



Caribe Wave 11 and LANTEX 2011

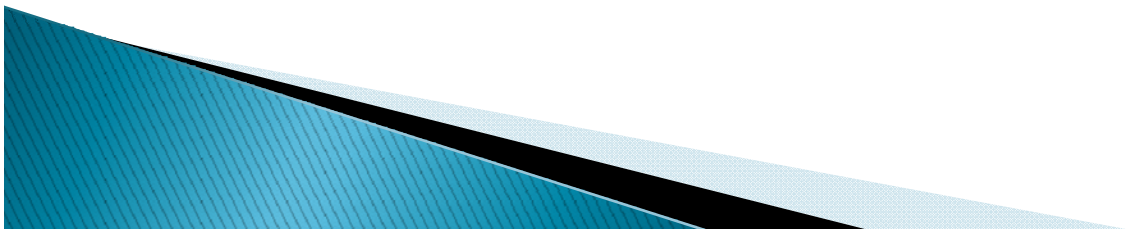
A Caribbean Tsunami Warning Exercise
2nd Webinar

Mayagüez, Puerto Rico
March 1, 2010

Christa G. von Hillebrandt-Andrade
Manager
Caribbean Tsunami Warning Program

Agenda

- ▶ Quick overview of the exercise
- ▶ Products to be issued
- ▶ Activities to be carried out by jurisdictions
- ▶ Media and Special Provisions
- ▶ Evaluation questionnaire
- ▶ Questions
- ▶ Contact information



Exercise Manual

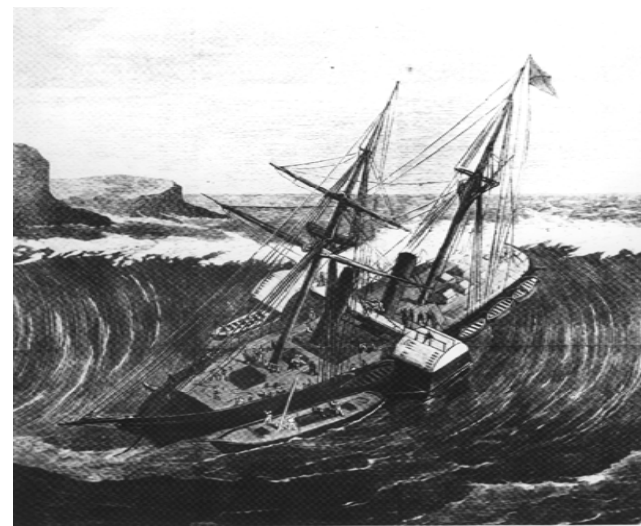
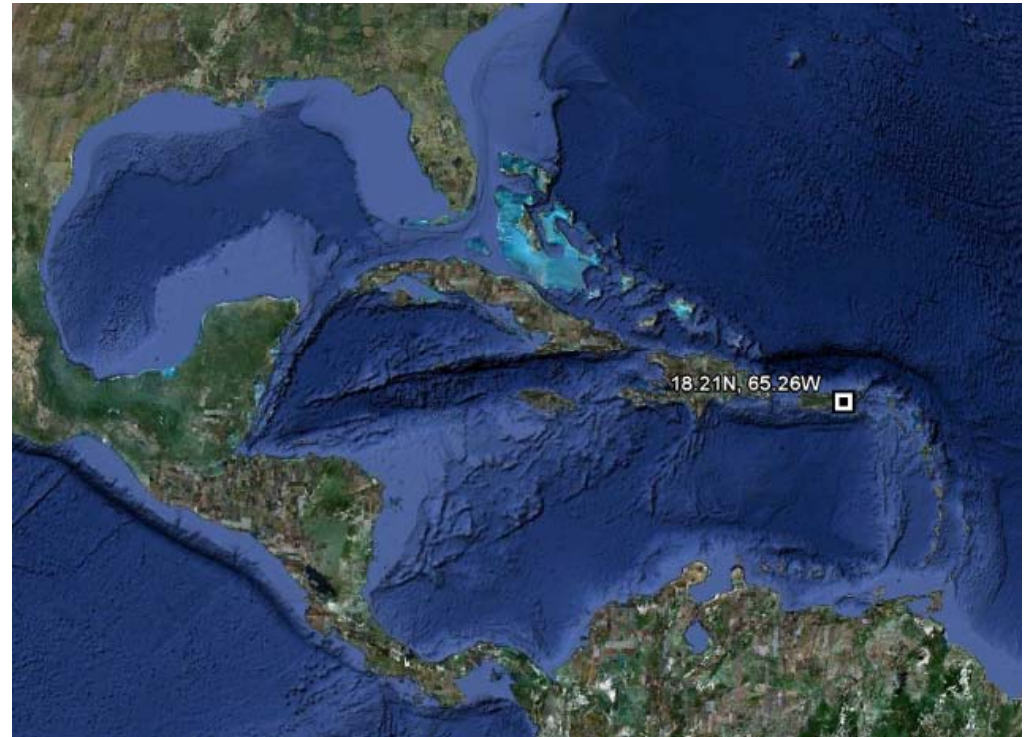
- ▶ The exercise manual and circular letter from IOC is available in Spanish, English and French at:
 - http://www.ioc-tsunami.org/index.php?option=com_oe&task=viewDoclistRecord&doclistID=102&lang=en (IOC CARIBE EWS website)
 - <http://www.srh.noaa.gov/srh/ctwp/?n=caribwave2011> (Caribbean Tsunami Warning Program website)
- ▶ NTHMP version (only English) of the Manual:
 - <http://wcatwc.arh.noaa.gov/>

Objectives of the Exercise (page 3)

- ▶ **Ensure message transmission** from the TWCs to Tsunami Warning Focal Points (TWFP) and from these primary contacts to the EMOs.
- ▶ **Test tsunami response plans** for Caribbean EMOs that have developed plans, and provide a catalyst for countries and EMOs that have not developed plans.
- ▶ EMOs, Tsunami Warning Focal Points (TFWP) and Tsunami National Contacts review, discuss, and evaluate the various communication alternatives for receiving and disseminating tsunami messages.
- ▶ EMOs, Tsunami Warning Focal Points and Tsunami National Contacts review, discuss, and evaluate potential response actions and challenges.
- ▶ Identify processes to issue local all-clear notices.

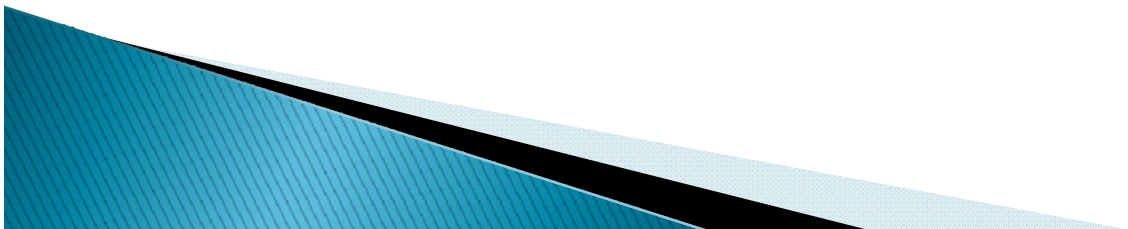
Scenario (page 5, 17)

- ▶ The scenario is based on the November 18, 1867 earthquake and tsunami for which wave heights of up to 10 meters were reported in the Eastern Caribbean.



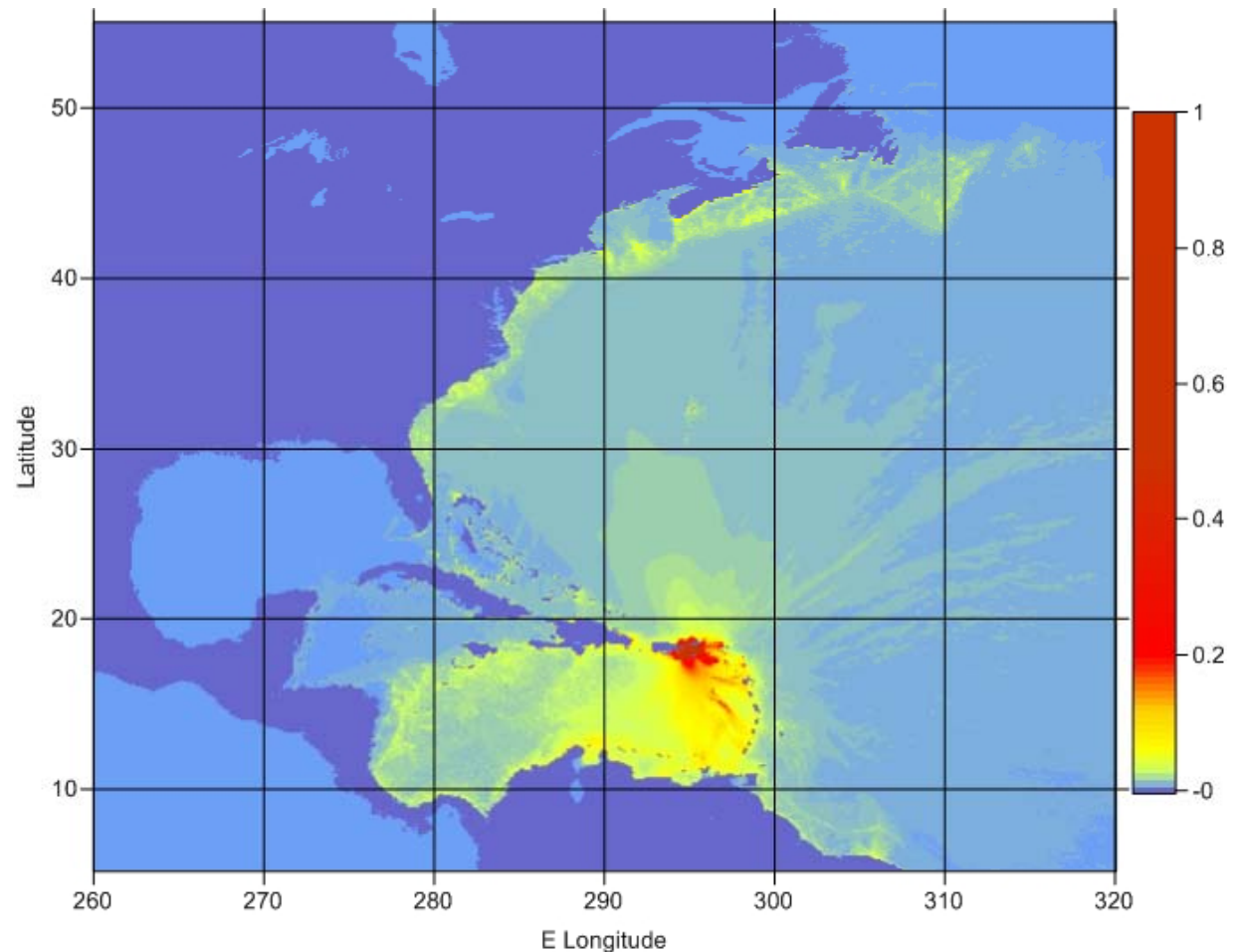
Exercise Scenario–Earthquake

- ▶ Date: Wednesday, March 23, 2011
- ▶ Source 1
 - Time: 1300 UTC
 - Earthquake Magnitude: 7.6
 - Epicenter: 18.21N, 65.26W
 - Depth: 7 km
- ▶ Source 2
 - Time: 1305 UTC,
 - Magnitude: 7.6
 - Epicenter: 18.36N, 64.73W
 - Depth: 7 km



Exercise Scenario–Tsunami

- ▶ Maximum modeled offshore wave height 4.7 m
- ▶ The height of the wave on the shore could be double that of the model outputs.
- ▶ Travel time first wave: 1 min – 5 hours



Travel Times and Max. Amp (offshore), Leading Edge (page 17)

Location	Travel time (hr:min)	Max Amp. (meters)	Leading Edge
Charlotte Amalie, VI	0:01	2.7	elevation
Christiansted, VI	0:01	2.5	recession
Fajardo, PR	0:01	0.95	recession
Lameshur Bay, VI	0:02	2.85	recession
Limetree Bay, VI	0:02	4.7	recession
Virgin Gorda, BVI	0:03	1.4	recession
Culebra, PR	0:05	2.0	elevation
St. John, VI	0:07	0.26	elevation
Tortola, BVI	0:07	0.47	elevation
San Juan, PR	0:12	0.59	elevation
Mona Island, PR	0:25	0.26	recession
Magueyes Island, PR	0:28	0.75	recession
D42407	0:32	.025	recession
Aquadilla, PR	0:36	0.50	recession
Saint Kitts	0:44	1.07	recession
Anguilla	0:45	1.23	
Montserrat	0:45	0.18	recession
Mayaguez, PR	0:47	0.50	recession
Basse Terre, Guadeloupe	0:51	0.19	recession
Cabo Engano, DR	0:54	0.12	recession
Barbuda	0:55	0.13	recession
Bonaire	0:55	0.07	recession

Location	Travel time (hr:min)	Max Amp. (meters)	Leading Edge
Roseau, Dominica	0:55	0.23	recession
Saint Maarten,	1:01	0.25	recession
Santo Domingo	1:02	0.18	
Fort-de-France, Martinique	1:03	0.21	recession
St Johns, Antigua	1:03	0.24	recession
Saint Lucia	1:05	0.11	recession
Saint Vincent	1:14	0.78	recession
Curacao	1:11	0.27	recession
Aruba	1:16	0.13	recession
Grand Turk, Turks and Caicos	1:18	0.05	
St. Georges, Grenada	1:24	0.54	recession
Maiquetia, VE	1:30	0.12	recession
Puerto Plata, DR	1:30	0.04	elevation
La Guaira, VE	1:31	0.15	recession
Bridgetown, Barbados	1:38	0.05	recession
Santa Marta, CO	1:57	0.095	recession
Barranquilla, CO	2:01	0.11	recession
Bermuda	2:05	0.09	repression
Cumana, VE	2:05	0.14	elevation
Cartagena, CO	2:18	0.02	recession
Kingston, JA	2:26	0.08	recession
Porlamar, VE	2:29	0.26	
Gibara, Cuba	3:08	0.02	
Puerto Limon, CR	3:11	0.04	recession

Location	Travel time (hr:min)	Max Amp. (meters)	Leading Edge
<u>Riohacha, CO</u>	3:18	0.10	recession
<u>Punta Fijo, VE</u>	3:42	0.085	elevation
Port Au Prince, Haiti	3:57	0.04	recession
Guantanamo Bay, Cuba	3:58	0.035	elevation
<u>Golfo de Venezuela, VE</u>	4:20	0.02	recession
<u>Porlamar, VE</u>	4:21	0.04	elevation
Montego Bay, JA	4:35	~0.01	?
Georgetown, Guyana	5:12	0.04	
Port-O-Spain	5:24	~0.01	recession

Additional Arrival Times for Areas outside Watch/Warnings
will be loaded to CTWP web site <http://www.srh.noaa.gov/srh/ctwp>

Scenario and Message Timeline (page 8)

Date (UTC)	Time (UTC)	WC/ATWC Message				PTWC Message				
		#	Type	Dummy	Email	#	Type	Dummy	Email	
03/23/2011	1300		----- Earthquake Occurs -----							
03/23/2011	1302	01	Warn	Yes	Yes	01	Watch	Yes	Yes	
03/23/2011	1332	02	Warn	No	Yes					
03/23/2011	1401	03	Warn	No	Yes	02	Watch	No	Yes	
03/23/2011	1431	04	Warn	No	Yes					
03/23/2011	1500	05	Warn	No	Yes	03	Watch	No	Yes	
03/23/2011	1530	06	Warn	No	Yes					
03/23/2011	1601	07	Adv	No	Yes	04	Watch	No	Yes	
03/23/2011	1630	08	Adv	No	Yes					
03/23/2011	1701	09	Can	No	Yes	05	Watch	No	Yes	
03/23/2011	1802					06	Can	No	Yes	

The initial dummy message will be disseminated over all standard TWC broadcast channels. This is being issued to test communications with EMOs and Tsunami Warning Focal Points, and to start the exercise. **All messages will be disseminated over a special email list to provide the messages in real time to organizations requesting this service. To request this service, please contact Christa von Hillebrandt (christa.vonh@noaa.gov)**

Product Types Issued for Dummy Message with Transmission Methods

TSU???

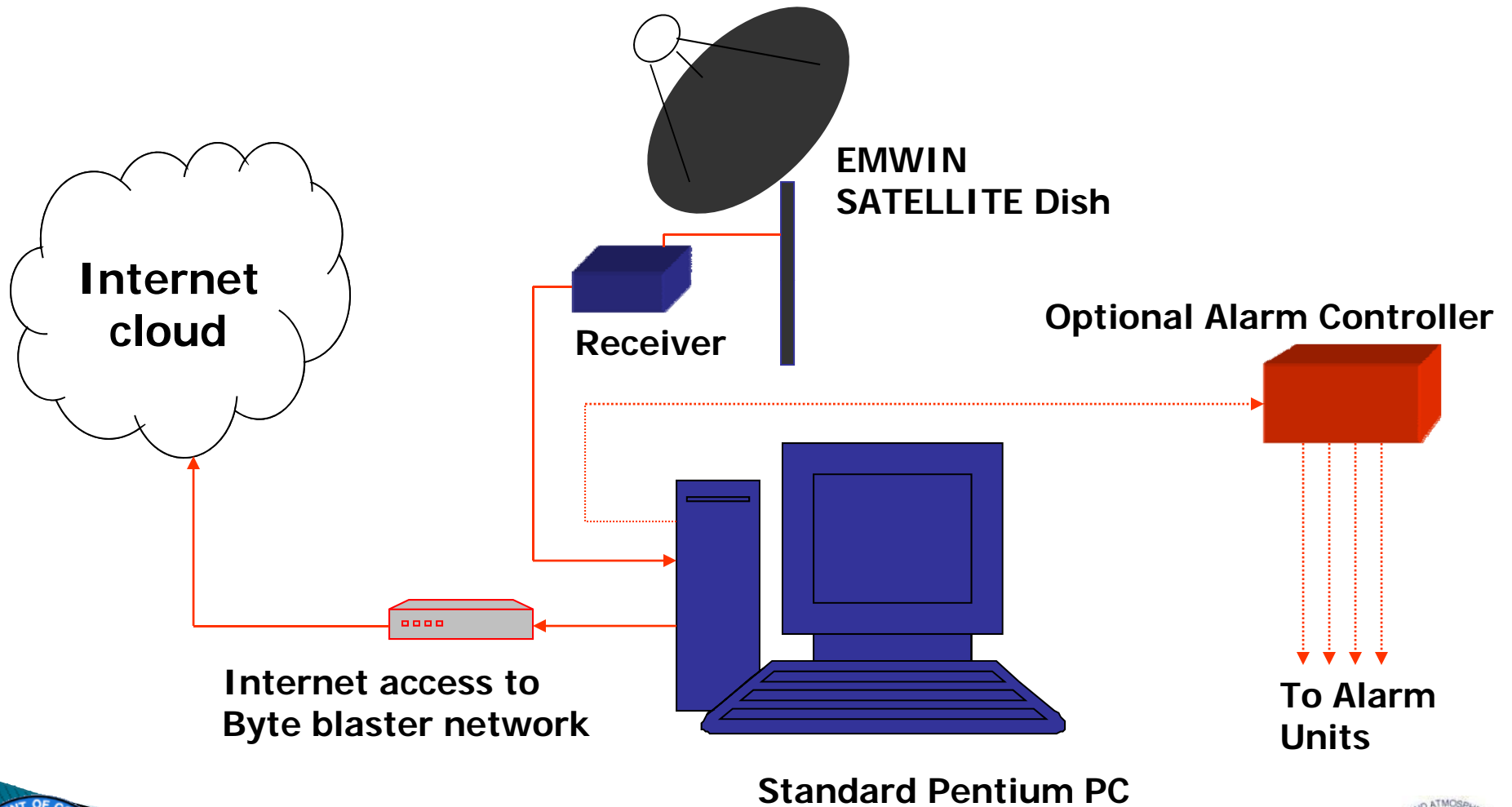


Centre	WMO ID	AWIPS ID	NWWS	GTS	EMWIN	Fax	Email
WCATWC	WEXX20 PAAQ	TSUAT1	Yes	Yes	Yes	Yes	Yes
PTWC	WECA41 PHEB	TSUCAX	Yes	Yes	Yes	Yes	Yes

NWWS
GTS
EMWIN

NOAA Weather Wire Service
Global Telecommunications System
Emergency Manager's Weather Information Network

EMWIN System



EMWIN Testing

- ▶ For any questions testing the EMWIN system for this exercise, please contact:
- ▶ Kelly Sponberg: sponberg@joss.ucar.edu
- ▶ Rosario Alfaro: Rosario.Alfaro@noaa.gov
- ▶ NOTE: You can install the Weather Message program (if you do not have, contact Kelly or Rosario) and receive the product over INTERNET.

Deadline to Register to
receive Emails during the
Exercise

Friday, March 18, 2011

email Christa.vonH@noaa.gov

Organizations Registered to Receive Emails

as of March 1, 2011

- Caribbean Institute of Meteorology, Barbados
- Cayman Islands Emergency Management
- Mexico Navy
- Prefecture Guadeloupe
- Royal Anguilla Police Force, Anguilla
- Anguilla Disaster Management, Anguilla
- Meteorological Office of Antigua and Barbuda
- National Emergency Management Agency, Bahamas
- Strategic Command's (USSTRATCOM) Global Operations Center (GOC), USA
- Department of Disaster Management, British Virgin Islands

Tsunami Messages (page 6)

West Coast & Tsunami Warning Center
<http://www.twc.noaa.gov>
Puerto Rico Seismic Network
<http://tsunami.noaa.gov> Telephone: 787-883-8433
TSUNAMI MESSAGES



- Danger!
- Run for high ground!
- Follow emergency instructions.

WARNING



ADVISORY

- Possible strong and dangerous local currents.
- Get out of the water and off the beach.
- Stay tuned for local emergency guidance.



- Potential danger.
- Stayed tuned for more information.

WATCH



- Relax.
- No danger.
- A distant ocean basin may be in danger.

INFORMATION STATEMENT

WEST COAST & ALASKA TSUNAMI WARNING CENTER

Pacific Tsunami Warning Center
<http://www.weather.gov/ptwc/index.php>
Caribbean Tsunami Warning Program
<http://www.srh.noaa.gov/srh/ctwp>
TSUNAMI MESSAGES FOR THE CARIBBEAN EXCEPT FOR PUERTO RICO AND THE US VIRGIN ISLANDS



- Danger for all coasts within the Caribbean Region!
- Run for High Ground!
- Follow the instructions of the emergency management officials.

CARIBBEAN SEA-WIDE TSUNAMI WATCH



- Danger for coasts within a thousand kilometers from Earthquake!
- Run for High Ground!
- Follow the instructions of the emergency management officials.

REGIONAL TSUNAMI WATCH



- Danger for coasts within a hundred kilometers from Earthquake!
- Run for High Ground!
- Follow the instructions of the emergency management officials.

LOCAL TSUNAMI WATCH



- Relax.
- No Danger.
- A more distant place may be in danger.

INFORMATION STATEMENT

Examples, excerpts from exercise messages (Page 21–44)

Participation by country/jurisdiction

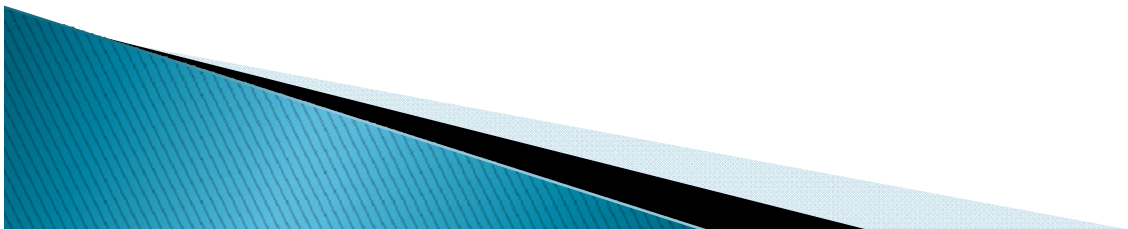
(pages 3, 13)

Types of Exercise (pages 4–5, 13–14)

- ▶ **Communication Tests:**
 - TWC to TWFP
 - TWFP to corresponding authorities
 - Communication Tests to Public
- ▶ **Orientation Exercise, eg. seminar**
- ▶ **Drill**
- ▶ **Tabletop Exercise**
- ▶ **Functional Exercise**
- ▶ **Full Scale Exercise**

Media (page 10, 51)

- ▶ Communities may wish to invite their local media to the exercise to promote local awareness of the tsunami hazard. Appendix F contains a sample press release which can be adapted as necessary.
- ▶ NOAA will issue a press release several days before the exercise describing the exercise and its purpose.



Special Provisions (page 9)

- ▶ **In the case of a real event**
 - TWCs will issue their normal messages for the event. Such messages will be given full priority and a decision will be made by the TWCs whether to issue the dummy message and to send email messages to selected recipients. Smaller earthquakes that only trigger a Tsunami Information Statement will not disrupt the exercise. All documentation and correspondence relating to this exercise is to be clearly identified as “CARIBE WAVE 11 /LANTEX 11” and “Exercise.”
- ▶ **Procedure for false alarm**
 - Procedures should be set up by all participating entities to address public or media concerns involving this exercise in case of mis-interpretation by media or the public.
 - NOTE: Very important to mark all documents with EXERCISE

Post-Exercise Evaluation (page 10)

- ▶ An online questionnaire will be available for the participants to provide feedback on the exercise (<http://nthmp.tsunami.gov/exercise2011.php>)—to be activated by March 15, 2011
- ▶ In addition to individual responses, request one response per TWFP/TNC for ICG CARIBE EWS report.
- ▶ Deadline for feedback: April 11, 2011
- ▶ Results of the exercise will be presented at Session VI of the ICG CARIBE EWS to be held in the Dominican Republic April 26–29, 2011

Tsunami Response Exercise Evaluation Form

For Official Use Only

Participant Input

Which exercise are you evaluating? (Check the one that applies).

CARIBE WAVE 11/LANTEX 11

PACIFEX 11

Participant Location:

Participant Agency:

Agency Contact Information -

Name:

Address:

City, State, Zip:

Phone:

Email:

Please answer the following questions and provide any suggestions.

1. If you participated in CARIBE WAVE 11/LANTEX 11, are you responding as the Tsunami Warning Contact Point/Tsunami National Contact and that the answers presented in this questionnaire reflect the participation of your whole country, state or territory? If yes, please answer the following questions, if not go to question 2.

a. Did your country/state/territory participate in CARIBE WAVE 11/LANTEX 11? If no, please indicate the reason and submit questionnaire.

b. Did other national/state/territorial agencies participate in the exercise? Please list.

c. Did local agencies/communities participate in the exercise? Please list.

d. How many schools participated in the exercise?

e. How many private entities participated in the exercise?

2. Was the exercise format satisfactory?

3. Did you receive the "dummy" message from the WCATWC or PTWC to start the exercise? If so, through what channel(s) and approximately what time was it received?

4. Was the content and intention of the tsunami message clear?

5. Should any other content be added to the messages, or was any superfluous?

6. If you participated in CARIBE WAVE 11/LANTEX 11, did you receive the email messages that were issued by the WCATWC and/or PTWC during the exercises? Were these helpful?

8. Did your agency have a tsunami response plan in place prior to the exercise?

9. If so, was the response plan adequate to address the event?

10. What actions did the agency take during the exercise?

11. Were the emergency management actions during the event clearly laid out by the plan?

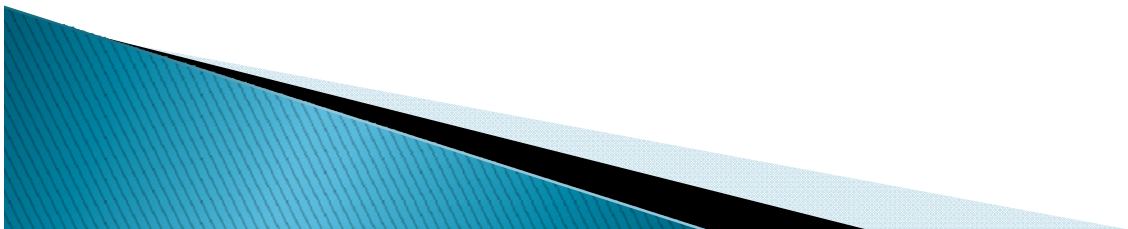
12. During a real event, how is the local population notified of any tsunami danger?

13. Was any feedback received from the public?

14. Are the potential tsunami danger zones known in your area?

15. Was the exercise helpful in validating the response plan or showing that it was not sufficient?

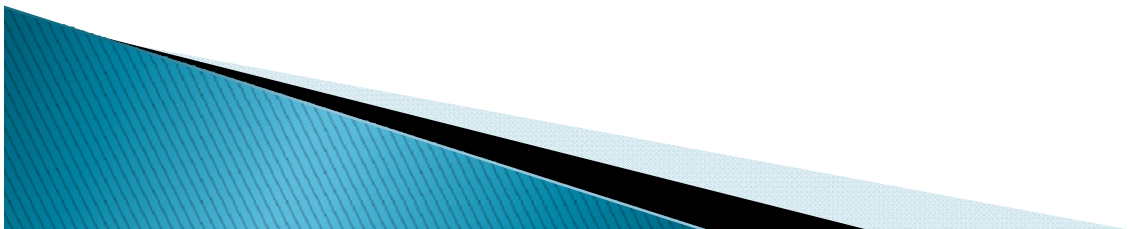
SUBMIT



Next Webinar

- ▶ March 3, 2011 (Spanish) at 18h00 UTC.
Reserve your Webinar seat for this date/time
now at:

<https://www1.gotomeeting.com/register/700124201>



Questions

For questions, please contact (page 9)

<u>Person</u>	<u>Telephone #</u>	<u>Email</u>
Lorna Inniss, Chair	246-228-5950	linniss@coastal.gov.bb
Francisco Garces, Vice Chair	58-212-2575153	garcesfrancisco@gmail.com
Frederique Martini, Vice Chair	Frederique.MARTINI@developpement-durable.gouv.tr	
Christa von Hillebrandt, Vice Chair; NWS CTWP Manager	787-833-8433	christa.vonh@noaa.gov
Emilio Talavera, Chair WG1	505-22492761	emilio.talavera@gf.ineter.gob.ni
Aurelio Mercado, Chair WG2	787-265-5461	aurelio.mercado@upr.edu
Rafael Mojica, Chair WG3	787-253-4586	rafael.mojica@noaa.gov
Dimas Alonso, Chair WG4	504-2290606 x401	alonzoaguadesastres@yahoo.com
Bernardo Aliaga, Technical Secretary	33-1-45683980	b.aliaga@unesco.org
Jeremy Collymore, Ex. Director CDEMA	246-425-0386	Jeremy.Collymore@cdema.org
Walter Wintzer, CEPREDENAC	502-2362-1981-83	wwintzer@sica.int
Ivan Morales, CEPREDENAC	502-2362-1981-83	imorales@sica.int
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Wilfredo Ramos, PREMA Rep.	787-724-0124	wramos@aemead.gobierno.pr
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Gerard Fryer PTWC Rep.	808-689-8207	gerard.fryer@noaa.gov
Victor Huerfano PRSN Director	787-833-8433	victor@prsn.uprm.edu

¡Thank you very much!

- ▶ To receive email messages during the exercise, email Christa.vonH@noaa.gov
- ▶ For copies of this presentation and other CARIBE WAVE 2011 materials:
<http://www.srh.noaa.gov/srh/ctwp/?n=caribewave2011>
- ▶ Puerto Rico Seismic Network –
 - Exercise 2010
<http://redsismica.uprm.edu/Spanish/informacion/lantex10.php>
 - Exercise 2011
<http://www.prsn.uprm.edu/lantex/>
- ▶ British Virgin Islands Department of Disaster Management
<http://www.bviddm.com/index.php>