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EXERCISE CARIBE WAVE 23

A Caribbean and Adjacent Region Tsunami Warning Exercise

23 March 2023
(Gulf of Honduras and Mount Pelée Scenarios)

Volume 1 Participant Handbook

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Summary

The Intergovernmental Coordination Group for Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS) of the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) will be conducting its annual tsunami exercise, CARIBE WAVE, on 23 March 2023. This exercise will be coordinated together with the U.S. National Oceanic and Atmospheric Administration (NOAA) and the Caribbean regional emergency management stakeholders (CEPREDENAC [Coordination Centre for the Prevention of Natural Disasters in Central America], CDEMA [Caribbean Disaster Emergency Management Agency], and EMIZA [Etat-Major Interministériel de la Zone de Défense et de Sécurité Antilles]) as well as the Central America Tsunami Advisory Center (CATAC) of Nicaragua with the purpose of assisting tsunami preparedness efforts in the Caribbean.

The two scenarios for the exercise are: Gulf of Honduras and Mount Pelée. The first scenario simulates a tsunami generated by a magnitude 7.6 earthquake located in the Gulf of Honduras. The second scenario is a tsunami generated by a flank collapse in Mount Pelée volcano, Martinique. The second scenario will be used to test experimental procedures and products for a tsunami generated by volcanic activity.

The Pacific Tsunami Warning Center (PTWC), the CARIBE-EWS tsunami service provider (TSP), will issue the initial dummy message for the two scenarios on 23 March 2023 at 1400 UTC and will disseminate it over all its standard broadcast channels. The dummy message is issued to test communications between the PTWC and the officially designated Tsunami Warning Focal Points (TWFPs) and National Tsunami Warning Centres (NTWCs), and to start the exercise. As of 1407 UTC, the PTWC will send by email the simulated tsunami products to officially designated TWFPs and NTWCs. Each country and territory will choose one scenario and decide if and how to disseminate messages within its area of responsibility and any additional tsunami warning system activities.

The manual includes the information on the tsunami and earthquake scenarios, timelines, PTWC dummy message and simulated exercise messages. High levels of vulnerability and risk to life and livelihoods from tsunamis along the coasts of the Caribbean and adjacent regions should provide a strong incentive for countries and local jurisdictions to prepare for a tsunami and participate in this exercise.

1. BACKGROUND

1.1 EXERCISE JUSTIFICATION AND FRAMEWORK

This CARIBE WAVE annual tsunami exercise is being conducted to assist tsunami preparedness efforts throughout the Caribbean and adjacent regions. Recent tsunamis, such as those in the Indian Ocean (2004, 2018), Samoa (2009), Haiti (2010), Chile (2010, 2014, 2015), Japan (2011), Honduras (2018), New Zealand (2021) and Hunga Tonga-Hunga Ha'apai (2022), attest to the importance of proper planning for tsunami response. This is the twelfth CARIBE WAVE exercise to be conducted and as with previous exercises the strengths and gaps of the tsunami warning system will be identified (Soto et al, 2022).

Historical tsunami records from sources such as the NOAA National Centers for Environmental Information (NCEI) show that from the years 1530 to 2020 tsunamis from earthquake, landslide, and volcanic sources have all impacted the region (Figure 1). According to NCEI, in the past 500 years, over 83 tsunamis have been observed (7-10 percent of the world's oceanic tsunamis) and approximately 4,500 people have lost their lives to tsunamis in the Caribbean and adjacent regions. Since the most recent devastating tsunami of 1946, there has been an explosive population growth and influx of tourists along the Caribbean and Western Atlantic coasts increasing the tsunami vulnerability of the region (von Hillebrandt-Andrade, 2013).

In addition to tsunamis, the region also has a long history of destructive earthquakes. Historical records show that major earthquakes have struck the Caribbean region about once every 50 years during the past five centuries. Within the region, there are multiple fault segments and submarine features that could be the source of earthquake and landslide generated tsunamis. No fewer than four major plates (North America, South America, Nazca, and Cocos) border the perimeter of the Caribbean plate. Subduction occurs along the Eastern and Northeastern Atlantic margins of the Caribbean plate. While the Northern and Southern Caribbean plate boundaries are characterized with a predominant strike-slip displacement, the Eastern and Western boundaries mark locations where oceanic crust subducts beneath Caribbean plate lithosphere (Benz et al, 2011). In addition to the local and regional earthquake sources, the region is also threatened by teletsunamis/transatlantic tsunamis, like the 1755 Portugal event. Furthermore, six confirmed volcano tsunami source events and two landslides generated from volcanos have affected the Caribbean and adjacent regions (International Tsunami Information Center [ITIC] and NCEI, 2018).

In the region there are also active submarine and coastal volcanoes. In the past, volcanic eruptions have generated tsunamis. This exercise provides the opportunity to test procedures and products for tsunamis generated from volcanic activity through the Mount Pelée scenario.

Tsunami services for the Caribbean and adjacent regions within the UNESCO/IOC CARIBE-EWS framework are currently provided by the Pacific Tsunami Warning Center (PTWC) in Hawaii. It issues its messages two to ten minutes after an earthquake's occurrence. The PTWC international products include tsunami information and threat messages. Primary recipients of the PTWC messages include TWFPs and NTWCs. These agencies are responsible for determining and issuing the corresponding alerts within their area of responsibility according to established protocols. In addition, the Central America Tsunami Advisory Center (CATAC) of Nicaragua, as a proposed tsunami service provider (TSP), will also be testing procedures and sharing simulated products with the Member States under its area of responsibility.

Nearly 160 million people live in the Caribbean, Central America, and Northern South America. The question is not if another major tsunami will happen, but when it happens, will the region be prepared for the impact? The risk of tsunamis in the Caribbean is real and should be taken

seriously and Member States need to exercise their Standard Operational Procedures for tsunamis to ensure readiness for when the next tsunami strikes.

Figure 1. Map of historical tsunamis (1530 to 2020) in the Caribbean, Central America, Mexico and adjacent regions (NCEI, https://www.ngdc.noaa.gov/hazard/data/publications/CCAMAR-english.pdf).

1.2 EXERCISE EARTHQUAKE AND TSUNAMI SCENARIOS

The exercise CARIBE WAVE 23 will provide simulated tsunami threat messages issued from the PTWC based on two hypothetical scenarios: a magnitude 7.6 earthquake located on the Gulf of Honduras and a flank collapse of Mount Pelée volcano (Figure 2). Below is a description of the proposed scenarios for the exercise.

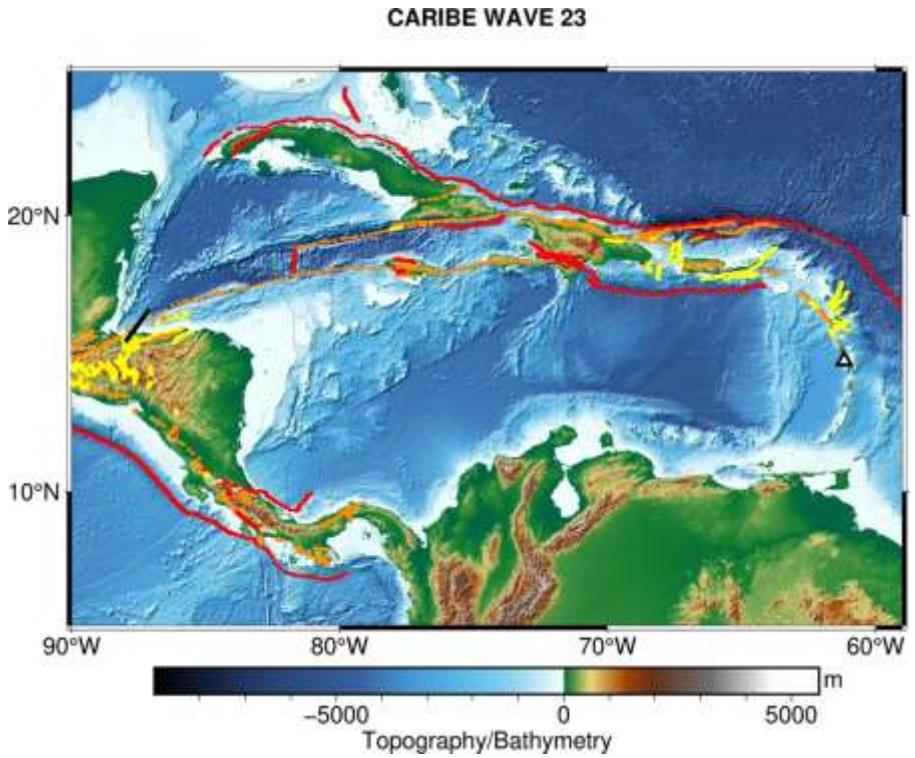

Figure 2. Map of the CARIBE WAVE 23 scenarios. The black rectangle indicates the map view of the ruptured fault segments and the black outlined triangle indicates the volcano location. This figure was generated using PyGMT (Uieda et al., 2021) and GEBCO 2021 background model (GEBCO, 2021).

1.2.1 Caribbean Tectonics

Extensive diversity and complexity of tectonic regimes characterizes the perimeter of the Caribbean plate, involving no fewer than four major plates (North America, South America, Nazca, and Cocos). Northern and southern boundaries of the Caribbean are mostly characterized by strike-slip motion, whereas subduction zones occur at both eastern and western boundaries. Intermediate and deep earthquakes, Wadati-Benioff zones, ocean trenches, and arcs of volcanoes clearly indicate subduction of oceanic lithosphere along the Central American and Atlantic Ocean margins of the Caribbean plate. Along the northeastern Caribbean plate boundary zone, from the Island of Hispaniola to the Island of Barbuda, relative motion between the North America plate and the Caribbean plate becomes increasingly complex and is partially accommodated by nearly arc-parallel subduction of the North America plate beneath the Caribbean plate (Feuillet et al, 2002). Moving east and south to the northern Lesser Antilles, the plate motion vector of the Caribbean plate relative to the North and South America plates is less oblique, resulting in active island-arc tectonics. The North and South America plates subduct towards the west beneath the Caribbean plate along the Lesser Antilles Trench at rates of approximately 18-20 mm/yr (Symithe et al, 2015). As a result of this subduction, there exists both intermediate focus earthquakes within the subducted plates and a chain of active volcanoes along the island arc, data that has been used to divide the arc into a northern and southern arc. Along the southern Lesser Antilles trench, the accretionary prism is anomalously thick and wide, raising the earthquake and tsunami potential. Farther west, the Southern Caribbean Deformed Belt (SCDB) has been developed due to the southward-verging under-thrusting of Caribbean lithosphere beneath the northern coast of South America (Figure 3) (DeMets et al. 2010). The following two sub-sections describe the CARIBE WAVE 23 scenarios and present a justification on their tsunamigenic potential regardless of their probability of occurrence.

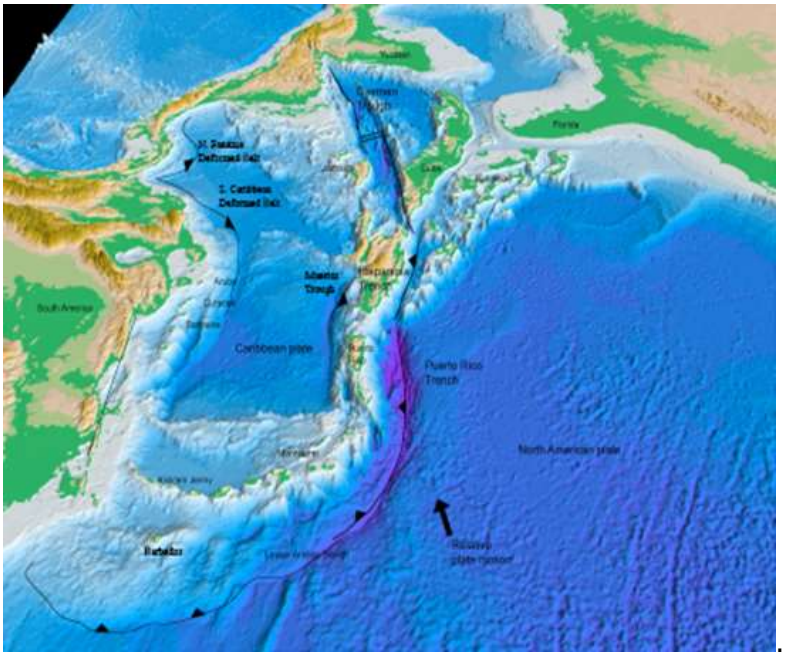

Figure 3. Major tectonic features in the Caribbean (Ten Brink et al., 2008).

1.2.2 Gulf of Honduras Scenario

The Caribbean coast of Central American is prone to tsunami hazards due to its tectonic boundaries. The tectonic setting of the region is built by the Cocos Plate in the Pacific subducting beneath the Caribbean plate along the Central American Trench (Fernandez et al, 2000). The northwestern boundary of the Caribbean plate is a strike-slip fault system that includes the Polochic-Motagua Fault and Swan Fault which are delineated by seismicity (Fernandez et al, 2000). The Gulf of Honduras is an exclusive economic zone and includes the coasts of Belize, Guatemala, and Honduras. The geological history of the Gulf of Honduras consisted of volcanic and Paleozoic marine sedimentary rocks that experienced periods of uplift and inundation that resulted in metamorphism and karstification (Heyman et al, 2001). This coastal region in the Caribbean is where historical tsunamis have been concentrated, documented through written historical narrations and instrumental data (Osiecki, 1981). Historical data have recorded that the earliest tsunami record in the Gulf of Honduras occurred on 24 November 1539 due to an earthquake in Belize (Osiecki, 1981). The 9 August 1856 event, caused by a magnitude 7.5 earthquake, was the first instrumental recording in the region. The towns of Omoa, Cortez, Atlantida, and Trujillo in Honduras were affected by the tsunami with runups up to 5 meters (Lander et al, 2002). The 1976 tsunami event generated on 4 February by a magnitude 7.5 earthquake was recorded at the Puerto Cortes tide gauge with maximum amplitudes of 45 cm. This event occurred along the Motagua fault and had a runup of 0.45 meters (O'loughlin, 2003). In most recent times, on 28 May 2009 a tsunami affected the coast of northern Guatemala after a magnitude 7.3 earthquake in the Gulf of Honduras. This event had a maximum wave height of 4 meters and impacted the entire country of Honduras (Lindholm et al, 2018). These events are used as reminders of the threat tsunamis pose to the coasts of Central America.

1.2.3 Mount Pelée Scenario

Along the Lesser Antilles subduction zone, the Mount Pelée volcano is located on the north end of Martinique. The andesitic stratovolcano rises about 1,397 meters above sea level and covers an area of 120 km^2 (Global Volcanism Program, 2021). There are three main types of eruptions identified for Mount Pelée: Phreatic, Plinian, and Pelean (Boudon and Balcone-Boissard, 2021). Over the past 250 years, there have been four eruptions recorded in the

history of Martinique: two phreatic eruptions in 1792 and 1851, and two magmatic crises in 1902 and 1929 (Global Volcanism Program, 2021). The 1902-1905 and the 1929-1932 events were the most devastating dome-forming eruptions (Boudon et al, 2007). During the 1902 eruption that pursued for three years, the town of Saint Pierre and the village of Morne Rouge were destroyed respectively on 8 May and 24 August 1902, by a lateral blast causing over 30,000 casualties (Lacroix, 1904). The 8 May event also caused a tsunami reaching the shores of Fort de France, Le Precheur, and Basse Pointe in Martinique (Lander et al, 2002). No casualties were reported during the 1929 eruption, most of the pyroclastic flows being channeled on an unpopulated valley, and all the inhabitants having been evacuated before the first pyroclastic flows occurred (Perret, 1937). The Mount Pelée volcano is also characterized by a horseshoe-shaped structure on the southwestern flank, where three large flank collapses of several cubic kilometers occurred since 127 ka (Le Friant et al, 2003). The volcano flanks are subjected to intense rainfall as it is characterized by a steep relief, strong vegetation, and a very rich river system. Pyroclastic density currents and lahars can impact north-east and west coasts communities through the valleys formed by torrent rivers (Leone and Lesales, 2009). Other volcanic hazards such as lahars, landslides, and tsunamis pose a risk of future events. Ash fallout from this volcano can also affect the entire island including near countries such as Dominica or Saint Lucia (Leone and Lesales, 2009).

Figure 4. Google Earth image of Mount Pelée, Martinique.

1.2.4 Earthquake impact

In addition to knowing the potential impact from the tsunami, it is also important to consider the potential of earthquake impact. The United States Geological Survey (USGS) provided for the CARIBE WAVE 23 Honduras scenario outputs of their ShakeMap and the Prompt Assessment of Global Earthquakes for Response (PAGER) products. These results give emergency responders, government, aid agencies and the media the scope of the potential earthquake related disaster. ShakeMap illustrates the ground shaking levels close to the earthquake source depending on a set of parameters such as distance to the source, rock and soil behavior, and seismic wave propagation through the crust (https://earthquake.usgs.gov/data/shakemap/). PAGER is based on the earthquake shaking (via ShakeMap) and analyses of the population exposed to each level of shaking intensity with

models of economic and fatality losses based on past earthquakes in each country or region of the world (https://earthquake.usgs.gov/data/pager/). For the CARIBE WAVE 23 Gulf of Honduras scenario, USGS estimated that the shaking and large, vulnerable population leads to very high casualties, in the 10,000-100,000 range. This results from the source running through the area of San Pedro Sula which has a very large urban population. Complete information about the ShakeMap and PAGER output for the exercise scenarios, are available in the Annex IV of this handbook.

2. EXERCISE CONCEPT

2.1 PURPOSE

The purpose of the exercise is to improve Tsunami Warning System effectiveness in the Caribbean and adjacent regions. The exercise provides an opportunity for emergency management organizations throughout the region 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 the Caribbean and adjacent regions, where tsunamis are infrequent but can be of very high impact. Every emergency management organization (EMO) is encouraged to participate.

2.2 OBJECTIVES

Each organization can develop its objectives for the exercise depending on its level of involvement in the scenario. The following are the exercise's overarching objectives to exercise and evaluate operations of the CARIBE-EWS Tsunami Warning System.

1. **Exercise and evaluate communications between the regional TSP and Members States/Territories.**
   A. Validate the **issuance** of tsunami products from the PTWC.
   B. Validate the **receipt** of tsunami products by CARIBE-EWS TWFPs and/or NTWCs.

2. **Evaluate the tsunami procedures and programmes within Members States/Territories.**
   A. Validate **readiness** to respond to a tsunami.
   B. Validate the **operational readiness** of the TWFPs/NTWCs and/or the National Disaster Management Office (NDMO).
   C. Improve **operational readiness**. Before the exercise, ensure appropriate tools and response plan(s) have been developed, including public education materials.
   D. Validate that the **dissemination of warnings and information/advice** by TWFPs and NTWCs to relevant in-country agencies and the public is accurate and timely.
   E. Evaluate the **status of the implementation of the Tsunami Ready** programme.

3. **To evaluate volcanic products.**
   A. Evaluate proposed PTWC CARIBE-EWS procedures and products for volcanic events.
   B. Evaluate input and procedures from agencies responsible for volcano monitoring.
   C. Evaluate Member States and Territories response plans for tsunamis from volcanoes.

2.3 TYPE OF EXERCISE

The CARIBE WAVE exercise is planned for countries in the Caribbean and adjacent regions to be able to carry out exercises at various scales of magnitudes and sophistication. It is up for every country to decide at what scale the exercise should be carried out. Offices of Emergency Management (OEM) are, however, encouraged to exercise down to the level of testing local notification systems such as the Emergency Alert System (EAS), sirens, or loudspeakers and encourage the participation down to individuals at risk. At the national/territorial level, a communication test is recommended to validate the receipt and dissemination of the messages distributed by the PTWC and CATAC for Central American countries.

Exercises stimulate the development, training, testing, and evaluation of Disaster Plans and Standard Operating Procedures (SOPs). Most countries in the region have participated in SOPs workshops in 2013, 2014, 2015 and 2017, and may consider using the materials and expertise acquired to help guide exercise preparation and conduct. Annex I gives an overview of SOPs. Exercise participants may use their own past multi-hazard drills (e.g. flood, hurricane, tsunami, earthquake, etc.) as a framework to conduct CARIBE WAVE 23.

Another good resource for exercise planning and conduct is the document entitled *Manual and Guides 86: Multi-Annual Community Tsunami Exercise Programme Guidelines for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Region* (UNESCO, 2022; Appendix II). This guide provides guidance on how to plan, conduct, and evaluate a multiannual local tsunami exercise programme. It has been designed by IOC Member States for use by their coastal communities who should participate in multiannual exercises. The guide is divided into four sections which provide a range of practical advice and templates for community stakeholders and in-country exercise developers. It highlights that a progressive and long-term approach is needed for tsunami exercises.

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 programme. 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 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 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 an 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 Annex II for Exercise Guidelines).

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 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 centre, emergency command centre, command post, master control centre, etc.) and involve 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 programme 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 centres 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.

Style	Planning Period	Duration	Comments
Orientation Exercise	2 weeks	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

Table 1. Example Time Frames for Different Exercise Types

According to the Development Dialogue (2021), persons with disabilities make up 15 percent of the world's population. This group of people are disproportionately affected by disaster impacts and are often not included in prevention, response, and recovery. It is important to engage persons with disabilities and their representative organizations in annual exercises such as CARIBE WAVE. Cutting-edge technology aimed at co-creating early warning and preparedness solutions that are inclusive and accessible to people with disabilities are suggested to be tested during the tsunami exercise to address this barrier.

2.4 TIMELINE

The process of planning CARIBE WAVE 23 takes more than a year; from the decision of the Intergovernmental Coordination Group (ICG) to conduct the exercise and the choice of the scenario(s) until the final reports are prepared and distributed. The timeline in Table 2 lists the main actions to be taken before, during and after CARIBE WAVE 23.

ACTION	DUE DATE
Circular Letter Issued by IOC to MS	November 2022
Handbook Draft Circulated among ICG CARIBE-EWS, TWFP/NTWC contacts and TT CARIBE WAVE 23	November 2022
Deadline for Comments	December 2022
Exercise Handbook Available Online	December 2022
First Webinar CW	24 January 2023 - English 25 January 2023 - Spanish 26 January 2023 - French
Second Webinar CW	21 February 2023 - English 22 February 2023 - Spanish 23 February 2023 - French
Countries Indicate Selected Scenario	10 March 2023
Exercise	23 March 2023
Hot-Wash	4 April 2023
Exercise Evaluation Due	13 April 2023
Draft CARIBE WAVE 23 Report	27 April 2023

Table 2. Timeline of actions to be taken before, during and after CARIBE WAVE 23.

3. PTWC PRODUCTS

On 1 March 2016, CARIBE-EWS fully transitioned to the PTWC Enhanced Products. The PTWC only issues Information and Threat messages for the Caribbean. While the first threat message is based on earthquake location, magnitude, and travel time thresholds, as of the second threat message, for earthquake generated tsunamis, these products include wave forecasts. Several levels of tsunami threat have been established and forecast threat levels are assigned to polygons representing segments of extended coastlines or to island groups. These improvements should greatly reduce the number of areas warned unnecessarily and provide some advance notice of the threat of potential local tsunamis. Details on the PTWC Enhanced Products for the CARIBE-EWS are provided in the ***User's Guide (for) the Pacific Tsunami Warning Center Enhanced Products for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE-EWS)*** (https://unesdoc.unesco.org/ark:/48223/pf0000259725). As an additional planning tool, videos about the PTWC Enhanced Products and Staging for the Caribbean and Pacific were developed in English by ITIC (https://vimeo.com/showcase/8956022). To request the access password, email christa.vonh@noaa.gov. For the CARIBE WAVE 23, threat messages and enhanced graphical products of the chosen scenario by each Member State and Territory will be disseminated by email to officially designated TWFPs and NTWCs. These products have also been included in Annexes III and VI. It is up to each country and territory to decide if and how to disseminate messages within its areas of responsibility.

The Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS), at its online Officers meeting held from 6 to 8 June 2022, discussed the proposed procedures for volcanic crisis and the related response from warning centres, emergency management and public services, in particular with respect to the potential tsunami threat. Previously, Member States had suggested that the ICG identify volcano observatories as the primary entities responsible for determining the potential of a volcano-induced tsunami threat, and volcano observatories should work with the TSP, PTWC, to determine the appropriate types of threat information products that volcano observatories would make available to emergency managers to convey this potential threat. In the case of Mount Pelée, the Volcanological and Seismological Observatory of Martinique (OVSM) is the corresponding volcano observatory responsible for monitoring and has been engaged for this exercise. For the exercise, the OVSM issues the Volcano Observatory Notice for Tsunami Threat (VONUT) text message which informs on any change in volcano alert levels or significant changes on volcanic eruptions and volcano flank destabilization (Annex V). The simulated messages prepared by the OVSM are provided only for the PTWC, CATAC and ICG/CARIBE-EWS officers and institutions. Based on these products, the PTWC issues corresponding messages. Through this exercise, Member States are encouraged to review the simulated PTWC products and discuss potential tsunamis generated from a volcanic eruption with their observatories, in order to better understand roles and responsibilities around potential volcanic events.

4. EXERCISE OUTLINE

4.1 GENERAL

Tsunami messages for this exercise are issued by the PTWC based on a hypothetical earthquake with the following hypocenter parameter for the Gulf of Honduras and VONUT messages and sea level observations for Mount Pelée:

Gulf of Honduras Scenario:

Origin Time	14:00:00 UTC March 23, 2023
Latitude	16.07ºN
Longitude	87.54ºW
Magnitude	7.6 – Mw
Depth	11 km

Mount Pelée Scenario:

Origin Time	14:00:00 UTC March 23, 2023
Latitude	14.48ºN
Longitude	61.10ºW

Expected impacts from these events are determined from pre-computed tsunami forecast models for the Gulf of Honduras scenario, while Mount Pelée messages are based on simulated communications with OVSM and on modeling and studies conducted of this volcano. Annex III provides the model results for the Gulf of Honduras scenario.

In the case of the Gulf of Honduras scenario, the first simulated tsunami threat message issued by the PTWC is based on the earthquake magnitude and location and the tsunami travel times. As of the second message, tsunami wave forecasts are included. Tsunami threat forecasts indicate the levels of threat that have been forecast and to which countries or places they apply. The levels are tsunami heights of 0.3-1 meter, 1-3 meters, and greater than 3 meters above

the normal tide level. The threat information is updated usually within an hour. All simulated products (text and graphical) for the scenario chosen by the country will be disseminated through email to the corresponding TWFPs and NTWCs. For the Mount Pelée scenario, the PTWC simulated products will not include any forecasted tsunami heights, only the estimated arrival times for forecast points in countries under potential impact. Further dissemination will be the responsibility of the corresponding national and local authorities.

The PTWC will not issue live messages over broadcast dissemination channels other than to issue the initial dummy message to start the exercise on 23 March 2023 at 1400 UTC. The initial dummy message will be disseminated over all standard PTWC broadcast channels. The World Meteorological Organization (WMO) and Advanced Weather Interactive Processing System (AWIPS) headers to be used in the dummy message are listed in Table 3. Please note that the PTWC dummy messages are being issued with the WMO/AWIPS IDs WECA41 PHEB/TSUCAX. These are being issued to test communications with TWFPs and NTWCs, and to start the exercise. The content of the dummy messages is given in Annex VI.

The GEONETCast is another method over which the dummy message can be received by TWFPs and NTWCs. It is an operational service used to deliver data and products based on the use of communication satellites (Moura, 2006). GEONETCast has become an important data source to the meteorological community and a wide variety of users that deal with environmental analysis (Maathuis, 2008). It is crucial that for CARIBE WAVE exercises, these methods are put into test.

Centre	WMO ID	AWIPS ID	NWWS	GTS	EMWIN	AISR	Fax	Email
PTWC	WECA41 PHEB	TSUCAX	Yes	Yes	Yes	Yes	Yes	Yes

Table 3. Product Types Issued for Dummy Message with Transmission Methods

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

Each Member State needs to select one scenario for CARIBE WAVE 23. By 10 March 2023, they must complete the following survey (https://www.surveymonkey.com/r/CW23_ScenarioSelection) to select the scenario their country will use for the exercise. If the Member State does not inform the PTWC and ITIC-CAR, the organizers will decide for which scenario the PTWC will send the products. For the exercise, the TWPF/ NTWC will receive only the simulated product for that scenario.

Participants should note the schedules in Tables 4 and 5 for each scenario, and the times that messages will be issued. These tables include the timelines for when messages would be issued by the PTWC if this were a real event and can be used by EMOs to drive the exercise timing. The messages (as shown in Annex VI) cover a period of time between 7 minutes and 6-hours from earthquake origin time, however in an actual event messages would likely continue for a much longer period of time.

Participants may elect to develop 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 Annex VII, will facilitate this approach.

EMOs can 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)

4.2.1 Gulf of Honduras Scenario

Tsunami generated by a magnitude 7.6 earthquake with epicenter at 16.07ºN, 87.54ºW occurring 23 March 2023 at 1400 UTC. The initial alert is disseminated at 1407 UTC.

Date	Time (UTC)	PTWC	
		Type of Product	Transmission Method
3/23/23	**1400**	**- - - - E a r t h q u a k e O c c u r s - - - -**	
3/23/23	**1400**	Dummy	NWWS, GTS, EMWIN, AISR, Fax, Email
3/23/23	**1407**	Initial Tsunami Threat Message #1	Email
3/23/23	**1425**	Tsunami Threat Message #2 with Forecast and Graphical Enhanced Products	Email
3/23/23	**1445**	Tsunami Threat Message #3	Email
3/23/23	**1530**	Tsunami Threat Message #4	Email
3/23/23	**1630**	Tsunami Threat Message #5	Email
3/23/23	**1730**	Tsunami Threat Message #6	Email
3/23/23	**1830**	Final Tsunami Threat Message #7	Email

Table 4. Timeline Messages issued by PTWC for the Gulf of Honduras scenario.

4.2.2 Mount Pelée Scenario

Tsunami generated by a volcano flank collapse at 9.35ºN, 80.30ºW occurring 23 March 2023 at 1400 UTC. The initial alert is disseminated at 1407 UTC.

Date	Time (UTC)	PTWC	
		Type of Product	Transmission Method
3/23/23	**1400**	**- - - - E a r t h q u a k e**	**O c c u r s - - - -**
3/23/23	**1400**	Dummy	NWWS, GTS, EMWIN, AISR, Fax, Email
3/23/23	**1407**	Initial Tsunami Threat Message #1	Email
3/23/23	**1430**	Tsunami Threat Message # 2	Email
3/23/23	**1500**	Tsunami Threat Message #3	Email
3/23/23	**1530**	Tsunami Threat Message #4	Email
3/23/23	**1600**	Tsunami Threat Message #5	Email
3/23/23	**1630**	Final Tsunami Threat Message #6	Email

Table 5. Timeline Messages issued by PTWC for the Mount Pelée scenario.

4.3 ACTIONS IN CASE OF EMERGENCY

In the case of a real event occurring during the exercise, the PTWC will issue the corresponding messages for the event. Such messages will be given full priority and a decision will be made by the PTWC whether to issue the CARIBE WAVE 23 dummy messages and to send email messages to corresponding recipients. In the case of smaller earthquakes, PTWC will issue the corresponding Tsunami Information Statement and the exercise will not be disrupted. All documentation and correspondence relating to this exercise is to be clearly identified as "**CARIBE WAVE 23"** and "**Exercise**".

4.4 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 the members of the CARIBE WAVE 23 Task Team (Table 6).

4.5 COMMUNITY REGISTRATION

For CARIBE WAVE 23, the ICG/CARIBE-EWS has continued working with TsunamiZone.org for online registration. Under the Caribbean Zone Region tab, participants will be able to sign up and choose among the following community categories: individuals, businesses, schools, faith-based organizations, community groups, government agencies, individuals, and others.

The link for registration is the following: http://tsunamizone.org/caribbean. After registering, the participant will receive a confirmation email. If desired, participants can also opt to be listed in the "Who is participating?" section of the TsunamiZone website, along with participants in tsunami preparedness activities worldwide. The EMOs will thus have real time access to the status of registration of participants within their areas of responsibility. EMOs are encouraged to promote this registration system.

4.6 MEDIA ARRANGEMENTS

One advantage in conducting exercises is that it provides a venue to promote tsunami awareness. Many residents along the CARIBE-EWS coast may not realize that a regional tsunami warning system exists, nor that national authorities have protocols in place to issue tsunami alerts, let alone the proper response for individuals. Therefore, communities may wish to invite their local media to the exercise and to promote awareness of local tsunami hazard and protocols. Within all Member States, the media can also provide support in building awareness leading up to the exercise and avoid false alarms. Media should be provided with available informational brochures prepared by the local, regional, and international agencies. It is also a good opportunity to distribute or prepare Media guides like that of the Puerto Rico Seismic Network (PRSN) (http://www.prsn.uprm.edu/mediakit/en/index.php) and the Seismic Research Centre (SRC) (http://www.uwiseismic.com) as additional guidance. Annex VII contains a sample press release, which can be adapted as necessary.

Social media has been recognized as a very important means for disseminating tsunami information and products. CARIBE-EWS countries and territories are encouraged to share information on the exercise CARIBE WAVE 23 through this medium. Furthermore, it is requested that the hashtag **#CARIBEWAVE**, be used by participants before and during the exercise.

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Table 6. Members of the CARIBE WAVE 23 Task Team

4.7 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.

5. POST-EXERCISE EVALUATION

Each ICG/CARIBE-EWS Member State and Territory is requested to provide feedback on the exercise. This feedback will assist in the evaluation of CARIBE WAVE 23 and the development of subsequent exercises. It will also help response agencies to document lessons learned and lead to improvements of the national systems. To facilitate feedback, the online evaluation survey can be accessed at the following link: https://www.surveymonkey.com/r/CaribeWave23. The deadline for completing the evaluation is **13 April 2023**.

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ANNEX I

STANDARD OPERATING PROCEDURES

END-TO-END TSUNAMI WARNING for Tsunami Warning Focal Points and Tsunami Emergency Response Operations – AN OVERVIEW

September 2008 (updated 2012)
UNESCO IOC Tsunami Unit (Paris) with ITIC (Hawaii)

This overview summarizes an end-to-end tsunami warning. In event time, it covers activities for monitoring, detection, threat evaluation and warning, alert dissemination, emergency response, and public action. An effective tsunami warning system is achieved when all people in vulnerable coastal communities are prepared to respond appropriately and in a timely manner upon recognizing that a potential destructive tsunami may be approaching. Meeting this challenge requires round-the-clock monitoring with real-time data streams and rapid alerting, as well as prepared communities, a strong emergency management system, and close and effective cooperation and coordination between all stakeholders. To warn without preparing, and further, to warn without providing a public safety message that is understandable to every person about what to do and where to go, is clearly useless. While alerts are the technical trigger for warning, any system will ultimately be judged by its ability to save lives, and by whether people move out of harm's way before a big tsunami hits. Towards these ends, education and awareness are clearly essential activities for successful early warning.

An end-to-end tsunami warning involves a number of stakeholders who must be able to work together and with good understanding of each other's roles, responsibilities, authorities, and action during a tsunami event. Planning and preparedness, and practicing in advance of the real event, helps to familiarize agencies and their staff with the steps and decision-making that need to be carried out without hesitation in a real emergency. Tsunami resilience is built upon a community's preparedness in tsunami knowledge, planning, warning, and awareness. All responding stakeholders should have a basic understanding of earthquake and tsunami science, and be familiar with warning concepts, detection, threat evaluation, and alerting methods, and emergency response and evacuation operations. The key components, requirements, and operations to enable an effective and timely warning and evacuation are covered in the following topics of end to-end tsunami warning:

- Tsunami Science and Hazard Assessment,
- Tsunami Risk Reduction Strategy and community-based disaster risk management,
- Stakeholders, Roles & Responsibilities, and SOPs and their Linkages,
- End-to-end Tsunami Response and SOPs,
- Tsunami Warning Focal Point (TWFP) and National Tsunami Warning Centre (NTWC) operations,
- Tsunami Emergency Response (TER) operations,
- Public Alerting,
- The Role of Media,
- Evacuation and Signage,
- Use of Exercises to Build Preparedness,
- Awareness and Education.

To ensure the long-term sustainability of a tsunami warning system, it should be noted that:

- Tsunamis should be part of an all-hazards (natural and anthropogenic) strategy.
- System redundancy is required to ensure reliability.
- Clearly understood TWFP/TWC and TER public safety messages are essential. Media partnerships for warning, as well as preparedness, are important.
- Awareness must be continuous forever. Tsunamis are low frequency, high impact natural disasters that are also unpredictable.
- National, provincial, and local Tsunami Coordination Committees ensure stakeholder coordination and implementation of the end-to-end tsunami warning.

For specific details and algorithms and for actual descriptions of tsunami warning and emergency response operations, including data networks and data collection, methods of evaluation and criteria for action, products issued and methods of communication of alerts, and evacuation, original source references or plans should be consulted. These are the high-level system descriptions or concepts of operation, agency operations manuals, and user's guides of each regional and national system.

Basic references providing a comprehensive summary on tsunami warning centre and emergency response operations considerations are:

- ITIC IOC Manual on Tsunami Warning Centre Standard Operating Procedures (Guidance and Samples), version 2010 (distributed as part of 2013 SOP capacity building).
- ITIC IOC Manual on Tsunami Emergency Response Standard Operating Procedures (Guidance and Samples), version 2010 (distributed as part of 2013 SOP capacity building)

For a description of the Caribbean tsunami warning system, consult the User's guide (for) the Pacific Tsunami Warning Center Enhanced Products for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE-EWS) (version 2.0 October, 2017). This document is available at UNESDOC (https://unesdoc.unesco.org/ark:/48223/pf0000259725.locale=en) and on the website of the ITIC-CAR (http://caribewave.org/).

TRAINING

In order to assist countries in strengthening their warning systems, the IOC has compiled and developed a Training Manual in close partnership with ITIC. It contains references, best practices, decision support tools, and guidance materials summarizing key components, requirements, and operations to enable an effective and timely warning and evacuation against tsunamis.

The Manual includes session plans, lectures (in PowerPoint), exercises, and multimedia materials. Together, they represent part of the IOC's collaborative contribution to national capacity building and training on end-to-end tsunami warning and tsunami standard operating procedures to countries of the Indian Ocean, Pacific, Southeast Asia, and the Caribbean. For more information, please contact Laura Kong, Director of ITIC (laura.kong@noaa.gov), Bernardo Aliaga, Technical Secretary, UNESCO-IOC (b.aliaga@unesco.org), Christa von Hillebrandt-Andrade, Manager of ITIC Caribbean Office (christa.vonh@noaa.gov), or Alison Brome, Programme Officer of CTIC (a.brome@unesco.org). The tables presented below can be used as a guide for preparing the timeline for the exercise.

Tsunami Evacuation Responsibilities Checklist for Government Disaster Response Agencies		
This is a simple checklist to use when doing an evacuation. List the agency(ies) / department(s) responsible for actions and recommended number of minutes (e.g. +10 minutes) after earthquake origin time.	Earthquake Origin Time: 0000	
	Agency(ies) / Department(s):	Time (mins):
Strong and/or long duration earthquake is felt (vary depending distance from source)	_____	+ __
Tsunami message received from tsunami service provider (NTWCs)	_____	+ __
Call in staff	_____	+ __
Activate emergency centers / Notify public safety agencies	_____	+ __
Coordinate sounding of public sirens and alarm notifications	_____	+ __
Initiate media notifications and evacuation announcements	_____	+ __
Initiate evacuation of people away from coast (Tsunami Evacuation Maps)	_____	+ __
Put boats/ships out to sea if wave impact time permits	_____	+ __
Setup road-blocks and evacuation routes	_____	+ __
Guide people through traffic points to shelter	_____	+ __
Initiate recall of disaster response workers	_____	+ __
Open and operate refuge centres	_____	+ __
Prepare to start electrical generators	_____	+ __
If your facility is located in a tsunami evacuation zone: -Prepare to shut off utilities (e.g. electrical, gas, water) -Protect key equipment (e.g. computers) -Remove key documents (e.g. financial, personal information)	_____	+ __
Determine if tsunami has caused coastal damage / injuries and the need to initiate search and rescue operations	_____	+ __
Determine when to declare the “all clear”	_____	+ __
Prepare for post tsunami impact operations	_____	+ __
Do roll call for workers ___ and volunteers	_____	+ __

Table I-1. Table to be used as a guide for timing, actions, authority, communication means and target audiences for a tsunami event.

ANNEX II

MULTI-ANNUAL COMMUNITY TSUNAMI EXERCISE PROGRAMME GUIDELINES FOR THE TSUNAMI AND OTHER COASTAL HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS

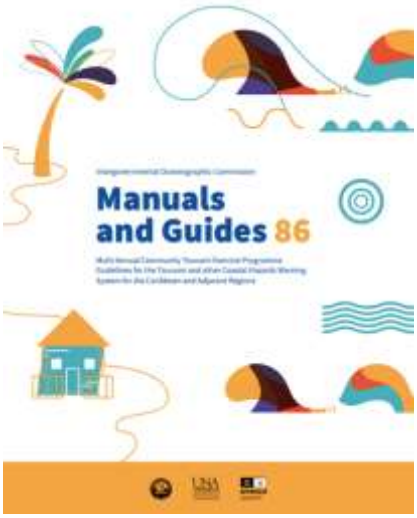


Figure II-1: Cove page of the *Manual and Guides 86: Multi-Annual Community Tsunami Exercise Programme Guidelines for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions.* Available in English, Spanish and French. (https://unesdoc.unesco.org/ark:/48223/pf0000380540)

This guide is designed to provide community leaders with a methodology and tools, which are both easy to grasp and to use in preparing, conducting, and evaluating a multi-annual tsunami exercise programme. It is particularly relevant for bodies that would be directly exposed to the effects of a tsunami (local governments, schools, associations, hotels, businesses). The guide highlights that a progressive and long-term approach is needed, which should include the development of a multi-annual programme of exercises. It is advisable to take a progressive approach to allow the guide's target audience to develop their know-how and capabilities. This can be done by progressing from a relatively simply designed exercise that is straightforward to exercises that are more complex to formulate and monitor, as well as being more logistically demanding.

This progressive approach is also crucial for selecting the type of exercise that would be best suited to achieve the established objectives, while also taking account of a community's existing level of readiness. The first phase could be a drill exercise, where a small-scale evacuation exercise is conducted. It is mainly used to train personnel, test equipment, and see if that organization has the sufficient resources and capabilities. The second phase could be a tabletop exercise. This might be most appropriate if the objective is to raise awareness among a team. For example, within a school setting, a class could discuss tsunami-related dangers and learn about the countermeasures they should take to make their classroom and class safe. The third phase could take into account lessons learned during the tabletop exercise and enable a partial tsunami evacuation exercise to be developed. It could involve the same teaching team, each of whose members could be required to know the evacuation route to a tsunami safe location. In the fourth phase, community leaders could design an exercise in which the objective would be for all or part of a community, like a school, to

evacuate to a predetermined safe location in less than 15 minutes. Other more in-depth guides for exercises, especially at the national level can be found in the reference section.

This guide also aims to encourage a shared culture of exercises between, on the one hand, the municipal authorities tasked with ensuring the safety and health of those living in their area, and on the other hand, community leaders – stakeholders in the social and economic life of the area. Planning should most importantly take into consideration new threats, such as the occurrence of a pandemic, as we see today with the outbreak of COVID-19, and adjust the exercise programme accordingly to promote safety and health in the community. Integration of health conditions in the exercise can help mitigate the spread of infectious diseases and lessen the burden after a tsunami event.

The guide is divided into four sections:

- The first relates to knowledge of the tsunami as a hazard. It provides the information needed to understand the different forms that a tsunami can take, the dangers involved and safety procedures.
- The second focuses on establishing a multi-annual programme of exercises.
- The third deals with the different stages involved in preparing a tsunami evacuation exercise. It concentrates on the different functions that should be in place, the methodological approach to be followed and the practical tools that should be used.
- The fourth section covers the conduction and evaluation of a tsunami evacuation exercise.

ANNEX III

TSUNAMI SOURCE SCENARIOS DESCRIPTION

Gulf of Honduras Earthquake Scenario

The following scenario uses a standard format to define the tsunami sources as described in Figure III-1 below. Each fault segment is defined by four corner points where point A is the lower left corner of the fault plane. Line segment A-D indicates the downdip bottom rectangular source area, whereas line B-C is the top portion of the rupture plane that is nearest to the sea-floor surface. Letters W and L represent the width and length of the plane, respectively. Letter W_{ap} represents apparent width and applies to the dimensions when observing the fault plane in map view.

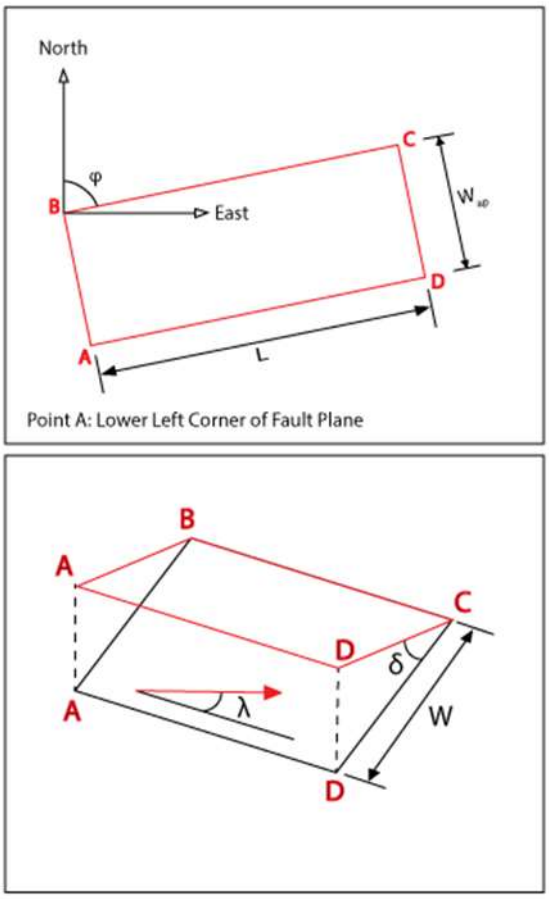


Figure III-1: Schematic of the standard used to describe all fault planes in the CARIBE WAVE Exercise scenarios.

The Gulf of Honduras earthquake scenario consists of a rupture at the northern coast of Honduras with hypocenter at:

- Name of Scenario: CARIBE WAVE 23 Gulf of Honduras Scenario
- EQ Origin Time: 1400 UTC
- Hypocenter Latitude: 16.07ºN
- Hypocenter Longitude: 87.54ºW
- Hypocenter Depth (km): 11 km
- EQ Magnitude (Mw): 7.6
- Slip (m): 3
- Shear modulus .3x10^{11} dyne/cm^2
- Seismic Moment: 0.2970E+28 dyne-cm

Corner Point A	
Latitude	16.63º
Longitude	-87.15º
Depth (km)	20.39
Corner Point B	
Latitude	16.59º
Longitude	-87.10º
Depth (km)	1.60

Corner Point C	
Latitude	15.50º
Longitude	-87.92º
Depth (km)	1.60
Corner Point D	
Latitude	15.54º
Longitude	-87.97º
Depth (km)	20.39

Other Fault Parameters	
Strike (ϕ phi)	216º
Dip (δ delta)	70º
Rake (λ lambda)	-90º
Length (km)	150
Width (W in km)	20
Width in Map View m) [W_{ap} = W * cos(delta)]	6.84 km

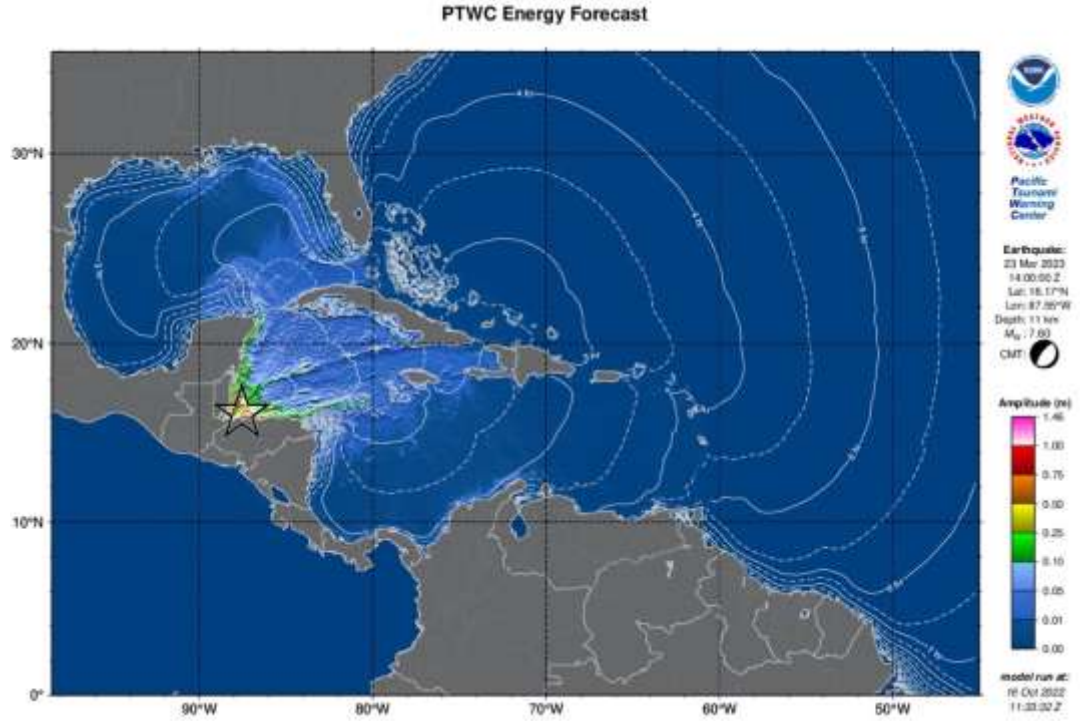


Figure III-2. RIFT maximum amplitude map for the Caribbean and Adjacent Regions for the Gulf of Honduras scenario. During a real event this product will only be made available to officially designated Tsunami Warning Focal Points and National Tsunami Warning Centers.

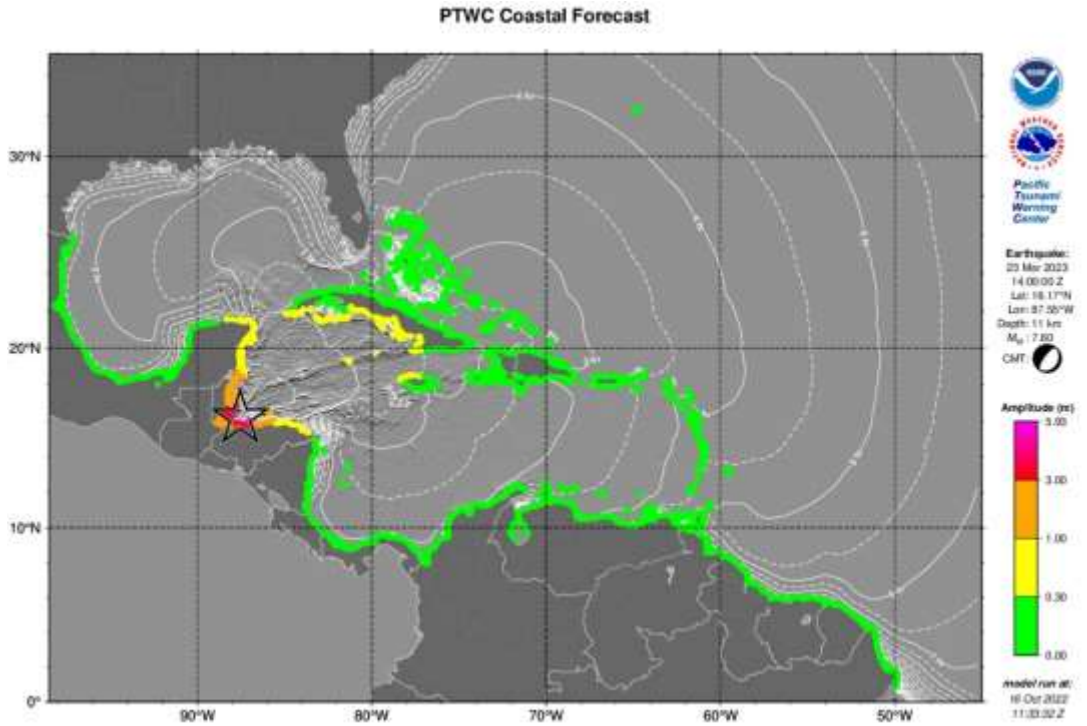


Figure III-3. RIFT coastal tsunami amplitude map for the Caribbean and Adjacent Regions for the Gulf of Honduras scenario. During a real event this product will only be made available to officially designated Tsunami Warning **Focal Points and National Tsunami.**

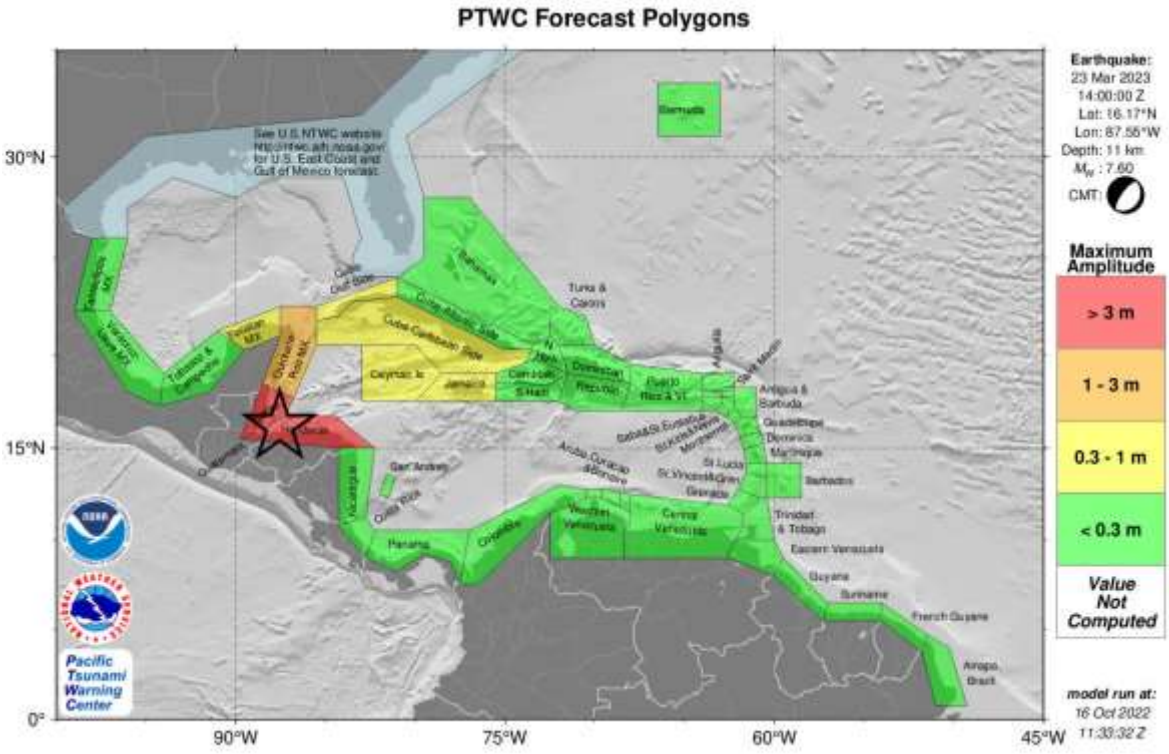


Figure III-4. RIFT forecast polygons for the Caribbean and Adjacent Regions for the Gulf of Honduras scenario. During a real event this product will only be made available to officially designated Tsunami Warning Focal Points and National Tsunami Warning Centers.

Mount Pelée Volcanic Scenario

For the Mount Pelée scenario, data from previous studies and observations from the Volcanological and Seismological Observatory of Martinique was used. Therefore, no earthquake point source or earthquake parameters were required.

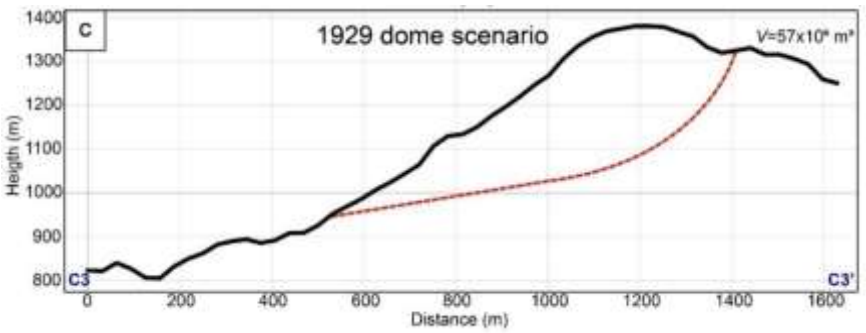


Figure III-5: Scenario Pelée CW23. 1929 dome instability.

ANNEX IV

EARTHQUAKE IMPACT SCENARIOS

When planning for a tsunami it is important to also take into consideration the potential earthquake impact in areas close to the source, as these impacts can affect tsunami response and increase the tsunami impact by hindering evacuation and contributing debris to be carried by the waves. For earthquake impact, the USGS has developed ShakeMap and the Prompt Assessment of Global Earthquakes for Response (PAGER). The main purpose of ShakeMap is to display the levels of ground shaking produced by the earthquake. The ground shaking event levels in the region are studied depending on the magnitude of the earthquake, the distance from the earthquake source, rock and soil behavior in the region, and propagation of the seismic waves through the Earth's crust. Based on the output of ShakeMap, PAGER estimates the population exposed to earthquake shaking, fatalities and economic losses.

Earthquake Event

The input information for ShakeMap include the earthquake magnitude and the four corners of the rectangles from the fault plane and the depths at each of these four vertices. ShakeMap is then used as the shaking input for PAGER loss estimates. For the case of CARIBE WAVE 23, the fault plane is represented by one segment for the Gulf of Honduras scenario. The Gulf of Honduras fault plane is 150 km long and 20 km wide.

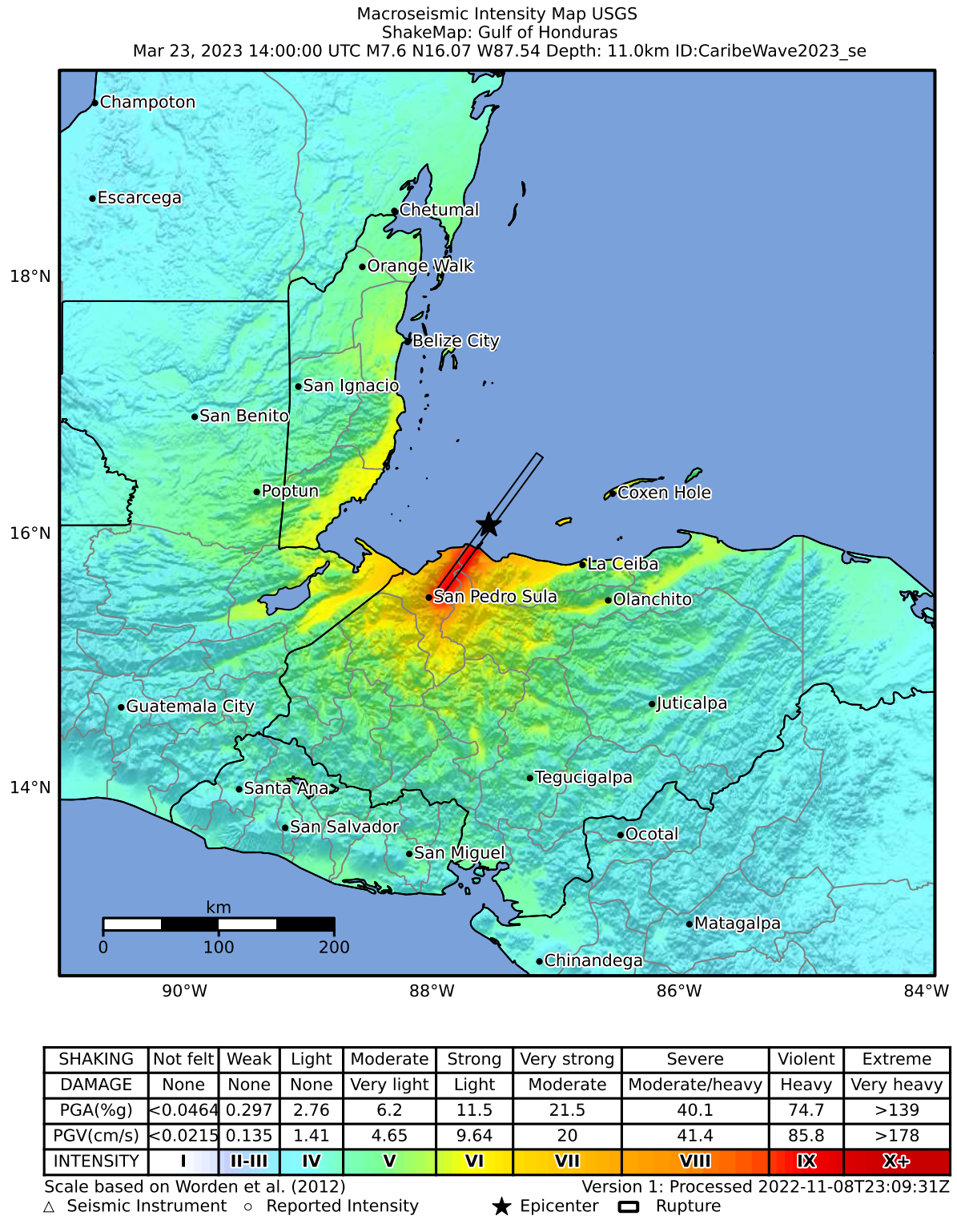
Figures IV-1 and IV-2, show ShakeMap and PAGER outputs for the CARIBE WAVE 23 earthquake Gulf of Honduras scenario.

For the Gulf of Honduras scenario, the ShakeMap shows intensities up to IX on the Mercalli Modified Scale (Figure IV-1). The strongest ground shaking is predicted in the northwest coast of Honduras.

According to PAGER, (Figure IV-2) the CARIBE WAVE 23 simulated earthquake would produce earthquake shaking red alert for the Gulf of Honduras scenario. High casualties and extensive damage are probable and estimated economic losses are 3-30 percent of the gross domestic product (GDP).

Regarding population exposed to earthquake shaking, it is estimated that approximately 1,178 million people for the Gulf of Honduras scenario be exposed to Modified Mercalli intensities from IV up to IX (according to PAGER).

Gulf of Honduras Earthquake Scenario



SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
DAMAGE	None	None	None	Very light	Light	Moderate	Moderate/heavy	Heavy	Very heavy
PGA(%g)	<0.0464	0.297	2.76	6.2	11.5	21.5	40.1	74.7	>139
PGV(cm/s)	<0.0215	0.135	1.41	4.65	9.64	20	41.4	85.8	>178
INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Scale based on Worden et al. (2012) Version 1: Processed 2022-11-08T23:09:31Z

△ Seismic Instrument ○ Reported Intensity ★ Epicenter ▭ Rupture

Figure IV-1. ShakeMap output for the CARIBE WAVE 23 Gulf of Honduras earthquake scenario (USGS).

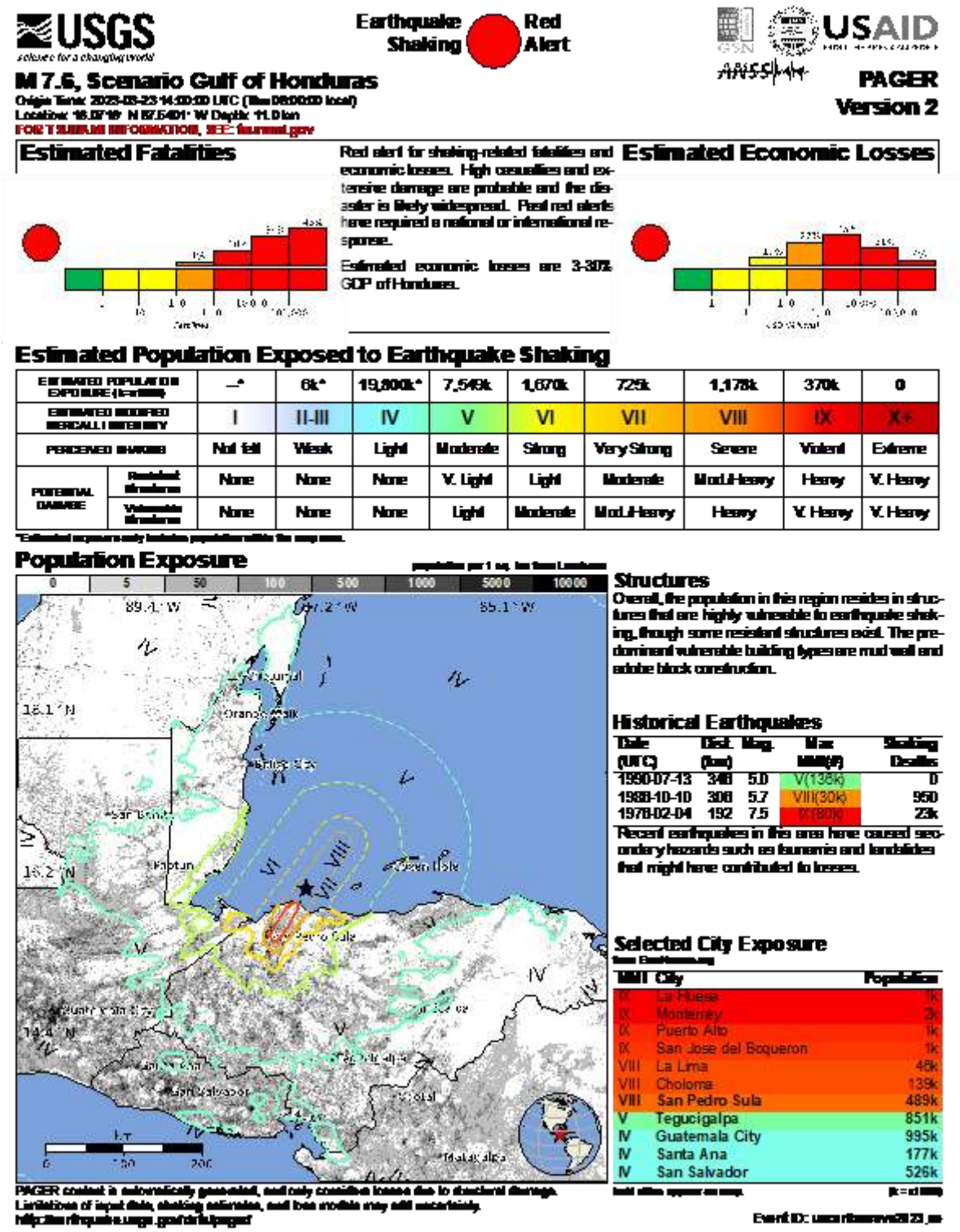


Figure IV-2. PAGER output for CARIBE WAVE 23 Gulf of Honduras earthquake scenario (USGS).

ANNEX V

OSVM VONUT MESSAGES

[Volcano Observatory Notice for Tsunami Threat of the Volcanological and Seismological Observatory of Martinique]

VONUT Message #1

TEST...VONUT NUMBER 1...TEST

...THIS MESSAGE IS FOR THE CARIBEWAVE23 EXERCISE ONLY...

TEST...VOLCANO OBSERVATORY NOTICE FOR TSUNAMI THREAT ...TEST

TEST...VONUT...TEST

(2) TEST... Issued: 20230323/1330Z

(3) TEST... Volcano: Pelée 360120

(4) TEST... Current Aviation Colour Code: red

(5) TEST... Previous Aviation Colour Code : Orange

(6) TEST... Source: Volcanological and Seismological Observatory of Martinique (OVSM)

(7) TEST... Notice Number: 2023-01

(8) TEST... Volcano Location: 1448N6110W

(9) TEST... Area: Martinique Island, WI

(10) TEST... Summit Elevation: 4501 FT (1372 M)

(11) TEST... Volcanic Activity Summary:

Increase in seismic activity, including tremors and several M>4 earthquakes at shallow depth, fissure openings, increase in fumarolic activity, important deformation of ca. 5 cm since the last 4 weeks on the southwestern flank.

(12) TEST... Sea sector of the impact (North, South, East, West)

Most probably the south-western flank of Mount Pelee

(13) TEST... Name of the sea (Caribbean, Atlantic, Dominique Channel)

Most probably the Caribbean Sea

(14) TEST... Closest tide gauges

prec: https://www.ioc-sealevelmonitoring.org/station.php?code=prec

ftfr: https://www.ioc-sealevelmonitoring.org/station.php?code=ftfr

lero: https://www.ioc-sealevelmonitoring.org/station.php?code=lero

rose: https://www.ioc-sealevelmonitoring.org/station.php?code=rose

stlu: https://www.ioc-sealevelmonitoring.org/station.php?code=stlu

ptmd: https://www.ioc-sealevelmonitoring.org/station.php?code=ptmd

mrlg: https://www.ioc-sealevelmonitoring.org/station.php?code=mrlg

(15) TEST... Remarks:

The possibility of an eruption and a collapse from the south-western flank is high within the next hours or days.

(16) TEST... Contacts :

Ms : Jordane CORBEAU

tel: suppressed

fax: +596 596 55 80 80

Email: directionovsm@services.cnrs.fr

(17) TEST... Next Notice:

A new VONUT will be issued if conditions change significantly. Volcanic information can be found in:

http://www.ipgp.fr/en

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

VONUT Message #2

TEST...VONUT NUMBER 1...TEST

...THIS MESSAGE IS FOR THE CARIBEWAVE23 EXERCISE ONLY...

TEST...VOLCANO OBSERVATORY NOTICE FOR TSUNAMI THREAT ...TEST

TEST...VONUT...TEST

(1) TEST... VOLCANO OBSERVATORY NOTICE FOR TSUNAMI THREAT - VONUT

(2) TEST... Issued: 20230323/1355Z

(3) TEST... Volcano: Pelée 360120

(4) TEST... Current Aviation Colour Code: Red

(5) TEST... Previous Aviation Colour Code : Red

(6) TEST... Source: Volcanological and Seismological Observatory of Martinique (OVSM)

(7) TEST... Notice Number: 2023-02

(8) TEST... Volcano Location: 1448N6110W

(9) TEST... Area: Martinique Island, WI

(10) TEST... Summit Elevation: 4501 FT (1372 M)

(11) TEST... Volcanic Activity Summary:

A new eruption began at 1350Z.

Huge dome collapse confirmed by visual information at SW Pelee volcano at 1350Z and reached the sea at 1352Z.

(12) TEST... Sea sector of the impact (North, South, East, West)

South-west of the volcano

(13) TEST... Name of the sea (Caribbean, Atlantic, Dominique Channel)

Caribbean Sea

(14) TEST... Closest tide gauges

prec: https://www.ioc-sealevelmonitoring.org/station.php?code=prec

ftfr: https://www.ioc-sealevelmonitoring.org/station.php?code=ftfr

lero: https://www.ioc-sealevelmonitoring.org/station.php?code=lero

rose: https://www.ioc-sealevelmonitoring.org/station.php?code=rose

stlu: https://www.ioc-sealevelmonitoring.org/station.php?code=stlu

ptmd: https://www.ioc-sealevelmonitoring.org/station.php?code=ptmd

mrlg: https://www.ioc-sealevelmonitoring.org/station.php?code=mrlg

(15) TEST... Remarks:

Part of our network is unavailable. Prêcheur tide gauge might be damaged.

(16) TEST... Contacts :

Ms : Jordane CORBEAU

tel: suppressed

fax: +596 596 55 80 80

Email: directionovsm@services.cnrs.fr

(17) TEST... Next Notice:

A new VONUT will be issued if conditions change significantly. Volcanic information can be found in:

http://www.ipgp.fr/en

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

ANNEX VI

PTWC DUMMY (START OF EXERCISE) MESSAGES

PTWC

WECA41 PHEB 231400

TSUCAX

TEST...INITIAL DUMMY START OF EXERCISE MESSAGE...TEST

NWS PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS

ISSUED AT 1400Z 23 MAR 2023

...TEST... CARIBE WAVE 23 TSUNAMI EXERCISE DUMMY MESSAGE.

REFER TO THE EXERCISE HANDBOOK. THIS IS AN EXERCISE ONLY. TEST...

THIS MESSAGE IS BEING USED TO START THE CARIBE WAVE 23

TSUNAMI EXERCISE AND TEST COMMUNICATIONS WITH UNESCO IOC CARIBE

EWS NTWCS AND TWFPS. THIS WILL BE THE ONLY EXERCISE MESSAGE

BROADCAST FROM THE PACIFIC TSUNAMI WARNING CENTER EXCLUDING

SPECIAL EMAIL MESSAGES DISCUSSED IN THE HANDBOOK. THE HANDBOOK

IS AVAILABLE AT THE WEB SITE CARIBEWAVE.ORG. THE EXERCISE

PURPOSE IS TO EXERCISE AND EVALUATE THE CARIBE EWS TSUNAMI

WARNING SYSTEM.

$$

ANNEX VII

PTWC EXERCISE MESSAGES

Gulf of Honduras Scenario

The following messages created for the CARIBE WAVE 23 tsunami exercise are representative of the official standard products issued by the PTWC for a magnitude 7.6 earthquake and subsequent tsunami originating in the Gulf of Honduras. During a real event, the PTWC would also post the text products on tsunami.gov. The alerts would persist longer during a real event than is depicted in this exercise.

PTWC Message #1

```
TEST...TSUNAMI MESSAGE NUMBER 1...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1407 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR TEST PURPOSES ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...


**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

 THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION
 ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL
 HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS
 AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT
 SYSTEM.

 THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE
 ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****


TEST... PRELIMINARY EARTHQUAKE PARAMETERS ...TEST
------------------------------------------------

  * MAGNITUDE      7.4
  * ORIGIN TIME    1400 UTC MAR 23 2023
  * COORDINATES    16.1 NORTH  87.5 WEST
  * DEPTH          11 KM / 7 MILES
  * LOCATION       NORTH OF HONDURAS


TEST... EVALUATION ...TEST
--------------------------

  * THIS IS A TEST MESSAGE. AN EARTHQUAKE WITH A PRELIMINARY
    MAGNITUDE OF 7.4 OCCURRED NORTH OF HONDURAS AT 1400 UTC ON
    THURSDAY MARCH 23 2023.
```

* THIS IS A TEST MESSAGE. BASED ON THE PRELIMINARY EARTHQUAKE PARAMETERS... HAZARDOUS TSUNAMI WAVES ARE POSSIBLE FOR COASTS LOCATED WITHIN 300 KM OF THE EARTHQUAKE EPICENTER.

TEST... TSUNAMI THREAT FORECAST ...TEST

* THIS IS A TEST MESSAGE. HAZARDOUS TSUNAMI WAVES FROM THIS EARTHQUAKE ARE POSSIBLE WITHIN 300 KM OF THE EPICENTER ALONG THE COASTS OF

  HONDURAS... BELIZE AND GUATEMALA

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

* THIS IS A TEST MESSAGE. PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

* THIS IS A TEST MESSAGE. ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES WITHIN THE REGION IDENTIFIED WITH A POTENTIAL TSUNAMI THREAT. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(UTC)
PUERTO CORTES	HONDURAS	15.9N 88.0W	1415 03/23
TRUJILLO	HONDURAS	15.9N 86.0W	1528 03/23
BELIZE CITY	BELIZE	17.5N 88.2W	1545 03/23
PUERTO BARRIOS	GUATEMALA	15.7N 88.6W	1608 03/23

TEST... POTENTIAL IMPACTS ...TEST

* THIS IS A TEST MESSAGE. A TSUNAMI IS A SERIES OF WAVES. THE TIME BETWEEN WAVE CRESTS CAN VARY FROM 5 MINUTES TO AN HOUR. THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE INITIAL WAVE.

* THIS IS A TEST MESSAGE. IMPACTS CAN VARY SIGNIFICANTLY FROM ONE SECTION OF COAST TO THE NEXT DUE TO LOCAL BATHYMETRY AND THE SHAPE AND ELEVATION OF THE SHORELINE.

* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST
---

* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

$$

PTWC Message #2

TEST...TSUNAMI MESSAGE NUMBER 2...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1425 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR TEST PURPOSES ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT SYSTEM.

THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

TEST... PRELIMINARY EARTHQUAKE PARAMETERS ...TEST
---

* MAGNITUDE 7.4
* ORIGIN TIME 1400 UTC MAR 23 2023
* COORDINATES 16.1 NORTH 87.5 WEST
* DEPTH 11 KM / 7 MILES
* LOCATION NORTH OF HONDURAS

TEST... EVALUATION ...TEST
---

* THIS IS A TEST MESSAGE. AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.4 OCCURRED NORTH OF HONDURAS AT 1400 UTC ON THURSDAY MARCH 23 2023.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES HAVE BEEN OBSERVED.

* THIS IS A TEST MESSAGE. BASED ON ALL AVAILABLE DATA... HAZARDOUS TSUNAMI WAVES ARE FORECAST FOR SOME COASTS.

TEST... TSUNAMI THREAT FORECAST...UPDATED ...TEST
---

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING MORE THAN 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  BELIZE... GUATEMALA... AND HONDURAS.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  MEXICO.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  CUBA... CAYMAN ISLANDS... AND JAMAICA.

* THIS IS A TEST MESSAGE. ACTUAL AMPLITUDES AT THE COAST MAY VARY FROM FORECAST AMPLITUDES DUE TO UNCERTAINTIES IN THE FORECAST AND LOCAL FEATURES. IN PARTICULAR MAXIMUM TSUNAMI AMPLITUDES ON ATOLLS OR SMALL ISLANDS AND AT LOCATIONS WITH FRINGING OR BARRIER REEFS WILL LIKELY BE MUCH SMALLER THAN THE FORECAST INDICATES.

* THIS IS A TEST MESSAGE. FOR ALL OTHER AREAS COVERED BY THIS MESSAGE... THERE IS NO TSUNAMI THREAT ALTHOUGH SMALL SEA LEVEL CHANGES MAY OCCUR.

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

* THIS IS A TEST MESSAGE. PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

* THIS IS A TEST MESSAGE. ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES WITHIN THREATENED REGIONS ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(UTC)
PUERTO CORTES	HONDURAS	15.9N 88.0W	1415 03/23
COZUMEL	MEXICO	20.5N 87.0W	1457 03/23
GRAND CAYMAN	CAYMAN ISLANDS	19.3N 81.3W	1508 03/23
CAYMAN BRAC	CAYMAN ISLANDS	19.7N 79.9W	1513 03/23
TRUJILLO	HONDURAS	15.9N 86.0W	1528 03/23
CIENFUEGOS	CUBA	22.0N 80.5W	1530 03/23
SANTIAGO D CUBA	CUBA	19.9N 75.8W	1540 03/23
BELIZE CITY	BELIZE	17.5N 88.2W	1545 03/23
LA HABANA	CUBA	23.2N 82.4W	1546 03/23

MONTEGO BAY	JAMAICA	18.5N	77.9W	1549 03/23
PUERTO BARRIOS	GUATEMALA	15.7N	88.6W	1608 03/23
KINGSTON	JAMAICA	17.9N	76.9W	1629 03/23
SANTA CRZ D SUR	CUBA	20.7N	78.0W	1822 03/23
NUEVA GERONA	CUBA	21.9N	82.8W	1900 03/23
PROGRESO	MEXICO	21.3N	89.7W	1907 03/23

TEST... POTENTIAL IMPACTS ...TEST

* THIS IS A TEST MESSAGE. A TSUNAMI IS A SERIES OF WAVES. THE TIME BETWEEN WAVE CRESTS CAN VARY FROM 5 MINUTES TO AN HOUR. THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE INITIAL WAVE.

* THIS IS A TEST MESSAGE. IMPACTS CAN VARY SIGNIFICANTLY FROM ONE SECTION OF COAST TO THE NEXT DUE TO LOCAL BATHYMETRY AND THE SHAPE AND ELEVATION OF THE SHORELINE.

* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... TSUNAMI OBSERVATIONS ...TEST

* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

	GAUGE COORDINATES		TIME OF MEASURE	MAXIMUM TSUNAMI	WAVE PERIOD
GAUGE LOCATION	LAT	LON	(UTC)	HEIGHT	(MIN)
PUERTO CORTES HN	15.8N	88.0W	1425	2.94M/ 9.7FT	22
ROATAN ISLAND HN	16.3N	86.5W	1419	1.70M/ 5.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST

* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

```
  * THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF
    COAST... US EAST COAST... AND THE MARITIME PROVINCES OF
    CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER
    MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.


THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST
MESSAGE.

$$
```

PTWC Message #3

```
TEST...TSUNAMI MESSAGE NUMBER 3...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1445 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR TEST PURPOSES ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...


**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

 THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION
 ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL
 HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS
 AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT
 SYSTEM.

 THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE
 ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****


TEST... PRELIMINARY EARTHQUAKE PARAMETERS ...TEST
-------------------------------------------------

  * MAGNITUDE      7.6
  * ORIGIN TIME    1400 UTC MAR 23 2023
  * COORDINATES    16.1 NORTH  87.5 WEST
  * DEPTH          11 KM / 7 MILES
  * LOCATION       NORTH OF HONDURAS


TEST... EVALUATION ...TEST
--------------------------

  * THIS IS A TEST MESSAGE. AN EARTHQUAKE WITH A PRELIMINARY
    MAGNITUDE OF 7.6 OCCURRED NORTH OF HONDURAS AT 1400 UTC ON
    THURSDAY MARCH 23 2023.

  * THIS IS A TEST MESSAGE. TSUNAMI WAVES HAVE BEEN OBSERVED.

  * THIS IS A TEST MESSAGE. BASED ON ALL AVAILABLE DATA...
    HAZARDOUS TSUNAMI WAVES ARE FORECAST FOR SOME COASTS.


TEST... TSUNAMI THREAT FORECAST ...TEST
---------------------------------------

  * THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING MORE THAN 3
    METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS
    OF

      BELIZE... GUATEMALA... AND HONDURAS.
```

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  MEXICO.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  CUBA... CAYMAN ISLANDS... AND JAMAICA.

* THIS IS A TEST MESSAGE. ACTUAL AMPLITUDES AT THE COAST MAY VARY FROM FORECAST AMPLITUDES DUE TO UNCERTAINTIES IN THE FORECAST AND LOCAL FEATURES. IN PARTICULAR MAXIMUM TSUNAMI AMPLITUDES ON ATOLLS OR SMALL ISLANDS AND AT LOCATIONS WITH FRINGING OR BARRIER REEFS WILL LIKELY BE MUCH SMALLER THAN THE FORECAST INDICATES.

* THIS IS A TEST MESSAGE. FOR ALL OTHER AREAS COVERED BY THIS MESSAGE... THERE IS NO TSUNAMI THREAT ALTHOUGH SMALL SEA LEVEL CHANGES MAY OCCUR.

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

* THIS IS A TEST MESSAGE. PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

* THIS IS A TEST MESSAGE. ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES WITHIN THREATENED REGIONS ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(UTC)
PUERTO CORTES	HONDURAS	15.9N 88.0W	1415 03/23
COZUMEL	MEXICO	20.5N 87.0W	1457 03/23
GRAND CAYMAN	CAYMAN ISLANDS	19.3N 81.3W	1508 03/23
CAYMAN BRAC	CAYMAN ISLANDS	19.7N 79.9W	1513 03/23
TRUJILLO	HONDURAS	15.9N 86.0W	1528 03/23
CIENFUEGOS	CUBA	22.0N 80.5W	1530 03/23
SANTIAGO D CUBA	CUBA	19.9N 75.8W	1540 03/23
BELIZE CITY	BELIZE	17.5N 88.2W	1545 03/23
LA HABANA	CUBA	23.2N 82.4W	1546 03/23

MONTEGO BAY	JAMAICA	18.5N	77.9W	1549 03/23
PUERTO BARRIOS	GUATEMALA	15.7N	88.6W	1608 03/23
KINGSTON	JAMAICA	17.9N	76.9W	1629 03/23
SANTA CRZ D SUR	CUBA	20.7N	78.0W	1822 03/23
NUEVA GERONA	CUBA	21.9N	82.8W	1900 03/23
PROGRESO	MEXICO	21.3N	89.7W	1907 03/23

TEST... POTENTIAL IMPACTS ...TEST

* THIS IS A TEST MESSAGE. A TSUNAMI IS A SERIES OF WAVES. THE TIME BETWEEN WAVE CRESTS CAN VARY FROM 5 MINUTES TO AN HOUR. THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE INITIAL WAVE.

* THIS IS A TEST MESSAGE. IMPACTS CAN VARY SIGNIFICANTLY FROM ONE SECTION OF COAST TO THE NEXT DUE TO LOCAL BATHYMETRY AND THE SHAPE AND ELEVATION OF THE SHORELINE.

* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... TSUNAMI OBSERVATIONS ...TEST

* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

	GAUGE COORDINATES		TIME OF MEASURE	MAXIMUM TSUNAMI	WAVE PERIOD
GAUGE LOCATION	LAT	LON	(UTC)	HEIGHT	(MIN)
CARRIE BOW CAY BZ	16.8N	88.1W	1427	2.84M/ 9.3FT	24
PUERTO CORTES HN	15.8N	88.0W	1425	2.94M/ 9.7FT	22
ROATAN ISLAND HN	16.3N	86.5W	1419	1.70M/ 5.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST

* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

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PTWC Message #4

TEST...TSUNAMI MESSAGE NUMBER 4...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1530 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR TEST PURPOSES ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT SYSTEM.

THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

TEST... PRELIMINARY EARTHQUAKE PARAMETERS ...TEST
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* MAGNITUDE 7.6
* ORIGIN TIME 1400 UTC MAR 23 2023
* COORDINATES 16.1 NORTH 87.5 WEST
* DEPTH 11 KM / 7 MILES
* LOCATION NORTH OF HONDURAS

TEST... EVALUATION ...TEST
---

* THIS IS A TEST MESSAGE. AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.6 OCCURRED NORTH OF HONDURAS AT 1400 UTC ON THURSDAY MARCH 23 2023.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES HAVE BEEN OBSERVED.

* THIS IS A TEST MESSAGE. BASED ON ALL AVAILABLE DATA... HAZARDOUS TSUNAMI WAVES ARE FORECAST FOR SOME COASTS.

TEST... TSUNAMI THREAT FORECAST ...TEST
---

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING MORE THAN 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  BELIZE... GUATEMALA... AND HONDURAS.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  MEXICO.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  CUBA... CAYMAN ISLANDS... AND JAMAICA.

* THIS IS A TEST MESSAGE. ACTUAL AMPLITUDES AT THE COAST MAY VARY FROM FORECAST AMPLITUDES DUE TO UNCERTAINTIES IN THE FORECAST AND LOCAL FEATURES. IN PARTICULAR MAXIMUM TSUNAMI AMPLITUDES ON ATOLLS OR SMALL ISLANDS AND AT LOCATIONS WITH FRINGING OR BARRIER REEFS WILL LIKELY BE MUCH SMALLER THAN THE FORECAST INDICATES.

* THIS IS A TEST MESSAGE. FOR ALL OTHER AREAS COVERED BY THIS MESSAGE... THERE IS NO TSUNAMI THREAT ALTHOUGH SMALL SEA LEVEL CHANGES MAY OCCUR.

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

* THIS IS A TEST MESSAGE. PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

* THIS IS A TEST MESSAGE. ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES WITHIN THREATENED REGIONS ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(UTC)
COZUMEL	MEXICO	20.5N 87.0W	1457 03/23
GRAND CAYMAN	CAYMAN ISLANDS	19.3N 81.3W	1508 03/23
CAYMAN BRAC	CAYMAN ISLANDS	19.7N 79.9W	1513 03/23
TRUJILLO	HONDURAS	15.9N 86.0W	1528 03/23
CIENFUEGOS	CUBA	22.0N 80.5W	1530 03/23
SANTIAGO D CUBA	CUBA	19.9N 75.8W	1540 03/23
BELIZE CITY	BELIZE	17.5N 88.2W	1545 03/23
LA HABANA	CUBA	23.2N 82.4W	1546 03/23
MONTEGO BAY	JAMAICA	18.5N 77.9W	1549 03/23

PUERTO BARRIOS	GUATEMALA	15.7N	88.6W	1608 03/23
KINGSTON	JAMAICA	17.9N	76.9W	1629 03/23
SANTA CRZ D SUR	CUBA	20.7N	78.0W	1822 03/23
NUEVA GERONA	CUBA	21.9N	82.8W	1900 03/23
PROGRESO	MEXICO	21.3N	89.7W	1907 03/23

TEST... POTENTIAL IMPACTS ...TEST

* THIS IS A TEST MESSAGE. A TSUNAMI IS A SERIES OF WAVES. THE TIME BETWEEN WAVE CRESTS CAN VARY FROM 5 MINUTES TO AN HOUR. THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE INITIAL WAVE.

* THIS IS A TEST MESSAGE. IMPACTS CAN VARY SIGNIFICANTLY FROM ONE SECTION OF COAST TO THE NEXT DUE TO LOCAL BATHYMETRY AND THE SHAPE AND ELEVATION OF THE SHORELINE.

* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... TSUNAMI OBSERVATIONS ...TEST

* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

	GAUGE COORDINATES		TIME OF MEASURE	MAXIMUM TSUNAMI	WAVE PERIOD
GAUGE LOCATION	LAT	LON	(UTC)	HEIGHT	(MIN)
LITTLE CAYMAN KY	19.7N	80.1W	1530	0.61M/ 2.0FT	26
GUN BAY KY	19.3N	81.1W	1525	0.56M/ 1.8FT	26
GEORGE TOWN KY	19.3N	81.4W	1516	0.60M/ 2.0FT	20
GEORGE TOWN KY	19.3N	81.4W	1518	0.60M/ 2.0FT	22
PUERTO MORELOS MX	20.9N	86.9W	1514	0.61M/ 2.0FT	22
PUERTO MORELOS MX	20.9N	86.9W	1511	0.61M/ 2.0FT	16
PUERTO MORELOS MX	20.9N	86.9W	1512	0.61M/ 2.0FT	24
SIAN KAAN MX	19.3N	87.4W	1503	0.77M/ 2.5FT	14
CEIBA CABOTAGE HN	15.8N	86.8W	1457	2.16M/ 7.1FT	20
CARRIE BOW CAY BZ	16.8N	88.1W	1427	2.84M/ 9.3FT	24
PUERTO CORTES HN	15.8N	88.0W	1425	2.94M/ 9.7FT	22
ROATAN ISLAND HN	16.3N	86.5W	1419	1.70M/ 5.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST

* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN

ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

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PTWC Message #5

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TEST...TSUNAMI MESSAGE NUMBER 5...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1630 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR TEST PURPOSES ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...


**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

 THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION
 ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL
 HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS
 AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT
 SYSTEM.

 THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE
 ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****


TEST... PRELIMINARY EARTHQUAKE PARAMETERS ...TEST
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  * MAGNITUDE      7.6
  * ORIGIN TIME    1400 UTC MAR 23 2023
  * COORDINATES    16.1 NORTH  87.5 WEST
  * DEPTH          11 KM / 7 MILES
  * LOCATION       NORTH OF HONDURAS


TEST... EVALUATION ...TEST
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  * THIS IS A TEST MESSAGE. AN EARTHQUAKE WITH A PRELIMINARY
    MAGNITUDE OF 7.6 OCCURRED NORTH OF HONDURAS AT 1400 UTC ON
    THURSDAY MARCH 23 2023.

  * THIS IS A TEST MESSAGE. TSUNAMI WAVES HAVE BEEN OBSERVED.

  * THIS IS A TEST MESSAGE. BASED ON ALL AVAILABLE DATA...
    HAZARDOUS TSUNAMI WAVES ARE FORECAST FOR SOME COASTS.


TEST... TSUNAMI THREAT FORECAST ...TEST
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  * THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING MORE THAN 3
    METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS
    OF

      BELIZE... GUATEMALA... AND HONDURAS.
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* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  MEXICO.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  CUBA... CAYMAN ISLANDS... AND JAMAICA.

* THIS IS A TEST MESSAGE. ACTUAL AMPLITUDES AT THE COAST MAY VARY FROM FORECAST AMPLITUDES DUE TO UNCERTAINTIES IN THE FORECAST AND LOCAL FEATURES. IN PARTICULAR MAXIMUM TSUNAMI AMPLITUDES ON ATOLLS OR SMALL ISLANDS AND AT LOCATIONS WITH FRINGING OR BARRIER REEFS WILL LIKELY BE MUCH SMALLER THAN THE FORECAST INDICATES.

* THIS IS A TEST MESSAGE. FOR ALL OTHER AREAS COVERED BY THIS MESSAGE... THERE IS NO TSUNAMI THREAT ALTHOUGH SMALL SEA LEVEL CHANGES MAY OCCUR.

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

* THIS IS A TEST MESSAGE. PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

* THIS IS A TEST MESSAGE. ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES WITHIN THREATENED REGIONS ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(UTC)
CIENFUEGOS	CUBA	22.0N 80.5W	1530 03/23
SANTIAGO D CUBA	CUBA	19.9N 75.8W	1540 03/23
BELIZE CITY	BELIZE	17.5N 88.2W	1545 03/23
LA HABANA	CUBA	23.2N 82.4W	1546 03/23
MONTEGO BAY	JAMAICA	18.5N 77.9W	1549 03/23
PUERTO BARRIOS	GUATEMALA	15.7N 88.6W	1608 03/23
KINGSTON	JAMAICA	17.9N 76.9W	1629 03/23
SANTA CRZ D SUR	CUBA	20.7N 78.0W	1822 03/23
NUEVA GERONA	CUBA	21.9N 82.8W	1900 03/23

PROGRESO MEXICO 21.3N 89.7W 1907 03/23

TEST... POTENTIAL IMPACTS ...TEST

* THIS IS A TEST MESSAGE. A TSUNAMI IS A SERIES OF WAVES. THE TIME BETWEEN WAVE CRESTS CAN VARY FROM 5 MINUTES TO AN HOUR. THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE INITIAL WAVE.

* THIS IS A TEST MESSAGE. IMPACTS CAN VARY SIGNIFICANTLY FROM ONE SECTION OF COAST TO THE NEXT DUE TO LOCAL BATHYMETRY AND THE SHAPE AND ELEVATION OF THE SHORELINE.

* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... TSUNAMI OBSERVATIONS ...TEST

* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
PUERTO BARRIOS GT	15.7N	88.6W	1620	0.85M/ 2.8FT	24
PORT OF BELIZE BZ	17.5N	88.2W	1557	0.93M/ 3.0FT	26
ISLA MUJERES MX	21.3N	86.7W	1546	0.55M/ 1.8FT	18
CAYMAN BRAC KY	19.7N	79.8W	1543	0.46M/ 1.5FT	26
LITTLE CAYMAN KY	19.7N	80.1W	1530	0.61M/ 2.0FT	26
GUN BAY KY	19.3N	81.1W	1525	0.56M/ 1.8FT	26
GEORGE TOWN KY	19.3N	81.4W	1516	0.60M/ 2.0FT	20
GEORGE TOWN KY	19.3N	81.4W	1518	0.60M/ 2.0FT	22
PUERTO MORELOS MX	20.9N	86.9W	1514	0.61M/ 2.0FT	22
PUERTO MORELOS MX	20.9N	86.9W	1511	0.61M/ 2.0FT	16
PUERTO MORELOS MX	20.9N	86.9W	1512	0.61M/ 2.0FT	24
SIAN KAAN MX	19.3N	87.4W	1503	0.77M/ 2.5FT	14
CEIBA CABOTAGE HN	15.8N	86.8W	1457	2.16M/ 7.1FT	20
CARRIE BOW CAY BZ	16.8N	88.1W	1427	2.84M/ 9.3FT	24
PUERTO CORTES HN	15.8N	88.0W	1425	2.94M/ 9.7FT	22
ROATAN ISLAND HN	16.3N	86.5W	1419	1.70M/ 5.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST

* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN

ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

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PTWC Message #6

TEST...TSUNAMI MESSAGE NUMBER 6...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1730 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR TEST PURPOSES ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT SYSTEM.

THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

TEST... PRELIMINARY EARTHQUAKE PARAMETERS ...TEST
---

* MAGNITUDE 7.6
* ORIGIN TIME 1400 UTC MAR 23 2023
* COORDINATES 16.1 NORTH 87.5 WEST
* DEPTH 11 KM / 7 MILES
* LOCATION NORTH OF HONDURAS

TEST... EVALUATION ...TEST
---

* THIS IS A TEST MESSAGE. AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.6 OCCURRED NORTH OF HONDURAS AT 1400 UTC ON THURSDAY MARCH 23 2023.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES HAVE BEEN OBSERVED.

* THIS IS A TEST MESSAGE. BASED ON ALL AVAILABLE DATA... HAZARDOUS TSUNAMI WAVES ARE FORECAST FOR SOME COASTS.

TEST... TSUNAMI THREAT FORECAST ...TEST
---

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING MORE THAN 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  BELIZE... GUATEMALA... AND HONDURAS.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  MEXICO.

* THIS IS A TEST MESSAGE. TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  CUBA... CAYMAN ISLANDS... AND JAMAICA.

* THIS IS A TEST MESSAGE. ACTUAL AMPLITUDES AT THE COAST MAY VARY FROM FORECAST AMPLITUDES DUE TO UNCERTAINTIES IN THE FORECAST AND LOCAL FEATURES. IN PARTICULAR MAXIMUM TSUNAMI AMPLITUDES ON ATOLLS OR SMALL ISLANDS AND AT LOCATIONS WITH FRINGING OR BARRIER REEFS WILL LIKELY BE MUCH SMALLER THAN THE FORECAST INDICATES.

* THIS IS A TEST MESSAGE. FOR ALL OTHER AREAS COVERED BY THIS MESSAGE... THERE IS NO TSUNAMI THREAT ALTHOUGH SMALL SEA LEVEL CHANGES MAY OCCUR.

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

* THIS IS A TEST MESSAGE. PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

* THIS IS A TEST MESSAGE. ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES WITHIN THREATENED REGIONS ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(UTC)
SANTA CRZ D SUR	CUBA	20.7N 78.0W	1822 03/23
NUEVA GERONA	CUBA	21.9N 82.8W	1900 03/23
PROGRESO	MEXICO	21.3N 89.7W	1907 03/23

TEST... POTENTIAL IMPACTS ...TEST

* THIS IS A TEST MESSAGE. A TSUNAMI IS A SERIES OF WAVES. THE

TIME BETWEEN WAVE CRESTS CAN VARY FROM 5 MINUTES TO AN HOUR. THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE INITIAL WAVE.

* THIS IS A TEST MESSAGE. IMPACTS CAN VARY SIGNIFICANTLY FROM ONE SECTION OF COAST TO THE NEXT DUE TO LOCAL BATHYMETRY AND THE SHAPE AND ELEVATION OF THE SHORELINE.

* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... TSUNAMI OBSERVATIONS ...TEST

* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

	GAUGE COORDINATES		TIME OF MEASURE	MAXIMUM TSUNAMI	WAVE PERIOD
GAUGE LOCATION	LAT	LON	(UTC)	HEIGHT	(MIN)
GUAYANILLA PR	18.0N	66.8W	1723	0.01M/ 0.0FT	14
LIMON CR	10.0N	83.0W	1727	0.04M/ 0.1FT	26
MONA ISLAND PR	18.1N	67.9W	1716	0.02M/ 0.1FT	28
PILOTS STATION LA	28.9N	89.4W	1712	0.08M/ 0.3FT	22
PORT AU PRINCE HT	18.5N	72.4W	1710	0.08M/ 0.3FT	28
SANTA MARTA CO	11.2N	74.2W	1712	0.08M/ 0.3FT	22
BARAHONA DO	18.2N	71.1W	1707	0.02M/ 0.1FT	28
PUERTO PLATA DO	19.8N	70.7W	1642	0.01M/ 0.0FT	18
PUERTO BARRIOS GT	15.7N	88.6W	1620	0.85M/ 2.8FT	24
PORT OF BELIZE BZ	17.5N	88.2W	1557	0.93M/ 3.0FT	26
ISLA MUJERES MX	21.3N	86.7W	1546	0.55M/ 1.8FT	18
CAYMAN BRAC KY	19.7N	79.8W	1543	0.46M/ 1.5FT	26
LITTLE CAYMAN KY	19.7N	80.1W	1530	0.61M/ 2.0FT	26
GUN BAY KY	19.3N	81.1W	1525	0.56M/ 1.8FT	26
GEORGE TOWN KY	19.3N	81.4W	1516	0.60M/ 2.0FT	20
GEORGE TOWN KY	19.3N	81.4W	1518	0.60M/ 2.0FT	22
PUERTO MORELOS MX	20.9N	86.9W	1514	0.61M/ 2.0FT	22
PUERTO MORELOS MX	20.9N	86.9W	1511	0.61M/ 2.0FT	16
PUERTO MORELOS MX	20.9N	86.9W	1512	0.61M/ 2.0FT	24
SIAN KAAN MX	19.3N	87.4W	1503	0.77M/ 2.5FT	14
CEIBA CABOTAGE HN	15.8N	86.8W	1457	2.16M/ 7.1FT	20
CARRIE BOW CAY BZ	16.8N	88.1W	1427	2.84M/ 9.3FT	24
PUERTO CORTES HN	15.8N	88.0W	1425	2.94M/ 9.7FT	22
ROATAN ISLAND HN	16.3N	86.5W	1419	1.70M/ 5.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST

* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

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PTWC Message #7

TEST...TSUNAMI MESSAGE NUMBER 7...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1830 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR TEST PURPOSES ONLY...
...TEST FINAL TSUNAMI THREAT MESSAGE TEST...

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT SYSTEM.

THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

TEST... PRELIMINARY EARTHQUAKE PARAMETERS ...TEST
---

* MAGNITUDE 7.6
* ORIGIN TIME 1400 UTC MAR 23 2023
* COORDINATES 16.1 NORTH 87.5 WEST
* DEPTH 11 KM / 7 MILES
* LOCATION NORTH OF HONDURAS

TEST... EVALUATION ...TEST
---

* THIS IS A TEST MESSAGE. AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.6 OCCURRED NORTH OF HONDURAS AT 1400 UTC ON THURSDAY MARCH 23 2023.

* THIS IS A TEST MESSAGE. BASED ON ALL AVAILABLE DATA... THE TSUNAMI THREAT FROM THIS EARTHQUAKE HAS PASSED AND THERE IS NO FURTHER THREAT.

TEST... TSUNAMI THREAT FORECAST...UPDATED ...TEST
---

* THIS IS A TEST MESSAGE. THE TSUNAMI THREAT HAS NOW LARGELY PASSED.

TEST... RECOMMENDED ACTIONS ...TEST
---

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR

ANY IMPACTED COASTAL AREAS SHOULD MONITOR CONDITIONS AT THE COAST TO DETERMINE IF AND WHEN IT IS SAFE TO RESUME NORMAL ACTIVITIES.

* THIS IS A TEST MESSAGE. PERSONS LOCATED NEAR IMPACTED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM LOCAL AUTHORITIES.

* THIS IS A TEST MESSAGE. REMAIN OBSERVANT AND EXERCISE NORMAL CAUTION NEAR THE SEA.

TEST... POTENTIAL IMPACTS ...TEST

* THIS IS A TEST MESSAGE. MINOR SEA LEVEL FLUCTUATIONS UP TO 30 CM ABOVE AND BELOW THE NORMAL TIDE MAY OCCUR IN COASTAL AREAS NEAR THE EARTHQUAKE OVER THE NEXT FEW HOURS.... AND CONTINUING FOR UP TO SEVERAL HOURS.

TEST... TSUNAMI OBSERVATIONS ...TEST

* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
LE PRECHEUR MARTINI	14.8N	61.2W	1828	0.02M/ 0.1FT	20
TUXPAN MX	21.0N	97.3W	1821	0.03M/ 0.1FT	22
DESHAIES GUADELOUPE	16.3N	61.8W	1817	0.02M/ 0.1FT	28
CULEBRA IS PR	18.3N	65.3W	1809	0.01M/ 0.0FT	14
GRAND ISLE LA	29.3N	90.0W	1806	0.06M/ 0.2FT	24
ISABELII VIEQUES PR	18.2N	65.4W	1801	0.01M/ 0.0FT	22
ST CROIX VI	17.7N	64.7W	1740	0.01M/ 0.0FT	16
YABUCOA PR	18.1N	65.8W	1736	0.02M/ 0.1FT	26
MAGUEYES ISLAND PR	18.0N	67.0W	1734	0.02M/ 0.1FT	18
ORANGESTAD AW	12.5N	70.0W	1734	0.03M/ 0.1FT	24
GUAYANILLA PR	18.0N	66.8W	1723	0.01M/ 0.0FT	14
LIMON CR	10.0N	83.0W	1727	0.04M/ 0.1FT	26
MONA ISLAND PR	18.1N	67.9W	1716	0.02M/ 0.1FT	28
PILOTS STATION LA	28.9N	89.4W	1712	0.08M/ 0.3FT	22
PORT AU PRINCE HT	18.5N	72.4W	1710	0.08M/ 0.3FT	28
SANTA MARTA CO	11.2N	74.2W	1712	0.08M/ 0.3FT	22
BARAHONA DO	18.2N	71.1W	1707	0.02M/ 0.1FT	28
PUERTO PLATA DO	19.8N	70.7W	1642	0.01M/ 0.0FT	18
PUERTO BARRIOS GT	15.7N	88.6W	1620	0.85M/ 2.8FT	24
PORT OF BELIZE BZ	17.5N	88.2W	1557	0.93M/ 3.0FT	26
ISLA MUJERES MX	21.3N	86.7W	1546	0.55M/ 1.8FT	18
CAYMAN BRAC KY	19.7N	79.8W	1543	0.46M/ 1.5FT	26
LITTLE CAYMAN KY	19.7N	80.1W	1530	0.61M/ 2.0FT	26
GUN BAY KY	19.3N	81.1W	1525	0.56M/ 1.8FT	26
GEORGE TOWN KY	19.3N	81.4W	1516	0.60M/ 2.0FT	20

GEORGE TOWN KY	19.3N	81.4W	1518	0.60M/ 2.0FT	22
PUERTO MORELOS MX	20.9N	86.9W	1514	0.61M/ 2.0FT	22
PUERTO MORELOS MX	20.9N	86.9W	1511	0.61M/ 2.0FT	16
PUERTO MORELOS MX	20.9N	86.9W	1512	0.61M/ 2.0FT	24
SIAN KAAN MX	19.3N	87.4W	1503	0.77M/ 2.5FT	14
CEIBA CABOTAGE HN	15.8N	86.8W	1457	2.16M/ 7.1FT	20
CARRIE BOW CAY BZ	16.8N	88.1W	1427	2.84M/ 9.3FT	24
PUERTO CORTES HN	15.8N	88.0W	1425	2.94M/ 9.7FT	22
ROATAN ISLAND HN	16.3N	86.5W	1419	1.70M/ 5.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST
---

* THIS IS A TEST MESSAGE. THIS WILL BE THE FINAL STATEMENT ISSUED FOR THIS EVENT UNLESS NEW INFORMATION IS RECEIVED OR THE SITUATION CHANGES.

* THIS IS A TEST MESSAGE. AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

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Mount Pelée Scenario

The following messages created for the CARIBE WAVE 23 tsunami exercise have been prepared to evaluate tsunami services and products for volcanic events. The messages are proposed for volcanic events and are based on discussions and recommendations of ICG/CARIBE-EWS or the CARIBE-EWS/Task Team on tsunami procedures for volcanic crisis.

PTWC Message #1

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ZCZC
WECA41 PHEB 231407
TSUCAX

TEST...TSUNAMI MESSAGE NUMBER 1...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1407 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR THE CARIBE WAVE 23 EXERCISE ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...


**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

 THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION
 ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL
 HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS
 AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT
 SYSTEM.

 THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE
 ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****


TEST... TSUNAMI SOURCE EVENT PARAMETERS ...TEST
------------------------------------------------

  * ORIGIN TIME    1352 UTC MAR 23 2023
  * COORDINATES    14.8 NORTH  61.2 WEST
  * LOCATION       MOUNT PELEE VOLCANO... MARTINIQUE


TEST... EVALUATION ...TEST
--------------------------

  * THIS IS A TEST MESSAGE. THE OBSERVATORY FOR MOUNT PELEE VOLCANO
    ON MARTINIQUE REPORTS A FLANK COLLAPSE OF THE VOLCANO AROUND 1350
    UTC WITH MATERIAL ENTERING THE SEA AROUND 1352 UTC ON THURSDAY
    MARCH 23 2023.

  * THIS IS A TEST MESSAGE. A TSUNAMI HAS BEEN OBSERVED.

  * THIS IS A TEST MESSAGE. BASED ON THIS INFORMATION... WIDESPREAD
    HAZARDOUS TSUNAMI WAVES ARE POSSIBLE.
```

* THIS IS A TEST MESSAGE. IT IS NOT POSSIBLE TO FORECAST TSUNAMI IMPACTS FROM THIS EVENT BUT THIS CENTER WILL CONTINUE TO MONITOR AND REPORT TSUNAMI OBSERVATIONS UNTIL IT APPEARS THE THREAT HAS PASSED.

TEST... TSUNAMI THREAT FORECAST ...TEST

* THIS IS A TEST MESSAGE. HAZARDOUS TSUNAMI WAVES FROM THIS EVENT ARE POSSIBLE WITHIN THE NEXT THREE HOURS ALONG SOME COASTS OF

  DOMINICA... MARTINIQUE... SAINT LUCIA... GUADELOUPE... SAINT VINCENT... MONTSERRAT... BARBADOS... SAINT KITTS... SINT EUSTATIUS... GRENADA... SABA... US VIRGIN IS... ANTIGUA... BARBUDA... SINT MAARTEN... ANGUILLA... TRINIDAD TOBAGO... BONAIRE... BR VIRGIN IS... PUERTO RICO... SAINT MARTIN... SAINT BARTHELEMY... DOMINICAN REP... VENEZUELA... ARUBA... CURACAO... HAITI... TURKS N CAICOS... BAHAMAS... CUBA... COLOMBIA... BERMUDA... PANAMA... CAYMAN ISLANDS AND JAMAICA

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

* THIS IS A TEST MESSAGE. PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

* THIS IS A TEST MESSAGE. ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES WITHIN THE REGION IDENTIFIED WITH A POTENTIAL TSUNAMI THREAT. ACTUAL ARRIVAL TIMES MAY DIFFER, AND THE INITIAL WAVE MAY NOT BE THE LARGEST, NOR MAY A TSUNAMI BE OBSERVED IN ALL THESE LOCATIONS. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(UTC)
ROSEAU	DOMINICA	15.3N 61.4W	1401 03/23
FORT DE FRANCE	MARTINIQUE	14.6N 61.1W	1403 03/23
CASTRIES	SAINT LUCIA	14.0N 61.0W	1403 03/23
BASSE TERRE	GUADELOUPE	16.0N 61.7W	1411 03/23
KINGSTOWN	SAINT VINCENT	13.1N 61.2W	1417 03/23
PLYMOUTH	MONTSERRAT	16.7N 62.2W	1423 03/23

BRIDGETOWN	BARBADOS	13.1N	59.6W	1432	03/23
BASSETERRE	SAINT KITTS	17.3N	62.7W	1435	03/23
SINT EUSTATIUS	SINT EUSTATIUS	17.5N	63.0W	1444	03/23
SAINT GEORGES	GRENADA	12.0N	61.8W	1444	03/23
SABA	SABA	17.6N	63.2W	1446	03/23
CHRISTIANSTED	US VIRGIN IS	17.7N	64.7W	1446	03/23
SAINT JOHNS	ANTIGUA	17.1N	61.9W	1500	03/23
PALMETTO POINT	BARBUDA	17.6N	61.9W	1502	03/23
SIMPSON BAAI	SINT MAARTEN	18.0N	63.1W	1503	03/23
THE VALLEY	ANGUILLA	18.3N	63.1W	1511	03/23
PIRATES BAY	TRINIDAD TOBAGO	11.3N	60.6W	1512	03/23
ONIMA	BONAIRE	12.3N	68.3W	1512	03/23
ANEGADA	BR VIRGIN IS	18.8N	64.3W	1515	03/23
SAN JUAN	PUERTO RICO	18.5N	66.1W	1516	03/23
MAYAGUEZ	PUERTO RICO	18.2N	67.2W	1518	03/23
BAIE LUCAS	SAINT MARTIN	18.1N	63.0W	1522	03/23
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N	62.8W	1522	03/23
BAIE GRAND CASE	SAINT MARTIN	18.1N	63.1W	1529	03/23
SANTO DOMINGO	DOMINICAN REP	18.5N	69.9W	1531	03/23
MAIQUETIA	VENEZUELA	10.6N	67.0W	1533	03/23
ORANJESTAD	ARUBA	12.5N	70.0W	1533	03/23
CHARLOTTE AMALI	US VIRGIN IS	18.3N	64.9W	1534	03/23
CABO ENGANO	DOMINICAN REP	18.6N	68.3W	1535	03/23
BAIE BLANCHE	SAINT MARTIN	18.1N	63.0W	1541	03/23
CUMANA	VENEZUELA	10.5N	64.2W	1542	03/23
PUERTO PLATA	DOMINICAN REP	19.8N	70.7W	1545	03/23
WILLEMSTAD	CURACAO	12.1N	68.9W	1547	03/23
JACAMEL	HAITI	18.1N	72.5W	1548	03/23
GRAND TURK	TURKS N CAICOS	21.5N	71.1W	1553	03/23
CAP HAITEN	HAITI	19.8N	72.2W	1601	03/23
PORT OF SPAIN	TRINIDAD TOBAGO	10.6N	61.5W	1604	03/23
MAYAGUANA	BAHAMAS	22.3N	73.0W	1608	03/23
WEST CAICOS	TURKS N CAICOS	21.7N	72.5W	1610	03/23
ROADTOWN	BR VIRGIN IS	18.4N	64.6W	1617	03/23
BARACOA	CUBA	20.4N	74.5W	1621	03/23
SANTA MARTA	COLOMBIA	11.2N	74.2W	1622	03/23
GREAT INAGUA	BAHAMAS	20.9N	73.7W	1622	03/23
SAN SALVADOR	BAHAMAS	24.1N	74.5W	1623	03/23
JEREMIE	HAITI	18.6N	74.1W	1624	03/23
SANTIAGO D CUBA	CUBA	19.9N	75.8W	1631	03/23
LONG ISLAND	BAHAMAS	23.3N	75.1W	1632	03/23
ESSO PIER	BERMUDA	32.4N	64.7W	1637	03/23
CARTAGENA	COLOMBIA	10.4N	75.6W	1638	03/23
GIBARA	CUBA	21.1N	76.1W	1638	03/23
EXUMA	BAHAMAS	23.6N	75.9W	1640	03/23
CAT ISLAND	BAHAMAS	24.4N	75.5W	1641	03/23
CROOKED ISLAND	BAHAMAS	22.7N	74.1W	1642	03/23
BARRANQUILLA	COLOMBIA	11.1N	74.9W	1646	03/23
ELEUTHERA ISLAN	BAHAMAS	25.2N	76.1W	1647	03/23
RIOHACHA	COLOMBIA	11.6N	72.9W	1650	03/23
ANDROS ISLAND	BAHAMAS	25.0N	77.9W	1655	03/23
ALIGANDI	PANAMA	9.2N	78.0W	1659	03/23
CAYMAN BRAC	CAYMAN ISLANDS	19.7N	79.9W	1700	03/23
KINGSTON	JAMAICA	17.9N	76.9W	1704	03/23
PUERTO CARRETO	PANAMA	8.8N	77.6W	1706	03/23

TEST... POTENTIAL IMPACTS ...TEST

---

* THIS IS A TEST MESSAGE. A TSUNAMI IS A SERIES OF WAVES. THE TIME BETWEEN WAVE CRESTS CAN VARY FROM 5 MINUTES TO AN HOUR. THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE INITIAL WAVE.

* THIS IS A TEST MESSAGE. IMPACTS CAN VARY SIGNIFICANTLY FROM ONE SECTION OF COAST TO THE NEXT DUE TO LOCAL BATHYMETRY AND THE SHAPE AND ELEVATION OF THE SHORELINE.

* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... TSUNAMI OBSERVATIONS ...TEST
---

* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
LE PRECHEUR MARTINI	14.8N	61.2W	1357	7.81M/25.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST
---

* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

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PTWC Message #2

ZCZC
WECA41 PHEB 231430
TSUCAX

TEST...TSUNAMI MESSAGE NUMBER 2...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1430 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR THE CARIBE WAVE 23 EXERCISE ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT SYSTEM.

THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

TEST... TSUNAMI SOURCE EVENT PARAMETERS ...TEST
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* ORIGIN TIME 1352 UTC MAR 23 2023
* COORDINATES 14.8 NORTH 61.2 WEST
* LOCATION MOUNT PELEE VOLCANO... MARTINIQUE

TEST... EVALUATION ...TEST
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* THIS IS A TEST MESSAGE. THE OBSERVATORY FOR MOUNT PELEE VOLCANO ON MARTINIQUE REPORTS A FLANK COLLAPSE OF THE VOLCANO AROUND 1350 UTC WITH MATERIAL ENTERING THE SEA AROUND 1352 UTC ON THURSDAY MARCH 23 2023.

* THIS IS A TEST MESSAGE. A TSUNAMI HAS BEEN OBSERVED.

* THIS IS A TEST MESSAGE. BASED ON THIS INFORMATION... WIDESPREAD HAZARDOUS TSUNAMI WAVES ARE POSSIBLE.

* THIS IS A TEST MESSAGE. IT IS NOT POSSIBLE TO FORECAST TSUNAMI IMPACTS FROM THIS EVENT BUT THIS CENTER WILL CONTINUE TO MONITOR AND REPORT TSUNAMI OBSERVATIONS UNTIL IT APPEARS THE THREAT HAS PASSED.

TEST... TSUNAMI THREAT FORECAST...UPDATED ...TEST
---

* THIS IS A TEST MESSAGE. HAZARDOUS TSUNAMI WAVES FROM THIS EVENT ARE POSSIBLE WITHIN THE NEXT THREE HOURS ALONG SOME COASTS OF

DOMINICA... MARTINIQUE... SAINT LUCIA... GUADELOUPE... SAINT VINCENT... MONTSERRAT... BARBADOS... SAINT KITTS... SINT EUSTATIUS... GRENADA... SABA... US VIRGIN IS... ANTIGUA... BARBUDA... SINT MAARTEN... ANGUILLA... TRINIDAD TOBAGO... BONAIRE... BR VIRGIN IS... PUERTO RICO... SAINT MARTIN... SAINT BARTHELEMY... DOMINICAN REP... VENEZUELA... ARUBA... CURACAO... HAITI... TURKS N CAICOS... BAHAMAS... CUBA... COLOMBIA... BERMUDA... PANAMA... CAYMAN ISLANDS... JAMAICA AND SAN ANDRES PROVID

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

* THIS IS A TEST MESSAGE. PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

* THIS IS A TEST MESSAGE. ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES WITHIN THE REGION IDENTIFIED WITH A POTENTIAL TSUNAMI THREAT. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST, NOR MAY A TSUNAMI BE OBSERVED IN ALL THESE LOCATIONS. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES		ETA(UTC)
ROSEAU	DOMINICA	15.3N	61.4W	1401 03/23
FORT DE FRANCE	MARTINIQUE	14.6N	61.1W	1403 03/23
CASTRIES	SAINT LUCIA	14.0N	61.0W	1403 03/23
BASSE TERRE	GUADELOUPE	16.0N	61.7W	1411 03/23
KINGSTOWN	SAINT VINCENT	13.1N	61.2W	1417 03/23
PLYMOUTH	MONTSERRAT	16.7N	62.2W	1423 03/23
BRIDGETOWN	BARBADOS	13.1N	59.6W	1432 03/23
BASSETERRE	SAINT KITTS	17.3N	62.7W	1435 03/23
SINT EUSTATIUS	SINT EUSTATIUS	17.5N	63.0W	1444 03/23
SAINT GEORGES	GRENADA	12.0N	61.8W	1444 03/23
SABA	SABA	17.6N	63.2W	1446 03/23
CHRISTIANSTED	US VIRGIN IS	17.7N	64.7W	1446 03/23
SAINT JOHNS	ANTIGUA	17.1N	61.9W	1500 03/23
PALMETTO POINT	BARBUDA	17.6N	61.9W	1502 03/23
SIMPSON BAAI	SINT MAARTEN	18.0N	63.1W	1503 03/23
THE VALLEY	ANGUILLA	18.3N	63.1W	1511 03/23
PIRATES BAY	TRINIDAD TOBAGO	11.3N	60.6W	1512 03/23

ONIMA	BONAIRE	12.3N	68.3W	1512 03/23
ANEGADA	BR VIRGIN IS	18.8N	64.3W	1515 03/23
SAN JUAN	PUERTO RICO	18.5N	66.1W	1516 03/23
MAYAGUEZ	PUERTO RICO	18.2N	67.2W	1518 03/23
BAIE LUCAS	SAINT MARTIN	18.1N	63.0W	1522 03/23
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N	62.8W	1522 03/23
BAIE GRAND CASE	SAINT MARTIN	18.1N	63.1W	1529 03/23
SANTO DOMINGO	DOMINICAN REP	18.5N	69.9W	1531 03/23
MAIQUETIA	VENEZUELA	10.6N	67.0W	1533 03/23
ORANJESTAD	ARUBA	12.5N	70.0W	1533 03/23
CHARLOTTE AMALI	US VIRGIN IS	18.3N	64.9W	1534 03/23
CABO ENGANO	DOMINICAN REP	18.6N	68.3W	1535 03/23
BAIE BLANCHE	SAINT MARTIN	18.1N	63.0W	1541 03/23
CUMANA	VENEZUELA	10.5N	64.2W	1542 03/23
PUERTO PLATA	DOMINICAN REP	19.8N	70.7W	1545 03/23
WILLEMSTAD	CURACAO	12.1N	68.9W	1547 03/23
JACAMEL	HAITI	18.1N	72.5W	1548 03/23
GRAND TURK	TURKS N CAICOS	21.5N	71.1W	1553 03/23
CAP HAITEN	HAITI	19.8N	72.2W	1601 03/23
PORT OF SPAIN	TRINIDAD TOBAGO	10.6N	61.5W	1604 03/23
MAYAGUANA	BAHAMAS	22.3N	73.0W	1608 03/23
WEST CAICOS	TURKS N CAICOS	21.7N	72.5W	1610 03/23
ROADTOWN	BR VIRGIN IS	18.4N	64.6W	1617 03/23
BARACOA	CUBA	20.4N	74.5W	1621 03/23
SANTA MARTA	COLOMBIA	11.2N	74.2W	1622 03/23
GREAT INAGUA	BAHAMAS	20.9N	73.7W	1622 03/23
SAN SALVADOR	BAHAMAS	24.1N	74.5W	1623 03/23
JEREMIE	HAITI	18.6N	74.1W	1624 03/23
SANTIAGO D CUBA	CUBA	19.9N	75.8W	1631 03/23
LONG ISLAND	BAHAMAS	23.3N	75.1W	1632 03/23
ESSO PIER	BERMUDA	32.4N	64.7W	1637 03/23
CARTAGENA	COLOMBIA	10.4N	75.6W	1638 03/23
GIBARA	CUBA	21.1N	76.1W	1638 03/23
EXUMA	BAHAMAS	23.6N	75.9W	1640 03/23
CAT ISLAND	BAHAMAS	24.4N	75.5W	1641 03/23
CROOKED ISLAND	BAHAMAS	22.7N	74.1W	1642 03/23
BARRANQUILLA	COLOMBIA	11.1N	74.9W	1646 03/23
ELEUTHERA ISLAN	BAHAMAS	25.2N	76.1W	1647 03/23
RIOHACHA	COLOMBIA	11.6N	72.9W	1650 03/23
ANDROS ISLAND	BAHAMAS	25.0N	77.9W	1655 03/23
ALIGANDI	PANAMA	9.2N	78.0W	1659 03/23
CAYMAN BRAC	CAYMAN ISLANDS	19.7N	79.9W	1700 03/23
KINGSTON	JAMAICA	17.9N	76.9W	1704 03/23
PUERTO CARRETO	PANAMA	8.8N	77.6W	1706 03/23
NASSAU	BAHAMAS	25.1N	77.4W	1707 03/23
MONTEGO BAY	JAMAICA	18.5N	77.9W	1708 03/23
SAN ANDRES	SAN ANDRES PROVI	13.4N	81.4W	1711 03/23
PROVIDENCIA	SAN ANDRES PROVI	12.6N	81.7W	1714 03/23
GRAND CAYMAN	CAYMAN ISLANDS	19.3N	81.3W	1717 03/23
PUERTO OBALDIA	PANAMA	8.7N	77.4W	1717 03/23
FREEPORT	BAHAMAS	26.5N	78.8W	1719 03/23
PUNTA CARIBANA	COLOMBIA	8.6N	76.9W	1721 03/23
ABACO ISLAND	BAHAMAS	26.6N	77.1W	1722 03/23
CIENFUEGOS	CUBA	22.0N	80.5W	1723 03/23
PORT AU PRINCE	HAITI	18.5N	72.4W	1725 03/23

TEST... POTENTIAL IMPACTS ...TEST
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* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... TSUNAMI OBSERVATIONS ...TEST

* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
LE ROBERT MARTINIQU	14.7N	60.9W	1428	1.07M/ 3.5FT	22
DESHAIES GUADELOUPE	16.3N	61.8W	1425	0.97M/ 3.2FT	16
DENNERY ST LUCIA LC	13.9N	60.9W	1424	0.82M/ 2.7FT	24
CHATEAUBELAIR VC	13.3N	61.2W	1426	1.62M/ 5.3FT	14
PORTSMOUTH DM	15.6N	61.5W	1419	1.24M/ 4.1FT	20
FORT DE FRANCE MQ	14.6N	61.1W	1408	4.41M/14.5FT	24
ROSEAU DM	15.3N	61.4W	1411	1.96M/ 6.4FT	22
LE PRECHEUR MARTINI	14.8N	61.2W	1357	7.81M/25.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST

* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

PTWC Message #3

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ZCZC
WECA41 PHEB 231500
TSUCAX

TEST...TSUNAMI MESSAGE NUMBER 3...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1500 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR THE CARIBE WAVE 23 EXERCISE ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...


**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

 THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION
 ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL
 HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS
 AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT
 SYSTEM.

 THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE
 ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****


TEST... TSUNAMI SOURCE EVENT PARAMETERS ...TEST
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  * ORIGIN TIME    1352 UTC MAR 23 2023
  * COORDINATES    14.8 NORTH  61.2 WEST
  * LOCATION       MOUNT PELEE VOLCANO... MARTINIQUE


TEST... EVALUATION ...TEST
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  * THIS IS A TEST MESSAGE. THE OBSERVATORY FOR MOUNT PELEE VOLCANO
    ON MARTINIQUE REPORTS A FLANK COLLAPSE OF THE VOLCANO AROUND 1350
    UTC WITH MATERIAL ENTERING THE SEA AROUND 1352 UTC ON THURSDAY
    MARCH 23 2023.

  * THIS IS A TEST MESSAGE. A TSUNAMI HAS BEEN OBSERVED.

  * THIS IS A TEST MESSAGE. BASED ON THIS INFORMATION... WIDESPREAD
    HAZARDOUS TSUNAMI WAVES ARE POSSIBLE.

  * THIS IS A TEST MESSAGE. IT IS NOT POSSIBLE TO FORECAST TSUNAMI
    IMPACTS FROM THIS EVENT BUT THIS CENTER WILL CONTINUE TO MONITOR
    AND REPORT TSUNAMI OBSERVATIONS UNTIL IT APPEARS THE THREAT HAS
    PASSED.


TEST... TSUNAMI THREAT FORECAST...UPDATED ...TEST
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* THIS IS A TEST MESSAGE. HAZARDOUS TSUNAMI WAVES FROM THIS EVENT ARE POSSIBLE WITHIN THE NEXT THREE HOURS ALONG SOME COASTS OF

  DOMINICA... MARTINIQUE... SAINT LUCIA... GUADELOUPE... SAINT VINCENT... MONTSERRAT... BARBADOS... SAINT KITTS... SINT EUSTATIUS... GRENADA... SABA... US VIRGIN IS... ANTIGUA... BARBUDA... SINT MAARTEN... ANGUILLA... TRINIDAD TOBAGO... BONAIRE... BR VIRGIN IS... PUERTO RICO... SAINT MARTIN... SAINT BARTHELEMY... DOMINICAN REP... VENEZUELA... ARUBA... CURACAO... HAITI... TURKS N CAICOS... BAHAMAS... CUBA... COLOMBIA... BERMUDA... PANAMA... CAYMAN ISLANDS... JAMAICA... SAN ANDRES PROVID AND COSTA RICA

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

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TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

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LOCATION	REGION	COORDINATES	ETA(UTC)
ROSEAU	DOMINICA	15.3N 61.4W	1401 03/23
FORT DE FRANCE	MARTINIQUE	14.6N 61.1W	1403 03/23
CASTRIES	SAINT LUCIA	14.0N 61.0W	1403 03/23
BASSE TERRE	GUADELOUPE	16.0N 61.7W	1411 03/23
KINGSTOWN	SAINT VINCENT	13.1N 61.2W	1417 03/23
PLYMOUTH	MONTSERRAT	16.7N 62.2W	1423 03/23
BRIDGETOWN	BARBADOS	13.1N 59.6W	1432 03/23
BASSETERRE	SAINT KITTS	17.3N 62.7W	1435 03/23
SINT EUSTATIUS	SINT EUSTATIUS	17.5N 63.0W	1444 03/23
SAINT GEORGES	GRENADA	12.0N 61.8W	1444 03/23
SABA	SABA	17.6N 63.2W	1446 03/23
CHRISTIANSTED	US VIRGIN IS	17.7N 64.7W	1446 03/23
SAINT JOHNS	ANTIGUA	17.1N 61.9W	1500 03/23
PALMETTO POINT	BARBUDA	17.6N 61.9W	1502 03/23

SIMPSON BAAI	SINT MAARTEN	18.0N	63.1W	1503	03/23
THE VALLEY	ANGUILLA	18.3N	63.1W	1511	03/23
PIRATES BAY	TRINIDAD TOBAGO	11.3N	60.6W	1512	03/23
ONIMA	BONAIRE	12.3N	68.3W	1512	03/23
ANEGADA	BR VIRGIN IS	18.8N	64.3W	1515	03/23
SAN JUAN	PUERTO RICO	18.5N	66.1W	1516	03/23
MAYAGUEZ	PUERTO RICO	18.2N	67.2W	1518	03/23
BAIE LUCAS	SAINT MARTIN	18.1N	63.0W	1522	03/23
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N	62.8W	1522	03/23
BAIE GRAND CASE	SAINT MARTIN	18.1N	63.1W	1529	03/23
SANTO DOMINGO	DOMINICAN REP	18.5N	69.9W	1531	03/23
MAIQUETIA	VENEZUELA	10.6N	67.0W	1533	03/23
ORANJESTAD	ARUBA	12.5N	70.0W	1533	03/23
CHARLOTTE AMALI	US VIRGIN IS	18.3N	64.9W	1534	03/23
CABO ENGANO	DOMINICAN REP	18.6N	68.3W	1535	03/23
BAIE BLANCHE	SAINT MARTIN	18.1N	63.0W	1541	03/23
CUMANA	VENEZUELA	10.5N	64.2W	1542	03/23
PUERTO PLATA	DOMINICAN REP	19.8N	70.7W	1545	03/23
WILLEMSTAD	CURACAO	12.1N	68.9W	1547	03/23
JACAMEL	HAITI	18.1N	72.5W	1548	03/23
GRAND TURK	TURKS N CAICOS	21.5N	71.1W	1553	03/23
CAP HAITEN	HAITI	19.8N	72.2W	1601	03/23
PORT OF SPAIN	TRINIDAD TOBAGO	10.6N	61.5W	1604	03/23
MAYAGUANA	BAHAMAS	22.3N	73.0W	1608	03/23
WEST CAICOS	TURKS N CAICOS	21.7N	72.5W	1610	03/23
ROADTOWN	BR VIRGIN IS	18.4N	64.6W	1617	03/23
BARACOA	CUBA	20.4N	74.5W	1621	03/23
SANTA MARTA	COLOMBIA	11.2N	74.2W	1622	03/23
GREAT INAGUA	BAHAMAS	20.9N	73.7W	1622	03/23
SAN SALVADOR	BAHAMAS	24.1N	74.5W	1623	03/23
JEREMIE	HAITI	18.6N	74.1W	1624	03/23
SANTIAGO D CUBA	CUBA	19.9N	75.8W	1631	03/23
LONG ISLAND	BAHAMAS	23.3N	75.1W	1632	03/23
ESSO PIER	BERMUDA	32.4N	64.7W	1637	03/23
CARTAGENA	COLOMBIA	10.4N	75.6W	1638	03/23
GIBARA	CUBA	21.1N	76.1W	1638	03/23
EXUMA	BAHAMAS	23.6N	75.9W	1640	03/23
CAT ISLAND	BAHAMAS	24.4N	75.5W	1641	03/23
CROOKED ISLAND	BAHAMAS	22.7N	74.1W	1642	03/23
BARRANQUILLA	COLOMBIA	11.1N	74.9W	1646	03/23
ELEUTHERA ISLAN	BAHAMAS	25.2N	76.1W	1647	03/23
RIOHACHA	COLOMBIA	11.6N	72.9W	1650	03/23
ANDROS ISLAND	BAHAMAS	25.0N	77.9W	1655	03/23
ALIGANDI	PANAMA	9.2N	78.0W	1659	03/23
CAYMAN BRAC	CAYMAN ISLANDS	19.7N	79.9W	1700	03/23
KINGSTON	JAMAICA	17.9N	76.9W	1704	03/23
PUERTO CARRETO	PANAMA	8.8N	77.6W	1706	03/23
NASSAU	BAHAMAS	25.1N	77.4W	1707	03/23
MONTEGO BAY	JAMAICA	18.5N	77.9W	1708	03/23
SAN ANDRES	SAN ANDRES PROVI	13.4N	81.4W	1711	03/23
PROVIDENCIA	SAN ANDRES PROVI	12.6N	81.7W	1714	03/23
GRAND CAYMAN	CAYMAN ISLANDS	19.3N	81.3W	1717	03/23
PUERTO OBALDIA	PANAMA	8.7N	77.4W	1717	03/23
FREEPORT	BAHAMAS	26.5N	78.8W	1719	03/23
PUNTA CARIBANA	COLOMBIA	8.6N	76.9W	1721	03/23
ABACO ISLAND	BAHAMAS	26.6N	77.1W	1722	03/23
CIENFUEGOS	CUBA	22.0N	80.5W	1723	03/23
PORT AU PRINCE	HAITI	18.5N	72.4W	1725	03/23

BIMINI	BAHAMAS	25.8N	79.3W	1732 03/23
PUERTO LIMON	COSTA RICA	10.0N	83.0W	1738 03/23
COLON	PANAMA	9.4N	79.9W	1739 03/23
BOCAS DEL TORO	PANAMA	9.4N	82.2W	1752 03/23

TEST... POTENTIAL IMPACTS ...TEST

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* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... TSUNAMI OBSERVATIONS ...TEST

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	GAUGE COORDINATES		TIME OF MEASURE	MAXIMUM TSUNAMI	WAVE PERIOD
GAUGE LOCATION	LAT	LON	(UTC)	HEIGHT	(MIN)
ST CROIX VI	17.7N	64.7W	1455	0.47M/ 1.6FT	16
PRICKLEY BAY GD	12.0N	61.8W	1454	1.14M/ 3.7FT	18
PARHAM AT	17.1N	61.8W	1449	0.42M/ 1.4FT	20
BASSETERRE KN	17.3N	62.7W	1441	0.97M/ 3.2FT	24
PORT ST CHARLES BB	13.3N	59.6W	1443	0.72M/ 2.4FT	26
SOUFRIERE ST LUCIA	13.9N	61.1W	1438	1.72M/ 5.6FT	18
GANTERS BAY ST LUCI	14.0N	61.0W	1438	2.09M/ 6.9FT	26
VIEUX FORT ST LUCIA	13.7N	61.0W	1431	0.93M/ 3.0FT	26
POINT A PITRE GP	16.2N	61.5W	1436	0.76M/ 2.5FT	26
CALLIAQUA VC	13.1N	61.2W	1433	0.66M/ 2.2FT	20
DESIRADE GUADELOUPE	16.3N	61.1W	1433	0.56M/ 1.9FT	22
LE ROBERT MARTINIQU	14.7N	60.9W	1428	1.07M/ 3.5FT	22
DESHAIES GUADELOUPE	16.3N	61.8W	1425	0.97M/ 3.2FT	16
DENNERY ST LUCIA LC	13.9N	60.9W	1424	0.82M/ 2.7FT	24
CHATEAUBELAIR VC	13.3N	61.2W	1426	1.62M/ 5.3FT	14
PORTSMOUTH DM	15.6N	61.5W	1419	1.24M/ 4.1FT	20
FORT DE FRANCE MQ	14.6N	61.1W	1408	4.41M/14.5FT	24
ROSEAU DM	15.3N	61.4W	1411	1.96M/ 6.4FT	22
LE PRECHEUR MARTINI	14.8N	61.2W	1357	7.81M/25.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST
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* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

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NNNN

PTWC Message #4

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ZCZC
WECA41 PHEB 231530
TSUCAX

TEST...TSUNAMI MESSAGE NUMBER 4...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1530 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR THE CARIBE WAVE 23 EXERCISE ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...


**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

 THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION
 ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL
 HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS
 AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT
 SYSTEM.

 THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE
 ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****


TEST... TSUNAMI SOURCE EVENT PARAMETERS ...TEST
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  * ORIGIN TIME    1352 UTC MAR 23 2023
  * COORDINATES    14.8 NORTH  61.2 WEST
  * LOCATION       MOUNT PELEE VOLCANO... MARTINIQUE


TEST... EVALUATION ...TEST
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  * THIS IS A TEST MESSAGE. THE OBSERVATORY FOR MOUNT PELEE VOLCANO
    ON MARTINIQUE REPORTS A FLANK COLLAPSE OF THE VOLCANO AROUND 1350
    UTC WITH MATERIAL ENTERING THE SEA AROUND 1352 UTC ON THURSDAY
    MARCH 23 2023.

  * THIS IS A TEST MESSAGE. A TSUNAMI HAS BEEN OBSERVED.

  * THIS IS A TEST MESSAGE. BASED ON TSUNAMI WAVE OBSERVATIONS... THE
    EXTENT OF THE HAZARDOUS TSUNAMI WAVE THREAT IS NOW REDUCED TO AREAS
    AREAS WITHIN 1000 KM OF THE VOLCANO.

  * THIS IS A TEST MESSAGE. IT IS NOT POSSIBLE TO FORECAST TSUNAMI
    IMPACTS FROM THIS EVENT BUT THIS CENTER WILL CONTINUE TO MONITOR
    AND REPORT TSUNAMI OBSERVATIONS UNTIL IT APPEARS THE THREAT HAS
    PASSED.

TEST... TSUNAMI THREAT FORECAST...UPDATED ...TEST
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* THIS IS A TEST MESSAGE. HAZARDOUS TSUNAMI WAVES FROM THIS EVENT ARE POSSIBLE WITHIN 1000 KM OF THE EPICENTER ALONG THE COASTS OF

DOMINICA... MARTINIQUE... SAINT LUCIA... GUADELOUPE... SAINT VINCENT... MONTSERRAT... BARBADOS... SAINT KITTS... SINT EUSTATIUS... GRENADA... SABA... US VIRGIN IS... ANTIGUA... BARBUDA... SINT MAARTEN... ANGUILLA... TRINIDAD TOBAGO... BONAIRE... BR VIRGIN IS... PUERTO RICO... SAINT MARTIN... SAINT BARTHELEMY... VENEZUELA... ARUBA... DOMINICAN REP... CURACAO AND GUYANA

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

* THIS IS A TEST MESSAGE. PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

* THIS IS A TEST MESSAGE. ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES WITHIN THE REGION IDENTIFIED WITH A POTENTIAL TSUNAMI THREAT. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST, NOR MAY A TSUNAMI BE OBSERVED IN ALL THESE LOCATIONS A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES		ETA(UTC)
BRIDGETOWN	BARBADOS	13.1N	59.6W	1432 03/23
BASSETERRE	SAINT KITTS	17.3N	62.7W	1435 03/23
SINT EUSTATIUS	SINT EUSTATIUS	17.5N	63.0W	1444 03/23
SAINT GEORGES	GRENADA	12.0N	61.8W	1444 03/23
SABA	SABA	17.6N	63.2W	1446 03/23
CHRISTIANSTED	US VIRGIN IS	17.7N	64.7W	1446 03/23
SAINT JOHNS	ANTIGUA	17.1N	61.9W	1500 03/23
PALMETTO POINT	BARBUDA	17.6N	61.9W	1502 03/23
SIMPSON BAAI	SINT MAARTEN	18.0N	63.1W	1503 03/23
THE VALLEY	ANGUILLA	18.3N	63.1W	1511 03/23
PIRATES BAY	TRINIDAD TOBAGO	11.3N	60.6W	1512 03/23
ONIMA	BONAIRE	12.3N	68.3W	1512 03/23
ANEGADA	BR VIRGIN IS	18.8N	64.3W	1515 03/23
SAN JUAN	PUERTO RICO	18.5N	66.1W	1516 03/23
MAYAGUEZ	PUERTO RICO	18.2N	67.2W	1518 03/23
BAIE LUCAS	SAINT MARTIN	18.1N	63.0W	1522 03/23
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N	62.8W	1522 03/23

BAIE GRAND CASE	SAINT MARTIN	18.1N	63.1W	1529 03/23
MAIQUETIA	VENEZUELA	10.6N	67.0W	1533 03/23
ORANJESTAD	ARUBA	12.5N	70.0W	1533 03/23
CHARLOTTE AMALI	US VIRGIN IS	18.3N	64.9W	1534 03/23
CABO ENGANO	DOMINICAN REP	18.6N	68.3W	1535 03/23
BAIE BLANCHE	SAINT MARTIN	18.1N	63.0W	1541 03/23
CUMANA	VENEZUELA	10.5N	64.2W	1542 03/23
WILLEMSTAD	CURACAO	12.1N	68.9W	1547 03/23
PORT OF SPAIN	TRINIDAD TOBAGO	10.6N	61.5W	1604 03/23
ROADTOWN	BR VIRGIN IS	18.4N	64.6W	1617 03/23
PORLAMAR	VENEZUELA	10.9N	63.8W	1836 03/23
GEORGETOWN	GUYANA	6.8N	58.2W	1844 03/23

TEST... POTENTIAL IMPACTS ...TEST

* THIS IS A TEST MESSAGE. A TSUNAMI IS A SERIES OF WAVES. THE TIME BETWEEN WAVE CRESTS CAN VARY FROM 5 MINUTES TO AN HOUR. THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE INITIAL WAVE.

* THIS IS A TEST MESSAGE. IMPACTS CAN VARY SIGNIFICANTLY FROM ONE SECTION OF COAST TO THE NEXT DUE TO LOCAL BATHYMETRY AND THE SHAPE AND ELEVATION OF THE SHORELINE.

* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... TSUNAMI OBSERVATIONS ...TEST

* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
SAINT MARTIN FR	18.1N	63.1W	1530	0.57M/ 1.9FT	26
ARECIBO PR	18.5N	66.7W	1530	0.16M/ 0.5FT	22
MAYAGUEZ PR	18.2N	67.2W	1525	0.21M/ 0.7FT	18
SAN JUAN PR	18.5N	66.1W	1528	0.10M/ 0.3FT	28
MAGUEYES ISLAND PR	18.0N	67.0W	1527	0.67M/ 2.2FT	24
ISABELII VIEQUES PR	18.2N	65.4W	1519	0.26M/ 0.9FT	14
MONA ISLAND PR	18.1N	67.9W	1524	0.38M/ 1.3FT	26
BARBUDA AG	17.6N	61.8W	1520	0.46M/ 1.5FT	28
SCARBOROUGH TT	11.2N	60.7W	1514	0.24M/ 0.8FT	28
DART 42407	15.3N	68.2W	1509	0.07M/ 0.2FT	22
ESPERANZA VIEQUES P	18.1N	65.5W	1508	0.60M/ 2.0FT	16

GUAYANILLA PR	18.0N	66.8W	1508	0.74M/ 2.4FT	28
YABUCOA PR	18.1N	65.8W	1511	0.78M/ 2.5FT	22
LIMETREE VI	17.7N	64.8W	1502	0.68M/ 2.2FT	28
ST CROIX VI	17.7N	64.7W	1455	0.47M/ 1.6FT	16
PRICKLEY BAY GD	12.0N	61.8W	1454	1.14M/ 3.7FT	18
PARHAM AT	17.1N	61.8W	1449	0.42M/ 1.4FT	20
BASSETERRE KN	17.3N	62.7W	1441	0.97M/ 3.2FT	24
PORT ST CHARLES BB	13.3N	59.6W	1443	0.72M/ 2.4FT	26
SOUFRIERE ST LUCIA	13.9N	61.1W	1438	1.72M/ 5.6FT	18
GANTERS BAY ST LUCI	14.0N	61.0W	1438	2.09M/ 6.9FT	26
VIEUX FORT ST LUCIA	13.7N	61.0W	1431	0.93M/ 3.0FT	26
POINT A PITRE GP	16.2N	61.5W	1436	0.76M/ 2.5FT	26
CALLIAQUA VC	13.1N	61.2W	1433	0.66M/ 2.2FT	20
DESIRADE GUADELOUPE	16.3N	61.1W	1433	0.56M/ 1.9FT	22
LE ROBERT MARTINIQU	14.7N	60.9W	1428	1.07M/ 3.5FT	22
DESHAIES GUADELOUPE	16.3N	61.8W	1425	0.97M/ 3.2FT	16
DENNERY ST LUCIA LC	13.9N	60.9W	1424	0.82M/ 2.7FT	24
CHATEAUBELAIR VC	13.3N	61.2W	1426	1.62M/ 5.3FT	14
PORTSMOUTH DM	15.6N	61.5W	1419	1.24M/ 4.1FT	20
FORT DE FRANCE MQ	14.6N	61.1W	1408	4.41M/14.5FT	24
ROSEAU DM	15.3N	61.4W	1411	1.96M/ 6.4FT	22
LE PRECHEUR MARTINI	14.8N	61.2W	1357	7.81M/25.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST
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* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

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NNNN

PTWC Message #5

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ZCZC
WECA41 PHEB 231600
TSUCAX

TEST...TSUNAMI MESSAGE NUMBER 5...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1600 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR THE CARIBE WAVE 23 EXERCISE ONLY...
...TEST TSUNAMI THREAT MESSAGE TEST...


**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

 THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION
 ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL
 HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS
 AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT
 SYSTEM.

 THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE
 ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****


TEST... TSUNAMI SOURCE EVENT PARAMETERS ...TEST
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  * ORIGIN TIME    1352 UTC MAR 23 2023
  * COORDINATES    14.8 NORTH  61.2 WEST
  * LOCATION       MOUNT PELEE VOLCANO... MARTINIQUE


TEST... EVALUATION ...TEST
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  * THIS IS A TEST MESSAGE. THE OBSERVATORY FOR MOUNT PELEE VOLCANO
    ON MARTINIQUE REPORTS A FLANK COLLAPSE OF THE VOLCANO AROUND 1350
    UTC WITH MATERIAL ENTERING THE SEA AROUND 1352 UTC ON THURSDAY
    MARCH 23 2023.

  * THIS IS A TEST MESSAGE. A TSUNAMI HAS BEEN OBSERVED.

  * THIS IS A TEST MESSAGE. BASED ON THIS INFORMATION... HAZARDOUS
    TSUNAMI WAVES ARE POSSIBLE .

  * THIS IS A TEST MESSAGE. IT IS NOT POSSIBLE TO FORECAST TSUNAMI
    IMPACTS FROM THIS EVENT BUT THIS CENTER WILL CONTINUE TO MONITOR
    AND REPORT TSUNAMI OBSERVATIONS UNTIL IT APPEARS THE THREAT HAS
    PASSED.

TEST... TSUNAMI THREAT FORECAST ...TEST
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* THIS IS A TEST MESSAGE. HAZARDOUS TSUNAMI WAVES FROM THIS EVENT ARE POSSIBLE WITHIN 1000 KM OF THE EPICENTER ALONG THE COASTS OF

DOMINICA... MARTINIQUE... SAINT LUCIA... GUADELOUPE... SAINT VINCENT... MONTSERRAT... BARBADOS... SAINT KITTS... SINT EUSTATIUS... GRENADA... SABA... US VIRGIN IS... ANTIGUA... BARBUDA... SINT MAARTEN... ANGUILLA... TRINIDAD TOBAGO... BONAIRE... BR VIRGIN IS... PUERTO RICO... SAINT MARTIN... SAINT BARTHELEMY... VENEZUELA... ARUBA... DOMINICAN REP... CURACAO AND GUYANA

TEST... RECOMMENDED ACTIONS ...TEST

* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

* THIS IS A TEST MESSAGE. PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

TEST... ESTIMATED TIMES OF ARRIVAL ...TEST

* THIS IS A TEST MESSAGE. ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES WITHIN THE REGION IDENTIFIED WITH A POTENTIAL TSUNAMI THREAT. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES		ETA(UTC)
SAINT JOHNS	ANTIGUA	17.1N	61.9W	1500 03/23
PALMETTO POINT	BARBUDA	17.6N	61.9W	1502 03/23
SIMPSON BAAI	SINT MAARTEN	18.0N	63.1W	1503 03/23
THE VALLEY	ANGUILLA	18.3N	63.1W	1511 03/23
PIRATES BAY	TRINIDAD TOBAGO	11.3N	60.6W	1512 03/23
ONIMA	BONAIRE	12.3N	68.3W	1512 03/23
ANEGADA	BR VIRGIN IS	18.8N	64.3W	1515 03/23
SAN JUAN	PUERTO RICO	18.5N	66.1W	1516 03/23
MAYAGUEZ	PUERTO RICO	18.2N	67.2W	1518 03/23
BAIE LUCAS	SAINT MARTIN	18.1N	63.0W	1522 03/23
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N	62.8W	1522 03/23
BAIE GRAND CASE	SAINT MARTIN	18.1N	63.1W	1529 03/23
MAIQUETIA	VENEZUELA	10.6N	67.0W	1533 03/23
ORANJESTAD	ARUBA	12.5N	70.0W	1533 03/23
CHARLOTTE AMALI	US VIRGIN IS	18.3N	64.9W	1534 03/23
CABO ENGANO	DOMINICAN REP	18.6N	68.3W	1535 03/23
BAIE BLANCHE	SAINT MARTIN	18.1N	63.0W	1541 03/23
CUMANA	VENEZUELA	10.5N	64.2W	1542 03/23
WILLEMSTAD	CURACAO	12.1N	68.9W	1547 03/23

PORT OF SPAIN	TRINIDAD TOBAGO	10.6N	61.5W	1604 03/23
ROADTOWN	BR VIRGIN IS	18.4N	64.6W	1617 03/23
PORLAMAR	VENEZUELA	10.9N	63.8W	1836 03/23
GEORGETOWN	GUYANA	6.8N	58.2W	1844 03/23

TEST... POTENTIAL IMPACTS ...TEST

* THIS IS A TEST MESSAGE. A TSUNAMI IS A SERIES OF WAVES. THE TIME BETWEEN WAVE CRESTS CAN VARY FROM 5 MINUTES TO AN HOUR. THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE INITIAL WAVE.

* THIS IS A TEST MESSAGE. IMPACTS CAN VARY SIGNIFICANTLY FROM ONE SECTION OF COAST TO THE NEXT DUE TO LOCAL BATHYMETRY AND THE SHAPE AND ELEVATION OF THE SHORELINE.

* THIS IS A TEST MESSAGE. IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

* THIS IS A TEST MESSAGE. PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEPT OUT TO SEA.

TEST... TSUNAMI OBSERVATIONS ...TEST

* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

	GAUGE COORDINATES		TIME OF MEASURE	MAXIMUM TSUNAMI	WAVE PERIOD
GAUGE LOCATION	LAT	LON	(UTC)	HEIGHT	(MIN)
PUERTO PLATA DO	19.8N	70.7W	1559	0.04M/ 0.1FT	18
CULEBRA IS PR	18.3N	65.3W	1551	0.31M/ 1.0FT	14
BARAHONA DO	18.2N	71.1W	1544	0.31M/ 1.0FT	18
CHARLOTTE-AMALIE VI	18.3N	64.9W	1541	0.33M/ 1.1FT	24
ORANGESTAD AW	12.5N	70.0W	1544	0.44M/ 1.5FT	26
LAMESHURBAYSTJOHNVI	18.3N	64.7W	1541	0.09M/ 0.3FT	22
BLOWING POINT AI	18.2N	63.1W	1538	0.51M/ 1.7FT	22
BULLEN BAY CURACAO	12.2N	69.0W	1537	0.37M/ 1.2FT	26
SALINAS PR	17.9N	66.2W	1531	0.47M/ 1.5FT	16
PUNTA CANA DO	18.5N	68.4W	1532	0.43M/ 1.4FT	22
SAINT MARTIN FR	18.1N	63.1W	1530	0.57M/ 1.9FT	26
ARECIBO PR	18.5N	66.7W	1530	0.16M/ 0.5FT	22
MAYAGUEZ PR	18.2N	67.2W	1525	0.21M/ 0.7FT	18
SAN JUAN PR	18.5N	66.1W	1528	0.10M/ 0.3FT	28
MAGUEYES ISLAND PR	18.0N	67.0W	1527	0.67M/ 2.2FT	24
ISABELII VIEQUES PR	18.2N	65.4W	1519	0.26M/ 0.9FT	14
MONA ISLAND PR	18.1N	67.9W	1524	0.38M/ 1.3FT	26
BARBUDA AG	17.6N	61.8W	1520	0.46M/ 1.5FT	28
SCARBOROUGH TT	11.2N	60.7W	1514	0.24M/ 0.8FT	28

DART 42407	15.3N	68.2W	1509	0.07M/ 0.2FT	22
ESPERANZA VIEQUES P	18.1N	65.5W	1508	0.60M/ 2.0FT	16
GUAYANILLA PR	18.0N	66.8W	1508	0.74M/ 2.4FT	28
YABUCOA PR	18.1N	65.8W	1511	0.78M/ 2.5FT	22
LIMETREE VI	17.7N	64.8W	1502	0.68M/ 2.2FT	28
ST CROIX VI	17.7N	64.7W	1455	0.47M/ 1.6FT	16
PRICKLEY BAY GD	12.0N	61.8W	1454	1.14M/ 3.7FT	18
PARHAM AT	17.1N	61.8W	1449	0.42M/ 1.4FT	20
BASSETERRE KN	17.3N	62.7W	1441	0.97M/ 3.2FT	24
PORT ST CHARLES BB	13.3N	59.6W	1443	0.72M/ 2.4FT	26
SOUFRIERE ST LUCIA	13.9N	61.1W	1438	1.72M/ 5.6FT	18
GANTERS BAY ST LUCI	14.0N	61.0W	1438	2.09M/ 6.9FT	26
VIEUX FORT ST LUCIA	13.7N	61.0W	1431	0.93M/ 3.0FT	26
POINT A PITRE GP	16.2N	61.5W	1436	0.76M/ 2.5FT	26
CALLIAQUA VC	13.1N	61.2W	1433	0.66M/ 2.2FT	20
DESIRADE GUADELOUPE	16.3N	61.1W	1433	0.56M/ 1.9FT	22
LE ROBERT MARTINIQU	14.7N	60.9W	1428	1.07M/ 3.5FT	22
DESHAIES GUADELOUPE	16.3N	61.8W	1425	0.97M/ 3.2FT	16
DENNERY ST LUCIA LC	13.9N	60.9W	1424	0.82M/ 2.7FT	24
CHATEAUBELAIR VC	13.3N	61.2W	1426	1.62M/ 5.3FT	14
PORTSMOUTH DM	15.6N	61.5W	1419	1.24M/ 4.1FT	20
FORT DE FRANCE MQ	14.6N	61.1W	1408	4.41M/14.5FT	24
ROSEAU DM	15.3N	61.4W	1411	1.96M/ 6.4FT	22
LE PRECHEUR MARTINI	14.8N	61.2W	1357	7.81M/25.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST
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* THIS IS A TEST MESSAGE. THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

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NNNN

PTWC Message #6

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ZCZC
WECA41 PHEB 231630
TSUCAX

TEST...TSUNAMI MESSAGE NUMBER 6...TEST
NWS PACIFIC TSUNAMI WARNING CENTER HONOLULU HI
1630 UTC THU MAR 23 2023

...THIS MESSAGE IS FOR THE CARIBE WAVE 23 EXERCISE ONLY...
...TEST FINAL TSUNAMI THREAT MESSAGE TEST...


**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

 THIS IS A TEST MESSAGE. THIS MESSAGE IS ISSUED FOR INFORMATION
 ONLY IN SUPPORT OF THE UNESCO/IOC TSUNAMI AND OTHER COASTAL
 HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS
 AND IS MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT
 SYSTEM.

 THIS IS A TEST MESSAGE. NATIONAL AUTHORITIES WILL DETERMINE THE
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY AND MAY ISSUE
 ADDITIONAL OR MORE REFINED INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****


TEST... TSUNAMI SOURCE EVENT PARAMETERS ...TEST
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  * ORIGIN TIME    1352 UTC MAR 23 2023
  * COORDINATES    14.8 NORTH  61.2 WEST
  * LOCATION       MOUNT PELEE VOLCANO... MARTINIQUE


TEST... EVALUATION ...TEST
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  * THIS IS A TEST MESSAGE. THE OBSERVATORY FOR MOUNT PELEE VOLCANO
    ON MARTINIQUE REPORTS A FLANK COLLAPSE OF THE VOLCANO AROUND 1350
    UTC WITH MATERIAL ENTERING THE SEA AROUND 1352 UTC ON THURSDAY
    MARCH 23 2023.

  * THIS IS A TEST MESSAGE. A SIGNIFICANT TSUNAMI WAS OBSERVED.

  * THIS IS A TEST MESSAGE. BASED ON ALL AVAILABLE DATA... THE
    TSUNAMI THREAT FROM THIS VOLCANIC EVENT HAS NOW PASSED AND
    THERE IS NO FURTHER THREAT.


TEST... TSUNAMI THREAT FORECAST...UPDATED ...TEST
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  * THIS IS A TEST MESSAGE. THE TSUNAMI THREAT HAS NOW LARGELY
    PASSED.
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TEST... RECOMMENDED ACTIONS ...TEST
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* THIS IS A TEST MESSAGE. GOVERNMENT AGENCIES RESPONSIBLE FOR ANY IMPACTED COASTAL AREAS SHOULD MONITOR CONDITIONS AT THE COAST TO DETERMINE IF AND WHEN IT IS SAFE TO RESUME NORMAL ACTIVITIES.

* THIS IS A TEST MESSAGE. PERSONS LOCATED NEAR IMPACTED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM LOCAL AUTHORITIES.

* THIS IS A TEST MESSAGE. REMAIN OBSERVANT AND EXERCISE NORMAL CAUTION NEAR THE SEA.

TEST... POTENTIAL IMPACTS ...TEST
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* THIS IS A TEST MESSAGE. MINOR SEA LEVEL FLUCTUATIONS UP TO 30 CM ABOVE AND BELOW THE NORMAL TIDE MAY OCCUR IN SOME COASTAL AREAS OVER THE NEXT FEW HOURS... CONTINUING FOR UP TO SEVERAL HOURS.

TEST... TSUNAMI OBSERVATIONS ...TEST
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* THIS IS A TEST MESSAGE. THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS. THE MAXIMUM TSUNAMI HEIGHT IS MEASURED WITH RESPECT TO THE NORMAL TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
TORTOLA VI UK	18.4N	64.6W	1628	0.30M/ 1.0FT	26
CAP HAITIEN HT	19.8N	72.2W	1608	0.03M/ 0.1FT	24
PUERTO PLATA DO	19.8N	70.7W	1559	0.04M/ 0.1FT	18
CULEBRA IS PR	18.3N	65.3W	1551	0.31M/ 1.0FT	14
BARAHONA DO	18.2N	71.1W	1544	0.31M/ 1.0FT	18
CHARLOTTE-AMALIE VI	18.3N	64.9W	1541	0.33M/ 1.1FT	24
ORANGESTAD AW	12.5N	70.0W	1544	0.44M/ 1.5FT	26
LAMESHURBAYSTJOHNVI	18.3N	64.7W	1541	0.09M/ 0.3FT	22
BLOWING POINT AI	18.2N	63.1W	1538	0.51M/ 1.7FT	22
BULLEN BAY CURACAO	12.2N	69.0W	1537	0.37M/ 1.2FT	26
SALINAS PR	17.9N	66.2W	1531	0.47M/ 1.5FT	16
PUNTA CANA DO	18.5N	68.4W	1532	0.43M/ 1.4FT	22
SAINT MARTIN FR	18.1N	63.1W	1530	0.57M/ 1.9FT	26
ARECIBO PR	18.5N	66.7W	1530	0.16M/ 0.5FT	22
MAYAGUEZ PR	18.2N	67.2W	1525	0.21M/ 0.7FT	18
SAN JUAN PR	18.5N	66.1W	1528	0.10M/ 0.3FT	28
MAGUEYES ISLAND PR	18.0N	67.0W	1527	0.67M/ 2.2FT	24
ISABELII VIEQUES PR	18.2N	65.4W	1519	0.26M/ 0.9FT	14
MONA ISLAND PR	18.1N	67.9W	1524	0.38M/ 1.3FT	26
BARBUDA AG	17.6N	61.8W	1520	0.46M/ 1.5FT	28

SCARBOROUGH TT	11.2N	60.7W	1514	0.24M/ 0.8FT	28
DART 42407	15.3N	68.2W	1509	0.07M/ 0.2FT	22
ESPERANZA VIEQUES P	18.1N	65.5W	1508	0.60M/ 2.0FT	16
GUAYANILLA PR	18.0N	66.8W	1508	0.74M/ 2.4FT	28
YABUCOA PR	18.1N	65.8W	1511	0.78M/ 2.5FT	22
LIMETREE VI	17.7N	64.8W	1502	0.68M/ 2.2FT	28
ST CROIX VI	17.7N	64.7W	1455	0.47M/ 1.6FT	16
PRICKLEY BAY GD	12.0N	61.8W	1454	1.14M/ 3.7FT	18
PARHAM AT	17.1N	61.8W	1449	0.42M/ 1.4FT	20
BASSETERRE KN	17.3N	62.7W	1441	0.97M/ 3.2FT	24
PORT ST CHARLES BB	13.3N	59.6W	1443	0.72M/ 2.4FT	26
SOUFRIERE ST LUCIA	13.9N	61.1W	1438	1.72M/ 5.6FT	18
GANTERS BAY ST LUCI	14.0N	61.0W	1438	2.09M/ 6.9FT	26
VIEUX FORT ST LUCIA	13.7N	61.0W	1431	0.93M/ 3.0FT	26
POINT A PITRE GP	16.2N	61.5W	1436	0.76M/ 2.5FT	26
CALLIAQUA VC	13.1N	61.2W	1433	0.66M/ 2.2FT	20
DESIRADE GUADELOUPE	16.3N	61.1W	1433	0.56M/ 1.9FT	22
LE ROBERT MARTINIQU	14.7N	60.9W	1428	1.07M/ 3.5FT	22
DESHAIES GUADELOUPE	16.3N	61.8W	1425	0.97M/ 3.2FT	16
DENNERY ST LUCIA LC	13.9N	60.9W	1424	0.82M/ 2.7FT	24
CHATEAUBELAIR VC	13.3N	61.2W	1426	1.62M/ 5.3FT	14
PORTSMOUTH DM	15.6N	61.5W	1419	1.24M/ 4.1FT	20
FORT DE FRANCE MQ	14.6N	61.1W	1408	4.41M/14.5FT	24
ROSEAU DM	15.3N	61.4W	1411	1.96M/ 6.4FT	22
LE PRECHEUR MARTINI	14.8N	61.2W	1357	7.81M/25.6FT	16

TEST... NEXT UPDATE AND ADDITIONAL INFORMATION ...TEST
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* THIS IS A TEST MESSAGE. THIS WILL BE THE FINAL STATEMENT ISSUED FOR THIS EVENT UNLESS NEW INFORMATION IS RECEIVED OR THE SITUATION CHANGES.

* THIS IS A TEST MESSAGE. FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT WWW.TSUNAMI.GOV.

* THIS IS A TEST MESSAGE. COASTAL REGIONS OF THE US GULF COAST... US EAST COAST... AND THE MARITIME PROVINCES OF CANADA SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT WWW.TSUNAMI.GOV.

THIS IS A TEST MESSAGE. DO NOT TAKE ACTION BASED ON THIS TEST MESSAGE.

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ANNEX VIII

SAMPLE PRESS RELEASE FOR LOCAL/NATIONAL MEDIA

TEMPLATE FOR NEWS RELEASE

USE AGENCY MASTHEAD

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

FOR IMMEDIATE RELEASE
(insert date)

CARIBBEAN TSUNAMI EXERCISE TO BE CONDUCTED MARCH 23, 2023

(*insert community/county/state name*) will join other localities in the Caribbean as a participant in a tsunami response exercise on March 23, 2023. The purpose of this exercise is to evaluate national and local tsunami response plans, increase tsunami preparedness, and improve coordination throughout the region. This exercise includes two simulated scenarios: an earthquake in Gulf of Honduras and a flank collapse of Mount Pelée, Martinique.

(*insert a promotional comment from a local official, such as "The 2010 Haiti, 2010, 2014, 2015 Chilean, 2011 Japan, and the recent 2018 Sulawesi, 2021 New Zealand and the Hunga Tonga-Hunga Ha'apai tsunamis have reminded the world 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 CARIBE WAVE 23, will simulate Tsunami Threat situations throughout the Caribbean, which requires implementation of national and local tsunami response plans. The exercise will (*insert "include" or "not include")* public notification.

The exercise will simulate (*insert description of chosen scenario - source and appropriate local time*) on March 23, 2023. The Pacific Tsunami Warning Center, as the Regional Tsunami Service Provider for Caribbean Sea and Adjacent Regions, has prepared and will disseminate to the National Tsunami Warning Center and Tsunami Warning Focal point simulated messages for the selected scenario. In addition, the Central America Tsunami Advisory Center, operated by Nicaragua, will be issuing products for countries of Central America for the Gulf of Honduras scenario.

Insert paragraph tailored for specific community. Could identify participating agencies and specific plans. Could describe current early warning programme, past tsunami exercises (if any), ongoing mitigation and public education programmes, 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 UNESCO/IOC Intergovernmental Coordination Group for Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS) in coordination with the Caribbean Emergency Management Agency (CDEMA), the Centro de Coordinación para la Prevención de los

Desastres Naturales en América Central (CEPREDENAC), EMIZA Antilles, and the U.S. National Oceanic and Atmospheric Administration (NOAA).

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For more information:

State/local emergency response agency	*Insert URLs*
ICG/CARIBE EWS	http://www.ioc-tsunami.org
Pacific Tsunami Warning Center	https://tsunami.gov
NOAA Tsunami Program	https://www.tsunami.gov
ITIC Caribbean Office	http://caribewave.org
Caribbean Tsunami Information Centre	https://www.ctic.ioc-unesco.org

ANNEX IX

LIST OF ACRONYMS

AISR	Aeronautical Information System Replacement
AWIPS	Advanced Weather Interactive Processing System
CDEMA	Caribbean Disaster Emergency Management Agency
CEPREDENAC	Coordination Centre for the Prevention of Natural Disasters in Central America
CTIC	Caribbean Tsunami Information Centre
CW	CARIBE WAVE (exercise)
EAS	Emergency Alert System
EMIZA	Etat-Major Interministériel de la Zone de Défense et de Sécurité Antilles
EMO	Emergency Management Organization
EMWIN	Emergency Managers Weather Information Network
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
GDP	Gross Domestic Product
GMT	Generic Mapping Tool
GTS	Global Telecommunication System
ICG	Intergovernmental Coordination Group
ICG/CARIBE-EWS	Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions
IOC	Intergovernmental Oceanographic Commission of UNESCO
ITIC	International Tsunami Information Center
ITIC-CAR	International Tsunami Information Center, Caribbean Office
MS	Member States
NCEI	National Centres for Environmental Information
NDMO	National Disaster Management Office
NOAA	U.S. National Oceanic and Atmospheric Administration
NTWC	National Tsunami Warning Centre
NWWS	NOAA Weather Wire Service (USA)
OEM	Offices of Emergency Management
OVSM	Volcanological and Seismological Observatory of Martinique
PAGER	Prompt Assessment of Global Earthquakes for Response
PRSN	Puerto Rico Seismic Network
PTWC	Pacific Tsunami Warning Center

SOP	Standard Operating Procedures
SRC	Seismic Research Centre
TER	Tsunami Emergency Response
TT	Task Team
TWFP	Tsunami Warning Focal Points
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USGS	United Stated Geological Survey
VONUT	Volcano Observatory Notice for Tsunami Threat
WMO	World Meteorological Organization

IOC Technical Series

No.	Title	Languages
1	Manual on International Oceanographic Data Exchange. 1965	(out of stock)
2	Intergovernmental Oceanographic Commission (Five years of work). 1966	(out of stock)
3	Radio Communication Requirements of Oceanography. 1967	(out of stock)
4	Manual on International Oceanographic Data Exchange - Second revised edition. 1967	(out of stock)
5	Legal Problems Associated with Ocean Data Acquisition Systems (ODAS). 1969	(out of stock)
6	Perspectives in Oceanography, 1968	(out of stock)
7	Comprehensive Outline of the Scope of the Long-term and Expanded Programme of Oceanic Exploration and Research. 1970	(out of stock)
8	IGOSS (Integrated Global Ocean Station System) - General Plan Implementation Programme for Phase I. 1971	(out of stock)
9	Manual on International Oceanographic Data Exchange - Third Revised Edition. 1973	(out of stock)
10	Bruun Memorial Lectures, 1971	E, F, S, R
11	Bruun Memorial Lectures, 1973	(out of stock)
12	Oceanographic Products and Methods of Analysis and Prediction. 1977	E only
13	International Decade of Ocean Exploration (IDOE), 1971-1980. 1974	(out of stock)
14	A Comprehensive Plan for the Global Investigation of Pollution in the Marine Environment and Baseline Study Guidelines. 1976	E, F, S, R
15	Bruun Memorial Lectures, 1975 - Co-operative Study of the Kuroshio and Adjacent Regions. 1976	(out of stock)
16	Integrated Ocean Global Station System (IGOSS) General Plan and Implementation Programme 1977-1982. 1977	E, F, S, R
17	Oceanographic Components of the Global Atmospheric Research Programme (GARP) . 1977	(out of stock)
18	Global Ocean Pollution: An Overview. 1977	(out of stock)
19	Bruun Memorial Lectures - The Importance and Application of Satellite and Remotely Sensed Data to Oceanography. 1977	(out of stock)
20	A Focus for Ocean Research: The Intergovernmental Oceanographic Commission - History, Functions, Achievements. 1979	(out of stock)
21	Bruun Memorial Lectures, 1979: Marine Environment and Ocean Resources. 1986	E, F, S, R
22	Scientific Report of the Interealibration Exercise of the IOC-WMO-UNEP Pilot Project on Monitoring Background Levels of Selected Pollutants in Open Ocean Waters. 1982	(out of stock)
23	Operational Sea-Level Stations. 1983	E, F, S, R
24	Time-Series of Ocean Measurements. Vol.1. 1983	E, F, S, R
25	A Framework for the Implementation of the Comprehensive Plan for the Global Investigation of Pollution in the Marine Environment. 1984	(out of stock)
26	The Determination of Polychlorinated Biphenyls in Open-ocean Waters. 1984	E only
27	Ocean Observing System Development Programme. 1984	E, F, S, R
28	Bruun Memorial Lectures, 1982: Ocean Science for the Year 2000. 1984	E, F, S, R
29	Catalogue of Tide Gauges in the Pacific. 1985	E only
30	Time-Series of Ocean Measurements. Vol. 2. 1984	E only
31	Time-Series of Ocean Measurements. Vol. 3. 1986	E only
32	Summary of Radiometric Ages from the Pacific. 1987	E only
33	Time-Series of Ocean Measurements. Vol. 4. 1988	E only
34	Bruun Memorial Lectures, 1987: Recent Advances in Selected Areas of Ocean Sciences in the Regions of the Caribbean, Indian Ocean and the Western Pacific. 1988	Composite E, F, S
35	Global Sea-Level Observing System (GLOSS) Implementation Plan. 1990	E only

(continued)

36	Bruun Memorial Lectures 1989: Impact of New Technology on Marine Scientific Research. 1991	Composite E, F, S
37	Tsunami Glossary - A Glossary of Terms and Acronyms Used in the Tsunami Literature. 1991	E only
38	The Oceans and Climate: A Guide to Present Needs. 1991	E only
39	Bruun Memorial Lectures, 1991: Modelling and Prediction in Marine Science. 1992	E only
40	Oceanic Interdecadal Climate Variability. 1992	E only
41	Marine Debris: Solid Waste Management Action for the Wider Caribbean. 1994	E only
42	Calculation of New Depth Equations for Expendable Bathymerographs Using a Temperature-Error-Free Method (Application to Sippican/TSK T-7, T-6 and T-4 XBTS. 1994	E only
43	IGOSS Plan and Implementation Programme 1996-2003. 1996	E, F, S, R
44	Design and Implementation of some Harmful Algal Monitoring Systems. 1996	E only
45	Use of Standards and Reference Materials in the Measurement of Chlorinated Hydrocarbon Residues. 1996	E only
46	Equatorial Segment of the Mid-Atlantic Ridge. 1996	E only
47	Peace in the Oceans: Ocean Governance and the Agenda for Peace; the Proceedings of *Pacem in Maribus* XXIII, Costa Rica, 1995. 1997	E only
48	Neotectonics and fluid flow through seafloor sediments in the Eastern Mediterranean and Black Seas - Parts I and II. 1997	E only
49	Global Temperature Salinity Profile Programme: Overview and Future. 1998	E only
50	Global Sea-Level Observing System (GLOSS) Implementation Plan-1997. 1997	E only
51	L'état actuel de 1'exploitation des pêcheries maritimes au Cameroun et leur gestion intégrée dans la sous-région du Golfe de Guinée *(cancelled)*	F only
52	Cold water carbonate mounds and sediment transport on the Northeast Atlantic Margin. 1998	E only
53	The Baltic Floating University: Training Through Research in the Baltic, Barents and White Seas - 1997. 1998	E only
54	Geological Processes on the Northeast Atlantic Margin (8th training-through-research cruise, June-August 1998). 1999	E only
55	Bruun Memorial Lectures, 1999: Ocean Predictability. 2000	E only
56	Multidisciplinary Study of Geological Processes on the North East Atlantic and Western Mediterranean Margins (9th training-through-research cruise, June-July 1999). 2000	E only
57	Ad hoc Benthic Indicator Group - Results of Initial Planning Meeting, Paris, France, 6-9 December 1999. 2000	E only
58	Bruun Memorial Lectures, 2001: Operational Oceanography – a perspective from the private sector. 2001	E only
59	Monitoring and Management Strategies for Harmful Algal Blooms in Coastal Waters. 2001	E only
60	Interdisciplinary Approaches to Geoscience on the North East Atlantic Margin and Mid-Atlantic Ridge (10th training-through-research cruise, July-August 2000). 2001	E only
61	Forecasting Ocean Science? Pros and Cons, Potsdam Lecture, 1999. 2002	E only
62	Geological Processes in the Mediterranean and Black Seas and North East Atlantic (11th training-through-research cruise, July- September 2001). 2002	E only
63	Improved Global Bathymetry – Final Report of SCOR Working Group 107. 2002	E only
64	R. Revelle Memorial Lecture, 2006: Global Sea Levels, Past, Present and Future. 2007	E only
65	Bruun Memorial Lectures, 2003: Gas Hydrates – a potential source of energy from the oceans. 2003	E only
66	Bruun Memorial Lectures, 2003: Energy from the Sea: the potential and realities of Ocean Thermal Energy Conversion (OTEC). 2003	E only

67	Interdisciplinary Geoscience Research on the North East Atlantic Margin, Mediterranean Sea and Mid-Atlantic Ridge (12th training-through-research cruise, June-August 2002). 2003	E only
68	Interdisciplinary Studies of North Atlantic and Labrador Sea Margin Architecture and Sedimentary Processes (13th training-through-research cruise, July-September 2003). 2004	E only
69	Biodiversity and Distribution of the Megafauna / Biodiversité et distribution de la mégafaune. 2006 Vol.1 The polymetallic nodule ecosystem of the Eastern Equatorial Pacific Ocean / Ecosystème de nodules polymétalliques de l'océan Pacifique Est équatorial Vol.2 Annotated photographic Atlas of the echinoderms of the Clarion-Clipperton fracture zone / Atlas photographique annoté des échinodermes de la zone de fractures de Clarion et de Clipperton Vol.3 Options for the management and conservation of the biodiversity — The nodule ecosystem in the Clarion Clipperton fracture zone: scientific, legal and institutional aspects	E F
70	Interdisciplinary geoscience studies of the Gulf of Cadiz and Western Mediterranean Basin (14th training-through-research cruise, July-September 2004). 2006	E only
71	Indian Ocean Tsunami Warning and Mitigation System, IOTWS. Implementation Plan, 7–9 April 2009 (2nd Revision). 2009	E only
72	Deep-water Cold Seeps, Sedimentary Environments and Ecosystems of the Black and Tyrrhenian Seas and the Gulf of Cadiz (15th training-through-research cruise, June–August 2005). 2007	E only
73	Implementation Plan for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS), 2007–2011. 2007 *(electronic only)*	E only
74	Bruun Memorial Lectures, 2005: The Ecology and Oceanography of Harmful Algal Blooms – Multidisciplinary approaches to research and management. 2007	E only
75	National Ocean Policy. The Basic Texts from: Australia, Brazil, Canada, China, Colombia, Japan, Norway, Portugal, Russian Federation, United States of America. (Also Law of Sea Dossier 1). 2008	E only
76	Deep-water Depositional Systems and Cold Seeps of the Western Mediterranean, Gulf of Cadiz and Norwegian Continental margins (16th training-through-research cruise, May–July 2006). 2008	E only
77	Indian Ocean Tsunami Warning and Mitigation System (IOTWS) – 12 September 2007 Indian Ocean Tsunami Event. Post-Event Assessment of IOTWS Performance. 2008	E only
78	Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE EWS) – Implementation Plan 2013–2017 (Version 2.0). 2013	E only
79	Filling Gaps in Large Marine Ecosystem Nitrogen Loadings Forecast for 64 LMEs – GEF/LME global project Promoting Ecosystem-based Approaches to Fisheries Conservation and Large Marine Ecosystems. 2008	E only
80	Models of the World's Large Marine Ecosystems. GEF/LME Global Project Promoting Ecosystem-based Approaches to Fisheries Conservation and Large Marine Ecosystems. 2008	E only
81	Indian Ocean Tsunami Warning and Mitigation System (IOTWS) – Implementation Plan for Regional Tsunami Watch Providers (RTWP). 2008	E only
82	Exercise Pacific Wave 08 – A Pacific-wide Tsunami Warning and Communication Exercise, 28–30 October 2008. 2008	E only
83.	*Cancelled*	
84.	Global Open Oceans and Deep Seabed (GOODS) Bio-geographic Classification. 2009	E only
85.	Tsunami Glossary	E, F, S
86	Pacific Tsunami Warning System (PTWS) Implementation Plan	*Electronic publication*

(continued)

87.	Operational Users Guide for the Pacific Tsunami Warning and Mitigation System (PTWS) – Second Edition. 2011	E only
88.	Exercise Indian Ocean Wave 2009 (IOWave09) – An Indian Ocean-wide Tsunami Warning and Communication Exercise – 14 October 2009. 2009	E only
89.	Ship-based Repeat Hydrography: A Strategy for a Sustained Global Programme. 2009	E only
90.	12 January 2010 Haiti Earthquake and Tsunami Event Post-Event Assessment of CARIBE EWS Performance. 2010	E only
91.	Compendium of Definitions and Terminology on Hazards, Disasters, Vulnerability and Risks in a coastal context	*Under preparation*
92.	27 February 2010 Chile Earthquake and Tsunami Event – Post-Event Assessment of PTWS Performance (Pacific Tsunami Warning System). 2010	E only
93.	Exercise CARIBE WAVE 11 / LANTEX 11—A Caribbean Tsunami Warning Exercise, 23 March 2011	
	Vol. 1 Participant Handbook / Exercise CARIBE WAVE 11 —Exercice d'alerte au tsunami dans les Caraïbes, 23 mars 2011. Manuel du participant / Ejercicio Caribe Wave 11. Un ejercicio de alerta de tsunami en el Caribe, 23 de marzo de 2011. Manual del participante. 2010	E/F/S
	Vol. 2 Report. 2011	E only
	Vol. 3 Supplement: Media Reports. 2011	E/F/S
94.	Cold seeps, coral mounds and deep-water depositional systems of the Alboran Sea, Gulf of Cadiz and Norwegian continental margin (17th training-through-research cruise, June–July 2008)	E only
95.	International Post-Tsunami Survey for the 25 October 2010 Mentawai, Indonesia Tsunami	E only
96.	Pacific Tsunami Warning System (PTWS) 11 March 2011 Off Pacific coast of Tohoku, Japan, Earthquake and Tsunami Event. Post-Event Assessment of PTWS Performance	E only
97.	Exercise PACIFIC WAVE 11: A Pacific-wide Tsunami Warning and Communication Exercise, 9–10 November 2011	
	Vol. 1 Exercise Manual. 2011	E only
	Vol. 2 Report. 2013	E only
98.	Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and connected seas. First Enlarged Communication Test Exercise (ECTE1). Exercise Manual and Evaluation Report. 2011	E only
99.	Exercise INDIAN OCEAN WAVE 2011 – An Indian Ocean-wide Tsunami Warning and Communication Exercise, 12 October 2011	E only
	Vol. 1 Exercise Manual. 2011 Supplement: Bulletins from the Regional Tsunami Service Providers	
	Vol. 2 Exercise Report. 2013	
100.	Global Sea Level Observing System (GLOSS) Implementation Plan – 2012. 2012	E only
101.	Exercise Caribe Wave/Lantex 13. A Caribbean Tsunami Warning Exercise, 20 March 2013. Volume 1: Participant Handbook. 2012 Volume 2: Final Report	E only
102.	Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas — Second Enlarged Communication Test Exercise (CTE2), 22 May 2012.	E only
	Vol. 1 Exercise Manual. 2012	
	Vol. 2 Evaluation Report. 2014	
103.	Exercise NEAMWAVE 12. A Tsunami Warning and Communication Exercise for the North-eastern Atlantic, the Mediterranean, and Connected Seas Region, 27–28 November 2012. Vol. 1: Exercise Manual. 2012 Vol. 2: Evaluation Report. 2013	E only
104.	Seísmo y tsunami del 27 de agosto de 2012 en la costa del Pacífico frente a El Salvador, y seísmo del 5 de septiembre de 2012 en la costa del Pacífico frente a Costa Rica. Evaluación subsiguiente sobre el funcionamiento del Sistema de Alerta contra los Tsunamis y Atenuación de sus Efectos en el Pacífico. 2012	Español solamente (resumen en inglés y francés)

105.	Users Guide for the Pacific Tsunami Warning Center Enhanced Products for the Pacific Tsunami Warning System, August 2014. Revised Edition. 2014	E, S
106.	Exercise Pacific Wave 13. A Pacific-wide Tsunami Warning and Enhanced Products Exercise, 1–14 May 2013. Vol. 1 Exercise Manual. 2013 Vol. 2 Summary Report. 2013	E only
107.	Tsunami Public Awareness and Educations Strategy for the Caribbean and Adjacent Regions. 2013	E only
108.	Pacific Tsunami Warning and Mitigation System (PTWS) Medium-Term Strategy, 2014−2021. 2013	E only
109.	Exercise Caribe Wave/Lantex 14. A Caribbean and Northwestern Atlantic Tsunami Warning Exercise, 26 March 2014. Vol. 1 Participant Handbook. 2014 Vol. 2 Evaluation Report. 2015 (English only)	E/S
110.	Directory of atmospheric, hydrographic and biological datasets for the Canary Current Large Marine Ecosystem, 3rd edition: revised and expanded. 2017	E only
111.	Integrated Regional Assessments in support of ICZM in the Mediterranean and Black Sea Basins. 2014	E only
112.	11 April 2012 West of North Sumatra Earthquake and Tsunami Event - Post-event Assessment of IOTWS Performance	E only
113.	Exercise Indian Ocean Wave 2014: An Indian Ocean-wide Tsunami Warning and Communication Exercise. Vol.1 Manual Vol. 2 Exercise Report. 2015	E only
114.	Exercise NEAMWAVE 14. A Tsunami Warning and Communication Exercise for the North-Eastern Atlantic, the Mediterranean, and Connected Seas Region, 28–30 October 2014 Vol. 1 Manual Vol. 2 Evaluation Report – Supplement: Evaluation by Message Providers and Civil Protection Authorities	E only
115.	Oceanographic and Biological Features in the Canary Current Large Marine Ecosystem. 2015 *(revised in 2016)*	E only
116.	Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas. Third Enlarged Communication Test Exercise (CTE3), 1st October 2013. Vol. 1 Exercise Manual Vol. 2 Evaluation Report	E only
117.	Exercise Pacific Wave 15. A Pacific-wide Tsunami Warning and Enhanced Products Exercise, 2–6 February 2015 Vol. 1: Exercise Manual; Vol. 2: Summary Report	E only
118.	Exercise Caribe Wave/Lantex 15. A Caribbean and Northwestern Atlantic Tsunami Warning Exercise, 25 March 2015 (SW Caribbean Scenario) Vol. 1: Participant Handbook Vol. 2: Summary Report	E only
119.	Transboundary Waters Assessment Programme (TWAP) Assessment of Governance Arrangements for the Ocean Vol 1: Transboundary Large Marine Ecosystems; Supplement: Individual Governance Architecture Assessment for Fifty Transboundary Large Marine Ecosystems Vol 2: Areas Beyond National Jurisdiction	E only
120.	Transboundary Waters Assessment Programme (TWAP) – Status and Trends in Primary Productivity and Chlorophyll from 1996 to 2014 in Large Marine Ecosystems and the Western Pacific Warm Pool, Based on Data from Satellite Ocean Colour Sensors. 2017	E only
121.	Exercise Indian Ocean Wave 14, an Indian Ocean wide Tsunami Warning and Communications Exercise, 9–10 September 2014	*In preparation*
122.	Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas. Sixth Communication Test Exercise (CTE6), 29 July 2015. Vol. 1: Exercise Manual Vol. 2: Evaluation Report	E only

(continued)

123	Preparing for the next tsunami in the North-Eastern Atlantic, the Mediterranean and Connected Seas – Ten years of the Tsunami Warning System (NEAMTWS). 2017 —*Cancelled*	*(see IOC/INF-1340)*
124	Indicadores Marino Costeros del Pacífico Sudeste / Coastal and Marine Indicators of the Southeast Pacific (SPINCAM)	E/S
125	Exercise CARIBE WAVE 2016: A Caribbean and Adjacent Regions Tsunami Warning Exercise, 17 March 2016 (Venezuela and Northern Hispaniola Scenarios) Volume 1: Participant Handbook Volume 2: Final Report	E only
126	Exercise Pacific Wave 16. A Pacific-wide Tsunami Warning and Enhanced Products Exercise, 1-5 February 2016. Volume 1: Exercise Manual. Volume 2: Summary Report	E only
127	Experiencias locales de manejo costero integrado: casos piloto SPINCAM en el Pacífico Sudeste. (ICAM Dossier nº9)	S only
128.	Exercise Indian Ocean Wave 2016: An Indian Ocean-wide Tsunami Warning and Communications Exercise, 7–8 September 2016 Vol 1: Participant Manual Vol. 2: Exercise Report	E only
129	What are Marine Ecological Time Series telling us about the Ocean – A status report	E only
130	Tsunami Watch Operations – Global Service Definition Document	E only
131	Exercise Pacific Wave 2017. A Pacific-wide Tsunami Warning and Enhanced Products Exercise, 15-17 February 2017. Volume 1: Exercise Manual Volume 2: Exercise Report	E only
132.	2nd March 2016 Southwest of Sumatra Earthquake and Tsunami Event Post-Event Assessment of the Performance of the Indian Ocean Tsunami Warning and Mitigation System; Supplement: Tsunami Service Provider Bulletins and Maps	E only
133.	Exercise CARIBE WAVE 17. A Caribbean and Adjacent Regions Tsunami Warning Exercise, 21 March 2017 (Costa Rica, Cuba and Northeastern Antilles Scenarios). Volume 1: Participant Handbook Volume 2: Final Report	E only
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