



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

ITP-Colombia: Tsunami Warning and Emergency Response Using the PTWC Enhanced Products for National Tsunami Threat Decision-Making Bogota, Colombia 5-9 October 2015

Trainers

Dr. Laura Kong, Director, ITIC, Hawaii, USA

Dr. Charles McCreery, Director, Pacific Tsunami Warning Center, Hawaii, USA

Christa von Hillebrandt-Andrade, Manager, Caribbean Tsunami Warning Program,
Puerto Rico, USA

Training Overview

The training workshop will cover tsunami warning operations and the use of the PTWC Enhanced Products for tsunami threat decision-making, with specific attention on the warning and emergency response plan and standard operating procedures (SOPs) of Colombia. Topics will include warning and response SOPs and challenges, warning decision support tools, warning messages and alerting, evacuation concepts and planning, and awareness strategies. Over the last 10+ years, with improvements in data quality, quantity, and real-time availability, PTWC's response time has dropped significantly from an hour to 5-10 minutes for tsunami events. At the same time, with each great earthquake and tsunami since 26 December 2004 helping to increase scientific understanding, better techniques have been developed to quickly characterize the earthquake and numerically model the tsunami. In 2014, the PTWC implemented Enhanced Products for the PTWS that now include wave amplitude forecasts in both text and graphical formats, and that require each country to explicitly assign Warning / Watch status in their own messages to their coasts. In 2016, the PTWC will implement its Enhanced Products for CARIBE-EWS countries.

PROVISIONAL AGENDA

Sess ion	Start Time	End Time	Topic	Speaker
1-3			Day 1: Monday, October 5, 2015	
			MORNING	
			Opening, ICG/PTWS, ICG/CARIBE-EWS, Tsunami Warning Systems, Country Tsunami SOPs	
	7:30	8:00	Registration	Colombia
1.1	8:00	8:45	Opening Ceremonies	ITIC, PTWC, CTWP, Colombia
1.2	8:45	9:00	Logistics and Administrative Items, Introductions	DIMAR
1.3	9:00	9:15	Course Overview, Introductions	Christa von Hillebrandt-Andrade, CTWP
	9:15	9:45	GROUP PHOTO, COFFEE / TEA BREAK	
2.1	9:45	10:00	ICG/PTWS-XXVI and ICG/CARIBE-EWS-X Outcomes, specifically for Colombia	Charles McCreery, PTWC
2.2	10:00	10:45	Responding Rapidly and Effectively: Tsunami Warning and Emergency Response Requirements and Timeline-driven SOPs	Laura Kong, ITIC
2.3	10:45	11:30	Tsunami Warning Center SOPs: What do Tsunami Warning Centers (TWCs) provide to Tsunami Emergency Response (TER) agencies? Role of Tsunami Warning Focal Point	McCreery
2.4	11:30	12:00	Colombia Tsunami Warning and Emergency Response (TWER) SOPs using PTWC Enhanced Products	Colombia
2.5	12:00	12:30	Ecuador and Cuba TWER SOPs using PTWC Enhanced Products (15 min / country)	Ecuador, Cuba
	12:30	13:30	LUNCH	
			AFTERNOON	
			PTWC Enhanced Products, 16 September 2015 Chile Tsunami	
3.1	13:30	14:00	Pacific Tsunami Warning Center (PTWC) New Enhanced Products - Overview - What, Why, Criteria, Formats	Kong
3.2	14:00	14:30	Pacific Tsunami Warning Center (PTWC) New Enhanced Products - Staging	McCreery
3.3	14:30	15:00	PTWC Enhanced Products - Staging and Explanation of Each Product: Text, Forecast Polygon Map, Graphical Deep-Ocean Energy, Coastal Forecast, Forecast Tables, KMZ file	McCreery
	15:00	15:15	COFFEE / TEA BREAK	
3.4	15:15	15:45	16 September 2015, M8.3 Tsunami – PTWS and PTWC summary	McCreery
3.5	15:45	16:30	16 September 2015, M8.3 Tsunami SOPs – status, gaps, needs	Kong, All
4			Day 2: Tuesday, October 6, 2015	
			MORNING: TWC Operations - Earthquakes	
4.1	8:00	8:45	Pacific and Caribbean Regional Tectonics and Seismicity, and Earthquake Hazard	von Hillebrandt-Andrade, Colombia
4.2	8:45	9:15	Science of Earthquakes for Tsunami Warning	Kong
4.3	9:15	10:00	PTWC Operations overview	McCreery
	10:00	10:30	COFFEE / TEA BREAK	
4.4	10:30	11:00	TWC Operations: Real-time Earthquake Detection and Fast Source Characterization – Methods to determine Magnitude and Fault Mechanism (W-Phase CMT)	Kong
4.5	11:00	11:45	TWC Operations: Real-time Earthquake Detection and Fast Source Characterization – Limitations and Challenges	McCreery
4.6	11:45	12:30	Science of Tsunamis for Tsunami Warning	von Hillebrandt-Andrade

	12:30	13:30	LUNCH	
			AFTERNOON	
			TWC Operations - Earthquakes, Tsunamis; Tsunami Decision Support Tools	
4.7	13:30	13:45	Historical Tsunamis Affecting the Region, and Tsunami Hazard	McCreery
4.8	13:45	14:30	TWC Operations: Sea Level Monitoring - Methods, Instruments, Limitations, Challenges	von Hillebrandt-Andrade
4.9	14:30	15:00	Demonstration: Decision Support Tools of Monitoring, Detection, Assessment – Earthquakes: Real-time Earthquake Display (CISN), USGS web site (CMT, ShakeMap, PAGER)	Kong
	15:00	15:15	COFFEE / TEA BREAK	
	15:15	17:00	Visit to Colombia TWC (DIMAR)	DIMAR
	17:00	17:30	Visit to Colombia Seismic Network	SGC
4-5			Day 3: Wednesday, October 7, 2015	
			MORNING	
			Tsunami Decision Support Tools, TWC and TER SOPs	
4.10	8:00	9:00	Demonstration: Decision Support Tools of Monitoring, Detection, Assessment – Tsunami: Sea Level Monitoring (IOC web site, TideTool with Tsunami Travel Times), RIFT Tsunami Scenarios	Kong
4.11	9:00	10:00	TWC Operations: Travel Time Forecasting - Methods, Limitations, Uncertainty, Sensitivity Studies (Location, Depth, Magnitude)	McCreery
	10:00	10:30	COFFEE / TEA BREAK	
4.12	10:30	11:30	TWC Operations: Wave Amplitude Forecasting - Methods, Limitations, Uncertainty, Sensitivity Studies (Location, Depth, Magnitude)	McCreery
5.1	11:30	12:30	TER SOPs: Overview of Stakeholder Roles and Coordination, Event Operations, Timelines, Checklists, Examples	von Hillebrandt-Andrade
	12:30	13:30	LUNCH	
			AFTERNOON	
			TWC and TER SOPs, TER Challenges	
5.2	13:30	14:00	TWC and TER SOPs for PTWC Enhanced Products: Guidance, Flow Charts, Criteria Tables, Timeline-driven SOP, Message Templates. Warning (EQ Magnitude and Forecast thresholds), Evacuation (Land and Marine Threats and Public Safety)	Kong
5.3	14:00	15:00	What do TERs do with TWC information? Limitations and Challenges in Alerting, Evacuation, and Safe-to-Return (All-Clear)	von Hillebrandt-Andrade
	15:00	15:15	COFFEE / TEA BREAK	
5.4	15:15	16:15	Activity: Improving Response – What Happens When? Reliable and Unreliable Information	von Hillebrandt-Andrade
5.5	16:15	17:00	Discussion: Colombia TWC - status, gaps, needs	Kong, All
5-6			Day 4: Thursday, October 8, 2015	
			MORNING	
			Awareness & Preparedness, Tsunami Hazard Scenarios	
5.7	8:00	8:45	Building Awareness & Community Preparedness - strategies and examples	von Hillebrandt-Andrade
5.8	8:45	9:15	Building Awareness & Community Preparedness - Tsunami Evacuation Maps	Kong
5.9	9:15	10:00	Building Awareness & Community Preparedness - Tsunami Exercises, PacWave, CaribeWave, TsunamiReady	von Hillebrandt-Andrade, Kong
	10:00	10:30	COFFEE / TEA BREAK	
6.1	10:30	11:15	Tsunami Hazard Scenarios around the Pacific	McCreery
6.2	11:15	12:00	Tsunami Hazard Scenarios around the Caribbean	McCreery

6.3	12:00	12:30	ITP-Colombia Tsunami Exercises - Decision-making using PTWC Enhanced Products - Introduction, Format, Conduct	Kong
	12:30	13:30	LUNCH	
			AFTERNOON	
			Tsunami Exercise - Decision-making using PTWC Enhanced Products	
6.4	13:30	15:00	Tsunami Exercise - Decision-making using PTWC Enhanced Products - Local or Regional Caribbean Scenario	von Hillebrandt-Andrade, All
	15:00	15:15	COFFEE / TEA BREAK	
6.5	15:15	17:00	Tsunami Exercise - Decision-making using PTWC Enhanced Products - Distant Caribbean Scenario	von Hillebrandt-Andrade, All
6-7			Day 5: Friday, October 9, 2015	
			MORNING	
			Tsunami Exercise - Decision-making using PTWC Enhanced Products	
6.6	8:00	10:00	Tsunami Exercise - Decision-making using PTWC Enhanced Products - Distant Pacific Scenarios	Kong, All
	10:00	10:30	COFFEE / TEA BREAK	
6.7	10:30	12:00	Tsunami Exercise - Decision-making using PTWC Enhanced Products - Local or Regional Pacific Scenario	Kong, All
6.8	12:00	12:30	PTWC Enhanced Products - Question and Answer	McCreery, All
	12:30	13:30	LUNCH	
			AFTERNOON	
			Final Discussion, Closing	
6.9	13:30	14:30	Final Discussion: Colombia and South America Readiness and Next Steps	Kong, All
	14:30	14:45	COFFEE / TEA BREAK	
7	14:45	15:30	Certificates and Closing Ceremonies	Colombia, NOAA