



Intergovernmental
Oceanographic
Commission



National Oceanic
and Atmospheric
Administration



The International
Tsunami Information
Center



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

Regional Training Workshop: Strengthening Tsunami Warning and Emergency Response Standard Operating Procedures

Pacific Tsunami Warning Center (PTWC) New International Tsunami Products

4-8 March 2013

Valparaíso, Chile

Hosted by Chile Servicio Hidrográfico y Oceanográfico de la Armada de Chile

Principal Speakers:

Bernardo Aliaga, Technical Secretary, ICG/PTWS and ICG/CARIBE-EWS, IOC Tsunami Unit

Nicolas Arcos, Tsunami Information Specialist, ITIC

Dr. Laura Kong, Director, ITIC

Dr. Stuart Weinstein, Deputy Director, PTWC

Additional Speakers:

Admiral (retired) Héctor Soldi, Secretario General, Comisión Permanente del Pacífico Sur (CPPS)

Astrid Hollander, Especialista de Programa en Educación para el Desarrollo Sostenible, Oficina

Regional de Educación para América Latina y el Caribe (OREALC/ UNESCO Santiago)

This 1-week training workshop will cover essential topics involved in end-to-end tsunami warning. In event time, the topics include event monitoring and detection, threat evaluation and warning, alert dissemination, emergency response, evacuation, and public action. An effective tsunami warning system is achieved when all people in vulnerable coastal communities are prepared to respond appropriately and in a timely manner upon recognizing that a potential destructive tsunami may be approaching. Meeting this challenge requires round the-clock monitoring with real-time data streams and rapid alerting, as well as prepared communities, a strong emergency management system, and close and effective cooperation between all stakeholders. Stakeholders must be able to work in coordination and with good understanding of each other's roles, responsibilities, authorities, procedures, and action during a tsunami event. Planning and preparedness, and practicing in advance of the real event, are important to familiarize agency staff with the steps and decision-making that will need to be carried out without hesitation in a real emergency.

PROVISIONAL AGENDA

Sess ion	Start Time	End Time	T W C	T E R	Topic	Speaker
1-3					DAY 1: SESSIONS 1, 2, 3	
					MORNING: PLENARY	
	8:00	8:30			Registration	Chile
1.1	8:30	9:15			Opening Ceremonies	Chile SHOA, USAID, ITIC, IOC
	9:15	9:45			COFFEE / TEA BREAK - Group Photo	
1.2	9:45	9:50			Logistics and other administrative items	SHOA
1.3	9:50	10:00			Course Overview	ITIC - Kong
2					Tsunami Warning and Emergency Response – Overview	
2.1	10:00	10:50			End-to-End Tsunami Warning and Emergency Response – Overview	Kong

2.2	10:50	11:20		End-to-end Tsunami Warning – Stakeholders, Roles and Responsibilities, Standard Operating Procedures, and their linkages	ITIC - Arcos
2.3	11:20	12:30		Lessons Learned from Past Tsunamis - Warning and Emergency Response	Kong, IOC - Aliaga
	12:30	13:30		LUNCH	
				AFTERNOON: PLENARY	
3				Country Presentations - Tsunami Standard Operating Procedures	
3.1	13:30	13:45		Protocolo Regional de Comunicaciones entre los centros de Alerta de Tsunamis del Pacífico Sudeste (by Skype)	CPPS - Soldi
3.1	13:45	14:45		Country Presentations (Colombia, Ecuador, Peru, Chile) - 20 min/country	IOC - Aliaga, Countries
	14:45	15:15		COFFEE / TEA BREAK	
3.1	15:15	15:45		Country Presentations (Colombia, Ecuador, Peru, Chile) - 20 min/country	Aliaga, Countries
3.2	15:45	16:15		Discussion: Challenges for achieving end-to-end TWS: Data, Resources, Communication, Stakeholders, Coordination	Aliaga, Countries
3.3	16:15	17:00		Visit Chile SHOA Tsunami Warning Center	Chile
	18:00	21:00		Welcome Reception	Chile SHOA
4				DAY 2: SESSION 4	
				MORNING: PLENARY	
4				Science, Tsunami Standard Operating Procedures, Warning Dissemination	
4.1	8:30	9:30		Earthquake and Tsunami Science - generation, propagation, impact; Pacific and South America Tsunami Hazards	PTWC - Weinstein
4.2	9:30	10:00		IOC Pacific Tsunami Warning and Mitigation System	Kong
	10:00	10:30		COFFEE / TEA BREAK	
4.3	10:30	11:15		National Tsunami Warning Centres Standard Operating Procedures - Overview on Routine and Event Operations, Flow Charts, Timelines, Checklists	Weinstein
4.4	11:15	12:00		Tsunami Emergency Response Standard Operating Procedures - Overview on Stakeholder Roles and Coordination, Event Operations, Timelines, Checklists	Arcos
4.5	12:00	12:30		Emergency communication considerations – robustness, reliability, redundancy	Kong
	12:30	13:30		LUNCH	
				AFTERNOON: PLENARY	
4				Warning Dissemination, Public Information Flow SOPs	
4.6	13:30	14:00		Case Study: Warning Dissemination and Public Alerting – Authoritative agencies, media, and the public – JMA-NHK Warning Dissemination	Kong
4.7	14:00	14:30		Case Study: Warning Dissemination and Public Alerting – Authoritative agencies, media, and the public – Hawaii Emergency Alert System	Arcos
4.8	14:30	15:15		Emergency communication technologies for the downstream transmission of warnings to local governments and communities – TV / FM / HF / Radio, Sirens, Mobile Phones / SMS, Internet email/web, Social Media, etc	Kong
	15:15	15:45		COFFEE / TEA BREAK	
4.9	15:45	16:30		Breakout Groups: Information Flow SOPs - Media and Public Information, and Frequently-asked questions during a tsunami event	Weinstein, Small Groups
4.10	16:30	17:00		Report Out: Information Flow SOPs - Media and Public Information	Small Groups

4					DAY 3: SESSIONS 4, 5-TWC / 5-TER	
					MORNING: PLENARY	
4					Tsunami Preparedness, Warning Decision Support Tools	
4.11	8:30	9:15			Use of Exercises in Tsunami Preparedness: International / National / Local Exercises, Types, and Post-Exercise Evaluations, IOC Tsunami Wave Guideline, International (PacWave13), National and Local Exercise	Aliaga
4.12	9:15	9:35			Tsunami Preparedness - International Perspectives on Education and Awareness	Arcos
4.13	9:35	10:00			Tsunami Preparedness - Regional Perspectives on Education and Awareness, Educación y Reducción de Riesgo de por Tsunamis en el Marco de la Educación para el Desarrollo Sostenible	OREALC/ UNESCO Santiago - Hollander
	10:00	10:30			COFFEE / TEA BREAK	
4.14	10:30	11:15			Evacuation Planning: Role and Value of Tsunami Inundation Modelling	Kong
4.15	11:15	12:00			Vertical Evacuation and Refuge: Progress in Designing Tsunami-Resistant Structures	Kong
4.16	12:00	12:30			Tsunami Warning Decision Support Tools: Earthquake and Sea Level Monitoring, PTWC SMS Alerts, Historical Databases, Tsunami Travel Time Calculation	Weinstein
	12:30	13:30			LUNCH	
					AFTERNOON: PLENARY	
					PTWC Tsunami Warning Operations PTWC New Products	
4.17	13:30	14:15			PTWC Concept of Operation and Standard Operating Procedures (SOP) for Distant, Regional, and Local Tsunamis: Monitoring, Detection and Evaluation, Instrumentation and Methodologies (seismic, sea level, forecasts (travel time, wave height, etc), Data communications, Messages, and Message Dissemination.	Weinstein
4.18	14:15	15:00			PTWC New International Products - Overview - Why, What, When, How	Kong, Weinstein
	15:00	15:30			COFFEE / TEA BREAK	
					DAYS 3 Afternoon and 4: TWC and TER (DMO) MEET SEPARATELY FOR SPECIFIC TOPICAL AND TECHNICAL DISCUSSIONS	
5-TWC					DAY 3: SESSION 5-TWC	
					AFTERNOON: TWC SESSION	
5.1	15:30	16:15			Earthquake Seismology (Special Topics) - Magnitudes, Centroid Moment Tensors, Finite Fault Rupture, Slow Earthquakes, Great and Gigantic Earthquakes	Weinstein
5.2	16:15	17:00			TWC Operations: Real-time seismic monitoring and earthquake source characterization - Techniques – 'Tricks of the Trade', Challenges and Limitations	Weinstein
5-TWC, 6					DAY 4: SESSIONS 5-TWC, 6	
					MORNING: TWC SESSION	
5.3	8:30	9:15			TWC Operations: Sea level monitoring, tsunami confirmation - Techniques – 'Tricks of the Trade, Challenges and Limitations	Weinstein
5.4	9:15	10:00			TWC Operations: Wave forecasting - Techniques - 'Tricks of the Trade, Challenges and Limitations	Weinstein
	10:00	10:30			COFFEE / TEA BREAK	
5.5	10:30	11:30			PTWC New Products: TWC Understanding – Use and Limitations	Weinstein

5.6	11:30	12:15		SOP Guidance - How to Guidance, including Analysis Processes, Flow Charts and Checklists. Timeline-driven SOPs, Discussion, Questions	Kong, Weinstein
5.7	12:15	12:30		Creating SOPs - Breakout Group Instructions	Kong
	12:30	13:30		LUNCH	
				AFTERNOON: TWC SESSION, PLENARY	
5.8	13:30	15:00		Breakout Groups: Using Templates to Develop Timeline of Processes and Actions as SOPs (Messages, Checklists, Information Dissemination)	Small Groups
	15:00	15:30		COFFEE / TEA BREAK	
	15:30	16:15		Breakout Groups (cont'd)	Small Groups
6.1	16:15	17:00		Table Top Exercise – Background and Scenarios for Day 5	Kong
5-TER				DAY 3: SESSION 5-TER	
				AFTERNOON: TER SESSION	
5.1	15:30	16:15		Public Coastal Evacuations: Alerting and Moving People, Inundation maps, Evacuation Routes and Signage, Safe return	Aliaga
5.2	16:15	17:00		Small Group Exercise - Evacuation Mapping	Aliaga
5-TER, 6				DAY 4: SESSIONS 5-TER, 6	
				MORNING: TER SESSION	
5.3	8:30	9:15		New PTWC Products: Understanding and Acting on TWC Messages - Use and Limitations	Kong
5.4	9:15	10:00		Tsunami Emergency Response – Local Tsunami Threat – Wakayama, Japan Case Study	Aliaga
	10:00	10:30		COFFEE / TEA BREAK	
5.5	10:30	11:15		Community-level Response - International Perspectives, including TsunamiReady, Special Needs Populations, Tourism Sector	Arcos
5.6	11:15	12:15		Creating SOPs - How to Guidance, Explanation of Templates, Local Threats including Response Processes, Flow Charts and Checklists in SOPs, Discussion, Questions	Arcos, Aliaga
5.7	12:15	12:30		Creating SOPs - Breakout Group Instructions	Arcos
	12:30	13:30		LUNCH	
				AFTERNOON: TER SESSION, PLENARY	
5.8	13:30	15:00		Breakout Groups: Using Templates to Create SOPs: General Roles and Responsibilities, Evacuation Checklists, Timeline of Processes and Actions	Small Groups
	15:00	15:30		COFFEE / TEA BREAK	
	15:30	16:15		Breakout Groups (cont'd)	Small Groups
6.1	16:15	17:00		Table Top Exercise – Background and Scenarios for Day 5	Kong
	18:00	21:00		Chilean Barbeque	Chile SHOA
6-7				DAY 5: SESSIONS 6, 7	
				MORNING: PLENARY	
				Table Top Exercise	
6.2	8:30	9:15		Exercise Set-up according to Stakeholder Warning and Response Groups	Exercise Controller - Kong, Weinstein
	9:15	9:30		COFFEE / TEA BREAK	
6.3	9:30	12:15		PTWS New Products Tsunami Table Top Exercise	Exercise Controllers, Small Groups
	12:15	12:30		BREAK	

					Presentation of Certificates, Closing Ceremony	
7	12:30	13:15			Presentation of Certificates, Closing Ceremony	Chile SHOA, ITIC
	13:15	14:15			LUNCH	
					AFTERNOON: PLENARY	
					Post-Exercise Evaluation	
6.4	14:15	14:45			Post-Exercise Evaluation - Report Preparation	Small Groups
6.5	14:45	15:15			Post-Exercise Evaluation – Comments, Problems, Improvements	Arcos, All
					Summary Next Steps	
6.6	15:15	16:00			Toward Building National and Regional Capabilities - Summary Discussion and Next Steps	IOC, ITIC, All