



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

### **ITP-LAC: Regional Training for Latin American Countries on the ICG/PTWS Pacific Tsunami Warning Center (PTWC) New Enhanced Products**

Base Naval Sur, Instituto Oceanográfico de la Armada del Ecuador (INOCAR)  
Guayaquil, Ecuador  
2-4 June 2014

#### **Trainers**

Nicolás Arcos, Technical Information Specialist -Tsunamis, ITIC, Hawaii, USA  
Dr. Laura Kong, Director, ITIC, Hawaii, USA  
Julie Leonard, Regional Advisor, Office of U.S. Foreign Disaster Assistance, Regional Office  
for Latin America and the Caribbean (USAID/OFDA LAC)  
Dr. Charles McCreery, Director, PTWC, Hawaii, USA

#### **Training Overview**

The 3-day training will cover the explanation and use of the PTWC New Enhanced Tsunami Forecast Products by National Tsunami Warning Centers and Emergency Response Agencies. Topics will cover the end-to-end warning process, warning center and emergency response operational challenges, advanced topics in tsunami warning center operations, and the methodologies, use, interpretation, and limitations of the PTWC Enhanced Products. 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. This in turn has led to significant improvements in a warning center's ability to accurately forecast coastal wave height and impact, and an ability to provide timely advice to support local tsunami warning decision-making. At the ICG/PTWS-XXV (September 2013), Member States approved the start of the PTWC Enhanced Products on October 1, 2014. These products, the first large-scale modifications in decades, fundamentally change the way in which countries assess their national tsunami threats. The PTWC will cease providing Warnings and Watches, and instead issue advisory tsunami wave forecasts. Public text products will continue to be issued, but the additional graphical and statistical products will only be sent to authorized PTWS Tsunami Warning Focal Points (TWFP).

## FINAL AGENDA

Ses sion	Start Time	End Time	Topic	Speaker
1-2			<b>DAY 1: ICG/PTWS-XXV, Coordinated Warning Systems, Country and PTWC Enhanced Products SOPs</b>	
			<b>MORNING</b>	
			<b>Opening, ICG/PTWS-XXV Outcomes</b>	
	8:00	8:30	Registration	ITIC, INOCAR
1.1	8:30	9:15	Opening Ceremonies	Ecuador, USA
1.2	9:15	9:30	Logistics and Administrative Items, Introductions, Course Overview	Nic Arcos, ITIC
2.1	9:30	9:45	ICG/PTWS-XXV Outcomes, specifically for the PTWS Enhanced Products	Julie Leonard, USAID/OFDA LAC
2.2	9:45	10:15	Responding Rapidly and Effectively: Tsunami Warning and Emergency Response Requirements and Timeline-driven SOPs	Laura Kong, ITIC
	10:15	10:45	COFFEE / TEA BREAK - Group Photo	
			<b>Coordinated Warning and Response - What is Available and What is Wanted?</b>	
2.3	10:45	11:15	What do Tsunami Warning Centers (TWCs) provide to Tsunami Emergency Response (TER) agencies?	Charles McCreery, PTWC
2.4	11:15	11:45	What do TERs do with TWC information? Challenges in Alerting, Evacuation, and Safe-to- Return (All-Clear)	Arcos
2.5	11:45	12:20	Country SOPs using PTWC Enhanced Products - 10-15 min/country (2 countries: Guatemala, El Salvador)	Leonard, Countries
	12:20	12:30	Comisión Permanente de Pacífico Sur (CPPS)	CN Julián Reyna Moreno, Secretario General
	12:30	14:00	LUNCH	
			<b>Country and PTWC Enhanced Products SOPs</b>	
	14:00	15:30	Country SOPs using PTWC Enhanced Products - 10-15 min/country (5 countries: Nicaragua, Costa Rica, Panama, Colombia, Ecuador)	Leonard, Countries
	15:30	15:45	COFFEE / TEA BREAK	
	15:45	16:15	Country SOPs using PTWC Enhanced Products - 10-15 min/country (2 countries: Peru, Chile)	Leonard, Countries
2.6	16:15	17:00	Discussion: Country Readiness for Changeover - What is left to do, gaps, needs?	Arcos, Leonard

3			<b>DAY 2: TWC Operations, PTWC Enhanced Products, Country Guidance</b>	
			<b>MORNING</b>	
			<b>TWC Operations Advanced Topics, PTWC Enhanced Products</b>	
3.1	8:30	9:00	Pacific Tsunami Warning Center (PTWC) New Enhanced Products Overview – What, Why, SOPs (Criteria, Formats, Staging)	McCreery

3.2	9:00	10:00	TWC Operations: Real-time Earthquake Detection and Fast Source Characterization – Sparse networks, Magnitudes, W-Phase Centroid Moment Tensors – Techniques, Use, Limitations, Challenges	Kong
	10:00	10:30	COFFEE / TEA BREAK	
3.3	10:30	11:30	TWC Operations: Travel Time and Wave Forecasting – Techniques, Use, Limitations, Challenges, Sensitivity Studies (Location, Depth, Magnitude)	McCreery
3.4	11:30	12:30	PTWC Enhanced Products – Staging and Explanation of Each Product: Text, Forecast Polygon Map, Graphical Deep-Ocean Energy, Coastal Forecast, Forecast Tables, KMZ file	McCreery
	12:30	14:00	LUNCH	
			<b>AFTERNOON</b>	
			<b>NTWC SOPs for PTWC Enhanced Products – Guidance, Tsunami Decision Support Tools</b>	
3.5	14:00	14:45	National SOP for PTWC Enhanced Products – Guidance and Examples: Flow Charts, Criteria Tables, NTWC Message Templates	Kong
3.6	14:45	15:30	Using Tsunami Warning Decision Support Tools for Monitoring, Detection, Assessment, Warning, Cancellation, Demonstration of Tide Tool v10.20 with Tsunami Travel Times	Kong
	15:30	15:45	COFFEE / TEA BREAK	
3.7	15:45	16:00	PTWC Enhanced Products – Guidance on use for National Warnings and Evacuation – Land and Marine Threats and Public Safety	Arcos
3.8	16:00	16:30	Event Timeline-driven SOP – Intl TWC, NTWC, NDMO/DMO actions	Kong
	16:30		Guayaquil City Tour	INOCAR

4-5			<b>DAY 3: Tsunami Hazard Scenarios, Tsunami Exercise</b>	
4.1	8:30	9:00	Understanding PTWC Enhanced Products - Distant Tsunami Hazard Scenarios	McCreery
4.2	9:00	10:00	Understanding PTWC Enhanced Products - Regional and Local Tsunami Hazard Scenarios	Leonard, Groups
	10:00	10:30	COFFEE / TEA BREAK	
	10:30	11:00	Understanding PTWC Enhanced Products - Regional and Local Tsunami Hazard Scenarios	Arcos, Groups
4.3	11:00	12:30	Tsunami Table Top Exercise - Decision-making using PTWC Enhanced Products	Exercise Controller (Leonard), Groups
	12:30	14:00	LUNCH	
4.4	14:00	15:00	Post-Exercise Evaluation	Arcos, All
4.5	15:00	15:30	Final Discussion: Country Readiness for Changeover - Questions, Answers, Next Steps	Kong
	15:30	15:45	COFFEE / TEA BREAK	
5	15:45	16:15	Closing Ceremonies	Ecuador, USA