PTWC Enhanced Products for CARIBE WAVE/LANTEX 2015 Panama Scenario

(Supplement to the CARIBE WAVE/LANTEX 2015 Handbook)

Pacific Tsunami Warning Center

March 5, 2015

Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

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INTRODUCTION

The Pacific Tsunami Warning Center (PTWC) operated by the United States National Weather Service has served since 2005 as the Interim Tsunami Watch Provider for the Tsunami and Other Hazards Warning and Mitigation System for the Caribbean and Adjacent Seas (CARIBE EWS) -- a subsidiary body of UNESCO's Intergovernmental Oceanographic Commission (IOC). The suite of text products issued by PTWC to countries around the Caribbean in support of this mission has evolved over time as supporting data, analysis methods, computational capabilities, and communications have all improved. It is now time to make a significant change to those products in order to take advantage of new capabilities – particularly the ability to forecast tsunami impacts in real time using numerical forecast models. At the Eighth and Ninth Sessions of the UNESCO IOC Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG CARIBE EWS) it was recommended that these products continue to be evaluated. At ICG IX it was also agreed that the enhanced products should be issued along with the current text products for event as of the first quarter of 2015.

In support of these decisions, **the enhanced product suite described in this document will be issued, in parallel with existing products, in the March 25, 2015 CARIBEWAVE/LANTEX 15 Exercise – Panama Scenario**. The purpose is to familiarize recipients – the designated national Tsunami Warning Focal Points (TWFPs) -- with the products' timing and content. This will not only provide CARIBE-EWS Member States another opportunity to evaluate and give feedback on the products, but also to begin considering changes to their Standard Operating Procedures (SOPs) that take advantage of the additional information.

There are some important differences between the existing and new products. Existing products use the term "Watch" that implies a level of alert. A country is designated by PTWC as being in a Watch based upon the tsunami threat presented by the event as well as the time remaining until impact. In recent years, however, use of alert-level terms has caused confusion when a country's independently-derived levels of alert are in conflict with those of PTWC. For this reason, the new products will avoid such terms but will instead provide forecast levels of impact. Alert levels will be the sole responsibility of each country or territory.

Further, procedures for designating levels of alert in existing products are based primarily upon limited historical data. At the time they were conceived and approved by the ICG CARIBE-EWS, numerical-model tsunami forecasting for the Caribbean in real time was not possible. As a consequence, current procedures are extremely conservative and most places that come under a Watch alert do not ultimately experience a destructive tsunami. Numerical forecasts provided in the new product suite will still be conservative but should significantly reduce over-warning. In addition, by giving an expected level of impact they allow local

authorities to design appropriate levels of response. For example, the response for a smaller tsunami might be to just clear beaches and harbors versus evacuating the entire coastal zone.

Lastly, the new products suite includes graphical products – maps that show the forecast directionality of the tsunami energy, the forecast position of the initial wave through time, as well as the expected maximum wave amplitudes at the coast. Graphical products provide more information at a much greater level of detail than is possible with text products. They are also helpful for communicating the threat quickly when time is of the essence.

It is important to note that while the new products and the procedures behind them represent a significant improvement over the current ones, there are still limitations that should be recognized and understood. The science of forecasting tsunamis is still young and under development. The greatest unknown about the tsunami in real-time (and even later) is its source. How did the seafloor deform? How much was it displaced up or down and over what areas to generate the tsunami? Models all make assumptions about the source based upon the seismic analysis or later upon nearby sea level gauge readings. But they only approximate the real source. The second limitation is in observing the tsunami prior to impact – not only to confirm and measure the waves but to help constrain the forecast models. There are still too few sea level gauges in the Caribbean and for many sources only one or two readings may be possible before the tsunami crosses the sea. The third greatest limitation is how the tsunami will interact with the coast. In most cases a general approximation must be used. Even when detailed coastal inundation models are available, properly capturing coastal resonances, trapped wave energy, and multiple wave interactions after even a few wave cycles is not possible. For these reasons, the forecast model information provided in the new products should be viewed with some caution, taking into consideration limitations described here and explained further in this document.

The US National Tsunami Warning Center (NTWC) is currently responsible for providing tsunami warning guidance for Puerto Rico and the Virgin Islands. Nevertheless, at the request of the ICG CARIBE EWS in 2013, the proposed graphical products do include threat information for these areas. The PTWC text products will only address all Caribbean and Adjacent regions, except Puerto Rico and the Virgin Islands which should continue to refer to the NTWC. During tsunami events the PTWC and NTWC are in communication and coordinate the issuance of products.

Below is the description of the Enhanced Products as well as the corresponding graphical and text products for the CARIBE WAVE/LANTEX 15 Exercise.

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PTWC CAPABILITIES AND PROCEDURES

The enhanced product suite is tied closely to PTWC capabilities and procedures. This section of provides an overview of those capabilities and procedures and how they will drive the new products. The overview is presented in terms of a timeline of events that occur as an event unfolds. Times indicated are only approximate, but are typical.

00h00m	A large earthquake occurs in the Caribbean or Atlantic region.
00h02m	Vibrations from the earthquake reach seismic stations near the earthquake epicenter, triggering event alarms at PTWC. PTWC duty analysts respond to the operations center and begin to analyze the event. [*PTWC currently monitors over 400 seismic stations from around the world, with data collected at most of those stations reaching PTWC within a minute of when it is collected.*]
00h05m to 00h08m	Using a combination of automatic and interactive analyses, duty analysts complete their preliminary determination of the earthquake epicenter, depth, and magnitude. These parameters, adjusted conservatively if necessary to account for error, are used to initiate a RIFT numerical tsunami forecast model run for a limited region near the epicenter. [*RIFT is one of three numerical forecast models in use at PTWC, each of which has its own strengths and weaknesses. RIFT is the model upon which the new products are primarily based. Forecasts from the other two models, SIFT and ATFM, are compared for consistency. For this initial RIFT run, the earthquake fault mechanism is based upon the mechanism of historical nearby earthquakes.*]
00h09m	The RIFT run completes within 5-20 seconds, providing a preliminary forecast of tsunami amplitudes for coasts generally within about 3 hours tsunami travel time of the earthquake.
00h10m	Based on the RIFT forecast, initial products are issued. • If forecast coastal tsunami amplitudes are less than 0.3m everywhere, then a text Tsunami Information Statement is issued, indicating no tsunami threat. This is the only statement issued unless further analysis indicates a greater threat or to report observed tsunami waves. • If forecast coastal amplitudes are above 0.3m in some places, then a text Tsunami Threat Message is issued along with accompanying maps showing the forecast tsunami travel times, energy distribution and coastal amplitudes, a table summarizing forecast coastal amplitudes, and a kmz file of the individual coastal forecast points. These products will be followed by later product sets, at least one per hour, which may refine the forecast and/or report observations until the threat has largely passed.

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00h15m	The seismic analyses continue as data from additional seismic stations arrive and are processed. If the earthquake parameters change significantly then RIFT is re-run. If there is a significant change in the forecast then appropriate supplemental products, similar to those described above, are issued.
00h25m	For earthquakes above about magnitude 7.0, the preliminary W-phase Centroid Moment Tensor (WCMT) analysis based upon broadband seismic data completes. The WCMT analysis not only gives a more accurate estimate of the earthquake location, depth and magnitude, but also an estimate of the earthquake's mechanism – the strike angle of the fault, the dip angle of the fault, and the direction of slip along the fault. These parameters help constrain the estimate of seafloor deformation that is the tsunami source, and they are used to drive a subsequent run of RIFT that covers the entire Pacific.
00h35m	For events with forecast coastal amplitudes above 0.3m, then based upon the updated RIFT result a supplemental Tsunami Threat Message is issued along with accompanying maps, table, and kmz file that cover the entire Caribbean region and adjacent seas of the CARIBE-EWS.
00h30m to 02h00m	Sea level gauges are monitored for tsunami signals. Within the first 30 minutes to an hour the tsunami may arrive on the nearest one or two coastal gauges and one or two deep-ocean gauges. Tsunami amplitudes are measured and compared, when possible, with forecast amplitudes produced by the models. Model forecasts may be adjusted to be more consistent with observations.
Beyond 2h	The process of refining the earthquake parameters and collecting additional sea level observations continues, with that information used to constrain the forecast. The tsunami is monitored as it advances. When it is likely that there is no longer a significant tsunami threat then a final product is issued.

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RIFT FORECAST MODEL DESCRIPTION AND LIMITATIONS

RIFT Description

RIFT (Real-time Forecast of Tsunamis) is an experimental tsunami forecast model based on the linear shallow water equations. Studies of its accuracy for a wide variety of sources and coasts are still underway. However, based upon its general success in forecasting impacts from several recent tsunamis, including the February 2010 Chile tsunami and the March 2011 Japan tsunami, and its unique capability to use estimates of the earthquake fault geometry as the primary source constraint and to produce comprehensive forecast for all coasts in real time, RIFT forms the basis for the new products being produced for the PTWS.

Definitions: z2p=maximum absolute value of RIFT zero to peak wave amplitude

z2t=maximum absolute value of RIFT zero to trough wave amplitude

RIFT Deep-Ocean Maximum Tsunami Wave Amplitude Map

At each model grid point in the ocean, RIFT produces a time series of the sea level fluctuations caused by the passing tsunami waves. Shown on the map is the maximum amplitude of those fluctuations, A_{max}, defined by:

$A_{max} = 0.5 * (z2p + z2t)$ in meters

These are the maximum deep-ocean tsunami amplitudes. Maximum coastal amplitudes can be much larger.

RIFT Coastal Maximum Tsunami Wave Amplitude Map

For each model grid point near the coast, the tsunami amplitude at the coast can be estimated based upon Green's Law.

Green's Law: $A_{coast}=A_{offshore} * (D_{offshore} / D_{coast})^{¼}$

where A_{coast} is the tsunami amplitude at the coast

$A_{offshore}$ is the tsunami amplitude at the offshore grid point

D_{coast} is the depth of the ocean at the coast

$D_{offshore}$ is the depth of the ocean at the offshore grid point, and

The offshore ocean depth can vary from about 15m to 1000 m, depending upon the resolution at which RIFT is run - 30 arc-sec, 1 arc-min, 2 arc-min or 4 arc-min. The coastal ocean depth is set to be 1 m.

The offshore point is the closest model grid point with a water depth greater than the water depth at the model's coastal point. If the distance from the coastal point to the offshore point is greater than 100 km, then no forecast is made for the coastal point. There is no confidence in the quality of the coastal forecast if Green's Law is applied over distances > 100 km. Consequently, there might not be a forecast for coasts with wide continental shelves at 4-arc-min. resolution. In those cases, a RIFT run at finer than 4 arc-min resolution is required for RIFT to produce a Green's Law coastal forecast.

RIFT Limitations

1. Initial results can vary easily by a factor of two, because of uncertainties in the preliminary magnitude, depth and assumed mechanism of the earthquake. Later results, constrained by the earthquake centroid moment tensor as well as by deep-ocean observations should be more reliable.

2. For small islands (e.g., islands generally less than 30 km in diameter), Green's Law can overestimate the coastal amplitude. In those cases, a forecast amplitude between the offshore and Green's Law amplitude may be more appropriate.

3. For resonant harbors, the Green's Law amplitude can underestimate the actual wave amplitude. Green's Law amplitude should be interpreted as average wave amplitude at the open coast, not necessarily the maximum amplitude inside a harbor or at a sea-level guage.

4. The RIFT forecast coastal amplitude is not necessarily indicative of inundation depth, which is a function of the local topography. A 30-meter coastal amplitude from Green's Law does not mean the inundation depth will reach 30 meters. But it does indicate a very major tsunami impact. 5. In the near field, Green's law amplitude does not necessarily takes into account wave propagation and dissipation. Thus, a coastal amplitude of 20-30 meters can be misleading, it should also simply be interpreted as a major tsunami.

<u>Detailed explanation of Green's law and the limitations of model forecast.</u>

There can be significant uncertainties of the RIFT forecast because of its assumptions and the uncertainties of the earthquake source parameters.

1. The forecast is sensitive to the earthquake magnitude. A difference of 0.2 in the earthquake magnitude results in factor of two in the tsunami wave amplitude.

2. The forecast is sensitive to the earthquake focal mechanism. For example, two earthquakes of magnitude 7.5 with different focal mechanisms can give vastly different results, easily by a factor of two or more. For the initial forecast without a computed mechanism, RIFT assumes the earthquake is of the

shallow-thrust type to be conservative, even if the earthquake is located in regions of historical strike-slip earthquakes.

3. Experience shows that when RIFT is forced by the earthquake's computed centroid moment tensors (CMT) mechanism, it tends to give a much better result. However, the CMT will not be become available until 25-30 minutes after the earthquake occurs. The initial CMT can be off by 0.2 or more in magnitude for large earthquakes, resulting in a factor of two difference in the RIFT tsunami wave forecast.

Key Assumptions of Green's Law

1. The coastline in question is linear and exposed to the open ocean.

2. Tsunami waves near the coast behave as one-dimensional plane waves.

3. There are no significant wave reflections and no dissipation by turbulence.

4. The bathymetry varies slowly compared to the wavelength of the tsunami waves. Thus, for steep bathymetry, the Green's Law forecast can overestimate the tsunami wave amplitudes.

5. Cliff boundary conditions are used. In other words, the coast is assumed to be a vertical wall.

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DESCRIPTION OF ENHANCED PRODUCTS

Text Products

Text products are organized into the following discreet sections.

Headers

At the top of each text product are some header lines that include the World Meteorological Organization Product ID and issue date/time, an AWIPS ID, a product type line, an issuing office line, and an issuance date/time line.

Headline

Immediately below the header lines is a brief headline, leading and trailing with an ellipsis (…). The headline indicates either an information statement or a tsunami threat message.

Target Area

Below the headline is a statement indicating the geographic area that the product is intended for. The products are for most of the Pacific except those parts exclusively covered by other centers. This statement is to help avoid confusion in areas not covered by the product.

Tsunami Threat Forecast

Within this section, in bulleted form, are indicated the levels of threat that have been forecast and to which countries or places they apply. The levels are tsunami heights of 0.3-1 meter, 1-3 meters, and greater than 3 meters above the normal tide level.

Evaluation

The evaluation section always includes a narrative statement describing the key earthquake parameters. It may also include one or two short statements about the tsunami threat.

Recommended Actions

This section gives brief statements about recommended actions. Since the product is intended primarily for government agencies and not the public, the recommended actions are left very general to avoid conflicting with actions directed by the local authoritative government agencies.

Estimated Times of Arrival

Within this section are listed, in table form, estimated first tsunami wave arrival times for specific points within or near areas identified with a tsunami threat of at least 0.3 meters above the tide. These times should only be viewed as approximate. For a long-duration event, estimated arrival times more than an hour in the past are removed from the list.

Potential Impacts

This section contains brief statements about tsunami behavior and the hazard presented by each level of threat.

Tsunami Observations

Within this section are readings of the maximum tsunami height recorded so far on certain coastal and/or deep-ocean sea-level gauges.

Preliminary Earthquake Parameters

The earthquake parameters, origin time, epicenter coordinates, depth, magnitude, and descriptive location are provided here in bulleted form.

Next Update and Additional Information

This final section indicates when the next product, if any, can be expected. It is usually within an hour. It also tells where additional information about the event may be found.

Forecast Polygon Map

The forecast polygon map provides a quick and general view of the tsunami threat. All coastal areas of the Pacific covered by the product are enclosed within a set of polygons. Some countries or places are covered by a single polygon and some by multiple polygons. Each polygon is given a color depending upon its maximum level of threat, . Some polygons are uncolored because either 1) the forecast model domain did not include those areas, or 2) the forecast model could not make a forecast because its resolution was insufficient in areas of shallow water.

Forecast Polygon Table

The forecast polygon table shows, for each polygon with a threat, the maximum, mean, and median forecast coastal tsunami height as well as the maximum, mean, and median offshore tsunami height. Offshore heights are translated to coastal heights using Green's Law. For places like islands that have dimensions much smaller than the tsunami wavelength, Green's Law overestimates and the offshore height may be more appropriate. In all cases, height is measured relative to the tide level. Also provided are the standard deviation of the values, the total number of forecast points within each polygon, and a descriptive name for each polygon.

Energy Forecast Map

The energy map shows the maximum tsunami amplitude at each place in the deep ocean. It shows how the tsunami is directed away from the earthquake, how it is focused and defocused by the shape of the seafloor, and how it diminishes by spreading. It is useful for understanding why some areas may be more threatened because they are in a "beam" of directed tsunami energy.

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Coastal Forecast Map

This map shows the individual coastal forecast points colored according to the forecast tsunami height at each point. It provides significantly more spatial detail than the polygons. This can be useful for identifying when only part of a coast within a polygon is under threat. The accuracy of individual points, however, is less than points as a group.

Coastal Forecast KMZ File

Also provided with each forecast is a kmz file containing the individual tsunami forecast height values for each forecast point. When combined with a program like GoogleEarth, the user can drill down into the forecast to examine individual forecast points. Again, however, the accuracy of individual points is less than points as a group, and may not be appropriate for some coastal configurations. By mousing over and clicking on a forecast point, the metadata for the point is shown.

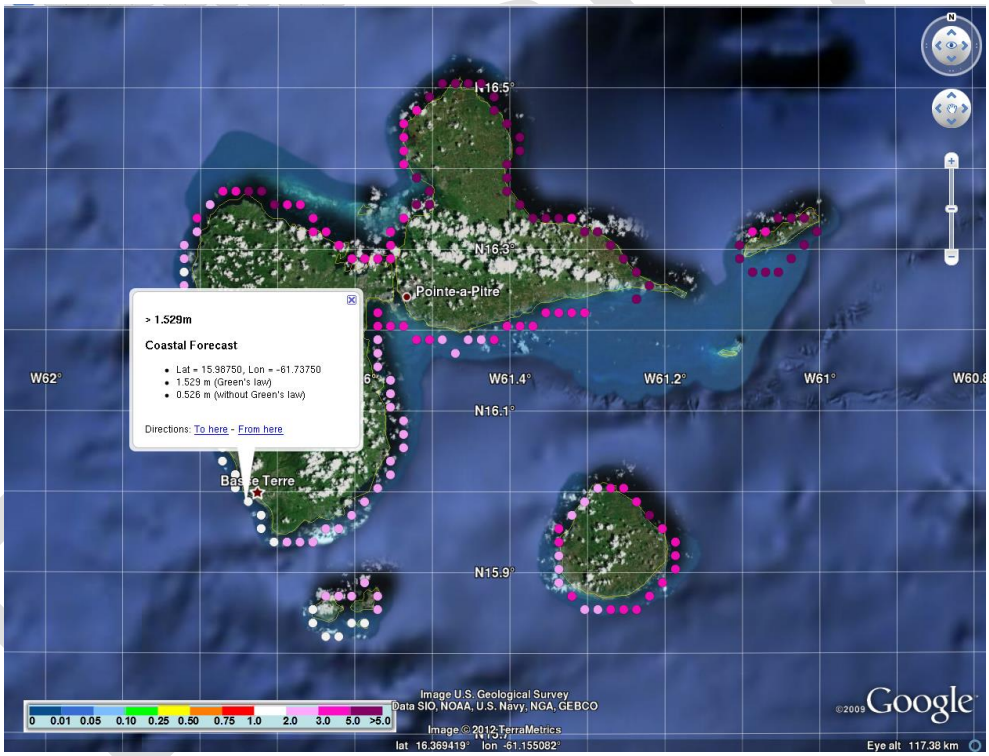

Figure 1. GoogleEarth screenshot of sample RIFT coastal tsunami forecast points around Guadeloupe.

GRAPHICAL PRODUCTS CARIBE WAVE/LANTEX 2015 PANAMA SCENARIO

Six graphical products were prepared for the CARIBE WAVE/LANTEX 2015 Exercise Panama Scenario using the PTWC RIFT Tsunami Forecast Model. The first three products are based on the following earthquake parameters: Origin: 03/25/2015 14:00:00 UTC and Coordinates: 10.3 N 78.8W Depth: 015 km Magnitude: 8.2. The last three are based on the following Origin: 03/25/2015 14:00:00 UTC and Coordinates: 10.3 N 78.8W Depth: 015 km Magnitude: 8.5.

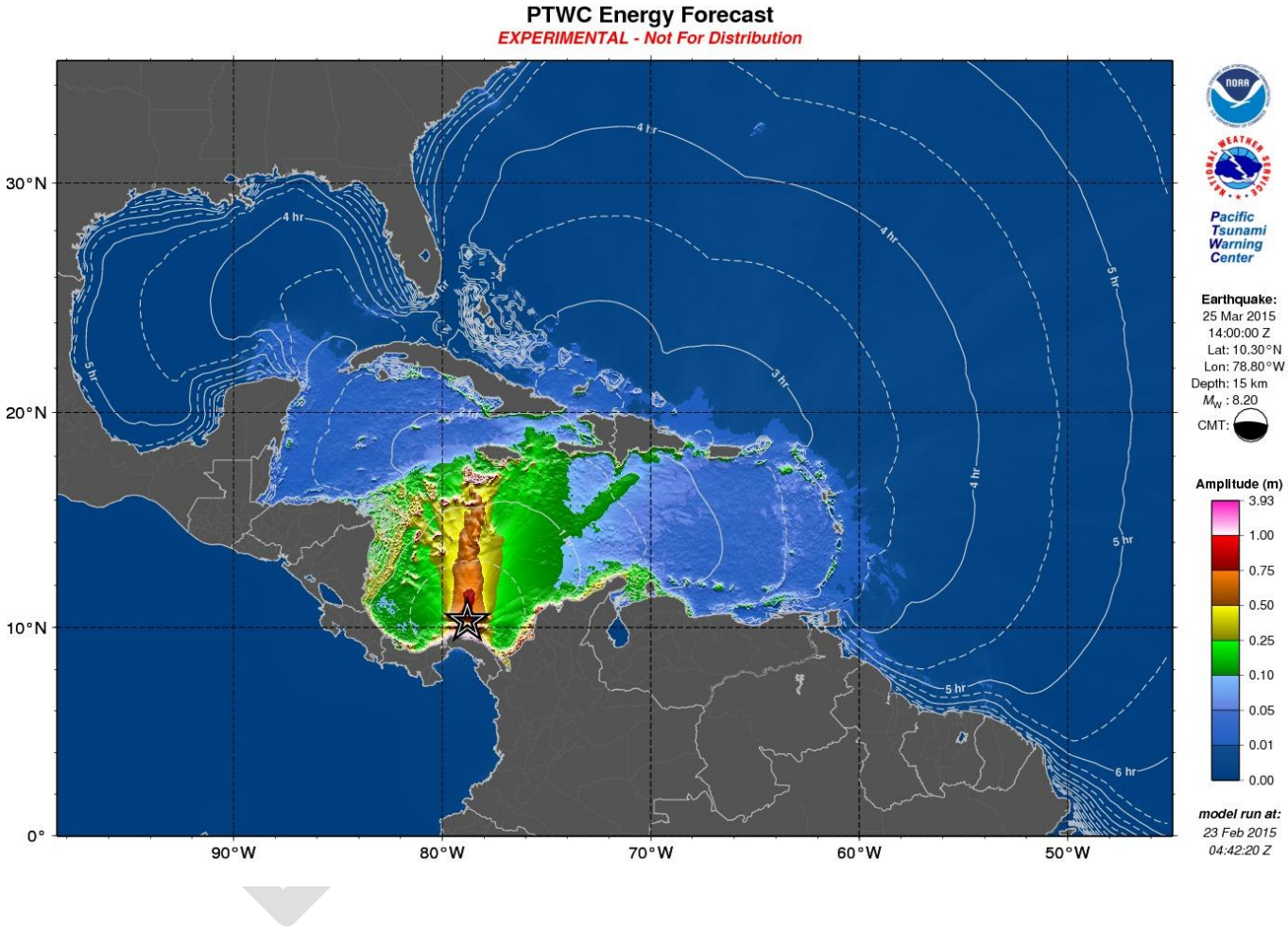

Figure 2. Energy Forecast map for March 25, 2015 CARIBE WAVE/LANTEX Panama Scenario (with initial earthquake parameters, Message 1).

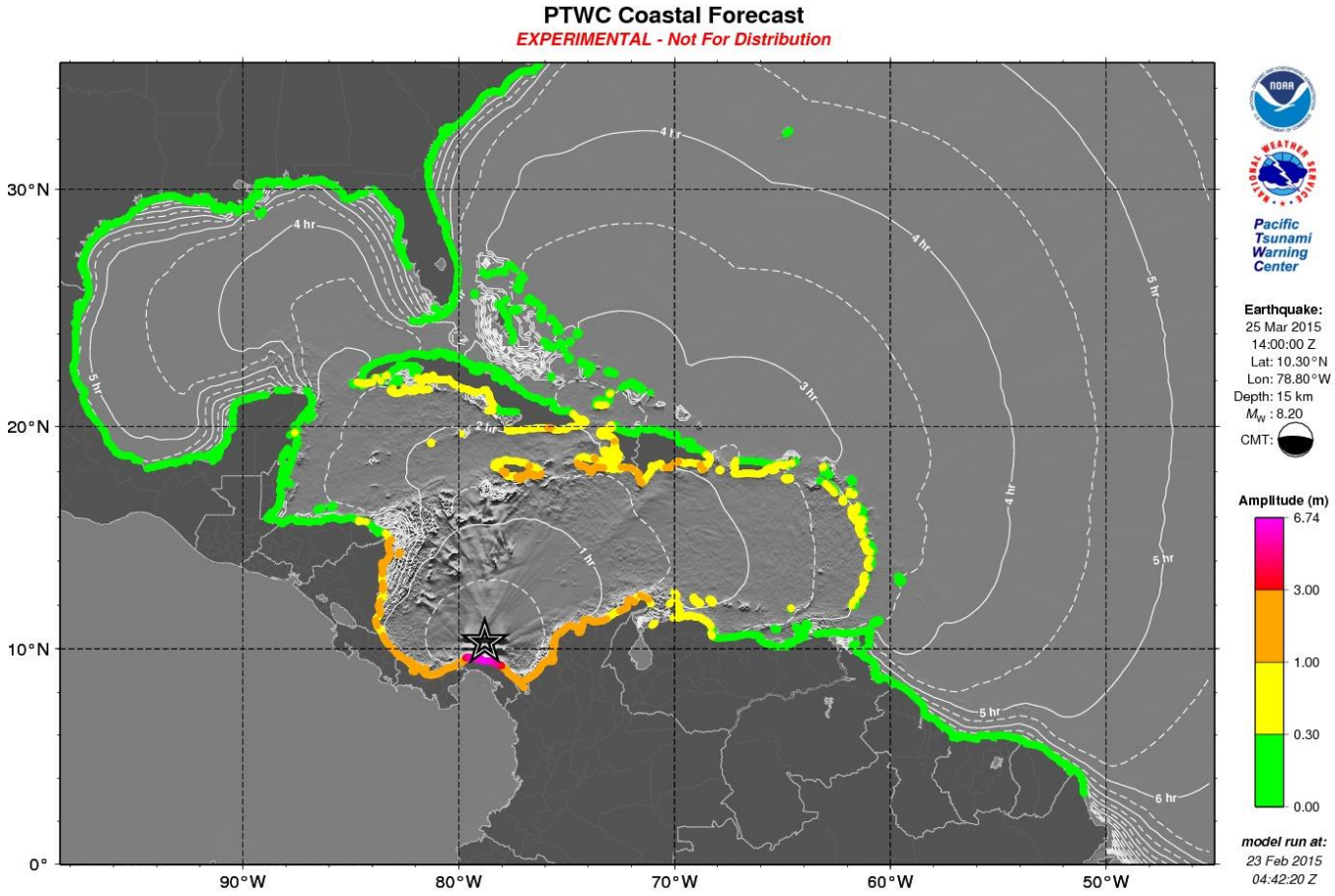

Figure 3. Coastal forecasts for CARIBE WAVE/LANTEX 2015 Panama Scenario (with initial earthquake parameters, Message 1) .

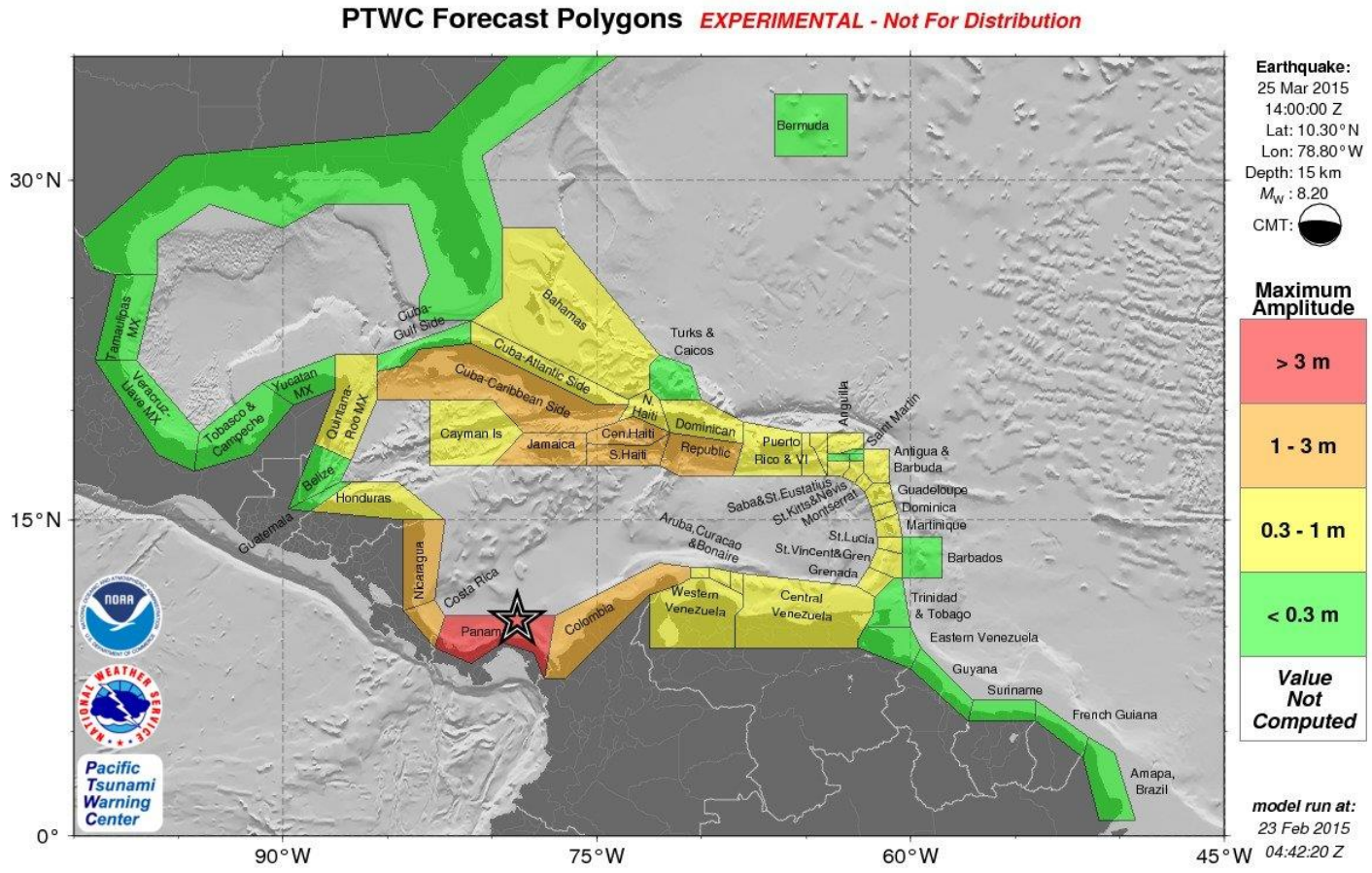

Figure 4. PTWC Forecast Polygons for CARIBE WAVE/LANTEX 2015 Panama Scenario (with initial earthquake parameters, Message 1)

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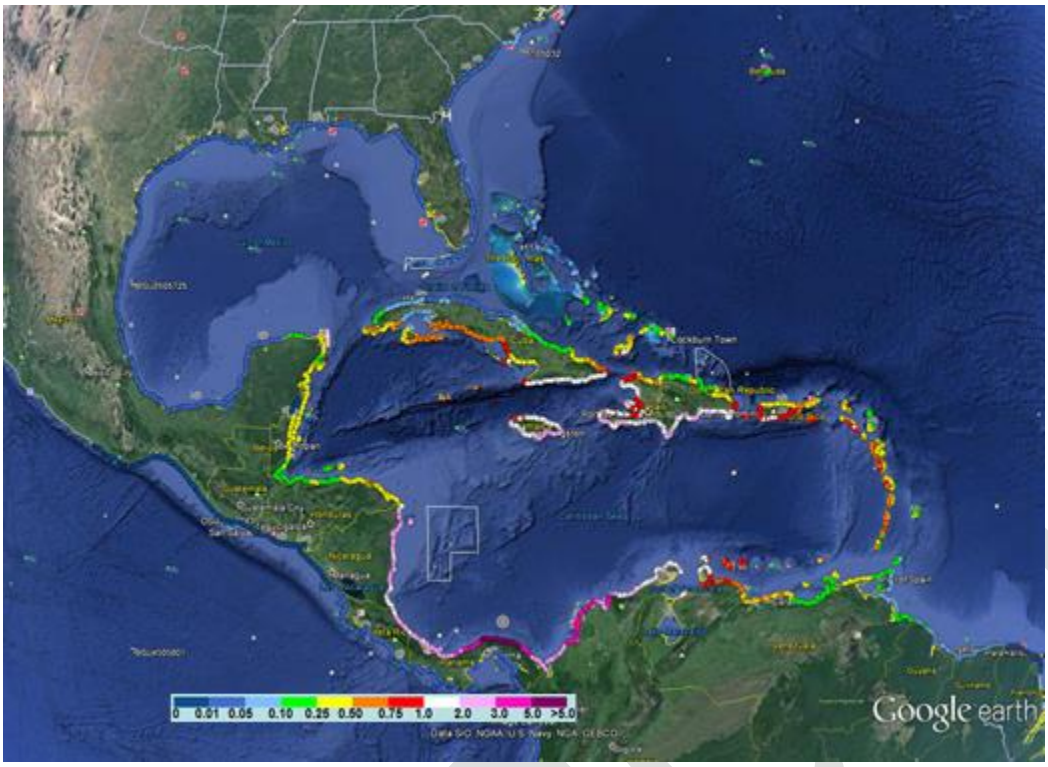

Figure 5. Google Earth image of coastal amplitude forecasts for CARIBEWAVE/LANTEX 15 Panama Scenario (with initial earthquake parameters, Message 1).

To access the kmz file go to http://www.srh.noaa.gov/srh/ctwp/?n=caribewave2015

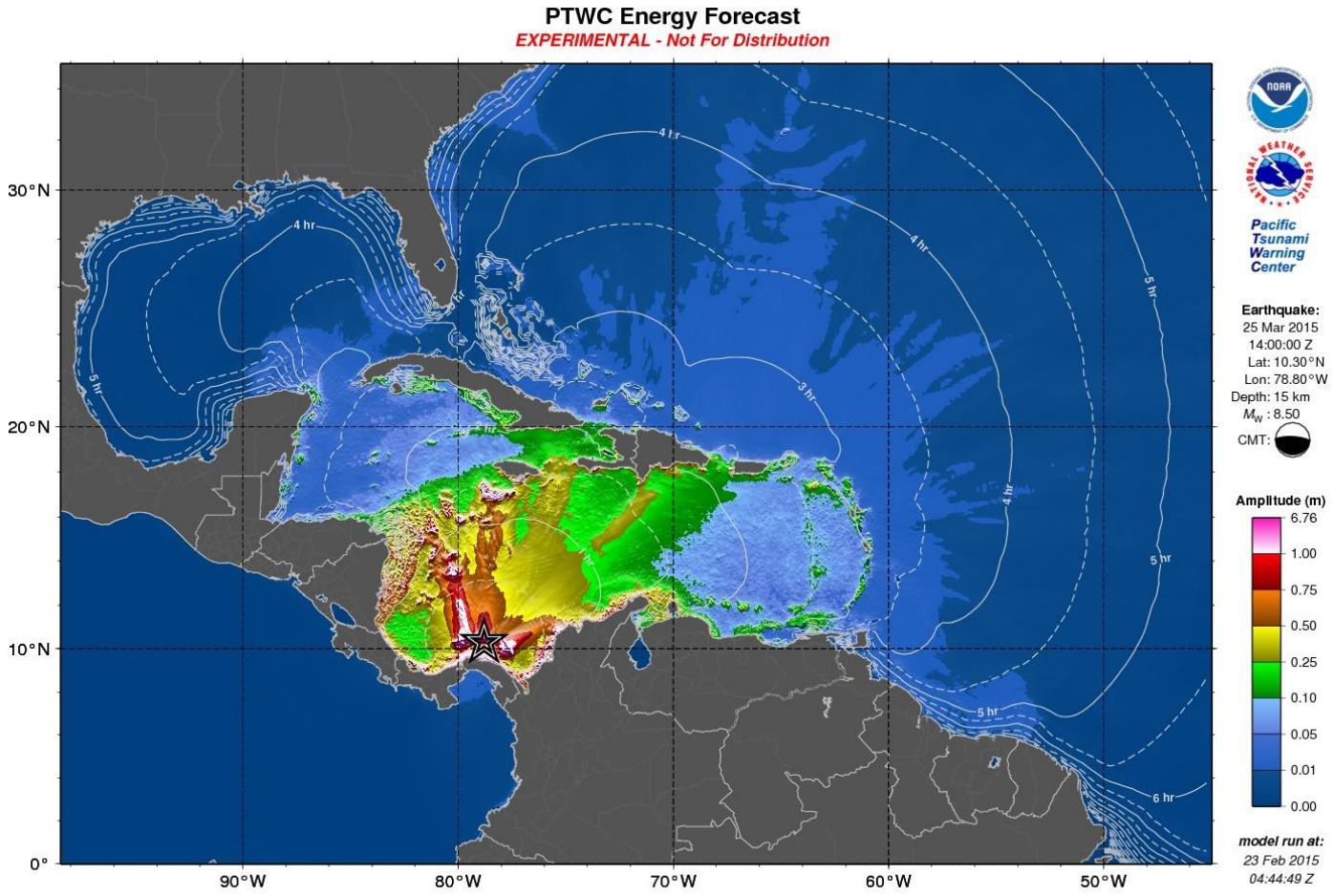

Figure 6. Energy Forecast map for March 25, 2015 CARIBE WAVE/LANTEX Panama Scenario (With final earthquake parameters Message 2).

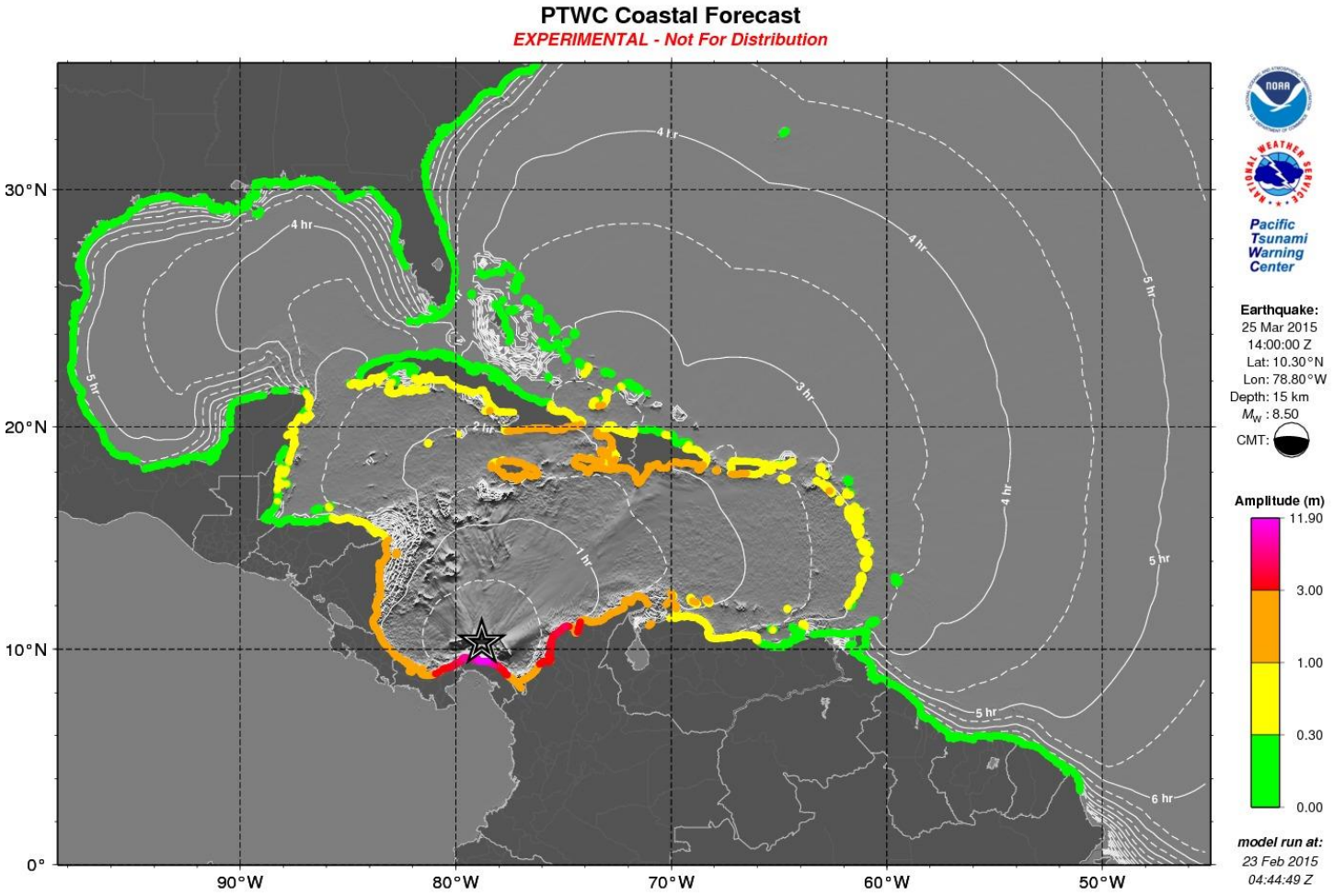

Figure 7. Coastal forecasts for CARIBE WAVE/LANTEX 2015 Panama Scenario(With final earthquake parameters Message 2).

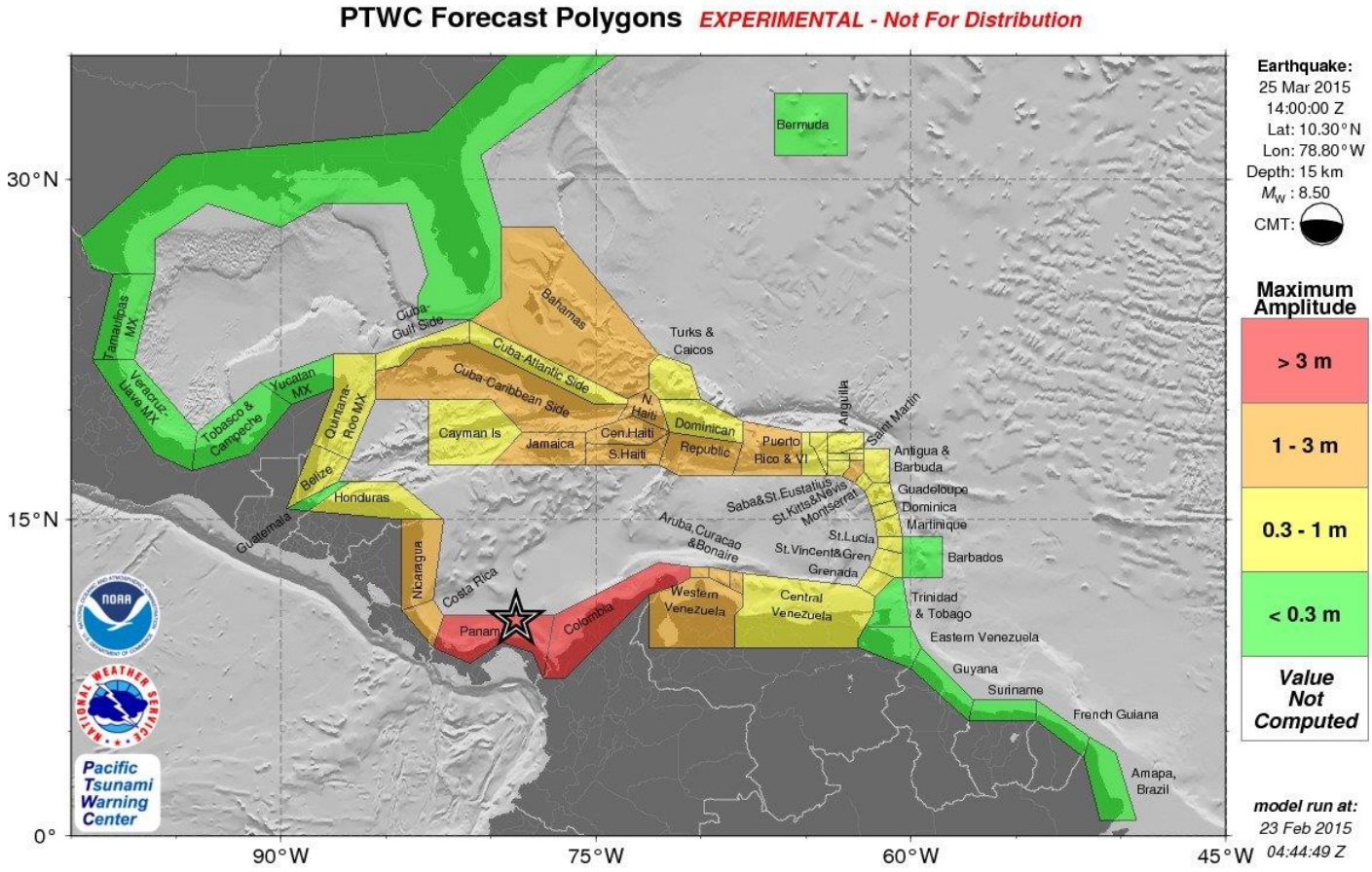

Figure 8. PTWC Forecast Polygons for CARIBE WAVE/LANTEX 2015 Panama Scenario (With final earthquake parameters Message 2).

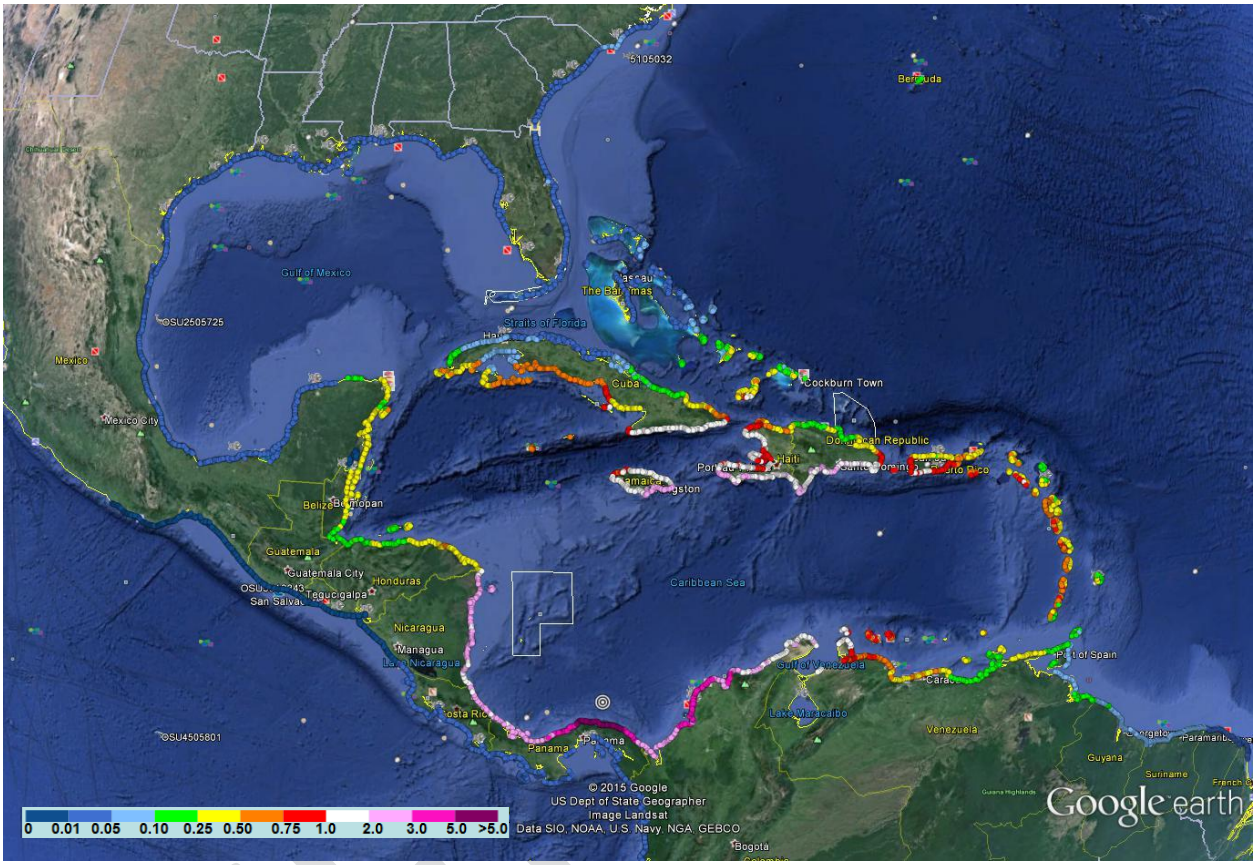

Figure 9. Google Earth image of coastal amplitude forecasts for CARIBEWAVE/LANTEX 15 Panama Scenario(With final earthquake parameters Message 2).

To access the kmz file go to http://www.srh.noaa.gov/srh/ctwp/?n=caribewave2015

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PTWC TABLES OF FORECAST STATISTICS FOR REGIONAL POLYGONS

PTWC TABLE OF FORECAST STATISTICS FOR REGIONAL POLYGONS - RUN ID 20150223044220
(for internal use only - not for distribution) - **initial earthquake parameters**

Earthquake - Origin: 03/25/2015 14:00:00 UTC Coordinates: 10.3N 78.8W Depth: 015km
Magnitude: 8.2

This table is issued for information only in support the UNESCO/IOC Pacific Tsunami Warning and Mitigation System and is meant for national authorities in each country of that system. National authorities will determine the appropriate level of alert for each country and may issue additional or more refined information.

Actual amplitudes at the coast may vary from forecast amplitudes due to uncertainties in the forecast and local features. In particular, maximum tsunami amplitudes on atolls will likely be much smaller than the forecast indicates.

	Coastal Forecast (meters)				Offshore Forecast (meters)				Total
Region_Name	Maximum	Mean	Median	STD	Maximum	Mean	Median	STD	Points
Caribbean_Coast_of_Panama	6.7	2.60	1.60	1.90	2.8	1.20	0.96	0.65	179
Jamaica	2.2	1.00	0.89	0.42	1.1	0.43	0.41	0.20	146
Caribbean_Coast_of_Colombia	2.0	1.30	1.30	0.27	1.3	0.56	0.55	0.20	255
Caribbean_Coast_of_Haiti	1.8	1.10	1.10	0.25	0.98	0.43	0.38	0.18	89
Caribbean_Coast_of_Nicaragua	1.4	1.00	1.00	0.10	0.60	0.29	0.28	0.10	139
Caribbean_Coast_of_Costa_Rica	1.3	1.10	1.10	0.13	1.1	0.59	0.57	0.16	48
Caribbean_Coast_of_Dominican_Republic	1.2	0.83	0.83	0.16	0.89	0.38	0.36	0.14	148
Caribbean_Coast_of_Cuba	1.1	0.41	0.39	0.26	1.2	0.12	0.10	0.10	471
Gulf_of_Gonave_Coast_of_Haiti	1.1	0.68	0.68	0.15	0.72	0.27	0.22	0.15	139
Atlantic_Coast_of_Haiti	0.85	0.33	0.28	0.15	0.36	0.12	0.11	0.05	66
Aruba	0.73	0.57	0.50	0.13	0.37	0.22	0.20	0.09	8
Western_Coast_of_Venezuela	0.72	0.43	0.39	0.13	0.32	0.17	0.17	0.06	100
Puerto_Rico	0.63	0.36	0.40	0.16	0.66	0.17	0.14	0.11	144
Curacao	0.63	0.44	0.43	0.10	0.48	0.17	0.15	0.08	27
Bahamas	0.57	0.06	0.02	0.10	0.46	0.03	0.01	0.06	442
Saint_Kitts_and_Nevis	0.57	0.35	0.29	0.12	0.27	0.13	0.12	0.06	29
Bonaire	0.57	0.47	0.48	0.07	0.32	0.20	0.19	0.06	15
Martinique	0.56	0.32	0.31	0.11	0.22	0.13	0.12	0.04	41
Saint_Vincent_and_the_Grenadines	0.56	0.38	0.40	0.09	0.22	0.13	0.13	0.04	33
Dominica	0.55	0.35	0.36	0.10	0.20	0.10	0.10	0.04	31
Montserrat	0.53	0.37	0.35	0.09	0.41	0.17	0.12	0.10	11
Cayman_Islands	0.53	0.47	0.48	0.04	0.31	0.20	0.19	0.08	5
US_Virgin_Islands	0.48	0.34	0.35	0.09	0.29	0.14	0.12	0.06	34
Saba_and_Saint_Eustatius	0.46	0.30	0.28	0.07	0.16	0.10	0.08	0.04	8
Saint_Lucia	0.45	0.31	0.33	0.10	0.21	0.11	0.11	0.04	26
Guadeloupe	0.44	0.29	0.31	0.09	0.43	0.12	0.11	0.06	71
Atlantic_Coast_of_Dominican_Republic	0.43	0.14	0.13	0.07	0.65	0.08	0.06	0.09	129
Grenada	0.39	0.23	0.26	0.10	0.23	0.10	0.09	0.05	29
Atlantic_Coast_of_Cuba	0.38	0.08	0.04	0.09	0.27	0.03	0.01	0.04	267
Antigua_and_Barbuda	0.36	0.20	0.16	0.09	0.22	0.11	0.11	0.04	28
Anguilla	0.35	0.27	0.29	0.07	0.41	0.19	0.17	0.09	8
Central_Coast_of_Venezuela	0.33	0.16	0.12	0.06	0.25	0.07	0.06	0.03	244
Caribbean_Coast_of_Honduras	0.33	0.21	0.20	0.06	0.39	0.09	0.08	0.06	185
British_Virgin_Islands	0.32	0.28	0.28	0.02	0.21	0.13	0.12	0.04	11
Quintana_Roo_Mexico	0.31	0.18	0.21	0.09	0.37	0.07	0.07	0.05	166
Gulf_of_Mexico_Coast_of_Cuba	0.30	0.05	0.04	0.04	0.05	0.01	0.01	0.01	119
Belize	0.28	0.17	0.16	0.04	0.15	0.04	0.04	0.03	90
Sint_Maarten	0.28	0.26	0.26	0.01	0.23	0.14	0.11	0.05	6
Saint_Barthelemy	0.25	0.19	0.22	0.05	0.17	0.12	0.12	0.03	6
Saint_Martin	0.24	0.24	0.24	0.00	0.12	0.11	0.12	0.02	3
Turks_and_Caicos_Islands	0.17	0.09	0.09	0.03	0.09	0.05	0.04	0.02	46
Barbados	0.17	0.12	0.11	0.03	0.07	0.05	0.05	0.01	22
Caribbean_Coast_of_Guatemala	0.14	0.13	0.14	0.01	0.13	0.04	0.03	0.03	13
Trinidad_and_Tobago	0.11	0.07	0.07	0.03	0.08	0.03	0.03	0.01	77
Yucatan_Mexico	0.09	0.02	0.00	0.03	0.04	0.01	0.00	0.01	59
Bermuda	0.08	0.07	0.07	0.00	0.05	0.03	0.03	0.01	7
Atlantic_Coast_of_Venezuela	0.07	0.05	0.06	0.01	0.03	0.01	0.01	0.00	82
Guyana	0.06	0.04	0.04	0.01	0.03	0.01	0.01	0.00	101
Mainland-Gulf	0.04	0.01	0.01	0.01	0.03	0.00	0.00	0.00	1148
Suriname	0.04	0.03	0.03	0.00	0.01	0.00	0.00	0.00	109
French_Guiana	0.03	0.01	0.01	0.00	84				

Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

PTWC TABLE OF FORECAST STATISTICS FOR REGIONAL POLYGONS - RUN ID 20150223044449
(for internal use only - not for distribution) – for final earthquake parameters

Earthquake - Origin: 03/25/2015 14:00:00 UTC Coordinates: 10.3N 78.8W Depth: 015km
Magnitude: 8.5

This table is issued for information only in support the UNESCO/IOC Pacific Tsunami Warning and Mitigation System and is meant for national authorities in each country of that system. National authorities will determine the appropriate level of alert for each country and may issue additional or more refined information.

Actual amplitudes at the coast may vary from forecast amplitudes due to uncertainties in the forecast and local features. In particular, maximum tsunami amplitudes on atolls will likely be much smaller than the forecast indicates.

	Coastal Forecast (meters)				Offshore Forecast (meters)				Total
Region_Name	Maximum	Mean	Median	STD	Maximum	Mean	Median	STD	Points
Caribbean_Coast_of_Panama	12.	4.60	3.20	2.90	6.0	2.40	2.10	1.30	179
Caribbean_Coast_of_Colombia	6.2	2.60	2.50	0.82	2.7	1.20	1.10	0.46	255
Jamaica	3.0	1.60	1.50	0.57	2.8	0.66	0.56	0.38	146
Caribbean_Coast_of_Haiti	2.7	1.90	1.80	0.32	1.3	0.61	0.57	0.20	89
Caribbean_Coast_of_Costa_Rica	2.7	2.20	2.20	0.25	2.5	1.20	1.20	0.35	48
Caribbean_Coast_of_Nicaragua	2.5	2.20	2.20	0.23	1.4	0.70	0.69	0.22	139
Caribbean_Coast_of_Dominican_Republic	2.4	1.80	1.80	0.36	1.9	0.87	0.77	0.38	148
Caribbean_Coast_of_Cuba	1.8	0.69	0.61	0.44	1.3	0.20	0.16	0.15	472
Gulf_of_Gonave_Coast_of_Haiti	1.7	1.10	1.10	0.22	1.6	0.42	0.34	0.24	139
Western_Coast_of_Venezuela	1.6	0.85	0.77	0.28	0.78	0.36	0.34	0.12	100
Bahamas	1.5	0.13	0.05	0.22	0.84	0.07	0.02	0.11	442
Atlantic_Coast_of_Haiti	1.3	0.64	0.59	0.22	0.74	0.23	0.21	0.11	66
Curacao	1.2	0.81	0.80	0.15	0.54	0.25	0.23	0.08	27
Puerto_Rico	1.2	0.70	0.81	0.29	1.1	0.32	0.27	0.20	144
Aruba	1.2	1.10	1.00	0.15	0.66	0.41	0.32	0.14	8
Saint_Kitts_and_Nevis	1.1	0.65	0.52	0.25	0.40	0.21	0.21	0.09	29
Bonaire	1.1	0.84	0.85	0.12	0.59	0.29	0.28	0.11	15
Martinique	0.97	0.53	0.48	0.20	0.34	0.18	0.17	0.06	41
Atlantic_Coast_of_Dominican_Republic	0.94	0.28	0.24	0.14	1.3	0.17	0.11	0.19	129
US_Virgin_Islands	0.89	0.60	0.56	0.17	0.61	0.28	0.25	0.11	34
Cayman_Islands	0.84	0.68	0.64	0.09	0.63	0.36	0.33	0.15	5
Dominica	0.83	0.54	0.63	0.17	0.31	0.16	0.16	0.06	31
Saba_and_Saint_Eustatius	0.80	0.48	0.42	0.13	0.25	0.14	0.12	0.05	8
Saint_Vincent_and_the_Grenadines	0.79	0.61	0.65	0.12	0.33	0.21	0.21	0.06	33
Saint_Lucia	0.74	0.52	0.58	0.13	0.45	0.19	0.16	0.09	26
Montserrat	0.71	0.53	0.52	0.09	0.43	0.22	0.17	0.10	11
Guadeloupe	0.70	0.49	0.53	0.13	0.42	0.18	0.16	0.06	71
Grenada	0.69	0.42	0.46	0.19	0.44	0.18	0.16	0.09	29
Atlantic_Coast_of_Cuba	0.64	0.15	0.08	0.16	0.43	0.05	0.02	0.06	267
Central_Coast_of_Venezuela	0.62	0.31	0.26	0.11	0.45	0.13	0.11	0.07	244
Antigua_and_Barbuda	0.60	0.31	0.23	0.15	0.33	0.18	0.17	0.08	28
Anguilla	0.55	0.45	0.51	0.10	0.71	0.36	0.33	0.14	8
Gulf_of_Mexico_Coast_of_Cuba	0.53	0.09	0.06	0.07	0.11	0.03	0.02	0.02	119
Caribbean_Coast_of_Honduras	0.52	0.33	0.29	0.10	0.69	0.18	0.14	0.13	185
Saint_Barthelemy	0.52	0.38	0.43	0.12	0.26	0.21	0.21	0.03	6
Sint_Maarten	0.52	0.48	0.49	0.05	0.41	0.26	0.20	0.10	6
Quintana_Roo_Mexico	0.51	0.29	0.33	0.15	0.70	0.13	0.11	0.10	166
British_Virgin_Islands	0.50	0.47	0.48	0.03	0.38	0.26	0.25	0.07	11
Saint_Martin	0.36	0.36	0.36	0.00	0.26	0.24	0.26	0.03	3
Belize	0.35	0.28	0.29	0.05	0.37	0.09	0.08	0.06	90
Turks_and_Caicos_Islands	0.34	0.18	0.16	0.07	0.24	0.09	0.08	0.05	46
Barbados	0.28	0.21	0.19	0.05	0.09	0.07	0.07	0.01	22
Caribbean_Coast_of_Guatemala	0.25	0.23	0.22	0.01	0.28	0.09	0.07	0.06	13
Yucatan_Mexico	0.20	0.05	0.01	0.07	0.09	0.01	0.01	0.02	59
Trinidad_and_Tobago	0.19	0.13	0.13	0.04	0.19	0.07	0.06	0.03	77
Bermuda	0.15	0.14	0.14	0.01	0.11	0.06	0.05	0.03	7
Atlantic_Coast_of_Venezuela	0.13	0.10	0.09	0.01	0.05	0.02	0.02	0.01	82
Guyana	0.12	0.08	0.07	0.01	0.06	0.02	0.02	0.01	101
Mainland-Gulf	0.07	0.03	0.02	0.01	0.06	0.01	0.01	0.01	1142
Suriname	0.07	0.06	0.06	0.00	0.02	0.01	0.01	0.00	109
French_Guiana	0.06	0.02	0.02	0.00	0.02	0.01	0.01	0.00	84
Tabasco_and_Campeche_Mexico	0.02	0.01	0.01	0.00	183				
Veracruz_Mexico	0.02	0.01	0.01	0.00	152				
Amapa_Brazil	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.00	38
Tamaulipas_Mexico	0.01	0.01	0.01	0.00	126				

Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

TEXT PRODUCTS CARIBE WAVE/LANTEX 2015

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ZCZC
WECA41 PHEB 251405
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 1
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1405 UCT WED MAR 25 2015

...TSUNAMI THREAT MESSAGE...


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

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

 NATIONAL AUTHORITIES WILL DETERMINE THE TSUNAMI THREAT AND
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY.

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


PRELIMINARY EARTHQUAKE PARAMETERS
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  * MAGNITUDE      8.2
  * ORIGIN TIME    1400 UTC MAR 25 2015
  * COORDINATES    10.3 NORTH  78.8 WEST
  * DEPTH          15 KM / 9 MILES
  * LOCATION       NORTH OF PANAMA


EVALUATION
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  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.2 OCCURRED
    NORTH OF PANAMA AT 1400 UTC ON WEDNESDAY MARCH 25 2015.

  * BASED ON THE PRELIMINARY EARTHQUAKE PARAMETERS... HAZARDOUS
    TSUNAMI WAVES ARE FORECAST FOR SOME COASTS.
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Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

TSUNAMI THREAT FORECAST...UPDATED
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* TSUNAMI WAVES REACHING MORE THAN 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  PANAMA.

* TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  COLOMBIA... COSTA RICA... CUBA... DOMINICAN REPUBLIC... HAITI... NICARAGUA... AND JAMAICA.

* TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  ARUBA... HONDURAS... MEXICO... PUERTO RICO... ANGUILLA... ANTIGUA AND BARBUDA... BAHAMAS... CAYMAN ISLANDS... DOMINICA... GRENADA... GUADELOUPE... MARTINIQUE... MONTSERRAT... CURACAO... BONAIRE... SAINT KITTS AND NEVIS... SAINT LUCIA... SAINT VINCENT AND THE GRENADINES... US VIRGIN ISLANDS... AND VENEZUELA.

* TSUNAMI WAVES LESS THAN 0.3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  GUYANA... GUATEMALA... SURINAME... BARBADOS... BELIZE... BERMUDA... FRENCH GUIANA... SINT MAARTEN... SAINT BARTHELEMY... SAINT MARTIN... TRINIDAD AND TOBAGO... AND TURKS AND CAICOS ISLANDS.

* ACTUAL AMPLITUDES AT THE COAST MAY VARY FROM FORECAST AMPLITUDES DUE TO UNCERTAINTIES IN THE FORECAST AND LOCAL FEATURES. IN PARTICULAR MAXIMUM TSUNAMI AMPLITUDES ON ATOLLS WILL LIKELY BE MUCH SMALLER THAN THE FORECAST INDICATES.

* FOR OTHER AREAS COVERED BY THIS PRODUCT A FORECAST HAS NOT YET BEEN COMPUTED. THE FORECAST WILL BE EXPANDED AS NECESSARY IN SUBSEQUENT PRODUCTS.

RECOMMENDED ACTIONS
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* GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION...

PROCEDURES AND THE LEVEL OF THREAT.

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

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

LOCATION	REGION	COORDINATES		ETA(UTC)
ALIGANDI	PANAMA	9.2N	78.0W	1421 03/25
PUERTO CARRETO	PANAMA	8.8N	77.6W	1437 03/25
CARTAGENA	COLOMBIA	10.4N	75.6W	1442 03/25
PUNTA CARIBANA	COLOMBIA	8.6N	76.9W	1453 03/25
BARRANQUILLA	COLOMBIA	11.1N	74.9W	1453 03/25
PUERTO LIMON	COSTA RICA	10.0N	83.0W	1456 03/25
PUERTO OBALDIA	PANAMA	8.7N	77.4W	1502 03/25
COLON	PANAMA	9.4N	79.9W	1512 03/25
RIOHACHA	COLOMBIA	11.6N	72.9W	1518 03/25
BOCAS DEL TORO	PANAMA	9.4N	82.2W	1528 03/25
KINGSTON	JAMAICA	17.9N	76.9W	1528 03/25
JACAMEL	HAITI	18.1N	72.5W	1536 03/25
PUNTA GORDA	NICARAGUA	11.4N	83.8W	1544 03/25
SANTA MARTA	COLOMBIA	11.2N	74.2W	1546 03/25
ORANJESTAD	ARUBA	12.5N	70.0W	1548 03/25
CAYMAN BRAC	CAYMAN ISLANDS	19.7N	79.9W	1552 03/25
MONTEGO BAY	JAMAICA	18.5N	77.9W	1553 03/25
SANTIAGO D CUBA	CUBA	19.9N	75.8W	1553 03/25
WILLEMSTAD	CURACAO	12.1N	68.9W	1557 03/25
ONIMA	BONAIRE	12.3N	68.3W	1559 03/25
SANTO DOMINGO	DOMINICAN REP	18.5N	69.9W	1603 03/25
GRAND CAYMAN	CAYMAN ISLANDS	19.3N	81.3W	1611 03/25
BARACOA	CUBA	20.4N	74.5W	1615 03/25
GREAT INAGUA	BAHAMAS	20.9N	73.7W	1616 03/25
CIENFUEGOS	CUBA	22.0N	80.5W	1620 03/25
CABO ENGANO	DOMINICAN REP	18.6N	68.3W	1623 03/25
CAP HAITEN	HAITI	19.8N	72.2W	1628 03/25
MAIQUETIA	VENEZUELA	10.6N	67.0W	1636 03/25
MAYAGUANA	BAHAMAS	22.3N	73.0W	1637 03/25
PUERTO PLATA	DOMINICAN REP	19.8N	70.7W	1640 03/25
JEREMIE	HAITI	18.6N	74.1W	1641 03/25
CROOKED ISLAND	BAHAMAS	22.7N	74.1W	1645 03/25
LONG ISLAND	BAHAMAS	23.3N	75.1W	1648 03/25

COZUMEL	MEXICO	20.5N	87.0W	1651	03/25
BASSE TERRE	GUADELOUPE	16.0N	61.7W	1654	03/25
ROSEAU	DOMINICA	15.3N	61.4W	1655	03/25
PUERTO CORTES	HONDURAS	15.9N	88.0W	1655	03/25
FORT DE FRANCE	MARTINIQUE	14.6N	61.1W	1658	03/25
SAN SALVADOR	BAHAMAS	24.1N	74.5W	1658	03/25
KINGSTOWN	SAINT VINCENT	13.1N	61.2W	1658	03/25
CASTRIES	SAINT LUCIA	14.0N	61.0W	1658	03/25
SAINT GEORGES	GRENADA	12.0N	61.8W	1659	03/25
BASSETERRE	SAINT KITTS	17.3N	62.7W	1659	03/25
PLYMOUTH	MONTSERRAT	16.7N	62.2W	1700	03/25
CUMANA	VENEZUELA	10.5N	64.2W	1701	03/25
EXUMA	BAHAMAS	23.6N	75.9W	1704	03/25
TRUJILLO	HONDURAS	15.9N	86.0W	1714	03/25
CAT ISLAND	BAHAMAS	24.4N	75.5W	1714	03/25
THE VALLEY	ANGUILLA	18.3N	63.1W	1722	03/25
GIBARA	CUBA	21.1N	76.1W	1722	03/25
LA HABANA	CUBA	23.2N	82.4W	1724	03/25
ABACO ISLAND	BAHAMAS	26.6N	77.1W	1726	03/25
ANDROS ISLAND	BAHAMAS	25.0N	77.9W	1730	03/25
SAINT JOHNS	ANTIGUA	17.1N	61.9W	1735	03/25
PALMETTO POINT	BARBUDA	17.6N	61.9W	1735	03/25
PUNTO FIJO	VENEZUELA	11.7N	70.2W	1737	03/25
ELEUTHERA ISLAN	BAHAMAS	25.2N	76.1W	1743	03/25
PORT AU PRINCE	HAITI	18.5N	72.4W	1744	03/25
NASSAU	BAHAMAS	25.1N	77.4W	1747	03/25
FREEPORT	BAHAMAS	26.5N	78.8W	1750	03/25
BIMINI	BAHAMAS	25.8N	79.3W	1822	03/25
SANTA CRZ D SUR	CUBA	20.7N	78.0W	1837	03/25
GOLFO VENEZUELA	VENEZUELA	11.4N	71.2W	1914	03/25
NUEVA GERONA	CUBA	21.9N	82.8W	1937	03/25
PUERTO CABEZAS	NICARAGUA	14.0N	83.4W	1939	03/25
PORLAMAR	VENEZUELA	10.9N	63.8W	2124	03/25

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

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

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

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

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

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

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

  * COASTAL REGIONS OF PUERTO RICO... THE U.S. VIRGIN ISLANDS AND
    THE BRITISH VIRGIN ISLANDS SHOULD REFER TO U.S. NATIONAL
    TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT
    NTWC.ARH.NOAA.GOV.

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Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

ZCZC
WECA41 PHEB 251430
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 2
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1430 UCT WED MAR 25 2015

...TSUNAMI THREAT MESSAGE...

IN THIS MESSAGE THE EARTHQUAKE PARAMETERS AND TSUNAMI FORECAST
HAVE BEEN UPDATED.

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

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

NATIONAL AUTHORITIES WILL DETERMINE THE TSUNAMI THREAT AND
APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY.

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

PRELIMINARY EARTHQUAKE PARAMETERS...UPDATED
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* MAGNITUDE 8.5
* ORIGIN TIME 1400 UTC MAR 25 2015
* COORDINATES 10.3 NORTH 78.8 WEST
* DEPTH 15 KM / 9 MILES
* LOCATION NORTH OF PANAMA

EVALUATION
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* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.5 OCCURRED NORTH OF PANAMA AT 1400 UTC ON WEDNESDAY MARCH 25 2015.

* BASED ON ALL AVAILABLE DATA... HAZARDOUS TSUNAMI WAVES ARE FORECAST FOR SOME COASTS.

Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

TSUNAMI THREAT FORECAST
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* TSUNAMI WAVES REACHING MORE THAN 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  COLOMBIA... AND PANAMA.

* TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  ARUBA... COSTA RICA... CUBA... DOMINICAN REPUBLIC... HAITI... NICARAGUA... PUERTO RICO... BAHAMAS... JAMAICA... CURACAO... BONAIRE... SAINT KITTS AND NEVIS... AND VENEZUELA.

* TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  HONDURAS... MEXICO... ANGUILLA... ANTIGUA AND BARBUDA... BELIZE... CAYMAN ISLANDS... DOMINICA... GRENADA... GUADELOUPE... MARTINIQUE... MONTSERRAT... SAINT LUCIA... SINT MAARTEN... SAINT BARTHELEMY... SAINT MARTIN... SAINT VINCENT AND THE GRENADINES... TURKS AND CAICOS ISLANDS... AND US VIRGIN ISLANDS.

* TSUNAMI WAVES LESS THAN 0.3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  BRAZIL... GUYANA... GUATEMALA... SURINAME... BARBADOS... BERMUDA... FRENCH GUIANA... AND TRINIDAD AND TOBAGO.

* ACTUAL AMPLITUDES AT THE COAST MAY VARY FROM FORECAST AMPLITUDES DUE TO UNCERTAINTIES IN THE FORECAST AND LOCAL FEATURES. IN PARTICULAR MAXIMUM TSUNAMI AMPLITUDES ON ATOLLS WILL LIKELY BE MUCH SMALLER THAN THE FORECAST INDICATES.

* FOR OTHER AREAS COVERED BY THIS PRODUCT A FORECAST HAS NOT YET BEEN COMPUTED. THE FORECAST WILL BE EXPANDED AS NECESSARY IN SUBSEQUENT PRODUCTS.

RECOMMENDED ACTIONS
---

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

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

ESTIMATED TIMES OF ARRIVAL
---

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

LOCATION	REGION	COORDINATES		ETA(UTC)
ALIGANDI	PANAMA	9.2N	78.0W	1421 03/25
PUERTO CARRETO	PANAMA	8.8N	77.6W	1437 03/25
CARTAGENA	COLOMBIA	10.4N	75.6W	1442 03/25
PUNTA CARIBANA	COLOMBIA	8.6N	76.9W	1453 03/25
BARRANQUILLA	COLOMBIA	11.1N	74.9W	1453 03/25
PUERTO LIMON	COSTA RICA	10.0N	83.0W	1456 03/25
PUERTO OBALDIA	PANAMA	8.7N	77.4W	1502 03/25
COLON	PANAMA	9.4N	79.9W	1512 03/25
RIOHACHA	COLOMBIA	11.6N	72.9W	1518 03/25
BOCAS DEL TORO	PANAMA	9.4N	82.2W	1528 03/25
KINGSTON	JAMAICA	17.9N	76.9W	1528 03/25
JACAMEL	HAITI	18.1N	72.5W	1536 03/25
PUNTA GORDA	NICARAGUA	11.4N	83.8W	1544 03/25
SANTA MARTA	COLOMBIA	11.2N	74.2W	1546 03/25
ORANJESTAD	ARUBA	12.5N	70.0W	1548 03/25
CAYMAN BRAC	CAYMAN ISLANDS	19.7N	79.9W	1552 03/25
MONTEGO BAY	JAMAICA	18.5N	77.9W	1553 03/25
SANTIAGO D CUBA	CUBA	19.9N	75.8W	1553 03/25
WILLEMSTAD	CURACAO	12.1N	68.9W	1557 03/25
ONIMA	BONAIRE	12.3N	68.3W	1559 03/25
SANTO DOMINGO	DOMINICAN REP	18.5N	69.9W	1603 03/25
GRAND CAYMAN	CAYMAN ISLANDS	19.3N	81.3W	1611 03/25
BARACOA	CUBA	20.4N	74.5W	1615 03/25
GREAT INAGUA	BAHAMAS	20.9N	73.7W	1616 03/25
CIENFUEGOS	CUBA	22.0N	80.5W	1620 03/25
CABO ENGANO	DOMINICAN REP	18.6N	68.3W	1623 03/25
CAP HAITEN	HAITI	19.8N	72.2W	1628 03/25
WEST CAICOS	TURKS N CAICOS	21.7N	72.5W	1632 03/25
MAIQUETIA	VENEZUELA	10.6N	67.0W	1636 03/25
MAYAGUANA	BAHAMAS	22.3N	73.0W	1637 03/25
PUERTO PLATA	DOMINICAN REP	19.8N	70.7W	1640 03/25
JEREMIE	HAITI	18.6N	74.1W	1641 03/25
CROOKED ISLAND	BAHAMAS	22.7N	74.1W	1645 03/25
LONG ISLAND	BAHAMAS	23.3N	75.1W	1648 03/25

GRAND TURK	TURKS N CAICOS	21.5N	71.1W	1651 03/25
COZUMEL	MEXICO	20.5N	87.0W	1651 03/25
BASSE TERRE	GUADELOUPE	16.0N	61.7W	1654 03/25
ROSEAU	DOMINICA	15.3N	61.4W	1655 03/25
PUERTO CORTES	HONDURAS	15.9N	88.0W	1655 03/25
FORT DE FRANCE	MARTINIQUE	14.6N	61.1W	1658 03/25
SAN SALVADOR	BAHAMAS	24.1N	74.5W	1658 03/25
KINGSTOWN	SAINT VINCENT	13.1N	61.2W	1658 03/25
CASTRIES	SAINT LUCIA	14.0N	61.0W	1658 03/25
SAINT GEORGES	GRENADA	12.0N	61.8W	1659 03/25
BASSETERRE	SAINT KITTS	17.3N	62.7W	1659 03/25
PLYMOUTH	MONTSERRAT	16.7N	62.2W	1700 03/25
CUMANA	VENEZUELA	10.5N	64.2W	1701 03/25
SIMPSON BAAI	SINT MAARTEN	18.0N	63.1W	1703 03/25
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ANDROS ISLAND	BAHAMAS	25.0N	77.9W	1730 03/25
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N	62.8W	1734 03/25
SAINT JOHNS	ANTIGUA	17.1N	61.9W	1735 03/25
PALMETTO POINT	BARBUDA	17.6N	61.9W	1735 03/25
PUNTO FIJO	VENEZUELA	11.7N	70.2W	1737 03/25
BAIE BLANCHE	SAINT MARTIN	18.1N	63.0W	1741 03/25
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BIMINI	BAHAMAS	25.8N	79.3W	1822 03/25
SANTA CRZ D SUR	CUBA	20.7N	78.0W	1837 03/25
GOLFO VENEZUELA	VENEZUELA	11.4N	71.2W	1914 03/25
NUEVA GERONA	CUBA	21.9N	82.8W	1937 03/25
PUERTO CABEZAS	NICARAGUA	14.0N	83.4W	1939 03/25
PORLAMAR	VENEZUELA	10.9N	63.8W	2124 03/25

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

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

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

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

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

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

* COASTAL REGIONS OF PUERTO RICO... THE U.S. VIRGIN ISLANDS AND THE BRITISH VIRGIN ISLANDS SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT NTWC.ARH.NOAA.GOV.

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Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

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ZCZC
WECA41 PHEB 251500
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 3
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1500 UCT WED MAR 25 2015

...TSUNAMI THREAT MESSAGE...


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

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

 NATIONAL AUTHORITIES WILL DETERMINE THE TSUNAMI THREAT AND
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY.

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


PRELIMINARY EARTHQUAKE PARAMETERS
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  * MAGNITUDE      8.5
  * ORIGIN TIME    1400 UTC MAR 25 2015
  * COORDINATES    10.3 NORTH  78.8 WEST
  * DEPTH          15 KM / 9 MILES
  * LOCATION       NORTH OF PANAMA


EVALUATION
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  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.5 OCCURRED
    NORTH OF PANAMA AT 1400 UTC ON WEDNESDAY MARCH 25 2015.

  * TSUNAMI WAVES HAVE BEEN OBSERVED.

  * BASED ON ALL AVAILABLE DATA... HAZARDOUS TSUNAMI WAVES ARE
    FORECAST FOR SOME COASTS.


TSUNAMI THREAT FORECAST
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* TSUNAMI WAVES REACHING MORE THAN 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  COLOMBIA... AND PANAMA.

* TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  ARUBA... COSTA RICA... CUBA... DOMINICAN REPUBLIC...
  HAITI... NICARAGUA... PUERTO RICO... BAHAMAS... JAMAICA...
  CURACAO... BONAIRE... SAINT KITTS AND NEVIS... AND VENEZUELA.

* TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  HONDURAS... MEXICO... ANGUILLA... ANTIGUA AND BARBUDA...
  BELIZE... CAYMAN ISLANDS... DOMINICA... GRENADA... GUADELOUPE...
  MARTINIQUE... MONTSERRAT... SAINT LUCIA... SINT MAARTEN... SAINT
  BARTHELEMY... SAINT MARTIN... SAINT VINCENT AND THE
  GRENADINES... TURKS AND CAICOS ISLANDS... AND US VIRGIN ISLANDS.

* TSUNAMI WAVES LESS THAN 0.3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  BRAZIL... GUYANA... GUATEMALA... SURINAME... BARBADOS...
  BERMUDA... FRENCH GUIANA... AND TRINIDAD AND TOBAGO.

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* FOR OTHER AREAS COVERED BY THIS PRODUCT A FORECAST HAS NOT YET BEEN COMPUTED. THE FORECAST WILL BE EXPANDED AS NECESSARY IN SUBSEQUENT PRODUCTS.

RECOMMENDED ACTIONS
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COLON	PANAMA	9.4N 79.9W	1512 03/25
RIOHACHA	COLOMBIA	11.6N 72.9W	1518 03/25
BOCAS DEL TORO	PANAMA	9.4N 82.2W	1528 03/25
KINGSTON	JAMAICA	17.9N 76.9W	1528 03/25
JACAMEL	HAITI	18.1N 72.5W	1536 03/25
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SANTA MARTA	COLOMBIA	11.2N 74.2W	1546 03/25
ORANJESTAD	ARUBA	12.5N 70.0W	1548 03/25
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WILLEMSTAD	CURACAO	12.1N 68.9W	1557 03/25
ONIMA	BONAIRE	12.3N 68.3W	1559 03/25
SANTO DOMINGO	DOMINICAN REP	18.5N 69.9W	1603 03/25
GRAND CAYMAN	CAYMAN ISLANDS	19.3N 81.3W	1611 03/25
BARACOA	CUBA	20.4N 74.5W	1615 03/25
GREAT INAGUA	BAHAMAS	20.9N 73.7W	1616 03/25
CIENFUEGOS	CUBA	22.0N 80.5W	1620 03/25
CABO ENGANO	DOMINICAN REP	18.6N 68.3W	1623 03/25
CAP HAITEN	HAITI	19.8N 72.2W	1628 03/25
WEST CAICOS	TURKS N CAICOS	21.7N 72.5W	1632 03/25
MAIQUETIA	VENEZUELA	10.6N 67.0W	1636 03/25
MAYAGUANA	BAHAMAS	22.3N 73.0W	1637 03/25
PUERTO PLATA	DOMINICAN REP	19.8N 70.7W	1640 03/25
JEREMIE	HAITI	18.6N 74.1W	1641 03/25
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LONG ISLAND	BAHAMAS	23.3N 75.1W	1648 03/25
GRAND TURK	TURKS N CAICOS	21.5N 71.1W	1651 03/25

COZUMEL	MEXICO	20.5N	87.0W	1651	03/25
BASSE TERRE	GUADELOUPE	16.0N	61.7W	1654	03/25
ROSEAU	DOMINICA	15.3N	61.4W	1655	03/25
PUERTO CORTES	HONDURAS	15.9N	88.0W	1655	03/25
FORT DE FRANCE	MARTINIQUE	14.6N	61.1W	1658	03/25
SAN SALVADOR	BAHAMAS	24.1N	74.5W	1658	03/25
KINGSTOWN	SAINT VINCENT	13.1N	61.2W	1658	03/25
CASTRIES	SAINT LUCIA	14.0N	61.0W	1658	03/25
SAINT GEORGES	GRENADA	12.0N	61.8W	1659	03/25
BASSETERRE	SAINT KITTS	17.3N	62.7W	1659	03/25
PLYMOUTH	MONTSERRAT	16.7N	62.2W	1700	03/25
CUMANA	VENEZUELA	10.5N	64.2W	1701	03/25
SIMPSON BAAI	SINT MAARTEN	18.0N	63.1W	1703	03/25
EXUMA	BAHAMAS	23.6N	75.9W	1704	03/25
TRUJILLO	HONDURAS	15.9N	86.0W	1714	03/25
CAT ISLAND	BAHAMAS	24.4N	75.5W	1714	03/25
THE VALLEY	ANGUILLA	18.3N	63.1W	1722	03/25
GIBARA	CUBA	21.1N	76.1W	1722	03/25
LA HABANA	CUBA	23.2N	82.4W	1724	03/25
ABACO ISLAND	BAHAMAS	26.6N	77.1W	1726	03/25
ANDROS ISLAND	BAHAMAS	25.0N	77.9W	1730	03/25
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N	62.8W	1734	03/25
SAINT JOHNS	ANTIGUA	17.1N	61.9W	1735	03/25
PALMETTO POINT	BARBUDA	17.6N	61.9W	1735	03/25
PUNTO FIJO	VENEZUELA	11.7N	70.2W	1737	03/25
BAIE BLANCHE	SAINT MARTIN	18.1N	63.0W	1741	03/25
BELIZE CITY	BELIZE	17.5N	88.2W	1742	03/25
ELEUTHERA ISLAN	BAHAMAS	25.2N	76.1W	1743	03/25
PORT AU PRINCE	HAITI	18.5N	72.4W	1744	03/25
NASSAU	BAHAMAS	25.1N	77.4W	1747	03/25
FREEPORT	BAHAMAS	26.5N	78.8W	1750	03/25
BIMINI	BAHAMAS	25.8N	79.3W	1822	03/25
SANTA CRZ D SUR	CUBA	20.7N	78.0W	1837	03/25
GOLFO VENEZUELA	VENEZUELA	11.4N	71.2W	1914	03/25
NUEVA GERONA	CUBA	21.9N	82.8W	1937	03/25
PUERTO CABEZAS	NICARAGUA	14.0N	83.4W	1939	03/25
PORLAMAR	VENEZUELA	10.9N	63.8W	2124	03/25

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

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

* IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT

THE TIME OF THE MAXIMUM TSUNAMI WAVES.

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

TSUNAMI OBSERVATIONS
---

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

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
EL PORVENIR PM	9.6N	78.9W	1453	10.89M/35.7FT	44
SAN ANDRES CO	12.6N	81.7W	1448	2.13M/ 7.0FT	32

NEXT UPDATE AND ADDITIONAL INFORMATION
---

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

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

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Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

ZCZC
WECA41 PHEB 251602
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 4
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1602 UCT WED MAR 25 2015

...TSUNAMI THREAT MESSAGE...

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

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UNESCO/IOC TSUNAMI AND OTHER COASTAL HAZARDS WARNING SYSTEM FOR
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APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY.

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

PRELIMINARY EARTHQUAKE PARAMETERS
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* MAGNITUDE 8.5
* ORIGIN TIME 1400 UTC MAR 25 2015
* COORDINATES 10.3 NORTH 78.8 WEST
* DEPTH 15 KM / 9 MILES
* LOCATION NORTH OF PANAMA

EVALUATION
---

* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.5 OCCURRED NORTH OF PANAMA AT 1400 UTC ON WEDNESDAY MARCH 25 2015.

* TSUNAMI WAVES HAVE BEEN OBSERVED.

* BASED ON ALL AVAILABLE DATA... HAZARDOUS TSUNAMI WAVES ARE FORECAST FOR SOME COASTS.

TSUNAMI THREAT FORECAST

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JACAMEL	HAITI	18.1N 72.5W	1536 03/25
PUNTA GORDA	NICARAGUA	11.4N 83.8W	1544 03/25
SANTA MARTA	COLOMBIA	11.2N 74.2W	1546 03/25
ORANJESTAD	ARUBA	12.5N 70.0W	1548 03/25
CAYMAN BRAC	CAYMAN ISLANDS	19.7N 79.9W	1552 03/25
MONTEGO BAY	JAMAICA	18.5N 77.9W	1553 03/25
SANTIAGO D CUBA	CUBA	19.9N 75.8W	1553 03/25
WILLEMSTAD	CURACAO	12.1N 68.9W	1557 03/25
ONIMA	BONAIRE	12.3N 68.3W	1559 03/25
SANTO DOMINGO	DOMINICAN REP	18.5N 69.9W	1603 03/25
GRAND CAYMAN	CAYMAN ISLANDS	19.3N 81.3W	1611 03/25
BARACOA	CUBA	20.4N 74.5W	1615 03/25
GREAT INAGUA	BAHAMAS	20.9N 73.7W	1616 03/25
CIENFUEGOS	CUBA	22.0N 80.5W	1620 03/25
CABO ENGANO	DOMINICAN REP	18.6N 68.3W	1623 03/25
CAP HAITEN	HAITI	19.8N 72.2W	1628 03/25
WEST CAICOS	TURKS N CAICOS	21.7N 72.5W	1632 03/25
MAIQUETIA	VENEZUELA	10.6N 67.0W	1636 03/25
MAYAGUANA	BAHAMAS	22.3N 73.0W	1637 03/25
PUERTO PLATA	DOMINICAN REP	19.8N 70.7W	1640 03/25
JEREMIE	HAITI	18.6N 74.1W	1641 03/25
CROOKED ISLAND	BAHAMAS	22.7N 74.1W	1645 03/25
LONG ISLAND	BAHAMAS	23.3N 75.1W	1648 03/25
GRAND TURK	TURKS N CAICOS	21.5N 71.1W	1651 03/25
COZUMEL	MEXICO	20.5N 87.0W	1651 03/25
BASSE TERRE	GUADELOUPE	16.0N 61.7W	1654 03/25
ROSEAU	DOMINICA	15.3N 61.4W	1655 03/25
PUERTO CORTES	HONDURAS	15.9N 88.0W	1655 03/25
FORT DE FRANCE	MARTINIQUE	14.6N 61.1W	1658 03/25
SAN SALVADOR	BAHAMAS	24.1N 74.5W	1658 03/25

KINGSTOWN	SAINT VINCENT	13.1N	61.2W	1658 03/25
CASTRIES	SAINT LUCIA	14.0N	61.0W	1658 03/25
SAINT GEORGES	GRENADA	12.0N	61.8W	1659 03/25
BASSETERRE	SAINT KITTS	17.3N	62.7W	1659 03/25
PLYMOUTH	MONTSERRAT	16.7N	62.2W	1700 03/25
CUMANA	VENEZUELA	10.5N	64.2W	1701 03/25
SIMPSON BAAI	SINT MAARTEN	18.0N	63.1W	1703 03/25
EXUMA	BAHAMAS	23.6N	75.9W	1704 03/25
TRUJILLO	HONDURAS	15.9N	86.0W	1714 03/25
CAT ISLAND	BAHAMAS	24.4N	75.5W	1714 03/25
THE VALLEY	ANGUILLA	18.3N	63.1W	1722 03/25
GIBARA	CUBA	21.1N	76.1W	1722 03/25
LA HABANA	CUBA	23.2N	82.4W	1724 03/25
ABACO ISLAND	BAHAMAS	26.6N	77.1W	1726 03/25
ANDROS ISLAND	BAHAMAS	25.0N	77.9W	1730 03/25
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N	62.8W	1734 03/25
SAINT JOHNS	ANTIGUA	17.1N	61.9W	1735 03/25
PALMETTO POINT	BARBUDA	17.6N	61.9W	1735 03/25
PUNTO FIJO	VENEZUELA	11.7N	70.2W	1737 03/25
BAIE BLANCHE	SAINT MARTIN	18.1N	63.0W	1741 03/25
BELIZE CITY	BELIZE	17.5N	88.2W	1742 03/25
ELEUTHERA ISLAN	BAHAMAS	25.2N	76.1W	1743 03/25
PORT AU PRINCE	HAITI	18.5N	72.4W	1744 03/25
NASSAU	BAHAMAS	25.1N	77.4W	1747 03/25
FREEPORT	BAHAMAS	26.5N	78.8W	1750 03/25
BIMINI	BAHAMAS	25.8N	79.3W	1822 03/25
SANTA CRZ D SUR	CUBA	20.7N	78.0W	1837 03/25
GOLFO VENEZUELA	VENEZUELA	11.4N	71.2W	1914 03/25
NUEVA GERONA	CUBA	21.9N	82.8W	1937 03/25
PUERTO CABEZAS	NICARAGUA	14.0N	83.4W	1939 03/25
PORLAMAR	VENEZUELA	10.9N	63.8W	2124 03/25

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

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

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

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

Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

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

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
DART 42407	15.3N	68.2W	1559	0.09M/ 0.3FT	32
BARAHONA DO	18.2N	71.1W	1600	2.08M/ 6.8FT	48
SANTA MARTA CO	11.2N	74.2W	1559	3.22M/10.6FT	28
JACMEL HT	18.2N	72.5W	1552	1.64M/ 5.4FT	40
LIMON CR	10.0N	83.0W	1501	2.45M/ 8.0FT	48
EL PORVENIR PM	9.6N	78.9W	1453	10.89M/35.7FT	44
SAN ANDRES CO	12.6N	81.7W	1448	2.13M/ 7.0FT	32

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

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

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

* COASTAL REGIONS OF PUERTO RICO... THE U.S. VIRGIN ISLANDS AND THE BRITISH VIRGIN ISLANDS SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT NTWC.ARH.NOAA.GOV.

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Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

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ZCZC
WECA41 PHEB 251701
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 5
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1701 UCT WED MAR 25 2015

...TSUNAMI THREAT MESSAGE...


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

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

 NATIONAL AUTHORITIES WILL DETERMINE THE TSUNAMI THREAT AND
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY.

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


PRELIMINARY EARTHQUAKE PARAMETERS
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  * MAGNITUDE      8.5
  * ORIGIN TIME    1400 UTC MAR 25 2015
  * COORDINATES    10.3 NORTH  78.8 WEST
  * DEPTH          15 KM / 9 MILES
  * LOCATION       NORTH OF PANAMA


EVALUATION
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  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.5 OCCURRED
    NORTH OF PANAMA AT 1400 UTC ON WEDNESDAY MARCH 25 2015.

  * TSUNAMI WAVES HAVE BEEN OBSERVED.

  * BASED ON ALL AVAILABLE DATA... HAZARDOUS TSUNAMI WAVES ARE
    FORECAST FOR SOME COASTS.


TSUNAMI THREAT FORECAST
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* TSUNAMI WAVES REACHING MORE THAN 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  COLOMBIA... AND PANAMA.

* TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

  ARUBA... COSTA RICA... CUBA... DOMINICAN REPUBLIC...
  HAITI... NICARAGUA... PUERTO RICO... BAHAMAS... JAMAICA...
  CURACAO... BONAIRE... SAINT KITTS AND NEVIS... AND VENEZUELA.

* TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  HONDURAS... MEXICO... ANGUILLA... ANTIGUA AND BARBUDA...
  BELIZE... CAYMAN ISLANDS... DOMINICA... GRENADA... GUADELOUPE...
  MARTINIQUE... MONTSERRAT... SAINT LUCIA... SINT MAARTEN... SAINT
  BARTHELEMY... SAINT MARTIN... SAINT VINCENT AND THE
  GRENADINES... TURKS AND CAICOS ISLANDS... AND US VIRGIN ISLANDS.

* TSUNAMI WAVES LESS THAN 0.3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

  BRAZIL... GUYANA... GUATEMALA... SURINAME... BARBADOS...
  BERMUDA... FRENCH GUIANA... AND TRINIDAD AND TOBAGO.

* ACTUAL AMPLITUDES AT THE COAST MAY VARY FROM FORECAST AMPLITUDES DUE TO UNCERTAINTIES IN THE FORECAST AND LOCAL FEATURES. IN PARTICULAR MAXIMUM TSUNAMI AMPLITUDES ON ATOLLS WILL LIKELY BE MUCH SMALLER THAN THE FORECAST INDICATES.

* FOR OTHER AREAS COVERED BY THIS PRODUCT A FORECAST HAS NOT YET BEEN COMPUTED. THE FORECAST WILL BE EXPANDED AS NECESSARY IN SUBSEQUENT PRODUCTS.

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

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

ESTIMATED TIMES OF ARRIVAL
---

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

LOCATION	REGION	COORDINATES	ETA(UTC)
SANTO DOMINGO	DOMINICAN REP	18.5N 69.9W	1603 03/25
GRAND CAYMAN	CAYMAN ISLANDS	19.3N 81.3W	1611 03/25
BARACOA	CUBA	20.4N 74.5W	1615 03/25
GREAT INAGUA	BAHAMAS	20.9N 73.7W	1616 03/25
CIENFUEGOS	CUBA	22.0N 80.5W	1620 03/25
CABO ENGANO	DOMINICAN REP	18.6N 68.3W	1623 03/25
CAP HAITEN	HAITI	19.8N 72.2W	1628 03/25
WEST CAICOS	TURKS N CAICOS	21.7N 72.5W	1632 03/25
MAIQUETIA	VENEZUELA	10.6N 67.0W	1636 03/25
MAYAGUANA	BAHAMAS	22.3N 73.0W	1637 03/25
PUERTO PLATA	DOMINICAN REP	19.8N 70.7W	1640 03/25
JEREMIE	HAITI	18.6N 74.1W	1641 03/25
CROOKED ISLAND	BAHAMAS	22.7N 74.1W	1645 03/25
LONG ISLAND	BAHAMAS	23.3N 75.1W	1648 03/25
GRAND TURK	TURKS N CAICOS	21.5N 71.1W	1651 03/25
COZUMEL	MEXICO	20.5N 87.0W	1651 03/25
BASSE TERRE	GUADELOUPE	16.0N 61.7W	1654 03/25
ROSEAU	DOMINICA	15.3N 61.4W	1655 03/25
PUERTO CORTES	HONDURAS	15.9N 88.0W	1655 03/25
FORT DE FRANCE	MARTINIQUE	14.6N 61.1W	1658 03/25
SAN SALVADOR	BAHAMAS	24.1N 74.5W	1658 03/25
KINGSTOWN	SAINT VINCENT	13.1N 61.2W	1658 03/25
CASTRIES	SAINT LUCIA	14.0N 61.0W	1658 03/25
SAINT GEORGES	GRENADA	12.0N 61.8W	1659 03/25
BASSETERRE	SAINT KITTS	17.3N 62.7W	1659 03/25
PLYMOUTH	MONTSERRAT	16.7N 62.2W	1700 03/25
CUMANA	VENEZUELA	10.5N 64.2W	1701 03/25
SIMPSON BAAI	SINT MAARTEN	18.0N 63.1W	1703 03/25
EXUMA	BAHAMAS	23.6N 75.9W	1704 03/25
TRUJILLO	HONDURAS	15.9N 86.0W	1714 03/25
CAT ISLAND	BAHAMAS	24.4N 75.5W	1714 03/25
THE VALLEY	ANGUILLA	18.3N 63.1W	1722 03/25
GIBARA	CUBA	21.1N 76.1W	1722 03/25
LA HABANA	CUBA	23.2N 82.4W	1724 03/25
ABACO ISLAND	BAHAMAS	26.6N 77.1W	1726 03/25

ANDROS ISLAND	BAHAMAS	25.0N	77.9W	1730 03/25
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N	62.8W	1734 03/25
SAINT JOHNS	ANTIGUA	17.1N	61.9W	1735 03/25
PALMETTO POINT	BARBUDA	17.6N	61.9W	1735 03/25
PUNTO FIJO	VENEZUELA	11.7N	70.2W	1737 03/25
BAIE BLANCHE	SAINT MARTIN	18.1N	63.0W	1741 03/25
BELIZE CITY	BELIZE	17.5N	88.2W	1742 03/25
ELEUTHERA ISLAN	BAHAMAS	25.2N	76.1W	1743 03/25
PORT AU PRINCE	HAITI	18.5N	72.4W	1744 03/25
NASSAU	BAHAMAS	25.1N	77.4W	1747 03/25
FREEPORT	BAHAMAS	26.5N	78.8W	1750 03/25
BIMINI	BAHAMAS	25.8N	79.3W	1822 03/25
SANTA CRZ D SUR	CUBA	20.7N	78.0W	1837 03/25
GOLFO VENEZUELA	VENEZUELA	11.4N	71.2W	1914 03/25
NUEVA GERONA	CUBA	21.9N	82.8W	1937 03/25
PUERTO CABEZAS	NICARAGUA	14.0N	83.4W	1939 03/25
PORLAMAR	VENEZUELA	10.9N	63.8W	2124 03/25

POTENTIAL IMPACTS

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

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

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

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

TSUNAMI OBSERVATIONS

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

	GAUGE COORDINATES		TIME OF MEASURE	MAXIMUM TSUNAMI	WAVE PERIOD
GAUGE LOCATION	LAT	LON	(UTC)	HEIGHT	(MIN)
SAN JUAN PR	18.5N	66.1W	1648	0.32M/ 1.0FT	44
PUERTO PLATA DO	19.8N	70.7W	1647	0.14M/ 0.5FT	32

ARECIBO PR	18.5N	66.7W	1647	0.39M/ 1.3FT	56
LIMETREE VI	17.7N	64.8W	1647	0.89M/ 2.9FT	56
ST CROIX VI	17.7N	64.7W	1640	0.54M/ 1.8FT	32
CAP HAITIEN HT	19.8N	72.2W	1638	0.39M/ 1.3FT	36
AGUADILLA PR	18.5N	67.2W	1635	0.75M/ 2.5FT	40
MAYAGUEZ PR	18.2N	67.2W	1631	0.90M/ 3.0FT	52
PUNTA CANA DO	18.5N	68.4W	1625	0.84M/ 2.7FT	36
PENUELAS PR	18.0N	66.8W	1625	0.96M/ 3.1FT	52
MAGUEYES ISLAND PR	18.0N	67.0W	1618	0.95M/ 3.1FT	52
MONA ISLAND PR	18.1N	67.9W	1623	0.92M/ 3.0FT	52
GEORGE TOWN CY	19.3N	81.4W	1618	0.56M/ 1.8FT	40
PORT SAN ANDRES DO	18.4N	69.6W	1617	2.32M/ 7.6FT	44
BULLEN BAY CURACAO	12.2N	69.0W	1605	1.04M/ 3.4FT	44
DART 42407	15.3N	68.2W	1559	0.09M/ 0.3FT	32
BARAHONA DO	18.2N	71.1W	1600	2.08M/ 6.8FT	48
SANTA MARTA CO	11.2N	74.2W	1559	3.22M/10.6FT	28
JACMEL HT	18.2N	72.5W	1552	1.64M/ 5.4FT	40
LIMON CR	10.0N	83.0W	1501	2.45M/ 8.0FT	48
EL PORVENIR PM	9.6N	78.9W	1453	10.89M/35.7FT	44
SAN ANDRES CO	12.6N	81.7W	1448	2.13M/ 7.0FT	32

NEXT UPDATE AND ADDITIONAL INFORMATION
---

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

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

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

* COASTAL REGIONS OF PUERTO RICO... THE U.S. VIRGIN ISLANDS AND THE BRITISH VIRGIN ISLANDS SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT NTWC.ARH.NOAA.GOV.

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Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

ZCZC
WECA41 PHEB 251800
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 6
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1800 UCT WED MAR 25 2015

...TSUNAMI THREAT MESSAGE...

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

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

NATIONAL AUTHORITIES WILL DETERMINE THE TSUNAMI THREAT AND APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY.

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

PRELIMINARY EARTHQUAKE PARAMETERS
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* MAGNITUDE 8.5
* ORIGIN TIME 1400 UTC MAR 25 2015
* COORDINATES 10.3 NORTH 78.8 WEST
* DEPTH 15 KM / 9 MILES
* LOCATION NORTH OF PANAMA

EVALUATION
---

* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.5 OCCURRED NORTH OF PANAMA AT 1400 UTC ON WEDNESDAY MARCH 25 2015.

* TSUNAMI WAVES HAVE BEEN OBSERVED.

* BASED ON ALL AVAILABLE DATA... HAZARDOUS TSUNAMI WAVES ARE FORECAST FOR SOME COASTS.

TSUNAMI THREAT FORECAST

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  * TSUNAMI WAVES REACHING MORE THAN 3 METERS ABOVE THE TIDE
    LEVEL ARE POSSIBLE ALONG SOME COASTS OF

      COLOMBIA... AND PANAMA.


  * TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE
    POSSIBLE ALONG SOME COASTS OF

      ARUBA... COSTA RICA... CUBA... DOMINICAN REPUBLIC...
      HAITI... NICARAGUA... PUERTO RICO... BAHAMAS... JAMAICA...
      CURACAO... BONAIRE... SAINT KITTS AND NEVIS... AND VENEZUELA.


  * TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL
    ARE POSSIBLE FOR SOME COASTS OF

      HONDURAS... MEXICO... ANGUILLA... ANTIGUA AND BARBUDA...
      BELIZE... CAYMAN ISLANDS... DOMINICA... GRENADA... GUADELOUPE...
      MARTINIQUE... MONTSERRAT... SAINT LUCIA... SINT MAARTEN... SAINT
      BARTHELEMY... SAINT MARTIN... SAINT VINCENT AND THE
      GRENADINES... TURKS AND CAICOS ISLANDS... AND US VIRGIN ISLANDS.


  * TSUNAMI WAVES LESS THAN 0.3 METERS ABOVE THE TIDE LEVEL ARE
    POSSIBLE FOR SOME COASTS OF

      BRAZIL... GUYANA... GUATEMALA... SURINAME... BARBADOS...
      BERMUDA... FRENCH GUIANA... AND TRINIDAD AND TOBAGO.


  * ACTUAL AMPLITUDES AT THE COAST MAY VARY FROM FORECAST
    AMPLITUDES DUE TO UNCERTAINTIES IN THE FORECAST AND LOCAL
    FEATURES. IN PARTICULAR MAXIMUM TSUNAMI AMPLITUDES ON ATOLLS
    WILL LIKELY BE MUCH SMALLER THAN THE FORECAST INDICATES.

  * FOR OTHER AREAS COVERED BY THIS PRODUCT A FORECAST HAS NOT
    YET BEEN COMPUTED. THE FORECAST WILL BE EXPANDED AS NECESSARY
    IN SUBSEQUENT PRODUCTS.


RECOMMENDED ACTIONS
-------------------

  * GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS
    SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL
    POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION...
    PROCEDURES AND THE LEVEL OF THREAT.
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* PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

ESTIMATED TIMES OF ARRIVAL
---

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

LOCATION	REGION	COORDINATES	ETA(UTC)
PLYMOUTH	MONTSERRAT	16.7N 62.2W	1700 03/25
CUMANA	VENEZUELA	10.5N 64.2W	1701 03/25
SIMPSON BAAI	SINT MAARTEN	18.0N 63.1W	1703 03/25
EXUMA	BAHAMAS	23.6N 75.9W	1704 03/25
TRUJILLO	HONDURAS	15.9N 86.0W	1714 03/25
CAT ISLAND	BAHAMAS	24.4N 75.5W	1714 03/25
THE VALLEY	ANGUILLA	18.3N 63.1W	1722 03/25
GIBARA	CUBA	21.1N 76.1W	1722 03/25
LA HABANA	CUBA	23.2N 82.4W	1724 03/25
ABACO ISLAND	BAHAMAS	26.6N 77.1W	1726 03/25
ANDROS ISLAND	BAHAMAS	25.0N 77.9W	1730 03/25
SAINT BARTHELEM	SAINT BARTHELEMY	17.9N 62.8W	1734 03/25
SAINT JOHNS	ANTIGUA	17.1N 61.9W	1735 03/25
PALMETTO POINT	BARBUDA	17.6N 61.9W	1735 03/25
PUNTO FIJO	VENEZUELA	11.7N 70.2W	1737 03/25
BAIE BLANCHE	SAINT MARTIN	18.1N 63.0W	1741 03/25
BELIZE CITY	BELIZE	17.5N 88.2W	1742 03/25
ELEUTHERA ISLAN	BAHAMAS	25.2N 76.1W	1743 03/25
PORT AU PRINCE	HAITI	18.5N 72.4W	1744 03/25
NASSAU	BAHAMAS	25.1N 77.4W	1747 03/25
FREEPORT	BAHAMAS	26.5N 78.8W	1750 03/25
BIMINI	BAHAMAS	25.8N 79.3W	1822 03/25
SANTA CRZ D SUR	CUBA	20.7N 78.0W	1837 03/25
GOLFO VENEZUELA	VENEZUELA	11.4N 71.2W	1914 03/25
NUEVA GERONA	CUBA	21.9N 82.8W	1937 03/25
PUERTO CABEZAS	NICARAGUA	14.0N 83.4W	1939 03/25
PORLAMAR	VENEZUELA	10.9N 63.8W	2124 03/25

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

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

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

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

TSUNAMI OBSERVATIONS
---

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

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
DART 42429	27.4N	85.7W	1744	0.01M/ 0.0FT	48
PARHAM AT	17.1N	61.8W	1746	0.24M/ 0.8FT	56
CHARLOTTEVILLE TT	11.3N	60.5W	1748	0.16M/ 0.5FT	36
DART 42409	26.7N	85.8W	1739	0.00M/ 0.0FT	28
PUERTO MORELOS MX	21.4N	86.8W	1733	0.45M/ 1.5FT	36
BRIDGEPORT BB	13.1N	59.6W	1733	0.25M/ 0.8FT	48
PORT ST CHARLES BB	13.3N	59.6W	1737	0.23M/ 0.8FT	52
DESIRADE GUADELOUPE	16.3N	61.1W	1734	0.24M/ 0.8FT	44
LE ROBERT MARTINIQU	14.7N	60.9W	1732	0.28M/ 0.9FT	44
LAMESHURBAYSTJOHNVI	18.3N	64.7W	1729	0.54M/ 1.8FT	52
POINT A PITRE GP	16.2N	61.5W	1718	0.44M/ 1.5FT	32
DART 41421	23.4N	63.9W	1717	0.02M/ 0.1FT	44
CALLIAQUA VC	13.1N	61.2W	1715	0.79M/ 2.6FT	52
ISLA MUJERES	21.2N	86.7W	1715	0.42M/ 1.4FT	44
DART 41420	23.5N	67.3W	1709	0.01M/ 0.0FT	36
PRICKLEY BAY GD	12.0N	61.8W	1711	0.46M/ 1.5FT	56
BASSETERRE KN	17.3N	62.7W	1713	0.38M/ 1.2FT	48
FORT DE FRANCE MQ	14.6N	61.1W	1704	0.97M/ 3.2FT	28
DESHAIES GUADELOUPE	16.3N	61.8W	1710	0.70M/ 2.3FT	52
LE PRECHEUR MARTINI	14.8N	61.2W	1706	0.57M/ 1.9FT	56
ROSEAU DM	15.3N	61.4W	1703	0.70M/ 2.3FT	56
SAN JUAN PR	18.5N	66.1W	1648	0.32M/ 1.0FT	44
PUERTO PLATA DO	19.8N	70.7W	1647	0.14M/ 0.5FT	32
ARECIBO PR	18.5N	66.7W	1647	0.39M/ 1.3FT	56
LIMETREE VI	17.7N	64.8W	1647	0.89M/ 2.9FT	56
ST CROIX VI	17.7N	64.7W	1640	0.54M/ 1.8FT	32
CAP HAITIEN HT	19.8N	72.2W	1638	0.39M/ 1.3FT	36

AGUADILLA PR	18.5N	67.2W	1635	0.75M/ 2.5FT	40
MAYAGUEZ PR	18.2N	67.2W	1631	0.90M/ 3.0FT	52
PUNTA CANA DO	18.5N	68.4W	1625	0.84M/ 2.7FT	36
PENUELAS PR	18.0N	66.8W	1625	0.96M/ 3.1FT	52
MAGUEYES ISLAND PR	18.0N	67.0W	1618	0.95M/ 3.1FT	52
MONA ISLAND PR	18.1N	67.9W	1623	0.92M/ 3.0FT	52
GEORGE TOWN CY	19.3N	81.4W	1618	0.56M/ 1.8FT	40
PORT SAN ANDRES DO	18.4N	69.6W	1617	2.32M/ 7.6FT	44
BULLEN BAY CURACAO	12.2N	69.0W	1605	1.04M/ 3.4FT	44
DART 42407	15.3N	68.2W	1559	0.09M/ 0.3FT	32
BARAHONA DO	18.2N	71.1W	1600	2.08M/ 6.8FT	48
SANTA MARTA CO	11.2N	74.2W	1559	3.22M/10.6FT	28
JACMEL HT	18.2N	72.5W	1552	1.64M/ 5.4FT	40
LIMON CR	10.0N	83.0W	1501	2.45M/ 8.0FT	48
EL PORVENIR PM	9.6N	78.9W	1453	10.89M/35.7FT	44
SAN ANDRES CO	12.6N	81.7W	1448	2.13M/ 7.0FT	32

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

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

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

* COASTAL REGIONS OF PUERTO RICO... THE U.S. VIRGIN ISLANDS AND THE BRITISH VIRGIN ISLANDS SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT NTWC.ARH.NOAA.GOV.

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Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

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ZCZC
WECA41 PHEB 251901
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 7
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1901 UCT WED MAR 25 2015

...TSUNAMI THREAT MESSAGE...


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

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

 NATIONAL AUTHORITIES WILL DETERMINE THE TSUNAMI THREAT AND
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY.

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


PRELIMINARY EARTHQUAKE PARAMETERS
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  * MAGNITUDE      8.5
  * ORIGIN TIME    1400 UTC MAR 25 2015
  * COORDINATES    10.3 NORTH  78.8 WEST
  * DEPTH          15 KM / 9 MILES
  * LOCATION       NORTH OF PANAMA


EVALUATION
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  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.5 OCCURRED
    NORTH OF PANAMA AT 1400 UTC ON WEDNESDAY MARCH 25 2015.

  * TSUNAMI WAVES HAVE BEEN OBSERVED.

  * BASED ON ALL AVAILABLE DATA... HAZARDOUS TSUNAMI WAVES ARE
    FORECAST FOR SOME COASTS.


TSUNAMI THREAT FORECAST
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  * TSUNAMI WAVES REACHING MORE THAN 3 METERS ABOVE THE TIDE
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LEVEL ARE POSSIBLE ALONG SOME COASTS OF

COLOMBIA... AND PANAMA.

* TSUNAMI WAVES REACHING 1 TO 3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE ALONG SOME COASTS OF

ARUBA... COSTA RICA... CUBA... DOMINICAN REPUBLIC... HAITI... NICARAGUA... PUERTO RICO... BAHAMAS... JAMAICA... CURACAO... BONAIRE... SAINT KITTS AND NEVIS... AND VENEZUELA.

* TSUNAMI WAVES REACHING 0.3 TO 1 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

HONDURAS... MEXICO... ANGUILLA... ANTIGUA AND BARBUDA... BELIZE... CAYMAN ISLANDS... DOMINICA... GRENADA... GUADELOUPE... MARTINIQUE... MONTSERRAT... SAINT LUCIA... SINT MAARTEN... SAINT BARTHELEMY... SAINT MARTIN... SAINT VINCENT AND THE GRENADINES... TURKS AND CAICOS ISLANDS... AND US VIRGIN ISLANDS.

* TSUNAMI WAVES LESS THAN 0.3 METERS ABOVE THE TIDE LEVEL ARE POSSIBLE FOR SOME COASTS OF

BRAZIL... GUYANA.. GUATEMALA... SURINAME... BARBADOS... BERMUDA... FRENCH GUIANA... AND TRINIDAD AND TOBAGO.

* ACTUAL AMPLITUDES AT THE COAST MAY VARY FROM FORECAST AMPLITUDES DUE TO UNCERTAINTIES IN THE FORECAST AND LOCAL FEATURES. IN PARTICULAR MAXIMUM TSUNAMI AMPLITUDES ON ATOLLS WILL LIKELY BE MUCH SMALLER THAN THE FORECAST INDICATES.

* FOR OTHER AREAS COVERED BY THIS PRODUCT A FORECAST HAS NOT YET BEEN COMPUTED. THE FORECAST WILL BE EXPANDED AS NECESSARY IN SUBSEQUENT PRODUCTS.

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

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

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

LOCATION	REGION	COORDINATES	ETA(UTC)
BIMINI	BAHAMAS	25.8N 79.3W	1822 03/25
SANTA CRZ D SUR	CUBA	20.7N 78.0W	1837 03/25
GOLFO VENEZUELA	VENEZUELA	11.4N 71.2W	1914 03/25
NUEVA GERONA	CUBA	21.9N 82.8W	1937 03/25
PUERTO CABEZAS	NICARAGUA	14.0N 83.4W	1939 03/25
PORLAMAR	VENEZUELA	10.9N 63.8W	2124 03/25

POTENTIAL IMPACTS
---

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

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

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

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

TSUNAMI OBSERVATIONS
---

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

	GAUGE COORDINATES		TIME OF MEASURE	MAXIMUM TSUNAMI	WAVE PERIOD
GAUGE LOCATION	LAT	LON	(UTC)	HEIGHT	(MIN)

VACA KEY FL	24.7N	81.1W	1855	0.03M/ 0.1FT	44
KEY WEST FL	24.6N	81.8W	1846	0.04M/ 0.1FT	52
DART 41424	32.9N	72.5W	1811	0.00M/ 0.0FT	44
DART 42429	27.4N	85.7W	1744	0.01M/ 0.0FT	48
PARHAM AT	17.1N	61.8W	1746	0.24M/ 0.8FT	56
CHARLOTTEVILLE TT	11.3N	60.5W	1748	0.16M/ 0.5FT	36
DART 42409	26.7N	85.8W	1739	0.00M/ 0.0FT	28
PUERTO MORELOS MX	21.4N	86.8W	1733	0.45M/ 1.5FT	36
BRIDGEPORT BB	13.1N	59.6W	1733	0.25M/ 0.8FT	48
PORT ST CHARLES BB	13.3N	59.6W	1737	0.23M/ 0.8FT	52
DESIRADE GUADELOUPE	16.3N	61.1W	1734	0.24M/ 0.8FT	44
LE ROBERT MARTINIQU	14.7N	60.9W	1732	0.28M/ 0.9FT	44
LAMESHURBAYSTJOHNVI	18.3N	64.7W	1729	0.54M/ 1.8FT	52
POINT A PITRE GP	16.2N	61.5W	1718	0.44M/ 1.5FT	32
DART 41421	23.4N	63.9W	1717	0.02M/ 0.1FT	44
CALLIAQUA VC	13.1N	61.2W	1715	0.79M/ 2.6FT	52
ISLA MUJERES	21.2N	86.7W	1715	0.42M/ 1.4FT	44
DART 41420	23.5N	67.3W	1709	0.01M/ 0.0FT	36
PRICKLEY BAY GD	12.0N	61.8W	1711	0.46M/ 1.5FT	56
BASSETERRE KN	17.3N	62.7W	1713	0.38M/ 1.2FT	48
FORT DE FRANCE MQ	14.6N	61.1W	1704	0.97M/ 3.2FT	28
DESHAIES GUADELOUPE	16.3N	61.8W	1710	0.70M/ 2.3FT	52
LE PRECHEUR MARTINI	14.8N	61.2W	1706	0.57M/ 1.9FT	56
ROSEAU DM	15.3N	61.4W	1703	0.70M/ 2.3FT	56
SAN JUAN PR	18.5N	66.1W	1648	0.32M/ 1.0FT	44
PUERTO PLATA DO	19.8N	70.7W	1647	0.14M/ 0.5FT	32
ARECIBO PR	18.5N	66.7W	1647	0.39M/ 1.3FT	56
LIMETREE VI	17.7N	64.8W	1647	0.89M/ 2.9FT	56
ST CROIX VI	17.7N	64.7W	1640	0.54M/ 1.8FT	32
CAP HAITIEN HT	19.8N	72.2W	1638	0.39M/ 1.3FT	36
AGUADILLA PR	18.5N	67.2W	1635	0.75M/ 2.5FT	40
MAYAGUEZ PR	18.2N	67.2W	1631	0.90M/ 3.0FT	52
PUNTA CANA DO	18.5N	68.4W	1625	0.84M/ 2.7FT	36
PENUELAS PR	18.0N	66.8W	1625	0.96M/ 3.1FT	52
MAGUEYES ISLAND PR	18.0N	67.0W	1618	0.95M/ 3.1FT	52
MONA ISLAND PR	18.1N	67.9W	1623	0.92M/ 3.0FT	52
GEORGE TOWN CY	19.3N	81.4W	1618	0.56M/ 1.8FT	40
PORT SAN ANDRES DO	18.4N	69.6W	1617	2.32M/ 7.6FT	44
BULLEN BAY CURACAO	12.2N	69.0W	1605	1.04M/ 3.4FT	44
DART 42407	15.3N	68.2W	1559	0.09M/ 0.3FT	32
BARAHONA DO	18.2N	71.1W	1600	2.08M/ 6.8FT	48
SANTA MARTA CO	11.2N	74.2W	1559	3.22M/10.6FT	28
JACMEL HT	18.2N	72.5W	1552	1.64M/ 5.4FT	40
LIMON CR	10.0N	83.0W	1501	2.45M/ 8.0FT	48
EL PORVENIR PM	9.6N	78.9W	1453	10.89M/35.7FT	44
SAN ANDRES CO	12.6N	81.7W	1448	2.13M/ 7.0FT	32

NEXT UPDATE AND ADDITIONAL INFORMATION
---

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

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

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

* COASTAL REGIONS OF PUERTO RICO... THE U.S. VIRGIN ISLANDS AND THE BRITISH VIRGIN ISLANDS SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT NTWC.ARH.NOAA.GOV.

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Pacific Tsunami Warning Center Enhanced Products for the CARIBE WAVE/LANTEX 2015 Panama Scenario

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ZCZC
WECA41 PHEB 251945
TSUCAX

EXPERIMENTAL TSUNAMI MESSAGE NUMBER 8
NOT FOR DISTRIBUTION
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1945 UCT WED MAR 25 2015

...FINAL TSUNAMI THREAT MESSAGE...


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

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

 NATIONAL AUTHORITIES WILL DETERMINE THE TSUNAMI THREAT AND
 APPROPRIATE LEVEL OF ALERT FOR EACH COUNTRY.

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


PRELIMINARY EARTHQUAKE PARAMETERS
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  * MAGNITUDE      8.5
  * ORIGIN TIME    1400 UTC MAR 25 2015
  * COORDINATES    10.3 NORTH  78.8 WEST
  * DEPTH          15 KM / 9 MILES
  * LOCATION       NORTH OF PANAMA


EVALUATION
----------

  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.5 OCCURRED
    NORTH OF PANAMA AT 1400 UTC ON WEDNESDAY MARCH 25 2015.

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


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

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

* REMAIN OBSERVANT AND EXERCISE NORMAL CAUTION NEAR THE SEA.

POTENTIAL IMPACTS
---

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

TSUNAMI OBSERVATIONS
---

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

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (UTC)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
PANAMACITYBEACH FL	30.2N	85.9W	1942	0.02M/ 0.1FT	48
GRAND ISLE LA	29.3N	90.0W	1931	0.02M/ 0.1FT	36
PILOTS STATION LA	28.9N	89.4W	1904	0.03M/ 0.1FT	40
VACA KEY FL	24.7N	81.1W	1855	0.03M/ 0.1FT	44
KEY WEST FL	24.6N	81.8W	1846	0.04M/ 0.1FT	52
DART 41424	32.9N	72.5W	1811	0.00M/ 0.0FT	44
DART 42429	27.4N	85.7W	1744	0.01M/ 0.0FT	48
PARHAM AT	17.1N	61.8W	1746	0.24M/ 0.8FT	56
CHARLOTTEVILLE TT	11.3N	60.5W	1748	0.16M/ 0.5FT	36
DART 42409	26.7N	85.8W	1739	0.00M/ 0.0FT	28
PUERTO MORELOS MX	21.4N	86.8W	1733	0.45M/ 1.5FT	36
BRIDGEPORT BB	13.1N	59.6W	1733	0.25M/ 0.8FT	48
PORT ST CHARLES BB	13.3N	59.6W	1737	0.23M/ 0.8FT	52
DESIRADE GUADELOUPE	16.3N	61.1W	1734	0.24M/ 0.8FT	44
LE ROBERT MARTINIQU	14.7N	60.9W	1732	0.28M/ 0.9FT	44
LAMESHURBAYSTJOHNVI	18.3N	64.7W	1729	0.54M/ 1.8FT	52

POINT A PITRE GP	16.2N	61.5W	1718	0.44M/ 1.5FT	32
DART 41421	23.4N	63.9W	1717	0.02M/ 0.1FT	44
CALLIAQUA VC	13.1N	61.2W	1715	0.79M/ 2.6FT	52
ISLA MUJERES	21.2N	86.7W	1715	0.42M/ 1.4FT	44
DART 41420	23.5N	67.3W	1709	0.01M/ 0.0FT	36
PRICKLEY BAY GD	12.0N	61.8W	1711	0.46M/ 1.5FT	56
BASSETERRE KN	17.3N	62.7W	1713	0.38M/ 1.2FT	48
FORT DE FRANCE MQ	14.6N	61.1W	1704	0.97M/ 3.2FT	28
DESHAIES GUADELOUPE	16.3N	61.8W	1710	0.70M/ 2.3FT	52
LE PRECHEUR MARTINI	14.8N	61.2W	1706	0.57M/ 1.9FT	56
ROSEAU DM	15.3N	61.4W	1703	0.70M/ 2.3FT	56
SAN JUAN PR	18.5N	66.1W	1648	0.32M/ 1.0FT	44
PUERTO PLATA DO	19.8N	70.7W	1647	0.14M/ 0.5FT	32
ARECIBO PR	18.5N	66.7W	1647	0.39M/ 1.3FT	56
LIMETREE VI	17.7N	64.8W	1647	0.89M/ 2.9FT	56
ST CROIX VI	17.7N	64.7W	1640	0.54M/ 1.8FT	32
CAP HAITIEN HT	19.8N	72.2W	1638	0.39M/ 1.3FT	36
AGUADILLA PR	18.5N	67.2W	1635	0.75M/ 2.5FT	40
MAYAGUEZ PR	18.2N	67.2W	1631	0.90M/ 3.0FT	52
PUNTA CANA DO	18.5N	68.4W	1625	0.84M/ 2.7FT	36
PENUELAS PR	18.0N	66.8W	1625	0.96M/ 3.1FT	52
MAGUEYES ISLAND PR	18.0N	67.0W	1618	0.95M/ 3.1FT	52
MONA ISLAND PR	18.1N	67.9W	1623	0.92M/ 3.0FT	52
GEORGE TOWN CY	19.3N	81.4W	1618	0.56M/ 1.8FT	40
PORT SAN ANDRES DO	18.4N	69.6W	1617	2.32M/ 7.6FT	44
BULLEN BAY CURACAO	12.2N	69.0W	1605	1.04M/ 3.4FT	44
DART 42407	15.3N	68.2W	1559	0.09M/ 0.3FT	32
BARAHONA DO	18.2N	71.1W	1600	2.08M/ 6.8FT	48
SANTA MARTA CO	11.2N	74.2W	1559	3.22M/10.6FT	28
JACMEL HT	18.2N	72.5W	1552	1.64M/ 5.4FT	40
LIMON CR	10.0N	83.0W	1501	2.45M/ 8.0FT	48
EL PORVENIR PM	9.6N	78.9W	1453	10.89M/35.7FT	44
SAN ANDRES CO	12.6N	81.7W	1448	2.13M/ 7.0FT	32

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.

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

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

* COASTAL REGIONS OF PUERTO RICO... THE U.S. VIRGIN ISLANDS AND THE BRITISH VIRGIN ISLANDS SHOULD REFER TO U.S. NATIONAL TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT

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    NTWC.ARH.NOAA.GOV.

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