National Tsunami Hazard Mitigation Program
MES / MMS Subcommittee Joint Meeting, 21 July 2013
Seattle, WA

US Post-Tsunami Science Survey Protocol Status and Progress

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Paula Dunbar, NOAA National Geophysical Data Center
Edward Young, NOAA NWS Pacific Region
Chris Chiesa, Pacific Disaster Center

Post-Tsunami Field Surveys - History

- Since 2005, 91 measured tsunamis.
- 11 caused deaths, most 26 Dec 2004 Indian Ocean (230,000 lives).
- Pacific: 2007 (Solomons 54, Chile 3), 2009 (Samoa 149, Am Samoa 34, Tonga 9), 2010 (Chile 124), 2011 (Japan, 17150, US/Indonesia 1 each), 2013 (Solomons 10)
- After each tsunami, data collected to quantify impacts, response/ recovery, improve numerical models, engineering (International Tsunami Survey Teams, ITST)
- ITIC helps to coordinate ITSTs for UNESCO/IOC (UN)
- Last ITST – El Salvador, Sept 2012 (GIT, USC/eCoast, NOAA)

International Post-Tsunami Surveys

(evolving since IO 2004)

1. Invited by country to help coordinate (IOC, ITIC)
2. Teams provide plan to ITIC
3. ITIC works with Country coordinator
4. IOC / ITIC, Host Country provides ITST Letter
5. ITIC provides ITST Badges for team members
6. Check-in with Country
7. Sharing on secure server (or other means)
8. Check-out with Country
9. Encourage final data archive to NGDC

⇒ ***IOC Post-Tsunami Field Survey Guide (draft 2012)***
Guidance, update techniques and methods

Coordinated Post-Disaster Efforts

- **Disasters attract large number of local, national, international scientists to investigate scientific, economic, social impacts.**
  Better data => better models => better mitigation
- **At same time, Emergency Agencies must focus on saving lives, public safety, critical support lifelines and infrastructure, resource mobilization**
- **Needs data mgmt system integrated into emergency operations. More effective response**
- **For best Recovery decision-making, need all data available**

⇒ ***Science / Technical clearinghouse efficient framework for coordination, information sharing / data integration***

US PROTOCOL COMPONENTS

1. **Contact Designated** event coordinator for situational awareness, planning, local support, etc
2. **Obtain Official** survey badge - access
3. **Coordinate** with others - govt, NGO, research
4. **Include Local** Experts/officials on your team
5. **Check-in** onsite - who, where, needs, hot spots/issues
6. **Heed all safety** regulations, liability
7. **Be prepared** to answer questions by locals – help, why
8. **Prepare and share plan / observations** (survey/data collection) - regular field reports
9. **Check-out** – summary out-briefing to officials
10. **Provide final data** - timely sharing for response and recovery (3-12 months), and for archiving (NGDC)

PROTOCOL PROGRESS - PLANS

0. **post-Sept 2009 - Poorly-coord surveys, Incompl data share**

1. **US POST-TSUNAMI PROTOCOL** - Working Group formed, American Samoa, PRiMO mtg, Mar 2011
2. **SCIENTIST FEEDBACK** – positive, Fall AGU, Dec 2011
3. **AMER SAMOA GOVERNOR** – listened, welcomed, Jan 2012
4. **NTHMP COORDINATION COMM -** endorsed Feb 2012
5. **COASTAL / RISK MGMT FEEDBACK** – positive, PRiMO Mtg, Mar
6. **FEDERAL WG ON DISASTER IMPACT ASSESSMENT PLANS** – **incl tsunami annex, OFCM, WG/DIAP, Mar 2012 continuing**
7. **NSF RAPID RESPONSE WORKSHOP** - All-hazards scientist recommendations to NSF, Jun 2012
8. **NSF NEES PROGRAM MGRS, NIST** – funds research, Jun 2012
9. **FEMA HQ RESPONSE** - **NRF, pre-cleared missions, Jun 2012 cont**
10. **NTHMP MES / RISK WS** – MES, NTHMP Strategic Plan, Jan 2013
11. **PROTOCOL PLAN** - **draft August 2013; submit Nat Hazards**
12. **STATE PLANS** – **2013 continuing**

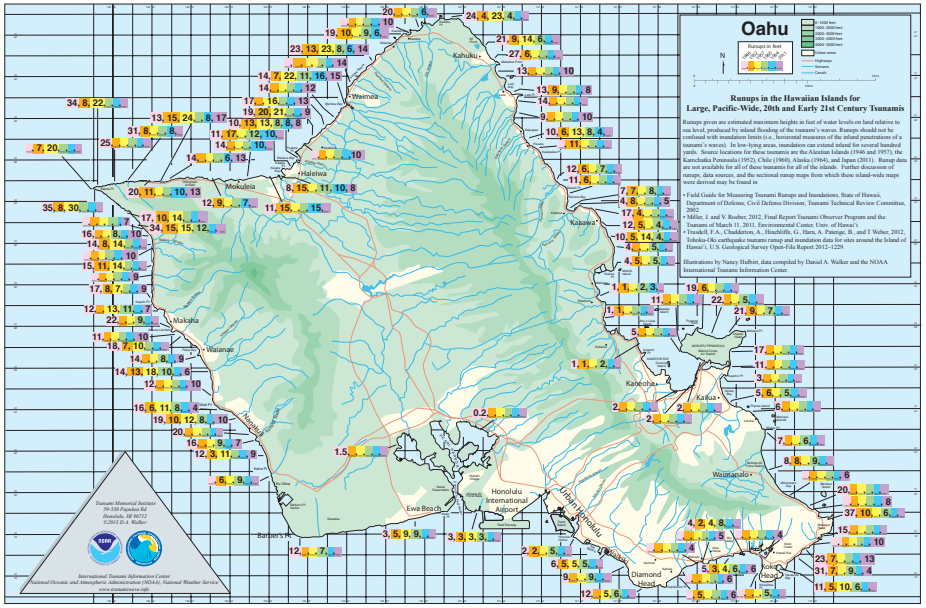
NTHMP Strategic Plan 2013-2017

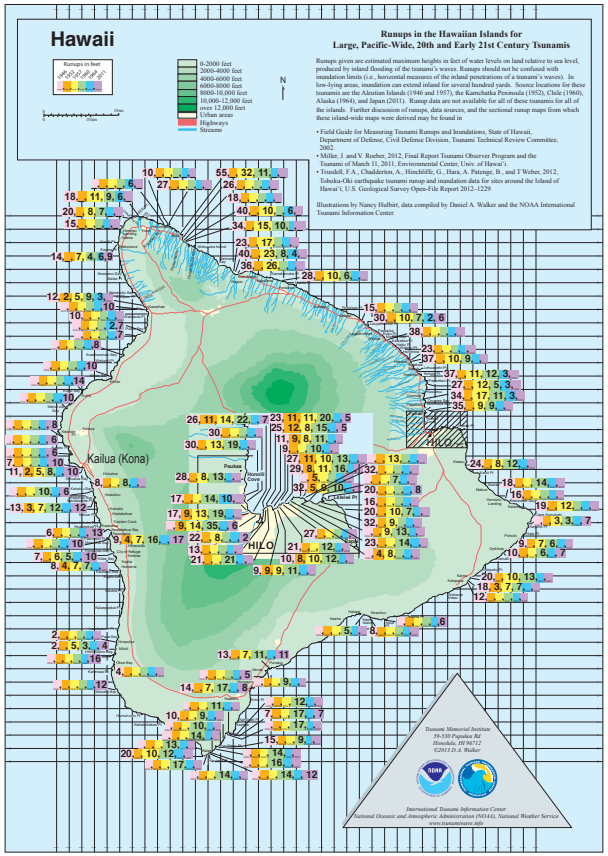
Performance Measures

Outcome	Strategy	Measure	Milestone	Execution
Successful execution of NTHMP tsunami mapping, modeling, mitigation, and education efforts.	Establish an accessible web-based repository for NTHMP-related products commensurate with current and expected budget limitations.	Percentage of NTHMP- related products available through web-based repository from 0% in 2013 to 90% by 2017.	Develop plan to implement repository by end of 2013.	NTHMP Chair
			Web-based repository operational by end of 2015.	
	Strengthen NTHMP subcommittees to execute this Strategic Plan	90% of action items from subcommittee meetings will be completed within one year of being assigned.	Conduct at least one in-person meeting per year for each subcommittee.	NTHMP Chair/All subcommittees
			Update NTHMP Rules of Procedure and subcommittee Terms of Reference by end of 2013 and bi-annually thereafter.	
	Conduct periodic external review of the NTHMP.		Conduct external review of program in 2017.	NTHMP Chair
	Support a research effort to develop U.S. tsunami risk assessment methodologies		Provide expertise to the FEMA HAZUS tsunami module development as requested.	NTHMP Chair/All subcommittees
	Support and implement post-tsunami event protocol for U.S. states and territories.		Develop plans for implementing post-tsunami protocols for field teams.	MES/MMS

State Plans and Progress

- California - Rick
- Hawaii Observer Program (since 1990s)
  - Trained, pre-cleared
  - Specific data collection pts



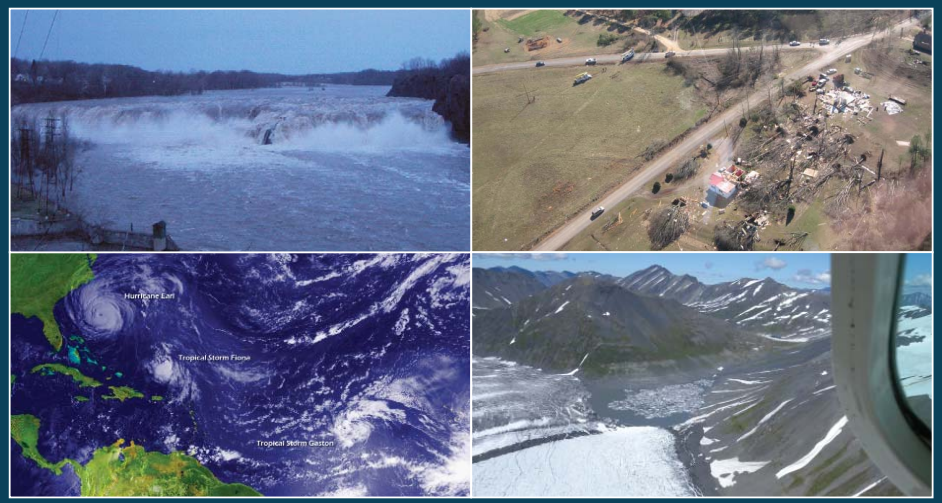


US Federal Agency Plan

Now: Adding Coastal Act Data Protocol Annex

Next: USGS/NOAA to work to insert Post-Tsunami Response Protocol Annex

National Plan for Disaster Impact Assessments: Weather and Water Data



Office of the Federal Coordinator for
Meteorological Services and Supporting Research

FCM-P33-2010

Washington, DC
November 2010

Working Group for Disaster Impact Assessments and Plans:
Weather and Water Data

Chairman	Executive Secretary
Mr. Robert Mason U.S. Geological Survey Water Resources Discipline	Mr. Anthony Ramirez Office of the Federal Coordinator for Meteorology

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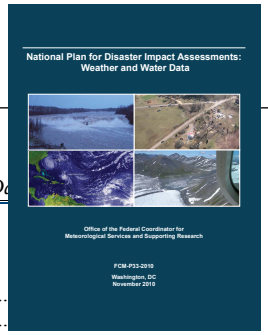


Tables

FEMA - RESPONSE - Joint Field Office Coordination

- **Pre-cleared Mission SOW (for post-tsunami data coll)**
- **Tsunami Technical Clearinghouse**

Scope of Work
Tsunami Recovery Data - Hazard Mitigation Technical Support
FEMA-###-DR-##
Coastal Tsunami Runup (High Water Mark)
and Inundation Data Collection

BACKGROUND
(Introduction to this section should describe magnitude of current
include wave heights, spatial and temporal extent of impact, and i
historical events for the area. Information and wording on the eve
found in the Incident Report in the SITREP.)

(For Example) On , Tsunami made landfall on the
between and . This tsunami caused significant inu
damages inland and along the coast in the State(s) of .

This scope of work has been completed to perform the Contract Task(s
Runup (High Water Mark) and Inundation Data Collection. (Other Tas
inserted here and the Purpose and Contract Task fields may be copied f
appropriate documents. The Task Name should also be inserted into th
above) in accordance with the Purpose and Contract Task sections belo

Scope of Work
Tsunami Recovery Data - Hazard Mitigation Technical Support
FEMA-###-DR-##
Coastal Analysis

BACKGROUND
(Introduction to this section should describe magnitude of current event which could include wave heights, spatial and temporal extent of impact, and if applicable other historical events for the area. Information and wording on the event can usually be found in the Incident Report in the SITREP.)

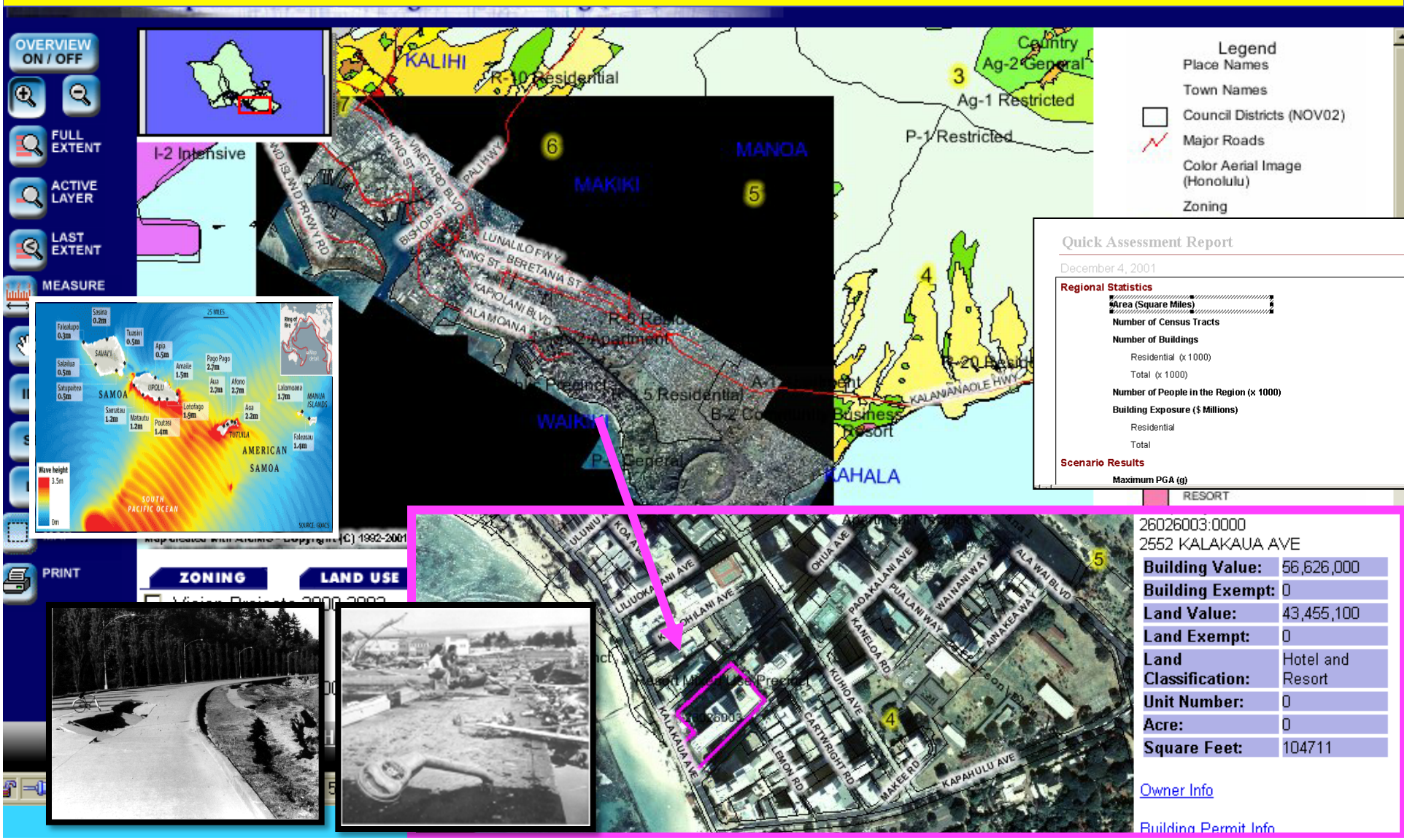
(For Example) On , Tsunami made landfall on the coast between and . This tsunami caused significant inundation and runup damages inland and along the coast in the State(s) of .

This scope of work has been completed to perform the Contract Task(s) Coastal analysis, (Other Tasks may be inserted here and the Purpose and Contract Task fields may be copied from the appropriate documents. The Task Name should also be inserted into the title block above) in accordance with the Purpose and Contract Task sections below.

Tsunami Technical Clearinghouse (GIS)

Pre-loaded data layers + Daily field reports

User-selectable, multi-layer data display



Title:
A protocol to guide post-tsunami science surveys in the United States

Authors

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Abstract

In the aftermath of a catastrophic tsunami, much is to be learned about tsunami generation and propagation, tsunami-related landscape changes, and the response and recovery of those affected. Knowledge of the area impacted by a tsunami directly helps response and relief personnel in their efforts to reach and care for survivors and for re-establishing community services. This information also helps researchers, practitioners, and policy makers in other parts of the world better understand how to manage their own societal risks posed by tsunami threats. First-hand accounts of tsunami-related impacts and consequence help inform and frame risk-analysis and risk-reduction efforts in areas that lack recent events. Conducting post-tsunami science surveys and disseminating useful results to decision makers in an effective and efficient manner is difficult given the logistical issues and competing demands in a post-disaster environment. To facilitate better coordination of field-data collection and dissemination of results, a protocol for post-tsunami science surveys was developed by a multi-disciplinary group of representatives from state and federal agencies in the United States. Although the protocol was designed from a U.S. perspective on risk, emergency, and disaster management, we believe this protocol could help inform post-disaster science surveys conducted elsewhere and further the discussion on how researchers can most effectively operate in disaster environments.

Keywords – tsunami, disaster, fieldwork, survey, protocols

Thank You

Please send Feedback to

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