United Nations
Educational, Scientific and
Cultural Organization

Intergovernmental
Oceanographic
Commission

UNESCO-IOC
ICG/NEAMTWS
Working Group 2&3:
Seismic, Geophysical and Sea Level measurements

Co-chairs

Anna von Gyldenfeldt (BSH)
Musavver Didem Cambaz (KOERI)

ICG/NEAMTWS XIII Session
6-8 February 2024
Paris, France

WORKING GROUP II/III : Seismic, Geophysical & Sea Level Measurements:
DRAFT PLAN OF ACTION for 2023
CO-CHAIRS :

Anna von Gyldenfeldt (Federal Maritime and Hydrographic Agency / Germany),
Musavver Didem Cambaz (Kandilli Observatory and Earthquake Research Institute / Türkiye)

Strategic Area	Activity		Target / Result Indicators	Time Frame	Responsible Per/ Inst
Working Group 2+3: **Seismic, Geophysical and** **Sea Level Measurements** **Anna von Gyldenfeldt (BSH, Germany)** **&** **Musavver Didem Cambaz** **(KOERI, Türkiye)**	a)	Identify reference contacts for Seismic, Geophysical & Sea Level networks, to be included in the sensor data-bases, in order to facilitate bilateral agreements (persons not necessarily included in the list of experts).	IOC Circular Letter	2023	WG2+3 / IOC Secretariat
	b)	Continue the evaluation of ocean bottom instruments, the progress of MS in the installations of offshore facilities and their possible inclusion in the operations of the TSPs.	Report to ICG	2023	WG2+3
	c)	Maintain and strengthen cooperation with EC-JRC in providing real time data for the NEAMTWS.	Report to ICG and update relevant list	2023	WG2+3 / JRC
	d)	Provide a list and/or identity online repositories of possible sea level stations by following developments in the EuroSea Project	Update list and compile online resources	2023	WG2+3
	e)	Promotion of possible cooperation(s) with EuroGOOS Task Teams, like the one on HF radars for possible tsunami detection.	Report to ICG	2023	WG2+3
	f)	Participation of WG2+3 co-chairs in meetings and the Steering Committee report progress to the ICG/NEAMTWS	1 Co-Chairs meetings 2. Participation in SC 2023 3. Progress report to ICG/NEAMTWS	2023	WG2+3
	g)	Explore, together with WG4, possibilities of conveying useful information of WG2+3's work content through NEAMTIC (To be confirmed with the WG4 Co-Chairs at the next Steering Committees meeting).	Report to ICG	2023	WG2+3 / WG4

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Seismic and Sea Level Data Base in NEAM REGION

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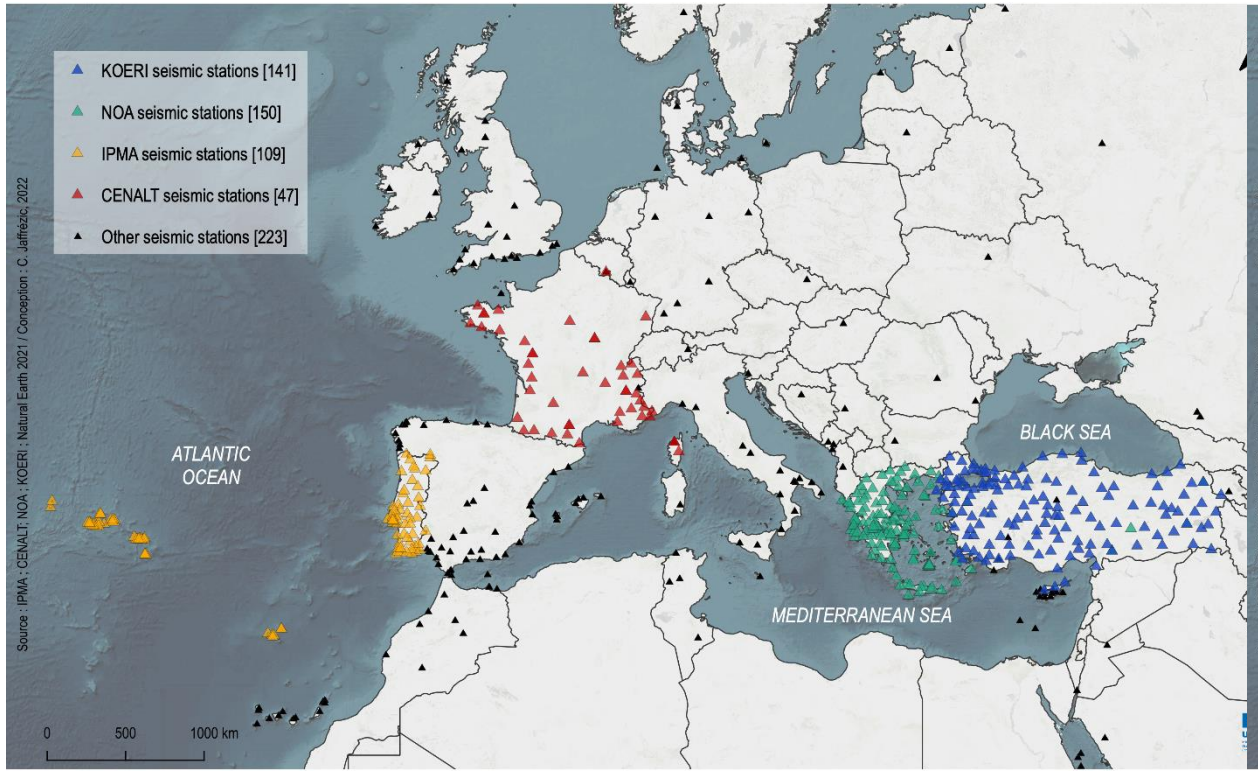
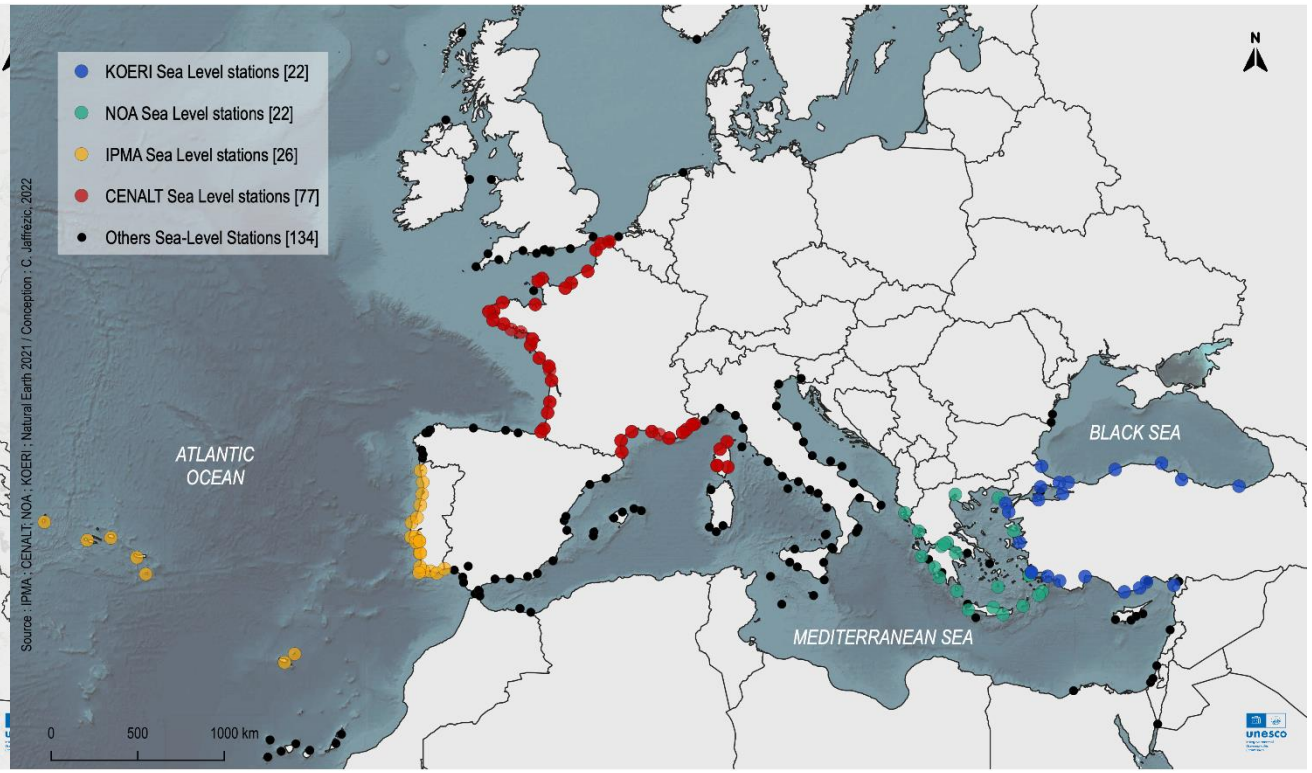
Seismic Stations



Sea-Level Stations



by Claire Jaffrézic (UNESCO-IOC), March 2023

Publicly Accessible Seismic Stations

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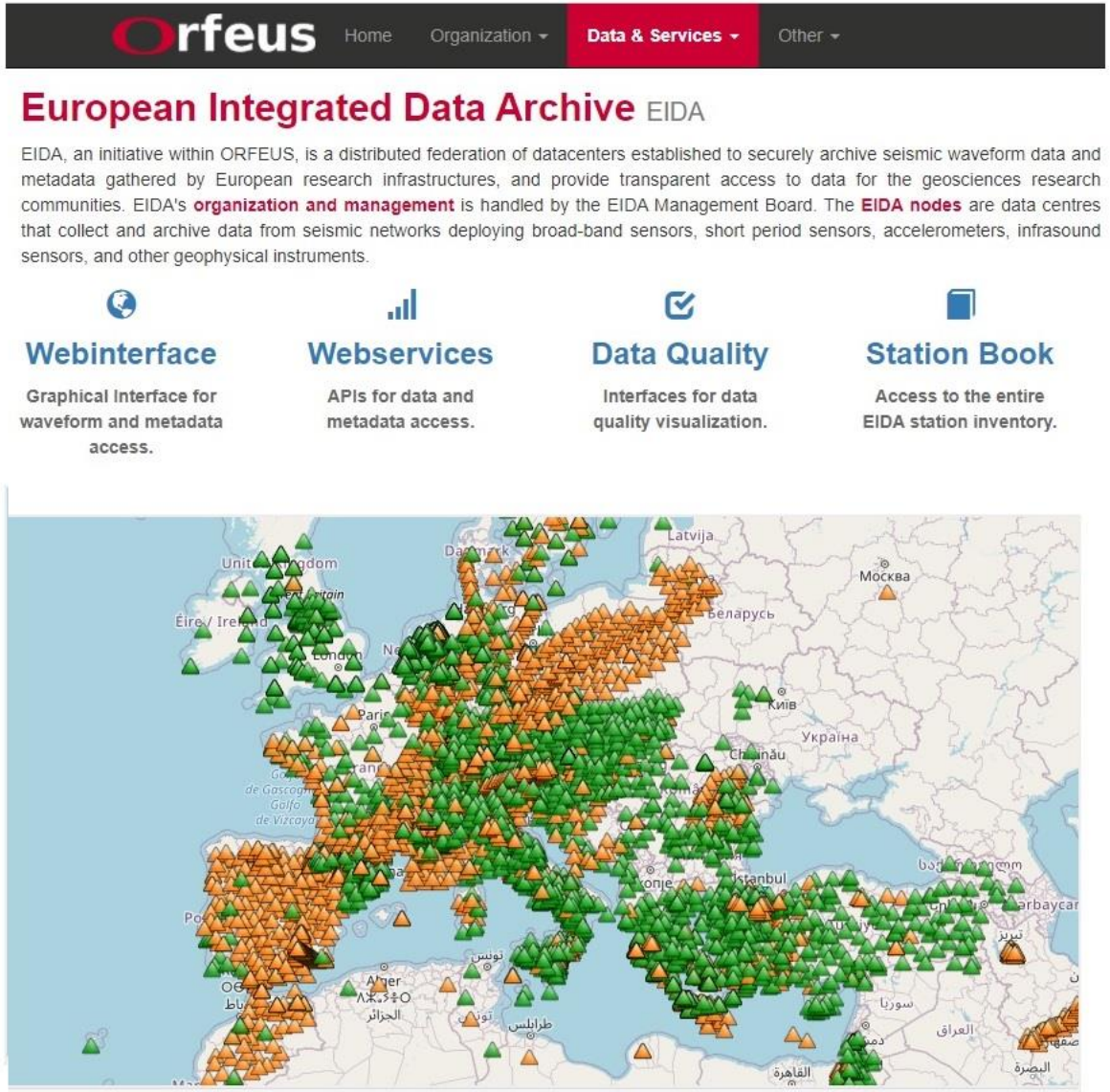
Intergovernmental Oceanographic Commission



EIDA Nodes

Datacenter	Focus Region	Since
ODC / KNMI	European-Mediterranean, Netherlands	2013
GFZ	European, Global, temporary deployments	2013
RESIF	France, Global temporary deployments	2013
INGV	Italy, European-Mediterranean (MedNet)	2013
ETHZ	Switzerland	2013
BGR	Germany	2013
LMU	Germany (BayernNetz)	2013
NIEP	Romania	2014
KOERI	Turkey	2014
NOA	Greece	2014
UIB / NORSAR	Norway	2019
ICGC	Spain	2020

22048 EIDA stations.
Green - - > in operation (4694)
Orange - - > have stopped operation (17354)

http://www.orfeus-eu.org/data/eida/

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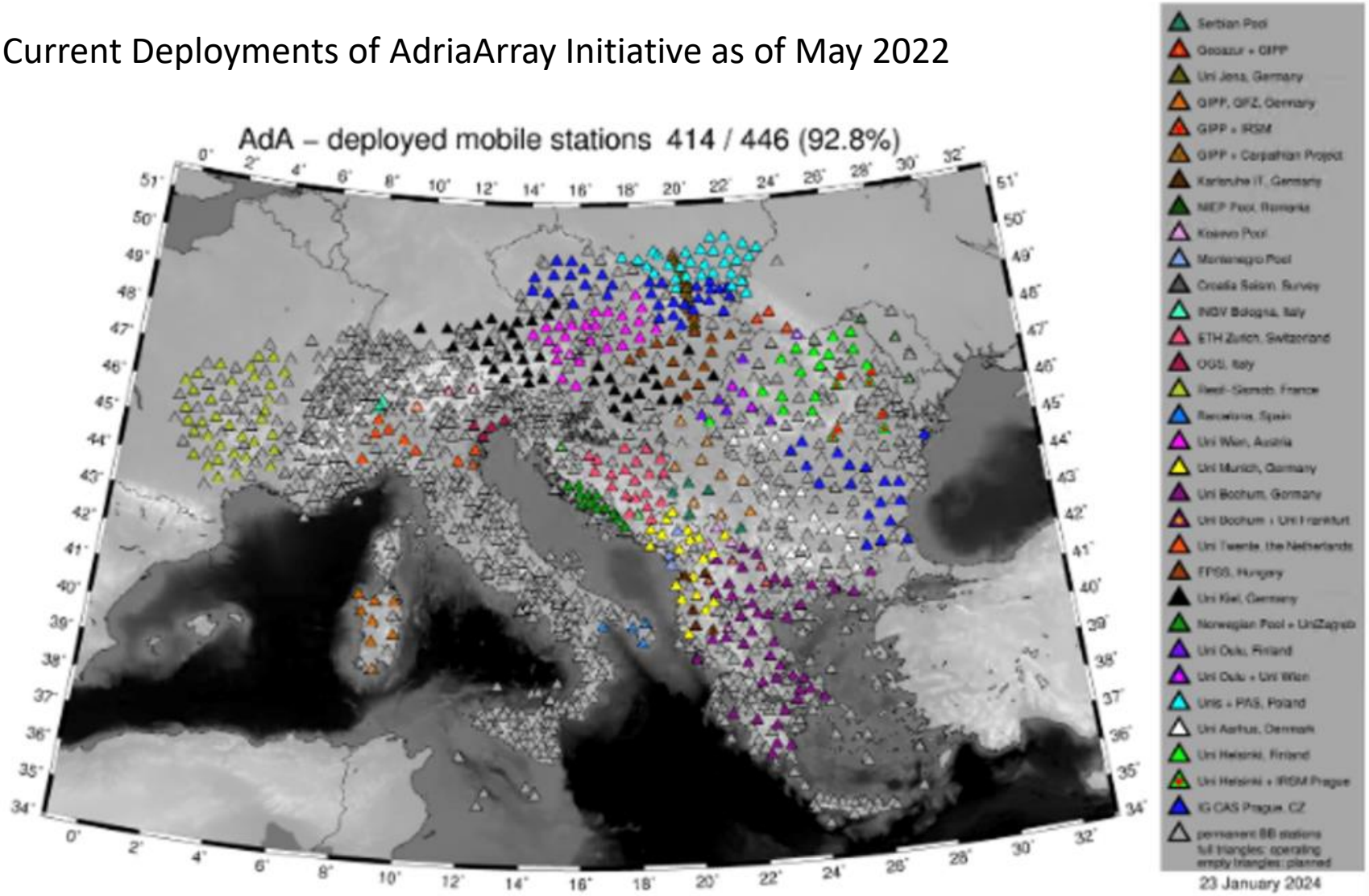
Current Deployments of AdriaArray Initiative as of May 2022



https://orfeus.readthedocs.io/en/latest/adria_array_main.html

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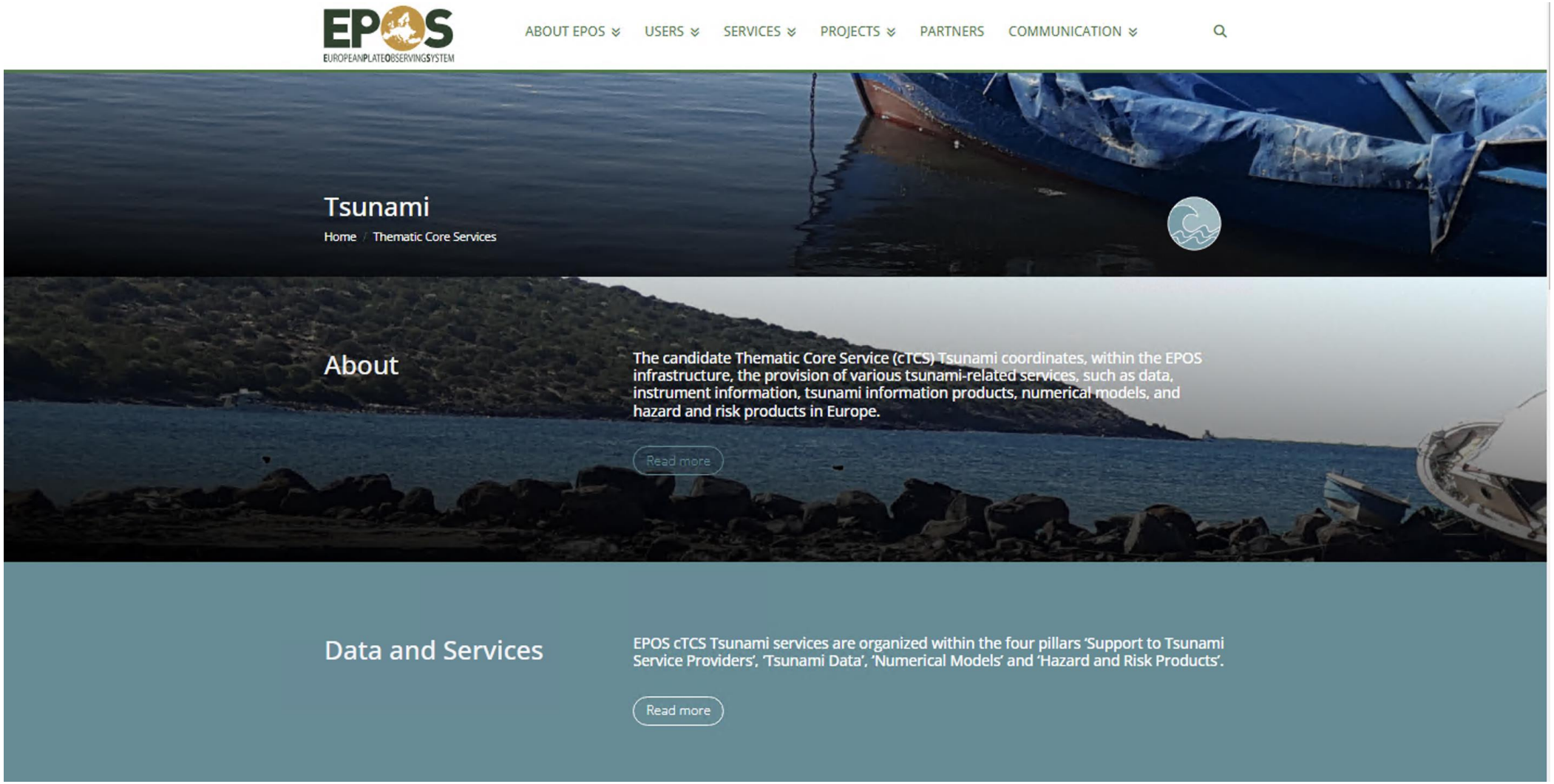
Publicly Accessible Tsunami Data Portal



https://www.epos-eu.org/tcs/tsunami

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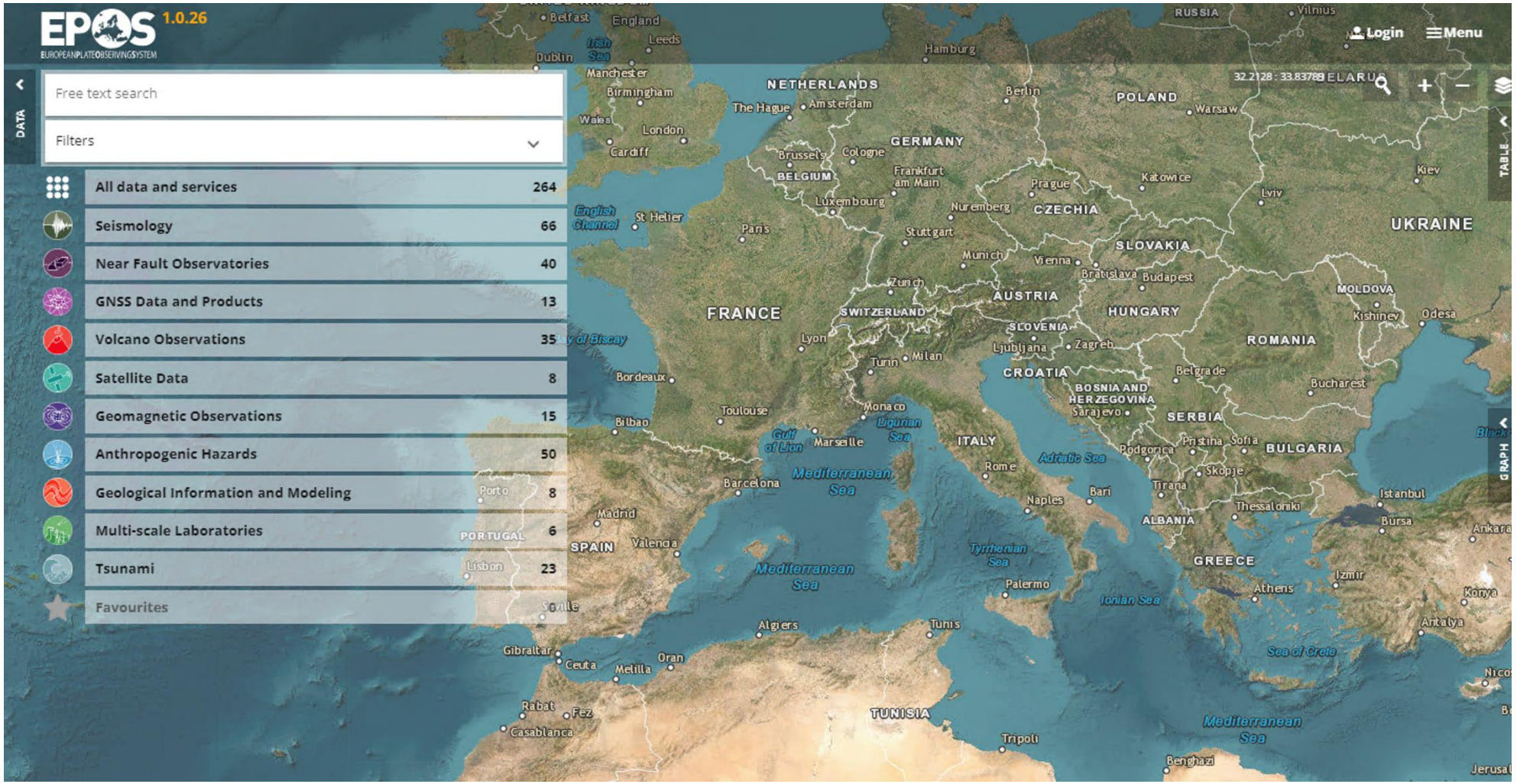
Publicly Accessible Tsunami Data Portal



https://www.ics-c.epos-eu.org/

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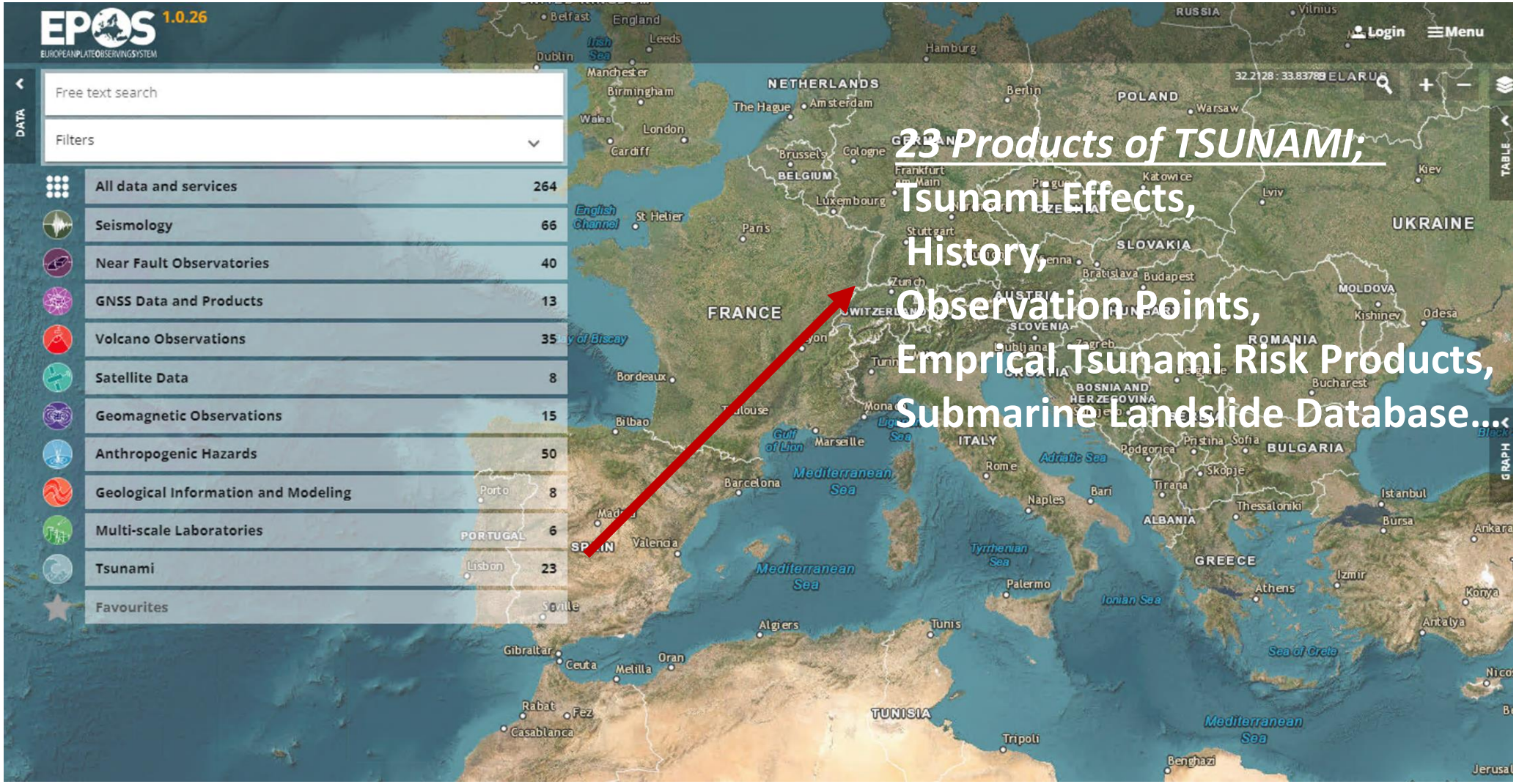
Publicly Accessible Tsunami Data Portal



https://www.ics-c.epos-eu.org/

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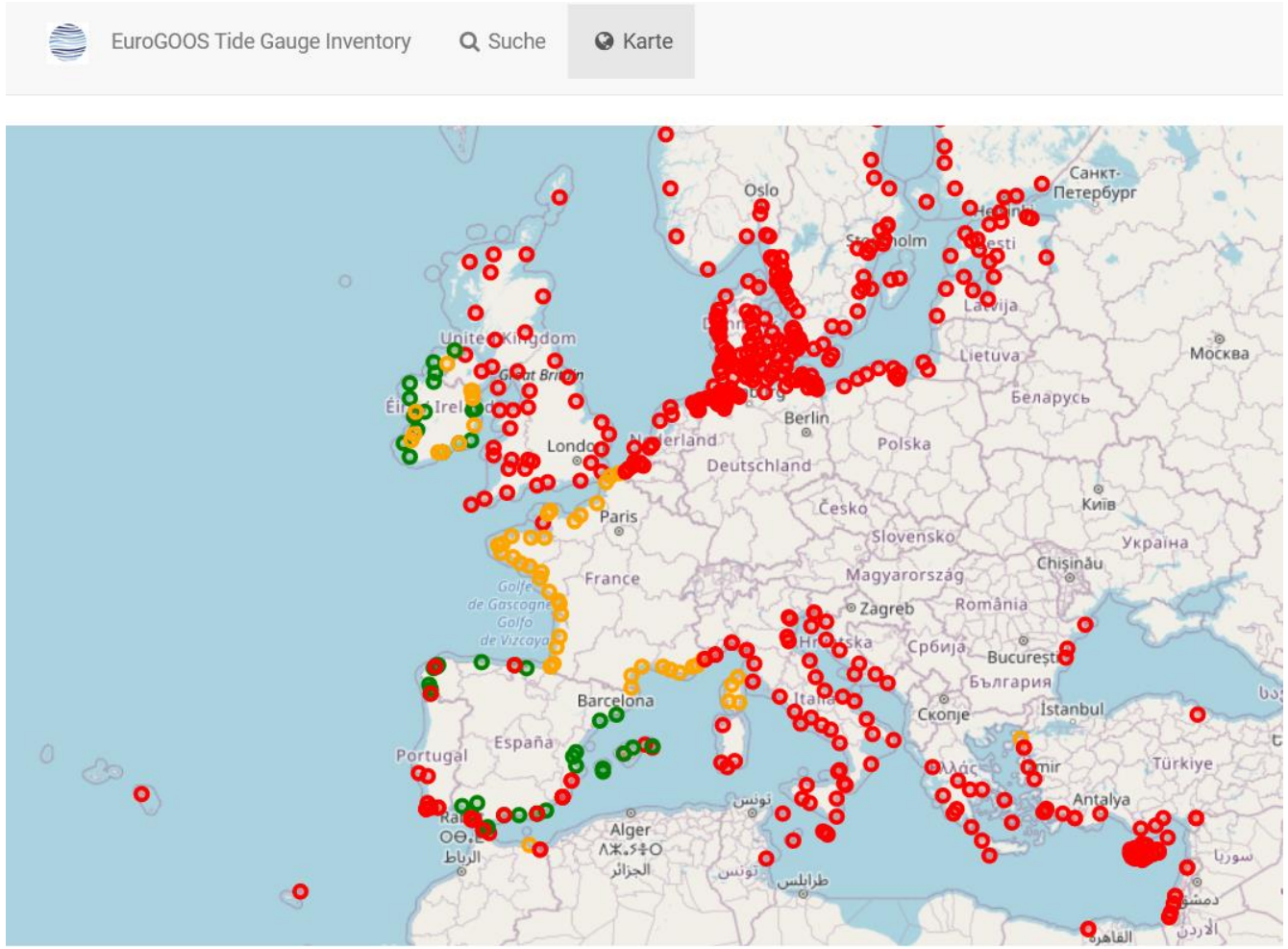
Publicly Accessible Sea Level Stations



EuroGOOS Tide Gauge Inventory

Metadata catalogue of all permanent, managed tide level monitoring stations across Europe and adjacent coastlines, including North Africa

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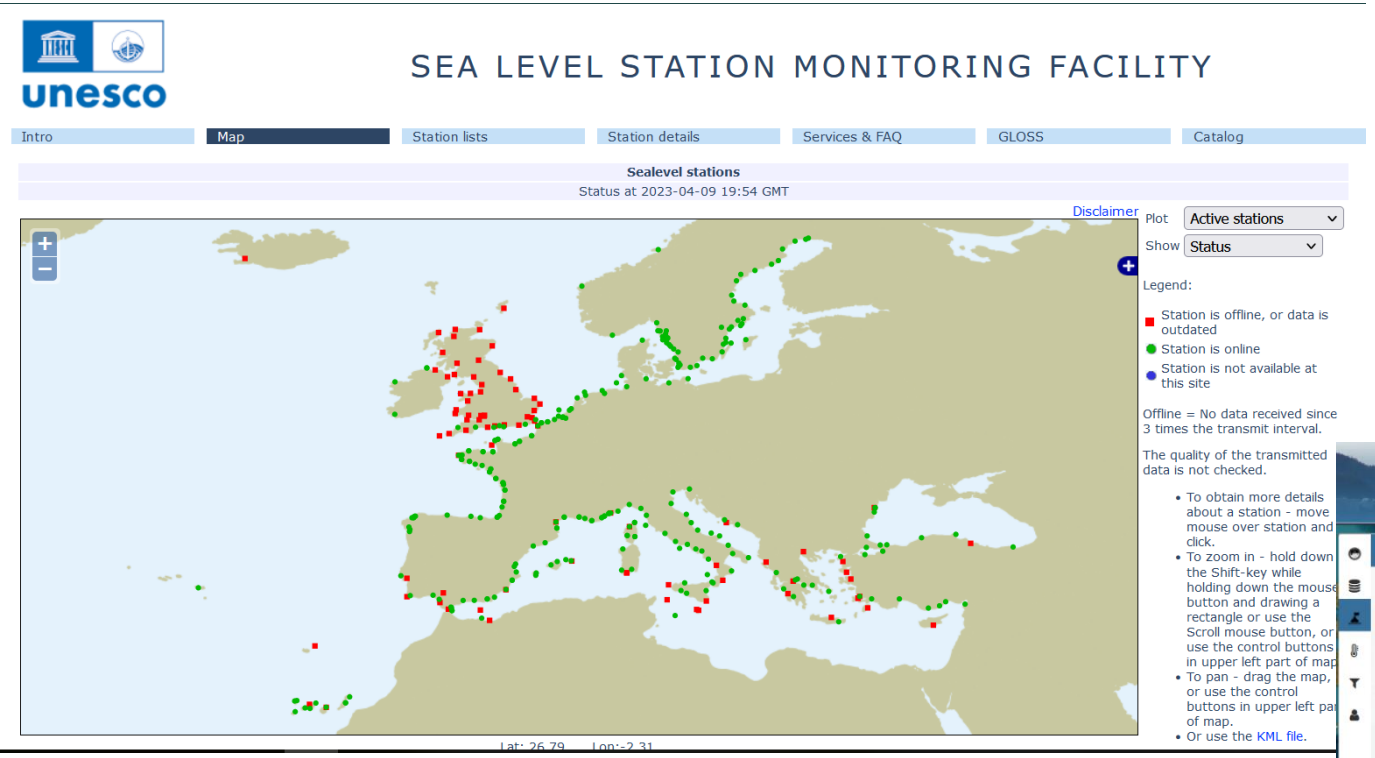
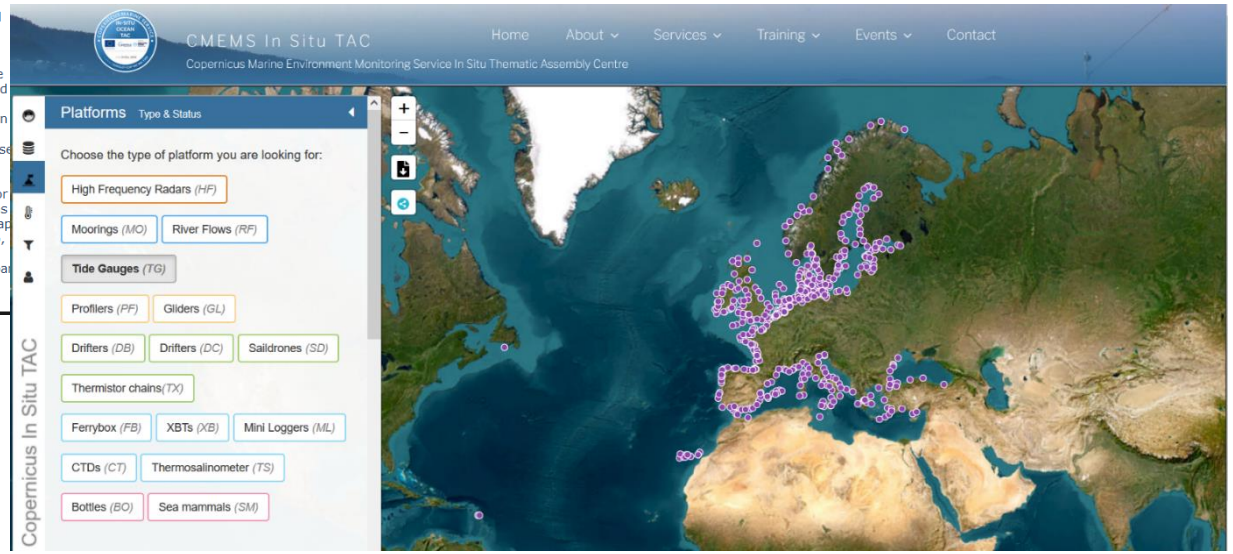
Publicly Accessible Sea Level Stations



IOC SLSMF



CMEMC In Situ TAC

Copernicus Marine Environment Monitoring Service In Situ Thematic Assembly Centre

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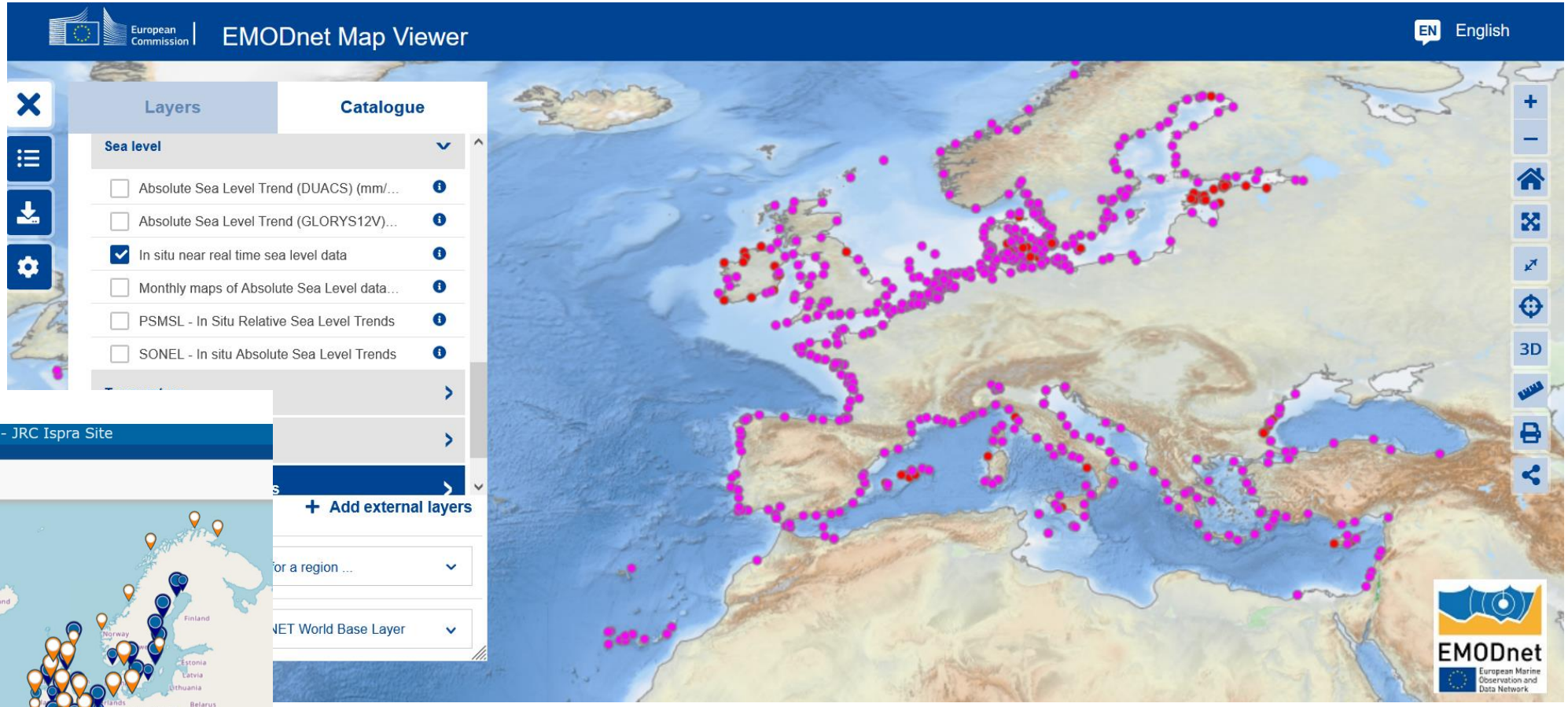
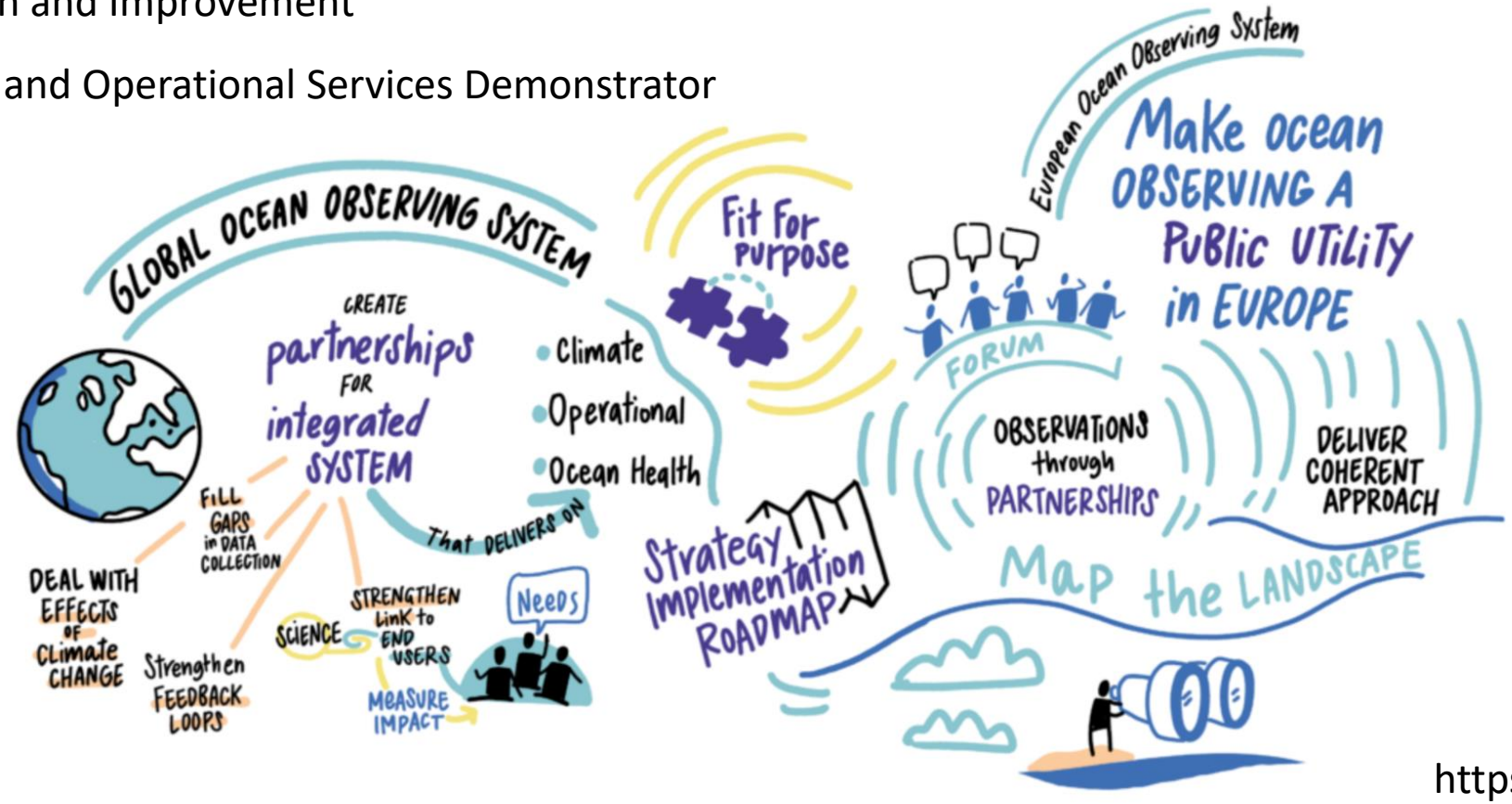
Publicly Accessible Sea Level Stations



EMODnet Physics

WP3: Network Integration and Improvement

WP5: Coastal Resilience and Operational Services Demonstrator



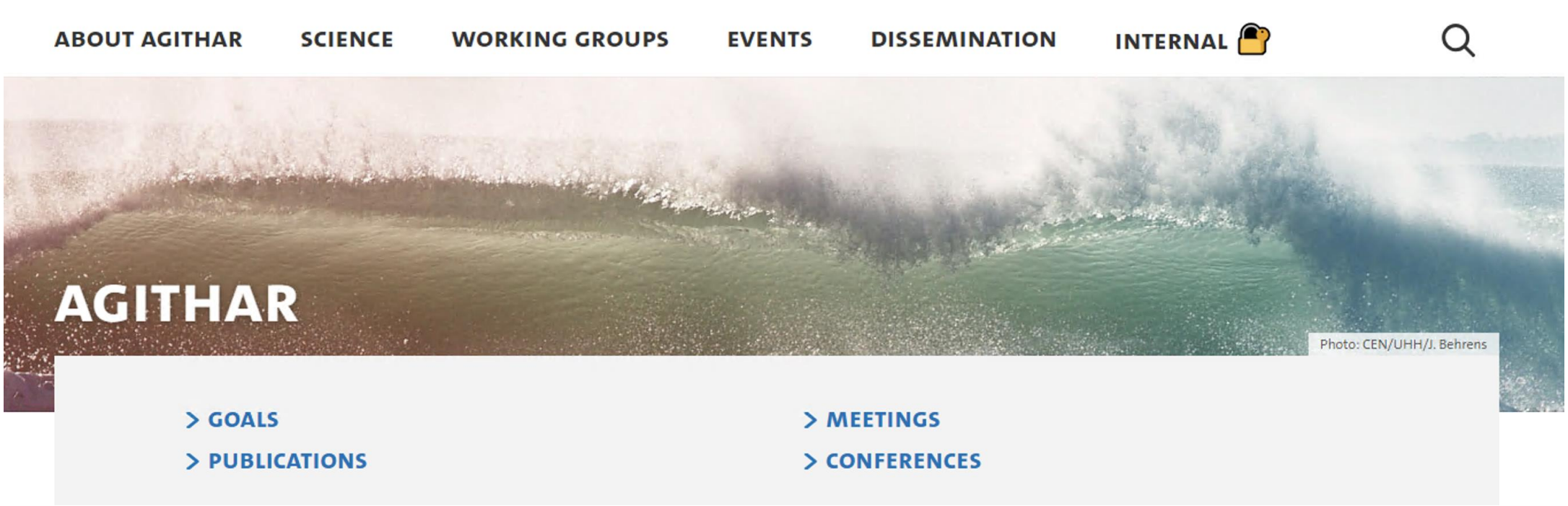
https://eurosea.eu/

Accelerating Global Science in Tsunami Hazard and Risk Analysis

AGITHAR

ACCELERATING GLOBAL SCIENCE IN TSUNAMI HAZARD AND RISK ANALYSIS

Methods, Standards, Uncertainty, Future Research, Interdisciplinary Research, Monitoring, Dissemination



https://www.agithar.uni-hamburg.de/

National Oceanography Centre — Permanent Service for Mean Sea Level

About Us | Data | Products | GLOSS | Training | Links

You are here: home > data > gnssir >

GNSS-IR Portal
- Portal homepage
- Site map
- Site list
- Site page example (Newlyn)
- Other useful files

About GNSS-IR
- Introduction
- Processing procedures
- Data file format
- Metadata explanation
- GNSS shadow widget

Example Notebooks
- What's in the file?
- Calculating daily means

Donate

Donate to PSMSL

This portal contains water level data extracted from permanent GNSS receivers using interferometric reflectometry.

Get the data

- Explore available sites through an interactive map
- A list of GNSS-IR sites
- An example site page (Newlyn, UK)

About GNSS-IR

- What is GNSS-IR? A brief explanation
- What steps did we take to create these files?
- Interactive widget to help identify the footprint of a GNSS receiver

Site Documentation

- An explanation of the content of our data files
- A description of the metadata avaiable for each site
- An example of using GNSS-IR data in python, illustrating what's in the data files
- Another example of using GNSS-IR data in python, showing how we calculate daily means
- Various assorted files used in producing this portal that you may find useful

This project has received funding from the European Union's Horizons 2020 research and innovation programme under grant agreement No. 862626

IOC | WORLD DATA SYSTEM | IAG GGOS | EuroSea | EuroGOOS European Global Ocean Observing System | UKRI Natural Environment Research Council

GNSS-IR Site Map

- Good site - reflectometry works well and data is available
- Decommissioned - reflectometry works well, data is available, but site is no longer operating
- Questionable - reflectometry works sometimes or the signal is very weak probably due to location
- Bad - no data available at the site, either due to positioning of the sensor, lack of signal to noise ratio data, or data sampling is inadequate for the height of the sensor

Tregde

Information

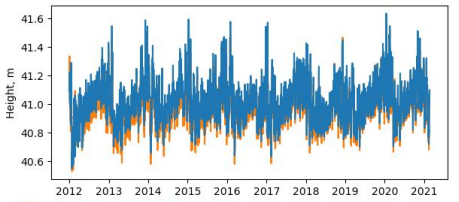
ID:	10193
IGS type code:	tgde
Latitude:	58.006370°
Longitude:	7.554750°
Ellipsoidal Height:	45.855 m
Ellipsoidal Height Epoch:	2016.0000
Reflector Height:	5.011 m
Provider:	SATREF
Alternative Providers:	SONEL
SONEL Link:	tgde
NGL Link:	

GNSS Receiver
Mask used

Data

Zipped data file

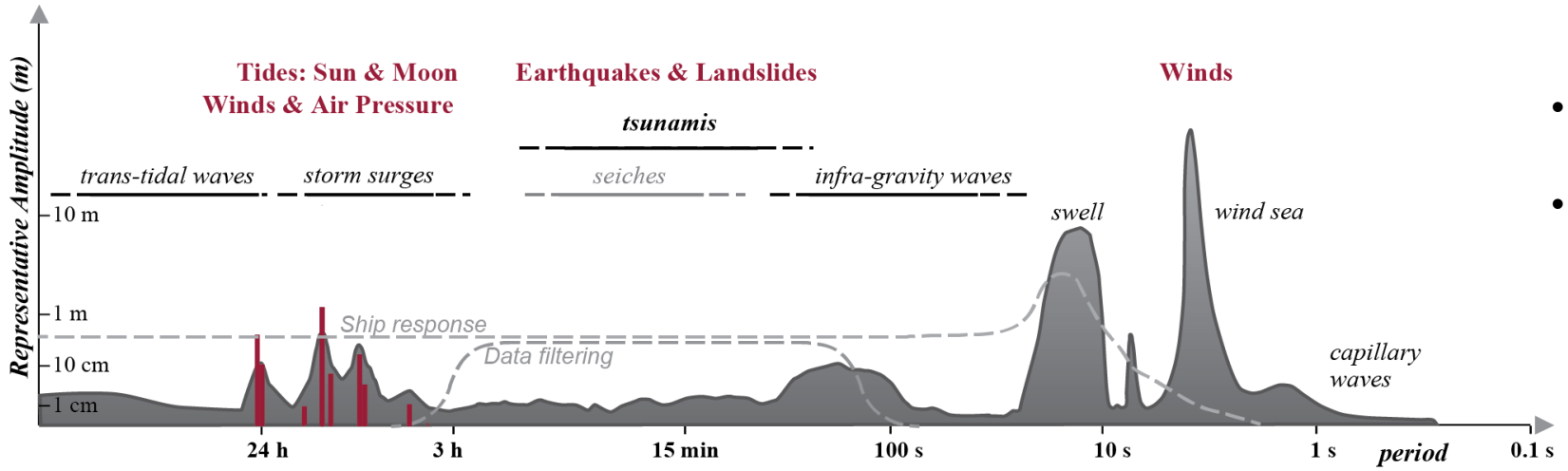
Plot of daily data



Blue: GNSS-IR Data, Orange: Nearby tide gauge data

https://psmsl.org/data/gnssir/index.php

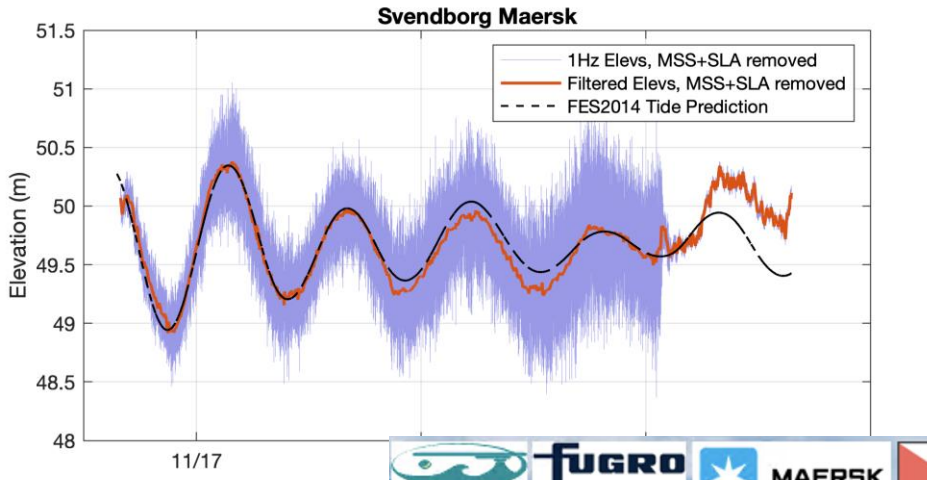
Ships As Tsunami Sensors



- Low-pass (or band-pass) filter to remove wave field
- Ships acts as passive marker for tsunami period sea-surface perturbations

time-series of vertical positions from the Svendborg Maersk in 2018 traveling from Columbia to Peru

Svendbord Maersk equiped with GNSS package during pilot network project, 2015-2018



provided by James Foster

SUBMERSE

SUBMERSE

ABOUT

SUBMERSE (SUBMarine cablEs for ReSearch and Exploration) is an innovative EU-funded project which aims to utilise existing submarine cables, already used by the research and education networking community, to monitor the Earth and its systems.

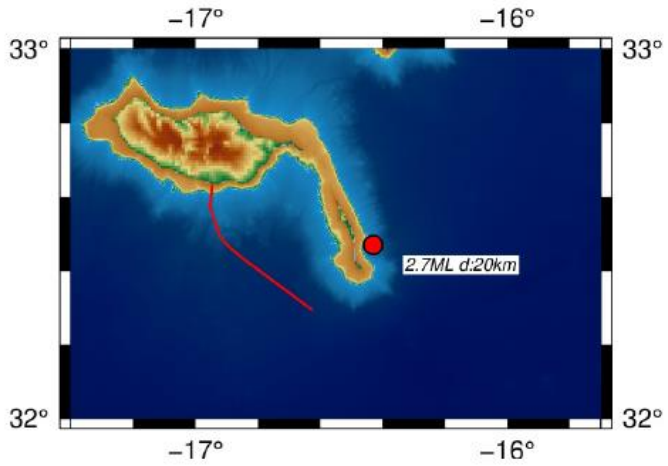
By utilising existing equipment and infrastructure in a new way, the project not only avoids the need for extra hardware under the sea, but also improves the return on investment by enhancing and widening its use.

PARTNERS

SUBMERSE is a collaboration between 24 parties: 18 partners (including the coordinator), five affiliated partners, and one associated partner. The project will work closely with the diverse research communities who intend on using the data, to design and build the data generation service together, thereby creating a highly collaborative environment where data is generated by and for all parties.

At the end of October, a Distributed Acoustic Detection (DAS) interrogator was installed at the EMACOM Cable Landing Station in Praia Formosa, in Madeira Island, Portugal.

This marks a significant advance in the seismic monitoring capacity of the Region of Madeira and adds to the importance of foundation goals that led to the SUBMERSE project – an innovative EU-funded project which aims to utilise existing submarine cables, already used by the research and education networking community, to monitor the Earth and its systems.



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Thank you for your attention…

Special thanks for the Member States for sharing their updates!