



Caribbean Tsunami Warning Program

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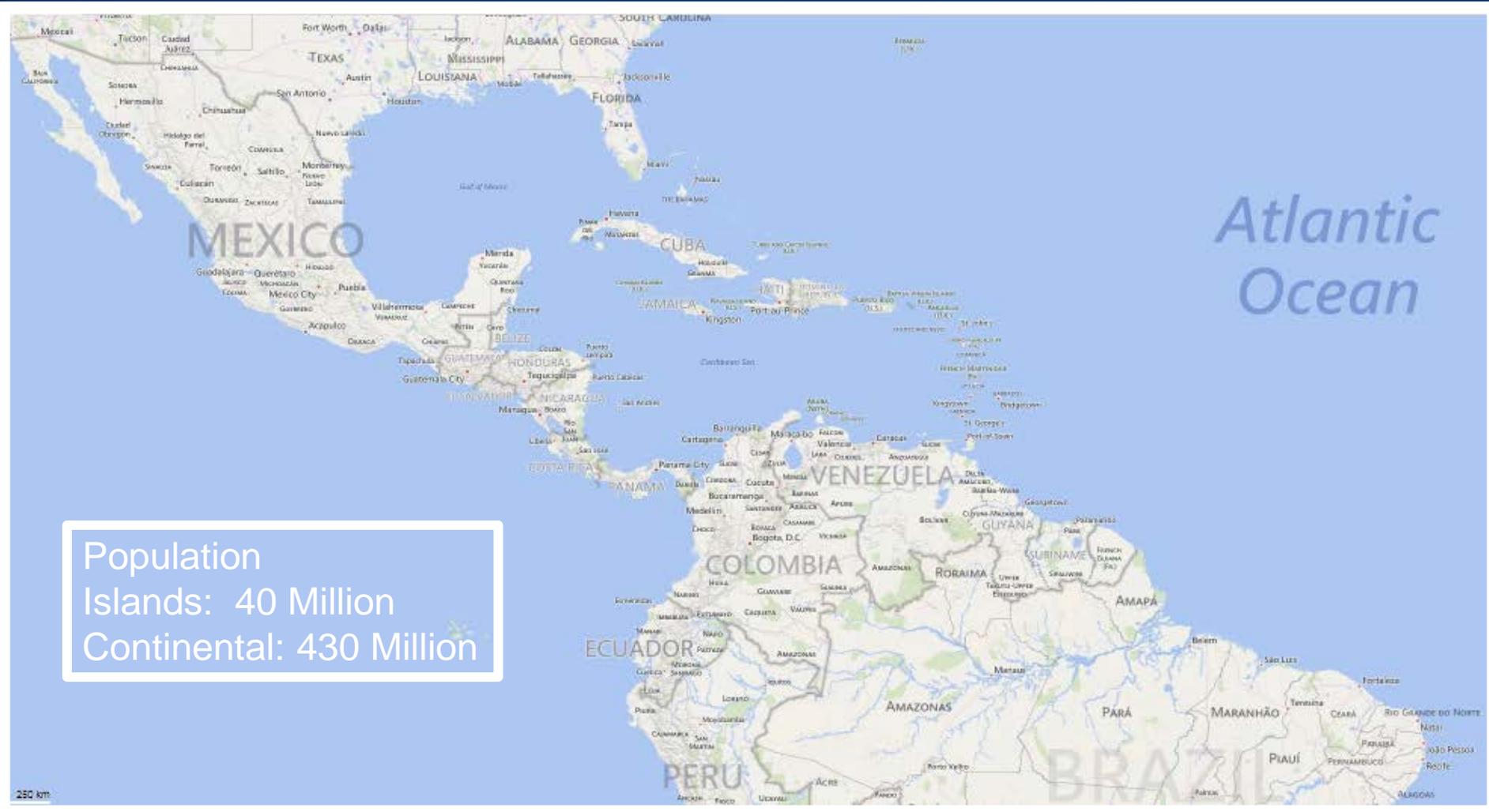
Presentation for NTHMP 2016 Annual Meeting
Feb. 3-5, 2016

US NWS Caribbean Tsunami Warning Program

- Established by NOAA NWS in 2010
- Co-Located with the Puerto Rico Seismic Network in Mayaguez, Puerto Rico
- Supporting improved observations (Seismic, Sea Level and GPS),
- Tsunami Operational Procedures training
- CARIBE WAVE exercises
- TsunamiReady and Tsunami Ready Program, Education and Outreach



The CTWP serves 48 Countries and Territories in the Caribbean and Adjacent Regions



Population
Islands: 40 Million
Continental: 430 Million

Over the past 500 years more than 75 tsunamis have occurred killing 4484 people

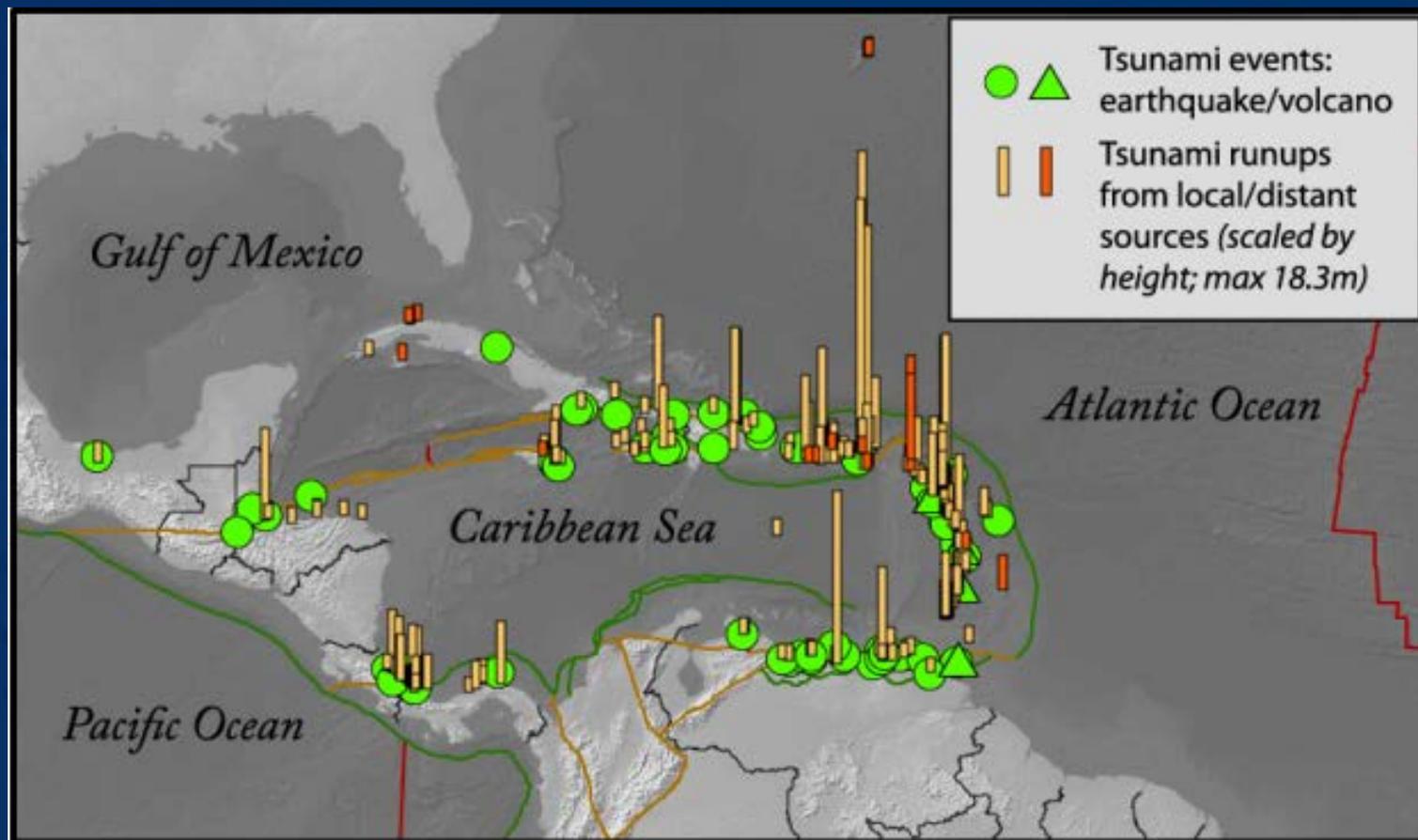
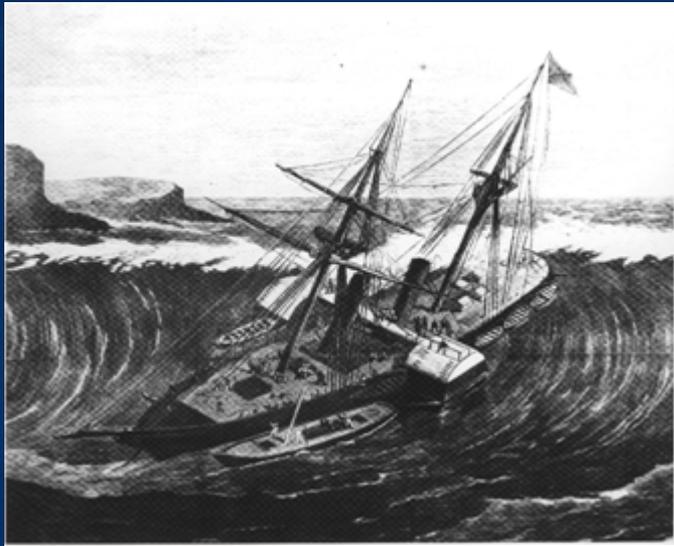


Figure published in: von Hillebrandt-Andrade, Christa, 2013. Minimizing Caribbean Tsunami Risk, Science, Vol. 341pp. 966-968.

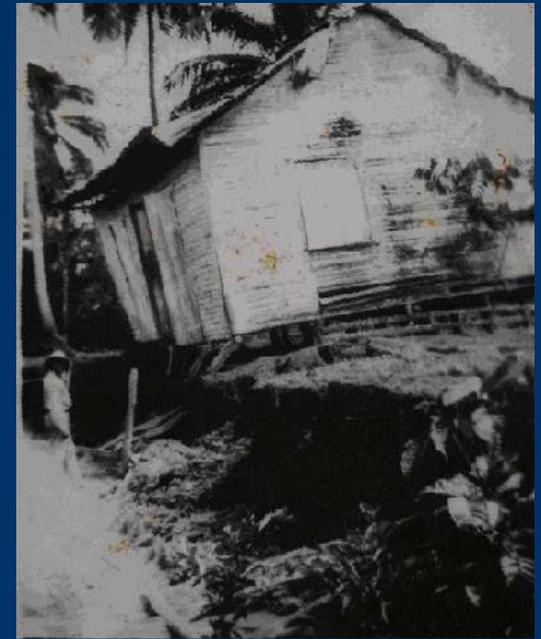
Then and Now



1867- US Virgin Islands
30 deaths



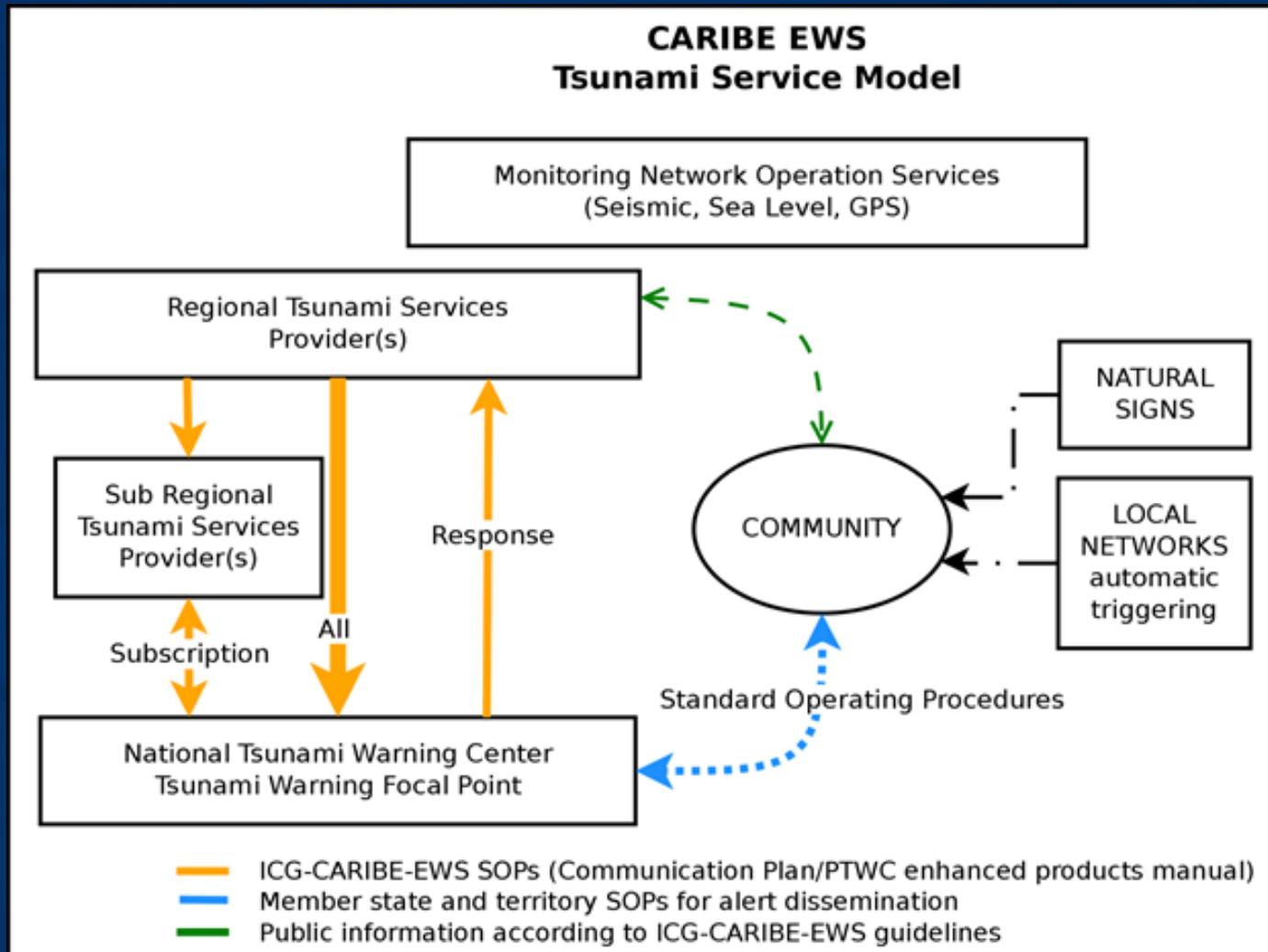
1918- Puerto Rico
140 deaths



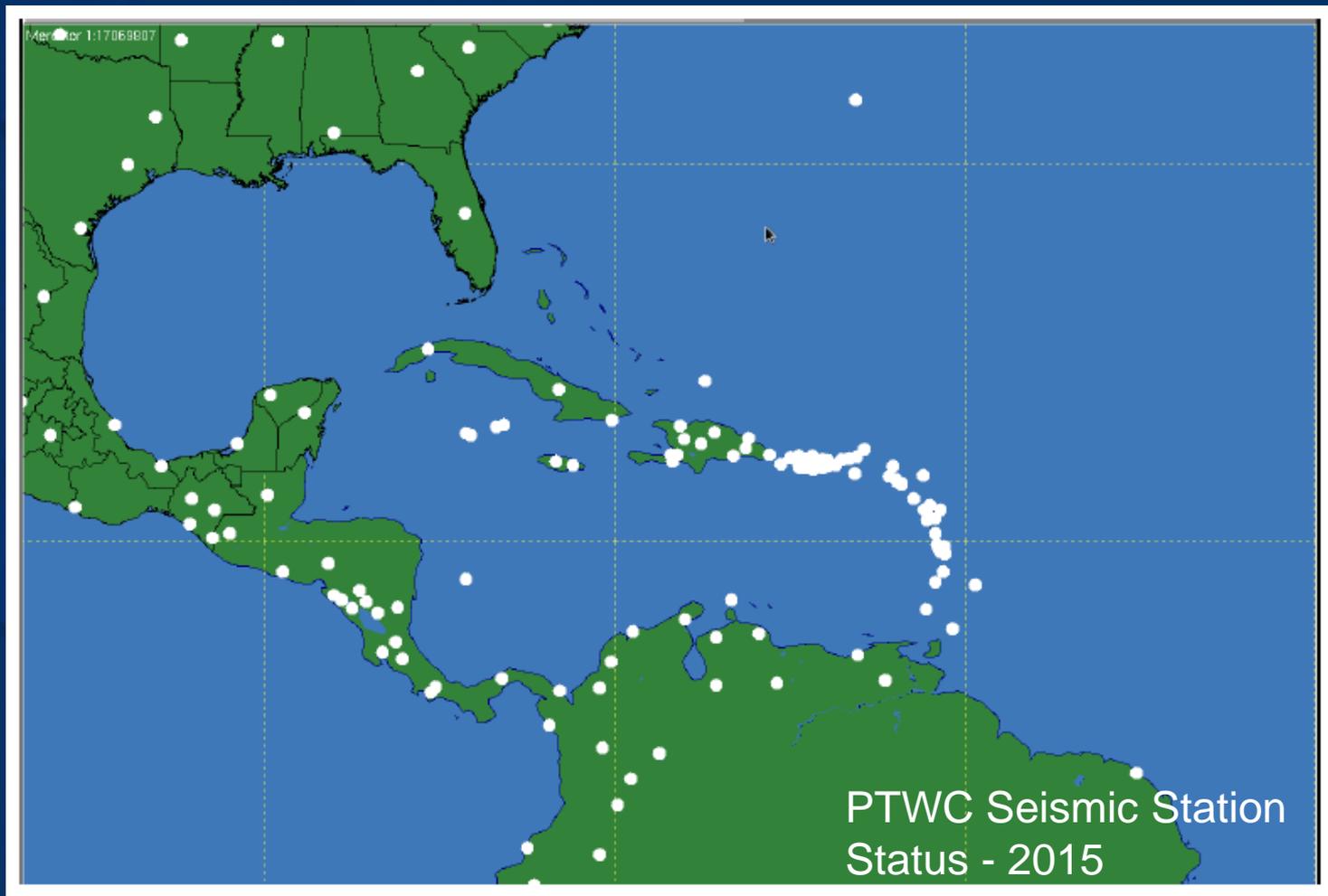
1946- Dominican Republic
1790 deaths



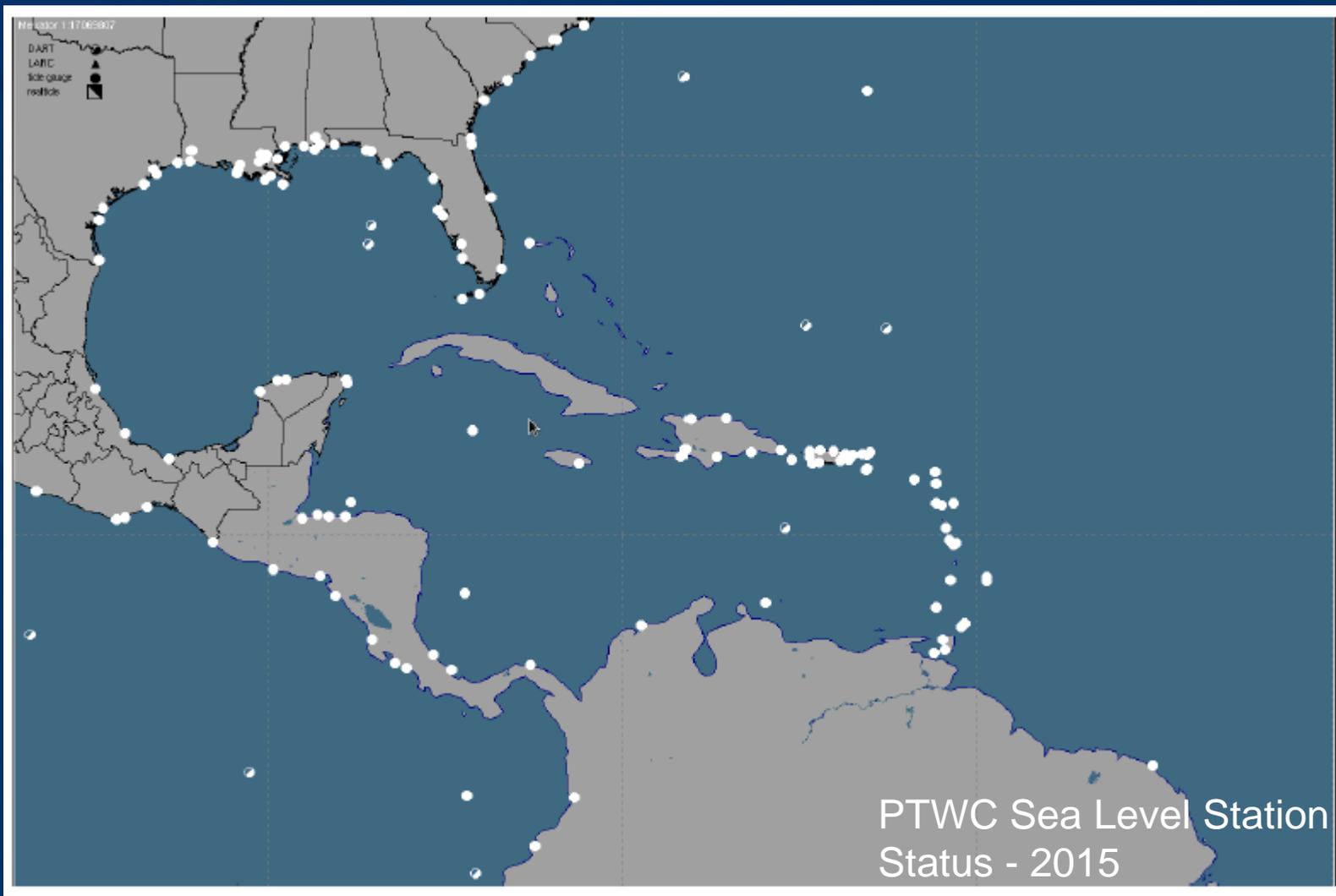
Community/People Centered Tsunami Warning System Model



Real Time Seismic Data – All Seismic Networks are Contributing data to the TWC, increase from 10 to 100 stations since 2004



Sea Level Data – Increase from 5 Sea Level Stations to almost 80 stations.



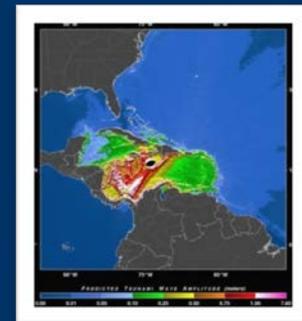
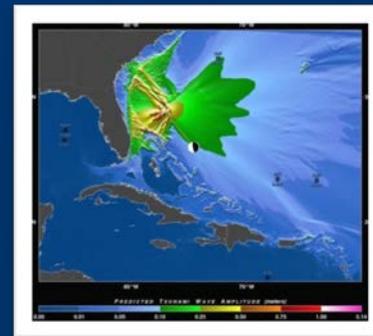
Operational Training/Support for NWS WFO and also internationally (with ITIC)



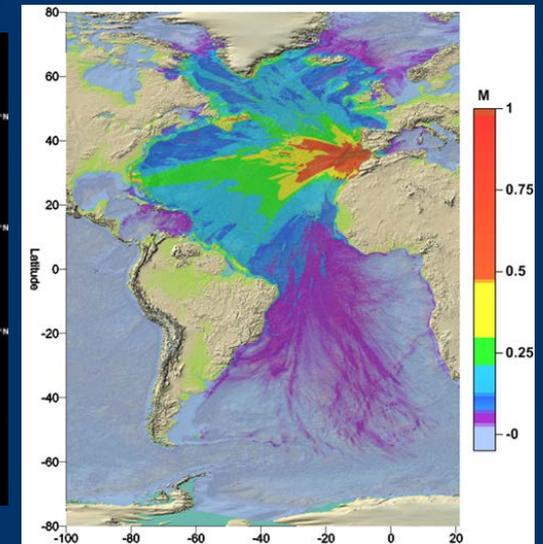
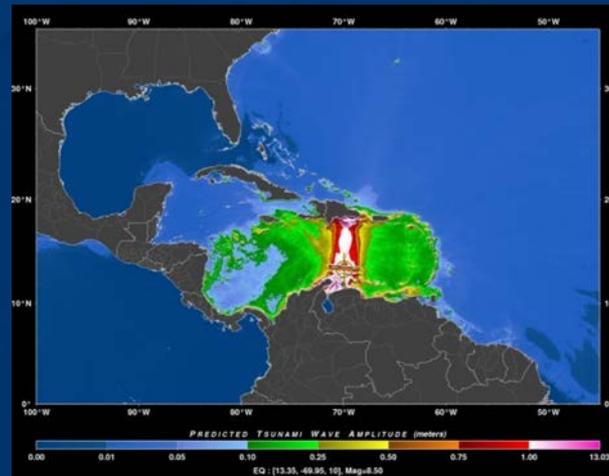
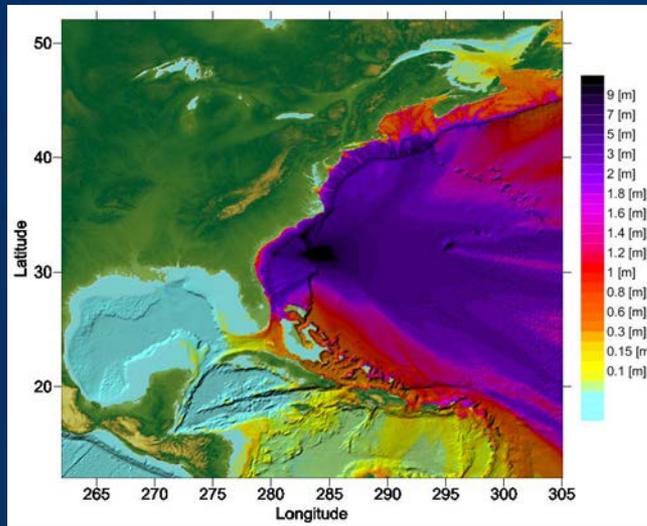
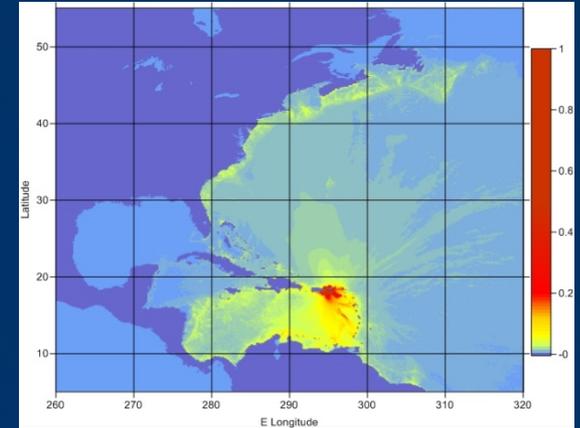
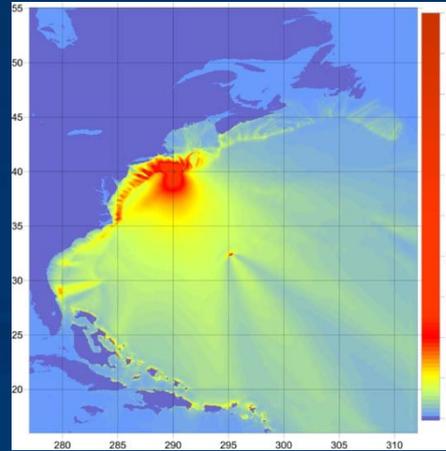
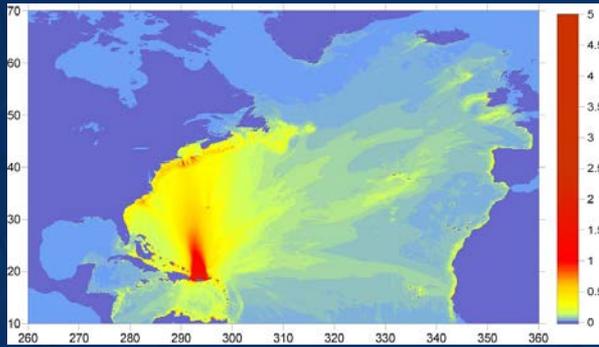
Implementation of Enhanced PTWC International Products (new text, tables, Graphics) and support for transition from NTWC to PTWC for PR and VI

Annual Tsunami Exercise: CARIBE WAVE

- Individuals thru major institutions
- Test communications and response plans
- Close to 200,000 participated in 2014 and 2015
- In 2015 every MS participated and completed post exercise questionnaire



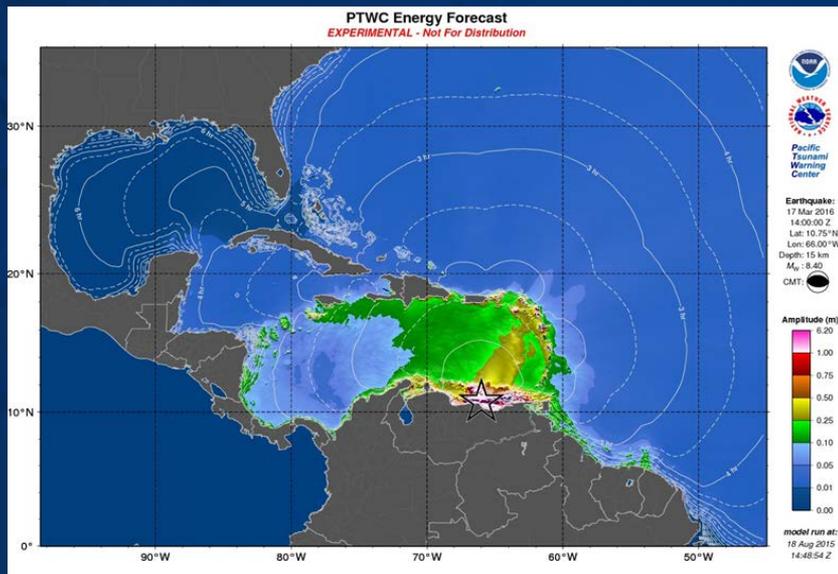
Supporting CARIBBEAN AND ADJACENT REGIONS CARIBE WAVE Exercises



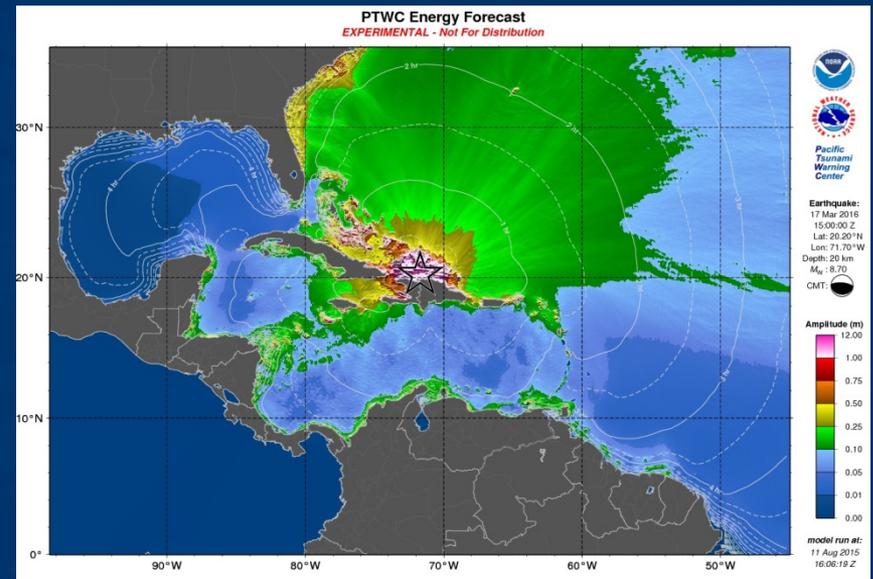
Next CARIBE WAVE exercise

March 17, 2016

Venezuela Scenario



Northern Hispaniola Scenario



Registration and Promotion thru TsunamiZone.org

TsunamiReady® Communities: 47 US and 2 International

TsunamiReady® in Puerto Rico/U.S. Virgin Islands

47 TsunamiReady Communities*:
44 Municipios (Puerto Rico), 3 Islands (U.S. Virgin Islands)

[Back to TsunamiReady Communities](#)
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■ TsunamiReady and StormReady
■ TsunamiReady Only



CARIBE EWS

Tsunami Ready Guidelines

10 vs 16 guidelines of the US Program

Categories	Completed
MITIGATION	
Mit-1. Have designated and mapped tsunami hazard zones	✓
Mit-2. Have a public display of tsunami information	✓
PREPAREDNESS	
Prep-1. Produce easily understood tsunami evacuation maps as determined to be appropriate by local authorities in collaboration with communities	✓
Prep-2. Develop and distribute outreach and public education materials	✓
Prep-3. Hold at least three outreach or educational activities <u>annually</u>	✓
Prep-4. Conduct an annual tsunami community exercise	✓
RESPONSE	
Resp-1. Address tsunami hazards in the community's emergency operations plan (EOP)	✓
Resp-2. Commit to supporting the emergency operations center (EOC) during a tsunami incident if an EOC is opened and activated	✓
Resp-3. Have redundant and reliable means for a 24-hour warning point (and EOC if activated) <u>to receive</u> official tsunami threats	✓
Resp-4. Have redundant and reliable means for 24-hour warning point and/or EOC <u>to disseminate</u> official tsunami alerts to the public	✓

Additional Comments

- Each country will be identifying target number of communities for **recognition** Recognition will also be for 3 years
- Current Pilot Project in Saint Kitts and Nevis



Closing Remarks

- Also contributed to testing of TWEB and translation into Spanish
- Protecting the lives and economies of foreign countries but also of US Citizens who live in the US Territories but also almost 40 million, mostly US tourists who come to the region on Cruises and to stay at hotels right along the beaches.
- US NTHMP has provided great best practices
- Mutual collaboration for continuing to strengthening the preparedness

Thank you

For more information:

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