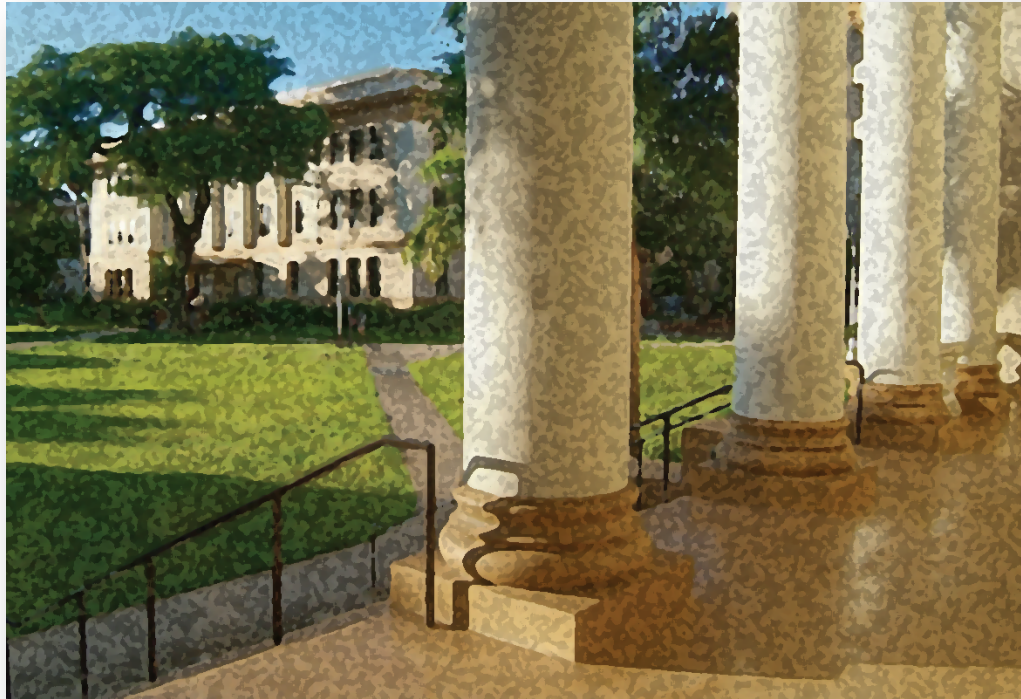


Disaster Resilience: Science to Action



APRU Multi-Hazards Summer School, Tohoku University
Dr. Denise E. Konan, Dean College of Social Sciences
University of Hawai'i at Mānoa

July 21, 2016

UH Mānoa in Brief



- Founded: 1907
- Land Grant, Sea Grant and Space Grant
- Located in Honolulu's beautiful Mānoa Valley island of O'ahu
- Campus size: 320 acres

University of Hawai'i motto:
Maluna a'e o nā lāhui a pau ke ola ke kanaka
Above all nations is humanity

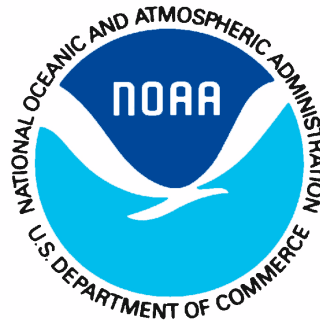
UH Mānoa in Brief



- 20,429 students
- Student faculty ratio 14:1
- Rich curriculum
 - 92 Bachelor programs
 - 84 Master programs
 - 51 Ph.D. programs
- Affordable Tuition
 - \$10,872 resident
 - \$32,904 non-resident

UH Mānoa in Brief

- Carnegie Very High Research Active
- \$355 m new research awards
- Land, Sea, Space Grant
- APRU member since 2013
- NSF Top 30 Public University
- Pioneering research in oceanography, astronomy, health, cancer, social sciences



UH Mānoa Schools and Colleges

- College of Social Sciences (Economics, Communications, Psychology ...)
- College of Natural Sciences (Biology, Chemistry, Math ...)
- School of Ocean, Earth Science, & Technology
- Shidler College of Business
- College of Engineering
- College of Arts and Humanities
- College of Tropical Agriculture
- College of Languages, Linguistics, & Literature
- W.S. Richardson School of Law
- J.A. Burns School of Medicine
- School of Architecture
- School of Travel Industry Management
- School of Social Work
- College of Education
- School of Pacific & Asian Studies
- School of Nursing
- Hawaiʻi inuiakea School of Hawaiian Knowledge



Hawai'i in Brief

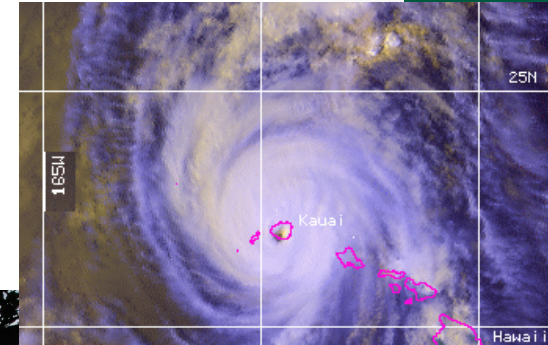
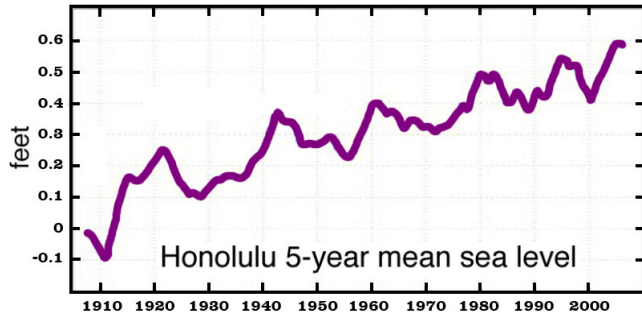
- Of U.S. cities, Honolulu is safest (Forbes), lowest carbon emissions (Brookings Institute), 11th largest
- Islands formed by under sea volcanoes, still active
- Export crops are coffee, papaya, pineapple and macadamia nuts
- Everyone is minority



Hawai‘i in Brief



Hawai'i in Brief



Hawai'i's Natural Disasters

- Hurricanes
 - November 11, 1982: Iwa
 - September 11, 1992: Iniki
 - August 8, 2014: Iselle
- Tsunami
 - April 1, 1946: Aleutian Islands
- Kilauea Volcano



Sugar, J. Eruption of Kilauea Volcano, Hawaii. Getty Images

2004 Indian Ocean Earthquake & Tsunami

- 9.1 magnitude earthquake
- Tsunami detected in HNL by Pacific Tsunami Warning Center
- "Back in 2004, we didn't know where to send the warning in the Indian Ocean, we didn't have national contacts", says Dr. Richard Bailey
- 230,000 people killed in 14 countries



McDaniel Navy 2005



TOHOKU
UNIVERSITY

"Spirit of Tohoku University 2011.3.11"
- Reunion and Incubation of the Global Research Network -
災害科学の国際研究協力共同宣言フォーラム



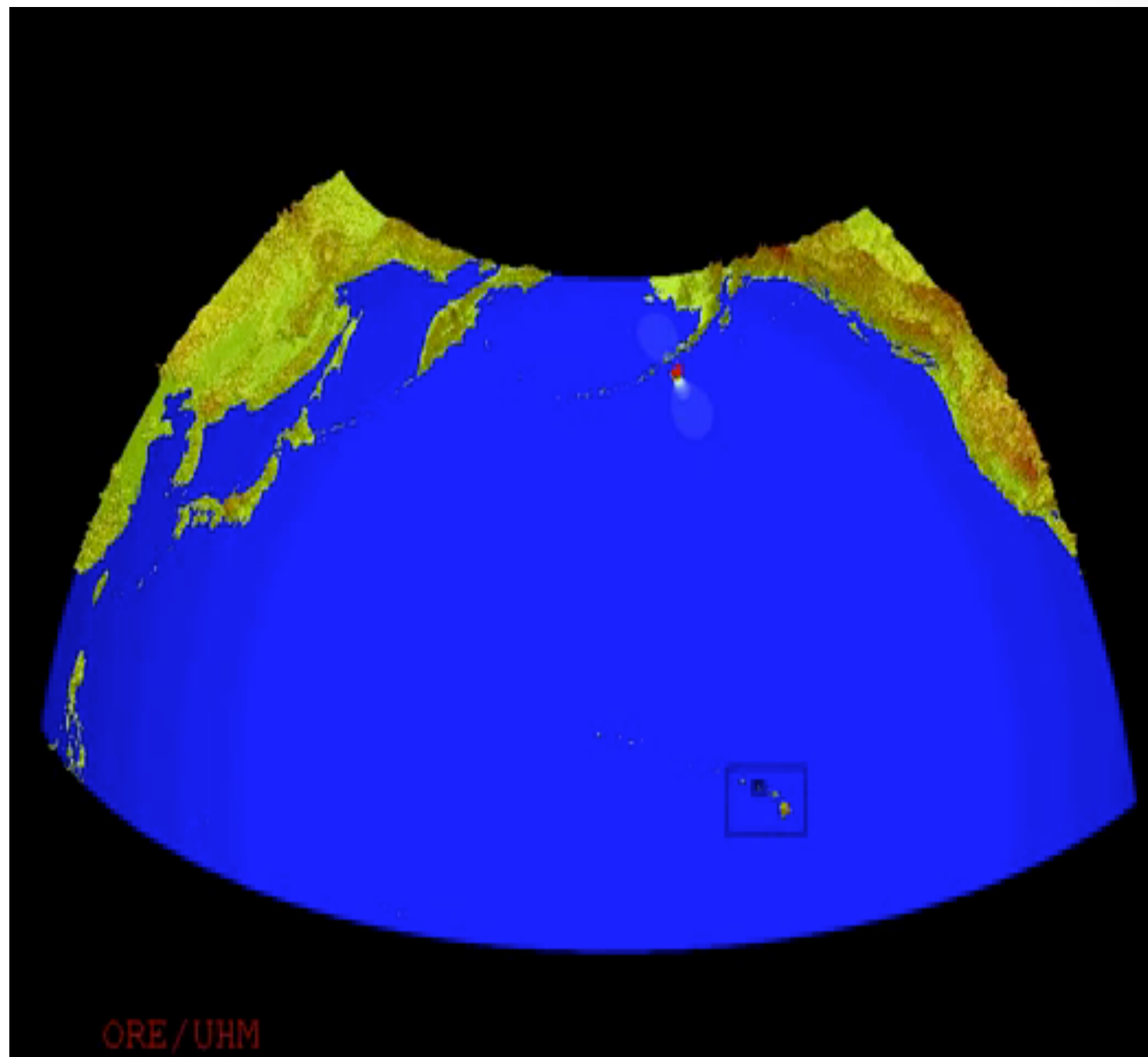
UHM and Tohoku U 2012



Kwok Fai Cheung

- Professor Ocean Engineering
- Developed a tsunami forecast methodology
 - incorporated into the real-time forecast system operated by NOAA to predict wave heights around the Pacific during a tsunami event
- Developed a tsunami inundation model
- Worked with UNESCO to distribute NEOWAVE and provide training workshops to universities and government agencies around the world





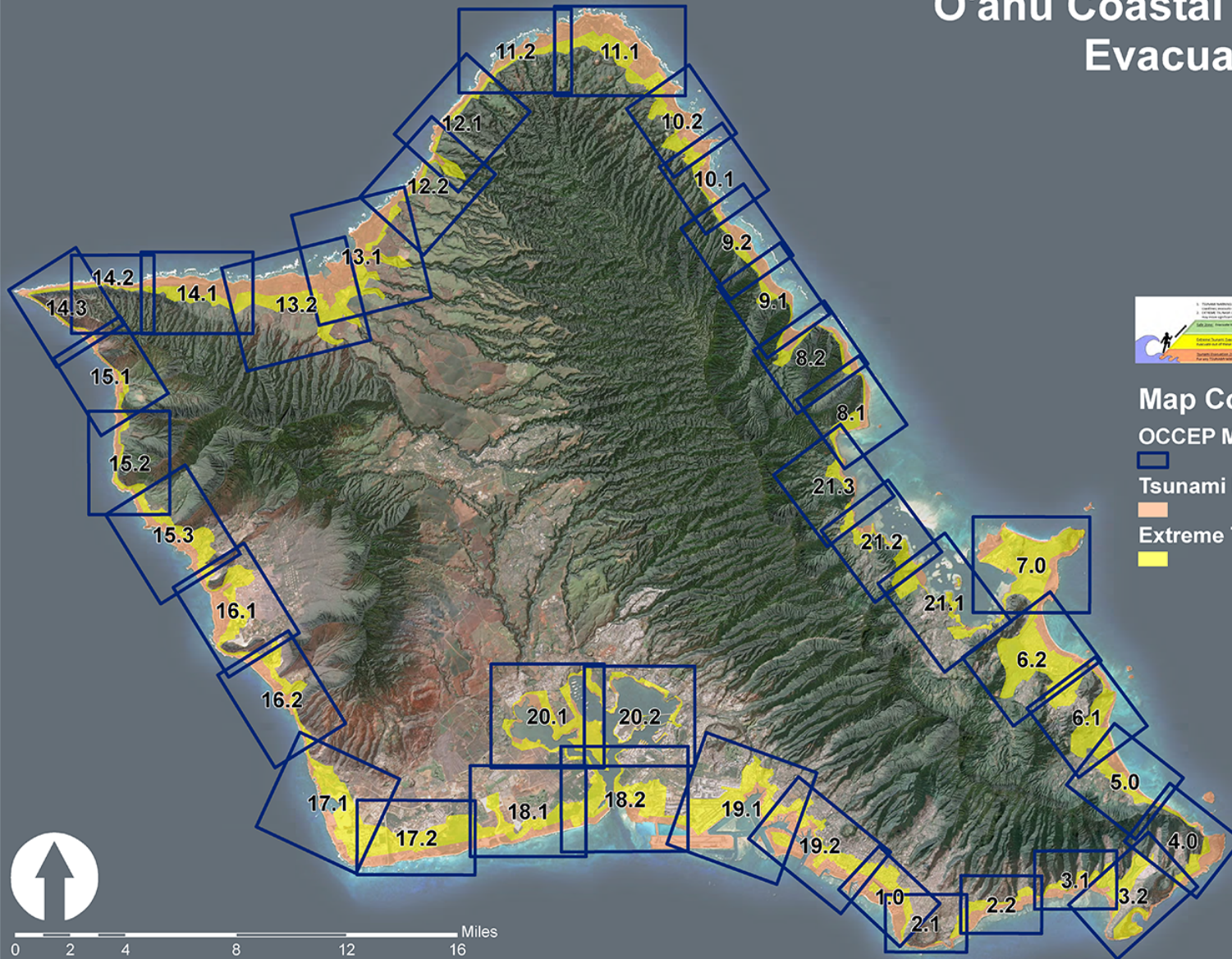
Rhett Butler

- Professor of Geophysics and Planetology
- Studied whether or not a similar sized tsunami could hit Hawai'i
- Discovered that two earthquakes from the east Aleutian islands could impact Hawai'i severely
- Recommended the Hawai'i Tsunami Mapping Project to update the evacuation zone based on these two earthquakes in 2013



O'ahu Coastal Communities Evacuation Planning

Map Index



Map Contents

OCCEP Map Index



Tsunami Evacuation Zone



Extreme Tsunami Evacuation Zone



Map Description

The magnitude 9.0 Tohoku, Japan earthquake on March 11, 2011, resulted in one of the largest tsunamis in recorded history. It has become increasingly recognized that past inundation modeling for Hawaii tsunamis evacuations did not consider all possible sources of tsunamis. This recognition has led to an analysis of the potential for other sources of large tsunamis that could affect Hawaii in excess of the historical record.

The project was a collaboration with the Tsunami Inundation Mapping Project at the University of Hawaii, Mānoa. The Extreme Tsunami Evacuation Zone (XTEZ) maps use the same computer model as the current evacuation zones. For more information, visit: <http://www.honolulu.gov/tem.html> and <http://seagrant.soest.hawaii.edu/tsunami-research-and-preparedness>.

Map by M.U. 14 Sea Grant
December 15, 2014



Seagrant Great Aleution Tsunami and New
Extreme Tsunami Zones



Study eyes risk of big tsunami in Hawaii from mega-earthquake in Aleutians.

Pacific Disaster Center

- All-in-one platform for Asia and the Pacific
- Delivers near real-time hazards information to public and improve decision making
- Data visualization and models to first-responders





Fostering Disaster Resilient Communities

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ACTIVE HAZARDS



Earthquake - 5.2 - 39km ENE of Port-Olry, Vanuatu
EARTHQUAKE **1** ADVISORY
Reported: 1 hrs 34 mins ago
Updated: 1 hrs 33 mins ago



Earthquake - 5.0 - 2km WNW of Mitsukaido, Japan
EARTHQUAKE **1** ADVISORY
Reported: 20 hrs 21 mins ago
Updated: 1 hrs 58 mins ago



Tropical Storm - Estelle
CYCLONE **1** WATCH
Reported: 2 days 10 hrs ago
Updated: 3 hrs 17 mins ago



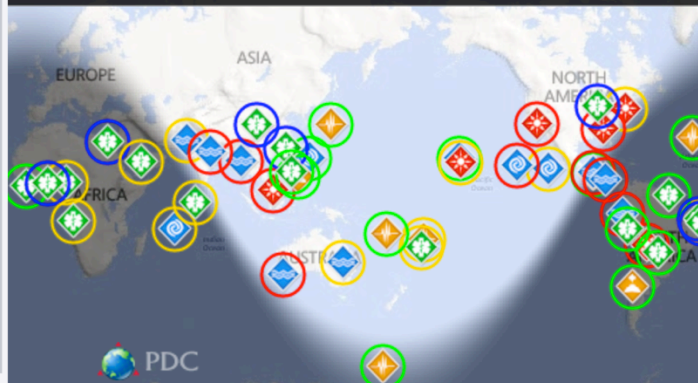
Hurricane - Darby
CYCLONE **1** WARNING
Reported: 6 days 3 hrs ago
Updated: 3 hrs 45 mins ago

Stay informed with our Disaster Alert app!

Android Market

Available on the App Store

Zika Virus: Click this banner for the latest information



Hazards | Layers | Legend

PDC Active Hazards

- ☒ All PDC Active Hazards
- ☐ Earthquakes
- ☐ Tsunamis
- ☐ Tropical Cyclones
- ☐ Floods
- ☐ Volcanoes
- ☐ High Surf

WEATHER WALL

JULY 15, 2016 - TROPICAL CYCLONE ACTIVITY
REPORT - PACIFIC / INDIAN OCEANS



Celebrating 20 yrs of fostering disaster resilient communities • EST. 1996

PDC News

[More](#)



Nepartak Impacts
Taiwan, Continuing...



Public-private
Partnership in the...



Philippines Begins
Development of...



PDC: A Global Partner
in Disaster...

Disaster Alert Overview





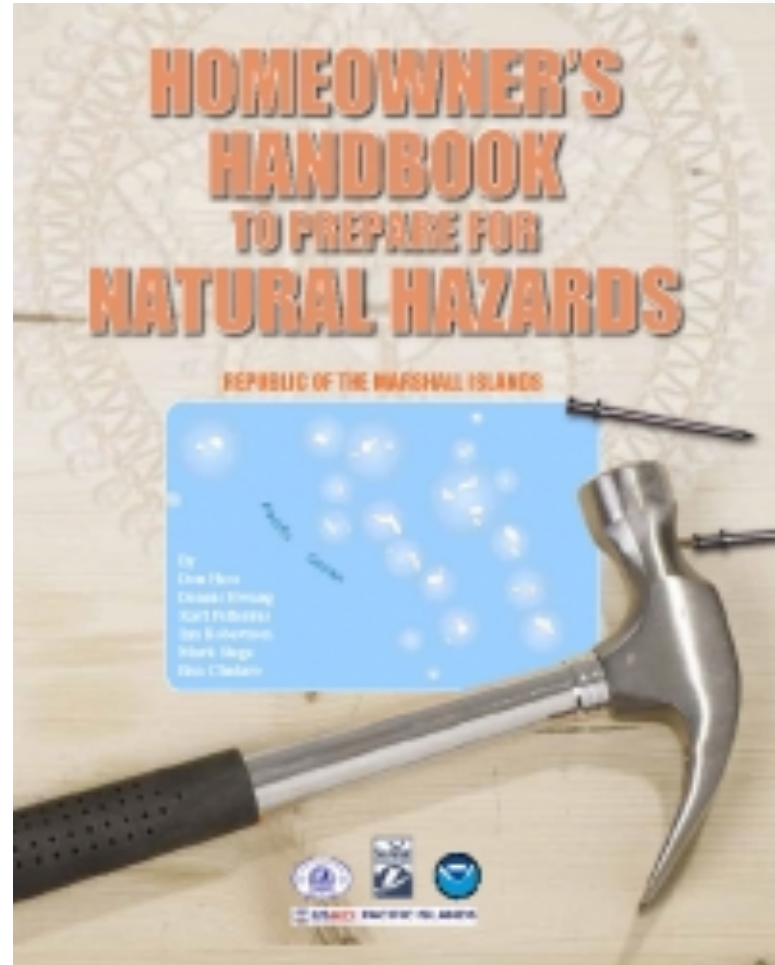
NATIONAL DISASTER PREPAREDNESS
TRAINING CENTER at the University of Hawai'i



UNIVERSITY of HAWAI'I
MĀNOA

Preparing for Disasters pg 6-8

- Gather your emergency supplies now
- Compile your evacuation kit
- Create an evacuation plan for both a tsunami and a hurricane
- Know your property and take action
- Know your house and take action
- Strengthen your house
- Insurance
- Take advantage of potential discounts for your hurricane insurance premiums
- Finance creatively
- Seek the assistance of a qualified, licensed architect, structural engineer, or contractor



Preparing for Disasters pg 23-24



Mahalo



konan@hawaii.edu