CONNECT
local COastal moNitoriNg sErviCe for PorTugal

Sessão de demonstração serviço CONNECT

Lot 4 - Coastal marine (pre)operational services around the European Atlantic Ocean including the North Sea and the Arctic Ocean (22050L04-COP-INNO USER-9000) of the tenderer
Copernicus Marine – User – EU Coastal Monitoring Pilot Demonstrations (22050-COP-INNO USER)

Laboratório Nacional de Engenharia Civil (LNEC)
Faculdade de Ciências da Universidade de Lisboa (FCUL) - Associação para a Investigação e Desenvolvimento de Ciências (FCID)

14/09/2024

COASTNET

COASTAL MONITORING NETWORK

Rede de Monitorização Ambiental

Ana C. Brito

www.coastnet.pt • coastnet@mare-centre.pt

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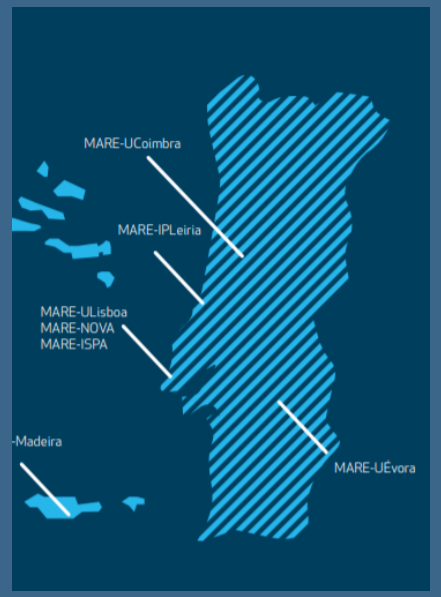
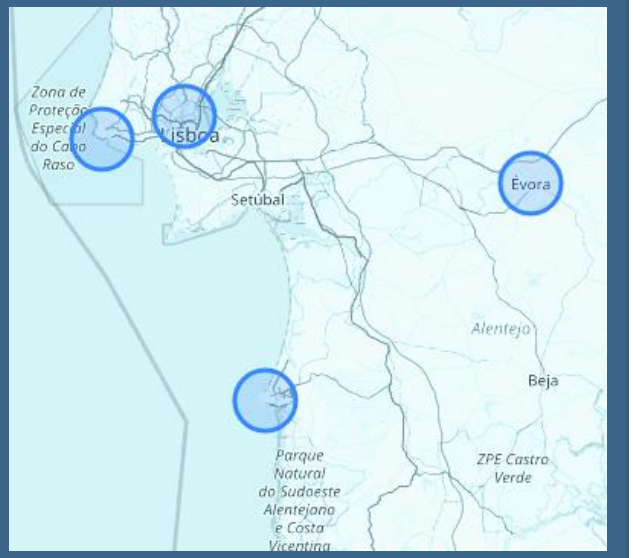
Promoters

MARE





CoastNet é uma infraestrutura de investigação do **MARE** – parceria entre Faculdade de Ciências da UL (MARE-ULisboa) e a Universidade de Évora (MARE-UÉ)

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Equipa Implementação

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Coordinator

Ana Brito
Implementation Team

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Implementation Team

Henrique Cabral
Implementation Team

Luís da Costa
Implementation Team

Paola Castellanos
Implementation Team

Paula Chainho
Implementation Team

Susana França
Implementation Team

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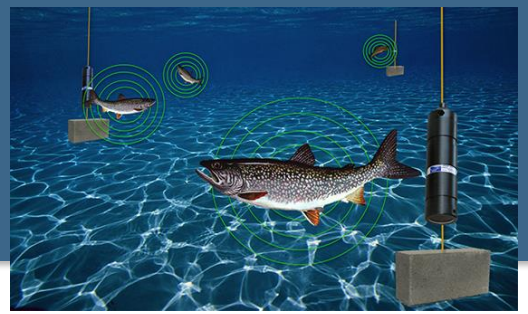
Funding, Networks and Associations

FCT Fundação para a Ciência e a Tecnologia

Cofinanciado por: PORTUGAL 2020 | UNIÃO EUROPEIA Fundo Europeu de Desenvolvimento Regional | Lisb@20[20] | ALENTEJO 2020

Incluída no Roteiro Nacional de Infestruturas de Investigação de Interesse Estratégico (RNIE – FCT)

FCT
Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR



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Visão

Ligar as Pessoas ao Oceano

Missão

Melhorar o conhecimento acerca do funcionamento dos ecossistemas costeiros Portugueses, através do desenvolvimento de um sistema de monitorização costeiro

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Funding, Networks and Associations

CoastNet is now part of the EU **DANUBIUS** Research Infrastructure (**DANUBIUS-RI**)

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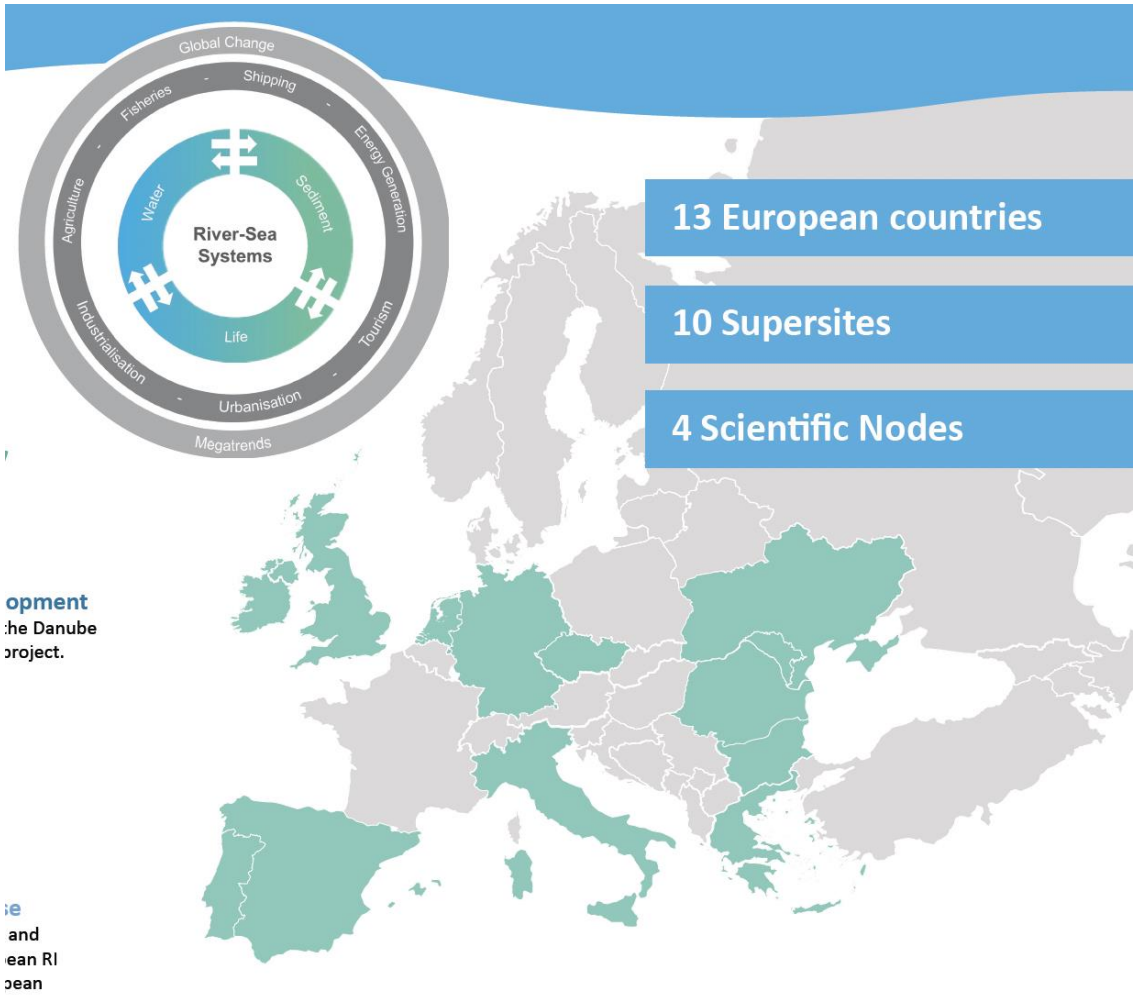

opment
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DANUBIUS-RI

Mission: facilitate and contribute excellence science to the continuum from river to sea

Vision: achieve healthy River-Sea Systems and sustainable use

Goal: to overcome fragmentation of science,knowledge, data & management

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Objectives

- ✓ **Promote observations and measurements on the Portuguese coast, either remotely or on the water, predominantly continuously;**
- ✓ **Integrate and allow the visualization of the data obtained;**
- ✓ **Allow free and near real-time access to the data collected, as well as to historical data compiled;**
- ✓ **Develop a set of products and indicators for the coastal zone;**

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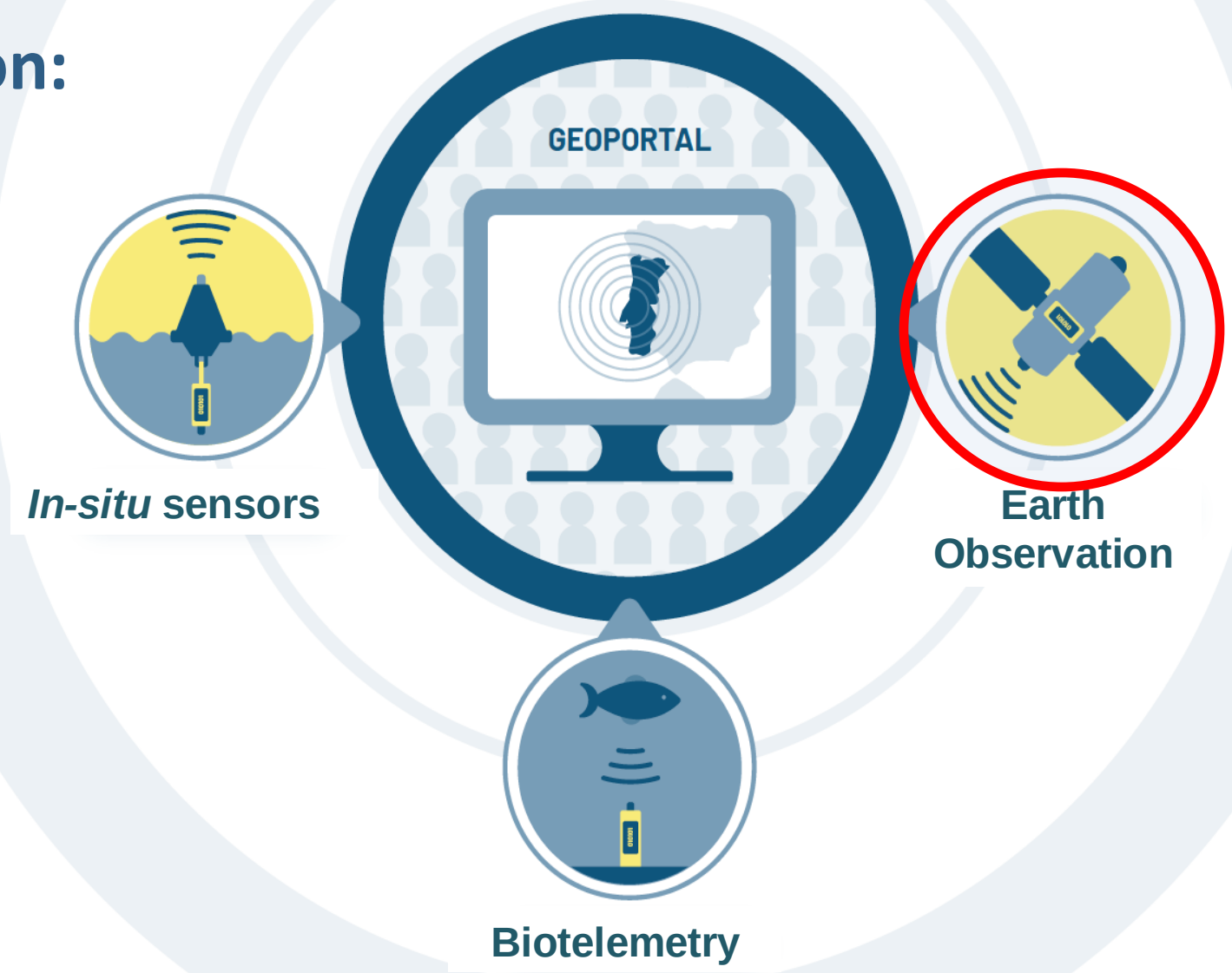
Action Lines

1. Sistema de Deteção Remota Costeira
2. Rede Nacional de Recetores de Biotelemetria Aquática
3. Sistema de Monitorização Ambiental e Biológica
4. **Plataforma digital** CoastNet (Geoportal)

Lines of Action:



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Coastal Remote Sensing System (CRSS)

Objectives

- ✓ Aggregate satellite data for the PT coastal region and make them available – *Standard*
- ✓ Develop new products for our coastal zone (UI), freely available from Geoportal – *indicators*
- ✓ Temporal dataseries (~20/30 years worth of data) vs NRT monitoring

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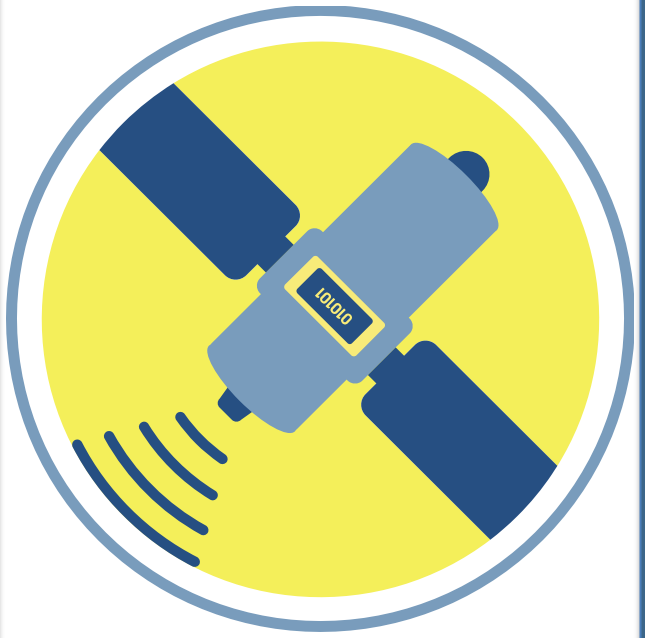
Coastal Remote Sensing System (CRSS)

Products available (*standard*)



- Temperature (SST)
- Chlorophyll *a*
- Sea Surface Height
- Wind Speed/Stress
- Sea water velocity
- Salinity

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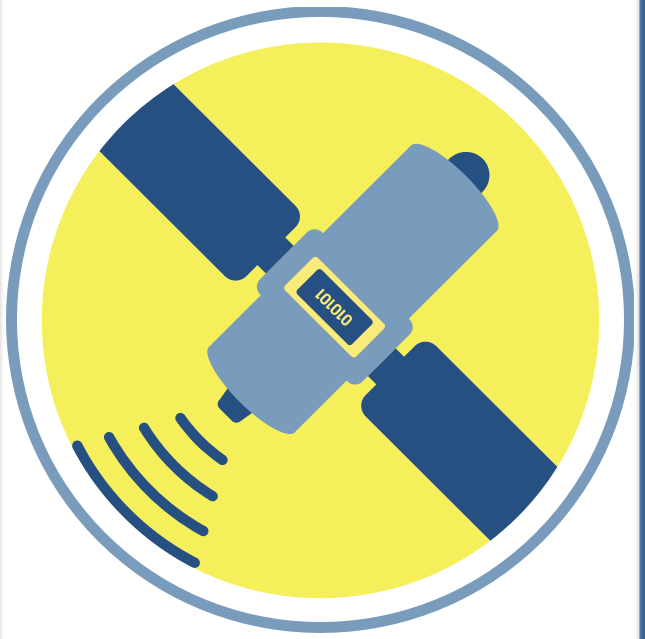
Coastal Remote Sensing System (CRSS)

New products (*indicators*)



- **Upwelling Index**
- **Fronts**
- ***Phytoplankton size class***
- **Water Quality Index**

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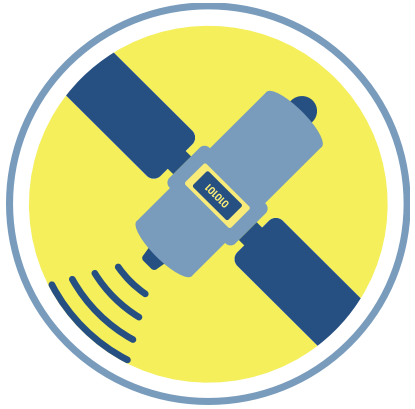
Coastal Remote Sensing System (CRSS)



Satellite Data

Access to data, download and processing using:
INCD Cluster (National Distributed Computing Infrastructure)

All data available in the CoastNet's Geoportal

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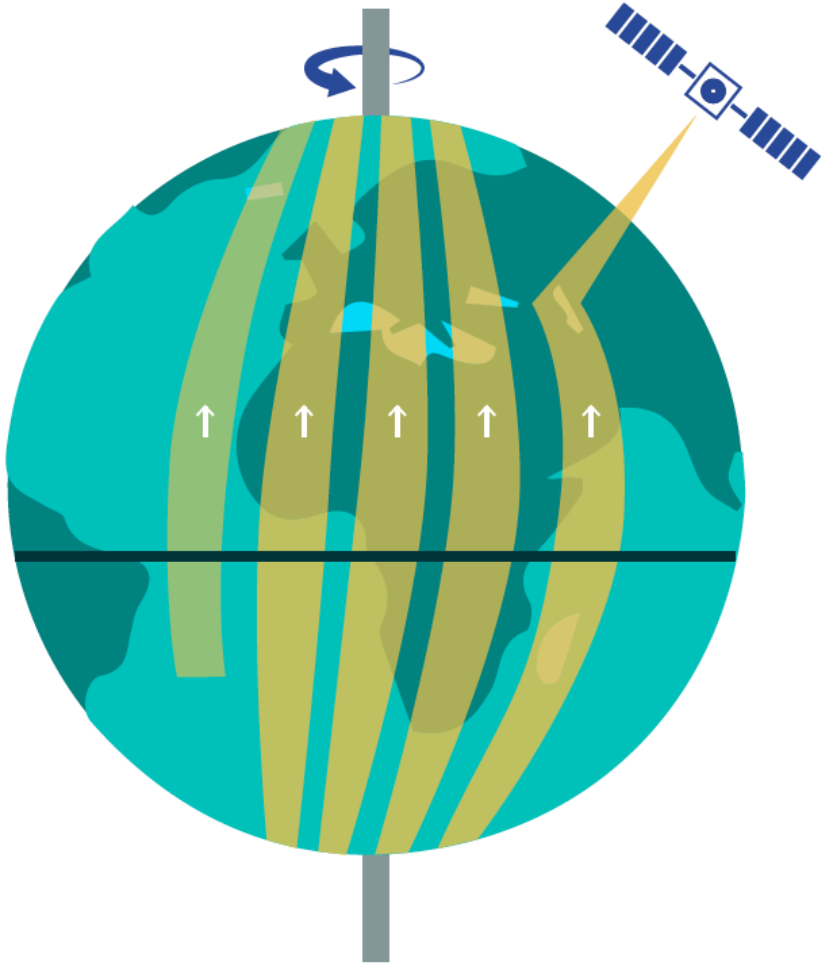
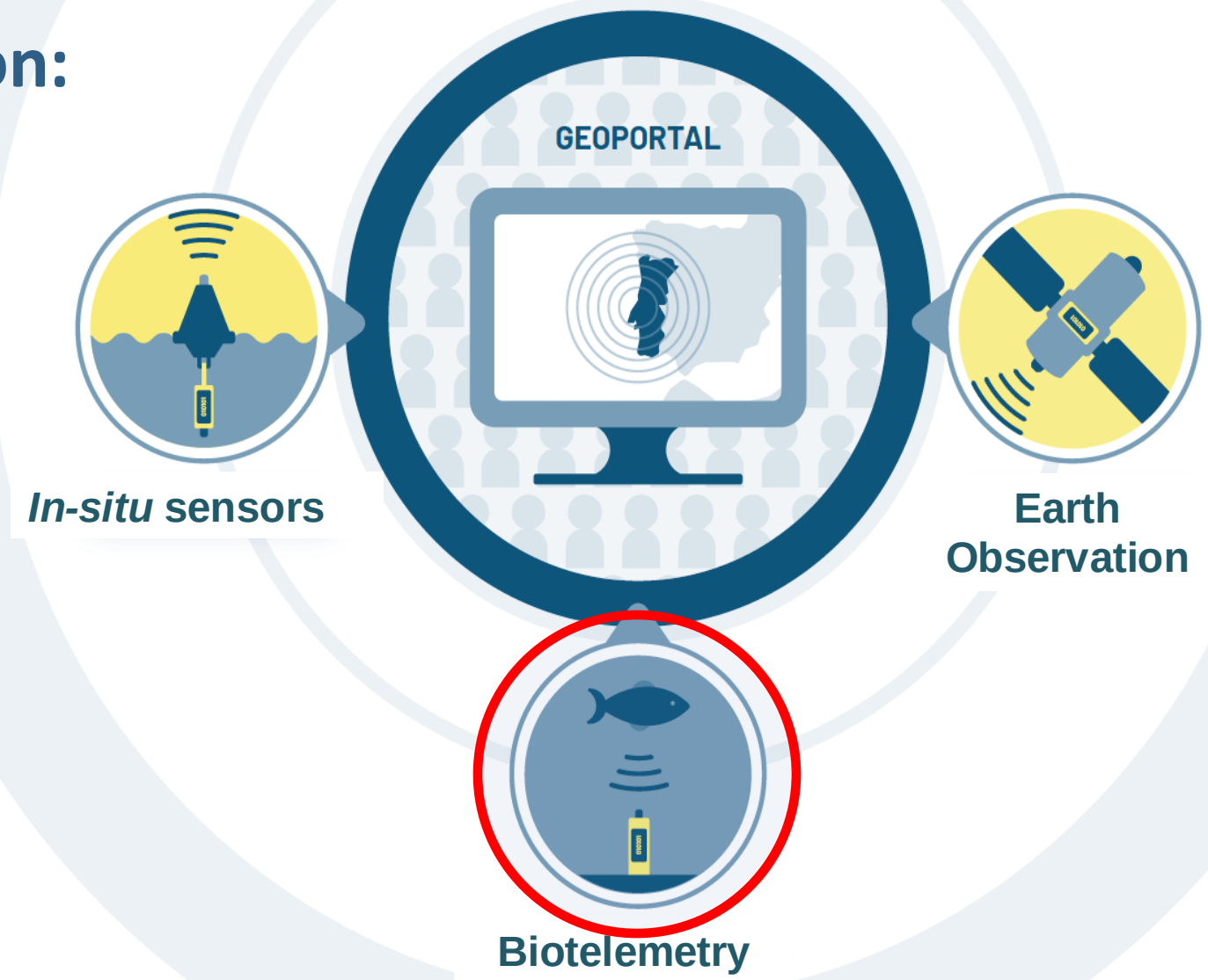
Importance of RS data in Coastnet

- Time-series & NRT data
- Development of new products to comply with EU Directives (e.g. WFD, MSFD)
- Integration of different data sources: **i)** satellite; **ii)** in-situ sensors; **iii)** biotelemetry receivers; **iv)** historical data



Lines of Action:



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Portuguese Tracking Network

- **For what?** Monitoring movement of aquatic organisms;
- **Where?** Coastal zone, estuaries and rivers;
- **How?** Record of acustic signal transmitted by animal tags

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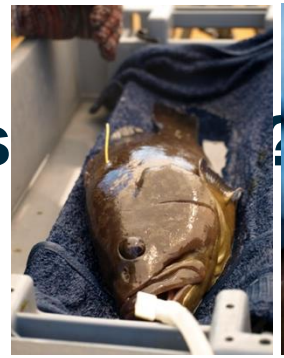
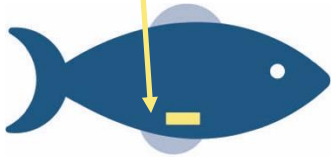
How does



Acoustic Transmitter



Acoustic Receiver

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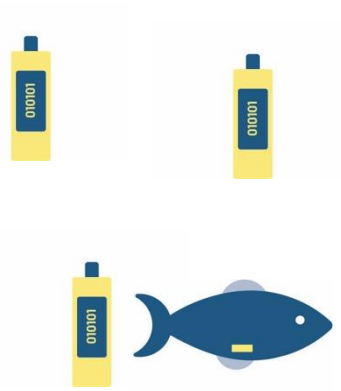
How does it work?



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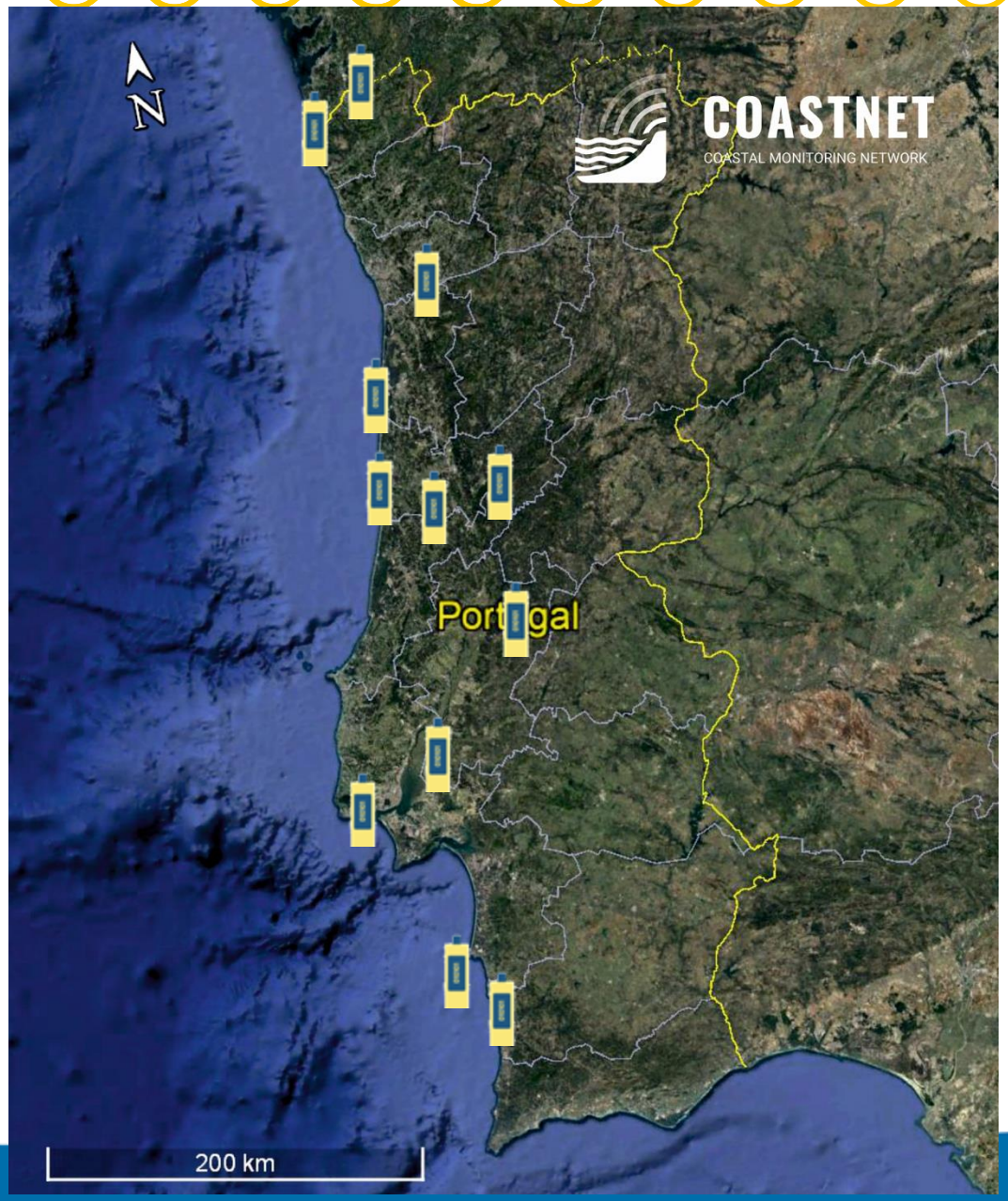
Portuguese Tracking Network



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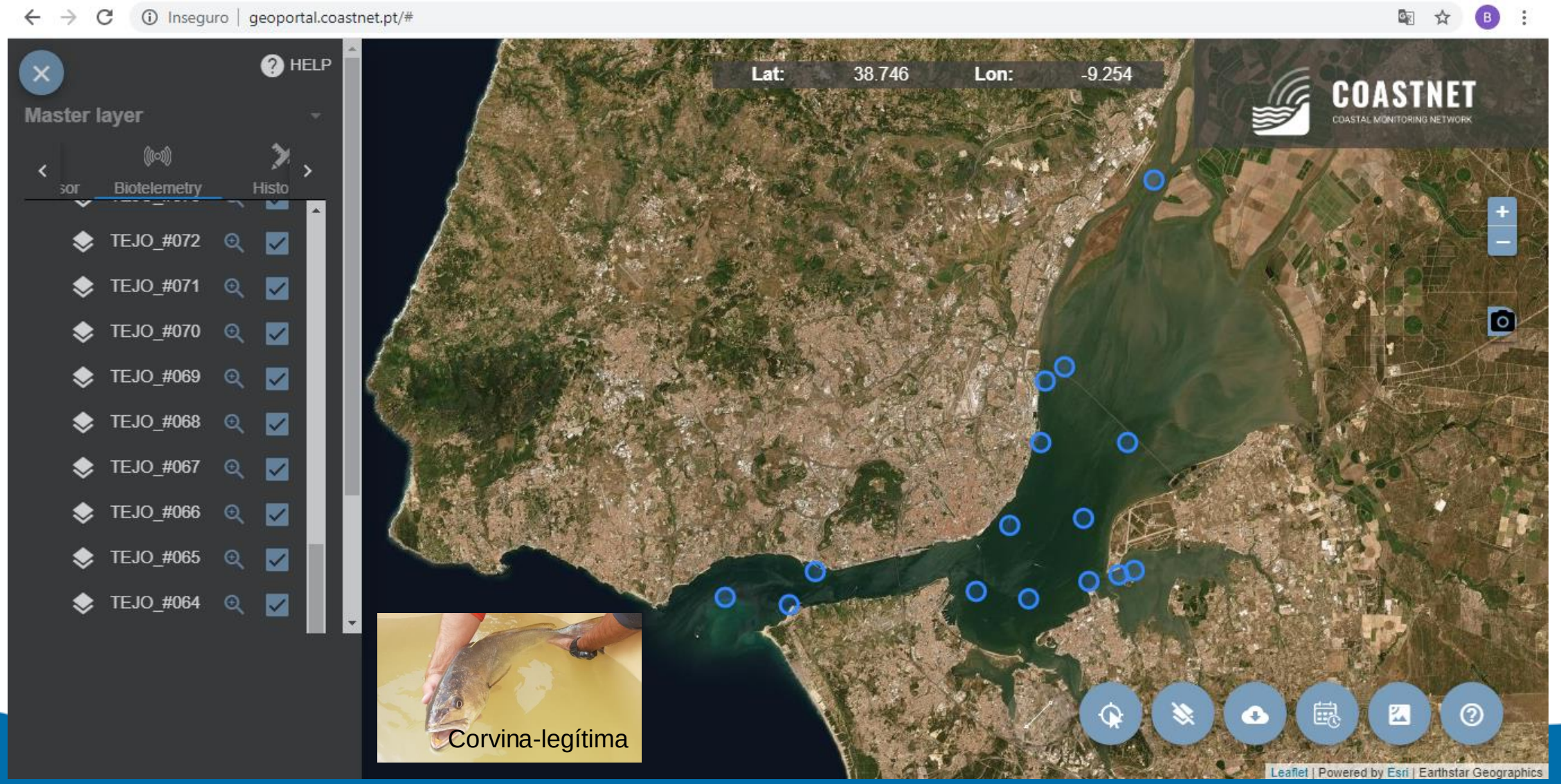
Tejo estuary - Local Network



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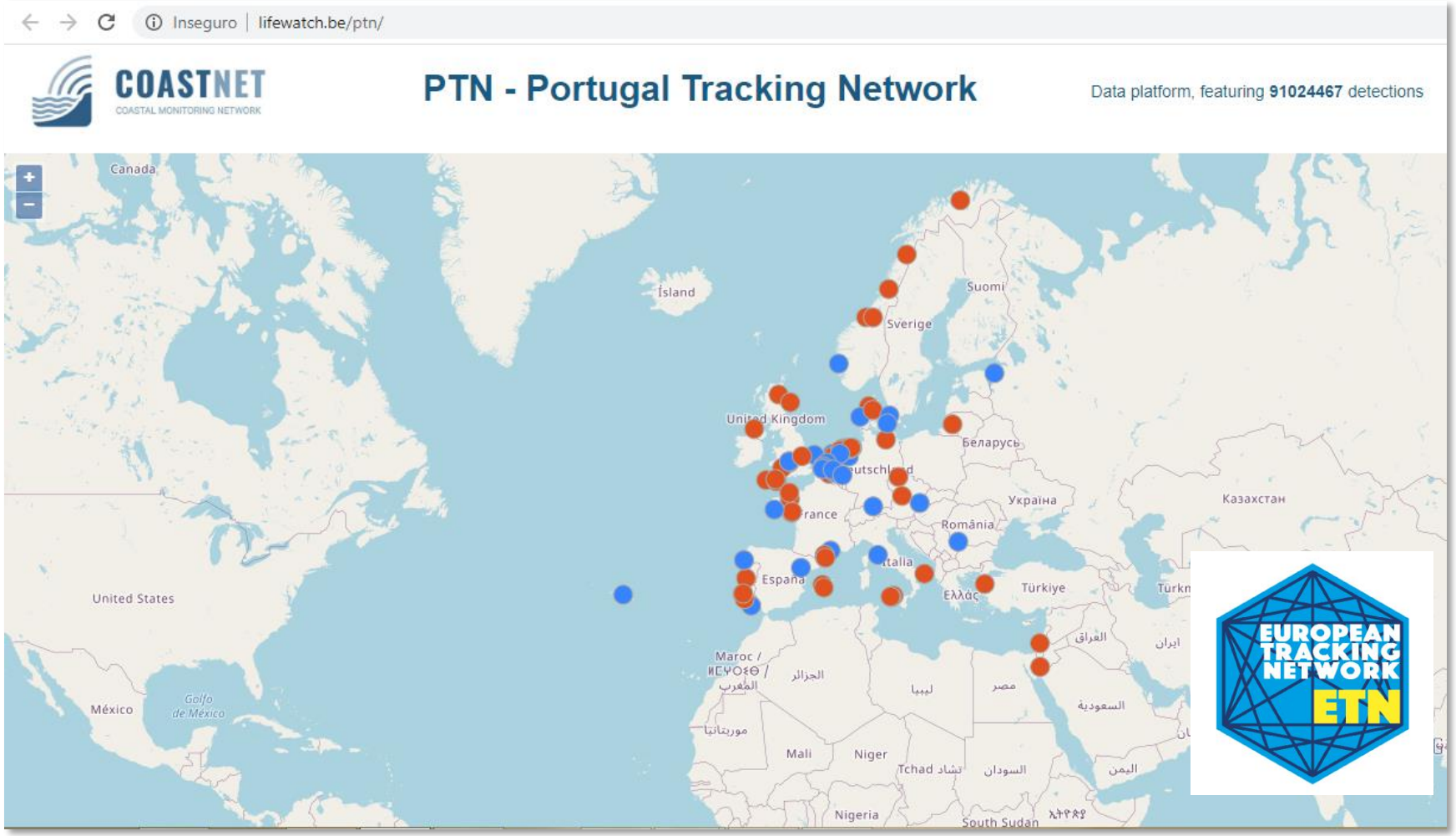
Data sharing Platform



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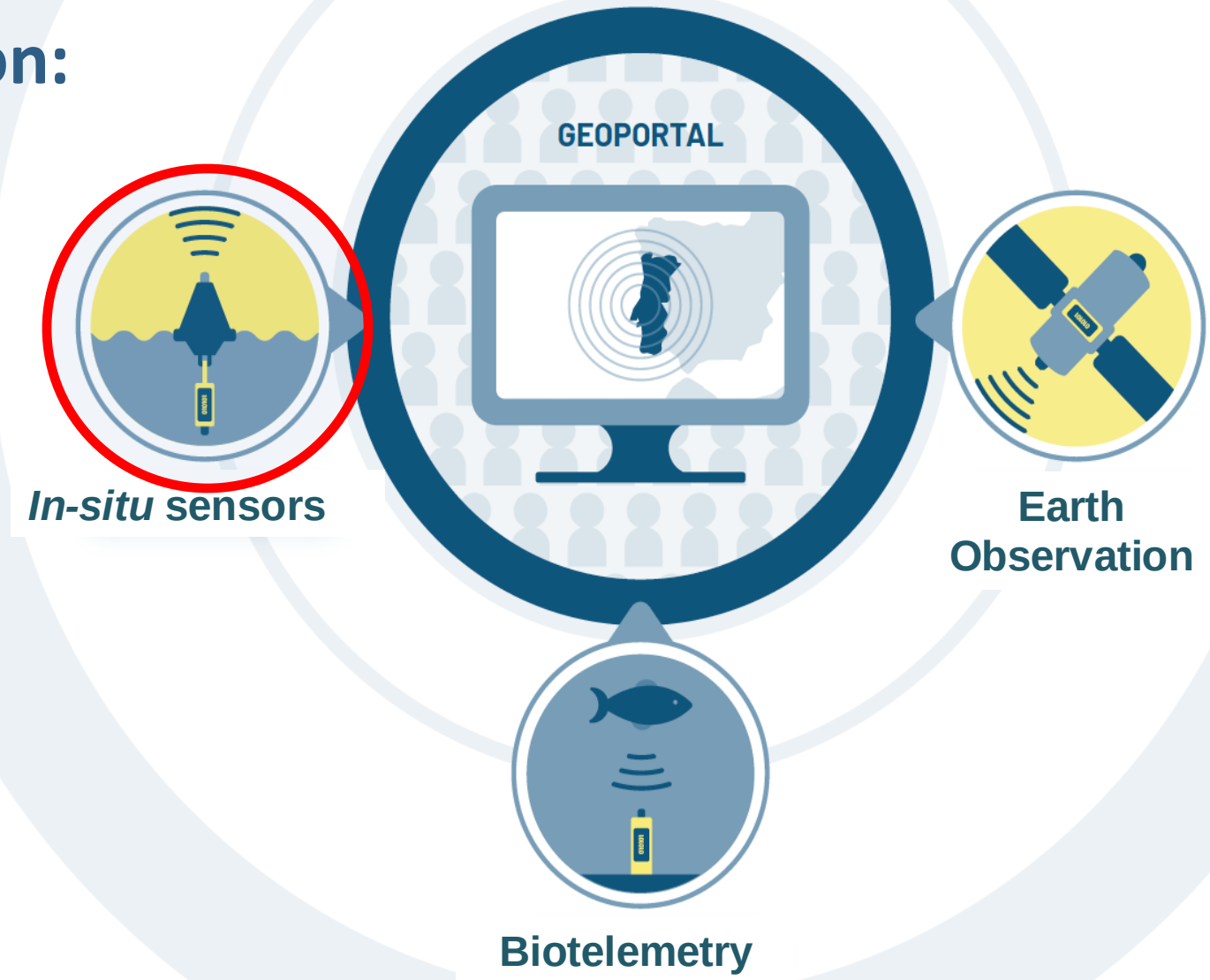

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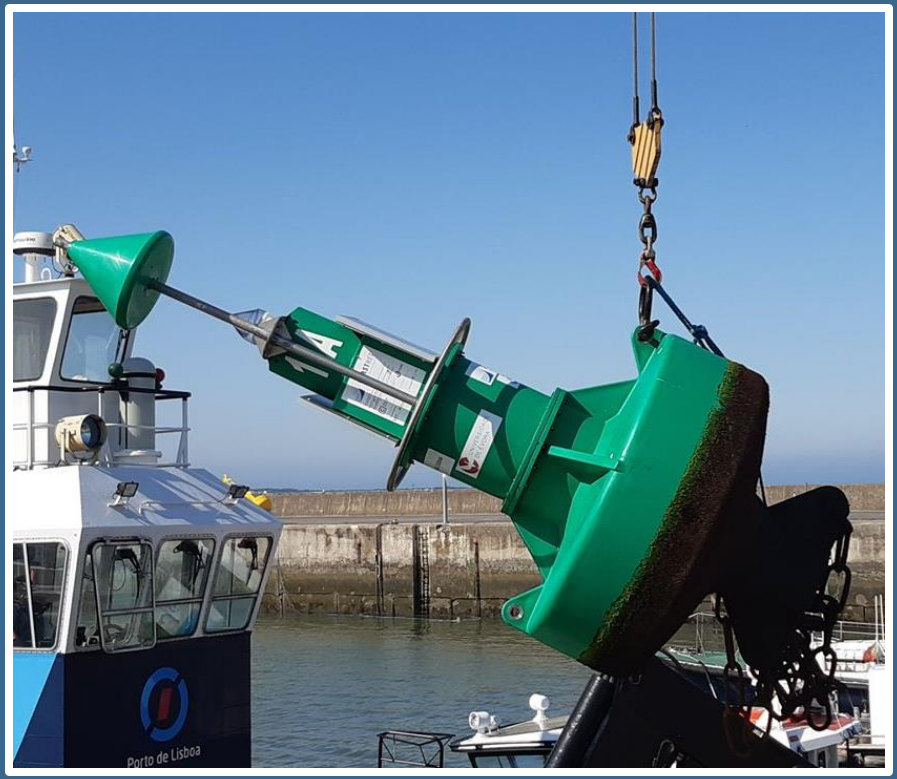
Environmental and Biological Monitoring System (EBMS)



Objectives

- ✓ Continuous and autonomous measurement of environm. parameters
- ✓ Key parameters for studying the structure of aquatic biological communities
- ✓ 3 estuarine systems
- ✓ 3 buoys in each system that cover the salinity gradient

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Mira Estuary – Location and Deployment

June 2019

2500
Super
Silent
COASTNET
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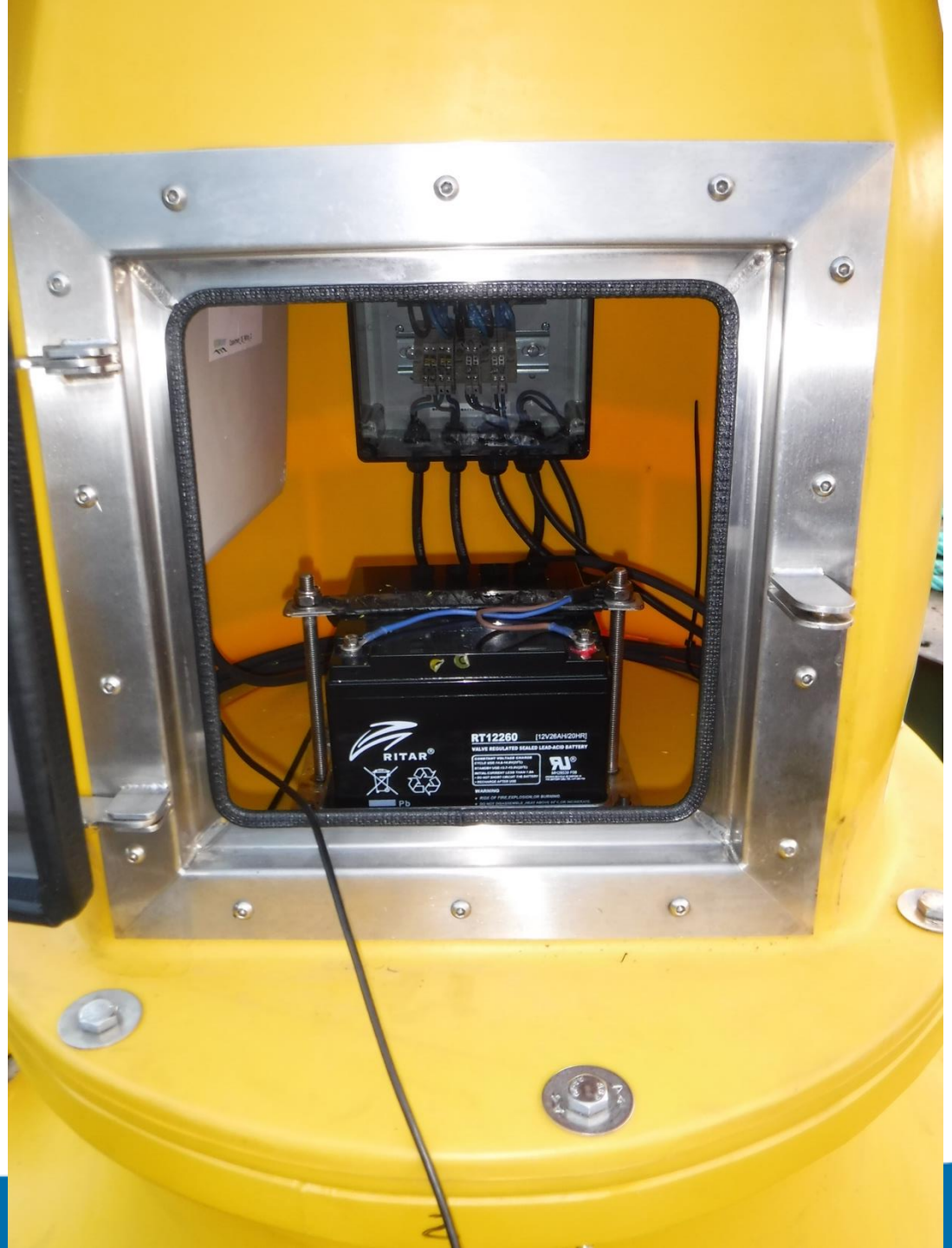
Deployment of the EBMS-Mira in June 2019

concrete anchors - 3 Tons


RITAR
RT12260
[12V26AH/20HR]
VALVE REGULATED SEALED LEAD-ACID BATTERY

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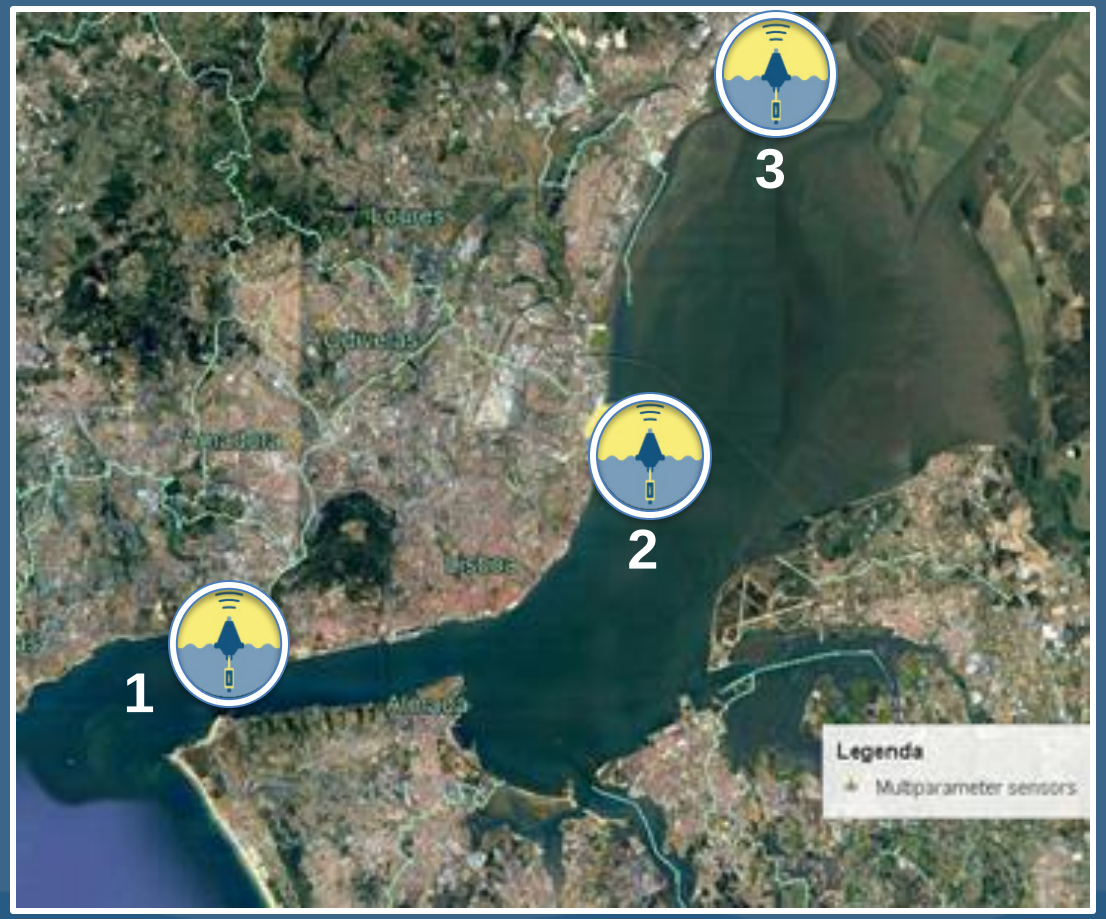
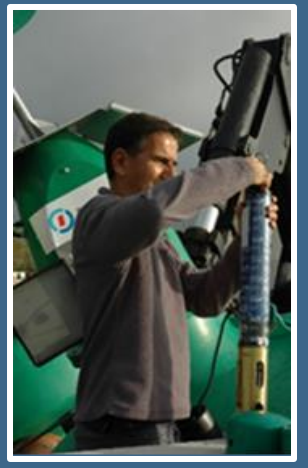
Tejo Estuary – Location and Deployment



Sept-Oct 2019

Porto de Lisboa



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Porto de Lisboa

Deployment of the EBMS-Tejo in September 2019

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Mondego Estuary – Location and deployment

Oct-Nov 2019

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Mondego Estuary – Location and deployment

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Environmental Parameters and System characteristics

- Salinity
- Temperature
- Dis. Oxygen
- pH
- Chlorophyll *a*

- Solar Panels
- GPS
- Off Station Alarm
- Always at surface (~0.5m)

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Measurement and Data transmission

Measurements every 15 min

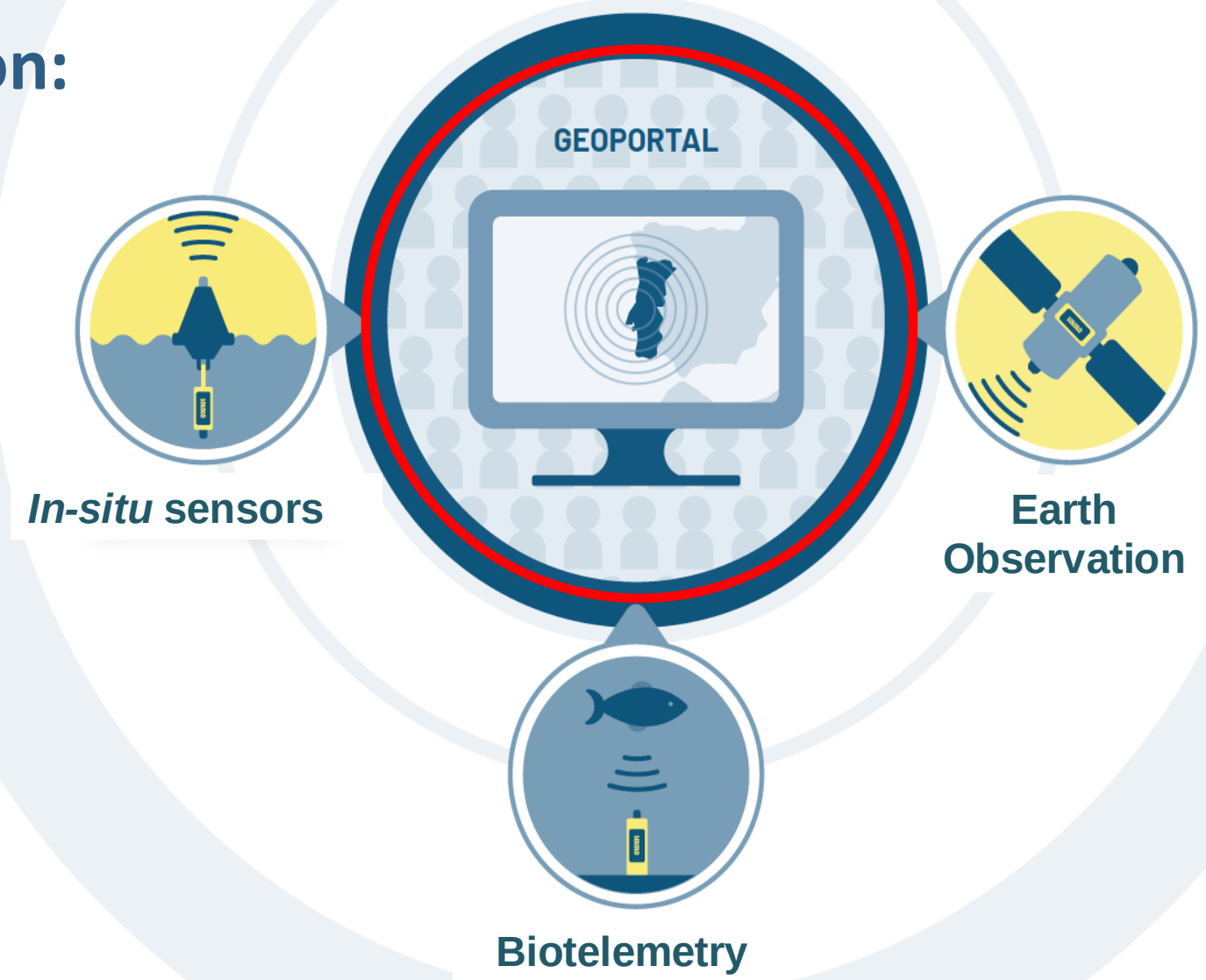
Data storage at logger

Data transmitted (GPRS) 4 times per day

Data available in the Geoportal

- ✓ NRT (NRT)
- ✓ Time Series

Lines of Action:



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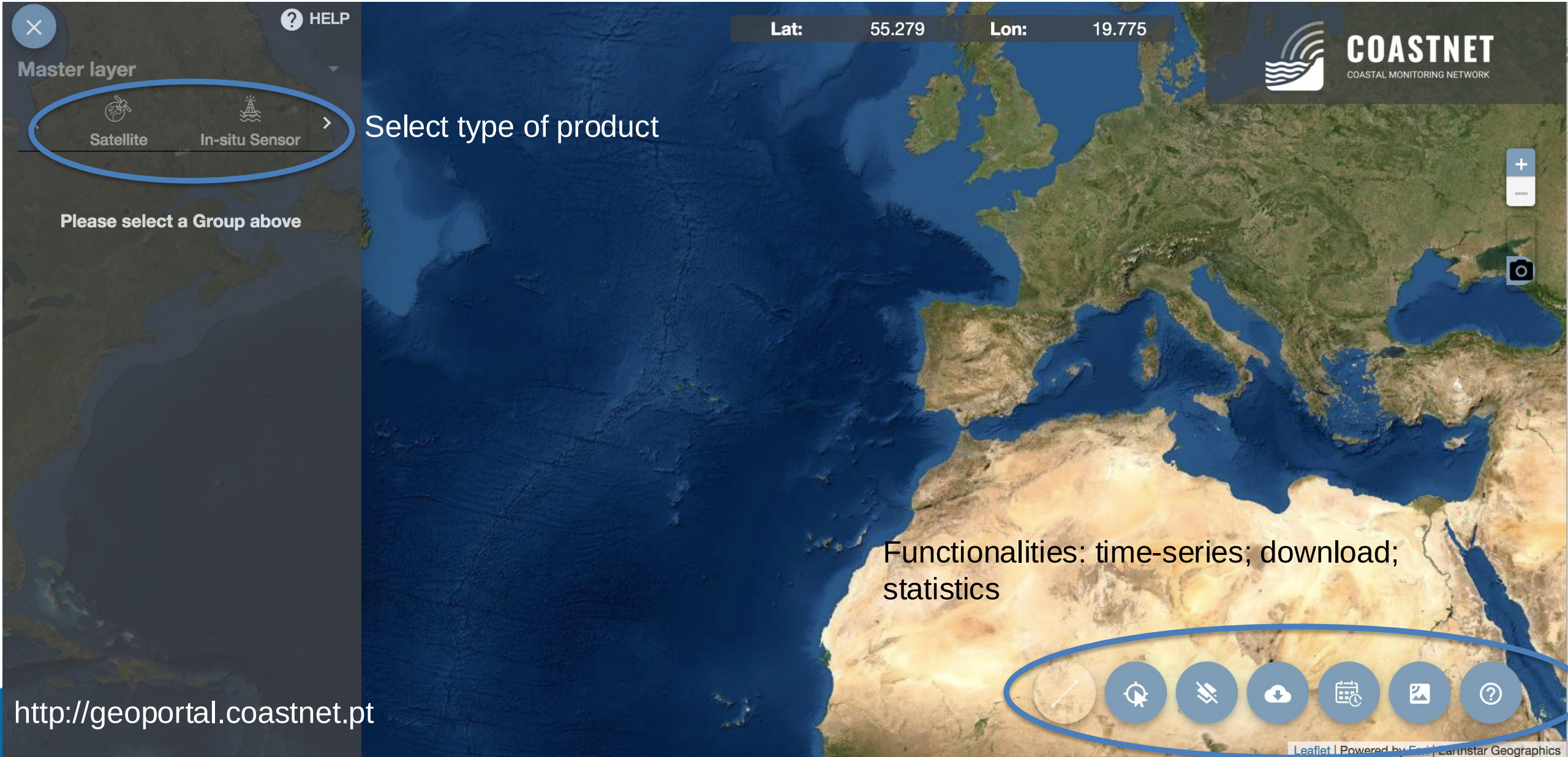

http://geoportal.coastnet.pt

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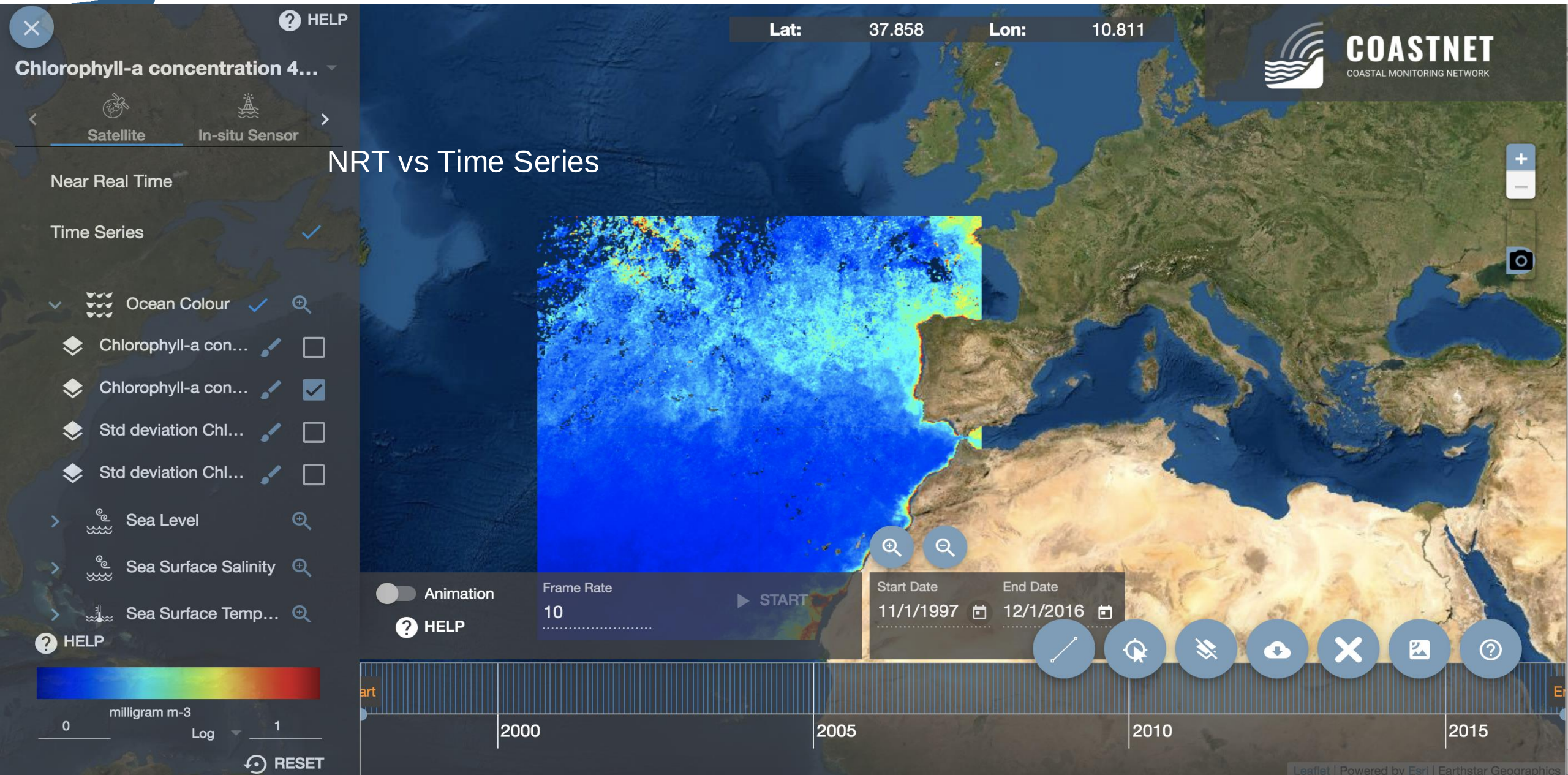
NRT vs Time Series



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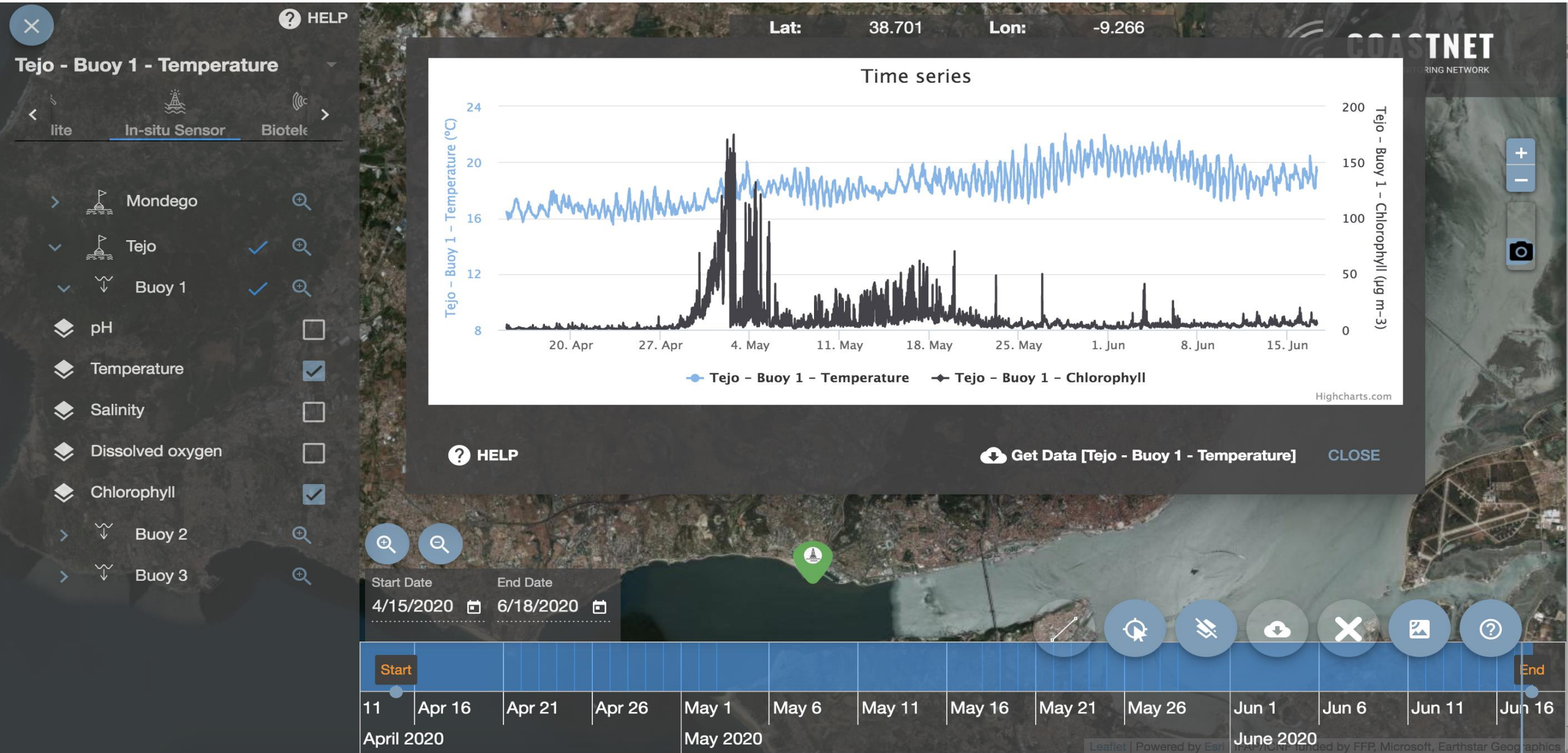

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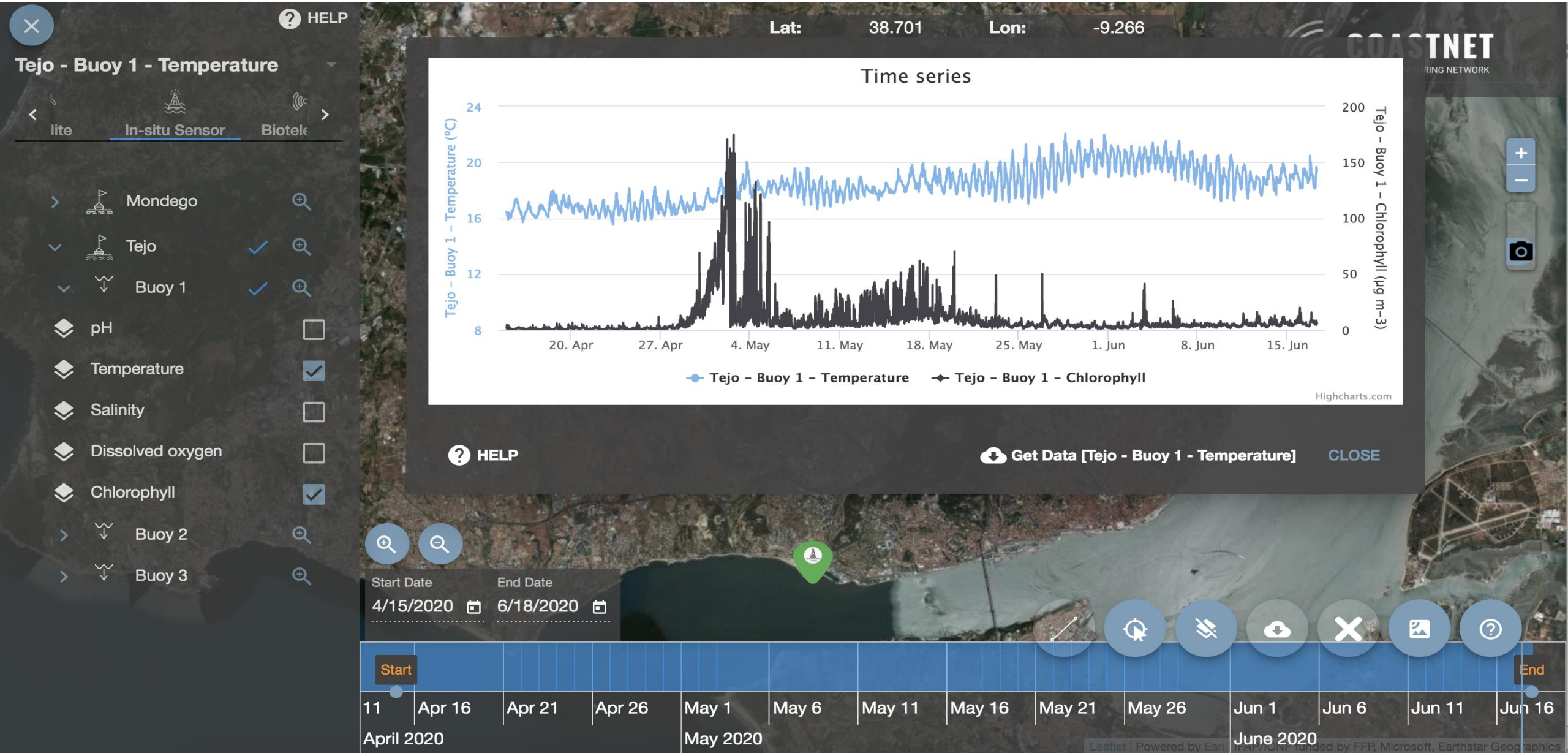

YouTube PT

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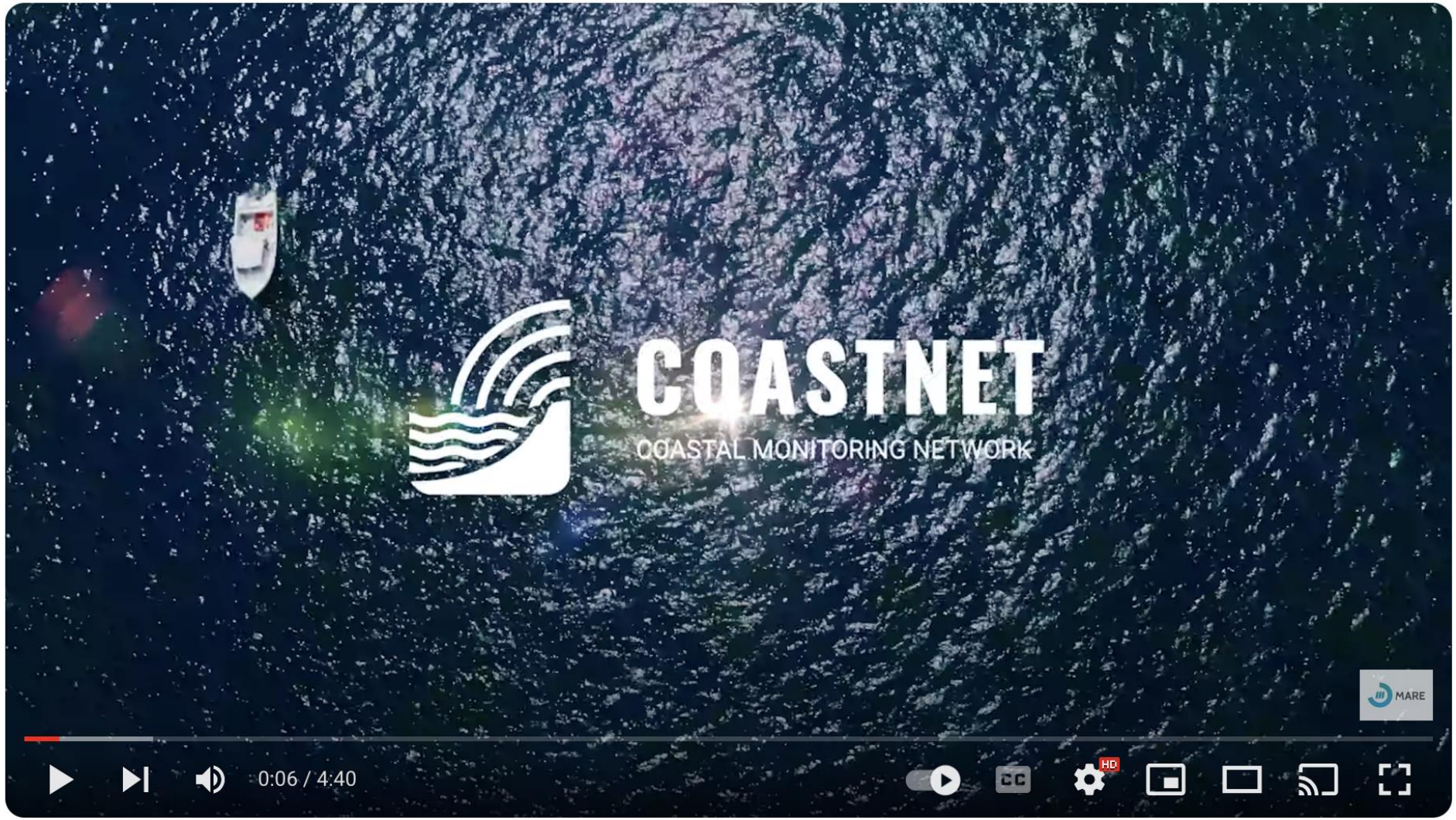

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https://www.youtube.com/watch?v=Zu22kCPUTxM

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ALENTEJO 2020

Muito obrigada !

acbrito@fc.ul.pt