



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
COMMISSION OCÉANOGRAPHIQUE INTERGOUVERNEMENTALE
COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ
КОМИССИЯ

اللجنة الدولية الحكومية لعلوم المحيطات

政府间海洋学委员会

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IOC Circular Letter N°2629
(Available in English only)

IOC/PTWS/VR/TA/BA/LK
10 June 2016

- To:** ICG/PTWS and ICG/CARIBE-EWS Tsunami National Contacts (TNC) and Tsunami Warning Focal Points (TWFP)
ICG/PTWS and ICG/CARIBE-EWS Chairs and Vice-Chairs
- cc:** Official National Coordinating Bodies for liaison with the IOC Member States
Permanent Delegations/Observer Missions to UNESCO of IOC Member States
Permanent Delegates/Observer Missions to UNESCO of Brunei Darussalam, Cambodia, Federated States of Micronesia, Marshall Islands and Tokelau
National Commissions for UNESCO in IOC Member States
Permanent Observers ICG/PTWS
Director, ITIC and Director, PTWC
IOC Officers

Subject: ITIC Training Programme – Hawaii (ITP-HAWAII), Hawaii, United States of America, 6–16 September 2016

Through this Circular Letter, the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS) and the Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions Member States (ICG/CARIBE-EWS), and countries in other regions with tsunami warning and mitigation interests, are invited to participate in the 2016 ITIC Training Programme – Hawaii (ITP-Hawaii) on tsunami warning systems and the PTWC New Enhanced Products to be conducted by the International Tsunami Information Center (ITIC) from 6 to 16 September 2016. ITIC is a UNESCO/IOC - National Oceanic and Atmospheric Administration (U.S.) partnership, with support from Chile.

Over the last 10+ years, with improvements in data quality, quantity, and real-time availability, PTWC's response time has dropped significantly from an hour to 5-10 minutes for tsunami events. At the same time, with each great earthquake and tsunami since 26 December 2004 helping to increase scientific understanding, better techniques have been developed to quickly characterize the earthquake and numerically model the tsunami. Accordingly, the PTWC implemented new enhanced forecast products in October 2014 for the Pacific and March 2016 for the Caribbean. Public text products continue to be issued, but the additional graphical and statistical products are only sent to the designated PTWS and CARIBE-EWS Tsunami Warning Focal Points (TWFP)

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To meet the training requests of Member States, the 2016 ITP-Hawaii will focus on Standard Operating Procedures (SOP) for tsunami warning and tsunami emergency response and will include a tsunami exercise that requires country decision-making and action using the PTWC New Enhanced Products. Depending on participant need, additional topics with hands-on exercises and/or real case studies will be covered, such as on seismology and real-time earthquake monitoring for tsunami warning centres and/or tsunami emergency management and evacuation mapping and planning. The 2016 ITP-Hawaii programme description and provisional agenda are attached.

On Day 1 of the training, each country is expected to give a 15-minute presentation on their country's tsunami warning and mitigation system, including their tsunami SOPs. More information and documents will be made available through the website <http://www.tsunamitraining.org>.

ITP-Hawaii is open to all countries, and participants from the ICG/PTWS and ICG/CARIBE-EWS, and other ICGs are welcome and encouraged to attend on their own funding.

The IOC invites you to nominate candidates to the ITP-Hawaii 2016. Please forward the attached form duly filled, along with a CV, and endorsed by your Country TNC or TWFP, by email directly to the Director of ITIC, Dr Laura Kong (laura.kong@noaa.gov , Phone: +1-808-725-6050, Fax: +1-808-725-6055), with copy to Bernardo Aliaga (b.aliaga@unesco.org), ICG/PTWS Technical Secretary. An application form is attached for this purpose. The deadline for applications is **no later than 30 June 2016**. Please confirm that your organization will have funding to cover your participation. Successful candidates will be notified by 15 July 2016.

Yours sincerely,

[signed]

Vladimir Ryabinin
Executive Secretary

Attachments:

ITP-Hawaii 2016 Programme Description and Provisional Agenda

ITP-Hawaii 2016 Application Form

UNESCO/IOC – NOAA International Tsunami Information Center
ITIC TRAINING PROGRAMME (ITP) – HAWAII
6–16 September 2016

The 2016 ITIC Training Programme (ITP-Hawaii) will be held 6 to 2 September 2016 in Honolulu, Hawaii, USA. The Programme, under the direction of the International Tsunami Information Center (ITIC), provides participants with an overview of the history and operation of the Pacific Tsunami Warning and Mitigation System. Specific focus is given to the important role of national tsunami warning centers in monitoring and evaluating the tsunamigenic potential of earthquakes, and in issuing timely tsunami warning messages to government emergency officials who can then act to save lives and reduce damage to coastal communities.

The Programme provides training and familiarization with the IOC-coordinated global tsunami warning and mitigation system, especially for the Pacific and Caribbean, and covers National Tsunami Warning and Emergency Response concepts of operations and standard operation procedures. The ITP-Hawaii uses Hawaii as a working example of an end-to-end tsunami warning and mitigation system demonstrating close stakeholder coordination and partnership for operational warnings and in preparedness activities. Participants will engage in a series of informational presentations and discussions at ITIC and the Pacific Tsunami Warning Center, and visits to Emergency Operations Centers.

To meet the training requests of Member States, the 2016 ITP-Hawaii will focus on Standard Operating Procedures (SOP) for tsunami warning and tsunami emergency response and will include a tsunami exercise that requires country decision-making and action using the PTWC New Enhanced Products. Specific efforts are made to review and strengthen individual country SOPs and Response Plans, focusing especially on the use and interpretation of the PTWC New Enhanced Forecast Products. SOPs guidance and template examples, and different tsunami warning decision support tools and software that are available will be demonstrated. Depending on participant need, additional topics using real-data hands-on or case studies will be covered, such as on seismology and real-time earthquake monitoring for tsunami warning centers and/or tsunami emergency management and evacuation mapping and planning. On the last day, participants will role-play as tsunami warning centers or emergency response agencies responding to a tsunami using the PTWC New Enhanced Products. The 2016 ITP-Hawaii provisional agenda is attached.

On Day 1 of the Programme, participants should be prepared to make a 15-minute presentation on their country's tsunami warning system, including SOPs to use with the PTWC Enhanced Products, or on their plans for improving their SOPs.

Within one month after returning to their countries, ITP participants are asked to submit a Written Trip Report in English describing the activities they participated in, what they learned, and how they will use their training to improve tsunami warnings and/or awareness in their countries. Trip Report summaries will be published in the ITIC's *Tsunami Newsletter*.

ITP-Hawaii 2016
6–16 September 2016, Honolulu, Hawaii, USA

PROVISIONAL AGENDA

	Topic
1	TUESDAY, 6 SEPTEMBER, DAY 1
	Welcome, Overview, Country Presentations, Science
1.1	Programme Logistics
1.2	Course Overview, Manual, and Materials, including Awareness Materials
1.3	Country Presentations (15-20 min each)
1.4	Earthquake and Tsunami Science - generation, propagation, impact
1.5	Global and Pacific Tsunami Hazard
1.6	Tsunami Risk Assessment - Methods and Role of Tsunami Deposits
1.7	Tsunami Risk Assessment: Modeling and Mapping of Tsunami Inundation
2	WEDNESDAY, 7 SEPTEMBER, DAY 2
	IOC Tsunami Systems, End-to-End Warning, Decision Support Tools, TWC Operations
2.1	UNESCO IOC Global Tsunami System: Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS)
2.2	Responding Rapidly and Effectively: End-to-end Tsunami Warning Systems – Requirements and Lessons Learnt
2.3	Hawaii example: Hawaii Tsunami Warning and Mitigation System
2.4	Tsunami Warning Decision Support Tools – Overview: Message Alerts, Real-Time Earthquake Display (CISN); Sea level monitoring (Tide Tool, IOC Sea Level Monitoring web site); Tsunami Databases (WDC/NCEI web tools), Tsunami Travel Time (TTT) calculation
2.5	End-to-end Tsunami Warning – Stakeholder and their needs, Roles and Responsibilities, Standard Operating Procedures, and their linkages
2.6	What will Tsunami Warning Centers (TWCs) provide to Tsunami Emergency Response (TER) agencies? Operations Challenges and Limitations, and Lessons Learned from Past Tsunamis - Tsunami Warning
2.7	Pacific Tsunami Warning Center (PTWC) SOPs
3	THURSDAY, 8 SEPTEMBER, DAY 3: SESSION 3
	Visit PTWC, Tsunami Emergency Management
3.1	Visit PTWC: Decision Support Tools for Earthquake and Sea Level Monitoring
	1. Seismic Monitoring (Networks and latency, Source location, Magnitude estimation, W-phase CMT)
	2. Sea level Monitoring (Coastal and DART stations, run-up gauges), Monitoring (Tide Tool)
	3. Tsunami Forecasting (RIFT, SIFT, ATFM)
3.2	Tsunami Emergency Response, Stakeholder Coordination, Roles, SOPs – Overview
3.3	Communication technologies for the transmission of tsunami warnings to local governments and communities – robustness, reliability, redundancy criteria for emergency communications
3.4	Warning Dissemination and Public Alerts: Information Flow and Role of Media
3.5	What do TERs want from TWCs? Challenges and Limitations in Alerting, Evacuation, and Safe-to-Return (All-Clear), and Lessons Learned from Recent Tsunamis
3.6	Building Preparedness: Tsunami Exercises and Drills, IOC Tsunami Exercise Guideline
3.7	Tsunami and Awareness - International Perspectives
4	FRIDAY, 9 SEPTEMBER, DAY 4: SESSIONS 4-5
	Visit Hawaii State Civil Defense, Tsunami Mitigation and Preparedness, PTWC Enhanced Products
4.1	Visit Hawaii State Civil Defense (SCD) Emergency Operations Center: Hawaii State Emergency Agency Responses to PTWC Tsunami Products

4.2	Tsunami Mitigation: Designing buildings for tsunami loading - FEMA P646, ASCE 7 and International Building Code updates
4.3	Community Readiness: International Tsunami Ready Program, World Tsunami Awareness Day
5.1	Pacific Tsunami Warning Center (PTWC) New Enhanced Products SOPs - Why, What, Criteria, Staging of Products
5.2	Understanding PTWC Enhanced Products – Distant, Regional, and Local Tsunami Hazard Scenarios
	SATURDAY-SUNDAY, 10–11 SEPTEMBER: FREE DAYS
6	MONDAY, 12 SEPTEMBER, DAY 5: SESSION 6
	IF NEEDED, SPIT TWC AND TER SESSION – ADVANCED TOPICS
TWC	FOR PARTICIPANTS INTERESTED IN TSUNAMI WARNING CENTER OPERATIONS
	Advanced TWC Topics – Earthquake Seismology
6	MONDAY, 12 SEPTEMBER, DAY 5: SESSION 6
TWC - 6.1	TWC Operations: SOPs for Distant, Regional, and Local Tsunamis: Monitoring, Detection and Evaluation, Communications, Message Dissemination
TWC - 6.2	TWC Operations: Real-time earthquake Detection, Fast Sources Characterization – overview
TWC - 6.3	Introduction to Seismology – seismic waves, earthquake sources
TWC - 6.4	Real-time Earthquake Monitoring: Basic Principles and Standard Methods
TWC - 6.5	Seismic Data Interpretation – Location (techniques, use, limitations) – lecture and exercise
	Seismic Data Interpretation – Magnitude (methods, use, limitations) – lecture and exercise
TWC 6	TUESDAY, 12 SEPTEMBER – DAY 6: SESSION 6
	Advanced TWC Topics: Earthquake Seismology
TWC - 6.6	Seismic Data Interpretation - Focal Mechanisms (methods, including W-phase Centroid Moment Tensors solutions, use, limitations) – lecture and exercise
TWC - 6.7	Teleseismic data interpretation and location - exercise
TWC - 6.8	Local data interpretation and location - exercise
TWC - 6.9	Seismic hazard mapping
TWC 7	WEDNESDAY, 16 SEPTEMBER, DAY 7: SESSIONS 7–8
	Advanced TWC Topics: Tsunami Forecasting, Enhanced Products SOPs
TWC - 7.1	PTWC Enhanced Products - Explanation of Each Product: Public Text, Graphical Deep-Ocean Tsunami Amplitude, Coastal Tsunami Amplitude, Coastal Tsunami Amplitude Polygons, Tsunami Amplitude Statistics, Coastal Tsunami Amplitude KMZ file
TWC - 7.2	TWC Operations: Travel Time and Wave Forecasting – Techniques, Use and Limitations, Sensitivity Studies (Location, Depth, Magnitude)
TWC - 7.3	PTWC TWC Operational Forecasting – Limitations and Uncertainties
TWC – 8.1	National Tsunami Warning Center SOP for PTWC Enhanced Products - Guidance and Examples: Flow Charts, Criteria Tables, Warning/Watch/Information Message Templates
TER	FOR PARTICIPANTS INTERESTED IN TSUNAMI EMERGENCY MANAGEMENT AND EVACUATION OPERATIONS
TER 6	MONDAY, 12 SEPTEMBER, DAY 6: SESSION 6
TER	Advanced TER Topics: Alert, Information Flow, Evacuation, Response, Special Considerations
TER - 6.1	TER Operations: Public Notification and Alerting – Best Practices, Challenges and Limitations, Case Studies – Japan, British Colombia / New Zealand
TER - 6.2	TER Operations: Managing Information Flow - Traditional Media, Social Media
TER - 6.3	TER Operations: Tsunami Evacuation - Best Practices, Challenges and Limitations, Case Studies – Japan and Oahu, Hawaii
TER - 6.4	TER Operations: Tsunami Response Plans
TER - 6.5	Special Needs Populations, Tourism and Beaches - Case Studies – Hawaii
TER - 6.5	Marine Sector Readiness, Ports and Harbors Planning – Case Studies – Hawaii, Japan, California
TER 6	TUESDAY, 16 SEPTEMBER, DAY 6: SESSION 6
TER	Advanced TER Topics: Readiness, Response SOPs

TER - 6.6	Schools and Communities, Strategies for Sustaining Tsunami Readiness – Case Studies Philippines
TER – 6.7	Exercises and Drills – How, Why, What, Examples
TER - 7.1	Timeline-driven NDMO/DMO SOPs – Roles and Responsibility, Stakeholder Coordination, All-Clear Safe-to-Return – Case Study, Wakayama, Japan
TER – 7.2	Visit County EOC, Oahu Department of Emergency Management, Managing Evacuations of large populations, including tourists, diverse cultural and language populations
TER 7-8	WEDNESDAY, 14 SEPTEMBER, DAY 7: SESSIONS 7–8
TER	Advanced TER Topics: Enhanced Products SOPs
TER – 7.3	TER and Information Flow SOPs and Checklists: Templates and examples of SOP best practices.
TER – 8.1	Understanding and acting on NTWC and PTWC Enhanced Products messages. Guidance for National Warnings and Evacuation – Land and Marine Threats and Public Safety
	RETURN TO JOINT SESSION
8-9	THURSDAY, 15 SEPTEMBER DAY 8: SESSIONS 8-9
	Country SOPs, ITP-Hawaii 2016 Tsunami Exercise
8.2	Improving Country SOPs for PTWC New Enhanced Products – Coordinated TWC/TER SOPs, and 1-on-1 country sessions
9.1	ITP-Hawaii Tsunami Exercise – Overview, Preparation of SOPs, Checklists, Templates
9-10	FRIDAY, 16 SEPTEMBER, DAY 9: SESSIONS 9-10
	ITP-Hawaii 2016 Tsunami Exercise, Wrap-up, Closing
9.2	Conduct ITP-Hawaii 2016 Tsunami Exercise
9.3	Post-Exercise Evaluation
9.4	ITP-Hawaii 2016 Logistics wrap-up; Course Materials
9.5	Summary Discussion (Way Forward, Next Steps, Gaps, Needs)
10	Presentation of Certificates and Closing
	FRIDAY, SATURDAY, 16-17 SEPTEMBER
	Hotel Checkout - Depart for home country

UNESCO/IOC – NOAA International Tsunami Information Center
ITIC TRAINING PROGRAMME (ITP) – HAWAII
6–16 SEPTEMBER 2016
APPLICATION FORM

APPLICATION DEADLINE: FRIDAY, 30 JUNE 2016

Please type or write in BLOCK letters in English

Please submit by E-MAIL or FAX to:

E-MAIL: b.aliaga@unesco.org
laura.kong@noaa.gov

FAX (ITIC): +1 808 725 6055

1. PERSONAL INFORMATION

NAME	
TITLE	<input type="checkbox"/> DR. <input type="checkbox"/> PROF. <input type="checkbox"/> MR. <input type="checkbox"/> MS. <input type="checkbox"/> others _____
SEX	<input type="checkbox"/> MALE <input type="checkbox"/> FEMALE
NATIONALITY	
HOME ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	
EMAIL ADDRESS	

2. PROFESSIONAL BACKGROUND

OFFICE/ ORGANIZATION	
POSITION	
ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	
EMAIL ADDRESS	

3. EDUCATIONAL BACKGROUND

LEVEL	SCHOOL	DEGREE	YEAR GRADUATED
COLLEGE			
MASTER			
DOCTORAL			
POST DOCTORAL			

4. TSUNAMI- RELATED TRAININGS ATTENDED

TITLE OR SUBJECT	CONDUCTED BY	DATES

5. OTHER RELATED TSUNAMI-RELATED JOB EXPERIENCE

OFFICE / ORGANIZATION JOB DESCRIPTION	POSITION	DATES

6. TRAVEL INFORMATION

NAME ON PASSPORT	
PASSPORT COUNTRY	
PASSPORT NUMBER	
BIRTHDAY (DD-MM-YYYY)	
DATE OF ISSUE	
PLACE OF ISSUE	
EXPIRY DATE	
COUNTRY OF BIRTH	
COUNTRY OF CITIZENSHIP	
NAME OF NEAREST INTERNATIONAL AIRPORT	

7. OTHER

ENGLISH LANGUAGE PROFICIENCY	<input type="checkbox"/> Excellent <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Poor
DO YOU REQUIRE TRAVEL FUNDING	<input type="checkbox"/> Yes, Full Funding <input type="checkbox"/> Yes, Partial Funding, Amount USD ____ <input type="checkbox"/> No, Self-funded

STATEMENT OF INTEREST:

Why are you interested in attending this Training?

After the Training, where and how will the experience gained in the Training will be used?

PLEASE ALSO SUBMIT SEPARATELY YOUR CURRICULUM VITAE (CV).

PRINTED NAME

SIGNATURE

DATE

ENDORSED BY TSUNAMI WARNING FOCAL POINT OR TUNAMI NATIONAL CONTACT:

PRINTED NAME

SIGNATURE

ORGANIZATION

DATE