

ANNEX 3 TEMPLATE FOR NATIONAL REPORTS

National Reports will be posted to the ICG/CARIBE EWS-XIV web site without TWFP contact details

**NATIONAL REPORT
Submitted by MEXICO**

BASIC INFORMATION

1. ICG/CARIBE EWS Tsunami National Contact (TNC)

Name: [REDACTED]
Title: [REDACTED]
Responsible Organization: [REDACTED]
Postal Address: [REDACTED]
E-mail Address: [REDACTED]
Emergency Telephone Number: [REDACTED]
Emergency Fax Number: [REDACTED]
Emergency Cellular Telephone Number: [REDACTED]

2. ICG/CARIBE EWS Tsunami Warning Focal Point (TWFP)

Name: [REDACTED]
Title: [REDACTED]
Responsible Organization: [REDACTED]
Postal Address: [REDACTED]
E-mail Address: [REDACTED]
Emergency Telephone Number: [REDACTED]
Emergency Fax Number: [REDACTED]
Emergency Cellular Telephone Number: [REDACTED]

National Tsunami Warning Center (if different from the above)

Person in Charge:
Title:
Responsible Organization:
Postal Address:
E-mail Address:
Emergency Telephone Number:
Emergency Fax Number:
Emergency Cellular Telephone Number:

3. Tsunami Advisor(s), if applicable

(Person, Committee or Agency managing Tsunami Mitigation in country)

Name: [REDACTED]
Title: [REDACTED]

Postal Address: [REDACTED]

E-mail Address: [REDACTED]

Emergency Telephone Number: [REDACTED]

Emergency Fax Number: [REDACTED]

Emergency Cellular Telephone Number: [REDACTED]

4. Tsunami Standard Operating Procedures for a Local Tsunami (when a local tsunami threat exists, less than 1 hour travel time)

When the National Seismologic Service publishes the occurrence of a Local Seism Magnitude equal and/or greater than Magnitude 7.0, personnel on duty at CAT develops the following activities:

- a. Receives the seismic information of the event, generated by the National Seismological Service, in the institutional geoportal called AION, which incorporates this information in its database to use it in the calculations of tsunami numerical modeling. Thus, an Alert Bulletin is automatically generated with the characteristics of the tsunami and the corresponding recommendations, which is validated.
- b. Sends the Alert Bulletin generated by the AION to make it available in the official application of the Tsunami Warning Center and its official website.
- c. Distributes the Alert Bulletin to the Federal, State and Municipal Civil Protection Units, Port Captaincies, National Port System Administrations, Naval Commands, as well as to strategic facilities and registered users, through mass mailing by email.
- d. Distributes the Alert Bulletin to the naval commanders by the Integral System of Naval Operations (SIOPARM) which is present in all the Command and Control Centers that operates 24 hours a day; same that emits an audible notification when receiving the alert bulletin.
- e. Verifies that all of the intended recipients received the information sent through all the communication means used for such a purpose (Commercial telephone, Satelital telephone and Motorola Radio).
- f. Analyzes the information provided by the National Tide Gauging Network, DART buoys, sea level observers, the historical seismic of the area, the variations in sea level and maintains a technical – scientific follow up of tsunami and seism world monitoring systems.
- g. Does the observed compartment demands for the bulletins to continue being issued?
NO .- Issues a Cancelation Alert Bulletin (Connects to the previous activity)
YES.- Issues a Follow Up Bulletin (Connects to the next activity)
- h. Generates a Follow up Bulletin with updated information on sea level obtained from the Tidal Network of the National Tsunami Warning System in Mexico; updating recommendations if required. Same as sent by AION, mass mail and by SIOPARM.
- i. Verifies that all of the intended recipients received the information sent through all the communication means used for such a purpose (Commercial telephone, Satelital telephone and Motorola Radio).

- j. Does the compartment of the event demands for the continued issuance of Follow Up Bulletins?
YES.- Issues a Follow Up Bulletin of the event (Connects to the previous activity).
NO.- Issues a Cancellation Bulletin (Connects to the next activity).
- k. Informs and seeks for the authorization from the Director at CAT on the fact that the event may have a Tsunami Warning Cancellation Bulletin.
- l. Issues the Cancellation Bulletin and sends it to the Federal, State and Municipal Civil Protection Units, Port Captaincies, National Port System Administrations, Naval Commands, as well as to strategic facilities and registered users, through mass mailing by email.
- m. Sends the Cancellation Bulletin generated by the AION to make it available in the official application of the Tsunami Warning Center and its official website.
- n. Distributes the Cancellation Bulletin to the naval commanders by SIOPARM.
- o. Verifies that all of the intended recipients received the information sent through all the communication means used for such a purpose (Commercial telephone, Satelital telephone and Motorola Radio).
- p. Cronologically reports on the duty's lodge the actions carried out.
- q. When the local, regional or transoceanic tsunami significantly affects the national coasts, a technical report is prepared with information on the variations in sea level recorded by the tide gauge stations, as well as general information on the earthquake. The main actions carried out by the CAT guard on duty are also added.

5. Tsunami Standard Operating Procedures for a Regional Tsunami (when a regional tsunami threat exists, 1-3 hour travel time)

When the PTWC, USGS and/or CISN publishes the occurrence of a regional Seism Magnitude greater than 7.0, personnel on duty at CAT develops the following activities:

- a. Receives the first alert message from the PTWC about the earthquake by email from the CAT, likewise, observe the event and its characteristics in the CISN-display notification system (California Integrated Seismic Network).
- b. Making use of the information about the earthquake, it executes the Tsunami Travel Time Program for the preparation of the Alert Bulletin.
- c. Sends the Alert Bulletin generated by the AION to make it available in the official application of the Tsunami Warning Center and its official website.
- d. Distributes the Alert Bulletin to the Federal, State and Municipal Civil Protection Units, Port Captaincies, National Port System Administrations, Naval Commands, as well as to strategic facilities and registered users, through mass mailing by email.
- e. Distributes the Alert Bulletin to the naval commanders by the Integral System of Naval Operations (SIOPARM) which is present in all the Command and Control Centers that operates 24 hours a day; same that emits an audible notification when receiving the alert bulletin.
- f. Verifies that all of the intended recipients received the information sent through all the communication means used for such a purpose (Commercial telephone, Satelital telephone and Motorola Radio).

- g. Analyzes the information provided by the DART buoys, the historical seismic comportment of the area, the variations in sea level and maintains a technical – scientific follow up of tsunami and seism world monitoring systems.
- h. Does the observed comportment demands for the bulletins to continue being issued?
NO.- Issues a Cancelation Alert Bulletin (Connects to the previous activity).
YES.- Issues a Follow Up Bulletin (Connects to the next activity).
- i. Generates a Follow up Bulletin with updated information on sea level obtained from the Tidal Network of the National Tsunami Warning System in Mexico; updating recommendations if required. Same as sent by AION, mass mail and by SIOPARM.
- j. Verifies that all of the intended recipients received the information sent through all the communication means used for such a purpose (Commercial telephone, Satelital telephone and Motorola Radio).
- k. Analyzes the information provided by the National Tide Gauging Network, DART buoys, sea level observers, the historical seismic comportment of the area, the variations in sea level and mantains a technical – scientific follow up of tsunami and seism world monitoring systems.
- l. Does the behavior of the event demands for the continued issuance of Follow Up Bulletins?
YES.- Issues a Follow Up Bulletin of the event (Connects to the previous activity).
NO.- Issues a Cancelation Bulletin (Connects to the next activity).
- m. Informs and seeks for the authorization from the Director at CAT on the fact that the event may have a Tsunami Warning Cancelation Bulletin.
- n. Issues the Cancelation Bulletin and sends it both bulk and institutional mail to Federal, State and Municipal Civil Protection Dependencies, Harbour Master, Integrated Port Management, Naval Command and registered users.
- o. Verifies that all of the intended recipients received the information sent through all the communication means used for such a purpose (Commercial telephone, Satelital telephone and Motorola Radio).
- p. Cronologically reports on the duty's lodge the actions carried out.
- q. When the local, regional or transoceanic tsunami significantly affects the national coasts, a technical report is prepared with information on the variations in sea level recorded by the tide gauge stations, as well as general information on the earthquake. The main actions carried out by the CAT guard on duty are also added.

6. Tsunami Standard Operating Procedures for a Distant Tsunami (when a distant tsunami threat exists, more than 3 hour travel time)

When the PTWC, USGS and/or CISN publishes the occurrence of a regional Seism Magnitude greater than 7.0, personnel on duty at CAT develops the following activities:

- a. Receives the first alert message from the PTWC about the earthquake by email from the CAT, likewise, observe the event and its characteristics in the CISN-display notification system (California Integrated Seismic Network).

- b. Making use of the information about the earthquake, it executes the Tsunami Travel Time Program for the preparation of the Alert Bulletin.
- c. Sends the Alert Bulletin generated by the AION to make it available in the official application of the Tsunami Warning Center and its official website.
- d. Distributes the Alert Bulletin to the Federal, State and Municipal Civil Protection Units, Port Captaincies, National Port System Administrations, Naval Commands, as well as to strategic facilities and registered users, through mass mailing by email.
- e. Distributes the Alert Bulletin to the naval commanders by the Integral System of Naval Operations (SIOPARM) which is present in all the Command and Control Centers that operates 24 hours a day; same that emits an audible notification when receiving the alert bulletin.
- f. Verifies that all of the intended recipients received the information sent through all the communication means used for such a purpose (Commercial telephone, Satelital telephone and Motorola Radio).
- g. Analyzes the information provided by the DART buoys, the historical seismic behavior of the area, the variations in sea level and mantains a technical – scientific follow up of tsunami and seism world monitoring systems.
- h. Does the observed behavior demands for the bulletins to continue being issued?
NO.- Issues a Cancelation Alert Bulletin (Connects to the previous activity)
YES.- Issues a Follow Up Bulletin (Connects to the next activity)
- i. Generates a Follow up Bulletin with updated information on sea level obtained from the Tidal Network of the National Tsunami Warning System in Mexico; updating recommendations if required. Same as sent by AION, mass mail and by SIOPARM.
- j. Verifies that all of the intended recipients received the information sent through all the communication means used for such a purpose (Commercial telephone, Satelital telephone and Motorola Radios).
- k. Analyzes the information provided by the National Tide Gauging Network, DART buoys, sea level observers, the historical seismic behavior of the area, the variations in sea level and mantains a technical – scientific follow up of tsunami and seism world monitoring systems.
- l. Does the behavior of the event demands for the continued issuance of Follow Up Bulletins?
YES.- Issues a Follow Up Bulletin of the event (Connects to the previous activity)
NO.- Issues a Cancelation Bulletin (Connects to the next activity)
- m. Informs and seeks for the authorization from the Director at CAT on the fact that the event may have a Tsunami Warning Cancelation Bulletin.
- n. Issues the Cancelation Bulletin and sends it both bulk and institutional mail to Federal, State and Municipal Civil Protection Dependencies, Harbour Master, Integrated Port Management, Naval Command and registered users.
- o. Verifies that all of the intended recipients received the information sent through all the communication means used for such a purpose (Commercial telephone, Satelital telephone and Motorola Radio).
- p. Cronologically reports on the duty's lodge the actions carried out.
- q. When the local, regional or transoceanic tsunami significantly affects the national coasts, a technical report is prepared with information on the variations in sea level recorded by the tide gauge stations, as well as general information on the

earthquake. The main actions carried out by the CAT guard on duty are also added.

For each situation, please provide the following:

- *What organization identifies and characterizes tsunamigenic events?*

Centro de Alerta de Tsunamis (CAT)
Mexican Tsunami Warning Center

- *What is the threshold or criteria for declaring a potential tsunami emergency?*

TRANSOCEANIC SEISM						
Depth	Lat. Long	Magnitude	Description	Affectation radio area	Estimated arrival time	Kind of bulletin
< 100 km	In the sea or near the coast	≥ 8.5	Destructive	1000 km	9 - 10 hrs.	Alert/Warning
		7.4 a 8.4	Not destructive			Informative
> 100 km		≤ 7.3				None

- *What organization acts on the information provided by the agency responsible for characterizing the potential tsunami threat?*
 - Pacific Tsunami Warning Center;
 - U.S. Tsunami Warning System;
 - Hydrographic and Oceanographic Service from the Chilean Navy.
- *How is the tsunami information (warning, public safety action, etc.) disseminated within country? Who is it disseminated to?*
 - By both the electronic mail and the intranet system of the Mexican Navy Secretariat of the Navy. Redundant communication systems are available such as Matra and satellite network phone.
 - Bulletins issued by CAT are disseminated to all the civil and military authorities at municipal, state and federal levels that are in charge of civil protection and emergency management.
- *How is the emergency situation terminated?*
 - Once that the specialists at the Tsunami Warning Center have evaluated and determined that there is no threat for the national coasts or that the tsunami event represents no threat anymore; and counting on the authorization of the Director at CAT, an Alert Cancellation Bulletin is issued. However it is the National Center for the Prevention of Disasters the entity in charge of and responsible for determining and informing the population that they are permitted to go back to their houses.

- *For Distant Tsunami Procedures:*
What actions were taken in response to warnings issued by PTWC and/or US NTWC, during the intersessional period?

On January 15, 2022, we attended a Tsunami alert for the Tonga region issued by the PTWC, due to the eruption of the Hunga Tonga volcano. At that time we did not have procedures for tsunamis caused by volcanic eruptions. However, we issued eight bulletins for this event. 1 alert, 6 monitoring and one cancellation. If necessary, we currently use the PTWC Interim Procedures and PTWS products for Tsunamis developed after the Hunga Tonga Hunga Ha’apai Volcano event.

7. National Sea Level Network

There are in Mexico four (4) Tide gauging networks managed by different institutions. CAT counts on access at real time to the data of almost 10% of the stations since not all of them count on systems for sending telemetric information. The tide gauging networks are the following:

- a. Secretaría de Marina– SEMAR.
- b. Universidad Nacional Autónoma de México– UNAM.
- c. Centro de Investigación Científica y de Educación Superior de Ensenada, Baja California - CICESE.
- d. Instituto Mexicano de Transporte– IMT.

Next chart shows the location of the tide gauge stations belonging to the four (4) networks in Mexico.



8. Information on Tsunami occurrences/Tsunami Exercises

Tsunami Occurrence:

- a. Historic information has registered for the last 250 years, the arrival of 60 tsunamis to the West coast of Mexico. Distant tsunamis have reached in average, waves of 2.5 m height, while local tsunamis have reached waves of 5 m., height and exceptionally up to 10 m height provoking the loss of lives and property and the destruction of communities.
- b. There are no records in recent history that the tsunamis occurred in Mexico had been as destructive as those occurred in Chile between 1960 and 2010; Alaska in 1964; Sumatra in 2004 and Japan in 2011. However, the possibility or the likelihood for such an event to occur along the coast of the Mexican Pacific, must not be dismissed. In fact, there's evidence that in 1787 a huge earthquake, Magnitude 8.4 took place in San Sixto, Oaxaca which lead to a highly destructive local tsunami (Nuñez, Ortiz and Sánchez, 2008).
- c. Recently, the earthquake that took place on September 19th., 1985, Magnitude 8.1 before the coasts of Lazaro Cardenas, Michoacán provoked up to 2.5 height waves and more than 500 meters of inland penetration.
- d. The tsunami that took place in Manzanillo, Colima on October 9th., 1995, Magnitude 8.0 provoked 2.5 m height waves and moved 200 m inland.
- e. A local tsunami was generated by a Mw 8.2 earthquake located on the coast of Pijijiapan, Chiapas (Isthmus of Tehuantepec) during September 07, 2017, recorded by several tidal gauges and offshore buoys, provoked up 1.5 maximum height wave.
- f. An earthquake in June 23, 2020, M 7.4, Oaxaca, Mexico, provoked a moderate tsunami off the coast of Oaxaca, recorded a maximum wave height of 1.4 m in La Crucecita, Oaxaca.
- g. On March 4, 2021, an 8.1 magnitude earthquake occurred in the Kermadec-Tonga subduction zone in the southern region of the trench, which generated a tsunami that arrived in Mexico within a period of 11 and 13 hours after it occurred. the earthquake, registering sea elevations of less than 50 cm, but that caused important currents of approximately 2 to 3 knots at the entrance of the ports, however, there were no inundations along the Mexican coast.
- h. On January 15, 2022, the Hunga Tonga-Hunga Ha'apai submarine volcano, located 30 km southeast of the island of Fonuafo'ou, Tonga, had a violent eruption that caused the displacement of the water column located on it, which gave origin of a tsunami that affected the Pacific Ocean, specifically in Mexico, a maximum wave amplitude of 2.05 m was recorded at the Manzanillo station, Colima.
- i. On September 19, 2022, an earthquake of magnitude 7.7 was recorded 63 km south of Coalcoman, Michoacán, which generated a tsunami that caused the rise in sea level with a maximum wave amplitude of 1.75 m in Manzanillo, Colima.

On CAT's web page, a pdf file about the wide history of tsunamis in Mexico:
<https://digaohm.semar.gob.mx/cat/centroAlertasTsunamis.html>

Tsunami exercises:

The Mexican Tsunami Warning Center has participated in several international drills and has coordinated several national drills in both the Pacific Ocean and the Gulf of Mexico and Caribbean Sea.

Technical reports

1. Preliminary report on seismicity and tsunami caused by an earthquake of magnitude 8.8 on February 27, 2009 in Chile.
2. Records of tides that represent variations of the sea level in Mexico derived from the Tsunami in Japan caused by the earthquake of March 11, 2011.
3. Data obtained from the DART buoy in Acapulco (43413) on August 27, 2012 from 03:00 to 08:00 hrs. (GMT) after the earthquake in El Salvador of magnitude 7.3 at 04:37 hrs. (GMT).
4. Diagnosis of the sea level in the Mexican Pacific after the earthquake in the Solomon Islands of magnitude 8.0 at 19:12 "S" on February 15, 2013.
5. Diagnosis of the sea level in the Mexican Pacific after the 8.0 magnitude earthquake that occurred in the Solomon Islands at 7:12 pm on February 15, 2013.
6. Response report to the earthquake in Michoacán on April 21, 2013 at 8:16 p.m.
7. Sea level abnormalities registered in the Mexican Pacific caused by the earthquake in Chile on April 1, 2014.
8. Technical report of the magnitude 6.0 earthquake and possible tsunami 17 km southwest of San Marcos, Guerrero on August 21, 2013.
9. Report of the Tsunami Warning Center in response to the earthquake in Petatlán, Guerrero on April 18, 2014.
10. Preliminary analysis of the magnitude 6.2 earthquake on May 31, 2014 from the point of view of sea level.
11. Report on the variations of the sea level registered in the Mexican Pacific, caused by the earthquake in Chiapas on July 7, 2014.
12. Sea level anomalies registered in the Mexican Pacific, caused by the earthquake in Chile on September 16, 2015.
13. Article "The earthquake and tsunami of 85". Magazine of the Secretary of the Navy in 2015.
14. Article "The CAT-MOBILE goes into operation" Magazine of the Secretary of the Navy. 2015.
15. Article "Sea level variation on the western coast of the Mexican Pacific in response to tsunamigenic earthquakes (2012-2015)". Journal of Shipping and Ocean Engineering 5 (2015) 318-326 10.17265 / 2159-5879 / 2015.06.005.
16. Report of the Tsunami Warning Center in response to the earthquake in Papua, New Guinea, on November 13, 2016.

17. Report of the Tsunami Warning Center in response to the earthquake in Solomon Islands, December 8, 2016.
18. Report of the Tsunami Warning Center in response to the earthquake in Papua, New Guinea, on December 17, 2016.
19. Report of the Tsunami Warning Center in response to the earthquake in Puerto Melinka, Chile on December 25, 2016.
20. Report of the Tsunami Warning Center in response to the earthquake in the Fiji Islands, on January 3, 2017.
21. Report of the variation of the sea level registered in the Mexican Pacific, caused by the earthquake of magnitude 8.2 of September 7, 2017, located on the coast of Pijijiapan, Chiapas (Isthmus of Tehuantepec).
22. Report of the variation of the sea level registered in the Mexican Pacific, caused by the earthquake of magnitude 7.6 of December 4, 2018, located 169 km to the East-Southeast of Tadine, Loyalty Islands, New Caledonia.
23. Tsunami report generated by a seismic event registered on June 23, 2020 in La Crucecita, Oaxaca, with a magnitude of 7.4.
24. Article "Application of the Tsunami Warning Center App TSUNAMI MX". Magazine of the Secretary of the Navy. 2021.
25. Report of the Tsunami Warning Center in response to the earthquake in the Kermadec Islands, on March 4, 2021.
26. Report of the tsunami of the Tonga trench, south pacific, due to submarine volcanic eruption of January 14, 2022.

9. Web sites (URLs) of national tsunami-related web sites

- <http://www.gob.mx/semar/acciones-y-programas/que-hacer-en-caso-de-tsunami>
- http://www.gobernacion.gob.mx/es_mx/SEGOB/Coordinacion_General_de_Proteccion_Civil
- <http://www.cenapred.unam.mx/es/>
- <http://www.ssn.unam.mx/>
- <https://twitter.com/SSNMexico>
- <http://redmar.cicese.mx/>
- <https://www.gob.mx/imt>
- <https://chalchiuhtlicue.geofisica.unam.mx/>

10. Summary plans of future tsunami warning and mitigation system improvements.

- a. Improvement of communication systems.
- b. Increase and modernize the number of tide gauging stations.
- c. Improvement of both communication and inter connection among seismic networks.
- d. Promote the involvement of Mexican scientists on research projects for the creation of mathematical models focused on flooding provoked by tsunamis.
- e. Continue to perform the yearly programs of exercises and drilling activities for tsunami alert, encouraging the participation of local authorities.

- f. Improve and continue with lectures on training programs about tsunamis which are imparted at municipal and state civil protection delegations along the coastal zones.
- g. To continue participating in national and international events related to the prevention, research and accuracy on the detection of tsunamis.

NATIONAL PROGRAMMES AND ACTIVITIES INFORMATION

11. EXECUTIVE SUMMARY

After eleven years of having been created the Tsunami Warning Center. It's has been consolidated a team for developing monitor and alert activities with a response capacity that ensures that in less than five (3) minutes after receiving the data provided by the National Seismologic Service (SSN), the corresponding bulletin is issued and sent to more than 300 users along the Mexican Pacific Ocean and the Gulf of Mexico and Caribbean Sea.

A permanent contact has been established with the main alert centers worldwide, as well as with the United Nations Educational, Scientific and Cultural Organization (UNESCO), which has certified more than 50% of CAT members to operate a Tsunami Warning Center.

The data provided below correspond to the period 2013-2022.

There have been issued 978 tsunami bulletins of different types: informative, alert, follow up and cancelation ones, at local, regional, distant, or transoceanic levels.

More than twenty-five technical reports have been issued about local, regional and distant tsunamis that were registered by tide gauging stations located along the national coast. The ones from: Japan 2011, Salomon Islands 2014, Petatlán 2014, Chile 2014 and Tonga (2022).

We have coordinated and participated in 20 national drillings; participated in 17 international drillings: Caribe Wave 2011, US Virgin Islands, Pacific Wave 2012 Nicaragua coasts; Caribe Wave Lantex 2013 in the North of Aruba, and Caribe Wave Lantex 2014 along the coasts of Mississippi, USA, PACIFIC WAVE 15 A Pacific-wide Tsunami Warning and Enhanced Products Exercise; and CARIBE WAVE and LANTEX 2015 Exercise in the Western Atlantic, Caribbean and Adjacent Regions on 25 March 2015; CARIBE WAVE 16 A Caribbean and Adjacent Regions on 17 March 2016; EXERCISE PACIFIC WAVE 2017 on 15-17 February 2017; CARIBE WAVE 17 A Caribbean and Adjacent Regions on 21 March 2017; CARIBE WAVE 18 A Caribbean and Adjacent Regions on 15 March 2018; EXERCISE PACIFIC WAVE 2018 on 30 November 2018; CARIBE WAVE 2019 A Caribbean and Adjacent Regions on 14 March 2019; CARIBE WAVE 21 on 21 March 2021; CARIBE WAVE

22 on 10 March 2022 and PACIFIC WAVE 22 on 13 October 2022. Recently we participated in the Caribe Wave 2023, on March 23rd.

Personnel at CAT have participated in more than 90 events at both national and international. These events include workshops, symposiums, congresses and courses about tsunami related topics such as: the creation of maps of tsunami sourced flooding; geographic information systems applied to maps of tsunami sourced flooding and the CAT operational system.

12. NARRATIVE

On February of 2017, published the Official Mexican Standard NOM-006-SEGOB-2015. Tsunamis.- Characteristics and specifications of prevention, warning and evacuation.
http://www.dof.gob.mx/nota_detalle.php?codigo=5472483&fecha=21/02/2017

In July 2020, the Secretary of the Navy developed the "TSUNAMI MX" application, capable of issuing timely and truthful information on the generation of tsunamis and alerting the population, as a mobile computing solution for smartphones, available free of charge.

In relation to the UNESCO IOC Tsunami Ready Program, we prepared the documents Integration Act of the National Council of the Tsunami Ready Program in Mexico and the Operation Rules of the National Council of the Tsunami Ready Program in Mexico, with the purpose of establishing the Council in Mexico. Program of the Tsunami Ready Program, which was established at the LX Meeting of the Plenary of the National Tsunami Warning System on March 29, 2023.

Eleven years after its creation, the Tsunami Warning Center has consolidated a monitoring and warning system, operated by trained personnel to provide an effective and efficient response to a tsunami-generating event.

In addition, we have instructed the authorities and the civilian population on preventive actions in case of tsunamis that could affect the coasts of the national territory, thus promoting a culture of self-protection.

With these actions, the Secretary of the Navy, through the Tsunami Warning Center, reiterates its commitment to Mexican society in prevention to avoid the loss of human life.

Date: April 18th, 2023.

Name: Captain Miguel Angel Reyes Martinez