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The "All-Hazards" Approach Must Be Continued
 by William L. Waugh, Jr., PhD
 From *The Journal of Emergency Management*, Winter 2004, v. 2, no. 1, p. 11-12. Used with permission.

The events of 9/11 created a watershed for the profession of emergency management. In the post-9/11 world, the preoccupation with the threat of terrorism has changed political and administrative priorities. Budget allocations for traditional emergency management programs have been subsumed in the larger allocations for homeland security, often with little assurance of the continuity of traditional programs.

The larger programs have subsumed emergency management functions as well. Although local emergency managers are pleading for "dual use" programs that will increase capacities for dealing with the more familiar natural and technological hazards and disasters and for funding of mitigation programs to reduce the growing dangers of natural disasters, the attention of national and state policymakers is elsewhere.

Even within the Homeland Security apparatus, minimal attention is being paid to matters beyond prevention of terrorism-related disasters, as Secretary Ridge himself has stated. Only recently have inquiries been made about mitigation possibilities and recovery issues stemming from a WMD-related event.

For local emergency management personnel, the question is whether capacities to deal with the more common natural and technological disasters have been reduced...or even lost altogether. As resources are diverted to counter-terrorism programs and new Homeland Security offices fill up with personnel who are unfamiliar with the language of emergency management as well as the programs created to deal with natural and technological hazards, some loss of capacity to deal with those disasters is to be expected.

The front pages are full of stories about inadequate funding for helping local first responders prepare for and respond to a WMD-related event. Part of the problem may be the poor beginning of the Homeland Security effort, which divided dealing with WMD events into two components: crisis management and consequence management. These were usually conceptualized as phases, with consequence management referring merely to dealing with post-event issues. First responders were mainly seen as those dealing with the effects of terrorism; their roles in reducing the impact of the events (mitigation) and thus speeding recovery were largely ignored. Furthermore, their preparedness was viewed as less important than the preparedness of law enforcement, military, and (perhaps) fire service personnel and organizations in preventive roles. Although the distinction in responsibilities for WMD events has been formally abandoned, the priority still seems to be on crisis management. The national emergency management system is built around generic "all-hazards" programs that are adaptable to a spectrum of potential disasters. The model of mitigation, preparedness, response, and recovery has its problems, but it provides both a unifying approach to dealing with hazards and disasters and a common terminology for emergency managers and public officials. That is why the State of California formally adopted the terminology to facilitate communication among its local, regional, and state agencies.

Still, the model is confusing to those who still see the four functions as sequential phases rather than overlapping functions. It is also confusing to those who do not understand that "all-hazards" does not mean a perfect plan for every conceivable type of disaster.

(continued on page 3)

TsuInfo Alert

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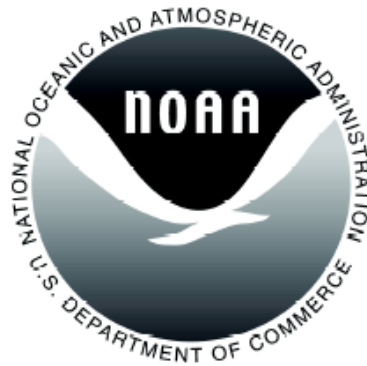
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WASHINGTON STATE DEPARTMENT OF
Natural Resources
Doug Sutherland - Commissioner of Public Lands



(continued from p. 1

All-hazards means adaptable plans that provide the basis for dealing with a variety of hazards and disasters, including terrorism. The plan is the starting point and having generic evacuation, shelter-in-place, debris management, and other programs ready to be adapted to circumstances is far more efficient and understandable than standalone programs for each type of disaster. Mitigation measures can be built into response and recovery and preparedness programs.

The all-hazard approach must be continued. The risks posed by earthquakes in California and by hurricanes along the Gulf Coast are potentially far greater than those posed by terrorists. The risks posed by influenza

and other diseases (witness the SARS epidemic) are far greater than those posed by terrorists with anthrax, sarin, or other biological and chemical agents. Does a cocktail of "weaponized" biological agents produced by a "rogue state" or purchased (or stolen) from an old Soviet weapons lab pose a threat greater than the flu? How many angels can fit on the head of a pin? In a perverse way, many emergency managers may be hoping for a catastrophe wrought by seismic or meteorological phenomena that will remind policymakers that there are forces more powerful than al-Qaeda and that the capabilities to deal with them need to be maintained.

Editor's Opinion:

Natural hazards exact a much larger toll on society and affect more people than do terrorists. 9/11 killed 3000 people. Just one mid-Eastern earthquake killed tens of thousands. (Automobiles kill 40,000 annually in the U.S. and that hasn't generated a huge new federal agency.) We know natural hazards will continue to occur and we know which ones to expect in the various regions of the world, so resources can be targeted wisely. For example, the West Coast of the U.S. prepares for earthquakes and not hurricanes.

Terrorist attacks cannot be foreseen nor truly effective mitigation planned. One doesn't know which of the hundreds of acts of terror will be used, by whom, or where. General disaster planning can help recovery, but it isn't economically feasible to deploy all terrorism mitigation methods in every location on the planet.

Hence 9/11 struck a deadly blow by diverting attention and funding away from natural hazards and their mitigation and preparedness planning. Funds will be spent to beef up airport security [not very successfully, according to the newspapers] but not to beef up building codes and construction practices. Nor will equal money be spent to study natural hazards with a view towards public education, prediction, and warning systems. It is politics not public safety that funds the statistically smaller threat of terrorism.

ALONG THE SAME LINES:

What, Me Worry?

The average North American may be buckling under the weight of heightened risk awareness, according to an article that appeared in a recent edition of the Toronto Star. Health risks like bird flu and mad cow disease, cancer and super bugs, the looming threat of terrorism, concern about the economy, fear surrounding the crime rates – it's all part of life in what columnist Olivia Ward describes as The Risk Society – and it's all taking a toll. In her article, entitled "The Risky Business of Life," (available here: www.thestar.com) Ward interviews the editor of *Risk and Morality*, a new book published by Ottawa's Carleton University about the impact of the growing culture of worry in the Western World.

"Crime and terrorism are the most high-profile threats that make the news on a daily basis," writes Ward, "But the number and variety of risks encountered today are much larger, often baffling and frustrating a public confronted with streams of conflicting information transmitted across the world."

The article examines the potentially numbing impact of the seemingly endless stream of health, safety and security warnings that the average North American confronts

on a daily basis. The piece may be of special interest to those in emergency planning roles, especially individuals whose job involves communicating cautionary messages to wide audiences.

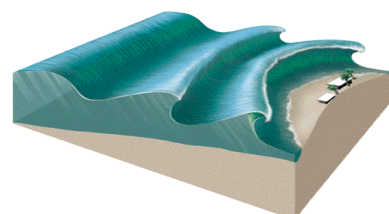
Is it true that we have nothing to fear but fear itself? Perhaps FDR was onto something, the author seems to be suggesting.

From: <http://disaster-resource.com/newsletter/subpages/v26/newsclip6v26.htm>

April 1, 2004 download

Original message from: CONTINUITY e-GUIDE, March 31, 2004. A Wednesday Update by DISASTER

RESOURCE GUIDE e-guide@disaster-resource.com



MCEER Co-sponsors Workshop on the Application of Remote Sensing Technologies for Disaster Response

Reprinted with permission from *MCEER Bulletin*, Vol. 18, No. 1, p. 9

On September 12, 2003, 15 leading experts in the field of remote sensing technologies met to discuss its use in and application for improved disaster response. Specific topics included the following:

- Using airborne or satellite technologies for disaster mitigation and response
- Detecting damage to bridges and/or transportation systems
- Detecting damage to buildings or large urban areas
- Creating building and infrastructure inventories
- Use in recent earthquakes, including the 2003 Algerian earthquake
- Potential use for earthquake reconnaissance investigations

The format was a mix of presentations by the participants and discussion sessions focused on a particular aspect of remote sensing technologies, such as post-earthquake reconnaissance, and identifying important research needs.

As a result of the workshop, the participants agreed to form an Ad Hoc Committee to outline how remote sensing technologies can help in post-earthquake reconnaissance field activities, damage detection for large regions, and quantifying or characterizing exposure or vulnerability of large mega cities or areas (international focus). This committee could be under the auspices of EERI and its information technology committee.

A second workshop is planned for a year from now, to continue the efforts and activities begun this year to develop, improve, adapt and implement remote sensing technologies for post-disaster response.

Hosted by the University of California, Irvine (UCI), and held at the Beckman Center of the National Academies, the workshop was sponsored by EERI, MCEER, UCI and the U.S. DOT, Research and Special Programs Administration (RSPA). Ron Eguchi, ImageCat, Inc. and M. Shinozuka, UCI, organized the workshop.

From a Reader . . . (of Disaster Research):

I am working on a project about the Information and Communication Perspectives of Disaster Management. I am basically interested

in investigation to improve the disaster management process by effectively utilizing existing information and communication.

It has been proven that effective disaster management is possible only with the availability of information that is both current and relevant. But the information update is generally hindered by loss of normal communication infrastructure during disasters. As alternatives to this, satellite phone and amateur radio are extensively utilized. While use of satellite phones is limited to point-to-point communication between specific groups, radio can be a potential alternative.

Almost invariably, Ham radio operators are engaged after any disaster, but how much this communication is FORMALLY considered by decision makers is a big question. I would like to know if somebody is working in the direction of considering Amateur Radio as an important (some times SOLE) candidate source of information for disaster management systems.

There are obvious merits of amateur radio as an alternative communication technology, but I would like to discuss its merits as an information source. If you are aware of any research relating to this, kindly provide me details/links etc.

Many thanks in advance.

Vikram Sorathia

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From: Disaster Research 409, July 16, 2004

TSUNAMI HAZARD MITIGATION NEWS

DMA2K Deadline Looms

As a precondition of postdisaster assistance, states and local governments must have FEMA-approved hazard mitigation plans in place by November 1, 2004. For disasters declared on or after this date, state mitigation plans will be required in order to receive non-emergency Stafford Act assistance, and local mitigation plans will be required in order to receive Hazard Mitigation Grant Program project grants. The requirements for both state and local mitigation plans are detailed in an Interim Final Rule dated February 26, 2002 (see the *Natural Hazards Observer*, May 2002, p. 7), which implemented the mitigation planning section of the Disaster Management Act of 2000 (DMA2K).

Useful resources for the planning process include FEMA's mitigation planning "How-To" guides, which were designed to enhance hazard mitigation planning capabilities at the state and local levels.

*Getting Started: Building Support for Mitigation Planning (*FEMA 386-1*)

*Understanding Your Risks: Identifying Hazards and Estimating Losses (*FEMA 386-2*)

*Developing the Mitigation Plan: Identifying Mitigation Actions and Implementation Strategies (*FEMA 386-3*)

*Bringing the Plan to Life: Implementing the Hazard Mitigation Plan (*FEMA 386-4*)

*Integrating Manmade Hazards into Mitigation Planning (*FEMA 386-7*)

These free guides are available on-line at <http://www.fema.gov/fima/planhowto.shtm>. Printed copies are available through the FEMA Publication Distribution Center at (800) 480-2520. FEMA's *Multi-Hazard Mitigation Planning Guidance*, updated in March 2004, is available at http://www.fema.gov/fima/planning_toc4.shtm.

A draft of Alaska's new state mitigation plan; Nome, Alaska's FEMA-approved local mitigation plan; and a host of other resources have been made available by Alaska's Division of Emergency Services on their web site at <http://www.ak-prepared.com/plans/mitigation/mitigationplan.htm> to assist other governments in their planning efforts. A *Draft Disaster Mitigation Plan for the City of Berkeley* is also available on-line at <http://www.ci.berkeley.ca.us/Manager/disastermitigation.html>.

The Interim Final Rule is available in the February 26, 2002 *Federal Register* (Vol. 67, No. 38, pp. 8843-8854), which can be found in any federal repository library or on-line at <http://www.access.gpo.gov/>. The complete text of DMA2K (Public Law 106-390) is available in any federal repository library and on the Library of Congress web site at <http://thomas.loc.gov/>.
From: *Natural Hazards Observer*, v. 28, no. 6, p. 7

DHS Defines First Responder Interoperability Requirements

In recognition of the need to improve communications between public safety organizations, the DHS Science and Technology Directorate has released a Statement of Requirements (SoR) for public safety wireless communications and interoperability. The main purpose of the SoR is to provide guidelines for effective communication and sharing of information (e.g., voice, data, image, video, multimedia) among

public safety agencies, other organizations and agencies that they work with, and the public. It also encourages a greater consideration of public safety needs in discussions pertaining to communications re-search and development as well as laws and regulations.

The SoR is a product of the SAFECOM Program, a public safety practitioner-driven program established by the Office of Management and Budget to improve public safety response across disciplines and jurisdictions through more effective and efficient interoperable wireless communications. It was developed in conjunction with the National Public Safety Telecommunications Council, the National Institute of Standards and Technology, and the U.S. Department of Justice's Advanced Generation of Interoperability for Law Enforcement Program.

The SoR, *Public Safety Communications and Interoperability Statement of Requirements* (v1.0) (2004, 173 pp., free), and more information about SAFECOM is available at <http://www.safecomprogram.gov/>.
From: *Natural Hazards Observer*, v. 28, no. 6, p. 8-9.

Emergency Management Assessment Milestone Achieved

FEMA recently completed its 25th state-level assessment as part of the National Emergency Management Baseline Capability Assessment Program (NEMB-CAP). NEMB-CAP is part of a national effort to establish a baseline measurement of the nation's emergency management capabilities and to target assistance to those areas that need it most. The program consists of a review and evaluation of 56 state and state-level emergency management systems and programs based on assessment criteria developed by the Emergency Management Accreditation Program (EMAP). EMAP is a voluntary accreditation process for emergency management programs, designed to provide a framework for accountability and continuous improvement (see the *Observer*, May 2003, p. 12). Partners in EMAP include FEMA, the National Emergency Management Association, the International Association of Emergency Managers, the National Governors Association, the National League of Cities, and the Council of State Governments. For more information, visit <http://www.fema.gov/preparedness/baseline.shtm> or <http://www.emaponline.org>.
From: *Natural Hazards Observer*, v. 28, no. 6, p. 9

Gov. Gary Locke Announces Approval of State's Enhanced Hazard Mitigation Plan

WASHINGTON --Gov. Gary Locke announced the approval of the state's enhanced hazard mitigation plan at a news conference in Olympia.

Washington is the first state in the nation to have its plan approved by the Federal Emergency Management Agency (FEMA).

"I am proud that our enhanced plan is the first in the nation approved by the Federal Emergency Management Agency," Locke said. "This will help communities throughout the state plan for and respond to disasters. By doing so, we can help spare individuals and families from the heartbreak of losing their homes, as well as injury and even death."

Joining Locke was John Pennington, regional director of FEMA, Gen. Timothy Lowenberg, director of the state's Military Department, and Mark Kahley, Resource Protection Division manager for the state Department of Natural Resources.

"The Disaster Mitigation Act of 2000 requires state and tribal governments to plan for potential hazards, with the specific intent of defining actions that will save lives and protect property," Pennington said. "The state of Washington was able to complete this task before the November 1, 2004, deadline and at an enhanced level."

The state's enhanced hazard mitigation plan will result in four main benefits to the state. They include:

- *Increased Hazard Mitigation Grant Program funds following a disaster. States with enhanced hazard mitigation plans can receive funds of up to 20 percent of federal Stafford Act expenditures on a disaster. States with a standard plan are only eligible for 7.5 percent funding.

- *Continued eligibility for permanent repair and restoration work for disaster-caused damage to public facilities such as schools, municipal water systems and fire stations.

- *Continued eligibility for fire management assistance grants to help the Department of Natural Resources and local agencies. These grants pay for the costs of fighting wildfires that threaten lives, property, critical facilities, and watersheds, and are beyond the response capabilities of state and local governments.

- *Continued eligibility for Flood Mitigation Assistance and Pre-Disaster Mitigation programs. Since 1988, the Flood Mitigation Assistance Program has provided nearly \$1.5 mil-

lion in federal and match funds to help the state and local communities reduce flood damage.

"Having an enhanced plan demonstrates the state's commitment to a comprehensive hazard mitigation program beyond what can be accomplished through the federal mitigation programs," Locke said. Our plan will help communities throughout the state plan for and respond to disasters, whenever they may occur."

From: http://access.wa.gov/news/2004/Jul/n200467_5038.aspx

DHS Uses NOAA All-Hazards Network for Alerts and Warnings

The DHS Information Analysis and Infrastructure Protection Directorate and NOAA have signed an agreement allowing DHS to send critical all-hazards alerts and warnings directly through the NOAA All-Hazards Network. The network supplements existing alert and warning resources and serves as an additional delivery mechanism for disseminating emergency information nationally, regionally, or locally, protecting citizens from both natural and human-caused disasters.

The NOAA system, which is capable of reaching over 97 percent of the U.S. and its territories, will continue to broadcast weather forecasts and warnings, including news about severe storms, hurricanes, tornadoes, earthquakes, volcanic activity, chemical spills, bio-hazardous releases, and, in some states, Amber Alerts. Radios and televisions equipped with Specific Area Message Encoding allow listeners to preselect the categories of alerts they wish to receive in the listening area(s) of their choice. Special populations, such as the disabled or the elderly, can connect NOAA all-hazards radios via plug-ins to attention-getting devices, such as strobe lights, pagers, bed shakers, personal computers, and text printers.

For more information about NOAA's All-Hazards Network and NOAA Weather Radio: <http://www.nws.noaa.gov/nwr/allhazard.htm>. From: Natural Hazards Observer, v. 28, no. 6, p. 10

Lifeline Performance Assessment Guidelines - Comments Wanted!

The American Lifelines Alliance (ALA) has released three new guidelines for utility system owners and operators that will help them determine the appropriate level of effort to obtain information necessary to formulate defensible risk management decisions during and after hazard events. The guidelines cover electric power systems, oil and gas pipeline systems, and

wastewater systems. Both natural hazards (e.g., earthquakes, flood, hurricane, tornado, wind-storm, icing, and ground displacements caused by landslides, frost heave and settlement) and human-induced hazards (biological, chemical, radiological, blast, and cyber incidents) are addressed. Each guideline consists of two volumes: one provides concise guidance and the second presents explanations of the procedures presented, supporting material, and references.

The draft guidelines are posted on the ALA web site at <http://www.americanlifelinesalliance.org> (click on "new guidelines"). Review comments are being solicited through August 15, 2004, after which the guidelines will be the basis for developing national consensus guidelines within appropriate standards development organizations (SDOs). Comments should be e-mailed to Joe Stellar; (202) 298-7800 x130; e-mail: jsteller@nibs.org.

From: Disaster Research 409, July 16, 2004

James Mullen Named as New Washington Emergency Management Division Director

CAMP MURRAY – James Mullen, director of emergency management for the city of Seattle, has been selected as the new director of the Washington Emergency Management Division (WEMD), Maj. Gen. Timothy J. Lowenberg, director of the Washington Military Department, announced today.

Mullen succeeds Glen L. Woodbury, who left WEMD June 30 to accept a faculty position with the Naval Post Graduate School program in homeland security at Monterey, Calif. Woodbury had served as state emergency division director since 1998.

Lowenberg said Mullen was selected through a nationwide job recruitment that had attracted candidates from out of state as well as from local, state and federal agencies.

Mullen has a sophisticated understanding of current and emergency management issues and "a far-reaching vision of how statewide emergency management and homeland security systems should operate," Lowenberg said.

"Jim's success in integrating the private sector business community into the city's emergency management operations is a model of what we have been aspiring to do throughout the state," said Lowenberg. "He also shares our commitment to providing greater professional assistance training support to local emergency managers and their staffs."

"I am looking forward to joining an excellent organization at State EMD," said Mullen.

"Together we will maintain the strong programs that currently exist, and collaborate on initiatives that bind the State's private and public resources.

"Local and county emergency managers are largely unrecognized resources. While their work receives some notice during a disaster, it is their day-to-day efforts to prepare their communities to deal with any and all hazards that make the people of their jurisdictions, and the state, safer," he added.

Mullen, who holds a master's degree in education from Western Washington University, has been Seattle's emergency management director for the past 12 years.

Mullen will assume the WEMD director's position in late July following the National Governor's Association conference in Seattle. From: Rob Harper, EMD, July 1, 2004 253-512-7005

Coastal University Certified to Weather Tsunami

The University of California, Santa Barbara recently received both the TsunamiReady and StormReady certifications from the National Weather Service. Although the University is about 40 feet above sea level, the UCSB emergency managers will post signs showing the best evacuation route. Warning systems also include voicemail, e-mail and campus radio.

"Annual disaster drills are carried out at the university, but this fall the scenario will be a big shake followed by a big wake. Tsunamis, often erroneously labeled tidal waves, are usually triggered by earthquakes that cause vertical movement in the sea floor."

From: http://www.mercurynews.com/mld/mercurynews/news/breaking_news/8993113.htm?1c

Tierney Testifies Before Congress on Impact of Social Science Research on Disaster Preparedness

Kathleen Tierney, MCEER Executive Committee member and long time researcher, was one of three leading sociologists to testify before Congress at a hearing entitled The Human Dimension of Disasters: How Social Science Research Can Improve Preparedness, Response, and Recovery, on October 27, 2003. Moderated by William Anderson of the National Research Council (The National Academies), the panelists discussed how social science research can help governments and private-sector organizations improve preparedness for, response to, and recovery from human and natural disasters. Tierney's testimony focused on the individual

and collective preparation needed in order to prevent disasters or to mitigate the adverse impact of possible disasters.

The briefing was sponsored by the American Sociological Association, and co-sponsored by the Institute for Crisis, Disaster and Risk Management at George Washington University and the Senate Natural Hazards Caucus Work Group. More information about the hearings, including Dr. Tierney's Power Point presentation, can be found at <http://www.asanet.org/public/disaster-cb.html>.

From: MCEER Bulletin, v. 18, no. 1, Spring 2004, p. 17.

On-line Disaster Risk Reduction Dialog

The International Strategy for Disaster Reduction (ISDR) through its Secretariat invites participation in an on-line dialog that is happening from June 15-July 15, 2004. The intent of this virtual discussion is to determine priority areas for further action to implement disaster risk reduction 2005-2015.

The discussion will provide a wide forum for inputs to the conclusions of a review of current implementation of disaster risk reduction and to identify future priority action areas, including support mechanisms. The organizers are looking for participation from government representatives, experts, and interested stakeholders on reducing vulnerability to natural hazards. The results of this dialog will provide input to the discussions and outcomes of the World Conference on Disaster Reduction in January 2005.

Details, weekly topic information, and information on how to register are available at <http://www.unisdr.org/WCDR-dialogue/>.
From: Disaster Research 408, June 29, 2004

PUBLICATIONS

Caribbean Tsunamis: A 500-Year History from 1498-1998

Karen Fay O'Loughlin and James F. Lander. *Advances in Natural and Technological Hazards Research* 20. ISBN 1-4020-1717-0. 2003. 280 pp. \$99.00. Available from Kluwer Academic Publishers, 101 Philip Drive, Norwell, MA 02061; (781) 871-6600; e-mail: kluwer@wkap.com; <http://www.wkap.nl/>.

While not the chief natural hazard in the Caribbean region, tsunamis have the potential to produce catastrophic regional disasters. This potential is demonstrated by the extensive devastation caused by a significant number of

events documented in this examination of 500 years of Caribbean tsunamis. This book supports the scientific research community in its efforts to establish tsunami warning and mitigation systems and to educate governments and affected populations in this seismically active region by providing information about tsunamis and the risks they pose.

From: *Natural Hazards Observer*, v. 28, no. 6, p. 21

Preventing a Disaster within the Disaster: The Effective Use and Management of Unaffiliated Volunteers

2004. 20 pp. Available free on-line from the Points of Light Foundation, 1400 I Street, NW, Suite 800, Washington, DC 20005; (202) 729-8161; e-mail:

disastervolunteering@pointsoflight.org;
<http://www.pointsoflight.org/programs/disaster/>.

When spontaneous, unaffiliated volunteers arrive at a disaster site eager to lend a hand they present the challenge of reconciling their needs as volunteers with the needs of the responders trying to do their jobs. This report addresses this challenge and the opportunities it presents and recommends ways to effectively utilize volunteers in disaster situations.

From: *Natural Hazards Observer*, v. 28, no. 6, p. 20

Disaster Risk Reduction: Mitigation and Preparedness in Development and Emergency Programming

John Twigg. *Good Practice Review* 9. ISBN 0-85003-694-1. 2004. 365 pp. Available free on-line from the Humanitarian Practice Network, Overseas Development Institute, 111 Westminster Bridge Road, London, SE17JD, UK; +44 (0)20 7922 0331/74; e-mail: hpn@odi.org.uk;
<http://www.odihpn.org/publistResults.asp>.

The purpose of this practical, evidence-based publication is to help project planners and managers in developing and middle-income countries build up community resilience to hazards by emphasizing the role that risk reduction plays in project planning and implementation. It is intended for anyone working on long-term development or emergency management programs pertaining to vulnerable populations and those affiliated with local governments and community organizations.

From: *Natural Hazards Observer*, v. 28, no. 6, p. 20

Usable Science 8: Early Warning Systems: Do's and Don'ts. Workshop Summar.

Michael H. Glantz. 2004. 76 pp. Available free on-line from the National Center for

Atmospheric Research, 3450 Mitchell Lane, Boulder, CO 80301; (303) 497-8119; e-mail: glantz@ucar.edu; <http://www.esig.ucar.edu/warning/report.pdf>.

The objective of the Usable Science Workshop on early warning systems was to identify lessons learned by those who have experience working with or developing early warning systems. Its ultimate goal was to identify ways to make early warnings more useful, usable, credible, and reliable. It is hoped that the lessons and experiences reported in this workshop summary will be used by governmental and nongovernmental decision makers in their efforts to warn and educate the media and the general public. From: *Natural Hazards Observer*, v. 28, no. 6, p. 20

Understanding the Economic and Financial Impacts of Natural Disasters

Charlotte Benson and Edward J. Clay. Disaster Risk Management Series No. 5. ISBN 0-8213-5685-2. 2004. 119 pp. \$20.00. Available free on-line from the International Bank for Reconstruction and Development/The World Bank, 1818 H Street, NW, Washington, DC 20433; (202) 458-4500; e-mail: infoshop@worldbank.org; <http://www-wds.worldbank.org/>.

Vulnerability to natural hazards is determined by a complex and dynamic set of influences that includes economic structure, stage of development, and prevailing economic and policy conditions. This publication examines the short- and long-term effects of natural disasters to increase understanding of their economic and financial impact, the vulnerability of hazards-prone economies, ways to improve risk management, and why mitigation strategies are not more widely adopted.

From: *Natural Hazards Observer*, v. 28, no. 6, p. 20

Grant Application Handbook: A Guide to the Application Process for Competitive and Non-Competitive Grants

2004. 111 pp. Available free on-line from the Nuclear Energy Institute, 1776 I Street, NW, Suite 400, Washington, DC 20006; (202) 739-8000; e-mail: webmasterp@nei.org; http://www.nei.org/documents/Emergency_Planing_Grant_Handbook.pdf.

This guidebook provides an overview of the grant application process as it pertains to hazards and disasters. It provides resources and information for local jurisdictions seeking funding to improve or facilitate their emergency response capabilities. The book's appendices contain

valuable information and links to other grant-related programs, agencies, and organizations. From: *Natural Hazards Observer*, v. 28, no. 6, p. 20

Connection

Since January 2002, there has been a nearly 100% increase in the number of states where Community Emergency Response Team (CERT) training is available. The number of citizens trained in basic disaster response skills, such as fire safety, urban search and rescue, and medical operations continues to grow.

The "*Connection*" newsletter, comprised of articles written by the people from around the country who are involved in community preparedness on a daily basis, is seeking contributions. Suggested stories include (but are not limited to) emergency responses that CERT teams were involved in, schools and preparedness training, innovative CERT ideas, and how CERTs are maintaining skills and motivation. From: 9th Annual Disaster Resource Guide 2004-2005, p. 118.

Talking About Disaster: Guide for Standard Messages

Recently updated and released, "Talking About Disaster: Guide for Standard Messages" provides up-to-date information on disaster preparedness and safety in the U.S. It includes standardized safety messages on 19 natural, technological, and human-induced hazards, as well as standardized messages on general disaster preparedness and safety topics. Each message is followed by explanations, statistics, and reasons that reinforce the credibility of the message and that correct fiction, folklore, and misinformation. The purpose of the guide is to improve the consistency of information disseminated by agencies and organizations following disasters.

The guide was designed for emergency managers, homeland security professionals, meteorologists, teachers, disaster and fire educators, public affairs/public relations personnel, managers and officers, media personnel, and/or any other person in the severe-weather, earthquake, disaster, terrorism preparedness education, or communications communities. The information is also intended for the general public, and may be tailored as needed. All content is in the public domain.

Published by the National Disaster Education Coalition (NDEC), the guide was supported by the Home Safety Council and the Homeland Plans Corporation. It represents the

collaboration of professionals affiliated with the organizations composing NDEC and represents the experience and commitment of 20 U.S. government agencies and national nonprofit organizations. "Talking About Disaster: Guide for Standard Messages" is available at <http://www.disastereducation.org/guide.html>. For more information about the Guide or the NDEC, email: ndec@disastereducation.org. From: Disaster Research 409, July 16, 2004

Urban Disaster Recovery: A Framework and Simulation Model

by S. B. Miles and S. E. Chang, 7/25/03, MCEER-03-0005, 120 pages, \$25.00

This report introduces a conceptual framework of disaster recovery, guided by insights from the empirical literature. The resulting model focuses on simulating recovery processes, rather than on estimating dollar losses. It emphasizes the dynamic or temporal processes of recovery; simulates impacts at the individual agent level of analysis; relates recovery across business, household, and lifeline infrastructure sectors; relates recovery across individual, neighborhood, and community scales of analysis; highlights the key role of lifeline systems in recovery; and is designed to explore the complex consequences of mitigation, planning, and policy decisions. The model was applied to both a hypothetical community and to an area affected by a real earthquake in Kobe, Japan, and it was able to replicate broad trends from the disaster. From: MCEER Bulletin, v. 18, no. 1, Spring 2004, p. 17.

Handling Personal Finance in a Disaster

The last thing most people are thinking about when getting themselves and their families out of a disaster area after a flood, fire, tornado or even a terror attack is their personal financial situation. However, many might wish they had given it some more thought afterwards, when trying to get their lives back on track. An article on *Forbes.com* by Sue Stevens, entitled: "Handling Personal Finance in a Disaster," provides a series of tips on how to make sure you are financially prepared for a disaster. And with the threat of wildfires in the southwest, flooding in the northeast and the usual spate of tornados in the south this summer, the story is worth looking at. Stevens says financial disaster preparations can be as simple as keeping bank account information, insurance policies, medical records and estate or property documents together in a single file that can be easily

grabbed when evacuating. Stevens describes why some of these overlooked documents are vital following a disaster. "Get organized," writes Stevens. "You might need to gather your most important papers quickly. Do you know where they are?"

To read the full version of the story, visit: www.forbes.com/finance/feeds/mstar/2004/07/15/mstar1_11_16583_132.html. From: Continuity e-GUIDE, July 21, 2004 (A Wednesday Update by Disaster Resource Guide)

GAO Reports

U.S. General Accounting Office (GAO) reports provide background information and insight into key issues and concerns of the U.S. Congress. The office frequently publishes studies regarding hazards and disaster policy. Some recent GAO reports and testimonies that might interest *Natural Hazard Observer* readers [and *TsuInfo Alert* readers] are listed below.

Summaries and full text are available on the web at <http://www.gao.gov>. Printed copies are also available. Single copies are free. Multiple copies are \$2.00 each. To order, contact the U.S. General Accounting Office, 441 G Street, NW, Room LM, Washington, DC 20548; (202) 512-6000; TDD: (202) 512-2537.

*Status of FEMA's FY03 Pre-Disaster Mitigation Program. GAO-04-727R. 2004. 23 pp.

*Emergency Preparedness: Federal Funds for First Responders. GAO-04-788T. 2004. 9 pp.

*Project SAFECOM: Key Cross-Agency Emergency Communications Effort Requires Stronger Collaboration. GAO-04-494. 2004. 22 pp.

*Human Capital: Opportunities to Improve Federal Continuity Planning Guidance. GAO-04-384. 2004. 53 pp.

*Continuity of Operations: Improved Planning Needed to Ensure Delivery of Essential Services. GAO-04-638T. 2004. 17 pp.

*Critical Infrastructure Protection: Establishing Effective Information Sharing with Infrastructure Sectors. GAO-04-699T. 2004. 39 pp.

From: *Natural Hazards Observer*, v. 28, no. 6, p. 2

WEBSITES

<http://www.hazardmaps.gov/>

HazardMaps.gov: The Multi-Hazard Mapping Initiative (MMI)

This is "a dynamic mapping site. It is a central repository for collecting, synthesizing,

visualizing, and analyzing natural hazards data," primarily for the United States. Provides maps about natural hazards such as floods, landslides, and hurricanes, and information about geologic features. Also includes earthquake information for the world. Searchable by address or latitude and longitude. Includes a FAQ and a user's guide. From the Federal Emergency Management Agency (FEMA).

From: LII: Librarians' Index to the Internet, *NEW THIS WEEK for July 6, 2004*

To read *LII New This Week* on the Web, go to: <http://lii.org/ntw/>

<http://www.csc.noaa.gov/rvat/>

A risk and vulnerability assessment helps to identify people, property, and resources that are at risk of injury, damage, or loss from hazardous incidents or natural hazards. This information helps prioritize the precautionary measures that can make a community more disaster resistant. Tools and methods for this work are available at this site.

From: *Natural Hazards Observer*, v. 28, no. 6, p. 16

<http://www.comcare.org/>

Communications for Coordinated Communications and Response in Emergencies is a public/private partnership of a variety of groups working to encourage the development and deployment of technologies to enhance emergency response capabilities and facilitate cooperation across professional, jurisdictional, and geographic lines.

From: *Natural Hazards Observer*, v. 28, no. 6, p. 16

<http://www.house.gov/rohrbacher/homesecevent.htm>

Representative Rohrabacher (CA-46) sponsors an ongoing variety of disaster mitigation and hazard-related events and training opportunities. A complete schedule is listed on the Congressman's website.

From: *Disaster Research* 409, July 16, 2004

<http://www.fema.gov/nims>

DHS/FEMA has created a centralized Internet portal related to the National Incident Management System (NIMS) to serve as a resource for emergency managers and first responders. The site also includes information about the NIMS Integration Center (NIC), and in the future will expand to reflect a focus on key NIMS areas and functions such as standards and resources, system compliance and evaluation, and research and publications.

The new site (<http://www.fema.gov/nims>) offers emergency managers a complete listing of NIMS requirements, tools and resources, and general information on DHS's new incident management and maintenance plans. The site will include information about the assessment process, compliance criteria, NIMS-related training, and implementation timelines. As NIMS implementation moves forward, relevant information will be posted on the page, which also can be accessed by a direct link from FEMA's home page, <http://www.fema.gov>. NIMS users can also ask specific questions or share information by sending an e-mail to nims-integration-center@dhs.gov.

From: *Disaster Research* 409, July 16, 2004

<http://www.mothernature-hawaii.com/>

Are you at risk from Hawaii's natural hazards? This web site is sponsored by the statewide hazard mitigation forum.

From: *Disaster Research* 408, June 29, 2004

www.ak-prepared.com/plans/mitigation/mitigationplan.htm

Alaska's state hazard mitigation plan is available at this site.

From: *Disaster Research* 408, June 29, 2004

<http://www.dol.gov/odep/pubs/ep/index.htm>

The U.S. Department of Labor Office of Disability Employment Policy (ODEP) has released a report from a 2003 conference on emergency preparedness titled "Emergency Preparedness for People with Disabilities: An Interagency Seminar of Exchange for Federal Managers."

From: *Disaster Research* 408, June 29, 2004

CONFERENCES

September 22-24, 2004

Conference on Emergency Preparedness for People with Disabilities. Sponsors: National Capital Region, U.S. Department of Homeland Security, National Organization on Disability. Arlington, Virginia.

This conference will facilitate an exchange of information and dialog between emergency response agencies and special needs populations regarding emergency preparedness for people with disabilities. By providing an opportunity for exchange of experiences and effective practices, regional leaders will enhance emergency preparedness programs with respect to people with disabilities and empower special needs popu-

lations to take active roles in preparedness, response, and recovery initiatives. For more information contact Sarah Campbell, Conference on Emergency Preparedness for People With Disabilities, c/o Natalie P. Shear Associates, Suite 801, 1730 M Street NW, Washington DC, 20036; (202) 833-4456; e-mail: Sarah@nataliepshear.com; <http://www.nataliepshear.com/events/nod/index.cfm>. From: Disaster Research 409, July 16, 2004

October 4-5, 2004

Pacific Homeland Security and Natural Disaster Conference. Sponsors: Bay Area Economic Forum and Association of Bay Area Governments (ABAG). Oakland, California. Conference topics and exhibits will address bioterrorism and the health care system, shipping and transportation security, infrastructure vulnerability, corporate programs and business recovery, the role of local governments and special districts, the tools of technology, legislation, funding and insurance, natural hazard mitigation, effective disaster response, and preparation and coordination of the players. Information is available from ABAG, P.O. Box 2050, Oakland, CA 94604; (510) 464-7900; <http://www.pacificsecurityexpo.com/>. From: Natural Hazards Observer, v. 28, no. 6, p. 13-14.

October 4-6, 2004

Woodframe Housing Durability and Disaster Issues. Sponsor: Forest Products Society. Las Vegas, Nevada. This conference will provide the latest information on problems and solutions related to woodframe housing disaster and durability issues including the effects and mitigation of environmental stress, the influence of construction and design practices on mitigation, assessment and durability issues, and biological degradation. Complete information can be obtained from the Forest Products Society, 2801 Marshall Court, Madison, WI 53705; (608) 231-1361 ext. 208; e-mail: conferences@forestprod.org; <http://www.forestprod.org>. From: Disaster Research 408, June 29, 2004

October 25-27, 2004

17th Annual Emergency Preparedness Conference. Sponsors: Insurance Bureau of Canada, Public Safety and Emergency Preparedness Canada, University of British Columbia, City of Vancouver, and others. Vancouver, British Columbia.

The theme of this conference is an "Action Plan for the Future." Sessions will cover

disaster resilient communities, climate change, the use of maps in emergency management, how insurance fits into the recovery process, and more.

Information is available from the Emergency Preparedness Conference, 900 Heatley Avenue, Vancouver, BC, V6A 3S7 Canada; (604) 665-6097; e-mail: info@epconference.ca; <http://www.epconference.ca/>. From: Natural Hazards Observer, v. 28, no. 6, p. 14

November 4-5, 2004

2004 Annual IBHS Congress. Sponsor: Institute of Business and Home Safety (IBHS). Orlando, Florida. IBHS' annual congress on property loss reduction brings together insurance professionals, emergency managers, government officials, and academics to discuss the latest developments in natural hazard mitigation.

Information is available from IBHS, 4775 East Fowler Avenue, Tampa, FL 33617; (813) 286-3400; e-mail: info@ibhs.org; <http://www.ibhs.org/congress/>. From: Natural Hazards Observer, v. 28, no. 6, p. 14

November 5-11, 2004

IAEM 52nd Annual Conference. Sponsor: International Association of Emergency Managers (IAEM). Dallas, Texas. With a focus on collaboration, the conference will provide a forum for current trends, topics, and the latest tools and technology in emergency management and homeland security, as well as advance IAEM committee work. Sessions encourage stakeholders at all levels of government, the private sector, public health, and related professions to exchange ideas on collaborating to protect lives and property from disaster. Registration information is available from IAEM, 201 Park Washington Court, Falls Church, VA 22046; (703) 538-1795 ex. 2; e-mail: info@iaem.com; <http://www.iaem.com>.

From: Disaster Research 409, July 16, 2004

December 2-4, 2004

Hazards 2004: The Tenth International Symposium on Natural and Human-induced Hazards and Third Workshop of the IUGG Commission on Geophysical Risk and Sustainability. Sponsor: National Geophysical Research Institute. Hyderabad, India. Topics covered will encompass the entire spectrum of natural and human-induced hazards, their causes, risks, and management. All aspects of these phenomena from disaster prevention, mitigation, and management through public education and preparedness will be covered. To register or for

more information, contact Hazards 2004, National Geophysical Research Institute, Hyderabad - 500007 India; Tel: 0091-40-23434700; e-mail: sec-loc@hazards2004.org; <http://www.hazards2004.org/>.
From: Disaster Research 409, July 16, 2004

Jan. 18-22, 2005

World Conference on Disaster Reduction. Kobe, Hyogo, Japan. For more information, go to <http://www.unisdr.org/eng/wcdr/wcdr-index.htm>

May 24-26, 2005

The Tsunami Society (P.O. Box 1130, Honolulu, HI 96807) conducts a Tsunami Symposium every three years at the East-West Center on the University of Hawaii campus.

CLASSES

Homeland Security Assists Emergency Responders with Unveiling of New Internet Course on America's New National Incident Management System

WASHINGTON, D.C. - The Department of Homeland Security's Federal Emergency Management Agency (FEMA) announced today a new online course that will help first responders understand the concepts and principles underlying the new National Incident Management System (NIMS) and to begin incorporating NIMS into their own planning and policies. To streamline coordination at the federal, state and local levels, President Bush directed the creation of NIMS, a newly developed, standardized incident management approach to emergency incidents.

"NIMS establishes standard incident management processes, protocols and procedures so that all responders - including those at the federal, state, tribal and local level - can coordinate their responses, share a common focus and place full emphasis on resolving the event," said Homeland Security Secretary Tom Ridge. "This new course introduces NIMS in a way that is easy and accessible to the nation's emergency responders." The course can be found at: <http://pizzazzemail.com/t?ctl=7850AD:22EED3E>
From: Continuity e-Guide #41, July 14, 2004

Meteorological Tsunamis

"One of the most unusual phenomena to explain is the occurrence of freak waves arriving at a coastline on fine days. These waves are probably solitary waves that have a peak rising above mean water level, but no associated trough. Solitary waves may only have a height of several centimetres in deep water, but when they enter shallow water, their height of several centimetres can increase dramatically. For example, very fast boats such as catamaran ferries can produce a wake that behaves as a solitary wave. In shallow water, the wakes have reached heights of 5 m, overturning fishing boats and swamping beaches under placid seas.

Meteorological phenomena can generate long period waves in the tsunami window. These waves have been referred to as meteorological tsunami. They take on various local names: *rissaga* in the Balearic Islands in the Eastern Mediterranean, *abiki* or *yota* in bays in Japan, *marubbio* along the coast of Sicily, *stigazzi* in the Gulf of Fiume, and *Seebär* in the Baltic Sea. They also occur in the Adriatic Sea, the South Kuril Island, Korea, China, the Great Lakes of North America, and numerous other lakes that can come under the influence of atmospheric activity. Meteorological tsunami can be significant recurrent phenomena. For example, the south end of Lake Michigan near Chicago has experienced many atmospheric events, with one of the largest generating a 3-m wave in 1954. In Nagasaki Bay, Japan, eighteen *abiki* events have occurred between 1961 and 1979. The event of 31 March 1979 produced 35-minute oscillations having amplitudes of 2.8-4.8 m. In Longkou Harbour China, thirteen seiches have occurred between 1957 and 1980 having a maximum amplitude of 2.9 m. Finally, in the Mediterranean Sea, meteorological tsunami with heights up to 3 m have been recorded at numerous locations.

Meteorological tsunami are distinct from storm surges, although in some cases both consist of a single wave. For example, a meteorological tsunami was probably the cause of the single wave that swept Daytona Beach, Florida, late at night on 3 July 1992. The wave swamped hundreds of parked cars and injured seventy-five people. However, isolated occurrences and single waves are rare because meteorological tsunami tend to recur at specific locations and travel in wave trains. The periodicities of meteorological tsunami appear constant at many location - a fact indicating that resonance controls the phenomenon due to the geometry and topography of a specific section of coastline."

From: Bryant, Edward, 2001, Tsunami--The Underrated Hazard: Cambridge University Press, p. 46-47

THE DEBATE CONTINUES

The Tsunami Society
Mega Tsunami Hazards
January 15, 2003

The mission of the Tsunami Society includes "the dissemination of knowledge about tsunamis to scientists, officials, and the public". We have established a committee of private, university, and government scientists to accomplish part of this goal by correcting misleading or invalid information released to public about this hazard. We can supply both valid, correct and important information and advice to the public, and the names of reputable scientists active in the field of tsunami, who can provide such information.

Most recently, the Discovery Channel has replayed a program alleging potential destruction of coastal areas of the Atlantic by tsunami waves which might be generated in the near future by a volcanic collapse in the Canary Islands. Other reports have involved a smaller but similar catastrophe from Kilauea volcano on the island of Hawai'i. They like to call these occurrences "mega tsunamis". We would like to halt the scaremongering from these unfounded reports. We wish to provide the media with factual information so that the public can be properly informed about actual hazards of tsunamis and their mitigation.

Here are a set of facts, agreed on by committee members, about the claims in these reports:

- While the active volcano of Cumbre Vieja on Las Palma is expected to erupt again, it will not send a large part of the island into the ocean, though small landslides may occur. The Discovery program does not bring out in the interviews that such volcanic collapses are extremely rare events, separated in geologic time by thousands or even millions of years.

- No such event - a mega tsunami - has occurred in either the Atlantic or Pacific oceans in recorded history. NONE.

- The colossal collapses of Krakatau or Santorin (the two most similar known happenings) generated catastrophic waves in the immediate area but hazardous waves did not propagate to distant shores. Carefully performed numerical and experimental model experiments on such events and of the postulated Las Palma event verify that the relatively short waves from these small, though intense, occurrences do not travel as do tsunami waves from a major earthquake.

- The U.S. volcano observatory, situated on Kilauea, near the current eruption, states that there is no likelihood of that part of the island breaking off into the ocean.

- These considerations have been published in journals and discussed at conferences sponsored by the Tsunami Society.

(continued on the next page)

BGHRC Press Release

Predicting the Biggest Waves the World Has Seen
June 25, 2004

A tsunami wave higher than any in recorded history threatens to ravage the US coastline in the aftermath of a volcanic eruption in the Canary Islands, UK and US scientists will report today. Locations on both African and European Atlantic coastlines - including Britain - are also thought to be at risk.

The new research, a collaboration between Dr. Simon Day of the Benfield Greig Hazard Research Centre at UCL and Dr. Steven Ward of the University of California, reveals the extent and size of the mega-tsunami, the consequence of a giant landslide that may be triggered by a future eruption of the Cumbre Vieja volcano.

Previous research by Simon Day and colleagues predicted that a future eruption would be likely to cause a landslide on the western flank of Cumbre Vieja. A block of rock approximately twice the volume of the Isle of Man would break off, travelling into the sea at a speed of up to 350 kilometres per hour. The disintegration of the rock, this earlier study predicted, would produce a debris avalanche deposit extending 60 kilometres from the island. The energy released by the collapse would be equal to the electricity consumption of the entire United States in half a year.

The new model - which provides further insights into the consequences of the collapse - predicts that the landslide would create an exceptionally large tsunami with the capability to travel great distances and reaching speeds of up to 800 kilometres per hour. Immediately after Cumbre Vieja's collapse a dome of water 900 metres high and tens of kilometres wide will form only to collapse and rebound. As the landslide continues to move underwater a series of wave crests and troughs are produced which soon develop into a tsunami 'wave train' which fuels the waves progress. After only 10 minutes, the model predicts, the tsunami will have moved a distance of almost 250 kilometres.

The greatest effects are predicted to occur north, west and south of the Canaries. On the West Saharan shore waves are expected to reach heights of 100 metres from crest to trough and on the north coast of Brazil waves over 40 metres high are anticipated. Florida and the Caribbean, the final destinations in the North Atlantic to be affected by the tsunami, will have to brace themselves for receiving 50 metre high waves - higher than Nelson's column in London, some 8 to 9 hours after the landslide. Towards Europe waves heights will be smaller, but substantial tsunami waves will hit the Atlantic coasts of Britain, Spain Portugal and France.

(continued on the next page)

Mega tsunami hazards (continued)

Some papers on this subject include:

"Evaluation of the threat of Mega Tsunami Generation From ... Volcanoes on La Palma ... and Hawaii", George Pararas-Carayannis, in Science of Tsunami Hazards, Vol 20, No.5, pages 251-277, 2002.

"Modeling the La Palma Landslide Tsunami", Charles L. Mader, in Science of Tsunami Hazards, Vol. 19, No. 3, pages 160-180, 2001.

"Volcano Growth and the Evolution of the Island of Hawaii", J.G. Moore and D.A. Clague, in the Geologic Society of America Bulletin, 104, 1992.

Committee members for this report include:

Mr. George Curtis, Hilo, HI (Committee Chairman) 808-963-6670

Dr. Tad Murty, Ottawa, Canada, 613-731-8900

Dr. Laura Kong, Honolulu, HI, 808-532-6422

Dr. George Pararas-Carayannis, Honolulu, HI, 808-943-1150

Dr. Charles L. Mader, Los Alamos, NM, 808-396-9855 and all can comment on this or other tsunami matters.

For information regarding the Tsunami Society and its publications, visit: www.sthjourn.org.

For general and educational material on tsunamis, check: www.tsunami.org.

From: www.sthjourn.org

Last updated: January 15, 2003

downloaded July 19, 2004

The French call tsunamis "raz de mare." In Germany, the term is "flutwellen." South Americans call them "marimotos."

Predicting the biggest waves...(continued)

For tsunamis striking flat-lying coastline regions such as Florida, calculating the inundation distance - the extent to which water penetrates inland taking the form of fast moving floods after waves break - is crucial to assessing potential damage. Dr. Day and his colleagues estimate inundation distances in the region of several kilometres from the coast. Accurate estimates of the scale of economic loss are yet to be made but are thought to be in the multi trillion USD range.

Placing the results of the Cumbre Vieja model in its wider context, Dr Simon Day, and Post-doctoral Research Fellow at UCL, said: 'Anyone planning a holiday to the Canary Islands and the islanders themselves need not panic. Cumbre Vieja is not erupting so the short-term and medium-term risks are negligible.' Dr Day continued:

The collapse will occur during some future eruption after days or weeks of precursory deformation and earthquakes. An effective earthquake monitoring system could provide advanced warning of a likely collapse and allow early emergency management organisations a valuable window of time in which to plan and respond.

Eruptions of Cumbre Vieja occur at intervals of decades to a century or so and there may be a number of eruptions before its collapse.

Although the year to year probability of a collapse is therefore low, the resulting tsunami would be a major disaster with indirect effects around the world. Cumbre Vieja needs to be monitored closely for any signs of impending volcanic activity and for the deformation that would precede collapse.'

From: <http://www.bghrc.com>

downloaded July 19, 2004

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STATE EMERGENCY

Alaska Dept of Military & Veteran Affairs
Division of Homeland Security & Emergency Mgmt.
PO Box 5750
Fort Richardson, AK 99505-5750
(907) 428-7000; toll-free 800-478-2337
Fax (907) 428-7009
<http://www.ak-prepared.com/>

California Office of Emergency Services
PO Box 419047
Rancho Cordova, CA 95741-9047
(916) 845-8911; Fax (916) 845-8910
<http://www.oes.ca.gov/>

Hawaii State Civil Defense, Dept. of Defense
3949 Diamond Head Road
Honolulu, HI 96816-4495
(808) 734-2161; Fax (808) 733-4287
rprice@pdc.org; <http://iao.pdc.org>

MANAGEMENT OFFICES

Oregon Division of Emergency Management
595 Cottage Street NE
Salem, OR 97310
(503) 378-2911, ext. 225;
Fax (503) 588-1378
<http://www.osp.state.or.us/oem/oem.htm>

Washington State Military Dept.
Emergency Management Division
Camp Murray, WA 98430-5122
(253) 512-7067; Fax (253) 512-7207
<http://www.wa.gov/mil/wsem/>

Provincial Emergency Program
455 Boleskin Road
Victoria, BC V8Z 1E7 Canada
(250) 952-4913; Fax (250) 952-4888
<http://www.pep.bc.ca>

**Material added to the National Tsunami Hazard Mitigation Program Library
July - August 2004**

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- Note:** These, and all our tsunami materials, are included in our online (searchable) catalog at <http://www.dnr.wa.gov/geology/washbib.htm>

"Seiche" is a term used to describe another phenomenon when a tsunami strikes. Water in any basin tends to slosh back and forth for a time dependent on the size and shape of the basin. If a tsunami wave hits during the next natural oscillation of the seiche, it can produce an even larger wave than would have been from the tsunami alone. Much of the height of the tsunami waves in bays and harbors is explained by the combination of tsunami wave and seiche. Hawaiians call the seiche "kai ku piki o." From: The Tsunami of 1946 and 1960 and the Devastation of Hilo Town by Walt Dudley and Scott C.S. Stone, 2000.

VIDEO RESERVATIONS

To reserve tsunami videos, contact TsuInfo Alert Video Reservations, Lee Walkling, Division of Geology and Earth Resources Library, PO Box 47007, Olympia, WA 98504-7007; or e-mail lee.walkling@wadnr.gov

Business Survival Kit for Earth Quakes & Other Disasters; What every business should know before disaster strikes. Global Net Productions for the Cascadia Regional Earthquake Work-group, 2003. 27 min. With CD disaster planning tool-kit and other information.

Tsunami Chasers. Costas Synolakis leads a research team to Papua New Guinea to study submarine landslide-induced tsunamis. Beyond Productions for the Discovery Channel. 52 minutes.

Earthquake...Drop, Cover & Hold; Washington Emergency Management Division. 1998. 5 min.

Tsunami Evacuation PSA; DIS Interactive Technologies for WA Emergency Management Division. 2000. 30 seconds.

Cascadia: The Hidden Fire—An Earthquake Survival Guide; Global Net Productions, 2001. 9.5 minutes. A promo for a documentary about the Cascadia subduction zone and the preparedness its existence demands of Alaska, Oregon and Washington states. Includes mention of tsunamis.

Not Business as Usual: Emergency Planning for Small Businesses, sponsored by CREW (Cascadia Regional Earthquake Workgroup), 2001. 10 min. Discusses disaster preparedness and business continuity. Although it was made for Utah, the multi-hazard issues remain valid for everyone. Websites are included at the end of the video for further information and for the source of a manual for emergency preparedness for businesses.

Adventures of Disaster Dudes (14 min.) Preparedness for preteens. American Red Cross.

The Alaska Earthquake, 1964 (20 min.) Includes data on the tsunamis generated by that event

Cannon Beach Fire District Community Warning System (COWS) (21 min.) Explains why Cannon Beach chose their particular system

Disasters are Preventable (22 min.) Ways to reduce losses from various kinds of disasters through preparedness and prevention.

Disaster Mitigation Campaign (15 min.) American Red Cross; 2000 TV spots. Hurricanes, high winds, floods, earthquakes

Forum: Earthquakes & Tsunamis (2 hrs.) CVTV-23, Vancouver, WA (January 24, 2000). 2 lectures: Brian Atwater describes the detective work and sources of information about the Jan. 1700 Cascadia earthquake and tsunami; Walter C. Dudley talks about Hawaiian tsunamis and warning systems.

Killer Wave: Power of the Tsunami (60 min.) National Geographic video.

Mitigation: Making Families and Communities Safer (13 min.) American Red Cross

Numerical Model Aonae Tsunami—7-12-93 (animation by Dr. Vasily Titov) and Tsunami Early Warning by Glenn Farley, KING 5 News (The Glenn Farley portion cannot be rebroadcast.)

The Prediction Problem (58 min.) Episode 3 of the PBS series "Fire on the Rim." Explores earthquakes and tsunamis around the Pacific Rim

Protecting Our Kids from Disasters (15 min.) Gives good instructions to help parents and volunteers make effective but low-cost, non-structural changes to child care facilities, in preparation for natural disasters. There is an accompanying booklet. Does NOT address problems specifically caused by tsunamis.

The Quake Hunters (45 min.) A good mystery story, explaining how a 300-year old Cascadia earthquake was finally dated by finding records in Japan about a rogue tsunami in January 1700

Raging Planet; Tidal Wave (50 min.) Produced for the Discovery Channel in 1997, this video shows a Japanese city that builds walls against tsunamis, talks with scientists about tsunami prediction, and has incredible survival stories.

Raging Sea: KGMB-TV Tsunami Special. (23.5 min.) Aired 4-17-99, tsunami preparedness in Hawaii.

The Restless Planet (60 min.) An episode of "Savage Earth" series. About earthquakes, with examples from Japan, Mexico, and the 1989 Loma Prieta earthquake.

NEW!! Washington Military Department Emergency Management Division; Provincial Emergency Program of British Columbia, [2004], Run to high ground: Global Net Productions, 1 video, 14 min. Features Hoh storyteller Viola Riebe and a Pacific Northwest tale of an earthquake and tsunami.

Tsunami and Earthquake Video (60 min.) Includes "Tsunami: How Occur, How Protect," "Learning from Earthquakes," and "Computer modeling of alternative source scenarios."

Tsunami: Killer Wave, Born of Fire (10 min.) NOAA/PMEL. Features tsunami destruction and fires on Okushiri Island, Japan; good graphics, explanations, and safety information. Narrated by Dr. Eddie Bernard, (with Japanese subtitles).

Tsunami: Surviving the Killer Waves (13 min.) Two versions, one with breaks inserted for discussion time.

Understanding Volcanic Hazards (25 min.) Includes information about volcano-induced tsunamis and landslides.

The Wave: a Japanese Folktale (9 min.) Animated film to start discussions of tsunami preparedness for children.

Waves of Destruction (60 min.) An episode of the "Savage Earth" series. Tsunamis around the Pacific Rim. Who Wants to be Disaster Smart? (9 min.) Washington Military Department/Emergency Management Division. 2000. A game show format, along

the lines of *Who Wants to be a Millionaire?*, for teens. Questions cover a range of different hazards.

The Wild Sea: Enjoy It...Safely (7 min.) Produced by the Ocean Shores Wash. Interpretive Center, this video deals with beach safety, including tsunamis. ♦

INFREQUENTLY ASKED QUESTIONS COMPILED BY LEE WALKLING

IS THERE A HAWAIIAN WORD FOR TSUNAMI?

There are two words used to describe tsunamis. "Kai e'e" is a general word for tsunami waves and "Kai mimiki" used to describe the withdraw of the water before the Kai e'e arrives. Please note: the withdrawal of the water is actually the trough of the tsunami reaching shore.

From: <http://www.tsunami.org/faq.htm#Hawaiian>

HOW MANY PACIFIC-WIDE TSUNAMIS HAVE STRUCK THE HAWAIIAN ISLANDS IN RECENT HISTORY?

This century, there have been 13 significant tsunamis impacting Hawaii. These tsunamis were generated by earthquakes occurring along the geologically active margins of the Pacific basin. Maximum recorded runups were 55 feet on the Big Island and 54 feet on Molokai (see above) during the 1946 tsunami, and 53 feet in Kauai during the 1957 tsunami. The last Pacific-wide tsunami occurred in 1964.

From: <http://www.tsunami.org/faq.htm#Hawaiian>

HOW MANY LOCALLY GENERATED TSUNAMIS HAVE OCCURRED IN THE HAWAIIAN ISLANDS IN RECENT HISTORY?

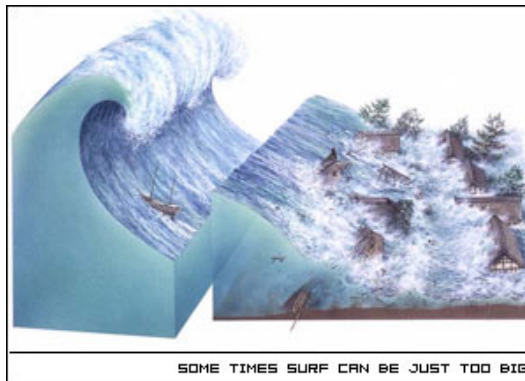
On the Big Island there have been several significant tsunamis resulting from local earthquakes or submarine landslides. The most recent and devastating of these tsunamis occurred in the early morning hours on November 29, 1975. Within a little over an hour, two earthquakes jolted the island. The first, located three miles inland of Kamoamoa village in Volcanoes National Park, had a Richter magnitude of 5.7. The second, centered two miles offshore of the Wahaula heiau (also in the park area) was much more violent having a Richter magnitude later to be determined as 7.2. The result of this earthquake was a 10 foot subsidence of the shoreline and the second most destructive local tsunami ever to be recorded in Hawaii.

Campers in the remote Volcanoes National Park coast at Halape were awakened by the violent shaking of the first quake unknowing that a second and more severe quake would follow in just over an hour later. Some of them had barely gotten back to sleep when the second quake shook so violently that standing was nearly impossible. Within 30 seconds, the first of five tsunami waves struck Halape. Two campers, one an adult with a group of Boy Scouts, the other a fisherman, did not survive. Nineteen others were injured. The maximum runup height was 47 feet at Keauhou Landing and 26 feet at Halape, 1.9 miles to the southwest.

From: <http://www.tsunami.org/faq.htm#Hawaiian>

WHERE'S THE SAFEST PLACE TO WATCH FOR A TSUNAMI?

On your computer...as long as the computer is elevated and inland. You can watch a live video stream of Hilo Bay from a camera on the rooftop of the Pacific Tsunami Museum at <http://www.tsunami.org/hilobaycam.htm> Of course, we hope you never see one.



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