



30 IOC Assembly

24 June-4 July 2019, Paris, France

2021
2030

United Nations Decade
of Ocean Science
for Sustainable Development

ICG/NEAMTWS

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United Nations
Educational, Scientific and
Cultural Organization



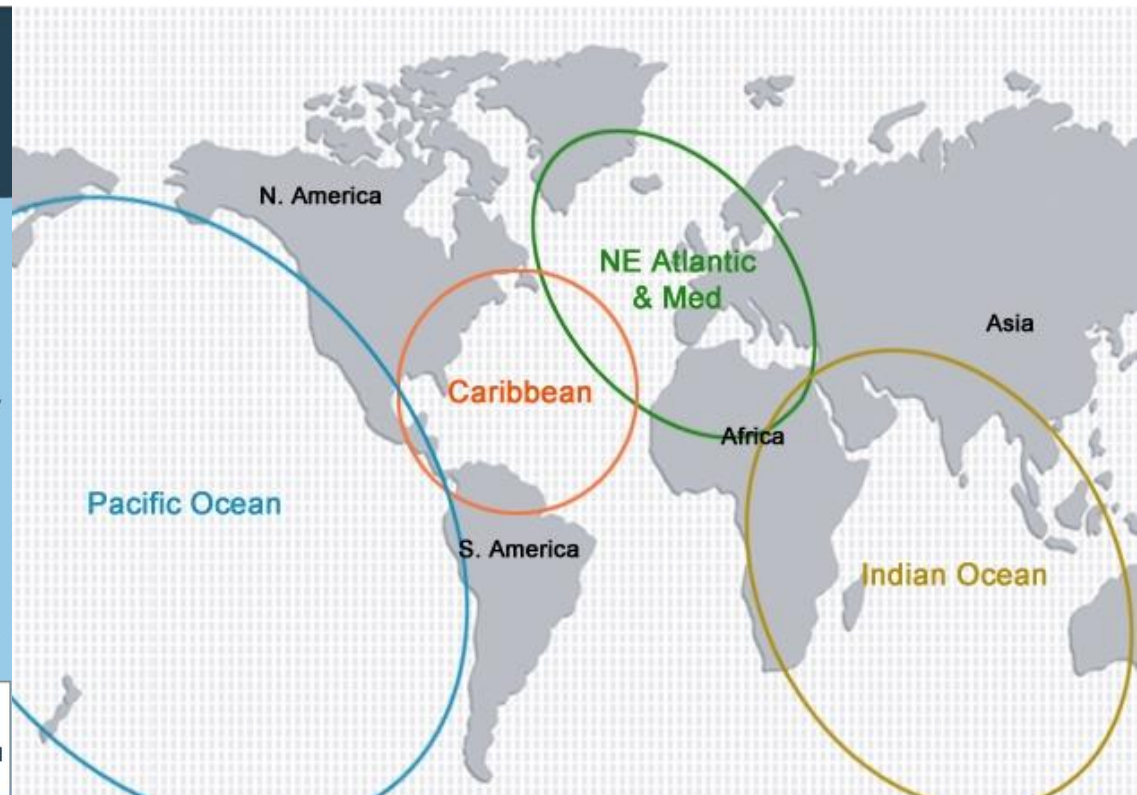
Intergovernmental
Oceanographic
Commission



**Sustainable
Development
Goals**

Tsunami Warning Systems

- Following the 26 December 2004 tsunami in the Indian Ocean, IOC started to coordinate the development of warning systems for the North East Atlantic, the Mediterranean and connected seas (ICG/NEAMTWS).
- ICG/NEAMTWS - 40 Member States



NEAMTWS

Key Achievements

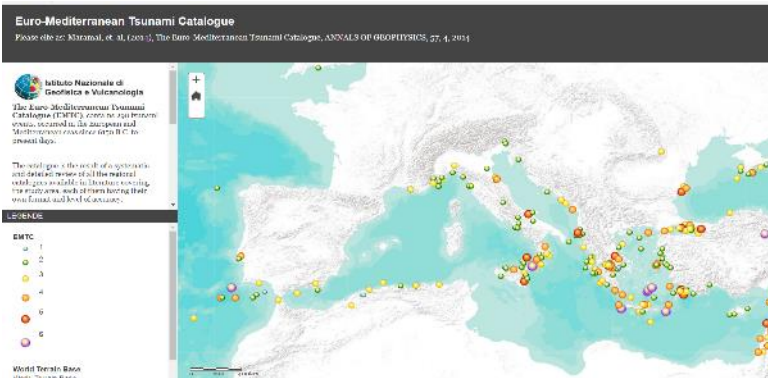
- Four accredited Tsunami Services Providers (TSPs, 2005...2016...)
- Three regional tsunami exercises (NEAMWave, 2012, 2014, 2017)
- Tsunami catalogues, Monitoring networks
- First region-wide long-term homogeneous Probabilistic Tsunami Hazard Assessment for the NEAM Region (EU Funded TsuMaps-NEAM Project)
- **Candidate TSP in Portugal (to be accredited in 2019)**

IOC-UNESCO ICG-TWS Regional Tsunami Service Providers



7 New TSPs established since 2004 IO Tsunami

Tsunami catalogue



Basin Wide Probabilistic Tsunami Hazard Assessment



Activities (2018-2019)

- ICG/NEAMTWS, 26-28 Nov, 2018, Paris, UNESCO
- Joint IOC/UNESCO-ISESCO (Islamic Educational, Scientific and Cultural Organization) Tsunami and DRR Workshops, 12-16 November 2018, Rabat, Morocco to support the further development of national tsunami early and mitigation capacities.
- ICG/NEAMTWS conducted a survey, analysis on NEAM Tsunami Information Center (NEAMTIC) focusing on needs and requirements of ICG/NEAMTWS Member States
- Prepared a NEAMTIC Strategy - revitalising the NEAM Tsunami Information Centre (NEAMTIC), which works in tandem to support NEAMTWS.



Activities (2018-2019) (Con't)

Education, Awareness and Preparedness:



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



- Increase in countries effort to raise awareness on tsunami hazards and preparedness in line with and as contributions to the World Tsunami Awareness Day, 5 November 2018.
- WTAD French Exercise in Cannes, France

Greece: School tsunami activities



Cannes, France Tsunami Exercise



Italy: Leaflets and Volunteers raising awareness on tsunami risk



Activities (2018-2019) (Con't)

Last Mile Project

Bodrum, Turkey

- JRC Last Mile Project funded by EU, DG - ECHO with the participation of NOA (Greece) and KOERI / METU (Turkey) following the Kos-Bodrum moderate tsunami in 2017
- The project will deliver new detection and monitoring system alerting panels, evacuation plans, tsunami signage and provide for a local tsunami drill in October 2019 involving the local municipality and CPAs.



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Kos Island, Greece

- Address the problem of alerting for near-shore earthquake events
- Improve the resilience of a coastal community from tsunamis



Situation: Hazard Perspective

- **Long record** of tsunami events produced by submarine or coastal earthquakes, volcanic eruptions (e.g. Santorini 1600BC-volcanic eruptions and tsunami, Stromboli, Italy, 30 December 2002-landslide induced tsunami, but on an active volcano flank).
- **Large tsunamis** (e.g Lisbon earthquake and tsunami 1755) may occur at any time.
- **Recent tsunamis** (wake-up call) in the Mediterranean region e.g. Ionian Sea (26 October 2018), Aegean Sea (21 July 2017), in Alboran Sea (25 January 2016).



Situation: Vulnerability and Risk Perspective

Low Probability of Occurrence but High Risk

TSUNAMI HAZARD, EXPOSURE THE RISK

Although the risk and impact of tsunamis are less common than in the Pacific and Indian Ocean, exposure and impacts to coastal areas is high because of:



RISING
POPULATION



PORT
INFRASTRUCTURE



COASTAL
TOURISM

THE
PROBABILITY
OF A TSUNAMI
WAVE EXCEEDING
ONE METER
IN THE MEDITERRANEAN
THE NEXT 30 YEARS IS
CLOSE TO... **100%**



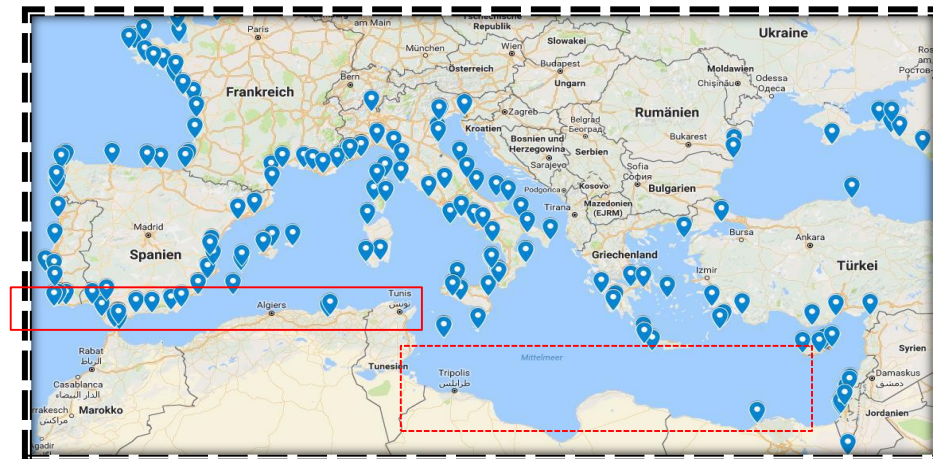
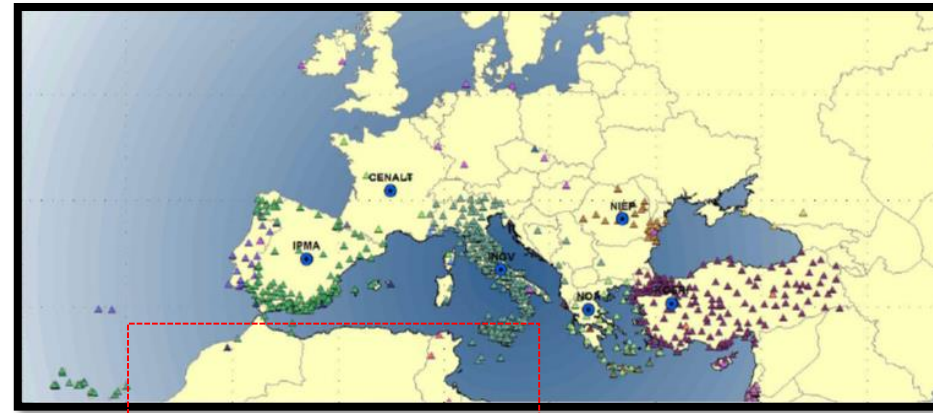
The
Mediterranean
is the **main**
tourist
destination
in the world,
with tourists
arriving from all
over the world.



Challenges and Gaps

- There continues to be gaps in the seismic and sea level network notably in North Africa.
- Some countries have difficulties sharing observations due to national policy.
- The implication is sub-optimal performance of the regional Tsunami Warning Systems.

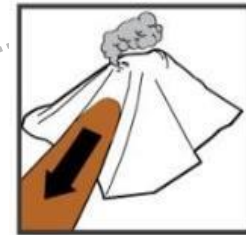
Seismic network



Sea Level network

Challenges and Gaps (Con't)

- Are Warning Systems effective in near field and for non-seismic tsunamis? (common in all ICG's)
- Lack of comprehensive national coastal tsunami hazards and risk assessments
- Lack of implementation – Last Mile/down-stream component
- Massive lack of awareness and preparedness on tsunami risk



Major Volcanic Eruptions / Land Slide Tsunamis

- **Landslide/active volcano flank-** Stromboli, Italy, 2002 (9 m)
- **Submarine land slide-** Includes the 1979 Nice, France (3 m)
- **Coastal landslide,** Corinth Gulf, Greece, 1963 (6 m)

Key Message and Priorities / Recommendations

The UN Decade of Ocean Science
for Sustainable Development
(2021-2030)



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- **Data exchange and sharing:** Further improvement in the seismic detection system, e.g. by facilitating data-sharing between Northern Africa member states and Tsunami Service Providers
- **Detection and Monitoring:** Improve offshore sea level monitoring and tsunami detection (e.g. buoys, submarine cables)
- **Mapping/Assessment:** Start mapping hazard from non-seismic sources (e.g. from submarine landslides and volcanoes; meteo-tsunamis)
- **Integration of Multi-Tsunami Source:** Multi-source Tsunami- Investigate the feasibility of integrating the TWS with some non-seismic-source components
- **Last-Mile:** Implement the NEAMTWS Last-mile (e.g education and awareness raising)
- **Preparedness/exercise:** ICG/NEAMTWS to organise and conduct the fourth tsunami exercise in 2020 (NEAMWave 20). People need to be involved in the exercise
- **Training and Capacity Building:NEAMTIC-**Provide/carry out training and Capacity Building opportunities.
 - The future of NEAMTIC is dependent on the commitment of the ICG/NEAMTWS Member States without which NEAMTIC will not be able to develop and evolve into a Center that provides training and capacity building services as in other ICGs.



END



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