

ICG/PTWS / XXXI
07 - 11 April 2025



**Status Report of the
ICG/NEAMTWS
(2024-2025)**

Alessandro Amato
Chair
ICG/NEAMTWS

Amr Hamouda and Ignacio Aguirre Ayerbe
(vice Chair)

Denis Chang Seng
Technical Secretary



NEAMTWS 2024-2025

- **ORGANIZATION
and some D&R**
- **EVENTS, Meetings**
- **HAZARD**
- **WARNING**
- **MITIGATION**

North-East Atlantic, Mediterranean and connected seas Tsunami Warning and mitigation System

WG1 - Hazard assessment and modelling

(J. Macias / A. Gailler)

WG2 - Seismic, Geophysical and Sea Level Measurements

(A. von Gyldefeldt / D. Cambaz)

WG3 - Public Awareness, Preparedness and Mitigation

(C. Valbonesi / R. Partheniu)

Task Team on Tsunami Exercises

C. Ozer Sozdinler / M. Charalampakis

Task Team on Operations

A. Piatanesi / F. Carrilho

Task Team on Documentation

N. Kalligeris / S. Lorito

Task Team on Tsunami Ready

E. Daskalaki / M.A. Baptista

New Task Team
Non seismic tsunami sources

F. Romano / R. Omira

New Task Team
Governance

I. A. Ayerbe / D. Cambaz

Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG)

Task Team on Disaster Management and Preparedness

[Ignacio Aguirre Ayerbe](#) (Instituto de Hidráulica Ambiental de Cantabria, Spain)

[Marinos Charalampakis](#) (National Observatory of Athens, Greece)

Task Team on Tsunami Watch Operations

[Hélène Hébert](#) (Commissariat à l'Energie Atomique et aux Energies Alternatives, France)

[Alessio Piatanesi](#) ((Istituto Nazionale di Geofisica e Vulcanologia Roma, Italy)

Ocean Decade Tsunami Programme SC

[Maria Ana Baptista](#) (Instituto Superior de Engenharia de Lisboa, Instituto Politécnico de Lisboa, Portugal)

Technical Secretary: [Denis Chang Seng](#)



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NEAMTWS MEETINGS 2024-25

13 May 2024: ICG/NEAM Steering Committee (online)

11 April 2024: Coastal Cities and Communities Joining
Tsunami Ready, Ocean Conference, Barcelona

24-25 May 2024 CoastWAVE Project- Phase 1 Closure
Meeting, Alexandria, Egypt

Coastal Horizons: ... Strengthen Resilience to Coastal
Hazards, 57 IOC Exec. Council, June 202 – Side Event

Nov. 2024: Global Symposium, Banda Aceh, Indonesia

26 Nov. 2024: ICG/NEAM Steering Committee

27-29 Nov. 2024: ICG/NEAMTWS XIX Session

2024: Several TSp meetings

2025: Santorini situation meetings

2025: Lisbon TSP meeting on PTF application (March)

2025: Istanbul NEAM Steering Committee (May)

Major Workshop

- Partners and Stakeholders Convened in Alexandria, Egypt 24-25 May 2024
- CoastWAVE Project- Phase 1 Closure Meeting





Major International Workshop

80 International Experts Participated

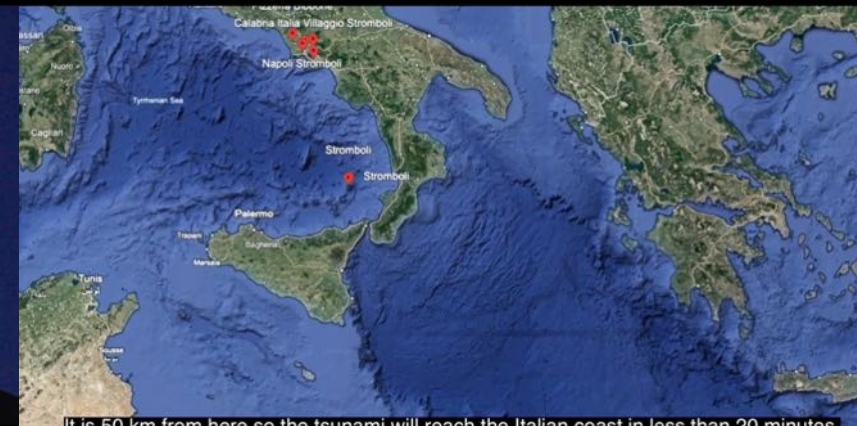
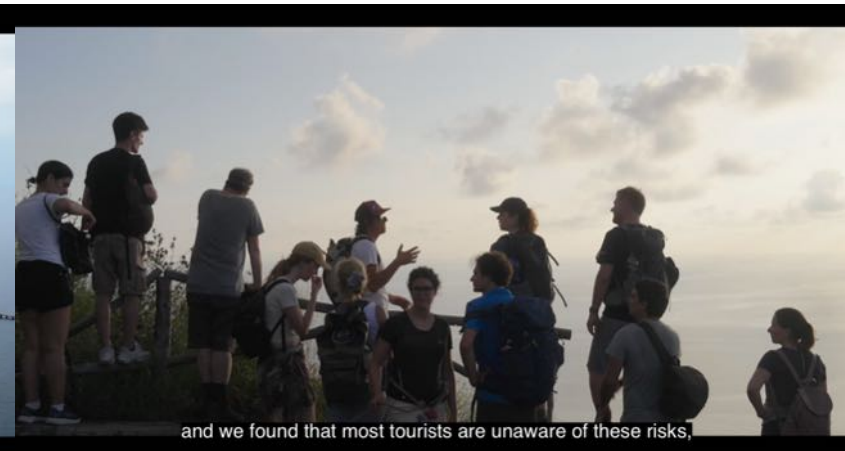
- Stromboli Workshop, Organized by INGV, Italy 5-7 October 2024

Focus on volcanic tsunami observations, modeling, hazard assessment, and forecasting



A movie on Stromboli tsunami EWS

presented at the 2024 NEAM ICG, Paris, Nov. 2025



NEAM participation in the Global Symposium, Banda Aceh, Nov. 2024



Thanks
Harkunti
and staff !

Some D&R and news from the last NEAM ICG

- ✓ **Reaffirmed** the target to have a total of 25 UNESCO-IOC Tsunami Ready Recognized communities in NEAM countries by the end of 2026...
- ✓ **Noted** the official closure of Phase I of the European Union DG-ECHO CoastWAVE project on 30 June 2024 and the external evaluation carried out...
- ✓ Also **noted** the official start of Phase II of the new CoastWAVE Project (CoastWAVE 2.0) 'Scaling-Up and Strengthening the Resilience of Coastal Communities in the NEAM and its kick-off workshop on 6 November 2024;
- ✓ **Agreed** to adopt the threat levels as requested by the Task Team on Tsunami Watch Operations...
- ✓ **Decided** to establish the new Task Team on Governance and conduct the next NEAMWave exercise in March 2026 (NEAMWave26);
- Projects Related to NEAMTWS (EU), EPOS, GeoInquire, GTM, NEAM-COMMITMENT: NEAM Collaboration for improved tsunami risk mitigation and management
- Also appreciates the increase in number of actions submitted (Ocean Decade Call 7) in the NEAM region endorsed and submitted to Ocean Decade
- Appreciates the newly recognized UNESCO-IOC **Tsunami Ready Communities** in Egypt (Alexandria), France (Cannes), Greece (Samos), Italy (Minturno), Spain (Chipiona) and Türkiye (Büyükçekmece) in 2024;



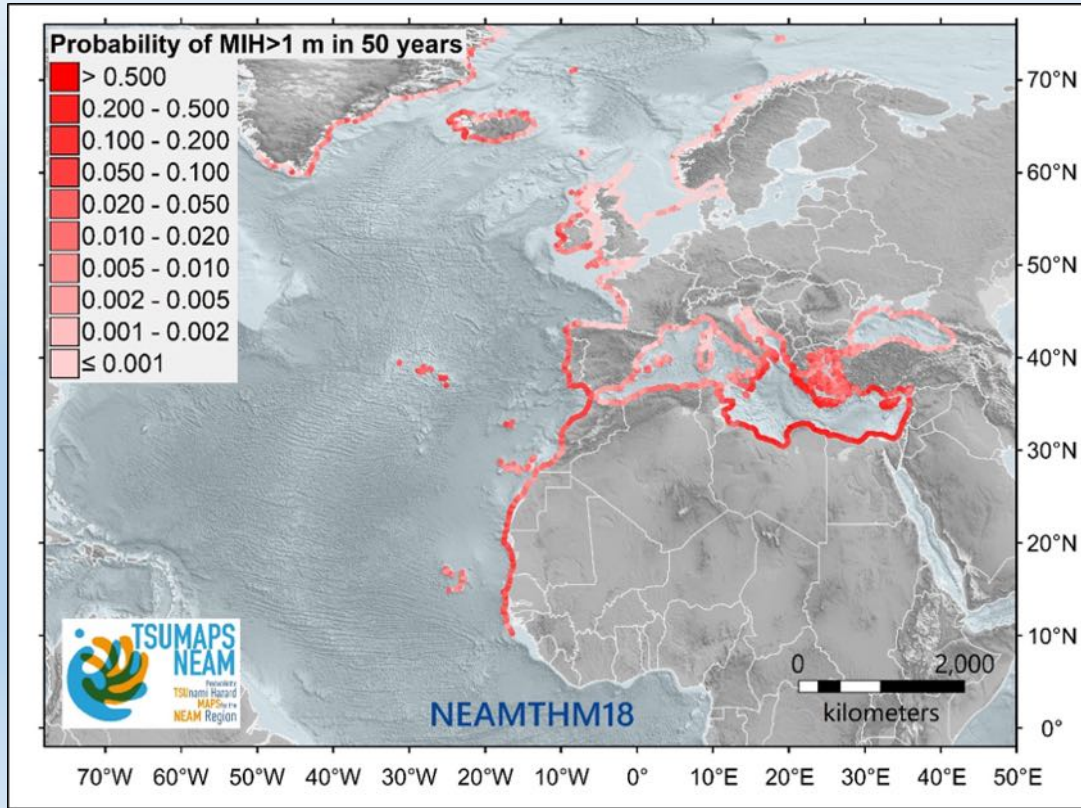
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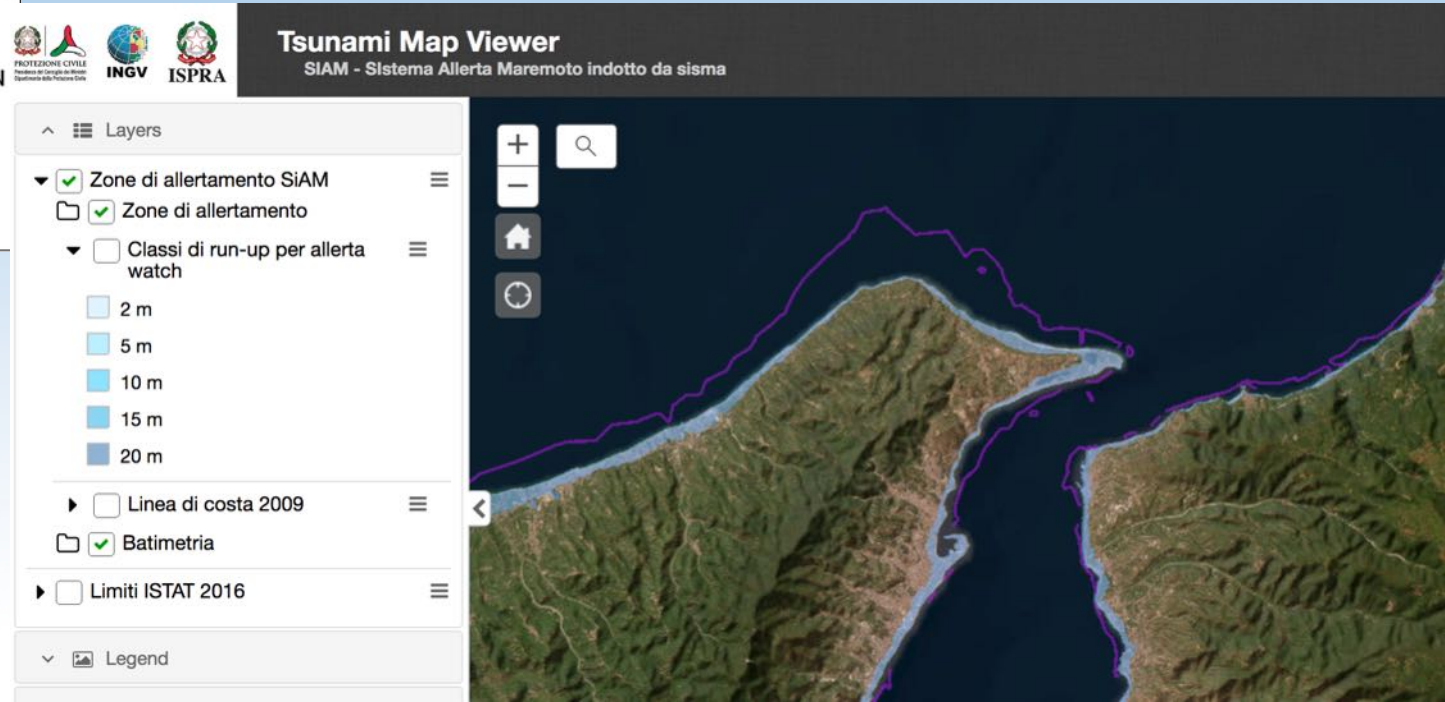
PILLAR 1 - HAZARD 2024

S-PTHA assessment at national and local level (for defining inundation zones)



- In some countries (e.g. **Italy**) the TSUMAPS-NEAM S-PTHA were used to define the **inundation zones**.
- In the DG-ECHO NEAM-Commitment project (Feb. 2025) the approach will be applied to **Spain Greece, Cyprus**, to have inundation maps at national scale, agreed with Govt/CP authorities

- Other approaches at **regional / local scale** are being adopted (e.g. France, Larnaca/Cyprus, Stromboli, etc.)
- Larnaca, Cyprus Hi-Res local PTHA (within CW.1 project)





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PILLAR 2 - WARNING 2024

Exercises

Monthly communication tests (5/month) by each TSP

- Concern on no response from some MS
- Capacity to receive warning in case of real events
- Statistics on telecom

T.A.A.R - select event

Event	Parameters
Origin time (UTC)	2024-02-06 07:38:29
Latitude	39.940
Longitude	-20.510
Depth	30.8
Magnitude	6.1MW
Region	Azores Islands Region
Agency	simul
ID	-
[type]	Random

Last Event

Random Event

Scenario

Internal EXERCISE Database

External EXERCISE Database

Communication Test Message

REAL Database

Ok Cancel

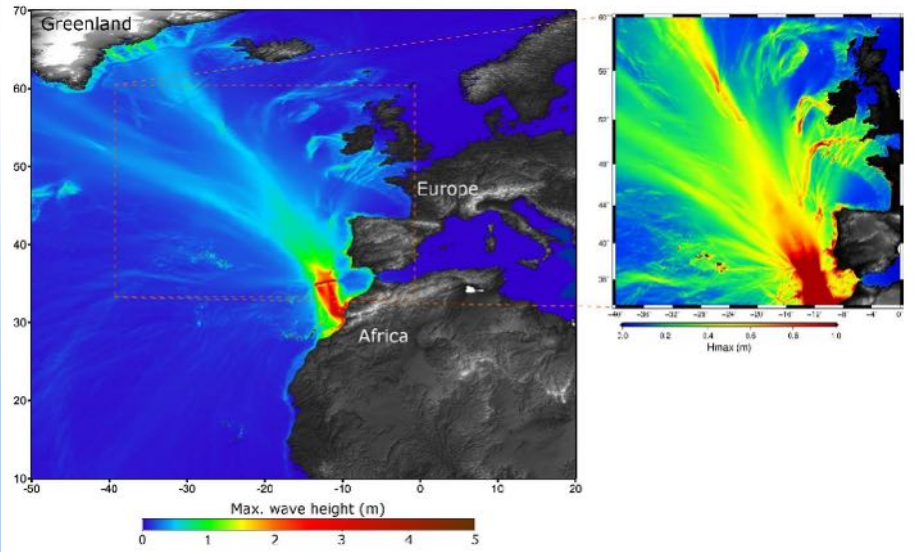
IPMA

NEAMWave Exercises

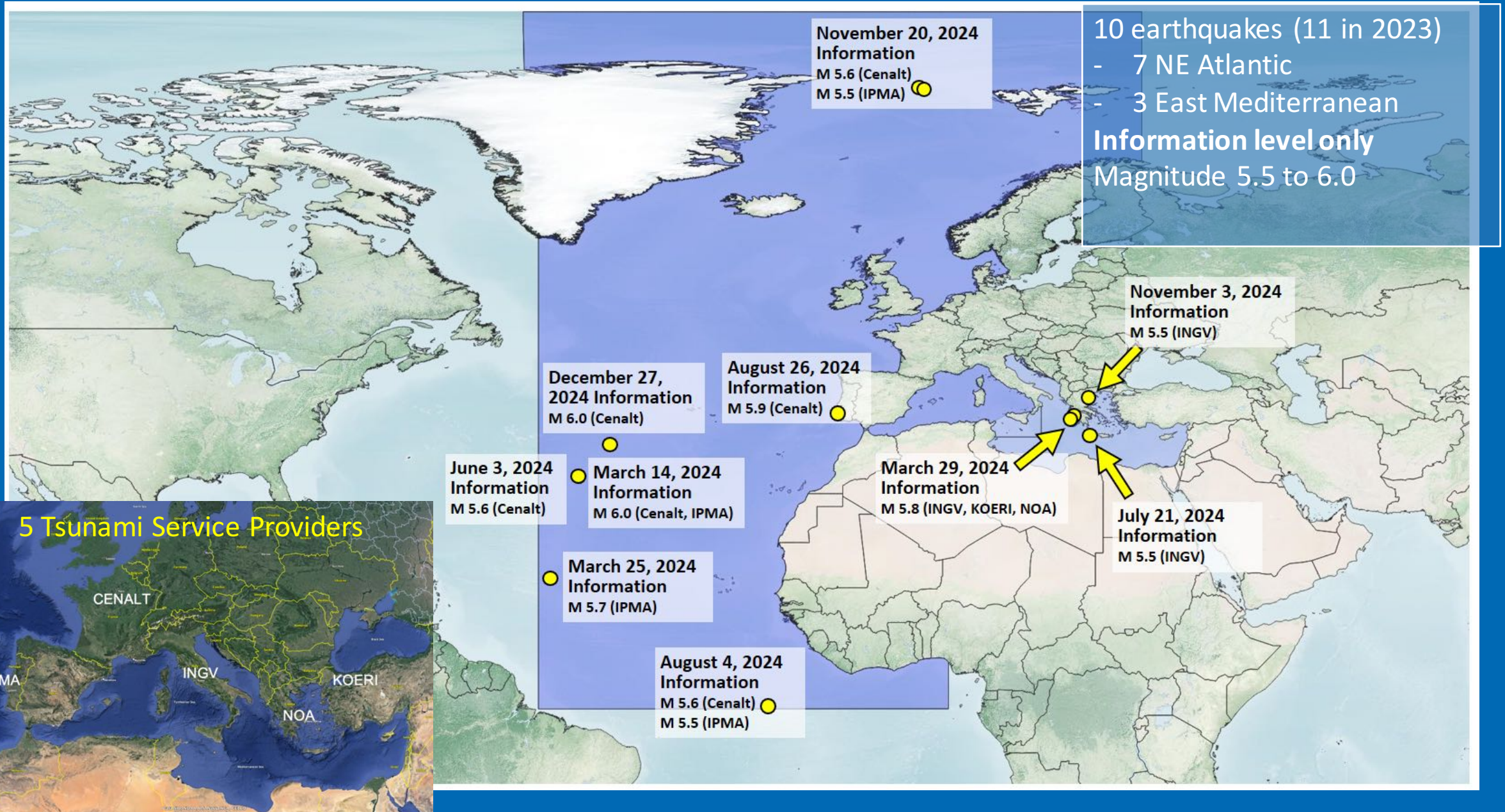


- NEAMWave23 Report available
- Scenario NE Atlantic (Portugal, France)
- Scenarios Mediterranean (Italy, Greece, Turkey)

Next NEAMWave scheduled on Spring 2026



NEAMTWS 2024 Events

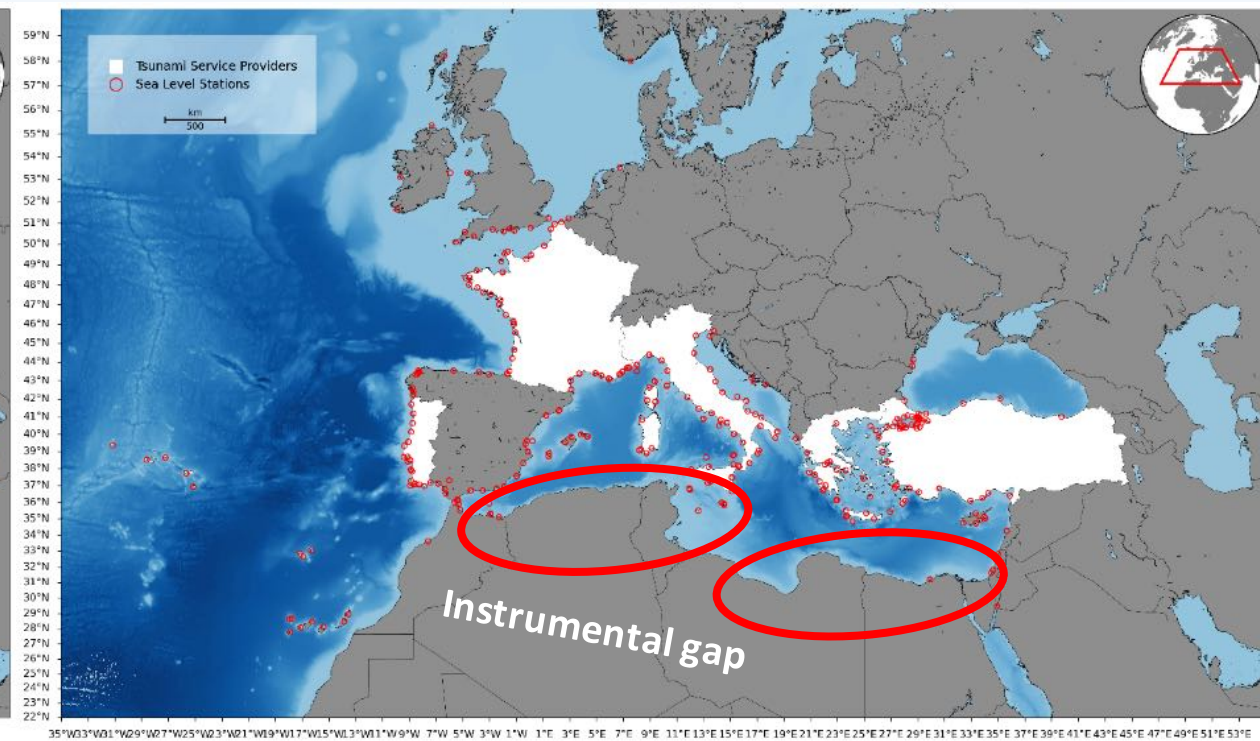
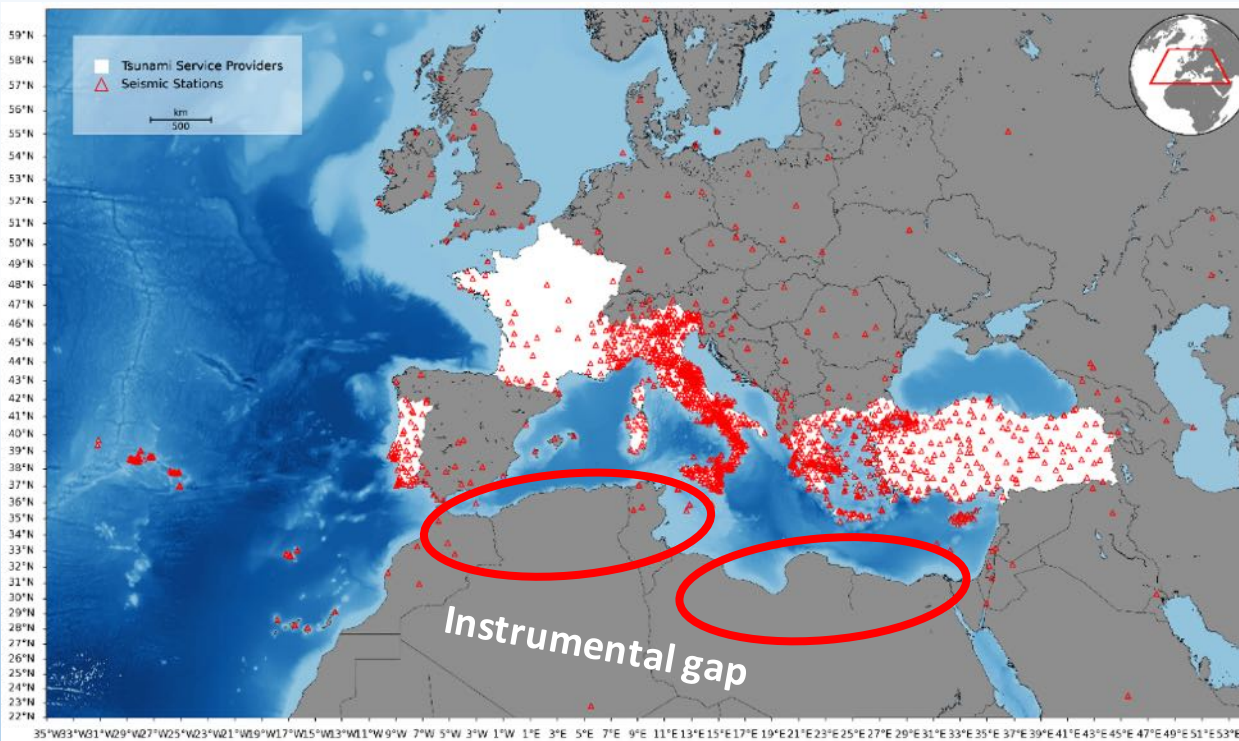


Seismic, Geophysical and Sea Level measurements

Seismic and Sea Level Data Base in NEAM REGION (2024)

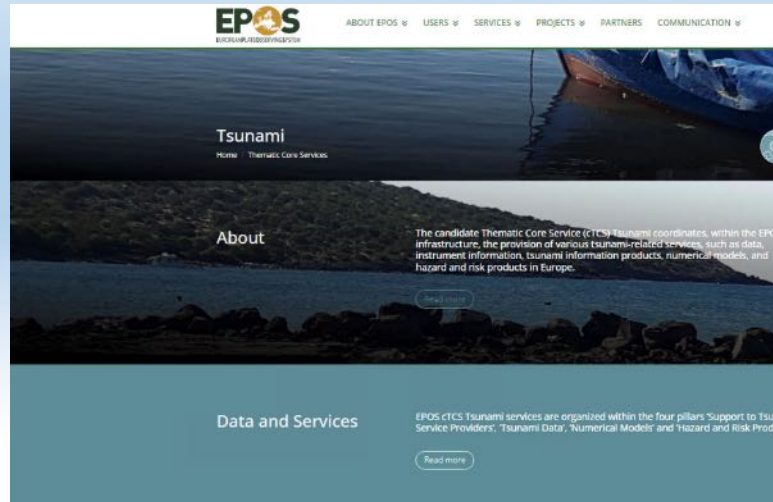
Seismic Stations Monitored by TSP

Sea-Level Stations Monitored by TSP

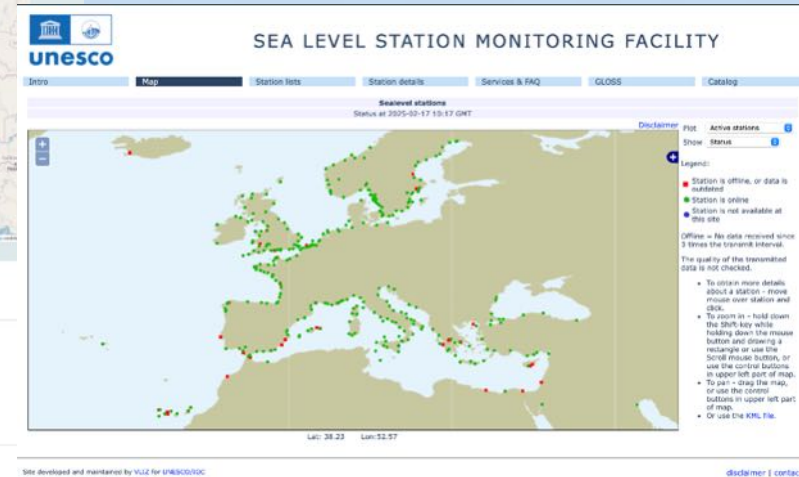


ONGOING ACTIVITIES: EPOS EU Research Infrastructure

– Establishment of the Technical Core Service (TCS) Tsunami (February 2024)



tsunamidata.org



– EPOS-ON Horizon Europe project funds the development of the TSP-IOT prototype

This service is a **virtual access** to a web service including a **common database** (forecast points, sensor locations, bathymetry and topography models, etc.) that, along with **additional tools** will help warning centres to make their **early warning operations interoperable** and consistent, and to increase redundancy and fall-back solutions during event processing.

This activity is supported in the framework of EPOS (European Plate Observing System) – The European distributed Research Infrastructure for solid Earth science

ONGOING ACTIVITIES: **PROBABILISTIC TSUNAMI FORECASTING**

PRE-CALCULATED SCENARIOS EARLY WARNING VERSION

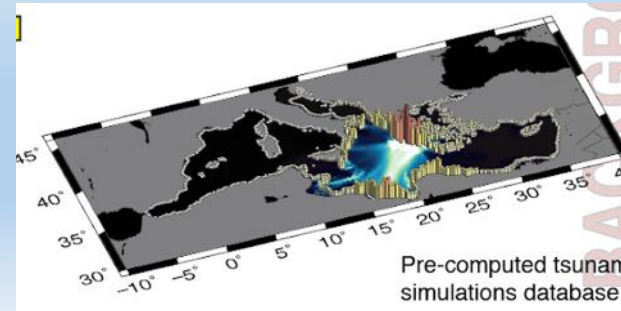
It works in near-real time at the INGV Tsunami Warning Centre

It is in the Calibration/Validation + Threshold definition phase towards the fully Operational Phase

On-the-fly SCENARIOS (Urgent Computing) POST-EVENT ASSESSMENT VERSION

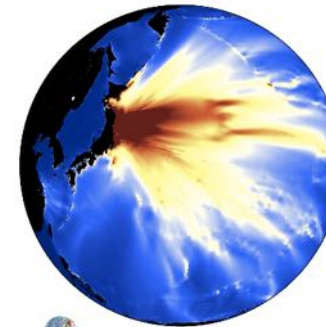
Prototype for event analysis at INGV and potentially other Tsunami Service Providers worldwide. Global scope.

Simulation ensembles to be run from scratch on large enough HPC clusters in urgent computing mode.



Targeting few to tens of seconds execution time.

Using hundreds to thousands pre-calculated scenarios



Targeting minutes to tens of minutes execution time

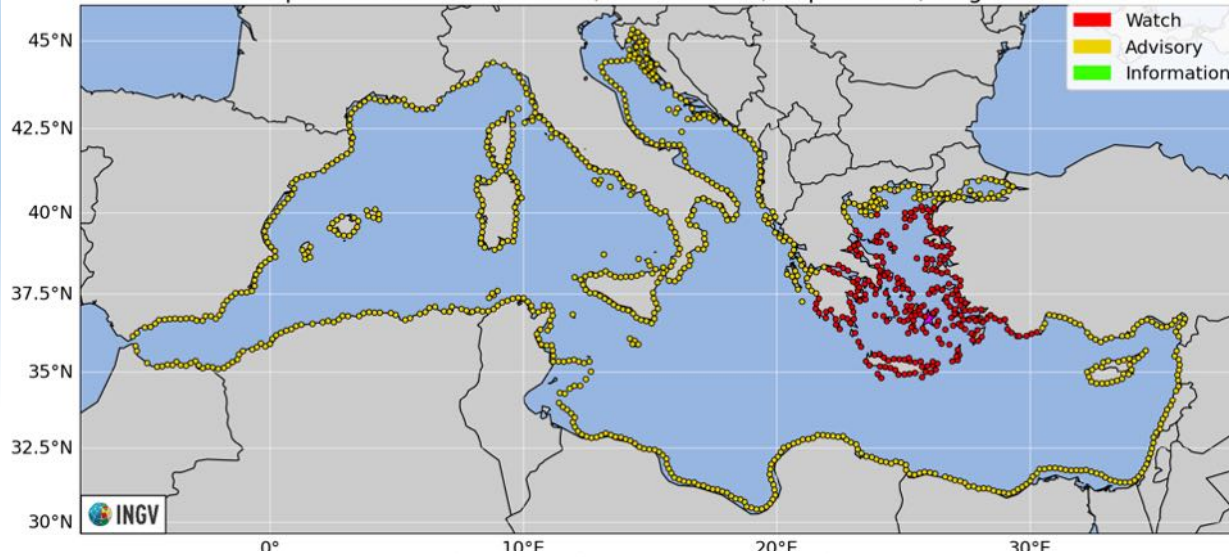


TESTING PROBABILISTIC TSUNAMI FOREC

Alert levels at POIs - matrix

Epicentral Region: GR_Lixouri_Ionian-Islands

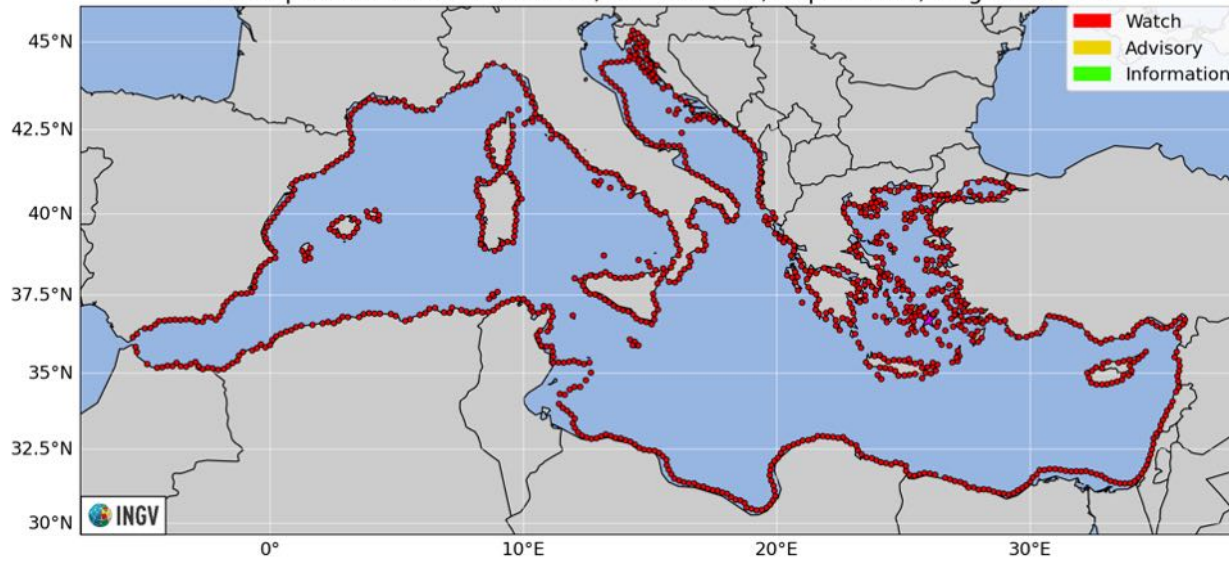
Event parameters: Lon=25.9773, Lat=36.7212, Depth=26.0; Magnitude=7.5



Alert levels at POIs - matrix

Epicentral Region: GR_Lixouri_Ionian-Islands

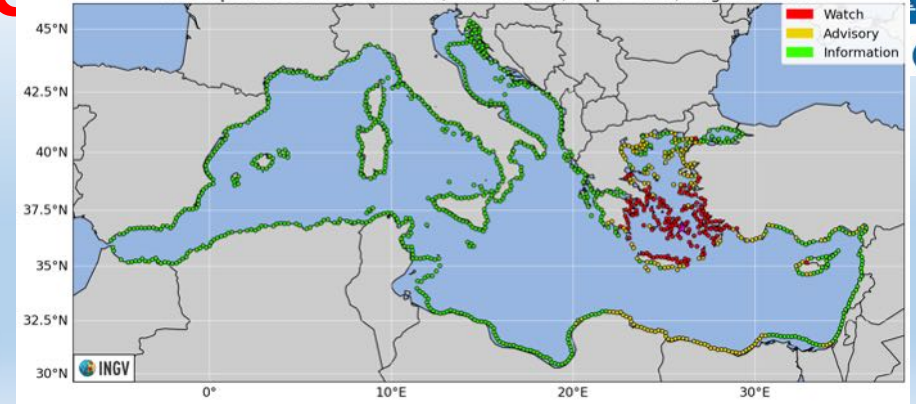
Event parameters: Lon=25.9773, Lat=36.7212, Depth=26.0; Magnitude=8.0



Alert levels at POIs - p84

Epicentral Region: GR_Lixouri_Ionian-Islands

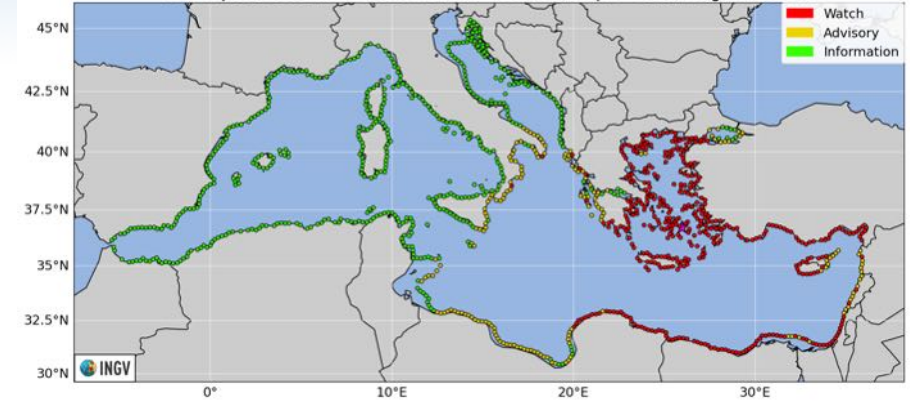
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Alert levels at POIs - p98

Epicentral Region: GR_Lixouri_Ionian-Islands

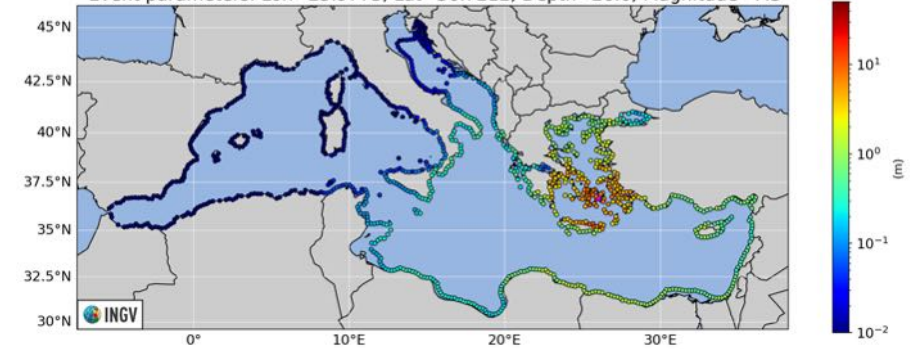
Event parameters: Lon=25.9773, Lat=36.7212, Depth=26.0; Magnitude=7.5



Hazard map - p98

Epicentral Region: GR_Lixouri_Ionian-Islands

Event parameters: Lon=25.9773, Lat=36.7212, Depth=26.0; Magnitude=7.5

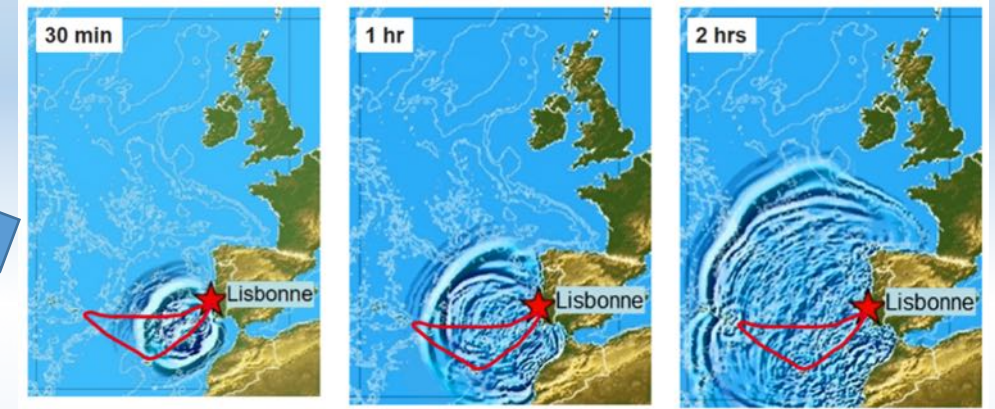


ONGOING ACTIVITIES: SMART CABLES

- New Submarine Cable Ring connecting Portugal Mainland-Azores-Madeira
- Supported by Portugal
- Operational in second half of 2026

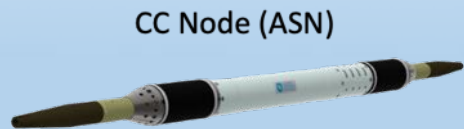


Timeline of 1755-like tsunami propagation in NE Atlantic



MISTS: Mediterranean Integrated Science and Telecom System

European Initiative: Pacific Peering and ASN Partnership / Scientific Community
Integrating telecommunications and climate monitoring in Europe



CC Node (ASN)



Accelerometer & Digitiser
(Nanometrics)



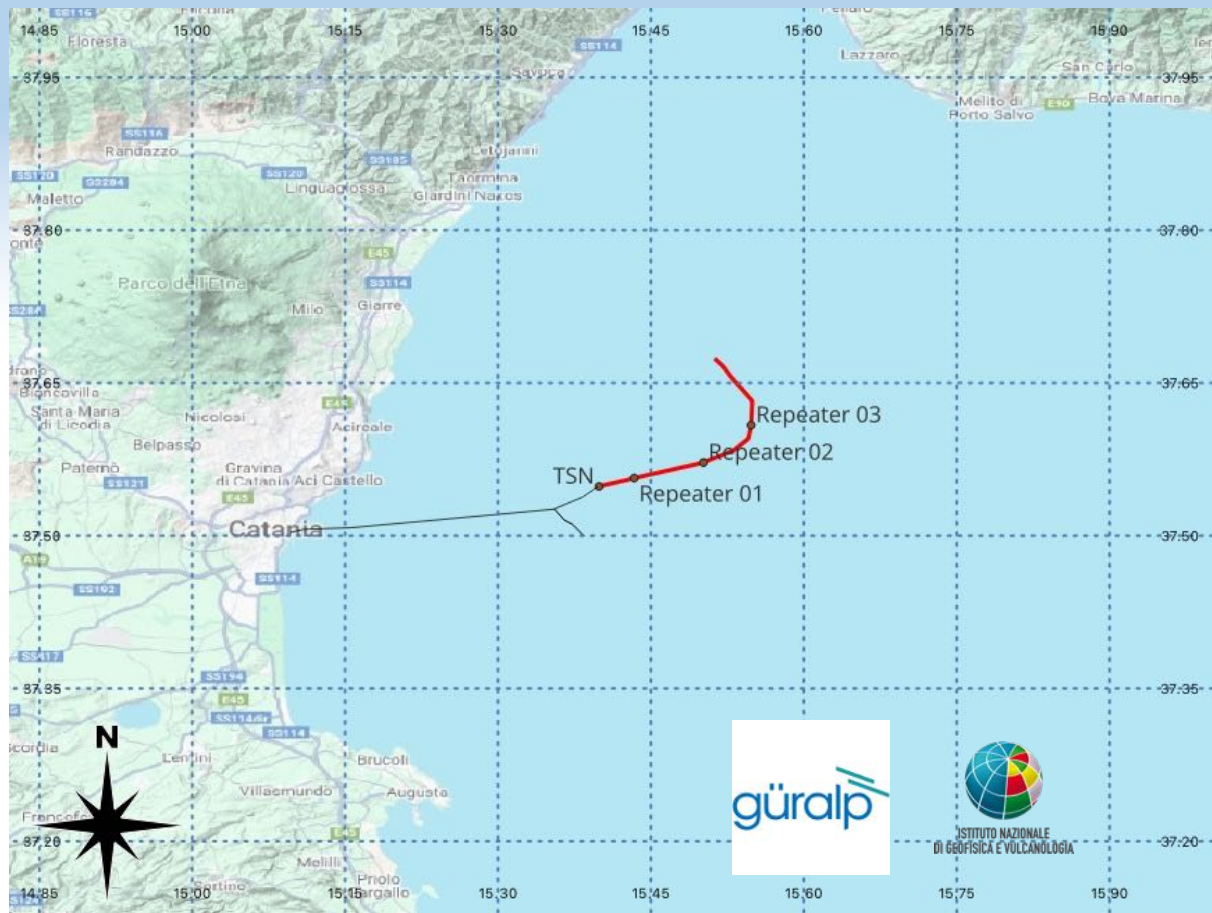
Pressure sensor (RBR)



Temperature
sensor (RBR)

WESTERN IONIAN SEA INFRASTRUCTURE/1

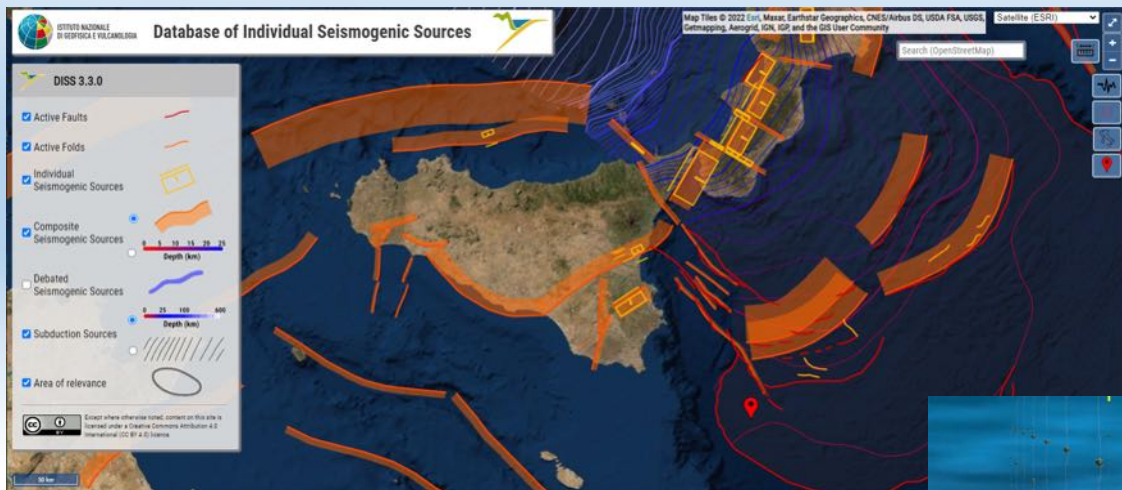
Deployed December 2023



- Technical problems at the Repeaters
- At the moment we receive data from the pressure sensor at the Calypso Observatory (- 2039 m)

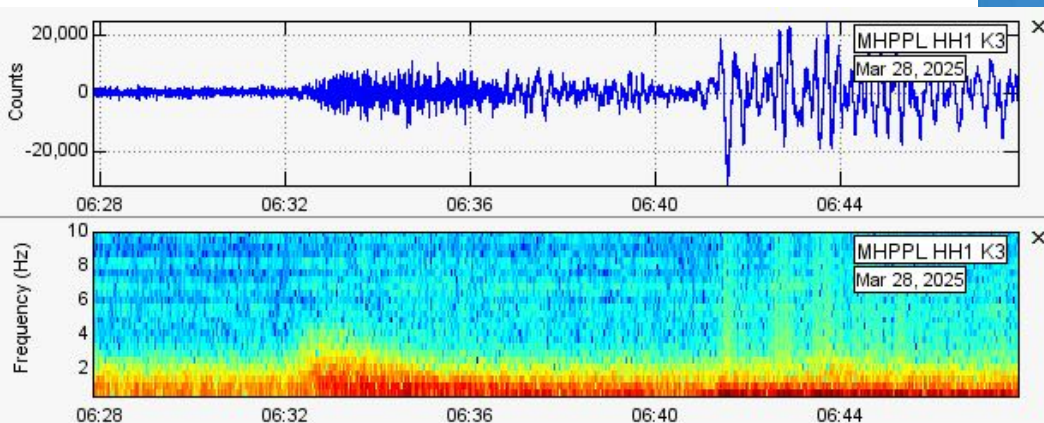


WESTERN IONIAN SEA INFRASTRUCTURE/2

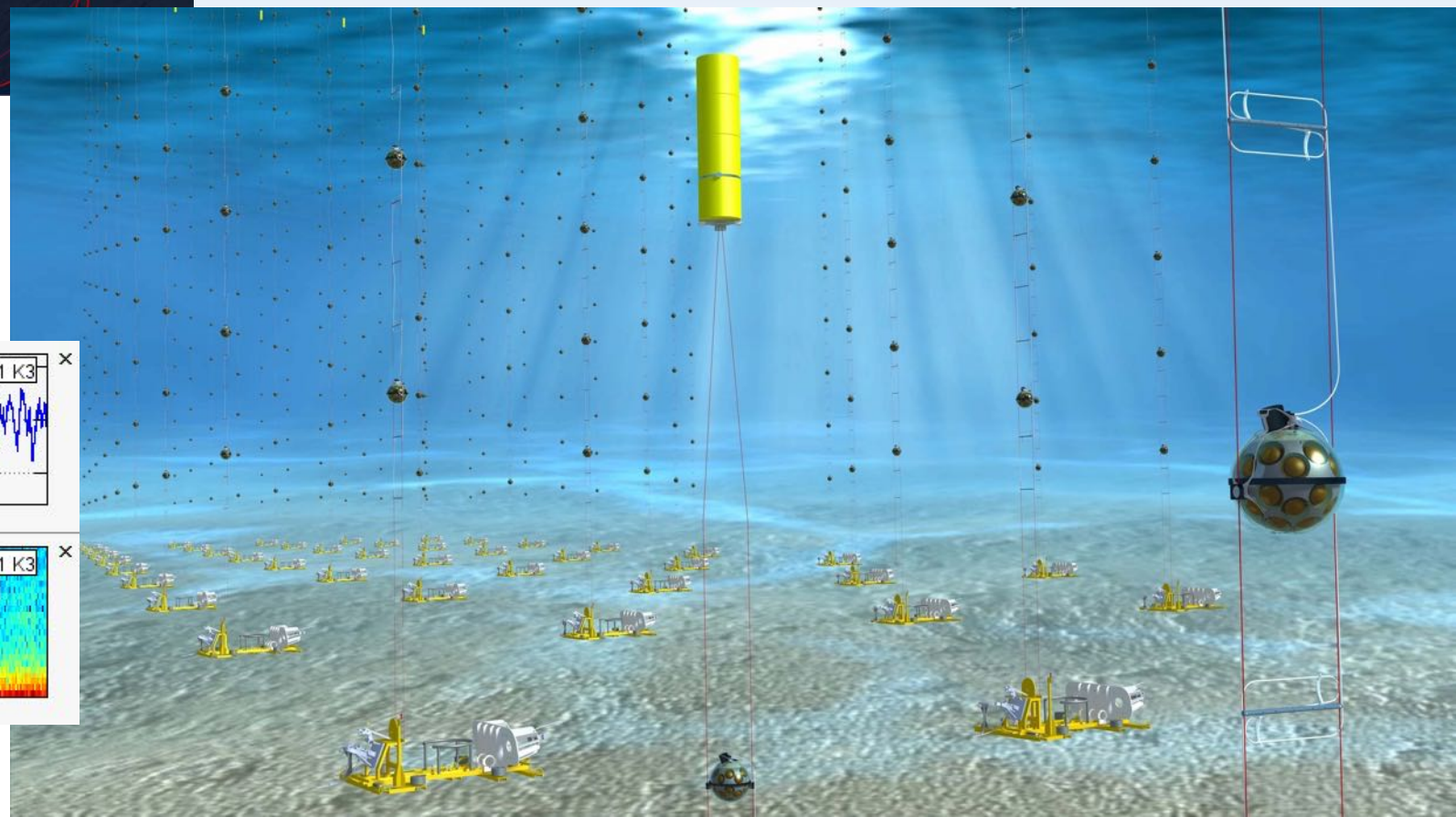


3500 m depth

Myanmar M7.7 earthquake March 28



A deep sea-floor Observatory for neutrinos
BB seismometer, P-T sensors
Courtesy of Sergio Scirè, INGV-Palermo
INGV-PA, INFN-LNS, INFN-RM1, INFN-BA



ONGOING ACTIVITIES: **NON-SEISMIC TSUNAMI SOURCES**

The local TEWS is based on the combination of 2 elastic beacons equipped with 2 pressure sensors each at -14 and -50m depth
The system was designed and managed by the LGS of the University of Florence.

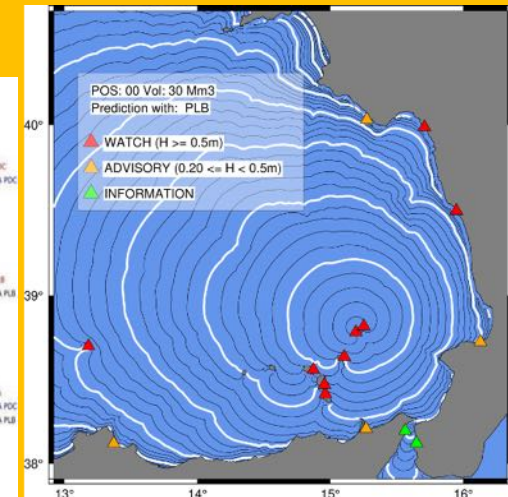
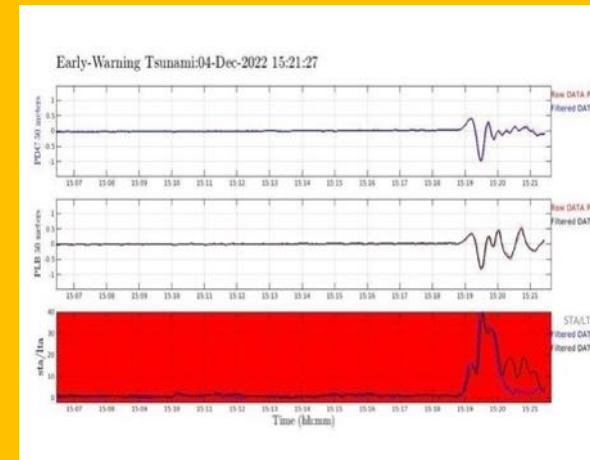
In Dec. 2024 one of the beacons disappeared.

Soon (April-May 2025) we will install a cabled buoy in a close area (then reinstall the elastic beacon).

A new offshore pressure sensor was installed in Panarea (Nov. 2024).



Local TEWS for Stromboli volcano, Italy



Stromboli natural laboratory for non-seismic (volcanic) tsunami warning



December 2002 tsunami (>10m runup)



Panarea (Aeolian Islands) offshore Observatory

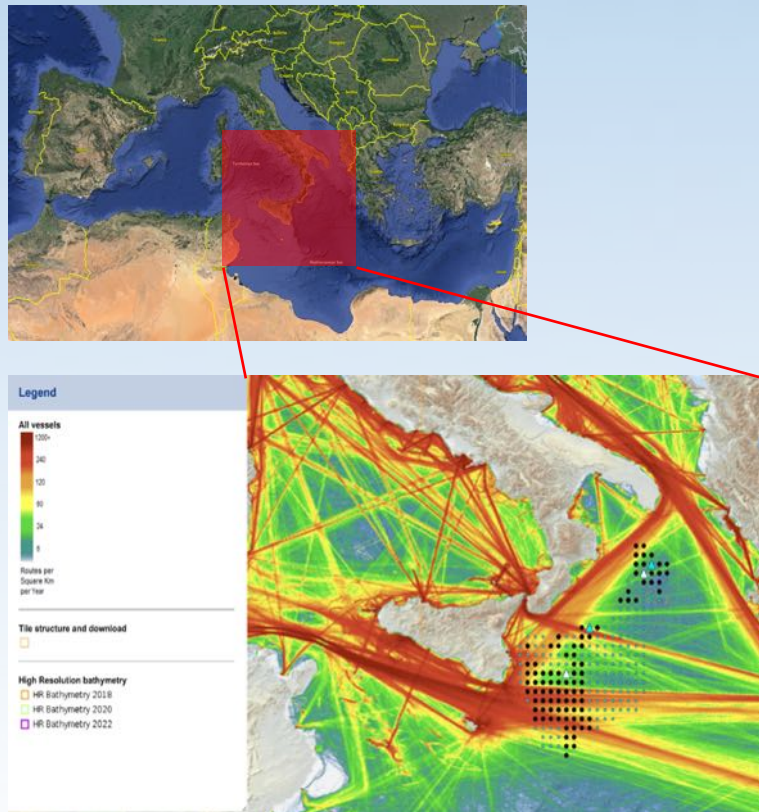
Cooperation among INGV-Palermo, INGV-OE-
Gibilmanna, CAT and CME

11/21/2024 12:52:17



ONGOING ACTIVITIES: TSUNAMI BUOYS

- 2 tsunami buoys will be installed in the Ionian sea in July 2025 (INGV with MSM-Sonardyne), at 2600 and 3200 m depth, first in NEAM region (PNRR-MEET project)





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**PILLAR 3 - MITIGATION
2023-2024**

Tsunami Ready Implementation in NEAM REGION

11 Countries
15+ Communities

6 Recognized in 2024

...more coming!

Chipiona



El Jadida



Loulé



Büyükçekmece



Cannes



Marzamemi



Otranto



Marsaxlokk



Israel



Palmi



Minturno



Stromboli



Larnaca



Samos



Alexandria



International, National, Local Engagements

City Mayors and Governor



Cannes, France



Büyükçekmece, Itanbul, Turkeye



Alexandria, Egypt



Chipiona, Spain



Samos, Greece



Minturno, Italy

Communication and Outreach

Technical Documents

1. ICG/NEAMTWS -XVIII Summary Report
2. Evaluation of IDSL
3. IDSL Manual, User Guides and Maintenance Plan
4. Sea Level Related Coastal Multi-Hazard Risk Perceptions of the Communities in Alexandria, Büyükçekmece, Chipiona, El Jadida, Larnaca, Marsaxlokk, and Samos, [IOC. Technical series](#)
5. Final CoastWAVE Project Report
6. Final Project Evaluation Report
7. NEAMWave 23 Evaluation report (in progress)
8. NEAM Operational User Guide (in progress)
9. Best Practices, Guidance, Challenges, Lessons Learned in Implementing UNESCO IOC Tsunami Ready (in progress)

➤ Story Maps:

- [Traveling through Mediterranean tsunamis](#)
- [Indian Ocean Tsunami 2004 twenty years after](#)

➤ [Meny videos and News/posts on TSPs websites Including a 5 million views on 2020 SAMOS tsunami:](#)

➤ Videos Produced and Published

- 2 Stromboli Volcano - Tsunami Warning System documentary, 3 min, 10 min versions) (launched in November 2024)
- 2 Malta videos



Communication and Outreach

Explaining Stromboli tsunami alert system in Sign Language
INGV Open Day, February 2025



Virtual tsunami pool
Genova Science Festival, October 2024





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THANK YOU