Tsunami Warning Services for the USVI

USVI EMC Meeting

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Current Tsunami Warning Service Providers

• West Coast and Alaska Tsunami Warning Center
  – Provides Interim Warning Service to Puerto Rico and the USVI
  – Backup to the PTWC

• Puerto Rico Seismic Network
  – Provides 24 x 7 tsunami warning service to Puerto Rico and the USVI and BVI (local governments protocol)

• Pacific Tsunami Warning Center
  – Provides Interim Tsunami Warning Guidance Service to the non US Caribbean and adjacent regions

• Caribbean Tsunami Warning Center (in proposed phase)
Tsunami Warning System Main Components

Acronyms
- NWS - National Weather Service
- EOC - Emergency Operations Center
- EMWIN - Emergency Managers
- Weather Information Network
- GTS - Global Telecommunications System
- FOS - Family of Services

Diagram showing the components of a tsunami warning system:
- DART buoy
- Tide gage
- Seismometer
- Observational Data
- Tsunami Warning Center
- NWS Gateway
- Coast EOC
- UC Coast Guard
- Weather Forecast Office
- Local ECC
- NOAA Weather Radio
- Emergency Alert System
- Sirens, etc.
- Mariners

EMWIN, GTS, Media/FOS, Military, etc.
Warning Plan Diagram
Puerto Rico/Virgin Islands

Information Clients
Focal Warning Points

- WEB
- Email Service List
- FAX
- EMWIN

At risk general public
- Sirens
- Dedicated Circuits
- Local Systems

General public & news media

- WEB
- Email Service List
- Dedicated Programs
- Amateur Radio ..

General public & news media

- EAS
- RADIO NOAA

PRSN
WCATWC

BVI-DDM
VITEMA
PR-SEMA
NWS/SJFO
<table>
<thead>
<tr>
<th>Magnitude</th>
<th>Area</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0-6.4</td>
<td>PR/VI AOR</td>
<td>Tsunami Information Statement</td>
</tr>
<tr>
<td>6.5 and higher</td>
<td>PR/VI (&lt;100 km deep)</td>
<td>Warning PR/VI</td>
</tr>
<tr>
<td>6.5-7.5</td>
<td>Other coastal Atlantic/Caribbean regions</td>
<td>Tsunami Information Statement (High)</td>
</tr>
<tr>
<td></td>
<td>Inland (&gt;100 km from coast) or Deep (&gt;100 km)</td>
<td></td>
</tr>
<tr>
<td>&gt;= 6.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.6-7.8</td>
<td>Other coastal Atlantic regions</td>
<td>TIS (High)</td>
</tr>
<tr>
<td></td>
<td>Western Caribbean</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eastern Caribbean</td>
<td></td>
</tr>
<tr>
<td>&gt;= 7.9</td>
<td>Other coastal Atlantic regions</td>
<td>Threat Dependent</td>
</tr>
<tr>
<td></td>
<td>Western Caribbean</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eastern Caribbean</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PR/VI Advisory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PR/VI Warning</td>
</tr>
</tbody>
</table>
### Initial Response
#### Goal Response Time: 5 minutes

<table>
<thead>
<tr>
<th>Event Message</th>
<th>Criteria</th>
<th>Expected Conditions</th>
<th>Suggested Action</th>
</tr>
</thead>
</table>
| **Warning** (PRSN or WCATWC) | • Forecasted/observed amplitude over 1.0 m  
• Immediate warning based on earthquake parameters | Inundating wave possible | Full evacuation suggested |
| **Watch** (PRSN or WCATWC) | • Early alert for areas that are distant from the wave front, but may have danger  
• Teletsunamis | Danger level not yet known | Stay alert for more info |
| **Advisory** (PRSN or WCATWC) | • Forecasted amplitudes: 0.3 - 1.0 m  
• Observed amplitudes: 0.4 - 1.0 m  
• Immediate advisory based on earthquake parameters | Strong currents likely | Stay away from the shore |
| **Tsunami Information Statement** | Minor waves at most | Minor waves at most | No action suggested |

- Warnings and advisories suggest that action must be taken
- Advisories can be upgraded to a Warning or canceled
- Warning can be downgraded to an Advisory or canceled
- Watch can be upgraded to an Advisory or Warning
Phone Call and Radio Transmission Protocol

**PRSN**

- WCATWC (M ≥6) (Dedicated Line/Satellite Telephone)

**PRIMARY**

- PRSEMA
  - Ring Down

- NWS San Juan

- Short Wave Radio

- VITEMA St. Thomas USVI (L-V)

- DDM BVI (L-V)

- ISU RD

- OMME (Mygz.)
  - Ring Down

**SECONARY**

- 911 St. Thomas

- BVI Police

- 911 St. Croix

**TERCIARY**

- Vitema St. Croix (L-V)

- Vitema St. John (L-V)

- USVI Fire Station (L-V)

**Calls will also be made to:**
- PRSN Director
- PRSEMA Director
- USGS (M≥6)
Tsunami Ready

NWS Program which recognizes communities that have met established requirements to improve tsunami readiness and preparedness
TsunamiReady Communities in Puerto Rico/USVI

Puerto Rico: 10 TsunamiReady Communities

- Aguada
- Aguadilla
- Anasco
- Carolina
- Dorados
- Lojas
- Manati
- Mayaguez
- Ponce
- Rincon

Return to TsunamiReady Communities

For more information contact: donna.franklin@noaa.gov  Map graphic: melody.magnus@noaa.gov
http://www.stormready.noaa.gov/com-maps/wa-com.htm
Last Updated: May 5, 2010
The distribution of computed maximum positive tsunami amplitudes. The water surface elevation is in meters). Taken from Zahibo, et. al, 2003.
More information...

- PRSN
  - http://redsismica.uprm.edu
- NOAA Tsunami Site
  - http://tsunami.gov
- PRTWMP website with tsunami inundation maps
  - http://poseidon.uprm.edu
- UNESCO IOC Caribe EWS

Thanks for your support and attention