CARIBE WAVE 16

Seminario en línea

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ICG CARIBE EWS Chair
20 de enero de 2016

Marco de Referencia Institucional para el Ejercicio

UNESCO: La Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura

ICG/CARIBE EWS: Grupo Intergubernamental de Coordinación del Sistema de Alerta contra Tsunamis y otras Amenazas Costeras del Caribe y Regiones Adyacentes

CTIC: Centro de Información de Tsunami del Caribe; Gobierno de Barbados UNESCO/ IOC Asociación

NOAA: Administración Nacional Oceánica y Atmosférica, U.S. Departamento de Comercio

CEPREDENAC: Centro de Coordinación para la Prevención de los Desastres Naturales en América Central

CDEMA: Agencia de Manejo de Emergencias y Desastres del Caribe

EMIZ Antilles: Personal Interdepartamental de las Indias Occidentales (Antillas)

TWC: Centro de Alerta de Tsunami

CTWP: Programa de Alerta de Tsunamis del Caribe

CARIBE WAVE/LANTEX 2015

- 31 países y 17 territorios en el Caribe y Regiones Adyacentes participaron en este ejercicio con un total de casi 191,420 personas se registraron.
  - Esto representó una tasa de participación de un 100% (mayor que el de 98% en el 2014, 94% en 2013, 75% en 2011) de todos los países y territorios del CARIBE EWS.

Antigua y Barbuda, Aruba, Bahamas, Barbados, Belice, Brasil (observador), Canadá, Colombia, Costa Rica, Cuba, Dominica, República Dominicana, Francia (Martinica, Guadalupe, Guyana, San Bartolomé, San Martín), Guyana Francesa, Granada, Guatemala, Guyana, Haití, Honduras, Jamaica, México, Holanda (Bonaire, Curacao, Saba y San Eustacio), Nicaragua, Panamá, San Cristóbal y Nevis, Santa Lucía, San Vicente y las Grenadinas, San Maarten, Suriname, Trinidad y Tobago, Reino Unido (Anguila, Islas Vírgenes Británicas, Bermuda, Islas Caimán,y Turks y Caicos), Estados Unidos (Puerto Rico y las Islas Vírgenes Americanas) y Venezuela (República Bolivariana).

Comentarios del CARIBE WAVE/LANTEX 2015

- 79% de los Puntos Focales de Alerta de Tsunami recibieron a tiempo el mensaje “dummy” enviado por los Centros de Alerta de Tsunami (TWC).
- 46% de los encuestados indicaron que el ejercicio tuvo una cobertura en los medios de comunicación.
- 88% de los TWFP/NDMO indicaron que tenían un proceso de activación y respuesta de Tsunamis (procedimiento operativo estándar).
- Plan de respuesta para emergencia de tsunami:
  - 62% de los países participantes tiene un plan para tsunamis locales
  - 68% de los países participantes tiene un plan para tsunamis regionales
  - 73% de los países participantes tiene un plan para tsunamis distantes
- 17 de los países o territorios indicaron que tuvieron mapa de inundación de tsunami disponible para áreas de evacuación.
- 34% (mayor que el de 22% en 2014) de los TWFP/NDMO indicaron que tienen un plan de evacuación masiva en caso de tsunami en las costas.

Justificaciones para el Ejercicio

El ejercicio es **útil para validar y enfatizar la necesidad de planificación en caso de tsunamis.**

- Hay una absoluta necesidad para **reforzar los planes de preparación y desalojo** e involucrar al sector privado. El hecho que **la población y prensa** tengan un alto interés en el ejercicio también es un factor importante.

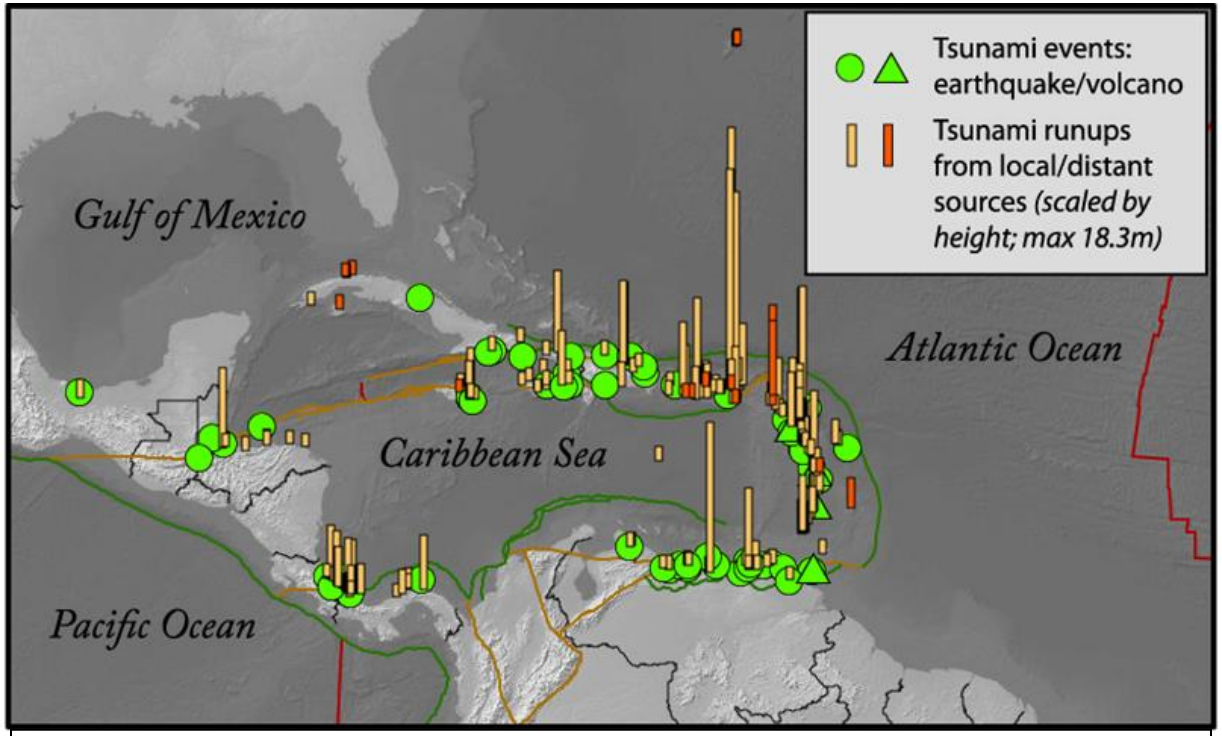
Otras Justificaciones para el Ejercicio

- Dado al éxito de LANTEX 09, 10, 11, 12, 13, 14 y 15 y CARIBE WAVE 11, 13, 14 and 15, cada ejercicio aumenta la participación.
- La frecuencia e impacto devastador de eventos sísmicos y de tsunami a nivel global y regional como los de Haití, Chile y Japón.
- Marcada vulnerabilidad de tsunamis en nuestra región.
- Oportunidades para cooperación con otras organizaciones a nivel regional.
- Importancia de poner a prueba y evaluar los sistemas de alerta y protocolos nacionales.

http://1.bp.blogspot.com/-BU3-wRZEl7s/VVFrnj_TXxI/AAAAAAAABak/wF6PfQ9ixZs/s1600/na_color_Haiti_Earthquake3_t960.jpg

http://www.brecorder.com/images/2015/09/chile-earthquake-000-mvd6714331.jpg

Los datos históricos de tsunamis indican que en los últimos 500 años se han observado en el Caribe más de 75 tsunamis. Los Tsunamis aunque ocurren con menos frecuencia que en otras cuencas oceánicas, tienen el potencial de matar unas 500,000 personas en pocas horas si no se responde adecuadamente.



Mapa del periodo previo a un tsunami en el Caribe, 1493-2013 (Centros Nacionales de Información Ambiental, http:www.ngdc.noaa.govhazardstsu.shtml). Artista: Jessee Varner; Publicado originalmente en von Hillebrandt-Andrade, 2013.

Country	Number of Registrants	Number of Participants according to Registration (closed March 20, 2015)	Number of Participants , with post exercise updates from Member States
Anguilla	5	5	1150
Dominican Republic	13	43	43
France	13	99	99
French Guiana	1	10	10
Grenada	4	9	9
Guadeloupe	24	408	3000
Guatemala	2	12	12
Guyana	2	12	12
Haiti	17	22	44
Honduras	1	1	1
Jamaica	2	2	2
Martinique	64	8.637	8637
Mexico	5	28	500
Montserrat	1	1	1
Nicaragua	4	28	100
Panama	20	63	600
Puerto Rico	500	80,953	80,953
Sint Maarten	2	2	25
Suriname	0	0	1
Trinidad and Tobago	4	104	30,104
Turks and Caicos	9	30	25
United States of America	144	23,344	23,344
U.S. Virgin Islands	30	4,793	4793
Venezuela	98	10,689	31,685
TOTAL			191,420

CARIBE WAVE 16

Objetivos

1. Ejecutar y evaluar las operaciones del sistema de alerta de Tsunami del CARIBE EWS.

A. Validar la **emisión** de productos de tsunami desde el PTWC.

B. Validar la **recepción** de los productos de tsunami en los puntos focales de alerta del CARIBE EWS (TWFP) y/o el Centro Nacional de Alerta de Tsunami (NTWC).

2. Continuar con un proceso de exposición a productos mejorados del PTWC.

A. Evaluar los productos mejorados del PTWC.

B. Informar más sobre los procedimientos para la aplicación de los productos mejorados.

3. Validar la preparación para responder a un tsunami.

A. Validar la disponibilidad operacional de los TWFP (o como función) y/o la Oficina Nacional de gestión de desastres (NDMO).

B. Mejorar la preparación operacional. Antes del ejercicio, asegúrese de poseer las herramientas apropiadas y los planes de respuesta que se han desarrollado, incluyendo materiales de educación pública.

C. Validar que la difusión de advertencias e información/asesoramiento por los puntos focales de alerta y el Centro Nacional de Alerta de Tsunami , a los organismos correspondientes en el país y el público sea precisa y oportuna.

D. Validar el proceso de toma de decisiones (planes de respuesta de tsunami) acerca de las advertencias públicas y evacuaciones.

E. Validar que los métodos utilizados para comunicar e instruir al público son precisos y oportunos.

F. Evaluar el estado de la conciencia pública nacional y la estrategia de educación.

Metas

Meta	Resultado 2013	Métrica 2014	Resultado 2015	Métrica 2015	Resultado 2015	Métrica 2016
Participación de los países miembros del ICG CARIBE EWS - con Punto Focal de Alerto de Tsunami designado	94%	95%	98% (incluyendo dos MS/Territorios no oficiales)	95%	100%	100%
Cumplimiento con el periodo de tiempo	Cerca del 100%	100%	Cerca del 100%	100%	Cerca del 100%	100%
Participación de la comunidad (más allá del TWFP)	75%	75%	75%	80%	66%	85%
Número de participantes	44,000	+10%	191,000	+10%	191,420	+10%
Recibo de los mensajes “dummy” al TWFP	98%	100%	94%	100%	90%	100%
Países que enviaron el cuestionario del ejercicio	90%	100%	100%	100%	91%	100%

Manual del Ejercicio

- Disponible en línea en inglés en el siguiente enlace: www.caribewave.info

- El mismo incluye:
  - Acciones sugeridas
  - Descripción del escenario
  - Tabla del tiempo
  - Tiempos de viaje y la amplitud esperada de las olas
  - Figuras y ejemplos de mensajes que se podrían emitir en caso de un evento
  - El enlace del cuestionario de evaluación

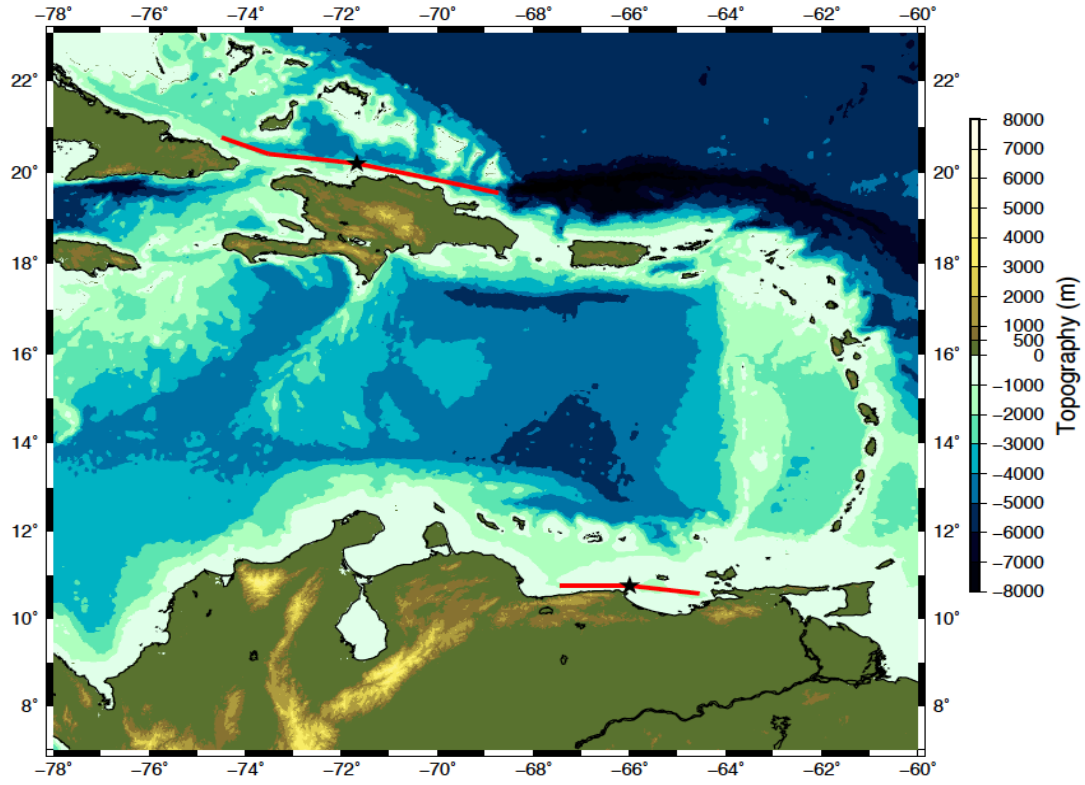
CARIBE WAVE 16

Escenario de Terremoto y Tsunami

- Este ejercicio proveerá una simulación de mensajes de amenaza de tsunami del PTWC, activado por dos casos hipotéticos de terremotos.
  - El terremoto de magnitud 8.4 de Venezuela fue modelado basado en el terremoto y tsunami del 29 de octubre de 1900.
    - La altura máxima del agua fue de 10 metros.
  - El terremoto de magnitud 8.7 del Norte de la Española se modeló basado en el 7 de mayo de 1842 terremoto y tsunami.
- Los terremotos en ambos escenarios producirán una alerta roja para La Española, Islas Turcas y Caicos y el sureste de Cuba para el escenario del norte de La Española; y la costa de Venezuela para el escenario de Venezuela.

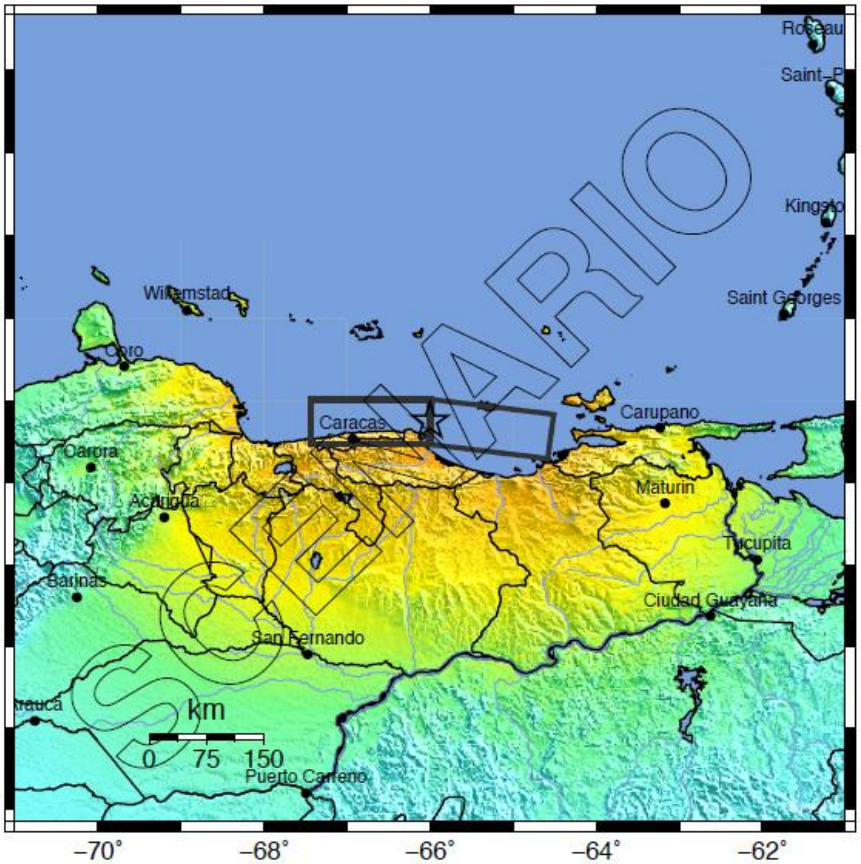
CARIBE WAVE 16

Mapa de los Escenarios



Escenario	Tiempo de Origen	Mw	Epicentro
Venezuela	14:00:00 UTC 17 de marzo de 2016	8.4	10.8ºN, 66.0ºO
Norte de La Española	15:00:00 UTC 17 de marzo de 2016	8.7	20.2ºN, 71.7ºO

Escenario del Impacto del Terremoto
Venezuela



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.05	0.3	2.8	6.2	12	22	40	75	>139
PEAK VEL.(cm/s)	*<0.02*	*0.1*	*1.4*	*4.7*	*9.6*	*20*	*41*	*86*	*>178*
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Worden et al. (2012)

USGS science for a changing world

Earthquake Shaking — Red Alert

GSN ANSS USAID FROM THE AMERICAN PEOPLE

M 8.4, Venezuela

Origin Time: Thu 2016-03-17 14:00:00 UTC (09:30:00 local)

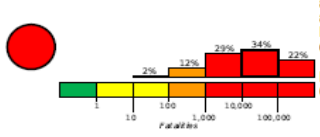
Location: 10.75 °N 66.00 °W Depth: 20 km

FOR TSUNAMI INFORMATION, SEE: tsunami.gov

PAGER Version 1

Created: 25 minutes, 0 seconds after earthquake

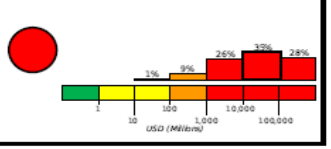
Estimated Fatalities



Red alert for shaking-related fatalities and economic losses. High casualties and extensive damage are probable and the disaster is likely widespread. Past red alerts have required a national or international response.

Estimated economic losses are 3-20% GDP of Bolivarian Republic of Venezuela.

Estimated Economic Losses



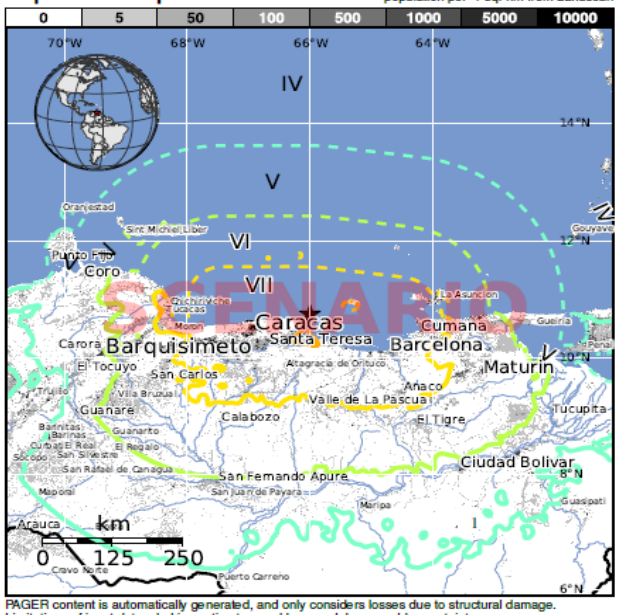
Estimated Population Exposed to Earthquake Shaking

ESTIMATED POPULATION EXPOSURE (k = x1000)		- -*	- -*	2,141k*	6,296k	4,893k	11,690k	478k	0	0
ESTIMATED MODIFIED MERCALLI INTENSITY		I	II-III	IV	V	VI	VII	VIII	IX	X+
PERCEIVED SHAKING		Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	Resistant Structures	none	none	none	V. Light	Light	Moderate	Moderate/Heavy	Heavy	V. Heavy
	Vulnerable Structures	none	none	none	Light	Moderate	Moderate/Heavy	Heavy	V. Heavy	V. Heavy

*Estimated exposure only includes population within the map area

Population Exposure

population per 1 sq. km from Landscan



PAGER content is automatically generated, and only considers losses due to structural damage. Limitations of input data, shaking estimates, and loss models may add uncertainty.

http://earthquake.usgs.gov/pager

Structures:

Overall, the population in this region resides in structures that are vulnerable to earthquake shaking, though some resistant structures exist. The predominant vulnerable building types are unreinforced brick masonry and adobe construction.

Historical Earthquakes (with MMI levels):

Date (UTC)	Dist. (km)	Mag.	Max MMI(#)	Shaking Deaths
1983-04-11	359	6.1	VIII(2k)	0
1974-06-12	281	6.5	IX(12k)	5
1997-07-09	271	6.9	VIII(2k)	81

Recent earthquakes in this area have caused secondary hazards such as landslides that might have contributed to losses.

Selected City Exposure

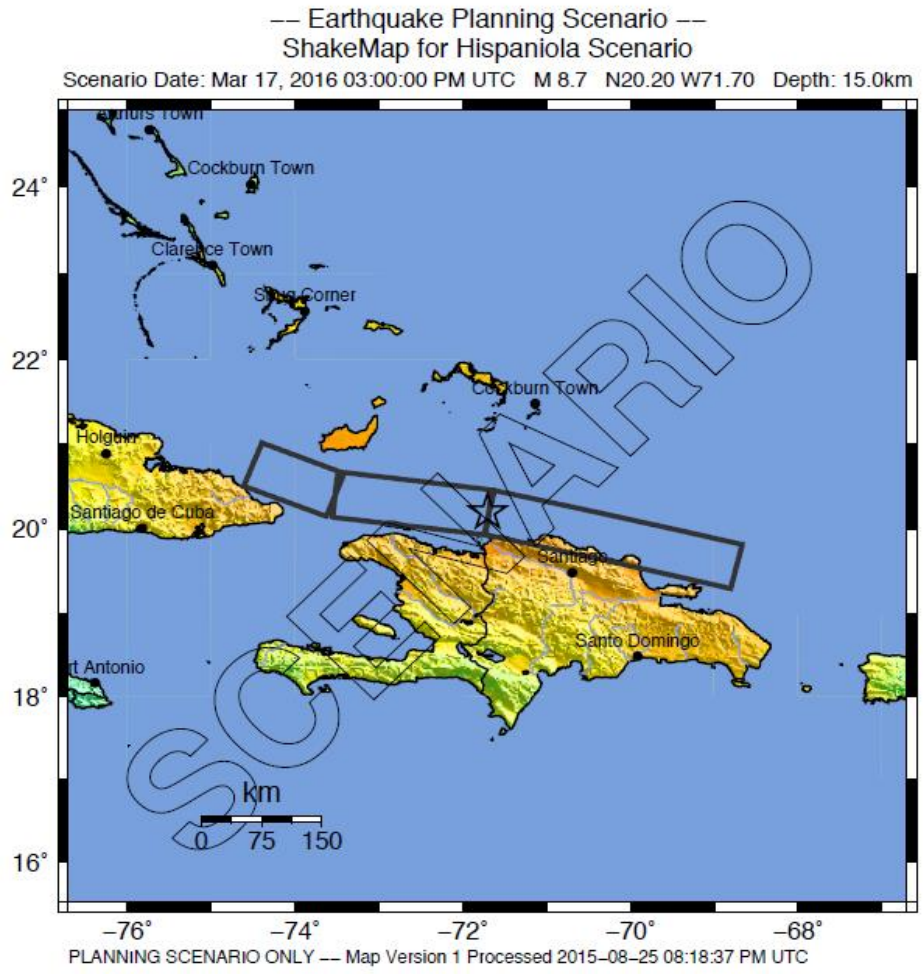
from GeoNames.org

MMI	City	Population
VIII	Puerto La Cruz	370k
VIII	Guanta	<1k
VIII	Lecherias	<1k
VIII	Rio Chico	<1k
VIII	San Jose de B.	<1k
VIII	Boca de Uchire	<1k
VII	**Barcelona**	**425k**
VII	**Caracas**	**3,000k**
VII	Maracay	1,754k
VII	Valencia	1,385k
VI	**Barquisimeto**	**809k**

bold cities appear on map (k = x1000)

Event ID: usvenezuela_se

Escenario del Impacto del Terremoto
Norte de La Española



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.05	0.3	2.8	6.2	12	22	40	75	>139
PEAK VEL.(cm/s)	<0.02	0.1	1.4	4.7	9.6	20	41	86	>178
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Worden et al. (2012)

USGS science for a changing world

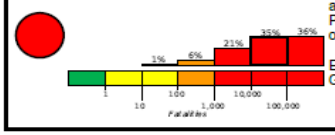
Earthquake Shaking — Red Alert

GSN ANSS USAID FROM THE AMERICAN PEOPLE

M 8.7, Northern Hispaniola
Origin Time: Thu 2016-03-17 15:00:00 UTC (10:00:00 local)
Location: 20.20°N 71.70°W Depth: 15 km
FOR TSUNAMI INFORMATION, SEE: tsunami.gov

PAGER Version 1
Created: 22 minutes, 0 seconds after earthquake

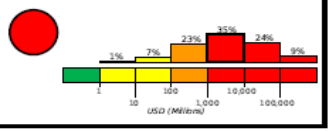
Estimated Fatalities



Red alert for shaking-related fatalities and economic losses. High casualties and extensive damage are probable and the disaster is likely widespread. Past red alerts have required a national or international response.

Estimated economic losses are 3-20% GDP of Dominican Republic.

Estimated Economic Losses



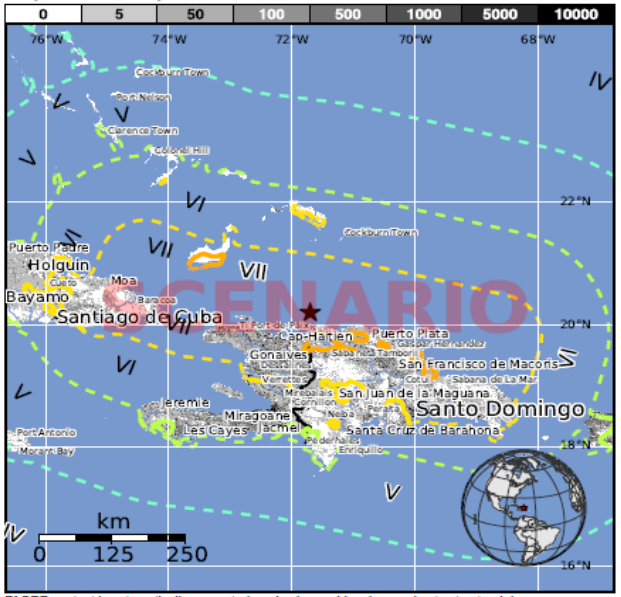
Estimated Population Exposed to Earthquake Shaking

ESTIMATED POPULATION EXPOSURE (k = x1000)		- -*	- -*	5k*	710k*	9,934k*	13,629k	641k	0	0
ESTIMATED MODIFIED MERCALLI INTENSITY		I	II-III	IV	V	VI	VII	VIII	IX	X+
PERCEIVED SHAKING		Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	Resistant Structures	none	none	none	V. Light	Light	Moderate	Moderate/Heavy	Heavy	V. Heavy
	Vulnerable Structures	none	none	none	Light	Moderate	Moderate/Heavy	Heavy	V. Heavy	V. Heavy

*Estimated exposure only includes population within the map area

Population Exposure

population per 1 sq. km from Landscan



PAGER content is automatically generated, and only considers losses due to structural damage. Limitations of input data, shaking estimates, and loss models may add uncertainty.

http://earthquake.usgs.gov/pager

Structures:
Overall, the population in this region resides in structures that are vulnerable to earthquake shaking, though some resistant structures exist. The predominant vulnerable building types are concrete/cinder block masonry and mud wall construction.

Historical Earthquakes (with MMI levels):

Date (UTC)	Dist. (km)	Mag.	Max MMI(#)	Shaking Deaths
1994-07-12	90	5.6	VIII(6k)	0
1984-06-24	353	5.2	V(440k)	5
1984-06-24	347	6.7	VII(326k)	5

Recent earthquakes in this area have caused secondary hazards such as landslides that might have contributed to losses.

Selected City Exposure
from GeoNames.org

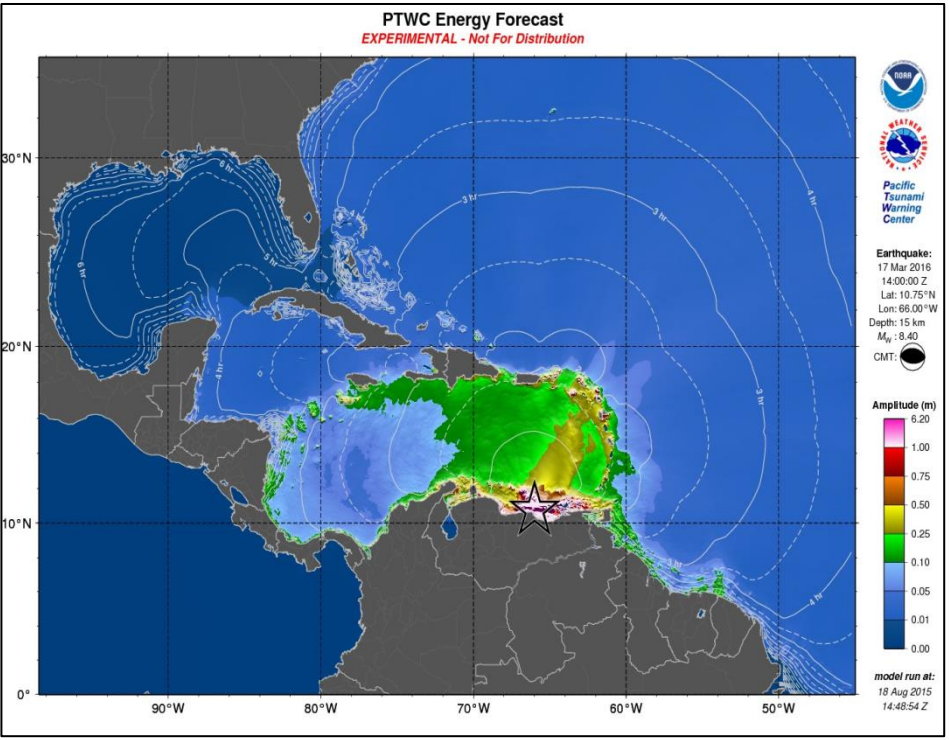
MMI	City	Population
VIII	Castanuelas	4k
VIII	Caracol	2k
VIII	Arroyo Salado	2k
VIII	Ferrier	4k
VIII	Agua Santa del Yuna	2k
VIII	Jaibon	5k
VII	Santiago de los C.	1,200k
VII	**Santo Domingo**	**2,202k**
VII	**Santiago de Cuba**	**556k**
VI	**Holguin**	**319k**
VI	Port-au-Prince	1,235k

bold cities appear on map (k = x1000)

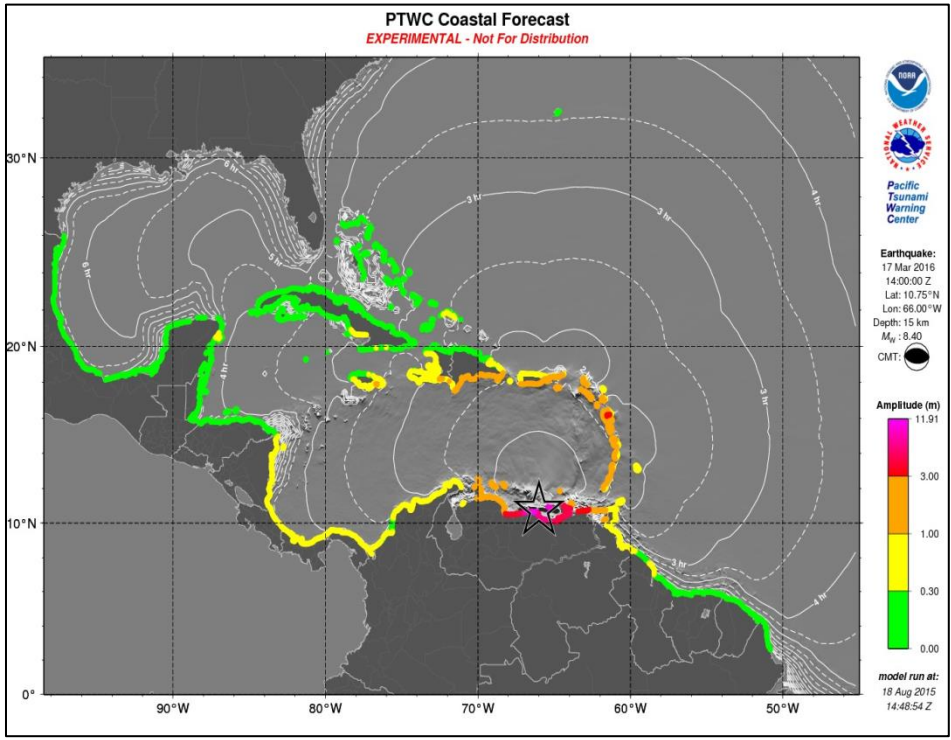
Event ID: ushispaniola_se

Pronóstico de Amplitud de Olas de Tsunami

Venezuela



Mapa RIFT costero con la amplitud máxima para la cuenca del Atlántico occidental basado en el escenario del Suroeste del Caribe para Venezuela.

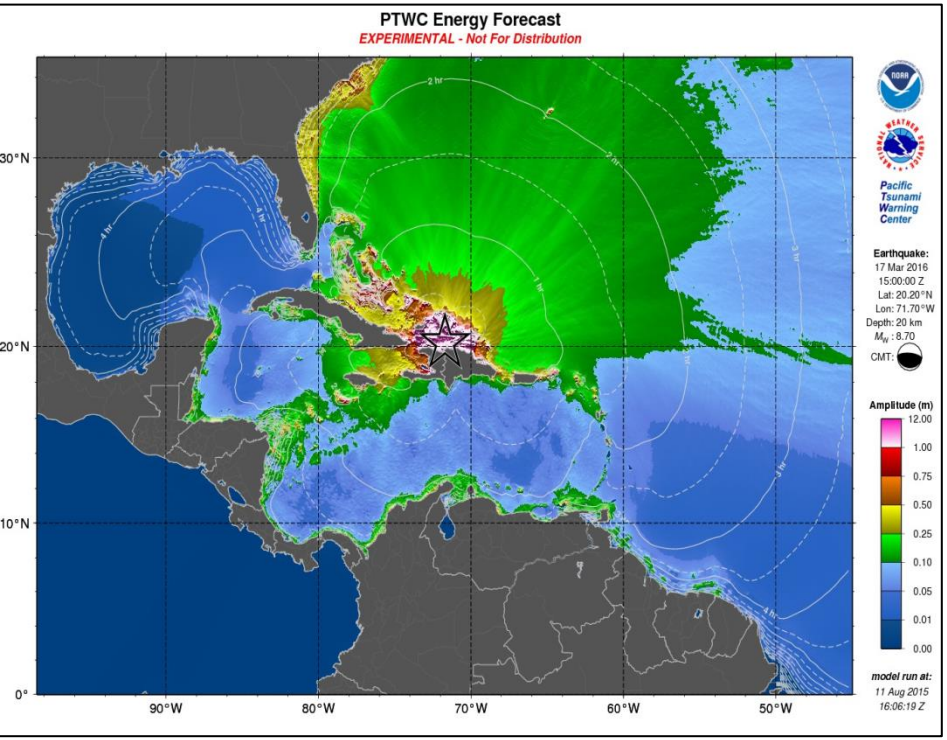


Mapa RIFT costero de tsunami con la amplitud para el mar Caribe basado en el escenario del Suroeste del Caribe para Venezuela.

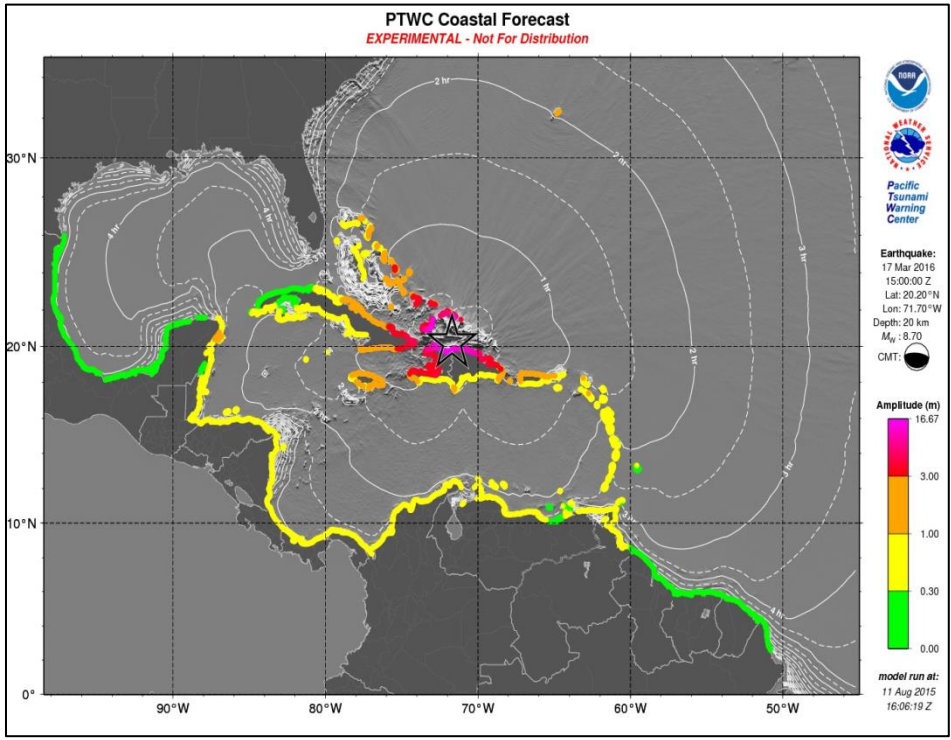
Durante un evento real este producto sólo se pondrá a disposición de los oficialmente designados Puntos Focales de Alerta de Tsunami y Centros de Alerta de Tsunami .

Pronóstico de Amplitud de Olas de Tsunami

Norte de La Española



Mapa RIFT costero con la amplitud máxima para la cuenca del Atlántico occidental basado en el escenario del Suroeste del Caribe para el Norte de La Española.



Mapa RIFT costero de tsunami con la amplitud para el mar Caribe basado en el escenario del Suroeste del Caribe para el Norte de La Española.

Durante un evento real este producto sólo se pondrá a disposición de los oficialmente designados Puntos Focales de Alerta de Tsunami y Centros de Alerta de Tsunami.

Productos Mejorados del PTWC

- El primero de marzo 2016 el CARIBE EWS hará la transición de los productos mejorados PTWC.
- Los productos se basan en la amenaza de olas de tsunami, además del primer producto basado en la magnitud del terremoto y el tiempo de viaje.
  - No se utilizara el término “vigilancia”, se indicará si existe una amenaza y a partir del segundo producto la altura de las olas.

Productos para el Mensaje Dummy y los Canales de Diseminación

Centro	WMO ID	AWIPS ID	NWWS	GTS	EMWIN	AISR	Fax	Email
PTWC	WECA41 PHEB	TSUCAX	Si	Si	Si	Si	Si	Si

NWWS	NOAA Agencia de Noticia
GTS	Global Telecommunications System
EMWIN	Emergency Manager’s Weather Information Network
AISR	Aeronautical Information System Replacement

Cronograma del Mensaje por PTWC
Venezuela

Date (UTC)	Time (UTC)	PTWC Message			
		#	Type	Dummy	**Email**
03/17/2016	1400	**----Earthquake Occurs----**			
03/17/2016	1405	01	Threat	Yes	**Yes**
03/17/2016	1425	02	Threat	No	**Yes**
03/17/2016	1510	03	Threat	No	**Yes**
03/17/2016	1545	04	Threat	No	**Yes**
03/17/2016	1645	05	Threat	No	**Yes**
03/17/2016	1745	06	Threat	No	**Yes**
03/17/2016	1845	07	Threat	No	**Yes**
03/17/2016	**1945**	**08**	**Final Threat**	**No**	**Yes**

Cronograma del Mensaje por PTWC
Norte de La Española

Date (UTC)	Time (UTC)	PTWC Message			
		#	Type	Dummy	**Email**
03/17/2016	1500	**----Earthquake Occurs----**			
03/17/2016	1505	01	Threat	Yes	**Yes**
03/17/2016	1525	02	Threat	No	**Yes**
03/17/2016	1600	03	Threat	No	**Yes**
03/17/2016	1630	04	Threat	No	**Yes**
03/17/2016	1700	05	Threat	No	**Yes**
03/17/2016	1800	06	Threat	No	**Yes**
03/17/2016	1900	07	Threat	No	**Yes**
03/17/2016	**2000**	**08**	**Final Threat**	**No**	**Yes**

Amenaza de Tsunami emitida por PTWC

- El mensaje de amenaza inicial se basa en información sísmica, el segundo se basa en predicciones de olas de tsunami.
- Las predicciones indican los niveles de amenaza que se han pronosticado y a los países o lugares que aplican.
  - Niveles = alturas del tsunami (metros sobre el nivel normal de la marea)
    - 0.3-1 m
    - 1-3 m
    - > que 3 m

El PTWC enviará por correo electrónico todos los productos mejorados simulados (texto y gráficos) a los TWFP y NTWC designados (no necesitan registro). Para verificar la lista actual de TWFP y NTWC oficialmente designados en UNESCO IOC CARIBE EWS ir a: http://www.ioc-tsunami.org/index.php?option=com_content&view=article&id=6&Itemid=22&lang=en
Nombre de usuario: tsunami
contraseña: bigwave

Listas de Cotejo para NDMO/TWFP

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 centers	_____	+ __
Prepare to start electrical generators	_____	+ __
If your facility is located in a tsunami evacuation zone: -Prepare to shutoff 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 ___	_____	+ __

Listas de Cotejo para los Contactos Nacionales de Tsunami

EVENT	TIME (WHEN)	ACTION TAKING (WHAT)	AUTHORITY (WHO)	MEDIUM (HOW)	RESULTING ACTION
EQ Occurs					
Tsunami threat message received					
Issue Public guidance					
Tsunami arrives					
Safe to return					

Appendix E. TWC Dummy (Start of Exercise) Messages

Venezuela Earthquake Scenario

PTWC

WECA41 PHEB 171405
TSUCAX

TEST...TSUNAMI EXERCISE MESSAGE NUMBER 1...TEST
NWS PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS
ISSUED AT 1405Z 17 MAR 2016

...CARIBEWAVE 16 TSUNAMI EXERCISE MESSAGE. REFER TO PTWC MESSAGE 1 IN THE EXERCISE HANDBOOK. THIS IS AN EXERCISE ONLY...

THIS MESSAGE IS BEING USED TO START THE CARIBEWAVE 16 CARIBBEAN TSUNAMI EXERCISE VENEZUELA SCENARIO. 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.INFO. THE EXERCISE PURPOSE IS TO PROVIDE EMERGENCY MANAGEMENT A REALISTIC SCENARIO TO TEST TSUNAMI RESPONSE PLANS.

THIS IS ONLY AN EXERCISE.

$$

Northern Hispaniola Earthquake Scenario

PTWC

WECA41 PHEB 171505
TSUCAX

TEST...TSUNAMI EXERCISE MESSAGE NUMBER 1...TEST
NWS PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS
ISSUED AT 1505Z 17 MAR 2016

...CARIBEWAVE 16 TSUNAMI EXERCISE MESSAGE. REFER TO PTWC MESSAGE 1 IN THE EXERCISE HANDBOOK. THIS IS AN EXERCISE ONLY...

THIS MESSAGE IS BEING USED TO START THE CARIBEWAVE 16 CARIBBEAN TSUNAMI EXERCISE NORTHERN HISPANIOLA SCENARIO. 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.INFO. THE EXERCISE PURPOSE IS TO PROVIDE EMERGENCY MANAGEMENT A REALISTIC SCENARIO TO TEST TSUNAMI RESPONSE PLANS.

THIS IS ONLY AN EXERCISE.

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Appendix F. TWC Exercise Messages
Venezuela Earthquake Scenario

The following messages created for the CARIBE WAVE 16 tsunami exercise are representative of the official standard products issued by the PTWC during a large magnitude 8.4 earthquake and tsunami originating in Venezuela. During a real event, NTWC and TWFP would be sent via email the graphical products. The alerts would persist longer during a real event than is depicted in this exercise.

PTWC Message #1

WECA41 PHEB 171405
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 1
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1405 UTC THU MAR 17 2016

...TSUNAMI THREAT MESSAGE...

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

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.

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 *****

PRELIMINARY EARTHQUAKE PARAMETERS
---

* MAGNITUDE 8.4
* ORIGIN TIME 1400 UTC MAR 17 2016
* COORDINATES 10.8 NORTH 66.0 WEST
* DEPTH 15 KM / 9 MILES
* LOCATION NEAR THE COAST OF VENEZUELA

EVALUATION
---

* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.4 OCCURRED NEAR THE COAST OF VENEZUELA AT 1400 UTC ON THURSDAY MARCH 17 2016.

* BASED ON THE PRELIMINARY EARTHQUAKE PARAMETERS... WIDESPREAD HAZARDOUS TSUNAMI WAVES ARE POSSIBLE.

TSUNAMI THREAT FORECAST
---

* HAZARDOUS TSUNAMI WAVES FROM THIS EARTHQUAKE ARE POSSIBLE WITHIN THE NEXT THREE HOURS ALONG SOME COASTS OF

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

RECOMMENDED ACTIONS
---

* 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.

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

ESTIMATED TIMES OF ARRIVAL
---

* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES LISTED 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)
CUMANA	VENEZUELA	10.5N 64.2W	1438 03/17
MAIQUETIA	VENEZUELA	10.6N 67.0W	1448 03/17
ONIMA	BONAIRE	12.3N 68.3W	1455 03/17
WILLEMSTAD	CURACAO	12.1N 68.9W	1501 03/17
ORANJESTAD	ARUBA	12.5N 70.0W	1519 03/17
KINGSTOWN	SAINT VINCENT	13.1N 61.2W	1519 03/17
SAINT GEORGES	GRENADA	12.0N 61.8W	1519 03/17
CASTRIES	SAINT LUCIA	14.0N 61.0W	1524 03/17
FORT DE FRANCE	MARTINIQUE	14.6N 61.1W	1527 03/17
ROSEAU	DOMINICA	15.3N 61.4W	1529 03/17
BASSE TERRE	GUADELOUPE	16.0N 61.7W	1532 03/17
SANTO DOMINGO	DOMINICAN REP	18.5N 69.9W	1538 03/17
SABA	SABA	17.6N 63.2W	1541 03/17
CABO ENGANO	DOMINICAN REP	18.6N 68.3W	1543 03/17
PLYMOUTH	MONTSERRAT	16.7N 62.2W	1544 03/17
BASSETERRE	SAINT KITTS	17.3N 62.7W	1545 03/17
SINT EUSTATIUS	SINT EUSTATIUS	17.5N 63.0W	1546 03/17
BRIDGETOWN	BARBADOS	13.1N 59.6W	1548 03/17
JACAMEL	HAITI	18.1N 72.5W	1552 03/17
PIRATES BAY	TRINIDAD TOBAGO	11.3N 60.6W	1553 03/17
SIMPSON BAAI	SINT MAARTEN	18.0N 63.1W	1554 03/17
RIOHACHA	COLOMBIA	11.6N 72.9W	1605 03/17
BARRANQUILLA	COLOMBIA	11.1N 74.9W	1611 03/17
PUERTO PLATA	DOMINICAN REP	19.8N 70.7W	1613 03/17
THE VALLEY	ANGUILLA	18.3N 63.1W	1614 03/17
SAINT JOHNS	ANTIGUA	17.1N 61.9W	1618 03/17
PALMETTO POINT	BARBUDA	17.6N 61.9W	1624 03/17
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N 62.8W	1625 03/17
GRAND TURK	TURKS N CAICOS	21.5N 71.1W	1627 03/17
CARTAGENA	COLOMBIA	10.4N 75.6W	1628 03/17
CAP HAITEN	HAITI	19.8N 72.2W	1629 03/17
SANTIAGO D CUBA	CUBA	19.9N 75.8W	1631 03/17
BAIE BLANCHE	SAINT MARTIN	18.1N 63.0W	1632 03/17
KINGSTON	JAMAICA	17.9N 76.9W	1635 03/17
WEST CAICOS	TURKS N CAICOS	21.7N 72.5W	1638 03/17
MAYAGUANA	BAHAMAS	22.3N 73.0W	1639 03/17
GREAT INAGUA	BAHAMAS	20.9N 73.7W	1642 03/17
ALIGANDI	PANAMA	9.2N 78.0W	1645 03/17
BARACOA	CUBA	20.4N 74.5W	1647 03/17
MONTEGO BAY	JAMAICA	18.5N 77.9W	1647 03/17
CROOKED ISLAND	BAHAMAS	22.7N 74.1W	1647 03/17
PORT OF SPAIN	TRINIDAD TOBAGO	10.6N 61.5W	1649 03/17
SANTA MARTA	COLOMBIA	11.2N 74.2W	1652 03/17
PUERTO CARRETO	PANAMA	8.8N 77.6W	1652 03/17
SAN SALVADOR	BAHAMAS	24.1N 74.5W	1652 03/17
LONG ISLAND	BAHAMAS	23.3N 75.1W	1656 03/17
CAYMAN BRAC	CAYMAN ISLANDS	19.7N 79.9W	1702 03/17
PUNTA CARIBANA	COLOMBIA	8.6N 76.9W	1704 03/17

POTENTIAL IMPACTS
---

* 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.

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

* IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

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

NEXT UPDATE AND ADDITIONAL INFORMATION
---

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

* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL IN LOWERCASE LETTERS-.

* FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

* COASTAL REGIONS OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS SHOULD REFER TO PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR THOSE PLACES THAT CAN BE FOUND AT PTWC.WEATHER.GOV.

* 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 NTWC.ARH.NOAA.GOV.

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PTWC Message #8

WECA41 PHEB 171945
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 8
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1945 UTC THU MAR 17 2016

...FINAL TSUNAMI THREAT MESSAGE...

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

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.

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 *****

UPDATES
---

* THIS IS THE FINAL TSUNAMI THREAT MESSAGE FOR THIS EVENT.

* TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE.

PRELIMINARY EARTHQUAKE PARAMETERS
---

* MAGNITUDE 8.4
* ORIGIN TIME 1400 UTC MAR 17 2016
* COORDINATES 10.8 NORTH 66.0 WEST
* DEPTH 15 KM / 9 MILES
* LOCATION NEAR THE COAST OF VENEZUELA

EVALUATION
---

* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.4 OCCURRED NEAR THE COAST OF VENEZUELA AT 1400 UTC ON THURSDAY MARCH 17 2016.

* BASED ON ALL AVAILABLE DATA... THE TSUNAMI THREAT FROM THIS EARTHQUAKE HAS NOW LARGELY PASSED.

TSUNAMI THREAT FORECAST...UPDATED
---

* THE TSUNAMI THREAT HAS NOW LARGELY PASSED.

RECOMMENDED ACTIONS
---

* 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.

* PERSONS LOCATED NEAR IMPACTED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM LOCAL AUTHORITIES.

* REMAIN OBSERVANT AND EXERCISE NORMAL CAUTION NEAR THE SEA.

POTENTIAL IMPACTS
---

* MINOR SEA LEVEL FLUCTUATIONS MAY PERSIST IN COASTAL AREAS AFFECTED BY THE TSUNAMI FOR SEVERAL HOURS OR LONGER.

TSUNAMI OBSERVATIONS
---

* 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	COORDINATES LAT	LON	GAUGE MEASURE (UTC)	TIME OF MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
ILE ROYAL GUIANA FR	5.3N	52.6W	1922	0.20M/ 0.6FT	22
DART 42429	27.4N	85.7W	1908	0.00M/ 0.0FT	26
DART 42409	26.7N	85.8W	1856	0.00M/ 0.0FT	24
PUERTO MORELOS MX	21.4N	86.8W	1855	0.14M/ 0.5FT	28
ISLA MUJERES	21.2N	86.7W	1839	0.18M/ 0.6FT	18
DART 41424	32.9N	72.5W	1746	0.02M/ 0.1FT	14
LIMON CR	10.0N	83.0W	1735	0.69M/ 2.3FT	18
GEORGE TOWN CY	19.3N	81.4W	1732	0.12M/ 0.4FT	24
EL PORVENIR PM	9.6N	78.9W	1732	0.46M/ 1.5FT	26
SAN ANDRES CO	12.6N	81.7W	1716	0.45M/ 1.5FT	22
SANTA MARTA CO	11.2N	74.2W	1702	0.94M/ 3.1FT	22
CAP HAITIEN HT	19.8N	72.2W	1640	0.24M/ 0.8FT	26
PARHAM AT	17.1N	61.8W	1628	0.82M/ 2.7FT	16
DART 41420	23.5N	67.3W	1625	0.03M/ 0.1FT	22
DART 41421	23.4N	63.9W	1625	0.03M/ 0.1FT	26
LAMESHURBAYSTJOHNVI	18.3N	64.7W	1623	2.05M/ 6.7FT	22
PUERTO PLATA DO	19.8N	70.7W	1620	0.25M/ 0.8FT	18
DESIRADE GUADELOUPE	16.3N	61.1W	1609	0.96M/ 3.2FT	28
SAN JUAN PR	18.5N	66.1W	1611	0.41M/ 1.4FT	24
JACMEL HT	18.2N	72.5W	1600	1.47M/ 4.8FT	14
CHARLOTTEVILLE TT	11.3N	60.5W	1606	0.75M/ 2.4FT	26
LE ROBERT MARTINIQU	14.7N	60.9W	1559	1.16M/ 3.8FT	28
BRIDGEPORT BB	13.1N	59.6W	1554	0.78M/ 2.6FT	22
PORT ST CHARLES BB	13.3N	59.6W	1555	0.88M/ 2.9FT	16
POINT A PITRE GP	16.2N	61.5W	1555	4.30M/14.1FT	28
PUNTA CANA DO	18.5N	68.4W	1547	1.91M/ 6.3FT	18
DESHAIES GUADELOUPE	16.3N	61.8W	1544	3.03M/ 9.9FT	20
ESPERANZA VIEQUES P	18.1N	65.5W	1542	1.69M/ 5.6FT	24
PORT SAN ANDRES DO	18.4N	69.6W	1548	1.68M/ 5.5FT	26
MAYAGUEZ PR	18.2N	67.2W	1541	1.42M/ 4.7FT	18
ROSEAU DM	15.3N	61.4W	1540	2.74M/ 9.0FT	26
LE PRECHEUR MARTINI	14.8N	61.2W	1534	2.55M/ 8.4FT	26
FORT DE FRANCE MQ	14.6N	61.1W	1541	2.97M/ 9.7FT	26
MONA ISLAND PR	18.1N	67.9W	1538	1.38M/ 4.5FT	20
CALLIAQUA VC	13.1N	61.2W	1540	1.87M/ 6.1FT	22
LIMETREE VI	17.7N	64.8W	1538	2.42M/ 7.9FT	22
ST CROIX VI	17.7N	64.7W	1535	2.27M/ 7.5FT	24
MAGUEYES ISLAND PR	18.0N	67.0W	1534	1.38M/ 4.5FT	14
PENUELAS PR	18.0N	66.8W	1535	1.91M/ 6.3FT	20
PRICKLEY BAY GD	12.0N	61.8W	1525	1.76M/ 5.8FT	24
BULLEN BAY CURACAO	12.2N	69.0W	1512	2.18M/ 7.2FT	22
DART 42407	15.3N	68.2W	1507	0.22M/ 0.7FT	16

NEXT UPDATE AND ADDITIONAL INFORMATION
---

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

* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL IN LOWERCASE LETTERS-.

* FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

* COASTAL REGIONS OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS SHOULD REFER TO PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR THOSE PLACES THAT CAN BE FOUND AT PTWC.WEATHER.GOV.

* 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 NTWC.ARH.NOAA.GOV.

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Northern Hispaniola Earthquake Scenario

The following messages created for the CARIBE WAVE 16 tsunami exercise are representative of the official standard products issued by the PTWC during a large magnitude 8.7 earthquake and tsunami originating just northern Hispaniola. During a real event, the TWCs would also issue graphical and html-based products to their web sites and via RSS. The alerts would persist longer during a real event than is depicted in this exercise.

PTWC Message #1

WECA41 PHEB 171505
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 1
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1505 UTC THU MAR 17 2016

...TSUNAMI THREAT MESSAGE...

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

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.

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 *****

PRELIMINARY EARTHQUAKE PARAMETERS
---

* MAGNITUDE 8.5
* ORIGIN TIME 1500 UTC MAR 17 2016
* COORDINATES 20.2 NORTH 71.7 WEST
* DEPTH 20 KM / 12 MILES
* LOCATION DOMINICAN REPUBLIC REGION

EVALUATION
---

* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.5 OCCURRED IN THE DOMINICAN REPUBLIC REGION AT 1500 UTC ON THURSDAY MARCH 17 2016.

* BASED ON THE PRELIMINARY EARTHQUAKE PARAMETERS... WIDESPREAD HAZARDOUS TSUNAMI WAVES ARE POSSIBLE.

TSUNAMI THREAT FORECAST
---

* HAZARDOUS TSUNAMI WAVES FROM THIS EARTHQUAKE ARE POSSIBLE WITHIN THE NEXT THREE HOURS ALONG SOME COASTS OF

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

RECOMMENDED ACTIONS
---

* 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.

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

ESTIMATED TIMES OF ARRIVAL
---

* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE FOR PLACES LISTED 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)
CAP HAITEN	HAITI	19.8N 72.2W	1509 03/17
PUERTO PLATA	DOMINICAN REP	19.8N 70.7W	1514 03/17
WEST CAICOS	TURKS N CAICOS	21.7N 72.5W	1521 03/17
GREAT INAGUA	BAHAMAS	20.9N 73.7W	1524 03/17
MAYAGUANA	BAHAMAS	22.3N 73.0W	1527 03/17
BARACOA	CUBA	20.4N 74.5W	1529 03/17
GRAND TURK	TURKS N CAICOS	21.5N 71.1W	1529 03/17
CROOKED ISLAND	BAHAMAS	22.7N 74.1W	1542 03/17
SANTIAGO D CUBA	CUBA	19.9N 75.8W	1544 03/17
CABO ENGANO	DOMINICAN REP	18.6N 68.3W	1546 03/17
SAN SALVADOR	BAHAMAS	24.1N 74.5W	1549 03/17
LONG ISLAND	BAHAMAS	23.3N 75.1W	1551 03/17
EXUMA	BAHAMAS	23.6N 75.9W	1604 03/17
MONTEGO BAY	JAMAICA	18.5N 77.9W	1605 03/17
CAT ISLAND	BAHAMAS	24.4N 75.5W	1610 03/17
CAYMAN BRAC	CAYMAN ISLANDS	19.7N 79.9W	1617 03/17
ABACO ISLAND	BAHAMAS	26.6N 77.1W	1618 03/17
JACAMEL	HAITI	18.1N 72.5W	1619 03/17
KINGSTON	JAMAICA	17.9N 76.9W	1620 03/17
SANTO DOMINGO	DOMINICAN REP	18.5N 69.9W	1623 03/17
ANDROS ISLAND	BAHAMAS	25.0N 77.9W	1623 03/17
SABA	SABA	17.6N 63.2W	1626 03/17
JEREMIE	HAITI	18.6N 74.1W	1629 03/17
SIMPSON BAAI	SINT MAARTEN	18.0N 63.1W	1633 03/17
GIBARA	CUBA	21.1N 76.1W	1634 03/17
ELEUTHERA ISLAN	BAHAMAS	25.2N 76.1W	1636 03/17
SINT EUSTATIUS	SINT EUSTATIUS	17.5N 63.0W	1636 03/17
CIENFUEGOS	CUBA	22.0N 80.5W	1639 03/17
NASSAU	BAHAMAS	25.1N 77.4W	1640 03/17
THE VALLEY	ANGUILLA	18.3N 63.1W	1642 03/17
BASSETERRE	SAINT KITTS	17.3N 62.7W	1642 03/17
FREEPORT	BAHAMAS	26.5N 78.8W	1643 03/17
GRAND CAYMAN	CAYMAN ISLANDS	19.3N 81.3W	1644 03/17
PALMETTO POINT	BARBUDA	17.6N 61.9W	1651 03/17
ONIMA	BONAIRE	12.3N 68.3W	1653 03/17
BASSE TERRE	GUADELOUPE	16.0N 61.7W	1657 03/17
PLYMOUTH	MONTSERRAT	16.7N 62.2W	1657 03/17
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N 62.8W	1658 03/17
WILLEMSTAD	CURACAO	12.1N 68.9W	1659 03/17
ORANJESTAD	ARUBA	12.5N 70.0W	1701 03/17
ROSEAU	DOMINICA	15.3N 61.4W	1703 03/17
BAIE BLANCHE	SAINT MARTIN	18.1N 63.0W	1704 03/17
FORT DE FRANCE	MARTINIQUE	14.6N 61.1W	1706 03/17
SAINT JOHNS	ANTIGUA	17.1N 61.9W	1708 03/17
RUTHS BAY	BERMUDA	32.4N 64.6W	1710 03/17
CASTRIES	SAINT LUCIA	14.0N 61.0W	1711 03/17
BARRANQUILLA	COLOMBIA	11.1N 74.9W	1713 03/17
BIMINI	BAHAMAS	25.8N 79.3W	1715 03/17
RIOHACHA	COLOMBIA	11.6N 72.9W	1715 03/17
PORT AU PRINCE	HAITI	18.5N 72.4W	1718 03/17
BRIDGETOWN	BARBADOS	13.1N 59.6W	1720 03/17
KINGSTOWN	SAINT VINCENT	13.1N 61.2W	1720 03/17
MAIQUETIA	VENEZUELA	10.6N 67.0W	1723 03/17
COZUMEL	MEXICO	20.5N 87.0W	1726 03/17
CARTAGENA	COLOMBIA	10.4N 75.6W	1727 03/17
SAINT GEORGES	GRENADA	12.0N 61.8W	1730 03/17
PUERTO CORTES	HONDURAS	15.9N 88.0W	1734 03/17
ALIGANDI	PANAMA	9.2N 78.0W	1738 03/17
CUMANA	VENEZUELA	10.5N 64.2W	1739 03/17
PIRATES BAY	TRINIDAD TOBAGO	11.3N 60.6W	1742 03/17
PUERTO CARRETO	PANAMA	8.8N 77.6W	1747 03/17
TRUJILLO	HONDURAS	15.9N 86.0W	1753 03/17
SANTA MARTA	COLOMBIA	11.2N 74.2W	1755 03/17
LA HABANA	CUBA	23.2N 82.4W	1756 03/17
PUNTA CARIBANA	COLOMBIA	8.6N 76.9W	1800 03/17

POTENTIAL IMPACTS
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* 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.

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

* IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

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

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

* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL IN LOWERCASE LETTERS-.

* FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

* COASTAL REGIONS OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS SHOULD REFER TO PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR THOSE PLACES THAT CAN BE FOUND AT PTWC.WEATHER.GOV.

* 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 NTWC.ARH.NOAA.GOV.

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PTWC Message #8

WECA41 PHEB 172000
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 8
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
2000 UTC THU MAR 17 2016

...FINAL TSUNAMI THREAT MESSAGE...

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

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.

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 *****

UPDATES
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* THIS IS THE FINAL TSUNAMI THREAT MESSAGE FOR THIS EVENT.

* TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE.

PRELIMINARY EARTHQUAKE PARAMETERS
---

* MAGNITUDE 8.7
* ORIGIN TIME 1500 UTC MAR 17 2016
* COORDINATES 20.2 NORTH 71.7 WEST
* DEPTH 20 KM / 12 MILES
* LOCATION DOMINICAN REPUBLIC REGION

EVALUATION
---

* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.7 OCCURRED IN THE DOMINICAN REPUBLIC REGION AT 1500 UTC ON THURSDAY MARCH 17 2016.

* BASED ON ALL AVAILABLE DATA... THE TSUNAMI THREAT FROM THIS EARTHQUAKE HAS NOW LARGELY PASSED.

TSUNAMI THREAT FORECAST...UPDATED
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* THE TSUNAMI THREAT HAS NOW LARGELY PASSED.

RECOMMENDED ACTIONS
---

* 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.

* PERSONS LOCATED NEAR IMPACTED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM LOCAL AUTHORITIES.

* REMAIN OBSERVANT AND EXERCISE NORMAL CAUTION NEAR THE SEA.

POTENTIAL IMPACTS
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* MINOR SEA LEVEL FLUCTUATIONS MAY PERSIST IN COASTAL AREAS AFFECTED BY THE TSUNAMI FOR SEVERAL HOURS OR LONGER.

TSUNAMI OBSERVATIONS
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* 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	COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
PILOTS STATION LA	28.9N	89.4W	1921	0.08M/ 0.3FT	18
KEY WEST FL	24.6N	81.8W	1852	0.20M/ 0.6FT	18
TRIDENT PIER FL	28.4N	80.6W	1854	1.26M/ 4.1FT	20
DART 42429	27.4N	85.7W	1820	0.01M/ 0.0FT	26
LIMON CR	10.0N	83.0W	1818	0.71M/ 2.3FT	22
CHARLOTTEVILLE TT	11.3N	60.5W	1809	0.28M/ 0.9FT	24
DART 42409	26.7N	85.8W	1810	0.01M/ 0.0FT	28
PUERTO MORELOS MX	21.4N	86.8W	1806	0.38M/ 1.2FT	18
ISLA MUJERES	21.2N	86.7W	1759	0.68M/ 2.2FT	14
EL PORVENIR PM	9.6N	78.9W	1754	0.87M/ 2.9FT	18
PRICKLEY BAY GD	12.0N	61.8W	1749	0.47M/ 1.5FT	24
SAN ANDRES CO	12.6N	81.7W	1751	0.57M/ 1.9FT	26
CALLIAQUA VC	13.1N	61.2W	1735	0.50M/ 1.7FT	22
BRIDGEPORT BB	13.1N	59.6W	1729	0.31M/ 1.0FT	26
PORT ST CHARLES BB	13.3N	59.6W	1722	0.31M/ 1.0FT	16
SANTA MARTA CO	11.2N	74.2W	1721	0.89M/ 2.9FT	22
FORT DE FRANCE MQ	14.6N	61.1W	1719	0.62M/ 2.0FT	26
LE ROBERT MARTINIQU	14.7N	60.9W	1714	0.31M/ 1.0FT	22
ROSEAU DM	15.3N	61.4W	1710	0.46M/ 1.5FT	18
LE PRECHEUR MARTINI	14.8N	61.2W	1712	0.54M/ 1.8FT	28
BULLEN BAY CURACAO	12.2N	69.0W	1713	0.89M/ 2.9FT	24
POINT A PITRE GP	16.2N	61.5W	1701	0.60M/ 2.0FT	14
DART 41424	32.9N	72.5W	1704	0.19M/ 0.6FT	26
LAMESHURBAYSTJOHNVI	18.3N	64.7W	1659	0.83M/ 2.7FT	28
DESHAIES GUADELOUPE	16.3N	61.8W	1657	0.62M/ 2.0FT	28
PORT SAN ANDRES DO	18.4N	69.6W	1651	1.14M/ 3.7FT	22
PARHAM AT	17.1N	61.8W	1647	0.42M/ 1.4FT	28
DESIRADE GUADELOUPE	16.3N	61.1W	1652	0.38M/ 1.3FT	22
ESPERANZA VIEQUES P	18.1N	65.5W	1639	0.73M/ 2.4FT	16
GEORGE TOWN CY	19.3N	81.4W	1639	0.47M/ 1.5FT	18
LIMETREE VI	17.7N	64.8W	1634	0.77M/ 2.5FT	20
ST CROIX VI	17.7N	64.7W	1629	0.80M/ 2.6FT	24
DART 42407	15.3N	68.2W	1630	0.07M/ 0.2FT	18
JACMEL HT	18.2N	72.5W	1629	0.78M/ 2.5FT	26
MAGUEYES ISLAND PR	18.0N	67.0W	1621	0.91M/ 3.0FT	26
PENUELAS PR	18.0N	66.8W	1623	0.94M/ 3.1FT	26
DART 41421	23.4N	63.9W	1619	0.19M/ 0.6FT	20
MONA ISLAND PR	18.1N	67.9W	1610	2.74M/ 9.0FT	22
PUNTA CANA DO	18.5N	68.4W	1604	3.47M/11.4FT	22
SAN JUAN PR	18.5N	66.1W	1601	2.03M/ 6.7FT	16
MAYAGUEZ PR	18.2N	67.2W	1603	3.55M/11.6FT	14
DART 41420	23.5N	67.3W	1553	0.24M/ 0.8FT	24
PUERTO PLATA DO	19.8N	70.7W	1522	15.27M/50.1FT	22
CAP HAITIEN HT	19.8N	72.2W	1514	17.74M/58.2FT	16

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

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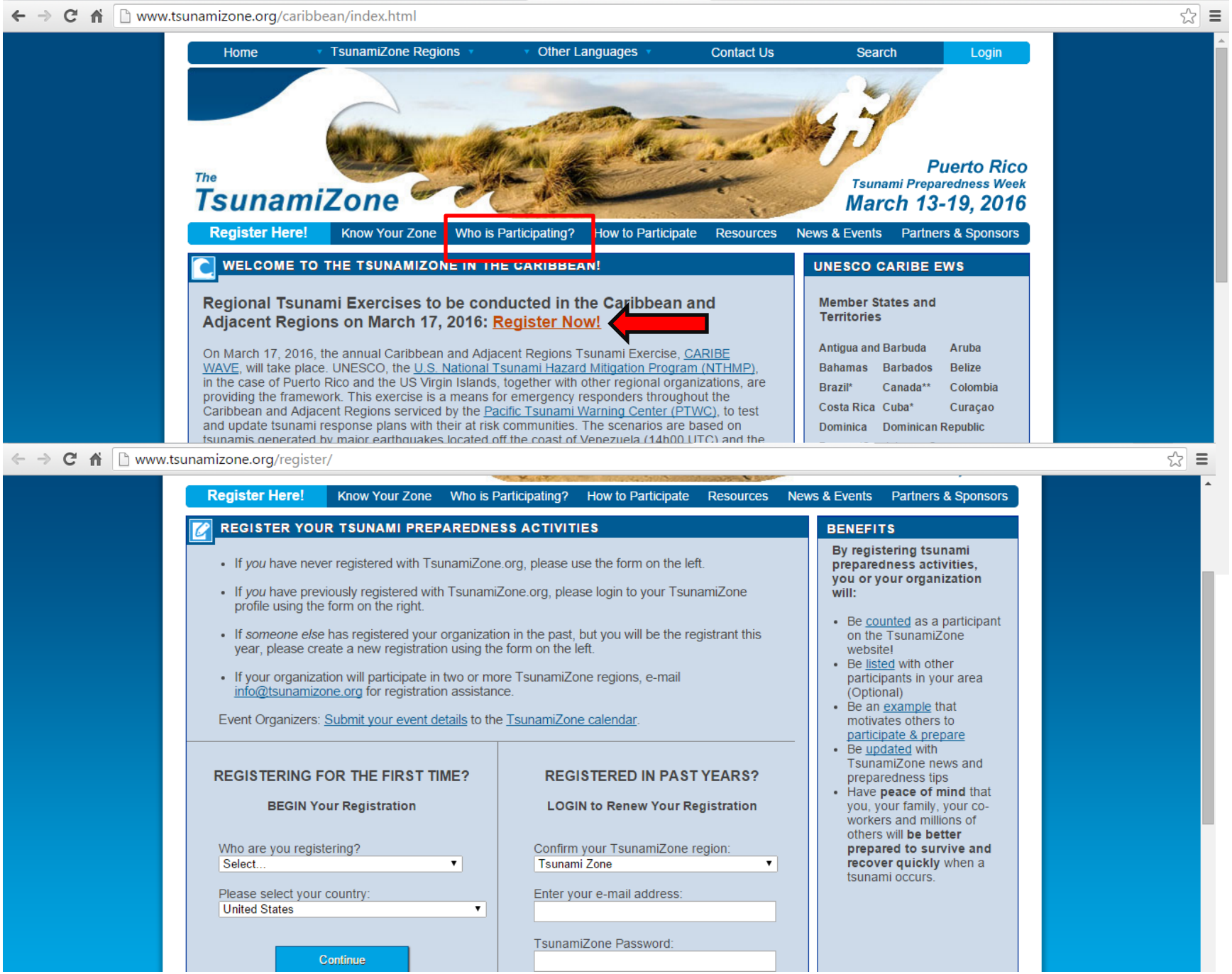
Participación de los Estados Miembros - Registro

- Cada país debe establecer su propio grupo de trabajo para decidir el enfoque de la participación y pruebas de comunicación.



Los Países Miembro pueden dar seguimiento al registro en « Who is Participating »

Medios de Comunicación

- Manual de Medios de Comunicación de Tsunamis de la PRSN (Inglés y Español).
  http://www.prsn.uprm.edu/mediakit/
- Kit de Información de los Medios de Comunicación del Centro de Investigaciones Sísmicas, Centro de Tsunamis y otras Amenazas Costeras (inglés)
  http://www.uwiseismic.com
- El manual contiene un ejemplo de un comunicado de prensa que puede ser adaptado.
- Redes sociales; #CaribeWave

Acciones en caso de un evento real

En el caso de un evento real durante el ejercicio, el PTWC emitirá los mensajes correspondientes para el evento. Estos mensajes tendrán prioridad y la decisión sobre si se enviarán los mensajes dummy y correos electrónicos a los recipientes correspondientes será tomada por PTWC. Terremotos pequeños para los cuales solamente se emite una Declaración de Información de Tsunami no interrumpirán el ejercicio. Todos los documentos, "posts" y correspondencia relacionada al ejercicio deben ser claramente identificados con "**CARIBE WAVE 16"** y "**Exercise**."

Procedimiento en el caso de una falsa alarma

- Cada vez que se realizan ejercicios de simulación, existe la posibilidad que el público o los medios de comunicación interpreten el ejercicio como un evento real. Hay procedimientos que deben ser establecidos con anterioridad por todos los participantes para responder a preocupaciones en el caso que los mismo malinterpretan el ejercicio.

Formulario de Evaluación del Post-Ejercicio

- Se requiere que cada país o territorio miembro del CARIBE EWS provea sus opiniones acerca del ejercicio.
  - Esto ayudará al ICG / CARIBE-EWS en la evaluación del Caribe Wave 16 y el desarrollo de los ejercicios posteriores, y ayudará a las agencias de respuesta documentar las lecciones aprendidas.
- El plazo para completar la evaluación es el

  23 de marzo de 2016.

  https://www.surveymonkey.com/r/CaribeWave16

Recursos

- Manual IOC “How to plan, conduct and evaluate tsunami exercises” which will also be a useful resource (Inglés y Español).
- Manuales CARIBE WAVE 2011, 2013, 2014, y 2015.
- Informes CARIBE WAVE 2013, 2014, y 2015.
- Plan de Comunicaciones de PTWC para el Caribe.
- Guía de usuario para los Productos Mejorados del PTWC.
- Disponible en www.caribewave.info

Otros Detalles

- Materiales adicionales serán colocados en las páginas de CTWP (www.caribewave.info).
  - Esta presentación se subirá a la pagina.
- Enviar enlaces de paginas nacionales a christa.vonh@noaa.gov para incluir en la pagina del CTWP.

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Cronología

Acción	Fecha Límite (Terminado)
Borrador circuló entre los ICG CARIBE EWS TNC/TWFP	Septiembre 2015 (sep. 2015)
Plazo para Comentarios	18 de septiembre, 2015 (sep. 2015)
Manual Final del Ejercicio Disponible en línea	15 de octubre, 2015 (enero 2015)
Carta Circular Publicado por IOC para MS	Noviembre, 2015 (enero 2015)
1er Seminario en línea de CW	19, 20 y 21 de enero de 2016
2do Seminario en línea de CW	1, 2, y 3 de marzo de 2016
Fecha Límite de Inscripción en el Ejercicio	17 de marzo de 2016
Ejercicio	17 de marzo de 2016
Plazo para Evaluación del Ejercicio	23 de marzo de 2016
Reporte Final del Manual	1 de abril de 2016
Discusión del Ejercicio ICG CARIBE EWS 11va Sesión	5-7 de abril de 2016

Webinars

- ✓ 19 January in English
- ✓ 20 de enero en Español
- 21 janvier à Français
- 1 March in English
- 2 de marzo en Español
- 3 mars à Français

Preguntas, Comentarios

¡Gracias por su participación!

christa.vonh@noaa.gov