

NOAA/NWS Pacific Tsunami Warning Center

# **Users' Guide**

**Tsunami Warning Products**

**for**

**Puerto Rico,**

**U.S Virgin Islands,**

**and**

**British Virgin Islands**

Version 1.1

March 15, 2017



## CHANGE LOG

<b>DATE</b>	<b>DESCRIPTION OF CHANGE</b>	<b>VER</b>	<b>WHO</b>
1/10/2016	Initial version of the Plan	1.00	McCreery
3/29/2016	Corrected date on the Plan. Otherwise, no substantive changes.	1.01	McCreery
7/14/16	Replaced SPN with SP1 in all AWIPS IDs	1.02	McCreery
3/15/17	Tsunami Seismic Information Statement incorporated into Tsunami Information Statement	1.1	McCreery
3/15/17	Changed transition date to April 3, 2017	1.1	McCreery
3/15/17	Removed statement that the AWIPS IDs for the Spanish-language products were under review	1.1	McCreery



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## **INTRODUCTION**

This User's Guide describes the NOAA/NWS Pacific Tsunami Warning Center (PTWC) domestic products for Puerto Rico and the U.S and British Virgin Islands including the levels of alert that may be issued, the information that will be contained in the products, when products can be expected, and how they will be disseminated. Puerto Rico and the Virgin Islands (PRVI) are also included in PTWC's international products for the Caribbean. For more information on those products please refer to the most recent User's Guide for the PTWC Enhanced Products for the CARIBE-EWS.

Tsunami warning services that have been provided to PRVI by the NOAA/NWS National Tsunami Warning Center (NTWC) located in Palmer, Alaska since 2005 will be transferred to the NOAA/NWS Pacific Tsunami Warning Center (PTWC) on April 3, 2017. This transfer will help to make the PRVI service more consistent with the international service PTWC is providing to the rest of the Caribbean region through the UNESCO/IOC Tsunami Program.

### **Pacific Tsunami Warning Center**

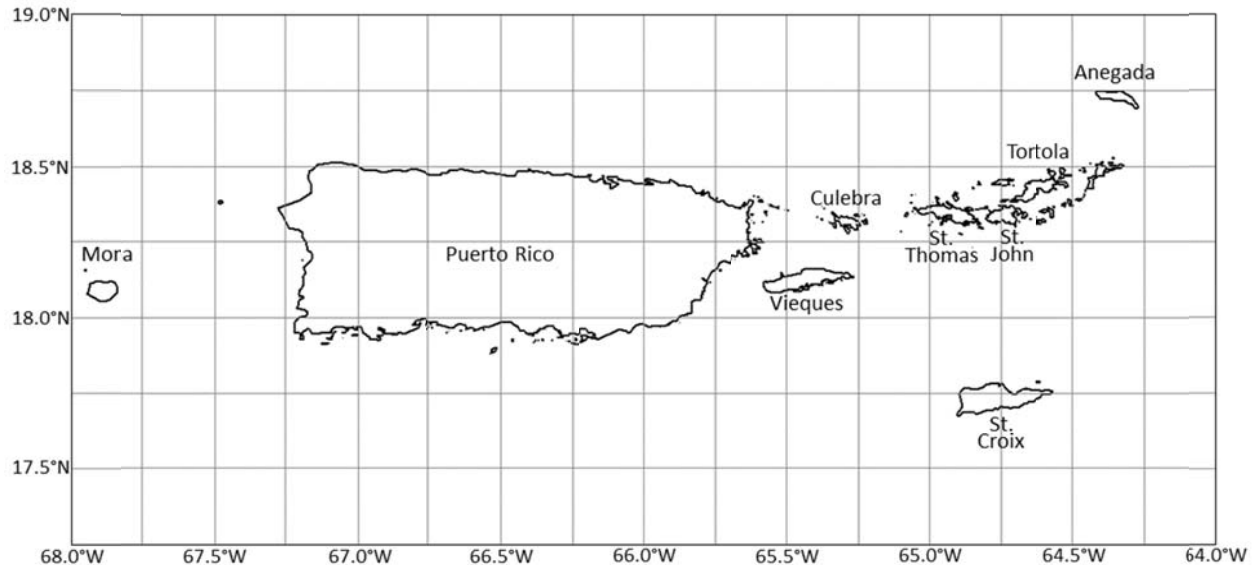
The Pacific Tsunami Warning Center, located in Honolulu, Hawaii, was formed in 1949 following an unwarned tsunami from the Aleutian Islands that struck Hawaii on the morning of April 1, 1946, killing 159 people. Scientists in Hawaii at the time knew a large earthquake had occurred, but there was no system in place to evaluate whether a tsunami had been generated, when it might strike Hawaii, or to evacuate coasts. The original center, covering only Hawaii, was formed just in time as it provided warnings to Hawaii for the 1952 Kamchatka tsunami, the 1957 Aleutian tsunami, the 1960 Chile tsunami, and the 1964 Alaska tsunami, preventing any loss of life in Hawaii in all but the 1960 event. That tsunami, from a magnitude 9.6 earthquake off the coast of Chile, affected nearly every coast in the Pacific and caused nearly 200 casualties on the other side of the Pacific in Japan. So in 1965, the center took on responsibility for countries across the entire Pacific through a program of the Intergovernmental Oceanographic Commission (IOC) of UNESCO, a role that continues today.

The Pacific region is where most of the world's great earthquakes and tsunamis occur, and the IOC Pacific system was the only one in the world for the next 40 years in spite of the fact that every ocean basin has suffered tsunami impacts. The December 26, 2004, tsunami in the Indian Ocean that killed nearly a quarter-million people in a matter of hours changed that situation. Within a few months, tsunami warning systems had been stood up in the Indian Ocean, the Caribbean Sea, and the northeast Atlantic Ocean and Mediterranean Sea. PTWC, along with the tsunami warning center of the Japan Meteorological Agency, served as interim centers for the Indian Ocean system until 2013 when newly-formed centers in Indonesia, Australia, and India took over that responsibility. PTWC has also served as an interim center for the Caribbean region since 2005, and it is now continuing that role on a more permanent basis.



## Puerto Rico and the Virgin Islands

Puerto Rico, the U.S. Virgin Islands, and the British Virgin Islands (referred hereafter in total as Puerto Rico and the Virgin Islands or PRVI) are adjacent parts of the archipelago of islands bounding the northeastern Caribbean Sea. Puerto Rico and the U.S. Virgin Islands are territories of the United States and the British Virgin Islands is an overseas territory of the United Kingdom. The three island groups span about 250 miles in the East-West direction, and about 75 miles in the North-South direction.



The territory of Puerto Rico consists of the main island of Puerto Rico and several smaller islands including Mona, Vieques, and Culebra. The bulk of its 3.6 million inhabitants are located on the main island, with about 14,000 on Vieques and about 1,800 on Culebra. Mona is an unpopulated reserve. The capital city, with a population of about 400,000, is San Juan located on eastern side of Puerto Rico's north coast.

The U.S. Virgin Islands has three main islands – Saint Croix, Saint John, and Saint Thomas. The capital city is Charlotte Amalie located on south coast of the island of Saint Thomas. The total population is a little over 100,000.

The British Virgin Islands consist of over 50 small islands and cays. The main islands are Tortola, Virgin Gorda, Anegada, and Jost Van Dyke, and about 15 of the islands are inhabited. Of the approximately 28,000 inhabitants, about 23,500 live on Tortola where the capital city, Road Town, is located.

In addition to the local residents, its year-round warm climate and waters attract many visitors to these islands every year. Over 4 million people visit Puerto Rico a year with 25% corresponding to cruise passenger visits. In the USVI, there are many more cruise passengers (1,5 million) in comparison with stop over visitors (570,000). BVI receives a little less than 1 million tourists a year, with slightly more on cruise ships than stay overs. This is an important consideration as the

tourist population is concentrated near the coastlines in tsunami prone areas. In St. Thomas on a busy cruise ship day, there can be as many as 8 ships in port.

## **Tsunami Threat**

Tsunami occurrences are relatively infrequent in Puerto Rico and the Virgin Islands. The most significant historical events happened in 1867 and 1918. However, the Puerto Rico Trench and other seismic zones in the Caribbean region are all capable of generating tsunamis. Further, vulnerability within PRVI is very high due to the fact of a high population density near the coast and the aforementioned tourist activities concentrated at the coast.

A list of historical tsunami impacts within the Puerto Rico and Virgin Islands region, compiled by NOAA's National Center for Environmental Information (formerly the National Geophysical Data Center) is given below in Table 1. Other tsunami impacts within the region are being investigated through paleo-tsunami studies, looking at buried marine sand deposits likely to have been emplaced by past tsunamis.

Table 1. Historical tsunami runups (or tide gauge amplitudes) within the Puerto Rico and Virgin Islands region.

Date			Tsunami Source		Tsunami Runup Location					Runup	Tsunami Runup Location Effects	
			Cause	Mag	State	Name	Lat	Long	Distance from Source (km)	Max Water Height (m)	Deaths	Injuries
Yr	Mo	Da										
1690	4	16	EQ	<a href="#">8</a>	USVI	VIRGIN ISLANDS	18.37	-64.93	376			
1842	5	7	EQ	<a href="#">8.1</a>	USVI	SAINT JOHN	17.77	-64.75	815	3.1		
1867	11	18	EQ	<a href="#">7.5</a>	BRVI	PETER ISLAND	18.35	-64.58	62	1.2		
1867	11	18	EQ	<a href="#">7.5</a>	BRVI	ROAD TOWN, TORTOLA ISLAND	18.43	-64.62	62	1.5		
1867	11	18	EQ	<a href="#">7.5</a>	BRVI	VIRGIN GORDA ISLAND	18.48	-64.40	85	3.6		
1867	11	18	EQ	<a href="#">7.5</a>	PR	ARROYO	17.97	-66.06	103	1.5		
1867	11	18	EQ	<a href="#">7.5</a>	PR	BAHIA DE SAN JUAN	18.45	-66.12	114	0.9		
1867	11	18	EQ	<a href="#">7.5</a>	PR	FAJARDO	18.33	-65.65	64			
1867	11	18	EQ	<a href="#">7.5</a>	PR	ISLA DE VIEQUES	18.15	-65.42	34			
1867	11	18	EQ	<a href="#">7.5</a>	PR	PUERTO RICO	18.15	-66.50	148	6.1		
1867	11	18	EQ	<a href="#">7.5</a>	PR	SALINAS	17.98	-66.30	127			
1867	11	18	EQ	<a href="#">7.5</a>	PR	YABUCOA	18.05	-65.88	83			
1867	11	18	EQ	<a href="#">7.5</a>	USVI	HASSEL ISLAND	18.33	-64.93	31	4.9		
1867	11	18	EQ	<a href="#">7.5</a>	USVI	LITTLE SABA	18.34	-64.98	30	15.2		
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. CROIX: BUTLER'S BAY	17.75	-64.89	45			
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. CROIX: CHRISTIANSTED	17.75	-64.71	58			
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. CROIX: FREDERIKSTED	17.71	-64.88	49	7.6	5	4
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. CROIX: FRIEDENSTHAL CHURCH	17.76	-64.74	54		2	

Date			Tsunami Source		Tsunami Runup Location					Runup	Tsunami Runup Location Effects	
			Cause	Mag	State	Name	Lat	Long	Distance from Source (km)	Max Water Height (m)	Deaths	Injuries
Yr	Mo	Da										
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. CROIX: GALLOWS BAY	17.75	-64.70	58			
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. CROIX: SANDY POINT	17.68	-64.90	52			
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. CROIX: ALL OF	17.74	-64.74	55	14.6		
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. THOMAS: ALTONA	18.34	-64.95	31			
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. THOMAS: CHARLOTTE AMALIE	18.34	-64.93	32	6	12	
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. THOMAS: PRINCE RUPERT ROCK	18.33	-64.92	31	7		
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. THOMAS: WATER ISLAND	18.32	-64.95	29	12		
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. THOMAS: WEST GREGERIE CHANNEL	18.33	-64.95	30			
1867	11	18	EQ	<a href="#">7.5</a>	USVI	ST. THOMAS: ALL OF	18.34	-64.92	33	9.1	5	
1868	3	17	EQ	<a href="#">*</a>	PR	ARROYO	17.98	-66.05	101	1.5		
1868	3	17	EQ	<a href="#">*</a>	PR	ISLA DE VIEQUES	18.15	-65.45	37			
1868	3	17	EQ	<a href="#">*</a>	PR	NAGUABO	18.20	-65.78	73			
1868	3	17	EQ	<a href="#">*</a>	USVI	ST. THOMAS: CHARLOTTE AMALIE	18.33	-64.92	32	0.6		
1918	10	11	EQ+LS	<a href="#">7.3</a>	BRVI	TORTOLA ISLAND	18.67	-64.65	301	0.7		
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	AGUADILLA	18.45	-67.13	39	3.4	32	
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	ARECIBO	18.45	-66.73	81	0.6		
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	BAHIA DE BOQUERON	18.46	-66.08	149	1.1		
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	CAJA DE MUERTOS	17.87	-66.53	124	1.5		
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	CAYO CARDONA	17.96	-66.37	134	0.75		
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	GUANICA	17.98	-66.92	84	0.5		

Date			Tsunami Source		Tsunami Runup Location						Runup	Tsunami Runup Location Effects	
			Cause	Mag	State	Name	Lat	Long	Distance from Source (km)	Max Water Height (m)	Deaths	Injuries	
Yr	Mo	Da											
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	ISABELA	18.50	-67.03	49	2			
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	ISLA MONA	18.08	-67.90	63	4			
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	MAYAGUEZ	18.20	-67.15	49	1.5	100		
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	PONCE	17.98	-66.62	110				
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	PUNTA AGUJEREADA	18.51	-67.17	35	6	8		
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	PUNTA BORINQUEN	18.48	-67.17	35	4.5			
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	PUNTA HIGUERO	18.37	-67.27	29	5.5			
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	RIO CULEBRINAS	18.40	-67.18	35	4			
1918	10	11	EQ+LS	<a href="#">7.3</a>	PR	RIO GRANDE DE LOIZA	18.45	-65.88	171	1			
1918	10	11	EQ+LS	<a href="#">7.3</a>	USVI	ST. THOMAS: CHARLOTTE AMALIE	18.33	-64.92	273	0.45			
1918	10	11	EQ+LS	<a href="#">7.3</a>	USVI	ST. THOMAS: KRUM BAY	18.33	-64.96	269	1.2			
1918	10	25	EQ	<a href="#">*</a>	PR	MONA PASSAGE	18.50	-67.75	26				
1946	8	4	EQ	<a href="#">7.9</a>	PR	SAN JUAN	18.48	-66.13	314	0.66			
1946	8	8	EQ	<a href="#">7.5</a>	PR	AGUADILLA	18.45	-67.13	275				
1946	8	8	EQ	<a href="#">7.5</a>	PR	MAYAGUEZ	18.20	-67.15	286				
1946	8	8	EQ	<a href="#">7.5</a>	PR	SAN JUAN	18.48	-66.13	372	0.6			
1989	11	1	EQ	<a href="#">4.4</a>	PR	CABO ROJO	18.08	-67.15	204	0.1			

## **PRODUCTS AND ASSOCIATED THREATS**

### **Tsunami Information Statement – No Threat**

For earthquakes located within 311 miles (500 km) of anywhere in Puerto Rico and the Virgin Islands that have magnitudes above about 4.0 but pose no tsunami threat, PTWC will issue a Tsunami Information Statement. Such earthquakes may be felt in PRVI and potentially cause a tsunami concern. This product will quickly inform about the earthquake and that there is no tsunami threat.

In addition, for an earthquake located more than 311 miles (500 km) from Puerto Rico and the Virgin Islands with a magnitude of 6.5 or above that clearly poses no tsunami threat to those islands because it is on land, is too deep within the earth, is too small, or is too far away, a Tsunami Information Statement will be issued indicating that there is no tsunami threat.

### **Tsunami Information Statement – Potential Threat**

If a distant earthquake poses a potential tsunami threat to Puerto Rico and the Virgin Islands but the earliest expected initial wave arrival time is more than 6 hours away and the tsunami is still under evaluation by PTWC, then a Tsunami Information Statement (TIS) will initially be issued indicating there is a potential tsunami threat. Additional TISs will be issued at least once an hour until either:

- 1) it is determined that there is no tsunami threat to PRVI and a final TIS is issued;
- 2) the tsunami is still under evaluation but the expected initial wave arrival time becomes less than 6 hours away from PRVI and the TIS is upgraded to a Tsunami Watch;
- 3) the evaluation indicates only a potential marine tsunami threat to PRVI and the TIS is upgraded to a Tsunami Advisory; or
- 4) the evaluation indicates a potential land inundation threat to PRVI and the TIS is upgraded to a Tsunami Warning.

When a TIS is issued for a potential tsunami threat then government officials, emergency managers, the media and the public should stay alert for further information and be prepared to respond in case the situation is upgraded to a Watch, Advisory, or Warning.

### **Tsunami Watch**

If a distant earthquake poses a potential tsunami threat to Puerto Rico and the Virgin Islands; the earliest expected initial wave arrival time is between 6 and 3 hours away; and the threat is still under evaluation, then a Tsunami Watch will initially be issued indicating there is a potential tsunami threat. Additional Tsunami Watch messages will be issued at least once an hour until either:

- 1) it is determined that there is no tsunami threat to PRVI, and the Tsunami Watch is cancelled;
- 2) the tsunami is still under evaluation but the expected initial wave arrival time is now less than 3 hours away from PRVI so the Tsunami Watch is upgraded to a Tsunami Warning;
- 3) the evaluation indicates only a potential marine tsunami threat to PRVI and the Tsunami Watch is upgraded to a Tsunami Advisory; or

- 4) the evaluation indicates a potential land inundation threat to PRVI and the Tsunami Watch is upgraded to a Tsunami Warning.

When a Tsunami Watch is issued for a potential tsunami threat then government officials, emergency managers, the media and the public should stay alert for further information and begin taking steps to respond quickly in case the situation is upgraded to an Advisory or Warning.

## **Tsunami Advisory**

If an earthquake poses only a potential marine tsunami threat to Puerto Rico and the Virgin Islands, then a Tsunami Advisory will be issued. The determination of this level of threat may be made in one of two ways:

- 1) when the earliest expected arrival time of the initial tsunami wave is more than 3 hours away, then all available data and information will be used to forecast this level of tsunami threat to PRVI; or
- 2) when the earliest expected arrival time of the initial tsunami wave is less than 3 hours away, then this level of tsunami threat will be based primarily upon the earthquake's location, depth, and magnitude using pre-determined criteria.

Tsunami Advisories will continue to be issued at least once an hour until:

- 1) further information before impact indicates there is no tsunami threat to PRVI, and the Tsunami Advisory is cancelled;
- 2) further information before impact indicates there is a greater tsunami threat to PRVI and the Tsunami Advisory is upgraded to a Tsunami Warning;
- 3) the tsunami is impacting PRVI at a higher level than expected and the Tsunami Advisory is upgraded to a Tsunami Warning; or
- 4) the tsunami has already impacted PRVI and wave action has now diminished to the point where the Tsunami Advisory is cancelled.

A Tsunami Advisory means that that sea level is expected to repeatedly rise and fall by as much as 1 foot (0.3 meters) to 3.3 feet (1 meter) above and below the tide level in cycles that may take from five minutes to an hour. These sea level changes will be accompanied by dangerously strong and unusual near-shore ocean currents and minor flooding of harbors and beaches. This level of tsunami impact is a hazard to swimmers, surfers, divers, and others engaging in coastal ocean recreation or work activities. It is also a hazard to persons and boats in harbors. Government officials and emergency managers should take appropriate action for a Tsunami Advisory to inform and instruct the public and others at risk to evacuate the water and take other appropriate actions in order to protect lives and property.

## **Tsunami Warning**

If an earthquake poses a potential tsunami land inundation threat to Puerto Rico and the Virgin Islands, then a Tsunami Warning will be issued. The determination of this level of threat may be made in one of two ways:

- 1) when the earliest expected arrival time of the initial tsunami wave is more than 3 hours away, then all available data and information will be used to forecast this level of tsunami threat to PRVI; or
- 2) when the earliest expected arrival time of the initial tsunami wave is less than 3 hours away, then this level of tsunami threat will be based primarily upon the earthquake's location, depth, and magnitude using pre-determined criteria.

Tsunami Warnings will continue to be issued at least once an hour until:

- 1) further information before impact indicates there is a reduced tsunami threat to PRVI and the Tsunami Warning is downgraded to a Tsunami Advisory;
- 2) further information before impact indicates there is no tsunami threat to PRVI and the Tsunami Warning is cancelled;
- 3) the tsunami has already impacted PRVI and wave action is only at a lower level or it has diminished to the point where the Tsunami Warning is downgraded to a Tsunami Advisory; or
- 4) the tsunami has already impacted PRVI and wave action was minor or non-existent so that the Tsunami Warning is cancelled.

A Tsunami Warning means that that sea level is expected to repeatedly rise and fall above and below the tide level by at 3.3 feet (1 meter) or more in cycles that may take from five minutes to an hour. These sea level changes will be accompanied by repeated flooding and draining of land near the coast accompanied by damage to or destruction of coastal structures. This level of tsunami impact is a hazard to all persons in coastal areas of tsunami inundation zones.

Government officials and emergency managers should take appropriate actions for a Tsunami Warning to inform and instruct the public and others at risk to evacuate the coast and take other appropriate actions in order to protect lives and property.

## **OFFICIAL PRODUCT DEFINITIONS**

The following are the U.S. Tsunami Warning Center official domestic product definitions formulated by and agreed to by the National Tsunami Hazard Mitigation Program.

### **Tsunami Warning**

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



canceled. To provide the earliest possible alert, initial warnings are normally based only on seismic information.

### **Tsunami Advisory**

A tsunami advisory is issued when a tsunami with the potential to generate strong currents or waves dangerous to those in or very near the water is imminent, expected, or occurring. The threat may continue for several hours after initial arrival, but significant inundation is not expected for areas under an advisory. Appropriate actions to be taken by local officials may include closing beaches, evacuating harbors and marinas, and the repositioning of ships to deep waters when there is time to safely do so. Advisories are normally updated to continue the advisory, expand/contract affected areas, upgrade to a warning, or cancel the advisory.

### **Tsunami Watch**

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

### **Tsunami Information Statement**

A tsunami information statement is issued to inform emergency management officials and the public that an earthquake has occurred, or that a tsunami warning, watch or advisory has been issued for another section of the ocean. In most cases, information statements are issued to indicate there is no threat of a destructive basin wide tsunami and to prevent unnecessary evacuations as the earthquake may have been felt in coastal areas. An information statement may, in appropriate situations, caution about the possibility of destructive local tsunamis. Information statements may be re-issued with additional information, though normally these messages are not updated. However, a watch, advisory or warning may be issued for the area, if necessary, after analysis and/or updated information becomes available.

## **PRODUCT TYPES AND IDENTIFIERS**

The following table provides the product identification codes of the World Meteorological Organization (WMO) and the U.S. Advanced Weather Information Processing System (AWIPS) for the PTWC product types issued for PRVI. This information may be necessary to request to receive these products over some circuits such as the WMO’s Global Telecommunications System (GTS), or to program certain systems such as the Emergency Manager’s Weather Information System (EMWIN) to alert on these products.

<b>Product Type</b>	<b>Language</b>	<b>WMO ID</b>	<b>AWIPS ID</b>
Tsunami Information Statement	English	WECA42 PHEB	TIBCAR
Tsunami Information Statement	Spanish	WECA52 PHEB	TIBSP1
Tsunami Watch/Advisory/Warning	English	WECA40 PHEB	TSUCAR
Tsunami Watch/Advisory/Warning	Spanish	WECA50 PHEB	TSUSP1

<b>Product Type</b>	<b>Language</b>	<b>WMO ID</b>	<b>AWIPS ID</b>
Tsunami Watch/Advisory/Warning	English	WECA60 PHEB	TSUCA1

## **PRODUCT DISSEMINATION**

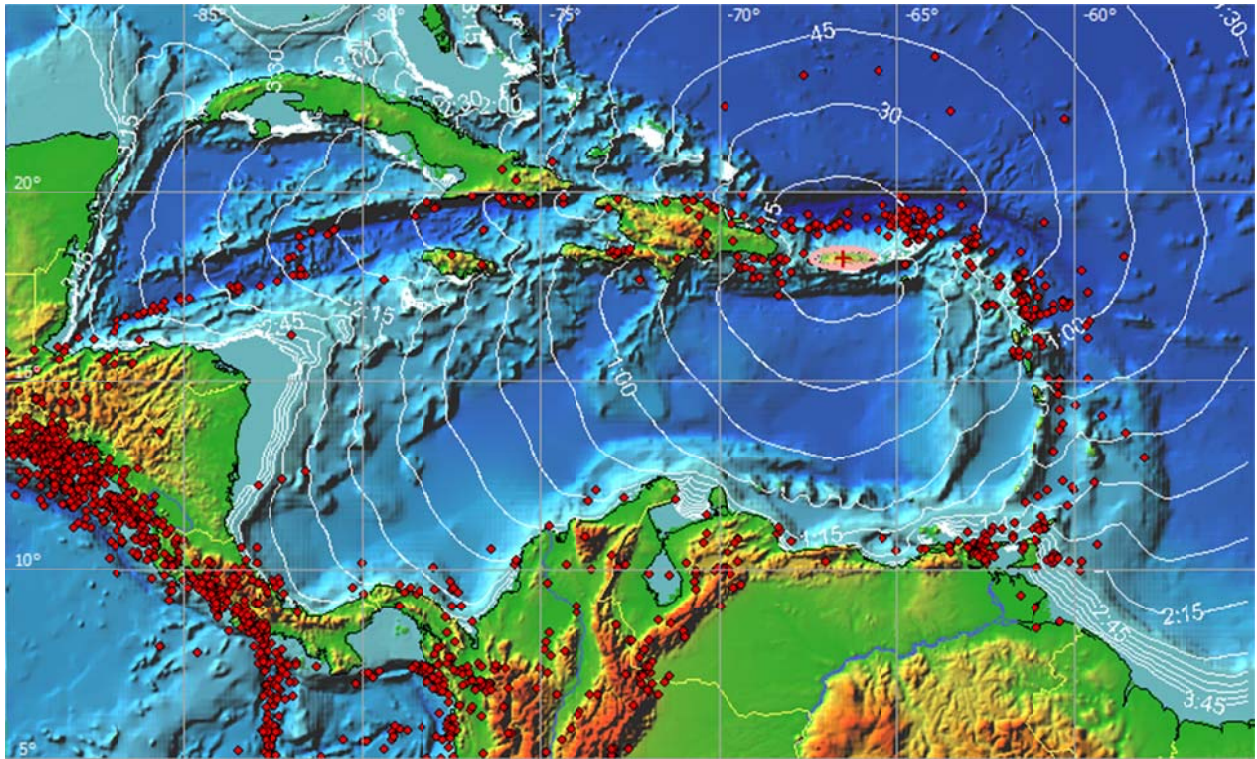
Puerto Rico and Virgin Islands tsunami products issued by PTWC will be disseminated by the following methods:

- GTS
- AWIPS
- Fax
- Email
- PTWC Website
- PTWC Facebook Page
- CTWP Twitter Account

In addition, for all warnings, advisories, and watches, PTWC will telephone key emergency management and response offices covering the region to ensure they are alerted to the situation, that they are receiving the messages, to provide additional guidance if available, and to receive any reports of tsunami activity.

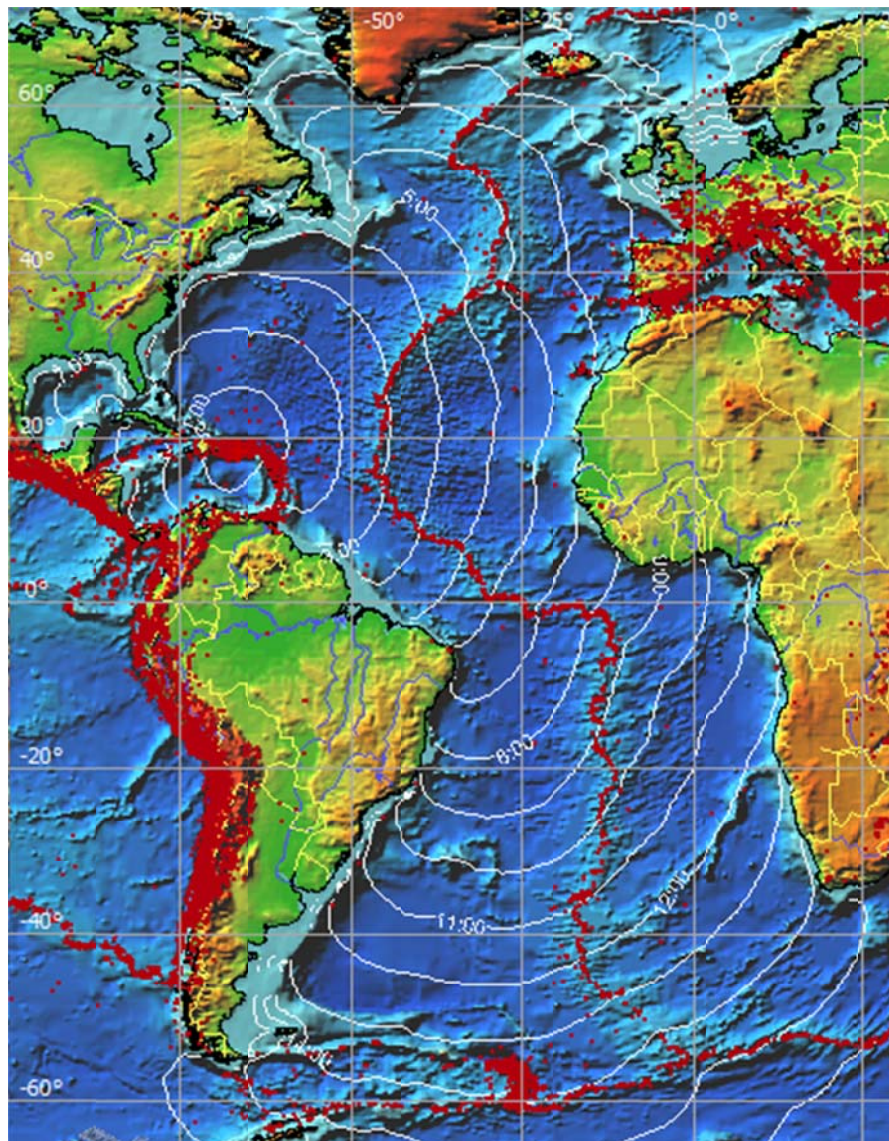
## **TSUNAMI TRAVEL TIMES**

The speed that tsunami waves travel depends upon the depth of the water. In the deep ocean, they can travel at speeds similar to those of a commercial jet – 500 to 600 miles per hour. In shallow water near the coast they travel at speeds similar to common wind waves – 20 to 30 miles per hour. The following map shows tsunami travel times to the island of Puerto Rico from the various shallow seismic zones in the Caribbean region (red dots). For tsunami-genic earthquakes that occur in the seismic zone to the north of Puerto Rico, the travel time can be less than 10 minutes. But even for the more distant Caribbean seismic zones such as those near the Lesser Antilles, Venezuela, Panama, or Honduras, the travel times range from less than an hour to no more than 3 hours. Travel times to the US and British Virgin Islands are similar.



*Tsunami travel time contours at 15-minute intervals across the Caribbean region to the island of Puerto Rico. The white contours are labelled in hours of travel time. Red dots show the location of historical earthquakes having depths less than 100 km. They primarily outline boundaries between tectonic plates in the Caribbean region.*

The map below shows tsunami travel times to the island of Puerto Rico from the various shallow seismic zones in the Atlantic region (red dots). While there are no written records of any Atlantic tsunamis impacting PRVI, at least one significant Atlantic-crossing tsunami exists in the historical record. That was the 1755 Lisbon, Portugal earthquake and tsunami that was observed at several locations in the Lesser Antilles with amplitudes above a meter. Also, in Anegada, BVI, Atwater et al (2012) found evidence for a potential over-wash from this event. Travel times to Puerto Rico from potentially tsunami-genic earthquakes in the Atlantic vary from three hours to the nearest part of the Mid-Atlantic Ridge (an unlikely source) to eight hours for a source off of Lisbon, to more than 13 hours for a tsunami from the Scotia Arc to the southeast of southern Argentina.



*Tsunami travel time contours at 1-hour intervals across the Atlantic region to the island of Puerto Rico. White contours are labelled in hours of travel time. Red dots show the location of historical earthquakes having depths less than 100 km. They primarily outline boundaries between tectonic plates in the Atlantic region.*

## PRE-DETERMINED SEISMIC CRITERIA FOR INITIAL LEVELS OF ALERT

In order to provide the earliest possible information regarding any potential earthquake-generated tsunami, initial products and associated alerts for Puerto Rico and the Virgin Islands are based primarily upon the preliminary seismic parameters determined by PTWC within a few minutes of the earthquake and that may evolve over the next few tens of minutes as more seismic data are received and processed.

### Distant Earthquakes

For earthquakes located further than three hours tsunami travel time from Puerto Rico and the Virgin Islands, the seismic criteria used for initial products are similar to seismic criteria currently used by PTWC elsewhere and are given in the table below.

Earthquake					
Sea	Land	Depth	Magnitude	ETA	Product/Alert Level
Yes	Yes	< 62 mi (100 km)	6.5 - 7.8	> 3 hr	TIS – No Threat
Yes	Yes	≥ 62 mi (100 km)	≥ 6.5	> 3 hr	TIS – No Threat
Yes	Near Sea	< 62 mi (100 km)	≥ 7.9	> 6 hr	TIS – Potential Threat
Yes	Near Sea	< 62 mi (100 km)	≥ 7.9	3 - 6 hr	Tsunami Watch

Some flexibility may be applied by the PTWC duty staff in applying these criteria based upon their assessment of the accuracy of the earthquake parameters, judgments about the tsunami-genic potential of inland events, earthquake slowness indicative of increased tsunami-genic potential, and other considerations such as proximity to the 3- and 6-hour timing boundaries.

### Nearby Earthquakes (tsunami arrival in less than 3 hours)

For earthquakes located within three hours tsunami travel time of Puerto Rico and the Virgin Islands, the criteria for initial alerts is based entirely on the earthquake's proximity to PRVI and the preliminary seismic parameters. This streamlined procedure is due to the limited time available for any emergency management or public response if required. The criteria are based on historical data and tsunami modeling results and are designed to be conservative. They are described below.

1. If the earthquake is within 186 miles (300 km) of PRVI, has a preliminary depth less than 62 miles (100 km) and has a preliminary magnitude of 7.1 or greater then a **warning** will be issued.
2. If the earthquake is within 186 miles (300 km) of PRVI, has a preliminary depth less than 62 miles (100 km) and has a preliminary magnitude of 6.5 or greater but less than 7.1 then an **advisory** will be issued.
3. If the earthquake is between 186 miles (300 km) and 621 miles (1000 km) of PRVI, has a preliminary depth less than 62 miles (100 km) and has a preliminary magnitude of 7.6 or greater then a **warning** will be issued.

4. If the earthquake is between 186 miles (300 km) and 621 miles (1000 km) of PRVI, has a preliminary depth less than 62 miles (100 km) and has a preliminary magnitude of 7.1 or greater but less than 7.6 then an **advisory** will be issued.
5. If the earthquake is more than 621 miles (1000 km) from PRVI, has a preliminary depth less than 62 miles (100 km) and the preliminary magnitude of 7.9 or greater then a **warning** will be issued.
6. If the earthquake is more than 621 miles (1000 km) from PRVI, has a preliminary depth less than 62 miles (100 km) and the preliminary magnitude of 7.6 or greater but less than 7.9 then an **advisory** will be issued.
7. If the earthquake has a preliminary depth less than 62 miles (100 km) with preliminary magnitude of 6.5 or greater but does not meet any of the criteria above for an advisory or warning, then only an **information statement** will be issued indicating no tsunami threat.
8. If the preliminary earthquake depth is greater than or equal to 62 miles (100 km) and the preliminary earthquake magnitude is greater than or equal to 6.5, then only an **information statement** will be issued indicating no tsunami threat from a deep earthquake.

These procedures are consistent with current procedures used in PTWC’s Pacific and Caribbean international products, with the exception of adding magnitude criteria for tsunami advisories. Some flexibility may be used by the PTWC duty staff in applying these criteria based upon their assessment of the accuracy of the earthquake parameters, earthquake slowness indicative of increased tsunami-genic potential, and other factors such as the proximity to the three-hour timing boundary.

## **TSUNAMI THREAT CRITERIA FOR SUBSEQUENT LEVELS OF ALERT**

The tsunami threat to Puerto Rico and the Virgin Islands from any earthquake or any potential or observed tsunami will be continuously evaluated by PTWC based upon all available data and information that will typically include the seismic parameters, sea level readings, historical data, tsunami reports, and one or more numerical simulations constrained by some of that information. Taking into account the various uncertainties, and in general leaning towards being conservative, a forecast will be made by PTWC duty personnel for PRVI and the appropriate product issued using the following criteria:

<b>Alert Level</b>	<b>Maximum Expected Rise of Sea Level above the Tide</b>
None	0 to 1 ft (0 to 0.3 m)
Advisory	1 to 3.3 ft (0.3 to 1 m)
Warning	> 3.3 ft (> 1 m)

Alert levels may increase as an event evolves if information is received that justifies such an increase. Alert levels will not be lowered in advance of impact except in the case where an updated evaluation has very high level of confidence and there is a clear benefit to immediately lowering the alert. Alert levels may be lowered after impact as conditions warrant until cancellation.

## **EARTHQUAKE LOCATION DESCRIPTION**

For earthquakes located further than 186 miles (300 km) from Puerto Rico and the Virgin Islands, then the Flynn-Engdahl global region names are used:

[http://earthquake.usgs.gov/learn/topics/flinn\\_engdahl.php](http://earthquake.usgs.gov/learn/topics/flinn_engdahl.php)

For earthquakes located within 186 miles (300 km) of any of the islands that make up PRVI, the location name will reference the nearest island by the following scheme:

- 1) If the epicenter is within 6 miles (10 km) of the coast of the nearest island, the name will reference that island as follows: “in the vicinity of Mona” or “in the vicinity of Anegada”.
- 2) If the epicenter is further than 6 miles (10 km) from the nearest island, then the name will reference that island with a distance and direction as follows: “about 91 miles southeast of Saint Croix” or “about 48 miles north of Puerto Rico”.

## **FORECAST POINTS**

The following is a list of the forecast points referenced whenever a Watch, Advisory, or Warning is issued. For each of these points, the estimated time of arrival of the first tsunami wave is given in the product. In addition, for some of the points, forecast tsunami wave amplitudes as well as the estimated duration of the hazard will be given when available and judged to be reliable. Forecast amplitudes and durations will be the maximum estimated values along the coastline near this point. Some of the places are sites where sea level gauges are located. Readings from those gauges will be reported in products as they become available.

<b>TERRITORY</b>	<b>LOCATION</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
PUERTO RICO	SAN JUAN	18.459N	66.116W
PUERTO RICO	MAYAGUEZ	18.220N	67.160W
PUERTO RICO	PONCE	17.968N	66.621W
PUERTO RICO	FAJARDO	18.335N	65.631W
PUERTO RICO	MONA ISLAND	18.090N	67.939W
PUERTO RICO	AGUADILLA	18.457N	67.165W
PUERTO RICO	ARECIBO	18.481N	66.702W
PUERTO RICO	YABUCOA	18.055N	65.833W
PUERTO RICO	CAJA DE MUERTOS	17.888N	66.531W
PUERTO RICO	PENUELAS	17.973N	66.762W

<b>TERRITORY</b>	<b>LOCATION</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
PUERTO RICO	MAGUEYES IS	17.970N	67.046W
PUERTO RICO	CULEBRA IS	18.301N	65.303W
PUERTO RICO	VIEQUES IS	18.153N	65.444W
US VIRGIN IS	CHARLOTTE AMALIE	18.336N	64.920W
US VIRGIN IS	LAMESHUR BAY	18.318N	64.724W
US VIRGIN IS	CHRISTIANSTED	17.748N	64.698W
US VIRGIN IS	LIMETREE	17.695N	64.754W
BR VIRGIN IS	ROADTOWN	18.425N	64.608W
BR VIRGIN IS	VIRGIN GORDA	18.480N	64.380W
BR VIRGIN IS	ANEGADA	18.750N	64.300W

## **PRODUCT TIMING**

The initial product for a potentially tsunami-genic earthquake will be issued as soon as the earthquake's location, depth, and magnitude can be determined by PTWC with sufficient accuracy to reasonably estimate its tsunami-genic potential. The speed at which this occurs depends upon a number of factors, the most important of which is the number of available real-time-reporting seismic stations in the vicinity of the earthquake. This density varies considerably around the Caribbean and Atlantic so that initial products may go out within two or three minutes for an earthquake located near Puerto Rico, but could take more than 10 minutes for an earthquake in the southern Atlantic. The speed of the initial product is most important for coasts located near the earthquake because a tsunami, if generated, may strike those nearby coasts within minutes.

For a Tsunami Information Statement (TIS) indicating no threat to PRVI only one product is usually issued. A supplemental TIS may be issued at a later time, however, if there is something new to report such as a significant change in the earthquake parameters or the observation of small tsunami waves.

For TIS with a potential threat, or for a Watch, Advisory, or Warning related to a distant earthquake, subsequent products will be issued at least once an hour, or more frequently if there is significant new information to report. Products will continue to be issued at least hourly until the threat to PRVI has passed, either before impact because the threat was downgraded, or after impact when the threat is over.

For an Advisory or Warning for a nearby earthquake

A cancellation supplement may also be issued after a significant tsunami to distribute a summary of tsunami observations, some of which may not have been reported during the event.



## **PRODUCT CONTENT**

The products will have content divided into the following lines and sections.

- WMO Product ID Line
- AWIPS Product ID Line
- UGC Code Line <sup>1</sup>
- VTEC Code Line(s) <sup>1</sup>
- Broadcast Instruction Line <sup>1</sup>
- Product Type Line
- Issuing Office Line
- Issuance Date/Time Line
- Product Headline
- Audience
- Updates in This Message <sup>2</sup>
- Evaluation
- Preliminary Earthquake Parameters
- Recommended Actions
- Forecasts of Tsunami Activity <sup>3</sup>
- Observations of Tsunami Activity <sup>3</sup>
- Impacts
- Next Update and Additional Information

<sup>1</sup> These lines are only in the NOAA Weather Radio version for a Watch, Advisory or Warning.

<sup>2</sup> Updates are only present after the initial product.

<sup>3</sup> Only present for a Watch, Advisory or Warning.

## **ENSURING PREPAREDNESS**

One of the most significant challenges in mitigating tsunami impacts is maintaining a sufficient level of preparedness over decades and even centuries in order to respond quickly and accurately at the time a tsunami occurs. Two of the many requirements for getting and staying prepared are ensuring the reliable receipt of warning messages and the practice of warning and response procedures to evaluate and improve their effectiveness and to help make them more automatic. To this end, PTWC will conduct regular tests of the communication links it uses to disseminate warnings, and will also participate in exercises that drill the procedures of the emergency response agencies and even the public at risk. PTWC will also participate as needed in training activities.

### **Monthly Communication Tests**

Routine communication testing is essential, not only because tsunami events require an immediate response but also because the issuance of actual tsunami products for the Puerto Rico and Virgin Islands region occurs infrequently. To this end, PTWC will issue an unannounced

communication test once a month using tsunami warning product IDs and will request a response back within an hour from key emergency management and response offices covering the area. Non-responses will prompt a phone call to the corresponding office to verify if the test product was received. Any communication issues discovered during testing will be addressed as necessary. Results of each communication test will be compiled and distributed to the offices tested.

## **Exercises**

Puerto Rico and the Virgin Islands have participated in annual CaribeWave exercises carried out for countries and territories of the UNESCO/IOC Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE-EWS). These exercises have simulated one or more tsunami scenarios affecting coasts of the Caribbean region including Puerto Rico and the Virgin Islands. PTWC will produce the PRVI domestic messages for CaribeWave exercises and distribute them as required before and during the exercise. PTWC can also produce appropriate PRVI messages for other exercises that the region would like to conduct.

## SAMPLE PRODUCTS

On the following pages are samples of the various types of PTWC domestic products for PRVI to show their general format and the type of information they contain. They are not intended to simulate or otherwise represent the characteristics of any particular actual event or related threat. Each of the public products is provided in both English and Spanish. The NOAA Weather Radio (NWR) version that is only issued for a Watch, Advisory, or Warning, contains Universal Geographic Codes (UGC) and Valid Time Event Codes (VTEC) as well as a shorter summary of the situation and recommended actions.

## Nearby Earthquake - Tsunami Information Statement

ENGLISH VERSION
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ZCZC  
WECA42 PHEB 300303  
TIBCAR

TSUNAMI INFORMATION STATEMENT NUMBER 1  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1103 PM AST FRI JAN 29 2016

...NO TSUNAMI THREAT FROM A NEARBY EARTHQUAKE...

### AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

### EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 5.1 OCCURRED ABOUT 13 MILES NORTH OF PUERTO RICO AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* BASED ON ALL AVAILABLE DATA... THERE IS NO TSUNAMI THREAT TO PUERTO RICO... THE U.S. VIRGIN ISLANDS... OR THE BRITISH VIRGIN ISLANDS FROM THIS EARTHQUAKE.
- \* PEOPLE MAY HAVE EXPERIENCED SHAKING FROM THE EARTHQUAKE.

### PRELIMINARY EARTHQUAKE PARAMETERS

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\* THE FOLLOWING PARAMETERS ARE BASED ON A PRELIMINARY RAPID ASSESSMENT OF THE EARTHQUAKE AND CHANGES MAY OCCUR.

\* MAGNITUDE 5.1  
\* ORIGIN TIME 1100 PM AST JAN 29 2016  
\* COORDINATES 18.7 NORTH 67.1 WEST  
\* DEPTH 8 MILES  
\* LOCATION ABOUT 13 MILES NORTH OF PUERTO RICO

RECOMMENDED ACTIONS

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\* NO ACTION IS REQUIRED.

IMPACTS

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\* NO TSUNAMI IMPACTS ARE EXPECTED.

NEXT UPDATE AND ADDITIONAL INFORMATION

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- \* THIS WILL BE THE ONLY STATEMENT ISSUED FOR THIS EVENT UNLESS ADDITIONAL DATA ARE RECEIVED OR THE SITUATION CHANGES.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT [PTWC.WEATHER.GOV](http://PTWC.WEATHER.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT [NTWC.ARH.NOAA.GOV](http://NTWC.ARH.NOAA.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT [EARTHQUAKE.USGS.GOV/EARTHQUAKES](http://EARTHQUAKE.USGS.GOV/EARTHQUAKES) -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA52 PHEB 300303  
TIBSP1

BOLETIN INFORMATIVO DE TSUNAMI NUMERO 1  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI

1103 PM AST FRI JAN 29 2016

...NO HAY PELIGRO DE TSUNAMI DEBIDO A ESTE TERREMOTO CERCANO...

AUDIENCIA

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- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 5.1 HA OCURRIDO UNAS 13 MILLAS AL NORTE DE PUERTO RICO A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... NO EXISTE PELIGRO DE TSUNAMI PARA PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... O LAS ISLAS VIRGENES BRITANICAS DEBIDO A ESTE TERREMOTO.
- \* LA POBLACION PUEDE HABER SENTIDO EL TERREMOTO.

PARAMETROS PRELIMINARES DEL TERREMOTO

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- \* LOS SIGUIENTES PARAMETROS ESTAN BASADOS EN UNA EVALUACION PRELIMINAR RAPIDA Y PUEDEN VARIAR.
- \* MAGNITUD 5.1
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 18.7 NORTE 67.1 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION UNAS 13 MILLAS AL NORTE DE PUERTO RICO

ACCIONES RECOMENDADAS

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- \* NO SE REQUIERE ACCION.

IMPACTOS

-----

- \* NO SE ESPERAN IMPACTOS DE TSUNAMI DEBIDO A ESTE TERREMOTO.

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

- 
- \* ESTE SERA EL UNICO COMUNICADO EMITIDO ACERCA DE ESTE EVENTO A NO SER QUE SE RECIBA INFORMACION ADICIONAL O LA SITUACION CAMBIE.
  - \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
  - \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
  - \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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## Nearby Earthquake – Initial Tsunami Advisory Message

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 300303  
TSUCAR

TSUNAMI MESSAGE NUMBER 1  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1103 PM AST FRI JAN 29 2016

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

### AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

### EVALUATION

-----

- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 6.8 OCCURRED ABOUT 49 MILES NORTH OF PUERTO RICO AT 1100 PM AST ON FRIDAY JANUARY 29 2016.

- \* BASED ON ALL AVAILABLE DATA... THERE IS A TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS OF SEA LEVEL FLUCTUATIONS AND STRONG OCEAN CURRENTS THAT COULD BE A HAZARD ALONG COASTS... BEACHES... IN HARBORS... AND IN COASTAL WATERS.
- \* THE EARLIEST ESTIMATED TIME THAT HAZARDOUS SEA LEVEL FLUCTUATIONS AND STRONG OCEAN CURRENTS MAY BEGIN IN PUERTO RICO AND THE VIRGIN ISLANDS IS

1109 PM AST ON FRIDAY JANUARY 29 2016

- \* ACTIONS TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY SHOULD BE TAKEN IMMEDIATELY.
- \* THE GENERATION OF TSUNAMI WAVES HAS NOT YET BEEN CONFIRMED.
- \* MONITORING IS UNDERWAY TO FURTHER EVALUATE THE TSUNAMI THREAT.
- \* PEOPLE MAY HAVE EXPERIENCED SHAKING FROM THE EARTHQUAKE.

PRELIMINARY EARTHQUAKE PARAMETERS

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- \* THE FOLLOWING PARAMETERS ARE BASED ON A PRELIMINARY RAPID ASSESSMENT OF THE EARTHQUAKE AND CHANGES MAY OCCUR.
- \* MAGNITUDE                    6.8
- \* ORIGIN TIME                 1100 PM AST JAN 29 2016
- \* COORDINATES                19.2 NORTH    66.4 WEST
- \* DEPTH                        8 MILES
- \* LOCATION                    ABOUT 49 MILES NORTH OF PUERTO RICO

RECOMMENDED ACTIONS

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- \* ACTIONS REQUIRED TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY WILL VARY WITHIN THE TSUNAMI ADVISORY AREA.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.
- \* DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.
- \* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.
- \* BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

\* BOATERS - WHERE TIME AND CONDITIONS PERMIT... MOVE YOUR BOAT OUT TO SEA TO A DEPTH OF AT LEAST 450 FEET.

\* BOATERS - IF AT SEA... AVOID ENTERING SHALLOW WATER... HARBORS... MARINAS... BAYS AND INLETS TO AVOID FLOATING AND SUBMERGED DEBRIS AND STRONG CURRENTS.

FORECASTS OF TSUNAMI ACTIVITY  
-----

\* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW.

\* OBSERVED ARRIVAL TIMES MAY DIFFER FROM THESE ETAS AND THE INITIAL WAVE MAY NOT BE THE LARGEST.

\* FORECAST TSUNAMI HEIGHTS AND DURATIONS ARE NOT YET AVAILABLE.

\* A TSUNAMI IS A SERIES OF WAVES AND THE DURATION OF EACH WAVE CAN BE FIVE MINUTES TO ONE HOUR.

TERRITORY	COASTAL LOCATION	ETA (AST)	FORECAST HEIGHT	FORECAST DURATION
PUERTO RICO	ARECIBO	1109 PM		
	SAN JUAN	1109 PM		
	MAYAGUEZ	1118 PM		
	AGUADILLA	1119 PM		
	MONA ISLAND	1127 PM		
	PENUELAS	1137 PM		
	PONCE	1141 PM		
	MAGUEYES IS	1144 PM		
	FAJARDO	1147 PM		
	YABUCOA	1147 PM		
	CAJA DE MUERTOS	1151 PM		
	CULEBRA IS	1201 AM		
	VIEQUES IS	1202 AM		
BVI	ANEGADA	1134 PM		
	VIRGIN GORDA	1155 PM		
	ROADTOWN	1255 AM		
USVI	CHRISTIANSTED	1141 PM		
	LIMETREE	1144 PM		
	LAMESHUR BAY	1207 AM		
	CHARLOTTE AMALIE	1219 AM		

OBSERVATIONS OF TSUNAMI ACTIVITY  
-----

\* NO OBSERVATIONS OF TSUNAMI ACTIVITY ARE AVAILABLE YET.



IMPACTS

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- \* IMPACTS WILL VARY AT DIFFERENT LOCATIONS WITHIN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* SEA LEVEL FLUCTUATIONS THAT ARE GENERALLY LESS THAN 3 FEET ABOVE AND BELOW THE TIDE LEVEL.
- \* WAVES AND CURRENTS THAT CAN DROWN OR INJURE PEOPLE IN THE WATER.
- \* WAVES AND CURRENTS ON BEACHES AND IN HARBORS... MARINAS... BAYS... AND INLETS THAT MAY BE ESPECIALY DANGEROUS.
- \* THE HAZARD IS FORECAST TO BEGIN AROUND 1109 PM AST ON FRIDAY JANUARY 29 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

NEXT UPDATE AND ADDITIONAL INFORMATION

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- \* THE NEXT MESSAGE WILL BE ISSUED IN THIRTY MINUTES... OR SOONER IF THE SITUATION WARRANTS.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT [PTWC.WEATHER.GOV](http://PTWC.WEATHER.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT [NTWC.ARH.NOAA.GOV](http://NTWC.ARH.NOAA.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT [EARTHQUAKE.USGS.GOV/EARTHQUAKES](http://EARTHQUAKE.USGS.GOV/EARTHQUAKES) -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA50 PHEB 300303  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 1  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
1103 PM AST FRI JAN 29 2016

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

AUDIENCIA

-----

- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 6.8 HA OCURRIDO UNAS 49 MILLAS AL NORTE DE PUERTO RICO A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... EXISTE PELIGRO DE TSUNAMI PARA PUERTO RICO Y LAS ISLAS VIRGENES DEBIDO A FLUCTUACIONES DEL NIVEL DEL MAR Y CORRIENTES MARINAS FUERTES QUE PODRIAN PRESENTAR PELIGRO A LO LARGO DE COSTAS... PLAYAS... PUERTOS... Y AGUAS COSTERAS.
- \* EL TIEMPO DE ARRIBO MAS TEMPRANO A PARTIR DEL CUAL FLUCTUACIONES PELIGROSAS DEL NIVEL DEL MAR Y CORRIENTES OCEANICAS FUERTES PUEDEN COMENZAR EN PUERTO RICO Y LAS ISLAS VIRGENES ES

1109 PM AST EL VIERNES 29 DE ENERO DEL 2016

- \* ACCIONES PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES DEBEN TOMARSE DE FORMA INMEDIATA.
- \* TODAVIA NO SE HA OBSERVADO ACTIVIDAD DE TSUNAMI.
- \* MONITOREO EN CURSO PARA EVALUAR MAS A FONDO EL PELIGRO DE TSUNAMI.
- \* LA POBLACION PUEDE HABER SENTIDO EL TERREMOTO.

PARAMETROS PRELIMINARES DEL TERREMOTO

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- \* LOS SIGUIENTES PARAMETROS ESTAN BASADOS EN UNA EVALUACION PRELIMINAR RAPIDA Y PUEDEN VARIAR.
- \* MAGNITUD 6.8
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 19.2 NORTE 66.4 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION UNAS 49 MILLAS AL NORTE DE PUERTO RICO

ACCIONES RECOMENDADAS

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- \* LAS ACCIONES REQUERIDAS PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES VARIARAN DENTRO DE LAS ZONA EN ESTADO DE ADVERTENCIA.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR DEBEN SALIR DEL AGUA... FUERA DE LA PLAYA Y ALEJARSE DE PUERTOS... MARINAS... BAHIAS Y ENSENADAS.
- \* NO VAYA A LA ORILLA DEL MAR PARA OBSERVAR EL TSUNAMI.
- \* NO REGRESE A ZONAS EVACUADAS HASTA TANTO LAS AUTORIDADES DECLAREN QUE EL PELIGRO YA PASO.
- \* MANTENGASE ALERTA Y SIGA LAS INSTRUCCIONES PROVENIENTES DE FUNCIONARIOS DE LAS AGENCIAS LOCALES PARA EL MANEJO DE EMERGENCIAS YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES MAS ESPECIFICAS PARA SU LOCALIDAD.
- \* MARINEROS - DONDE EL TIEMPO Y LAS CONDICIONES PERMITAN... MUEVAN SU EMBARCACION MAR AFUERA HACIA PROFUNDIDADES DE AL MENOS 450 PIES.
- \* MARINEROS - SI SE ENCUENTRA MAR AFUERA... EVITEN ADENTRARSE EN AGUAS SOMERAS... PUERTOS... MARINAS... BAHIAS Y ENSENADAS PARA EVITAR ESCOMBROS TANTO FLOTANTES COMO SUMERGIDOS Y CORRIENTES FUERTES.

PRONOSTICO DE LA ACTIVIDAD DEL TSUNAMI

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- \* LOS TIEMPOS DE ARRIBO ESTIMADOS -TAE- DE LA PRIMERA OLA DEL TSUNAMI SE PROVEEN A CONTINUACION.
- \* LOS TIEMPOS DE ARRIBO REALES PUEDEN DIFERIR DE LOS ESTIMADOS Y LA PRIMERA OLA PUEDE QUE NO SEA LA MAS GRANDE.
- \* EL PRONOSTICO DE LAS AMPLITUDES Y DURACION DEL TSUNAMI NO ESTAN AUN DISPONIBLES.
- \* UN TSUNAMI ES UN TREN DE OLAS Y EL TIEMPO ENTRE OLAS PUEDE VARIAR DESDE CINCO MINUTOS HASTA UNA HORA.

TERRITORIO	LOCALIZACION	TAE (AST)	----PRONOSTICO----	
	COSTERA		ALTURA	DURACION
PUERTO RICO	ARECIBO	1109 PM		
	SAN JUAN	1109 PM		
	MAYAGUEZ	1118 PM		
	AGUADILLA	1119 PM		
	MONA ISLAND	1127 PM		

	PENUELAS	1137 PM
	PONCE	1141 PM
	MAGUEYES IS	1144 PM
	FAJARDO	1147 PM
	YABUCOA	1147 PM
	CAJA DE MUERTOS	1151 PM
	CULEBRA IS	1201 AM
	VIEQUES IS	1202 AM
BVI	ANEGADA	1134 PM
	VIRGIN GORDA	1155 PM
	ROADTOWN	1255 AM
USVI	CHRISTIANSTED	1141 PM
	LIMETREE	1144 PM
	LAMESHUR BAY	1207 AM
	CHARLOTTE AMALIE	1219 AM

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI

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- \* TODAVIA NO SE DISPONE DE OBSERVACIONES DE LA ACTIVIDAD DEL TSUNAMI.

IMPACTOS

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- \* LOS IMPACTOS VARIARAN PARA DIFERENTES LOCALIDADES EN PUERTO RICO Y LAS ISLAS VIRGENES.
- \* FLUCTUACIONES DEL NIVEL DEL MAR POR LO GENERAL NO MAYORES DE 3 PIES TANTO POR ENCIMA COMO POR DEBAJO DEL NIVEL DE MAREA.
- \* OLAS Y CORRIENTES QUE PUEDEN AHOGAR O LESIONAR A PERSONAS EN EL AGUA.
- \* OLAS Y CORRIENTES EN PLAYAS Y PUERTOS... MARINAS... BAHIAS... Y ENSENADAS QUE PUEDEN RESULTAR ESPECIALMENTE PELIGROSAS.
- \* EL PELIGRO SE PRONOSTICA QUE COMENZARA ALREDEDOR DE LA(S) 1109 PM AST EL VIERNES 29 DE ENERO DEL 2016 Y PUEDE PERSISTIR POR VARIAS HORAS O MAS.

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

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- \* EL PROXIMO MENSAJE SERA EMITIDO EN TREINTA MINUTOS... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y

WWW.TSUNAMI.GOV.

- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 300303  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 1  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1103 PM AST FRI JAN 29 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-300503-  
/O.NEW.PHEB.TS.Y.0013.160130T0303Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
1103 PM AST FRI JAN 29 2016

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

PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE  
WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS  
AND INLETS.

AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 6.8 OCCURRED ABOUT  
49 MILES NORTH OF PUERTO RICO AT 1100 PM AST ON FRIDAY JANUARY  
29 2016.

A HAZARDOUS TSUNAMI MAY HAVE BEEN GENERATED BY THIS NEARBY  
EARTHQUAKE THAT COULD SOON IMPACT NEARBY COASTS.

BASED ON ALL AVAILABLE DATA... THERE IS A TSUNAMI THREAT TO  
PUERTO RICO AND THE VIRGIN ISLANDS OF SEA LEVEL FLUCTUATIONS AND  
STRONG OCEAN CURRENTS THAT COULD BE A HAZARD ALONG COASTS...  
BEACHES... IN HARBORS... AND IN COASTAL WATERS.

THE HAZARD IS FORECAST TO BEGIN AROUND 1109 PM AST ON FRIDAY  
JANUARY 29 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.

DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.

BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

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## Nearby Earthquake – Tsunami Advisory with Forecast

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 300325  
TSUCAR

TSUNAMI MESSAGE NUMBER 2  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1125 PM AST FRI JAN 29 2016

...A TSUNAMI ADVISORY CONTINUES IN EFFECT...

### AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

### UPDATES IN THIS MESSAGE

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- \* THE EARTHQUAKE PARAMETERS HAVE BEEN REVISED.
- \* TSUNAMI HEIGHT AND DURATION FORECASTS ARE NOW INCLUDED.
- \* THE GENERATION OF TSUNAMI WAVES IS CONFIRMED.
- \* TSUNAMI OBSERVATIONS ARE NOW INCLUDED.

### EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 6.9 OCCURRED ABOUT 49 MILES NORTH OF PUERTO RICO AT 1100 PM AST ON FRIDAY JANUARY 29 2016.

- \* A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.
- \* BASED ON ALL AVAILABLE DATA... THERE IS A TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS OF SEA LEVEL FLUCTUATIONS AND STRONG OCEAN CURRENTS THAT COULD BE A HAZARD ALONG COASTS... BEACHES... IN HARBORS... AND IN COASTAL WATERS.
- \* THE EARLIEST ESTIMATED TIME THAT HAZARDOUS SEA LEVEL FLUCTUATIONS AND STRONG OCEAN CURRENTS MAY BEGIN IN PUERTO RICO AND THE VIRGIN ISLANDS IS

1109 PM AST ON FRIDAY JANUARY 29 2016

- \* ACTIONS TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY SHOULD BE TAKEN IMMEDIATELY.
- \* PEOPLE MAY HAVE EXPERIENCED SHAKING FROM THE EARTHQUAKE.

PRELIMINARY EARTHQUAKE PARAMETERS - UPDATED

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- \* THE FOLLOWING PARAMETERS ARE BASED ON A PRELIMINARY RAPID ASSESSMENT OF THE EARTHQUAKE AND CHANGES MAY OCCUR.
- \* MAGNITUDE                    6.9
- \* ORIGIN TIME                 1100 PM AST JAN 29 2016
- \* COORDINATES                19.2 NORTH    66.4 WEST
- \* DEPTH                        8 MILES
- \* LOCATION                    ABOUT 49 MILES NORTH OF PUERTO RICO

RECOMMENDED ACTIONS

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- \* ACTIONS REQUIRED TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY WILL VARY WITHIN THE TSUNAMI ADVISORY AREA.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.
- \* DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.
- \* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.
- \* BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.
- \* BOATERS - WHERE TIME AND CONDITIONS PERMIT... MOVE YOUR BOAT OUT TO SEA TO A DEPTH OF AT LEAST 450 FEET.

\* BOATERS - IF AT SEA... AVOID ENTERING SHALLOW WATER...  
 HARBORS... MARINAS... BAYS AND INLETS TO AVOID FLOATING AND  
 SUBMERGED DEBRIS AND STRONG CURRENTS.

FORECASTS OF TSUNAMI ACTIVITY - UPDATED  
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- \* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE  
 ARE GIVEN BELOW.
- \* OBSERVED ARRIVAL TIMES MAY DIFFER FROM THESE ETAS AND THE  
 INITIAL WAVE MAY NOT BE THE LARGEST.
- \* THE FORECAST HEIGHT IS THE MAXIMUM EXPECTED WATER LEVEL ABOVE  
 THE TIDE AT THAT COASTAL LOCATION.
- \* THE FORECAST DURATION IS THE APPROXIMATE EXPECTED LENGTH OF  
 TIME AFTER INITIAL IMPACT THAT THE TSUNAMI MAY CONTINUE TO  
 BE A HAZARD.
- \* A TSUNAMI IS A SERIES OF WAVES AND THE DURATION OF EACH WAVE  
 CAN BE FIVE MINUTES TO ONE HOUR.

TERRITORY	COASTAL LOCATION	ETA (AST)	FORECAST HEIGHT	FORECAST DURATION
PUERTO RICO	ARECIBO	1109 PM	0.9-2.0 FT	6 HRS
	SAN JUAN	1109 PM	0.9-2.0 FT	6 HRS
	MAYAGUEZ	1118 PM	BELOW 1 FT	-----
	AGUADILLA	1119 PM	BELOW 1 FT	-----
	MONA ISLAND	1127 PM	BELOW 1 FT	-----
	PENUELAS	1137 PM	BELOW 1 FT	-----
	PONCE	1141 PM	BELOW 1 FT	-----
	MAGUEYES IS	1144 PM	BELOW 1 FT	-----
	FAJARDO	1147 PM	BELOW 1 FT	-----
	YABUCOA	1147 PM	BELOW 1 FT	-----
	CAJA DE MUERTOS	1151 PM	BELOW 1 FT	-----
BVI	CULEBRA IS	1201 AM	BELOW 1 FT	-----
	VIEQUES IS	1202 AM	BELOW 1 FT	-----
	ANEGADA	1134 PM	BELOW 1 FT	-----
USVI	VIRGIN GORDA	1155 PM	BELOW 1 FT	-----
	ROADTOWN	1255 AM	BELOW 1 FT	-----
USVI	CHRISTIANSTED	1141 PM	BELOW 1 FT	-----
	LIMETREE	1144 PM	BELOW 1 FT	-----
	LAMESHUR BAY	1207 AM	BELOW 1 FT	-----
	CHARLOTTE AMALIE	1219 AM	BELOW 1 FT	-----

OBSERVATIONS OF TSUNAMI ACTIVITY  
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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 THE HIGHEST MEASURED SO FAR. IT IS MEASURED WITH RESPECT TO THE TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES		TIME OF MEASURE (AST)	MAXIMUM TSUNAMI HEIGHT
	LAT	LON		
MAYAGUEZ PR	18.2N	67.2W	1123 PM	0.4 FT
SAN JUAN PR	18.5N	66.1W	1119 PM	1.4 FT
ARECIBO PR	18.5N	66.7W	1114 PM	1.3 FT

IMPACTS

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- \* IMPACTS WILL VARY AT DIFFERENT LOCATIONS WITHIN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* SEA LEVEL FLUCTUATIONS THAT ARE GENERALLY LESS THAN 3 FEET ABOVE AND BELOW THE TIDE LEVEL.
- \* WAVES AND CURRENTS THAT CAN DROWN OR INJURE PEOPLE IN THE WATER.
- \* WAVES AND CURRENTS ON BEACHES AND IN HARBORS... MARINAS... BAYS... AND INLETS THAT MAY BE ESPECIALLY DANGEROUS.
- \* THE HAZARD BEGAN AROUND 1109 PM AST ON FRIDAY JANUARY 29 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

NEXT UPDATE AND ADDITIONAL INFORMATION

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- \* THE NEXT MESSAGE WILL BE ISSUED IN THIRTY MINUTES... OR SOONER IF THE SITUATION WARRANTS.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT [PTWC.WEATHER.GOV](http://PTWC.WEATHER.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT [NTWC.ARH.NOAA.GOV](http://NTWC.ARH.NOAA.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT

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SPANISH VERSION

ZCZC  
WECA50 PHEB 300325  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 2  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
1125 PM AST FRI JAN 29 2016

...LA ADVERTENCIA DE TSUNAMI CONTINUA EN EFECTO...

AUDIENCIA

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- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

ACTUALIZACIONES EN ESTE MENSAJE

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- \* LOS PARAMETROS DEL TSUNAMI HAN SIDO ACTUALIZADOS.
- \* PRONOSTICOS DE LA ALTURA DEL TSUNAMI Y SU DURACION ESTAN AHORA INCLUIDOS.
- \* SE HA CONFIRMADO LA GENERACION DE OLAS DE TSUNAMI.
- \* OBSERVACIONES DEL TSUNAMI ESTAN AHORA INCLUIDAS.

EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 6.9 HA OCURRIDO UNAS 49 MILLAS AL NORTE DE PUERTO RICO A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* UN TSUNAMI HA SIDO GENERADO POR ESTE TERREMOTO.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... EXISTE PELIGRO DE TSUNAMI PARA PUERTO RICO Y LAS ISLAS VIRGENES DEBIDO A FLUCTUACIONES DEL NIVEL DEL MAR Y CORRIENTES MARINAS FUERTES QUE PODRIAN PRESENTAR PELIGRO A LO LARGO DE COSTAS... PLAYAS... PUERTOS... Y AGUAS COSTERAS.

- \* EL TIEMPO DE ARRIBO MAS TEMPRANO A PARTIR DEL CUAL FLUCTUACIONES PELIGROSAS DEL NIVEL DEL MAR Y CORRIENTES OCEANICAS FUERTES PUEDEN COMENZAR EN PUERTO RICO Y LAS ISLAS VIRGENES ES

1109 PM AST EL VIERNES 29 DE ENERO DEL 2016

- \* ACCIONES PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES DEBEN TOMARSE DE FORMA INMEDIATA.
- \* LA POBLACION PUEDE HABER SENTIDO EL TERREMOTO.

PARAMETROS PRELIMINARES DEL TERREMOTO - ACTUALIZADO

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

- \* MAGNITUD 6.9
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 19.2 NORTE 66.4 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION UNAS 49 MILLAS AL NORTE DE PUERTO RICO

ACCIONES RECOMENDADAS

- \* LAS ACCIONES REQUERIDAS PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES VARIARAN DENTRO DE LAS ZONA EN ESTADO DE ADVERTENCIA.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR DEBEN SALIR DEL AGUA... FUERA DE LA PLAYA Y ALEJARSE DE PUERTOS... MARINAS... BAHIAS Y ENSENADAS.
- \* NO VAYA A LA ORILLA DEL MAR PARA OBSERVAR EL TSUNAMI.
- \* NO REGRESE A ZONAS EVACUADAS HASTA TANTO LAS AUTORIDADES DECLAREN QUE EL PELIGRO YA PASO.
- \* MANTENGASE ALERTA Y SIGA LAS INSTRUCCIONES PROVENIENTES DE FUNCIONARIOS DE LAS AGENCIAS LOCALES PARA EL MANEJO DE EMERGENCIAS YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES MAS ESPECIFICAS PARA SU LOCALIDAD.
- \* MARINEROS - DONDE EL TIEMPO Y LAS CONDICIONES PERMITAN... MUEVAN SU EMBARCACION MAR AFUERA HACIA PROFUNDIDADES DE AL MENOS 450 PIES.
- \* MARINEROS - SI SE ENCUENTRA MAR AFUERA... EVITEN ADENTRARSE EN AGUAS SOMERAS... PUERTOS... MARINAS... BAHIAS Y ENSENADAS

PARA EVITAR ESCOMBROS TANTO FLOTANTES COMO SUMERGIDOS Y  
CORRIENTES FUERTES.

PRONOSTICO DE LA ACTIVIDAD DEL TSUNAMI - ACTUALIZADO

- \* LOS TIEMPOS DE ARRIBO ESTIMADOS -TAE- DE LA PRIMERA OLA DEL TSUNAMI SE PROVEEN A CONTINUACION.
- \* LOS TIEMPOS DE ARRIBO REALES PUEDEN DIFERIR DE LOS ESTIMADOS Y LA PRIMERA OLA PUEDE QUE NO SEA LA MAS GRANDE.
- \* LA ALTURA PRONOSTICADA ES EL NIVEL MAXIMO DEL AGUA POR ENCIMA DEL NIVEL DE MAREA QUE SE ESPERA A LO LARGO DE ESA SECCION DE LA COSTA.
- \* LA DURACION PRONOSTICADA ES EL TIEMPO DURANTE EL CUAL SE ESPERA QUE EL TSUNAMI PRODUZCA OLAS Y CORRIENTES PELIGROSAS.
- \* UN TSUNAMI ES UN TREN DE OLAS Y EL TIEMPO ENTRE OLAS PUEDE VARIAR DESDE CINCO MINUTOS HASTA UNA HORA.

TERRITORIO	LOCALIZACION COSTERA	TAE (AST)	----PRONOSTICO----	
			ALTURA	DURACION
PUERTO RICO	ARECIBO	1109 PM	0.9-2.0 FT	6 HRS
	SAN JUAN	1109 PM	0.9-2.0 FT	6 HRS
	MAYAGUEZ	1118 PM	BELOW 1 FT	-----
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	MONA ISLAND	1127 PM	BELOW 1 FT	-----
	PENUELAS	1137 PM	BELOW 1 FT	-----
	PONCE	1141 PM	BELOW 1 FT	-----
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	LIMETREE	1144 PM	BELOW 1 FT	-----
	LAMESHUR BAY	1207 AM	BELOW 1 FT	-----
	CHARLOTTE AMALIE	1219 AM	BELOW 1 FT	-----

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI

- \* LO QUE SIGUE SON LAS OBSERVACIONES DE LAS OLAS DEL TSUNAMI

REGISTRADAS EN INSTRUMENTOS DE MEDICION EN ESTACIONES EN LA COSTA Y/O BOYAS EN AGUAS PROFUNDAS EN LOS PUNTOS INDICADOS. LA ALTURA MAXIMA DEL TSUNAMI ES MEDIDA CON RESPECTO AL NIVEL DE LA MAREA.

- \* LA ALTURA MAXIMA DEL TSUNAMI ES EL VALOR MAXIMO OBSERVADO HASTA AHORA Y SE MIDE CON RESPECTO AL NIVEL DE LA MAREA.

LOCALIZACION DEL INSTRUMENTO	COORDENADAS DEL INSTRUMENTO LAT LON		TIEMPO DEL REGISTRO (AST)	ALTURA MAXIMA DEL TSUNAMI
MAYAGUEZ PR	18.2N	67.2W	1123 PM	0.4 FT
SAN JUAN PR	18.5N	66.1W	1119 PM	1.4 FT
ARECIBO PR	18.5N	66.7W	1114 PM	1.3 FT

IMPACTOS

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- \* LOS IMPACTOS VARIARAN PARA DIFERENTES LOCALIDADES EN PUERTO RICO Y LAS ISLAS VIRGENES.
- \* FLUCTUACIONES DEL NIVEL DEL MAR POR LO GENERAL NO MAYORES DE 3 PIES TANTO POR ENCIMA COMO POR DEBAJO DEL NIVEL DE MAREA.
- \* OLAS Y CORRIENTES QUE PUEDEN AHOGAR O LESIONAR A PERSONAS EN EL AGUA.
- \* OLAS Y CORRIENTES EN PLAYAS Y PUERTOS... MARINAS... BAHIAS... Y ENSENADAS QUE PUEDEN RESULTAR ESPECIALMENTE PELIGROSAS.
- \* EL PELIGRO COMENZO A PARTIR DE LA(S) 1109 PM AST EL VIERNES 29 DE ENERO DEL 2016 Y PUEDE PERSISTIR POR VARIAS HORAS O MAS.

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

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- \* EL PROXIMO MENSAJE SERA EMITIDO EN TREINTA MINUTOS... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.

\* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 300325  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 2  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1125 PM AST FRI JAN 29 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-300525-  
/O.CON.PHEB.TS.Y.0014.000000T0000Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
1125 PM AST FRI JAN 29 2016

...A TSUNAMI ADVISORY CONTINUES IN EFFECT...

PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.

AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 6.9 OCCURRED ABOUT 49 MILES NORTH OF PUERTO RICO AT 1100 PM AST ON FRIDAY JANUARY 29 2016.

A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.

THE MAXIMUM TSUNAMI HEIGHT OBSERVED SO FAR ON A GAUGE IN PUERTO RICO OR THE VIRGIN ISLANDS IS 1.4 FEET AT SAN JUAN.

BASED ON ALL AVAILABLE DATA... THERE IS A TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS OF SEA LEVEL FLUCTUATIONS AND STRONG OCEAN CURRENTS THAT COULD BE A HAZARD ALONG COASTS... BEACHES... IN HARBORS... AND IN COASTAL WATERS.

THE HAZARD BEGAN AROUND 1109 PM AST ON FRIDAY JANUARY 29 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.

DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.

BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

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## Nearby Earthquake – Tsunami Advisory with Observations

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 300355  
TSUCAR

TSUNAMI MESSAGE NUMBER 3  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1155 PM AST FRI JAN 29 2016

...A TSUNAMI ADVISORY CONTINUES IN EFFECT...

### AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

### UPDATES IN THIS MESSAGE

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- \* THE TSUNAMI OBSERVATIONS HAVE BEEN UPDATED.

### EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 6.9 OCCURRED ABOUT 49 MILES NORTH OF PUERTO RICO AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.
- \* BASED ON ALL AVAILABLE DATA... THERE IS A TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS OF SEA LEVEL FLUCTUATIONS AND STRONG OCEAN CURRENTS THAT COULD BE A HAZARD ALONG COASTS... BEACHES... IN HARBORS... AND IN COASTAL WATERS.
- \* THE EARLIEST ESTIMATED TIME THAT HAZARDOUS SEA LEVEL FLUCTUATIONS AND STRONG OCEAN CURRENTS MAY BEGIN IN PUERTO

RICO AND THE VIRGIN ISLANDS IS

1109 PM AST ON FRIDAY JANUARY 29 2016

- \* ACTIONS TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY SHOULD BE TAKEN IMMEDIATELY.

RECOMMENDED ACTIONS

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- \* ACTIONS REQUIRED TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY WILL VARY WITHIN THE TSUNAMI ADVISORY AREA.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.
- \* DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.
- \* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.
- \* BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.
- \* BOATERS - WHERE TIME AND CONDITIONS PERMIT... MOVE YOUR BOAT OUT TO SEA TO A DEPTH OF AT LEAST 450 FEET.
- \* BOATERS - IF AT SEA... AVOID ENTERING SHALLOW WATER... HARBORS... MARINAS... BAYS AND INLETS TO AVOID FLOATING AND SUBMERGED DEBRIS AND STRONG CURRENTS.

FORECASTS OF TSUNAMI ACTIVITY

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- \* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW.
- \* OBSERVED ARRIVAL TIMES MAY DIFFER FROM THESE ETAS AND THE INITIAL WAVE MAY NOT BE THE LARGEST.
- \* THE FORECAST HEIGHT IS THE MAXIMUM EXPECTED WATER LEVEL ABOVE THE TIDE AT THAT COASTAL LOCATION.
- \* THE FORECAST DURATION IS THE APPROXIMATE EXPECTED LENGTH OF TIME AFTER INITIAL IMPACT THAT THE TSUNAMI MAY CONTINUE TO BE A HAZARD.
- \* A TSUNAMI IS A SERIES OF WAVES AND THE DURATION OF EACH WAVE CAN BE FIVE MINUTES TO ONE HOUR.



TERRITORY	COASTAL LOCATION	ETA (AST)	FORECAST HEIGHT	FORECAST DURATION
PUERTO RICO	ARECIBO	1109 PM	0.9-2.0 FT	6 HRS
	SAN JUAN	1109 PM	0.9-2.0 FT	6 HRS
	MAYAGUEZ	1118 PM	BELOW 1 FT	-----
	AGUADILLA	1119 PM	BELOW 1 FT	-----
	MONA ISLAND	1127 PM	BELOW 1 FT	-----
	PENUELAS	1137 PM	BELOW 1 FT	-----
	PONCE	1141 PM	BELOW 1 FT	-----
	MAGUEYES IS	1144 PM	BELOW 1 FT	-----
	FAJARDO	1147 PM	BELOW 1 FT	-----
	YABUCOA	1147 PM	BELOW 1 FT	-----
	CAJA DE MUERTOS	1151 PM	BELOW 1 FT	-----
	CULEBRA IS	1201 AM	BELOW 1 FT	-----
VIEQUES IS	1202 AM	BELOW 1 FT	-----	
BVI	ANEGADA	1134 PM	BELOW 1 FT	-----
	VIRGIN GORDA	1155 PM	BELOW 1 FT	-----
	ROADTOWN	1255 AM	BELOW 1 FT	-----
USVI	CHRISTIANSTED	1141 PM	BELOW 1 FT	-----
	LIMETREE	1144 PM	BELOW 1 FT	-----
	LAMESHUR BAY	1207 AM	BELOW 1 FT	-----
	CHARLOTTE AMALIE	1219 AM	BELOW 1 FT	-----

OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

- \* THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS.
- \* THE MAXIMUM TSUNAMI HEIGHT IS THE HIGHEST MEASURED SO FAR. IT IS MEASURED WITH RESPECT TO THE TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES		TIME OF MEASURE (AST)	MAXIMUM TSUNAMI HEIGHT
	LAT	LON		
PUNTA CANA DO	18.5N	68.4W	1142 PM	0.2 FT
MONA ISLAND PR	18.1N	67.9W	1141 PM	0.2 FT
AGUADILLA PR	18.5N	67.2W	1133 PM	0.6 FT
MAYAGUEZ PR	18.2N	67.2W	1123 PM	0.4 FT
SAN JUAN PR	18.5N	66.1W	1119 PM	1.4 FT
ARECIBO PR	18.5N	66.7W	1114 PM	1.3 FT

IMPACTS

- \* IMPACTS WILL VARY AT DIFFERENT LOCATIONS WITHIN PUERTO RICO AND THE VIRGIN ISLANDS.

- \* SEA LEVEL FLUCTUATIONS THAT ARE GENERALLY LESS THAN 3 FEET ABOVE AND BELOW THE TIDE LEVEL.
- \* WAVES AND CURRENTS THAT CAN DROWN OR INJURE PEOPLE IN THE WATER.
- \* WAVES AND CURRENTS ON BEACHES AND IN HARBORS... MARINAS... BAYS... AND INLETS THAT MAY BE ESPECIALLY DANGEROUS.
- \* THE HAZARD BEGAN AROUND 1109 PM AST ON FRIDAY JANUARY 29 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

PRELIMINARY EARTHQUAKE PARAMETERS

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- \* MAGNITUDE                    6.9
- \* ORIGIN TIME                1100 PM AST JAN 29 2016
- \* COORDINATES                19.2 NORTH 66.4 WEST
- \* DEPTH                        8 MILES
- \* LOCATION                    ABOUT 49 MILES NORTH OF PUERTO RICO

NEXT UPDATE AND ADDITIONAL INFORMATION

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- \* THE NEXT MESSAGE WILL BE ISSUED IN THIRTY MINUTES... OR SOONER IF THE SITUATION WARRANTS.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT NTWC.ARH.NOAA.GOV AND AT WWW.TSUNAMI.GOV.
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
 WECA50 PHEB 300355  
 TSUSP1

MENSAJE DE TSUNAMI NUMERO 3  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
1155 PM AST FRI JAN 29 2016

...LA ADVERTENCIA DE TSUNAMI CONTINUA EN EFECTO...

AUDIENCIA

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- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

ACTUALIZACIONES EN ESTE MENSAJE

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- \* LAS OBSERVACIONES DEL TSUNAMI HAN SIDO ACTUALIZADAS.

EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 6.9 HA OCURRIDO UNAS 49 MILLAS AL NORTE DE PUERTO RICO A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* UN TSUNAMI HA SIDO GENERADO POR ESTE TERREMOTO.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... EXISTE PELIGRO DE TSUNAMI PARA PUERTO RICO Y LAS ISLAS VIRGENES DEBIDO A FLUCTUACIONES DEL NIVEL DEL MAR Y CORRIENTES MARINAS FUERTES QUE PODRIAN PRESENTAR PELIGRO A LO LARGO DE COSTAS... PLAYAS... PUERTOS... Y AGUAS COSTERAS.
- \* EL TIEMPO DE ARRIBO MAS TEMPRANO A PARTIR DEL CUAL FLUCTUACIONES PELIGROSAS DEL NIVEL DEL MAR Y CORRIENTES OCEANICAS FUERTES PUEDEN COMENZAR EN PUERTO RICO Y LAS ISLAS VIRGENES ES

1109 PM AST EL VIERNES 29 DE ENERO DEL 2016

- \* ACCIONES PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES DEBEN TOMARSE DE FORMA INMEDIATA.

ACCIONES RECOMENDADAS

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- \* LAS ACCIONES REQUERIDAS PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES VARIARAN DENTRO DE LAS ZONA EN ESTADO DE ADVERTENCIA.

- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR DEBEN SALIR DEL AGUA... FUERA DE LA PLAYA Y ALEJARSE DE PUERTOS... MARINAS... BAHIAS Y ENSENADAS.
- \* NO VAYA A LA ORILLA DEL MAR PARA OBSERVAR EL TSUNAMI.
- \* NO REGRESE A ZONAS EVACUADAS HASTA TANTO LAS AUTORIDADES DECLAREN QUE EL PELIGRO YA PASO.
- \* MANTENGASE ALERTA Y SIGA LAS INSTRUCCIONES PROVENIENTES DE FUNCIONARIOS DE LAS AGENCIAS LOCALES PARA EL MANEJO DE EMERGENCIAS YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES MAS ESPECIFICAS PARA SU LOCALIDAD.
- \* MARINEROS - DONDE EL TIEMPO Y LAS CONDICIONES PERMITAN... MUEVAN SU EMBARCACION MAR AFUERA HACIA PROFUNDIDADES DE AL MENOS 450 PIES.
- \* MARINEROS - SI SE ENCUENTRA MAR AFUERA... EVITEN ADENTRARSE EN AGUAS SOMERAS... PUERTOS... MARINAS... BAHIAS Y ENSENADAS PARA EVITAR ESCOMBROS TANTO FLOTANTES COMO SUMERGIDOS Y CORRIENTES FUERTES.

PRONOSTICO DE LA ACTIVIDAD DEL TSUNAMI

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- \* LOS TIEMPOS DE ARRIBO ESTIMADOS -TAE- DE LA PRIMERA OLA DEL TSUNAMI SE PROVEEN A CONTINUACION.
- \* LOS TIEMPOS DE ARRIBO REALES PUEDEN DIFERIR DE LOS ESTIMADOS Y LA PRIMERA OLA PUEDE QUE NO SEA LA MAS GRANDE.
- \* LA ALTURA PRONOSTICADA ES EL NIVEL MAXIMO DEL AGUA POR ENCIMA DEL NIVEL DE MAREA QUE SE ESPERA A LO LARGO DE ESA SECCION DE LA COSTA.
- \* LA DURACION PRONOSTICADA ES EL TIEMPO DURANTE EL CUAL SE ESPERA QUE EL TSUNAMI PRODUZCA OLAS Y CORRIENTES PELIGROSAS.
- \* UN TSUNAMI ES UN TREN DE OLAS Y EL TIEMPO ENTRE OLAS PUEDE VARIAR DESDE CINCO MINUTOS HASTA UNA HORA.

TERRITORIO	LOCALIZACION COSTERA	TAE (AST)	----PRONOSTICO----	
			ALTURA	DURACION
PUERTO RICO	ARECIBO	1109 PM	0.9-2.0 FT	6 HRS
	SAN JUAN	1109 PM	0.9-2.0 FT	6 HRS
	MAYAGUEZ	1118 PM	BELOW 1 FT	-----
	AGUADILLA	1119 PM	BELOW 1 FT	-----
	MONA ISLAND	1127 PM	BELOW 1 FT	-----
	PENUELAS	1137 PM	BELOW 1 FT	-----
	PONCE	1141 PM	BELOW 1 FT	-----
	MAGUEYES IS	1144 PM	BELOW 1 FT	-----

	FAJARDO	1147 PM	BELOW 1 FT	-----
	YABUCOA	1147 PM	BELOW 1 FT	-----
	CAJA DE MUERTOS	1151 PM	BELOW 1 FT	-----
	CULEBRA IS	1201 AM	BELOW 1 FT	-----
	VIEQUES IS	1202 AM	BELOW 1 FT	-----
BVI	ANEGADA	1134 PM	BELOW 1 FT	-----
	VIRGIN GORDA	1155 PM	BELOW 1 FT	-----
	ROADTOWN	1255 AM	BELOW 1 FT	-----
USVI	CHRISTIANSTED	1141 PM	BELOW 1 FT	-----
	LIMETREE	1144 PM	BELOW 1 FT	-----
	LAMESHUR BAY	1207 AM	BELOW 1 FT	-----
	CHARLOTTE AMALIE	1219 AM	BELOW 1 FT	-----

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI - ACTUALIZADO

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- \* LO QUE SIGUE SON LAS OBSERVACIONES DE LAS OLAS DEL TSUNAMI REGISTRADAS EN INSTRUMENTOS DE MEDICION EN ESTACIONES EN LA COSTA Y/O BOYAS EN AGUAS PROFUNDAS EN LOS PUNTOS INDICADOS. LA ALTURA MAXIMA DEL TSUNAMI ES MEDIDA CON RESPECTO AL NIVEL DE LA MAREA.
- \* LA ALTURA MAXIMA DEL TSUNAMI ES EL VALOR MAXIMO OBSERVADO HASTA AHORA Y SE MIDE CON RESPECTO AL NIVEL DE LA MAREA.

LOCALIZACION DEL INSTRUMENTO	COORDENADAS DEL INSTRUMENTO		TIEMPO DEL REGISTRO (AST)	ALTURA MAXIMA DEL TSUNAMI
	LAT	LON		
PUNTA CANA DO	18.5N	68.4W	1142 PM	0.2 FT
MONA ISLAND PR	18.1N	67.9W	1141 PM	0.2 FT
AGUADILLA PR	18.5N	67.2W	1133 PM	0.6 FT
MAYAGUEZ PR	18.2N	67.2W	1123 PM	0.4 FT
SAN JUAN PR	18.5N	66.1W	1119 PM	1.4 FT
ARECIBO PR	18.5N	66.7W	1114 PM	1.3 FT

IMPACTOS

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- \* LOS IMPACTOS VARIARAN PARA DIFERENTES LOCALIDADES EN PUERTO RICO Y LAS ISLAS VIRGENES.
- \* FLUCTUACIONES DEL NIVEL DEL MAR POR LO GENERAL NO MAYORES DE 3 PIES TANTO POR ENCIMA COMO POR DEBAJO DEL NIVEL DE MAREA.
- \* OLAS Y CORRIENTES QUE PUEDEN AHOGAR O LESIONAR A PERSONAS EN EL AGUA.
- \* OLAS Y CORRIENTES EN PLAYAS Y PUERTOS... MARINAS... BAHIAS...

Y ENSEÑADAS QUE PUEDEN RESULTAR ESPECIALMENTE PELIGROSAS.

- \* EL PELIGRO COMENZO A PARTIR DE LA(S) 1109 PM AST EL VIERNES 29 DE ENERO DEL 2016 Y PUEDE PERSISTIR POR VARIAS HORAS O MAS.

PARAMETROS PRELIMINARES DEL TERREMOTO

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- \* MAGNITUD 6.9
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 19.2 NORTE 66.4 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION UNAS 49 MILLAS AL NORTE DE PUERTO RICO

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

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- \* EL PROXIMO MENSAJE SERA EMITIDO EN TREINTA MINUTOS... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 300355  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 3  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1155 PM AST FRI JAN 29 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-

VIZ001-002-300555-  
/O.CON.PHEB.TS.Y.0014.000000T0000Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
1155 PM AST FRI JAN 29 2016

...A TSUNAMI ADVISORY CONTINUES IN EFFECT...

PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE  
WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS  
AND INLETS.

AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 6.9 OCCURRED ABOUT  
49 MILES NORTH OF PUERTO RICO AT 1100 PM AST ON FRIDAY JANUARY  
29 2016.

A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.

THE MAXIMUM TSUNAMI HEIGHT OBSERVED SO FAR ON A GAUGE IN PUERTO  
RICO OR THE VIRGIN ISLANDS IS 1.4 FEET AT SAN JUAN.

BASED ON ALL AVAILABLE DATA... THERE IS A TSUNAMI THREAT TO  
PUERTO RICO AND THE VIRGIN ISLANDS OF SEA LEVEL FLUCTUATIONS AND  
STRONG OCEAN CURRENTS THAT COULD BE A HAZARD ALONG COASTS...  
BEACHES... IN HARBORS... AND IN COASTAL WATERS.

THE HAZARD BEGAN AROUND 1109 PM AST ON FRIDAY JANUARY 29 2016 AND  
IT CAN PERSIST FOR MANY HOURS OR LONGER.

DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.

DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY  
LOCAL AUTHORITIES.

BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY  
MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR  
SPECIFIC INFORMATION FOR YOUR LOCATION.

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## Nearby Earthquake – Tsunami Advisory Cancellation

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 300525  
TSUCAR

TSUNAMI MESSAGE NUMBER 6  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
125 AM AST SAT JAN 30 2016

...THE TSUNAMI ADVISORY IS NOW CANCELED...

AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

UPDATES IN THIS MESSAGE

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- \* THE TSUNAMI ADVISORY IS NOW CANCELED FOR PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

EVALUATION

-----

- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 6.9 OCCURRED ABOUT 49 MILES NORTH OF PUERTO RICO AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE THAT AFFECTED PUERTO RICO AND THE VIRGIN ISLANDS.
- \* BASED ON ALL AVAILABLE DATA... THERE IS NO FURTHER TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS ALTHOUGH MINOR SEA LEVEL FLUCTUATIONS MAY CONTINUE.

RECOMMENDED ACTIONS

-----

- \* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.
- \* FOLLOW INSTRUCTIONS FROM PUERTO RICO AND VIRGIN ISLANDS EMERGENCY MANAGEMENT AGENCIES BECAUSE THEY MAY HAVE SPECIFIC INFORMATION OR INSTRUCTIONS FOR YOUR LOCATION.
- \* BE OBSERVANT AND EXERCISE NORMAL CAUTION IF YOU ARE NEAR OR IN THE OCEAN.
- \* OTHERWISE... NO FURTHER ACTION IS REQUIRED.

OBSERVATIONS OF TSUNAMI ACTIVITY

-----

- \* THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED



LOCATIONS.

- \* THE MAXIMUM TSUNAMI HEIGHT IS THE HIGHEST MEASURED SO FAR. IT IS MEASURED WITH RESPECT TO THE TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES		TIME OF MEASURE (AST)	MAXIMUM TSUNAMI HEIGHT
	LAT	LON		
PUNTA CANA DO	18.5N	68.4W	1142 PM	0.2 FT
MONA ISLAND PR	18.1N	67.9W	1141 PM	0.2 FT
AGUADILLA PR	18.5N	67.2W	1133 PM	0.6 FT
MAYAGUEZ PR	18.2N	67.2W	1123 PM	0.4 FT
SAN JUAN PR	18.5N	66.1W	1119 PM	1.4 FT
ARECIBO PR	18.5N	66.7W	1114 PM	1.3 FT

IMPACTS

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- \* MINOR SEA LEVEL FLUCTUATIONS MAY CONTINUE OVER THE NEXT FEW HOURS.

PRELIMINARY EARTHQUAKE PARAMETERS

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- \* MAGNITUDE 6.9
- \* ORIGIN TIME 1100 PM AST JAN 29 2016
- \* COORDINATES 19.2 NORTH 66.4 WEST
- \* DEPTH 8 MILES
- \* LOCATION ABOUT 49 MILES NORTH OF PUERTO RICO

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.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT [PTWC.WEATHER.GOV](http://PTWC.WEATHER.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT [NTWC.ARH.NOAA.GOV](http://NTWC.ARH.NOAA.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT [EARTHQUAKE.USGS.GOV/EARTHQUAKES](http://EARTHQUAKE.USGS.GOV/EARTHQUAKES) -ALL LOWERCASE LETTERS-.

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SPANISH VERSION

ZCZC  
WECA50 PHEB 300525  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 6  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
125 AM AST SAT JAN 30 2016

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

AUDIENCIA

-----

- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

ACTUALIZACIONES EN ESTE MENSAJE

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- \* LA ADVERTENCIA DE TSUNAMI AHORA HA SIDO CANCELADA PARA PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 6.9 HA OCURRIDO UNAS 49 MILLAS AL NORTE DE PUERTO RICO A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* UN TSUNAMI QUE AFECTO A PUERTO RICO Y LAS ISLAS VIRGENS FUE GENERADO POR ESTE TERREMOTO.
- \* BASANDOSE EN EL ANALYSIS DE TODOS LOS DATOS DISPONIBLES... YA NO EXISTE NINGUN PELIGRO DE TSUNAMI PARA PUERTO RICO Y LAS ISLAS VIRGENES DEBIDO A ESTE TERREMOTO PERO FLUCTUACIONES MENORES DEL NIVEL DEL MAR PUEDEN CONTINUAR.

ACCIONES RECOMENDADAS

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- \* NO REGRESE A ZONAS EVACUADAS HASTA TANTO LAS AUTORIDADES DECLAREN QUE EL PELIGRO YA PASO.
- \* SIGA LAS INSTRUCCIONES PROVENIENTES DE LAS AGENCIAS DE MANEJO

DE EMERGENCIAS EN PUERTO RICO Y LAS ISLAS VIRGENES YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES ESPECIFICAS PARA SU LOCALIDAD.

- \* SEA OBSERVADOR Y CAUTELOSO SI SE ENCUENTRA CERCA O DENTRO DEL MAR.
- \* DE LO CONTRARIO... NO SE REQUIERE NINGUNA OTRA ACCION.

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI

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- \* LO QUE SIGUE SON LAS OBSERVACIONES DE LAS OLAS DEL TSUNAMI REGISTRADAS EN INSTRUMENTOS DE MEDICION EN ESTACIONES EN LA COSTA Y/O BOYAS EN AGUAS PROFUNDAS EN LOS PUNTOS INDICADOS. LA ALTURA MAXIMA DEL TSUNAMI ES MEDIDA CON RESPECTO AL NIVEL DE LA MAREA.
- \* LA ALTURA MAXIMA DEL TSUNAMI ES EL VALOR MAXIMO OBSERVADO HASTA AHORA Y SE MIDE CON RESPECTO AL NIVEL DE LA MAREA.

LOCALIZACION DEL INSTRUMENTO	COORDENADAS DEL INSTRUMENTO LAT LON		TIEMPO DEL REGISTRO (AST)	ALTURA MAXIMA DEL TSUNAMI
PUNTA CANA DO	18.5N	68.4W	1142 PM	0.2 FT
MONA ISLAND PR	18.1N	67.9W	1141 PM	0.2 FT
AGUADILLA PR	18.5N	67.2W	1133 PM	0.6 FT
MAYAGUEZ PR	18.2N	67.2W	1123 PM	0.4 FT
SAN JUAN PR	18.5N	66.1W	1119 PM	1.4 FT
ARECIBO PR	18.5N	66.7W	1114 PM	1.3 FT

IMPACTOS

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- \* FLUCTUACIONES MENORES DEL NIVEL DEL MAR PUEDE CONTINUAR DURANTE LAS PROXIMAS HORAS.

PARAMETROS PRELIMINARES DEL TERREMOTO

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- \* MAGNITUD 6.9
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 19.2 NORTE 66.4 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION UNAS 49 MILLAS AL NORTE DE PUERTO RICO

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

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- \* ESTE SERA EL ULTIMO COMUNICADO EMITIDO PARA ESTE EVENTO A NO SER QUE SE RECIBA NUEVA INFORMACION O LA SITUACION CAMBIE.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 300525  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 6  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
125 AM AST SAT JAN 30 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-300725-  
/O.CAN.PHEB.TS.Y.0013.000000T0000Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
125 AM AST SAT JAN 30 2016

...THE TSUNAMI ADVISORY IS NOW CANCELED...

BASED ON ALL AVAILABLE DATA... THERE IS NO FURTHER TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS ALTHOUGH MINOR SEA LEVEL FLUCTUATIONS MAY CONTINUE.

DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.

FOLLOW INSTRUCTIONS FROM PUERTO RICO AND VIRGIN ISLANDS EMERGENCY MANAGEMENT AGENCIES BECAUSE THEY MAY HAVE SPECIFIC INFORMATION OR INSTRUCTIONS FOR YOUR LOCATION.

BE OBSERVANT AND EXERCISE NORMAL CAUTION IF YOU ARE NEAR OR IN

THE OCEAN.

OTHERWISE... NO FURTHER ACTION IS REQUIRED.

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## Nearby Earthquake – Initial Tsunami Warning Message

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 300303  
TSUCAR

TSUNAMI MESSAGE NUMBER 1  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1103 PM AST FRI JAN 29 2016

...A TSUNAMI WARNING IS NOW IN EFFECT...

### AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

### EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.7 OCCURRED ABOUT 31 MILES NORTH OF ANEGADA AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* BASED ON ALL AVAILABLE DATA... THERE IS THE THREAT OF HAZARDOUS TSUNAMI WAVES FLOODING LOW-LYING COASTAL AREAS IN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* THE EARLIEST ESTIMATED TIME THAT TSUNAMI WAVE ACTIVITY AND FLOODING MAY BEGIN WITHIN THE PUERTO RICO AND VIRGIN ISLANDS REGION IS

1120 PM AST ON FRIDAY JANUARY 29 2016

- \* ACTIONS TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY SHOULD BE TAKEN IMMEDIATELY.
- \* THE GENERATION OF TSUNAMI WAVES HAS NOT YET BEEN CONFIRMED.
- \* MONITORING IS UNDERWAY TO FURTHER EVALUATE THE TSUNAMI

THREAT.

- \* PEOPLE MAY HAVE EXPERIENCED SHAKING FROM THE EARTHQUAKE.

PRELIMINARY EARTHQUAKE PARAMETERS

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- \* THE FOLLOWING PARAMETERS ARE BASED ON A PRELIMINARY RAPID ASSESSMENT OF THE EARTHQUAKE AND CHANGES MAY OCCUR.

- \* MAGNITUDE 7.7
- \* ORIGIN TIME 1100 PM AST JAN 29 2016
- \* COORDINATES 19.2 NORTH 64.3 WEST
- \* DEPTH 8 MILES
- \* LOCATION ABOUT 31 MILES NORTH OF ANEGADA

RECOMMENDED ACTIONS

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- \* ACTIONS REQUIRED TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY WILL VARY WITHIN THE TSUNAMI WARNING AREA.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN OR IN LOW-LYING COASTAL AREAS SHOULD EVACUATE INLAND OR TO HIGHER GROUND ABOVE AND BEYOND DESIGNATED TSUNAMI HAZARD ZONES... OR MOVE TO THE FOURTH FLOOR OR HIGHER OF A MULTI-STORY BUILDING... DEPENDING UPON YOUR SITUATION.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.
- \* DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.
- \* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.
- \* PERSONS LOCATED OUTSIDE THE EVACUATION ZONE SHOULD LIMIT TRAVEL TO PREVENT CONGESTION OF EVACUATION ROUTES.
- \* LIMIT TELEPHONE AND CELL PHONE USAGE SO THOSE SYSTEMS DO NOT BECOME OVERLOADED.
- \* BOATERS - WHERE TIME AND CONDITIONS PERMIT... MOVE YOUR BOAT OUT TO SEA TO A DEPTH OF AT LEAST 450 FEET.
- \* BOATERS - IF AT SEA... AVOID ENTERING SHALLOW WATER... HARBORS... MARINAS... BAYS AND INLETS TO AVOID FLOATING AND SUBMERGED DEBRIS AND STRONG CURRENTS.
- \* BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR

SPECIFIC INFORMATION FOR YOUR LOCATION.

FORECASTS OF TSUNAMI ACTIVITY  
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- \* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW.
- \* OBSERVED ARRIVAL TIMES MAY DIFFER FROM THESE ETAS AND THE INITIAL WAVE MAY NOT BE THE LARGEST.
- \* FORECAST TSUNAMI HEIGHTS AND DURATIONS ARE NOT YET AVAILABLE.
- \* A TSUNAMI IS A SERIES OF WAVES AND THE DURATION OF EACH WAVE CAN BE FIVE MINUTES TO ONE HOUR.

TERRITORY	COASTAL LOCATION	ETA (AST)	FORECAST HEIGHT	FORECAST DURATION
PUERTO RICO	SAN JUAN	1120 PM		
	ARECIBO	1124 PM		
	YABUCOA	1132 PM		
	MAYAGUEZ	1133 PM		
	AGUADILLA	1134 PM		
	MONA ISLAND	1142 PM		
	PENUELAS	1145 PM		
	PONCE	1146 PM		
	VIEQUES IS	1147 PM		
	FAJARDO	1152 PM		
	CAJA DE MUERTOS	1154 PM		
	CULEBRA IS	1158 PM		
	MAGUEYES IS	1159 PM		
BVI	ANEGADA	1120 PM		
	VIRGIN GORDA	1141 PM		
	ROADTOWN	1240 AM		
USVI	CHRISTIANSTED	1126 PM		
	LIMETREE	1129 PM		
	LAMESHUR BAY	1152 PM		
	CHARLOTTE AMALIE	1204 AM		

OBSERVATIONS OF TSUNAMI ACTIVITY  
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- \* NO OBSERVATIONS OF TSUNAMI ACTIVITY ARE AVAILABLE YET.

IMPACTS  
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- \* IMPACTS WILL VARY AT DIFFERENT LOCATIONS WITHIN PUERTO RICO

AND THE VIRGIN ISLANDS.

- \* SEA LEVEL FLUCTUATIONS THAT ARE 3 FEET OR MORE ABOVE AND BELOW THE TIDE LEVEL ALONG SOME OR ALL COASTS.
- \* REPEATED FLOODING AND DRAINING OF LOW-LYING COASTAL AREAS.
- \* STRONG AND UNUSUAL WAVES... CURRENTS AND INLAND FLOODING THAT CAN DROWN OR INJURE PEOPLE AND WEAKEN OR DESTROY STRUCTURES ON LAND AND IN THE WATER.
- \* RAPIDLY FLOWING FLOOD WATER FILLED WITH HAZARDOUS DEBRIS.
- \* SECONDARY HAZARDS THAT MAY INCLUDE DOWNED POWER LINES... FIRES... AND HAZARDOUS MATERIAL SPILLS.
- \* THE HAZARD IS FORECAST TO BEGIN AROUND 1120 PM AST ON FRIDAY JANUARY 29 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

NEXT UPDATE AND ADDITIONAL INFORMATION

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- \* THE NEXT MESSAGE WILL BE ISSUED IN THIRTY MINUTES... OR SOONER IF THE SITUATION WARRANTS.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT [PTWC.WEATHER.GOV](http://PTWC.WEATHER.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT [NTWC.ARH.NOAA.GOV](http://NTWC.ARH.NOAA.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT [EARTHQUAKE.USGS.GOV/EARTHQUAKES](http://EARTHQUAKE.USGS.GOV/EARTHQUAKES) -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA50 PHEB 300303  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 1  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
1103 PM AST FRI JAN 29 2016

...UN AVISO DE TSUNAMI ESTA AHORA EN EFECTO...



AUDIENCIA

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- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 7.7 HA OCURRIDO UNAS 31 MILLAS AL NORTE DE ANEGADA A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... EXISTE LA AMENAZA DE QUE PELIGROSAS OLAS DE TSUNAMI INUNDEN ZONAS COSTERAS BAJAS EN PUERTO RICO Y LAS ISLAS VIRGENES.
- \* EL TIEMPO DE ARRIBO MAS TEMPRANO A PARTIR DEL CUAL LA ACTIVIDAD DE LAS OLAS DEL TSUNAMI E INUNDACION ASOCIADA AL MISMO PUEDE COMENZAR EN LA REGION DE PUERTO RICO Y LAS ISLAS VIRGENES ES

1120 PM AST EL VIERNES 29 DE ENERO DEL 2016

- \* ACCIONES PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES DEBEN TOMARSE DE FORMA INMEDIATA.
- \* TODAVIA NO SE HA OBSERVADO ACTIVIDAD DE TSUNAMI.
- \* LA POBLACION PUEDE HABER SENTIDO EL TERREMOTO.

PARAMETROS PRELIMINARES DEL TERREMOTO

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- \* LOS SIGUIENTES PARAMETROS ESTAN BASADOS EN UNA EVALUACION PRELIMINAR RAPIDA Y PUEDEN VARIAR.
- \* MAGNITUD 7.7
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 19.2 NORTE 64.3 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION UNAS 31 MILLAS AL NORTE DE ANEGADA

ACCIONES RECOMENDADAS

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- \* LAS ACCIONES REQUERIDAS PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES VARIARA DENTRO DEL AREA DECLARADA EN ESTADO DE AVISO.

- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR O EN ZONAS COSTERAS BAJAS DEBEN EVACUAR TIERRA ADENTRO O HACIA ZONAS MAS ALTAS FUERA DE AQUELLAS DESIGNADAS COMO ZONAS CON PELIGRO DE TSUNAMI... O MOVERSE HACIA EL CUARTO PISO O MAS ALTO DE UN EDIFICIO DE VARIOS PISOS... DEPENDIENDO DE LA SITUACION.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR DEBEN SALIR DEL AGUA... FUERA DE LA PLAYA Y ALEJARSE DE PUERTOS... MARINAS... BAHIAS Y ENSENADAS.
- \* NO VAYA A LA ORILLA DEL MAR PARA OBSERVAR EL TSUNAMI.
- \* NO REGRESE A ZONAS EVACUADAS HASTA TANTO LAS AUTORIDADES DECLAREN QUE EL PELIGRO YA PASO.
- \* PERSONAS LOCALIZADAS FUERA DE LA ZONA DE EVACUACION DEBEN DEJAR LAS CARRETERAS LIBRES PARA EVITAR EL CONGESTIONAMIENTO DE LAS RUTAS DE EVACUACION.
- \* LIMITE EL USO TANTO DEL TELEFONO COMO DE TELEFONOS CELULARES PARA EVITAR SOBRECARGAR DICHOS SISTEMAS.
- \* MARINEROS - DONDE EL TIEMPO Y LAS CONDICIONES PERMITAN... MUEVAN SU EMBARCACION MAR AFUERA HACIA PROFUNDIDADES DE AL MENOS 450 PIES.
- \* MARINEROS - SI SE ENCUENTRA MAR AFUERA... EVITEN ADENTRARSE EN AGUAS SOMERAS... PUERTOS... MARINAS... BAHIAS Y ENSENADAS PARA EVITAR ESCOMBROS TANTO FLOTANTES COMO SUMERGIDOS Y CORRIENTES FUERTES.
- \* MANTENGASE ALERTA Y SIGA LAS INSTRUCCIONES PROVENIENTES DE FUNCIONARIOS DE LAS AGENCIAS LOCALES PARA EL MANEJO DE EMERGENCIAS YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES MAS ESPECIFICAS PARA SU LOCALIDAD.

#### PRONOSTICO DE LA ACTIVIDAD DEL TSUNAMI

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- \* LOS TIEMPOS DE ARRIBO ESTIMADOS -TAE- DE LA PRIMERA OLA DEL TSUNAMI SE PROVEEN A CONTINUACION.
- \* LOS TIEMPOS DE ARRIBO REALES PUEDEN DIFERIR DE LOS ESTIMADOS Y LA PRIMERA OLA PUEDE QUE NO SEA LA MAS GRANDE.
- \* EL PRONOSTICO DE LAS AMPLITUDES Y DURACION DEL TSUNAMI NO ESTAN AUN DISPONIBLES.
- \* UN TSUNAMI ES UN TREN DE OLAS Y EL TIEMPO ENTRE OLAS PUEDE VARIAR DESDE CINCO MINUTOS HASTA UNA HORA.

TERRITORIO	LOCALIZACION COSTERA	TAE (AST)	----PRONOSTICO----	
			ALTURA	DURACION
PUERTO RICO	SAN JUAN	1120 PM		
	ARECIBO	1124 PM		
	YABUCOA	1132 PM		
	MAYAGUEZ	1133 PM		
	AGUADILLA	1134 PM		
	MONA ISLAND	1142 PM		
	PENUELAS	1145 PM		
	PONCE	1146 PM		
	VIEQUES IS	1147 PM		
	FAJARDO	1152 PM		
	CAJA DE MUERTOS	1154 PM		
	CULEBRA IS	1158 PM		
	MAGUEYES IS	1159 PM		
BVI	ANEGADA	1120 PM		
	VIRGIN GORDA	1141 PM		
	ROADTOWN	1240 AM		
USVI	CHRISTIANSTED	1126 PM		
	LIMETREE	1129 PM		
	LAMESHUR BAY	1152 PM		
	CHARLOTTE AMALIE	1204 AM		

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI

- 
- \* TODAVIA NO SE DISPONE DE OBSERVACIONES DE LA ACTIVIDAD DEL TSUNAMI.

IMPACTOS

- 
- \* LOS IMPACTOS VARIARAN PARA DIFERENTES LOCALIDADES EN PUERTO RICO Y LAS ISLAS VIRGENES.
  - \* FLUCTUACIONES DEL NIVEL DEL MAR DE 3 PIES O MAS TANTO POR ENCIMA COMO POR DEBAJO DEL NIVEL DE MAREA A LO LARGO DE ALGUNAS O TODAS LAS COSTAS.
  - \* REPETIDAS INUNDACIONES Y RETROCESO DEL AGUA EN AREAS COSTERAS BAJAS.
  - \* OLAS INUSUALES Y FUERTES... CORRIENTES E INUNDACION DE ZONAS TIERRA ADENTRO QUE PUEDEN AHOGAR O LESIONAR A LAS PERSONAS Y DEBILITAR O DESTRUIR LAS ESTRUCTURAS EN TIERRA Y EN EL AGUA.
  - \* CORRIENTES DE INUNDACION CON FLUJO RAPIDO Y CARGADAS DE ESCOMBROS PELIGROSOS.

- \* PELIGROS SECUNDARIOS PUEDEN INCLUIR LINEAS ELECTRICAS CAIDAS... FUEGOS... Y DERRAMES DE MATERIALES PELIGROSOS.
- \* EL PELIGRO SE PRONOSTICA QUE COMENZARA ALREDEDOR DE LA(S) 1120 PM AST EL VIERNES 29 DE ENERO DEL 2016 Y PUEDE PERSISTIR POR VARIAS HORAS O MAS.

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL  
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- \* EL PROXIMO MENSAJE SERA EMITIDO EN TREINTA MINUTOS... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 300303  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 1  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1103 PM AST FRI JAN 29 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-300503-  
/O.NEW.PHEB.TS.W.0008.160130T0303Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
1103 PM AST FRI JAN 29 2016

...A TSUNAMI WARNING IS NOW IN EFFECT...

PERSONS LOCATED IN OR NEAR THE OCEAN OR IN LOW-LYING COASTAL AREAS SHOULD EVACUATE INLAND OR TO HIGHER GROUND ABOVE AND BEYOND DESIGNATED TSUNAMI HAZARD ZONES... OR MOVE TO THE FOURTH

FLOOR OR HIGHER OF A MULTI-STORY BUILDING... DEPENDING UPON YOUR SITUATION.

PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.

AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.7 OCCURRED ABOUT 31 MILES NORTH OF ANEGADA AT 1100 PM AST ON FRIDAY JANUARY 29 2016.

A HAZARDOUS TSUNAMI MAY HAVE BEEN GENERATED BY THIS NEARBY EARTHQUAKE THAT COULD SOON IMPACT NEARBY COASTS.

BASED ON ALL AVAILABLE DATA... THERE IS THE THREAT OF HAZARDOUS TSUNAMI WAVES FLOODING LOW-LYING COASTAL AREAS IN PUERTO RICO AND THE VIRGIN ISLANDS.

THE HAZARD IS FORECAST TO BEGIN AROUND 1120 PM AST ON FRIDAY JANUARY 29 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.

DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.

PERSONS LOCATED OUTSIDE THE EVACUATION ZONE SHOULD LIMIT TRAVEL TO PREVENT CONGESTION OF EVACUATION ROUTES.

LIMIT TELEPHONE AND CELL PHONE USAGE SO THOSE SYSTEMS DO NOT BECOME OVERLOADED.

BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

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## **Nearby Earthquake – Tsunami Warning with Forecast**

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 300325  
TSUCAR

TSUNAMI MESSAGE NUMBER 2  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1125 PM AST FRI JAN 29 2016

...A TSUNAMI WARNING CONTINUES IN EFFECT...

AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

UPDATES IN THIS MESSAGE

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- \* THE EARTHQUAKE PARAMETERS HAVE BEEN REVISED.
- \* TSUNAMI HEIGHT AND DURATION FORECASTS ARE NOW INCLUDED.

EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.9 OCCURRED ABOUT 31 MILES NORTH OF ANEGADA AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* BASED ON ALL AVAILABLE DATA... THERE IS THE THREAT OF HAZARDOUS TSUNAMI WAVES FLOODING LOW-LYING COASTAL AREAS IN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* THE EARLIEST ESTIMATED TIME THAT TSUNAMI WAVE ACTIVITY AND FLOODING MAY BEGIN WITHIN THE PUERTO RICO AND VIRGIN ISLANDS REGION IS

1120 PM AST ON FRIDAY JANUARY 29 2016

- \* ACTIONS TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY SHOULD BE TAKEN IMMEDIATELY.
- \* THE GENERATION OF TSUNAMI WAVES HAS NOT YET BEEN CONFIRMED.
- \* PEOPLE MAY HAVE EXPERIENCED SHAKING FROM THE EARTHQUAKE.

PRELIMINARY EARTHQUAKE PARAMETERS - UPDATED

-----

- \* THE FOLLOWING PARAMETERS ARE BASED ON A PRELIMINARY RAPID ASSESSMENT OF THE EARTHQUAKE AND CHANGES MAY OCCUR.
- \* MAGNITUDE 7.9
- \* ORIGIN TIME 1100 PM AST JAN 29 2016
- \* COORDINATES 19.2 NORTH 64.3 WEST
- \* DEPTH 8 MILES
- \* LOCATION ABOUT 31 MILES NORTH OF ANEGADA

RECOMMENDED ACTIONS

-----

- \* ACTIONS REQUIRED TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY WILL VARY WITHIN THE TSUNAMI WARNING AREA.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN OR IN LOW-LYING COASTAL AREAS SHOULD EVACUATE INLAND OR TO HIGHER GROUND ABOVE AND BEYOND DESIGNATED TSUNAMI HAZARD ZONES... OR MOVE TO THE FOURTH FLOOR OR HIGHER OF A MULTI-STORY BUILDING... DEPENDING UPON YOUR SITUATION.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.
- \* DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.
- \* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.
- \* BOATERS - IF AT SEA... AVOID ENTERING SHALLOW WATER... HARBORS... MARINAS... BAYS AND INLETS TO AVOID FLOATING AND SUBMERGED DEBRIS AND STRONG CURRENTS.
- \* BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

FORECASTS OF TSUNAMI ACTIVITY - UPDATED

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- \* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW.
- \* OBSERVED ARRIVAL TIMES MAY DIFFER FROM THESE ETAS AND THE INITIAL WAVE MAY NOT BE THE LARGEST.
- \* THE FORECAST HEIGHT IS THE MAXIMUM EXPECTED WATER LEVEL ABOVE THE TIDE AT THAT COASTAL LOCATION.
- \* THE FORECAST DURATION IS THE APPROXIMATE EXPECTED LENGTH OF TIME AFTER INITIAL IMPACT THAT THE TSUNAMI MAY CONTINUE TO BE A HAZARD.
- \* A TSUNAMI IS A SERIES OF WAVES AND THE DURATION OF EACH WAVE CAN BE FIVE MINUTES TO ONE HOUR.

TERRITORY	COASTAL LOCATION	ETA (AST)	FORECAST HEIGHT	FORECAST DURATION
PUERTO RICO	SAN JUAN	1120 PM	2.1-4.8 FT	12 HRS

	ARECIBO	1124 PM	1.9-4.2 FT	12 HRS
	YABUCOA	1132 PM	0.9-2.1 FT	6 HRS
	MAYAGUEZ	1133 PM	1.1-2.5 FT	6 HRS
	AGUADILLA	1134 PM	1.2-2.7 FT	6 HRS
	MONA ISLAND	1142 PM	0.7-1.6 FT	6 HRS
	PENUELAS	1145 PM	0.6-1.2 FT	6 HRS
	PONCE	1146 PM	0.7-1.6 FT	6 HRS
	VIEQUES IS	1147 PM	BELOW 1 FT	-----
	FAJARDO	1152 PM	2.3-5.2 FT	12 HRS
	CAJA DE MUERTOS	1154 PM	0.6-1.3 FT	6 HRS
	CULEBRA IS	1158 PM	2.6-5.8 FT	12 HRS
	MAGUEYES IS	1159 PM	BELOW 1 FT	-----
BVI	ANEGADA	1120 PM	8.7-20. FT	21 HRS
	VIRGIN GORDA	1141 PM	2.8-6.3 FT	15 HRS
	ROADTOWN	1240 AM	BELOW 1 FT	-----
USVI	CHRISTIANSTED	1126 PM	2.0-4.5 FT	12 HRS
	LIMETREE	1129 PM	1.2-2.8 FT	6 HRS
	LAMESHUR BAY	1152 PM	2.1-4.8 FT	12 HRS
	CHARLOTTE AMALIE	1204 AM	BELOW 1 FT	-----

OBSERVATIONS OF TSUNAMI ACTIVITY

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\* NO OBSERVATIONS OF TSUNAMI ACTIVITY ARE AVAILABLE YET.

IMPACTS

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- \* IMPACTS WILL VARY AT DIFFERENT LOCATIONS WITHIN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* SEA LEVEL FLUCTUATIONS THAT ARE 3 FEET OR MORE ABOVE AND BELOW THE TIDE LEVEL ALONG SOME OR ALL COASTS.
- \* REPEATED FLOODING AND DRAINING OF LOW-LYING COASTAL AREAS.
- \* STRONG AND UNUSUAL WAVES... CURRENTS AND INLAND FLOODING THAT CAN DROWN OR INJURE PEOPLE AND WEAKEN OR DESTROY STRUCTURES ON LAND AND IN THE WATER.
- \* RAPIDLY FLOWING FLOOD WATER FILLED WITH HAZARDOUS DEBRIS.
- \* SECONDARY HAZARDS THAT MAY INCLUDE DOWNED POWER LINES... FIRES... AND HAZARDOUS MATERIAL SPILLS.
- \* THE HAZARD BEGAN AROUND 1120 PM AST ON FRIDAY JANUARY 29 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

NEXT UPDATE AND ADDITIONAL INFORMATION



- 
- \* THE NEXT MESSAGE WILL BE ISSUED IN THIRTY MINUTES... OR SOONER IF THE SITUATION WARRANTS.
  - \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.
  - \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT NTWC.ARH.NOAA.GOV AND AT WWW.TSUNAMI.GOV.
  - \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA50 PHEB 300325  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 2  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
1125 PM AST FRI JAN 29 2016

...EL AVISO DE TSUNAMI CONTINUA EN EFECTO...

AUDIENCIA

-----

- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

ACTUALIZACIONES EN ESTE MENSAJE

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- \* LOS PARAMETROS DEL TSUNAMI HAN SIDO ACTUALIZADOS.
- \* PRONOSTICOS DE LA ALTURA DEL TSUNAMI Y SU DURACION ESTAN AHORA INCLUIDOS.

EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 7.9 HA OCURRIDO UNAS 31 MILLAS AL NORTE DE ANEGADA A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... EXISTE LA AMENAZA DE QUE PELIGROSAS OLAS DE TSUNAMI INUNDEN ZONAS COSTERAS BAJAS EN PUERTO RICO Y LAS ISLAS VIRGENES.
- \* EL TIEMPO DE ARRIBO MAS TEMPRANO A PARTIR DEL CUAL LA ACTIVIDAD DE LAS OLAS DEL TSUNAMI E INUNDACION ASOCIADA AL MISMO PUEDE COMENZAR EN LA REGION DE PUERTO RICO Y LAS ISLAS VIRGENES ES

1120 PM AST EL VIERNES 29 DE ENERO DEL 2016

- \* ACCIONES PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES DEBEN TOMARSE DE FORMA INMEDIATA.
- \* TODAVIA NO SE HA OBSERVADO ACTIVIDAD DE TSUNAMI.
- \* LA POBLACION PUEDE HABER SENTIDO EL TERREMOTO.

PARAMETROS PRELIMINARES DEL TERREMOTO - ACTUALIZADO

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- \* LOS SIGUIENTES PARAMETROS ESTAN BASADOS EN UNA EVALUACION PRELIMINAR RAPIDA Y PUEDEN VARIAR.
- \* MAGNITUD 7.9
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 19.2 NORTE 64.3 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION UNAS 31 MILLAS AL NORTE DE ANEGADA

ACCIONES RECOMENDADAS

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- \* LAS ACCIONES REQUERIDAS PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES VARIARA DENTRO DEL AREA DECLARADA EN ESTADO DE AVISO.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR O EN ZONAS COSTERAS BAJAS DEBEN EVACUAR TIERRA ADENTRO O HACIA ZONAS MAS ALTAS FUERA DE AQUELLAS DESIGNADAS COMO ZONAS CON PELIGRO DE TSUNAMI... O MOVERSE HACIA EL CUARTO PISO O MAS ALTO DE UN EDIFICIO DE VARIOS MULTI PISOS... EN DEPENDIENDO DE LA SITUACION.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR DEBEN SALIR DEL AGUA... FUERA DE LA PLAYA Y ALEJARSE DE PUERTOS... MARINAS... BAHIAS Y ENSENADAS.

- \* NO VAYA A LA ORILLA DEL MAR PARA OBSERVAR EL TSUNAMI.
- \* NO REGRESE A ZONAS EVACUADAS HASTA TANTO LAS AUTORIDADES DECLAREN QUE EL PELIGRO YA PASO.
- \* MARINEROS - SI SE ENCUENTRAN MAR AFUERA... EVITEN ADENTRARSE EN AGUAS SOMERAS... PUERTOS... MARINAS... BAHIAS Y ENSENADAS PARA EVITAR ESCOMBROS TANTO FLOTANTES COMO SUMERGIDOS Y CORRIENTES FUERTES.
- \* MANTENGASE ALERTA Y SIGA LAS INSTRUCCIONES PROVENIENTES DE FUNCIONARIOS DE LAS AGENCIAS LOCALES PARA EL MANEJO DE EMERGENCIAS YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES MAS ESPECIFICAS PARA SU LOCALIDAD.

PRONOSTICO DE LA ACTIVIDAD DEL TSUNAMI - ACTUALIZADO

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- \* LOS TIEMPOS DE ARRIBO ESTIMADOS -TAE- DE LA PRIMERA OLA DEL TSUNAMI SE PROVEEN A CONTINUACION.
- \* LOS TIEMPOS DE ARRIBO REALES PUEDEN DIFERIR DE LOS ESTIMADOS Y LA PRIMERA OLA PUEDE QUE NO SEA LA MAS GRANDE.
- \* LA ALTURA PRONOSTICADA ES EL NIVEL MAXIMO DEL AGUA POR ENCIMA DEL NIVEL DE MAREA QUE SE ESPERA A LO LARGO DE ESA SECCION DE LA COSTA.
- \* LA DURACION PRONOSTICADA ES EL TIEMPO DURANTE EL CUAL SE ESPERA QUE EL TSUNAMI PRODUZCA OLAS Y CORRIENTES PELIGROSAS.
- \* UN TSUNAMI ES UN TREN DE OLAS Y EL TIEMPO ENTRE OLAS PUEDE VARIAR DESDE CINCO MINUTOS HASTA UNA HORA.

TERRITORIO	LOCALIZACION COSTERA	TAE (AST)	----PRONOSTICO----	
			ALTURA	DURACION
PUERTO RICO	SAN JUAN	1120 PM	2.1-4.8 FT	12 HRS
	ARECIBO	1124 PM	1.9-4.2 FT	12 HRS
	YABUCOA	1132 PM	0.9-2.1 FT	6 HRS
	MAYAGUEZ	1133 PM	1.1-2.5 FT	6 HRS
	AGUADILLA	1134 PM	1.2-2.7 FT	6 HRS
	MONA ISLAND	1142 PM	0.7-1.6 FT	6 HRS
	PENUELAS	1145 PM	0.6-1.2 FT	6 HRS
	PONCE	1146 PM	0.7-1.6 FT	6 HRS
	VIEQUES IS	1147 PM	BELOW 1 FT	-----
	FAJARDO	1152 PM	2.3-5.2 FT	12 HRS
	CAJA DE MUERTOS	1154 PM	0.6-1.3 FT	6 HRS
	CULEBRA IS	1158 PM	2.6-5.8 FT	12 HRS
	MAGUEYES IS	1159 PM	BELOW 1 FT	-----
BVI	ANEGADA	1120 PM	8.7-20. FT	21 HRS
	VIRGIN GORDA	1141 PM	2.8-6.3 FT	15 HRS

	ROADTOWN	1240 AM	BELOW 1 FT	-----
USVI	CHRISTIANSTED	1126 PM	2.0-4.5 FT	12 HRS
	LIMETREE	1129 PM	1.2-2.8 FT	6 HRS
	LAMESHUR BAY	1152 PM	2.1-4.8 FT	12 HRS
	CHARLOTTE AMALIE	1204 AM	BELOW 1 FT	-----

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI

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- \* TODAVIA NO SE DISPONE DE OBSERVACIONES DE LA ACTIVIDAD DEL TSUNAMI.

IMPACTOS

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- \* LOS IMPACTOS VARIARAN PARA DIFERENTES LOCALIDADES EN PUERTO RICO Y LAS ISLAS VIRGENES.
- \* FLUCTUACIONES DEL NIVEL DEL MAR DE 3 PIES O MAS TANTO POR ENCIMA COMO POR DEBAJO DEL NIVEL DE MAREA A LO LARGO DE ALGUNAS O TODAS LAS COSTAS.
- \* REPETIDAS INUNDACIONES Y RETROCESO DEL AGUA EN AREAS COSTERAS BAJAS.
- \* OLAS INUSUALES Y FUERTES... CORRIENTES E INUNDACION DE ZONAS TIERRA ADENTRO QUE PUEDEN AHOGAR O LESIONAR A LAS PERSONAS Y DEBILITAR O DESTRUIR LAS ESTRUCTURAS EN TIERRA Y EN EL AGUA.
- \* CORRIENTES DE INUNDACION CON FLUJO RAPIDO Y CARGADAS DE ESCOMBROS PELIGROSOS.
- \* PELIGROS SECUNDARIOS PUEDEN INCLUIR LINEAS ELECTRICAS CAIDAS... FUEGOS... Y DERRAMES DE MATERIALES PELIGROSOS.
- \* EL PELIGRO COMENZO A PARTIR DE LA(S) 1120 PM AST EL VIERNES 29 DE ENERO DEL 2016 Y PUEDE PERSISTIR POR VARIAS HORAS O MAS.

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

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- \* EL PROXIMO MENSAJE SERA EMITIDO EN TREINTA MINUTOS... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS

ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA  
EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y  
PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB  
NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.

\* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE  
SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O  
EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB  
EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 300325  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 2  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1125 PM AST FRI JAN 29 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-300525-  
/O.CON.PHEB.TS.W.0009.000000T0000Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
1125 PM AST FRI JAN 29 2016

...A TSUNAMI WARNING CONTINUES IN EFFECT...

PERSONS LOCATED IN OR NEAR THE OCEAN OR IN LOW-LYING COASTAL  
AREAS SHOULD EVACUATE INLAND OR TO HIGHER GROUND ABOVE AND  
BEYOND DESIGNATED TSUNAMI HAZARD ZONES... OR MOVE TO THE FOURTH  
FLOOR OR HIGHER OF A MULTI-STORY BUILDING... DEPENDING UPON YOUR  
SITUATION.

PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE  
WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS  
AND INLETS.

AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.9 OCCURRED ABOUT  
31 MILES NORTH OF ANEGADA AT 1100 PM AST ON FRIDAY JANUARY 29  
2016.

A HAZARDOUS TSUNAMI MAY HAVE BEEN GENERATED BY THIS NEARBY  
EARTHQUAKE THAT COULD SOON IMPACT NEARBY COASTS.

BASED ON ALL AVAILABLE DATA... THERE IS THE THREAT OF HAZARDOUS  
TSUNAMI WAVES FLOODING LOW-LYING COASTAL AREAS IN PUERTO RICO  
AND THE VIRGIN ISLANDS.

THE HAZARD BEGAN AROUND 1120 PM AST ON FRIDAY JANUARY 29 2016 AND

IT CAN PERSIST FOR MANY HOURS OR LONGER.

DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.

DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.

BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

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## Nearby Earthquake – Tsunami Warning with Observations

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 300355  
TSUCAR

TSUNAMI MESSAGE NUMBER 3  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1155 PM AST FRI JAN 29 2016

...A TSUNAMI WARNING CONTINUES IN EFFECT...

### AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

### UPDATES IN THIS MESSAGE

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- \* THE GENERATION OF TSUNAMI WAVES IS CONFIRMED.
- \* TSUNAMI OBSERVATIONS ARE NOW INCLUDED.

### EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.9 OCCURRED ABOUT 31 MILES NORTH OF ANEGADA AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.

- \* BASED ON ALL AVAILABLE DATA... THERE IS THE THREAT OF HAZARDOUS TSUNAMI WAVES FLOODING LOW-LYING COASTAL AREAS IN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* THE EARLIEST ESTIMATED TIME THAT TSUNAMI WAVE ACTIVITY AND FLOODING MAY BEGIN WITHIN THE PUERTO RICO AND VIRGIN ISLANDS REGION IS

1120 PM AST ON FRIDAY JANUARY 29 2016

- \* ACTIONS TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY SHOULD BE TAKEN IMMEDIATELY.

RECOMMENDED ACTIONS

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- \* ACTIONS REQUIRED TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY WILL VARY WITHIN THE TSUNAMI WARNING AREA.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN OR IN LOW-LYING COASTAL AREAS SHOULD EVACUATE INLAND OR TO HIGHER GROUND ABOVE AND BEYOND DESIGNATED TSUNAMI HAZARD ZONES... OR MOVE TO THE FOURTH FLOOR OR HIGHER OF A MULTI-STORY BUILDING... DEPENDING UPON YOUR SITUATION.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.
- \* DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.
- \* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.
- \* BOATERS - IF AT SEA... AVOID ENTERING SHALLOW WATER... HARBORS... MARINAS... BAYS AND INLETS TO AVOID FLOATING AND SUBMERGED DEBRIS AND STRONG CURRENTS.
- \* BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

FORECASTS OF TSUNAMI ACTIVITY

-----

- \* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW.
- \* OBSERVED ARRIVAL TIMES MAY DIFFER FROM THESE ETAS AND THE INITIAL WAVE MAY NOT BE THE LARGEST.
- \* THE FORECAST HEIGHT IS THE MAXIMUM EXPECTED WATER LEVEL ABOVE

THE TIDE AT THAT COASTAL LOCATION.

- \* THE FORECAST DURATION IS THE APPROXIMATE EXPECTED LENGTH OF TIME AFTER INITIAL IMPACT THAT THE TSUNAMI MAY CONTINUE TO BE A HAZARD.
- \* A TSUNAMI IS A SERIES OF WAVES AND THE DURATION OF EACH WAVE CAN BE FIVE MINUTES TO ONE HOUR.

TERRITORY	COASTAL LOCATION	ETA (AST)	FORECAST HEIGHT	FORECAST DURATION
PUERTO RICO	SAN JUAN	1120 PM	2.1-4.8 FT	12 HRS
	ARECIBO	1124 PM	1.9-4.2 FT	12 HRS
	YABUCOA	1132 PM	0.9-2.1 FT	6 HRS
	MAYAGUEZ	1133 PM	1.1-2.5 FT	6 HRS
	AGUADILLA	1134 PM	1.2-2.7 FT	6 HRS
	MONA ISLAND	1142 PM	0.7-1.6 FT	6 HRS
	PENUELAS	1145 PM	0.6-1.2 FT	6 HRS
	PONCE	1146 PM	0.7-1.6 FT	6 HRS
	VIEQUES IS	1147 PM	BELOW 1 FT	-----
	FAJARDO	1152 PM	2.3-5.2 FT	12 HRS
	CAJA DE MUERTOS	1154 PM	0.6-1.3 FT	6 HRS
	CULEBRA IS	1158 PM	2.6-5.8 FT	12 HRS
	MAGUEYES IS	1159 PM	BELOW 1 FT	-----
BVI	ANEGADA	1120 PM	8.7-20. FT	21 HRS
	VIRGIN GORDA	1141 PM	2.8-6.3 FT	15 HRS
	ROADTOWN	1240 AM	BELOW 1 FT	-----
USVI	CHRISTIANSTED	1126 PM	2.0-4.5 FT	12 HRS
	LIMETREE	1129 PM	1.2-2.8 FT	6 HRS
	LAMESHUR BAY	1152 PM	2.1-4.8 FT	12 HRS
	CHARLOTTE AMALIE	1204 AM	BELOW 1 FT	-----

OBSERVATIONS OF TSUNAMI ACTIVITY

- \* THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS.
- \* THE MAXIMUM TSUNAMI HEIGHT IS THE HIGHEST MEASURED SO FAR. IT IS MEASURED WITH RESPECT TO THE TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES		TIME OF MEASURE (AST)	MAXIMUM TSUNAMI HEIGHT
	LAT	LON		
PUERTO PLATA DO	19.8N	70.7W	1155 PM	0.8 FT
PARHAM AT	17.1N	61.8W	1152 PM	0.8 FT
DESIRADE GUADELOUPE	16.3N	61.1W	1155 PM	0.6 FT
BASSETERRE KN	17.3N	62.7W	1149 PM	1.6 FT



DART 41420	23.5N	67.3W	1151 PM	0.2 FT
ESPERANZA VIEQUES P	18.1N	65.5W	1148 PM	1.2 FT
AGUADILLA PR	18.5N	67.2W	1145 PM	1.8 FT
DART 41421	23.4N	63.9W	1142 PM	0.9 FT
MAYAGUEZ PR	18.2N	67.2W	1143 PM	1.7 FT
YABUCOA PR	18.1N	65.8W	1146 PM	1.4 FT
LIMETREE VI	17.7N	64.8W	1144 PM	1.9 FT
ST CROIX VI	17.7N	64.7W	1132 PM	3.1 FT
ARECIBO PR	18.5N	66.7W	1133 PM	2.8 FT
SAN JUAN PR	18.5N	66.1W	1125 PM	3.2 FT

#### IMPACTS

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- \* IMPACTS WILL VARY AT DIFFERENT LOCATIONS WITHIN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* SEA LEVEL FLUCTUATIONS THAT ARE 3 FEET OR MORE ABOVE AND BELOW THE TIDE LEVEL ALONG SOME OR ALL COASTS.
- \* REPEATED FLOODING AND DRAINING OF LOW-LYING COASTAL AREAS.
- \* STRONG AND UNUSUAL WAVES... CURRENTS AND INLAND FLOODING THAT CAN DROWN OR INJURE PEOPLE AND WEAKEN OR DESTROY STRUCTURES ON LAND AND IN THE WATER.
- \* RAPIDLY FLOWING FLOOD WATER FILLED WITH HAZARDOUS DEBRIS.
- \* SECONDARY HAZARDS THAT MAY INCLUDE DOWNED POWER LINES... FIRES... AND HAZARDOUS MATERIAL SPILLS.
- \* THE HAZARD BEGAN AROUND 1120 PM AST ON FRIDAY JANUARY 29 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

#### PRELIMINARY EARTHQUAKE PARAMETERS

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- \* MAGNITUDE 7.9
- \* ORIGIN TIME 1100 PM AST JAN 29 2016
- \* COORDINATES 19.2 NORTH 64.3 WEST
- \* DEPTH 8 MILES
- \* LOCATION ABOUT 31 MILES NORTH OF ANEGADA

#### NEXT UPDATE AND ADDITIONAL INFORMATION

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- \* THE NEXT MESSAGE WILL BE ISSUED IN THIRTY MINUTES... OR SOONER IF THE SITUATION WARRANTS.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE

INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT NTWC.ARH.NOAA.GOV AND AT WWW.TSUNAMI.GOV.
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA50 PHEB 300355  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 3  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
1155 PM AST FRI JAN 29 2016

...EL AVISO DE TSUNAMI CONTINUA EN EFECTO...

AUDIENCIA

-----

- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

ACTUALIZACIONES EN ESTE MENSAJE

-----

- \* SE HA CONFIRMADO LA GENERACION DE OLAS DE TSUNAMI.
- \* OBSERVACIONES DEL TSUNAMI ESTAN AHORA INCLUIDAS.

EVALUACION

-----

- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 7.9 HA OCURRIDO UNAS 31 MILLAS AL NORTE DE ANEGADA A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* UN TSUNAMI HA SIDO GENERADO POR ESTE TERREMOTO.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... EXISTE LA AMENAZA DE QUE PELIGROSAS OLAS DE TSUNAMI INUNDEN

ZONAS COSTERAS BAJAS EN PUERTO RICO Y LAS ISLAS VIRGENES.

- \* EL TIEMPO DE ARRIBO MAS TEMPRANO A PARTIR DEL CUAL LA ACTIVIDAD DE LAS OLAS DEL TSUNAMI E INUNDACION ASOCIADA AL MISMO PUEDE COMENZAR EN LA REGION DE PUERTO RICO Y LAS ISLAS VIRGENES ES

1120 PM AST EL VIERNES 29 DE ENERO DEL 2016

- \* ACCIONES PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES DEBEN TOMARSE DE FORMA INMEDIATA.

#### ACCIONES RECOMENDADAS

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- \* LAS ACCIONES REQUERIDAS PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES VARIARA DENTRO DEL AREA DECLARADA EN ESTADO DE AVISO.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR O EN ZONAS COSTERAS BAJAS DEBEN EVACUAR TIERRA ADENTRO O HACIA ZONAS MAS ALTAS FUERA DE AQUELLAS DESIGNADAS COMO ZONAS CON PELIGRO DE TSUNAMI... O MOVERSE HACIA EL CUARTO PISO O MAS ALTO DE UN EDIFICIO DE VARIOS MULTI PISOS... EN DEPENDIENDO DE LA SITUACION.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR DEBEN SALIR DEL AGUA... FUERA DE LA PLAYA Y ALEJARSE DE PUERTOS... MARINAS... BAHIAS Y ENSENADAS.
- \* NO VAYA A LA ORILLA DEL MAR PARA OBSERVAR EL TSUNAMI.
- \* NO REGRESE A ZONAS EVACUADAS HASTA TANTO LAS AUTORIDADES DECLAREN QUE EL PELIGRO YA PASO.
- \* MARINEROS - SI SE ENCUENTRAN MAR AFUERA... EVITEN ADENTRARSE EN AGUAS SOMERAS... PUERTOS... MARINAS... BAHIAS Y ENSENADAS PARA EVITAR ESCOMBROS TANTO FLOTANTES COMO SUMERGIDOS Y CORRIENTES FUERTES.
- \* MANTENGASE ALERTA Y SIGA LAS INSTRUCCIONES PROVENIENTES DE FUNCIONARIOS DE LAS AGENCIAS LOCALES PARA EL MANEJO DE EMERGENCIAS YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES MAS ESPECIFICAS PARA SU LOCALIDAD.

#### PRONOSTICO DE LA ACTIVIDAD DEL TSUNAMI

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- \* LOS TIEMPOS DE ARRIBO ESTIMADOS -TAE- DE LA PRIMERA OLA DEL TSUNAMI SE PROVEEN A CONTINUACION.
- \* LOS TIEMPOS DE ARRIBO REALES PUEDEN DIFERIR DE LOS ESTIMADOS

Y LA PRIMERA OLA PUEDE QUE NO SEA LA MAS GRANDE.

- \* LA ALTURA PRONOSTICADA ES EL NIVEL MAXIMO DEL AGUA POR ENCIMA DEL NIVEL DE MAREA QUE SE ESPERA A LO LARGO DE ESA SECCION DE LA COSTA.
- \* LA DURACION PRONOSTICADA ES EL TIEMPO DURANTE EL CUAL SE ESPERA QUE EL TSUNAMI PRODUZCA OLAS Y CORRIENTES PELIGROSAS.
- \* UN TSUNAMI ES UN TREN DE OLAS Y EL TIEMPO ENTRE OLAS PUEDE VARIAR DESDE CINCO MINUTOS HASTA UNA HORA.

TERRITORIO	LOCALIZACION COSTERA	TAE (AST)	----PRONOSTICO----	
			ALTURA	DURACION
PUERTO RICO	SAN JUAN	1120 PM	2.1-4.8 FT	12 HRS
	ARECIBO	1124 PM	1.9-4.2 FT	12 HRS
	YABUCOA	1132 PM	0.9-2.1 FT	6 HRS
	MAYAGUEZ	1133 PM	1.1-2.5 FT	6 HRS
	AGUADILLA	1134 PM	1.2-2.7 FT	6 HRS
	MONA ISLAND	1142 PM	0.7-1.6 FT	6 HRS
	PENUELAS	1145 PM	0.6-1.2 FT	6 HRS
	PONCE	1146 PM	0.7-1.6 FT	6 HRS
	VIEQUES IS	1147 PM	BELOW 1 FT	-----
	FAJARDO	1152 PM	2.3-5.2 FT	12 HRS
	CAJA DE MUERTOS	1154 PM	0.6-1.3 FT	6 HRS
	CULEBRA IS	1158 PM	2.6-5.8 FT	12 HRS
	MAGUEYES IS	1159 PM	BELOW 1 FT	-----
BVI	ANEGADA	1120 PM	8.7-20. FT	21 HRS
	VIRGIN GORDA	1141 PM	2.8-6.3 FT	15 HRS
	ROADTOWN	1240 AM	BELOW 1 FT	-----
USVI	CHRISTIANSTED	1126 PM	2.0-4.5 FT	12 HRS
	LIMETREE	1129 PM	1.2-2.8 FT	6 HRS
	LAMESHUR BAY	1152 PM	2.1-4.8 FT	12 HRS
	CHARLOTTE AMALIE	1204 AM	BELOW 1 FT	-----

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI

- \* LO QUE SIGUE SON LAS OBSERVACIONES DE LAS OLAS DEL TSUNAMI REGISTRADAS EN INSTRUMENTOS DE MEDICION EN ESTACIONES EN LA COSTA Y/O BOYAS EN AGUAS PROFUNDAS EN LOS PUNTOS INDICADOS. LA ALTURA MAXIMA DEL TSUNAMI ES MEDIDA CON RESPECTO AL NIVEL DE LA MAREA.
- \* LA ALTURA MAXIMA DEL TSUNAMI ES EL VALOR MAXIMO OBSERVADO HASTA AHORA Y SE MIDE CON RESPECTO AL NIVEL DE LA MAREA.

LOCALIZACION DEL	COORDENADAS DEL INSTRUMENTO	TIEMPO DEL REGISTRO	ALTURA MAXIMA DEL
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INSTRUMENTO	LAT	LON	(AST)	TSUNAMI
PUERTO PLATA DO	19.8N	70.7W	1155 PM	0.8 FT
PARHAM AT	17.1N	61.8W	1152 PM	0.8 FT
DESIRADE GUADELOUPE	16.3N	61.1W	1155 PM	0.6 FT
BASSETERRE KN	17.3N	62.7W	1149 PM	1.6 FT
DART 41420	23.5N	67.3W	1151 PM	0.2 FT
ESPERANZA VIEQUES P	18.1N	65.5W	1148 PM	1.2 FT
AGUADILLA PR	18.5N	67.2W	1145 PM	1.8 FT
DART 41421	23.4N	63.9W	1142 PM	0.9 FT
MAYAGUEZ PR	18.2N	67.2W	1143 PM	1.7 FT
YABUCOA PR	18.1N	65.8W	1146 PM	1.4 FT
LIMETREE VI	17.7N	64.8W	1144 PM	1.9 FT
ST CROIX VI	17.7N	64.7W	1132 PM	3.1 FT
ARECIBO PR	18.5N	66.7W	1133 PM	2.8 FT
SAN JUAN PR	18.5N	66.1W	1125 PM	3.2 FT

#### IMPACTOS

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- \* LOS IMPACTOS VARIARAN PARA DIFERENTES LOCALIDADES EN PUERTO RICO Y LAS ISLAS VIRGENES.
- \* FLUCTUACIONES DEL NIVEL DEL MAR DE 3 PIES O MAS TANTO POR ENCIMA COMO POR DEBAJO DEL NIVEL DE MAREA A LO LARGO DE ALGUNAS O TODAS LAS COSTAS.
- \* REPETIDAS INUNDACIONES Y RETROCESO DEL AGUA EN AREAS COSTERAS BAJAS.
- \* OLAS INUSUALES Y FUERTES... CORRIENTES E INUNDACION DE ZONAS TIERRA ADENTRO QUE PUEDEN AHOGAR O LESIONAR A LAS PERSONAS Y DEBILITAR O DESTRUIR LAS ESTRUCTURAS EN TIERRA Y EN EL AGUA.
- \* CORRIENTES DE INUNDACION CON FLUJO RAPIDO Y CARGADAS DE ESCOMBROS PELIGROSOS.
- \* PELIGROS SECUNDARIOS PUEDEN INCLUIR LINEAS ELECTRICAS CAIDAS... FUEGOS... Y DERRAMES DE MATERIALES PELIGROSOS.
- \* EL PELIGRO COMENZO A PARTIR DE LA(S) 1120 PM AST EL VIERNES 29 DE ENERO DEL 2016 Y PUEDE PERSISTIR POR VARIAS HORAS O MAS.

#### PARAMETROS PRELIMINARES DEL TERREMOTO

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- \* MAGNITUD 7.9
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 19.2 NORTE 64.3 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION UNAS 31 MILLAS AL NORTE DE ANEGADA

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

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- \* EL PROXIMO MENSAJE SERA EMITIDO EN TREINTA MINUTOS... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 300355  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 3  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1155 PM AST FRI JAN 29 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-300555-  
/O.CON.PHEB.TS.W.0009.000000T0000Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
1155 PM AST FRI JAN 29 2016

...A TSUNAMI WARNING CONTINUES IN EFFECT...

PERSONS LOCATED IN OR NEAR THE OCEAN OR IN LOW-LYING COASTAL AREAS SHOULD EVACUATE INLAND OR TO HIGHER GROUND ABOVE AND BEYOND DESIGNATED TSUNAMI HAZARD ZONES... OR MOVE TO THE FOURTH FLOOR OR HIGHER OF A MULTI-STORY BUILDING... DEPENDING UPON YOUR SITUATION.

PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.

AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.9 OCCURRED ABOUT 31 MILES NORTH OF ANEGADA AT 1100 PM AST ON FRIDAY JANUARY 29 2016.

A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.

THE MAXIMUM TSUNAMI HEIGHT OBSERVED SO FAR ON A GAUGE IN PUERTO RICO OR THE VIRGIN ISLANDS IS 3.2 FEET AT SAN JUAN.

BASED ON ALL AVAILABLE DATA... THERE IS THE THREAT OF HAZARDOUS TSUNAMI WAVES FLOODING LOW-LYING COASTAL AREAS IN PUERTO RICO AND THE VIRGIN ISLANDS.

THE HAZARD BEGAN AROUND 1120 PM AST ON FRIDAY JANUARY 29 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.

DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.

BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

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## Nearby Earthquake – Tsunami Warning Cancellation

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 300625  
TSUCAR

TSUNAMI MESSAGE NUMBER 8  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
225 AM AST SAT JAN 30 2016

...THE TSUNAMI WARNING IS NOW CANCELLED...

AUDIENCE  
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\* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

UPDATES IN THIS MESSAGE  
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\* THE TSUNAMI WARNING IS NOW CANCELLED FOR PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.9 OCCURRED ABOUT 31 MILES NORTH OF ANEGADA AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE THAT AFFECTED PUERTO RICO AND THE VIRGIN ISLANDS.
- \* BASED ON ALL AVAILABLE DATA... THERE IS NO FURTHER TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS ALTHOUGH MINOR SEA LEVEL FLUCTUATIONS MAY CONTINUE.

RECOMMENDED ACTIONS

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- \* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.
- \* FOLLOW INSTRUCTIONS FROM PUERTO RICO AND VIRGIN ISLANDS EMERGENCY MANAGEMENT AGENCIES BECAUSE THEY MAY HAVE SPECIFIC INFORMATION OR INSTRUCTIONS FOR YOUR LOCATION.
- \* BE OBSERVANT AND EXERCISE NORMAL CAUTION IF YOU ARE NEAR OR IN THE OCEAN.
- \* OTHERWISE... NO FURTHER ACTION IS REQUIRED.

OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

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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 THE HIGHEST MEASURED SO FAR. IT IS MEASURED WITH RESPECT TO THE TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES		TIME OF MEASURE (AST)	MAXIMUM TSUNAMI HEIGHT
	LAT	LON		
SAPZURRO CO	8.7N	77.4W	225 AM	0.2 FT
EL PORVENIR PM	9.6N	78.9W	225 AM	0.2 FT
VIRGINIA KEY FL	25.7N	80.2W	218 AM	0.2 FT
SAN ANDRES CO	12.6N	81.7W	214 AM	0.2 FT



COVENAS CO	9.4N	76.2W	215 AM	0.1 FT
PORT ROYAL JM	17.9N	76.8W	150 AM	0.3 FT
SANTA MARTA CO	11.2N	74.2W	134 AM	0.3 FT
CHARLOTTEVILLE TT	11.3N	60.5W	118 AM	0.4 FT
DART 41424	32.9N	72.5W	114 AM	0.1 FT
PUERTO ESTRELLA	12.4N	71.3W	109 AM	0.5 FT
PRICKLEY BAY GD	12.0N	61.8W	103 AM	0.9 FT
BULLEN BAY CURACAO	12.2N	69.0W	1243 AM	0.6 FT
JACMEL HT	18.2N	72.5W	1244 AM	0.3 FT
PORT SAN ANDRES DO	18.4N	69.6W	1239 AM	0.6 FT
CALLIAQUA VC	13.1N	61.2W	1242 AM	0.7 FT
BRIDGEPORT BB	13.1N	59.6W	1237 AM	0.5 FT
BARAHONA DO	18.2N	71.1W	1228 AM	0.5 FT
PORT ST CHARLES BB	13.3N	59.6W	1232 AM	0.5 FT
FORT DE FRANCE MQ	14.6N	61.1W	1225 AM	0.9 FT
LE ROBERT MARTINIQU	14.7N	60.9W	1216 AM	0.4 FT
ROSEAU DM	15.3N	61.4W	1213 AM	1.4 FT
CAP HAITIEN HT	19.8N	72.2W	1214 AM	0.4 FT
LE PRECHEUR MARTINI	14.8N	61.2W	1213 AM	0.7 FT
POINT A PITRE GP	16.2N	61.5W	1213 AM	0.8 FT
MAGUEYES ISLAND PR	18.0N	67.0W	1213 AM	0.7 FT
DESHAIES GUADELOUPE	16.3N	61.8W	1202 AM	1.5 FT
CAJA DE MUERTOS PR	17.9N	66.5W	1203 AM	0.9 FT
LAMESHUR BAY VI	18.3N	64.7W	1200 AM	3.2 FT
PUERTO PLATA DO	19.8N	70.7W	1155 PM	0.8 FT
PUNTA CANA DO	18.5N	68.4W	1158 PM	1.3 FT
PARHAM AT	17.1N	61.8W	1152 PM	0.8 FT
DESIRADE GUADELOUPE	16.3N	61.1W	1155 PM	0.6 FT
BASSETERRE KN	17.3N	62.7W	1149 PM	1.6 FT
MONA ISLAND PR	18.1N	67.9W	1156 PM	1.1 FT
DART 41420	23.5N	67.3W	1151 PM	0.2 FT
ESPERANZA VIEQUES P	18.1N	65.5W	1148 PM	1.2 FT
AGUADILLA PR	18.5N	67.2W	1145 PM	1.8 FT
DART 41421	23.4N	63.9W	1142 PM	0.9 FT
MAYAGUEZ PR	18.2N	67.2W	1143 PM	1.7 FT
YABUCOA PR	18.1N	65.8W	1146 PM	1.4 FT
LIMETREE VI	17.7N	64.8W	1144 PM	1.9 FT
ST CROIX VI	17.7N	64.7W	1132 PM	3.1 FT
ARECIBO PR	18.5N	66.7W	1133 PM	2.8 FT
SAN JUAN PR	18.5N	66.1W	1125 PM	3.2 FT

IMPACTS

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\* MINOR SEA LEVEL FLUCTUATIONS MAY CONTINUE OVER THE NEXT FEW HOURS.

PRELIMINARY EARTHQUAKE PARAMETERS

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\* MAGNITUDE                   7.9  
 \* ORIGIN TIME                1100 PM AST JAN 29 2016

\* COORDINATES 19.2 NORTH 64.3 WEST  
\* DEPTH 8 MILES  
\* LOCATION ABOUT 31 MILES NORTH OF ANEGADA

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.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT NTWC.ARH.NOAA.GOV AND AT WWW.TSUNAMI.GOV.
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA50 PHEB 300625  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 8  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
225 AM AST SAT JAN 30 2016

...EL AVISO DE TSUNAMI AHORA HA SIDO CANCELADA...

AUDIENCIA  
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- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

ACTUALIZACIONES EN ESTE MENSAJE  
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- \* EL AVISO DE TSUNAMI AHORA HA SIDO CANCELADA PARA PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

## EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 7.9 HA OCURRIDO UNAS 31 MILLAS AL NORTE DE ANEGADA A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* UN TSUNAMI QUE AFECTO A PUERTO RICO Y LAS ISLAS VIRGENS FUE GENERADO POR ESTE TERREMOTO.
- \* BASANDOSE EN EL ANALYSIS DE TODOS LOS DATOS DISPONIBLES... YA NO EXISTE NINGUN PELIGRO DE TSUNAMI PARA PUERTO RICO Y LAS ISLAS VIRGENES DEBIDO A ESTE TERREMOTO PERO FLUCTUACIONES MENORES DEL NIVEL DEL MAR PUEDEN CONTINUAR.

## ACCIONES RECOMENDADAS

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- \* NO REGRESE A ZONAS EVACUADAS HASTA TANTO LAS AUTORIDADES DECLAREN QUE EL PELIGRO YA PASO.
- \* SIGA LAS INSTRUCCIONES PROVENIENTES DE LAS AGENCIAS DE MANEJO DE EMERGENCIAS EN PUERTO RICO Y LAS ISLAS VIRGENES YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES ESPECIFICAS PARA SU LOCALIDAD.
- \* SEA OBSERVADOR Y CAUTELOSO SI SE ENCUENTRA CERCA O DENTRO DEL MAR.
- \* DE LO CONTRARIO... NO SE REQUIERE NINGUNA OTRA ACCION.

## OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI - ACTUALIZADO

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- \* LO QUE SIGUE SON LAS OBSERVACIONES DE LAS OLAS DEL TSUNAMI REGISTRADAS EN INSTRUMENTOS DE MEDICION EN ESTACIONES EN LA COSTA Y/O BOYAS EN AGUAS PROFUNDAS EN LOS PUNTOS INDICADOS. LA ALTURA MAXIMA DEL TSUNAMI ES MEDIDA CON RESPECTO AL NIVEL DE LA MAREA.
- \* LA ALTURA MAXIMA DEL TSUNAMI ES EL VALOR MAXIMO OBSERVADO HASTA AHORA Y SE MIDE CON RESPECTO AL NIVEL DE LA MAREA.

LOCALIZACION DEL INSTRUMENTO	COORDENADAS DEL INSTRUMENTO		TIEMPO DEL REGISTRO	ALTURA MAXIMA DEL TSUNAMI
	LAT	LON	(AST)	
SAPZURRO CO	8.7N	77.4W	225 AM	0.2 FT
EL PORVENIR PM	9.6N	78.9W	225 AM	0.2 FT
VIRGINIA KEY FL	25.7N	80.2W	218 AM	0.2 FT

SAN ANDRES CO	12.6N	81.7W	214 AM	0.2 FT
COVENAS CO	9.4N	76.2W	215 AM	0.1 FT
PORT ROYAL JM	17.9N	76.8W	150 AM	0.3 FT
SANTA MARTA CO	11.2N	74.2W	134 AM	0.3 FT
CHARLOTTEVILLE TT	11.3N	60.5W	118 AM	0.4 FT
DART 41424	32.9N	72.5W	114 AM	0.1 FT
PUERTO ESTRELLA	12.4N	71.3W	109 AM	0.5 FT
PRICKLEY BAY GD	12.0N	61.8W	103 AM	0.9 FT
BULLEN BAY CURACAO	12.2N	69.0W	1243 AM	0.6 FT
JACMEL HT	18.2N	72.5W	1244 AM	0.3 FT
PORT SAN ANDRES DO	18.4N	69.6W	1239 AM	0.6 FT
CALLIAQUA VC	13.1N	61.2W	1242 AM	0.7 FT
BRIDGEPORT BB	13.1N	59.6W	1237 AM	0.5 FT
BARAHONA DO	18.2N	71.1W	1228 AM	0.5 FT
PORT ST CHARLES BB	13.3N	59.6W	1232 AM	0.5 FT
FORT DE FRANCE MQ	14.6N	61.1W	1225 AM	0.9 FT
LE ROBERT MARTINIQU	14.7N	60.9W	1216 AM	0.4 FT
ROSEAU DM	15.3N	61.4W	1213 AM	1.4 FT
CAP HAITIEN HT	19.8N	72.2W	1214 AM	0.4 FT
LE PRECHEUR MARTINI	14.8N	61.2W	1213 AM	0.7 FT
POINT A PITRE GP	16.2N	61.5W	1213 AM	0.8 FT
MAGUEYES ISLAND PR	18.0N	67.0W	1213 AM	0.7 FT
DESHAIES GUADELOUPE	16.3N	61.8W	1202 AM	1.5 FT
CAJA DE MUERTOS PR	17.9N	66.5W	1203 AM	0.9 FT
LAMESHUR BAY VI	18.3N	64.7W	1200 AM	3.2 FT
PUERTO PLATA DO	19.8N	70.7W	1155 PM	0.8 FT
PUNTA CANA DO	18.5N	68.4W	1158 PM	1.3 FT
PARHAM AT	17.1N	61.8W	1152 PM	0.8 FT
DESIRADE GUADELOUPE	16.3N	61.1W	1155 PM	0.6 FT
BASSETERRE KN	17.3N	62.7W	1149 PM	1.6 FT
MONA ISLAND PR	18.1N	67.9W	1156 PM	1.1 FT
DART 41420	23.5N	67.3W	1151 PM	0.2 FT
ESPERANZA VIEQUES P	18.1N	65.5W	1148 PM	1.2 FT
AGUADILLA PR	18.5N	67.2W	1145 PM	1.8 FT
DART 41421	23.4N	63.9W	1142 PM	0.9 FT
MAYAGUEZ PR	18.2N	67.2W	1143 PM	1.7 FT
YABUCOA PR	18.1N	65.8W	1146 PM	1.4 FT
LIMETREE VI	17.7N	64.8W	1144 PM	1.9 FT
ST CROIX VI	17.7N	64.7W	1132 PM	3.1 FT
ARECIBO PR	18.5N	66.7W	1133 PM	2.8 FT
SAN JUAN PR	18.5N	66.1W	1125 PM	3.2 FT

IMPACTOS

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\* FLUCTUACIONES MENORES DEL NIVEL DEL MAR PUEDE CONTINUAR DURANTE LAS PROXIMAS HORAS.

PARAMETROS PRELIMINARES DEL TERREMOTO

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\* MAGNITUD 7.9

\* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016  
\* COORDENADAS 19.2 NORTE 64.3 OESTE  
\* PROFUNDIDAD 8 MILLAS  
\* LOCALIZACION UNAS 31 MILLAS AL NORTE DE ANEGADA

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL  
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- \* ESTE SERA EL ULTIMO COMUNICADO EMITIDO PARA ESTE EVENTO A NO SER QUE SE RECIBA NUEVA INFORMACION O LA SITUACION CAMBIE.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 300625  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 8  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
225 AM AST SAT JAN 30 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-300825-  
/O.CAN.PHEB.TS.W.0008.000000T0000Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
225 AM AST SAT JAN 30 2016

...THE TSUNAMI WARNING IS NOW CANCELLED...

BASED ON ALL AVAILABLE DATA... THERE IS NO FURTHER TSUNAMI THREAT  
TO PUERTO RICO AND THE VIRGIN ISLANDS ALTHOUGH MINOR SEA LEVEL  
FLUCTUATIONS MAY CONTINUE.

DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY

LOCAL AUTHORITIES.

FOLLOW INSTRUCTIONS FROM PUERTO RICO AND VIRGIN ISLANDS EMERGENCY MANAGEMENT AGENCIES BECAUSE THEY MAY HAVE SPECIFIC INFORMATION OR INSTRUCTIONS FOR YOUR LOCATION.

BE OBSERVANT AND EXERCISE NORMAL CAUTION IF YOU ARE NEAR OR IN THE OCEAN.

OTHERWISE... NO FURTHER ACTION IS REQUIRED.

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## Distant Earthquake - Tsunami Information No Threat

ENGLISH VERSION
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ZCZC  
WECA42 PHEB 300307  
TIBCAR

TSUNAMI INFORMATION STATEMENT NUMBER 1  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1107 PM AST FRI JAN 29 2016

...NO TSUNAMI THREAT FROM A DISTANT EARTHQUAKE...

### AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

### EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 6.8 OCCURRED NEAR THE NORTHERN MID-ATLANTIC RIDGE AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* BASED ON ALL AVAILABLE DATA... THERE IS NO TSUNAMI THREAT TO PUERTO RICO... THE U.S. VIRGIN ISLANDS... OR THE BRITISH VIRGIN ISLANDS FROM THIS EARTHQUAKE.

### PRELIMINARY EARTHQUAKE PARAMETERS

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- \* THE FOLLOWING PARAMETERS ARE BASED ON A PRELIMINARY RAPID ASSESSMENT OF THE EARTHQUAKE AND CHANGES MAY OCCUR.

\* MAGNITUDE 6.8  
\* ORIGIN TIME 1100 PM AST JAN 29 2016  
\* COORDINATES 32.7 NORTH 39.6 WEST  
\* DEPTH 8 MILES  
\* LOCATION NORTHERN MID-ATLANTIC RIDGE

RECOMMENDED ACTIONS

-----

\* NO ACTION IS REQUIRED.

IMPACTS

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\* NO TSUNAMI IMPACTS ARE EXPECTED.

NEXT UPDATE AND ADDITIONAL INFORMATION

-----

\* THIS WILL BE THE ONLY STATEMENT ISSUED FOR THIS EVENT UNLESS  
ADDITIONAL DATA ARE RECEIVED OR THE SITUATION CHANGES.

\* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT  
TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE  
INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

\* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR  
ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI  
WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT  
NTWC.ARH.NOAA.GOV AND AT WWW.TSUNAMI.GOV.

\* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE  
OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR  
THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT  
EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA52 PHEB 300307  
TIBSP1

BOLETIN INFORMATIVO DE TSUNAMI NUMERO 1  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
1107 PM AST FRI JAN 29 2016

...NO HAY PELIGRO DE TSUNAMI DEBIDO A ESTE TERREMOTO LEJANO...

AUDIENCIA

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- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

EVALUACION

-----

- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 6.8 HA OCURRIDO CERCA DEL NORTE DE LA DORSAL MESO-ATLANTICA A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... NO EXISTE PELIGRO DE TSUNAMI PARA PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... O LAS ISLAS VIRGENES BRITANICAS DEBIDO A ESTE TERREMOTO.

PARAMETROS PRELIMINARES DEL TERREMOTO

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- \* LOS SIGUIENTES PARAMETROS ESTAN BASADOS EN UNA EVALUACION PRELIMINAR RAPIDA Y PUEDEN VARIAR.
- \* MAGNITUD 6.8
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 32.7 NORTE 39.6 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION CERCA DEL NORTE DE LA DORSAL MESO-ATLANTICA

ACCIONES RECOMENDADAS

-----

- \* NO SE REQUIERE ACCION.

IMPACTOS

-----

- \* NO SE ESPERAN IMPACTOS DE TSUNAMI DEBIDO A ESTE TERREMOTO.

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

-----

- \* ESTE SERA EL UNICO COMUNICADO EMITIDO ACERCA DE ESTE EVENTO A NO SER QUE SE RECIBA INFORMACION ADICIONAL O LA SITUACION CAMBIE.



- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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## **Distant Earthquake - Tsunami Information Potential Threat**

ENGLISH VERSION
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ZCZC  
WECA42 PHEB 300307  
TIBCAR

TSUNAMI INFORMATION STATEMENT NUMBER 1  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1107 PM AST FRI JAN 29 2016

...POSSIBLE TSUNAMI THREAT FROM A DISTANT EARTHQUAKE...

AUDIENCE

-----

- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

EVALUATION

-----

- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.7 OCCURRED NEAR THE AZORES ISLANDS AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* THE TSUNAMI THREAT TO THE PUERTO RICO AND VIRGIN ISLANDS REGION FROM THIS EARTHQUAKE IS STILL BEING EVALUATED.

PRELIMINARY EARTHQUAKE PARAMETERS

-----  
\* THE FOLLOWING PARAMETERS ARE BASED ON A PRELIMINARY RAPID ASSESSMENT OF THE EARTHQUAKE AND CHANGES MAY OCCUR.

\* MAGNITUDE                    8.7  
\* ORIGIN TIME                 1100 PM AST JAN 29 2016  
\* COORDINATES                 36.5 NORTH 12.7 WEST  
\* DEPTH                        8 MILES  
\* LOCATION                     AZORES ISLANDS

RECOMMENDED ACTIONS  
-----

\* STAY ALERT FOR FURTHER INFORMATION. THERE IS THE POSSIBILITY THAT A TSUNAMI WATCH... ADVISORY... OR WARNING COULD BE ISSUED LATER FOR PUERTO RICO AND THE VIRGIN ISLANDS.

IMPACTS  
-----

\* POTENTIAL TSUNAMI IMPACTS ARE STILL BEING EVALUATED.  
  
\* IF THERE IS A TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS THE EARLIEST IMPACTS WOULD BE AROUND 616 AM AST ON SATURDAY JANUARY 30 2016.

NEXT UPDATE AND ADDITIONAL INFORMATION  
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\* THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.  
  
\* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT [PTWC.WEATHER.GOV](http://PTWC.WEATHER.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).  
  
\* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT [NTWC.ARH.NOAA.GOV](http://NTWC.ARH.NOAA.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).  
  
\* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT [EARTHQUAKE.USGS.GOV/EARTHQUAKES](http://EARTHQUAKE.USGS.GOV/EARTHQUAKES) -ALL LOWERCASE LETTERS-.

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SPANISH VERSION

ZCZC  
WECA52 PHEB 300307  
TIBSP1

BOLETIN INFORMATIVO DE TSUNAMI NUMERO 1  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
1107 PM AST FRI JAN 29 2016

...POSIBLE PELIGRO DE TSUNAMI DEBIDO A ESTE TERREMOTO LEJANO...

AUDIENCIA

-----

- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

EVALUACION

-----

- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 8.7 HA OCURRIDO CERCA DE LAS ISLAS AZORES A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* EL PELIGRO DE TSUNAMI PARA LA REGION DE PUERTO RICO Y LAS ISLAS VIRGENES DEBIDO A ESTE TERREMOTO ESTA AUN SIENDO EVALUADO.

PARAMETROS PRELIMINARES DEL TERREMOTO

-----

- \* LOS SIGUIENTES PARAMETROS ESTAN BASADOS EN UNA EVALUACION PRELIMINAR RAPIDA Y PUEDEN VARIAR.
- \* MAGNITUD 8.7
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 36.5 NORTE 12.7 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION CERCA DE LAS ISLAS AZORES

ACCIONES RECOMENDADAS

-----

- \* MANTENGASE ALERTA PARA RECIBIR INFORMACION ADICIONAL. EXISTE LA POSIBILIDAD DE QUE UNA VIGILANCIA... ADVERTENCIA... O AVISO DE TSUNAMI SEA EMITIDA MAS TARDE PARA PUERTO RICO Y LAS ISLAS VIRGENES.

IMPACTOS

-----

- \* EL POTENCIAL IMPACTO DE ESTE TSUNAMI AUN ESTA SIENDO EVALUADO.
- \* SI EXISTIERA PELIGRO DE TSUNAMI PARA PUERTO RICO Y LAS ISLAS VIRGENES LOS IMPACTOS MAS TEMPRANOS SERIAN ALREDEDOR DE LA(S) 616 AM AST EL SABADO 30 DE ENERO DEL 2016.

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

-----

- \* EL PROXIMO MENSAJE SERA EMITIDO EN UNA HORA... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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## Distant Earthquake – Initial Tsunami Watch Message

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 300330  
TSUCAR

TSUNAMI MESSAGE NUMBER 2  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1130 PM AST FRI JAN 29 2016

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

AUDIENCE

-----

- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN

ISLANDS.

UPDATES IN THIS MESSAGE

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- \* A TSUNAMI WATCH IS NOW IN EFFECT FOR PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

EVALUATION

-----

- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.7 OCCURRED NEAR THE AZORES ISLANDS AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* THE TSUNAMI THREAT TO THE PUERTO RICO AND VIRGIN ISLANDS REGION FROM THIS EARTHQUAKE IS STILL BEING EVALUATED.
- \* IF A TSUNAMI THREAT EXISTS... THE EARLIEST ESTIMATED ARRIVAL TIME OF TSUNAMI WAVES WITHIN THE PUERTO RICO AND VIRGIN ISLANDS REGION WOULD BE

616 AM AST ON SATURDAY JANUARY 30 2016

PRELIMINARY EARTHQUAKE PARAMETERS

-----

- \* THE FOLLOWING PARAMETERS ARE BASED ON A PRELIMINARY RAPID ASSESSMENT OF THE EARTHQUAKE AND CHANGES MAY OCCUR.
- \* MAGNITUDE 8.7
- \* ORIGIN TIME 1100 PM AST JAN 29 2016
- \* COORDINATES 36.5 NORTH 12.7 WEST
- \* DEPTH 8 MILES
- \* LOCATION AZORES ISLANDS

RECOMMENDED ACTIONS

-----

- \* STAY ALERT FOR FURTHER INFORMATION. THE TSUNAMI WATCH COULD BE ELEVATED TO AN ADVISORY OR WARNING.
- \* CONSIDER YOUR COURSE OF ACTION IF A TSUNAMI ADVISORY OR WARNING IS ISSUED.

FORECASTS OF TSUNAMI ACTIVITY

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- \* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE

ARE GIVEN BELOW.

- \* OBSERVED ARRIVAL TIMES MAY DIFFER FROM THESE ETAS AND THE INITIAL WAVE MAY NOT BE THE LARGEST.
- \* FORECAST TSUNAMI HEIGHTS AND DURATIONS ARE NOT YET AVAILABLE.
- \* A TSUNAMI IS A SERIES OF WAVES AND THE DURATION OF EACH WAVE CAN BE FIVE MINUTES TO ONE HOUR.

TERRITORY	COASTAL LOCATION	ETA (AST)	FORECAST HEIGHT	FORECAST DURATION
PUERTO RICO	SAN JUAN	616 AM		
	ARECIBO	619 AM		
	YABUCOA	623 AM		
	MAYAGUEZ	628 AM		
	AGUADILLA	629 AM		
	PENUELAS	635 AM		
	PONCE	636 AM		
	VIEQUES IS	637 AM		
	MONA ISLAND	637 AM		
	CAJA DE MUERTOS	644 AM		
	FAJARDO	648 AM		
	MAGUEYES IS	649 AM		
	CULEBRA IS	652 AM		
USVI	CHRISTIANSTED	616 AM		
	LIMETREE	619 AM		
	LAMESHUR BAY	642 AM		
	CHARLOTTE AMALIE	654 AM		
BVI	ANEGADA	617 AM		
	VIRGIN GORDA	631 AM		
	ROADTOWN	730 AM		

OBSERVATIONS OF TSUNAMI ACTIVITY

- \* NO OBSERVATIONS OF TSUNAMI ACTIVITY ARE AVAILABLE YET.

IMPACTS

- \* POTENTIAL TSUNAMI IMPACTS ARE STILL BEING EVALUATED.
- \* IF THERE IS A TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS THE EARLIEST IMPACTS WOULD BE AROUND 616 AM AST ON SATURDAY JANUARY 30 2016.

NEXT UPDATE AND ADDITIONAL INFORMATION

- 
- \* THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.
  - \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.
  - \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT NTWC.ARH.NOAA.GOV AND AT WWW.TSUNAMI.GOV.
  - \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA50 PHEB 300330  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 2  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
1130 PM AST FRI JAN 29 2016

...UNA VIGILANCIA DE TSUNAMI ESTA EN EFECTO EN ESTOS MOMENTOS...

AUDIENCIA

-----

- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

ACTUALIZACIONES EN ESTE MENSAJE

-----

- \* UNA VIGILANCIA DE TSUNAMI ESTA EN EFECTO EN ESTOS MOMENTOS PARA PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

EVALUACION

-----

- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 8.7 HA OCURRIDO CERCA DE

LAS ISLAS AZORES A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.

- \* EL PELIGRO DE TSUNAMI PARA LA REGION DE PUERTO RICO Y LAS ISLAS VIRGENES DEBIDO A ESTE TERREMOTO ESTA AUN SIENDO EVALUADO.
- \* SI EXISTIERA PELIGRO DE UN TSUNAMI... EL TIEMPO DE ARRIBO MAS TEMPRANO DE LAS OLAS GENERADAS POR EL MISMO EN LA REGION DE PUERTO RICO Y LAS ISLAS VIRGENES SERIA

616 AM AST EL SABADO 30 DE ENERO DEL 2016

PARAMETROS PRELIMINARES DEL TERREMOTO

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- \* LOS SIGUIENTES PARAMETROS ESTAN BASADOS EN UNA EVALUACION PRELIMINAR RAPIDA Y PUEDEN VARIAR.
- \* MAGNITUD 8.7
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 36.5 NORTE 12.7 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION CERCA DE LAS ISLAS AZORES

ACCIONES RECOMENDADAS

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- \* MANTENGASE ALERTA PARA RECIBIR INFORMACION ADICIONAL. LA VIGILANCIA DE TSUNAMI PODRIA ELEVARSE A ADVERTENCIA O AVISO DE TSUNAMI.
- \* CONSIDERE SU CURSO DE ACCION SI SE EMITIERA UNA ADVERTENCIA O AVISO DE TSUNAMI.

PRONOSTICO DE LA ACTIVIDAD DEL TSUNAMI

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- \* LOS TIEMPOS DE ARRIBO ESTIMADOS -TAE- DE LA PRIMERA OLA DEL TSUNAMI SE PROVEEN A CONTINUACION.
- \* LOS TIEMPOS DE ARRIBO REALES PUEDEN DIFERIR DE LOS ESTIMADOS Y LA PRIMERA OLA PUEDE QUE NO SEA LA MAS GRANDE.
- \* EL PRONOSTICO DE LAS AMPLITUDES Y DURACION DEL TSUNAMI NO ESTAN AUN DISPONIBLES.
- \* UN TSUNAMI ES UN TREN DE OLAS Y EL TIEMPO ENTRE OLAS PUEDE VARIAR DESDE CINCO MINUTOS HASTA UNA HORA.

LOCALIZACION TAE ----PRONOSTICO----



TERRITORIO	COSTERA	(AST)	ALTURA	DURACION
PUERTO RICO	SAN JUAN	616	AM	
	ARECIBO	619	AM	
	YABUCOA	623	AM	
	MAYAGUEZ	628	AM	
	AGUADILLA	629	AM	
	PENUELAS	635	AM	
	PONCE	636	AM	
	VIEQUES IS	637	AM	
	MONA ISLAND	637	AM	
	CAJA DE MUERTOS	644	AM	
	FAJARDO	648	AM	
	MAGUEYES IS	649	AM	
	CULEBRA IS	652	AM	
USVI	CHRISTIANSTED	616	AM	
	LIMETREE	619	AM	
	LAMESHUR BAY	642	AM	
	CHARLOTTE AMALIE	654	AM	
BVI	ANEGADA	617	AM	
	VIRGIN GORDA	631	AM	
	ROADTOWN	730	AM	

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI

\* TODAVIA NO SE DISPONE DE OBSERVACIONES DE LA ACTIVIDAD DEL TSUNAMI.

IMPACTOS

\* EL POTENCIAL IMPACTO DE ESTE TSUNAMI AUN ESTA SIENDO EVALUADO.

\* SI EXISTIERA PELIGRO DE TSUNAMI PARA PUERTO RICO Y LAS ISLAS VIRGENES LOS IMPACTOS MAS TEMPRANOS SERIAN ALREDEDOR DE LA(S) 616 AM AST EL SABADO 30 DE ENERO DEL 2016.

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

\* EL PROXIMO MENSAJE SERA EMITIDO EN UNA HORA... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.

\* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.

- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 300330  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 2  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1130 PM AST FRI JAN 29 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-300530-  
/O.NEW.PHEB.TS.A.0004.160130T0330Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
1130 PM AST FRI JAN 29 2016

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

STAY ALERT FOR FURTHER INFORMATION. THE TSUNAMI WATCH COULD BE ELEVATED TO AN ADVISORY OR WARNING.

CONSIDER YOUR COURSE OF ACTION IF A TSUNAMI ADVISORY OR WARNING IS ISSUED.

AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.7 OCCURRED NEAR THE AZORES ISLANDS AT 1100 PM AST ON FRIDAY JANUARY 29 2016.

A HAZARDOUS TSUNAMI MAY HAVE BEEN GENERATED BY THIS EARTHQUAKE.

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## **Distant Earthquake – Upgrade to a Tsunami Warning with Forecast**

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 300425  
TSUCAR

TSUNAMI MESSAGE NUMBER 4  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1225 AM AST SAT JAN 30 2016

...THE TSUNAMI WATCH IS CANCELED AND A TSUNAMI WARNING IS NOW IN  
EFFECT...

AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

UPDATES IN THIS MESSAGE

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- \* THE TSUNAMI WATCH IS CANCELED AND A TSUNAMI WARNING IS NOW IN EFFECT FOR PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.
- \* THE EARTHQUAKE PARAMETERS HAVE BEEN REVISED.
- \* THE GENERATION OF TSUNAMI WAVES IS CONFIRMED.

EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 9.0 OCCURRED NEAR THE AZORES ISLANDS AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.
- \* BASED ON ALL AVAILABLE DATA... THERE IS THE THREAT OF HAZARDOUS TSUNAMI WAVES FLOODING LOW-LYING COASTAL AREAS IN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* THE EARLIEST ESTIMATED TIME THAT TSUNAMI WAVE ACTIVITY AND FLOODING MAY BEGIN WITHIN THE PUERTO RICO AND VIRGIN ISLANDS REGION IS

616 AM AST ON SATURDAY JANUARY 30 2016

RECOMMENDED ACTIONS

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- \* ACTIONS REQUIRED TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY WILL VARY WITHIN THE TSUNAMI WARNING AREA.

- \* PERSONS LOCATED IN OR NEAR THE OCEAN OR IN LOW-LYING COASTAL AREAS SHOULD EVACUATE INLAND OR TO HIGHER GROUND ABOVE AND BEYOND DESIGNATED TSUNAMI HAZARD ZONES... OR MOVE TO THE FOURTH FLOOR OR HIGHER OF A MULTI-STORY BUILDING... DEPENDING UPON YOUR SITUATION.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.
- \* PERSONS LOCATED OUTSIDE THE EVACUATION ZONE SHOULD LIMIT TRAVEL TO PREVENT CONGESTION OF EVACUATION ROUTES.
- \* LIMIT TELEPHONE AND CELL PHONE USAGE SO THOSE SYSTEMS DO NOT BECOME OVERLOADED.
- \* BOATERS - WHERE TIME AND CONDITIONS PERMIT... MOVE YOUR BOAT OUT TO SEA TO A DEPTH OF AT LEAST 450 FEET.
- \* BOATERS - IF AT SEA... AVOID ENTERING SHALLOW WATER... HARBORS... MARINAS... BAYS AND INLETS TO AVOID FLOATING AND SUBMERGED DEBRIS AND STRONG CURRENTS.
- \* BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

FORECASTS OF TSUNAMI ACTIVITY - UPDATED

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- \* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW.
- \* OBSERVED ARRIVAL TIMES MAY DIFFER FROM THESE ETAS AND THE INITIAL WAVE MAY NOT BE THE LARGEST.
- \* THE FORECAST HEIGHT IS THE MAXIMUM EXPECTED WATER LEVEL ABOVE THE TIDE AT THAT COASTAL LOCATION.
- \* THE FORECAST DURATION IS THE APPROXIMATE EXPECTED LENGTH OF TIME AFTER INITIAL IMPACT THAT THE TSUNAMI MAY CONTINUE TO BE A HAZARD.
- \* A TSUNAMI IS A SERIES OF WAVES AND THE DURATION OF EACH WAVE CAN BE FIVE MINUTES TO ONE HOUR.

TERRITORY	COASTAL LOCATION	ETA (AST)	FORECAST HEIGHT	FORECAST DURATION
PUERTO RICO	SAN JUAN	616 AM	5.0-11. FT	18 HRS
	ARECIBO	619 AM	4.2-9.4 FT	15 HRS
	YABUCOA	623 AM	1.8-4.1 FT	12 HRS

	MAYAGUEZ	628 AM	4.0-9.0 FT	15 HRS
	AGUADILLA	629 AM	3.6-8.0 FT	15 HRS
	PENUELAS	635 AM	1.6-3.5 FT	12 HRS
	PONCE	636 AM	1.4-3.2 FT	12 HRS
	VIEQUES IS	637 AM	BELOW 1 FT	-----
	MONA ISLAND	637 AM	2.5-5.5 FT	12 HRS
	CAJA DE MUERTOS	644 AM	1.1-2.5 FT	6 HRS
	FAJARDO	648 AM	3.9-8.8 FT	15 HRS
	MAGUEYES IS	649 AM	1.6-3.7 FT	12 HRS
	CULEBRA IS	652 AM	3.5-7.9 FT	15 HRS
USVI	CHRISTIANSTED	616 AM	2.2-4.9 FT	12 HRS
	LIMETREE	619 AM	1.9-4.2 FT	12 HRS
	LAMESHUR BAY	642 AM	2.5-5.7 FT	12 HRS
	CHARLOTTE AMALIE	654 AM	BELOW 1 FT	-----
BVI	ANEGADA	617 AM	4.0-8.9 FT	15 HRS
	VIRGIN GORDA	631 AM	2.0-4.5 FT	12 HRS
	ROADTOWN	730 AM	BELOW 1 FT	-----

#### OBSERVATIONS OF TSUNAMI ACTIVITY

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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 THE HIGHEST MEASURED SO FAR. IT IS MEASURED WITH RESPECT TO THE TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES		TIME OF MEASURE (AST)	MAXIMUM TSUNAMI HEIGHT
	LAT	LON		
LEIXOES	41.2N	8.7W	1225 AM	13.3 FT
LAGOS	37.1N	8.7W	1207 AM	33.7 FT
FUNCHAL	32.6N	16.9W	1207 AM	17.0 FT
PENICHE	39.3N	9.4W	1207 AM	29.3 FT
CASCAIS PT	38.7N	9.4W	1152 PM	49.3 FT
SINES	38.0N	8.9W	1147 PM	47.5 FT

#### IMPACTS

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- \* IMPACTS WILL VARY AT DIFFERENT LOCATIONS WITHIN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* SEA LEVEL FLUCTUATIONS THAT ARE 3 FEET OR MORE ABOVE AND BELOW THE TIDE LEVEL ALONG SOME OR ALL COASTS.
- \* REPEATED FLOODING AND DRAINING OF LOW-LYING COASTAL AREAS.

- \* STRONG AND UNUSUAL WAVES... CURRENTS AND INLAND FLOODING THAT CAN DROWN OR INJURE PEOPLE AND WEAKEN OR DESTROY STRUCTURES ON LAND AND IN THE WATER.
- \* RAPIDLY FLOWING FLOOD WATER FILLED WITH HAZARDOUS DEBRIS.
- \* SECONDARY HAZARDS THAT MAY INCLUDE DOWNED POWER LINES... FIRES... AND HAZARDOUS MATERIAL SPILLS.
- \* THE HAZARD IS FORECAST TO BEGIN AROUND 616 AM AST ON SATURDAY JANUARY 30 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

PRELIMINARY EARTHQUAKE PARAMETERS - UPDATED  
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\* MAGNITUDE            9.0  
 \* ORIGIN TIME        1100 PM AST JAN 29 2016  
 \* COORDINATES        36.5 NORTH 12.7 WEST  
 \* DEPTH                8 MILES  
 \* LOCATION            AZORES ISLANDS

NEXT UPDATE AND ADDITIONAL INFORMATION  
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- \* THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT NTWC.ARH.NOAA.GOV AND AT WWW.TSUNAMI.GOV.
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
 WECA50 PHEB 300425  
 TSUSP1

MENSAJE DE TSUNAMI NUMERO 4  
 SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
 1225 AM AST SAT JAN 30 2016

...LA VIGILANCIA DE TSUNAMI HA SIDO CANCELADA Y UN AVISO DE TSUNAMI  
ESTA AHORA EN EFECTO...

AUDIENCIA

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- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

ACTUALIZACIONES EN ESTE MENSAJE

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- \* LA VIGILANCIA DE TSUNAMI HA SIDO CANCELADA Y UN AVISO DE TSUNAMI ESTA AHORA EN EFECTO PARA PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.
- \* LOS PARAMETROS DEL TSUNAMI HAN SIDO ACTUALIZADOS.
- \* SE HA CONFIRMADO LA GENERACION DE OLAS DE TSUNAMI.

EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 9.0 HA OCURRIDO CERCA DE LAS ISLAS AZORES A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* UN TSUNAMI HA SIDO GENERADO POR ESTE TERREMOTO.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... EXISTE LA AMENAZA DE QUE PELIGROSAS OLAS DE TSUNAMI INUNDEN ZONAS COSTERAS BAJAS EN PUERTO RICO Y LAS ISLAS VIRGENES.
- \* EL TIEMPO DE ARRIBO MAS TEMPRANO A PARTIR DEL CUAL LA ACTIVIDAD DE LAS OLAS DEL TSUNAMI E INUNDACION ASOCIADA AL MISMO PUEDE COMENZAR EN LA REGION DE PUERTO RICO Y LAS ISLAS VIRGENES ES

616 AM AST EL SABADO 30 DE ENERO DEL 2016

ACCIONES RECOMENDADAS

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- \* LAS ACCIONES REQUERIDAS PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES VARIARA DENTRO DEL AREA DECLARADA EN ESTADO DE AVISO.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR O EN ZONAS

COSTERAS BAJAS DEBEN EVACUAR TIERRA ADENTRO O HACIA ZONAS MAS ALTAS FUERA DE AQUELLAS DESIGNADAS COMO ZONAS CON PELIGRO DE TSUNAMI... O MOVERSE HACIA EL CUARTO PISO O MAS ALTO DE UN EDIFICIO DE VARIOS MULTI PISOS... EN DEPENDIENDO DE LA SITUACION.

- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR DEBEN SALIR DEL AGUA... FUERA DE LA PLAYA Y ALEJARSE DE PUERTOS... MARINAS... BAHIAS Y ENSENADAS.
- \* PERSONAS LOCALIZADAS FUERA DE LA ZONA DE EVACUACION DEBEN DEJAR LAS CARRETERAS LIBRES PARA EVITAR EL CONGESTIONAMIENTO DE LAS RUTAS DE EVACUACION.
- \* LIMITE EL USO TANTO DEL TELEFONO COMO DE TELEFONOS CELULARES PARA EVITAR SOBRECARGAR DICHOS SISTEMAS.
- \* MARINEROS - DONDE EL TIEMPO Y LAS CONDICIONES PERMITAN... MUEVAN SU EMBARCACION MAR AFUERA HACIA PROFUNDIDADES DE AL MENOS 450 PIES.
- \* MARINEROS - SI SE ENCUENTRAN MAR AFUERA... EVITEN ADENTRARSE EN AGUAS SOMERAS... PUERTOS... MARINAS... BAHIAS Y ENSENADAS PARA EVITAR ESCOMBROS TANTO FLOTANTES COMO SUMERGIDOS Y CORRIENTES FUERTES.
- \* MANTENGASE ALERTA Y SIGA LAS INSTRUCCIONES PROVENIENTES DE FUNCIONARIOS DE LAS AGENCIAS LOCALES PARA EL MANEJO DE EMERGENCIAS YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES MAS ESPECIFICAS PARA SU LOCALIDAD.

PRONOSTICO DE LA ACTIVIDAD DEL TSUNAMI - ACTUALIZADO

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- \* LOS TIEMPOS DE ARRIBO ESTIMADOS -TAE- DE LA PRIMERA OLA DEL TSUNAMI SE PROVEEN A CONTINUACION.
- \* LOS TIEMPOS DE ARRIBO REALES PUEDEN DIFERIR DE LOS ESTIMADOS Y LA PRIMERA OLA PUEDE QUE NO SEA LA MAS GRANDE.
- \* LA ALTURA PRONOSTICADA ES EL NIVEL MAXIMO DEL AGUA POR ENCIMA DEL NIVEL DE MAREA QUE SE ESPERA A LO LARGO DE ESA SECCION DE LA COSTA.
- \* LA DURACION PRONOSTICADA ES EL TIEMPO DURANTE EL CUAL SE ESPERA QUE EL TSUNAMI PRODUZCA OLAS Y CORRIENTES PELIGROSAS.
- \* UN TSUNAMI ES UN TREN DE OLAS Y EL TIEMPO ENTRE OLAS PUEDE VARIAR DESDE CINCO MINUTOS HASTA UNA HORA.

	LOCALIZACION	TAE	----PRONOSTICO----	
TERRITORIO	COSTERA	(AST)	ALTURA	DURACION

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PUERTO RICO	SAN JUAN	616 AM	5.0-11. FT	18 HRS
	ARECIBO	619 AM	4.2-9.4 FT	15 HRS
	YABUCOA	623 AM	1.8-4.1 FT	12 HRS
	MAYAGUEZ	628 AM	4.0-9.0 FT	15 HRS
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	ROADTOWN	730 AM	BELOW 1 FT	-----

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI

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\* LO QUE SIGUE SON LAS OBSERVACIONES DE LAS OLAS DEL TSUNAMI REGISTRADAS EN INSTRUMENTOS DE MEDICION EN ESTACIONES EN LA COSTA Y/O BOYAS EN AGUAS PROFUNDAS EN LOS PUNTOS INDICADOS. LA ALTURA MAXIMA DEL TSUNAMI ES MEDIDA CON RESPECTO AL NIVEL DE LA MAREA.

\* LA ALTURA MAXIMA DEL TSUNAMI ES EL VALOR MAXIMO OBSERVADO HASTA AHORA Y SE MIDE CON RESPECTO AL NIVEL DE LA MAREA.

LOCALIZACION DEL INSTRUMENTO	COORDENADAS DEL INSTRUMENTO		TIEMPO DEL REGISTRO	ALTURA MAXIMA DEL TSUNAMI
	LAT	LON	(AST)	
	-----			
LEIXOES	41.2N	8.7W	1225 AM	13.3 FT
LAGOS	37.1N	8.7W	1207 AM	33.7 FT
FUNCHAL	32.6N	16.9W	1207 AM	17.0 FT
PENICHE	39.3N	9.4W	1207 AM	29.3 FT
CASCAIS PT	38.7N	9.4W	1152 PM	49.3 FT
SINES	38.0N	8.9W	1147 PM	47.5 FT

IMPACTOS

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\* LOS IMPACTOS VARIARAN PARA DIFERENTES LOCALIDADES EN PUERTO RICO Y LAS ISLAS VIRGENES.

- \* FLUCTUACIONES DEL NIVEL DEL MAR DE 3 PIES O MAS TANTO POR ENCIMA COMO POR DEBAJO DEL NIVEL DE MAREA A LO LARGO DE ALGUNAS O TODAS LAS COSTAS.
- \* REPETIDAS INUNDACIONES Y RETROCESO DE AGUA EN AREAS COSTERAS BAJAS.
- \* OLAS INUSUALES Y FUERTES... CORRIENTES E INUNDACION DE ZONAS TIERRA ADENTRO QUE PUEDEN AHOGAR O LESIONAR A LAS PERSONAS Y DEBILITAR O DESTRUIR LAS ESTRUCTURAS EN TIERRA Y EN EL AGUA.
- \* CORRIENTES DE INUNDACION CON FLUJO RAPIDO Y CARGADAS DE ESCOMBROS PELIGROSOS.
- \* PELIGROS SECUNDARIOS PUEDEN INCLUIR LINEAS ELECTRICAS CAIDAS... FUEGOS... Y DERRAMES DE MATERIALES PELIGROSOS.
- \* EL PELIGRO SE PRONOSTICA QUE COMENZARA ALREDEDOR DE LA(S) 616 AM AST EL SABADO 30 DE ENERO DEL 2016 Y PUEDE PERSISTIR POR VARIAS HORAS O MAS.

PARAMETROS PRELIMINARES DEL TERREMOTO - ACTUALIZADO

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- \* MAGNITUD 9.0
- \* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016
- \* COORDENADAS 36.5 NORTE 12.7 OESTE
- \* PROFUNDIDAD 8 MILLAS
- \* LOCALIZACION CERCA DE LAS ISLAS AZORES

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

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- \* EL PROXIMO MENSAJE SERA EMITIDO EN UNA HORA... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 300425  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 4  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1225 AM AST SAT JAN 30 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-300625-  
/O.CAN.PHEB.TS.A.0004.000000T0000Z-000000T0000Z/  
/O.NEW.PHEB.TS.W.0009.160130T0425Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
1225 AM AST SAT JAN 30 2016

...THE TSUNAMI WATCH IS CANCELED AND A TSUNAMI WARNING IS NOW IN  
EFFECT...

PERSONS LOCATED IN OR NEAR THE OCEAN OR IN LOW-LYING COASTAL  
AREAS SHOULD EVACUATE INLAND OR TO HIGHER GROUND ABOVE AND  
BEYOND DESIGNATED TSUNAMI HAZARD ZONES... OR MOVE TO THE FOURTH  
FLOOR OR HIGHER OF A MULTI-STORY BUILDING... DEPENDING UPON YOUR  
SITUATION.

PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE  
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AND INLETS.

AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 9.0 OCCURRED NEAR  
THE AZORES ISLANDS AT 1100 PM AST ON FRIDAY JANUARY 29 2016.

A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.

BASED ON ALL AVAILABLE DATA... THERE IS THE THREAT OF HAZARDOUS  
TSUNAMI WAVES FLOODING LOW-LYING COASTAL AREAS IN PUERTO RICO  
AND THE VIRGIN ISLANDS.

THE HAZARD IS FORECAST TO BEGIN AROUND 616 AM AST ON SATURDAY  
JANUARY 30 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

PERSONS LOCATED OUTSIDE THE EVACUATION ZONE SHOULD LIMIT TRAVEL  
TO PREVENT CONGESTION OF EVACUATION ROUTES.

LIMIT TELEPHONE AND CELL PHONE USAGE SO THOSE SYSTEMS DO NOT  
BECOME OVERLOADED.

BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY  
MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR

SPECIFIC INFORMATION FOR YOUR LOCATION.

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## Distant Earthquake – Tsunami Warning During Impacts

ENGLISH VERSION

ZCZC  
WECA40 PHEB 301130  
TSUCAR

TSUNAMI MESSAGE NUMBER 12  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
730 AM AST SAT JAN 30 2016

...A TSUNAMI WARNING CONTINUES IN EFFECT...

### AUDIENCE

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- \* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

### UPDATES IN THIS MESSAGE

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- \* THE TSUNAMI OBSERVATIONS HAVE BEEN UPDATED.

### EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 9.0 OCCURRED NEAR THE AZORES ISLANDS AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.
- \* BASED ON ALL AVAILABLE DATA... THE THREAT CONTINUES FOR HAZARDOUS TSUNAMI WAVES FLOODING LOW-LYING COASTAL AREAS IN PUERTO RICO AND THE VIRGIN ISLANDS.

### RECOMMENDED ACTIONS

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- \* ACTIONS REQUIRED TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY WILL VARY WITHIN THE TSUNAMI WARNING AREA.

- \* PERSONS LOCATED IN OR NEAR THE OCEAN OR IN LOW-LYING COASTAL AREAS SHOULD EVACUATE INLAND OR TO HIGHER GROUND ABOVE AND BEYOND DESIGNATED TSUNAMI HAZARD ZONES... OR MOVE TO THE FOURTH FLOOR OR HIGHER OF A MULTI-STORY BUILDING... DEPENDING UPON YOUR SITUATION.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.
- \* DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.
- \* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.
- \* BOATERS - IF AT SEA... AVOID ENTERING SHALLOW WATER... HARBORS... MARINAS... BAYS AND INLETS TO AVOID FLOATING AND SUBMERGED DEBRIS AND STRONG CURRENTS.
- \* BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

FORECASTS OF TSUNAMI ACTIVITY

-----

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- \* OBSERVED ARRIVAL TIMES MAY DIFFER FROM THESE ETAS AND THE INITIAL WAVE MAY NOT BE THE LARGEST.
- \* THE FORECAST HEIGHT IS THE MAXIMUM EXPECTED WATER LEVEL ABOVE THE TIDE AT THAT COASTAL LOCATION.
- \* THE FORECAST DURATION IS THE APPROXIMATE EXPECTED LENGTH OF TIME AFTER INITIAL IMPACT THAT THE TSUNAMI MAY CONTINUE TO BE A HAZARD.
- \* A TSUNAMI IS A SERIES OF WAVES AND THE DURATION OF EACH WAVE CAN BE FIVE MINUTES TO ONE HOUR.

TERRITORY	COASTAL LOCATION	ETA (AST)	FORECAST HEIGHT	FORECAST DURATION
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	VIEQUES IS	637 AM	BELOW 1 FT	-----

	MONA ISLAND	637 AM	2.5-5.5 FT	12 HRS
	CAJA DE MUERTOS	644 AM	1.1-2.5 FT	6 HRS
	FAJARDO	648 AM	3.9-8.8 FT	15 HRS
	MAGUEYES IS	649 AM	1.6-3.7 FT	12 HRS
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USVI	CHRISTIANSTED	616 AM	2.2-4.9 FT	12 HRS
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	LAMESHUR BAY	642 AM	2.5-5.7 FT	12 HRS
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	ROADTOWN	730 AM	BELOW 1 FT	-----

OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

-----

\* THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS.

\* THE MAXIMUM TSUNAMI HEIGHT IS THE HIGHEST MEASURED SO FAR. IT IS MEASURED WITH RESPECT TO THE TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES		TIME OF MEASURE (AST)	MAXIMUM TSUNAMI HEIGHT
	LAT	LON		
BARAHONA DO	18.2N	71.1W	721 AM	1.4 FT
ILE ROYAL GUIANA FR	5.3N	52.6W	719 AM	4.6 FT
CAP HAITIEN HT	19.8N	72.2W	714 AM	4.7 FT
PRICKLEY BAY GD	12.0N	61.8W	708 AM	2.7 FT
CHARLOTTEVILLE TT	11.3N	60.5W	706 AM	5.1 FT
DART 42407	15.3N	68.2W	659 AM	0.1 FT
MAGUEYES ISLAND PR	18.0N	67.0W	702 AM	2.5 FT
CAJA DE MUERTOS PR	17.9N	66.5W	650 AM	1.7 FT
PUERTO PLATA DO	19.8N	70.7W	650 AM	6.5 FT
LAMESHUR BAY VI	18.3N	64.7W	652 AM	3.8 FT
PUNTA CANA DO	18.5N	68.4W	651 AM	4.8 FT
MONA ISLAND PR	18.1N	67.9W	652 AM	3.7 FT
AGUADILLA PR	18.5N	67.2W	643 AM	5.4 FT
MAYAGUEZ PR	18.2N	67.2W	639 AM	6.1 FT
ESPERANZA VIEQUES P	18.1N	65.5W	634 AM	1.7 FT
CALLIAQUA VC	13.1N	61.2W	629 AM	3.5 FT
YABUCOA PR	18.1N	65.8W	631 AM	2.7 FT
ARECIBO PR	18.5N	66.7W	634 AM	6.3 FT
LIMETREE VI	17.7N	64.8W	628 AM	2.8 FT
BASSETERRE KN	17.3N	62.7W	624 AM	4.4 FT
ST CROIX VI	17.7N	64.7W	623 AM	3.3 FT
DART 41424	32.9N	72.5W	627 AM	0.5 FT
SAN JUAN PR	18.5N	66.1W	628 AM	7.6 FT
FORT DE FRANCE MQ	14.6N	61.1W	626 AM	3.1 FT

BRIDGEPORT BB	13.1N	59.6W	620 AM	5.9 FT
ROSEAU DM	15.3N	61.4W	616 AM	2.7 FT
LE ROBERT MARTINIQU	14.7N	60.9W	615 AM	7.4 FT
DART 41420	23.5N	67.3W	615 AM	0.8 FT
POINT A PITRE GP	16.2N	61.5W	616 AM	7.1 FT
LE PRECHEUR MARTINI	14.8N	61.2W	613 AM	2.8 FT
DESHAIES GUADELOUPE	16.3N	61.8W	617 AM	3.9 FT
PORT ST CHARLES BB	13.3N	59.6W	618 AM	5.7 FT
PARHAM AT	17.1N	61.8W	605 AM	6.6 FT
DART 44402	39.3N	70.7W	611 AM	0.3 FT
DESIRADE GUADELOUPE	16.3N	61.1W	600 AM	6.5 FT
DART 41421	23.4N	63.9W	550 AM	0.9 FT
DART 44401	37.5N	50.0W	347 AM	0.6 FT
DAKAR SN	14.7N	17.4W	325 AM	4.6 FT
LHERBAUDIÈRE FR	47.0N	2.3W	254 AM	2.6 FT
LES SABLES DOLONNE	46.5N	1.8W	253 AM	2.4 FT
PALMEIRA CAPE VERDE	16.8N	23.0W	238 AM	7.3 FT
CONCARMEAU FR	47.9N	3.9W	226 AM	2.6 FT
LE CONQUET FR	48.4N	4.8W	223 AM	2.3 FT
BOUCAU BAYONNE FR	43.5N	1.5W	135 AM	2.4 FT
HORTA	38.5N	28.6W	126 AM	13.5 FT
FERROL ES	43.5N	8.3W	100 AM	10.6 FT
PONTA DELGADA PT	37.7N	25.7W	1256 AM	28.9 FT
ALGECIRAS ES	36.2N	5.4W	1250 AM	8.2 FT
SANTA MARIA	36.9N	25.1W	1243 AM	14.7 FT
GIBRALTAR UK	36.1N	5.3W	1252 AM	7.7 FT
LAGOMERA ES	28.1N	17.1W	1244 AM	7.1 FT
LA PALMA ES	28.7N	17.8W	1242 AM	20.7 FT
LASPALMAS ES	28.1N	15.4W	1233 AM	11.9 FT
LEIXOES	41.2N	8.7W	1225 AM	13.3 FT
LAGOS	37.1N	8.7W	1207 AM	33.7 FT
FUNCHAL	32.6N	16.9W	1207 AM	17.0 FT
PENICHE	39.3N	9.4W	1207 AM	29.3 FT
CASCAIS PT	38.7N	9.4W	1152 PM	49.3 FT
SINES	38.0N	8.9W	1147 PM	47.5 FT

#### IMPACTS

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- \* IMPACTS WILL VARY AT DIFFERENT LOCATIONS WITHIN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* SEA LEVEL FLUCTUATIONS THAT ARE 3 FEET OR MORE ABOVE AND BELOW THE TIDE LEVEL ALONG SOME OR ALL COASTS.
- \* REPEATED FLOODING AND DRAINING OF LOW-LYING COASTAL AREAS.
- \* STRONG AND UNUSUAL WAVES... CURRENTS AND INLAND FLOODING THAT CAN DROWN OR INJURE PEOPLE AND WEAKEN OR DESTROY STRUCTURES ON LAND AND IN THE WATER.
- \* RAPIDLY FLOWING FLOOD WATER FILLED WITH HAZARDOUS DEBRIS.

- \* SECONDARY HAZARDS THAT MAY INCLUDE DOWNED POWER LINES... FIRES... AND HAZARDOUS MATERIAL SPILLS.
- \* THE HAZARD BEGAN AROUND 616 AM AST ON SATURDAY JANUARY 30 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

PRELIMINARY EARTHQUAKE PARAMETERS

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- \* MAGNITUDE 9.0
- \* ORIGIN TIME 1100 PM AST JAN 29 2016
- \* COORDINATES 36.5 NORTH 12.7 WEST
- \* DEPTH 8 MILES
- \* LOCATION AZORES ISLANDS

NEXT UPDATE AND ADDITIONAL INFORMATION

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- \* THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT NTWC.ARH.NOAA.GOV AND AT WWW.TSUNAMI.GOV.
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA50 PHEB 301130  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 12  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
730 AM AST SAT JAN 30 2016

...EL AVISO DE TSUNAMI CONTINUA EN EFECTO...

AUDIENCIA

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- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

#### ACTUALIZACIONES EN ESTE MENSAJE

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- \* LAS OBSERVACIONES DEL TSUNAMI HAN SIDO ACTUALIZADAS.

#### EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 9.0 HA OCURRIDO CERCA DE LAS ISLAS AZORES A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* UN TSUNAMI HA SIDO GENERADO POR ESTE TERREMOTO.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... CONTINUA LA AMENAZA DE QUE PELIGROSAS OLAS DE TSUNAMI INUNDEN ZONAS COSTERAS BAJAS EN PUERTO RICO Y LAS ISLAS VIRGENES.

#### ACCIONES RECOMENDADAS

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- \* LAS ACCIONES REQUERIDAS PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES VARIARA DENTRO DEL AREA DECLARADA EN ESTADO DE AVISO.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR O EN ZONAS COSTERAS BAJAS DEBEN EVACUAR TIERRA ADENTRO O HACIA ZONAS MAS ALTAS FUERA DE AQUELLAS DESIGNADAS COMO ZONAS CON PELIGRO DE TSUNAMI... O MOVERSE HACIA EL CUARTO PISO O MAS ALTO DE UN EDIFICIO DE VARIOS MULTI PISOS... EN DEPENDIENDO DE LA SITUACION.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR DEBEN SALIR DEL AGUA... FUERA DE LA PLAYA Y ALEJARSE DE PUERTOS... MARINAS... BAHIAS Y ENSENADAS.
- \* NO VAYA A LA ORILLA DEL MAR PARA OBSERVAR EL TSUNAMI.
- \* NO REGRESE A ZONAS EVACUADAS HASTA TANTO LAS AUTORIDADES DECLAREN QUE EL PELIGRO YA PASO.
- \* MARINEROS - SI SE ENCUENTRAN MAR AFUERA... EVITEN ADENTRARSE EN AGUAS SOMERAS... PUERTOS... MARINAS... BAHIAS Y ENSENADAS PARA EVITAR ESCOMBROS TANTO FLOTANTES COMO SUMERGIDOS Y CORRIENTES FUERTES.

- \* MANTENGASE ALERTA Y SIGA LAS INSTRUCCIONES PROVENIENTES DE FUNCIONARIOS DE LAS AGENCIAS LOCALES PARA EL MANEJO DE EMERGENCIAS YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES MAS ESPECIFICAS PARA SU LOCALIDAD.

PRONOSTICO DE LA ACTIVIDAD DEL TSUNAMI

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- \* LOS TIEMPOS DE ARRIBO ESTIMADOS -TAE- DE LA PRIMERA OLA DEL TSUNAMI SE PROVEEN A CONTINUACION.
- \* LOS TIEMPOS DE ARRIBO REALES PUEDEN DIFERIR DE LOS ESTIMADOS Y LA PRIMERA OLA PUEDE QUE NO SEA LA MAS GRANDE.
- \* LA ALTURA PRONOSTICADA ES EL NIVEL MAXIMO DEL AGUA POR ENCIMA DEL NIVEL DE MAREA QUE SE ESPERA A LO LARGO DE ESA SECCION DE LA COSTA.
- \* LA DURACION PRONOSTICADA ES EL TIEMPO DURANTE EL CUAL SE ESPERA QUE EL TSUNAMI PRODUZCA OLAS Y CORRIENTES PELIGROSAS.
- \* UN TSUNAMI ES UN TREN DE OLAS Y EL TIEMPO ENTRE OLAS PUEDE VARIAR DESDE CINCO MINUTOS HASTA UNA HORA.

TERRITORIO	LOCALIZACION COSTERA	TAE (AST)	----PRONOSTICO----	
			ALTURA	DURACION
PUERTO RICO	SAN JUAN	616 AM	5.0-11. FT	18 HRS
	ARECIBO	619 AM	4.2-9.4 FT	15 HRS
	YABUCOA	623 AM	1.8-4.1 FT	12 HRS
	MAYAGUEZ	628 AM	4.0-9.0 FT	15 HRS
	AGUADILLA	629 AM	3.6-8.0 FT	15 HRS
	PENUELAS	635 AM	1.6-3.5 FT	12 HRS
	PONCE	636 AM	1.4-3.2 FT	12 HRS
	VIEQUES IS	637 AM	BELOW 1 FT	-----
	MONA ISLAND	637 AM	2.5-5.5 FT	12 HRS
	CAJA DE MUERTOS	644 AM	1.1-2.5 FT	6 HRS
	FAJARDO	648 AM	3.9-8.8 FT	15 HRS
	MAGUEYES IS	649 AM	1.6-3.7 FT	12 HRS
CULEBRA IS	652 AM	3.5-7.9 FT	15 HRS	
USVI	CHRISTIANSTED	616 AM	2.2-4.9 FT	12 HRS
	LIMETREE	619 AM	1.9-4.2 FT	12 HRS
	LAMESHUR BAY	642 AM	2.5-5.7 FT	12 HRS
	CHARLOTTE AMALIE	654 AM	BELOW 1 FT	-----
BVI	ANEGADA	617 AM	4.0-8.9 FT	15 HRS
	VIRGIN GORDA	631 AM	2.0-4.5 FT	12 HRS
	ROADTOWN	730 AM	BELOW 1 FT	-----

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI - ACTUALIZADO

\* LO QUE SIGUE SON LAS OBSERVACIONES DE LAS OLAS DEL TSUNAMI REGISTRADAS EN INSTRUMENTOS DE MEDICION EN ESTACIONES EN LA COSTA Y/O BOYAS EN AGUAS PROFUNDAS EN LOS PUNTOS INDICADOS. LA ALTURA MAXIMA DEL TSUNAMI ES MEDIDA CON RESPECTO AL NIVEL DE LA MAREA.

\* LA ALTURA MAXIMA DEL TSUNAMI ES EL VALOR MAXIMO OBSERVADO HASTA AHORA Y SE MIDE CON RESPECTO AL NIVEL DE LA MAREA.

LOCALIZACION DEL INSTRUMENTO	COORDENADAS DEL INSTRUMENTO LAT LON		TIEMPO DEL REGISTRO (AST)	ALTURA MAXIMA DEL TSUNAMI
BARAHONA DO	18.2N	71.1W	721 AM	1.4 FT
ILE ROYAL GUIANA FR	5.3N	52.6W	719 AM	4.6 FT
CAP HAITIEN HT	19.8N	72.2W	714 AM	4.7 FT
PRICKLEY BAY GD	12.0N	61.8W	708 AM	2.7 FT
CHARLOTTEVILLE TT	11.3N	60.5W	706 AM	5.1 FT
DART 42407	15.3N	68.2W	659 AM	0.1 FT
MAGUEYES ISLAND PR	18.0N	67.0W	702 AM	2.5 FT
CAJA DE MUERTOS PR	17.9N	66.5W	650 AM	1.7 FT
PUERTO PLATA DO	19.8N	70.7W	650 AM	6.5 FT
LAMESHUR BAY VI	18.3N	64.7W	652 AM	3.8 FT
PUNTA CANA DO	18.5N	68.4W	651 AM	4.8 FT
MONA ISLAND PR	18.1N	67.9W	652 AM	3.7 FT
AGUADILLA PR	18.5N	67.2W	643 AM	5.4 FT
MAYAGUEZ PR	18.2N	67.2W	639 AM	6.1 FT
ESPERANZA VIEQUES P	18.1N	65.5W	634 AM	1.7 FT
CALLIAQUA VC	13.1N	61.2W	629 AM	3.5 FT
YABUCOA PR	18.1N	65.8W	631 AM	2.7 FT
ARECIBO PR	18.5N	66.7W	634 AM	6.3 FT
LIMETREE VI	17.7N	64.8W	628 AM	2.8 FT
BASSETERRE KN	17.3N	62.7W	624 AM	4.4 FT
ST CROIX VI	17.7N	64.7W	623 AM	3.3 FT
DART 41424	32.9N	72.5W	627 AM	0.5 FT
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FORT DE FRANCE MQ	14.6N	61.1W	626 AM	3.1 FT
BRIDGEPORT BB	13.1N	59.6W	620 AM	5.9 FT
ROSEAU DM	15.3N	61.4W	616 AM	2.7 FT
LE ROBERT MARTINIQU	14.7N	60.9W	615 AM	7.4 FT
DART 41420	23.5N	67.3W	615 AM	0.8 FT
POINT A PITRE GP	16.2N	61.5W	616 AM	7.1 FT
LE PRECHEUR MARTINI	14.8N	61.2W	613 AM	2.8 FT
DESHAIES GUADELOUPE	16.3N	61.8W	617 AM	3.9 FT
PORT ST CHARLES BB	13.3N	59.6W	618 AM	5.7 FT
PARHAM AT	17.1N	61.8W	605 AM	6.6 FT
DART 44402	39.3N	70.7W	611 AM	0.3 FT
DESIRADE GUADELOUPE	16.3N	61.1W	600 AM	6.5 FT
DART 41421	23.4N	63.9W	550 AM	0.9 FT
DART 44401	37.5N	50.0W	347 AM	0.6 FT
DAKAR SN	14.7N	17.4W	325 AM	4.6 FT

LHERBAUDIÈRE FR	47.0N	2.3W	254 AM	2.6 FT
LES SABLES DOLONNE	46.5N	1.8W	253 AM	2.4 FT
PALMEIRA CAPE VERDE	16.8N	23.0W	238 AM	7.3 FT
CONCARMEAU FR	47.9N	3.9W	226 AM	2.6 FT
LE CONQUET FR	48.4N	4.8W	223 AM	2.3 FT
BOUCAU BAYONNE FR	43.5N	1.5W	135 AM	2.4 FT
HORTA	38.5N	28.6W	126 AM	13.5 FT
FERROL ES	43.5N	8.3W	100 AM	10.6 FT
PONTA DELGADA PT	37.7N	25.7W	1256 AM	28.9 FT
ALGECIRAS ES	36.2N	5.4W	1250 AM	8.2 FT
SANTA MARIA	36.9N	25.1W	1243 AM	14.7 FT
GIBRALTAR UK	36.1N	5.3W	1252 AM	7.7 FT
LAGOMERA ES	28.1N	17.1W	1244 AM	7.1 FT
LA PALMA ES	28.7N	17.8W	1242 AM	20.7 FT
LASPALMAS ES	28.1N	15.4W	1233 AM	11.9 FT
LEIXOES	41.2N	8.7W	1225 AM	13.3 FT
LAGOS	37.1N	8.7W	1207 AM	33.7 FT
FUNCHAL	32.6N	16.9W	1207 AM	17.0 FT
PENICHE	39.3N	9.4W	1207 AM	29.3 FT
CASCAIS PT	38.7N	9.4W	1152 PM	49.3 FT
SINES	38.0N	8.9W	1147 PM	47.5 FT

#### IMPACTOS

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- \* LOS IMPACTOS VARIARAN PARA DIFERENTES LOCALIDADES EN PUERTO RICO Y LAS ISLAS VIRGENES.
- \* FLUCTUACIONES DEL NIVEL DEL MAR DE 3 PIES O MAS TANTO POR ENCIMA COMO POR DEBAJO DEL NIVEL DE MAREA A LO LARGO DE ALGUNAS O TODAS LAS COSTAS.
- \* REPETIDAS INUNDACIONES Y RETROCESO DE AGUA EN AREAS COSTERAS BAJAS.
- \* OLAS INUSUALES Y FUERTES... CORRIENTES E INUNDACION DE ZONAS TIERRA ADENTRO QUE PUEDEN AHOGAR O LESIONAR A LAS PERSONAS Y DEBILITAR O DESTRUIR LAS ESTRUCTURAS EN TIERRA Y EN EL AGUA.
- \* CORRIENTES DE INUNDACION CON FLUJO RAPIDO Y CARGADAS DE ESCOMBROS PELIGROSOS.
- \* PELIGROS SECUNDARIOS PUEDEN INCLUIR LINEAS ELECTRICAS CAIDAS... FUEGOS... Y DERRAMES DE MATERIALES PELIGROSOS.
- \* EL PELIGRO COMENZO A PARTIR DE LA(S) 616 AM AST EL SABADO 30 DE ENERO DEL 2016 Y PUEDE PERSISTIR POR VARIAS HORAS O MAS.

#### PARAMETROS PRELIMINARES DEL TERREMOTO

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- \* MAGNITUD 9.0

\* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016  
\* COORDENADAS 36.5 NORTE 12.7 OESTE  
\* PROFUNDIDAD 8 MILLAS  
\* LOCALIZACION CERCA DE LAS ISLAS AZORES

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL  
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- \* EL PROXIMO MENSAJE SERA EMITIDO EN UNA HORA... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 301130  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 12  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
730 AM AST SAT JAN 30 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-301330-  
/O.CON.PHEB.TS.W.0009.000000T0000Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
730 AM AST SAT JAN 30 2016

...A TSUNAMI WARNING CONTINUES IN EFFECT...

PERSONS LOCATED IN OR NEAR THE OCEAN OR IN LOW-LYING COASTAL  
AREAS SHOULD EVACUATE INLAND OR TO HIGHER GROUND ABOVE AND  
BEYOND DESIGNATED TSUNAMI HAZARD ZONES... OR MOVE TO THE FOURTH  
FLOOR OR HIGHER OF A MULTI-STORY BUILDING... DEPENDING UPON YOUR  
SITUATION.

PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.

AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 9.0 OCCURRED NEAR THE AZORES ISLANDS AT 1100 PM AST ON FRIDAY JANUARY 29 2016.

A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.

THE MAXIMUM TSUNAMI HEIGHT OBSERVED SO FAR ON A GAUGE IN PUERTO RICO OR THE VIRGIN ISLANDS IS 7.6 FEET AT SAN JUAN.

BASED ON ALL AVAILABLE DATA... THE THREAT CONTINUES FOR HAZARDOUS TSUNAMI WAVES FLOODING LOW-LYING COASTAL AREAS IN PUERTO RICO AND THE VIRGIN ISLANDS.

THE HAZARD BEGAN AROUND 616 AM AST ON SATURDAY JANUARY 30 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

DO NOT GO TO THE SHORE TO OBSERVE THE TSUNAMI.

DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.

BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

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## **Distant Earthquake – Downgrade to Tsunami Advisory After Impact**

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 301530  
TSUCAR

TSUNAMI MESSAGE NUMBER 16  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1130 AM AST SAT JAN 30 2016

...THE TSUNAMI WARNING IS CANCELED AND A TSUNAMI ADVISORY IS NOW IN EFFECT...

AUDIENCE  
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\* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

UPDATES IN THIS MESSAGE

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- \* THE TSUNAMI WARNING IS CANCELED AND A TSUNAMI ADVISORY IS NOW IN EFFECT FOR PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 9.0 OCCURRED NEAR THE AZORES ISLANDS AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.
- \* BASED ON ALL AVAILABLE DATA... THERE IS A CONTINUING TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS OF SEA LEVEL FLUCTUATIONS AND STRONG OCEAN CURRENTS THAT COULD BE A HAZARD ALONG COASTS... BEACHES... IN HARBORS... AND IN COASTAL WATERS.

RECOMMENDED ACTIONS

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- \* ACTIONS REQUIRED TO PROTECT HUMAN LIFE... SAFETY AND PROPERTY WILL VARY WITHIN THE TSUNAMI ADVISORY AREA.
- \* PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.
- \* BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.
- \* BOATERS - WHERE TIME AND CONDITIONS PERMIT... MOVE YOUR BOAT OUT TO SEA TO A DEPTH OF AT LEAST 450 FEET.
- \* BOATERS - IF AT SEA... AVOID ENTERING SHALLOW WATER... HARBORS... MARINAS... BAYS AND INLETS TO AVOID FLOATING AND SUBMERGED DEBRIS AND STRONG CURRENTS.

FORECASTS OF TSUNAMI ACTIVITY

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- \* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW.

- \* OBSERVED ARRIVAL TIMES MAY DIFFER FROM THESE ETAS AND THE INITIAL WAVE MAY NOT BE THE LARGEST.
- \* THE FORECAST HEIGHT IS THE MAXIMUM EXPECTED WATER LEVEL ABOVE THE TIDE AT THAT COASTAL LOCATION.
- \* THE FORECAST DURATION IS THE APPROXIMATE EXPECTED LENGTH OF TIME AFTER INITIAL IMPACT THAT THE TSUNAMI MAY CONTINUE TO BE A HAZARD.
- \* A TSUNAMI IS A SERIES OF WAVES AND THE DURATION OF EACH WAVE CAN BE FIVE MINUTES TO ONE HOUR.

TERRITORY	COASTAL LOCATION	ETA (AST)	FORECAST HEIGHT	FORECAST DURATION
PUERTO RICO	SAN JUAN	616 AM	5.0-11. FT	18 HRS
	ARECIBO	619 AM	4.2-9.4 FT	15 HRS
	YABUCOA	623 AM	1.8-4.1 FT	12 HRS
	MAYAGUEZ	628 AM	4.0-9.0 FT	15 HRS
	AGUADILLA	629 AM	3.6-8.0 FT	15 HRS
	PENUELAS	635 AM	1.6-3.5 FT	12 HRS
	PONCE	636 AM	1.4-3.2 FT	12 HRS
	VIEQUES IS	637 AM	BELOW 1 FT	-----
	MONA ISLAND	637 AM	2.5-5.5 FT	12 HRS
	CAJA DE MUERTOS	644 AM	1.1-2.5 FT	6 HRS
	FAJARDO	648 AM	3.9-8.8 FT	15 HRS
	MAGUEYES IS	649 AM	1.6-3.7 FT	12 HRS
	CULEBRA IS	652 AM	3.5-7.9 FT	15 HRS
USVI	CHRISTIANSTED	616 AM	2.2-4.9 FT	12 HRS
	LIMETREE	619 AM	1.9-4.2 FT	12 HRS
	LAMESHUR BAY	642 AM	2.5-5.7 FT	12 HRS
	CHARLOTTE AMALIE	654 AM	BELOW 1 FT	-----
BVI	ANEGADA	617 AM	4.0-8.9 FT	15 HRS
	VIRGIN GORDA	631 AM	2.0-4.5 FT	12 HRS
	ROADTOWN	730 AM	BELOW 1 FT	-----

OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

- \* THE FOLLOWING ARE TSUNAMI WAVE OBSERVATIONS FROM COASTAL AND/OR DEEP-OCEAN SEA LEVEL GAUGES AT THE INDICATED LOCATIONS.
- \* THE MAXIMUM TSUNAMI HEIGHT IS THE HIGHEST MEASURED SO FAR. IT IS MEASURED WITH RESPECT TO THE TIDE LEVEL.

GAUGE LOCATION	GAUGE COORDINATES		TIME OF MEASURE (AST)	MAXIMUM TSUNAMI HEIGHT
	LAT	LON		
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KEY WEST FL	24.6N	81.8W	1013 AM	0.2 FT
VACA KEY FL	24.7N	81.1W	952 AM	0.2 FT
TRIDENT PIER FL	28.4N	80.6W	934 AM	6.0 FT
SAPZURRO CO	8.7N	77.4W	922 AM	0.3 FT
EL PORVENIR PM	9.6N	78.9W	916 AM	0.4 FT
SAN ANDRES CO	12.6N	81.7W	911 AM	0.3 FT
COVENAS CO	9.4N	76.2W	909 AM	0.2 FT
BRANDYWINE DELAWARE	39.0N	75.1W	904 AM	2.2 FT
WRIGHT BEACH NC	34.2N	77.8W	855 AM	3.7 FT
VIRGINIA KEY FL	25.7N	80.2W	843 AM	1.6 FT
PORT ROYAL JM	17.9N	76.8W	843 AM	1.0 FT
LEWES DE	38.8N	75.1W	830 AM	2.2 FT
GEORGE TOWN CY	19.3N	81.4W	832 AM	0.2 FT
WELLS ME	43.3N	70.6W	830 AM	0.6 FT
ATLANTIC CITY NJ	39.4N	74.4W	826 AM	2.2 FT
SANTA MARTA CO	11.2N	74.2W	823 AM	0.7 FT
OREGON INLET NC	35.8N	75.5W	816 AM	3.9 FT
PUERTO ESTRELLA	12.4N	71.3W	803 AM	0.6 FT
OCEAN CITY MD	38.3N	75.1W	800 AM	2.9 FT
DUCK PIER NC	36.2N	75.7W	754 AM	3.4 FT
CUTLER WHARF ME	44.7N	67.2W	753 AM	0.7 FT
PORT SAN ANDRES DO	18.4N	69.6W	741 AM	1.8 FT
JACMEL HT	18.2N	72.5W	739 AM	0.6 FT
HATTERAS NC	35.2N	75.7W	739 AM	4.3 FT
BULLEN BAY CURACAO	12.2N	69.0W	733 AM	1.9 FT
BARAHONA DO	18.2N	71.1W	721 AM	1.4 FT
ILE ROYAL GUIANA FR	5.3N	52.6W	719 AM	4.6 FT
CAP HAITIEN HT	19.8N	72.2W	714 AM	4.7 FT
PRICKLEY BAY GD	12.0N	61.8W	708 AM	2.7 FT
CHARLOTTEVILLE TT	11.3N	60.5W	706 AM	5.1 FT
DART 42407	15.3N	68.2W	659 AM	0.1 FT
MAGUEYES ISLAND PR	18.0N	67.0W	702 AM	2.5 FT
CAJA DE MUERTOS PR	17.9N	66.5W	650 AM	1.7 FT
PUERTO PLATA DO	19.8N	70.7W	650 AM	6.5 FT
LAMESHUR BAY VI	18.3N	64.7W	652 AM	3.8 FT
PUNTA CANA DO	18.5N	68.4W	651 AM	4.8 FT
MONA ISLAND PR	18.1N	67.9W	652 AM	3.7 FT
AGUADILLA PR	18.5N	67.2W	643 AM	5.4 FT
MAYAGUEZ PR	18.2N	67.2W	639 AM	6.1 FT
ESPERANZA VIEQUES P	18.1N	65.5W	634 AM	1.7 FT
CALLIAQUA VC	13.1N	61.2W	629 AM	3.5 FT
YABUCOA PR	18.1N	65.8W	631 AM	2.7 FT
ARECIBO PR	18.5N	66.7W	634 AM	6.3 FT
LIMETREE VI	17.7N	64.8W	628 AM	2.8 FT
BASSETERRE KN	17.3N	62.7W	624 AM	4.4 FT
ST CROIX VI	17.7N	64.7W	623 AM	3.3 FT
DART 41424	32.9N	72.5W	627 AM	0.5 FT
SAN JUAN PR	18.5N	66.1W	628 AM	7.6 FT
FORT DE FRANCE MQ	14.6N	61.1W	626 AM	3.1 FT
BRIDGEPORT BB	13.1N	59.6W	620 AM	5.9 FT
ROSEAU DM	15.3N	61.4W	616 AM	2.7 FT
LE ROBERT MARTINIQU	14.7N	60.9W	615 AM	7.4 FT
DART 41420	23.5N	67.3W	615 AM	0.8 FT
POINT A PITRE GP	16.2N	61.5W	616 AM	7.1 FT

LE PRECHEUR MARTINI	14.8N	61.2W	613 AM	2.8 FT
DESHAIES GUADELOUPE	16.3N	61.8W	617 AM	3.9 FT
PORT ST CHARLES BB	13.3N	59.6W	618 AM	5.7 FT
PARHAM AT	17.1N	61.8W	605 AM	6.6 FT
DART 44402	39.3N	70.7W	611 AM	0.3 FT
DESIRADE GUADELOUPE	16.3N	61.1W	600 AM	6.5 FT
DART 41421	23.4N	63.9W	550 AM	0.9 FT
DART 44401	37.5N	50.0W	347 AM	0.6 FT
DAKAR SN	14.7N	17.4W	325 AM	4.6 FT
LHERBAUDIÈRE FR	47.0N	2.3W	254 AM	2.6 FT
LES SABLES DOLONNE	46.5N	1.8W	253 AM	2.4 FT
PALMEIRA CAPE VERDE	16.8N	23.0W	238 AM	7.3 FT
CONCARMEAU FR	47.9N	3.9W	226 AM	2.6 FT
LE CONQUET FR	48.4N	4.8W	223 AM	2.3 FT
BOUCAU BAYONNE FR	43.5N	1.5W	135 AM	2.4 FT
HORTA	38.5N	28.6W	126 AM	13.5 FT
FERROL ES	43.5N	8.3W	100 AM	10.6 FT
PONTA DELGADA PT	37.7N	25.7W	1256 AM	28.9 FT
ALGECIRAS ES	36.2N	5.4W	1250 AM	8.2 FT
SANTA MARIA	36.9N	25.1W	1243 AM	14.7 FT
GIBRALTAR UK	36.1N	5.3W	1252 AM	7.7 FT
LAGOMERA ES	28.1N	17.1W	1244 AM	7.1 FT
LA PALMA ES	28.7N	17.8W	1242 AM	20.7 FT
LASPALMAS ES	28.1N	15.4W	1233 AM	11.9 FT
LEIXOES	41.2N	8.7W	1225 AM	13.3 FT
LAGOS	37.1N	8.7W	1207 AM	33.7 FT
FUNCHAL	32.6N	16.9W	1207 AM	17.0 FT
PENICHE	39.3N	9.4W	1207 AM	29.3 FT
CASCAIS PT	38.7N	9.4W	1152 PM	49.3 FT
SINES	38.0N	8.9W	1147 PM	47.5 FT

#### IMPACTS

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- \* IMPACTS WILL VARY AT DIFFERENT LOCATIONS WITHIN PUERTO RICO AND THE VIRGIN ISLANDS.
- \* SEA LEVEL FLUCTUATIONS THAT ARE GENERALLY LESS THAN 3 FEET ABOVE AND BELOW THE TIDE LEVEL.
- \* WAVES AND CURRENTS THAT CAN DROWN OR INJURE PEOPLE IN THE WATER.
- \* WAVES AND CURRENTS ON BEACHES AND IN HARBORS... MARINAS... BAYS... AND INLETS THAT MAY BE ESPECIALLY DANGEROUS.
- \* THE HAZARD BEGAN AROUND 616 AM AST ON SATURDAY JANUARY 30 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

#### PRELIMINARY EARTHQUAKE PARAMETERS

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\* MAGNITUDE 9.0  
\* ORIGIN TIME 1100 PM AST JAN 29 2016  
\* COORDINATES 36.5 NORTH 12.7 WEST  
\* DEPTH 8 MILES  
\* LOCATION AZORES ISLANDS

NEXT UPDATE AND ADDITIONAL INFORMATION  
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- \* THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT NTWC.ARH.NOAA.GOV AND AT WWW.TSUNAMI.GOV.
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA50 PHEB 301530  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 16  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
1130 AM AST SAT JAN 30 2016

...EL AVISO DE TSUNAMI HA SIDO CANCELADA Y UNA ADVERTENCIA ESTA AHORA EN EFECTO...

AUDIENCIA  
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- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

ACTUALIZACIONES EN ESTE MENSAJE  
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- \* EL AVISO DE TSUNAMI HA SIDO CANCELADA Y UNA ADVERTENCIA ESTA AHORA EN EFECTO PARA PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNITOS... Y LAS ISLAS VIRGENES BRITANICAS.

#### EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 9.0 HA OCURRIDO CERCA DE LAS ISLAS AZORES A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.
- \* UN TSUNAMI HA SIDO GENERADO POR ESTE TERREMOTO.
- \* BASANDOSE EN EL ANALISIS DE TODOS LOS DATOS DISPONIBLES... EL PELIGRO DE TSUNAMI PARA PUERTO RICO Y LAS ISLAS VIRGENES CONTINUA DEBIDO A VARIACIONES DEL NIVEL MAR Y CORRIENTES MARINAS FUERTES QUE PODRIAN PRESENTAR PELIGRO A LO LARGO DE COSTAS... PLAYAS... PUERTOS... Y AGUAS COSTERAS.

#### ACCIONES RECOMENDADAS

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- \* LAS ACCIONES REQUERIDAS PARA PROTEGER VIDAS HUMANAS... LA SEGURIDAD Y LOS BIENES MATERIALES VARIARAN DENTRO DE LAS ZONA EN ESTADO DE ADVERTENCIA.
- \* PERSONAS LOCALIZADAS EN EL MAR O CERCA DEL MAR DEBEN SALIR DEL AGUA... FUERA DE LA PLAYA Y ALEJARSE DE PUERTOS... MARINAS... BAHIAS Y ENSENADAS.
- \* MANTENGASE ALERTA Y SIGA LAS INSTRUCCIONES PROVENIENTES DE FUNCIONARIOS DE LAS AGENCIAS LOCALES PARA EL MANEJO DE EMERGENCIAS YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES MAS ESPECIFICAS PARA SU LOCALIDAD.
- \* MARINEROS - DONDE EL TIEMPO Y LAS CONDICIONES PERMITAN... MUEVAN SU EMBARCACION MAR AFUERA HACIA PROFUNDIDADES DE AL MENOS 450 PIES.
- \* MARINEROS - SI SE ENCUENTRAN MAR AFUERA... EVITEN ADENTRARSE EN AGUAS SOMERAS... PUERTOS... MARINAS... BAHIAS Y ENSENADAS PARA EVITAR ESCOMBROS TANTO FLOTANTES COMO SUMERGIDOS Y CORRIENTES FUERTES.

#### PRONOSTICO DE LA ACTIVIDAD DEL TSUNAMI

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- \* LOS TIEMPOS DE ARRIBO ESTIMADOS -TAE- DE LA PRIMERA OLA DEL TSUNAMI SE PROVEEN A CONTINUACION.
- \* LOS TIEMPOS DE ARRIBO REALES PUEDEN DIFERIR DE LOS ESTIMADOS

Y LA PRIMERA OLA PUEDE QUE NO SEA LA MAS GRANDE.

- \* LA ALTURA PRONOSTICADA ES EL NIVEL MAXIMO DEL AGUA POR ENCIMA DEL NIVEL DE MAREA QUE SE ESPERA A LO LARGO DE ESA SECCION DE LA COSTA.
- \* LA DURACION PRONOSTICADA ES EL TIEMPO DURANTE EL CUAL SE ESPERA QUE EL TSUNAMI PRODUZCA OLAS Y CORRIENTES PELIGROSAS.
- \* UN TSUNAMI ES UN TREN DE OLAS Y EL TIEMPO ENTRE OLAS PUEDE VARIAR DESDE CINCO MINUTOS HASTA UNA HORA.

TERRITORIO	LOCALIZACION COSTERA	TAE (AST)	----PRONOSTICO----	
			ALTURA	DURACION
PUERTO RICO	SAN JUAN	616 AM	5.0-11. FT	18 HRS
	ARECIBO	619 AM	4.2-9.4 FT	15 HRS
	YABUCOA	623 AM	1.8-4.1 FT	12 HRS
	MAYAGUEZ	628 AM	4.0-9.0 FT	15 HRS
	AGUADILLA	629 AM	3.6-8.0 FT	15 HRS
	PENUELAS	635 AM	1.6-3.5 FT	12 HRS
	PONCE	636 AM	1.4-3.2 FT	12 HRS
	VIEQUES IS	637 AM	BELOW 1 FT	-----
	MONA ISLAND	637 AM	2.5-5.5 FT	12 HRS
	CAJA DE MUERTOS	644 AM	1.1-2.5 FT	6 HRS
	FAJARDO	648 AM	3.9-8.8 FT	15 HRS
	MAGUEYES IS	649 AM	1.6-3.7 FT	12 HRS
CULEBRA IS	652 AM	3.5-7.9 FT	15 HRS	
USVI	CHRISTIANSTED	616 AM	2.2-4.9 FT	12 HRS
	LIMETREE	619 AM	1.9-4.2 FT	12 HRS
	LAMESHUR BAY	642 AM	2.5-5.7 FT	12 HRS
	CHARLOTTE AMALIE	654 AM	BELOW 1 FT	-----
BVI	ANEGADA	617 AM	4.0-8.9 FT	15 HRS
	VIRGIN GORDA	631 AM	2.0-4.5 FT	12 HRS
	ROADTOWN	730 AM	BELOW 1 FT	-----

OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI - ACTUALIZADO

- \* LO QUE SIGUE SON LAS OBSERVACIONES DE LAS OLAS DEL TSUNAMI REGISTRADAS EN INSTRUMENTOS DE MEDICION EN ESTACIONES EN LA COSTA Y/O BOYAS EN AGUAS PROFUNDAS EN LOS PUNTOS INDICADOS. LA ALTURA MAXIMA DEL TSUNAMI ES MEDIDA CON RESPECTO AL NIVEL DE LA MAREA.
- \* LA ALTURA MAXIMA DEL TSUNAMI ES EL VALOR MAXIMO OBSERVADO HASTA AHORA Y SE MIDE CON RESPECTO AL NIVEL DE LA MAREA.

LOCALIZACION DEL	COORDENADAS DEL INSTRUMENTO	TIEMPO DEL REGISTRO	ALTURA MAXIMA DEL
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INSTRUMENTO	LAT	LON	(AST)	TSUNAMI
KEY WEST FL	24.6N	81.8W	1013 AM	0.2 FT
VACA KEY FL	24.7N	81.1W	952 AM	0.2 FT
TRIDENT PIER FL	28.4N	80.6W	934 AM	6.0 FT
SAPZURRO CO	8.7N	77.4W	922 AM	0.3 FT
EL PORVENIR PM	9.6N	78.9W	916 AM	0.4 FT
SAN ANDRES CO	12.6N	81.7W	911 AM	0.3 FT
COVENAS CO	9.4N	76.2W	909 AM	0.2 FT
BRANDYWINE DELAWARE	39.0N	75.1W	904 AM	2.2 FT
WRIGHT BEACH NC	34.2N	77.8W	855 AM	3.7 FT
VIRGINIA KEY FL	25.7N	80.2W	843 AM	1.6 FT
PORT ROYAL JM	17.9N	76.8W	843 AM	1.0 FT
LEWES DE	38.8N	75.1W	830 AM	2.2 FT
GEORGE TOWN CY	19.3N	81.4W	832 AM	0.2 FT
WELLS ME	43.3N	70.6W	830 AM	0.6 FT
ATLANTIC CITY NJ	39.4N	74.4W	826 AM	2.2 FT
SANTA MARTA CO	11.2N	74.2W	823 AM	0.7 FT
OREGON INLET NC	35.8N	75.5W	816 AM	3.9 FT
PUERTO ESTRELLA	12.4N	71.3W	803 AM	0.6 FT
OCEAN CITY MD	38.3N	75.1W	800 AM	2.9 FT
DUCK PIER NC	36.2N	75.7W	754 AM	3.4 FT
CUTLER WHARF ME	44.7N	67.2W	753 AM	0.7 FT
PORT SAN ANDRES DO	18.4N	69.6W	741 AM	1.8 FT
JACMEL HT	18.2N	72.5W	739 AM	0.6 FT
HATTERAS NC	35.2N	75.7W	739 AM	4.3 FT
BULLEN BAY CURACAO	12.2N	69.0W	733 AM	1.9 FT
BARAHONA DO	18.2N	71.1W	721 AM	1.4 FT
ILE ROYAL GUIANA FR	5.3N	52.6W	719 AM	4.6 FT
CAP HAITIEN HT	19.8N	72.2W	714 AM	4.7 FT
PRICKLEY BAY GD	12.0N	61.8W	708 AM	2.7 FT
CHARLOTTEVILLE TT	11.3N	60.5W	706 AM	5.1 FT
DART 42407	15.3N	68.2W	659 AM	0.1 FT
MAGUEYES ISLAND PR	18.0N	67.0W	702 AM	2.5 FT
CAJA DE MUERTOS PR	17.9N	66.5W	650 AM	1.7 FT
PUERTO PLATA DO	19.8N	70.7W	650 AM	6.5 FT
LAMESHUR BAY VI	18.3N	64.7W	652 AM	3.8 FT
PUNTA CANA DO	18.5N	68.4W	651 AM	4.8 FT
MONA ISLAND PR	18.1N	67.9W	652 AM	3.7 FT
AGUADILLA PR	18.5N	67.2W	643 AM	5.4 FT
MAYAGUEZ PR	18.2N	67.2W	639 AM	6.1 FT
ESPERANZA VIEQUES P	18.1N	65.5W	634 AM	1.7 FT
CALLIAQUA VC	13.1N	61.2W	629 AM	3.5 FT
YABUCOA PR	18.1N	65.8W	631 AM	2.7 FT
ARECIBO PR	18.5N	66.7W	634 AM	6.3 FT
LIMETREE VI	17.7N	64.8W	628 AM	2.8 FT
BASSETERRE KN	17.3N	62.7W	624 AM	4.4 FT
ST CROIX VI	17.7N	64.7W	623 AM	3.3 FT
DART 41424	32.9N	72.5W	627 AM	0.5 FT
SAN JUAN PR	18.5N	66.1W	628 AM	7.6 FT
FORT DE FRANCE MQ	14.6N	61.1W	626 AM	3.1 FT
BRIDGEPORT BB	13.1N	59.6W	620 AM	5.9 FT
ROSEAU DM	15.3N	61.4W	616 AM	2.7 FT
LE ROBERT MARTINIQU	14.7N	60.9W	615 AM	7.4 FT

DART 41420	23.5N	67.3W	615 AM	0.8 FT
POINT A PITRE GP	16.2N	61.5W	616 AM	7.1 FT
LE PRECHEUR MARTINI	14.8N	61.2W	613 AM	2.8 FT
DESHAIES GUADELOUPE	16.3N	61.8W	617 AM	3.9 FT
PORT ST CHARLES BB	13.3N	59.6W	618 AM	5.7 FT
PARHAM AT	17.1N	61.8W	605 AM	6.6 FT
DART 44402	39.3N	70.7W	611 AM	0.3 FT
DESIRADE GUADELOUPE	16.3N	61.1W	600 AM	6.5 FT
DART 41421	23.4N	63.9W	550 AM	0.9 FT
DART 44401	37.5N	50.0W	347 AM	0.6 FT
DAKAR SN	14.7N	17.4W	325 AM	4.6 FT
LHERBAUDIÈRE FR	47.0N	2.3W	254 AM	2.6 FT
LES SABLES DOLONNE	46.5N	1.8W	253 AM	2.4 FT
PALMEIRA CAPE VERDE	16.8N	23.0W	238 AM	7.3 FT
CONCARMEAU FR	47.9N	3.9W	226 AM	2.6 FT
LE CONQUET FR	48.4N	4.8W	223 AM	2.3 FT
BOUCAU BAYONNE FR	43.5N	1.5W	135 AM	2.4 FT
HORTA	38.5N	28.6W	126 AM	13.5 FT
FERROL ES	43.5N	8.3W	100 AM	10.6 FT
PONTA DELGADA PT	37.7N	25.7W	1256 AM	28.9 FT
ALGECIRAS ES	36.2N	5.4W	1250 AM	8.2 FT
SANTA MARIA	36.9N	25.1W	1243 AM	14.7 FT
GIBRALTAR UK	36.1N	5.3W	1252 AM	7.7 FT
LAGOMERA ES	28.1N	17.1W	1244 AM	7.1 FT
LA PALMA ES	28.7N	17.8W	1242 AM	20.7 FT
LASPALMAS ES	28.1N	15.4W	1233 AM	11.9 FT
LEIXOES	41.2N	8.7W	1225 AM	13.3 FT
LAGOS	37.1N	8.7W	1207 AM	33.7 FT
FUNCHAL	32.6N	16.9W	1207 AM	17.0 FT
PENICHE	39.3N	9.4W	1207 AM	29.3 FT
CASCAIS PT	38.7N	9.4W	1152 PM	49.3 FT
SINES	38.0N	8.9W	1147 PM	47.5 FT

#### IMPACTOS

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- \* LOS IMPACTOS VARIARÁN PARA DIFERENTES LOCALIDADES EN PUERTO RICO Y LAS ISLAS VIRGENES.
- \* FLUCTUACIONES DEL NIVEL DEL MAR POR LO GENERAL NO MAYORES DE 3 PIES TANTO POR ENCIMA COMO POR DEBAJO DEL NIVEL DE MAREA.
- \* OLAS Y CORRIENTES QUE PUEDEN AHOGAR O LESIONAR A PERSONAS EN EL AGUA.
- \* OLAS Y CORRIENTES EN PLAYAS Y PUERTOS... MARINAS... BAHIAS... Y ENSENADAS QUE PUEDEN RESULTAR ESPECIALMENTE PELIGROSAS.
- \* EL PELIGRO COMENZO A PARTIR DE LA(S) 616 AM AST EL SABADO 30 DE ENERO DEL 2016 Y PUEDE PERSISTIR POR VARIAS HORAS O MAS.

PARAMETROS PRELIMINARES DEL TERREMOTO

-----  
\* MAGNITUD 9.0  
\* TIEMPO DE ORIGEN 1100 PM AST ENE 29 2016  
\* COORDENADAS 36.5 NORTE 12.7 OESTE  
\* PROFUNDIDAD 8 MILLAS  
\* LOCALIZACION CERCA DE LAS ISLAS AZORES

PROXIMA ACTUALIZACION E INFORMACION ADICIONAL  
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- \* EL PROXIMO MENSAJE SERA EMITIDO EN UNA HORA... O MAS PRONTO SI LA SITUACION ASI LO AMERITA.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
- \* INFORMACION OFICIAL AUTORIZADA ACERCA DE ESTE TERREMOTO PUEDE SER PROVEIDA POR LA CORRESPONDIENTE RED SISMICA REGIONAL O EL SERVICIO GEOLOGICO DE LOS ESTADOS UNIDOS EN SU SITIO WEB EARTHQUAKE.USGS.GOV/EARTHQUAKES -TODO EN MINUSCULAS-.

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NWR VERSION
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ZCZC  
WECA60 PHEB 301530  
TSUCA1

BULLETIN  
TSUNAMI MESSAGE NUMBER 16  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
1130 AM AST SAT JAN 30 2016

AMZ712-715-725-735-742-745-PRZ001>003-005-007-008-010>013-  
VIZ001-002-301730-  
/O.CAN.PHEB.TS.W.0009.000000T0000Z-000000T0000Z/  
/O.NEW.PHEB.TS.Y.0014.160130T1530Z-000000T0000Z/  
COASTAL AREAS OF PUERTO RICO - THE U.S. VIRGIN ISLANDS AND  
THE BRITISH VIRGIN ISLANDS  
1130 AM AST SAT JAN 30 2016

...THE TSUNAMI WARNING IS CANCELED AND A TSUNAMI ADVISORY IS NOW  
IN EFFECT...



PERSONS LOCATED IN OR NEAR THE OCEAN SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND AWAY FROM HARBORS... MARINAS... BAYS AND INLETS.

AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 9.0 OCCURRED NEAR THE AZORES ISLANDS AT 1100 PM AST ON FRIDAY JANUARY 29 2016.

A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.

THE MAXIMUM TSUNAMI HEIGHT OBSERVED SO FAR ON A GAUGE IN PUERTO RICO OR THE VIRGIN ISLANDS IS 7.6 FEET AT SAN JUAN.

BASED ON ALL AVAILABLE DATA... THERE IS A CONTINUING TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS OF SEA LEVEL FLUCTUATIONS AND STRONG OCEAN CURRENTS THAT COULD BE A HAZARD ALONG COASTS... BEACHES... IN HARBORS... AND IN COASTAL WATERS.

THE HAZARD BEGAN AROUND 616 AM AST ON SATURDAY JANUARY 30 2016 AND IT CAN PERSIST FOR MANY HOURS OR LONGER.

BE ALERT TO AND FOLLOW INSTRUCTIONS FROM LOCAL EMERGENCY MANAGEMENT OFFICIALS BECAUSE THEY MAY HAVE MORE DETAILED OR SPECIFIC INFORMATION FOR YOUR LOCATION.

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## Distant Earthquake – Tsunami Advisory Cancellation

ENGLISH VERSION
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ZCZC  
WECA40 PHEB 302130  
TSUCAR

TSUNAMI MESSAGE NUMBER 21  
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI  
530 PM AST SAT JAN 30 2016

...THE TSUNAMI ADVISORY IS NOW CANCELED...

AUDIENCE  
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\* GOVERNMENT OFFICIALS... MEDIA... AND GENERAL PUBLIC OF PUERTO RICO... THE U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

UPDATES IN THIS MESSAGE  
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\* THE TSUNAMI ADVISORY IS NOW CANCELED FOR PUERTO RICO... THE

U.S. VIRGIN ISLANDS... AND THE BRITISH VIRGIN ISLANDS.

EVALUATION

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- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 9.0 OCCURRED NEAR THE AZORES ISLANDS AT 1100 PM AST ON FRIDAY JANUARY 29 2016.
- \* BASED ON ALL AVAILABLE DATA... THERE IS NO FURTHER TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS ALTHOUGH MINOR SEA LEVEL FLUCTUATIONS MAY CONTINUE.

RECOMMENDED ACTIONS

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- \* FOLLOW INSTRUCTIONS FROM PUERTO RICO AND VIRGIN ISLANDS EMERGENCY MANAGEMENT AGENCIES BECAUSE THEY MAY HAVE SPECIFIC INFORMATION OR INSTRUCTIONS FOR YOUR LOCATION.
- \* BE OBSERVANT AND EXERCISE NORMAL CAUTION IF YOU ARE NEAR OR IN THE OCEAN.
- \* OTHERWISE... NO FURTHER ACTION IS REQUIRED.

OBSERVATIONS OF TSUNAMI ACTIVITY

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- \* REFER TO OBSERVATIONS OF TSUNAMI ACTIVITY POSTED PREVIOUSLY.

IMPACTS

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- \* MINOR SEA LEVEL FLUCTUATIONS MAY CONTINUE OVER THE NEXT FEW HOURS.

PRELIMINARY EARTHQUAKE PARAMETERS

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- \* MAGNITUDE                    9.0
- \* ORIGIN TIME                1100 PM AST JAN 29 2016
- \* COORDINATES                36.5 NORTH 12.7 WEST
- \* DEPTH                        8 MILES
- \* LOCATION                    AZORES ISLANDS

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.
- \* FURTHER INFORMATION ABOUT THIS EVENT AND ANY TSUNAMI THREAT TO PUERTO RICO AND THE VIRGIN ISLANDS MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.
- \* INFORMATION REGARDING ANY TSUNAMI THREAT TO US GULF OR ATLANTIC COASTS WILL BE ISSUED BY THE US NATIONAL TSUNAMI WARNING CENTER AND CAN BE FOUND ON THE INTERNET AT NTWC.ARH.NOAA.GOV AND AT WWW.TSUNAMI.GOV.
- \* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE CAN BE OBTAINED FROM THE CORRESPONDING REGIONAL SEISMIC NETWORK OR THE U.S. GEOLOGICAL SURVEY ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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SPANISH VERSION
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ZCZC  
WECA50 PHEB 302130  
TSUSP1

MENSAJE DE TSUNAMI NUMERO 21  
SMN CENTRO DE ALERTAS DE TSUNAMI DEL PACIFICO EWA BEACH HI  
530 PM AST SAT JAN 30 2016

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

AUDIENCIA

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- \* FUNCIONARIOS GUBERNAMENTALES... MEDIOS DE PRENSA... Y EL PUBLICO EN GENERAL EN PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

ACTUALIZACIONES EN ESTE MENSAJE

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- \* LA ADVERTENCIA DE TSUNAMI AHORA HA SIDO CANCELADA PARA PUERTO RICO... LAS ISLAS VIRGENES DE LOS ESTADOS UNIDOS... Y LAS ISLAS VIRGENES BRITANICAS.

EVALUACION

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- \* UN TERREMOTO CON MAGNITUD PRELIMINAR 9.0 HA OCURRIDO CERCA DE LAS ISLAS AZORES A LAS 1100 PM AST EL VIERNES 29 DE ENERO DEL 2016.

\* BASANDOSE EN EL ANALYSIS DE TODOS LOS DATOS DISPONIBLES... YA NO EXISTE NINGUN PELIGRO DE TSUNAMI PARA PUERTO RICO Y LAS ISLAS VIRGENES DEBIDO A ESTE TERREMOTO PERO FLUCTUACIONES MENORES DEL NIVEL DEL MAR PUEDEN CONTINUAR.

#### ACCIONES RECOMENDADAS

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- \* SIGA LAS INSTRUCCIONES PROVENIENTES DE LAS AGENCIAS DE MANEJO DE EMERGENCIAS EN PUERTO RICO Y LAS ISLAS VIRGENES YA QUE LAS MISMAS DISPONEN DE INFORMACION O INSTRUCCIONES ESPECIFICAS PARA SU LOCALIDAD.
- \* SEA OBSERVADOR Y CAUTELOSO SI SE ENCUENTRA CERCA O DENTRO DEL MAR.
- \* DE LO CONTRARIO... NO SE REQUIERE NINGUNA OTRA ACCION.

#### OBSERVACIONES DE ACTIVIDAD DEL TSUNAMI

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- \* REFIERASE A LAS OBSERVACIONES DEL TSUNAMI REPORTADAS ANTERIORMENTE.

#### IMPACTOS

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- \* FLUCTUACIONES MENORES DEL NIVEL DEL MAR PUEDE CONTINUAR DURANTE LAS PROXIMAS HORAS.

#### PARAMETROS PRELIMINARES DEL TERREMOTO

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* MAGNITUD	9.0
* TIEMPO DE ORIGEN	1100 PM AST ENE 29 2016
* COORDENADAS	36.5 NORTE 12.7 OESTE
* PROFUNDIDAD	8 MILLAS
* LOCALIZACION	CERCA DE LAS ISLAS AZORES

#### PROXIMA ACTUALIZACION E INFORMACION ADICIONAL

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- \* ESTE SERA EL ULTIMO COMUNICADO EMITIDO PARA ESTE EVENTO A NO SER QUE SE RECIBA NUEVA INFORMACION O LA SITUACION CAMBIE.
- \* MAS INFORMACION ACERCA DE ESTE EVENTO PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB PTWC.WEATHER.GOV Y WWW.TSUNAMI.GOV.

- \* INFORMACION ACERCA DEL PELIGRO DE TSUNAMI PARA COSTAS ESTADOUNIDENSES EN EL GOLFO DE MEXICO Y EL ATLANTICO SERA EMITIDA POR EL CENTRO NACIONAL DE ALERTAS DE TSUNAMIS Y PUEDE SER ACCESADA EN INTERNET EN LOS SITIOS WEB NTWC.ARH.NOAA.GOV Y WWW.TSUNAMI.GOV.
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NWR VERSION
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WECA60 PHEB 302130  
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VIZ001-002-302330-  
/O.CAN.PHEB.TS.Y.0014.000000T0000Z-000000T0000Z/  
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530 PM AST SAT JAN 30 2016

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MANAGEMENT AGENCIES BECAUSE THEY MAY HAVE SPECIFIC INFORMATION  
OR INSTRUCTIONS FOR YOUR LOCATION.

BE OBSERVANT AND EXERCISE NORMAL CAUTION IF YOU ARE NEAR OR IN  
THE OCEAN.

OTHERWISE... NO FURTHER ACTION IS REQUIRED.

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