



NEAMWAVE21 - DG ECHO Internal Training

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ICG/NEAMTWS

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IOC/UNESCO



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission



Sustainable
Development
Goals



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

ICG/NEAMTWS

INTERGOVERNMENTAL COORDINATION GROUP

FOR THE TSUNAMI WARNING AND
MITIGATION SYSTEM IN THE NORTH-EASTERN
ATLANTIC, THE MEDITERRANEAN AND
CONNECTED SEAS

ICG/NEAMTWS MEMBER STATES

ALBANIA, ALGERIA, BELGIUM, BULGARIA,
CAPE VERDE, CROATIA, CYPRUS, DENMARK,
EGYPT, ESTONIA, FINLAND, FRANCE, GEORGIA,
GERMANY, GREECE, ICELAND, IRELAND,
ISRAEL, ITALY, LEBANON, LIBYA, MALTA,
MAURITANIA, MONACO,
MONTENEGRO, MOROCCO,
NETHERLANDS, NORWAY, POLAND,
PORTUGAL, ROMANIA, RUSSIAN
FEDERATION, SLOVENIA, SPAIN,
SWEDEN, SYRIA, TUNISIA, TURKEY,
UKRAINE, UNITED KINGDOM

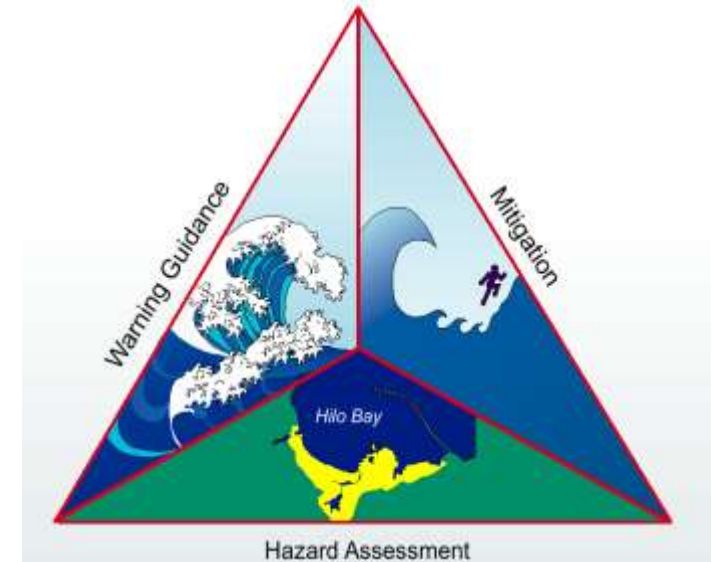


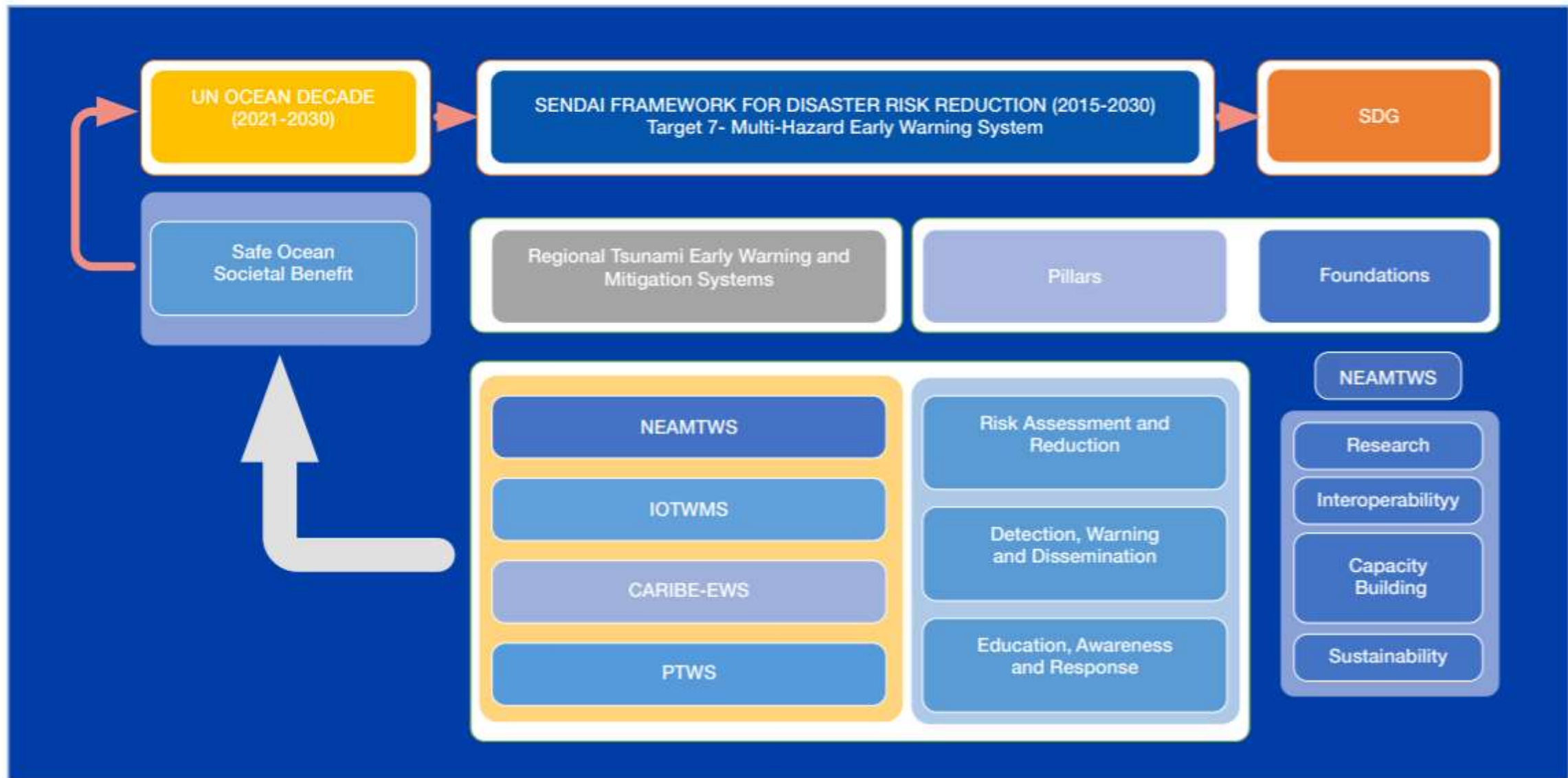
ICG-NEMTWS

- **Establishment:** Following the 26 December 2004 tsunami in the Indian Ocean, IOC started to also coordinate the development of similar warning systems for the North East Atlantic, the Mediterranean and connected seas (ICG/NEAMTWS)
- **Governance:** 40 Member States, Annual ICG sessions, Chair/Vice-Chairs, 3 WGs, 3 TTs, SC
- **Global Agenda/Contributions:** Contribution to Target g (Availability and access to MHEWS) of the Sendai Framework for DRR

TWS Strategy / Approach/Activities

- Three strategic pillars
 1. **Tsunami Hazard / Risk Assessment;**
 2. **Warning System Development**
 3. **Preparedness and Awareness**
- TEWS design is end-to-end and people centred
 - People need to know what to do in presence of natural signs (e.g. earthquake/rapid sea level changes), with or without an official warning.





IOTWMS: Indian Ocean Tsunami Warning and Mitigation System

CARIBE-EWS: Caribbean Early Warning System

PTWS: Pacific Tsunami Warning System

Key Achievements in NEAM Region

P1

- ✓ **2014:** Tsunami catalogue (6150 B.C)
- ✓ **2018:** Region-wide Probabilistic Tsunami Hazard Assessment available for the NEAM Region (EU-DG-ECHO Funded Project involving 14 partners)

P2

- ✓ **2019:** Five accredited Tsunami Service Providers (TSPs) and ten National Tsunami Warning Centers (NTWCs)

P3

- ✓ **2017:** Three regional tsunami exercises (NEAMWave)
- ✓ **2019:** National tsunami exercises / trainings (e.g. France, Israel, Italy, Morocco, Portugal, Greece, Turkey)

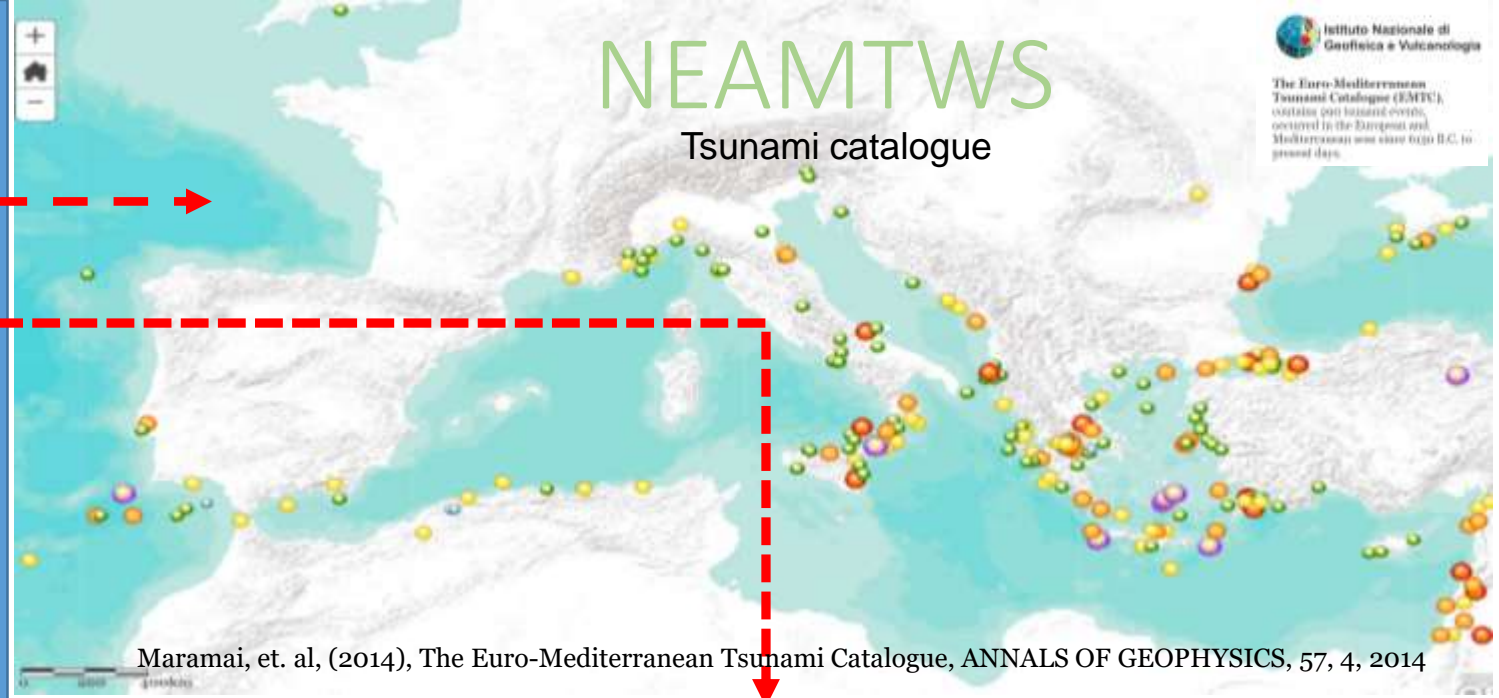
IOC-UNESCO ICG-TWS Regional Tsunami Service Providers



8 New TSPs established since 2004 IO Tsunami

NEAMTWS

Tsunami catalogue



Maramai, et. al, (2014), The Euro-Mediterranean Tsunami Catalogue, ANNALS OF GEOPHYSICS, 57, 4, 2014

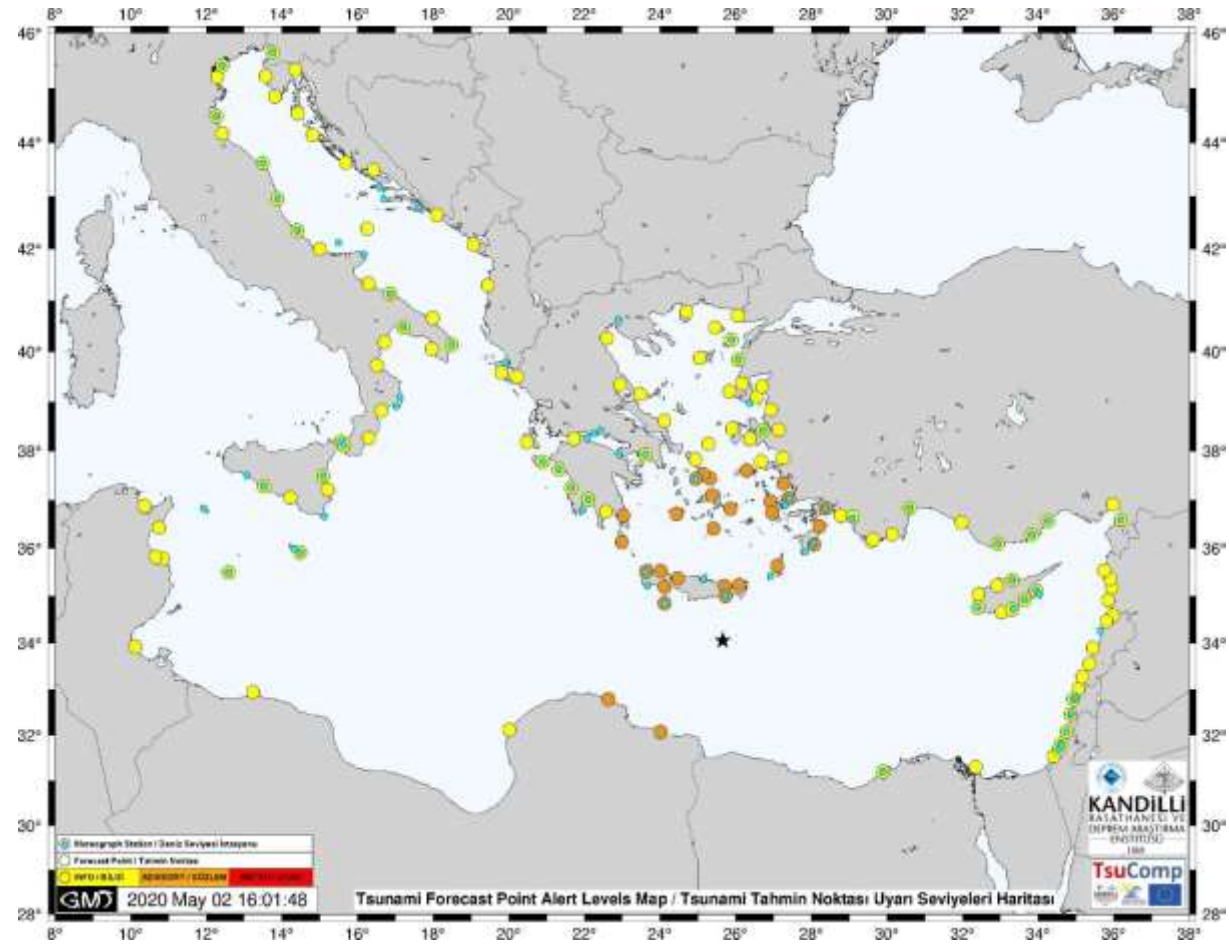
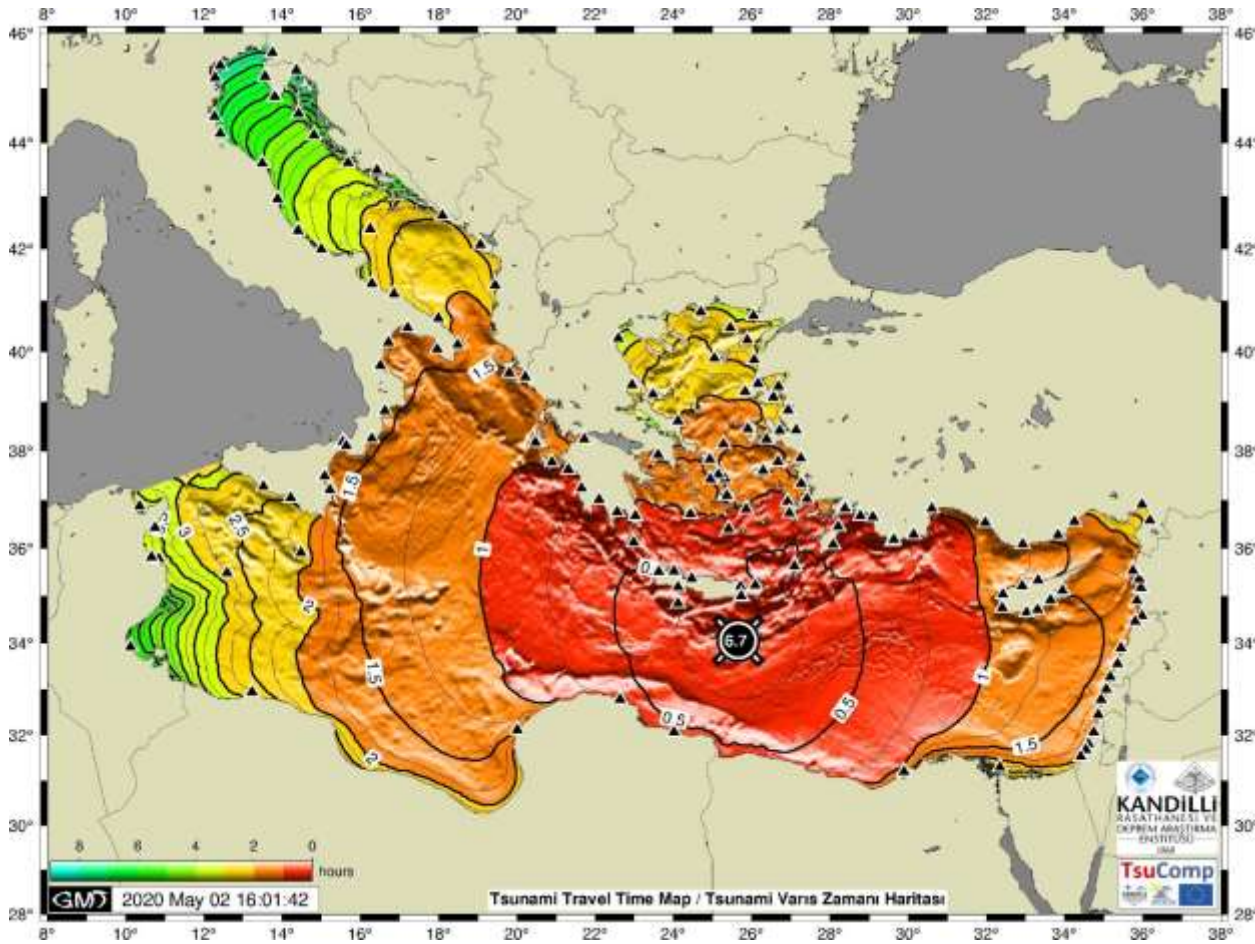


Basin Wide Probabilistic Tsunami Hazard Assessment (Seismic)

Key Achievements

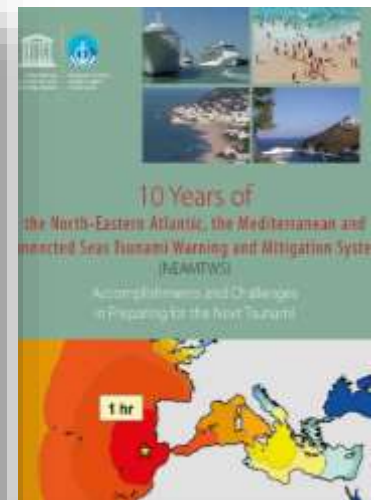
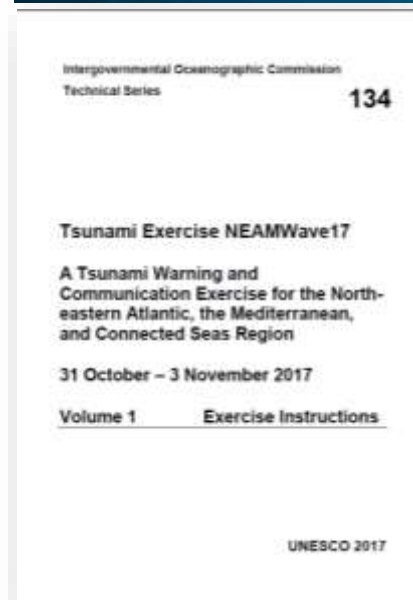
Enhanced Tsunami Products

TSPs including KOERI (Turkey) have piloted enhanced tsunami products with their subscribers

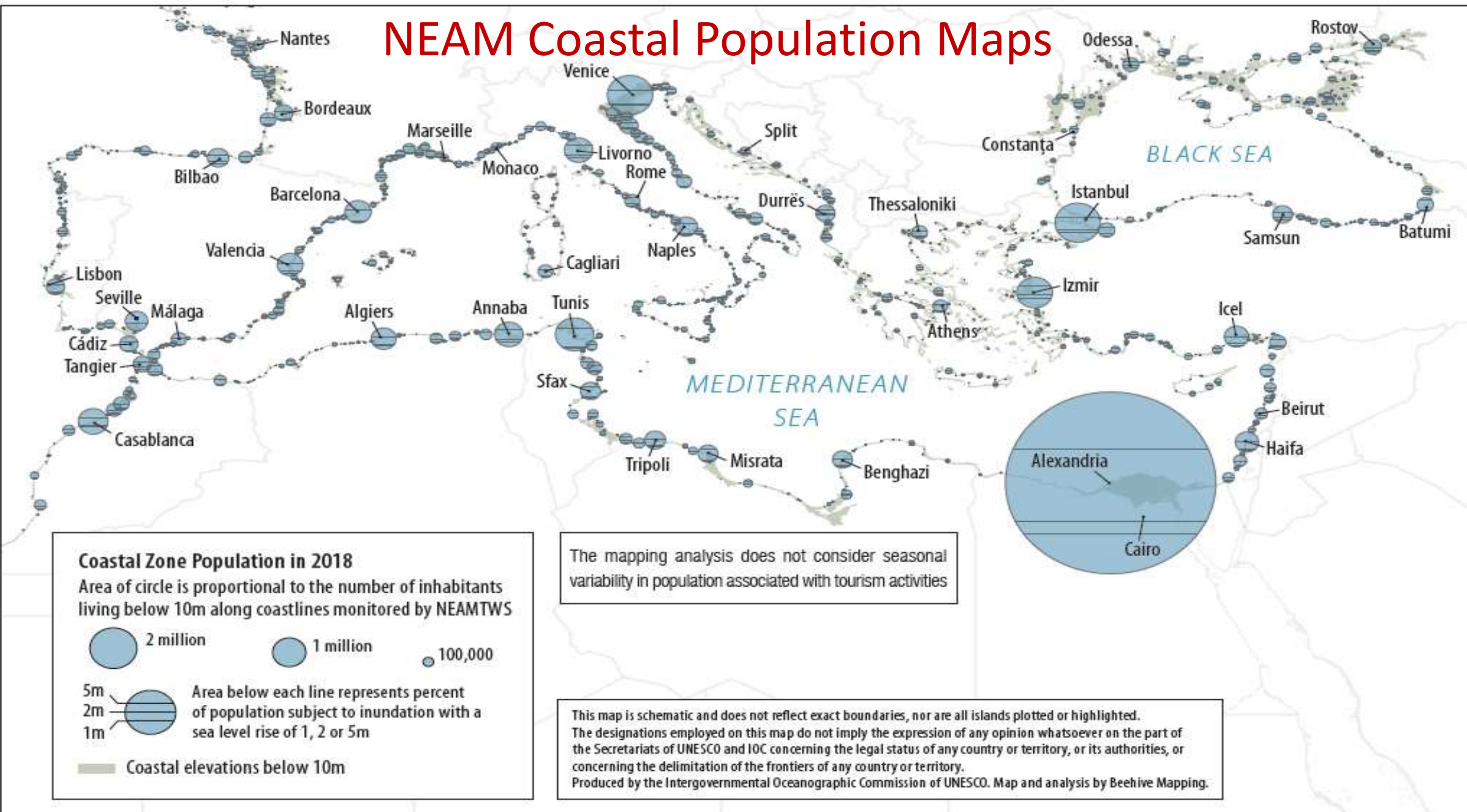


Key Achievements

- 16 ICG/NEAMTWS Sessions organized
- TNCs/ TWFPs data base / NEAMTWS Community (Experts/ Stakeholders / Users)
- 5 national-regional workshops (Morocco, Tunisia, Spain)
- NEAMTIC
- Key Documents
 - ✓ 10 Years of NEAMTWS, Guides/ Exercise Instruction Manual
 - ✓ Posters
 - ✓ Videos in partnership with UNDRR
 - ✓ Fact Sheet 2005-2020



NEAM Coastal Population Maps



Education, Awareness and Preparedness

The World Tsunami Awareness Day (WTAD), 5 Nov



Turkey: Press Conference at KOERI Regional Earthquake and Tsunami Monitoring Centre



- Increase in national effort to raise awareness on tsunami hazards and preparedness
- WTAD -City of Cannes, now a yearly event / exercise

Greece: School activities



Cannes, France Tsunami Exercise



Italy: Leaflets and volunteers raising awareness on tsunami risk





Last Mile Project Results

- In Kos (Greece), a tsunami preparedness exercise was conducted in November 2019
- Bodrum (Turkey) carried out a tabletop exercise involving meetings with stakeholders on tsunami readiness.
- Greece and Turkey collaborated to produce a two-minute video on the Tsunami Last Mile activities, in coordination with the IOC Secretariat and the UNDRR.
- The video was launched during an ICG-NEAMTWS Webinar on 4 November to commemorate the World Tsunami Awareness Day.



[VIDEO CLICK HERE](#)

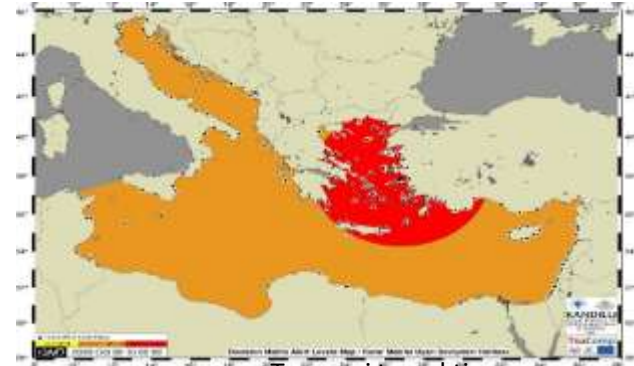
Most Recent Tsunami: Performance?

- [NOA](#) (Greece), [KOERI](#) (Turkey) and [INGV](#) (Italy) TSPs issued earthquake-tsunami bulletins to Member States within 8-11 minutes following the detection of the earthquake.
- Greece and Turkey were on Tsunami Watch (highest level of alert), while other countries either on Tsunami Advisory and or Tsunami Information levels.
- Eyewitnesses claim the drawback started within 2-5 minutes followed by runup within 15-20 minutes after the Earthquake.
- The Civil Protection in Greece activated the emergency to send messages 24 minutes after the earthquake to cellphones.
- Reports indicate that some 'kind of self-organized' evacuation took place among the population living in the impacted areas in Greece and Turkey.
- The event once again highlighted the difficulties of warning with regard to locally generated, rapid onset of tsunami and challenged the ability of local authorities and the communities at risk to take early action.

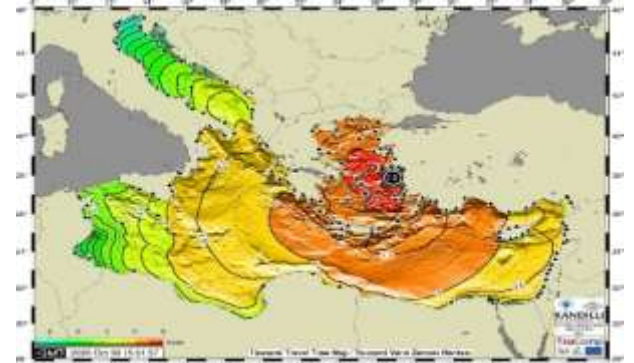


source KOERI, Turkey

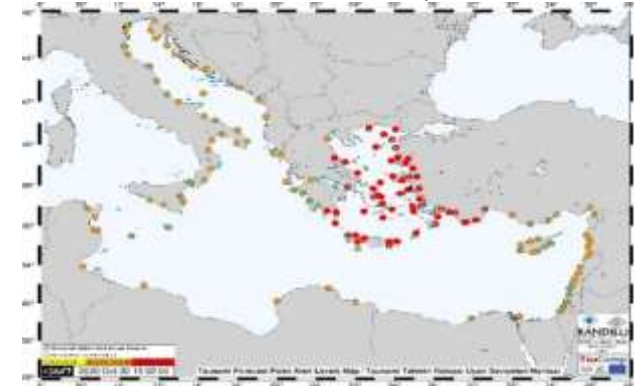
Decision matrix alert map



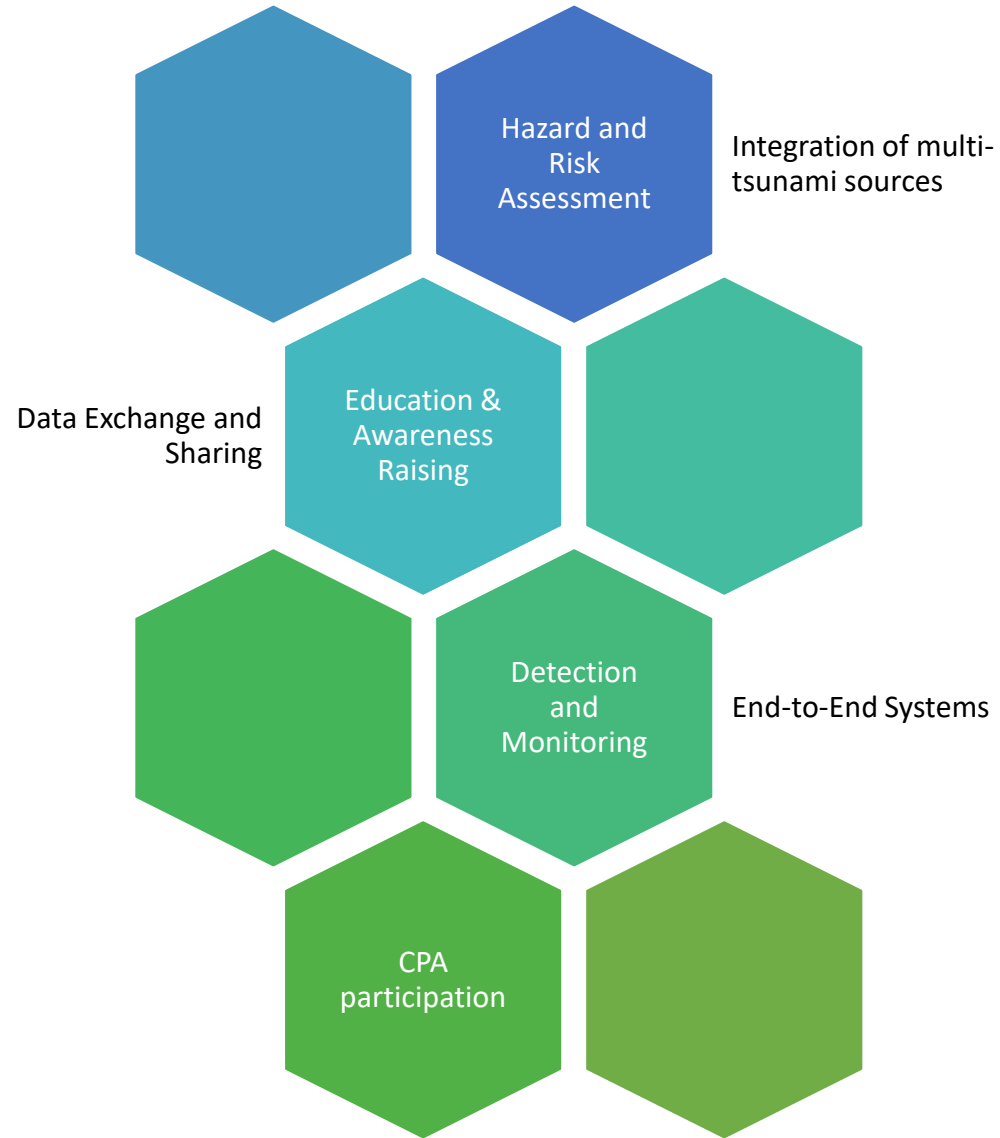
Tsunami travel time



Forecast point alert (Watch, Advisory and Information) map,

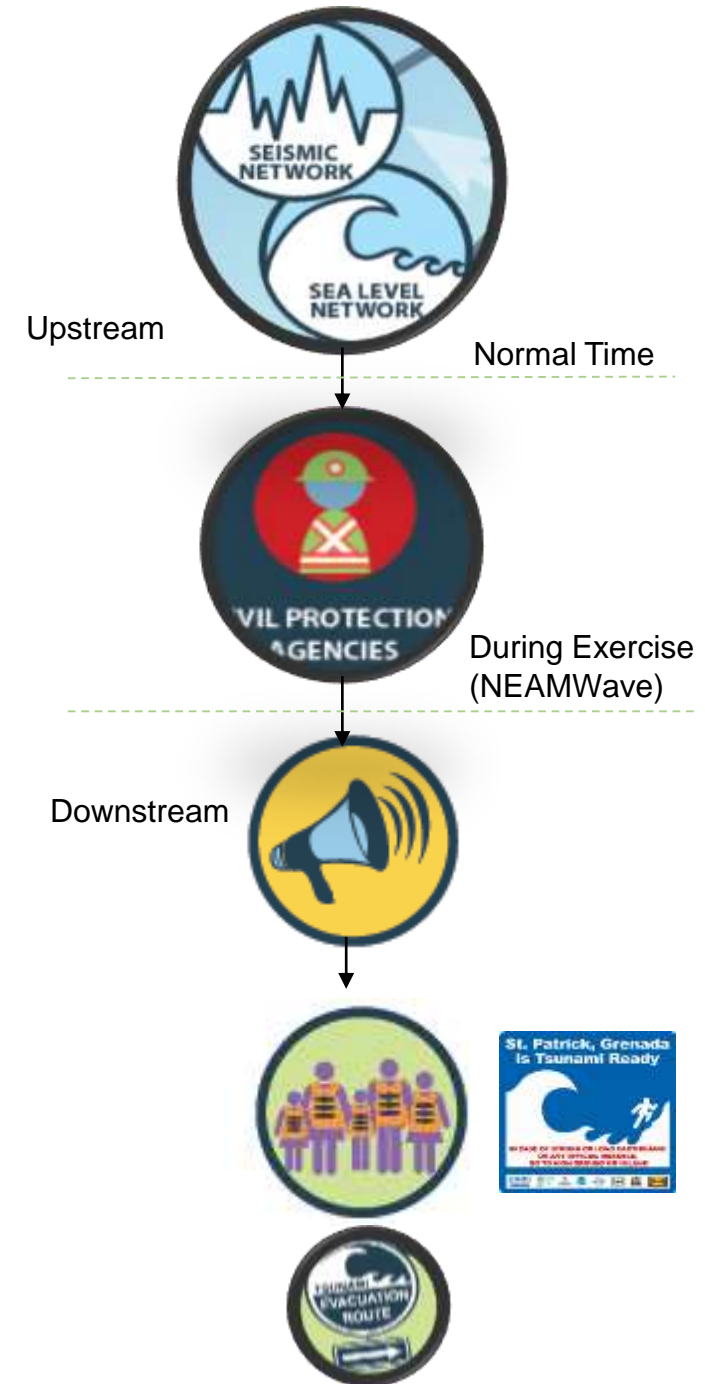


- Key Challenges



Priorities to Address

- The current system will come into question if people do not know what to do and how to respond in the event of an alert / anticipated tsunami.
- NEAMTWS is very likely to fall short in ‘taking on the ocean most dangerous wave’?



Priorities to Address (Con't)



- Pillar 3 on Education and Awareness raising, Preparedness raising
 1. Community Tsunami Ready/Preparedness
 2. WTAD and UN Ocean Decade – catalyst

➤ CPAs -partnerships, collaboration and involvement

	Category	INDICATORS	Status
1	MITIGATION 1	Designated and Mapped Hazard Zones	Yes
2	MIT 2	Public Display of Tsunami Information	Yes
3	PREPAREDNESS 1	Community-Based Tsunami Evacuation Maps	Yes
4	PRE 2	Outreach and Public Education Materials	Yes
5	PRE 3	Educational Activities Annually	Not Annually
6	PRE 4	Conduct an Annual Tsunami Community Exercise	Not Annually
7	RESPONSE 1	Address Tsunami Hazards in the Community's Emergency Operation Plan (EOP)	Yes
8	RES2	Supporting the Emergency Operations Center During a Tsunami Incident if Activated	Yes
9	RES 3	Have a Redundant and Reliable Means for a 24-hour Warning Point (And EOC If Activated) to Receive Official Tsunami Threats	Work in progress
10	RES 4	Have a Redundant and Reliable Means for 24 –Hour Warning Point and or EOC to Disseminate Official Tsunami Alerts to The Public	Work in progress



Decade of Ocean Science for Sustainable Development: Outcomes



2021 United Nations Decade
of Ocean Science
2030 for Sustainable Development

The 'ocean we want' at the end of the Decade.

1. A **clean ocean** where sources of pollution are identified, reduced or removed.
2. A **healthy and resilient ocean** where marine ecosystems are understood and managed.
3. A **productive ocean** supporting sustainable food supply and a sustainable ocean economy.
4. A **predicted ocean** where society understands and can respond to changing ocean conditions.
5. A **safe ocean** where life and livelihoods are protected from ocean-related hazards (Multi-Hazard EWS Challenge)
6. An **accessible ocean with open and equitable access to data, information, and technology and innovation.**
7. An **inspiring and engaging ocean** where society understands and values the ocean in relation to human wellbeing and sustainable development.





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