



Pacific
Community
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IOC



**UNESCO / IOC
INTERNATIONAL TSUNAMI INFORMATION CENTER (ITIC)
ITIC TRAINING PROGRAMME - INTERNATIONAL (ITP-INTL)
TSUNAMI EVACUATION MAPS, PLANS AND PROCEDURES (TEMPP):
TEMPP 1: INUNDATION MODELING AND MAPPING**

**30 September - 4 October 2019
Tanoa International Hotel, Nadi, Fiji**

While infrequent, tsunamis can be extremely deadly because of their quick onset and immediate impact in minutes. In order to warn quickly and have the public evacuate when necessary, agencies must pre-plan and have protocols and procedures which are well-known to every stakeholder and to the public, and which are well-exercised and practiced. Communities must know their hazard and risk, and prepare in advance, so that every person can recognize the tsunami danger and know what to do to save their lives.

The TEMPP training course is intended to be a standardized course and process for the production of reliable and practical community-level tsunami evacuation maps. The direct outcomes are communities that know what to do and where to go when a tsunami warning is issued, or when self-responding to the natural warning signs of a tsunami. Upon completion, countries should have the capability and tools to replicate the community evacuation map process elsewhere in their country.

Community tsunami risk is reduced through pre-event evacuation planning. Effective and successful evacuations requires planning and involves four foundation blocks:

1. Identifying Inundation Areas.
2. Developing Tsunami Evacuation maps.
3. Developing Tsunami Response Plans and Standard Operating Procedures (SOPs).
4. Tsunami Exercising.

This training focuses on TEMPP Module 1 and will equip participants with knowledge to develop an inundation map, with or without the use of modelling. A tsunami inundation map identifies areas expected to be flooded by tsunamis based on available historical evidence and/or modelling, and is essential to developing an evacuation plan and undertaking mitigation measures to minimize the impact of tsunami.

TEMPP1 covers the explanation and use of inundation models for evacuation modeling. Topics include earthquake tectonics, tsunami science, bathymetric and topographic grids, earthquake source parameters, forecast methodology, tsunami modeling, tsunami hazard assessment and use of the MOST model and ComMIT interface tool.

Resource Persons:

Dr. Laura Kong, Director, International Tsunami Information Center (ITIC), Honolulu, HI, USA
 Dr. Stuart Weinstein, Deputy Director, PTWC, Honolulu, HI, USA
 Dr. Bill Fry, Senior Seismologist, NZ Geological and Nuclear Sciences
 Herve Damlamian, Senior Oceanographer, Geoscience Division, Pacific Community (SPC)

PROVISIONAL AGENDA

Session	Start Time	End Time	Topic	Speaker
1-4			DAY 1, MONDAY, 30 SEPTEMBER 2019	
			Opening, Building Tsunami Community Resilience, Earthquake Seismology	
	8:00	8:30	Registration	SPC
	8:30	9:00	Opening Ceremonies	SPC, ITIC, Fiji
1	9:00	9:30	Introductions and Course Overview	Moore
	9:30	10:00	COFFEE / TEA BREAK, Group Photo	
2.1	10:00	10:45	End-to-end Tsunami Early Warning and community preparedness: UNESCO IOC Tsunami Ready Pilot Programme - Guidelines and Steps	Kong
2.2	10:45	11:30	Preparing for Community Tsunami Evacuations: From Inundation to Evacuation Maps, Response Plans, and Exercises	Kong
3.1	11:30	12:00	Earthquake Seismology - Science	Fry
	12:00	13:15	LUNCH	
			Earthquake and Tsunami Science, Tsunami Hazard Assessment	
3.2	13:15	13:45	Earthquake Seismology - Tectonics, Hazards, Impacts	Fry
3.3	13:45	14:30	Pacific Ocean and Pacific Island Historical Seismicity and Tsunami Hazards	Fry
3.4	14:30	15:00	Using TsuCAT to quick Tsunami Hazard Assessment	Kong
	15:00	15:15	COFFEE / TEA BREAK	
3.5	15:15	16:15	Tsunami Science, Modelling and Forecasting - Overview	Kong
4.1	16:15	17:00	Using Modelling for Hazard Assessment: I. Introduction to ComMIT/MOST; Installation of software	Moore
4			DAY 2, TUESDAY, 1 OCTOBER 2019	
			Using Tsunami Modeling for Hazard Assessment, Earthquake Tsunami Sources	
4.2	8:30	9:15	Using Modelling for Hazard Assessment: II. Introduction to ComMIT/MOST; Checking for successful software installation	Moore
4.3	9:15	10:00	Tsunami Science, Modelling and Forecasting; Summary of different models	Moore
	10:00	10:15	COFFEE / TEA BREAK	
4.4	10:15	11:15	Inundation Mapping Modelling Requirements: Earthquake Tsunami Sources, Parameterization	Moore
4.5	11:15	12:00	Pacific Ocean Earthquake Tsunami Sources; Pacific Island Far-field and Near-field sources for ComMIT	Fry
	12:00	13:15	LUNCH	
			Using ComMIT: Exercise 1	
4.6	13:15	15:00	Using ComMIT: Exercise 1. Sample Hazard Assessment	Moore, Groups

	15:00	15:15	COFFEE / TEA BREAK	
4.7	15:15	17:00	Brief Presentation from each study group	Fry, Groups
4			DAY 3, WEDNESDAY, 2 OCTOBER 2019	
			Inundation Modeling Requirements - Bathymetry and Land Topography, Using ComMIT	
4.8	8:30	9:15	Inundation Modelling Requirements: Ocean Bathymetry and Land Topography Digital Elevation Models (DEMs); Best practices for constructing DEMs	Moore
4.9	9:15	10:00	Inundation Modelling Requirements: Practical recommendations for improving coarse DEMs	Moore
	10:00	10:15	COFFEE / TEA BREAK	
4.10	10:15	12:00	Using ComMIT: Exercise 2 - Global DEM and User-supplied grids	Moore, Groups
	12:00	13:15	LUNCH	
			Guidance on Establishing Tsunami Indundation without modeling, Using ComMIT	
4.11	13:15	15:00	Using ComMIT interface for Tsunami Modelling: Features, Model Parameters, Output	Moore
	15:00	15:15	COFFEE / TEA BREAK	
4.12	15:15	15:45	Guidelines for Establishing Tsunami Inundation Areas for regions not modelled or with low hazard	Fry
4.13	15:45	17:00	Using ComMIT: Exercise 3. Verifying the model with historical comparisons at gauge locations.	Moore, Groups
4-5			DAY 4, THURSDAY, 3 OCTOBER 2019	
			Using ComMIT, Hazard Assessment Study and Report, QGIS	
4.14	8:30	9:15	Using ComMIT to Running Custom Propagation Sources	Moore
4.15	9:15	10:00	Using ComMIT: Exercise 4 – Running Custom Propagation Sources	Moore, Groups
	10:00	10:15	COFFEE / TEA BREAK	
4.16	10:15	11:30	Using ComMIT: Exercise 4 – Running Custom Propagation Sources	Groups
4.17	11:30	12:00	Hazard Assessment Products and Hazard Assessment Report - Best practice and example	Kong
	12:00	13:15	LUNCH	
4.18	13:15	15:00	Using ComMIT for Inundation Modeling for Evacuation: Selecting and running worst case scenarios	Fry
	15:00	15:15	COFFEE / TEA BREAK	
5.1	15:15	17:00	QGIS – Introduction, Installation, Brief Tutorial on how to use	Kong
5-7			DAY 5, FRIDAY, 4 OCTOBER 2019	
			Making Inundation Map using GIS software	
5.2	8:30	9:15	Creating Composite Inundation Map from modeling runs using GIS Software: Importing ComMIT products into QGIS - Example	Moore

5.3	9:15	10:00	Finalizing Inundation Map – Guidelines for Map Publication (Standard Symbology, Colour, Legend, etc.) and official endorsement – Best Practices and Example	Kong
	10:00	10:15	COFFEE / TEA BREAK	
5.4	10:15	12:00	Making Inundation Map using GIS software - Exercise 5	Kong, Groups
	12:00	13:15	LUNCH	
			Inundation Maps, Next Steps, Closing	
	13:15	13:45	Making Inundation Map using GIS software - Exercise 5 (cont'd)	Groups
5.5	13:45	15:00	Group Presentations – Final Inundation Map	Moore, Groups
6	15:00	15:30	Next Steps	Kong, SPC
	15:30	15:45	COFFEE / TEA BREAK	
7	15:45	16:15	Closing, Presentation of Certificates	SPC, ITIC, NCTR, Fiji