



UNESCO-IOC
Strengthening Tsunami Warning and Emergency Responses:
Training Workshops on the Development
of End-to-End Tsunami Standard Operating Procedures (SOPs)

Sub-Regional Workshop on South China Sea
Standard Operating Procedures (SOP) for Tsunami Warning Centres

4-8 October 2010
Malaysia Meteorological Department Auditorium
Petaling Jaya, Malaysia

Training Team:

Mr. Tony Elliott, Head, UNESCO/IOC ICG/IOTWS Secretariat
Dr. Laura Kong, Director, UNESCO/IOC-NOAA International Tsunami Information Centre (ITIC)
Dr. Charles McCreery, Director, US NOAA Pacific Tsunami Warning Center (PTWC)
Mr. Takeshi Koizumi, Senior Coordinator for International Earthquake and Tsunami Information, Japan Meteorological Agency (JMA)
Mr. Kenji Nakata, Chief, Tsunami Research Division, Japan Meteorological Agency (JMA)

PROVISIONAL AGENDA

Sess ion	Start Time	End Time		Speaker
			DAY 1: OPENING, TSUNAMI WARNING OVERVIEW, COUNTRY WARNING SYSTEMS	
	8:30	9:00	Registration	MMD
			Opening Ceremonies	
1.1	9:00	9:45	Opening Ceremonies	IOC, MOSTI
			Photo Session	IOC, MMD
	9:45	10:00	COFFEE / TEA BREAK	
1.2	10:00	10:20	Course Overview	Kong
1.3	10:20	10:30	Logistics and other administrative items	Elliott
			Tsunami Warning and Emergency Response – Overview	
1.4	10:30	11:15	End-to-End Tsunami Warning and Emergency Response – Overview	Kong
1.5	11:15	12:00	Lessons Learned from past tsunami - Use of timelines for assessing information flow effectiveness	McCreery
1.6	12:00	12:30	Earthquake and Tsunami Science for tsunami warning	Koizumi
	12:30	13:30	LUNCH	
			Country Standard Operating Procedures	
1.7	13:30	15:00	Country Presentations (in approximate order of tsunami arrival time): Philippines, Malaysia, Brunei, China, Vietnam, Indonesia, Singapore, Cambodia, Thailand - approx 15-20 each	Countries

	15:00	15:30	COFFEE / TEA BREAK	
	15:30	16:30	Country Presentations (cont'd)	Countries
			DAY 2: COUNTRY WARNING SYSTEMS, INTERNATIONAL SERVICES, TWC SOPS	
2.1	9:00	9:15	Summary from Day 1; Overview of Day 2	Kong
2.2	9:15	10:15	Country Presentations (cont'd)	Countries
2.3	10:15	10:45	Discussion: Strategies, Approaches, Steps for achieving end-to-end TWS: Data, Resources, Stakeholders, Coordination	All
	10:45	11:15	COFFEE / TEA BREAK	
2.4	11:15	11:45	End-to-end Tsunami Warning – Stakeholders, Roles and Responsibilities, Standard Operating Procedures, and their linkage	Elliott
2.5	11:45	12:00	IOC Intergovernmental Tsunami Warning and Mitigation Systems - PTWS	Elliott
2.6	12:00	12:30	International Tsunami Warning Center SOP - PTWC	McCreery
	12:30	13:30	LUNCH	
2.7	13:30	14:00	International Tsunami Warning Center SOP - JMA NWPTAC	Nakata
2.8	14:00	14:45	National Tsunami Warning Centres – Overview on Standard Operating Procedures - Routine and Event Operations, Flow Charts, Timelines, Checklists	McCreery
	14:45	15:15	COFFEE / TEA BREAK	
2.9	15:15	16:15	Warning Dissemination and Public Alerting mechanisms and technologies – Message Scheduling and Message Content, Warnings through GTS, RANET, and other existing reliable methods	Kong
2.10	16:15	16:45	Malaysia Earthquake and Tsunami Warning Center Tour	MMD
			DAY 3: TWC SOPS - INFORMATION FLOW AND EVENT OPERATIONS	
3.1	9:00	9:15	Summary from Day 2; Overview of Day 3	Kong
3.2	9:15	10:15	Warning Dissemination and Alerts – TWC and its responsibilities to decision-makers, media, and the public – Japan and US examples	Koizumi, McCreery
3.3	10:15	11:00	Breakout Groups: Information Flow SOPs - Media and Public Information: Media Plans, Frequently-asked questions, and Information flow SOPs during an tsunami event	Elliott, JMA, PTWC, Small Groups
	11:00	11:30	COFFEE / TEA BREAK	
3.4	11:30	12:00	Breakout Groups sharing	Group Chairs
3.5	12:00	12:30	Use of Exercises in Tsunami Preparedness: Exercise Development / Regional and National Exercises and Post-Exercise Evaluations, Exercise Pacific Wave 08	Kong
	12:30	13:30	LUNCH	
3.6	13:30	14:15	TWC Operations - Earthquake monitoring and real-time source characterization	McCreery and/or Nakata
3.7	14:15	15:00	TWC Operations - Sea level monitoring, tsunami confirmation and wave forecast	McCreery and/or Nakata
	15:00	15:30	COFFEE / TEA BREAK	
3.8	15:30	16:45	Tsunami Warning Decision Support Tools: Earthquake and Sea Level Monitoring, PTWC SMS Alerts, Travel Time Calculation, Historical Databases	Kong
			DAY 4: TWC SOP DEVELOPMENT, TSUNAMI EXERCISE	
4.1	9:00	9:15	Summary from Day 3; Overview of Day 4	Kong
3.8	9:15	10:00	Tsunami Warning Decision Support Tools: Earthquake and Sea Level Monitoring, PTWC SMS Alerts, Travel Time Calculation, Historical Databases	Kong
4.2	10:00	10:30	Tsunami Warning Center Operations – Limitations and Challenges	McCreery
4.3	Will not do		Breakout Groups: Using Templates to Create TWC SOPs (Roles & Responsibilities, Routine Operations including procedures for duty shifts, data collection and quality control, telecommunications reliability, and network maintenance)	Kong, JMA, PTWC, Small Groups

	10:30	11:00	COFFEE / TEA BREAK	
4.5	11:00	11:30	Local Tsunami SOPs - Japan JMA example	Koizumi
4.2	11:30	11:45	SOP Guidance Manual – Explanation of Templates, Distant and Local Threats, Operational Readiness	Kong
4.6	11:45	12:00	Using Templates to Create TWC SOPs (Timeline-driven activities and procedures during event alarms: Guidance and Samples for Crisis (Event) operations, including procedures for real-time data collection, event alarm response and warning dissemination) - Messages, Checklists, Information Dissemination)	Kong
4.7	12:00	12:30	Break out Groups: Using Templates to Develop Timeline of Processes and Actions as SOPs - Messages, Checklists, Information Dissemination	PTWC, JMA, Small Groups
	12:30	13:30	LUNCH	
4.7	13:30	14:30	Break out Groups: Using Templates to Develop Timeline of Processes and Actions as SOPs - Messages, Checklists, Information Dissemination	PTWC, JMA, Small Groups
4.8	14:30	15:00	Breakout Groups sharing	PTWC, JMA, Group Chairs
	15:00	15:30	COFFEE / TEA BREAK	
4.8	15:30	16:00	Breakout Groups sharing	PTWC, JMA, Group Chairs
3.5	16:00	16:30	Use of Exercises in Tsunami Preparedness: Exercise Development / Regional and National Exercises and Post-Exercise Evaluations, Exercise Pacific Wave 08	Kong
4.9	16:30	16:45	Table Top Exercise – Background and Scenario for Day 5	Elliott - Exercise Controller
			DAY 5: TSUNAMI EXERCISE, CLOSING CEREMONIES	
			Table Top Exercise and Summary	
5.1	8:30	8:45	Summary from Day 4; Overview of Day 5	Kong
5.2	8:45	9:30	Table Top Exercise Set-up according to Stakeholder Warning and Response Groups	Exercise Controller
5.3	9:30	~11:30	Table Top Exercise – SCS source, TWC (Local, Regional (South China Sea), Regional (Pacific)) and DMO (Local, 1 or 2 Regional) groups	Small Groups
			COFFEE / TEA BREAK	
5.4	~11:30	12:15	Table Top Exercise – Post-Exercise report preparation	Small Groups
	12:15	14:45	LUNCH	
5.5	14:45	15:30	Table Top Exercise – Evaluation	Group Chairs, All
5.6	15:30	16:00	Workshop Summary Discussion	All
	16:00	16:15	COFFEE / TEA BREAK	
			Closing Ceremonies	
5.7	16:15	16:30	Presentation of Certificates	All
5.8	16:30	16:45	Closing	IOC, MMD