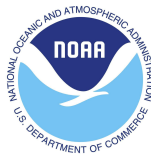


Exercise LANTEX23

Participant Handbook

A U.S. and Canadian East and Gulf Coast
Tsunami Warning Exercise
March 2, 2023

US National Tsunami Hazard Mitigation Program



NOTE: The contents of this handbook are patterned after previous LANTEX and CARIBE WAVE Exercises (e.g., Commission Océanographique Intergouvernementale. *Exercise Caribe Wave 11. A Caribbean Tsunami Warning Exercise, 23 March 2011*, IOC Technical Series No. 93. Paris, UNESCO, 2011 (English/ French/ Spanish), Intergovernmental Oceanographic Commission *Exercise Caribe Wave/Lantex 13, A Caribbean Tsunami Warning Exercise, 20 March 2013, Volume 1: Participant Handbook, IOC Technical Series No. 101, Paris, UNESCO, 2012* and Intergovernmental Oceanographic commission. 2013. *Exercise Caribe Wave/Lantex 14. A Caribbean and Northwestern Atlantic Tsunami Warning Exercise, 26 Marc 2014. Volume 1: Participant Handbook. IOC Technical Series, 109 vol. 1. Paris: UNESCO. (English and Spanish)*). These CARIBE WAVE handbooks followed the Pacific Wave 08 manual published by the Intergovernmental Oceanographic Commission (*Exercise Pacific Wave 08, A Pacific-wide Tsunami Warning and Communication Exercise, 28-30 October 2008*, IOC Technical Series No. 82, Paris, UNESCO, 2008). The UNESCO How to Plan, Conduct and Evaluate Tsunami Wave Exercises. IOC Manuals and Guides No. 58 rev., Paris: UNESCO, 2013 (English, Spanish) is another important reference.

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1. Executive Summary

The NOAA/NWS U.S. National Tsunami Warning Center (NTWC) provides tsunami alerts for the coasts of the United States and Canada. Its annual LANTEX exercise focuses on tsunami preparedness for the East and Gulf coasts of these countries. This year, the exercise aims to be more realistic and interactive than past exercises, through a careful assessment of which information is anticipated to be available at any given time, and NTWC decision support throughout the exercise that mirrors the support provided during a real event.

The scenario for this exercise involves a shallow M8.7 earthquake on the Puerto Rico Trench occurring at 17:30 UTC / 12:30p EST on March 2, 2023, which is initially assessed as M8.2. For this scenario, as in a real event, information will be issued to all of the U.S. East and Gulf Coast states and Canada. However, only the part of that area expected to see impacts would be issued tsunami alerts. This is an example of a scenario that challenges NTWC automatic procedures and involves a threat of Advisory level waves to the U.S. East Coast states and Canada with a short lead time. While this scenario does not include modeled tsunami impacts for the Gulf of Mexico, NTWC encourages partner interaction from all primary customers in real time for at least the initial part of the event.

Highlights

- A source location that closely emulates the research and mitigation studies performed by NTHMP science partners
- Revised workbook structure to streamline helpful information
- NTWC release of multiple messages at realistic timing
- Three conference calls hosted by NTWC scientists for primary customers
- NTWC live support in Google Chat room for NOAA partners

Exercise Timeline

The following represents a complete timeline of events for this scenario. Please use the Dissemination column to note which steps will or won't be exercised by NTWC.

Date (UTC)	Time (UTC)	Time (EST)	Event	Msg #	Dissemination
03/02/2023	1730	1230	Exercise start/ CommsTest		Multiple means; See Table 2 p.16
03/02/2023	1737	1237	Watch: US East Coast	1	Email
03/02/2023	1750	1250	Notif. for Conf. Call		Email
03/02/2023	1805	1305	Advisory: US East Coast	2	Email
03/02/2023	1825	1325	Conf. Call #1		Phone
03/02/2023	1835	1335	Adv. continued	3	Email

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03/02/2023	1850	1350	Notif. for Conf. Call		Email
03/02/2023	1905	1405	Adv. continued	4	Email
03/02/2023	2000	1500	Conf. Call #2		Phone
FAST FORWARD 2HR IN SCENARIO		CONTINUING IN REAL-TIME (EST)			
03/02/2023	2205	1505	Adv. continued	7	Email
FAST FORWARD 2HR IN SCENARIO		CONTINUING IN REAL-TIME (EST)			
03/02/2023	2315	1515	Notif. for Conf. Call		Email
03/03/2023	0000	1600	Conf. Call #3		Phone
03/03/2023	0005	1605	Adv. continued	9	Email
FAST FORWARD 6HR IN SCENARIO		CONTINUING IN REAL-TIME (EST)			
03/03/2023	0635	1635	Cancellation	15	Email

NTWC will continue Google Chat support to NOAA/NWS partners up through the exercise cancellation bulletin.

To get in touch with NTWC or be added to the exercise email list, please see the contact list in Section 4.5 or email ntwc@noaa.gov. A post-exercise survey will be circulated to the list in the days following the exercise. NTWC welcomes your questions and feedback, and looks forward to working with you.

2. Exercise Concept

2.1 Purpose

The purpose of the exercise is to improve Tsunami Warning System effectiveness along the U.S. and Canadian Atlantic coasts. It provides an opportunity for emergency management organizations throughout the region and other National Tsunami Warning Center (NTWC) core partners to exercise their operational lines of communications, review their tsunami response procedures, and promote tsunami preparedness. Regular exercising of response plans is critical to maintain readiness for an emergency. This is particularly true for tsunamis, which are infrequent but high impact events. Every impacted emergency management organization (EMO) is encouraged to participate. Additionally, the exercise offers an opportunity to learn about local tsunami hazard and the National Tsunami Warning Center's event timeline and process. Our goal is to increase understanding of the following during tsunami alerts: 1) messaging and communications, 2) detection, observing, and forecasting, and 3) cancellation criteria.

2.2 Objectives

Each organization can develop their objectives for the exercise depending on their level of involvement in the scenario. The following are the exercise's overarching objectives.

- Ensure message transmission from the NTWC to primary customers.
- Test tsunami response plans for EMOs that have developed plans, and provide a catalyst for EMOs that have not developed plans.
- EMOs review, discuss, and evaluate the various communication alternatives for receiving and disseminating tsunami messages.
- EMOs review, discuss, and evaluate potential response actions and challenges.
- Exercise NTWC tsunami decision support and encourage partner feedback.

3. Background

NOAA and the U.S. National Tsunami Hazard Mitigation Program (NTHMP) are providing the framework for the LANTEX23 tsunami exercise, which is being conducted to assist tsunami preparedness efforts throughout the Atlantic region. Recent earthquakes and their associated tsunamis, such as those in Haiti-2010, Japan-2011, Chile-2015, and Tonga-2022, attest to the importance of proper planning for tsunami response. Similar recent exercises in the Pacific and Caribbean Basins have proven effective in strengthening preparedness levels of emergency management organizations.

3.1 Tsunami Warning System

Tsunami warning services for the continental United States and Canada are provided by the NTWC in Palmer, Alaska, while the Pacific Tsunami Warning Center (PTWC) in Pearl Harbor, Hawaii provides services for locations within the Caribbean. These Centers issue messages approximately three to seven minutes after an earthquake's start. Domestic products include warnings, advisories, watches, and information statements.

Primary recipients of Tsunami Warning Center messages ("core partners") include national tsunami warning focal points, Weather Forecast Offices (WFO), state/territory emergency operation centers, national Coast Guards, and military contacts. These agencies disseminate the messages to people potentially impacted by a tsunami.

3.1.1 Alert Levels

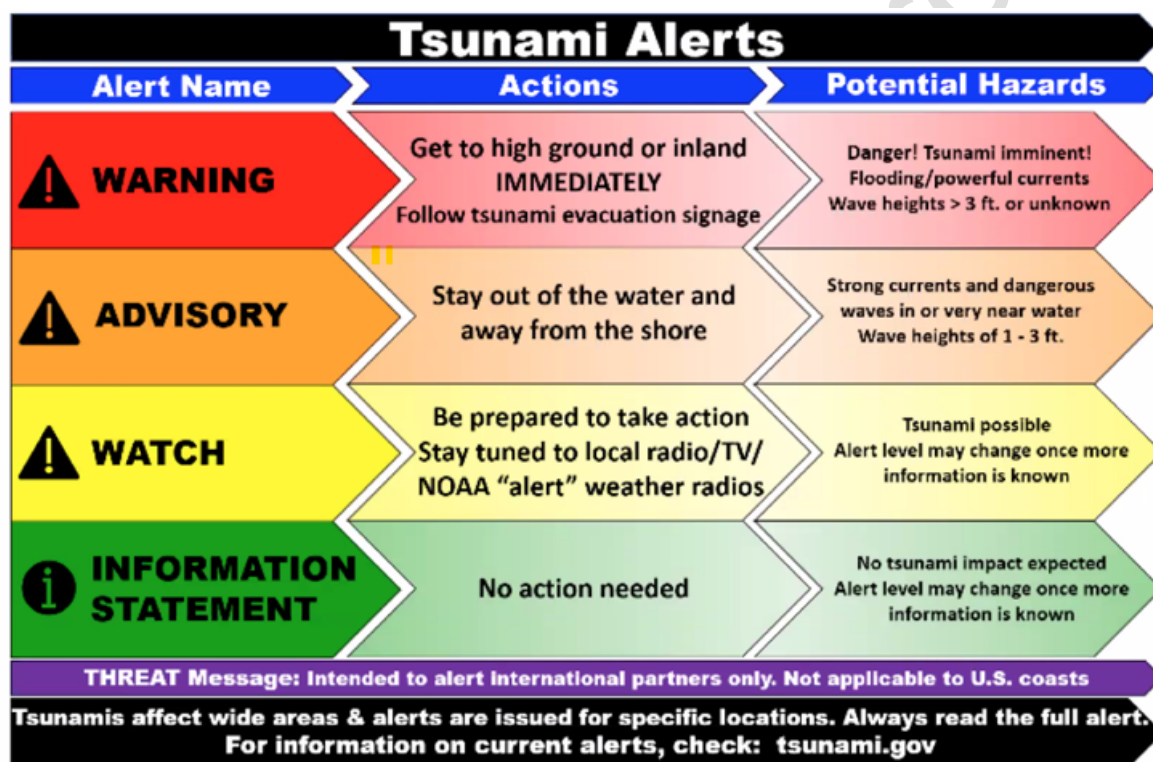


Figure 1: U.S. Tsunami Warning System alert levels.

Tsunami Watch - A tsunami watch is issued to alert emergency management officials and the public of an event which may later impact the watch area. The watch area may be upgraded to a warning or advisory - or canceled - based on updated information and analysis. Therefore, emergency management officials and the public should prepare to take action. Watches are normally issued based on seismic information without confirmation that a destructive tsunami is underway.

Tsunami Advisory - A tsunami advisory is issued when a tsunami with the potential to generate strong currents or waves dangerous to those in or very near the water is imminent, expected, or occurring. The threat may continue for several hours after

initial arrival, but significant inundation is not expected for areas under an advisory. Along with 1-3 foot water level fluctuations, Advisory level events come with strong tsunami currents and eddies that can greatly impact the maritime community, both through difficult navigation and through damage to docks, boats, and marinas. Additional resources on Tsunami Maritime Guidance from the NTHMP can be found at: <https://calema.maps.arcgis.com/apps/MapSeries/index.ht>. Appropriate actions to be taken by local officials during an Advisory may include closing beaches, evacuating harbors and marinas, and the repositioning of ships to deep waters when there is time to safely do so. Advisories are normally updated to continue the advisory, expand/contract affected areas, upgrade to a warning, or cancel the advisory.

Tsunami Warning - A tsunami warning is issued when a tsunami with the potential to generate widespread inundation is imminent, expected, or occurring. Warnings alert the public that dangerous coastal flooding accompanied by powerful currents is possible and may continue for several hours after initial arrival. Warnings alert emergency management officials to take action for the entire tsunami hazard zone. Appropriate actions to be taken by local officials may include the evacuation of low-lying coastal areas, and the repositioning of ships to deep waters when there is time to safely do so. Warnings may be updated, adjusted geographically, downgraded, or canceled. To provide the earliest possible alert, initial warnings are normally based only on seismic information.

3.1.2 NTWC Event Timeline and Process

Whether the tsunami is generated from an earthquake, landslide, volcano, or even meteotsunami, NTWC's general process and the event timeline steps remain the same: alert, detect, observe, forecast, and cancel.

Initial alert

Tsunami alerts are typically issued within 5 minutes following a major earthquake, and **before** a tsunami has been detected. The two Tsunami Warning Centers agree on a set of preliminary earthquake parameters based on who has warning responsibility for the area the earthquake occurred in. The initial set of earthquake information available (magnitude, location, and depth) doesn't provide a lot of relevant information about how big a tsunami might have formed. There is also potential for earthquake shaking to trigger landslides that become additional tsunami sources. Therefore, initial tsunami alerts are conservative in order to maximize warning time for the people who need it most. Alerts can also be issued upon detecting a tsunami threat from a landslide event. NTWC does not issue alerts for meteotsunamis, but upon detection works with WFOs to alert the public through Special Weather Statements.

Alert messaging and communications

Bulletins

Once an alert is issued, tsunami bulletins are automatically disseminated through NWS Gateway, NOAA weather radio, WEA, and the Emergency Alert Broadcast System. Messages are also posted to NTWC's Twitter and Facebook page, and all

information provided on tsunami.gov. Each bulletin contains the latest information on the alert areas, earthquake parameters, estimated times of arrival (ETAs), and provides calls to action. During alerts for our coastline, tsunami bulletins are updated every 30 minutes, or as new information warrants.

Conference Calls

NTWC provides routine conference calls with core partners as soon as possible during an event, generally within 1-1.5 hours after an alert is issued. Conference call notifications are sent out as an official NWS product (NOAK78) through NWS Telecommunication Gateway, as well as emailed. During conference calls the latest information on the earthquake parameters, expected tsunami impacts, arrival times, observations, and forecasting, is provided, with any upcoming modifications to the alert discussed. A chance for questions is provided at the end of the conference call.

[Tsunami.gov](#)

The one-stop shop for all the latest tsunami event information. All event bulletins are provided in a table on the front page, including messages from the Pacific Tsunami Warning Center. Alert areas are shown on a map, and ETAs, observations, and forecasted wave heights are posted here.

Chat

NTWC utilizes Google Chat for ongoing event discussions with internal NOAA/NWS agency communication and warning points. The “******NTWC ATL Event Collaboration Room**” in Google Chat is useful for keeping everyone on the same page with any follow-up questions and the sharing of graphics or links. If you are a NOAA/NWS partner who does not yet have access to the collaboration Chat room, please contact NTWC.

Phone

If at any time a core partner needs additional information or to talk with someone on the NTWC operations floor, use the unlisted number for WFOs/Emergency Managers.

Social Media

During a real tsunami event, bulletins are automatically posted to NTWC’s Facebook and Twitter accounts. Occasional additional event updates are also provided.

<https://www.facebook.com/NWSNTWC>

https://twitter.com/NWS_NTWC

Tsunami Detection, Observing, and Forecasting

DART Network

Tsunami detection can occur before the wave reaches the coast through the DART (Deep Ocean Assessment and Reporting of Tsunamis) network. The DART network utilizes Bottom Pressure Recorder (BPR) instruments located on the seafloor in the deep ocean. BPRs detect changes in the pressure of the water column above as a tsunami wave propagates over the sensor, as well as often recording the pressure changes from the passage of earthquake and atmospheric waves. The [National Data Buoy Center](#) is responsible for maintaining the DART network. Due to the need to separate earthquake shaking signals from tsunami signals, DART observation

interpretation is best left to tsunami experts as tsunami waves will not be displayed clearly from the NDBC DART webpage.

Tide Gauges

Tsunamis can also be detected using coastal tide gauges. During tsunami events, tide gauges from National Ocean Service (NOS) and other groups around the world are used to monitor water levels in real time. Observed water levels at both DARTs and coastal tide gauges must have the tidal signal removed in order to accurately measure tsunami amplitudes. You can locate available U.S. tsunami-capable gauges at: <https://tidesandcurrents.noaa.gov/tsunami/>

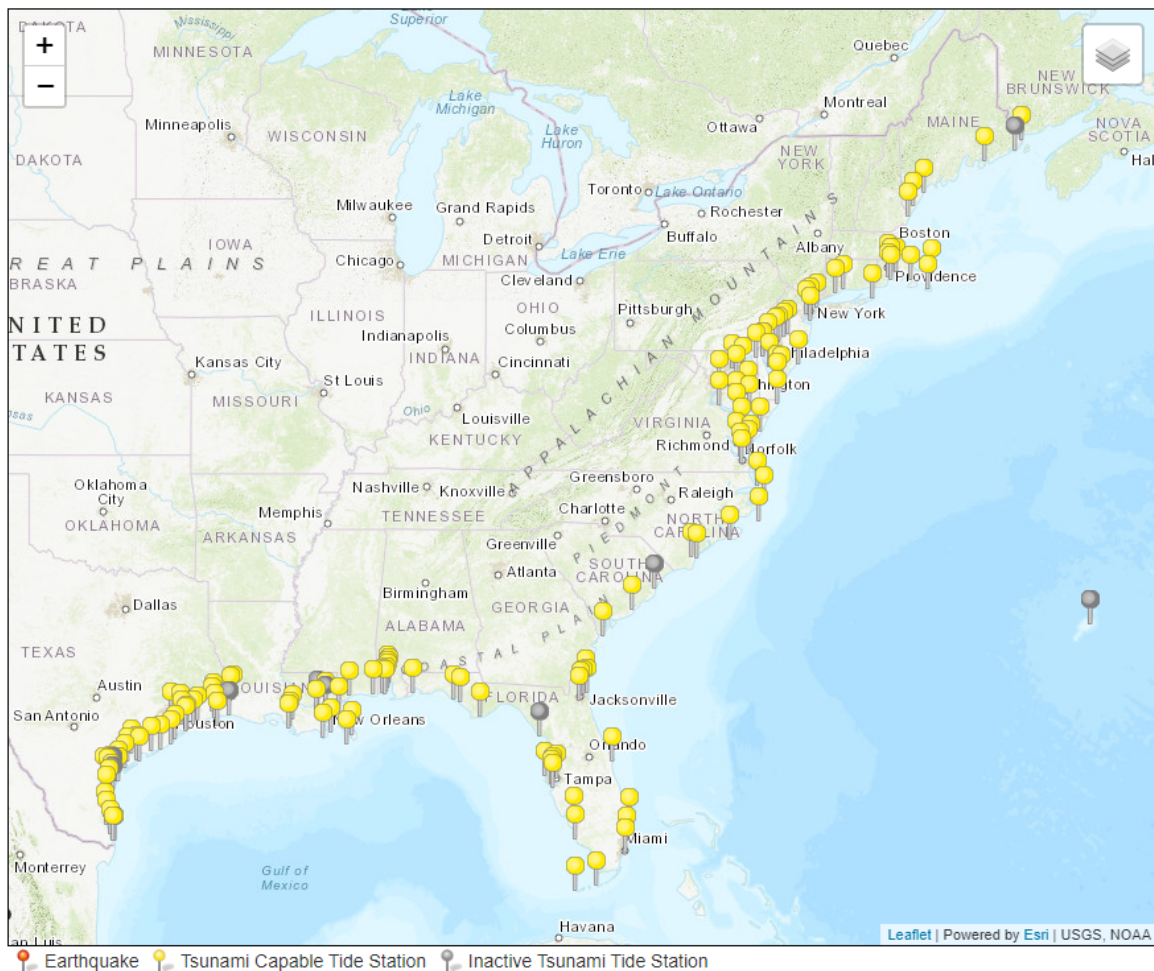


Figure 2. U.S. tsunami-capable tide gauges operated by the NOS Center for Operational Oceanographic Products and Services (CO-OPS).

Observing & Forecasting

Tsunamis are very long waves, often with periods of 15-60 minutes. When monitoring water levels NTWC must wait for the observation to reach a maximum wave height. Hence, once a tsunami has been detected, it can be another 15-30 minutes before the peak amplitude can be recorded, and even longer before the data can be incorporated into real time tsunami forecasting. When assimilating DART data into the forecast model, almost a full wave cycle of observational data is needed, which can easily take 30 minutes or more. Forecasting accuracy improves

with addition of more DARTs. Therefore, the observing and forecasting process often has several iterations as more data is added to the forecast.

For initial guidance, and until tsunami observations are available, NTWC uses “best-fit” precomputed tsunami models for preliminary forecast information. Once a real-time forecast that incorporates tsunami observations has been achieved, the forecasted wave heights for coastal locations are published to tsunami.gov. A short subset of the forecasted wave heights is also provided in NTWC bulletins. For the list of all forecast sites where NTWC provides ETAs and forecasted wave heights, see Appendix C, NTWC Atlantic Forecast Locations.

Cancellation Criteria

After a significant tsunami has been recorded, NTWC will monitor water levels and downgrade a coastal section from a Warning to an Advisory once wave height observations have reduced to below the Warning threshold (3 ft) for at least 3 hours. NTWC will cancel the alert for a coastal section after wave height observations have remained below Advisory threshold (1 ft) for 3 hours.

3.2 LANTEX23 Tsunami Scenario

This exercise is based on a tsunami which is generated by a magnitude 8.7 earthquake located along the Puerto Rico Trench, which bounds the NE Caribbean Sea at 19.7°N, 66.3°W and a depth of 5 km (Figure 3). The source is 600 x 100 km (L x W), with an uniform slip of 3.5m. This source is a modified version of the M8.7-PRT1 as formulated in the Grilli et al., 2021. The rupture area was reduced to include only segments 2 & 3 (see Fig. 4) and modeled as a M8.66 in order to recreate the uniform slip of 3.5m.



Figure 3: Event location and source.

Tectonic Setting: Puerto Rico Trench

The Puerto Rico Trench is a subduction zone on the north side of Puerto Rico where the North America plate subducts under the Caribbean plate. The relative plate motion is oblique to the trench axis, with most motion directed parallel to the E-W oriented trench and only a minor component perpendicular. Seismicity from such obliquely convergent subduction zones can still produce massive devastating tsunamis if there is a large thrust component to the earthquake, as seen in the M9.2 2004 Indian Ocean tsunami.

Faults around the Puerto Rico trench have historically produced large earthquakes that have generated tsunamis. Notable tsunamigenic earthquakes in the region include:

- M ~8 Puerto Rico earthquake (May 2nd, 1787)
- M ~8 Haiti Earthquake (May 7th, 1842)
- M ~7 Puerto Rico earthquake (Oct. 11th, 1918)

While the probability of a very large >M8.7 earthquake from this region is unlikely in any given year, the purpose of this scenario is to test event response for uncommonly large earthquakes. The assumed orientation of ruptured faults is designed to mimic the subduction zone geometry, while also maximizing tsunami amplitude (after Grilli et al., 2021). The modeled rupture extent (rupturing segments #2 and #3, Figure 4) is controlled by inferred segmentation of the trench by previous studies (see Grilli et al., 2021)

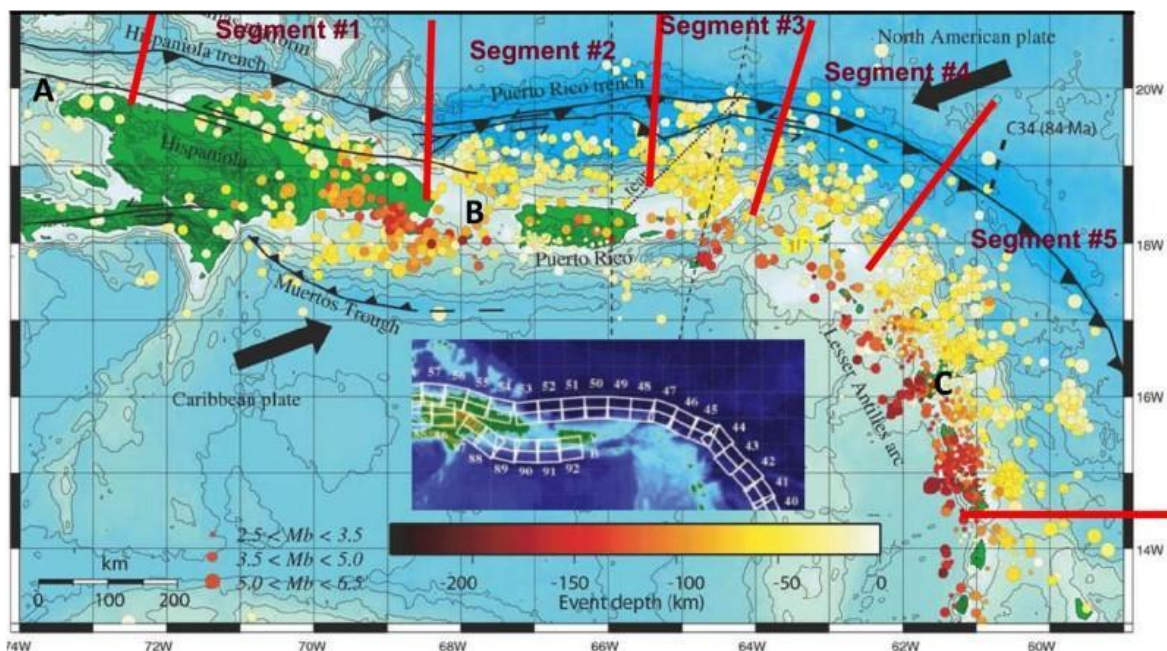


Figure 4: Figure from Grilli et al., 2021. Geologic setting of the Puerto Rico Trench showing oblique convergence of Caribbean Plate and North America Plate (black arrows) and historical earthquakes (colored circles). This exercise considers rupture of Segments #2 and #3. Subfaults, shown in inset, after Figure 3.

For more information about this modeled scenario, see:

Grilli, S.T., M. Mohammadpour, L. Schambach, and A. R. Grilli (2021), Tsunami coastal hazard along the US East Coast from coseismic sources in the Açores convergence zone and the Caribbean arc areas. *Natural Hazards*, **111**, 1431-1478, <https://doi.org/10.1007/s11069-021-05103-y>.

Tsunami Propagation and Hazard

- The Gulf of Mexico and East Coast are protected by a wide continental shelf, with shallow water, which works to greatly reduce the severity of tsunami impacts at the shoreline. Hence, while this is a very large earthquake event with wave heights greater than 10 feet and massive inundation in Puerto Rico, only minimal impacts at the Advisory level are expected along the East Coast of the US and Canada.
- The bathymetry of the Gulf of Mexico is such that very little tsunami energy propagates in, or out, through the shallow and tight passageways which connect it to the Caribbean and Atlantic. Hence, there are no expected impacts to the Gulf of Mexico during this event.
- The [United States and Territories National Tsunami Hazard Assessment Historical Record and Sources for Waves - Update](#) (2016) identifies the general tsunami hazard for the US East Coast as very low to low, and the Gulf of Mexico as very low. Underwater landslides and meteotsunamis are among the most likely tsunami sources in these regions.

Tsunami Impacts

The eventual likelihood of a Tsunami Advisory being issued for the U.S. or Canadian East Coast and/or Gulf of Mexico is quite plausible. Hence, practicing event response for a Tsunami Advisory level event is good preparation.

Earthquakes of M8.5+ in the Pacific generally produce tsunamis with basin-wide impacts. In this exercise scenario, the wide continental shelf on the East Coast keeps this event within Advisory levels, and lack of hydrodynamic communication between Atlantic, Caribbean, and Gulf of Mexico basins works to limit tsunami propagation into the Gulf of Mexico, keeping them below Advisory levels. While these geophysical features generally prevent the large wave-heights and coastal inundation seen during Tsunami Warnings, there is still an expectation for some tsunami impacts which could greatly impact the maritime community, along much of the East Coast of Canada and the U.S.

Alerting, Observation, and Forecasting Considerations

This scenario would be an uncommon but very plausible event, with an estimated historical recurrence interval of ~550 years for an earthquake of this magnitude. In this hypothetical event, the tsunami would initially be verified and measured using international tide gauges. These observed wave heights would be very useful for guidance, but could not be easily assimilated into our real-time forecast models. In this case, our most useful forecasting tool, the DART network, would also have sensors well positioned for timely tsunami forecasting and alert level refinement. The start of tsunami arrival at the nearest location, DART 41421 to the north, occurs

~0.5 hours after the earthquake origin time. The earliest expected tsunami arrival time in Florida would be just under 2.5 hours after earthquake origin time, making it difficult to correctly assign an initial alert level for this area given the preliminary magnitude of 8.2 and standard tsunami warning system guidance for use of a Watch. However, due to the proximity of the nearest DART, tsunami forecast models would be able to be updated within the first hour, providing higher confidence about expected impacts along the entire coastline.

4. Exercise Outline

4.1 General

Tsunami Advisory and Information messages for this exercise are issued by the NTWC based on a hypothetical earthquake with the following hypocenter parameters which in turn generates a tsunami:

Origin Time	17:30:00 UTC March 2, 2023	
	Preliminary	Final
Latitude	19.7° N	19.7° N
Longitude	66.3° W	66.3° W
Magnitude	Mwp 8.2	Mw 8.7
Depth	5 km	5 km

Similar to a real event, the first bulletin will contain a slightly different set of earthquake parameters than the others and a lower magnitude, as the true size of an earthquake greater than magnitude 8 usually takes over 15 minutes to determine. NTWC will modify their earthquake parameters for an event once the authoritative information becomes available from the U.S. Geological Survey (USGS), usually in bulletin 2.

There is little known history for tsunami observations along the US and Canadian East Coasts, so expected impacts for this event are guided by tsunami forecast models. The models indicate an Advisory level event along the US and Canadian East Coasts and no expected impacts in the Gulf of Mexico.

Initially, NTWC issues a Tsunami Watch informing the public and partners that an event has occurred which is of concern, and could potentially impact the coast. The alert level is raised to an Advisory 30 minutes later, after determining the earthquake is a M8.7, examining water level observations from Puerto Rico, and reviewing the tsunami forecast for expected impacts. Alert level definitions are provided in Section 3.1.1.

Message Dissemination

NTWC will issue live messages over various broadcast dissemination channels. An initial communication test message will start the exercise at 1730 UTC on March 2,

2023. The test message will be circulated via the transmission methods in Table 2. From then on, participants should follow the schedule in Table 1 to know when to expect new messages, which will be emailed to the exercise list from the NTWC Service Account, ntwc@noaa.gov. To be added to the exercise email list, please email that address or the NTWC Science Officer (contact information in Section 4.5) prior to the exercise date.

Table 1 is the timeline for when messages would be issued by the NTWC if this were a real event, and can be used by EMOs to drive the exercise timing if the group is not playing along with NTWC in real time. The messages (as shown in Appendix A) cover a 13-hour scenario timeline, but have been condensed to 4 hours in real-time for the purpose of this exercise. The World Meteorological Organization (WMO) and Advanced Weather Interactive Processing System (AWIPS) headers used in the test message are listed in Table 2.

NTWC issues three official products each time a message is issued. The ones provided in the Appendix are known as the public message and do not contain codes or text intended for automated systems. English (Appendix A) and Spanish (Appendix B) versions of each message are provided for this exercise. The other message not shown in Appendix A is the segmented message. This message includes encoded NWS zones, Valid Time Event Codes (VTEC), and their level of threat. The segmentation is used for automated processing systems which parse NWS products. NTWC also issues additional graphical and web-based products to its website.

Participants may elect to exercise using their own timelines in order to achieve their particular objectives. For example, a particular EMO's Exercise Controller may choose to feed the TWC bulletins into the exercise at times of their own choosing, or alternatively put them in envelopes with the time they must be opened written on each, with each key participant agency having their own set of envelopes. The messages, provided in Appendix A, will facilitate this approach. More ideas on exercise approaches and a sample tabletop exercise can be found in Appendices D and E.

EMOs are welcome to modify estimated arrival times and/or wave amplitudes to suit their exercise – for example, to have the tsunami arrive sooner and with larger amplitude. Other exercise injects, such as tsunami damage reports, are also encouraged.

4.2 Master Schedule (Exercise Script)

Table 1: Scenario Timeline

A tsunami is triggered by a major earthquake with preliminary magnitude of M8.2, located at 19.7°N, 66.3°W, 85 mi N of San Juan, Puerto Rico, occurring on March 2, 2023 at 1730 UTC.

Magnitude	8.2
Origin Time	1230 EST Mar 02 2023
	1730 UTC Mar 02 2023
Coordinates	19.7 North 66.3 West

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Depth 3 miles
 Location 105 miles NW of Fajardo, Puerto Rico
 85 miles N of San Juan, Puerto Rico

The initial test message will kick off the exercise at that time. The exercise message bulletins and notifications for conference calls will follow by email only. In the event of a National Weather Service Critical Weather Day on exercise day, the test message will also only be disseminated by email.

NTWC will continue Google Chat support to NOAA/NWS partners up through the exercise cancellation bulletin.

The following represents a complete timeline of events for this scenario. Please use the Dissemination column to note which steps will or won't be exercised by NTWC.

Date (UTC)	Time (UTC)	Time (EST)	Event	Msg #	Dissemination
03/02/2023	1730	1230	Exercise start/ CommsTest		Multiple means; See Table 2 p.16
03/02/2023	1737	1237	Watch: US East Coast	1	Email
03/02/2023	1750	1250	Notif. for Conf. Call		Email
03/02/2023	1805	1305	Advisory: US East Coast	2	Email
03/02/2023	1825	1325	Conf. Call #1		Phone
03/02/2023	1835	1335	Adv. continued	3	Email
03/02/2023	1850	1350	Notif. for Conf. Call		Email
03/02/2023	1905	1405	Adv. continued	4	Email
03/02/2023	2000	1500	Conf. Call #2		Phone
FAST FORWARD 2HR IN SCENARIO		CONTINUING IN REAL-TIME (EST)			
03/02/2023	2205	1505	Adv. continued	7	Email
FAST FORWARD 2HR IN SCENARIO		CONTINUING IN REAL-TIME (EST)			
03/02/2023	2315	1515	Notif. for Conf. Call		Email
03/03/2023	0000	1600	Conf. Call #3		Phone
03/03/2023	0005	1605	Adv. continued	9	Email
FAST FORWARD 6HR IN SCENARIO		CONTINUING IN REAL-TIME (EST)			
03/03/2023	0635	1635	Cancellation	15	Email

TWC Messages:

Watch Tsunami Watch
 Adv Tsunami Advisory
 Notif. for Conf. Call Info message for partners alerting recipient to upcoming conference call

The initial test message will be disseminated over all standard TWC broadcast channels listed in Table 2. This is being issued to test communications with EMOs, and to start the exercise. If you typically receive NTWC monthly communications tests, please respond as you normally would. If you do not typically receive NTWC monthly communications tests, no action is needed from you if you receive the test message.

Table 2: Product Types

Product Types Issued for Test Message with Transmission Methods

Center	WMO ID	AWIPS ID	NWWS	GTS	EMWIN	AISR	Fax	Email
NTWC	WEXX20 PAAQ	TSUAT1	Yes	Yes	Yes	Yes	No	No
NTWC	WEXX30 PAAQ	TSUATE	Yes	Yes	Yes	Yes	Yes	Yes

NWWS NOAA Weather Wire Service
 GTS Global Telecommunications System
 EMWIN Emergency Managers Weather Information Network
 AISR Aeronautical Information System Replacement

4.3 Actions in Case of a Real Event

In the case of a real event occurring during the exercise, the NTWC will issue their normal messages for the event. Such messages will be given full priority and a decision will be made by the NTWC whether to issue the test message. Smaller earthquakes that only trigger a Tsunami Information Statement will not disrupt the exercise. All documentation and correspondence relating to this exercise is to be clearly identified as “**LANTEX23**” and “**Exercise**.” The test message will include the word “**Test**”. All verbal communication from NTWC will begin and end with “**This in an Exercise**”.

4.4 Procedure for False Alarm

Any time disaster response exercises are conducted, the potential exists for the public or media to interpret the event as real. Procedures should be set up by all participating entities to address public or media concerns involving this exercise in case of misinterpretation by media or the public.

In the event of a communication error or misinterpreted exercise message, NTWC will follow established internal procedures to mitigate public and media confusion.

Again, all verbal communications from NTWC will begin and end with “This is an Exercise”.

All NTWC messages will include TEST and/or EXERCISE in the content and headlines.

4.5 Resources

Although EMOs will have advance notice of the exercise and may elect to stand up a special dedicated shift to allow normal core business to continue uninterrupted, it is requested that realistic resource levels be deployed in order to reflect some of the issues that are likely to be faced in a real event.

Questions on the exercise can be addressed to:

<u>Person</u>	<u>Telephone #</u>	<u>Email</u>
James Gridley, NTWC Director	907-745-4212	james.gridley@noaa.gov
Summer Ohlendorf, NTWC Science Officer	907-745-4212	summer.ohlendorf@noaa.gov
Dave Snider, NTWC Warning Coordinator	907-223-9988	david.snider@noaa.gov
Christa von Hillebrandt, NWS CTWP Manager	787-249-8307	christa.vonh@noaa.gov
Katie Nguyen, NWS Southern Region	682-703-3716	katie.nguyen@noaa.gov
Charles McCreery, PTWC Director	808-725-6380	charles.mccreery@noaa.gov
Chris Birchfield, NWS Eastern Region	631-244-0125	chris.birchfield@noaa.gov
Ed Fratto, NTHMP East Coast Rep.	781-224-9876	efratto@nesec.org
Paul Yang, Environment Canada	514-449-8644	paul.yang@ec.gc.ca

4.6 Media Arrangements

One advantage in conducting exercises is that it provides a venue to promote awareness of the exercise topic. Many residents along the Atlantic coast may not realize that a tsunami warning system exists for their region, let alone the proper response. Communities may wish to invite their local media to the exercise to promote local awareness of the tsunami hazard. For all levels of exercising but especially for those countries executing full-scale and functional exercises, the media can also provide support in building awareness leading up to the Exercise. The media should be provided with available informational brochures prepared by the local, regional and international agencies. Appendix F contains a sample press release which can be adapted as necessary.

5 Post-Exercise Evaluation

All participating agencies are requested to provide brief feedback on the exercise. This feedback will assist NTHMP and NOAA in the development of subsequent exercises. A post-exercise survey form will be emailed to the exercise email list within a day of exercise completion, and any exercise participants who do not receive one may request the form link by emailing ntwc@noaa.gov. Comments on the exercise, and proposed improvements to the messages may also be sent to this address. Any other items related to the tsunami warning system can be addressed to the persons listed in section 4.5.

Appendix A. NTWC English Exercise Messages

The following messages, created for the LANTEX23 tsunami exercise, are representative of the official standard products issued by the NTWC during a tsunami which is generated by a magnitude 8.7 earthquake located in the Puerto Rico Trench at 19.7°N, 66.3°W. During a real event, the NTWC would also issue graphical and html-based products to the web site and via RSS.

NTWC Bulletin #1

WEXX30 PAAQ 021737

TSUATE

BULLETIN

Public Tsunami Message Number 1

NWS National Tsunami Warning Center Palmer AK

1237 PM EST Thu Mar 02 2023

...A TSUNAMI WATCH IS NOW IN EFFECT...

Tsunami Watch in Effect for;

- * The coastal areas of Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland and Labrador from Flamingo, Florida to Cape Chidley, Labrador

For other US and Canadian Coasts in the Atlantic and Gulf of Mexico, the level of tsunami danger is being evaluated. Further information will be provided in supplementary messages.

PRELIMINARY EARTHQUAKE PARAMETERS

- * The following parameters are based on a rapid preliminary assessment of the earthquake and changes may occur.

- * Magnitude 8.2
- * Origin Time 1230 EST Mar 02 2023
0130 AST Mar 02 2023
1130 CST Mar 02 2023
1730 UTC Mar 02 2023
- * Coordinates 19.7 North 66.3 West
- * Depth 3 miles
- * Location 105 miles NW of Fajardo, Puerto Rico
85 miles N of San Juan, Puerto Rico

FORECASTS OF TSUNAMI ACTIVITY

* Tsunami activity is forecasted to start at the following locations at the specified times.

SITE	FORECAST START OF TSUNAMI
----	-----
* Florida	
Miami	1520 EST Mar 2
Key West	1600 EST Mar 2
Daytona	1635 EST Mar 2
Melbourne Beach	1635 EST Mar 2
Jacksonville Bea	1710 EST Mar 2
* North Carolina	
Cape Hatteras	1525 EST Mar 2
* Nova Scotia	
Lockeport	1750 AST Mar 2
Scatarie Island	1845 AST Mar 2
* New York	
Montauk	1655 EST Mar 2
Manhattan	1820 EST Mar 2
* Virginia	
Virginia Beach	1700 EST Mar 2
* New Jersey	
Atlantic City	1705 EST Mar 2
* South Carolina	
Myrtle Beach	1720 EST Mar 2
Charleston	1730 EST Mar 2
* Georgia	
Savannah	1735 EST Mar 2
* Massachusetts	
Nantucket	1735 EST Mar 2
Boston	1855 EST Mar 2
* Newfoundland	
Saint Lawrence	1915 NST Mar 2
Bonavista	2055 NST Mar 2
* New Brunswick	
Grand Manan Isla	1905 AST Mar 2
* Maine	

Portland 1835 EST Mar 2

* Labrador

Battle Harbour 2120 NST Mar 2

Cape Makkovik 2055 AST Mar 2

OBSERVATIONS OF TSUNAMI ACTIVITY

* No tsunami observations are available to report.

RECOMMENDED ACTIONS

If you are in a tsunami watch area;

* Prepare to take action and stay alert for further information.

ADDITIONAL INFORMATION AND NEXT UPDATE

* Refer to the internet site tsunami.gov for more information.

* Caribbean coastal regions should refer to the Pacific Tsunami Warning Center messages at tsunami.gov.

* This message will be updated within 60 minutes.

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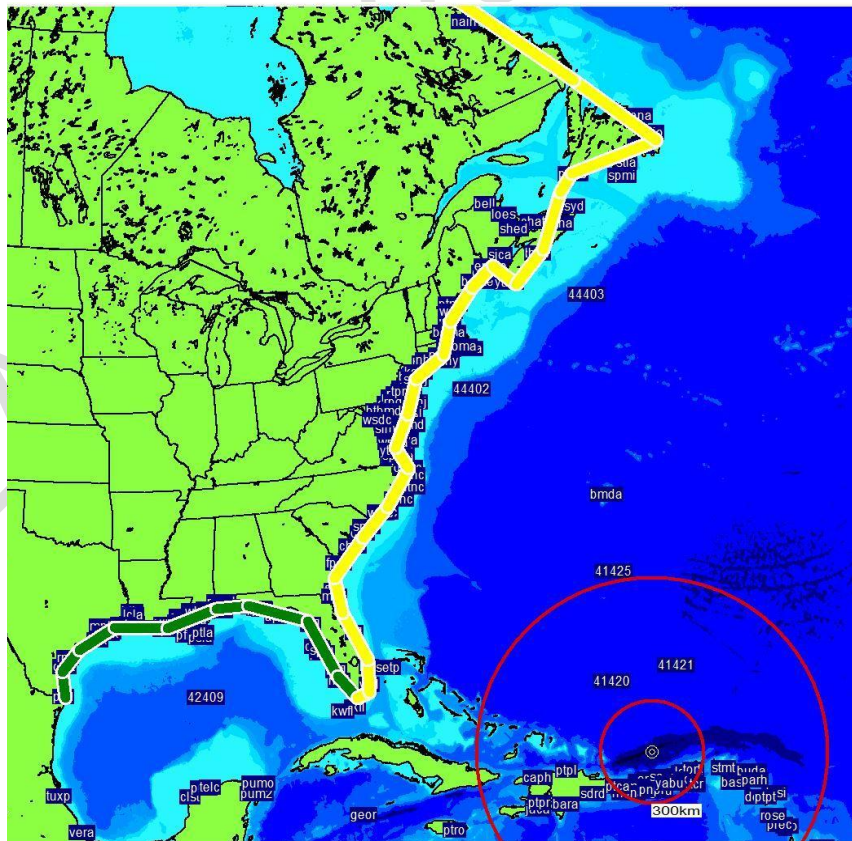


Figure A1: Coastal Alert Areas after Bulletin 1. White text shows water level observation sites.

Tsunami Travel Times

Tsunami travel time contours in hours, beginning from the earthquake origin time.

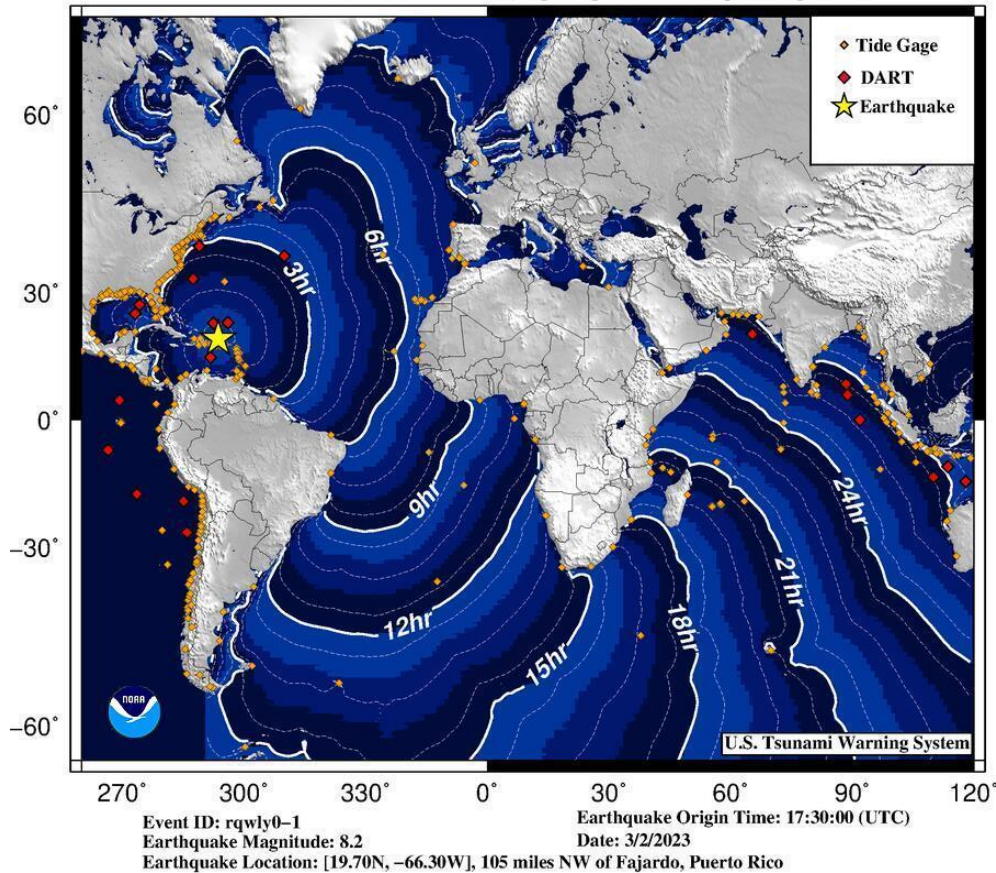


Figure A2: Hypothetical Tsunami Travel Times in hourly contours

NTWC Bulletin #2

WEXX30 PAAQ 021805

TSUATE

BULLETIN

Public Tsunami Message Number 2

NWS National Tsunami Warning Center Palmer AK

0105 PM EST Thu Mar 02 2023

UPDATES

- * A tsunami has been confirmed and some impacts are expected
- * Updated observations
- * Revised alert areas
- * Revised magnitude

...A TSUNAMI ADVISORY IS NOW IN EFFECT...

Tsunami Advisory in Effect for;

- * The coastal areas of Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland and Labrador from Flamingo, Florida to Cape Chidley, Labrador

For other US and Canadian coasts in the Atlantic and Gulf of Mexico, there is no tsunami threat.

PRELIMINARY EARTHQUAKE PARAMETERS

- * The following parameters are based on a rapid preliminary assessment of the earthquake and changes may occur.

- * Magnitude 8.7
- * Origin Time 1230 EST Mar 02 2023
0130 AST Mar 02 2023
1130 CST Mar 02 2023
1730 UTC Mar 02 2023
- * Coordinates 19.7 North 66.3 West
- * Depth 3 miles
- * Location 105 miles NW of Fajardo, Puerto Rico
85 miles N of San Juan, Puerto Rico

FORECASTS OF TSUNAMI ACTIVITY

- * Tsunami activity is forecasted to start at the following locations at the specified times.

SITE	FORECAST START OF TSUNAMI
----	-----
* Florida	
Miami	1515 EST Mar 2
Key West	1600 EST Mar 2
Melbourne Beach	1630 EST Mar 2
Daytona	1635 EST Mar 2
Jacksonville Bea	1705 EST Mar 2

* North Carolina

Cape Hatteras 1525 EST Mar 2

* Nova Scotia

Lockeport 1750 AST Mar 2

Scatarie Island 1840 AST Mar 2

* New York

Montauk 1655 EST Mar 2

Manhattan 1820 EST Mar 2

* Virginia

Virginia Beach 1700 EST Mar 2

* New Jersey

Atlantic City 1705 EST Mar 2

* South Carolina

Myrtle Beach 1715 EST Mar 2

Charleston 1725 EST Mar 2

* Massachusetts

Nantucket 1730 EST Mar 2

Boston 1855 EST Mar 2

* Georgia

Savannah 1730 EST Mar 2

* Newfoundland

Saint Lawrence 1910 NST Mar 2

Bonavista 2050 NST Mar 2

* New Brunswick

Grand Manan Isla 1900 AST Mar 2

* Maine

Portland 1835 EST Mar 2

* Labrador

Battle Harbour 2115 NST Mar 2

Cape Makkovik 2050 AST Mar 2

OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

* Observed max tsunami height is the highest recorded water level above the tide level up to the time of this message.

SITE	TIME OF MEASUREMENT	OBSERVED MAX TSUNAMI HEIGHT
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft
San Juan TG Puerto Rico	17:44 UTC	2.2ft

RECOMMENDED ACTIONS

Actions to protect human life and property will vary within tsunami advisory areas.

If you are in a tsunami advisory area;

- * Move out of the water, off the beach, and away from harbors, marinas, breakwaters, bays and inlets.
- * Be alert to and follow instructions from your local emergency officials because they may have more detailed or specific information for your location.
- * If you feel a strong earthquake or extended ground rolling take immediate protective actions such as moving inland and/or uphill preferably by foot.
- * Boat operators,
 - * Where time and conditions permit, move your boat out to sea to a depth of at least 180 feet.
 - * If at sea avoid entering shallow water, harbors, marinas, bays, and inlets to avoid floating and submerged debris and strong currents.
- * Do not go to the shore to observe the tsunami.
- * Do not return to the coast until local emergency officials indicate it is safe to do so.

IMPACTS

Impacts will vary at different locations in the advisory areas.

If you are in a tsunami advisory area;

- * A tsunami with strong waves and currents is possible.

- * Waves and currents can drown or injure people who are in the water.
- * Currents at beaches and in harbors, marinas, bays, and inlets may be especially dangerous.
- * Some impacts may continue for many hours to days after arrival of the first wave.
- * The first wave may not be the largest so later waves may be larger.
- * Each wave may last 5 to 45 minutes as a wave encroaches and recedes.
- * Coasts facing all directions are threatened because the waves can wrap around islands and headlands and into bays.
- * Strong shaking or rolling of the ground indicates an earthquake has occurred and a tsunami may be imminent.
- * A rapidly receding or receded shoreline, unusual waves and sounds, and strong currents are signs of a tsunami.
- * The tsunami may appear as water moving rapidly out to sea, a gentle rising tide like flood with no breaking wave, as a series of breaking waves, or a frothy wall of water.

ADDITIONAL INFORMATION AND NEXT UPDATE

- * Refer to the internet site tsunami.gov for more information.
- * Caribbean coastal regions should refer to the Pacific Tsunami Warning Center messages at tsunami.gov.
- * This message will be updated within 30 minutes.

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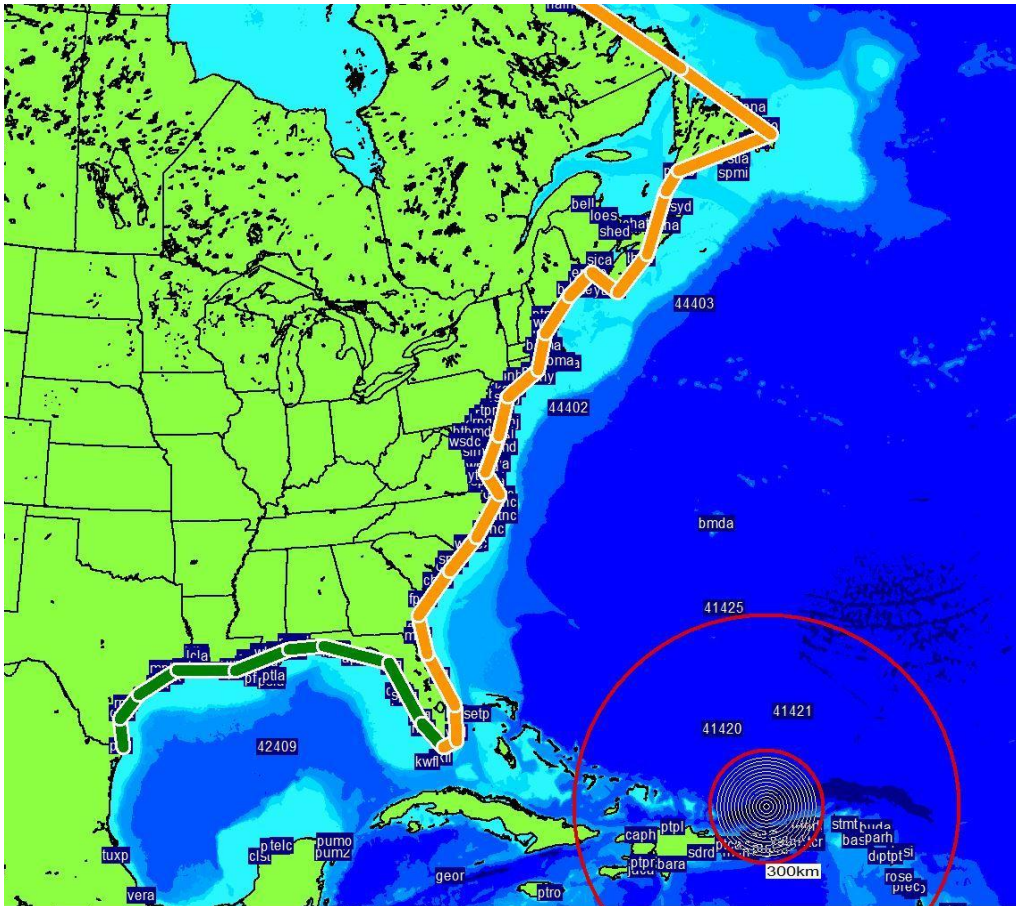


Figure A3: Alert areas after Bulletin 2. Areas in Advisory are bordered in orange.

NTWC Bulletin #3

WEXX30 PAAQ 021835

TSUATE

BULLETIN

Public Tsunami Message Number 3

NWS National Tsunami Warning Center Palmer AK

0135 PM EST Thu Mar 02 2023

UPDATES

- * Updated observations
- * Revised forecast information

...THE TSUNAMI ADVISORY REMAINS IN EFFECT...

Tsunami Advisory in Effect for;

- * The coastal areas of Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland

and Labrador from Flamingo, Florida to Cape Chidley, Labrador

For other US and Canadian coasts in the Atlantic and Gulf of Mexico, there is no tsunami threat.

FORECASTS OF TSUNAMI ACTIVITY

- * A tsunami has been generated. The first waves are forecasted to arrive at the following locations and specified times.
- * Forecast tsunami duration is the approximate length of time which the tsunami may produce dangerous currents and waves.
- * Forecast max tsunami height is the highest expected water level above the tide.
- * Forecasts are not provided for sites which have been impacted more than an hour prior to the time of this message.

SITE	FORECAST START OF TSUNAMI	FORECAST TSUNAMI DURATION	FORECAST MAX TSUNAMI HEIGHT
----	-----	-----	-----
* Florida			
Miami	1515 EST Mar 2		less than 1ft
Key West	1600 EST Mar 2		less than 1ft
Melbourne Beach	1630 EST Mar 2		
Daytona	1635 EST Mar 2	15 hrs	1.2- 2.3 ft
Jacksonville Beach	1705 EST Mar 2		less than 1ft
* North Carolina			
Cape Hatteras	1525 EST Mar 2	15 hrs	1.4- 2.5 ft
* Nova Scotia			
Lockeport	1750 AST Mar 2	15 hrs	1.3- 2.5 ft
Scatarie Island	1840 AST Mar 2		less than 1ft
* New York			
Montauk	1655 EST Mar 2	9 hrs	0.8- 1.6 ft
Manhattan	1820 EST Mar 2		less than 1ft
* Virginia			
Virginia Beach	1700 EST Mar 2		

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* New Jersey

Atlantic City 1705 EST Mar 2 36 hrs 2.8- 5.1 ft

* South Carolina

Myrtle Beach 1715 EST Mar 2 15 hrs 1.2- 2.2 ft
 Charleston 1725 EST Mar 2 less than 1ft

* Massachusetts

Nantucket 1730 EST Mar 2 less than 1ft
 Boston 1855 EST Mar 2 less than 1ft

* Georgia

Savannah 1730 EST Mar 2 less than 1ft

* Newfoundland

Saint Lawrence 1910 NST Mar 2 9 hrs 0.8- 1.5 ft
 Bonavista 2050 NST Mar 2 less than 1ft

* New Brunswick

Grand Manan Isla 1900 AST Mar 2 less than 1ft

* Maine

Portland 1835 EST Mar 2 less than 1ft

* Labrador

Battle Harbour 2115 NST Mar 2 less than 1ft
 Cape Makkovik 2050 AST Mar 2

OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

* Observed max tsunami height is the highest recorded water level above the tide level up to the time of this message.

SITE	TIME OF MEASUREMENT	OBSERVED MAX TSUNAMI HEIGHT
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft
San Juan TG Puerto Rico	17:44 UTC	2.2ft
Mayaguez Puerto Rico	17:58 UTC	6.9ft
Christiansted VI	18:02 UTC	1.4ft
Fajardo Puerto Rico	18:05 UTC	5.6ft
Charlotte Amalie VI	18:18 UTC	5.4ft

PRELIMINARY EARTHQUAKE PARAMETERS

- * Magnitude 8.7
- * Origin Time 1230 EST Mar 02 2023
0130 AST Mar 02 2023
1130 CST Mar 02 2023
1730 UTC Mar 02 2023
- * Coordinates 19.7 North 66.3 West
- * Depth 3 miles
- * Location 105 miles NW of Fajardo, Puerto Rico
85 miles N of San Juan, Puerto Rico

RECOMMENDED ACTIONS

Actions to protect human life and property will vary within tsunami advisory areas.

If you are in a tsunami advisory area;

- * Move out of the water, off the beach, and away from harbors, marinas, breakwaters, bays and inlets.
- * Be alert to and follow instructions from your local emergency officials because they may have more detailed or specific information for your location.
- * If you feel a strong earthquake or extended ground rolling take immediate protective actions such as moving inland and/or uphill preferably by foot.
- * Boat operators,
 - * Where time and conditions permit, move your boat out to sea to a depth of at least 180 feet.
 - * If at sea avoid entering shallow water, harbors, marinas, bays, and inlets to avoid floating and submerged debris and strong currents.
- * Do not go to the shore to observe the tsunami.
- * Do not return to the coast until local emergency officials indicate it is safe to do so.

IMPACTS

Impacts will vary at different locations in the advisory areas.

If you are in a tsunami advisory area;

- * A tsunami with strong waves and currents is possible.
- * Waves and currents can drown or injure people who are in the water.
- * Currents at beaches and in harbors, marinas, bays, and inlets may be especially dangerous.
- * Some impacts may continue for many hours to days after arrival of the first wave.
- * The first wave may not be the largest so later waves may be larger.
- * Each wave may last 5 to 45 minutes as a wave encroaches and recedes.
- * Coasts facing all directions are threatened because the waves can wrap around islands and headlands and into bays.
- * Strong shaking or rolling of the ground indicates an earthquake has occurred and a tsunami may be imminent.
- * A rapidly receding or receded shoreline, unusual waves and sounds, and strong currents are signs of a tsunami.
- * The tsunami may appear as water moving rapidly out to sea, a gentle rising tide like flood with no breaking wave, as a series of breaking waves, or a frothy wall of water.

ADDITIONAL INFORMATION AND NEXT UPDATE

- * Refer to the internet site tsunami.gov for more information.
- * Caribbean coastal regions should refer to the Pacific Tsunami Warning Center messages at tsunami.gov.
- * This message will be updated within 30 minutes.

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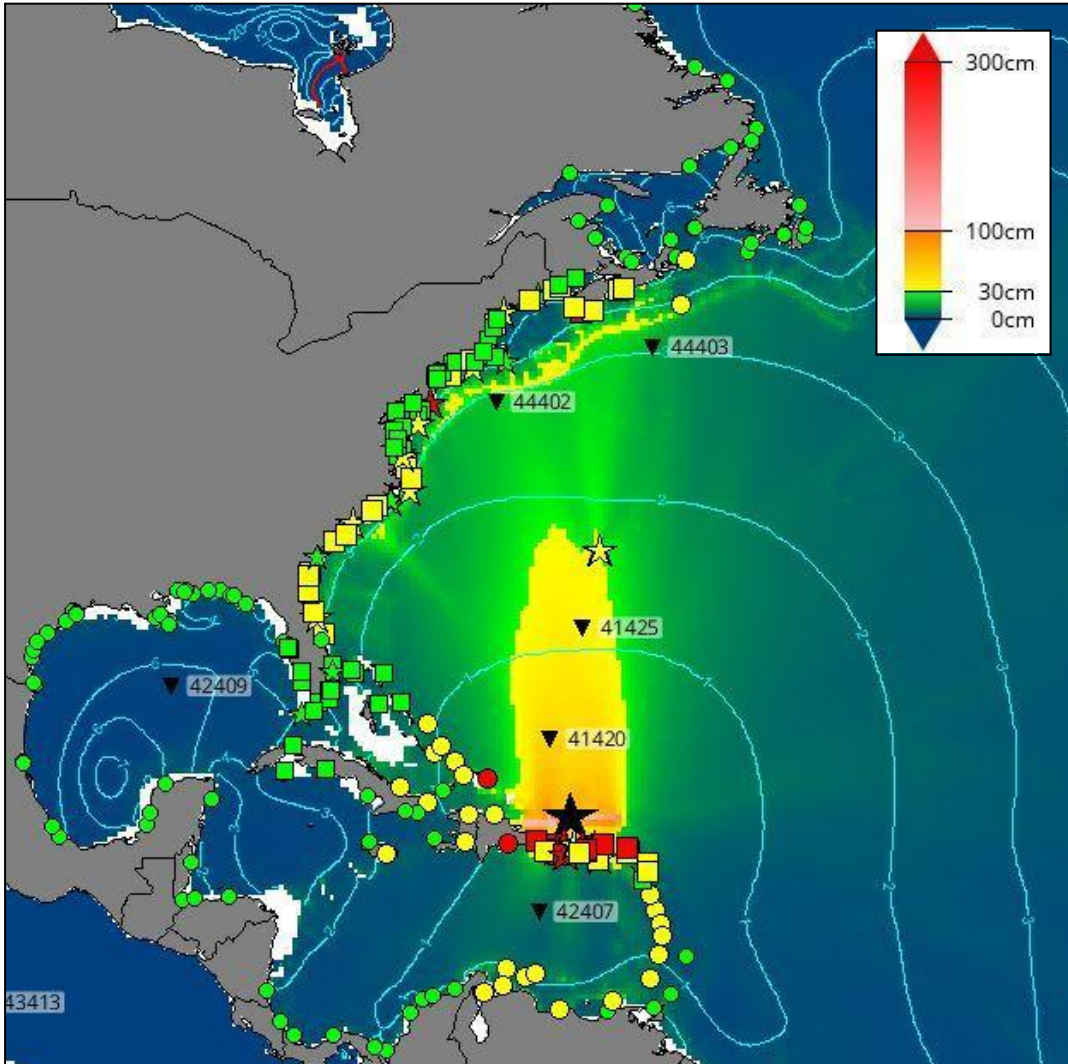


Figure A4. SIFT Event Forecast with Bulletin 3 after inverting simulated data from DARTs 41420. LANTEX23 source location (black star) in the Puerto Rico Trench. “Splash” color scale shows predicted tsunami wave amplitudes. Teal contours show 1 hour increments of tsunami travel time. Black inverted triangles show locations of Deep Ocean Assessment and Reporting of Tsunamis (DART) buoy systems. Symbols of circles, squares and stars are showing preliminary forecasted wave heights: green < 1ft, 1ft < yellow < 3ft, red > 3 ft.

PUBLISHED FORECAST B#3			
Location	Wave Height (ft)	Location	Wave Height (ft)
CANADA		NJ	
Argentia	6.7	Sandy Hook	0.6
Saint Lawrence	13.8	Atlantic City	4
Channel-Port aux Basques		Ship John Shoal	0.1
Cape Ray	5.9	Cape May	0.7

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Harrington Harbour	1.2		DE	
Sept-Iles	0.4		Lewes	0.7
Pointe Saint-Pierre			Cape Henlopen	0.9
Belledune	0.4		MD	
Escuminac	0.8		Ocean City	1
Wood Islands	0.4		VA	
Meat Cove	1.6		Windmill Point	0.1
North Sydney	0.8		Kiptopeke	0.3
Scatarie Island	1.18		Yorktown	0.2
Chezzetcook Inlet	1.1		Chesapeake Bridge	0.4
Halifax	1.3		NC	
Lockeport	1.9		Currituck	1.9
Charlesville	2.4		Duck	0.8
Yarmouth	1.2		Cape Hatteras	1.9
Grand Manan Island	0.9		Beaufort	0.6
The US/Canada Border	0.2		Surf City	1.7
ME			Wrightsville Beach	1.8
Cutler NAS	1.1		SC	
Bar Harbor	1		Myrtle Beach	1.7
Stonington	1.2		Springmaid Pier	1.7
Portland	0.7		South Santee River	1.1
Wells	0.8		Charleston	0.8
NH			GA	
Fort Point	1		Savannah	0.5
MA			Saint Simons Island	0.6
Merrimack River	0.7		FL	
Boston	0.3		Fernandina Beach	0.9
Woods Hole	0.6		Jacksonville Beach	0.5
Nantucket	0.5		Flagler Beach	1.4
RI			Daytona	1.8
Newport	0.9		Port Canaveral	1.1
Quonset Point	0.8		Jupiter Inlet	0.5
Watch Hill	1		Palm Beach	0.3
CT			Miami	0.2
New London	0.7		Virginia Key	0.1
New Haven	0.2		Ocean Reef	0.3

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Bridgeport	0.1		Vaca Key	0.2
NY			Key West	0.1
Montauk	1.2		PUERTO RICO	
Kings Point	0.3		San Juan coast	11.9
Manhattan	0.3		San Juan TG	2.5
Fire Island Light	1.2		Arecibo	15
			Aguadilla	6.9
			Fajardo	6.2
			Yabucoa	2
			Ponce	2.5
			Penuelas	4.8
			Magueyes Island	3.1
			Mayaguez	7.3
			Vieques Is. north	6.6
			Culebra	4
			Charlotte Amalie	6.3
			Lameshur Bay	3.5
			Christiansted	1.4

NTWC Bulletin #4

WEXX30 PAAQ 021905

TSUATE

BULLETIN

Public Tsunami Message Number 4

NWS National Tsunami Warning Center Palmer AK

205 PM EST Thu Mar 2023

UPDATES

* There are no updates in this message

...THE TSUNAMI ADVISORY REMAINS IN EFFECT...

Tsunami Advisory in Effect for;

* The coastal areas of Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland and Labrador from Flamingo, Florida to Cape Chidley, Labrador

For other US and Canadian coasts in the Atlantic and Gulf of Mexico, there is no tsunami threat.

FORECASTS OF TSUNAMI ACTIVITY

- * A tsunami has been generated. The first waves are forecasted to arrive at the following locations and specified times.
- * Forecast tsunami duration is the approximate length of time which the tsunami may produce dangerous currents and waves.
- * Forecast max tsunami height is the highest expected water level above the tide.
- * Forecasts are not provided for sites which have been impacted more than an hour prior to the time of this message.

SITE	FORECAST START OF TSUNAMI	FORECAST TSUNAMI DURATION	FORECAST MAX TSUNAMI HEIGHT
* Florida			
Miami	1515 EST Mar 2		less than 1ft
Key West	1600 EST Mar 2		less than 1ft
Melbourne Beach	1630 EST Mar 2		
Daytona	1635 EST Mar 2	15 hrs	1.2- 2.3 ft
Jacksonville Bea	1705 EST Mar 2		less than 1ft
* North Carolina			
Cape Hatteras	1525 EST Mar 2	15 hrs	1.4- 2.5 ft
* Nova Scotia			
Lockeport	1750 AST Mar 2	15 hrs	1.3- 2.5 ft
Scatarie Island	1840 AST Mar 2		less than 1ft
* New York			
Montauk	1655 EST Mar 2	9 hrs	0.8- 1.6 ft
Manhattan	1820 EST Mar 2		less than 1ft
* Virginia			
Virginia Beach	1700 EST Mar 2		
* New Jersey			
Atlantic City	1705 EST Mar 2	36 hrs	2.8- 5.1 ft
* South Carolina			
Myrtle Beach	1715 EST Mar 2	15 hrs	1.2- 2.2 ft
Charleston	1725 EST Mar 2		less than 1ft

* Massachusetts

Nantucket 1730 EST Mar 2 less than 1ft
 Boston 1855 EST Mar 2 less than 1ft

* Georgia

Savannah 1730 EST Mar 2 less than 1ft

* Newfoundland

Saint Lawrence 1910 NST Mar 2 9 hrs 0.8- 1.5 ft
 Bonavista 2050 NST Mar 2 less than 1ft

* New Brunswick

Grand Manan Isla 1900 AST Mar 2 less than 1ft

* Maine

Portland 1835 EST Mar 2 less than 1ft

* Labrador

Battle Harbour 2115 NST Mar 2 less than 1ft
 Cape Makkovik 2050 AST Mar 2

OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

* Observed max tsunami height is the highest recorded water level above the tide level up to the time of this message.

SITE	TIME OF MEASUREMENT	OBSERVED MAX TSUNAMI HEIGHT
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft
San Juan TG Puerto Rico	17:44 UTC	2.2ft
Mayaguez Puerto Rico	17:58 UTC	6.9ft
Christiansted VI	18:02 UTC	1.4ft
Fajardo Puerto Rico	18:05 UTC	5.6ft
Charlotte Amalie VI	18:18 UTC	5.4ft

PRELIMINARY EARTHQUAKE PARAMETERS

* Magnitude 8.7
 * Origin Time 1230 EST Mar 02 2023
 0130 AST Mar 02 2023
 1130 CST Mar 02 2023
 1730 UTC Mar 02 2023

- * Coordinates 19.7 North 66.3 West
- * Depth 3 miles
- * Location 105 miles NW of Fajardo, Puerto Rico
85 miles N of San Juan, Puerto Rico

RECOMMENDED ACTIONS

Actions to protect human life and property will vary within tsunami advisory areas.

If you are in a tsunami advisory area;

- * Move out of the water, off the beach, and away from harbors, marinas, breakwaters, bays and inlets.
- * Be alert to and follow instructions from your local emergency officials because they may have more detailed or specific information for your location.
- * If you feel a strong earthquake or extended ground rolling take immediate protective actions such as moving inland and/or uphill preferably by foot.
- * Boat operators,
 - * Where time and conditions permit, move your boat out to sea to a depth of at least 180 feet.
 - * If at sea avoid entering shallow water, harbors, marinas, bays, and inlets to avoid floating and submerged debris and strong currents.
- * Do not go to the shore to observe the tsunami.
- * Do not return to the coast until local emergency officials indicate it is safe to do so.

IMPACTS

Impacts will vary at different locations in the advisory areas.

If you are in a tsunami advisory area;

- * A tsunami with strong waves and currents is possible.
- * Waves and currents can drown or injure people who are in the water.

- * Currents at beaches and in harbors, marinas, bays, and inlets may be especially dangerous.
- * Some impacts may continue for many hours to days after arrival of the first wave.
- * The first wave may not be the largest so later waves may be larger.
- * Each wave may last 5 to 45 minutes as a wave encroaches and recedes.
- * Coasts facing all directions are threatened because the waves can wrap around islands and headlands and into bays.
- * Strong shaking or rolling of the ground indicates an earthquake has occurred and a tsunami may be imminent.
- * A rapidly receding or receded shoreline, unusual waves and sounds, and strong currents are signs of a tsunami.
- * The tsunami may appear as water moving rapidly out to sea, a gentle rising tide like flood with no breaking wave, as a series of breaking waves, or a frothy wall of water.

ADDITIONAL INFORMATION AND NEXT UPDATE

- * Refer to the internet site tsunami.gov for more information.
- * Caribbean coastal regions should refer to the Pacific Tsunami Warning Center messages at tsunami.gov.
- * This message will be updated within 60 minutes.

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NTWC Bulletin #7

WEXX30 PAAQ 022205
TSUATE

BULLETIN

Public Tsunami Message Number 7
NWS National Tsunami Warning Center Palmer AK
305 PM EST Thu Mar 2023

UPDATES

- * Updated observations

...THE TSUNAMI ADVISORY REMAINS IN EFFECT...

Tsunami Advisory in Effect for;

- * The coastal areas of Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland and Labrador from Flamingo, Florida to Cape Chidley, Labrador

For other US and Canadian coasts in the Atlantic and Gulf of Mexico, there is no tsunami threat.

FORECASTS OF TSUNAMI ACTIVITY

- * A tsunami has been generated. The first waves are forecasted to arrive at the following locations and specified times.
- * Forecast tsunami duration is the approximate length of time which the tsunami may produce dangerous currents and waves.
- * Forecast max tsunami height is the highest expected water level above the tide.
- * Forecasts are not provided for sites which have been impacted more than an hour prior to the time of this message.

SITE	FORECAST START OF TSUNAMI	FORECAST TSUNAMI DURATION	FORECAST MAX TSUNAMI HEIGHT
* Florida			
Miami	1515 EST Mar 2		less than 1ft
Key West	1600 EST Mar 2		less than 1ft
Melbourne Beach	1630 EST Mar 2		
Daytona	1635 EST Mar 2	24 hrs	2.1- 4.0 ft
Jacksonville Bea	1705 EST Mar 2	9 hrs	0.8- 1.5 ft
* North Carolina			
Cape Hatteras	1525 EST Mar 2	24 hrs	1.9- 3.5 ft
* Nova Scotia			
Lockeport	1750 AST Mar 2	20 hrs	1.7- 3.1 ft
Scatarie Island	1840 AST Mar 2		less than 1ft
* New York			
Montauk	1655 EST Mar 2	15 hrs	1.1- 2.1 ft
Manhattan	1820 EST Mar 2		less than 1ft
* Virginia			
Virginia Beach	1700 EST Mar 2		

LANTEX23 Exercise Handbook

* New Jersey

Atlantic City 1705 EST Mar 2 40 hrs 3.6- 6.6 ft

* South Carolina

Myrtle Beach 1715 EST Mar 2 20 hrs 1.8- 3.4 ft

Charleston 1725 EST Mar 2 9 hrs 0.8- 1.4 ft

* Massachusetts

Nantucket 1730 EST Mar 2 less than 1ft

Boston 1855 EST Mar 2 less than 1ft

* Georgia

Savannah 1730 EST Mar 2 less than 1ft

* Newfoundland

Saint Lawrence 1910 NST Mar 2 9 hrs 0.8- 1.5 ft

Bonavista 2050 NST Mar 2 less than 1ft

* New Brunswick

Grand Manan Isla 1900 AST Mar 2 9 hrs 0.8- 1.6 ft

* Maine

Portland 1835 EST Mar 2 less than 1ft

* Labrador

Battle Harbour 2115 NST Mar 2 less than 1ft

Cape Makkovik 2050 AST Mar 2

OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

* Observed max tsunami height is the highest recorded water level above the tide level up to the time of this message.

SITE	TIME OF MEASUREMENT	OBSERVED MAX TSUNAMI HEIGHT
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft
San Juan TG Puerto Rico	17:44 UTC	2.2ft
Mayaguez Puerto Rico	17:58 UTC	6.9ft
Christiansted VI	18:02 UTC	1.4ft
Fajardo Puerto Rico	18:05 UTC	5.6ft
Charlotte Amalie VI	18:18 UTC	5.4ft
Bermuda Bermuda	18:45 UTC	2.9ft
Virginia Key Florida	20:00 UTC	0.3ft
Hatteras North Carolina	20:31 UTC	2.3ft
Key West Florida	21:02 UTC	0.2ft
Vaca Key Florida	21:09 UTC	0.3ft
Beaufort North Carolina	21:12 UTC	1.1ft

Duck North Carolina	21:19 UTC	2.6ft
Ocean City Maryland	21:40 UTC	1.3ft

PRELIMINARY EARTHQUAKE PARAMETERS

-
- * Magnitude 8.7
 - * Origin Time 1230 EST Mar 02 2023
0130 AST Mar 02 2023
1130 CST Mar 02 2023
1730 UTC Mar 02 2023
 - * Coordinates 19.7 North 66.3 West
 - * Depth 3 miles
 - * Location 105 miles NW of Fajardo, Puerto Rico
85 miles N of San Juan, Puerto Rico

RECOMMENDED ACTIONS

-
- * See message number 4 for recommended actions.

IMPACTS

-
- * See message number 4 for possible impacts.

ADDITIONAL INFORMATION AND NEXT UPDATE

-
- * Refer to the internet site tsunami.gov for more information.
 - * Caribbean coastal regions should refer to the Pacific Tsunami Warning Center messages at tsunami.gov.
 - * This message will be updated within 60 minutes.

\$\$

NTWC Bulletin #9

WEXX30 PAAQ 030005

TSUATE

BULLETIN

Public Tsunami Message Number 9
NWS National Tsunami Warning Center Palmer AK
405 PM EST Thu Mar 2023

UPDATES

-
- * Updated observations
 - * Revised forecast information

...THE TSUNAMI ADVISORY REMAINS IN EFFECT...

Tsunami Advisory in Effect for;

- * The coastal areas of Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland and Labrador from Flamingo, Florida to Cape Chidley, Labrador

For other US and Canadian coasts in the Atlantic and Gulf of Mexico, there is no tsunami threat.

FORECASTS OF TSUNAMI ACTIVITY

- * A tsunami has been generated. The first waves are forecasted to arrive at the following locations and specified times.
- * Forecast tsunami duration is the approximate length of time which the tsunami may produce dangerous currents and waves.
- * Forecast max tsunami height is the highest expected water level above the tide.
- * Forecasts are not provided for sites which have been impacted more than an hour prior to the time of this message.

SITE	FORECAST START OF TSUNAMI	FORECAST TSUNAMI DURATION	FORECAST MAX TSUNAMI HEIGHT
* Florida			
Miami	1515 EST Mar 2		less than 1ft
Key West	1600 EST Mar 2		less than 1ft
Melbourne Beach	1630 EST Mar 2		
Daytona	1635 EST Mar 2	15 hrs	1.2- 2.3 ft
Jacksonville Bea	1705 EST Mar 2		less than 1ft
* North Carolina			
Cape Hatteras	1525 EST Mar 2	15 hrs	1.3- 2.5 ft
* Nova Scotia			
Lockeport	1750 AST Mar 2	15 hrs	1.3- 2.5 ft
Scatarie Island	1840 AST Mar 2		less than 1ft
* New York			
Montauk	1655 EST Mar 2	9 hrs	0.8- 1.6 ft
Manhattan	1820 EST Mar 2		less than 1ft

* Virginia

Virginia Beach 1700 EST Mar 2

* New Jersey

Atlantic City 1705 EST Mar 2 30 hrs 2.8- 5.1 ft

* South Carolina

Myrtle Beach 1715 EST Mar 2 15 hrs 1.2- 2.2 ft

Charleston 1725 EST Mar 2 less than 1ft

* Massachusetts

Nantucket 1730 EST Mar 2 less than 1ft

Boston 1855 EST Mar 2 less than 1ft

* Georgia

Savannah 1730 EST Mar 2 less than 1ft

* Newfoundland

Saint Lawrence 1910 NST Mar 2 9 hrs 0.8- 1.5 ft

Bonavista 2050 NST Mar 2 less than 1ft

* New Brunswick

Grand Manan Isla 1900 AST Mar 2 less than 1ft

* Maine

Portland 1835 EST Mar 2 less than 1ft

* Labrador

Battle Harbour 2115 NST Mar 2 less than 1ft

Cape Makkovik 2050 AST Mar 2

OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

* Observed max tsunami height is the highest recorded water level above the tide level up to the time of this message.

SITE	TIME OF MEASUREMENT	OBSERVED MAX TSUNAMI HEIGHT
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft
San Juan TG Puerto Rico	17:44 UTC	2.2ft
Mayaguez Puerto Rico	17:58 UTC	6.9ft
Christiansted VI	18:02 UTC	1.4ft
Fajardo Puerto Rico	18:05 UTC	5.6ft
Charlotte Amalie VI	18:18 UTC	5.4ft
Bermuda Bermuda	18:45 UTC	2.9ft
Virginia Key Florida	20:00 UTC	0.3ft
Hatteras North Carolina	20:31 UTC	2.3ft
Key West Florida	21:02 UTC	0.2ft

Vaca Key Florida	21:09 UTC	0.3ft
Beaufort North Carolina	21:12 UTC	1.1ft
Duck North Carolina	21:19 UTC	2.6ft
Ocean City Maryland	21:40 UTC	1.3ft
Montauk New York	22:00 UTC	1.1ft
Atlantic City NJ	22:11 UTC	2.9ft
Lewes Delaware	22:03 UTC	0.7ft
Chesapeake Bridge VA	22:20 UTC	0.4ft
Woods Hole MA	22:23 UTC	0.5ft
Newport Rhode Island	22:37 UTC	0.9ft
Cape May New Jersey	22:45 UTC	0.4ft
Cutler NAS Maine	22:53 UTC	0.3ft
Meat Cove Nova Scotia	22:53 UTC	0.1ft

PRELIMINARY EARTHQUAKE PARAMETERS

-
- * Magnitude 8.7
 - * Origin Time 1230 EST Mar 02 2023
0130 AST Mar 02 2023
1130 CST Mar 02 2023
1730 UTC Mar 02 2023
 - * Coordinates 19.7 North 66.3 West
 - * Depth 3 miles
 - * Location 105 miles NW of Fajardo, Puerto Rico
85 miles N of San Juan, Puerto Rico

RECOMMENDED ACTIONS

-
- * See message number 4 for recommended actions.

IMPACTS

-
- * See message number 4 for possible impacts.

ADDITIONAL INFORMATION AND NEXT UPDATE

-
- * Refer to the internet site tsunami.gov for more information.
 - * Caribbean coastal regions should refer to the Pacific Tsunami Warning Center messages at tsunami.gov.
 - * This message will be updated within 60 minutes.

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NTWC Bulletin #15

WEXX30 PAAQ 030635
TSUATE

BULLETIN

Public Tsunami Message Number 15
 NWS National Tsunami Warning Center Palmer AK
 435 PM EST Thu Mar 2023

...THE TSUNAMI ADVISORY IS CANCELLED...

* The Tsunami Advisory is canceled for the coastal areas of Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland and Labrador

OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

* Observed max tsunami height is the highest recorded water level above the tide level up to the time of this message.

SITE	TIME OF MEASUREMENT	OBSERVED MAX TSUNAMI HEIGHT
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft
San Juan TG Puerto Rico	17:44 UTC	2.2ft
Mayaguez Puerto Rico	17:58 UTC	6.9ft
Christiansted VI	18:02 UTC	1.4ft
Fajardo Puerto Rico	18:05 UTC	5.6ft
Charlotte Amalie VI	18:18 UTC	5.4ft
Bermuda Bermuda	18:45 UTC	2.9ft
Virginia Key Florida	20:00 UTC	0.3ft
Hatteras North Carolina	20:31 UTC	2.3ft
Key West Florida	21:02 UTC	0.2ft
Vaca Key Florida	21:09 UTC	0.3ft
Beaufort North Carolina	21:12 UTC	1.1ft
Duck North Carolina	21:19 UTC	2.6ft
Ocean City Maryland	21:40 UTC	1.3ft
Montauk New York	22:00 UTC	1.1ft
Atlantic City NJ	22:11 UTC	2.9ft
Lewes Delaware	22:03 UTC	0.7ft
Chesapeake Bridge VA	22:20 UTC	0.4ft
Woods Hole MA	22:23 UTC	0.5ft
Newport Rhode Island	22:37 UTC	0.9ft
Cape May New Jersey	22:45 UTC	0.4ft
Cutler NAS Maine	22:53 UTC	0.3ft
Meat Cove Nova Scotia	22:53 UTC	0.1ft

RECOMMENDED ACTIONS - UPDATED

- * Do not re-occupy hazard zones until local emergency officials indicate it is safe to do so.

IMPACTS - UPDATED

- * A tsunami was generated by this event, but no longer poses a threat.
- * Some areas may continue to see small sea level changes.
- * The determination to re-occupy hazard zones must be made by local officials.

ADDITIONAL INFORMATION AND NEXT UPDATE

- * Refer to the internet site tsunami.gov for more information.
- * Caribbean coastal regions should refer to the Pacific Tsunami Warning Center messages at tsunami.gov.
- * This will be the final U.S. National Tsunami Warning Center message issued for this event.

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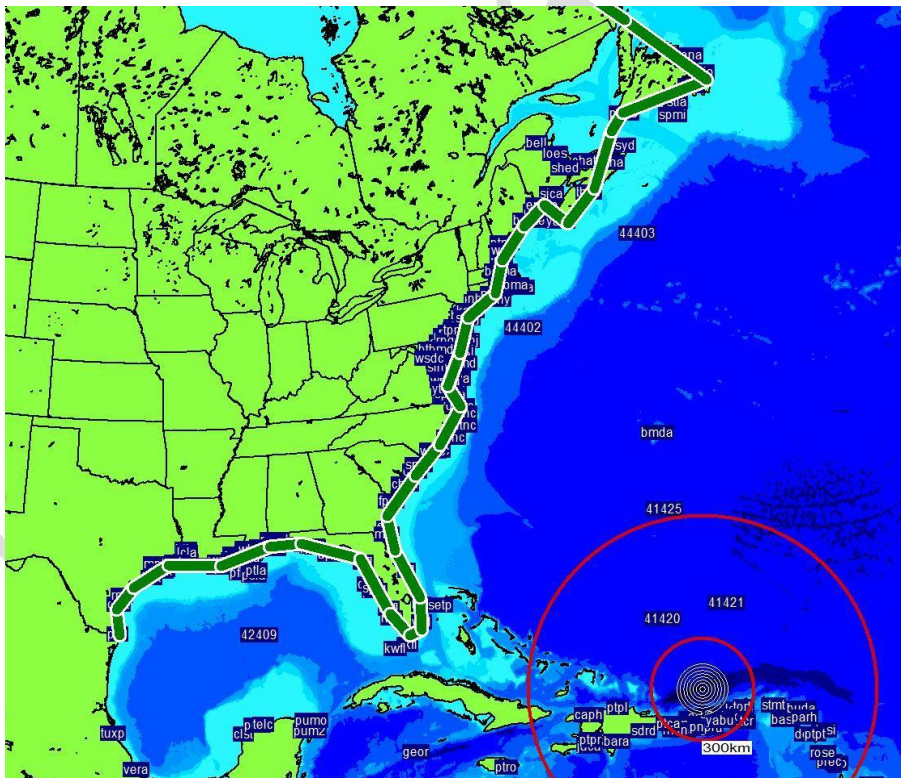


Figure B15: Alert areas at cancellation with Bulletin 15.

Appendix B. NTWC Spanish Public Messages

NTWC Spanish Bulletin #1

WEXX40 PAAQ 021737

TSUSPA

BULLETIN

Mensaje de Tsunami numero 1

NWS Centro Nacional de Alerta de Tsunami Palmer AK

1237 PM EST Thur Mar 02 2023

...UNA VIGILANCIA DE TSUNAMI ESTA AHORA EN EFECTO...

Vigilancia de Tsunami en Efecto para;

* Areas costeras de Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland y Labrador desde Flamingo, Florida hasta Cape Chidley, Labrador

Para otras costas de Estados Unidos y Canada en el Atlantico y Golfo de Mexico, el nivel de amenaza de tsunami esta siendo evaluado. Se proveera informacion adicional en mensajes suplementarios.

PARAMETROS PRELIMINARES DEL TERREMOTO

* LOS SIGUIENTES PARAMETROS ESTAN BASADOS EN UNA EVALUACION PRELIMINAR RAPIDA Y PUEDEN VARIAR.

* Magnitud 8.2

* Tiempo de Origen 1230 EST Marzo 02 2023

0130 AST Marzo 02 2023

1130 CST Marzo 02 2023

1730 UTC Mar 02 2023

* Coordenadas 19.7 Norte 66.3 Oeste

* Profundidad 3 millas

* Localizacion 105 millas NW de Fajardo, Puerto Rico

85 millas N de San Juan, Puerto Rico

PRONOSTICOS DEL TSUNAMI

* Se pronostica que la actividad del tsunami comience en los siguientes puntos a loas horas indicadas.

LLEGADA	
PRONOSTICADA	
LUGAR	DEL TSUNAMI
----	-----
* Florida	
Miami	1520 EST Mar 2
Key West	1600 EST Mar 2
Daytona	1635 EST Mar 2
Melbourne Beach	1635 EST Mar 2
Jacksonville Bea	1710 EST Mar 2
* North Carolina	
Cape Hatteras	1525 EST Mar 2
* Nova Scotia	
Lockeport	1750 AST Mar 2
Scatarie Island	1845 AST Mar 2
* New York	
Montauk	1655 EST Mar 2
Manhattan	1820 EST Mar 2
* Virginia	
Virginia Beach	1700 EST Mar 2
* New Jersey	
Atlantic City	1705 EST Mar 2
* South Carolina	
Myrtle Beach	1720 EST Mar 2
Charleston	1730 EST Mar 2
* Georgia	
Savannah	1735 EST Mar 2
* Massachusetts	
Nantucket	1735 EST Mar 2
Boston	1855 EST Mar 2
* Newfoundland	
Saint Lawrence	1915 NST Mar 2
Bonavista	2055 NST Mar 2
* New Brunswick	
Grand Manan Isla	1905 AST Mar 2
* Maine	
Portland	1835 EST Mar 2
* Labrador	

Battle Harbour 2120 NST Mar 2
Cape Makkovik 2055 AST Mar 2

OBSERVACIONES DEL TSUNAMI

* No hay observaciones del tsunami disponibles para reportar.

ACCIONES RECOMENDADAS

Si usted esta en un area de vigilancia;

* Preparese para tomar accion y este alerta para mas informacion.

INFORMACION ADICIONAL Y PROXIMA ACTUALIZACION

* Para acceder a informacion adicional consulte el sitio de internet tsunami.gov.

* Regiones costeras del Caribe deben consultar los mensajes emitidos por el Centro de Alerta de Tsunami del Pacifico en su sitio de internet tsunami.gov.

* Este mensaje sera actualizado en 60 minutos.

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NTWC Spanish Bulletin #2

WEXX40 PAAQ 021805

TSUSPA

BULLETIN

Mensaje de Tsunami numero 2

NWS Centro Nacional de Alerta de Tsunami Palmer AK

105 PM EST Thu Mar 02 2023

ACTUALIZACIONES

* Un tsunami ha sido confirmado y se esperan algunas impactos

* Nuevas observaciones

* Modifica las regiones bajo alerta

* Magnitud revisada

...LA ADVERTENCIA DE TSUNAMI PERMANECE EN EFECTO...

Advertencia de Tsunami en Efecto para;

* Areas costeras de Florida, Georgia, South Carolina, North

Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland y Labrador desde Flamingo, Florida hasta Cape Chidley, Labrador

Para otras costas de Estados Unidos y Canada en el Atlantico y Golfo de Mexico, no existe amenaza de tsunami.

PARAMETROS PRELIMINARES DEL TERREMOTO

* LOS SIGUIENTES PARAMETROS ESTAN BASADOS EN UNA EVALUACION PRELIMINAR RAPIDA Y PUEDEN VARIAR.

- * Magnitud 8.7
- * Tiempo de Origen 1230 EST Marzo 02 2023
0130 AST Marzo 02 2023
1130 CST Marzo 02 2023
1730 UTC Mar 02 2023
- * Coordenadas 19.7 Norte 66.3 Oeste
- * Profundidad 3 millas
- * Localizacion 105 millas NW de Fajardo, Puerto Rico
85 millas N de San Juan, Puerto Rico

PRONOSTICOS DEL TSUNAMI

* Se pronostica que la actividad del tsunami comience en los siguientes puntos a las horas indicadas.

LUGAR	LLEGADA PRONOSTICADA DEL TSUNAMI
-----	-----
* Florida	
Miami	1515 EST Mar 2
Key West	1600 EST Mar 2
Melbourne Beach	1630 EST Mar 2
Daytona	1635 EST Mar 2
Jacksonville Bea	1705 EST Mar 2
* North Carolina	
Cape Hatteras	1525 EST Mar 2
* Nova Scotia	
Lockeport	1750 AST Mar 2
Scatarie Island	1840 AST Mar 2

* New York

Montauk 1655 EST Mar 2
 Manhattan 1820 EST Mar 2

* Virginia

Virginia Beach 1700 EST Mar 2

* New Jersey

Atlantic City 1705 EST Mar 2

* South Carolina

Myrtle Beach 1715 EST Mar 2
 Charleston 1725 EST Mar 2

* Massachusetts

Nantucket 1730 EST Mar 2
 Boston 1855 EST Mar 2

* Georgia

Savannah 1730 EST Mar 2

* Newfoundland

Saint Lawrence 1910 NST Mar 2
 Bonavista 2050 NST Mar 2

* New Brunswick

Grand Manan Isla 1900 AST Mar 2

* Maine

Portland 1835 EST Mar 2

* Labrador

Battle Harbour 2115 NST Mar 2
 Cape Makkovik 2050 AST Mar 2

OBSERVACIONES DEL TSUNAMI - ACTUALIZADAS

* La altura maxima observada del tsunami es el nivel de agua mas alto registrado sobre el nivel de la marea hasta la emision de este mensaje.

LUGAR	HORA DE LA MEDICION	ALTURA MAX OBSERVADA DEL TSUNAMI
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft
San Juan TG Puerto Rico	17:44 UTC	2.2ft

ACCIONES RECOMENDADAS

Las acciones para proteger la vida y propiedad pueden variar dentro de las áreas de advertencia de tsunami.

Si usted esta en un area de advertencia;

- * Salgase del agua, de la playa y alejese de puertos, marinas, bahias, ensenadas y rompeolas.
- * Este alerta y siga las instrucciones de los oficiales locales de manejo de emergencia ya que ellos pueden tener informacion mas detallada o especifica para su ubicacion.
- * Si siente un terremoto fuerte y/o prolongado tome inmediatamente acciones de seguridad como moverse tierra adentro y/o hacia un lugar alto preferiblemente a pie.
- * Operadores de botes,
 - * Cuando el tiempo y las condiciones lo permitan mueva su bote mar adentro a una profundidad de al menos 180 pies.
 - * Si esta navegando evite entrar a aguas someras/llanas, puertos, marinas, bahias, y ensenadas para evitar corrientes fuertes y objetos flotantes o sumergidos.
- * No vaya a la costa para observar el tsunami.
- * No regrese a la costa hasta que los oficiales locales de manejo de emergencia local indiquen que es seguro hacerlo.

IMPACTOS

Los impactos pueden variar en diferentes lugares dentro de las áreas de advertencia.

Si usted esta en un area de advertencia;

- * Un tsunami con olas y corrientes fuertes puede ser posible.
- * Olas y corrientes pueden ahogar o herir personas que se encuentran en el agua.
- * Corrientes en playas y puertos, marinas, bahias, y ensenadas pueden ser especialmente peligrosas.
- * Algunos impactos pueden continuar por muchas horas hasta días luego de la llegada de la primera ola.

- * La primera ola puede no ser la mas grande las olas posteriores si.
- * Cada ola puede durar de 5 a 45 minutos entre su embate y retroceso.
- * Costas con frente en todas las direcciones pueden estar en peligro porque las olas pueden dar la vuelta a islas y entrar a bahias.
- * Movimiento fuerte y/o prolongado del suelo indica que un terremoto ha ocurrido un tsunami puede haber sido generado y su llegada inminente.
- * Un rapido retroceso de la linea de costa, olas y sonidos inusuales, y fuertes corrientes son senales de un tsunami.
- * El tsunami puede aparecer como agua moviendose rapidamente hacia mar adentro, una marea suave que se eleva rapidamente sin olas rompientes, como una serie de olas rompientes, o una pared de agua espumosa.

INFORMACION ADICIONAL Y PROXIMA ACTUALIZACION

- * Para acceder a informacion adicional consulte el sitio de internet tsunami.gov.
- * Regiones costeras del Caribe deben consultar los mensajes emitidos por el Centro de Alerta de Tsunami del Pacifico en su sitio de internet tsunami.gov.
- * Este mensaje sera actualizado en 30 minutos.

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NTWC Spanish Bulletin #3

WEXX40 PAAQ 021835

TSUSPA

BULLETIN

Mensaje de Tsunami numero 3

NWS Centro Nacional de Alerta de Tsunami Palmer AK

135 PM EST Thu Mar 02 2023

ACTUALIZACIONES

- * Nuevas observaciones
- * Informacion de pronostico revisada

...LA ADVERTENCIA DE TSUNAMI PERMANECE EN EFECTO...

Advertencia de Tsunami en Efecto para;

- * Areas costeras de Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland y Labrador desde Flamingo, Florida hasta Cape Chidley, Labrador

Para otras costas de Estados Unidos y Canada en el Atlantico y Golfo de Mexico, no existe amenaza de tsunami.

PRONOSTICOS DEL TSUNAMI

- * Se ha generado un tsunami. las primeras olas del tsunami estan pronosticadas para llegar a los siguientes puntos a las horas indicadas.
- * La duracion pronosticada del tsunami es el periodo aproximado de tiempo que se espera que el tsunami puede producir corrientes y olas peligrosas.
- * La altura maxima de ola pronosticada es el nivel de agua mas alto esperado sobre el nivel de la marea.
- * No se dan pronosticos para puntos que han sido impactados a mas de una hora antes de la emision de este mensaje.

LUGAR	LLEGADA PRONOSTICADA DEL TSUNAMI	PRONOSTICO DE DURACION DEL TSUNAMI	ALTURA MAX PRONOSTICADA DEL TSUNAMI
-------	----------------------------------------	------------------------------------------	-------------------------------------------

* Florida			
Miami	1515 EST Mar 2		menos de 1pie
Key West	1600 EST Mar 2		menos de 1pie
Melbourne Beach	1630 EST Mar 2		
Daytona	1635 EST Mar 2	15 hrs	1.2- 2.3 pie
Jacksonville Bea	1705 EST Mar 2		menos de 1pie

* North Carolina			
Cape Hatteras	1525 EST Mar 2	15 hrs	1.4- 2.5 pie

* Nova Scotia

Lockeport 1750 AST Mar 2 15 hrs 1.3- 2.5 pie
 Scatarie Island 1840 AST Mar 2 menos de 1pie

* New York

Montauk 1655 EST Mar 2 9 hrs 0.8- 1.6 pie
 Manhattan 1820 EST Mar 2 menos de 1pie

* Virginia

Virginia Beach 1700 EST Mar 2

* New Jersey

Atlantic City 1705 EST Mar 2 36 hrs 2.8- 5.1 pie

* South Carolina

Myrtle Beach 1715 EST Mar 2 15 hrs 1.2- 2.2 pie
 Charleston 1725 EST Mar 2 menos de 1pie

* Massachusetts

Nantucket 1730 EST Mar 2 menos de 1pie
 Boston 1855 EST Mar 2 menos de 1pie

* Georgia

Savannah 1730 EST Mar 2 menos de 1pie

* Newfoundland

Saint Lawrence 1910 NST Mar 2 9 hrs 0.8- 1.5 pie
 Bonavista 2050 NST Mar 2 menos de 1pie

* New Brunswick

Grand Manan Isla 1900 AST Mar 2 menos de 1pie

* Maine

Portland 1835 EST Mar 2 menos de 1pie

* Labrador

Battle Harbour 2115 NST Mar 2 menos de 1pie
 Cape Makkovik 2050 AST Mar 2

OBSERVACIONES DEL TSUNAMI - ACTUALIZADAS

* La altura maxima observada del tsunami es el nivel de agua
 mas alto registrado sobre el nivel de la marea hasta la
 emision de este mensaje.

LUGAR	HORA DE LA MEDICION	ALTURA MAX OBSERVADA DEL TSUNAMI
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft

San Juan TG Puerto Rico	17:44 UTC	2.2ft
Mayaguez Puerto Rico	17:58 UTC	6.9ft
Christiansted VI	18:02 UTC	1.4ft
Fajardo Puerto Rico	18:05 UTC	5.6ft
Charlotte Amalie VI	18:18 UTC	5.4ft

PARAMETROS PRELIMINARES DEL TERREMOTO

-
- * Magnitud 8.7
 - * Tiempo de Origen 1230 EST Marzo 02 2023
0130 AST Marzo 02 2023
1130 CST Marzo 02 2023
1730 UTC Mar 02 2023
 - * Coordenadas 19.7 Norte 66.3 Oeste
 - * Profundidad 3 millas
 - * Localizacion 105 millas NW de Fajardo, Puerto Rico
85 millas N de San Juan, Puerto Rico

ACCIONES RECOMENDADAS

Las acciones para proteger la vida y propiedad pueden variar dentro de las areas de advertencia de tsunami.

Si usted esta en un area de advertencia;

- * Salgase del agua, de la playa y alejese de puertos, marinas, bahias, ensenadas y rompeolas.
- * Este alerta y siga las instrucciones de los oficiales locales de manejo de emergencia ya que ellos pueden tener informacion mas detallada o especifica para su ubicacion.
- * Si siente un terremoto fuerte y/o prolongado tome inmediatamente acciones de seguridad como moverse tierra adentro y/o hacia un lugar alto preferiblemente a pie.
- * Operadores de botes,
 - * Cuando el tiempo y las condiciones lo permitan mueva su bote mar adentro a una profundidad de al menos 180 pies.
 - * Si esta navegando evite entrar a aguas someras/llanas, puertos, marinas, bahias, y ensenadas para evitar corrientes fuertes y objetos flotantes o sumergidos.
- * No vaya a la costa para observar el tsunami.
- * No regrese a la costa hasta que los oficiales locales de

manejo de emergencia local indiquen que es seguro hacerlo.

IMPACTOS

Los impactos pueden variar en diferentes lugares dentro de las áreas de advertencia.

Si usted esta en un area de advertencia;

- * Un tsunami con olas y corrientes fuertes puede ser posible.
- * Olas y corrientes pueden ahogar o herir personas que se encuentran en el agua.
- * Corrientes en playas y puertos, marinas, bahias, y ensenadas pueden ser especialmente peligrosas.
- * Algunos impactos pueden continuar por muchas horas hasta días luego de la llegada de la primera ola.
- * La primera ola puede no ser la mas grande las olas posteriores si.
- * Cada ola puede durar de 5 a 45 minutos entre su embate y retroceso.
- * Costas con frente en todas las direcciones pueden estar en peligro porque las olas pueden dar la vuelta a islas y entrar a bahias.
- * Movimiento fuerte y/o prolongado del suelo indica que un terremoto ha ocurrido un tsunami puede haber sido generado y su llegada inminente.
- * Un rapido retroceso de la linea de costa, olas y sonidos inusuales, y fuertes corrientes son senales de un tsunami.
- * El tsunami puede aparecer como agua moviendose rapidamente hacia mar adentro, una marea suave que se eleva rapidamente sin olas rompientes, como una serie de olas rompientes, o una pared de agua espumosa.

INFORMACION ADICIONAL Y PROXIMA ACTUALIZACION

- * Para acceder a informacion adicional consulte el sitio de internet tsunami.gov.
- * Regiones costeras del Caribe deben consultar los mensajes emitidos por el Centro de Alerta de Tsunami del Pacifico en su sitio de internet tsunami.gov.
- * Este mensaje sera actualizado en 30 minutos.

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NTWC Spanish Bulletin #4

WEXX40 PAAQ 021905

TSUSPA

BULLETIN

Mensaje de Tsunami numero 4

NWS Centro Nacional de Alerta de Tsunami Palmer AK

205 PM EST Thu Mar 2023

ACTUALIZACIONES

* No hay actualizaciones en este mensaje

...LA ADVERTENCIA DE TSUNAMI PERMANECE EN EFECTO...

Advertencia de Tsunami en Efecto para;

* Areas costeras de Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland y Labrador desde Flamingo, Florida hasta Cape Chidley, Labrador

Para otras costas de Estados Unidos y Canada en el Atlantico y Golfo de Mexico, no existe amenaza de tsunami.

PRONOSTICOS DEL TSUNAMI

* Se ha generado un tsunami. las primeras olas del tsunami estan pronosticadas para llegar a los siguientes puntos a las horas indicadas.

* La duracion pronosticada del tsunami es el periodo aproximado de tiempo que se espera que el tsunami puede producir corrientes y olas peligrosas.

* La altura maxima de ola pronosticada es el nivel de agua mas alto esperado sobre el nivel de la marea.

* No se dan pronosticos para puntos que han sido impactados a mas de una hora antes de la emision de este mensaje.

LUGAR	LLEGADA PRONOSTICADA DEL TSUNAMI	PRONOSTICO DE DURACION DEL TSUNAMI	ALTURA MAX PRONOSTICADA DEL TSUNAMI
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* Florida

Miami	1515 EST Mar 2		menos de 1pie
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Key West 1600 EST Mar 2 menos de 1pie
 Melbourne Beach 1630 EST Mar 2
 Daytona 1635 EST Mar 2 15 hrs 1.2- 2.3 pie
 Jacksonville Bea 1705 EST Mar 2 menos de 1pie

* North Carolina

Cape Hatteras 1525 EST Mar 2 15 hrs 1.4- 2.5 pie

* Nova Scotia

Lockeport 1750 AST Mar 2 15 hrs 1.3- 2.5 pie
 Scatarie Island 1840 AST Mar 2 menos de 1pie

* New York

Montauk 1655 EST Mar 2 9 hrs 0.8- 1.6 pie
 Manhattan 1820 EST Mar 2 menos de 1pie

* Virginia

Virginia Beach 1700 EST Mar 2

* New Jersey

Atlantic City 1705 EST Mar 2 36 hrs 2.8- 5.1 pie

* South Carolina

Myrtle Beach 1715 EST Mar 2 15 hrs 1.2- 2.2 pie
 Charleston 1725 EST Mar 2 menos de 1pie

* Massachusetts

Nantucket 1730 EST Mar 2 menos de 1pie
 Boston 1855 EST Mar 2 menos de 1pie

* Georgia

Savannah 1730 EST Mar 2 menos de 1pie

* Newfoundland

Saint Lawrence 1910 NST Mar 2 9 hrs 0.8- 1.5 pie
 Bonavista 2050 NST Mar 2 menos de 1pie

* New Brunswick

Grand Manan Isla 1900 AST Mar 2 menos de 1pie

* Maine

Portland 1835 EST Mar 2 menos de 1pie

* Labrador

Battle Harbour 2115 NST Mar 2 menos de 1pie
 Cape Makkovik 2050 AST Mar 2

OBSERVACIONES DEL TSUNAMI - ACTUALIZADAS

* La altura maxima observada del tsunami es el nivel de agua mas alto registrado sobre el nivel de la marea hasta la emision de este mensaje.

LUGAR	HORA DE LA MEDICION	ALTURA MAX OBSERVADA DEL TSUNAMI
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft
San Juan TG Puerto Rico	17:44 UTC	2.2ft
Mayaguez Puerto Rico	17:58 UTC	6.9ft
Christiansted VI	18:02 UTC	1.4ft
Fajardo Puerto Rico	18:05 UTC	5.6ft
Charlotte Amalie VI	18:18 UTC	5.4ft

PARAMETROS PRELIMINARES DEL TERREMOTO

- * Magnitud 8.7
- * Tiempo de Origen 1230 EST Marzo 02 2023
0130 AST Marzo 02 2023
1130 CST Marzo 02 2023
1730 UTC Mar 02 2023
- * Coordenadas 19.7 Norte 66.3 Oeste
- * Profundidad 3 millas
- * Localizacion 105 millas NW de Fajardo, Puerto Rico
85 millas N de San Juan, Puerto Rico

ACCIONES RECOMENDADAS

Las acciones para proteger la vida y propiedad pueden variar dentro de las areas de advertencia de tsunami.

Si usted esta en un area de advertencia;

- * Salgase del agua, de la playa y alejese de puentes, marinas, bahias, ensenadas y rompeolas.
- * Este alerta y siga las instrucciones de los oficiales locales de manejo de emergencia ya que ellos pueden tener informacion mas detallada o especifica para su ubicacion.
- * Si siente un terremoto fuerte y/o prolongado tome inmediatamente acciones de seguridad como moverse tierra adentro y/o hacia un lugar alto preferiblemente a pie.
- * Operadores de botes,
 - * Cuando el tiempo y las condiciones lo permitan mueva su bote mar adentro a una profundidad de al menos 180 pies.

- * Si esta navegando evite entrar a aguas someras/llanas, puertos, marinas, bahias, y ensenadas para evitar corrientes fuertes y objetos flotantes o sumergidos.
- * No vaya a la costa para observar el tsunami.
- * No regrese a la costa hasta que los oficiales locales de manejo de emergencia local indiquen que es seguro hacerlo.

IMPACTOS

Los impactos pueden variar en diferentes lugares dentro de las areas de advertencia.

Si usted esta en un area de advertencia;

- * Un tsunami con olas y corrientes fuertes puede ser posible.
- * Olas y corrientes pueden ahogar o herir personas que se encuentran en el agua.
- * Corrientes en playas y puertos, marinas, bahias, y ensenadas pueden ser especialmente peligrosas.
- * Algunos impactos pueden continuar por muchas horas hasta dias luego de la llegada de la primera ola.
- * La primera ola puede no ser la mas grande las olas posteriores si.
- * Cada ola puede durar de 5 a 45 minutos entre su embate y retroceso.
- * Costas con frente en todas las direcciones pueden estar en peligro porque las olas pueden dar la vuelta a islas y entrar a bahias.
- * Movimiento fuerte y/o prolongado del suelo indica que un terremoto ha ocurrido un tsunami puede haber sido generado y su llegada inminente.
- * Un rapido retroceso de la linea de costa, olas y sonidos inusuales, y fuertes corrientes son senales de un tsunami.
- * El tsunami puede aparecer como agua moviendose rapidamente hacia mar adentro, una marea suave que se eleva rapidamente sin olas rompientes, como una serie de olas rompientes, o una pared de agua espumosa.

INFORMACION ADICIONAL Y PROXIMA ACTUALIZACION

- * Para acceder a informacion adicional consulte el sitio de internet tsunami.gov.
- * Regiones costeras del Caribe deben consultar los mensajes emitidos por el Centro de Alerta de Tsunami del Pacifico en su sitio de internet tsunami.gov.
- * Este mensaje sera actualizado en 60 minutos.

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NTWC Spanish Bulletin #7

WEXX40 PAAQ 022205

TSUSPA

BULLETIN

Mensaje de Tsunami numero 7

NWS Centro Nacional de Alerta de Tsunami Palmer AK

305 PM EST Thu Mar 02 2023

ACTUALIZACIONES

- * Nuevas observaciones

...LA ADVERTENCIA DE TSUNAMI PERMANECE EN EFECTO...

Advertencia de Tsunami en Efecto para;

- * Areas costeras de Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland y Labrador desde Flamingo, Florida hasta Cape Chidley, Labrador

Para otras costas de Estados Unidos y Canada en el Atlantico y Golfo de Mexico, no existe amenaza de tsunami.

PRONOSTICOS DEL TSUNAMI

- * Se ha generado un tsunami. las primeras olas del tsunami estan pronosticadas para llegar a los siguientes puntos a las horas indicadas.
- * La duracion pronosticada del tsunami es el periodo aproximado de tiempo que se espera que el tsunami puede producir corrientes y olas peligrosas.

LANTEX23 Exercise Handbook

* La altura maxima de ola pronosticada es el nivel de agua mas alto esperado sobre el nivel de la marea.

* No se dan pronosticos para puntos que han sido impactados a mas de una hora antes de la emision de este mensaje.

LUGAR	LLEGADA DEL TSUNAMI	PRONOSTICO DE DURACION DEL TSUNAMI	ALTURA MAX PRONOSTICADA DEL TSUNAMI
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* Florida

Miami	1515 EST Mar 2		menos de 1pie
Key West	1600 EST Mar 2		menos de 1pie
Melbourne Beach	1630 EST Mar 2		
Daytona	1635 EST Mar 2	24 hrs	2.1- 4.0 pie
Jacksonville Bea	1705 EST Mar 2	9 hrs	0.8- 1.5 pie

* North Carolina

Cape Hatteras	1525 EST Mar 2	24 hrs	1.9- 3.5 pie
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* Nova Scotia

Lockeport	1750 AST Mar 2	20 hrs	1.7- 3.1 pie
Scatarie Island	1840 AST Mar 2		menos de 1pie

* New York

Montauk	1655 EST Mar 2	15 hrs	1.1- 2.1 pie
Manhattan	1820 EST Mar 2		menos de 1pie

* Virginia

Virginia Beach	1700 EST Mar 2		
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* New Jersey

Atlantic City	1705 EST Mar 2	40 hrs	3.6- 6.6 pie
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* South Carolina

Myrtle Beach	1715 EST Mar 2	20 hrs	1.8- 3.4 pie
Charleston	1725 EST Mar 2	9 hrs	0.8- 1.4 pie

* Massachusetts

Nantucket	1730 EST Mar 2		menos de 1pie
Boston	1855 EST Mar 2		menos de 1pie

* Georgia

Savannah	1730 EST Mar 2		menos de 1pie
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* Newfoundland

Saint Lawrence	1910 NST Mar 2	9 hrs	0.8- 1.5 pie
Bonavista	2050 NST Mar 2		menos de 1pie

* New Brunswick

Grand Manan Isla 1900 AST Mar 2 9 hrs 0.8- 1.6 pie

* Maine

Portland 1835 EST Mar 2 menos de 1pie

* Labrador

Battle Harbour 2115 NST Mar 2 menos de 1pie

Cape Makkovik 2050 AST Mar 2

OBSERVACIONES DEL TSUNAMI - ACTUALIZADAS

* La altura maxima observada del tsunami es el nivel de agua mas alto registrado sobre el nivel de la marea hasta la emision de este mensaje.

LUGAR	HORA DE LA MEDICION	ALTURA MAX OBSERVADA DEL TSUNAMI
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft
San Juan TG Puerto Rico	17:44 UTC	2.2ft
Mayaguez Puerto Rico	17:58 UTC	6.9ft
Christiansted VI	18:02 UTC	1.4ft
Fajardo Puerto Rico	18:05 UTC	5.6ft
Charlotte Amalie VI	18:18 UTC	5.4ft
Bermuda Bermuda	18:45 UTC	2.9ft
Virginia Key Florida	20:00 UTC	0.3ft
Hatteras North Carolina	20:31 UTC	2.3ft
Key West Florida	21:02 UTC	0.2ft
Vaca Key Florida	21:09 UTC	0.3ft
Beaufort North Carolina	21:12 UTC	1.1ft
Duck North Carolina	21:19 UTC	2.6ft
Ocean City Maryland	21:40 UTC	1.3ft

PARAMETROS PRELIMINARES DEL TERREMOTO

* Magnitud 8.7

* Tiempo de Origen 1230 EST Marzo 02 2023

0130 AST Marzo 02 2023

1130 CST Marzo 02 2023

1730 UTC Mar 02 2023

* Coordenadas 19.7 Norte 66.3 Oeste

* Profundidad 3 millas

* Localizacion 105 millas NW de Fajardo, Puerto Rico

85 millas N de San Juan, Puerto Rico

ACCIONES RECOMENDADAS

- * Ver mensaje numero 4 para acciones recomendadas.

IMPACTOS

- * Ver mensaje numero 4 para posibles impactos.

INFORMACION ADICIONAL Y PROXIMA ACTUALIZACION

- * Para acceder a informacion adicional consulte el sitio de internet tsunami.gov.
- * Regiones costeras del Caribe deben consultar los mensajes emitidos por el Centro de Alerta de Tsunami del Pacifico en su sitio de internet tsunami.gov.
- * Este mensaje sera actualizado en 60 minutos.

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NTWC Spanish Bulletin #9

WEXX40 PAAQ 030005

TSUSPA

BULLETIN

Mensaje de Tsunami numero 9

NWS Centro Nacional de Alerta de Tsunami Palmer AK

405 PM EST Thu Mar 2023

ACTUALIZACIONES

- * Nuevas observaciones
- * Informacion de pronostico revisada

...LA ADVERTENCIA DE TSUNAMI PERMANECE EN EFECTO...

Advertencia de Tsunami en Efecto para;

- * Areas costeras de Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland y Labrador desde Flamingo, Florida hasta Cape Chidley, Labrador

Para otras costas de Estados Unidos y Canada en el Atlantico y Golfo de Mexico, no existe amenaza de tsunami.

PRONOSTICOS DEL TSUNAMI

* Se ha generado un tsunami. las primeras olas del tsunami estan pronosticadas para llegar a los siguientes puntos a las horas indicadas.

* La duracion pronosticada del tsunami es el periodo aproximado de tiempo que se espera que el tsunami puede producir corrientes y olas peligrosas.

* La altura maxima de ola pronosticada es el nivel de agua mas alto esperado sobre el nivel de la marea.

* No se dan pronosticos para puntos que han sido impactados a mas de una hora antes de la emision de este mensaje.

LUGAR	LLEGADA PRONOSTICADA DEL TSUNAMI	PRONOSTICO DE DURACION DEL TSUNAMI	ALTURA MAX PRONOSTICADA DEL TSUNAMI
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* Florida

Miami	1515 EST Mar 2		menos de 1pie
Key West	1600 EST Mar 2		menos de 1pie
Melbourne Beach	1630 EST Mar 2		
Daytona	1635 EST Mar 2	15 hrs	1.2- 2.3 pie
Jacksonville Bea	1705 EST Mar 2		menos de 1pie

* North Carolina

Cape Hatteras	1525 EST Mar 2	15 hrs	1.3- 2.5 pie
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* Nova Scotia

Lockeport	1750 AST Mar 2	15 hrs	1.3- 2.5 pie
Scatarie Island	1840 AST Mar 2		menos de 1pie

* New York

Montauk	1655 EST Mar 2	9 hrs	0.8- 1.6 pie
Manhattan	1820 EST Mar 2		menos de 1pie

* Virginia

Virginia Beach	1700 EST Mar 2		
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* New Jersey

Atlantic City	1705 EST Mar 2	30 hrs	2.8- 5.1 pie
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* South Carolina

Myrtle Beach 1715 EST Mar 2 15 hrs 1.2- 2.2 pie
 Charleston 1725 EST Mar 2 menos de 1pie

* Massachusetts

Nantucket 1730 EST Mar 2 menos de 1pie
 Boston 1855 EST Mar 2 menos de 1pie

* Georgia

Savannah 1730 EST Mar 2 menos de 1pie

* Newfoundland

Saint Lawrence 1910 NST Mar 2 9 hrs 0.8- 1.5 pie
 Bonavista 2050 NST Mar 2 menos de 1pie

* New Brunswick

Grand Manan Isla 1900 AST Mar 2 menos de 1pie

* Maine

Portland 1835 EST Mar 2 menos de 1pie

* Labrador

Battle Harbour 2115 NST Mar 2 menos de 1pie
 Cape Makkovik 2050 AST Mar 2

OBSERVACIONES DEL TSUNAMI - ACTUALIZADAS

* La altura maxima observada del tsunami es el nivel de agua mas alto registrado sobre el nivel de la marea hasta la emision de este mensaje.

LUGAR	HORA DE LA MEDICION	ALTURA MAX OBSERVADA DEL TSUNAMI
Arecibo Puerto Rico		14.1ft
Aguadilla Puerto Rico		6.4ft
San Juan TG Puerto Rico		2.2ft
Mayaguez Puerto Rico		6.9ft
Christiansted VI		1.4ft
Fajardo Puerto Rico		5.6ft
Charlotte Amalie VI		5.4ft
Bermuda Bermuda		2.9ft
Virginia Key Florida		0.3ft
Hatteras North Carolina		2.3ft
Key West Florida		0.2ft
Vaca Key Florida		0.3ft
Beaufort North Carolina		1.1ft

Duck North Carolina	2.6ft
Ocean City Maryland	1.3ft
Montauk New York	1.1ft
Atlantic City NJ	2.9ft
Lewes Delaware	0.7ft
Chesapeake Bridge VA	0.4ft
Woods Hole MA	0.5ft
Newport Rhode Island	0.9ft
Cape May New Jersey	0.4ft
Cutler NAS Maine	0.3ft
Meat Cove Nova Scotia	0.1ft

PARAMETROS PRELIMINARES DEL TERREMOTO - ACTUALIZADOS

- * Magnitud 8.7
- * Tiempo de Origen 1230 EST Marzo 02 2023
0130 AST Marzo 02 2023
1130 CST Marzo 02 2023
1730 UTC Mar 02 2023
- * Coordenadas 19.7 Norte 66.3 Oeste
- * Profundidad 3 millas
- * Localizacion 105 millas NW de Fajardo, Puerto Rico
85 millas N de San Juan, Puerto Rico

ACCIONES RECOMENDADAS

- * Ver mensaje numero 3 para acciones recomendadas.

IMPACTOS

- * Ver mensaje numero 3 para posibles impactos.

INFORMACION ADICIONAL Y PROXIMA ACTUALIZACION

- * Para acceder a informacion adicional consulte el sitio de internet tsunami.gov.
- * Regiones costeras del Caribe deben consultar los mensajes emitidos por el Centro de Alerta de Tsunami del Pacifico en su sitio de internet tsunami.gov.
- * Este mensaje sera actualizado en 60 minutos.

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NTWC Spanish Bulletin #15

WEXX40 PAAQ 030635

TSUSPA

BULLETIN

Mensaje de Tsunami numero 15

NWS Centro Nacional de Alerta de Tsunami Palmer AK

435 PM EST Fri Mar 03 2023

...LA ADVERTENCIA DE TSUNAMI HA SIDO CANCELADA...

* Advisory de Tsunami ha sido Cancelado para areas costeras de Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland y Labrador

OBSERVACIONES DEL TSUNAMI - ACTUALIZADAS

* La altura maxima observada del tsunami es el nivel de agua mas alto registrado sobre el nivel de la marea hasta la emision de este mensaje.

LUGAR	HORA DE LA MEDICION	ALTURA MAX OBSERVADA DEL TSUNAMI
Arecibo Puerto Rico	17:42 UTC	14.1ft
Aguadilla Puerto Rico	17:41 UTC	6.4ft
San Juan TG Puerto Rico	17:44 UTC	2.2ft
Mayaguez Puerto Rico	17:58 UTC	6.9ft
Christiansted VI	18:02 UTC	1.4ft
Fajardo Puerto Rico	18:05 UTC	5.6ft
Charlotte Amalie VI	18:18 UTC	5.4ft
Bermuda Bermuda	18:45 UTC	2.9ft
Virginia Key Florida	20:00 UTC	0.3ft
Hatteras North Carolina	20:31 UTC	2.3ft
Key West Florida	21:02 UTC	0.2ft
Vaca Key Florida	21:09 UTC	0.3ft
Beaufort North Carolina	21:12 UTC	1.1ft
Duck North Carolina	21:19 UTC	2.6ft
Ocean City Maryland	21:40 UTC	1.3ft
Montauk New York	22:00 UTC	1.1ft
Atlantic City NJ	22:11 UTC	2.9ft
Lewes Delaware	22:03 UTC	0.7ft
Chesapeake Bridge VA	22:20 UTC	0.4ft
Woods Hole MA	22:23 UTC	0.5ft
Newport Rhode Island	22:37 UTC	0.9ft

Cape May New Jersey	22:45 UTC	0.4ft
Cutler NAS Maine	22:53 UTC	0.3ft
Meat Cove Nova Scotia	22:53 UTC	0.1ft

ACCIONES RECOMENDADAS - ACTUALIZADAS

- * No regresen a zonas desalojadas hasta que las autoridades locales de manejo de emergencia indiquen que es seguro hacerlo.

IMPACTOS - ACTUALIZADOS

- * Un tsunami fue generado durante este evento pero ya no representa un peligro.
- * Algunas areas podran seguir viendo pequenos cambios del nivel del mar.
- * La determinacion para volver a ocupar zonas de peligro debe ser hecha por autoridades locales.

INFORMACION ADICIONAL Y PROXIMA ACTUALIZACION

- * Para acceder a informacion adicional consulte el sitio de internet tsunami.gov.
- * Regiones conteras del Caribe deben consultar los mensajes emitidos por el Centro de Alerta de Tsunami del Pacifico en su sitio de internet tsunami.gov.
- * Este sera el ultimo boletin proveniente del Centro Nacional de Alerta de Tsunami de los Estados Unidos para este evento.

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Appendix C. NTC Atlantic Forecast Locations

NTWC East Coast and Gulf Forecast Locations (ETAs & Maximum wave height)					
Location Name	State	Country	Tide Gauge	Breakpoint?	Forecast Dissemination
Brownsville	Texas	United States	-	Breakpoints	tsunami.gov
Baffin Bay	Texas	United States	-	Breakpoints	tsunami.gov
Port OConnor	Texas	United States	-	Breakpoints	tsunami.gov
High Island	Texas	United States	-	Breakpoints	tsunami.gov
Morgan City	Louisiana	United States	-	Breakpoints	tsunami.gov
The Miss./Alabama Border		United States	-	Breakpoints	tsunami.gov
Destin	Florida	United States	-	Breakpoints	tsunami.gov
Suwannee River	Florida	United States	-	Breakpoints	tsunami.gov
Bonita Beach	Florida	United States	-	Breakpoints	tsunami.gov
Flamingo	Florida	United States	-	Breakpoints	tsunami.gov
Ocean Reef	Florida	United States	-	Breakpoints	tsunami.gov
Jupiter Inlet	Florida	United States	-	Breakpoints	tsunami.gov
Flagler Beach	Florida	United States	-	Breakpoints	tsunami.gov
Altamaha Sound	Georgia	United States	-	Breakpoints	tsunami.gov
South Santee River	South Carolina	United States	-	Breakpoints	tsunami.gov
Surf City	North Carolina	United States	-	Breakpoints	tsunami.gov
Duck	North Carolina	United States	dpnc	Breakpoints	tsunami.gov
New Point Comfort	Virginia	United States	-	Breakpoints	tsunami.gov
Cape Henlopen	Delaware	United States	-	Breakpoints	tsunami.gov
Sandy Hook	New Jersey	United States	shnj	Breakpoints	tsunami.gov
Watch Hill	Rhode Island	United States	-	Breakpoints	tsunami.gov
Merrimack River	Massachusetts	United States	-	Breakpoints	tsunami.gov
Stonington	Maine	United States	-	Breakpoints	tsunami.gov
The US/Canada Border		United States	epme	Breakpoints	tsunami.gov
Charlottesville	Nova Scotia	Canada	-	Breakpoints	tsunami.gov
Chezzetcook Inlet	Nova Scotia	Canada	-	Breakpoints	tsunami.gov
Meat Cove	Nova Scotia	Canada	-	Breakpoints	tsunami.gov
Cape Ray	Newfoundland	Canada	-	Breakpoints	tsunami.gov
La Manche	Newfoundland	Canada	-	Breakpoints	tsunami.gov
Strait of Belle Isle	Newfoundland	Canada	-	Breakpoints	tsunami.gov
Cape Chidley	Labrador	Canada	-	Breakpoints	tsunami.gov
Corpus Christi	Texas	United States	cctx	No	messages & tsunami.gov
Galveston	Texas	United States	gptx	No	messages & tsunami.gov
Biloxi	Mississippi	United States	bxms	No	messages & tsunami.gov
Panama City	Florida	United States	pcfl	No	messages & tsunami.gov
Saint Petersburg	Florida	United States	spfl	No	messages & tsunami.gov
Key West	Florida	United States	kwfl	No	messages & tsunami.gov
Miami	Florida	United States	-	No	messages & tsunami.gov
Melbourne Beach	Florida	United States	-	No	messages & tsunami.gov
Jacksonville Beach	Florida	United States	-	No	messages & tsunami.gov
Savannah	Georgia	United States	fpga	No	messages & tsunami.gov
Charleston	South Carolina	United States	chsc	No	messages & tsunami.gov
Myrtle Beach	South Carolina	United States	-	No	messages & tsunami.gov
Cape Hatteras	North Carolina	United States	-	No	messages & tsunami.gov
Virginia Beach	Virginia	United States	-	No	messages & tsunami.gov
Atlantic City	New Jersey	United States	acnj	No	messages & tsunami.gov
Manhattan	New York	United States	btny	No	messages & tsunami.gov
Montauk	New York	United States	mony	No	messages & tsunami.gov
Nantucket	Massachusetts	United States	tuma	No	messages & tsunami.gov
Boston	Massachusetts	United States	boma	No	messages & tsunami.gov
Portland	Maine	United States	ptme	No	messages & tsunami.gov

LANTEX23 Exercise Handbook

Grand Manan Island	New Brunswick	Canada	-	No	messages & tsunami.gov
Lockeport	Nova Scotia	Canada	-	No	messages & tsunami.gov
Scatarie Island	Nova Scotia	Canada	-	No	messages & tsunami.gov
Saint Lawrence	Newfoundland	Canada	-	No	messages & tsunami.gov
Bonavista	Newfoundland	Canada	-	No	messages & tsunami.gov
Battle Harbour	Labrador	Canada	-	No	messages & tsunami.gov
Roadtown	British Virgin Is.	British Virgin	-	No	messages & tsunami.gov
Cape Makkovik	Labrador	Canada	-	No	messages & tsunami.gov
Daytona	Florida	United States	-	No	messages & tsunami.gov
Port Isabel	Texas	United States	pitx	No	tsunami.gov
Rock Port	Texas	United States	rptx	No	tsunami.gov
Freeport	Texas	United States	fptx	No	tsunami.gov
Sabine Pass	Texas	United States	sptx	No	tsunami.gov
Eugene Island	Louisiana	United States	eila	No	tsunami.gov
Port Fourchon	Louisiana	United States	pfla	No	tsunami.gov
Pilots Station E	Louisiana	United States	psla	No	tsunami.gov
Grand Isle	Louisiana	United States	gila	No	tsunami.gov
Waveland	Mississippi	United States	wlms	No	tsunami.gov
Apalachicola	Florida	United States	apfl	No	tsunami.gov
Cedar Key	Florida	United States	ckfl	No	tsunami.gov
Clearwater Beach	Florida	United States	cwfl	No	tsunami.gov
Port Manatee	Florida	United States	pmfl	No	tsunami.gov
Fort Myers	Florida	United States	fmfl	No	tsunami.gov
Naples	Florida	United States	nafl	No	tsunami.gov
Vaca Key	Florida	United States	akfl	No	tsunami.gov
Virginia Key	Florida	United States	vkfl	No	tsunami.gov
Port Canaveral	Florida	United States	tpfl	No	tsunami.gov
Fernandina Beach	Florida	United States	fbfl	No	tsunami.gov
Saint Simons Island	Georgia	United States	-	No	tsunami.gov
Springmaid Pier	South Carolina	United States	spsc	No	tsunami.gov
Wrightsville Beach	North Carolina	United States	wbnc	No	tsunami.gov
Beaufort	North Carolina	United States	bunc	No	tsunami.gov
Oregon Inlet	North Carolina	United States	oinc	No	tsunami.gov
Currituck	North Carolina	United States	-	No	tsunami.gov
Chesapeake Bridge	Virginia	United States	cbva	No	tsunami.gov
Money Point	Virginia	United States	mpva	No	tsunami.gov
Yorktown	Virginia	United States	ytva	No	tsunami.gov
Windmill Point	Virginia	United States	wpva	No	tsunami.gov
Lewisetta	Virginia	United States	leva	No	tsunami.gov
Kiptopeke	Virginia	United States	kpva	No	tsunami.gov
Ocean City	Maryland	United States	ocmd	No	tsunami.gov
Lewes	Delaware	United States	lede	No	tsunami.gov
Ship John Shoal	New Jersey	United States	jsnj	No	tsunami.gov
Cape May	New Jersey	United States	cmnj	No	tsunami.gov
Bergen Point	New Jersey	United States	bpny	No	tsunami.gov
Fire Island Light	New York	United States	-	No	tsunami.gov
Kings Point	New York	United States	kgny	No	tsunami.gov
Bridgeport	Connecticut	United States	bgct	No	tsunami.gov
New Haven	Connecticut	United States	nhct	No	tsunami.gov
New London	Connecticut	United States	nlct	No	tsunami.gov
Quonset Point	Rhode Island	United States	quri	No	tsunami.gov
Providence	Rhode Island	United States	prri	No	tsunami.gov
Newport	Rhode Island	United States	neri	No	tsunami.gov

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Woods Hole	Massachusetts	United States	woma	No	tsunami.gov
Fort Point	New Hampshire	United States	frnh	No	tsunami.gov
Bar Harbor	Maine	United States	bame	No	tsunami.gov
Cutler NAS	Maine	United States	cnme	No	tsunami.gov
Saint John	New Brunswick	Canada	-	No	tsunami.gov
Yarmouth	Nova Scotia	Canada	-	No	tsunami.gov
Halifax	Nova Scotia	Canada	hali	No	tsunami.gov
North Sydney	Nova Scotia	Canada	-	No	tsunami.gov
Wood Islands	Prince Edward Is.	Canada	-	No	tsunami.gov
Charlottetown	Prince Edward Is.	Canada	-	No	tsunami.gov
Shediac	New Brunswick	Canada	-	No	tsunami.gov
Escuminac	New Brunswick	Canada	-	No	tsunami.gov
Belledune	New Brunswick	Canada	-	No	tsunami.gov
Pointe Saint-Pierre	Quebec	Canada	-	No	tsunami.gov
Sept-Iles	Quebec	Canada	-	No	tsunami.gov
Harrington Harbour	Quebec	Canada	-	No	tsunami.gov
Channel-Port aux Basques	Newfoundland	Canada	-	No	tsunami.gov
Argentia	Newfoundland	Canada	-	No	tsunami.gov
Saint Johns	Newfoundland	Canada	stjo	No	tsunami.gov
Lanse-au-Clair	Labrador	Canada	-	No	tsunami.gov
Holton Harbour	Labrador	Canada	-	No	tsunami.gov
Nain	Labrador	Canada	nain	No	tsunami.gov
Hebron	Labrador	Canada	-	No	tsunami.gov
Brevoort Harbour	Nunavut	Canada	-	No	tsunami.gov
Cape Dyer	Nunavut	Canada	-	No	tsunami.gov
Clyde River	Nunavut	Canada	-	No	tsunami.gov
Dundas Harbour	Nunavut	Canada	-	No	tsunami.gov
Virgin Gorda	British Virgin Is.	British Virgin	-	No	tsunami.gov
Sable Island	Nova Scotia	Canada	-	No	tsunami.gov
Cypremort Point	Louisiana	United States	-	No	tsunami.gov
Cameron	Louisiana	United States	cpla	No	tsunami.gov
Amerada Pass	Louisiana	United States	apla	No	tsunami.gov
Annapolis	Maryland	United States	anmd	No	tsunami.gov
Atlantic Beach	North Carolina	United States	-	No	tsunami.gov
Bishops Head	Maryland	United States	bhmd	No	tsunami.gov
Brandywine Shoal Light	Delaware	United States	bsde	No	tsunami.gov
Conimicut Light	Rhode Island	United States	clri	No	tsunami.gov
Dauphin Island	Alabama	United States	dial	No	tsunami.gov
Dock E	Mississippi	United States	dkms	No	tsunami.gov
Eagle Point	Texas	United States	eptx	No	tsunami.gov
Fall River	Massachusetts	United States	fama	No	tsunami.gov
Freshwater Canal	Louisiana	United States	fcla	No	tsunami.gov
Galveston Bay Entrance	Texas	United States	betx	No	tsunami.gov
Galveston Pleasure Pier	Texas	United States	pptx	No	tsunami.gov
Hatteras	North Carolina	United States	htnc	No	tsunami.gov
Lake Charles	Louisiana	United States	lcla	No	tsunami.gov
Mayport	Florida	United States	mpfl	No	tsunami.gov
Morgans Point	Texas	United States	mptx	No	tsunami.gov
Oyster Landing	South Carolina	United States	olsc	No	tsunami.gov
Palm Beach	Florida	United States	lwfl	No	tsunami.gov
Panama City Beach	Florida	United States	pcbf	No	tsunami.gov
Pascagoula	Mississippi	United States	pams	No	tsunami.gov
Pensacola	Florida	United States	pnfl	No	tsunami.gov
Port Tampa	Florida	United States	ptfl	No	tsunami.gov
Rudee Inlet	Virginia	United States	ruva	No	tsunami.gov
Shell Beach	Louisiana	United States	sblla	No	tsunami.gov
Tortola	British Virgin Is.	British Virgin	tort	No	tsunami.gov
US Coast Guard	Alabama	United States	cgal	No	tsunami.gov
Wells	Maine	United States	well	No	tsunami.gov

Appendix D. Type of Exercise

The exercise should be carried out such that communications and decision making at various organizational levels are exercised and conducted without disrupting or alarming the general public. Individual localities, however, may at their discretion elect to extend the exercise down to the level of testing local notification systems such as the Emergency Alert System (EAS), sirens, or loudspeakers.

Exercises stimulate the development, training, testing, and evaluation of Disaster Plans and Standard Operating Procedures (SOPs). Exercise participants may use their own past multi-hazard drills (e.g. flood, hurricane, tsunami, earthquake, etc.) as a framework to conduct LANTEX23.

Exercises can be conducted at various scales of magnitude and sophistication. The following are examples of types of exercises conducted by EMOs:

1. **Orientation Exercise (Seminar):** An Orientation Exercise lays the groundwork for a comprehensive exercise program. It is a planned event, developed to bring together individuals and officials with a role or interest in multi-hazard response planning, problem solving, development of standard operational procedures (SOPs), and resource integration and coordination. An Orientation Exercise will have a specific goal and written objectives and result in an agreed upon Plan of Action.
2. **Drill:** The 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. Drills can involve internal notifications and/or field activities.
3. **Tabletop Exercise:** The 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 elicit constructive discussion from the participants. Participants will examine and attempt to resolve problems, based on plans and procedures, if they exist. Individuals are encouraged to discuss decisions in depth with emphasis on slow-paced problem solving, rather than rapid, real time decision-making. A Tabletop Exercise should have specific goals, objectives, and a scenario narrative (see Appendix E for a Sample Tabletop Exercise Outline).
4. **Functional Exercise:** A Functional Exercise is a planned activity designed to test and evaluate organizational capacities. It is also utilized to evaluate the capability of a community's emergency management system by testing the Emergency Operations Plan (EOP). It is based on a simulation of a realistic emergency situation that includes a description of the situation (narrative) with communications between players and simulators. The Functional Exercise gives the players (decision-makers) a fully simulated experience of being in a major disaster event. It should take place at the appropriate coordination location (i.e. emergency operations center, emergency command center, command post, master control center, etc.) and activate all the appropriate members designated

by the plan. Both internal and external agencies (government, private sector, and volunteer agencies) should be involved. It requires players, controllers, simulators, and evaluators. Message traffic will be simulated and inserted by the control team for player response/actions, under real time constraints. It may or may not include public evacuations. A Functional Exercise should have specific goals, objectives, and a scenario narrative.

5. **Full-scale Exercise:** A Full-scale Exercise is the culmination of a progressive exercise program that has grown with the capacity of the community to conduct exercises. A Full-Scale exercise is a planned activity in a “challenging” environment that encompasses a majority of the emergency management functions. This type of exercise involves the actual mobilization and deployment of the appropriate personnel and resources needed to demonstrate operational capabilities. EOCs and other command centers are required to be activated. A Full-scale Exercise is the largest, costliest, and most complex exercise type. It may or may not include public evacuations.

Example Time Frames for Different Exercise Types

Style	Planning Period	Duration	Comments
Orientation Exercise	2 wks	Hours	Individual or mixed groups
Drill	2 months	1 day	Individual technical groups generally
Tabletop Exercise	1 month	1-3 days	Single or multiple agency
Functional Exercise	> 3 months	1-5 days	Multiple Agency participation
Full-scale Exercise	>6 months	1 day/ week	Multiple Agency participation

Appendix E. Example TableTop Exercise

Tabletop Exercise Development Steps

Source: California Office of Emergency Services

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 and slow paced, in a conference room environment, and is designed to elicit constructive discussion from the participants to assess plans, policies, and procedures. Participants will examine and attempt to resolve problems, based on plans and procedures, if they exist. Individuals are encouraged to discuss decisions in depth based on their organization's Standard Operating Procedures (SOPs), with emphasis on slow-paced problem solving, rather than rapid, real time decision-making. An Exercise Controller (moderator) introduces a simulated tsunami scenario to participants via written message, simulated telephone or radio call, or by other means. Exercise problems and activities (injects) are further introduced. Participants conduct group discussions where resolution is generally agreed upon and then summarized by a group leader. A Tabletop Exercise should have specific goals, objectives, and a scenario narrative.

The following provides a Tabletop Exercise structure with sample text and example.

1. Vulnerability Analysis: Problem Statement

An example for a hurricane might be:

Due to the recent Hurricane incidents in the Southeast region of the United States, an awareness of the threat risk involved in these disasters has become more apparent, therefore the need for an evacuation system is vital. The state of Louisiana continues its ongoing tasks of planning, preparing, and training for Hurricane preparedness.

2. Purpose (Mission): Intent, what you plan to accomplish (Policy Statement)

An example for a hurricane might be:

The State of Louisiana has realized and recognizes the need for a more efficient and effective evacuation system, and is responding with this Comprehensive Exercise Plan. These events will include seminars, workshops, a tabletop exercise, functional and full-scale exercises within an 18-month time frame, under the State Homeland Security grant program.

3. Scope:

- Exercise Activities**
- Agencies Involved**
- Hazard Type**
- Geographic Impact Area**

An example might be:

Emergency Services coordinators at local levels of government will identify representative jurisdictions from each of the six mutual aid regions located throughout the State to participate as host jurisdictions in a series of disaster preparedness exercises. These host jurisdictions will develop a progressive series of exercises each type building upon the previous type of exercise. The process will begin with a vulnerability analysis for each jurisdiction and continue through a progression of exercise activities including: orientation seminars, workshops, and tabletop and functional exercises. The eventual objective of these activities will be to reduce disaster impacts to their populations and city infrastructure. All events will be evaluated utilizing US Homeland Security Exercise Evaluation Program (HSEEP) after action reporting (AAR)

standards. Steps for corrective actions will be made a part of the after action process and report. Surrounding jurisdictions in the mutual aid area will act as exercise design team members, exercise evaluators, or exercise observers for the purpose of information transfer to increase their operational readiness. Jurisdictions will participate on a rotational basis every two years to provide the opportunity for multiple jurisdiction participation.

4. Goals and Objectives:

Criteria for good objectives: Think SMART

- Simple (concise)
- Measurable
- Achievable (can this be done during the exercise?)
- Realistic (and challenging)
- Task Oriented (oriented to functions)

An example might be:

Comprehensive Exercise Program (CEP) Objectives

- *To improve operational readiness*
- *To improve multi-agency coordination and response capabilities for effective disaster response*
- *To identify communication pathways and problem areas pre-event between local jurisdictions and operational area, regional and state emergency operations centers*
- *To establish uniform methods for resource ordering, tracking, and supply for agencies involved at all levels of government.*

5. Narrative:

The Narrative should describe the following:

- Triggering emergency/disaster event
- Describe the environment at the time the exercise begins
- Provide necessary background information
- Prepare participants for the exercise
- Discovery, report: how do you find out?
- Advance notice?
- Time, location, extent or level of damage

6. Evaluation:

The Evaluation should describe the following:

- Objectives Based
- Train Evaluation Teams
- Develop Evaluation Forms

7. After Action Report (AAR): The AAR should be compiled using the evaluation reports.

8. Improvement Plan (IP): The IP should reduce vulnerabilities.

Appendix F. Sample Press Release for Local Media

TEMPLATE FOR NEWS RELEASE

USE AGENCY MASTHEAD

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

FOR IMMEDIATE RELEASE
(insert date)

GULF & ATLANTIC TSUNAMI EXERCISE TO BE CONDUCTED MARCH 2, 2023

(*insert community/county/state name*) will join other localities along the U.S. and Canadian Atlantic coastline as a participant in a tsunami response exercise on March 2, 2023. The purpose of this exercise is to evaluate local tsunami response plans, increase tsunami preparedness, and improve coordination throughout the region.

(*insert a promotional comment from a local official, such as “Events such as the 2011 Japan earthquake and tsunamis as well as the 2022 Tonga eruption and tsunami have reminded the world again of the urgent need to be more prepared for such events,” said (insert name of appropriate official). “This important exercise will test the current procedures of the Tsunami Warning System and help identify operational strengths and weaknesses in each community.” (Please modify for uniqueness.)*)

The exercise, titled LANTEX23, will simulate low-level impacts along the East Coasts of the United States and Canada which require implementation of local tsunami response plans. The exercise will (*insert “include” or “not include”*) public notification.

The exercise will simulate a major earthquake and tsunami generated along the Puerto Rico Trench with an epicenter at 19.7°N, 66.3°W and occurring at 12:30 pm Eastern Standard Time (*or appropriate local time*) on March 2, 2023. Exercise participants will be provided with a handbook which describes the scenario and contains tsunami messages from the U.S. National Tsunami Warning Center (NTWC). The NTWC is responsible for providing tsunami information to the Atlantic coasts of the U.S. and Canada, including the Gulf of Mexico.

Insert paragraph tailored for specific community. Could identify participating agencies and specific plans. Could describe current early warning program, past tsunami exercises (if any), ongoing mitigation and public education programs, etc. Could describe tsunami threat, history of tsunami hazards, if any.

If any real tsunami threat occurs during the time period of the exercise, the exercise will be terminated.

The exercise is sponsored by the U.S. National Tsunami Hazard Mitigation Program (NTHMP – a partnership of 29 states and territories and three federal agencies). For more information on the U.S. tsunami warning system, see www.tsunami.gov. For more information on the NTHMP, see nws.weather.gov/nthmp.

###

On the Web:

National Tsunami Warning Center,
Pacific Tsunami Warning Center,
NOAA Tsunami Program

<http://www.tsunami.gov>

NTHMP:

<https://nws.weather.gov/nthmp/>

Insert state/local emergency response URLs

LANTEX23 Exercise