



**unesco**

Intergovernmental  
Oceanographic  
Commission



## *Exercise IOWave23 – Overview & Preliminary Results*

*Ms Weniza  
Chair TT-IOWave23  
weniza@bmkg.go.id*

*Acknowledgements:*

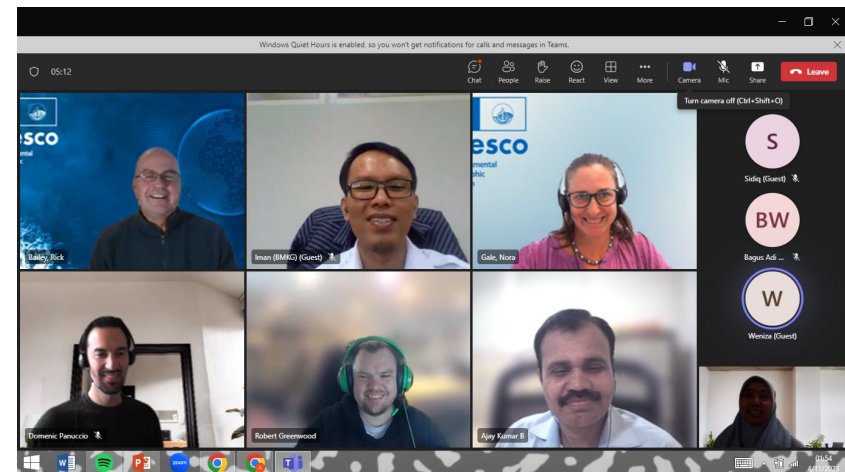
*Rick Bailey and Nora Gale (Secretariat of ICG/IOTWMS  
UNESCO-IOC)*

# IOWave23 Task Team

- **Ms. Weniza**, BMKG, Indonesia – Chair
- **Dr. Ajay Kumar**, INCOIS, India – Vice Chair
- **Ms. Kate Parkey**, Australia – Member
- **Mr. Domenic Panuccio**, Australia – Member
- **Mr. Khalid Al-Wahaibi**, Oman
- **Mr. Ameer Hyder**, Pakistan - Member
- **Mr. Tariq Ibrahim**, Pakistan - Member
- **Dr. Ali Khoshkholgh**, Iran - Member
- **Mr. Sidiq Hargo**, Indonesia - Member
- **Ms. Gloria Simangunsong**, Indonesia – Member
- **Mr. Bagus Adi Wibowo**, Indonesia – Member
- **Mr. Ardito**, IOTIC - Member

*TT Meeting – 4 April, 15 June 2023*

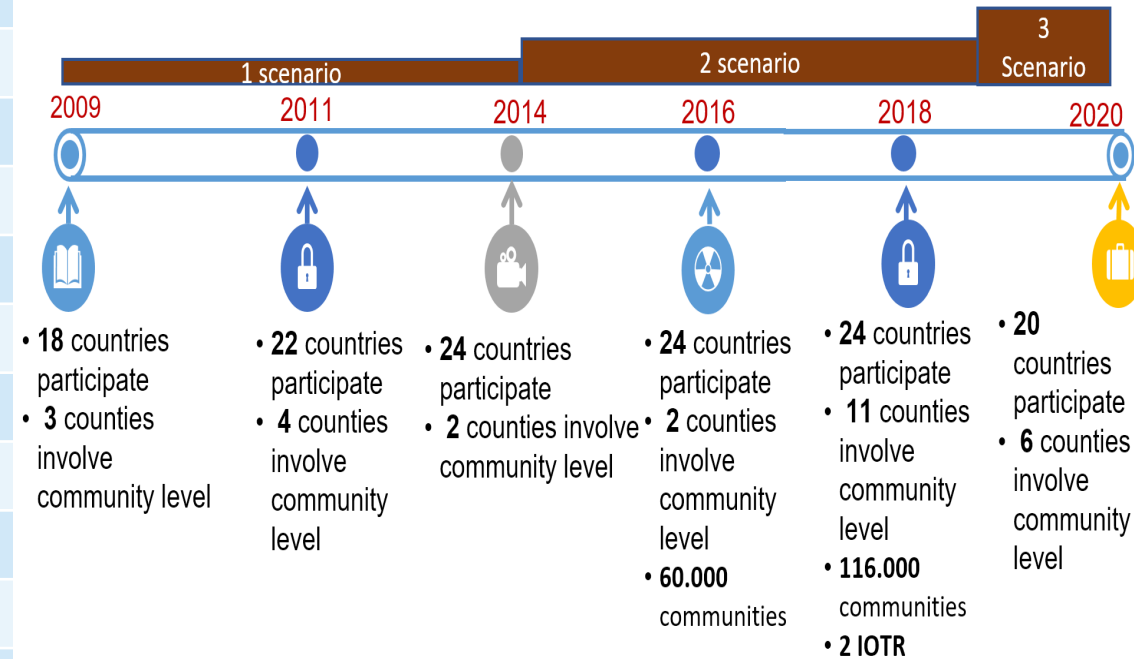
*Meeting with TSP– 12, 18, 25 April, 30 June 2023*



# Previous IOWave Exercises



IOWave	Date	Scenario
IOWave09	14 Sep 2009	Mag 9.2, Northern Sumatra 3.3N, 95.96E
IOWave11	12 Oct 2011	Mag 9.2, Northern Sumatra 3.30N, 95.96E
IOWave14 Day 1	9 Sep 2014	Mag 9.1, South of Java 10.40S, 112.80E
IOWave14 Day 2	10 Sep 2014	Mag 9.0, Off Coast of Pakistan 24.80N, 62.20E
IOWave16 Day 1	7 Sep 2016	Mag 9.2, Southern Sumatra 1.93S, 99.22E
IOWave16 Day 2	8 Sep 2016	Mag 9.0, Off Coast of Pakistan 24.80N, 62.20E
IOWave18 Day 1	04 Sep 2018	Mag 9.0, Off Coast of Iran 24.8N, 58.2E
IOWave18 Day 2	05 Sep 2018	Mag 9.3, Northern Sumatra 3.30N, 96.0E
IOWave20 Day 1	06 Oct 2020	Mag 9.1, South of Java 10.40S, 112.80E
IOWave20 Day 2	13 Oct 2020	Mag 9.2, Andaman Islands 12.63N, 93.50E
IOWave20 Day 3	20 Oct 2020	Mag 9.0, Off Coast of Pakistan 24.80N, 62.20E



# IOWave23 Exercise Purpose

---



## Purpose:

- To evaluate and improve **the effectiveness of the IOTWMS**, through its operational TSPs, NTWCs, NDMOs and LDMOs, in responding to a potentially destructive tsunami.
- To test their **operational lines of communications**, to **review their tsunami warning and emergency response SOPs**, and to **promote emergency and community preparedness**.

# Exercise Involvement

---



The following organisations were involved in the Exercise:

- Tsunami Service Providers (TSPs)
- National Tsunami Warning Centres (NTWCs)
- National Disaster Management Organisations (NDMOs)
- Local Disaster Management Organisations (LDMOs)
- Media Organisations
- Local Communities

# IOWave23 Objectives are to validate:

## Objectives 1 and 2 survey question are to be completed with input from DMO and/or NTWC :

1. Procedures in place to ensure tsunami warnings get to all in the community, including those with disabilities, all genders, elderly, and youth.
2. Level of community awareness, preparedness, and response.

## Objective 3 and 4 survey question are to be completed with input from DMO and/or NTWC depending on how tsunami response role are structure in country:

3. SOPs within countries for generating and disseminating tsunami warnings to their relevant emergency response agencies, other authorities, media, and the public.
4. SOPs within countries for the issuing of public safety messages, ordering evacuations and where possible issuing all-clear messages.

## Objectives 5 to 8 survey question are to be completed with input from NTWC :

5. Dissemination by TSPs of Tsunami Bulletin Notification Messages to NTWCs via Tsunami Warning Focal Points (TWFPs) of Indian Ocean countries and the reception by NTWCs of the TSP messages.
6. Access by NTWCs to the tsunami bulletins and other products on the TSP websites, and the use of that information to produce national warnings. Validate the reporting by NTWCs to the TSPs of their National Tsunami Warning Status.
7. Reporting by NTWCs to the TSPs of their National Tsunami Warning Status.
8. **Receipt and understanding by NTWCs of new TSP service for tsunamis generated by non-seismic and complex sources.**

## Participation Level

---



- Member States are invited **to participate in at least one scenario** or all **scenarios** (if country fall under threat);
- Member States are encouraged **to conduct community evacuations**;
- All Member States, particularly those piloting the Programme, are encouraged **to use the UNESCO-IOC Tsunami Ready guidelines and indicators to guide their community preparation for IOWave23 exercise.**

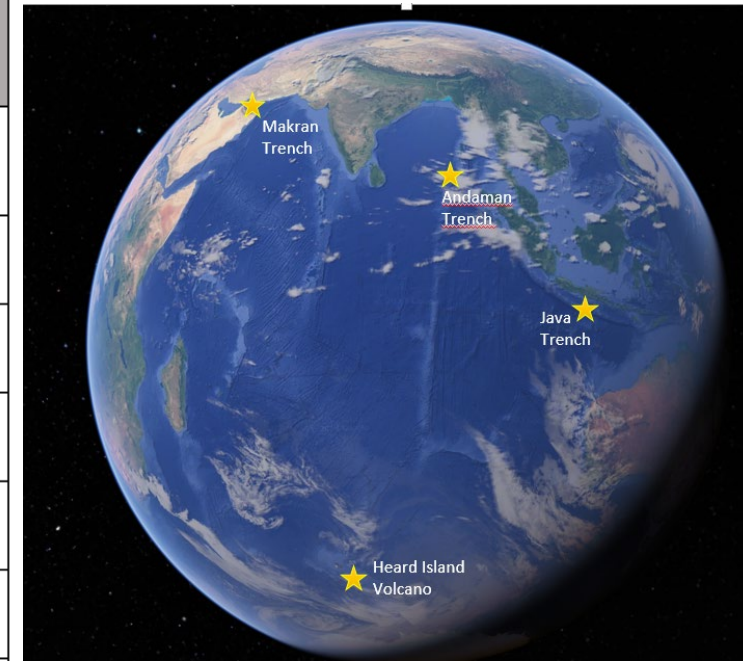
# IOWave23 Scenario

25 countries under threat

20 countries under threat

19 countries under threat

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






# IOWave23 Check List & Timelines



• Announcement by <a href="#">IOC Circular Letter 2945</a>	May 2023
• Set up IOWave23 Exercise National Coordination Committee involving NTWC, LDMOs, NDMOs, and all other important stakeholders including private industry participants.	May 2023
• Decide on level of participation and identify communities for evacuation (where applicable).	May 2023
• Assign agency roles including exercise controller, key participants, and observers.	May 2023
• Nominate a National Contact for IOWave23.	May 2023
• Issue of IOWave23 Exercise Manual by the Secretariat.	May 2023
• Secure funding and support for community activities.	Ongoing
• Develop a National IOWave23 Exercise Manual to plan/guide activities, including those at community level.	May 2023
• Address indicators of UNESCO-IOC Tsunami Ready Recognition Programme or similar national initiative (where appropriate).	Ongoing
• Share IOWave23 Exercise in-country participation plans with the ICG/IOTWMS Secretariat.	June 2023
• UNESCO-IOC Standard Operating Procedure (SOP) Training Workshops (regionally online and nationally face-to-face).	July - August 2023
• Organise and hold pre-exercise national workshop(s) and meeting(s) with key stakeholders including media.	August – September 2023
• Ensure Standard Operating Procedures are in place and up to date.	August – September 2023
• Prepare a media press release.	One week before the Exercise
• Participate in IOWave23 Exercise.	4 / 11 / 18 / 25 Oct. 2023
• Hold post-exercise hot and cold debriefs.	After the Exercise
• Complete the IOWave23 online post-exercise evaluation.	November 2023
• Revise and improve SOPs in accordance with lessons learnt during the Exercise.	After the Exercise
• IOC-UNESCO Post-IOWave23 Exercise Lessons Learnt Workshop (online).	December 2023

# IOC Circular Letter 2945: Announcement of the Indian Ocean Tsunami Exercise (IOWave23) on 4, 11, 18, and 25 October 2023





INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION  
COMMISSION OCÉANOGRAPHIQUE INTERGOUVERNEMENTALE  
COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL  
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ  
اللجنة الدولية الحكومية لعلوم المحيطات  
政府間海洋学委员会

---

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.vyabin@unesco.org

**IOC Circular Letter No 2945**  
(Available in English only)

IOC/VR/BA/RB/ah  
4 May 2023

**To :** ICG/IOTWMS<sup>1</sup> Tsunami National Contacts

**cc. :** Official National Coordinating Bodies for liaison with the IOC  
Permanent Delegates/Observer Missions to UNESCO and National Commissions  
for UNESCO in ICG/IOTWMS Member States  
UNESCO Offices in Doha, Islamabad, Jakarta, New Delhi, and Tehran  
ICG/IOTWMS Chair and Vice-Chairs  
ICG/IOTWMS Working Group Chairs and Vice-Chairs  
ICG/IOTWMS Task Team IOWave23  
ICG/IOTWMS Tsunami Warning Focal Points  
ICG/IOTWMS National Tsunami Warning Centres

**Subject: Announcement of the Indian Ocean Tsunami Exercise (IOWave23)  
on 4, 11, 18, and 25 October 2023**

The IOC Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) at its 13<sup>th</sup> session (Bali, Indonesia, 28 November–1 December 2022, decided to organise an Indian Ocean Wave Exercise in 2023 (IOWave23) and established a Task Team to plan and conduct the exercise. At its most recent intersessional meeting, held online on 4 April, and after consultation with key stakeholders, the Task Team IOWave23 decided to conduct IOWave23 with four different scenarios on 8, 11, 18, and 25 October 2023. The four scenarios will allow individual Member States to decide the type and number of exercise scenarios to participate in. This letter provides background information and details of the IOWave23 in which all ICG/IOTWMS Member States are encouraged to participate.

To date six IOWave exercises have been conducted (2009, 2011, 2014, 2016, 2018 and 2020). The exercises have been designed to test the receipt and dissemination of tsunami notifications along national tsunami warning chains, as well as test appropriate responses aligned with pre-established Standard Operating Procedures (SOPs). Throughout the IOWave Exercises, the engagement of coastal communities in tsunami education campaigns, preparedness measures, and evacuation

---

<sup>1</sup> ICG/IOTWMS Member States include Australia, Bangladesh, Comoros, Djibouti, France, India, Indonesia, Iran (Islamic Republic of), Kenya, Madagascar, Malaysia, Maldives, Mauritius, Mozambique, Myanmar, Oman, Pakistan, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, Tanzania, Thailand, Timor Leste, United Arab Emirates and Yemen.

<b>Chairperson</b>	<b>Vice-Chairpersons</b>		
Mr Anel Heman TROISI Technical Secretary Navy Hydrographic Service Av. Matées de Dca 2124 C1370ABV Buenos Aires ARGENTINA	Dr Marie-Alexandrine SICRE Directrice de Recherche Centre national de la recherche scientifique (CNRS) 3 rue Michel Ange 75016 Paris FRANCE	Mr Frederico Antonio SARAYVA NOGUEIRA Navy Captain (Ret) Directorate of Hydrography and Navigation Rua Barão de Jaceguai S/N 24048-000 Niterói BRAZIL	Dr Karim HLM Directeur de Recherche Institut National de Recherche Météorologique (INRH) 02, Boulevard Sid Abderrahmane Ain Dab 20180 Casablanca MOROCCO
<b>Executive Secretary</b> Dr Vladimir RYABININ Intergovernmental Oceanographic Commission – UNESCO 7 Place de Fontenay 75352 Paris Cedex 07 SP FRANCE	Dr Alexander FROLOV Assistant to the President Academia Kurchatova pl. 1 123182 Moscow RUSSIAN FEDERATION	Dr Sriwiesha Kumar TUMMALA Director Indian National Centre for Ocean Information Services (INCOIS) Pragathi Nagar (BO), Nizampet (BO) Hyderabad 500090 INDIA	

The Circular Letter announcing Exercise IOWave23 was issued on 4 May 2023.

It requested all Tsunami National Contacts to nominate one **National Contact to IOWave23** to oversee completion of **post-exercise evaluation**.

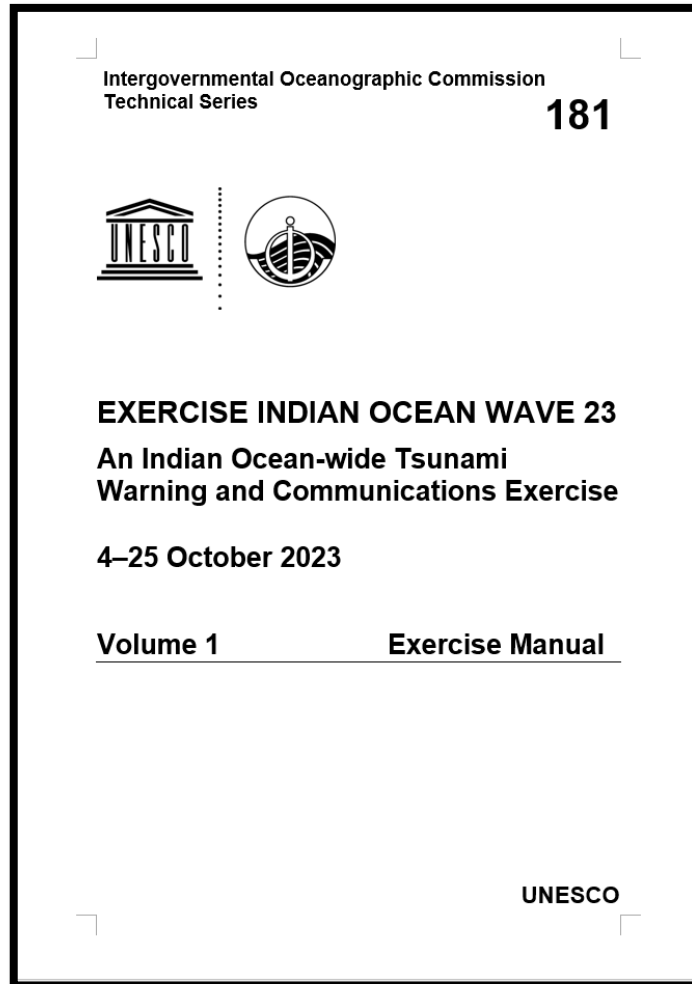
## Nominations received from:

Australia, Bangladesh, France, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Malaysia, Maldives, Mauritius, Mozambique, Myanmar, Oman, Pakistan, Seychelles, Singapore, South Africa, Sri Lanka, Tanzania, Timor-Leste, and United Arab Emirates (23 Countries)

## Nominations not received from:

Comoros and Yemen (2 Countries).

# IOWave23 Manual & Supplements



- The IOWave23 **Exercise manual** was completed in July and the **Supplements (4)** were completed in August 2023.
- The **manual** provides an overview *Purpose, Objectives, Scope, Exercise Success Criteria, Types of Exercise, Scenarios, Dates, Checklist of Activities for Member States, Exercise Evaluation, Exercise Observers*
- The **supplements** contain all TSP bulletins and products
- All information and documents was **be made available on the exercise website:**

<https://oceanexpert.org/event/3916>

# Pre-IOWave23 Briefs for Member States

---



Exercise IOWave23 briefs were provided to all Member States as part of the Standard Operating Procedure workshops in July and August 2023.

- **Western Indian Ocean Member States** Training Workshop on Standard Operating Procedures for National Tsunami Warning Centres and Disaster Management Organisations (online), 3-6- July 2023
- **Eastern Indian Ocean Member States** Training Workshop on Standard Operating Procedures for National Tsunami Warning Centres and Disaster Management Organisations (online), 10-13- July 2023
- **Northwest Indian Ocean Member States** Training Workshop on Standard Operating Procedures for National Tsunami Warning Centres and Disaster Management Organisations (online), 7-8 August 2023

The workshops included information on:

- Exercise IOWave23 and scenarios
- New TSP Products for tsunamis generated by tsunami and complex sources
- Accessing products on TSP websites
- Participation of DMOs and communities in Exercise IOWave23
- How to plan, conduct and evaluate exercises

## Exercise IOWave23

- Exercise IOWave23 was successfully conducted on 4, 11, 18, and 25 October 2023.
- The 3 IOTWMS Tsunami Service Providers of Australia, India, and Indonesia issued tsunami bulletins in real-time.
- 19 IOTWMS Member States completed the online survey: Australia, Bangladesh, France (Indian Ocean Territories), India, Indonesia, Iran, Madagascar, Maldives, Mauritius, Myanmar, Oman, Pakistan, Seychelles, Singapore, South Africa, Sri Lanka, Tanzania, Thailand, and United Arab Emirates.



# Nicobar Islands, India – M9.0 – Andaman Trench



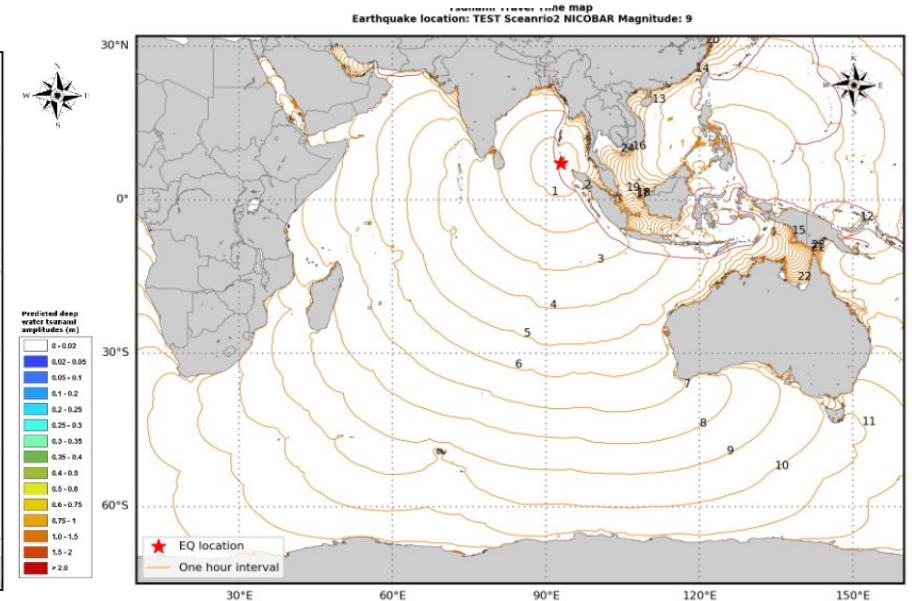
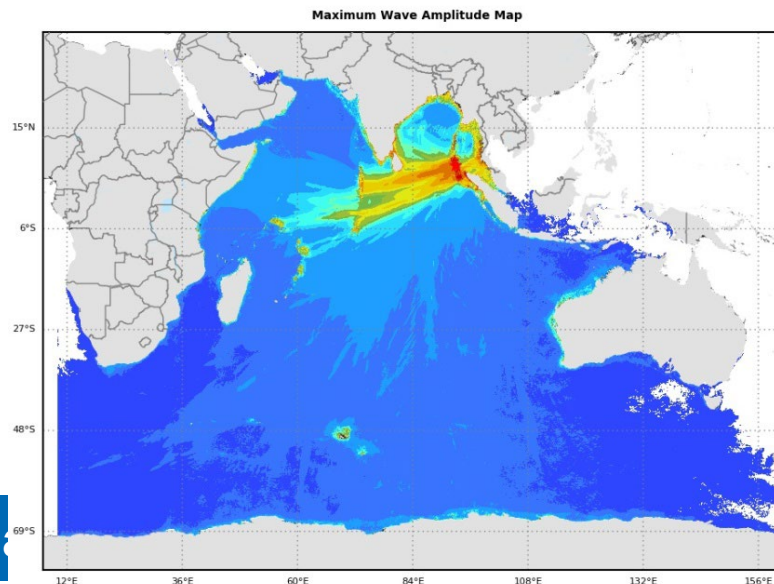
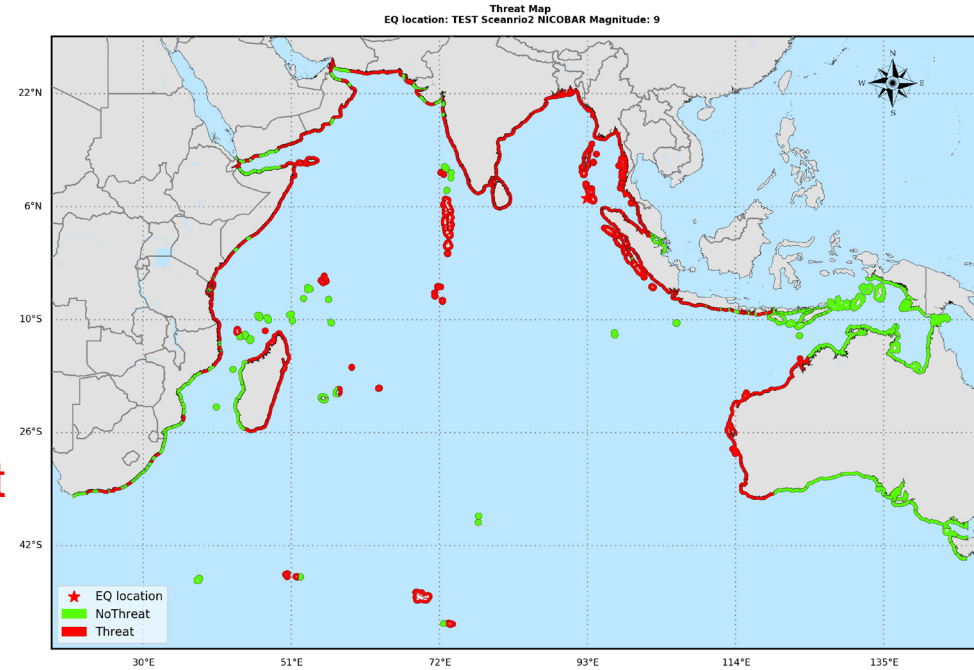
Mag 9.0 Epicentre: 7.2 N 92.9 E

Nicobar Islands, India

Origin Time: 0130Z

Australia	0807Z	1.1m
Bangladesh	0503Z	2.0m
Comoros	1212Z	0.7m
Djibouti	1142Z	0.7
France	1214Z	1.7m
India	0132Z	12.5m
Indonesia	0150Z	10.1m
Iran	1347Z	0.7m
Kenya	0954Z	1.4m
Madagascar	0927Z	1.1m
Malaysia	0451Z	1.5m
Maldives	0441Z	6.6m
Mauritius	0743Z	1.6m
Mozambique	1049Z	1.3m
Myanmar	0304Z	2.3m
Oman	1002Z	1.1m
Pakistan	1720Z	0.7m
Seychelles	0555Z	1.3m
Somalia	0841Z	2.5m
South Africa	1935Z	0.7m
Sri Lanka	0317Z	6.0m
Tanzania	1029Z	1.1m
Thailand	0258Z	3.4m
UAE	0056Z+1	0.7m
Yemen	0856Z	1.8m

25 countries under threat



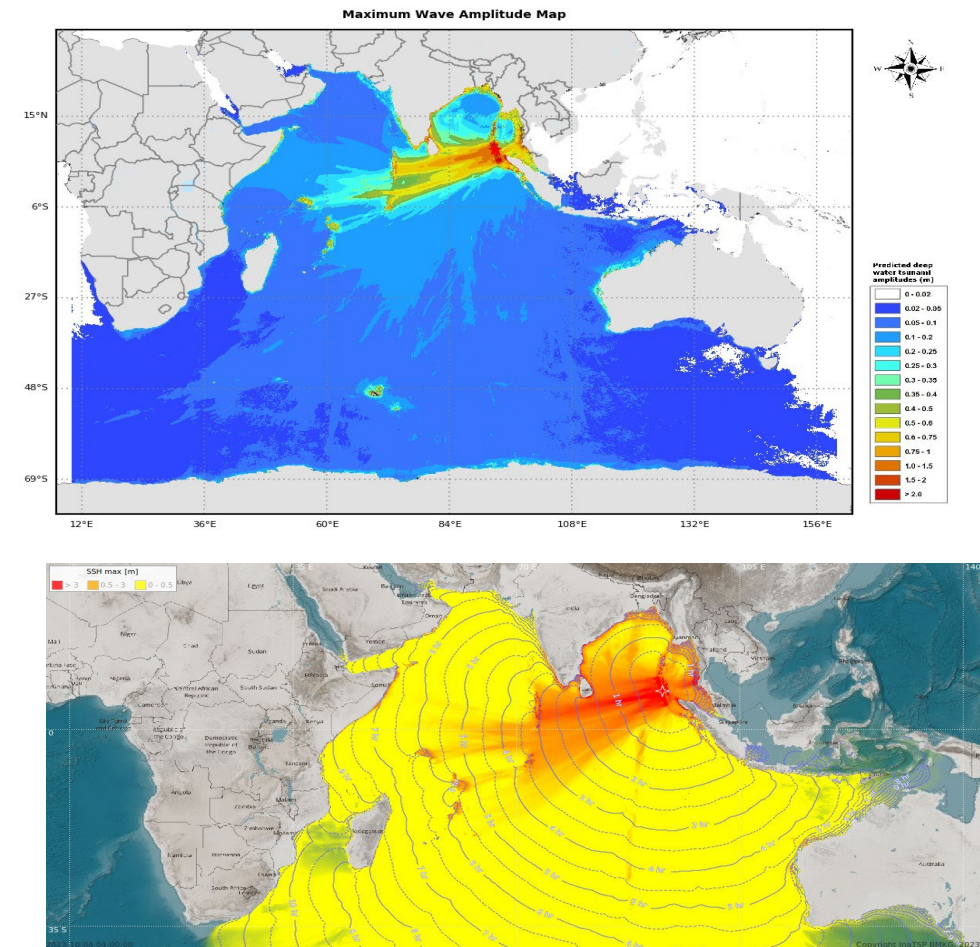
Webinar

# Scenario – 1

## Nicobar-India, M9.0 Mwp, 04 October 2023 0400 UTC.

Date	Time (UTC)	Bulletin #	Detail
04-Oct-23	0400		Earthquake occurs
04-Oct-23	0408	1	Earthquake Bulletin (M8.6)
04-Oct-23	0415	2	Potential Threat (M9.0)
04-Oct-23	0430	3	Confirmed Threat (M9.0)
04-Oct-23	0500	4	Confirmed Threat (M9.0)
04-Oct-23	0600	5	Confirmed Threat (M9.0)
04-Oct-23	0700	6	Confirmed Threat (M9.0)
04-Oct-23	0800	7	Confirmed Threat (M9.0)
04-Oct-23	0900	8	Confirmed Threat (M9.0)
04-Oct-23	1000	9	Confirmed Threat (M9.0)
04-Oct-23	1100	10	Confirmed Threat (M9.0)
04-Oct-23	1200	11	Confirmed Threat (M9.0)
04-Oct-23	1300	12	Confirmed Threat (M9.0)
04-Oct-23	1400	13	Confirmed Threat (M9.0)
04-Oct-23	1500	14	Confirmed Threat (M9.0)
04-Oct-23	1600	15	Final Bulletin

Maximum Wave Amplitude Map



# Off Coast of Iran– M9.0 – Makran Trench

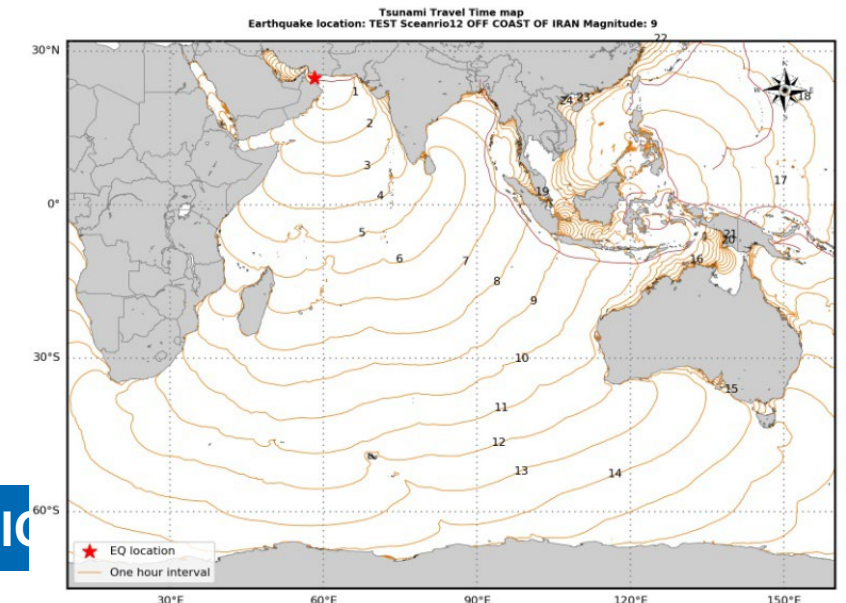
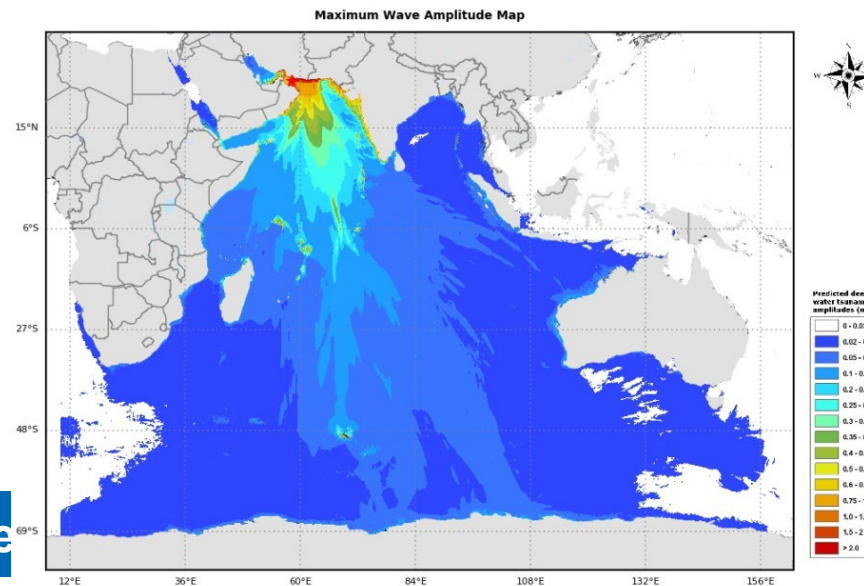
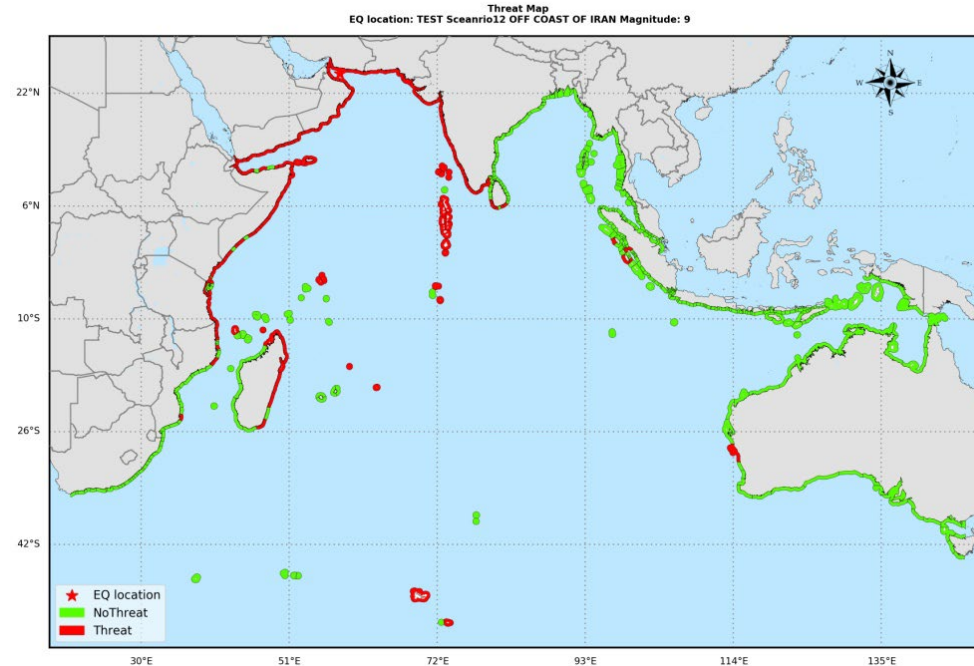
Mag 9.0 Epicentre: 24.8N 58.2E

Off Coast of Iran

Origin Time: 0630Z

Australia	2223Z	0.5m
Comoros	1415Z	0.7m
Djibouti	1154Z	1.7m
France	1926Z	1.0m
India	0844Z	2.3m
Indonesia	1947Z	0.7m
Iran	0634Z	7.1m
Kenya	1333Z	1.7m
Madagascar	1322Z	0.9m
Maldives	0958Z	2.1m
Mauritius	1443Z	0.8m
Mozambique	1802Z	1.0m
Oman	0647Z	8.5m
Pakistan	0633Z	7.2m
Seychelles	1119Z	1.0m
Somalia	0956Z	2.3m
Sri Lanka	1159Z	0.8m
Tanzania	1315Z	1.0m
UAE	0718Z	3.7m
Yemen	0904Z	2.2m

20 countries under threat



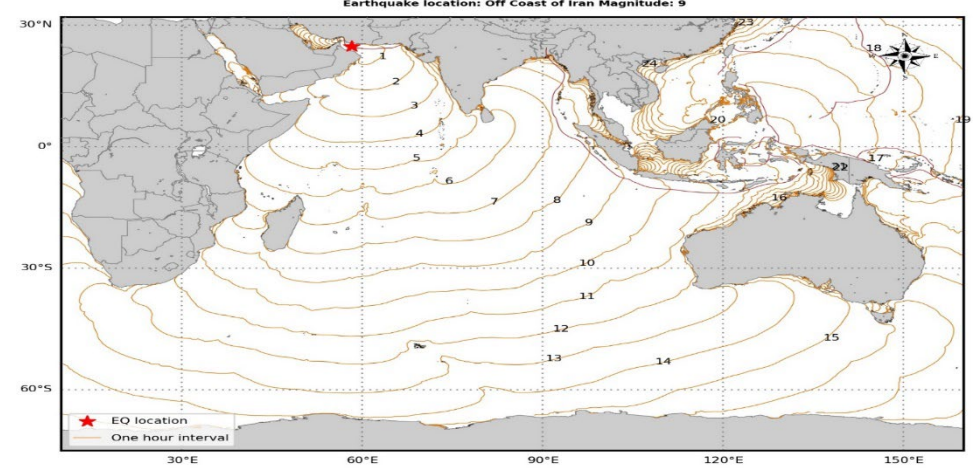
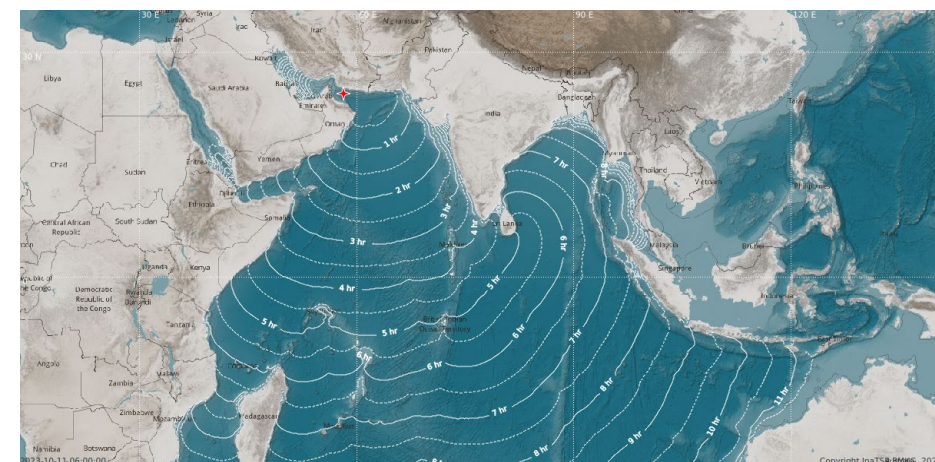


# Scenario – 2

## Off Coast of Iran, M9.0 Mwp, 11 October 2023 0600 UTC.

Date	Time (UTC)	Bulletin #	Detail
11-Oct-23	0600		Earthquake occurs
11-Oct-23	0608	1	Earthquake Bulletin (M8.5)
11-Oct-23	0615	2	Potential Threat (M9.0)
11-Oct-23	0630	3	Confirmed Threat (M9.0)
11-Oct-23	0700	4	Confirmed Threat (M9.0)
11-Oct-23	0800	5	Confirmed Threat (M9.0)
11-Oct-23	0900	6	Confirmed Threat (M9.0)
11-Oct-23	1000	7	Confirmed Threat (M9.0)
11-Oct-23	1100	8	Confirmed Threat (M9.0)
11-Oct-23	1200	9	Confirmed Threat (M9.0)
11-Oct-23	1300	10	Confirmed Threat (M9.0)
11-Oct-23	1400	11	Confirmed Threat (M9.0)
11-Oct-23	1500	12	Confirmed Threat (M9.0)
11-Oct-23	1600	13	Confirmed Threat (M9.0)
11-Oct-23	1700	14	Confirmed Threat (M9.0)
11-Oct-23	1800	15	Final Bulletin

Tsunami Travel Time Map

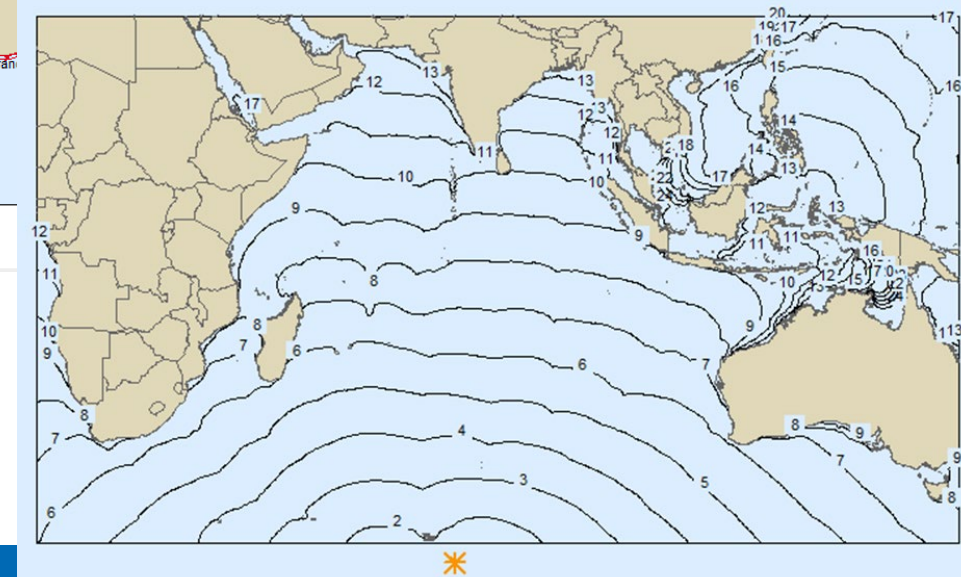
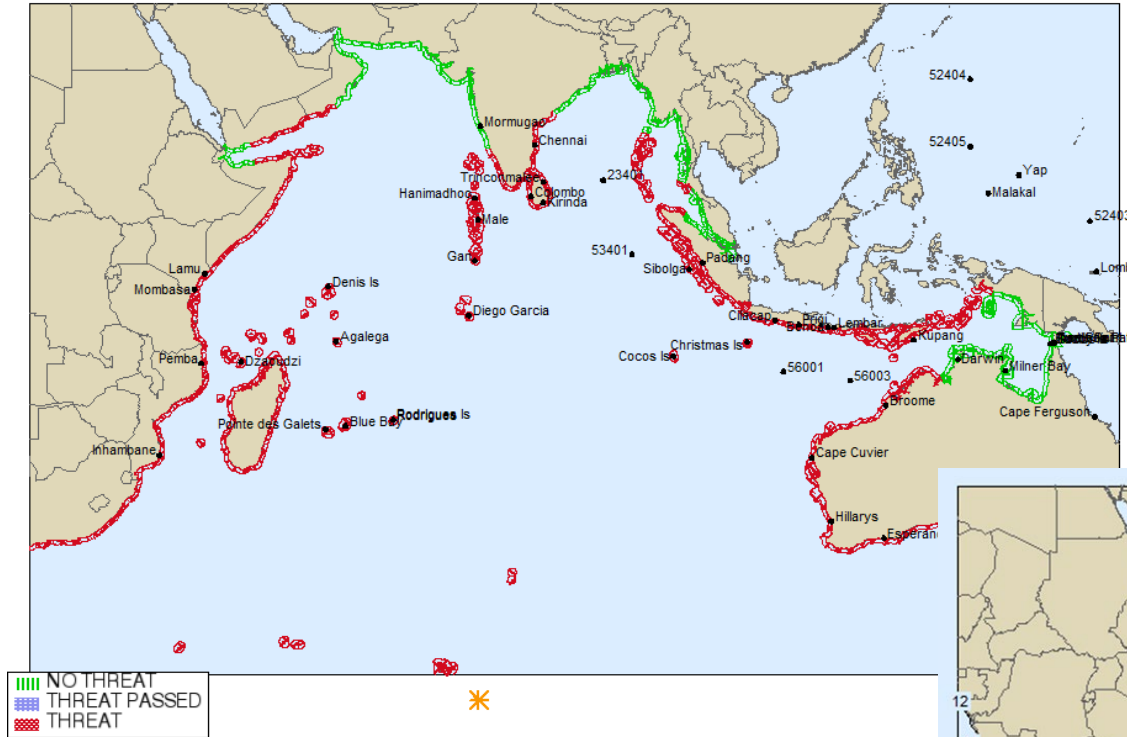


# Scenario – 3 Heard Island Volcano

Epicentre: 53.10S 73.52E  
KERGUELEN ISLANDS REGION

Origin Time: 0000 Z

- Australia 0615Z
- Comoros 0818Z
- France 0134Z
- India 1031Z
- Indonesia 0844Z
- Kenya 0929Z
- Madagascar 0554Z
- Maldives 0903Z
- Mauritius 0555Z
- Mozambique 0702Z
- Myanmar 1155Z
- Oman 1136Z
- Seychelles 0733Z
- Somalia 0928Z
- South Africa 0353Z
- Sri Lanka 0954Z
- Tanzania 0908Z
- Thailand 1145Z
- Timor Leste 1012Z
- Yemen 1046Z



# South of Java, Indonesia– M9.1

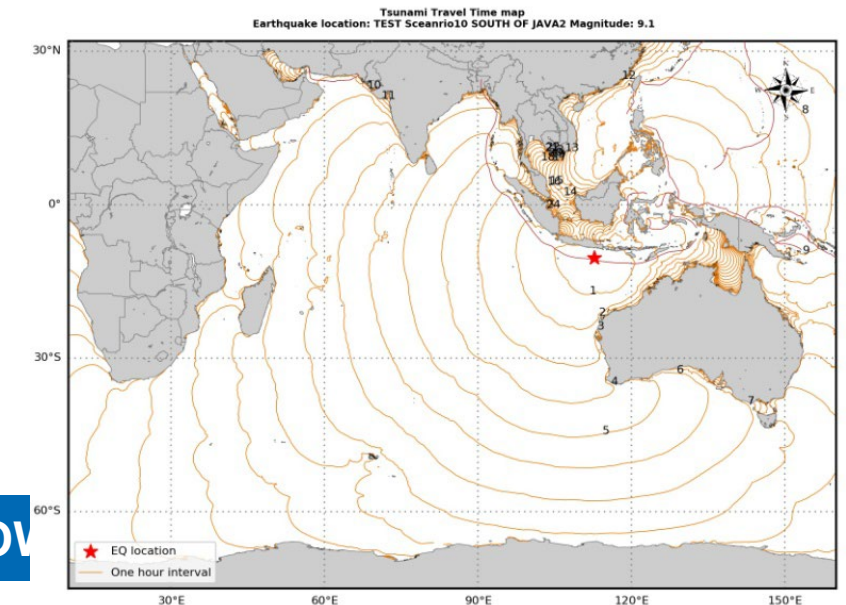
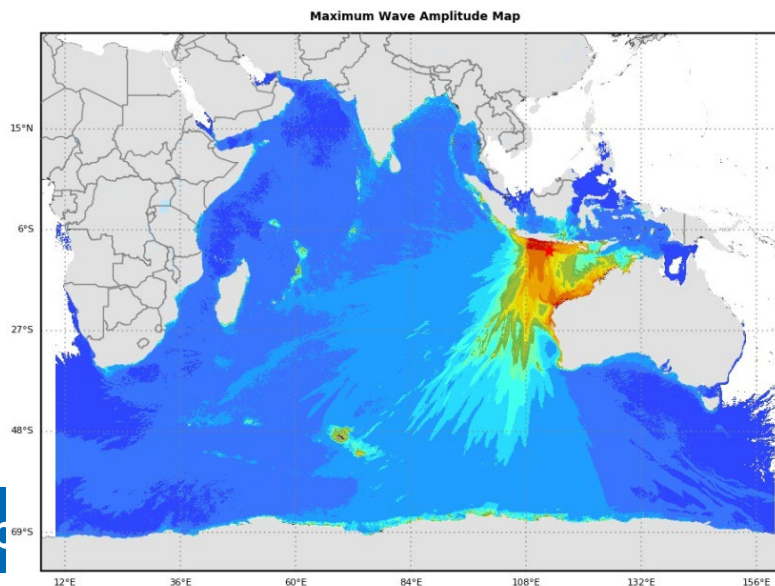
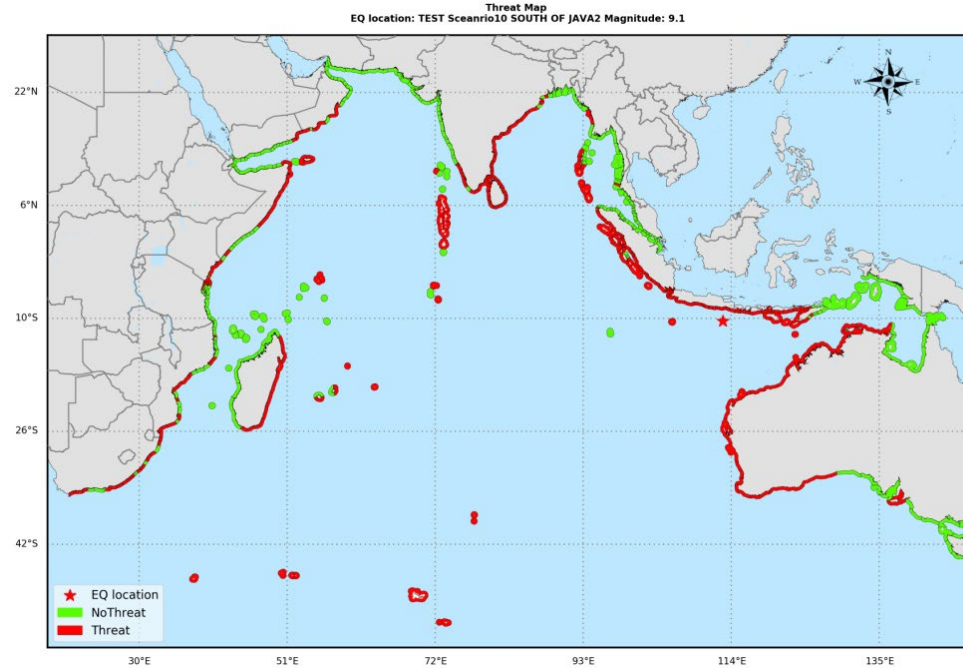


**Mag 9.1 Epicentre: 10.4S 112.8E**  
**South of Java, Indonesia**

Origin Time: 0530Z

Australia	0559Z	8.4m
France	1259Z	2.2m
India	1333Z	1.4m
Indonesia	0532Z	11.9m
Kenya	0136Z+1	0.8m
Madagascar	1454Z	2.6m
Maldives	1126Z	1.2m
Mauritius	1454Z	0.8m
Mozambique	1959Z	0.9m
Myanmar	0146Z+1	0.5m
Oman	1813Z	0.9m
Seychelles	1724Z	0.8m
Somalia	1744Z	1.2m
South Africa	1929Z	1.1m
Sri Lanka	1246Z	1.3m
Tanzania	1958Z	0.8m
Thailand	0402Z+1	0.5m
Timor Leste	0706Z	1.0m
Yemen	1724Z	0.9m

**19 countries under threat**



Web

OV

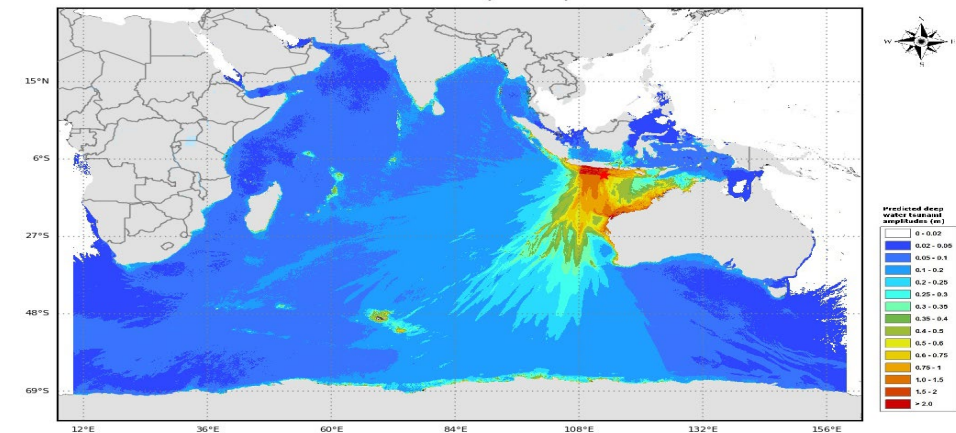
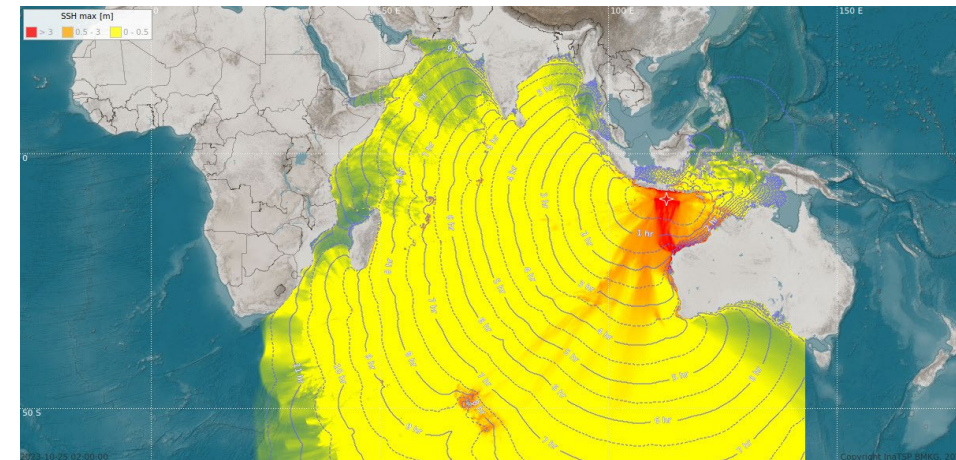
# Scenario – 4

## South of Java, Indonesia, M9.1 Mwp, 25 October 2023 0200 UTC



Date	Time (UTC)	Bulletin #	Details
25-Oct-2023	0200		Earthquake occurs
25-Oct-2023	0208	1	Earthquake Bulletin (M8.6)
25-Oct-2023	0215	2	Potential Threat (M8.8)
25-Oct-2023	0230	3	Confirmed Threat (M9.1)
25-Oct-2023	0300	4	Confirmed Threat (M9.1)
25-Oct-2023	0400	5	Confirmed Threat (M9.1)
25-Oct-2023	0500	6	Confirmed Threat (M9.1)
25-Oct-2023	0600	7	Confirmed Threat (M9.1)
25-Oct-2023	0700	8	Confirmed Threat (M9.1)
25-Oct-2023	0800	9	Confirmed Threat (M9.1)
25-Oct-2023	0900	10	Confirmed Threat (M9.1)
25-Oct-2023	1000	11	Confirmed Threat (M9.1)
25-Oct-2023	1100	12	Confirmed Threat (M9.1)
25-Oct-2023	1200	13	Confirmed Threat (M9.1)
25-Oct-2023	1300	14	Confirmed Threat (M9.1)
25-Oct-2023	1400	15	Final Bulletin

Maximum Wave Amplitude Map



# Participation

*IOTWMS Member States participation in the scenarios included:*

- Andaman Trench Scenario

Bangladesh, India, Madagascar, Myanmar, Seychelles, Singapore, Sri Lanka, Thailand  
(8 Member States)

- Makran Trench Scenario

India, Iran, Oman, Pakistan, United Arab Emirates (5 Member States)

- Heard Island Scenario

Australia, South Africa, Tanzania (3 Member States)

- Java Trench Scenario

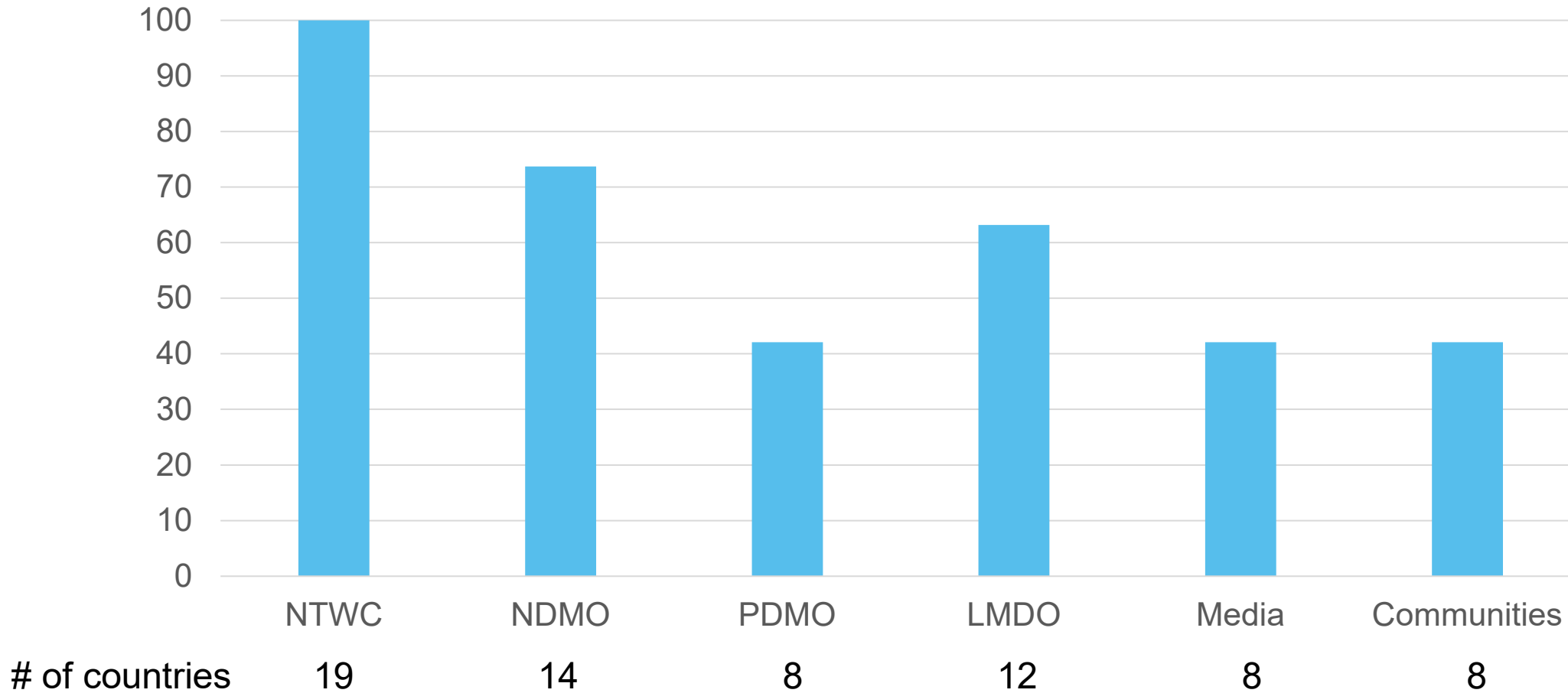
Australia, France, Indonesia, Maldives, Mauritius (5 Member States)

- Multiple Scenarios

Australia, India (2 Member States)

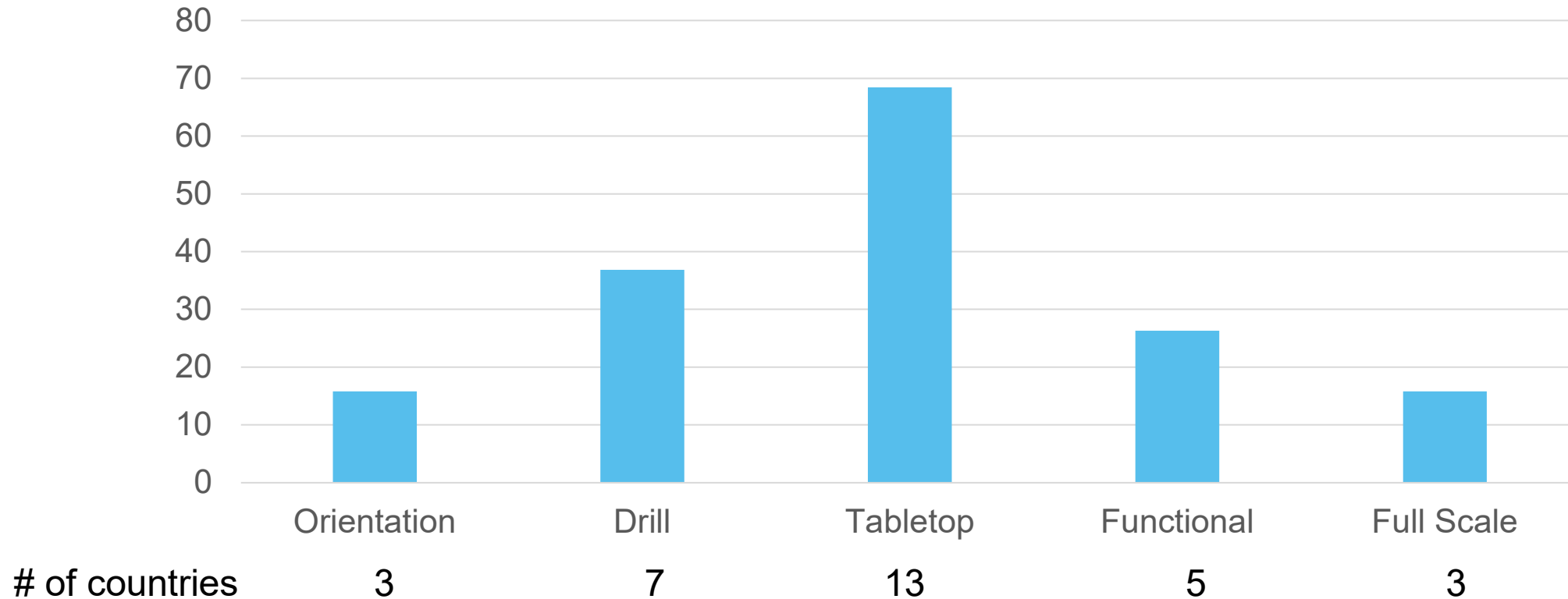
# Stakeholder Involvement

% Countries involving different Stakeholders



# Types of Exercises Conducted

% of Countries participating in each Exercise Type



# Receipt of TSP notification messages

TSP Notification Messages		Received in Time	Received Late	Not Received	Total MS Reporting
TSP-Australia	GTS	94%	0%	6%	16
	Fax	21%	21%	57%	14
	Email	88%	6%	6%	16
	SMS	53%	0%	47%	15
TSP-India	GTS	86%	7%	7%	14
	Fax	58%	0%	42%	12
	Email	93%	0%	7%	14
	SMS	54%	0%	46%	13
TSP-Indonesia	GTS	93%	0%	7%	14
	Fax	31%	15%	54%	13
	Email	86%	7%	7%	14
	SMS	42%	17%	42%	12

*Member State contact details for receipt of TSP notification messages should be verified (Secretariat).*

*GTS and Email showed high rates of receipt while fax while SMS showed low rates of receipt across all Tsunami Service Provides.*

*These results and consist with the June 2023 communications test.*





# Inclusive Tsunami Warning & Mitigation

## *“Early Warnings for All”*

*At least nine (9) IOTWMS Member States have procedures in place to ensure tsunami warnings get to all in the community including those with disabilities, all genders, elderly, and youth.*

*Of the eight (8) countries that held pre-exercise awareness activities, 75% (6) reported that the activities catered for people with disabilities, all genders, elderly, and youth.*

*Of the nine (9) countries with evacuation maps, 78% (7) reported the maps account for evacuation of disabled persons, all genders, elderly, and youth.*



# Evacuations

*At least seven (7) IOTWMS Member States held community evacuations including India, Indonesia, Iran, Maldives, Mauritius, Sri Lanka, and the United Arab Emirates*

- **India:** Over **40,000** people from around 42 coastal villages, including community members, school students, and the elderly, were evacuated to shelters/safe places during the Andaman trench scenario.
- **Indonesia:** 11 coastal provinces participated in the Java trench scenario with the evacuation of over **1,650** community members.
- **Iran:** About **500** people in Chabahar and Jask undertook community evacuations during the Makran trench scenario.



## Evacuations cont.

---

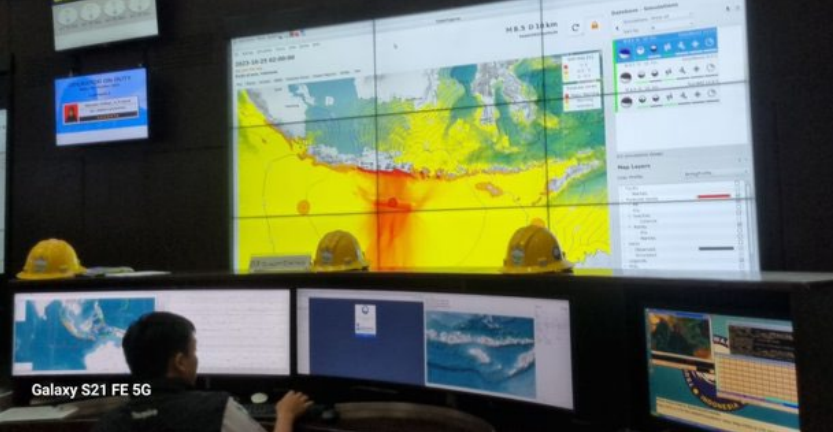
- **Maldives:** In Baa Kendhoo evacuations of community members including vulnerable groups took place during the Java scenario.
- **Mauritius:** Evacuations were carried out at Quatres Soeur and Riviere Des Galets where about **100** people including adults, children, elderly, and disabled people moved to higher ground. In Rodrigues, about 200 people were evacuated from Gravier, St Francois, and Pointes Coton.
- **Sri Lanka:** Nearly **2,000** people participated in community and school evacuations. The communities of Pudawaikkadu Village, Maruthankudah Village, and Sagarapura Village (Trincomalee District) included persons with disabilities, pregnant and lactating mothers, elderly, and children in the drill.
- **United Arab Emirates:** An evacuation exercise was held in Al Righailat area in the Emirate of Fujairah. In total, approximately **500** people participated including residents, visitors, local authorities, and non-governmental organisations. Participation included all community categories: men, women, children, elders, youth, and people with disabilities.

# Community Evaluation of Tsunami Ready Indicators

*At least seven (7) IOTWMS Member States used Exercise IOWave23 as an opportunity to evaluate the UNESCO-IOC Tsunami Ready indicators in communities.*

- **India:** 32 communities in Odisha
- **Indonesia:** 7 communities: 1) Serangan Bali, 2) Cikakak Jawa Barat, 3) Pangarangan Banten, 4) Glagah Yogyakarta, 5) Kemadang Yogyakarta, 6) Sidaurip Jawa Tengah, 7) Tambakrejo Jawa Timur
- **Iran:** Jask
- **Maldives:** B. Kendhoo
- **Sri Lanka:** 1) Senthooor Grama Niladari and 2) Jayanara Grama Niladari
- **Thailand:** 1) Banaownang Tambon Aow Nang Meung District, Krabi Province and 2) Bannamkem, Tambon Bangnuang, Takua Pa District, Phang Nga Province
- **United Arab Emirates:** Al Righailiat






# THANK YOU

GLADI LAPANG ( DRILL ) & TABLE TOP EXERCISE /TTX/ BENCANA TSUNAMI Kabupaten Bantul

**INDIAN OCEAN WAVE 23 (IOWave23) EXERCISE**

25 Oktober 2023




RAYMOND NYAMWIHULA

JENISTA MHAGAMA

UTAYARI WA NCHI KUKABILIANA NA ATHARI ZA EL-NINO

NAULI - JELA MIKA THELATHINI KWA KUKUTWA NA H





**THANK YOU**

# Finalising Report on Exercise IOWave23

## ***Next steps for Task Team on IOWave23 together with Secretariat***

1. *Review survey responses*
2. *If more information is required, write to IOWave23 Exercise Contacts*
3. *Compile all survey results*
4. *Get 1-page country summaries from all Member States*
5. *Summarise recommendations from the post-Exercise IOWave23 webinar*
6. *Draft Exercise Report based on:*
  - *Survey results*
  - *1-page country summaries*
  - *Recommendations from post-IOWave23 webinar*
7. *Seek feedback from Member States on Draft Report*
8. *Adoption of report by ICG/IOTWMS (at 14<sup>th</sup> Session in Jakarta, December 2023) and UNESCO-IOC*
9. *Publication of report as IOC Technical Series 181, Volume 2*

# Content of Exercise IOWave23 Report

---

## **1. Introduction**

*Background, Exercise Content, and Participation*

## **2. Exercise Objectives and Results**

*Objectives 1-8 (based on survey responses)*

## **3. Success Criteria of the Exercise**

*Planning, organization and conduct*

*Reported benefits*

*Suggested improvements for future exercises*

## **4. Country Reports**

*Overall participation*

*Community evacuations*

*Evaluating Tsunami Ready Indicators*

## **5. Observer Reports**

## **6. Lessons Learnt Webinar on Exercise IOWave23**

*New TSP products non-seismic generated tsunami*

*Involving communities in IOWave exercises*

*Exercising Tsunami Ready Indicators*

*Recommendations for next IOWave Exercise*