



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

UNESCO – 7 Place de Fontenoy - 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](mailto:v.ryabinin@unesco.org)

**IOC Circular Letter N° 2894**  
(Available in English only)

IOC/VR/BA/ah  
23 June 2022

To: ICG/PTWS Tsunami Warning Focal Points (TWFP)  
ICG/PTWS Tsunami National Contacts (TNC)  
ICG/PTWS Chair and Vice-Chairs

Cc: Official National Coordinating Bodies for liaison with IOC (IOC Member States)  
Permanent Delegates/Observer Missions to UNESCO and  
National Commissions for UNESCO of IOC Member States  
Directors of UNESCO and IOC Regional Offices in the Asia/Pacific Region  
Regional Organizations cooperating with UNESCO/IOC  
Director, Pacific Tsunami Warning Center (PTWC)  
Director, Northwest Pacific Tsunami Advisory Center (NWPTAC)  
Director, International Tsunami Information Center (ITIC)  
Head, Tsunami Warning Division, China National Marine Environmental  
Forecasting Center and South China Sea Tsunami Advisory Center (SCSTAC)  
Central America Tsunami Advisory Center (CATAC) Coordinator

**Subject: Pacific Tsunami Warning and Mitigation System (PTWS) Exercise  
Pacific Wave 2022 (PacWave22), September–November 2022, including a  
live Tsunami Service Provided Communication Test on 13 October at  
0000 UTC**

At its 29th session ([ICG/PTWS-XXIX](#), 1–2 and 7–8 December 2021), the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System approved the conduct of a Pacific Wave Exercise 2022 from 1 September to 30 November, a period that intentionally encompasses the International Disaster Risk Reduction Day (13 October) and [World Tsunami Awareness Day](#) (5 November). PacWave22 is the tenth in a series of PacWave exercises which have been conducted biennially since 2006.

Pending the release of the Exercise Manual by 30 July 2022, I invite you to refer to the initial description of the exercise 2022 in annex 1 together with the provisional timeline below.

**Chairperson**

Mr Ariel Hernan TROISI  
Technical Secretary  
Navy Hydrographic Service  
Av. Montes de Oca 2124  
C1270ABV Buenos Aires  
ARGENTINA

**Executive Secretary**

Dr Vladimir RYABININ  
Intergovernmental Oceanographic  
Commission — UNESCO  
7 Place de Fontenoy  
75352 Paris Cedex 07 SP  
FRANCE

**Vice-Chairpersons**

Dr Marie-Alexandrine SICRE  
Directrice de Recherche  
Centre national de la recherche scientifique  
(CNRS)  
3 rue Michel Ange  
75016 Paris  
FRANCE

Dr Alexander FROLOV  
Assistant to the President  
National Research Center "Kurchatov Institute"  
Academika Kurchatova pl., 1  
123182 Moscow  
RUSSIAN FEDERATION

Mr Frederico Antonio SARAIVA NOGUEIRA  
Navy Captain (Ret) Directorate  
of Hydrography and Navigation  
Rua Barao de Jaceguai S/N  
24048-900 Niterói  
BRAZIL

Dr Srinivasa Kumar TUMMALA  
Director  
Indian National Centre for Ocean  
Information Services (INCOIS)  
Pragathi Nagar (BO), Nizampet (SO)  
Hyderabad 500090  
INDIA

Dr Karim HILMI  
Head of Oceanography Department  
Institut National de Recherche  
Halieutique (INRH)  
02, Boulevard Sidi Abderrahmane  
Ain Diab  
20180 Casablanca  
MOROCCO

## Provisional Timeline for PacWave22

30 July 2022	Exercise Manual, published on <a href="http://www.pacwave.info">www.pacwave.info</a>
17 August 2022, 1900 UTC 24 August 2022, 0300 UTC	PacWave22 Informational Webinars
1 September–30 November 2022	PacWave22 related additional country/regional activities
21 December at latest	Countries to complete and submit PacWave22 evaluation form (online)
13 October 2022 (0000 UTC)	Pacwave22 Live TSP Communications Test
23 October 2022	Deadline to complete and submit online the Pacwave22 Live TSP Communications Test results and full PacWave22 evaluation survey
ICG/PTWS-XXX, 2022	Submit the draft preliminary report of the live TSP Communications test to ICG/PTWS at its next session
28 February 2023	Draft PacWave22 Preliminary Report to be shared with ICG/PTWS Member States
30 April 2023	Final PacWave22 Evaluation Report published and posted at <a href="http://www.pacwave.info">www.pacwave.info</a>

With the assurances of my highest consideration, I remain,

Yours sincerely,

*[signature]*

Vladimir Ryabinin  
Executive Secretary

### Enclosures (3):

Pacific Tsunami Warning and Mitigation System (PTWS) Exercise Pacific Wave 2022 (PacWave22), September–November 2022 – Description (Annex 1)

PTWS Task Team on PacWave Exercises Terms of Reference [Appendix to Recommendation ICG/PTWS-XXIX.1, in report: *Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), Twenty-ninth session [online], 1-2 and 7-8 December 2021, IOC/ICG/PTWS-XXIX/3, 2022*] – Appendix 1

PTWS Recommendation ICG/PTWS-XXIX.5, Start of Operation of Central America Tsunami Advisory Center (CATAC), in report: *Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), Twenty-ninth session [online], 1-2 and 7-8 December 2021, IOC/ICG/PTWS-XXIX/3, 2022* – Appendix 2

## **Annex 1: Pacific Tsunami Warning and Mitigation System (PTWS) Exercise Pacific Wave 2022 (PacWave22), September–November 2022 – Description**

### Aim:

to test PTWS tsunami service provider arrangements, and country preparedness arrangements and operational procedures to respond and recover from a destructive tsunami.

### Objectives:

- (i) Test communications from the PTWS Tsunami Service Providers (TSP) to the Tsunami Warning Focal Points (TWFP) and National Tsunami Warning Centres (NTWC) of the Member States concerned.
- (ii) Test national communication and cooperation, and readiness within each of the participating countries.
- (iii) Test regional communication and cooperation between Member States of the tsunami warning system.
- (iv) Support the development of tsunami procedures and products by the Central America Tsunami Advisory Centre (CATAC), a potential new Tsunami Service Provider (pending endorsement of full functionality by IOC governing bodies – see also Appendix 2 below).

**Each country may organize at its discretion additional PacWave22 activities in line with the original objectives, and specifically the above objectives (ii) and (iii). Activities could include:**

- (i) A regional exercise organized and conducted through the relevant PTWS Regional Working Groups where applicable, with support from the PTWS Tsunami Service Providers (TSPs) and ITIC.
- (ii) Possible country exercise variations include:
  - a. Consider conducting exercises for situations based on limitations derived from the COVID-19 pandemic, such as the absence of (a) warning centre duty officer(s), requirements for virtual exercises, and/or evacuations/sheltering considering physical distancing practices of a pandemic.
  - b. Consider conducting exercises in real time during daytime working hours with full staffing or simulating minimal staffing during nighttime or weekend hours.
  - c. Consider testing countries' capability to carry out their warning and response responsibilities for the situation where one or more PTWS TSPs is not able to operate.
  - d. Provide guidance in a timely manner.
  - e. Consider conducting the exercise down to the community level, including where possible including an extensive public awareness campaign.
  - f. Consider the Sendai Framework for Disaster Risk Reduction seven global targets and four priorities for action, the World Tsunami Awareness Day and/or the UN Decade of Ocean Science for Sustainable Development in designing the exercise.

PacWave22 is overseen by the 'Task Team on PacWave Exercise' (Terms of Reference enclosed) and related information is available at the exercise web site <http://www.pacwave.info>.

### Dates and Conduct of PacWave22

In order to meet objective (i) of PacWave 2022, a Live Tsunami Service Provider Communications Test will take place at 0000 UTC on 13 October 2022. Dummy Exercise messages will be issued by the PTWS Tsunami Service Providers to Member State Tsunami Warning Focal Points and National Tsunami Warning Centres. Participating Member States will be asked to complete and return their

Communication Test results by 23 October 2022 by means of the PacWave22 Post-Exercise Evaluation Form.

The Tsunami Service Providers for the Pacific Tsunami and Mitigation System are:

- Pacific Tsunami Warning Center (PTWC, since 1965) hosted by USA NOAA;
- Northwest Pacific Tsunami Advisory Center (NWPTAC, since 2006) hosted by the Japan Meteorological Agency (JMA);
- South China Sea Tsunami Advisory Center (SCSTAC, since 2019) hosted by China's Ministry of Natural Resources.
- Central America Tsunami Advisory Centre (CATAC) hosted by Nicaragua (pending endorsement of full functionality by IOC governing bodies).

Any additional country or regional exercises in complement to PacWave22 should take place during the period of 1st September to 30 November 2022. These would need to be reported upon in the post-exercise evaluation form, that should be completed and returned by 21 of December 2022.

In order to help countries with their national tsunami exercises, the International Tsunami Information Center (ITIC) and NOAA Pacific Marine Environmental Laboratory are making the TsuCAT (Tsunami Coastal Assessment Tool) available. TsuCAT provides access to a global database (including Pacific, Caribbean, and Indian Ocean sources) of tsunami modelling results from NOAA's pre-computed catalog of sources and from the RIFT model, to assist a country in its tsunami hazard assessment, tsunami exercise and response planning, and warning decision-making. TsuCAT generates the PTWC's enhanced text and graphical products corresponding to the scenario chosen by each country (referred to in the Exercise Manual to be published). Contact ITIC Director, [laura.kong@noaa.gov](mailto:laura.kong@noaa.gov) for the current version v4.2.

### **PacWave Exercise Documents**

The PacWave22 Exercise Manual and TSP communication test messages will be distributed electronically shortly. The Manual together with guidance for countries or regions willing to develop additional activities as mentioned above will be available online at <http://www.pacwave.info>.

### **Webinars**

Informational PacWave22 webinars will be organized by ITIC and IOC on 17 August 2022, 1900 UTC and 24 August 2022, 0300 UTC. Connection details will be sent to all PTWS TNCs and TWFPs by email.

### **Post-Exercise Evaluation**

The PacWave22 evaluation form will be made available at [https://www.surveymonkey.com/r/pacwave22\\_eval](https://www.surveymonkey.com/r/pacwave22_eval) from 13 to 23 October 2022. The form should be completed by 23 October 2022 at the latest.

Terms of Reference

**Task Team on PacWave22 Exercise**

1. Design and carry out a ninth Exercise Pacific Wave 2022 with the following characteristics:

- An exercise shall be conducted with the aim to test PTWS tsunami service provider arrangements, and Country preparedness arrangements and operational procedures to respond and recover from a destructive tsunami.
- An exercise shall be conducted with the following objectives
  - a) Test communications from the PTWS Tsunami Service Providers to Tsunami Warning Focal Points and National Tsunami Warning Centres of Member States.
  - b) Test national communication and cooperation, and readiness within the country.
  - c) Test regional communication and cooperation between Member States.
  - d) Support the development of tsunami procedures and products by the Central America Tsunami Advisory Centre (CATAC), a potential new Tsunami Service Provider. (pending to CATAC endorsement confirmation by IOC 55th Executive Council)

2. Exercise Pacific Wave 2022 (PacWave22) will:

- Take place in the months of September through to November 2022 to support International Disaster Risk Reduction Day (13 October) and World Tsunami Awareness Day (5 November).
- Be conducted as a series of regional exercises organized through the PTWS Regional Working Groups where applicable, with support from the PTWS TSPs and ITIC, involving all PTWS countries as part of the regular biennial Pacific Wave exercise conducted since 2006.
- Be conducted to include one live communications test from the PTWS TSPs to Member States on 13 October 2022.
- Be conducted to include exercise activities over and above a tabletop exercise. Possible exercise variations include:
  - a) Consider conducting for situations based on limitations derived from the COVID-19 pandemic, such as the absence of warning center duty officer(s), requirements for virtual exercises, and/or evacuations/sheltering considering physical distancing practices of a pandemic
  - b) Consider conducting in real time during the daytime working hours with full staffing, or simulating minimal staff during night-time or weekend hours
  - c) Consider testing country capability to carry out their warning and response responsibilities for the situation where one or more PTWS TSPs is not able to provide guidance in a timely manner.
  - d) Consider conducting the exercise down to the community level, including where possible an extensive public awareness campaign.

- e) Consider the Sendai Framework for Disaster Risk Reduction Global Sendai Framework for Disaster Risk Reduction seven global targets and four priorities for action, World Tsunami Awareness Day and/or the UN Decade of Ocean Science for Sustainable Development in designing the exercise.
  - The exercise shall be announced by the IOC to Member States at least 240 days in advance of the exercise date.
  - The exercise manual will
    - a) Include information on each regional exercise
    - b) Inform Member States on the availability of exercise products for their region, including instructions to Member States regarding the distribution dates.
    - c) Include instructions to Member States regarding their participation and the evaluation instrument be prepared with content and structure similar to what was prepared for previous Pacific-wide exercises, but considering lessons learned and any need to collect additional information.
    - d) Be distributed by the IOC to Member States at least 180 days in advance of the exercise date.
  - Participating Member States will be asked to complete and return the evaluation instrument no more than 21 days following the exercise.
3. Prepare the Summary Report for the exercise, compiling a list of recommendations and the list of actions from the findings for consideration by the ICG/PTWS-XXIX.
  4. Members invited from the ICG/PTWS Member States and Regional Working Groups, SPC, PTWC, NWPTAC. SCSTAC and CATAC. Task Team co-chairs to be elected by the ICG.

**Start of Operation of Central America Tsunami Advisory Center (CATAC)**

The Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS),

**Considering** the report of the fourth meeting of the Regional Working Group for Central America of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), held in Managua, Nicaragua, on 11 February 2019, and the recommendations of the fifth meeting of the Regional Working Group for Central America of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), 15 November 2021 (Online),

**Considering also** recent tsunamis on the Pacific (September 1992 and August 2012) and Caribbean Central American coasts (1991, 2009 and 2018), and the potential loss of life and economic impact caused by possible future events,

**Considering further** the Coordination Centre for the Prevention of Natural Disasters in Central America (CEPREDENAC) as the institution specialized in integrated disaster risk management in Central America and that harmonizes the approach to these priorities with the strategies and agendas of other specialized bodies of the Central American Integration System (SICA),

**Considering** the efforts of Central American countries and regional organizations to establish new seismic, sea level and GNSS stations, to maintain existing stations, and to make progress in the exchange of seismic and other data so as to advance tsunami and earthquake warning and research capabilities in Central America,

**Recalling and appreciating** the technical cooperation provided by the Japan International Cooperation Agency (JICA) to Nicaragua for the creation of the Central America Tsunami Advisory Centre (CATAC) and the strengthening of the regional system, including technical training,

**Decides** to support the efforts and progress made by Nicaragua in the creation of the Central America Tsunami Advisory Centre (CATAC), as a tsunami service provider (TSP) within the framework of the ICG/PTWS;

**Also recalling** that CATAC has been on trial mode as of August 2019,

**Requests** the CATAC to make an effort in order to use the Global Telecommunication system (GTS) for dissemination of information and to make English format of information for the global communication;

**Noting** that the approval of both the ICG/CARIBE-EWS and IOC are necessary for the official full functional operations of CATAC,

**Decides** to admit the start of CATAC's full functionality on the interim service as of 17 January 2022.

-----

Financial implications: None