

UNESCO-IOC TRAINING IN SEISMOLOGY AND TSUNAMI WARNING CENTER STANDARD OPERATING PROCEDURES (TWC SOP)

25-29 August 2008
Petaling Jaya, Malaysia

SESSION PLAN – DAY 1

Length (min)	Session	Start Time	End Time	Topic	Lecturer
	1.0			DAY 1: OPENING, EARTHQUAKE SOURCE CHARACTERIZATION	
				MORNING:	
30		8:30	9:00	Registration	MMD
60	1.1	9:00	10:00	Opening Ceremonies	MMD, IOC
				Photo Session	
15		10:00	10:15	COFFEE / TEA BREAK	
15	1.2	10:15	10:30	Introduction and Objectives	Laura Kong
				EARTHQUAKE SOURCE CHARACTERIZATION	
30	1.3	10:30	11:00	Real-time Earthquake Monitoring: Basic Principles and Standard Methods <ul style="list-style-type: none"> ○ <u>Objectives</u> ○ Summarize the goals of real-time earthquake monitoring, the required inputs and desired outputs, and limitations for tsunami warning applications ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Tsunami Early Warning – why, what for, how fast ○ Earthquakes as tsunami generators ○ Earthquake and Tsunami hazards in the South China, Sulu, Celebes Seas ○ Tsunami Warning Centres goals and limitations ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint ○ <u>Handouts / Reference Materials</u> 	Laura Kong
45	1.4	11:00	11:45	Lecture: Seismic Data Interpretation - Location <ul style="list-style-type: none"> ○ <u>Objectives</u> Review basic seismology for locating earthquakes, noting relevance / applicability for real-time source characterization of large earthquakes ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Seismic Waves and Phases ○ Location Determination Methods ○ Relocation Methods ○ Phase characteristics for Events ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint ○ <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ Background handout on seismology ○ IASPEI New Manual of Seismological Observatory Practice (2002) 	Yohko Igarashi
45	1.5	11:45	12:30	Exercise: Seismic Data Interpretation – Location <ul style="list-style-type: none"> ○ <u>Objectives</u> Demonstrate practical principles for quick hypocentral determination ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Use of depth phases ○ Use of S-P times ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> Hands-on exercise and computer (Early Bird system) ○ <u>Handouts / Reference Materials</u> Hands-on exercise handout 	Igarashi, Kong
60		12:30	13:30	LUNCH	

				AFTERNOON	
45	1.6	13:30	14:15	Lecture : Seismic Data Interpretation - Magnitude <ul style="list-style-type: none"> ○ <u>Objectives</u> Review basic seismology for estimating earthquakes, noting relevance / applicability for real-time source characterization of large earthquakes ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Earthquake magnitudes used today ○ Limitations of different magnitude formulas ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint ○ <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ Background handout on seismology ○ IASPEI New Manual of Seismological Observatory Practice (2002) – electronic PDF or http://www.seismo.com/msop/msop_intro.html 	Yohko Igarashi
45	1.7	14:15	15:00	Exercise: Seismic Data Interpretation – Magnitude <ul style="list-style-type: none"> ○ <u>Objectives</u> Demonstrate calculation of body wave magnitudes ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Calculation of Mb ○ Calculation of MwP ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> Hands-on exercise and computer (Early Bird system) ○ <u>Handouts / Reference Materials</u> Hands-on exercise handout 	Igarashi, Kong
15		15:00	15:15	COFFEE / TEA BREAK	
45	1.8	15:15	16:00	Lecture: Seismic Data Interpretation - Focal Mechanisms <ul style="list-style-type: none"> ○ <u>Objectives</u> Review basic seismology for characterizing earthquake faulting and rupture, noting present methods applicable for real-time source characterization of large earthquakes ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Earthquake fault types and rupture patterns ○ Representation of faulting ○ Double-couple fault mechanisms – Drawing and reading focal mechanisms, and use of P-wave first motions? ○ Moment Tensor representations and depictions ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint ○ <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ Background handout on seismology ○ IASPEI New Manual of Seismological Observatory Practice (2002) – electronic PDF or http://www.seismo.com/msop/msop_intro.html 	Yohko Igarashi
45	1.9	16:00	16:45	Exercise: Seismic Data Interpretation - Focal Mechanisms <ul style="list-style-type: none"> ○ <u>Objectives</u> Demonstrate determination of double-couple faulting type ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Reading of seismograms as compression and dilatation 1st motions of P-wave ○ Estimating focal mechanism using stereographic projection ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> Hands-on exercise ○ <u>Handouts / Reference Materials</u> Hands-on exercise handout 	Igarashi, Kong

SESSION PLAN – DAY 2

	2.0			DAY 2: EARTHQUAKE SOURCE CHARACTERIZATION	
				MORNING	
15	2.1	8:45	9:00	Review and Announcement	Laura Kong
30	2.2	9:00	9:30	Real-time Earthquake Monitoring for Tsunami Warning <ul style="list-style-type: none"> ○ <u>Objectives</u> ○ Summarize the techniques presently used by tsunami warning centres for earthquake source characterization ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Teleseismic and local earthquake scenarios ○ Earthquake location methods and networks ○ Earthquake magnitudes ○ Timelines of response for tsunami warning ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint ○ <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ Background handout on seismology ○ IASPEI New Manual of Seismological Observatory Practice (2002) – electronic PDF or http://www.seismo.com/msop/msop_intro.html ○ IOC Manual on Tsunami Warning Centre Standard Operating Procedures (Guidance and Samples), draft version Aug 2008 	Masahiro Yamamoto
60	2.3	9:30	10:30	Lecture and Exercise I: Large Earthquake - location and magnitude <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> Review TWC Seismic Operations for real-time source characterization using the Early Bird system and actual data ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Earthquake analysis, Signal Analysis ○ Earthquake Processing pitfalls and techniques ○ 'Real-time' Earthquake Locations using Early Bird system – location and re-location, magnitudes ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint and Early Bird system ○ <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ Hands-on exercise handout 	Igarashi, Kong, Yamamoto
15		10:30	10:45	COFFEE / TEA BREAK	
135	2.3	10:45	13:00	Lecture and Exercise II: Large Earthquake - location and magnitude <i>(Continuing)</i>	Igarashi, Kong, Yamamoto
60		13:00	14:00	LUNCH	
				AFTERNOON	
180	2.4	14:00	17:00	<i>(includes 15-min COFFEE/TEA BREAK)</i> Country Status on Tsunami Warning Operations and Standard Operating Procedures (Malaysia, Sri Lanka, Thailand, Vietnam) - 15-min Country presentations followed by 30-min General SOP Discussion <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> Learn the SOPs of each country ○ <u>Topics</u> <ul style="list-style-type: none"> ○ General description-overview, scope and coverage ○ Authority and link with other Disaster Management plans ○ Links with international and other countries ○ What was the process of development? Is testing done regularly- lessons learned? ○ Agencies involved and their roles and responsibilities ○ Agencies who are planned to be involved and how ○ Your assessment of your country's progress ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint and Group Discussion ○ <u>Handouts / Reference Materials</u> Country SOP Guidance and Country summary handouts 	Malaysia, Sri Lanka, Thailand, Vietnam

SESSION PLAN – DAY 3

	3.0			DAY 3: TSUNAMI WARNING CENTRES: ROUTINE OPERATIONS, INFORMATION FLOW TO STAKEHOLDERS	
				MORNING	
15	3.1	8:45	9:00	Review and Announcement	Laura Kong
30	3.2	9:00	9:30	End-to-end Tsunami Warning – Stakeholders, Roles and Responsibilities, Standard Operating Procedures, and their Linkage National Tsunami Warning Centres – Overview on Standard Operating Procedures - Daily Operations, Flow Charts, Timelines: Cases of both EQ and no EQ monitoring <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Provide a holistic view of tsunami warnings. Understand the types of warnings, the stakeholders in tsunami warning, inter-dependencies and relationships and how each relates to SOPs. ○ Identify the routine and emergency activities of TWC, and how these are most efficiently described through written, pre-decided standard operating procedures in order to carry out rapid, efficient, and responsible tsunami warning response. ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Types of warning ○ Stakeholders and SOPs ○ What activities are typically covered by SOPs ○ Examples ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint ○ <u>Handouts / Reference Materials</u> End-to-end Tsunami Warning – Stakeholders, Roles and Responsibilities, Standard Operating Procedures, and their Linkage NTWC SOP Templates, Guidance and Samples 	Laura Kong
30	3.3	9:30	10:00	TWC SOPs - Guidance and Samples for Routine operations, including procedures for operational readiness, data collection, and network maintenance <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Review the activities of a tsunami warning centre ○ <u>Topics</u> <ul style="list-style-type: none"> ○ NTWC SOP Templates, Guidance, and Samples manual contents – routine operations ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint ○ <u>Handouts / Reference Materials</u> NTWC SOP Templates, Guidance and Samples 	Masahiro Yamamoto
30	3.4	10:00	10:30	Breakout Groups: Using Templates to Create TWC SOPs (Roles & Responsibilities, Routine Operations, Ensuring Data Quality Control and Telecommunications Reliability, and other requirements) <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> Identify and discuss non-evaluation activities of TWC ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Concept of Operations - Roles & Responsibilities ○ Routine Operations ○ Ensuring Data Quality Control and Telecommunications Reliability ○ Training ○ In Groups, develop SOPs according the Chapters 2 and 5 in NTWC SOP (Guidance and Samples) ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> Group Discussion ○ <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ NTWC SOP (Guidance and Samples) Chapter 2 and 5, TWC Operations Manual example (PTWC Operations Manual) 	Small Groups (Masahiro Yamamoto, Yohko Igarashi)

				<ul style="list-style-type: none"> PTWS Operations Manual (v0.88, Nov 2007); Electronic documents: JMA Manual on Operations and Systems for Tsunami Warning Service (March 2007); WC/ATWC Users Guide (2007) 	
15		10:30	10:45	COFFEE / TEA BREAK	
30	3.4	10:45	11:15	Breakout Groups: Using Templates to Create TWC SOPs (Roles & Responsibilities, Routine Operations, Ensuring Data Quality Control and Telecommunications Reliability, and other requirements) <i>(continued from before Coffee/Tea Break)</i>	Small Groups (Masahiro Yamamoto, Yohko Igarashi)
30	3.5	11:15	11:45	Breakout Groups: Report back	
45	3.6	11:45	12:30	Warning Dissemination and Public Alerting mechanisms and technologies – Message Scheduling and Message Content, Warnings through GTS, RANET, and other existing reliable methods; Malaysia Disaster Alert System <ul style="list-style-type: none"> <u>Objectives / Outcomes</u> Describe effective and reliable methods for timely dissemination of tsunami warnings to authorities and for dissemination to remote and rural communities <u>Topics</u> <ul style="list-style-type: none"> What is the time order of information that should be given for tsunami warnings by TWC? What should be contained in each message? What communication methods are being used and what are their timeliness and reliability? Examples, including Malaysia Disaster Alert System <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> PTWS Operational Users Guide, Section 4.9 PTWC Product Dissemination Services (draft Nov 2007) (E-copy at PTWS web site) End to End Tsunami Warning Considerations; RANET ICT Crib Sheet Disaster Alert System Summary 	Laura Kong; Saw Bun Liong (MMD)
60		12:30	13:30	LUNCH	
				AFTERNOON	
30	3.7	13:30	14:00	Successful Tsunami Emergency Response: Understanding and acting on TWC messages, Evacuations, Education & Awareness <ul style="list-style-type: none"> <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> Learn the key components to enable a rapid tsunami emergency response Understand and translate TWC Messages into emergency response actions Understand concepts and processes to enable a successful tsunami coastal evacuation Identify stakeholder agencies to produce evacuation products Emphasize importance of education and awareness. <u>Topics</u> <ul style="list-style-type: none"> 10 Steps to Enable a Successful Tsunami Emergency Response Interpreting messages and taking action according to threat level Threat levels, considerations when determining Evac zones, signage and maps Issues in education and awareness, format and activities, Outreach and public policies <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> 10 Steps Handout, Tsunami Planning Template, Disaster Management Organizations Glossary PTWS Operational Users Guide, Annex III. Interpretation of PTWC Messages and Emergency Response Guidance 	Laura Kong

				<ul style="list-style-type: none"> ○ NZ SOP: NZ Tsunami Flowchart ○ Oregon, USA Signage Guidance (electronic) 	
30	3.8	14:00	14:30	TER SOPs: Distant and Local Threat Case Studies - Japan (Wakayama, Shizuoka); USA (Hawaii) <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Understand the timeline differences in reacting to local, regional, distant tsunami scenarios ○ Understand how SOPs implement rapid notification and implementation of evacuation steps ○ Identify stakeholder group actions within SOPs ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Wakayama SOPs ○ Hawaii SOPs ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint ○ <u>Handouts / Reference Materials</u> Hawaii response, Wakayama response 	Yohko Igarashi, Laura Kong
45	3.9	14:30	15:15	Warning Dissemination and Alerts – TWC and its responsibilities to decision-makers, media, and the public – US and Japan examples <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> Highlight the importance of collaboration and good communication with especially mass media for quick dissemination of warning and for not generating unnecessary rumor/panic ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Quick broadcasting immediately after an earthquake and for disseminating tsunami warning messages ○ Emergency Alert Systems and involvement of the media as part of effective dissemination system (NHK-JMA example, Hawaii Emergency Alert System) ○ Role of the media in public education ○ Media plan for engaging and interacting; example products (news releases, interview, TV, print tips, fact sheets, FAQa, press kits) ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ Powerpoint ○ DVD showing actual TV broadcasting during an earthquake ○ <u>Handouts / Reference Materials</u> Case Studies, Japan and USA; Media Plan, Templates, and examples 	Laura Kong, Masahiro Yamamoto
15		15:15	15:30	COFFEE / TEA BREAK	
30	3.10	15:30	16:00	Discussion and Feedback: Information Flow SOPs - Media and Public Information: Media Plans, Frequently-asked questions, and Information flow SOPs during an tsunami event <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> Information Preparedness: Review Media / Public Information needs before, during, and immediately after the event. ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Media Plan as a strategy to build public awareness ○ Emphasize timeline-driven Media SOP for different scenarios (local, regional). For time constraints for response (fast information flow), e. g., 10 min - 2 hrs for local – regional events), how should government agencies manage information flow (who speaks, what to say, when, how)? What should be the role of the media starting immediately after the event occurs? ○ SOPs should consider: <ul style="list-style-type: none"> – Weaknesses(gaps, challenges, limitations) of the system, – What message (action) is wanted to convey – How to minimize confusion and misinterpretation – How to convey limitations of TWC to 	Participants (Laura Kong)

				DMO/public <ul style="list-style-type: none"> Brainstorm to create a list: What are FAQs asked to TWC/DMO (in event/outside event)? <u>Methodology (PowerPoint, CD, DVD, Other)</u> Discussion Groups and report back <u>Handouts / Reference Materials</u> Japan and US examples, Media Plan and Template; examples 	
30	3.11	16:00	16:30	Breakout Groups: Information Flow SOPs - Media and Public Information <ul style="list-style-type: none"> <u>Objectives / Outcomes</u> Review priorities, needs, and resources available to provide information before, during, and immediately after the event, and revise or create Event Information Flow SOP <u>Topics</u> <ul style="list-style-type: none"> In Small Groups, discuss and write SOPs to cover how you will interact with the media and public during a during a local/regional scenario? <u>Methodology (PowerPoint, CD, DVD, Other)</u> Discussion Groups and report back <u>Handouts / Reference Materials</u> Japan and US examples, Media Plan and Template; examples 	Participants (Laura Kong)
30	3.12	16:30	17:00	Breakout Groups: Report back on Media SOPs	

SESSION PLAN – DAY 4

	4.0			DAY 4: TSUNAMI WARNING CENTRE SOPs FOR CRISIS OPERATIONS (EVENTS)	
				MORNING	
15	4.1	8:45	9:00	Review and Announcement	
45	3.9	9:00	9:45	Warning Dissemination and Alerts – TWC and its responsibilities to decision-makers, media, and the public – US and Japan examples	Laura Kong, Masahiro Yamamoto
30	3.10	9:45	10:15	Discussion and Feedback: Information Flow SOPs - Media and Public Information: Media Plans, Frequently-asked questions, and Information flow SOPs during an tsunami event	Participants (Laura Kong)
30	3.11	10:15	10:45	Breakout Groups: Information Flow SOPs - Media and Public Information Scenarios: 1. on-land large earthquake, 2. Sulu Sea, 3. Andaman-Nicobar, 4. Felt earthquake, 5. large earthquake or tsunami outside Malaysia area of responsibility	Participants (Laura Kong)
15		10:45	11:00	COFFEE / TEA BREAK	
30	3.12	11:00	11:30	Breakout Groups: Report back on Media SOPs	
30	4.2	11:00	12:15	Lessons Learned from past tsunami - Use of timelines for assessing information flow effectiveness <ul style="list-style-type: none"> <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> Discuss and provide examples of how every tsunami is unique and has unique challenges Highlight the necessity for preparedness Illustrate the challenges of providing alerts for tele-tsunamis Discuss TWC Alert contents - evacuate or just clear the beach? <u>Topics</u> <ul style="list-style-type: none"> 2007 Solomon Tsunami 2007 Sumatra Tsunami 1998 Papua New Guinea Tsunami 1993 Okushiri Tsunami 2006 Java Tsunami 	Laura Kong, Masahiro Yamamoto

				<ul style="list-style-type: none"> ○ 2006 Kuril Tsunami ○ others ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint ○ <u>Handouts / Reference Materials</u> Lessons Learned from Past Tsunami 	
30	4.3	12:15	12:45	TWC Standard Operating Procedures - 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 <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> Review NTCWC tsunami operations for centres which will carry out seismic evaluations Emphasize response time as the catalyst for SOPs activities ○ <u>Topics</u> Activities, time frame of action, and actions and procedures Local and distant earthquake cases – differences Discuss different implementations of activities by countries ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint Group Comparative discussion ○ <u>Handouts / Reference Material</u> NTWC SOP Templates 	Masahiro Yamamoto
30	4.4			Pacific Tsunami Advisory Service (South China Sea) and Interim Indian Ocean Tsunami Advisory Service – Standard Operating Procedure (SOP) <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand the service and meanings of the international messages from the PTWC and JMA (NWPTAC for Pacific) • <u>Topics</u> <ul style="list-style-type: none"> ○ SOPs and criteria for action ○ Message content and interpretation ○ Warning and Watch; definitions for IO and Pacific ○ NWPTAC: tsunami height information ○ Tsunami travel time calculations ○ Cancellation • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> IOTWS and PTWS Operational Users Guide - including PTWC and JMA Communications and Message Content (hard copy excerpt and electronic) 	Presentation will not be done - Please refer to handouts
60		12:45	14:00	LUNCH	
				AFTERNOON	
30	4.5	14:00	14:30	TWC Operations – Active seismic monitoring and real-time earthquake source characterization <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> Summarize TWC operations procedures of PHIVOLCS ○ <u>Topics</u> Seismic network Real time data processing system Definition and criteria of different alert levels / warnings Development of SOP ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint ○ <u>Handouts / Reference Materials</u> NTWC SOP (Guidance and Samples), NTWC SOP Templates; PTWS Operational Users Guide, Annexes II Earthquake Source Characterization; TWC Operations Manual example (PTWC Operations Manual) (electronic) 	Masahiro Yamamoto
45	4.6	14:30	15:00	TWC Operations - Sea level monitoring, tsunami confirmation and wave forecast <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> Review TWC sea level and wave forecast operations 	Laura Kong

				<ul style="list-style-type: none"> procedures ○ <u>Topics</u> <ul style="list-style-type: none"> Sea Level network Real time data processing system Tsunami Travel Time calculation Tsunami Database by tsunami simulation Definition and criteria of different alert levels / warnings Cancellation based on non-danger Development of SOP ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> PowerPoint ○ <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> NTWC SOP (Guidance and Samples), NTWC SOP Templates; PTWS Operational Users Guide, Annexes IV Sea Level Measurement, and V Methods of Tsunami Travel Time Calculation by PTWC, WC/ATWC, and JMA; TWC Operations Manual example (PTWC) - electronic 	
30	4.7	15:00	16:00	<p>Creating SOPs: Timeline-driven SOPs - Using Templates to Develop Timeline of Processes and Actions as SOPs (Messages, Checklists, Information Dissemination)</p> <p>Breakout and Group Discussion on improving present country SOPs</p> <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> Develop a TWC Timeline of detection, alarming, evaluation, decision-making, messaging, dissemination, and cancellation ○ <u>Topics</u> <ul style="list-style-type: none"> In Groups according for local, regional and teleseismic cases, develop SOPs according to Chapters 3 and 4 in NTWC SOP (Guidance and Samples) – Tab 4: <ul style="list-style-type: none"> ○ Develop timeline-drive SOP, Checklists, and Message template ○ Identify timeline actions based on number of minutes after earthquake occurrence, types of actions to be undertaken within the timeline; Identify appropriate processes and techniques within the timeline ○ Develop Media/Public Information Flow SOP ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> Group Discussion ○ <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> NTWC SOP (Guidance and Samples) Chapter 3 and 4, NTWC SOP templates; TWC Operations Manual example (PTWC Operations Manual) (electronic) 	Small Groups (Masahiro Yamamoto, Laura Kong, Yohko Igarashi)
15		16:00	16:15	COFFEE / TEA BREAK	
30	4.8	16:15	16:45	Presentation of Break out Group SOPs	Breakout Group Chairs
30	4.9	16:45	17:15	<p>Use of Exercises in Tsunami Preparedness: Exercise Development / Regional and National Exercises and Post-Exercise Evaluations</p> <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Emphasize the importance of stakeholder groups to conduct routine tsunami training exercises ○ Understand the different types of exercises ○ Review post-exercise results of EPW06 and plan of EPW08 ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Goal of tsunami training exercises ○ Five types of exercises ○ EPW06 and EPW08 ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint and video of examples of different drills ○ <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> Exercise Types, Tabletop Exercise Development Steps, Planning Templates 	Laura Kong
15	4.10	17:15	17:30	Table Top Exercise – Background and Scenario for Day 5	Exercise Controllers

SESSION PLAN – DAY 5

	5.0			DAY 5: TABLE TOP / FUNCTIONAL EXERCISE, SUMMARY, CLOSING	
				MORNING	
15	5.1	8:45	9:00	Review and Announcement	Laura Kong
30		9:00	9:30	Visit Malaysia National Tsunami Warning Centre	MMD 6 th Fir
30	4.9	9:30	10:00	<p>(From Day 4)</p> <p>Use of Exercises in Tsunami Preparedness: Exercise Development / Regional and National Exercises and Post-Exercise Evaluations</p> <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Emphasize the importance of stakeholder groups to conduct routine tsunami training exercises ○ Understand the different types of exercises ○ Review post-exercise results of EPW06 and plan of EPW08 ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Goal of tsunami training exercises ○ Five types of exercises ○ EPW06 and EPW08 ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint and video of examples of different drills ○ <u>Handouts / Reference Materials</u> Exercise Types, Tabletop Exercise Development Steps, Planning Templates 	Laura Kong
30	5.2	10:00	10:15	<p>Table Top Exercise Set-up</p> <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Provide instructions on how Table Top will be run ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Tabletop Exercise General Instruction ○ Provide scenario and discussion groups ○ Identify arrangements for information flow, decision-making, and response / feed-back ○ <u>Methodology</u> <ul style="list-style-type: none"> ○ PowerPoint ○ <u>Handouts / Reference Materials</u> Exercise Malaysia 08 General Instruction 	Laura Kong
15		10:15	10:45	COFFEE / TEA BREAK	
90	5.3	10:45	12:15	<p>Table Top Exercise - Timeline-driven decision making and discussion</p> <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Carry out a Table Top Exercise ○ Apply a tsunami warning scenario to pre-developed time lines, flowcharts and SOP's ○ Identify and describe the individual actions taken by each respective stakeholder in response to the tsunami warning ○ Demonstrate the above through report-back to the plenary ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Participants will be presented with a scenario simulation and a flow of simulated exercise 'injects' to which they will respond through group discussion. ○ Participants will be required to take in account and apply the knowledge and preparation they have developed in the course of the workshop to demonstrate an appropriate response to the scenario. ○ <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ For each set of injects, each Stakeholder Group discusses activities which will occur, report back to plenary for discussion ○ <u>Handouts / Reference Materials</u> Exercise Scenario - Injects (messages, data, other information) 	Exercise Controllers (Laura Kong, Masahiro Yamamoto), Small Groups, Observers

135		12:15	14:30	LUNCH	
				AFTERNOON	
60	5.4	14:30	15:30	Table Top Exercise – Evaluation, Summary and Next Steps <ul style="list-style-type: none"> ○ <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Describe the activities of a post-exercise valuation ○ Day 5 Tablet Top Exercise evaluation and lessons learned ○ Describe how exercises can improve operational response ○ <u>Topics</u> <ul style="list-style-type: none"> ○ Table Top Exercise report-back by each group ○ Post-Exercise Evaluations – why, who, what, how ○ Evaluation Surveys ○ Next Steps ○ <u>Methodology</u> PowerPoint and discussion Exercise discussion groups report back. The quality and comprehensiveness of the report-backs provide an overall impression on the level of achievement by the groups. ○ <u>Handouts / Reference Materials</u> EPW06 Evaluation Form; City of Torrance Operation 'Back on Track' Participant Critique ;City of Torrance Operation 'Back on Track' Exercise Evaluation 	All, Breakout Group Chair, Exercise Controllers and Observers
30	5.6	15:30	16:00	Workshop Summary Discussion	All
				CLOSING CEREMONIES	
15	5.7	16:00	16:15	Presentation of Certificates	All
15	5.8	16:15	16:30	Closing	MMD, IOC
			16:30	COFFEE / TEA BREAK	All