



**HAWAII TSUNAMI SURVEY PROGRAM
(HTSP):
POST-TSUNAMI PROTOCOL
TSUNAMI OBSERVERS
DATA ARCHIVAL
COORDINATED MANAGEMENT**

Laura Kong, Nic Arcos, ITIC
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US Protocols - history

- **Hawaii Tsunami Observer Program – Data Collection and Reconnaissance**
 - ✓ Late 1990s, current version 2002
 - ✓ Who (pre-identified), Where (re-survey past locs), How (techniques, training), Equipment cache
- **Post-2009 – Multi-stakeholder development of US protocol**
- **2013** – NTHMP incorporated US protocol into NTHMP Strategy
- **2014** – Natural Hazards Journal:
 - ✓ A protocol for coordinating post-tsunami field reconnaissance efforts in the United States
- **2015** – Hawaii Tsunami Survey Program (HTSP)
 - Proposal: Leverage existing plans, policies, and resources
 - ✓ US Protocol – Social, Cultural
 - ✓ Hawaii Tsunami Observation – data collection plan
 - ✓ Centralized coordination by ITIC for efficient management and conduct
 - ✓ Archiving of collected data



U.S. Post-Tsunami Science Survey Protocol Proposal

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WHY IS A PROTOCOL NEEDED?

Post-tsunami scientific field surveys are critical for improving the understanding of tsunamis and developing tools and programs to mitigate their effects. After a destructive tsunami, international, national, and local tsunami scientists need to gather information, much of which is perishable or degrades significantly with time. An influx of researchers can put stress on State and Local Governments already overwhelmed by humanitarian response to the disaster and by the demands of emergency management and other support agencies

A Protocol that is known about and respected by all stakeholders will ensure that a coordinated and comprehensive damage assessment is conducted in a responsible, respectful, and efficient manner to support emergency response, short-term recovery, long-term planning, and importantly, the fundamental tsunami research still needed to improve risk assessments and implement more effective mitigation measures. Our collective, collaborative efforts will then reach our customers, the affected population, in more meaningful and timely ways.

The US Protocol will follow from the principles and guidance provided by the international UNESCO IOC Post Tsunami Field Survey Guide (2nd edition) to be published in 2012.



Photo: Associated Press

WHAT IS PRiMO?



PRiMO, Pacific Risk Management O'hana, is a network of partners committed to enhancing the resilience of Pacific Islands through risk management. PRiMO recognizes the value of collective action and works through partnerships to improve coordination, build regional capacity in risk management, and strengthen and sustain hazard-resilient communities.

PROTOCOL FOR POST-TSUNAMI FIELD SURVEYS

- PROTOCOL COMPONENTS:**
1. Contact designated event coordinator for situational awareness
 2. Obtain Official survey badge
 3. Coordinate with others
 4. Include local experts/officials on your team
 5. Check-in onsite
 6. Heed all safety regulations
 7. Be prepared to answer questions by locals
 8. Prepare and provide survey/data collection plan to include regular field reports
 9. Check-out, and provide out-briefing to response officials
 10. Provide final data immediately to support response and recovery (3-12 months)

QUESTIONS FOR PARTICIPANTS

Would you readily share post-disaster, field data with impacted communities?

What would you want to see added/changed to field Protocol (provided above)?

Is an international/national organization needed to oversee field Protocol? Who would you suggest?

Would you like to be involved with developing formal field Protocol? If so, please provide contact info.



KEY PARTNERS

- PHYSICAL SCIENTISTS/ENGINEERS: need quick access to collect ephemeral data
- SOCIAL SCIENTISTS: interviews with public and officials essential to assessing lessons
- EFFECTED COMMUNITIES/POPULATION: relying on help to assure a quick recovery
- EMERGENCY RESPONDERS: need immediate info to assist in response /recovery



Photos: Rick Wilson (top left and bottom left), Vasily Pirov (top right), PMEL (bottom right)

PARTNER/COMMUNITY BENEFITS

- EFFICIENT LOGISTICS: a speedy, coordinated response
- BETTER QUALITY DATA: helping each other
- SAFETY: protecting the community and the responders
- RESPECT: understanding everyone's role and responsibility
- COORDINATION: maximizing resources
- COMMUNICATION: staying in touch with all of the partners
- SITUATIONAL AWARENESS: what, when, where?
- ACCOUNTABILITY: everyone is responsible for their actions
- RECOVERY: recognition of and assistance with specific needs of community
- RESILIENCY: preparing communities to reduce impact from future disasters

NTHMP POST-TSUNAMI INVOLVEMENT

The National Tsunami Hazard Mitigation Programs (NTHMP) is a partnership sponsored by the National Oceanic and Atmospheric Administration (NOAA) involving relevant Federal agencies and coastal States/Territories. The NTHMP develops and coordinates effective tsunami hazard reduction efforts in the United States over the long term.

The NTHMP will appoint a representative to carry out their post-event response plan, which could incorporate support for this Protocol. Activities of the NTHMP and its representative will include:

1. Provide support for the International Tsunami Information Center (ITIC) and the impacted states/territories to help facilitate coordinated and efficient response activities.
2. Provide support to impacted states to ensure their needs are met by the field response teams, specifically sharing data that are acquired. This field data may include collection of physical evidence of the tsunami, impacts to structures, information about response effectiveness, and sociological observations about public response. Other data collected, such as post-event modeling, will also be collected by the NTHMP representative and provided to the impacted state(s) and NTHMP member.
3. Work closely with the ITIC, PRiMO, FEMA, field response teams, and other participating organizations (National Science Foundation, Earthquake Engineering Research Institute, etc.) to address NTHMP needs, evaluate gaps in data collection exist, and help advise how to fill these gaps.



US Protocols

A protocol for coordinating post-tsunami field reconnaissance efforts in the United States (Wilson et al., Nat Haz, Feb 2015)



Protocol components to guide post-tsunami science surveys

Pre-field planning

- 1) Contact event coordinator
- 2) Prepare and share field plan
- 3) Obtain official survey badge
- 4) Include local experts on your team
- 5) Coordinate and communicate with others

Field procedures

- 6) Follow check in procedures
- 7) Heed all safety regulations
- 8) Be prepared to answer questions of response personnel, officials, and survivors

Exiting the field

- 9) Follow check-out procedures and provide out-briefings
- 10) Provide final data to the appropriate users in a timely fashion

Additional details on similar elements from an international and field-researcher perspective are noted in UNESCO (2014)

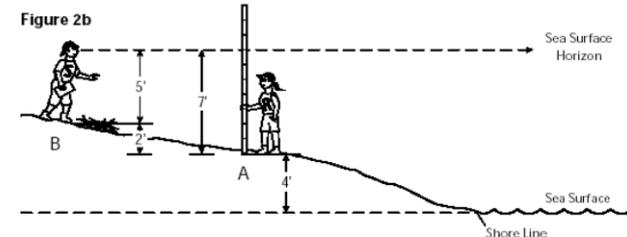
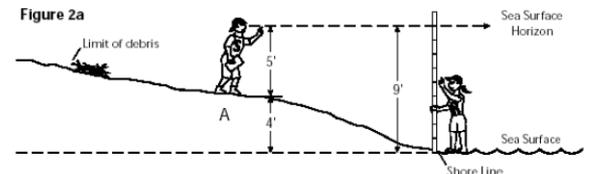
Hawaii Tsunami Observer Program

- This Program facilitates reliable and rapid measurements of runups and inundations by a volunteer corps of observers subsequent to the occurrence of a destructive tsunami.
- The purpose of such measurements is to:
 1. Better understand the destructive potential of tsunamis, hurricanes, and storm surges;
 2. Better define future evacuation zones for such hazards;
 3. Evaluate potential tsunami, hurricane, and storm surge hazards in heretofore undeveloped or underdeveloped areas of the State;
 4. Provide a data base for testing the results of theoretically computed measurements of runup and inundation.

BACKPACK GUIDE FOR TSUNAMI OBSERVERS

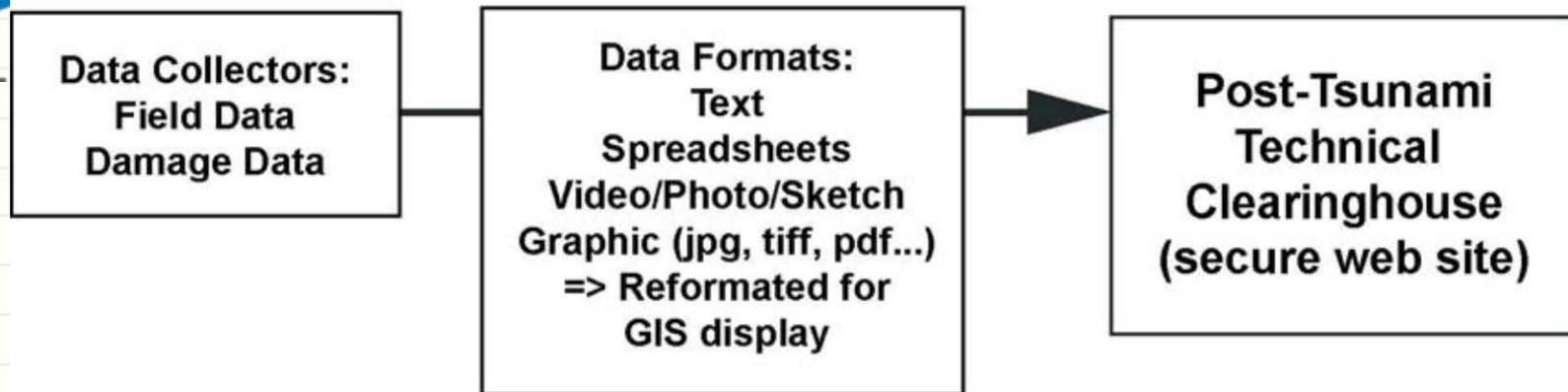
The following is a very brief outline of the procedures for response to Tsunami Warnings and making measurements of run-up and inundation following a tsunami. Please read the Field Manual for details.

1. Receive call to action from local or statewide TOP manager.
2. Call Phone Tree assignments.
3. Call team partner(s), arrange meeting place and equipment responsibilities.
4. Load TOP Backpack and measuring equipment. See Field Guide for List.
5. Have Maps, Cell phone, Camera, Civil Defense Card, Pencils and Blank data forms.
6. Proceed to designated shorelines.
7. Assemble survey rods, (2 or 3 sections) for Rod person (at shoreline), (1 section) 5' rod for Sighter.
8. See Figures Below (from the manual) for guidance on How to Measure and Record.
9. Take pictures of the maximum run-up evidence (debris pile, watermark, or other) and a landmark item (tree, telephone pole, large bush, big rock, building).
10. If not the same as "9" above, take pictures of maximum inundation evidence.
11. Complete data sheet before leaving area.



Run-up is 4 feet plus 2 feet for 6 feet total run-up.

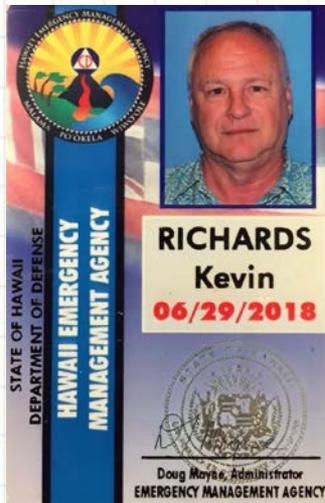
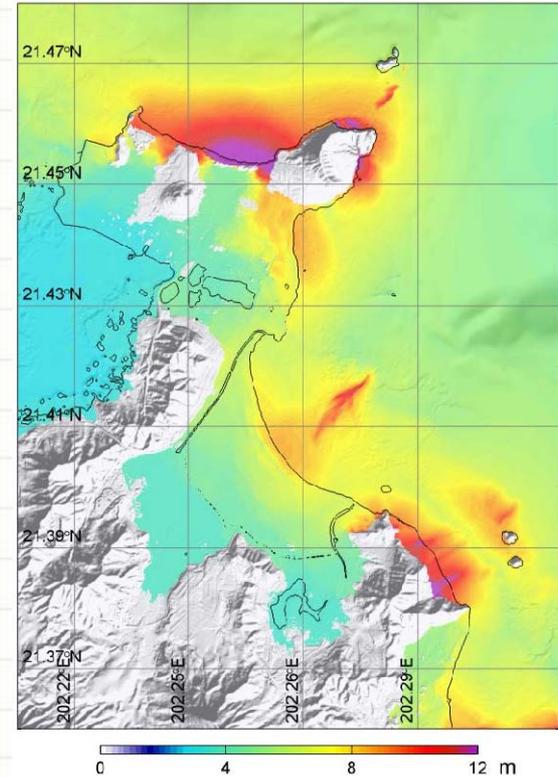
DATA ARCHIVAL

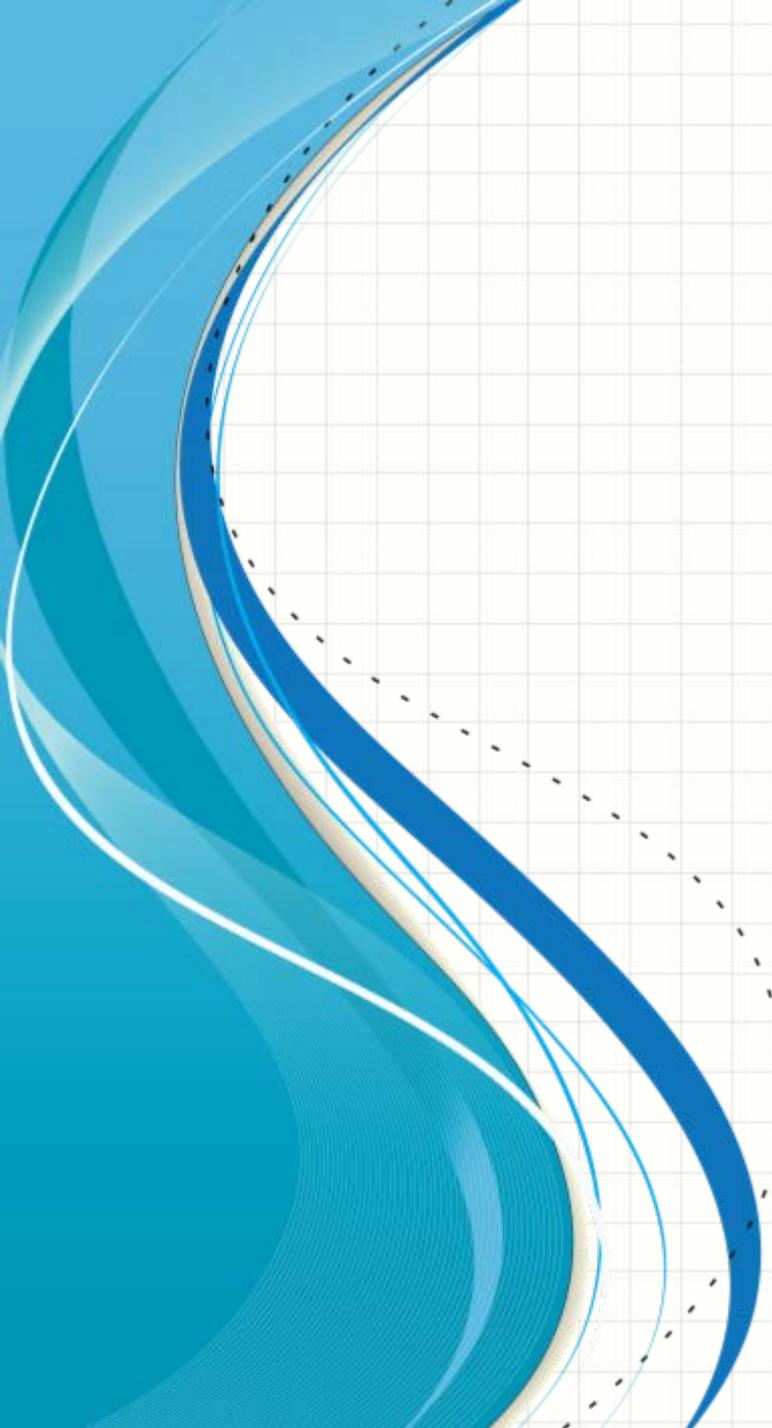


Long-term Data Archive
National Center for Environmental Information (NCEI)
(formerly NGDC, National Geophysical Data Center)

Coordinated Management

- EVENT COORDINATOR – ITIC
 - Pre-Field Planning
 - Local Experts / Guides
 - Field Procedures
 - Exiting the field
 - Data sharing and archiving





THANK YOU

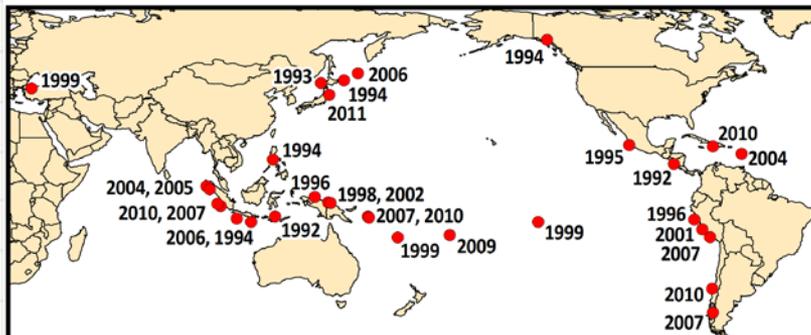
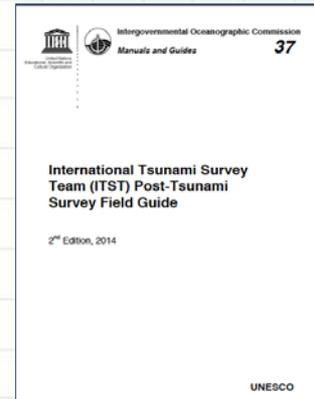
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International Post-Tsunami Survey Field Surveys

- UNESCO IOC Field Manual (rev 2014)

http://www.ioc-unesco.org/index.php?option=com_oe&task=viewDocumentRecord&docID=13275

- CHECK-IN – Situational Briefing
- BADGING
- FIELD SURVEY – Awareness raising
- CHECK-OUT – Share information



Coordinated Management

- TEST
 - test