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4.1 How to Plan, Conduct, and Evaluate Exercises

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Background



Exercises are activities that simulate a real-life situation.

Tsunami exercises provide an opportunity to review and test Standard Operating Procedures (SOPs) and reduce the potential for complacency among countries that have not recently experienced a tsunami event.

Key players, such as agencies and communities, can review or test procedures (SOPs) and practice participation within defined roles.

Exercise benefits include improved coordination within agencies and between agencies, operational readiness, better response times, clarification of roles and responsibilities, and increased public awareness.

UNESCO-IOC Tsunami Ready preparedness indicator “*A community tsunami exercise is conducted at least every 2 years*”.

In the Indian Ocean, six regional exercises have been conducted since 2009. The evolution of ocean wide exercises in the Indian Ocean is summarized here: <https://www.ecomagazine.com/in-depth/featured-stories/evolution-of-ocean-wide-exercises-in-the-indian-ocean>

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Reference Documents



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**Intergovernmental Oceanographic Commission
Manuals and Guides** **58**




United Nations
Educational, Scientific and
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**How to Plan, Conduct
and Evaluate UNESCO/IOC
Tsunami Wave Exercises**

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**Intergovernmental Oceanographic Commission
Technical Series** **181**




**EXERCISE INDIAN OCEAN WAVE 23
An Indian Ocean-wide Tsunami
Warning and Communications Exercise**

4–25 October 2023

Volume 1 **Exercise Manual**

UNESCO



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COMMISSION Océanographique InterGouvernementale
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МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
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IOC Circular Letter No 2945 **IOCVR/BA/RB/lah**
(Available in English only) **4 May 2023**

To : ICG/IOTWMS¹ Tsunami National Contacts

C.c. : 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 13th 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

¹ 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.

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IOC Circular
Letter 2945
Announcing
Exercise
IOWave23

Documents are available on this workshop's webpage: <https://oceanexpert.org/event/3935> and
Exercise Indian Ocean Wave 2023 (IOWave23) webpage: <https://oceanexpert.org/event/3916>

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Exercise Aims, Objectives, Key Performance Indicators

Exercise Success Criteria relate to the exercise aim, objectives, and key performance indicators (KPIs).

Aim: A broad statement of intent such as “*To improve tsunami warning capacity in country*” or “*To participate in Exercise Indian Ocean Wave 2023*”.

Objectives: A objective is a statement of what is to be done stated as a result. For example, “*Utilize IOTWMS TSP products for timely national hazard assessment*” or “*Validate that the dissemination of warnings and information/advice by national tsunami warning centres to relevant in-country agencies and the public is accurate and timely*”.

Key performance indicators (KPIs): Tools used to help an agency define and measure progress towards exercise objectives. For example, “*The information issued by our national decision-making and dissemination point was timely*” or “*Arrangements to assemble the in-country disaster management group relevant to decision-making on tsunami warning and response were in place before the exercise*”.

Exercise IOWave23 Success Criteria

Exercise IOWave23 will be a success when the core objectives above have been exercised, performance evaluated, and an exercise report produced.

The broad success criteria are:

- The communication protocols between the TSPs, NTWCs, TWFPs and information dissemination points within countries are tested and understood.
- Areas of improvement in the tsunami warning and response chain are identified.
- Local communities participate in the exercise to the extent possible and increase their knowledge of tsunami preparedness and response.



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Determine the Scope

The key to designing and conducting a successful exercise is to understand the purpose and scope of the exercise for the onset.

The scope of an exercise relates to:

- The exercise success criteria.
- The resources available (including finance and personnel) to be used and the functions or agencies that are expected to participate in the exercise.

Exercise scope factors to be defined:

Factor	Action
1	Operations: The type of behaviour(s) planned for the players. Will the exercise test notification methods, communication flow, decision-making, resource allocation and/or user competency such as understanding or following a plan or standard operating procedures?
2	Countries or stakeholders involved: Which country/agencies will be involved.
3	Hazard and risk scenario: A relevant priority problem is selected (e.g., local, regional, distant source tsunami)
4	Geographical target area: A logical place (or places) is/are selected where the simulated event could occur.
5	Degree of realism: A decision should be made early in the design phase as to how realistic the exercise will be (such as the amount of stress, complexity and time pressures the exercise will generate).
6	Date and time: A date and time for the exercise is selected, allowing as much lead time as possible for scheduling and design purposes.



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Exercise Milestones (1)

1. Set up Exercise National Coordination Committee involving NTWC, LDMOs, NDMOs, and all other important stakeholders including emergency management, media, and communities.
2. Decide on level of participation and identify communities for evacuation (where applicable).
3. Assign agency roles including exercise controller, key participants, and observers.
4. Secure funding and support, especially for community activities such as awareness campaigns.
5. Develop a National Exercise Manual to plan/guide activities, including those at community level.
6. Address indicators of UNESCO-IOC Tsunami Ready Recognition Programme or similar national initiative (where appropriate).

Exercise Milestones (2)

7. Organise and hold pre-exercise national workshop(s) and meeting(s) with key stakeholders including media.
8. Ensure Standard Operating Procedures are in place and up to date.
9. Organise exercise observers.
10. Prepare a media press release.
11. Run the exercise.
12. Hold post-exercise hot and cold debriefs.
13. Revise and improve SOPs in accordance with lessons learnt during the exercise.



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Types of Exercise



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Exercises can be conducted at various scales. The types of exercises in order of increasing magnitude and sophistication include:

1. Orientation Exercise
2. Drill
3. Tabletop Exercise
4. Functional Exercise
5. Full-scale Exercise

For IOWave23, full-scale exercise is recommended.



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1. Orientation Exercise

An Orientation Exercise lays the groundwork for a comprehensive exercise programme.

It is a planned event such as a workshop. It is developed to bring together individuals and officials with a role or interest in tsunami response planning, problem solving, development of standard operational procedures (SOPs), and/or resource integration and coordination.

It puts people in a place where they would work during a tsunami response to familiarise the key players with the response activity.

An example would be setting up a mock evacuation shelter for tsunami evacuees and walking first-responders/community members through how the center is organised.

2. Drill



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A Drill is a planned activity that tests, develops, and/or maintains skills in a single or limited emergency response procedure.

Drills generally involve operational response of single departments or agencies, organizations, or facilities such a hotel, school, village, etc.

Drills can involve internal notifications, field activities and/or limited evacuation.

A drill is used to assess equipment capabilities, test response time, assess interagency cooperation, and verify resources and staff capacities.

An example of a drill would be activating an Emergency Operation Centre or using alternative communication (such as radios) in a tsunami exercise.

Within a warning centre, a drill might consist of the operations for a tsunami warning, or just the communication notification procedures.



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3. Tabletop Exercise

A Tabletop Exercise is a planned activity in which local officials, key staff, and organizations with disaster management responsibilities are presented with simulated emergency situations.

It is usually informal, in a conference room environment, and is designed to promote constructive discussion from the participants to assess plans, policies, and procedures.

Individuals are encouraged to discuss decisions based on their organization's Standard Operating Procedures (SOPs) with emphasis on slow-paced problem solving, rather than rapid, real-time decision-making.

An example of a tabletop exercise may involve participants discussing their response to a tsunami threat to a particular area using information and products from the Tsunami Service Providers.



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4. Functional Exercise

A Functional Exercise is a planned activity designed to test and evaluate individual functions, multiple activities within a function, or interdependent groups of functions among various agencies.

It is based on a simulation of a realistic emergency situation.

The Functional Exercise gives the decision-makers a fully simulated experience of being in a major disaster event.

It should take place at the appropriate coordination locations (e.g. warning centres and emergency operations centres) and activate all the appropriate members designated by the plan.

Organizations should test their SOPs using real-time simulation tsunami bulletins.

Public evacuations may or may not be included.

An example of a functional exercise would be multi-agency response to a potentially devastating tsunami, where evacuation of a coastal community is required. Messages and injects are provided by exercise control and are handled by the participants in the way described in appropriate plans and procedures. Outcomes are generated that would be expected in a real situation.

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5. Full-scale Exercise

** Recommended for Exercise IOWave23.*

A Full-scale Exercise includes the movement of people and resources for a physical ‘on the ground’ response to a simulated situation.

They are used to test all aspects of a country’s warning and emergency management systems and processes.

They are useful for improving operational activities, improving interagency communication, test resource and personnel allocation, manage the media and public, and test equipment.

Full-scale exercises are the largest, most costly, most-time consuming, and most complex to plan, conduct, and evaluate.

An example of a full-scale exercise would be a post impact tsunami response with volunteers portraying 'victims' and the emergency services using real rescue equipment at the scene. Coordinated, multi-agency response to the event is exercised. Actual field mobilization and deployment of response personnel are conducted.

Key Players

All key players in the end-to-end tsunami warning chain could be involved in the exercise to the extent decided by your country:

- Tsunami Service Providers (TSPs)
- National Tsunami Warning Centres (NTWCs)
- National Disaster Management Organizations (NDMOs)
- Local Disaster Management Organizations (LDMOs)
- Emergency Response Agencies
- Media
- Communities

* For Exercise IOWave23, countries are encouraged to maximise the extent of their participation, and where possible, to include communities.



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National Contact for Exercise IOWave23

Indian Ocean countries have been requested to nominate a National Contact for Exercise IOWave23 through IOC Circular Letter 2945.

The National Contact for IOWave23 will

- Be the main point of contact that the IOC Secretariat will communicate with about the planning and conduct of the exercise, including distribution of the IOWave23 Exercise Manual.
- Confirm the accuracy of existing tsunami warning arrangements within your country.
- Coordinating input to the post-exercise evaluation.

To date nominations have been received from Australia, Bangladesh, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Mauritius, Mozambique, Myanmar, Oman, Seychelles, Singapore, and United Arab Emirates.

Nominations should be sent to the Secretariat iotwms@unesco.org from your Tsunami National Contact.

Exercise Observers



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Observers are internal or external agency personnel invited to view the exercise, but do not participate.

Observers report on lessons identified and outcomes of the exercise.

For Exercise IOWave23, the term-of-reference for observers are:

1. Provide a chronology of the events and actions that you observed.
2. Where appropriate, provide a statement of your observations in relation to each of the core exercise objectives 1–7.
3. Comment on the testing and understanding of communication protocols between the TSPs, NTWCs, TWFPs and information dissemination points within countries.
4. Identify strengths in the tsunami warning and response chain.
5. Identify areas of potential improvement in the tsunami warning and response chain.
6. Comment on the extent that local communities participated in the exercise.
7. Provide examples of how community knowledge of tsunami preparedness and response has been increased as a result of the exercise.

Press Release



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TEMPLATE FOR NEWS RELEASE - USE AGENCY LETTERHEAD

Contact: *(insert name) (insert phone number) (insert date) (insert email address)*

INDIAN OCEAN-WIDE TSUNAMI EXERCISE SET FOR OCTOBER 2023

(Insert country name) will join countries from around the Indian Ocean Rim as a participant in mock tsunami scenarios on 4th, 11th, 18th, and 25th October 2023. *(insert country name)* will exercise the Andaman Trench scenario on 4th October, Makran Trench scenario on 11th October, Heard Island Volcano scenario on 18th October, and/or Java Trench scenario on 25th October *(select appropriate scenario(s))*.

The purpose of this Indian Ocean-wide exercise is to increase tsunami preparedness, evaluate response capabilities in each country and improve coordination throughout the region. The aim is to exercise the tsunami warning and response chain.

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During the Exercise

Follow pre-agreed procedures:

- Following your country's tsunami warning chain and standard operating procedures.
- Try not to make up procedures on the day, but rather follow what has already been agreed on.
- Any changes to your tsunami warning chain and standard operating procedures can be made after the exercise.

During IOWave23:

- All documentation and correspondence relating to this exercise is to be clearly identified as **Exercise IOWave23** and **For Exercise Purposes Only**.
- In the case of a real event occurring during the exercise, TSPs and NTWCs will issue their normal message products for the event.
- Such messages will be given full priority and all TSPs should stop the exercise immediately and send an Announcement Message to that effect.

Exercise Hot Debrief

It is recommended that both a hot and a cold debrief be held following the exercise.

Held immediately after an exercise, a hot debrief is an opportunity for all participants to provide feedback while the exercise is still fresh in their minds. A suggested format for this is:

- Have a short break for about 10 minutes after the end of the exercise.
- The in-country/agency Exercise Director gives his or her initial feedback.
- Obtain participant round-table feedback.
- Evaluators provide their feedback.
- Provide appropriate acknowledgements.



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Exercise Cold Debrief

A cold debrief is a more formal debrief held within four weeks following the exercise. The debrief process should include:

- What happened during the exercise?
- What went well?
- What needs improvement?
- What plans, procedures or training programmes need amendments?
- What follow up is required, including identifying any capability gaps for future capacity building?
- Was the exercise realistic?, and
- How could the exercise have been improved?

Update national tsunami warning chains and SOPs based on lessons learnt during the exercise.

Conclusion

All Indian Ocean countries are encouraged to test their readiness for a tsunami event during the upcoming Exercise IOWave23 in October by participation in one or more scenarios:

- Andaman scenario – 4 October
- Makran scenario – 11 October
- Heard Island scenario – 18 October
- Java scenario – 25 October

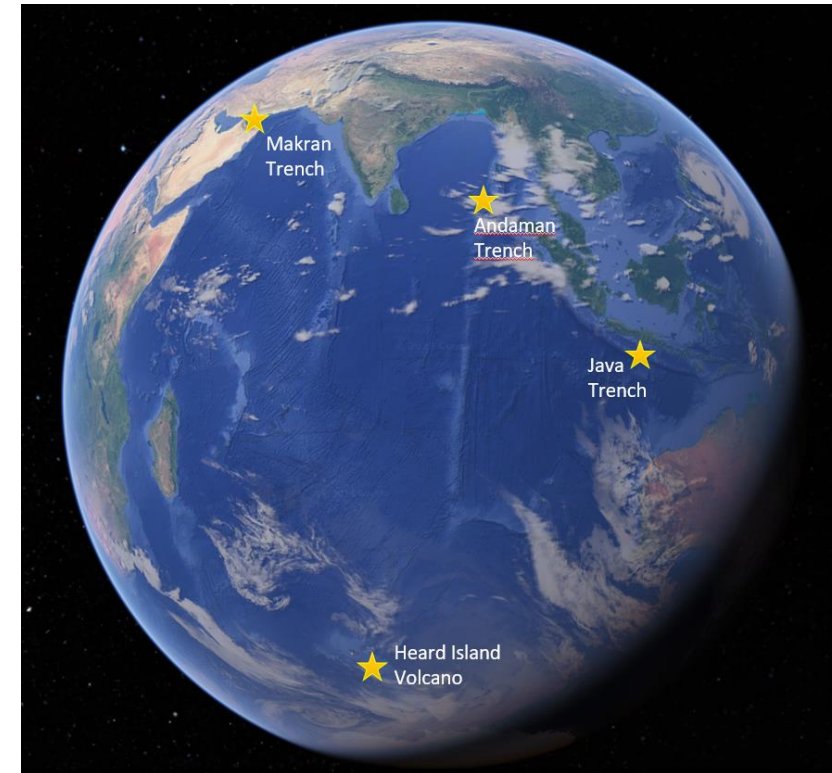
IOWave23 National Exercise Contacts are still needed for several countries, so please send these to the Secretariat to ensure your country receives all planning material and updates. The countries that need to nominate National Exercise Contacts are:

- | | |
|--|---|
| <ul style="list-style-type: none">• Comoros• France Indian Ocean Territories• Maldives• Pakistan• South Africa | <ul style="list-style-type: none">• Sri Lanka• Tanzania• Thailand• Timor Leste• Yemen |
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THANK YOU