



UNESCO – IOC / NOAA INTERNATIONAL TSUNAMI INFORMATION CENTER (ITIC) ITIC TRAINING PROGRAMME INTERNATIONAL

PILOT COURSE ESSENTIAL TSUNAMI PREPAREDNESS: TSUNAMI EVACUATION MAPS, PLANS, AND PROCEDURES (TEMPP)

Training 2: Seismic Tsunami Sources and Tsunami Inundation Mapping

**Comisión Permanente de Contingencias (COPECO)
Tegucigalpa, Honduras, 29 February - 3 March 2016**

In July 2014, the Pacific Tsunami Warning and Mitigation System Steering Committee (PTWS SC) approved Working Group 3's (Disaster Management and Preparedness) that the next priority of the PTWS after the implementation of the PTWC New Products on October 1, 2014, should be on Preparedness, e.g., that in the End-to-End tsunami warning chain, once a forecast is provided and a warning alert issued, communities must know what to do and where to go. The 'where to' answer would be a tsunami evacuation map that has been developed by, and therefore, owned by the community.

In April 2015 at the Twenty-sixth session of the ICG/PTWS, Member States affirmed the priority focus, and the ITIC, IOC and its partners began work the development of the "Essential Tsunami Preparedness: Developing Tsunami Evacuation Maps, Plans, And Procedures" course that will train countries on how to produce reliable and practical, science-based, community-driven tsunami evacuation maps. The Course is expected to be globally applicable, and will employ standardized tools and methodologies, and best practices.

The Pilot Course, conducted in Honduras in 2015-2016, will consist of a series of five-linked training workshops that will take two Honduran communities through the process of creating community-owned evacuation plans, maps, and procedures. The Training Workshops cover Tsunami Inundation Modeling, Earthquake Tsunami Scenarios and Tsunami Inundation Map Development, Evacuation Map Development, Tsunami Warning & Emergency Response Standard Operating Procedures (SOPs), and Conducting Tsunami Exercises.

EXPERTS MEETING ON EARTHQUAKE AND TSUNAMI HAZARD IN HONDURAS: HISTORICAL EVENTS AND POTENTIAL SOURCES

29 FEBRUARY – 1 MARCH 2016

Expert Participants:

Dr. Gerard Fryer, Senior Geophysicist, Pacific Tsunami Warning Center (PTWC), USA, Meeting Chair
 Dr. Diego Arcas, Scientific Director, NOAA National Center for Tsunami Research (NCTR)
 Dr. Eduardo Camacho, Director, Instituto de Geociencias- Universidad de Panama, Panamá
 Dr. Juan José Escobar, IHCIT- Universidad Nacional Autónoma de Honduras
 Dr. Walter Mooney, US Geological Survey, USA
 Dr. Emile Okal, Department of Earth and Planetary Sciences, Northwestern University, USA
 Dr. Marino Protti, Observatorio Vulcanológico y Sismológico de Costa Rica, Universidad Nacional (OVSICORI-UNA), Costa Rica; Chair, IASPEI Latin America and Caribbean Seismological Commission (LACSC)
 Dr. Lidea Elizabeth Torres Bernhard, IHCIT- Universidad Nacional Autónoma de Honduras
 TEMPP Tsunami Inundation Mapping Participants and Trainers

Tsunamis can affect Honduras coastlines facing the Pacific Ocean and the Gulf of Honduras and Caribbean Sea. Relatively few tsunami runups have been reported for Honduras over history, thus necessitating the use of scenario events for hazard assessment. The purpose of this expert scientific meeting is to quantify earthquake and tsunami sources for use in tsunami risk reduction projects in Honduras. The identified maximum credible earthquake scenarios will be used by Honduras to conduct tsunami inundation modeling for evacuation mapping of its Pacific and Caribbean coastlines.

PROVISIONAL AGENDA

| Sess ion | Start Time | End Time | Topic | Speaker |
|-------------|---------------|-------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| 1-3 | | | Monday, February 29, 2016 | |
| | | | MORNING, OPENING | |
| | 8:30 | 9:00 | Registration | COPECO |
| | 9:00 | 10:45 | Opening Ceremonies | Honduras, USA, Costa Rica |
| | 10:45 | 11:15 | GROUP PHOTO, COFFEE / TEA BREAK | |
| | | | SEISMIC TSUNAMI SOURCES WORKSHOP | |
| 1.1 | 11:15 | 11:30 | Introduction and Meeting Objectives | Gerard Fryer |
| 1.2 | 11:30 | 12:00 | Tectonics of Central America | Marino Protti Quesada |
| 1.3 | 12:00 | 12:30 | Earthquakes and Tsunami Affecting Central America | Eduardo Camacho |
| | 12:30 | 13:30 | LUNCH | |
| | | | AFTERNOON | |
| 1.4 | 13:30 | 14:00 | Historical Tsunamis Affecting Honduras | Juan José Escobar |
| 1.5 | 14:00 | 14:30 | The USGS Approach to Defining Tsunami Sources | Walter Mooney |
| 1.6 | 14:30 | 15:00 | Slow "tsunami" earthquakes, landslides and terraces: The contribution of potential rogue events to tsunami risk in Central America | Emile Okal |
| | 15:00 | 15:15 | COFFEE / TEA BREAK | |
| 1.7 | 15:15 | 15:45 | Global Earth Model (GEM) | Fryer |

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|-----|-------|-------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1.8 | 15:45 | 16:15 | Risk Assessment: Probabilistic vs. Deterministic (scenario-based) Tsunami Hazard Assessment; How severe an event should we consider? | Fryer, Okal |
| 1.9 | 16:15 | 16:45 | Landslides and volcanoes as tsunami sources | Fryer |
| 3-4 | | | Tuesday, March 1, 2016 | |
| | | | MORNING | |
| | | | HONDURAS TSUNAMI INUNDATION MODELING SOURCES | |
| 2.1 | 9:00 | 9:30 | Tsunami Source Definition: requirements of ComMIT | Diego Arcas |
| 2.2 | 9:30 | 10:30 | The Pacific Coast. Definition of tsunami sources for ComMIT modeling. Volcanic sources? General Discussion aimed at reaching a consensus. | Fryer, All |
| | 10:30 | 11:00 | COFFEE / TEA BREAK | |
| 2.2 | 11:00 | 12:30 | continued | Fryer, All |
| | 12:30 | 13:30 | LUNCH | |
| | | | AFTERNOON | |
| 2.3 | 13:30 | 15:00 | The Caribbean Coast. Definition of tsunami sources for ComMIT modeling. Landslide sources? General Discussion aimed at reaching a consensus. | Fryer, All |
| | 15:00 | 15:15 | COFFEE / TEA BREAK | |
| 2.3 | 15:15 | 15:45 | continued | Fryer, All |
| 2.4 | 15:45 | 16:15 | Summary and Wrap-up | Fryer, All |

TSUNAMI INUNDATION MAP DEVELOPMENT

2 -3 MARCH 2016

The training builds from the July 2015 Tsunami Modeling (ComMIT) training to cover basic composite inundation mapping using QGIS.

Trainers:

Dr. Gerard Fryer, Senior Geophysicist, PTWC, USA, Meeting Chair

Dr. Diego Arcas, Scientific Director, NOAA NCTR

Christopher Moore, Research Scientist, NOAA NCTR

Carolina Hincapié-Cárdenas, Deputy Manager, Caribbean Tsunami Warning Program (CTWP)

PROVISIONAL AGENDA

| Sess ion | Start Time | End Time | Topic | Speaker |
|-------------|---------------|-------------|----------------------------------------------------------------------------------------|----------------------------|
| 3-4 | | | Wednesday, March 2, 2016 | |
| | | | MORNING | |
| | | | PTWC ENHANCED PRODUCTS FOR PTWS AND CARIBE-EWS, CARIBE WAVE 2016, ComMIT REVIEW | |
| | 8:30 | 9:00 | Registration | COPECO |
| 3.1 | 9:00 | 9:45 | PTWC Enhanced Products for Pacific | Gerard Fryer |
| 3.2 | 9:45 | 10:30 | PTWC Enhanced Products for Caribbean | Fryer |
| | 10:30 | 11:00 | COFFEE / TEA BREAK | |
| 3.3 | 11:00 | 11:20 | CARIBE WAVE 2016 - Validating Caribbean PTWC Products | Carolina Hincapié-Cárdenas |
| 4.1 | 11:20 | 11:45 | Tsunami Evacuation planning - overview | Hincapié-Cárdenas |
| 4.2 | 11:45 | 12:30 | ComMIT Review, Running far-field hazard assessment | Christopher Moore |
| | 12:30 | 13:30 | LUNCH | |
| | | | AFTERNOON | |
| | | | TSUNAMI INUNDATION MAPPING | |
| 4.2 | 13:30 | 14:15 | continued | Moore |
| 4.3 | 14:15 | 15:00 | Far-field hazard assessment review and results | Diego Arcas |
| | 15:00 | 15:15 | COFFEE / TEA BREAK | |
| 4.4 | 15:00 | 16:30 | Running custom Propagation sources in ComMIT | Moore |
| 4.5 | 15:15 | 17:00 | Hands-on: running local Honduras seismic sources | All |
| 4-5 | | | Thursday, March 3, 2016 | |
| | | | MORNING | |
| 4.6 | 9:00 | 10:30 | Comparison of local source with far-field | Arcas |
| | 10:30 | 11:00 | COFFEE / TEA BREAK | |
| 4.7 | 11:00 | 12:30 | Creating composite inundation map | Arcas |
| | 12:30 | 13:30 | LUNCH | |
| | | | AFTERNOON | |
| 4.8 | 13:30 | 15:00 | Exporting inundation and maximum wave amplitudes to GIS format | Moore |
| | 15:00 | 15:15 | COFFEE / TEA BREAK | |
| 4.9 | 15:00 | 16:30 | QGIS validation of results, basic inundation map making | Moore |
| 5 | 16:30 | 17:00 | Closing | COPECO, USA |