IOC Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions

Christa G. von Hillebrandt
Chair ICG/CARIBE EWS

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Over 75 Tsunamis have impacted the Caribbean in the past 500 years.

<table>
<thead>
<tr>
<th>Fatalities</th>
<th>Year</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>1842</td>
<td>Haiti</td>
</tr>
<tr>
<td>1000</td>
<td>1853</td>
<td>Venezuela (possible that the deaths were due to earthquake)</td>
</tr>
<tr>
<td>30</td>
<td>1867</td>
<td>US Virgin Islands</td>
</tr>
<tr>
<td>100</td>
<td>1882</td>
<td>Panama</td>
</tr>
<tr>
<td>142</td>
<td>1918</td>
<td>Puerto Rico</td>
</tr>
<tr>
<td>1790</td>
<td>1946</td>
<td>Dominican Republic</td>
</tr>
<tr>
<td>75</td>
<td>1946</td>
<td>Dominican Republic</td>
</tr>
<tr>
<td>2</td>
<td>1991</td>
<td>Costa Rica</td>
</tr>
<tr>
<td>7</td>
<td>2010</td>
<td>Haiti</td>
</tr>
</tbody>
</table>

Since 1946 there has been an explosive growth in population, infrastructure and tourists along our coast, at least 50,000 could be on the beaches in a single day and hundreds of thousand in the tsunami hazards zones.
ICG CARIBE EWS

- 32 Member States and 16 territories in the Caribbean and Adjacent regions and 3 Observer States (Canada, Peru and Sri Lanka)
- Established in 2005
- 8 Sessions have been held in Barbados, Venezuela, Panama, Martinique, Nicaragua, Dominican Republic, Curacao and Trinidad and Tobago
- Next session: May 13-15, 2014 St Thomas, United States Virgin Islands.
Guidance and planning documents

- Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE-EWS), Implementation Plan 2013–2017, version 2.0. IOC Technical Series No. 78. [online] UNESCO/IOC
  - 5.1 VULNERABILITY
  - 5.2 HAZARD ASSESSMENT
  - 5.3 MONITORING AND DETECTION SYSTEMS
  - 5.4 TSUNAMI SERVICES
  - 5.5 PUBLIC AWARENESS, EDUCATION AND RESILIENCE
Guidance and planning documents

- Communication Plan for the Interim Tsunami Advisory Information Service to the Caribbean Sea and Adjacent Regions
- 19 December 2007 Version
- NOAA Richard H. Hagemeyer Pacific Tsunami Warning Center
Guidance and planning documents

First real test:  12 Jan 2010

The survey was very useful to get an overview of the current status of the CARIBE EWS. Tsunami bulletins were received timely by most of the countries that answered the survey. On the other hand, it was identified that sea level was scarcely monitored during the event, and that some National Warning Centres (NWC) do not know how to access sea level data over the GTS or over the IOC Sea Level Observation Facility website. Most NWCs did not use any numerical models during the event. It was observed, as well, that countries placed in watch level were able to distribute warnings and even preventively evacuate some areas.
ICG CARIBE EWS Executive

Chair
Christa von Hillebrandt-Andrade (US NWS Caribbean Tsunami Warning Program, Puerto Rico, USA)

Vice Chairs
Philippe SARRON (Etat Major interministériel de Zone Antilles, Préfecture de la région Martinique, France)
Víctor H. CANO PACHECHO (FUNVISIS, República Bolivariana de Venezuela)

Past Chair
Lorna Inniss - BARBADOS
Working Groups and Task Teams

- **Working Groups**
  - Monitoring and Detection Systems, Warning Guidance
  - Hazard Assessment
  - *Tsunami Services (NEW, replaces Warning, Dissemination and Communication)*
  - Preparedness, Readiness and Resilience

- **Task Teams**
  - Sea Level Network Capability Study (NEW)
  - Performance Based Recognition Program (NEW)
  - CARIBE WAVE 14
  - PTWC Enhanced Product Implementation
  - *Warning Communication and Dissemination (NEW)*
Seismic Data Availability
86% (109/126) of Core CARIBE EWS Stations are contributing in real time

Stations of CARIBE EWS Core Seismic Stations on IRIS and PRSN
NOAA NWS Caribbean Tsunami Warning Program
http://www.srh.noaa.gov/srh/ctwp/
Sea Level Data Availability

• 100% (7/7) of the proposed DART stations are installed
• 47% (50/107) of coastal sea level gauges are sharing data
• Progress is much in thanks to donors outside the region, now the challenge is for the countries to maintain the stations

Port au Prince, Haiti sea level station, installed in 2012
CPACC and MACC were Projects executed by the Caribbean Community Center for Climate Change
Given the recognized potential of GPS stations towards the improvement of tsunami monitoring and detection, the CARIBE EWS supports initiatives towards strengthening these observational assets in the region. 85 stations are actively providing data. In 2012 received supplementary funding to install two collocated GPS and Sea Level Stations.
Tsunami Alerts are currently provided for Puerto Rico and the Virgin Islands by NOAA NWS NTW (former WCATWC-Alaska) and for the rest of the CARIBE EWS by NOAA NWS PTWC (Hawaii). CARIBE EWS has continued to support the US to continue with its Phased Approach for the establishment of a Warning Center in Puerto Rico where to the date it has established the Caribbean Tsunami Warning Program which supports enhanced monitoring, training and readiness.
Tsunami Hazard and Risk Assessment

- Around 10 MS have undertaken tsunami modeling
- Need for improved digital elevation models
- Need for the development of a unified data base of tsunami sources, including seismic, submarine landslides and volcanic.
- Integrate GIS and Risk and Vulnerability aspects into these efforts
- Even for areas that do not have tsunami inundation maps evacuation maps are necessary
In 2013 the MoU was signed between Barbados and UNESCO/IOC for the establishment of the Caribbean Tsunami Information Center.

- Funding from UNDP/ERC Project and UNESCO
- New brochures were created
- The Public Awareness and Education Strategy was approved
- Director has being hired
- Secondments and financial support from Caribbean states and other partners will be required.
CARIBE WAVE 2013
Second Caribbean Wide Tsunami Exercise March 20, 2013

- 94% of the member states and territories of the CARIBE EWS participated
- 481 organizations
- 50,000 participants
- Smooth dissemination of messages from TWC to TWFP
Given the infrequency of events, and the need to continually review and exercise plans and the success of CARIBE WAVE 2011 and 2013 exercises

- CARIBE WAVE will be conducted EVERY year
- Next exercise is March 26, 2014
- 2 Sources: Gulf of Mexico and 1755 Lisbon
- Continue to test Enhanced PTWC products for the region.
- Given the trans Atlantic nature, invite NEAMTWS to participate in the preparation and conduct of the exercise.
94% of CARIBE EWS nations and territories have designated Tsunami Contact and Warning Focal points for the coordination and warning within their areas of responsibility.

Currently there are 32 TsunamiReady™ communities in the Caribbean.

A task team was established in 2013 to evaluate current community based programs and propose a program for adoption by the CARIBE EWS.
Indeed significant advances have been made, but monumental tasks are still required to continue to strengthen the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions. Nevertheless, and despite the current challenging fiscal situations, in memory of the tens of thousands of lives that were lost and livelihoods that were disrupted by earthquake and tsunami disasters over the past years and knowing the 100’s of thousands of lives and billions of dollars that could be lost when the next one strikes our region, the efforts must continue.
The *infrequency of the tsunamis can’t disarm us*, like was the case of the still recent tragic events of Indian Ocean and Haiti, the risk is just too high. Indeed, its full implementation will continue to require a *multi-disciplinary and multi sector community of policy makers, emergency and disaster managers, educators and social and physical scientists engaged with the local stakeholders and supported by our governments and other donors.*

Thank you, Gracias, Merci, Dank…
Thank You

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