



unesco

Intergovernmental
Oceanographic
Commission



IOWave25

5.b. How to Plan, Conduct, and Evaluate Exercises

Ardito M Kodijat
IOTIC UNESCO-IOC
a.kodijat@unesco.org

Nora Gale
UNESCO-IOC
n.gale@unesco.org

Background

Exercises are activities that **simulate a real-life situation**.

Tsunami exercises provide an opportunity to **review and test Standard Operating Procedures (SOPs)** and Help prevent countries that **haven't faced a tsunami recently from becoming less alert or prepared**.

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>



Reference Documents



unesco

**Intergovernmental
Oceanographic
Commission**



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

United Nations
Educational, Scientific and
Cultural Organization

**How to Plan, Conduct
and Evaluate UNESCO/IOC
Tsunami Wave Exercises**

**Intergovernmental Oceanographic Commission
Technical Series** **216**





**EXERCISE INDIAN OCEAN WAVE 25
An Indian Ocean-wide Tsunami
Warning and Communications Exercise**

25 September – 05 November 2025

Volume 1 Exercise Manual

UNESCO



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
COMMISSION Océanographique InterGouvernementale
COMISSIÃO OCEANOGRÁFICA INTERGOVERNAMENTAL
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
اللجنة الدولية الحكومية لعلوم المحيطات
政府間海洋学委員会

UNESCO – 7 Place de Fontenay – 75332 Paris Cedex 07 SP, France
http://ioc.unesco.org - contact phone: +33 (0)1 45 68 03 18
E-mail: ioc.secretariat@unesco.org

IOC Circular Letter No 3041
(Available in English only) IOC/BA/SKT/ng
23 May 2025

To : ICG/IOTWMS 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
IOC Officers
ICG/IOTWMS Working Group Chairs and Vice-Chairs
ICG/IOTWMS Task Team IOWave25
ICG/IOTWMS Tsunami Warning Focal Points
ICG/IOTWMS National Tsunami Warning Centres

**Subject: Announcement of the Indian Ocean Tsunami Exercise (IOWave25)
on 25 September, 15 October, 25 October and 5 November 2025**

The IOC Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) at its 14th session (Banten, Indonesia, 17–19 November 2024), decided to organise an Indian Ocean Wave Exercise in 2025 (IOWave25) and established a Task Team to plan and conduct the exercise. At its most recent intersessional meeting, held online on 30 April, and after consultation with key stakeholders, the Task Team IOWave25 decided to conduct IOWave25 with four different scenarios on 25 September, 15 October, 25 October and 5 November 2025. 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 IOWave25 in which all ICG/IOTWMS Member States are encouraged to participate.

To date, seven IOWave exercises have been conducted (2009, 2011, 2014, 2016, 2018, 2020 and 2023). 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 drills has grown. Moreover, awareness and adoption of the UNESCO-IOC Tsunami Ready Recognition Programme (TRRP) has increased.

Chairperson Yutaka MICHIDA, Prof. Special Presidential Envoy for UN Ocean Decade The University of Tokyo (Atmosphere and Ocean Research Institute) Kashiwanoha 5-1-5 2788564 Kashiwa JAPAN	Vice-Chairpersons Dr Marie-Alexandrine SICRE Directrice de Recherche Centre national de la recherche scientifique (CNRS) 3 rue Michel Ange 75016 Paris FRANCE Dr Nikolay VALCHEV Director Institute of Oceanology Bulgarian Academy of Sciences 40 Parva May Str. 8000 Varna BULGARIA	Executive Secretary Mr. Juan Camilo FORERO HAUZEUR Executive Secretary Colombian Ocean Commission (COO) Avenida Ciudad de Cali No. 51 - 66 Edificio WBC, Oficina 306 11071 Bogotá, D.C. COLOMBIA Prof. Amr Zakaria HAMOUDA President of Marine Hazards Mitigation Center (MHMC) National Institute of Oceanography and Fisheries (NIOF) Gatbay, Al-Armani Alexandria EGYPT	Executive Secretary Mr. Vidar HELGENSEN Intergovernmental Oceanographic Commission – UNESCO 7 Place de Fontenay 75332 Paris Cedex 07 SP FRANCE
---	--	--	---

**IOC Circular
Letter 3041
Announcing
Exercise
IOWave25**

Documents are available on this workshop's webpage: <https://oceanexpert.org/event/4807> and Exercise Indian Ocean Wave 2025 (IOWave25) webpage: <https://oceanexpert.org/event/4786>



**Pre-IOWave25 Workshops on Standard Operating Procedures for NTWCs and DMOs
Hybrid – August 2025**

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 2025*”.

Objectives: An 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 IOWave25 Success Criteria

Exercise **IOWave25** 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.



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 IOWave25, full-scale exercise is recommended.

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

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.**

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.

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.

5. Full-scale Exercise

* *Recommended for Exercise IOWave25.*

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

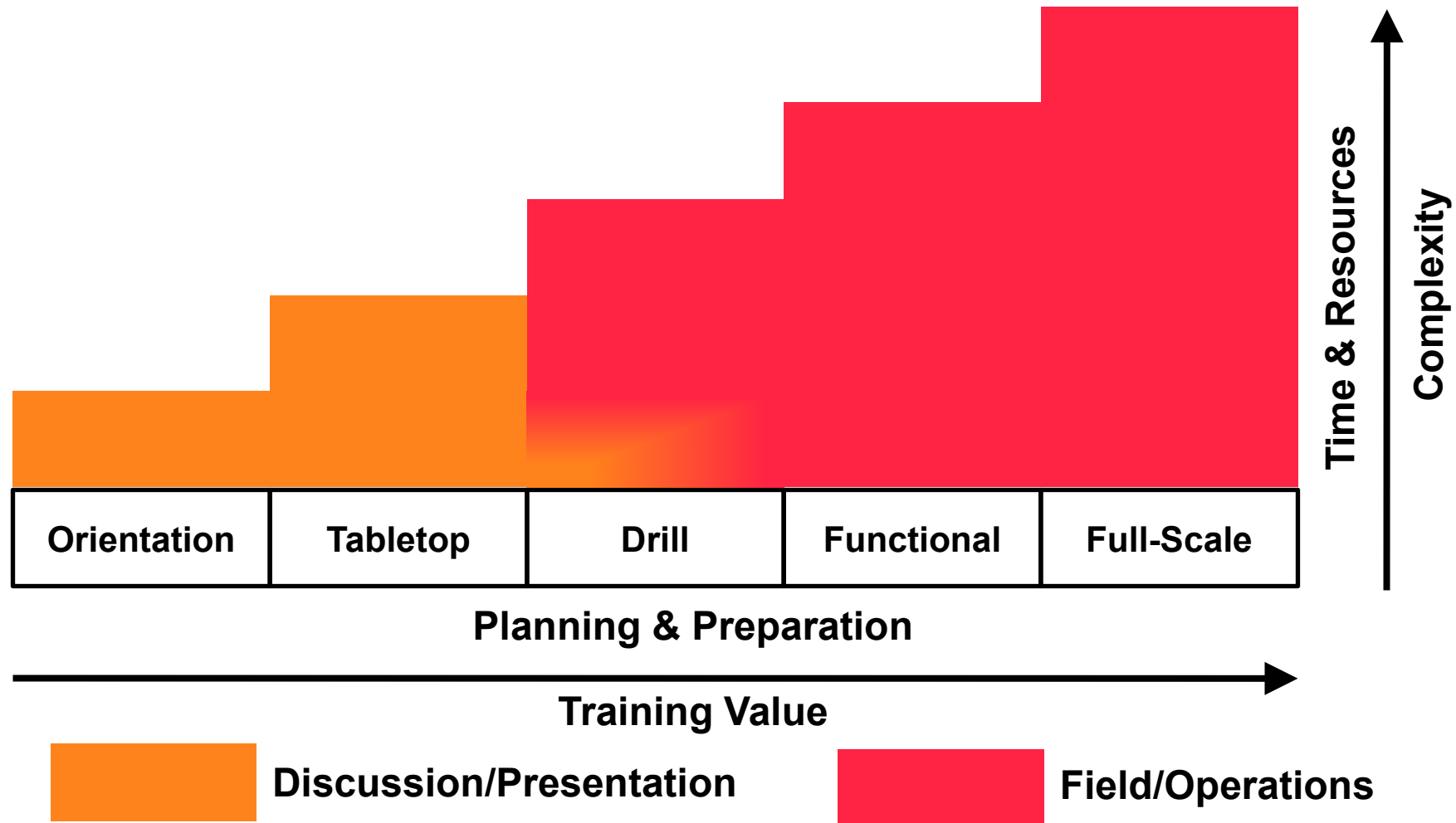
They are used to **test all aspects of a country’s warning and emergency management systems and processes.**

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.

Exercise Planning, Preparation and Complexity



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 IOWave25, countries are encouraged to maximise the extent of their participation, and where possible, to include communities.

National Contact for Exercise IOWave25

Indian Ocean countries have been requested to nominate a **National Contact for Exercise IOWave25** through IOC Circular Letter 3041.

The National Contact for IOWave25 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.**

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

Exercise Observers

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 IOWave25, 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** 1–9.
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.

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 IOWave25:

- All documentation and correspondence relating to this exercise is to be clearly identified as **Exercise IOWave25** 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.

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.

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



unesco

Intergovernmental
Oceanographic
Commission

All Indian Ocean countries are encouraged to test their readiness for a tsunami event during the upcoming Exercise IOWave25 by participation in one or more scenarios:

- Sunda Trench scenario – 25 September (Thursday)
- Makran Trench scenario – 15 October (Wednesday)
- Fani Maore Volcano scenario – 25 October (Saturday)
- Sumatra Trench scenario – 05 November (Wednesday)

IOWave25 National Exercise Contacts are still needed for some countries, so if you have not already, please send these to the Secretariat to ensure your country receives all planning material and updates.





unesco

Intergovernmental
Oceanographic
Commission

THANK YOU



unesco

IOWave25