

Dr. Laura Kong

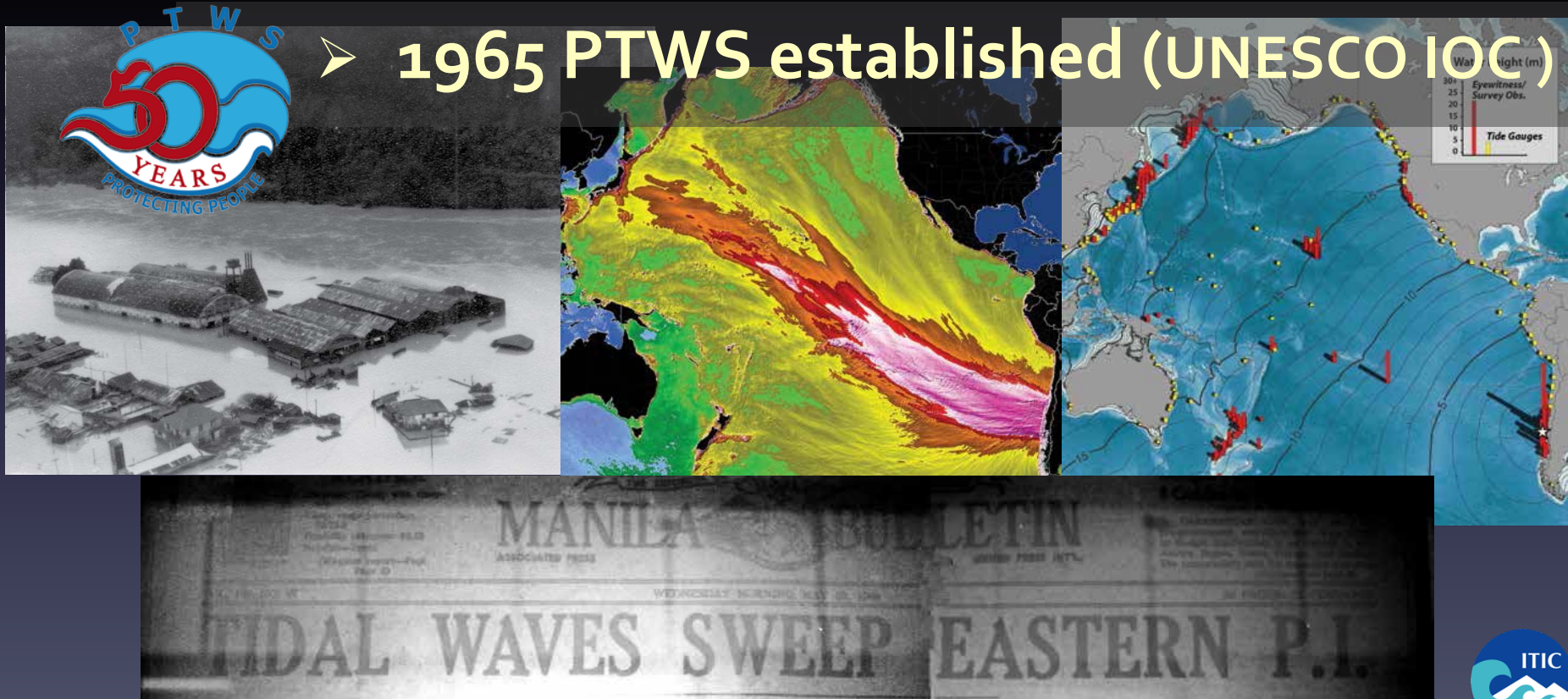
Director, UNESCO/IOC-NOAA

International Tsunami Information Center (ITIC)

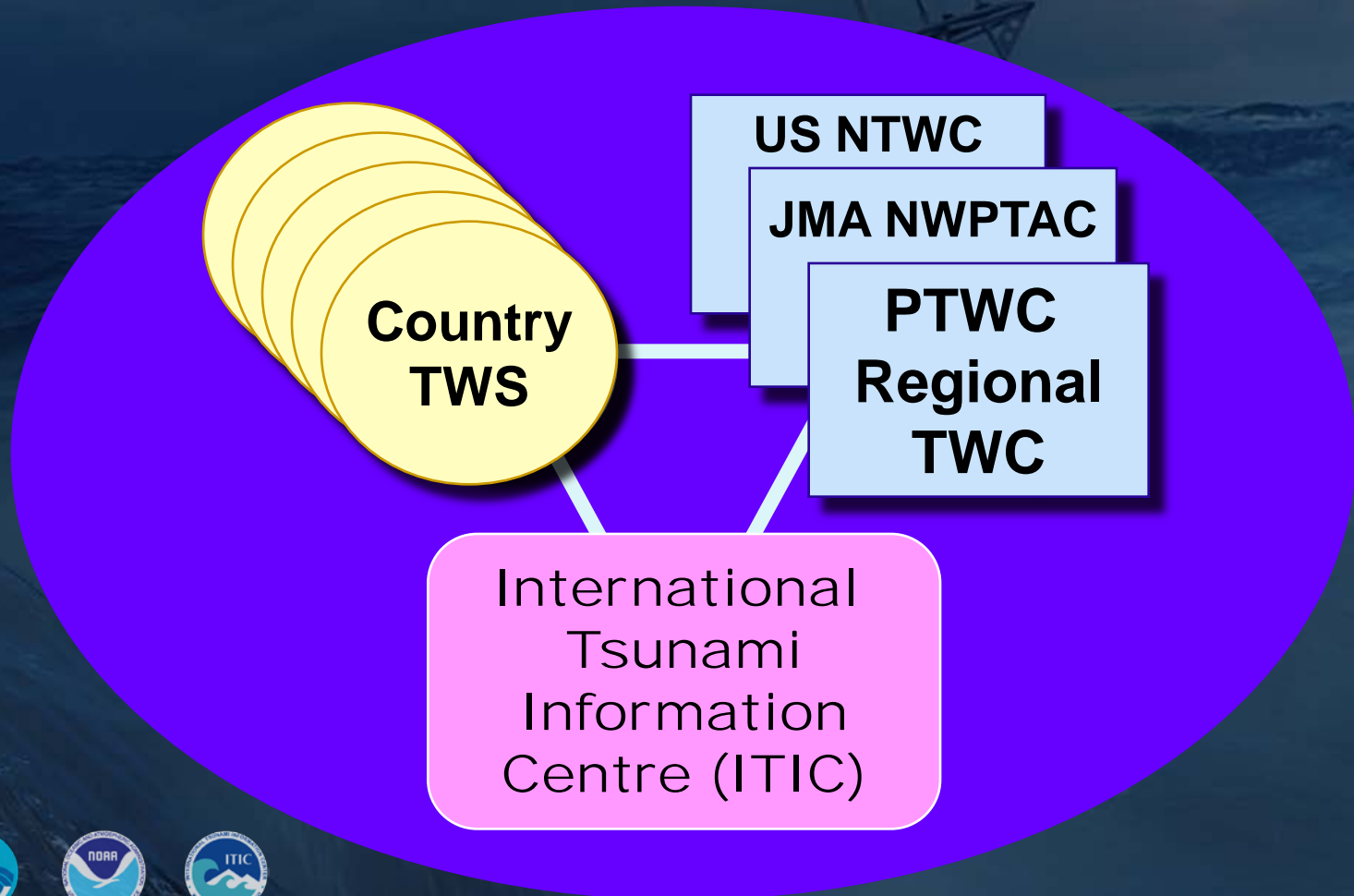


1960 Deadly Basin-wide Tsunami

- 1960 9.5 Mw Chile earthquake generated a tsunami that killed 2000 in Chile, then hundreds in Hawaii, Japan, and the Philippines => No international warning



PACIFIC TSUNAMI WARNING AND MITIGATION SYSTEM : Foundational Elements





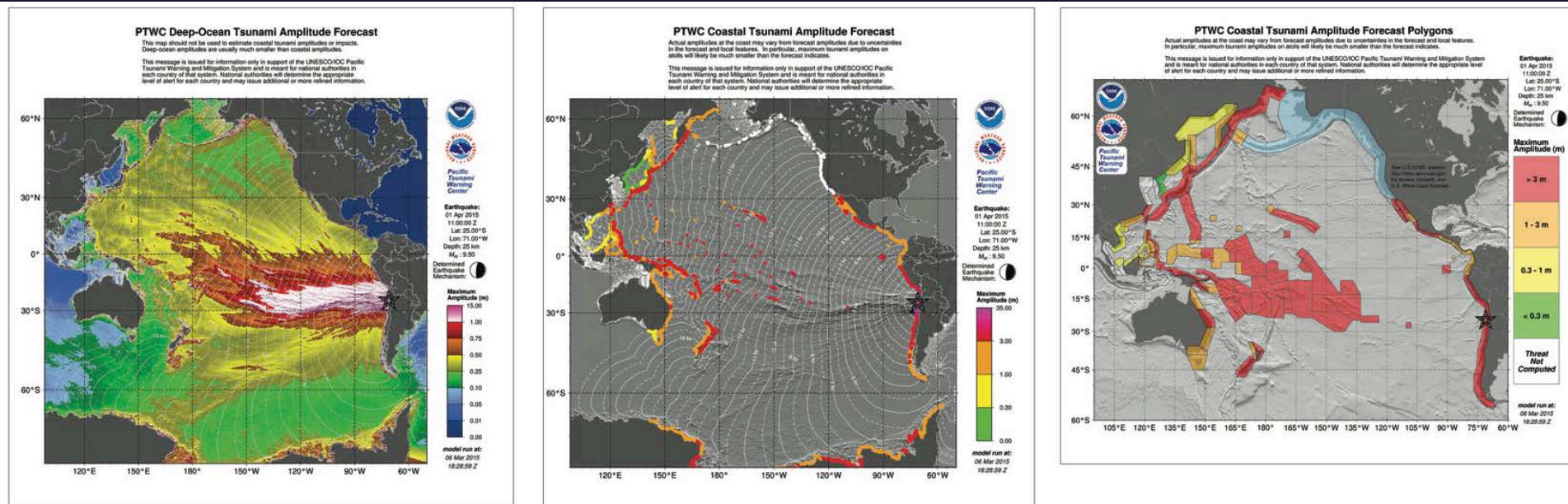
ITIC – INTERNATIONAL IOC Mandate & Functions (1977)



- ❑ **Monitor / Recommend Improvements** to PTWS and other tsunami warning systems – communications, data networks, evaluations, dissemination
- ❑ **Assist in establishing** regional and national tsunami systems – comprehensive risk reduction
- ❑ Serve as **technology transfer** resource;
Encourage research to improve evaluations;
Conduct **trainings to build capacity**
- ❑ Serve as an information resource for **preparedness / education; Develop, publish, distribute materials**
- ❑ Serve as an information resource on **historical tsunamis – database, post-event surveys**

Pacific PTWC International Products – Forecasts available since 1 Oct 2014

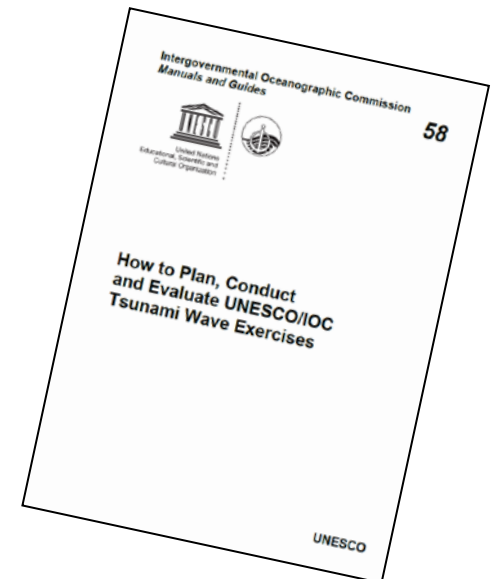
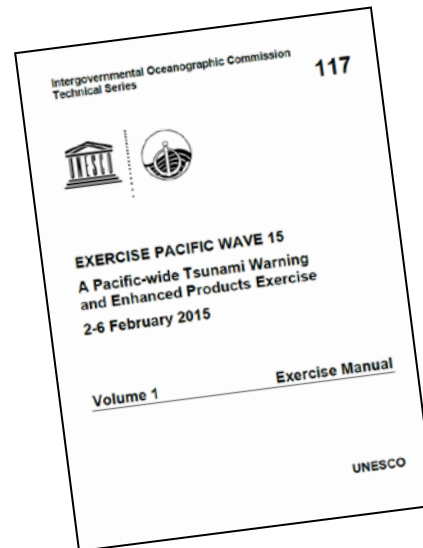
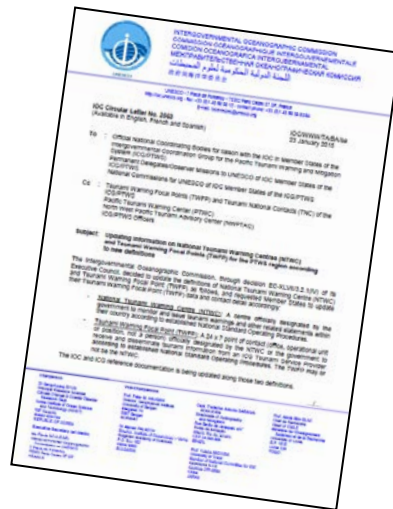
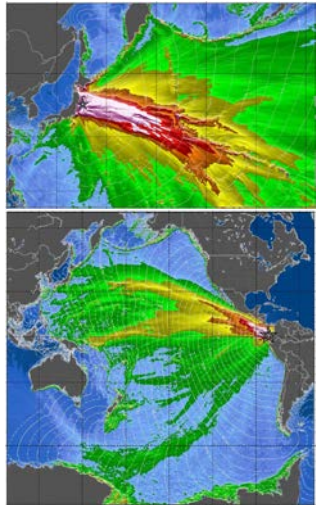
- RIFT forecasts using real earthquake source (W-phase CMT), for all coasts around the world
- ITIC - International Training to support implementation



Example of PTWC New Enhanced Products for an extreme tsunami scenario, M9.5 earthquake and tsunami off the northern coast of Chile.
(Credit: PTWC)

UNESCO Exercise Pacific Wave exercises

- ❑ 6th International Exercise – 2006, 2008, 2011, 2013, 2015, 2016
- ❑ Test Readiness: intl to local govt; distant and local tsunamis, new products
- ❑ Manuals and Guidance



ITIC Training– 2013 - 2015



◆ IDSS for PTWC International products

□ ITP-International training

- 20+ 1-week international and 8 1-day US domestic training/workshops (700 trained)
- US Compacts – issue own products (FSM, Palau, RMI)
- Caribbean (21 countries, USA PR)
- 1 ITP-Hawaii (Aug 2014)

14 Pacific countries (Federated States of Micronesia, Marshall Islands, Palau); 1 Indian Ocean country (Oman) - 30 trained

◆ New Intl Course – Tsunami Evac Maps, Plans, Procedures



Tsunami Warning Decision Support Tools (ongoing):

- Heads-up SMS TW Alert (NOAA/USAID RANET, PTWC) – since 2005
- **Tsunami Bull Board (ITIC) – since 1995, curr ~450 science/tsu/govt**
- **Real time Earthquake Display / California Integrated Seismic Display (USGS, NTHMP) – since 2005, curr >200**

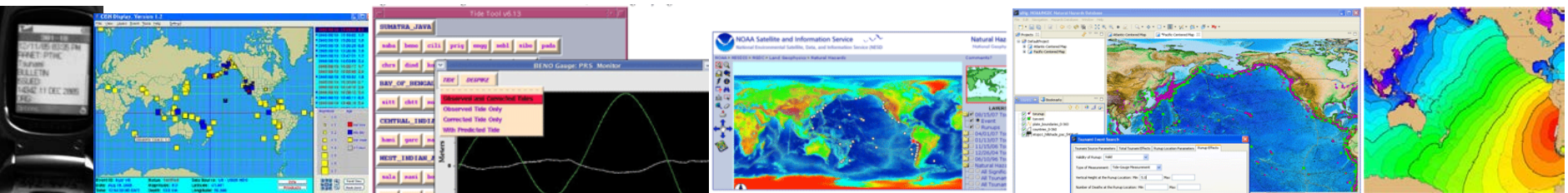
Sea Level monitoring

- Tide Tool – TWC ops sea level monitor tool (PTWC) - since 2005
- IOC Sea Level Monitoring Facility – since 2008

Tsunami Historical Database

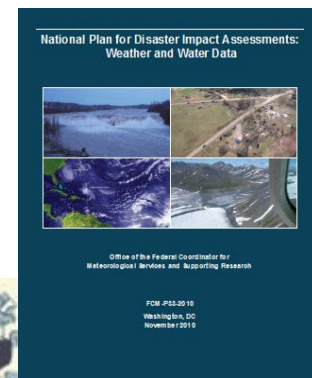
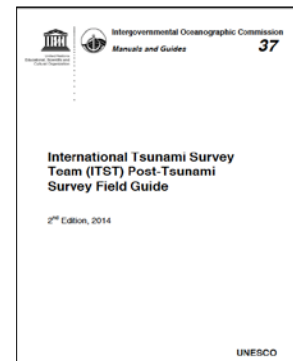
- Online (WDS-MGG/NGDC)
- Offline – ITDB (NTL, 1990s) TsuDig DB GIS (NGDC ITIC, 2009)
- **Tsunami Travel Time Software (ITIC, NGDC) – since 2007**

Further info: ITIC, laura.kong@noaa.gov



ITIC Activities – Event Information

- ❑ **Global Authoritative Historical Database**
 - Work with ICSU – World Data Service / NCEI
- ❑ **Event Information Services**
 - **Significant Tsunami Event Site** – technical info, incl messages, observations, simulations, media
 - **List of Events – PTWC, JMA, US NTWC**
 - **Tsunami Bulletin Board list serve (450 intl)** – science, no public, PTWC, US NTWC events
@infolist.nws.noaa.gov
 - **Post-Tsu Field Surveys:** Intl Tsu Surv Team
ITST Field Guide (IOC TS 37, 2nd ed, 2014)
 - **US Protocols – NTHMP, Federal Agency Plan**



PTWS 50th: ICG/PTWS-XXVI

USA best practices
April 20-24, 2015

- International Symposium
 - Marine Preparedness – Kevin Miller
 - HI-EMA – Doug Mayne
- ICG/PTWS-XXVI Hawaii TWS
 - HI-EMA visit
 - Extreme Evacuation Maps Seminar



Lunchtime Seminar!

Planning for Extreme Tsunamis: A Hawaii Case Study!!
22 April 2015, 11:15 – 12:20 pm!
Monarch Room, Royal Hawaiian Hotel!

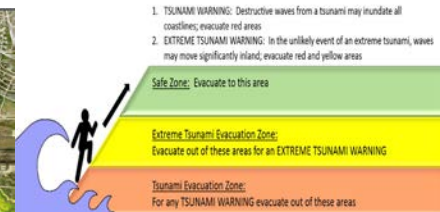
Hawaii State Emergency Management Agency!
Oahu Department of Emergency Management!
University of Hawaii at Manoa!
International Tsunami Information Center (ITIC)!

AGENDA!

Speakers!!!

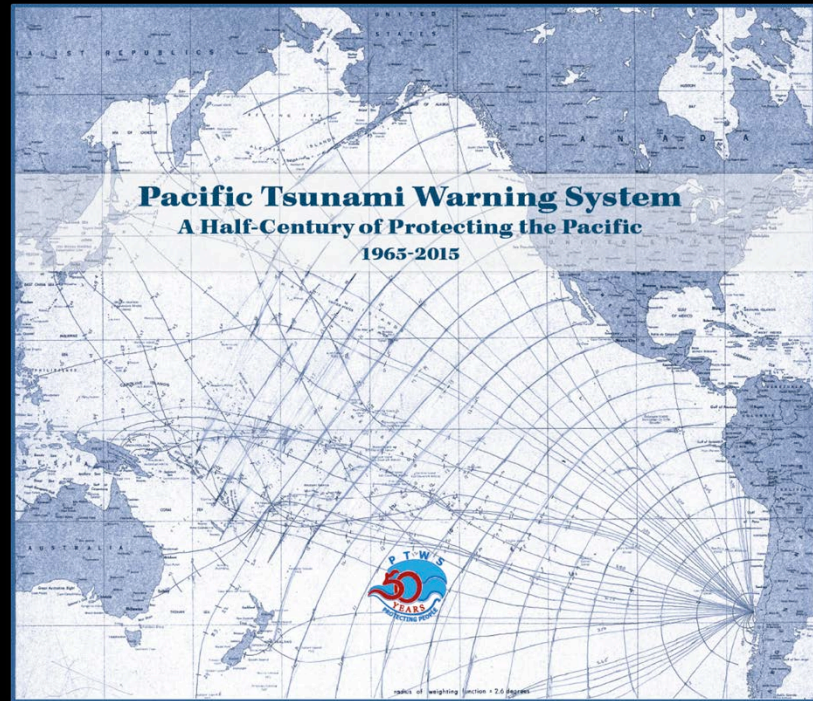
Kevin Richards, Earthquake and Tsunami Program,
Hawaii State Emergency Management Agency (HI-EMA)
Dr. Kwok Fai Cheung, Department of Ocean and Resources Engineering
University of Hawaii at Manoa
Peter Hirai, Deputy Director, City and County of Honolulu
Department of Emergency Management
Dr. Ian Robertson, Department of Civil and Environmental Engineering
University of Hawaii at Manoa

- 1:15 – 1:25 pm Welcome – Laura Kong, Director, ITIC
Planning for Tsunamis – Kevin Richards
- 1:25 – 1:40 pm Hawaii Tsunami Inundation Maps – Dr. Kwok Fai Cheung
- 1:40 – 1:55 pm Oahu Tsunami Evacuation Maps – Peter Hirai
- 1:55 – 2:10 pm Vertical Evacuation for Waikiki – Dr. Ian Robertson
- 2:10 – 2:20 pm Question and Answer and Summary – Kevin Richards



Pacific tsunami warning system: A half-century of protecting the Pacific 19652015

*A Historical
Commemorative
Book*



L. Kong, P. Dunbar, N. Arcos

laura.kong@noaa.gov, paula.dunbar@noaa.gov, nicolas.arcos@noaa.gov

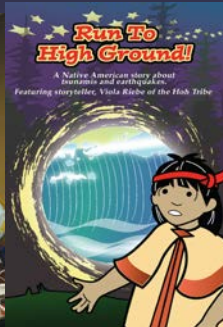
UNESCO/IOC-NOAA International Tsunami Information Center (ITIC)

NOAA National Center for Environmental Information (formerly National Geophysical Data Center)

Available US GPO : <http://bookstore.gpo.gov/products/sku/003-017-00570-4?ctid=189>

Commemorative Book: Pacific Tsunami Warning System (PTWS) A Half-Century of Protecting the Pacific 1965-2015

- Project led by ITIC with US Tsunami Program support
 - Recognize achievements of PTWS over last 50 years
 - 188 pages, >300 photos and figures
 - Editors: Laura Kong (ITIC), Nicolas Arcos Paula Dunbar (NOAA/NCEI, *formerly NGDC*)
- Global and Pacific expertise
 - ~100 people provided text, reviews, photos, figures
 - Initial input – 2014 Fall AGU



PTWS Outreach video – warning chain, M9.5 Chile

Pacific Tsunami Warning & Mitigation System

Tsunami Warning!



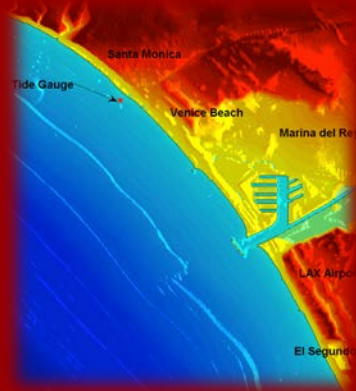
English: <https://vimeo.com/124650777>
Spanish: <https://vimeo.com/125109150>
French: <https://vimeo.com/125109148>



ITIC Activities - Awareness materials

Aug 2013 -April 2015, 68K copies globally
Highlights – updated or new materials

- Tsunami, The Great Waves English 2012-4
- Tsunami Glossary, Revised 2013; Addendum 2015 – NEW 2016
- Global Tsunami Sources poster, 2014
- Global Tsunami Sources icosohedron, NGDC, ITIC, 2014
- Tsunami Safety Flyers, 2013
- Surviving a Tsunami - Lessons from Chile, Hawaii, and Japan Adaptation of USGS Circular 1218 (English), 2014

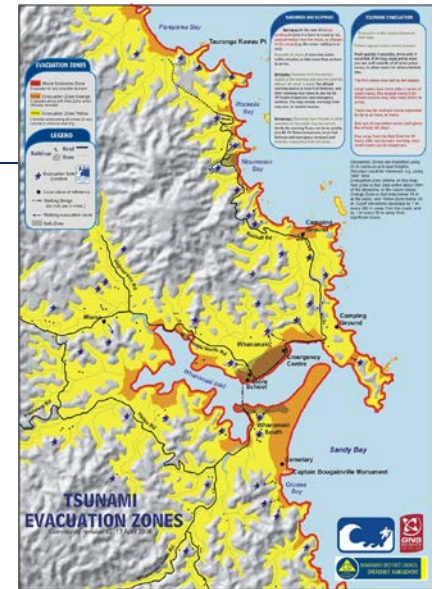


Tsunami Evacuation Maps, Plans, and Procedures (TEMPPs)

... communities knowing what to do and where to go

Course: Tsunami Evac Maps, Plans, and Procedures (TEMPP) Course

GOAL: Produce reliable tsunami evacuation maps working with communities and govt agencies.



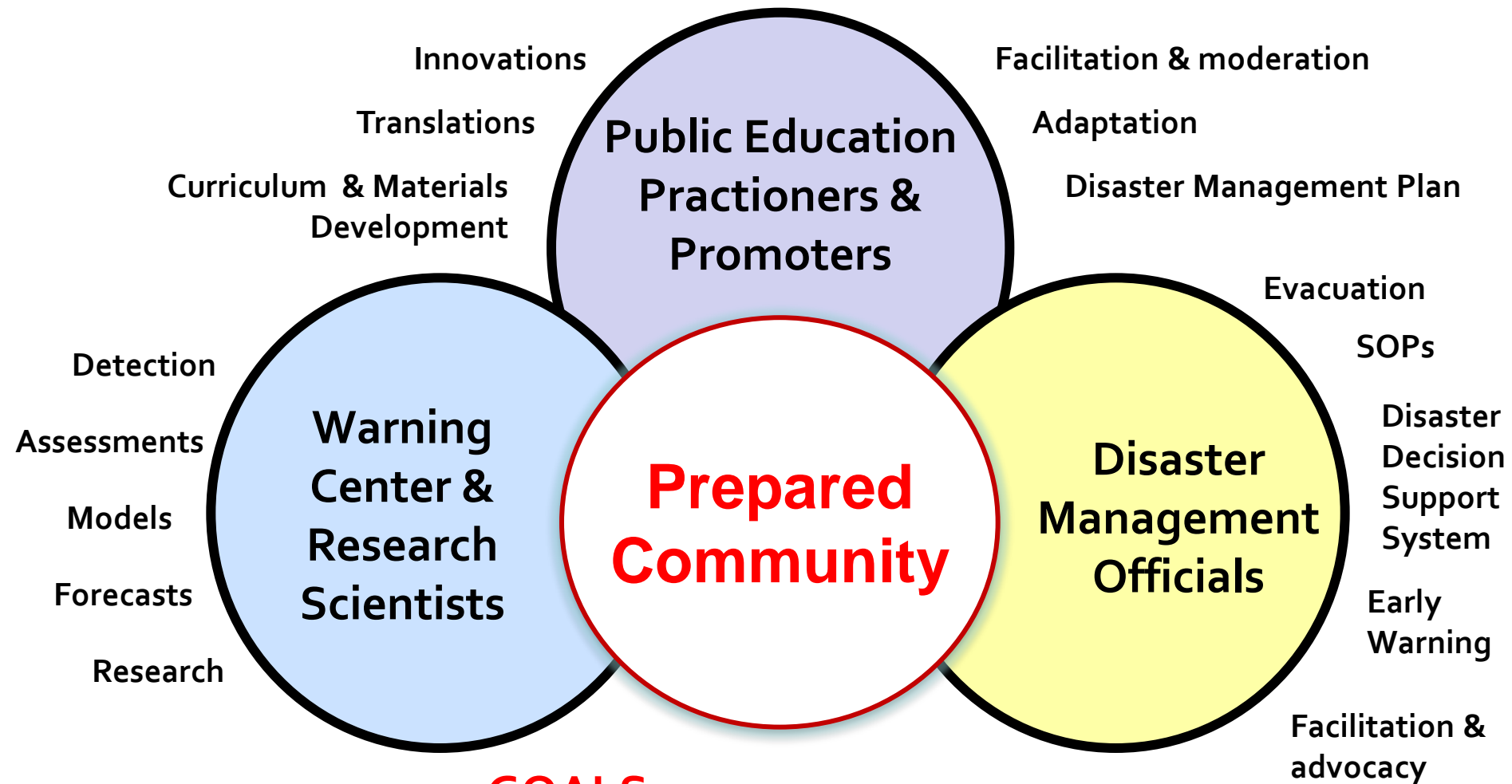
- ❑ Pacific and Caribbean (IOC, NOAA ITIC, CTWP, PMEL)
- ❑ Pilot Kick-off, June 2015 (Honduras)
- ❑ 5 Linked training workshops, 2015-2016
 - Inundation Modelling, Evacuation, TWC and TER SOPs (plans, procedures), Functional Community Exercise
- ❑ Global Standard Course IOC Publication: 2017
 - IOC Manual: Tsunami Evac Maps, Plans, Procedures
- ❑ Pacific Island Countries

Course Development - Partners

- ❑ **ITIC lead**, in collaboration with New Zealand, Philippines, USA, UNESCO IOC, PTWS WGs, Global TOWS WG etc
- ❑ **Course Development Team** - Warning, Modelling, Disaster Mgmt, Community Preparedness, Educ/Outreach
- ❑ **Pilot country feedback**
- ❑ **PTWS Task Team Evac Planning and Mapping (draft)**
 - Chair – Dr. Laura Kong, Director, ITIC
 - Topical and Regional experts and/or resource people
 - Caribbean: Alison Brome, Caribbean Tsunami Information Center
 - Central America: Norwin Acosta, Nicaragua, INETER
 - Indian Ocean: Ardito Kodijat, Indian Ocean TIC
 - SE Pacific: Representative, NDMO, and Chair, SE Pacific WG
 - SW Pacific: 'Ofa Fa'anunu, Tonga Met Svcs; Chair, PTWS SW WG
 - DRR / Comm Preparedness: Julie Leonard, USAID, PTWS WG 3 VC



Community Preparedness is collaborative



GOALS:

- Disaster-resilient DMO, schools, communities
- Sustainable economic livelihoods
- Sound Environment Management Practices

Indonesia, I. Rafliana, 2008
ITIC, L. Kong 2013



UNESCO/IOC-NOAA
International Tsunami Information Center

US ↔ International: Sharing of Experience Pacific Partnership 2013 (US – NZ – Australia – 6 Pacific countries)

[HOME](#)[ABOUT MNRE](#)[MANDATE](#)[DIVISION](#)[CONTACT US](#)[WATER FOR LIFE](#)[NEWSLETTER](#)[PUBLICATION](#)[Login](#)

[Samoa
DMO
Website
Home Page](#)

"Information Sharing Saves Lives"

DMO

Disaster Management Office

DISASTER WATCH