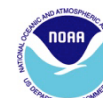




# Tsunami Evacuation Maps, Plans, and Procedures (TEMPP)

... communities knowing what to do and where to go

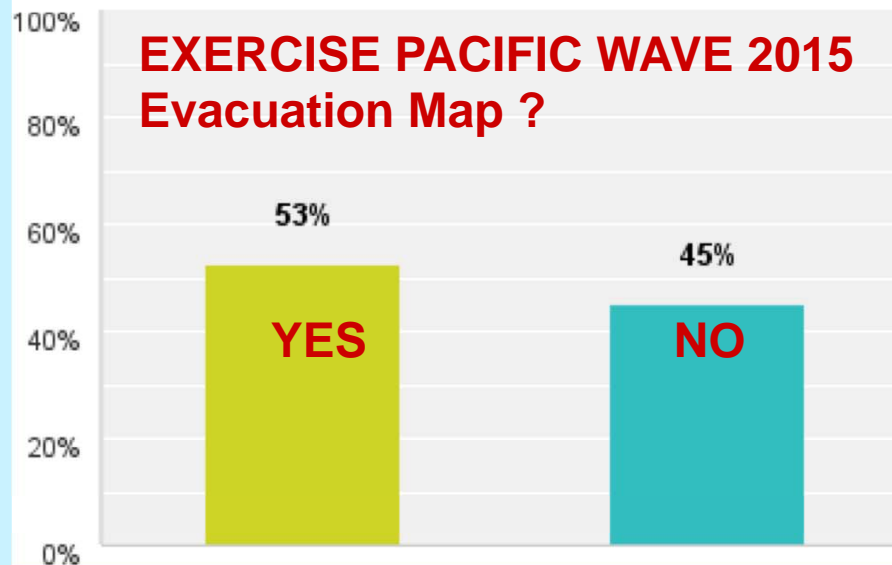
*ITIC Essential Community Preparedness  
Capacity Building, Honduras, Central America, 2015-16*



# PTWS Next Priority (5 yrs) – Preparedness

Since 2014 PTWS PTWC New Products start, Preparedness:

- *Communities must know what to do and where to go when a tsunami is imminent (> 50% lack plans)*
- *ITIC capacity building course –Tsunami Evacuation Maps, Plans, and Procedures (TEMPP)*



*Tsunami Signage*



# TEMPP Course: 2015-2017

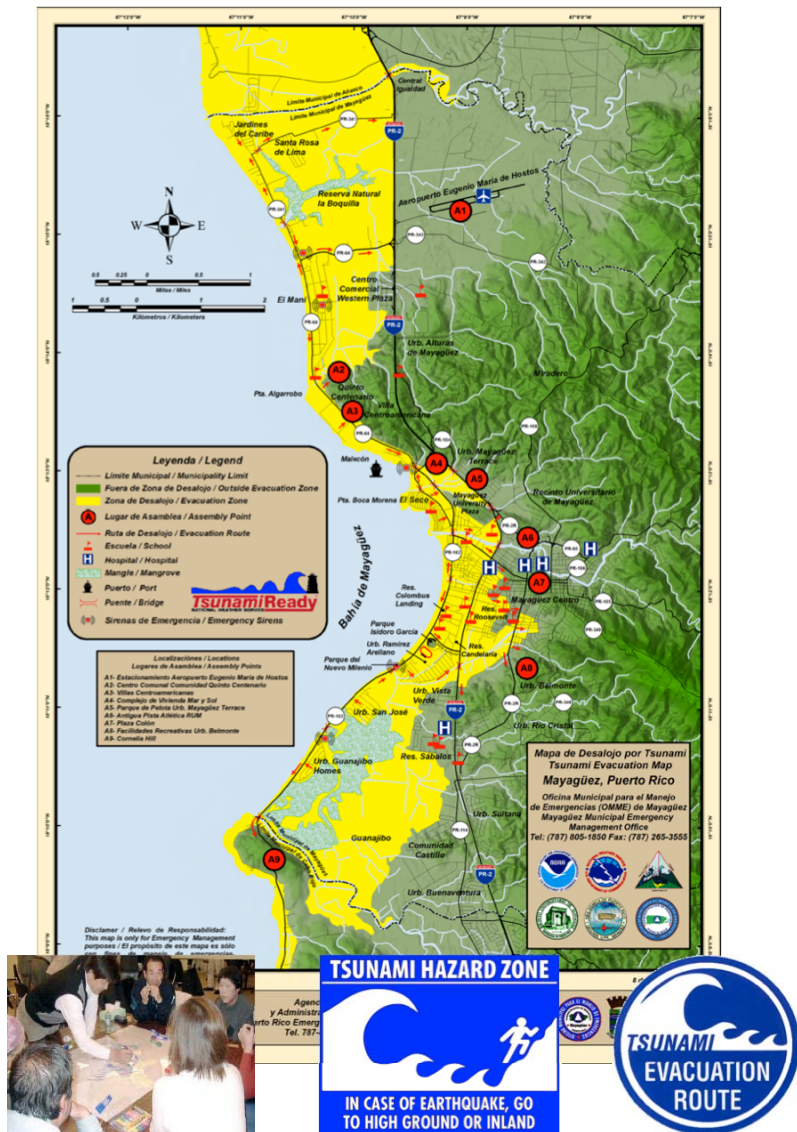
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## **GOAL:**

- *Reliable tsunami evacuation maps done by communities and govt agencies.*
- **Globally applicable standardized tools and methodologies**
- ◆ **Develop with Pilot – Central America, in Spanish**
- ◆ **5 linked training workshops over 1.5 years (2015-17)**  
Start with modeling. End with functional exercise
- ◆ **Final Product: IOC Publication (2017) – TEMPP**  
Review from ICGs, Global TOWS Inter-ICG TT Disaster Mgmt & Preparedness
- ◆ **Simultaneous pilots other countries possible subject to funding**



# Focus and Stakeholders: Communities make Evacuation Maps



- ✓ Local workshops
- ✓ All Stakeholders
- ✓ GIS-facilitated maps
- ✓ Critical facilities, Schools, Hospitals, Special needs
- ✓ Safe Assembly areas
- ✓ Time of day, year
- ✓ Walking routes, Practice Exercises

<b>WORKSHOP / TRAINING SCHEDULE</b>	<b>DATES</b>	<b>PURPOSE / GOAL</b>
<b>TEMPP 1: Tsunami Inundation Modeling – ComMIT/MOST tool</b>	<b>27-31 July 2015</b>	<b>Inundation modeling training using ComMIT tool and MOST model</b>
<b>TEMPP 2: Seismic Tsunami Sources for Honduras Meeting</b>	<b>29 Feb– 1 March 2016</b>	<b>Identification of credible worst-case tsunami scenarios to use for inundation mapping</b>
<b>TEMPP 2: Inundation Mapping for Evacuation – process</b>	<b>2-3 March 2016</b>	<b>Create Inundation map for a given community as an ensemble of inundation scenarios. Output results in GIS formats</b>
<b>TEMPP 3: Evacuation Mapping – process, Intl Tsunami Ready (TR)</b>	<b>15-19 Aug 2016</b>	<b>Create Evacuation Map from Inundation Map using GIS and community process; Implement national TR program</b>
<b>TEMPP 4: Response Plans and SOPs, Socialization, Community Exercises</b>	<b>7-11 Nov 2016</b>	<b>Create Response Plan (warning / evacuation SOPs); Develop Exercise Plan, Create essential awareness materials (signage, map, flyer, card)</b>
<b>TEMPP 5 Official Adoption Ceremony, Functional Exercise</b>	<b>15-17 Feb, 2017</b>	<b>Official Adoption of Maps, Functional Exercise, incl evac, TR Board approval and recognition, Pilot Wrap-up</b>

# TEMPP1: ComMIT Modeling - July 27-31, 2015

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- Inundation and evacuation mapping best practices:
- Hazard and evacuation mapping tools: ComMIT, GIS





# TEMPP Input and Planning, Feb, June 2016

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- PTWS Task Team on Evacuation Mapping and Planning and TOWS TTs - input
- TOWS Task Team on Disaster Management & Preparedness (TT-DMP)
  - *TEMPP Project to establish Evacuation Mapping Guidelines (TT-DMP activity)*



# TEMPP2, Feb 29 – Mar 3, 2016

- Seismic Tsunami Sources for Honduras – Expert Mtg
- Tsunami Inundation Mapping for Evacuation training





# TEMPP3, Aug 11-15, 2016

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- Tsunami Evacuation Mapping





# TEMPP4, Nov 7-11, 2016

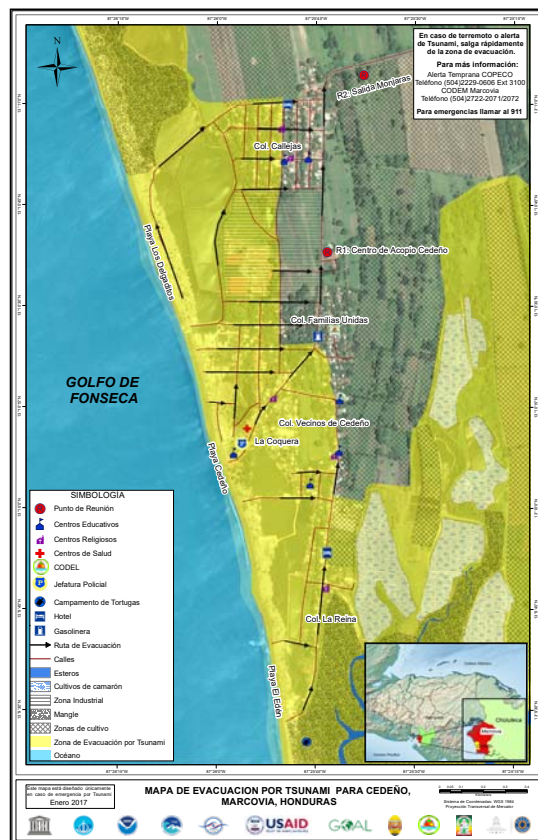
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- Tsunami Response Plans and Exercises
- Tsunami Ready



# TEMPP5, Feb 15-17, 2017

- Tsunami Exercise (COPECO NTWC; CODEM/CODEL warning dissemination, School/Comm evacuation drill)
- Tsunami Ready Board Review, Cedeño TR recognition



<b>Mensajes Oficiales de Tsunami para Honduras</b> <b>Alerta Roja</b> <ul style="list-style-type: none"> <li>Impacto de Tsunami Confirmado</li> <li>Manténgase en los puntos de reunión</li> <li>Siga las instrucciones de los encargados de emergencias</li> </ul>	<b>Alerta Amarilla</b> <ul style="list-style-type: none"> <li>Peligro de Inundación</li> <li>Si está en la zona de evacuación, salga, diríjase hacia los puntos de reunión</li> <li>Siga las instrucciones de los encargados de emergencias</li> </ul>	<b>Alerta Verde</b> <ul style="list-style-type: none"> <li>No hay peligro</li> <li>Estar atento a información oficial</li> </ul>
<b>Boletín Informativo</b> Para más información: Comité Permanente de las Comunidades (COPECO) <a href="http://www.copeco.org.hn">www.copeco.org.hn</a> y CODEM, Cedeño En caso de Emergencia llamar 911		

**En Honduras Sí Ocurren Tsunamis**  

Los Tsunamis en Honduras no son tan frecuentes pero sí han ocurrido y pueden volver a ocurrir en cualquier momento. Las costas Sur y Norte son vulnerables.

En Centro América han ocurrido unos 49 tsunamis desde los tiempos coloniales. Se generaron a consecuencia de terremotos en fallas cerca a las costas del Pacífico, como del Caribe y también distantes.

Uno de los tsunamis que afectó las costas hondureñas ocurrió el 4 de agosto de 1856. El mismo se generó en el Golfo de Honduras cerca de Belice y bañó toda la costa norte: Tela, La Ceiba, Trujillo y llegó hasta Gracias a Dios.

También se han registrado tsunamis en la parte sur, en el Golfo de Fonseca.

**¿Qué es un Tsunami?**

- Un tsunami es una serie de olas causada por una fuerte perturbación de un cuerpo de agua.
- Estas olas pueden llegar en unos minutos, pero continúan por horas. Las olas arrasan con todo lo que encuentran a su paso ya sea cuando inundan la costa o cuando retroceden.
- Los tsunamis pueden ser producidos por grandes terremotos localizados en la costa o en el fondo marino, un deslizamiento o una erupción volcánica.
- En Honduras se encuentran fuentes potenciales de tsunamis que se pueden generar localmente y también existen fuentes regionales y distantes, al otro lado del océano.

**Alarma Personal Para Terremotos y Tsunamis LOCALES**  

Los Terremotos ocurren de forma súbita, y en el caso que sean cercanos y generen tsunamis, las olas pueden llegar antes que le llegue una alerta oficial. Siga estas recomendaciones:

Protégase durante el terremoto: Agáchese, Cúbrase y Sujétese

Salga rápidamente de la zona de evacuación por tsunami en cualquiera de las siguientes situaciones:

- Después de SENTIR un terremoto fuerte que se tumbe o dure más de veinte segundos
- Si VE un repentino aumento o disminución del nivel del mar
- Si OYE un ruido extraño o fuerte que viene del mar

**¡¡PROTÉJASE, VIVA PARA CONTARLO!!!**

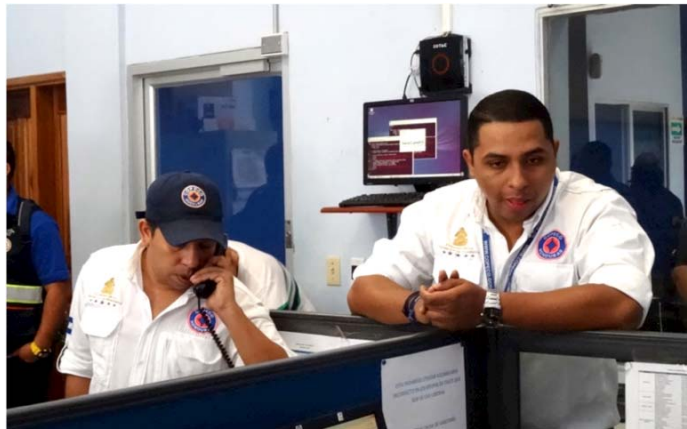




# PacWave17 – NTWC, Cedeno Evacuation

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- ❑ 16 Feb – NTWC - Live PTWC msg receipt, Colombia – Ecuador scenario
- ❑ 17 Feb – Cedeno dill – Regional – Local dissemination, School / Community Evacuation



COPECO NTWC



Cedeño drill

# Tsunami Signage - Honduras

- Adapt from other countries (US, NZ)
- 'Tsunami Zone', 'Enter/Leave Tsunami Ready Community'



# TEMP Course Manual - Documents

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- ❑ **EVACUATION OVERVIEW**
- ❑ **HAZARD ASSESSMENT – INUNDATION MODELING**
  - Numerical Models in Hazard Assessment
  - ComMIT tool manual (MOST model), including Appendices (abridged requirements, in Spanish)
  - Seismic Worst-Case Scenarios for Tsunami Hazard Assessment (no credible sources)
  - Establishing Tsunami Inundation for areas not-modeled or with low-hazard (no history, low population, poor DEM)
- ❑ **COMMUNITY – EVAC MAP, RESPONSE PLANNING**

Best Practice Country Ex: Chile, Indonesia, Japan, NZ, Philippines, USA, IOC Projects (SOPs, training) ...

  - How to Create Evacuation Maps
  - How to Create Community Tsunami Response Plans
  - How to Create Community Tsunami Exercises



# International Tsunami Ready (I-TR) Guidelines

- **UNESCO IOC - 2015**
- TR Pilots – Caribbean:  
US TR: Anguilla, BVI  
Intl TR: St Kitts & Nevis (2016), DR, Haiti (2017)
- Intl TR Pilot – Pacific:  
Honduras (2017),  
Costa Rica, PIC TT (Samoa, Tonga, Vanuatu), Ecuador
- Intl TR Pilot – Indian:  
WG 1 decision to implement (2016)

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



(Caribbean Guidelines, 2015)



# Thank You

Dr. Laura Kong Director, ITIC

Christa von Hillebrandt-Andrade, Manager, CTWP

Dr. Diego Arcas, Director, NCTR, PMEL

*ITIC Essential Community Preparedness  
Capacity Building, Honduras, Central America, 2015-16*

