

ICG/CARIBE-EWS-XVIII



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Gérard Métayer
ICG/CARIBE-EWS Chair
June 26, 2025

33rd IOC Assembly

ICG/CARIBE-EWS-XVIII meeting



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Online, 5-7 and 9 May, 2025

59 virtual participants

19/48 MS and Territories

21 Observers with Argentina and
Uruguay as new

Anniversary event and next session

Curaçao, April 20-24, 2026

Officers elected in 2025



Gérard Métayer, Haiti
Chair re-elected



Marie-Noelle Raveau,
France, Martinique
Vicechair re-elected



Regina Browne, USVI
Vicechair re-elected



Silvia Chacon Barrantes,
Costa Rica
Vicechair elected

Reports and Recommendations

- Reports from UN and Non UN Organizations, Status of other ICGs
- Reports from Ocean Decade Tsunami Program, Tsunami Ready Recognition Program
- Reports from Technical Secretariat, CTIC, ITIC-CAR, PTWC, CATAC
- Reports from some Member States and Territories
[British Virgin Islands](#), [Colombia](#), [Costa Rica](#), [Cuba](#), [France](#), [Guatemala](#), [Mexico](#), [USA](#).
- Reports from Caribe Wave exercise, Policy matters, Program and budget.
- Recommendations to IOC on Governance, Working Groups & Task Teams, CTIC, CATAC

Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS) ORGANISATIONAL STRUCTURE 2025 - 2026

Chair: Mr. [Gerard Metayer](#) (Haiti)

Vice-Chairs: Ms. [Silvia Chacon Barrantes](#) (Costa Rica), Ms. [Marie-Noëlle Raveau](#) (France/Martinique), Ms. [Regina Browne](#) (USA/Virgin Islands)
Caribbean Tsunami Information Center (CTIC): Ms. [Alison Brome](#) (Barbados)

Technical Secretary: Mr. [Öcal Necmioğlu](#) (Türkiye)

Working Group 1: Risk Knowledge

Chair:
Mr. [Frederic Dondin](#) (FR)

Vice-Chair:
TBD

Working Group 2: Tsunami Detection, Analysis and Forecasting

Chair:
Ms. [Elizabeth Vanacore](#) (USA/PR)

Vice Chairs for Subgroups:

*Tsunami Source Identification and
Characterization*
Mr. [Wilfried Strauch](#) (NI)

Tsunami Detection
Ms. [Gloria Romero](#) (VE)

Tsunami Forecasting:
Mr. [Chris Moore](#) (USA)

Working Group 3: Tsunami Warning Dissemination and Communication

Chair:
Ms. [Christa von Hillebrandt-Andrade](#)
(USA/PR)

Vice-Chair:
Mr. [Trevor Queeley](#) (UK/AI)

Working Group 4: Preparedness and Response Capabilities

Chair:
Mr. [Jacob Ngumbah](#) (KN)

Vice Chairs for Subgroups:

Preparedness and Response capabilities:
Ms. [Kawana Jones](#) (GD)

Mitigation:
Ms. [Lidia Torres Bernhard](#) (HN)

Task Team on CARIBE WAVE

Chair:
Ms. [Gisela Baez Sanchez](#) (USA/PR)

Vice Chair:
Mr. [Antonio Aguilar](#) (VE)

Task Team on Tsunami Ready

Chair:
Mr. [Matthieu Péroche](#) (FR)

Vice Chair:
Mr. [Fabio Rivera-Cerdas](#) (CR)

XXth Anniversaries of ICG/CARIBE-EWS

The ICG/CARIBE-EWS

- **participated** at the 2nd Global Tsunami Symposium in November 2024 to commemorate the two decades of the 2004 Indian Ocean Tsunami in Banda Aceh, Indonesia
- **noted** that 2025 is the 20th anniversary of the establishment of the ICG/CARIBE-EWS, 2026 will be the 20th anniversary of the first ICG/CARIBE-EWS and 2027 will be the 20th Session of the ICG/CARIBE-EWS
- **further noted** that these anniversaries had already been noted as an important opportunity for raising awareness, ensuring tsunami resilience in the Caribbean and its Adjacent regions. A Tsunami Ready Summit will be organized in Panama during 2026 for these circumstances.
- CARIBE-EWS Steering Committee will organize events and other actions and activities associated with the occasion of the 20th anniversaries of the ICG/CARIBE-EWS

Recommendations to TSP Operations Document

The ICG/CARIBE-EWS

- **Noting** that there are some items of the CARIBE EWS Tsunami Service Provider (TSP) that are not included or are inconsistent with the Global Service Definition Document (GSDD)
- **Further noting** the duplications between the TOWS GSDD and the CARIBE EWS Technical, Logistical and Administrative Requirements of a Regional TSP for CARIBE-EWS, and the importance of developing performance indicators also for communication and dissemination of TSP products,
- **Recommends** the ICG/CARIBE-EWS Steering Group to prepare by 30 September 2025 a CARIBE EWS supplement to the GSDD, and share with CATAC and PTWC,
- **Additionally recommends** the ICG/CARIBE-EWS Steering Group to define the reporting mechanism for its TSPs, including performance KPIs that include communication and dissemination and inform PTWC and CATAC by 30 September 2025
- **Further recommends** that both the GSDD and the CARIBE EWS supplement guide the operations of the CARIBE EWS TSPs.

Central America Tsunami Advisory Center (CATAC)



The ICG/CARIBE-EWS

- **Appreciated greatly** the report and technical and administrative advances performed by CATAC during the intersessional period and its continuous efforts
- **Noted** the challenges of CATAC during the February 8, 2025 Western Caribbean M7.6 event
- **Recommends** that CATAC continues full functionality in an interim manner to be able to support the National Tsunami Warning Centers (NTWCs), Tsunami Warning Focal Points and Emergency Management Authorities in Central America
- **Recommended** the Steering Committee to work with CATAC and Member States towards the consideration of CATAC as a TSP at its XIX session in 2026, with the aim of consideration of CATAC as a TSP in its XIX Session in 2026 to enable the IOC Executive Council to consider the final admission of CATAC as TSP in June 2026.

Specialized TSP Bulletins for maritime community

The ICG/CARIBE-EWS

- **noted** that the TOWS-WG-XVIII recommended that the full operational implementation of TSP bulletins for the maritime communities by at least one TSP in each ICG takes place in 2025
- **approved** the PTWC implementation of maritime products for WWNWS NAVAREA IV and V Coordinators
- **requested** PTWC to create an annex to the User's Guide with a description of the Maritime Products
- **recommended** PTWC to coordinate a start date for the implementation of the Maritime Products with the NAVAREAs by the end of 2025 and also test in CARIBE WAVE 26
- **requested** the Secretariat to inform the concerned NAVAREA IV and V Coordinators accordingly.

Caribbean Tsunami Information Center (CTIC)



The ICG/CARIBE-EWS

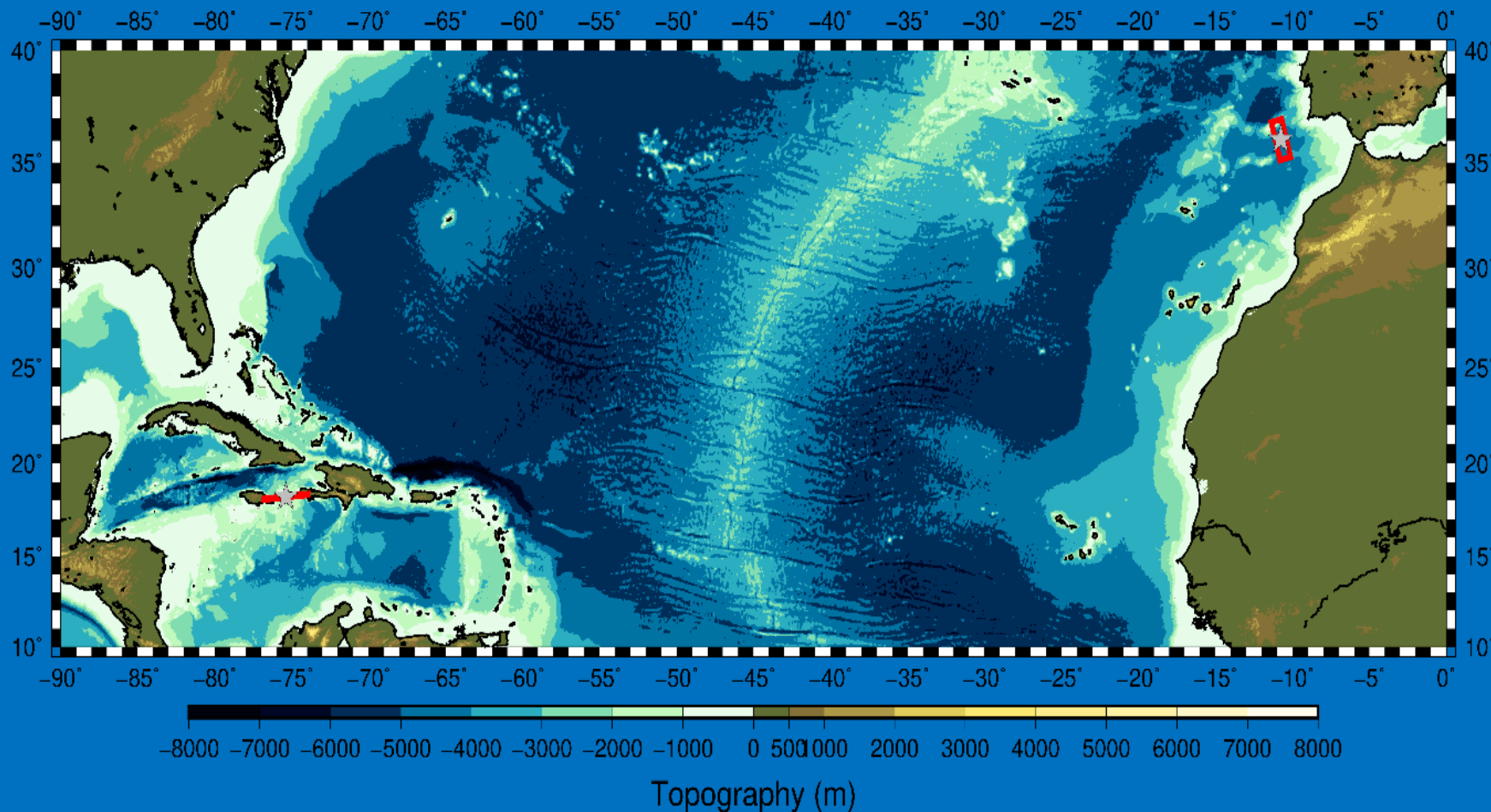
- **Appreciates** the continued support of ITIC and its Caribbean Office as requested by CTIC
- **Notes** the renewal and signature of the memorandum of understanding between the Government of Barbados and UNESCO-IOC regarding CTIC on 29 May 2024 and its strengthening by the extension of the duration from 3 to 5 years
- **Recommends** convening a dedicated session of the CARIBE-EWS Steering Committee to strategically review the CTIC Governance structure in identifying and supporting the implementation of resource mobilization, staff, partnerships, and other frameworks to enhance the ownership and sustainability of the CTIC,
- **Recommends** that CTIC continues to work with the IOC Secretariat, CARIBE-EWS Member States and partners to develop a strategic plan to guide the resource mobilization and staffing efforts of the

Regional tsunami exercise: CARIBE WAVE 25

2 scenarios

- Jamaica Scenario
- Portugal Scenario

500,000+ people
registered



CARIBE WAVE 26

- March 19, 2026, 15:00 UTC
- 2 possible scenarios
- Cayman Island EQ and Tsunami
- Kick 'em Jenny Volcano

CARIBE WAVE 27

- 2 Possible Scenarios
- Southern Caribbean EQ
- Distant Tsunami



Tsunami Ready Member States, Territories and Communities in the Caribbean, Central America, Mexico and Adjacent Regions



GLOBAL OVERVIEW OF UNESCO-IOC TSUNAMI READY RECOGNIZED COMMUNITIES

	PL	EOI	OG	TR	RV	RD	RIP	RN	RDE	TOTAL # OF COMMUNITIES CERTIFIED	IN # MEMBER STATES	OF WHICH # ARE SIDS
CARIBE-EWS	2	2	0	0	8	2	3	0	10	23	14	10
IOTWMS	2	0	0	0	48	0	0	0	0	48	2	0
NEAMTWS	0	2	10	0	6	0	0	0	0	6	6	0
PTWS	4	2	2	0	12	3	1	0	7	23	8	5
TOTAL	8	6	12	0	74	5	4	0	17	100	30	15
LEGEND	PL	TR planned		TR	Initial TR recognition		RIP	TR renewal in progress		2025 APRIL		
	EOI	Expression of Interest		RV	TR recognition valid (incl. RN)		RN	TR renewal completed				
	OG	Initial TR process ongoing		RD	TR renewal due		RDE	TR renewal delayed				

23 UNESCO/IOC Tsunami Ready
Communities/Countries/Territories

3 Renewal

49 US TsunamiReady communities in Puerto Rico and
USVI

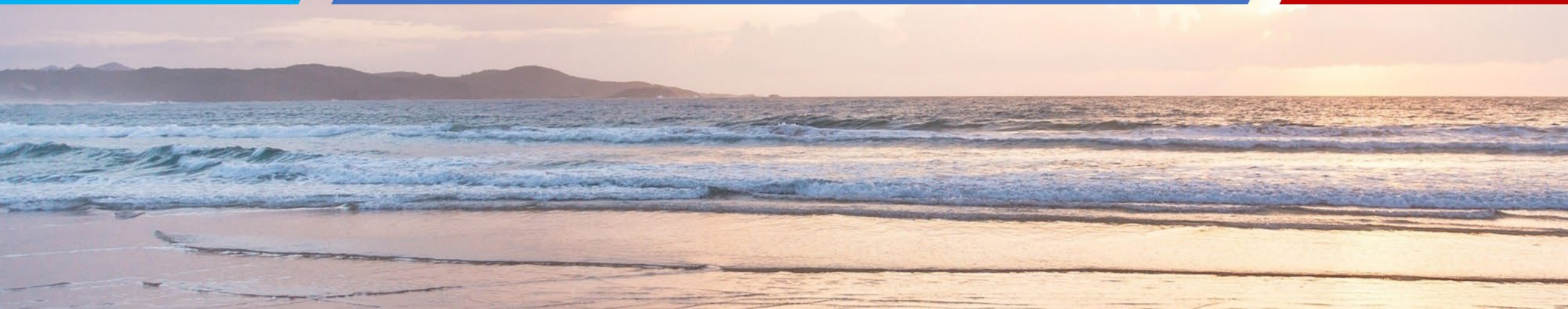
OCEAN DECADE TSUNAMI PROGRAMME:

THE MAIN SOCIAL OUTCOME

TO MAKE
100%

OF COMMUNITIES AT RISK OF TSUNAMI
PREPARED FOR AND RESILIENT TO TSUNAMIS

BY
2030





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THANK YOU 

33rd Assembly

25 June-3 July 2025

Item: 3.4.1.1



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Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS)

Eluri Pattabhi Rama Rao
Chair, ICG/IOTWMS

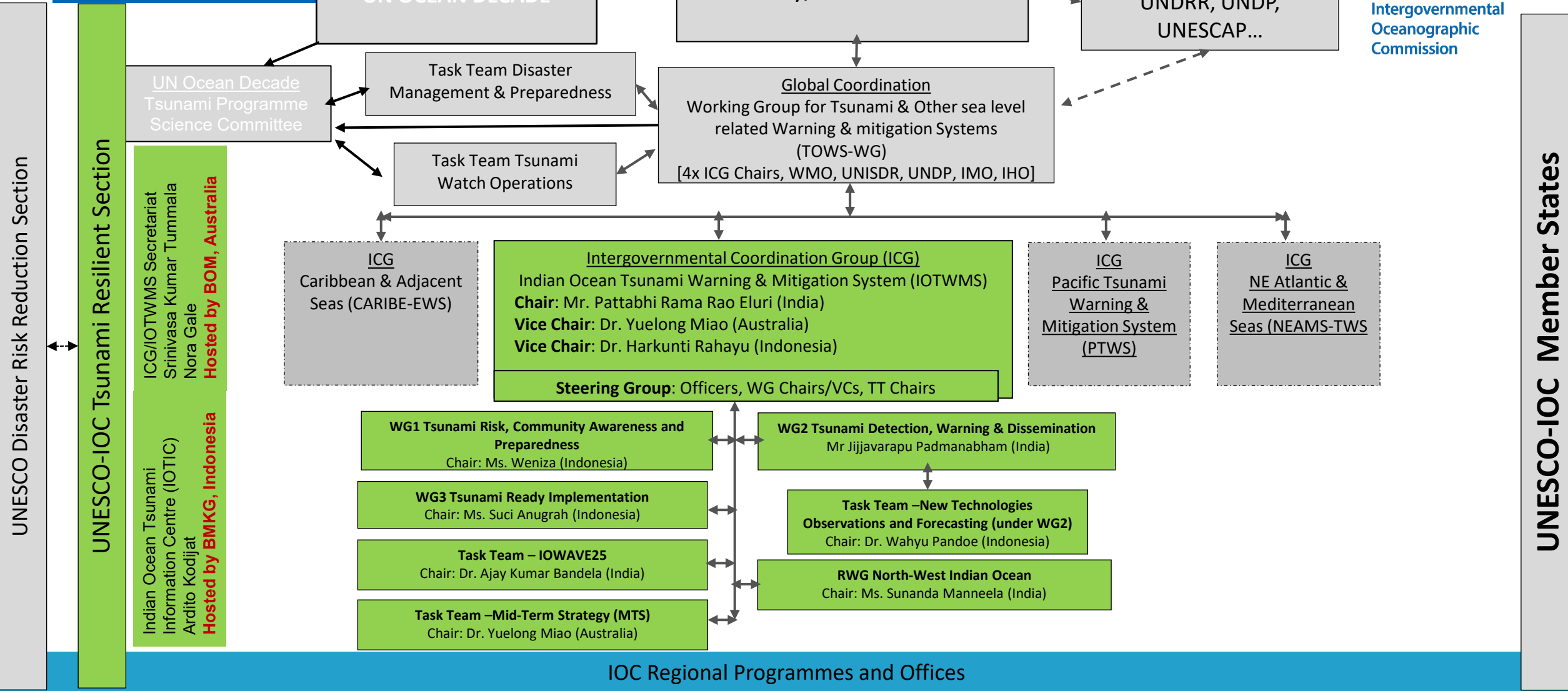
Acknowledgements:

*Yuelong Miao, Harkunti Rahayu
Srinivasa Kumar, Ardito Kodijat, Nora Gale*

IOTWMS Governance












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2023-2025 Key Activities: Snapshot of Member State Engagement

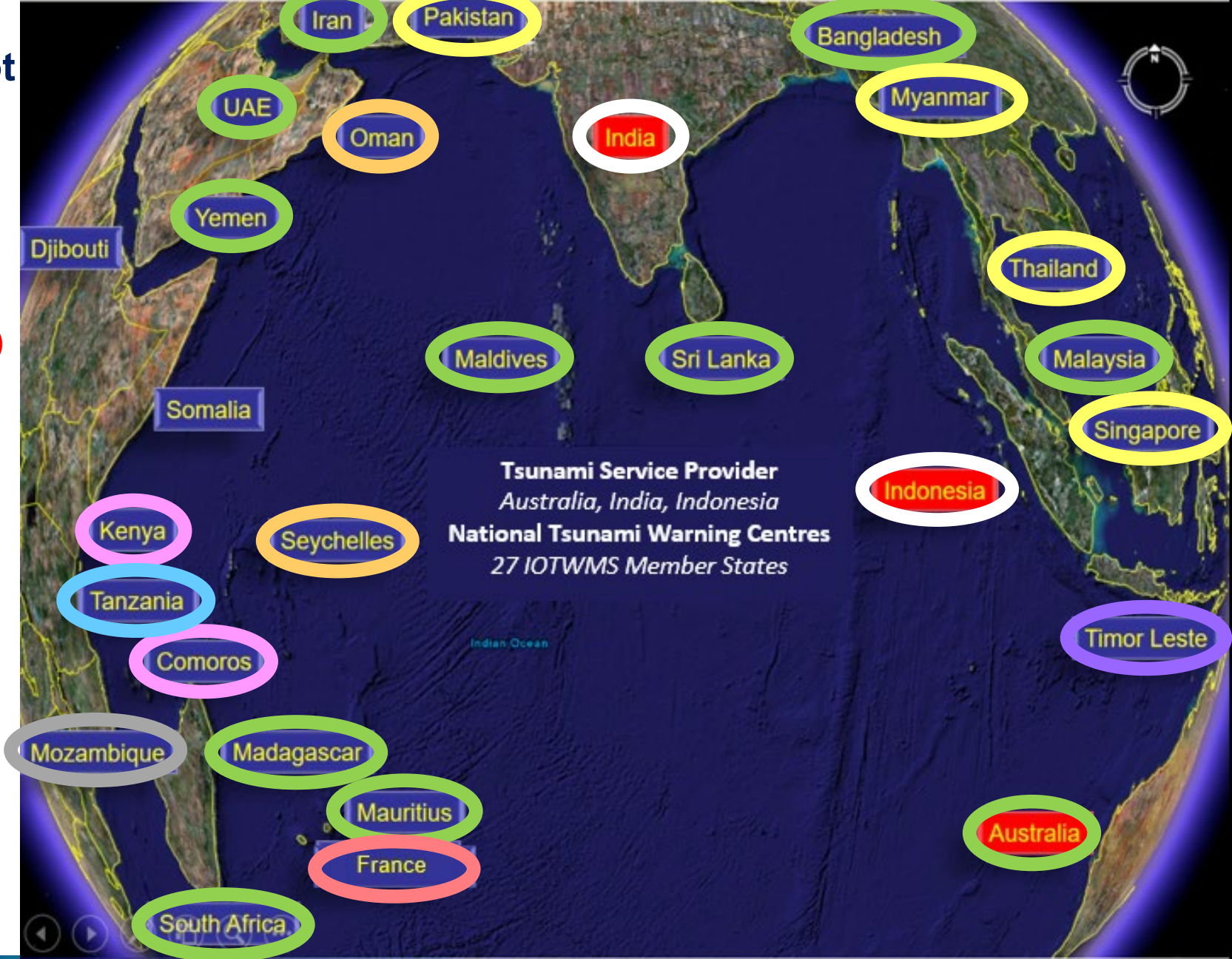
IOTWMS Member States

- Exercise IOWave23 (20)
- Standard Operating Procedure Training (17)
- TEMPP Training (17)
- Capacity Assessment of Tsunami Preparedness (22)
- TRRP Implementation (2)

LEGEND	
	All above activities
	IOWave, SOPs, TEMPP, CATP
	IOWave, TEMPP, CATP
	IOWave, SOPs, CATP
	IOWave, CATP
	TEMPP, SOPs
	TEMPP, CATP
	IOWave
	CATP

Regional Collaborations

- IOCAFRICA (10)
- SIDS (6)
- Other ICGs (3)
- IOGOOS (14)
- IOCINDIO (9)
- WMO PTC (11)

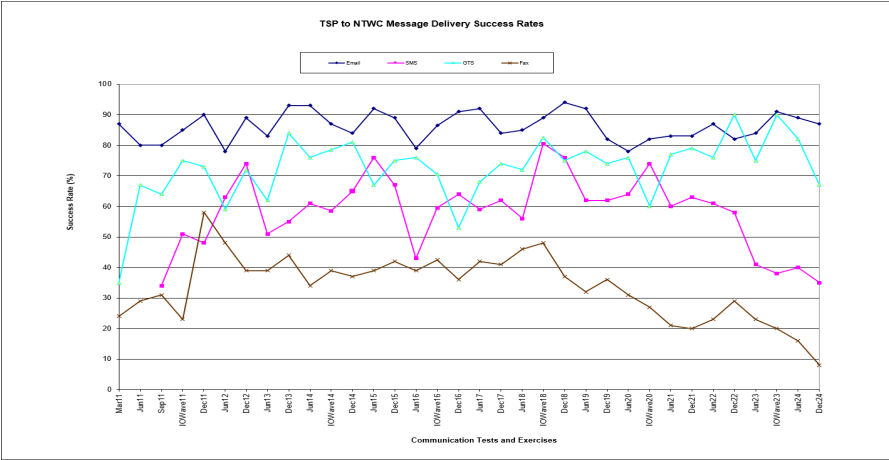


Indian Ocean Wave Exercises



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Scenario	1. Andaman Trench	2. Makran Trench	3. Heard Island Volcano	4. Java Trench
Date	4 October 2023 (Wednesday)	11 October 2023 (Wednesday)	18 October 2023 (Wednesday)	25 October 2023 (Wednesday)
Time	04:00 UTC	06:00 UTC	06:00 UTC	02:00 UTC
Magnitude	~M9	~M9	n/a	~M9
Depth	10 km	10 km	n/a	10 km
Latitude	7.20N	24.80N	53.10S	10.40S
Longitude	92.90E	58.20E	73.52E	112.80E
Location	Off west coast of Nicobar Islands, India	North-West Indian Ocean	Kerguelen Islands Region, Southern Ocean	South of Java, Indonesia



IOWave 23

- 4 Scenarios including 1 Non Seismic
- 20 countries
- Community evacuations in 8 Member States (~45,000 people)
- Tsunami Ready indicators tested in 7 Member States
- New non-seismic products produced by TSP Australia
- IOWave 23 Lessons Learnt Webinar, 12-13 Dec 2023

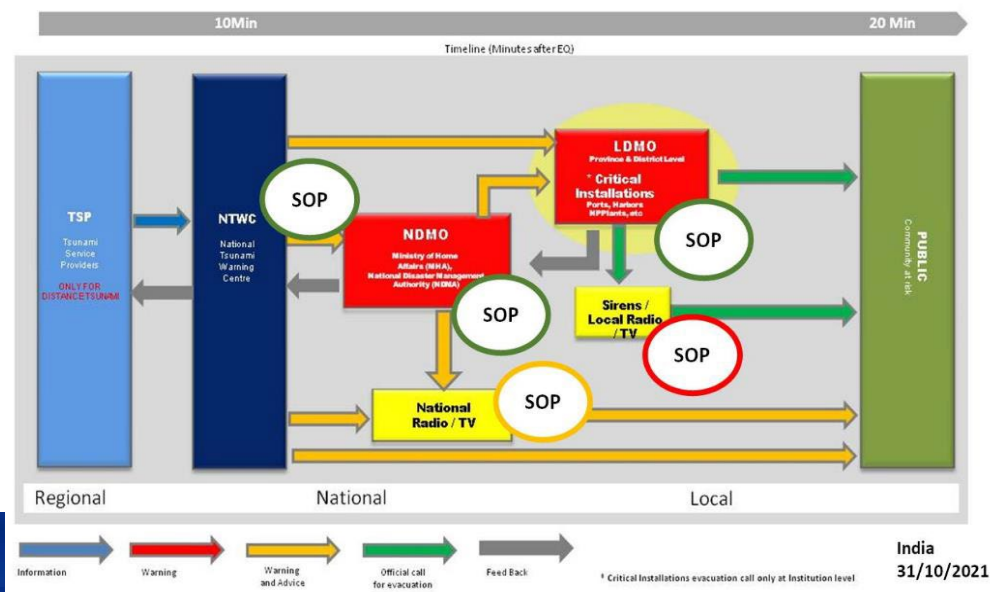
IOWave25

- September 25 to November 05 2025; 4 Scenarios
- 1 Non-seismic event and outside of working hours
- Non-seismic and NAVAREA products
- Encourage the Member States to ensure the participation of TR recognised communities
- Pre-IOWave SOP & Post-IOWave25 Lessons Learnt Workshops



Early Warning Chains and SOPs

- Three training workshops in the western, eastern, and north-west Indian Ocean regions for the NTWCs and DMOs:
 - Western Indian Ocean Member States, 3-6 July 2023
 - Eastern Indian Ocean Member States, 10-13 July 2023
 - North-West Indian Ocean Member States, 7-8 August 2023
- Online regional workshops and in-person national workshops.
- Member States refine their tsunami SOPs and Early Warning Chains in the lead-up to Exercise IOWave23.
- Sensitized to the new TSP Australia products for non-seismic tsunami sources.



Tsunami Evacuation Maps, Plans and Procedures

- Several TEMPP Trainings organised focusing on a) Tsunami Inundation Modelling, b) Tsunami Evacuation Maps, Plans and Procedures & c) the UNESCO-IOC Tsunami Ready Recognition Programme
 - 4 Regional trainings in India and Indonesia since 2017. Latest held at INCOIS, Hyderabad during 15 – 23 April 2025 with 35 Participants from 17 countries and 14 trainers from UNESCO-IOC, India, and Indonesia.
 - 1 Sub-regional training in Oman
 - 3 National trainings held in Maldives, Seychelles & Timor Leste



Timor Leste,
July 2023

Oman,
April 2024

Seychelles,
November 2023

Maldives,
August 2024

IOTWMS Capacity Assessment of Tsunami Preparedness

Global Tsunami Symposium

IOTWMS Capacity Assessment 2024: Significant progress since 2004. In the last 5 years there has been considerable progress in downstream community awareness and preparedness initiatives while the upstream warning and detection system has plateaued

Banda Aceh Statement: Global Tsunami Warning and Mitigation: Building Sustainability for The next decade through Transformation and Innovation. UNESCO and its partners call on States and civil society to drastically step up their investments and efforts to achieve 100% of Tsunami Ready Communities across the world by 2030.

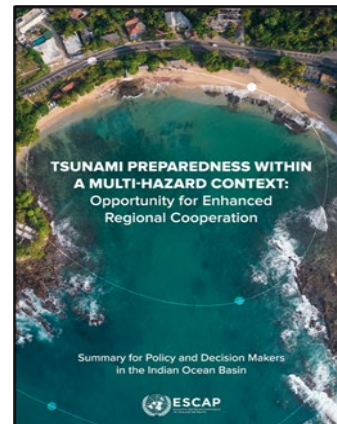
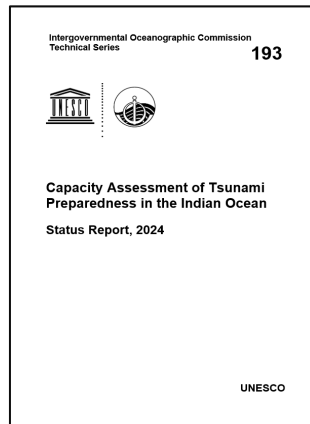
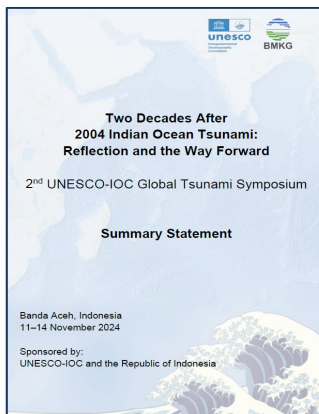
GTS Banda Aceh

32 Countries
682 in-person
170 online
1200 YouTube

IOTWMS CATP

22 Countries

UNESCAP Summary for Policy Makers



Governance, Policies, Plans & Guidelines

- Globally, 4 IOC coordinated ICGs established. Strong collaboration with global and regional partners
- 91% of reporting IO countries have national tsunami policies, but only 50 % have community-level tsunami plans
- Secure sustainable funding; Strengthen regional and subnational partnerships; Integration of tsunami policies and plans into multi-hazard DRR frameworks

Tsunami Risk Assessment & Reduction

- Major advances in seismic modeling, probabilistic assessments, and risk mapping.
- 96% of reporting IO countries conducted hazard assessments but at varying spatial scales.
- Build capacity for PTHA, local level risk mapping & improve data availability (historical events, bathymetry)

Tsunami Detection, Warning & Dissemination

- Seismic and sea-level monitoring and modeling improved,
- All IO countries can assess tsunami threats. 91% operate 24/7 NTWCs with SOPs and less than 50% have robust dissemination systems
- Build capabilities for non-seismic tsunamis; implement GNSS and SMART cables; real-time data sharing, last-mile communication, NTWC training

Tsunami Awareness, Preparedness & Response

- Awareness improved through WTAD, 96% of reporting IO countries participated in IOWave, SOP & TEMPP Trainings
- Only 2 IO Countries implemented TRRP, many communities lack local SOPs and signages
- Expand training on evacuation planning, TRRP implementation, Drills and community-based risk education.

Tsunami Ready Recognition Programme (TRRP)



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- National Tsunami Ready Focal Point have been established for 19 Indian Ocean Member States
- 48 Indian Ocean communities have received the UNESCO-IOC Tsunami Ready Recognition (26 in India and 22 in Indonesia)



I ASSESSMENT (ASSESS)

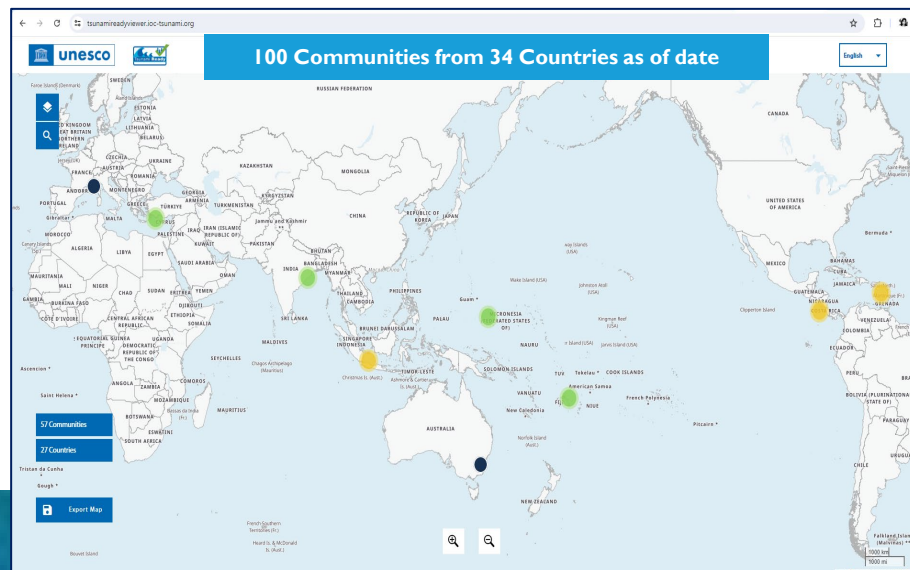
- 1 ASSESS-1. Tsunami hazard zones are mapped and designated
- 2 ASSESS-2. The number of people at risk in the tsunami hazard zone is estimated
- 3 ASSESS-3. Economic, infrastructural, political, and social resources are identified

II PREPAREDNESS (PREP)

- 4 PREP-1. Easily understood tsunami evacuation maps are approved.
- 5 PREP-2. Tsunami information including signage is publicly displayed.
- 6 PREP-3. Outreach and public awareness and education resources are available and distributed.
- 7 PREP-4. Outreach or educational activities are held at least 3 times a year.
- 8 PREP-5: A community tsunami exercise is conducted at least every two years

III RESPONSE (RESP)

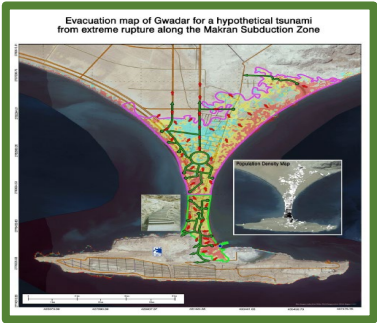
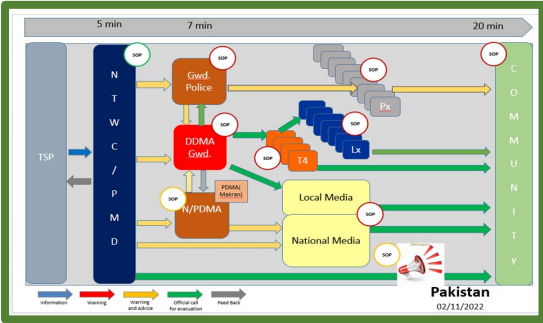
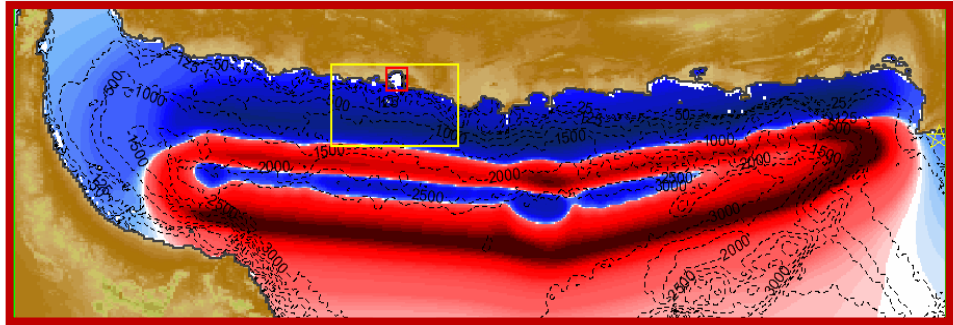
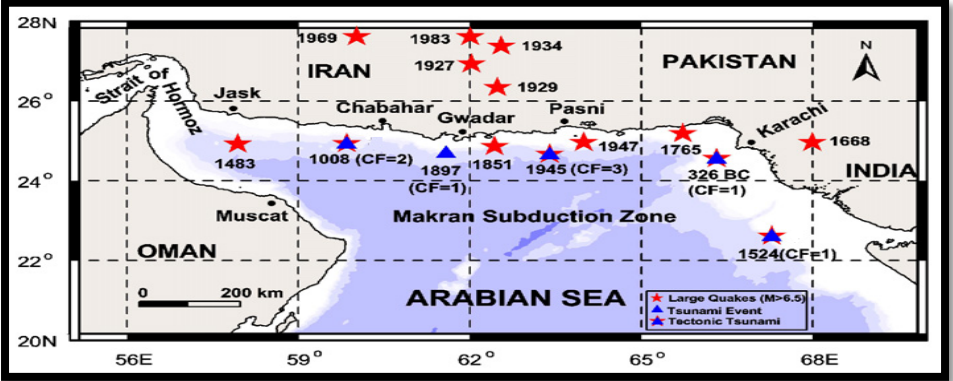
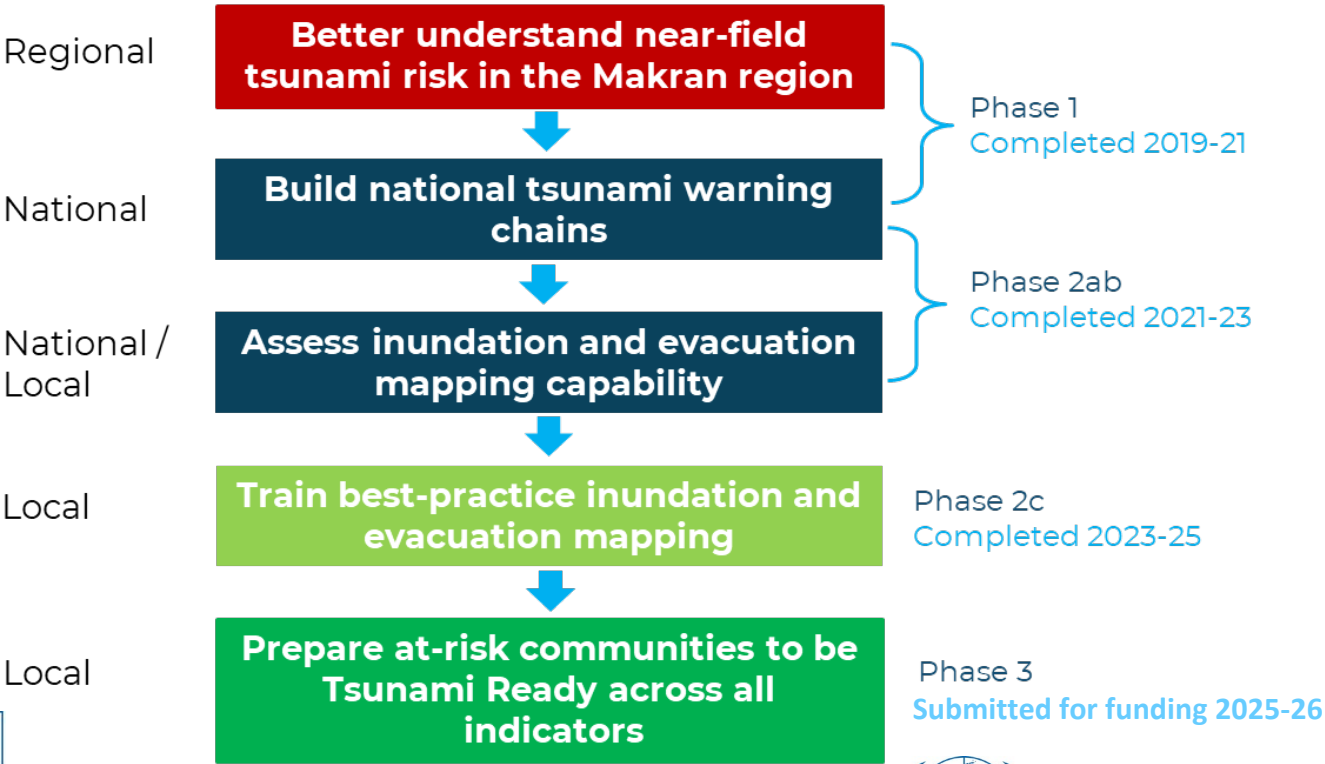
- 9 RESP-1. A community tsunami emergency response plan is approved.
- 10 RESP-2. The capacity to manage emergency response operations during a tsunami is in place.
- 11 RESP-3. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place.
- 12 RESP-4. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place.



Strengthening tsunami warning in the North-West Indian Ocean through regional cooperation

Funded by the UNESCAP Multi-Donor Trust Fund, the project resulted in a unified Makran assessment, updated national tsunami warning chains, translated guidelines, and development of inundation & evacuation maps in North-West Indian Ocean Countries (India, Iran, Pakistan, Oman, UAE)

Taking a Programmatic Approach



ICG Key Decisions & Projects



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14th Session of ICG/IOTWMS

Banten, Indonesia (17-19 Nov 2024)

- Appreciated the contributions of stakeholders
- Continued existing Working Groups and established new Task Teams on IOWave25, New/Emerging Technologies and MTS
- Approved IOWave23 and 2024 Capacity Assessment reports
- Continue Capacity Development related to SOPs, TEMPP, TRRP and on-the-job training
- Conduct IOWave25
- Design optimal sea level and seismic networks
- Extend the TSP services to tsunamis generated by non-seismic and complex sources
- Continue expansion of TRRP
- Prioritise the needs of SIDS, LDCs, Africa and recommendations of governing bodies and capacity assessment results in workplans.

19th Meeting of the Steering Group

Jakarta, Indonesia (17-19 Jun 2025)

- Approved the 2025-26 WG/TT work plans and activities.
- Progressed work on the medium-term strategy.
- Define methodology for optimal monitoring networks.
- Organise regional webinars on TGV and NAVAREA.
- Conduct Exercise IOWave25 and pre/post-exercise workshops
- Implement TSP Bulletins for NAVAREAS
- Finalise TSP SOPs for non-seismic tsunamis and update the SDD and NTWC User Guide
- Progress TRRP equivalency, assessment tool for downstream warning, and tsunami early warning chain work process.
- Explore new technologies for tsunami detection
- Appreciated the contributions of Ardito M Kodijat and requests UNESCO and IOC to prioritise recruitment

ODTP Endorsed Initiatives

- Tsunami Ready Odisha
- People Centered Tsunami Early Warning for India (PCTWIN)
- Tsunami Potential Coastal Area of Indonesia Mountain Anak Krakata, Banten, Sunda Strait
- INCOIS Submarine Cable Multi-Parameter Observatory

New Project Proposals

- Flanders UNESCO Science Trust Fund project on Strengthening Community Resilience to ocean hazards through implementation of TRRP in SIDS and Africa (Madagascar & Seychelles)
- Phase 3 UNESCAP Trust Fund Project on Strengthening Tsunami Warning in the North-West Indian Ocean through Regional Cooperation (India, Iran, Maldives, Pakistan, Sri Lanka + Oman, UAE)



Roadmap 2025-2026



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THANK YOU 

**Thirty-third Session of the IOC Assembly
UNESCO, Paris, 25 June–3 July 2025c**



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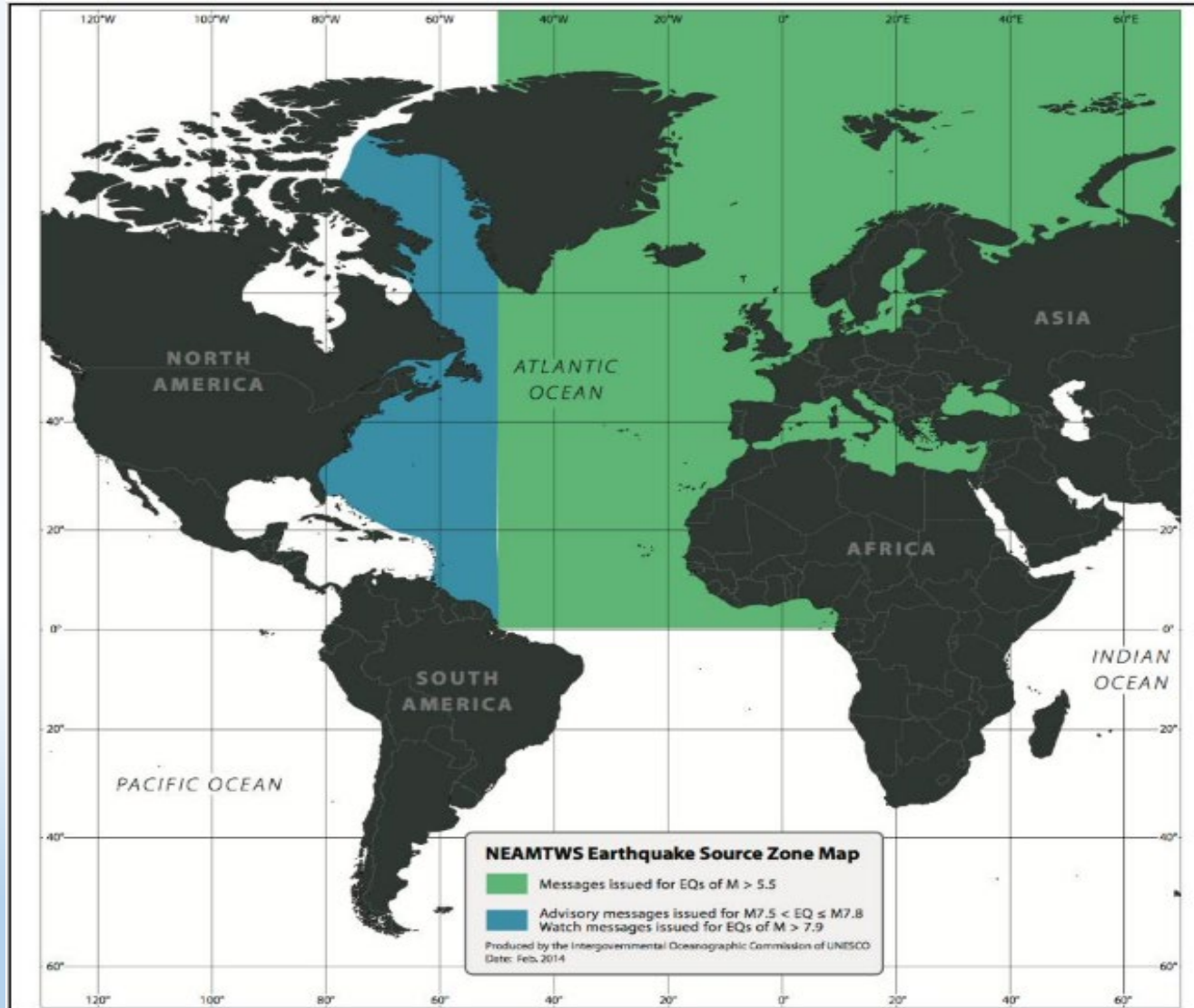
Report of the ICG/NEAMTWS (2024-2025)

**Alessandro Amato
Chair
ICG/NEAMTWS**

**Amr Hamouda and Ignacio Aguirre Ayerbe
(vice Chair)**

**Denis Chang Seng
Technical Secretary**

NEAMTWS



✓ 5 accredited TSPs



NEAMTWS

Chair and Vice Chairs
A. Amato, I. Aguirre Ayerbe, Amr Hamouda

Technical Secretary
D. Chang Seng

WG1 - Hazard assessment and modelling

(J. Macias / A. Gailler)

WG2-3 - Seismic, Geophysical and Sea Level Measurements

(A. von Gyldenfeldt / D. Cambaz)

WG4 - 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

Intergovernmental Oceanographic Commission
Technical Series



XX

STRATEGY 2021-2030
The North-eastern Atlantic,
the Mediterranean and connected seas
Tsunami Early Warning and Mitigation
System (ICG/NEAMTWS)



UNESCO

The ICG/NEAMTWS activities/advancements 2024-2025

Several relevant activities and advancements in 2024-2025, including:

- Continued operations (monitoring, warning, meetings, etc.)
- New engaged **Tsunami Ready** communities (6 recognized in 2024)
- Preparation for the **NEAMWave26** exercise
- New projects started and several ongoing (Hazard, TRRP, HPC etc.)
- Focus on **non-seismic tsunami sources (Task Team: Stromboli volcano, Norway landslides, meteotsunamis)**
- New developments and technologies:
 - New tide gauges
 - First cabled **deep-ocean sensors** connected to TSP
 - Relevant **SMART cable** projects in NEAtlantic and Mediterranean
 - Two **Tsunami buoys ready to be installed** in the Ionian sea (Sep 2025)
 - Probabilistic Tsunami Forecasting - **PTF starting to be operational**

Ocean Decade endorsed Projects / events from NEAMTWS

- EPOS Thematic Core Services Tsunami (2024-2030) (Germany)
- Sustaining AGITHAR Towards a Global Tsunami Model (2023-2024) (Germany)
- COASTWave2.0 (2024-2026) (IOC)
- Global Tsunami Model Association (2025-2033) (Germany), approval pending
- NEAM-COMMITMENT (2025-2027) (Greece)
- Stromboli volcano Workshop on volcanic tsunamis (Oct. 2024) (Italy)

Thirty-third Session of the IOC Assembly
UNESCO, Paris, 25 June–3 July 2025



MEETINGS

Report of the ICG/NEAMTWS
(2024-2025)

NEAMTWS MEETINGS July 2024 – June 2025

- **Oct. 2024: Stromboli WS on volcanic tsunamis (Italy)**
- **Oct. 2024: 3° World Conference Meteotsunamis (Türkyie)**
- **Nov. 2024: Global Symposium, Banda Aceh, Indonesia**
- **Nov. 2024: ICG/NEAMTWS XIX Session + Steering Comm.**
- **2025: Santorini situation meetings (February, online)**
- **2025: TSP meeting on PTF application (March, IPMA Lisbon)**
- **2025: Tsunami Source meeting (CW2, March, UNESCO)**
- **2025: NEAM Steering Committee (May, KOERI Istanbul, Türkiye)**
- **2024-2025: Several TSP and projects meetings**



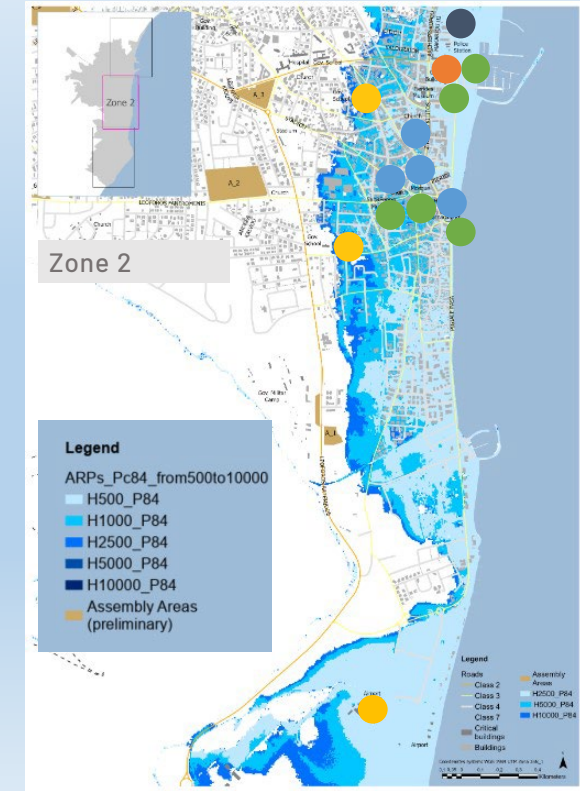
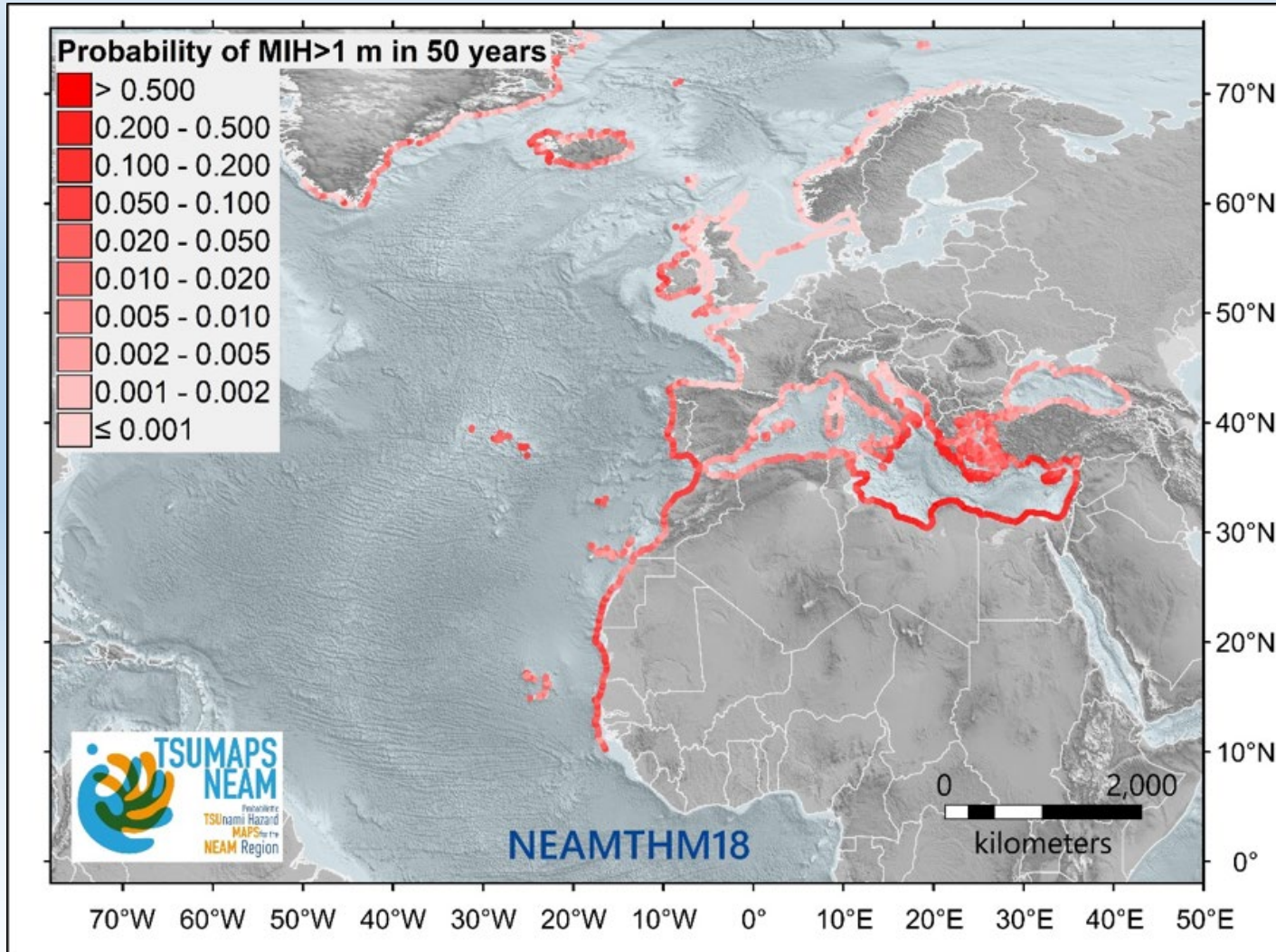
Thirty-third Session of the IOC Assembly
UNESCO, Paris, 25 June–3 July 2025



HAZARD INUNDATION MAPPING

Report of the ICG/NEAMTWS
(2024-2025)

S-PTHA assessment at various scales (global to local)



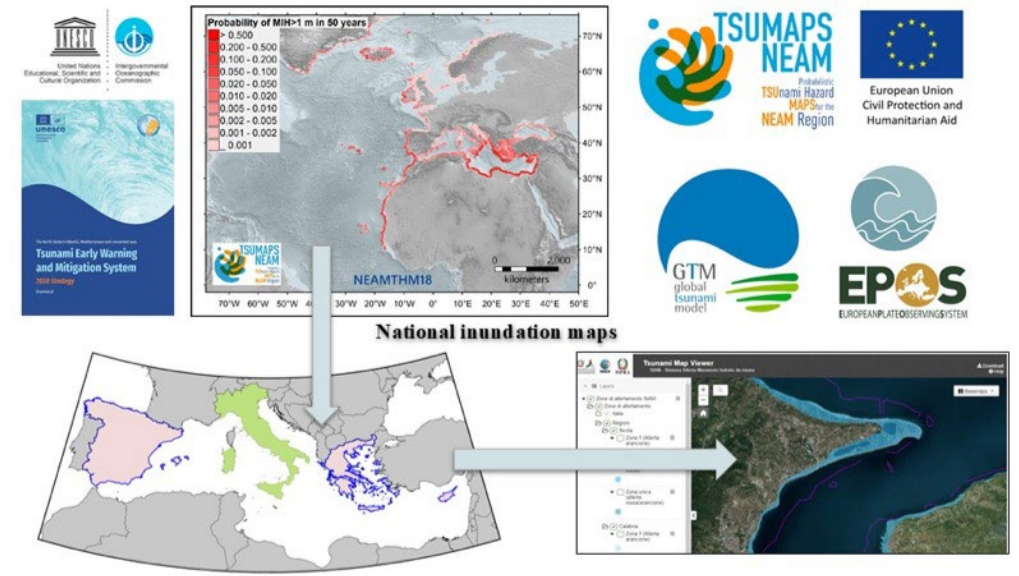
In some countries (e.g. Italy) the TSUMAPS-NEAM S-PTHA were used to define the inundation zones.

Other approaches at regional / local scale are being adopted (e.g. France, Larnaca/Cyprus)

✓ National level

- Development of national tsunami inundation maps (CY, GR, ES)
- Dissemination of results across relevant national stakeholders
- Guidelines and tools for implementation in other countries
- Dissemination of methods/approach at international level

Objective 1 – common national maps across NEAM countries



IMPORTANT FOR TSUNAMI READY TARGET OF OCEAN DECADE

✓ Local level

- Science-informed and participatory decision-making for tsunami evacuation planning and management, considering multi-hazard
- Application @ two pilot sites in Greece and Italy
- Development of guidelines
- Awareness raising activities

Objective 2 – location-specific multi-hazard risk management



Thirty-third Session of the IOC Assembly
UNESCO, Paris, 25 June–3 July 2025



TSUNAMI MONITORING

Report of the ICG/NEAMTWS
(2024-2025)

Events in the NEAM region in 2017-2025

5 TSPs (France, Greece, Italy, Portugal, Turkey)

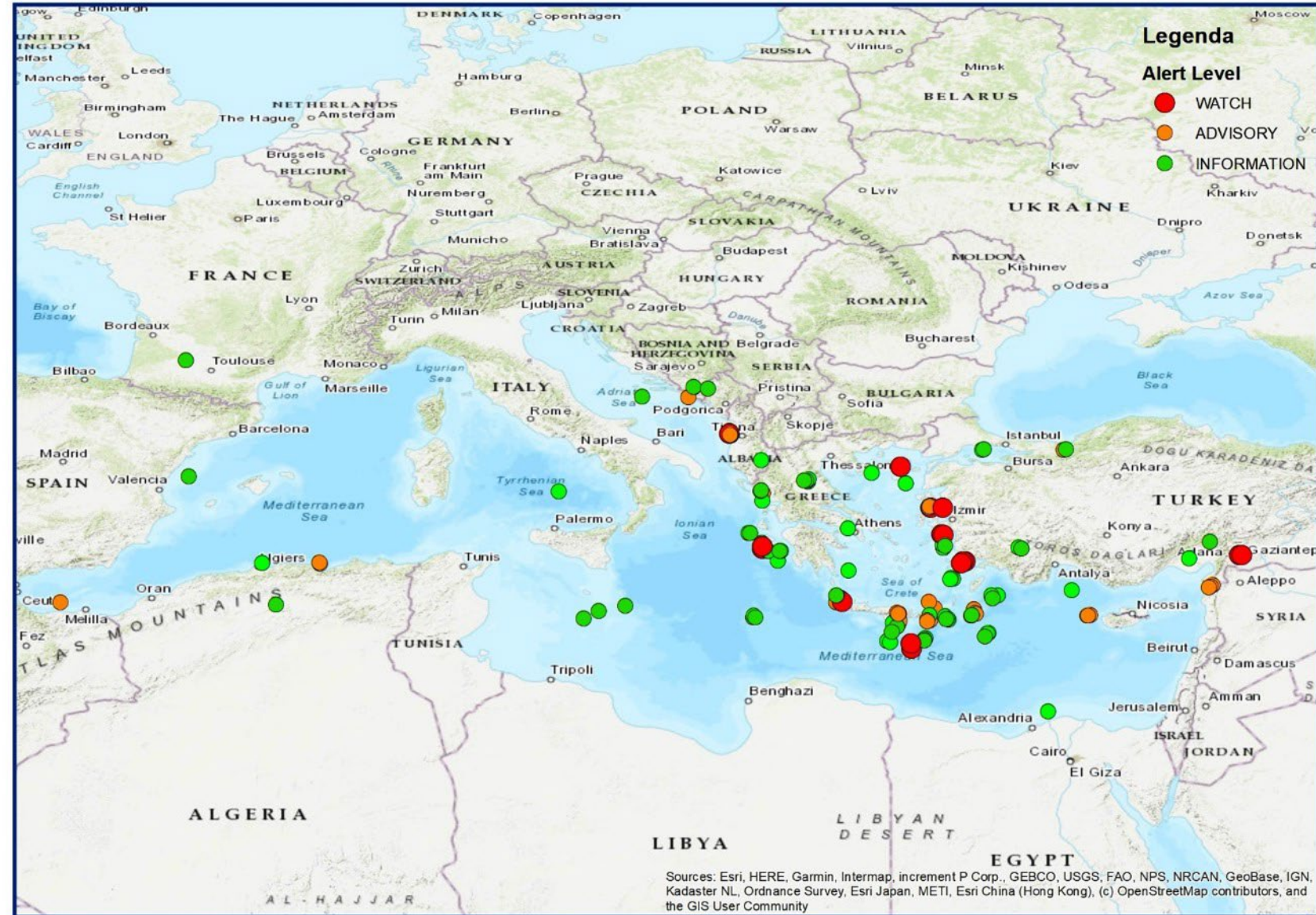
220 Events (activations)

Mag 5.5 to 7.8 (**4'-10'**)

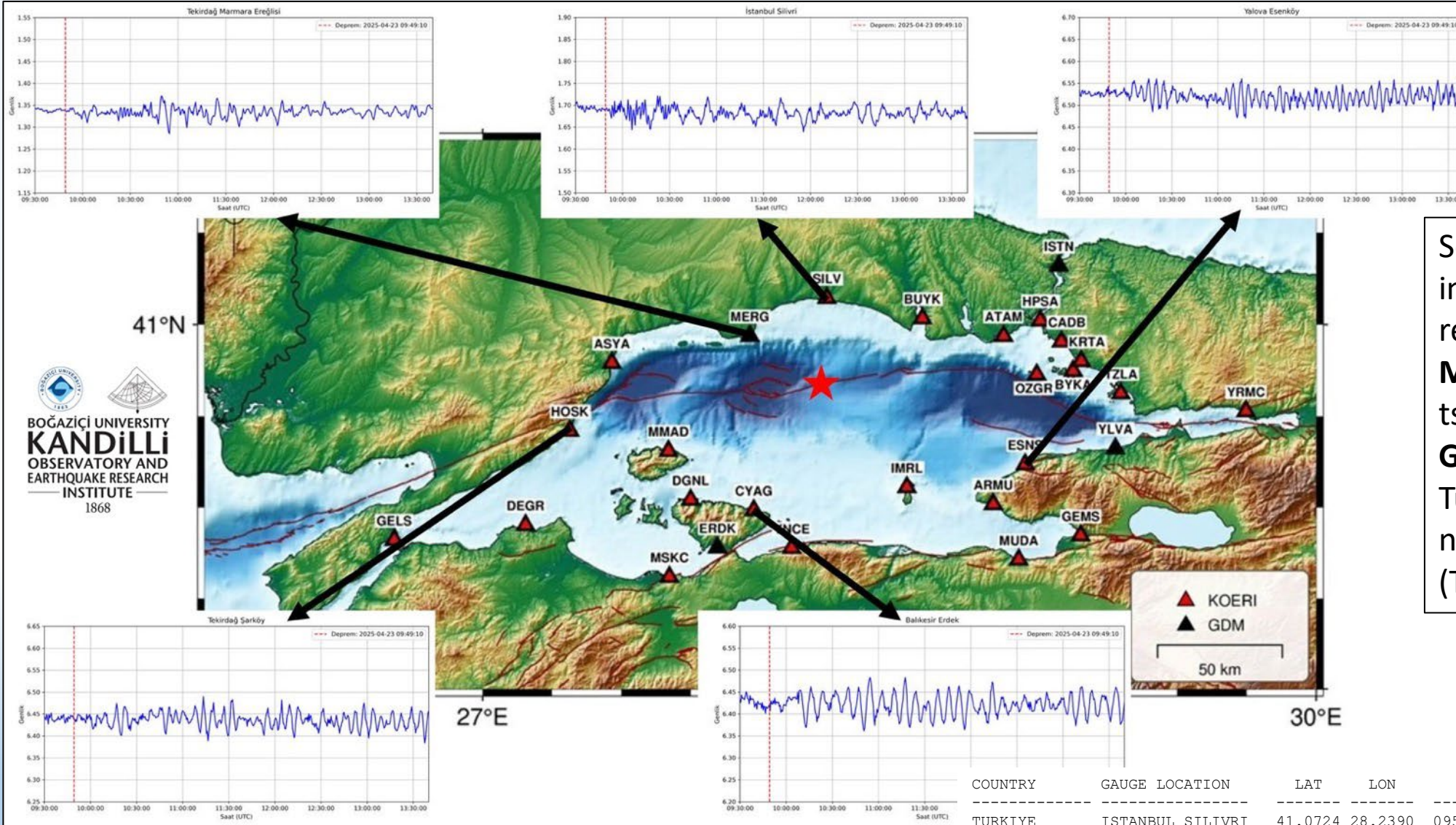
Mostly Information level

25 local Watch and Advisory (some of which confirmed)

1 basin-wide WATCH event (Mediterranean) in 2023 (February 6)



Marmara Sea event (Mw6.3) April 23, 2025



Sea level measurements
in the Marmara Sea
region for **April 23, 2025**
Mw6.3 earthquake and
tsunami alert (Advisory):
Good test for the new
Turkish tide gauge
network
(Thanks Didem/KOERI)

COUNTRY	GAUGE LOCATION	LAT	LO	TIME	AMPLITUDE (M)	PERIOD (MIN)
TURKIYE	ISTANBUL SILIVRI	41.0724	28.2390	0950Z 23 APR	00.03	02.1
TURKIYE	TEKIRDAG M.EREGLI	40.9690	27.9622	0954Z 23 APR	00.02	06.4
TURKIYE	YALOVA ESENKOY	40.6183	28.9532	1003Z 23 APR	00.04	04.8
TURKIYE	BALIKESIR ERDEK	40.4924	27.9761	1006Z 23 APR	00.06	06.4
TURKIYE	TEKIRDAG SARKOY	40.7098	27.3143	1010Z 23 APR	00.05	06.4

TSUNAMI MESSAGE NUMBER 001
NEAM **INGV** IT-NTWC TSUNAMI SERVICE PROVIDER
ISSUED AT 2256Z 13 MAY 2025

ORIGIN TIME - 2251Z 13 MAY 2025
COORDINATES - 34.96 NORTH 26.94 EAST
DEPTH - 100 KM
LOCATION - CRETE_GREECE
MAGNITUDE - 5.9

MAY 13 2025 at 22:51 UTC

Earthquake and Information messages by the 3 TSP

Very good timing (5-6 minutes)

Very high coherence

TSUNAMI MESSAGE NUMBER 001
NEAM TSUNAMI SERVICE PROVIDER **KOERI** (TURKIYE)
ISSUED AT 2257Z 13 MAY 2025 (*)

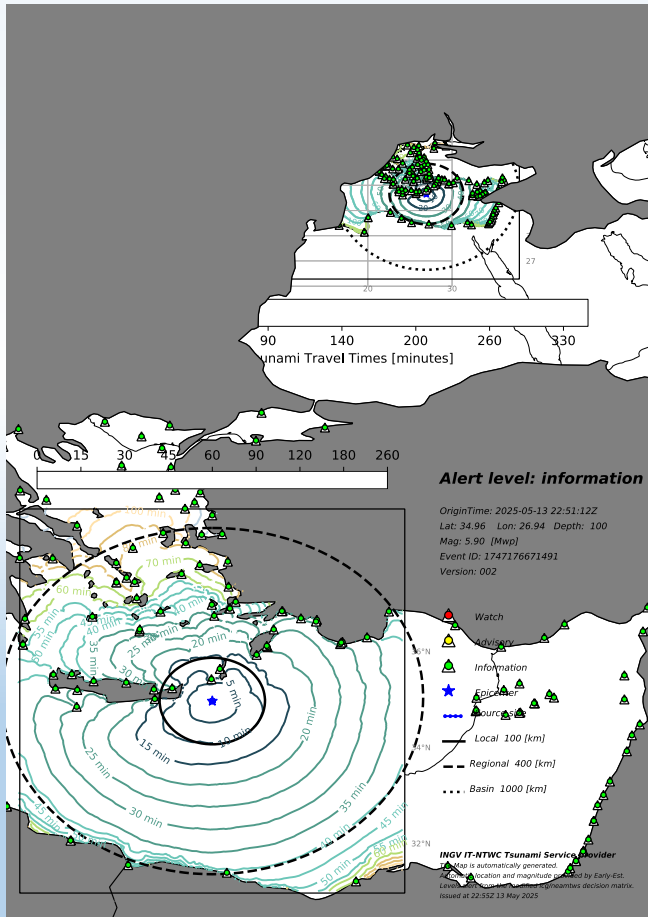
ORIGIN TIME - 2251Z 13 MAY 2025
COORDINATES - 34.92 NORTH 26.96 EAST
DEPTH - 76.00 KM
LOCATION - CRETE, GREECE
MAGNITUDE - 5.8 [MWP]

() arrived at INGV at 22:58*

Ⲛⲓⲓ TSUNAMI MESSAGE NUMBER 001
NEAM **NOA** HL-NTWC TSUNAMI SERVICE PROVIDER
ISSUED AT 2256Z 13 MAY 2025 (*)

ORIGIN TIME - 2251 UTC TUE MAY 13 2025
COORDINATES - 34.97 NORTH 27.05 EAST
DEPTH - 82.0 KM
LOCATION - EASTERN MEDITERRANEAN SEA
MAGNITUDE - 5.9 M

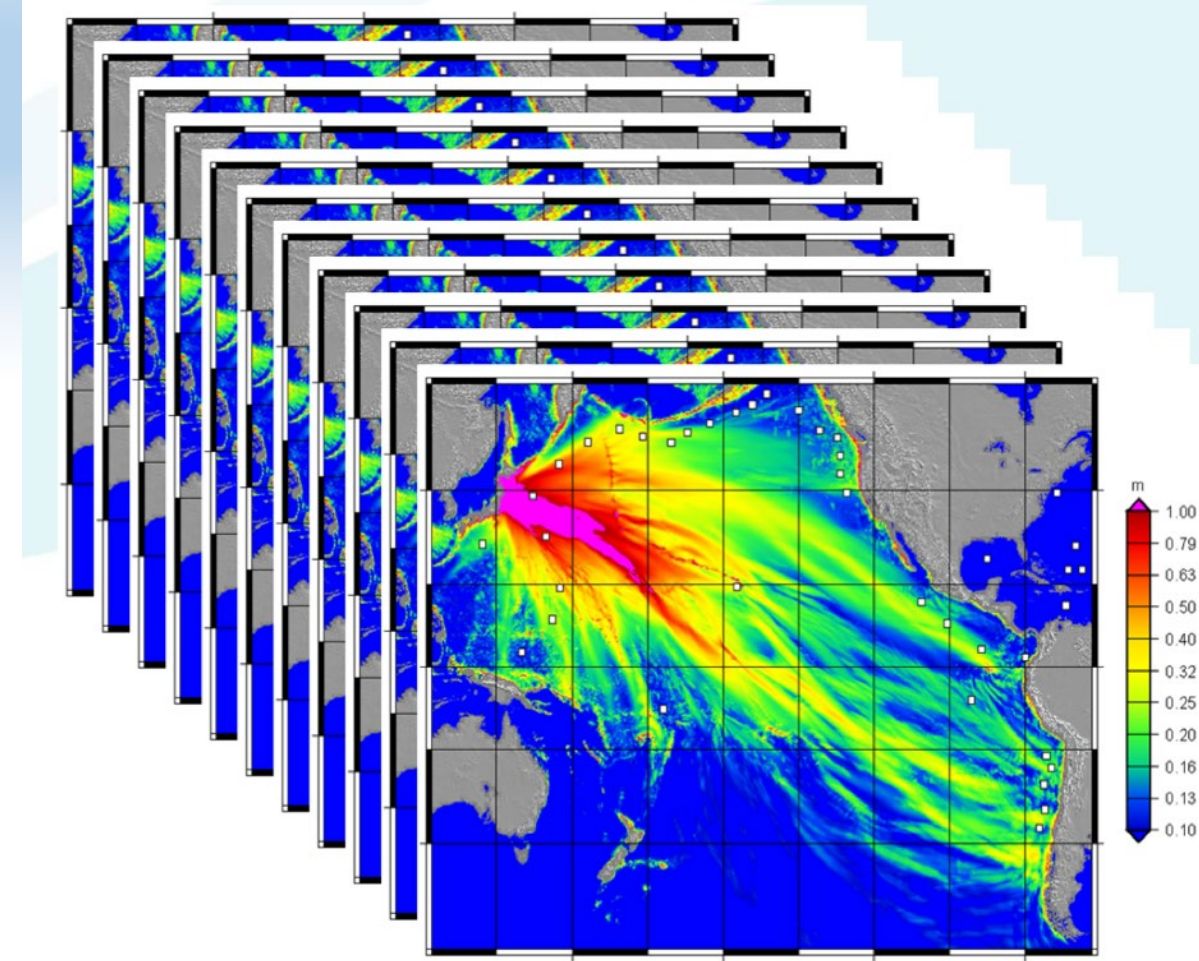
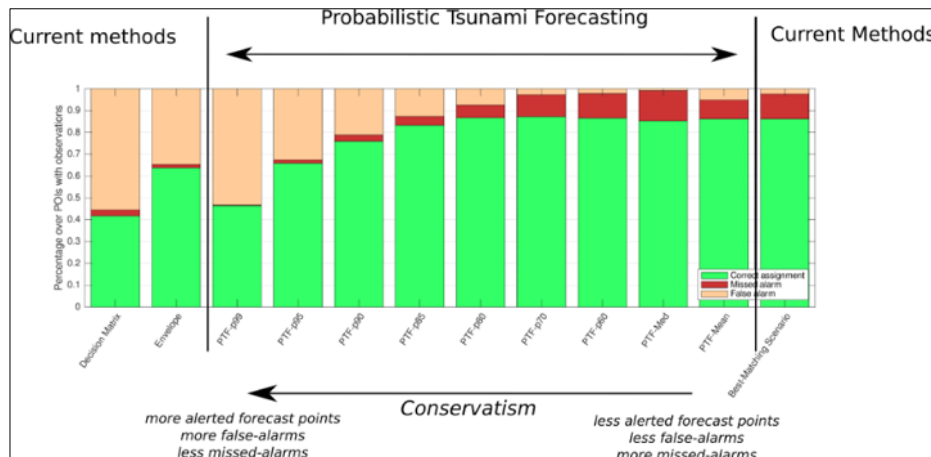
() arrived at INGV at 23:00*



Introducing the Probabilistic Tsunami Forecasting

2024: The PTF was **calibrated with tsunami observations** and massive ensembles of synthetic tsunamis (200,000 yr catalogue) and will become operational at the CAT-INGV NEAMTWS TSP in 2025, possibly followed by other TSPs (Greece,...)

- ✓ Uncertainty Quantification/Reduction for real time tsunami forecasting
- ✓ Improved Real time Forecasting
- ✓ Provide the decision-makers with actionable information (a priori threshold selection)



Pre-calculated tsunami simulations to keep the execution time very short

Thirty-third Session of the IOC Assembly
UNESCO, Paris, 25 June–3 July 2025



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TECHNOLOGICAL DEVELOPMENTS

Report of the ICG/NEAMTWS
(2024-2025)

MISTS: Mediterranean Integrated Science and Telecom System

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



ONGOING ACTIVITIES: **TSUNAMI BUOYS**

- 2 tsunami buoys will be installed in the Ionian Sea by 2025 / first in NEAM region



MSM facilities, Valencia,
Spain, 5-6 June 2025

Funding (~2.8 M€) by the Italian Ministry of Research through the European contribution
Next Generation EU - NRRP (National Recovery and Resilience Plan) “MEET”, coord. by INGV, Italy

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

The ICG/NEAMTWS in 2024 established a new **Task Team on Non-Seismic Tsunami**, important to foster the integration of TWS specifically conceived for non-seismic tsunami with those already operating for seismic tsunamis

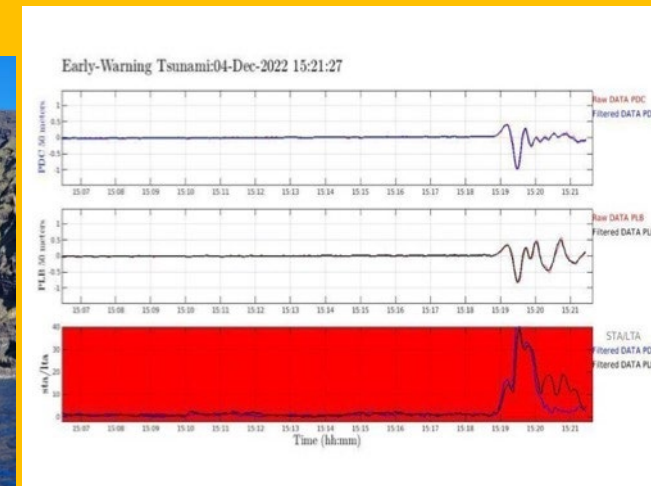
Stromboli volcano is a natural Laboratory for local tsunami monitoring.

New developments for offshore monitoring in 2025



TEWS for Stromboli volcano, Italy

1.5m tsunami of Dec. 4, 2022



Thirty-third Session of the IOC Assembly
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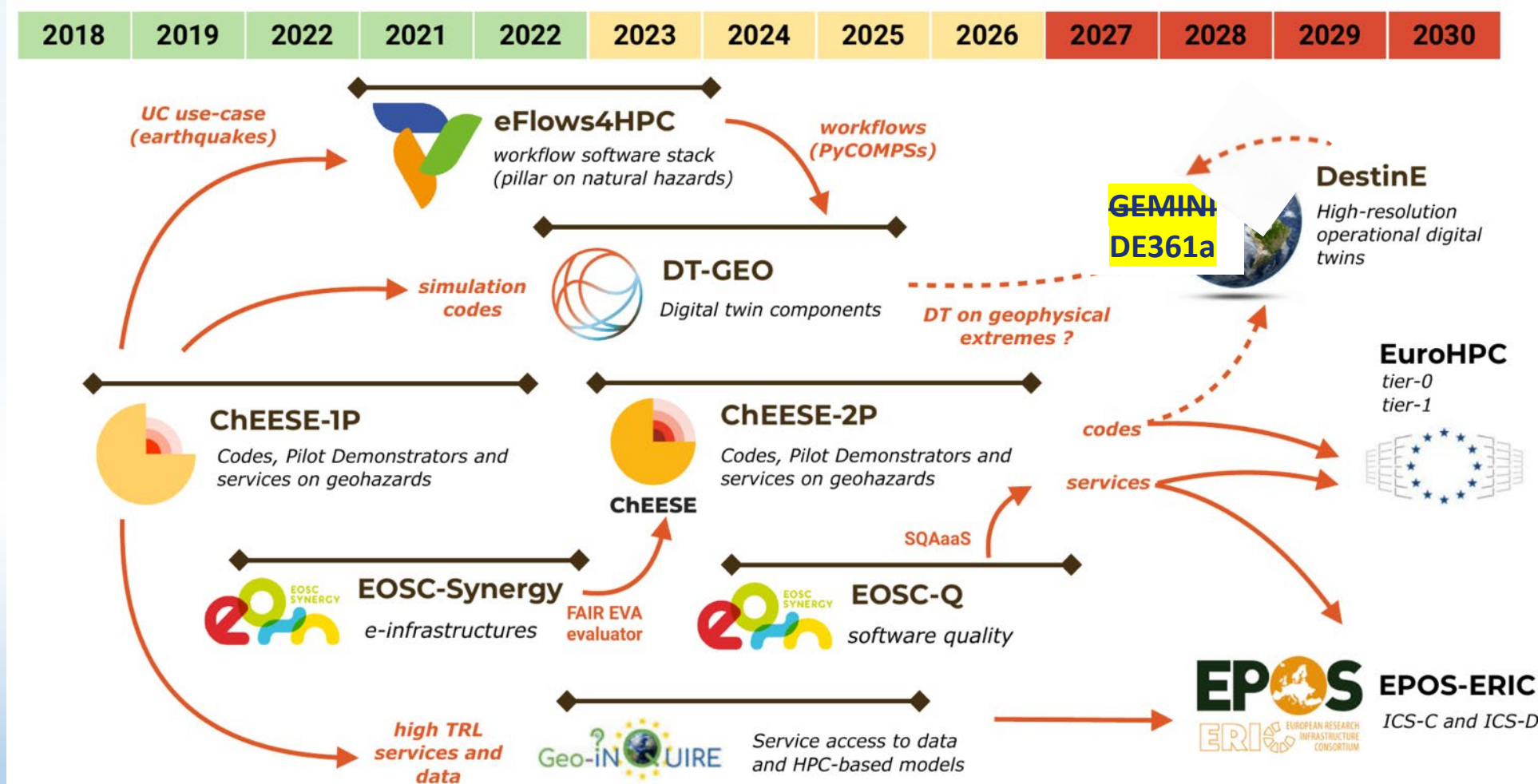
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PROJECTS

Report of the ICG/NEAMTWS
(2024-2025)

The “ChEES” ecosystem and its sustainability



- Tsunami modelling
- HR inundation maps
- RT simulations
- PTHA
- HPC resources
- Comm. Engagement
- Training



SCALING UP AND STRENGTHENING THE RESILIENCE OF COASTAL COMMUNITIES IN THE NORTH-EASTERN ATLANTIC AND MEDITERRANEAN REGIONS TO THE IMPACT OF TSUNAMIS AND OTHER SEA LEVEL- RELATED COASTAL HAZARDS (COASTWAVE 2.0) PROJECT

Budget: 1.2 M EUR

Timeline: July 1 2024-July 1 2026

The CoastWAVE 2.0 focuses on enhancing the preparedness of coastal communities in the North-Eastern Atlantic and Mediterranean regions against tsunamis and other sea-level-related hazards, contributing to disaster risk reduction efforts.



[coastwaveproject](https://www.coastwaveproject.org)



[CoastWave_IOC](https://twitter.com/CoastWave_IOC)



[CoastWAVE Project](https://www.coastwaveproject.org)



AIM

- **Strengthen the Resilience of the selected coastal communities to the impact of tsunamis and other sea-level related coastal hazard by implementing Tsunami Ready Recognition Programme of UNESCO-IOC.**

KEY ACTIVITIES

- **Capacity Building: Training workshops and simulation exercises for leaders and decision-makers.**
- **Public Engagement: Disseminating educational materials to schools and communities.**
- **Partnerships: Collaborating with international and local organizations for a cohesive response.**

DIRECTLY BENEFITED COUNTRIES



PROJECT COMPONENTS



Component 1: Build and strengthen tsunami hazard assessments and evacuation mapping.



Component 2: Scale-up and expand Tsunami Ready in selected NEAM countries.

Component 3: Enhance early warning, detection, monitoring, and alerting systems for improved tsunami response.

Component 4: Promote dialogue with emergency responders and policymakers on High Impact Low Probability (HILP) tsunami events to enhance decision-making within a multi-hazard framework.

PROJECT EXPECTED OUTCOMES



• Improved Hazard Assessments and Evacuation Mapping.



• Strengthened tsunami-related risk communication strategies.

• More NEAM communities joining Tsunami Ready Programme.

• Increased access to real-time seismic and sea level detection technology.

• Development of cost-effective sea level monitoring devices.

• Improved knowledge and strategies for High Impact Low Probability tsunami events.

Thirty-third Session of the IOC Assembly
UNESCO, Paris, 25 June–3 July 2025



TSUNAMI READY

Report of the ICG/NEAMTWS
(2024-2025)

Tsunami Ready Implementation in the 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



Tsunami Ready: International, National, Local Engagements

City Mayors and Governor



Cannes, France



Büyükçekmece, Itanbul, Turkeye



Alexandria, Egypt



Chipiona, Spain



Samos, Greece



Minturno, Italy

Thirty-third Session of the IOC Assembly
UNESCO, Paris, 25 June–3 July 2025



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OUTREACH

Report of the ICG/NEAMTWS
(2024-2025)

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
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](#)

➤ [Many videos and News/posts on TSPs websites Including a 5.3 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



Upcoming meetings 2025

- ✓ Nov. 1: Lisbon Tsunami 270th Commemoration "**From Memory to Resilience: Coastal communities Leading the Wave of Change**" (Civil Protection Cascais, Portugal)
- ✓ Costwave2.0 Training on **Tsunami Evacuation mapping** (France, June 2025) (with Paul Valéry University of Montpellier)
- ✓ NEAM-COMMITMENT WS on **multi-hazard tsunami**, Stromboli (October 2025)
- ✓ ICG / NEAMTWS **Assembly** and SC (December 2025)
- ✓ CoastWave2.0 Regional Meeting on **SOP** (Cascais, Portugal) TBD
- ✓ CoastWave2.0: **Tsunami Ready** ceremonies in Portugal (Loule, Cascais, Oct.25)
- ✓ Several technical meetings among TSPs, WGs, projects meetings



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THANK YOU



The new offshore module
for tsunami monitoring
at Stromboli (installation
next week!)

33rd Assembly
25 June-3 July 2025

Agenda item 3.4.1



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**Intergovernmental
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**Report from the
Intergovernmental
Coordination Group for the
Pacific Tsunami Warning and
Mitigation System (ICG/PTWS)**

Dakui WANG, Chair of ICG/PTWS
26 June 2025

Inter-Governmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS)
ORGANISATIONAL STRUCTURE
2025-2027

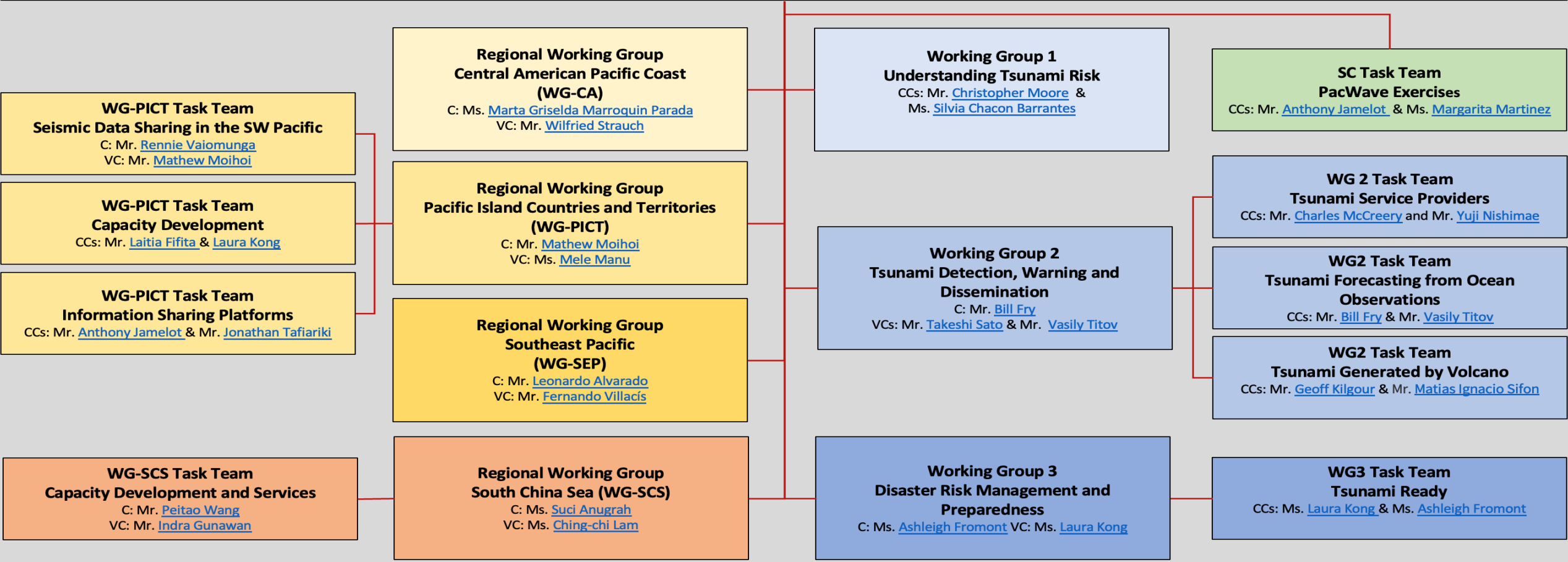
Chair: Mr. [Dakui Wang](#) (China)

Vice-Chairs: Ms. [Lara Bland](#) (New Zealand), Ms. [Mylene Martinez Villegas](#) (Philippines), Mr. [Levu Antfalo](#) (Vanuatu)

Steering Committee: ICG/PTWS Officers (Chair and the Vice-Chairs), Chairs of the Technical and Regional Working Groups, Directors of the TSPs and ITIC, or their delegates, and other members' representatives by invitation of the Chair.

International Tsunami Information Centre (ITIC): Ms. [Laura Kong](#) (Director) & Mr. [Matias Ignacio Sifon](#) (Associate Director)

Technical Secretary: Mr. [Öcal Necmioğlu](#)



The **ICG/PTWS** was established in 1965 as a response to the 1960 Valdivia earthquake and tsunami. It manages tsunami-risk-related affairs across 46 Member States with access to the Pacific Ocean basin, and convened for the first time in 1968.

ICG/PTWS XXXI, Beijing, China, 7-11 April 2025



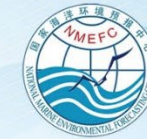
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THIRTY-FIRST SESSION OF THE INTERGOVERNMENTAL COORDINATION GROUP FOR THE PACIFIC TSUNAMI WARNING AND MITIGATION SYSTEM (ICG/PTWS-XXXI)

中国·北京 2025年4月8-11日 BEIJING, CHINA, APRIL 8-11.2025



62 Delegates
from **24**
Member States

32 Observers
from **14**
countries

9th ICG/PTWS – IUGG JTC Joint Tsunami Workshop

60th Anniversary of the ICG/PTWS - Past and Future

➤ 1 April 2025 (Online)

- Aims
 - 1) Recognition of contributions of 60 years of PTWS
 - 2) Prospective of the future of PTWS
 - 3) Tsunami DRR within the context of the IODTP – lessons from 60 years

➤ 7 April 2025 (Hybrid)

- Aims

Guide 5-year research and development strategy for detection, monitoring and forecasting through:

 - 1) Investigating challenges to achieving Decade forecasting goals
 - 2) Exploring emergent data technologies to achieve Decade forecasting goals
 - 3) Exploring emergent forecasting technologies to achieve Decade forecasting goals
 - 4) Exploring impact-based forecasting including challenges faced when forecasting inundation and time-dependence

Joint Workshop Outcomes

- ❑ Need for interaction between forecast users and forecast creators (EM – TSP)
- ❑ Challenges with forecasting uncertainties and conservative approaches
- ❑ Challenges of equity in tsunami resilience across all member states
- ❑ Local events create a forecasting challenge
- ❑ Need for direct ocean observations to forecast non-earthquake sources



ICG/PTWS XXXI Summaries (1)

The ICG acknowledged the conduct of PacWave24 and first-time testing of the dissemination **of maritime safety products to NAVAREA Coordinators** in the Pacific and in the Southwest Atlantic (e.g. NAVAREAs VI, X, XI, XII, XIII, XIV, XV, and XVI).

The ICG endorsed the conduct of the first-ever UNESCO-IOC **Pacific Tsunami Preparedness Capacity Assessment**, which constitutes the first system wide measurement of the existing capacities to guide future efforts to improve the PTWS, with the kind support of ESCAP, and **requested** that the PTWS Steering Committee play a leading role during the intersessional period for implementation, reporting and follow-up.

Recalling that IOC Assembly Decision A-32/3.4.1 instructed all regional Tsunami Service providers, in collaboration with NAVAREA operators of IHO, to test the tsunami maritime safety products in 2023/24, with a view to operationally implementing them in 2024–2025, **and considering** that the PTWC as a TSP that covers all coasts of the Pacific Tsunami Warning System has agreed to provide this service for the PTWS and has designed such products, conducted a communication test with Pacific NAVAREA Coordinators, and produced a draft guide to those products, **the ICG requested PTWC to implement the products in 2025 following the next meeting of the World-Wide Navigational Warning Service in September 2025.**



ICG/PTWS XXXI Summaries (2)

The ICG recommended provisional approval of the ‘**Tsunami Ready Equivalency Guidance**’, as described in the [Draft Document](#) (Agenda 4.2) of the ICG/PTWS-XXXI session, for trial use in order to finalize the Guidance for approval at the ICG/PTWS-XXXII session. It **also recommended** that the ICG/PTWS WG3 Task Team on Tsunami Ready conduct a pilot test of the PTWS ‘Tsunami Ready Equivalency Guidance’.

Recalling the importance of the **UNESCO-IOC Tsunami Ready Recognition Programme** as a key mechanism toward achieving the UN Ocean Decade Goal of ‘100% of communities at risk of tsunami prepared for and resilient to tsunamis by 2030’, **the ICG requested** WG3 Task Team on Tsunami Ready to continue to investigate further actions to recognize, support and celebrate the benefits of formal UNESCO-IOC Tsunami Ready Recognition,

The ICG recalled its recommendation made at its last session to authorize the commencement of full functional operations of the Central America Tsunami Advisory Centre (**CATAC**), effective after the IOC governing body session in June 2024, with the exact date to be decided after coordination with the ICG/CARIBE-EWS (Recommendation ICG/PTWS-XXX-6), and **took note** of the recommendation of ICG/CARIBE-EWS at its 17th session regarding the review of CATAC as a Tsunami Service Provider at its 18th Session in May 2025 to enable the IOC Assembly to consider the final admission of CATAC as a TSP in June 2025 (Recommendation ICG/CARIBE-EWS-XVII.8).

ICG/PTWS XXXI Summaries (3)

The ICG decided to carry out a 12th Pacific Wave Exercise in 2026 (**PacWave 26**) through September to November 2026 to support the International Disaster Risk Reduction Day (13 October) and the World Tsunami Awareness Day (5 November).

The ICG accepted with appreciation the kind offer of **Ecuador to host the 32nd Session of the ICG/PTWS** in Ecuador in 2027, for which specific dates will be determined at a later stage.

The ICG decided to continue the PTWS Steering Committee with revised Terms of Reference to establish a permanent structure comprising three Vice-Chairs.

Congratulates Chair Mr Dakui Wang (China) and Vice Chairs Ms Lara Bland (New Zealand), Ms Mylene Villegas (Philippines), and Mr Levu Antfalo (Vanuatu) on their election to leadership of the PTWS.



Tsunami Service Provides (TSP) in the Pacific

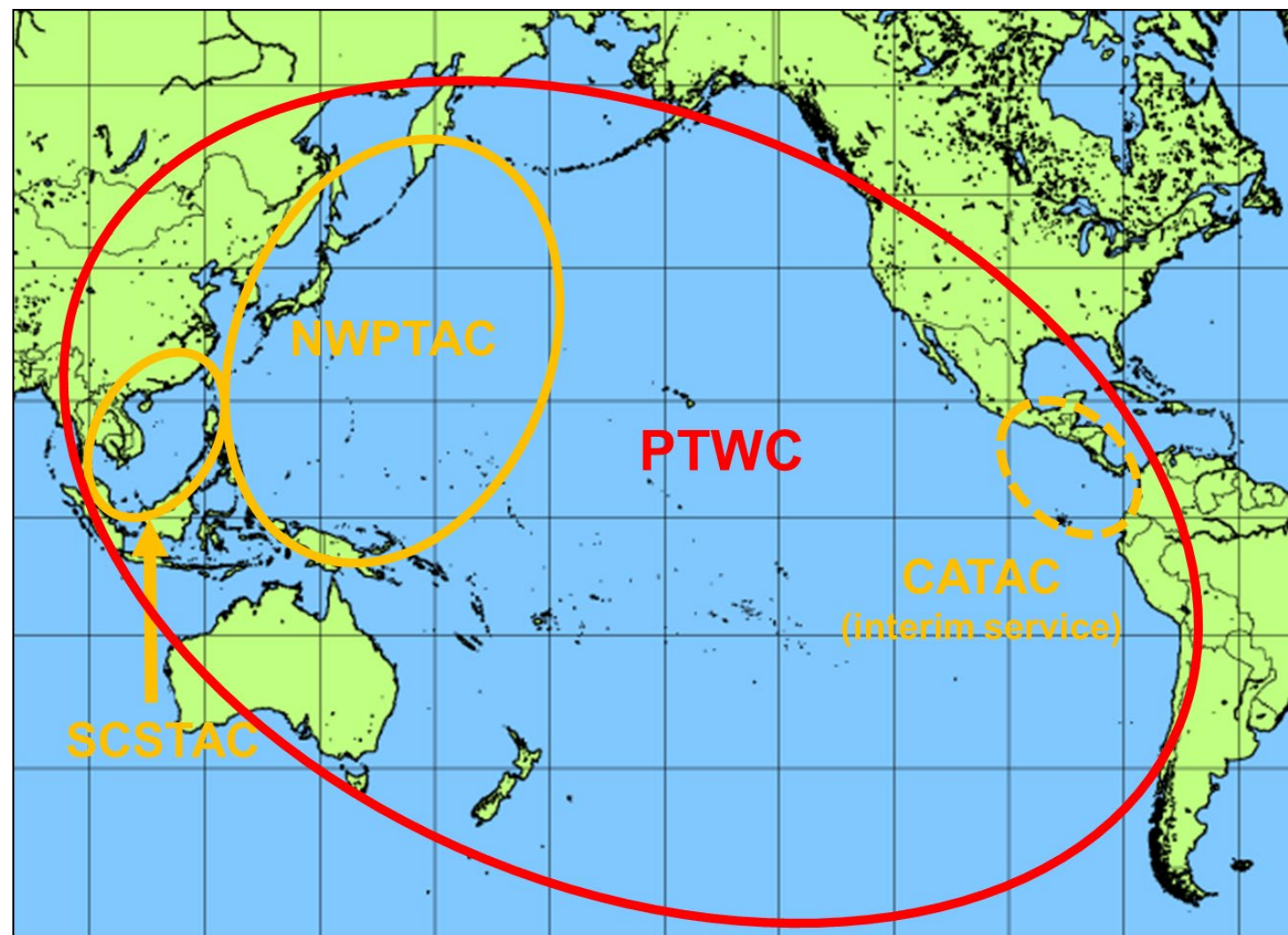
➤ Three Tsunami Service Providers

- Pacific Tsunami Warning Center (**PTWC**) operated by USA
- Northwest Pacific Tsunami Advisory Center (**NWPTAC**) operated by Japan
- South China Sea Tsunami Advisory Center (**SCSTAC**) operated by China

➤ One interim TSP

- Central America Tsunami Warning Center (**CATAC**) operated by Nicaragua, with full functionality in an interim manner

- **ICG/CARIBE-EWS Further recommends** the consideration of CATAC as a TSP in its XIX Session in 2026 to enable the IOC Executive Council to consider the final admission of CATAC as TSP in June 2026. (Recommendation ICG/CARIBE-EWS-XVIII.8)



Recent PTWC Tsunami Threat Message Sequences Issued

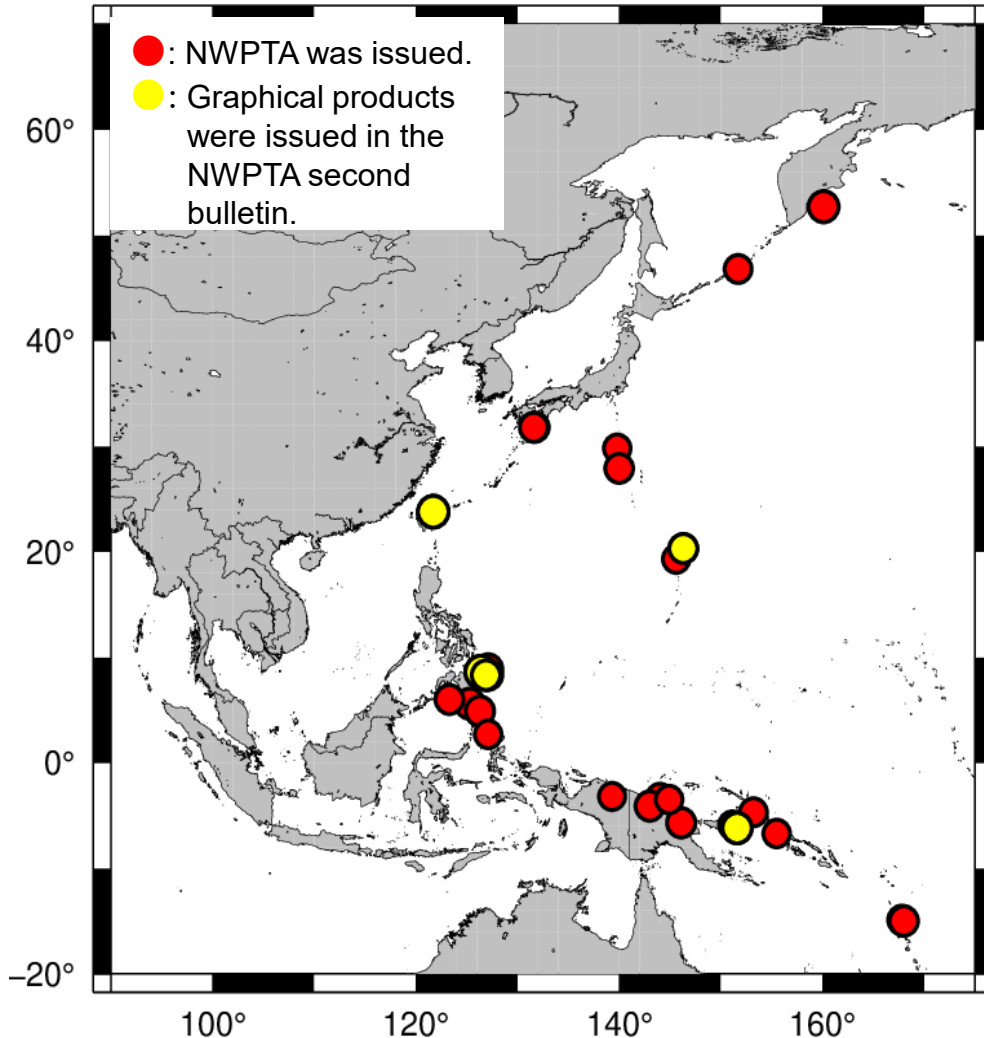
	Earthquake			Messages	
IOC System	Date – Time (UTC)	Location	Mw	1 st Elapsed	Total
PTWS	12/02/2023 14:37:06	Mindanao, Philippines	7.6	07:22	3
PTWS	12/07/2023 12:56:30	Vanuatu	7.1	08:24	2
PTWS	01/01/2024 07:10:10	Near the West Coast of Honshu, Japan	7.5	11:46	5
PTWS	04/02/2024 23:58:00	Taiwan, China	7.4	11:16	4
PTWS	08/08/2024 07:42:55	Kyushu, Japan	7.1	11:37	3
PTWS	08/17/2024 19:10:27	Off the East Coast of Kamchatka, Russia	7.0	07:36	3
PTWS	12/05/2024 18:44:24	Near the Coast of Northern, California	7.0	08:56	2
PTWS	12/17/2024 01:47:23	Vanuatu	7.3	06:05	3
PTWS	03/30/2025 12:18:47	Tonga	7.0	10:31	3
CARIBE-EWS	02/08/2025 23:23:14	North of Honduras	7.6	07:10	5
PTWS	04/04/2025 20:04:38	New Britain Region of Papua New Guinea	6.9	05:22	4
PTWS	05/02/2025 12:58:33	Drake Passage	7.5	11:23	5

NWPTAC Major Activities (Jun. 2023 – Jun. 2025)

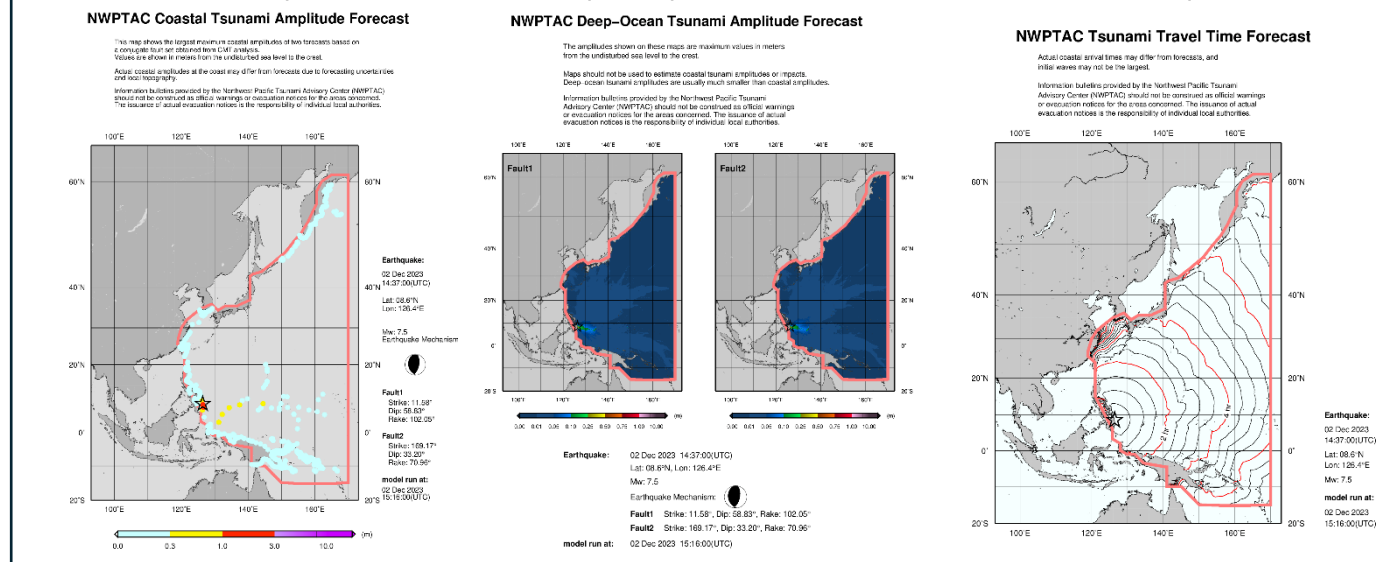
From June 2023 to June 2025,

- ✓ NWPTA were issued for 29 events (Graphical products were issued for 5 events).
- ✓ 4 communication tests, the live communication test for the PacWave24, and the presentation of the draft new user's guide were conducted.

Earthquake locations of NWPTA Issuance



Graphical products of NWPTA (2023/12/02 14:37(UTC) Mw:7.5 Mindanao, Philippines)



Other Activities

- | | |
|---------------|---|
| Dec. 05, 2023 | Communication Test |
| May. 28, 2024 | Communication Test |
| Nov. 05, 2024 | Live Communication Test, and Trial Transmission to NAVAREA Coordinators for the PacWave24 |
| Dec. 17, 2024 | Communication Test |
| Apr. 09, 2025 | Presentation of the draft new user's guide at ICG/PTWS31 |
| Jun. 10, 2025 | Communication Test |

Recent SCSTAC Tsunami Messages and Communication Tests



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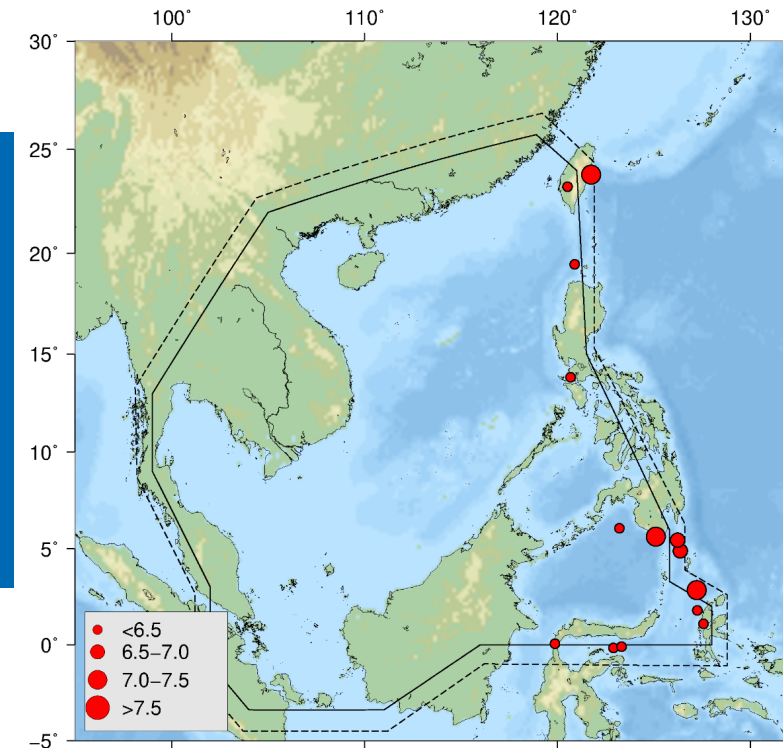
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SCSTAC responded and distributed messages for a total of 16 events. Two threat messages issued for:

- Magnitude 7.3, TAIWAN, CHINA , 2 April 2024
- Magnitude 7.0, MINDANAO, THE PHILIPPINES, 17 November 2023

No	Mag	Origin Time (UTC)	Depth (km)	Lon (°)	Lat (°)	Location
1	6.1	2025/1/20 16:17	15	120.52°E	23.23°N	TAIWAN, CHINA
2	6.1	2024/9/23 19:51	140	122.9°E	0.17°S	MINAHASSA PENINSULA, SULAWESI
3	6.3	2024/7/11 2:13	613	123.21°E	6.06°N	MINDANAO, PHILIPPINES
4	6.1	2024/4/22 18:26	15	121.63°E	23.72°N	TAIWAN, CHINA
5	6.6	2024/4/9 9:48	15	127.2°E	2.82°N	NORTHERN MOLUCCA SEA
6	7.3	2024/4/2 23:58	12	121.74°E	23.81°N	TAIWAN, CHINA
7	6.7	2024/1/8 20:48	102	126.37°E	4.89°N	TALAUD ISLANDS, INDONESIA
8	6	2023/11/22 2:48	112	127.25°E	1.79°N	HALMAHERA, INDONESIA
9	7	2023/11/17 8:14	80	125.1°E	5.63°N	MINDANAO, PHILIPPINES
10	6.5	2023/10/4 11:21	131	126.23°E	5.45°N	MINDANAO, PHILIPPINES
11	6.4	2023/9/12 11:03	10	120.89°E	19.46°N	PHILIPPINE ISLANDS REGION
12	6.1	2023/9/11 12:51	157	127.57°E	1.09°N	HALMAHERA, INDONESIA
13	6.1	2023/9/9 14:43	15	119.87°E	0.05°N	MINAHASSA PENINSULA, SULAWESI
14	6.3	2023/6/15 2:19	119	120.68°E	13.82°N	MINDORO, PHILIPPINES
15	7	2023/1/18 6:06	60	127.22°E	2.85°N	NORTHERN MOLUCCA SEA
16	6.2	2023/1/18 0:34	140	123.32°E	0.10°S	MINAHASSA PENINSULA, SULAWESI

Brunei
Cambodia
China
Indonesia
Malaysia
The Philippines
Singapore
Thailand
Vietnam



24 APR 2023
11 AUG 2023
20 OCT 2023
20 NOV 2023

Communication Test
Communication Test
Communication Test
Communication Test (HK)

08 JAN 2024
08 MAY 2024
06 SEP 2024
05 NOV 2024
22 NOV 2024

Communication Test
Communication Test
Communication Test
Live communication for PacWave24
Communication Test (HK)

SCSTAC International Staff Programme



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
COMMISSION OCÉANOGRAPHIQUE INTERGOUVERNEMENTALE
COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ

اللجنة الدولية الحكومية لعلوم المحيطات
政府间海洋学委员会

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E-mail: ioc.secretariat@unesco.org

IOC Circular Letter No 2991
(Available in English only)

IOC/H/ON/ah
28 March 2024

To : ICG/PTWS Tsunami National Contacts (TNC) and Tsunami Warning Focal Points (TWFPs) of the following countries: Brunei Darussalam, Cambodia, China, Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam

Cc. : Corresponding Official National Coordinating Bodies for liaison with the IOC
Corresponding Permanent Delegates/Observer Missions to UNESCO and National Commissions for UNESCO
UNESCO Regional Offices in Bangkok, Beijing, Hanoi, and Jakarta
Northwest Pacific Tsunami Advisory Center (NWPTAC)
Pacific Tsunami Warning Center (PTWC)
International Tsunami Information Center (ITIC)
Chair, ICG/PTWS
IOC Tsunami Resilience Section

Subject: Short-term secondment of international staff from National Tsunami Warning Centres of WG-SCS Member States to South China Sea Tsunami Advisory Center (SCSTAC)

The South China Sea Tsunami Advisory Center (SCSTAC) began full operation on 5 November 2019 and the *User's Guide for the South China Sea Tsunami Advisory Center (SCSTAC) products for the South China Sea Tsunami Warning and Mitigation System* was published as [IOC Technical Series. 149](#) in September 2019.

2023—

Ms. Nadira Binti Janius (**Malaysia**)

Mr. Tom Carlo E. Simborio (**Philippines**)

Mr. Fakhry Dwi Sulistio (**Indonesia**)

Mr. Muhammad Hafizh Ghifari (**Indonesia**)

2024—

Mr. Mohammad Obie Restianto (**Indonesia**)

Mr. Bhenz Rodriguez (**Philippines**)

Mr. Yip Weng Sang (**Malaysia**)



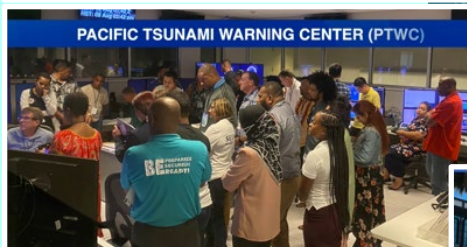
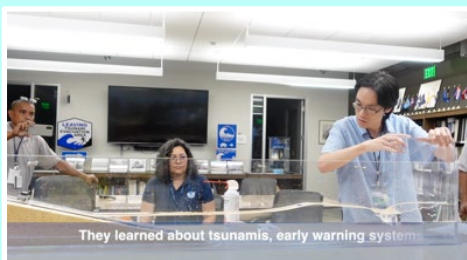
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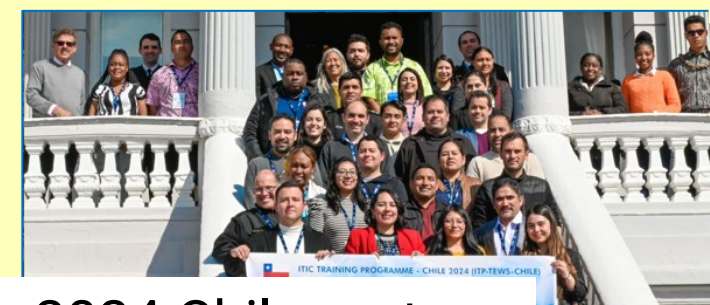


ITIC Training Programme

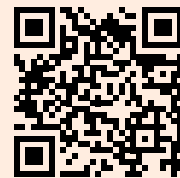
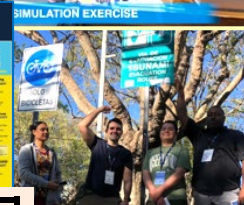
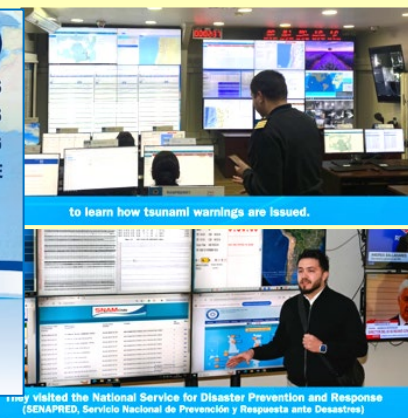
ITIC - SHOA organized (68 participants from 26/18 countries)



2023 Hawaii system

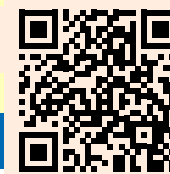


2024 Chile system



Video
English, 508-compliant, Spanish

English, 508-compliant



PacWAVE24 -- Objectives

PacWave24 was the eleventh in a series of PacWave exercises that have been conducted biennially since 2006. The objectives of PacWAVE24 are:

- ❑ to test communications from the approved and developing Tsunami Service Providers (PTWC, NWPTAC, SCSTAC, CATAC) to Member States/Countries.
- ❑ to test live communication from PTWS Tsunami Service Providers (TSP) to the NAVAREA Coordinators (NAVAREAs VI, X, XI, XII, XIII, XIV, XV, and XVI).



Sample Maritime Message

MARITIME TSUNAMI THREAT MESSAGE NUMBER 01
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1853 UTC TUE FEB 4 2025

THIS MESSAGE IS FOR NAVAREA XII, AND NAVAREA XVI.

A TSUNAMI THREAT IS OCCURING.

A TSUNAMI MAY HAVE BEEN GENERATED BY AN EARTHQUAKE WITH A
PRELIMINARY MAGNITUDE OF 8.6 THAT OCCURRED NEAR THE COAST OF
GUATEMALA AT 1844 UTC ON TUESDAY FEBRUARY 4 2025.

HAZARDOUS TSUNAMI WAVES ARE FORECAST FOR SOME COASTS OF COLOMBIA,
COSTA RICA, ECUADOR, EL SALVADOR, GUATEMALA, MEXICO, NICARAGUA,
PANAMA, AND PERU.

TSUNAMI WAVES ARE NOT A HAZARD TO SHIPS IN DEEP WATER BUT CAN
CAUSE STRONG CURRENTS AND RAPID SEA LEVEL CHANGES IN SHALLOW
WATER AS WELL AS INUNDATION OF THE COAST.

SHIPS APPROACHING THE COAST SHOULD CONSULT LOCAL AUTHORITIES
REGARDING LOCAL CONDITIONS AND ADVICES.



PacWAVE24 -- outcomes

Findings from PacWave24 and NAVAREA Trial

The Live Communication Test and NAVAREA trial from TSPs to Member State TWFPs (Objective a) was successful. Countries highlighted that e-mail was the most reliable means of communications between TSP and states members. Messages in general were well received through multiple channels.

Overall Assessment

65% of the respondents indicated that their country stakeholder agencies have a **better understanding** of the goals, responsibilities, and roles in tsunami emergencies.

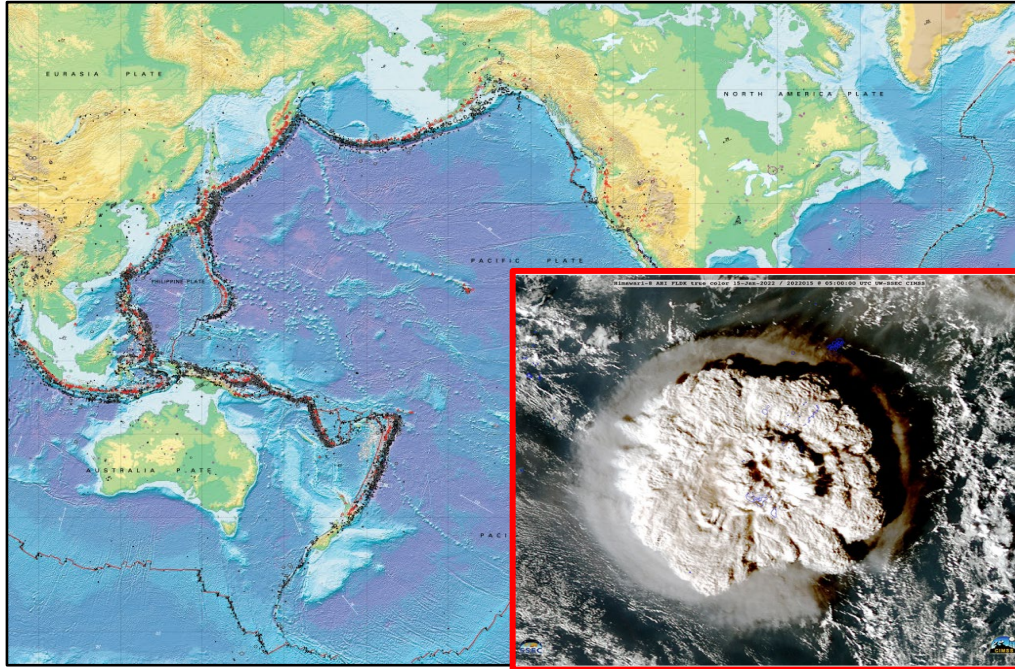
Gaps in capability and capacity have been identified according to almost all respondents (75%).

40% of the respondents indicated that communities have a **better understanding** of their tsunami risk and are **better prepared** for tsunami events.

10% the respondents confirmed that news media participated and covered the exercise.



PTWS responses to 2022 HTHH Volcanic Eruption and Tsunami



- Hunga Tonga-Hunga Ha'apai Volcano erupted on 15 January 2022.
- Tsunami waves were observed at not only near tide gauges but also distant tide gauges.- Larger than 1 meter in California of USA, Chile, Japan.
- ITIC immediate Tonga support with countries for TW operations (GoT request to ITIC, 24 Jan 2022)
- PTWS held Debrief meetings three times; 20 January, 3, 10 February, 2021.
- PTWC provides special products for a HTHH volcano generated tsunami in March, 2022
- 17 August, 2022: User's Guide Published (CL-2902) for the interim products
- Implementation Plan and Users Guide was officially endorsed at the ICG/PTWS 30th Session, 2023
- Hunga Tonga Hunga Ha'apai' Volcano Permanent Monitoring and Warning Procedures of the Pacific Tsunami Warning Center was published (IOC CL-2984 dated on 19 January, 2024) as IOC TS 188



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COMMISSION Océanographique Intergouvernementale
COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
اللجنة الدولية لعلوم المحيطات
政府間海洋学委員会

UNESCO – 7 Place de Fontenay – 75352 Paris Cedex 07 SP, France
http://ioc.unesco.org - contact phone: +33 (0)1 45 68 03 18
E-mail: v.ryabinin@unesco.org

IOC Circular Letter No 2902
(Available in English only)

IOCV/R/BA/ah/RB
17 August 2022

To : Tsunami National Contacts (TNCs),
National Tsunami Warning Centres (NTWCs), and
Tsunami Warning Focal Points (TWFPs) of the Intergovernmental Coordination Group of
the Pacific Tsunami Warning and Mitigation System (ICG/PTWS)

cc. : Official National Coordinating Bodies for liaison with the IOC,
Permanent Delegates/Observer Missions to UNESCO, and
National Commissions for UNESCO of IOC ICG/PTWS Member States
Directors of UNESCO and IOC Regional Offices in the Asia/Pacific Region
Permanent Observers to ICG/PTWS
Director Pacific Tsunami Warning Center (PTWC)
Director, Northwest Pacific Tsunami Advisory Center (NWPTAC)
Director, South China Sea Tsunami Advisory Center (SCSTAC)
Director, International Tsunami Information Center (ITIC)
ICG/PTWS Officers
ICG/PTWS Steering Committee

Subject: PTWC Interim Procedures and PTWS products for Tsunamis developed
after the Hunga Tonga Hunga Ha'apai Volcano event (User's Guide and
Informational webinar on 6 September 2022)

Intergovernmental Oceanographic Commission
Technical Series



188

**Hunga Tonga – Hunga Ha'apai
Volcanic Tsunami Hazard
Response**

**PTWC Procedures and PTWS Products
User's Guide (version 1.6)**

UNESCO

PTWS Tsunami Preparedness Capacity Assessment (TPCA)

ICG/PTWS-XXXI endorsed the conduct of the **PTWS-TPCA as the first system wide measurement of the existing capacities to inform next efforts to improve the PTWS** under the kind support of ESCAP and **requested the PTWS Steering Committee to provide the leadership role** in the intersessional period for the execution, reporting and follow-up.

TPCA Objectives

1. **To evaluate the existing technical capacity** of the Pacific Tsunami Warning & Mitigation System (PTWS)
2. **To identify specific gaps and capacity development requirements** at regional and national levels for strengthening the technical and policy aspects of the tsunami warning and mitigation system in the Pacific
3. **To reinvigorate political commitment and provide recommendations for investments in tsunami preparedness**, aiming to address the identified gaps in the PTWS area through regional and subregional cooperation

TPCA Draft Technical Report, June 2025

Intergovernmental Oceanographic Commission

Workshop Report No. XXX



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**Pacific Tsunami Warning and Mitigation
System Tsunami Preparedness Capacity
Assessment (ESCAP Phase II)
Evaluation Workshop Summary Report**

Manila, Philippines

14–16 May 2025

Based on the responses received
from 91% of the ICG/PTWS
Member States (42 out of 46)

UNESCO

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ICG/PTWS Evaluation and
Recommendations Workshop,
14–16 May 2025, Manila, Philippines,
hosted by PHIVOLCS





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THANK YOU 