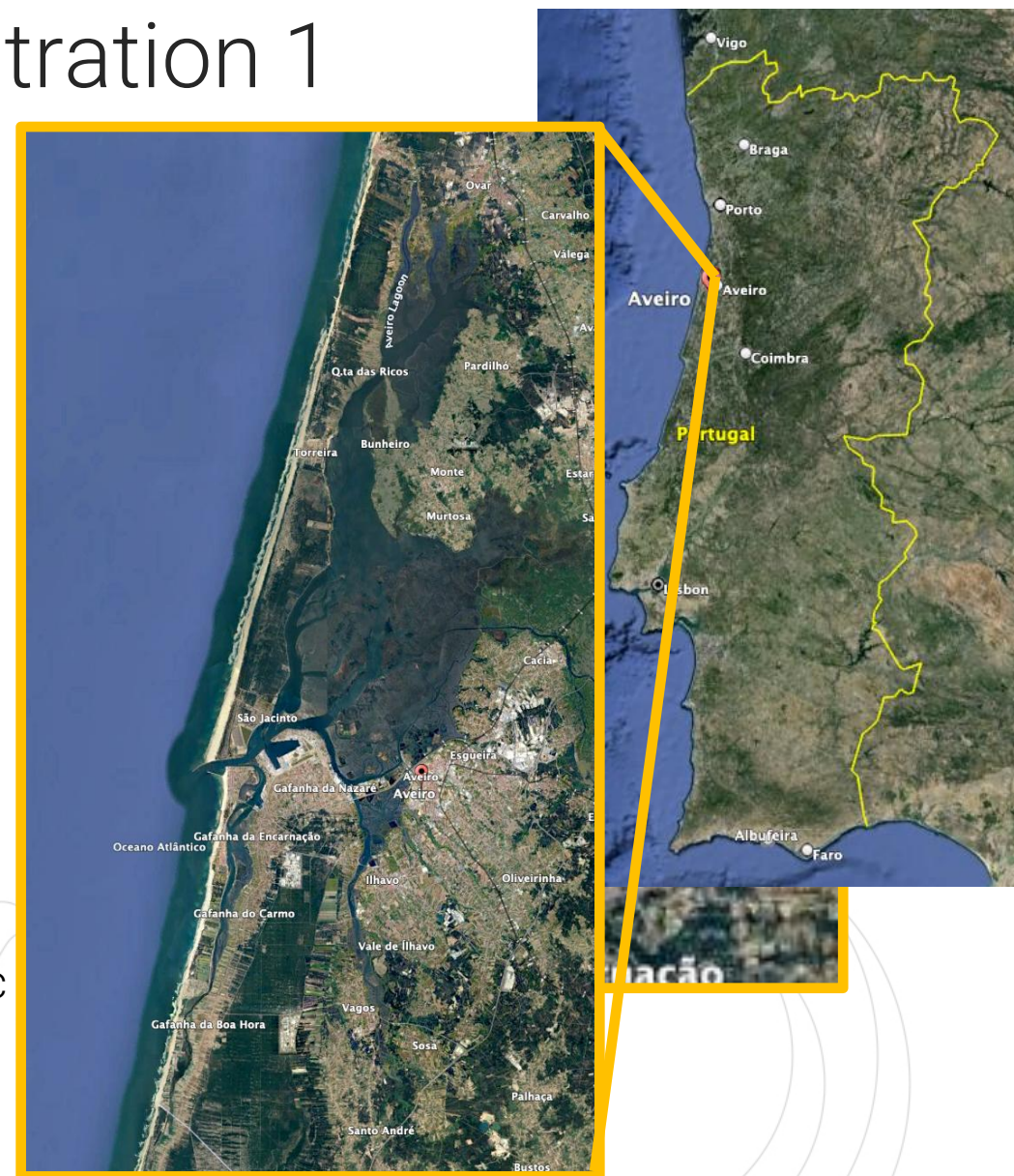
Aveiro - UC2's Region of Demonstration 1

Climate Change & Coastal Hazards

- Coastal areas are highly vulnerable to sea-level rise, storm surges, erosion, recurring road flooding, and damage to coastal infrastructure
- As a direct result, beach erosion negatively impacts tourism

Port hazards

- Port activities and navigation routes are affected by sedimentation due to accretion events and extreme weather conditions
- The overtopping of port infrastructure has frequently caused operational challenges
- Navigation and mooring issues lead to significant economic losses



Replicators

Replicator PT-1/2 (Demonstration round 2): Ports of Piraeus and Rhodes, Greece

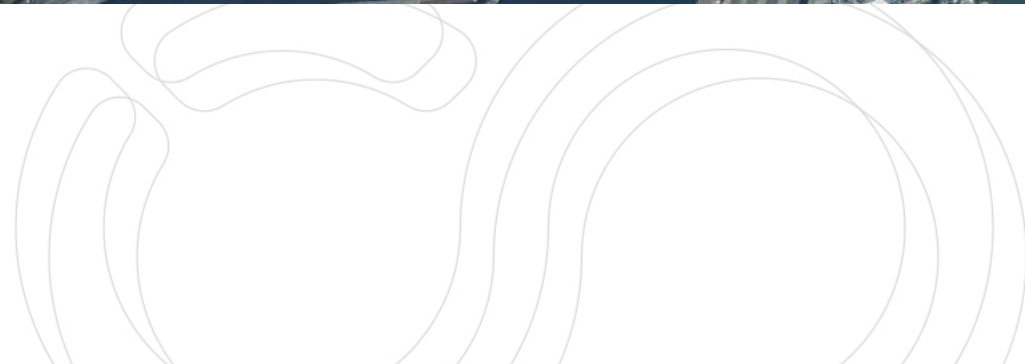
- **Port of Piraeus:** The service will provide the port with detailed hydrodynamic conditions and wave disturbance data to improve climate adaptation planning and protect maritime operations and economic assets.
- **Port of Rhodes:** The service will provide wind and wave data for climate adaptation planning, ensuring uninterrupted port operations and protecting the supply chains critical to the island, while demonstrating how targeted strategies safeguard vital infrastructure in isolated areas.
- Several meetings were held with the NOA partner, who already sent valuable information for each port. However, they are still having difficulty finding specific information about the ports and vessels.



Replicators

Replicator PT-3 (Demonstration round 3): Port of Dunkirk, France

- As the 7th largest port in the North Sea, the Port of Dunkirk plays a pivotal role in European trade and logistics. Replicating the Aveiro Lagoon use case in Dunkirk offers insights into addressing the distinct meteo-oceanographic conditions of the North Sea region.
- This replication serves as a model for enhancing the resilience of European ports against the impacts of climate change, ensuring continuity in maritime operations and supply chains.
- Initial contact has been made with the Artelia partner to retrieve all the data needed for this replicator. **However, some meetings need to be rescheduled to reengage with the Artelia team and proceed with preparation of the Dunkirk replicator.**



Future work

- Start of WP5, covering the Demonstrators and Replicators
- Implementation of the Climate Change Scenarios in OPENHIDRA (and in the respective OPENCoastS and HIDRALERTA services)
- Preparation of the Dunkirk replicator
- Implementation of the FAIRification methodologies and tools



Thank You!

Team:

Alberto Azevedo, Alphonse Nahon, Ana Catarina Zózimo, Anabela Oliveira,
André Fortunato, António Antunes, Conceição Fortes, Gonçalo Jesus,
Liliana Pinheiro, Luís Portela, Ricardo Martins, Rui Capitão, Vera Serrazina

Shrink-Swell from Space2Earth Service (3SES)

ARTELIA-CSTB-BRGM-DATA4

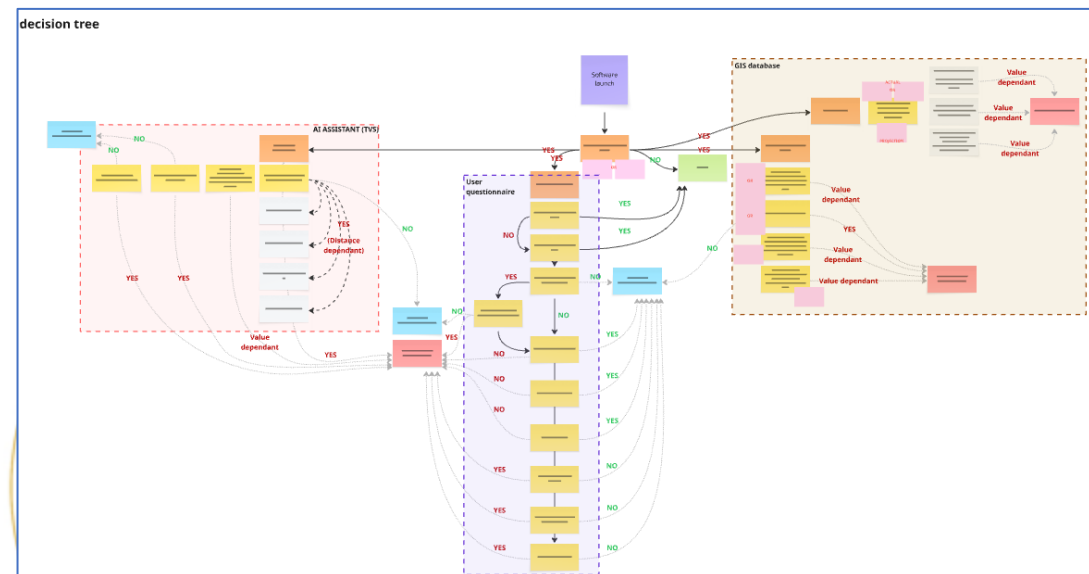
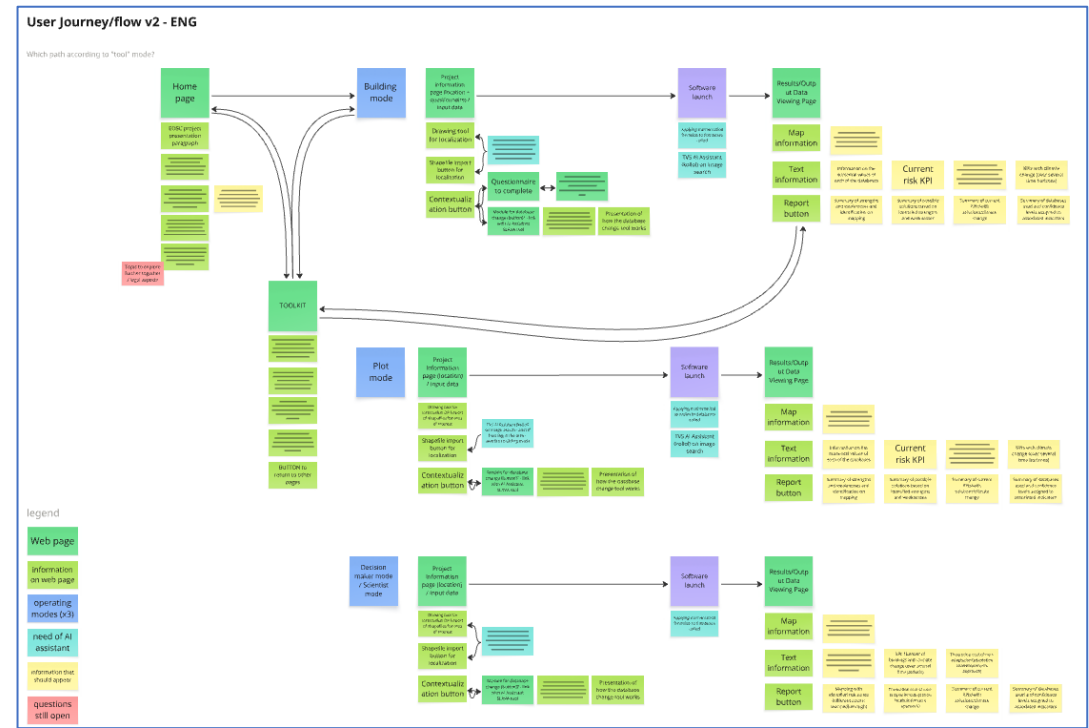


Key developments since Aveiro

- **Operational development : Analysis of the influence of different factors** (in particular, understanding the climatic parameters that could bring clay shrinkage and swelling) :
 - Determining parameters on a first set of municipalities and replicating them on a second (work carried out by Alice and Rosalie)
 - Consolidation in progress on more than 5,000 municipalities (work carried out by Lydie)

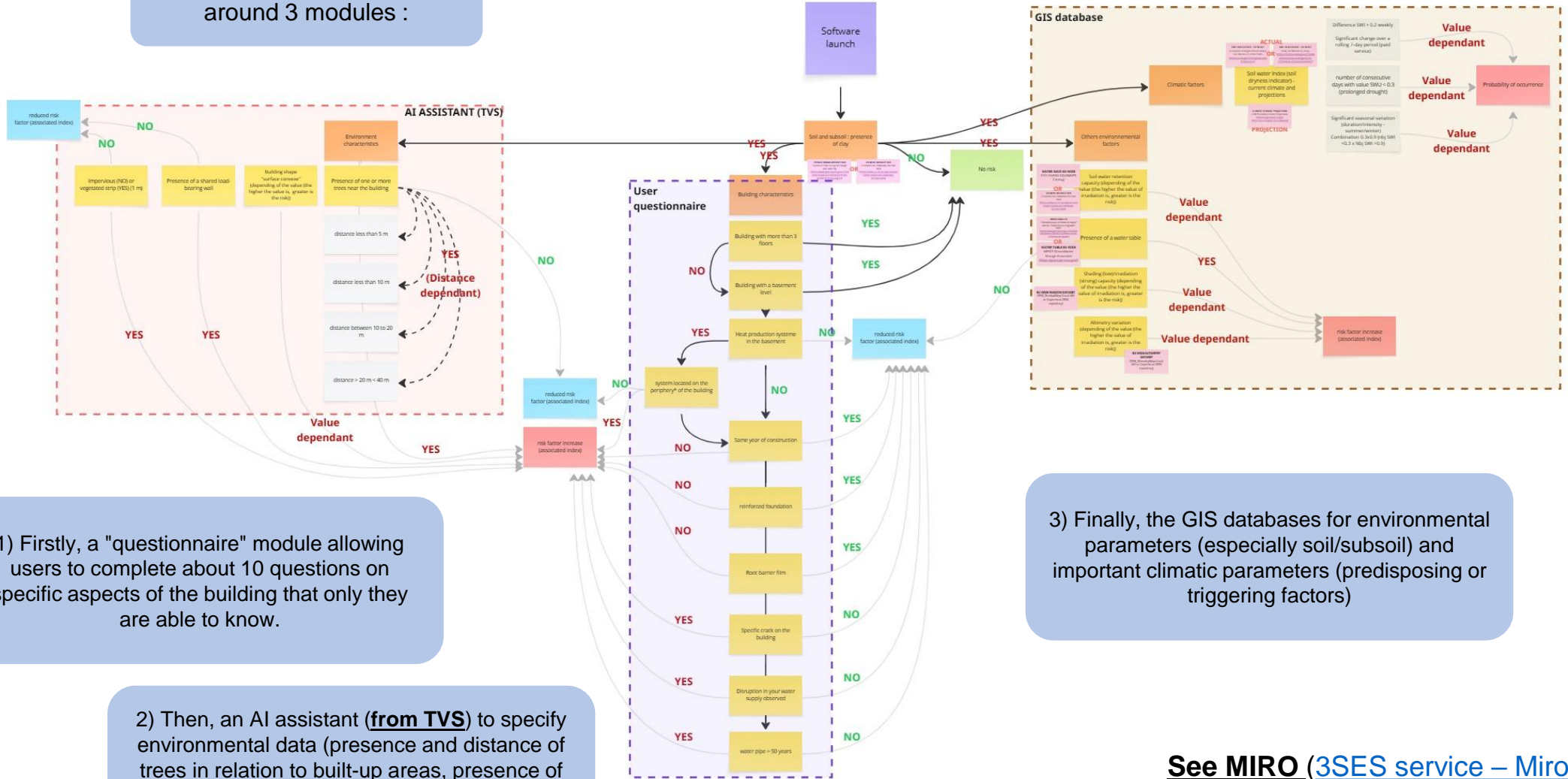
- **Service development : Configuration and clarification of service requirements** (User journey, decision tree, etc. [see MIRO \(3SES service – Miro\)](#))

- **Demo Version and Mock Up** : work carried out by Novitopia (Gökhan and colleagues) with the participation of TVS (AI Assistant - Kollol and colleagues)



decision tree

The service will operate around 3 modules :



1) Firstly, a "questionnaire" module allowing users to complete about 10 questions on specific aspects of the building that only they are able to know.

2) Then, an AI assistant (**from TVS**) to specify environmental data (presence and distance of trees in relation to built-up areas, presence of permeable zones, definition of building shape coefficient)

3) Finally, the GIS databases for environmental parameters (especially soil/subsoil) and important climatic parameters (predisposing or triggering factors)

See MIRO (3SES service – Miro)

Influence of climatic factors

We believe we have identified the key elements we were looking for: 3 meteorological criteria governing the risk of clay shrinkage and swelling (work carried out by Rosalie and Alice) :

- Number of days with $SWI^* < 0.3 \times$ Number of days $SWI > 0.9$
- Number of days with $SWI < 0.3$
- Weekly pattern ($SWI \pm 0.2$)

➔ 67% of the occurrences of the clay shrink swell can be explained by at least one of these criteria in in Bourgogne (first study area)

➔ It's more than 82% in the second study area : Occitanie.

Bourgogne exemple

City	Cohorte	Year of CatNat order	Identified cause ?	Nb days $SWI < 0.3 \times$ Nb days $SWI > 0.9$	Rank max - min	Nb days $SWI < 0.3$	Rang max - min	Weekly pattern ?
Cudot	1	2018	1	7535	2			
Cudot	1	2019	1	2444	14			
Cudot	1		1	1040	24	104	8	YES
Saint-Martin-d'Ordon	1		1	9384	1	138	2	NO
Saint-Martin-d'Ordon	1		1	2772	16	99	11	YES
Vergigny	1		1	13400	1	134	4	NO
Vergigny	1		1	0	41	100	16	YES
Villechétive	1	2018	1	6804	2	108	6	NO
Villechétive	1	2019	1	1824	13	96	11	NO
Auxerre	3	1989	1	0	38	111	7	NO
Auxerre	3	1990	1	111	36	111	7	NO
Auxerre	3	1991	1	2139	21	93	14	YES
Auxerre	3	1992	0	1008	24	63	22	NO
Auxerre	3	1993	1	840	26	42	27	YES
Auxerre	3	1994	0	0	38	0	40	NO
Auxerre	3	1995	0	99	37	1	39	NO
Auxerre	3	1996	1	10100	2	100	9	YES
Auxerre	3	1997	0	420	32	10	32	NO
Auxerre	3	1998	0	2346	20	46	25	NO
Auxerre	3	2003	1	6251	6	133	3	NO
Auxerre	3	2011	0	2784	18	96	12	NO
Auxerre	3	2018	1	12257	1	119	6	NO
Auxerre	3	2019	0	4840	12	88	18	NO
Auxerre	3	2020	1	7857	3	97	11	YES
Auxerre	3	2022	1	828	27	92	16	YES
Chevannes	3	1989	0	420	32	105	8	NO
Chevannes	3	1993	1	945	26	35	30	YES
Chevannes	3	2003	1	6030	6	134	3	NO
Chevannes	3	2011	0	2528	20	79	19	NO
Chevannes	3	2018	1	12064	1	116	6	NO
Chevannes	3	2019	0	5152	12	92	12	NO
Chevannes	3	2020	1	7872	3	96	10	YES
Chevannes	3	2022	1	900	27	90	15	YES
Monéteau	3	1988	1	0	42	124	8	NO
Monéteau	3	1990	1	0	42	131	5	NO
Monéteau	3	1991	0	824	34	103	11	NO
Monéteau	3	1992	0	616	37	77	21	NO
Monéteau	3	1993	1	689	35	53	30	YES
Monéteau	3	1994	0	2288	22	26	38	NO
Monéteau	3	1995	0	2366	21	26	38	NO
Monéteau	3	1996	1	8632	3	104	10	YES
Monéteau	3	1997	0	1260	30	36	36	NO
Monéteau	3	1998	0	2142	23	63	24	NO
Monéteau	3	2003	1	6251	7	133	3	NO
Monéteau	3	2011	1	3024	19	108	9	NO
Monéteau	3	2018	1	12446	1	127	7	NO
Monéteau	3	2019	1	3168	18	99	13	NO
Monéteau	3	2020	1	7700	6	100	12	NO
Monéteau	3	2022	1	0	42	99	13	YES

Relation found (0 (no)/ 1 (Yes)) for years with disorder

1st dynamic

2nd dynamic

3rd dynamic

*SWI : Soil Wetness Index // **years with "Natural Disaster" declarations

Influence of climatic factors

Next step : French wide scaling up (*work carried out by Lydie*)

- 14 000 municipalities with at least 1 CatNat declaration
- We are going to work on 5000 of them spread all over France
- And look for if the 3 criteria can be applied everywhere in France or if there are climatic regional specificities

