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

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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.

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?

Is an international/national organization needed to oversee field Protocol?

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

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

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 NTMHP develops and coordinates effective tsunami hazard reduction efforts in the United States over the long term.

The NTMHP will appoint a representative to carry out their post-event response plan, which could incorporate support for this Protocol. Activities of the NTMHP and its representative will include:
1. Provide support to 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 NTMHP representative and provided to the impacted state(s) and NTMHP 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 NTMHP needs, evaluate gaps in data collection exist, and help advise how to fill these gaps.

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

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: prepared communities to reduce impact from future disasters

WHAT IS PRiMO?
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

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 runup 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.
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 99” above, take pictures of maximum inundation evidence.
11. Complete data sheet before leaving area.

Figure 2a

Sea Surface
Horizon

Limit of debris

9’

A

B

Figure 2b

Sea Surface
Horizon

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

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

• TEST
  – test