



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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IOC/VR/BA/LK/eb
21 October 2020

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)

**Subject: Pacific Tsunami Warning and Mitigation System (PTWS) Exercise
Pacific Wave 2020 (PacWave20), 5 & 11 November 2020**

- Live Tsunami Service Provider Communications Test:
0000 UTC **5 November 2020**
- Central America Tsunami Advisory Centre (CATAC) Regional Exercise:
11 November 2020

At its 28th session ([ICG/PTWS-XXVIII](#)), Nicaragua, 2–5 April 2019, the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System approved the conduct of a Pacific Wave Exercise during the last Quarter of 2020 in order to support International Disaster Risk Reduction Day (13 October) and [World Tsunami Awareness Day](#) (5 November). PacWave20 will be the ninth in a series of PacWave exercises which have been conducted biennially since 2006.

The original objectives of PacWave20 were fourfold:

- a) 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.

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- b) Test national communication and cooperation, and readiness within each of the participating countries.
- c) Test regional communication and cooperation between Member States of the tsunami warning system.
- d) Support the development of tsunami procedures and products by the Central America Tsunami Advisory Centre (CATAC), a potential new Tsunami Service Provider.

At its June 2020 meeting, the PTWS Steering Committee recognized the potential difficulties to conduct the exercise as originally planned in the light of the current Covid-19 pandemic. Only **objectives a) and d)** were retained for PacWave20 as indicated at the beginning of this letter.

Each individual country may organize at its discretion additional PacWave20 activities in line with the four original objectives, and specifically to fulfill objectives b) and c). They could include:

- To conduct 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.
- To include country exercises such as:
 - Conducting the exercise in real time during the daytime working hours with full staffing, or simulating minimal staff during night time or weekend hours;
 - Testing a country's capability to carry out their warning and response responsibilities in the situation where one or more PTWS Tsunami Service Provider(s) is not able to provide guidance in a timely manner;
 - Conducting the exercise down to the community level, including where possible an extensive public awareness campaign;
 - Conducting the exercise to reflect on the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015–2030 seven global targets and four priorities for action, World Tsunami Awareness Day and/or the UN Decade of Ocean Science for Sustainable Development.

PacWave20 is overseen by the 'Task Team on PacWave20 Exercise' (Terms of Reference enclosed) and related information is available at the exercise web site <http://www.pacwave.info>.

Dates and Conduct of PacWave20

To meet objective a) of Exercise Pacific Wave 2020, a **Live Tsunami Service Provider Communications Test will take place at 0000 UTC on 5 November 2020**. Dummy Exercise messages will be issued by the PTWS Tsunami Service Providers to Member State Tsunami Warning Focal Points and National Tsunami Warning Centres.

The Tsunami Service Providers for the Pacific Tsunami 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 State Oceanic Administration (SOA).

In addition to the three approved TSPs, the Central America Tsunami Advisory Center (CATAC) hosted by Nicaragua's INETER is currently under development.

Any additional country or regional exercises mentioned above in complement to PacWave20 should take place during the period 1st September to 30 November 2020 if there are to be reported upon in the post-exercise evaluation questionnaire that will need to be completed and returned by 21st December 2020.

To help countries with their national tsunami exercises, the International Tsunami Information Center and NOAA Pacific Marine Environmental Laboratory are making available [TsuCAT \(Tsunami Coastal Assessment Tool\)](#). 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. Contact ITIC Director, laura.kong@noaa.gov for the current version v4.2.

Central America Tsunami Advisory Centre (CATAC) Regional Exercise: 11 November 2020

At the ICG/PTWS-XXVI (April 2015), Member States accepted the offer of Nicaragua to host and develop Central America Tsunami Advisory Centre (CATAC) as a potential new Tsunami Service Provider. The Central American Subregional Working Group on the Establishment of a Central American Tsunami Advisory Centre (TT-CATAC) was established to assist the Working Group on the Central American Pacific Coast Tsunami Warning and Mitigation System (WG-CA) in the establishment of CATAC until it had the capacity to provide operational services.

At the ICG/PTWS-XXVIII (April 2019), Member States further decided to support the efforts and progress made by Nicaragua in the creation of CATAC as tsunami service provider (TSP). A draft User's Guide for the Central American Tsunami Advisory Centre (CATAC) was made available on 28 March 2019 in English and Spanish (draft [here](#)). To begin to develop the CATAC service, a first regional tsunami exercise took place on 19 August 2019 (Spanish, Ref. [IOC/2019/TS/148 Vol.1](#)).

To meet objective d) of Exercise Pacific Wave 2020, a CATAC Regional Exercise will be conducted on 11 November 2020 to provide an opportunity to further develop the CATAC products. The relevant exercise manual, *Ejercicio Tsunami-CA-20. Ejercicio de Alerta de Tsunami para América Central – 11 de Noviembre de 2020 – Un terremoto lento y tsunami frente al Golfo de Fonseca* will be distributed to CATAC Members States by email and posted to the PacWave20 web site.

PacWave Exercise Documents

The PacWave20 Exercise Manual and TSP communication test messages will be distributed electronically shortly. The Manual will contain exercise details, including for the CATAC Regional Exercise. 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

To answer questions related to the conduct of PacWave20, the ITIC and IOC will host PacWave20 informational webinars on 28 October 2020 at 1900 UTC and 29 October 2020 at 0300 UTC. Connection details will be sent to all PTWS TNCs and TWFPs via email.

Post-Exercise Evaluation

The PacWave20 Exercise evaluation form will be made available at https://www.surveymonkey.com/r/pacwave20_eval from the 1st November 2020. The form should be completed by 21 December 2020 at the latest.

Provisional Timeline

23 October 2020	Exercise manual, including the CATAC regional exercise. available on www.pacwave.info
28 October 2020, 1900 UTC 29 October 2020, 0300 UTC	PacWave20 Informational Webinars
1 September–30 November 2020	PacWave20 related additional country/regional activities.
0000 UTC 5 November 2020	Live TSP Communications Test
11 November 2020	CATAC Regional Exercise
21 December 2020	Countries to complete and submit PacWave20 evaluation survey online
ICG/PTWS-XXIX, 2021	Draft PacWave20 Preliminary Report discussed at the ICG meeting
30 June 2021	Draft PacWave20 Preliminary Report available to Member States
31 August 2021	Final PacWave20 Evaluation Report published and posted at www.pacwave.info

With the assurances of my highest consideration, I remain,

Yours sincerely,

[signed]

Vladimir Ryabinin
Executive Secretary

Enclosures (2):

PTWS Task Team on PacWave Exercises Terms of Reference [Appendix to Recommendation ICG/PTWS-XXVIII.1, in report: *Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), Twenty-eighth session, Barcelo Montilimar, Nicaragua, 2-5 April 2010, IOC/ICG/PTWS-XXVIII/3, 2019*]

PTWS Recommendation ICG/PTWS-XXVIII.5, Trial Operation of Central America Tsunami Advisory Center (CATAC), in report: *Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), Twenty-eighth session, Barcelo Montilimar, Nicaragua, 2-5 April 2010, IOC/ICG/PTWS-XXVIII/3, 2019*

Recommendation ICG/PTWS-XXVIII.1

Barcelo Montilimar, Nicaragua, 2-5 April 2019

[...] Appendix

Terms of Reference

Task Team on PacWave20 Exercise

1. Design and carry out a ninth Exercise Pacific Wave 2020 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 Center (CATAC).

2. Exercise Pacific Wave 2020 (PacWave20) will:

- Take place in the months of September through to November 2020 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 5 November 2020.
- Be conducted to include exercise activities over and above a table top exercise. Possible exercise variations include:
 - a) Consider conducting in real time during the daytime working hours with full staffing, or simulating minimal staff during night time or weekend hours
 - b) 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.
 - c) Consider conducting the exercise down to the community level, including where possible including an extensive public awareness campaign.

- d) Consider the [Sendai Framework for Disaster Risk Reduction \(SFDRR\) 2015–2030](#) 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 CATAAC. Task Team co-chairs to be elected by the ICG.

Recommendation ICG/PTWS-XXVIII.5

Barcelo Montilimar, Nicaragua, 2-5 April 2019

Trial 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,

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

Considering that in 2011, at its second meeting, the Regional Working Group for Central America of the ICG/PTWS recommended the strengthening of the human resources of the institutions responsible for tsunami early warning systems, the establishment of a tsunami early warning centre in Central America, and the implementation of education on tsunami hazards and their impact (floods) by the institutions responsible for emergency response systems,

Recalling that on 1 October 2014, the Pacific Tsunami Warning Center (PTWC) began providing the new Enhanced Tsunami Products, endorsed by the Pacific Tsunami Warning and Mitigation System (PTWS) and UNESCO/IOC,

Considering the Coordination Centre for the Prevention of Natural Disasters in Central America (CEPRENAC) 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 stations, to maintain existing stations, and to make progress in the exchange of seismic data so as to advance tsunami and earthquake warning and research capabilities in Central America,

Urges further reduction of the gaps in seismic coverage through the exchange of seismic data and the establishment of new seismographic stations, particularly in the Caribbean area, to support the Pacific Tsunami Warning and Mitigation System (PTWS) in accordance with the requirements recommended by the ICG/PTWS and the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS);

Considering the experience of the Instituto Nicaraguense de Estudios Territoriales ([INETER](#)) in monitoring seismic activity and operating the tsunami warning system 24 hours a day, seven days a week, since 1992,

Considering 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 decides to support the proposal to begin sending trial tsunami messages as of August 2019, based on the progress made in capacity-building for the establishment of the Central America Tsunami Advisory Centre (CATAC) using the official IOC ICG/PTWS list of National Tsunami Warning Centres (NTWCs) and Tsunami Warning Focal Points (TWFPs);

Recommends that countries ensure the development and strengthening of national institutional and personnel capacities in early warning systems;

Also expresses its appreciation for the funding that the European Union, through its Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO), provided to UNESCO, through the Intergovernmental Oceanographic Commission (IOC), for the strengthening of the regional warning and prevention system, including technical training;

Further decides to submit to CEPREDENAC the report of the fourth meeting of the Regional Working Group for Central America of the ICG/PTWS for inclusion in the agenda of its second ordinary meeting;

Instructs the Technical Secretary of the PTWS to deliver this recommendation to the ICG/CARIBE-EWS and to forward this recommendation to CEPREDENAC for appropriate action.

Financial implications: None