

**Tsunami Training:**  
**STRENGTHENING TSUNAMI WARNING AND EMERGENCY RESPONSE:**  
**TSUNAMI WARNING DECISION SUPPORT TOOLS**  
**TSUNAMI WARNING STANDARD OPERATING PROCEDURES (SOP)**

UNESCO/IOC – NOAA International Tsunami Information Center  
NOAA Pacific Tsunami Warning Center

Nadi, 20-22 September 2010  
Suva, 23-24 September 2010

Tsunamis are hazards that threaten the islands of Fiji. Most tsunamis are generated by major earthquakes in the Pacific. Depending upon the location of the earthquake, tsunami waves can strike island coasts within minutes to hours. To protect the people of Fiji from this hazard, a warning system must rapidly and effectively provide critical information to those at risk to motivate them to take appropriate actions to save their lives. For local tsunamis, education and awareness, and knowledge of the natural tsunami warning signs, are the keys to saving lives.

An effective tsunami early warning system is achieved when all persons, especially in vulnerable coastal communities, are prepared and respond appropriately and in a timely manner upon recognition that a potential destructive tsunami (local or regional) may be approaching. For this, tsunami hazards and risks must be known, and preparedness activities must be carried out beforehand so that when a warning is issued, it will motivate citizens to move out of harm's way before the tsunami attacks. Natural tsunami warning signs must be recognized by everyone in order to immediately evacuate coastlines.

Early detection by the monitoring networks of tsunami warning centers (TWC) will trigger authoritative warnings that must immediately trigger emergency responses by emergency management and first responder agencies. To respond quickly and efficiently, well-known and clear standard operating procedures should be in place and practiced so that stakeholders are familiar with and understand their roles and responsibilities, and the timely actions that must take place for public safety.

At the same time, awareness and preparedness activities that educate and inform citizens about tsunamis and what to do during a tsunami warning have to take place. These educate transient or special needs populations such as tourists staying at beachfront hotels, women, children, and the elderly, as well as government officials and other local community leaders. Including natural hazards and disaster preparedness in school curricula is a long-lived tool for carrying awareness to the next generation.

The activities of the week will introduce software decision support tools that can be used by stakeholder agencies involved in tsunami early warning. The training seminars will discuss PTWC and Fiji agency tsunami warning and emergency response standard operating procedures and highlight considerations in effectively mitigating against tsunamis.

**Speakers:**

Dr. Laura Kong, Director, International Tsunami Information Center, [l.kong@unesco.org](mailto:l.kong@unesco.org).  
[laura.kong@noaa.gov](mailto:laura.kong@noaa.gov)

Dr. Stuart Weinstein, Deputy Director, Pacific Tsunami Warning Center,  
[stuart.weinstein@noaa.gov](mailto:stuart.weinstein@noaa.gov)

## FINAL AGENDA

Length (min)	Session	Start Time	End Time		Speaker
				<b>20 Sep, Monday, Nadi, FMS Tsunami Warning Operations and Tools</b>	
60	<b>1</b>	9:00	10:00	Welcome, Introductions, Week's Agenda	Fiji, ITIC, PTWC
60	<b>2</b>	10:00	11:00	Tsunami and Earthquake Science and Hazard Assessment	Weinstein
15		11:00	11:15	COFFEE / TEA BREAK	
60		11:15	12:15	Tsunami and Earthquake Science and Hazard Assessment	Weinstein
75		12:15	13:30	LUNCH	
30		13:30	14:00	Tsunami and Earthquake Science and Hazard Assessment	Weinstein
30	<b>3</b>	14:00	14:30	Tsunami Warning Decision Support Tools - Overview; Installation of CISN, Tide Tool and other software	Kong
15		14:30	14:45	COFFEE / TEA BREAK	
45	<b>4</b>	14:45	15:30	Tsunami Historical Database (TsuDig)	Kong
30	<b>5</b>	15:30	16:00	Tsunami Travel Time Software (TTT)	Kong
30	<b>6</b>	15:30	16:00	Tsunami Warning Operations - Overview	Weinstein
				<b>21 Sep, Tuesday, Nadi, FMS Tsunami Warning Operations and Tools</b>	
30	<b>1</b>	9:00	9:30	Summary from Day 1	Kong
60	<b>2</b>	9:30	10:30	Sea Level Monitoring - Tide Tool overview	Weinstein
15		10:30	10:45	COFFEE / TEA BREAK	
90	<b>3</b>	10:45	12:15	Tide Tool Training	Weinstein
45	<b>4</b>	12:15	13:00	Earthquake Monitoring - CISN Training	Kong
60		13:00	14:00	LUNCH	
60	<b>5</b>	14:00	15:00	27 February 2010 Chile Tsunami - sea level records on Tide Tool	Weinstein
15		15:00	15:15	COFFEE / TEA BREAK	
45	<b>6</b>	15:15	16:00	Tsunami Warning Operations - PTWC SOPs	Weinstein
				<b>22 Sep, Wednesday, Nadi, FMS Tsunami Warning Operations and Tools</b>	
30	<b>1</b>	9:00	9:30	Summary from Day 2	Kong
45	<b>2</b>	9:30	10:15	Tsunami Warning Operations - PTWC SOPs	Weinstein

30	<b>3</b>	10:15	10:45	Earthquake and Sea Level Monitoring by web; IOC Sea Level Monitoring Facility (web)	Kong
15		10:45	11:00	COFFEE / TEA BREAK	
90	<b>4</b>	11:00	12:30	Tsunami Warning Operations- Fiji SOPs (Met Svc, MRD, NDMO)	Fiji
60		12:30	13:30	LUNCH	
60		13:30	14:30	Tsunami Warning Operations- Fiji SOPs discussion	All
30	<b>5</b>	14:30	15:00	Wrap-up	All
60		15:00	16:00	Pack up MRD computer	
180		16:00	19:00	Depart for Suva by ground transport	
				<b>23 Sep Thursday, Suva, MRD Seismic and Tsunami Warning Operations</b>	
30	<b>1</b>	9:00	9:30	Finalize Thursday/Friday schedule	All
90	<b>2</b>	9:30	11:00	Unpack computer - verify CISN, Tide Tool and other software running; training review as needed	All
60	<b>3</b>	11:00	12:00	Fiji MRD Seismic and Tsunami operations, including seismic network, processing data sharing - tour, SOP review and discussion	All
75		12:00	13:15	LUNCH BREAK	
135		13:15	15:30	Fiji MRD Seismic and Tsunami operations, including seismic network, processing data sharing - tour, SOP review and discussion	All
30		15:30	16:00	Transit US Embassy to MRD	
60	<b>4</b>	16:00	17:00	Courtesy visit - US Embassy at Holiday Inn	Kong, Weinstein
				<b>24 Sep, Friday, Suva, NDMO, MRD Warning and Emergency Response Seminar Seismic and Tsunami Warning Operations</b>	
240	<b>1</b>	9:00	13:00	Seminar: Strengthening Tsunami Warning and Emergency Response	ITIC, PTWC, Fiji
75		13:00	14:15	LUNCH BREAK	
105	<b>2</b>	14:15	16:00	Weinstein: Fiji TWC SOPs - continuing and wrap-up	Weinstein
105	<b>2</b>	14:15	16:00	Kong: SOPAC Tsunami discussions	Kong
30	<b>3</b>	16:00	16:30	Wrap-up Summary - Next visit	Fiji

**Tsunami Seminar:**  
**STRENGTHENING TSUNAMI WARNING AND EMERGENCY RESPONSE**

UNESCO/IOC – NOAA International Tsunami Information Center  
 NOAA Pacific Tsunami Warning Center

Hosted by  
 Fiji National Disaster Management Office  
 Suva, Fiji  
 0900-1300, 24 September 2010

Length (min)	Session	Start Time	End Time		Speaker
10	1	9:00	9:10	Opening	Fiji NDMO
5	2	9:10	9:15	Seminar Overview	Kong
30	3	9:15	9:45	Tsunami Science and Hazard Assessment	Weinstein
30	4	9:45	10:15	Fiji Tsunami Hazard	Fiji MRD
15		10:15	10:30	COFFEE / TEA BREAK	
45	5	10:30	11:15	Tsunami Warning, PTWC Services	Weinstein
30	6	11:15	11:45	Fiji Tsunami Warning Procedures	Fiji MRD, Fiji Met Svc Kong
30	7	11:45	12:15	Tsunami Preparedness, Mitigation, and Response, End to End Warning	
30	8	12:15	12:45	Fiji Tsunami Preparedness: Tsunami Evacuation Maps and Tsunami Response Plan	Fij NDMO, SOPAC
15	9	12:45	13:00	Summary and Closing	Fiji NDMO, ITIC

**Speakers:**

Dr. Laura Kong, Director, International Tsunami Information Center, l.kong@unesco.org.  
 laura.kong@noaa.gov

Dr. Stuart Weinstein, Deputy Director, Pacific Tsunami Warning Center,  
 stuart.weinstein@noaa.gov

Lasarusa Vuetibau, Senior Seismologist, Mineral Resources Department

Terry Atalifo, Operations Manager, Fiji Meteorological Service

Noa Tokavou, Community Risk Programme, SOPAC