101 - NTHMP PARTNERS
PUERTO RICO TSUNAMI PROGRAM

University of Puerto Rico Mayaguez - PR Seismic Network – PRSN
Puerto Rico Emergency Management Bureau – PREMB
National Weather Service San Juan WFO – NWS SJU
NWS - Caribbean Tsunami Warning Program - CTWP
| CONTENT |
|------------------|------------------|
| **The PR Tsunami Program (UPRM)** |
| - Victor Huerfano |
| - Elizabeth Vanacore |
| - Roy Ruiz |
| **The role of the NWS** |
| - Ernesto Morales (WCM) |
| **The Puerto Rico Emergency Management Bureau** |
| - Wildaomaris Gonzalez |
| **Invited Speaker:** |
| - Ada Monzon, Meteorologist |
RISK AND HAZARD MANAGEMENT: ASSESSMENT

3.5 million people
4.0 million visitors
250,000 Exposed
ETA’s minutes

Puerto Rico Trench
Mona Canyon
Sombreno Seismic Zone
Anegada Passage
Muertos Trough
THE TSUNAMIREADY AND SUPPORTERS PROGRAM

46 - TsunamiReady Communities
16 - TsunamiReady Supporters

Tsunami Evacuation Map
Vulnerability Profile
Tsunami Response Plan
Education & Outreach Program
TWFP & EOC
Tsunami Warning Infrastructure

Drills & Training

CW-21 03/11 Tohoku Event
PROJECTS AND INITIATIVES: TSUNAMI EVACUATION UPDATE

- I/9 sec-arc resolution (Mayaguez and San Juan), Tsunami Hazus
- NCEI data set
- HySEA tsunami model (+ variable friction)
- Upgraded earthquake sources (+ USGS)
- Community Pedestrian Evacuation Maps (+ PR TMP)
PROJECTS AND INITIATIVES: SOCIAL SCIENCE COMPONENT

AMATEUR RADIO – ARRL & FRS (Family Radio Service)

• WEA, EAS, Sirens, Social Media, media, etc.

VERTICAL EVACUATION STRATEGY

• Developing and implementing a vertical evacuation strategy involves serious decisions that often have no clear-cut answer (FEMA P646A)

TSUNAMIREADY PROGRAM - Perception of Residents

• We are looking for ways to improve our program to better serve you.
Online Modules:

- Increase Accessibility
  - English and Spanish
  - On Demand
- Permit Modern Pedagogy
- Designed so that a single module can be done during a coffee break
- Interactive rather than Passive
- COVID friendly!

https://www.uprm.edu/prtsunamiedu
San José Community, Mayagüez
Night evacuation drill
World Tsunami Awareness Day 2019
Villa del Carmen suffered the emotional impacts of the M6.4 January 7th, 2020 earthquake. The associated chaos created struggles within the community. Community leaders decided to educate the community and start a local evacuation plan with the help of the tsunami program and local NGO’s.
Toa Baja evacuation route signaling initiative.
Because COVID-19 pandemic, the PR Tsunami Program create a methodology to continue working on our mission:

✓ “COVID-19 Pandemic tsunami services guidelines” document based on the guidelines released by UNESCO-IOC Tsunami Task Teams and ICGs. A new work plan was needed to accomplish the mission.

✓ Using technology to assist during the process: videos, photos, teleconferencing, others

✓ Virtual workshops/meetings

✓ Remote assistance for EOC

✓ The renewal process continue
PREMB support the 46 TsunamiReady Communities to update their tsunami evacuation respond plan, beside COVID-19 Pandemic.

- During pandemic the logistic change – distribution of face mask, physical distance during evacuation and at the Assembly point
- Shelters – ensure sufficient space for distancing at the shelters
  - Ex. Only 1 family per classroom
  - Identify other structures to use as shelters or places to build a temporary shelter
To demonstrate the operational coordination between local and regional offices during a mass search and rescue operations, deal with medical surge and mass casualty incident after a major earthquake and tsunami that has disrupted most of the utilities including water, power, transportation, and communications within 24 hours.

To demonstrate the ability of the municipalities to receive, develop, and disseminate a public notification systems regarding a significant disaster. (i.e. an earthquake during pandemic within the first 24 hours).
NWS, SAN JUAN
WEATHER FORECAST OFFICE

ERNESTO MORALES
WARNING COORDINATION METEOROLOGIST
AFTER 2020
PROGRAM CONTINUITY

Building
- Trust
- Relationship
- Understanding
- Needs
- Service

Communities
- 46 in Puerto Rico
- 3 in U.S. Virgin Islands

Supporters
- 16 in Puerto Rico
She is the first female meteorologist from Puerto Rico.

The first woman that is an American Meteorological Society Fellow and Certified Broadcaster Meteorologist in Latin America.

Is the Founder and President of the Eco Exploratorio: Science Museum of Puerto Rico, and is a producer of disaster mitigation educational campaigns (STEM).

She is the meteorologist for Univision Radio (WKAQ 580 am), lenteviral.com, and WAPA TV.

Her professional career began as a meteorologist at the U.S. National Weather Service (NWS) as a Forecaster and Warning and Preparedness Meteorologist. She was a Professor at the UPR, Rio Piedras, worked with FEMA Division Mitigation and consulting work on hurricane preparedness.

Among her awards are: The AMS Joanne Simpson Mentorship Award, The Silver Medal of the US Department of Commerce, Distinguished Alumni of the Faculty of Natural Sciences of the University of Puerto Rico, STAR Award-Univision Television Group, and Recipient of the AMS Award for Excellence in Science Reporting by a Broadcast Meteorologist.
TSUNAMI PREPAREDNESS MESSAGE : WTAD 2020

https://youtu.be/w3yHT69wfMg?t=425
Puerto Rico TsunamiReady Program Committee:

- Ernesto Morales  
  WCM  
  NWS SJU WFO

- Dr. Víctor Huérfano  
  UPRM - PRSN Director  
  Project PI

- Wildamaris González  
  PR Tsunami Program Manager  
  PREMB

- Christa von Hillebrandt  
  Program Manager  
  NWS - CTWP

- Dr. Elizabeth Vanacore  
  Associate Research Professor  
  UPRM - PRSN  
  Project Co-PI

Tsunami Program Coordinators at UPRM - PRSN:

- Roy Ruiz Vélez  
  Research Associate  
  UPRM - PRSN

- Abimael Castro  
  Research Associate  
  UPRM - PRSN

- Gisela Báez, M.S.  
  Geophysics Data Analyst  
  UPRM - PRSN  
  Caribe Wave Coordinator

- Glorymar Gómez  
  Outreach and Education  
  UPRM - PRSN

- Jesenia Figueroa  
  Outreach and Education  
  UPRM - PRSN

- Alejandro Torres  
  Tsunami Program Undergraduate Student  
  UPRM - PRSN

- Mark Álvarez  
  Tsunami Program Undergraduate Student  
  UPRM - PRSN

Outreach and Education Personnel at UPRM - PRSN: