THE ICG VIII/CARIBE EWS – THE ROLE OF THE PUERTO RICO SEISMIC NETWORK

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GEOLOGY DEPARTMENT

Port of Spain, Trinidad, April / 2013
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PRSN VIRTUAL SEISMIC NETWORK

IU: IRIS/USGS
II: IRIS/IDA
CU: USGS Caribbean
PR: PRSN/PRSM, Puerto Rico
UA: Aruba Meteorological Agency
G: Geoscope
GE: Geophone
GT: Global Telemetered Seismic Network
WI: French West Indies
MO: Montserrat Volcano Observatory
NA: KMNI Antilles
DR: ISU Dominican Republic, UT
UC: Colima University, Mexico
US: United States Seismic Network
SV: SNET, El Salvador
NU: INETER, Nicaragua
OV: OVSICORI, Costa Rica
PA: Volcan Baru Network, Panama
TR: West Indies Seismic Research Center
CM: Colombian National Seismological Network
CN: Canadian Seismic Network (Haiti)
BL: Brazil Seismic Network
MG: National Seismological Service of Mexico
CY: Cayman Island
VE: FUNVISIS, Venezuela

CURRENT CARIBBEAN RT EARTHQUAKE MONITORING
CURRENT REAL TIME DATA SHARING
## THE ICG VIII/CARIBE EWS

| WG1 – Monitoring and Detection Systems, Warning Guidance |
| WG2 – Hazard Assessment |
| WG3 – Warning Dissemination and Communication |
| WG4 – Preparedness, Readiness and Resilience |
1670 MM = VII, Island Wide
1787 M8+, MM = VII-VIII, North and West
1867 M = 7.3, MM = VIII, Virgin Islands Tsunami 20'
1918 M = 7.3, MM = VIII, West, Tsunami 20'
1943 M = 7.5, MM = V, North of Puerto Rico

TECTONIC SETTING
PUERTO RICO REGION

Faults: 102 + 10
Segments: 268
Maximum M (Faults): 7.6
Maximum M (Segments): 7.2
Seismic Catalogue: 10031
Waveform Catalogue: 3518
Quakes used: 4422
Depth: ≤ 50 km
FEMA: M8.5
Others: M8.5

- SEPTENTRIONAL F.
  Segments: 14
  Maximum M: 7.8 (ref)
  Recurrence T: 1900

- MONA CANYON
  Segments: 24
  Maximum M: 7.5
  Recurrence T: 2000

- EASTERN DR.
  Segments: 9
  Maximum M: 7.2
  Recurrence T: 800

- SOUTHWESTERN
  Segments: 36
  Maximum M: 6.6
  Recurrence T: 1800

- 19ºN
  Segments: 16
  Maximum M: 7.6
  Recurrence T: 3300

- NORTH PLATFORM
  Segments: 25
  Maximum M: 6.8
  Recurrence T: 2500

- SOMBRERO SZ
  Segments: 24
  Maximum M: 7.7
  Recurrence T: 1200

- ANEGADA P.
  Segments: 28
  Maximum M: 7.7
  Recurrence T: 3700

- LEEWARD LZ.
  Segments: 11
  Maximum M: 7.0
  Recurrence T: 3700

- PRT-B
  Segments: 27
  Maximum M: 8.0
  Recurrence T: 3800

- PRT-A
  Segments: 24
  Maximum M: 8.0
  Recurrence T: 3800

- MUERTOS T.
  Segments: 28
  Maximum M: 7.7
  Recurrence T: 3700
Tsunami inundation models for regional and teleseismic sources and landslides affecting Puerto Rico.
TSUNAMI MODELING
mom_mosaic_V_mom: Local Water Depth (m)

- Ensanche Ramirez

- Mayagüez

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1. Incluye listas de correo electrónico, mensajes de texto, etc.

2. Estas incluyen: Policía, Emergencias Médicas, Bomberos y Guardia Nacional. La AEMEAD determinará cuales de éstas y otras agencias serán informadas conforme al Nivel de Alerta de Tsunami que se determine.
What Next?
HF CODAR Radar

THE PR BROADCAST SYSTEM

EARTHQUAKE/TSUNAMI INFORMATION SOURCES

USGS
science for a changing world

EARTHQUAKE/TSUNAMI DISPLAY CLIENTS

DANIS
TIDES
GPS
EB
EW
WG1 – Monitoring and Detection Systems, Warning Guidance

WG2 – Hazard Assessment

WG3 – Warning Dissemination and Communication

WG4 – Preparedness, Readiness and Resilience
## Vulnerability: Top 10 Tsunami Exposed Municipalities

<table>
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<tr>
<th>Municipality</th>
<th>TEZ POP</th>
<th>Municipality Tot. POP</th>
<th>TEZ % of Tot. POP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toa Baja</td>
<td>40,286</td>
<td>89,609</td>
<td>45.0%</td>
</tr>
<tr>
<td>San Juan</td>
<td>37,232</td>
<td>395,326</td>
<td>9.4%</td>
</tr>
<tr>
<td>Loíza</td>
<td>23,111</td>
<td>30,060</td>
<td>76.9%</td>
</tr>
<tr>
<td>Mayagüez</td>
<td>17,376</td>
<td>89,080</td>
<td>19.5%</td>
</tr>
<tr>
<td>Cataño</td>
<td>14,285</td>
<td>28,140</td>
<td>50.8%</td>
</tr>
<tr>
<td>Arecibo</td>
<td>8,975</td>
<td>96,440</td>
<td>9.3%</td>
</tr>
<tr>
<td>Vega Baja</td>
<td>7,243</td>
<td>59,662</td>
<td>12.1%</td>
</tr>
<tr>
<td>Carolina</td>
<td>6,875</td>
<td>176,762</td>
<td>3.9%</td>
</tr>
<tr>
<td>Humacao</td>
<td>6,622</td>
<td>58,466</td>
<td>11.3%</td>
</tr>
<tr>
<td>Santa Isabel</td>
<td>4,664</td>
<td>23,274</td>
<td>20.0%</td>
</tr>
</tbody>
</table>

Total Top 10 POP: 1,046,819

Tsunami Evacuation Zone Population: 166,669
PRSN Organize and participate in drills, exercises, and educational events throughout Puerto Rico: schools, local, state and federal government agencies, faith based organizations, industry, among others.

Direct people impacted: 30000+ (Year)

Conferences: 500+ (Year)

Interviews: 150+ (year)

Webinars: 2+ (Year)

PR Tsunami Curriculum

Flyers, Brochures, DVD’s, Cartoon Booklets, mugs, Coloring booklets, pens, Stickers, pencils, Back packs, Emergency kits

COMMUNITY + OMME + PRSN + PRSEMA + NOAA + FEMA
Puerto Rico Tsunami Decision Support Tool

- Spanish manual
- Summer training
Development, reproduction, presentation and distribution of PR tsunami media toolkit in print, on line and APP.

- V1.0
- V1.5
- V2.0 in process
- Two workshops/Year