



Contents

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<i>Special features</i>			
Interview: Dr. Salvano Briceño	1	<i>Departments</i>	
NOAA scientists find tsunami “shadow” visible from space	4	Hazard mitigation news	12
Urgency meets opportunity	5	Websites	12
Tsunami work nets award	6	Publications	13
The value of the Pacific Tsunami Museum photography archive	7	Emergency Management offices	11
Rescuer and man he saved finally meet	8	Material added to NTHMP Library	15
Bay putting plans in place to combat tsunami danger	10	IAQ	17
Cutler Bay’s school bus brigade	10	Reminder: 4 th International Tsunami Symposium 2010	11
Strategy for introducing tsunami testing in California	16	Trivia	11

Interview: Dr. Salvano Briceño

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Pan American Health Organization, www.paho.org/disasters/

Dr. Salvano Briceño, Director of the Secretariat of the International Strategy for Disaster Reduction (UN/ISDR) answers questions on progress achieved in the four years of implementation of the Hyogo Framework for Action, the challenges and the most important expectations towards making progress in disaster reduction worldwide.

1. *Four years have passed since the launch of the Hyogo Framework for Action*, the ISDR system has succeeded in establishing significant alliances, and steps have been taken to energize a number of processes as much in the political as in the technical sphere: Can you give us a brief appraisal of the process with its achievements, the gaps and the main challenges?*

In these four years, strides have been made. Nevertheless, the challenge is still greater, and as a result, there is a lot which remains to be done. Risk reduction is above all about reducing vulnerability of two kinds: a.) current, chronic vulnerabilities such as poverty, ignorance and b.) vulnerabilities for the future. That is to say, new risks which the rapid increase in urban density are creating as well as the impact of climate change, such as the increased in the level and temperature of the sea, and the melting of the glaciers.

All these processes need much time to be addressed and overcome and education will need to be a permanent tool for the development of society. In the same way, reduction of risk and vulnerability to natural hazards should be considered as a value, an attitude and ongoing behavioral pattern on the part of each individual, family, community, nation and international body. In short, we have our work cut out for us and this is the main challenge.

2. *The goals proposed for 2015 represent a huge challenge. The world is not on track in order to achieve the results sought by the Hyogo Framework for Action (HFA) of a considerable reduction in losses caused by disaster by 2015. Where do you see the main contribution which the United Nations can make in the process? Where are the ISDR priorities targeted?*

The HFA goals are obviously very ambitious. However, substantial reduction in losses as a result of these kinds of disasters (those caused by vulnerability to natural hazards) can be looked at numerically (number of people affected), which we hope to be able to measure to some extent, or it can also be looked at in relation to the progress made by institutional and technical mechanisms to deal with risk.

(continued on page 3)

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(continued from page 1)

We need to give priority to this objective in the years ahead. This is how in health, we can measure progress by the number of people who become less ill or also by the number of medical and health services which are available, including prevention. The first is a consequence of the second. With more prevention, there are fewer victims. Interest must be placed in making progress in service provision and institutional development to reduce risk. We will then see how many people's lives have been saved or have a better life because of these services.

In 2015 we should be capable of measuring the progress of policies and risk reduction programs at all levels and in this way we will see that we are moving forward more and more rapidly; the initial years were taken up with mobilization, raising awareness and promotion and we are now seeing more specific progress in the development of policies, legislation, organizational capacity, increased resources, etc.

3. *Continuing with the implementation of the Hyogo Framework for Action, this year the second meeting of the Global Platform for Disaster Reduction will be held in Geneva. What are your expectations of this important meeting and specifically regarding the progress which can be achieved when we see that there is still a big gap between the resources needed for disaster reduction—technical, human, institutional and financial—and what is available?*

I think that the second session of the Global Platform will facilitate the assessment of progress during the first four years of the HFA. Firstly, we will have the initial global report on disaster risk reduction which will be presented in Bahrain on 11 May, and later in several other regions. This report will show which are the highest risk zones in the world and will enable the orientation of investment in prevention and mitigation in a more effective and concrete way. We hope that this information will allow us to speed up processes for risk reduction worldwide. Governments will have more precise information about the risk of not investing in risk management.

Secondly, we are developing in a complementary way, with the World Bank, an economic study on the cost-benefit relation of disaster risk reduction which will provide further specifics on possible investments in policies and measures to reduce risk and vulnerability.

Thirdly, another study in the framework of the Inter-governmental Panel on Climate Change (IPCC) will concentrate on the management of risks of extreme climatic phenomena, using knowledge and disaster risk reduction tools for adaptation to climate change. We hope that this study will facilitate orientation of efforts relating to climate change and support and strengthen disaster risk reduction.

With all the above, we hope that as of next year (2010, the mid point of HFA) it will be possible to speed up the implementation of the HFA, including greater investment in resources of all kinds.

4. *Nobody denies the impact of climate change now, its many consequences and its clear links with the increase in vulnerability to possible disasters. But at the same time it is also a significant opportunity to place the theme of disaster reduction on the political agendas of many countries. Again, what strategies or practical actions does the ISDR recommend to bring this issue concretely to country level and ensure that countries include adaptation to climate change in their risk reduction plans?*

Disaster risk reduction is the first defence against the impact of climate change. Some of the impacts will be new (those mentioned previously, increase in sea level, etc.), but for the most part it will be a question of an increase in the intensity and frequency of phenomena or natural hazards that we are already familiar with (mainly floods, cyclones, drought) and for these we can put into quick action the measures and policies which are already known and which the HFA presents in a summarized form.

This is what our participation in the negotiations on climate change is about, during which we have ensured that disaster risk reduction is recognized as an essential instrument for adaptation to climate change, as approved in the United Nations Conference on Climate Change which took place in Bali in 2007 (COP 13) and re-confirmed in the 2008 conference (COP 14) which was held in Poznan, Poland. The challenge is naturally the final negotiation, which is expected in COP 15 in Copenhagen this year. However, there is no doubt that disaster risk reduction will be included as a necessary measure and instrument to deal with climate change.

5. *Lastly, we find ourselves at the halfway point in the International Disaster Reduction Campaign 2008-2009 "Hospitals Safe from Disasters." What recommendations would you make to the readers of this bulletin so that they contribute and participate in their countries in actions which help to increase resilience and security of health facilities in the event of disasters?*

If the readers are mainly from the health sector, it is important that they help to raise awareness of the need to include reduction of risk and vulnerability to hazards or natural phenomena as a priority in health policies and programs. There is a lack of understanding of the possibilities which each person and community has to reduce their vulnerability and it is important, even urgent, that all those people who understand the issue, help to raise awareness and disseminate information. Both PAHO and the ISDR have sufficient educational material to explain the issue. To help to promote these materials is a simple task which many can undertake.

Dr. Salvano Briceño

Dr. Briceño was appointed as the Director of the U.N. Secretariat of the International Strategy for Disaster Reduction (UN/ISDR) in 2001. His professional trajectory has been focused on the management of environmental programs and sustained development at the United Nations, the International Union for Conservation of Nature, and the government of Venezuela.

Before his appointment at UN/ISDR, Briceño was coordinator at BIOTRADE and the GHG Emissions Trading Initiatives of the U.N. Conference on Trade and Development.

Dr. Briceño received a doctorate in administrative law from the University of Paris in 1975 and a master in public administration from Harvard University in 1984. ♦

*Hyogo Framework for Action 2005-2015

Available in English, Spanish, French, Chinese, Arabic and Russian

<http://www.unisdr.org/eng/hfa/hfa.htm>

Words into Action: A guide for implementing the Hyogo Framework: UN, 2007.

<http://www.unisdr.org/eng/hfa/docs/Words-into-action/Words-Into-Action.pdf>

U.N. International Strategy for Disaster Reduction homepage

<http://www.unisdr.org/> ♦

NOAA National Oceanic and Atmospheric Administration press release:

NOAA scientists find tsunami “shadow” visible from space

http://www.noaaneews.noaa.gov/stories2009/20090715_tsunami.html

For the first time, NOAA scientists have demonstrated that tsunamis in the open ocean can change sea surface texture in a way that can be measured by satellite-borne radars. The finding could one day help save lives through improved detection and forecasting of tsunami intensity and direction at the ocean surface.

“We’ve found that roughness of the surface water provides a good measure of the true strength of the tsunami along its entire leading edge. This is the first time that we can see tsunami propagation in this way across the open ocean,” said lead author Oleg Godin of [NOAA’s Earth System Research Laboratory](#) and the [Cooperative Institute for Research in Environmental Sciences](#), in Boulder, Colo.

Large tsunamis crossing the open ocean stir up and darken the surface waters along the leading edge of the wave, according to the study. The rougher water forms a long, shadow-like strip parallel to the wave and proportional to the strength of the tsunami. That shadow can be measured by orbiting radars and may one day help scientists improve early warning systems. The research is published online in the journal, *Natural Hazards and Earth System Sciences*.

The new research challenges the traditional belief that tsunamis are too subtle in the open ocean to be seen at the surface. The findings confirm a theory, developed by Godin and published in 2002-05, that tsunamis in the deep ocean can be detected remotely through changes in surface roughness.

In 1994, a tsunami shadow was captured by video from shore moments before the wave struck Hawaii. That observation and earlier written documentation of a shadow that accompanied a deadly tsunami on April 1, 1946, inspired Godin to develop his theory. He tested the theory during the deadly December 26, 2004, Indian Ocean tsunami, the result of the Sumatra-Andaman earthquake.

Godin and colleagues analyzed altimeter measurements of the 2004 tsunami from NASA’s Jason-1 satellite. The data revealed clear evidence of an increased surface roughness along the leading edge of the tsunami as it passed across the Indian Ocean between two and six degrees south latitude.

Tsunamis can be detected in several ways. One detection method uses a buoy system that warns coastal communities in the United States of an approaching tsunami. [NOAA’s Deep-ocean Assessment and Reporting of Tsunamis](#) (DART) early warning system uses sensors on the ocean floor to measure changes in pressure at each location. The DART network of 39 stations extends around the perimeter of the Pacific Ocean and along the western edge of the North Atlantic Ocean and Gulf of Mexico. The technology provides accurate, real-time information on the amplitude, over time, of an approaching tsunami. [NOAA’s tsunami warning centers](#) then use this information to forecast the tsunami’s impact on coastlines.

A second method uses space-borne altimeters to detect tsunamis by measuring small changes in sea surface height. Only a handful of these instruments are in orbit and the observations are limited to points along a line.

The new study presents a third way to detect tsunamis — by changes in the texture of the surface water across a wide span of the open ocean.

Godin’s research confirmed his theory that a tsunami wave roughens the surface water through air-sea interaction. First the leading edge of the tsunami wave stirs up the surface winds. Those same winds, which become more chaotic than the wave itself, then churn the surface waters along the slope of the wave.

Because rough water is darker than smooth water, a contrast forms between the dark, rough water of the wave

and the bright, smooth water on either side of it. Common scientific instruments, called microwave radars and radiometers, are able to detect this contrast, known as a tsunami shadow.

When orbiting the Earth, microwave radars and radiometers can observe a band of ocean surface hundreds of kilometers wide and thousands of kilometers long. If programmed correctly to observe sea surface roughness, they could potentially map an entire tsunami, said Godin.

The paper, "Variations in sea surface roughness induced by the 2004 Sumatra-Andaman tsunami," by O. A. Godin, V. G. Irisov, R. R. Leben, B. D. Hamlington, and G. A. Wick, appears in *Natural Hazards and Earth System Sciences*, a journal of the European Geosciences Union.

NOAA understands and predicts changes in the Earth's environment, from the depths of the ocean to the surface of the sun, and conserves and manages our coastal and marine resources. ♦

Urgency meets opportunity: Seizing the moment to map coastal inundation

By Kitty Fahey

From: *Coastal Connections*, v. 7, issue 3, p. 1-3.

NOAA Coastal Services Center, www.csc.noaa.gov

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Coastal events such as tsunamis, hurricanes, and record-breaking rainfall can bring on devastating consequences for communities and ecosystems affected by coastal inundation, a condition in which normally dry land is flooded by water.

While inundation can present significant management challenges—which are made all the more pressing by the prospect of sea level rise—the tools available to predict its occurrence and diminish its impacts have never been better, say Doug Marcy and Matt Pendleton, who teach Coastal Inundation Mapping, a course offered by the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center.

Then and now

"In the past couple of decades, we've seen changes in both the frequency and variety of coastal inundation scenarios," says Marcy, a hazards specialist. "From the 1970s to the 1990s, more focus was placed on inland and riverine flooding, because that's where we were experiencing the highest disaster-related fatalities from tropical cyclones. Then the devastating Indian Ocean tsunami of 2004 raised concerns about the potential for tsunami-generated inundation on the West Coast and Pacific Islands. And with Hurricane Katrina in 2005, the Mississippi Gulf Coast experienced the worst storm surge ever recorded, with inundation that traveled 13 miles inland."

Furthermore, says Marcy, future inundation events are the primary concern for scientists, public officials, and managers because sea level rise and other climate-related impacts may change the frequency and intensity of storms, resulting in more overall damage.

Fortunately, local and state agencies dealing with inundation are benefiting from a corresponding "surge" in visualization tools like Google Earth and geographic information system (GIS) applications that provide easier ways of sharing data and information. In addition, geospatial technology and storage capacity have improved so quickly that even smaller agencies can now manage high-resolution elevation data that were once considered expensive and too much of a strain on storage capacity.

The result? Inundation maps overlaid with multiple types of data can help coastal professionals increase hazards awareness and preparedness, determine potential flooding impacts, encourage long-term planning and coastal resilience, and pave the way for community risk and vulnerability assessments.

"Now is a great time to learn these mapping skills," says Pendleton, a geospatial analyst. "Our training helps to demystify the technologies and applications connected with mapping inundation. Course participants are introduced to all of the data and resource information we've collected from NOAA and other agencies—water level data, elevation data, flood models, geodetic and tidal datums, and the like."

The following stories illustrate how resource managers and agencies at all scales of government can use inundation maps as a way to reduce hazard impacts and increase community resilience.

Helping Connecticut communities plan for hazards

When NOAA Coastal Management Fellow Joe Johnson decided to take the Center's Coastal Inundation Mapping course, he'd already started to create inundation maps. However, the course helped Johnson deepen and refine his mapping knowledge.

For his fellowship, Johnson is developing the Coastal Hazards Analysis and Management Program (CHAMP), which is administered by the Connecticut Department of Environmental Protection's Office of Long Island Sound Programs. Johnson's inundation maps of the pilot community are now showcased on the Web portal at http://depweb.dms.uconn.edu/map_info_page.html.

"The pilot effort is done, so we're going ahead with mapping coastal inundation scenarios for 33 other towns in Connecticut," notes Johnson. "Our website's visualization tool will enable users to select a coastal area in Connecticut, view inundation scenarios, and start planning for them. We hope municipal officials will use it to visualize and plan for accelerated sea level rise."

Enabling a North Carolina town to bounce back from disasters

In the 1990s, portions of North Carolina were hit hard by a series of storm events, such as Hurricane Floyd, that caused significant river flooding. Consequently, emergency and floodplain managers, as well as state residents, asked for maps and information to help them make decisions before floods overwhelmed their areas. In response, the Center joined with other state and federal partners to map the projected depth of flood-waters and the areas affected by inundation in Tarboro, North Carolina.

As a first step, the project partners sought high-resolution elevation data and reliable hydraulic models available through the Federal Emergency Management Agency's Digital Flood Insurance Rate Maps and Flood Insurance Studies. Without these data sets, accurate modeling and mapping of water surface profiles would have been impossible.

Lidar data enabled project partners to model and map flooding of the Tar River. The data and resulting maps showed how streets, buildings, airports, and other structures are likely to be impacted by floodwaters. This information will enhance the state's response to river flooding events and increase the community's resilience to natural disasters.

Visualizing shallow coastal flooding and sea level rise in Charleston, South Carolina

Shallow coastal flooding is caused by higher-than-average tides and can be worsened by heavy rainfall and onshore winds. The peninsular city of Charleston in South Carolina is projected to experience many more of these flooding events as sea level rises.

To illustrate the point, the Center partnered with South Carolina's Department of Natural Resources to obtain lidar data showing land elevation, and the Center processed the lidar data, making it available on the Digital Coast website. The Center also analyzed tidal frequency.

With this information, the project partners created maps showing the scale of potential flooding with a sea level rise scenario of 1.6 feet (0.5 meters) over the next 100 years. Under this scenario, the extent of flooding would be much greater during abnormally high tides. Another expected impact of this rise in sea level would be an increase in the frequency of flooding. With a projected 1.6-foot rise in sea level, the areas now susceptible to an abnormally high tide just two days per year would be susceptible to flooding 289 days per year.

The state shared these findings with Charleston's Mayor Joe Riley and city planners. The data can help Charleston officials make decisions regarding storm-water, wastewater, and flood-affected infrastructure.

To learn more about the Center's Coastal Inundation Mapping course, visit www.csc.noaa.gov/training/coastalin.html. This article

is the first in a series to address a range of inundation mapping tools and methodologies.

Mapping and visualization: Additional Center resources **NOAA Digital Coast Website**

This site, hosted by the Center and composed of contributions from many state and federal partners, provides access to a wide variety of coastal management resources, including mapping and visualization tools and high-resolution elevation data (www.csc.noaa.gov/digitalcoast/).

Geospatial technology training

The Center provides eight trainings on specific geospatial technology skills, with topics such as Coastal Inundation Mapping, Remote Sensing for Spatial Analysts, Conservation Data Documentation, Coastal Applications Using ArcGIS, and others (www.csc.noaa.gov/bins/training.htm). ♦

Tsunami work nets award

Written by Nicholas Grube, The Triplicate (Crescent City, CA) June 12, 2009 08:41 am
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<http://www.triplicate.com/20090612106189/News/Local-News/Tsunami-work-nets-award>

Yurok Tribe Emergency Services Coordinator Labecca Nessier received a Community Leader Award from the Redwood Coast Tsunami Work Group this week for her efforts in making the Klamath area tsunami-ready.

It was the first time the Work Group, which is an inter-agency coalition that works to reduce earthquake and tsunami hazards on the North Coast, has presented such an honor, and it was given to Nessier in response to her dedication to preparing her community for a future disaster.

"Labecca started out by attending all the meetings and all the functions — such as drills — that other communities were conducting," Redwood Coast Tsunami Work Group co-chair and Redwood National and State Parks geologist Vicki Ozaki said in a statement. "She then went on to do an outstanding job preparing her own community."

Klamath and its surrounding communities, including those within the Yurok Tribe reservation, were officially recognized as tsunami-ready in March. This included obtaining and installing warning sirens as well as educating residents about the tsunami hazard and how to mitigate the threat from such a disaster.

"Labecca did a great job at working collaboratively with the Yurok Tribe, the Klamath community and other agencies to move this project to its ultimate completion,"

(continued on page 20)

The value of the photograph archive of the online Pacific Tsunami Museum

By Henry W. Fischer

From: Contemporary Disaster Review, v. 1, no. 1, February 2003, p. 32-40. Reprinted with permission <http://www.millersville.edu/~cdr/cdrissue1.1.pdf>

When disaster strikes people tend to assume that the behavioral response will be quite typical—as is typically shown on television or in the movies. There is just one problem. The assumption is incorrect. Citizens, military planners, political decision makers, print and broadcast reporters, even emergency personnel tend to believe disaster survivors tend to behave badly. As disaster sociologists know (please see Fischer 1998), there is an entire mythology that continually finds its way into popular culture and media portrayal of the behavioral and organizational response to disaster. Mass panic flight, looting by survivors, disaster shock (inability of survivors to function on their own) and price gouging by local merchants are a few of the myths we usually hear reported to us as fact.

The research literature (for example, see Quarantelli and Dynes 1972, Drabek 1986, Meliti 1999) is replete with findings that demonstrate the altruism usually encountered in the immediate post-impact period of a disaster event. Panic is often mistaken as fear, yet stampede behavior is lacking in these incidents. Looting is often assumed when survivors and helpers are seen going through the rubble looking for their keepsakes. While survivors may, of course, feel (and perhaps look) stunned, true disaster shock is not evident; instead, we tend to find the first search and rescue teams are the survivors themselves. They jump into action to be of help to one another. And instead of increasing prices, local businesses tend to offer the same or lower prices (at cost)—some even give (donate) away needed materials to survivors and their helpers.

Disaster agents

What kinds of disasters might we be talking about when we address the disaster mythology? Disaster sociologists traditionally categorize disasters into two categories: natural disasters and technological disasters. Natural disasters include so-called “acts of God*,” e.g., tsunamis, hurricanes, tornadoes, floods, earthquakes, volcanoes. Technological disasters include hazardous materials spills or accidents, major oil spills, terrorism involving chemical or biological agents. The disaster mythology is embraced as fact rather than myth in any and all of these types of disasters.

The Pacific Tsunami Museum (PTM)—Online archive of photographs

A recent discovery by this sociologist, the PTM is a treasure. This online archive is devoted to cataloging and sharing unique photographs of tsunamis impacting Hawaii as well as post-impact damage, behavioral and organizational response to the devastation. The historical evidence preserved in these photos is valuable to disaster researchers, emergency practitioners, and the general public. These photos are an excellent teaching resource as they demonstrate what researchers have discovered when it comes to several of the disaster myths. It is worth the reader’s time to link to the PTM site and explore the archives. A few of the photographs will be examined below pursuant to demonstrating their utility in combating the disaster mythology. [*TsuInfo Alert* Editor’s Note: I will give the link to the photos].

Panic. What do we see in the photograph (<http://www.millersville.edu/~cdr/cdrissue1.1.pdf> p. 34, The 1947 tsunami in Hilo)? People running. Is this panic? No. Some will interpret it as such. Undoubtedly they are experiencing fear as that tsunami is not far behind them. They are, however, behaving rationally. They are running away from danger, toward safety. There is no evidence of stampede behavior. Thank you PTM for this actual documentation of an event that is representative of the behavior response to not only the tsunami, but the other disaster agents as well.

Evacuation behavior. Rather than flee in mass panic, all too often potential victims tend to stay on scene. Even if they have the opportunity and are encouraged to evacuate, most elect not to. They stay at home in a misguided attempt to protect their property, to remain in a location in which they falsely believe they will be more comfortable or less costly (as opposed to sleeping in a school gymnasium, staying with friends or paying a hotel bill). The below picture demonstrates the hesitancy of people to leave when warned. In this case they converged to the scene to await the arrival and impact of the tsunami.

(<http://www.tsunami.org/archives1960.html> p. 35, Hilo tsunami of 1960)

Erroneous deviance such as looting. Rather than engage in deviant behavior such as the mythical looting, the following photographs demonstrate the fact that survivors are the true first responders, they tend to altruism (help one another and even maintain a sense of humor) and turn to the job of search and rescue long before authorities arrive on the scene. (p. 36, 7 shots, at <http://www.millersville.edu/~cdr/cdrissue1.1.pdf>

Same behavioral response observed in 1952 and 1946. The behavioral response documented in the Hilo tsunami of 1960 was also observed in the 1952 tsunami that impacted Hilo. The following PTM photographs are useful for demonstrating and documenting these patterns. In the first photo we once again observe the hesitancy of potential victims to evacuate even when they have advance warning. The second photo shows the tendency for

survivors to converge to the scene without regard to potential harm looming for themselves or others.

(<http://www.millersville.edu/~cdr/cdrissue1.1.pdf> p. 37)

Same observed in the 1946 Hilo tsunami. The following photographs reveal not only the devastated nature of the tsunami, but also, once again, the tendency of potential victims (notice the 1947 tsunami mentioned below indicates the hospital did not survive—that includes those inside—which explains why we have no surviving pictures for the PTM to display) to hesitate to evacuate.

(<http://www.millersville.edu/~cdr/cdrissue1.1.pdf> p. 39)

One photo captioned “Workers at Puumaile Hospital watch as a tsunami wave overtakes the seawall in 1946.”)

The value of the PTM photograph online archive

Prior to the creation of the internet, materials found at the Pacific Tsunami Museum were available to only a few people, usually in the local area. By placing these photographs on their website, the PTM has provided access to researchers, students, the mass media, and all interested individuals around the world. This resource is useful to researchers and to teachers. The present review is offered to acknowledge the value of this archive as well as to frame their interpretation pursuant to their dissemination to researchers, students, mass media and all interested individuals.

Bibliography

Drabek, Thomas E. 1986. *Human system responses to disaster: An inventory of sociological findings*. New York: Springer-Verlag.

Fischer, Henry W. 1998. *Response to disaster: Fact versus fiction and its perpetuation*, 2nd edition. Lanham, MD: University Press of America.

Meliti, Dennis S. 1999. *Disasters by design*. Washington, D.C.: Joseph Henry Press.

Quarantelli, E. L. and Russell R. Dynes. 1972. *Images of disaster behavior: Myths and consequences*. Newark, DE: Disaster Research Center, The University of Delaware.

*So-called because the question begs to be answered: who puts people in harms way? Humans build on flood plains and so forth. ♦

Rescuer and man he saved finally meet

By John Burnett for the Hawaii Tribune-Herald

<http://www.tsunami.org/survivors.html>

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The Pacific Tsunami Museum
(<http://www.tsunami.org/>)



Photo by Louis Beago

For better or for worse, an intrepid mariner named Cook left his mark across the Pacific in the mid - to late - 18th century. Nearly two centuries later, another brave sailor with the same family name changed the possible course of history for at least a few lives in and around this vast expanse of ocean. This time, everyone involved would agree with Martha Stewart that "it's a good thing."

An event that took more than a year to plan, but nearly six decades to unfold, has reached a closure of sorts. Yoshikazu Murakami and David Cook finally met at the Pacific Tsunami Museum in Hilo. Cook was a sailor aboard a Navy transport ship who helped to rescue a sick, weak and sunburned Murakami, who was adrift in a life raft about 100 yards offshore of Laupahoehoe the day after the devastating April 1, 1946, tsunami that killed 159 people.

Neither the rescuer nor the rescued ever were introduced formally. Murakami lost consciousness after grasping Cook, who passed his limp body up a cargo net into the hands of a waiting shipmate. The unconscious 15 - year - old boy was brought aboard LST - 731, a then - nameless tank and troop transport. The vessel, which nine years later was named the USS Douglas County, had been diverted by the Navy from its voyage home to San Francisco after World War II combat and post-imperial Japan occupation duty to look for possible survivors and floating bodies of victims.

In a ceremony that was videotaped by KGMB - TV News (Hawaii) newscasts, Murakami and Cook finally met face to face after 57 years. An amazing chain of incidents started in 1998 when Louis Beago of Houston, one of Cook's shipmates sent scratchy black-and-white photos he shot of the rescue to museum scientific advisory committee chairman Walter Dudley, a University of Hawaii at Hilo oceanographer and widely published tsunami expert,

in August 1998. Those photos were filed but fortunately not forgotten.

Museum director Donna Saiki remembered the photos when Murakami's son Glenn paid a visit with his wife, Teresa, to the tsunami museum during a trip from Los Angeles. They arrived just before closing time Oct. 13, 1999, and told Saiki of "Kazu" Murakami's rescue at sea. Saiki showed them the photos, but was not clear who was being rescued. Beago's notes indicated that it was a woman. As it turned out, a woman named Mrs. Akiona also had been rescued

Call it miracle or cosmic coincidence, eight days later the Cooks got to the museum just before closing time. Closing time is important in both cases, because there are docents to conduct tours and Saiki usually only meets the museum guests when she unlocks and locks the building. When Cook said he had been on a ship that rescued a tsunami survivor, Saiki again retrieved the photos. When she pointed out that the photo caption said a woman was being rescued, Cook assured Saiki it was actually a boy. The boy, whose face was blurred in the photo, was Murakami.

At the Pacific Tsunami Museum ceremony, Cook and Murakami were sitting in the front row, still unaware of each other while Dudley read from a prepared statement before lights and cameras. Dudley introduced Murakami. He didn't have to introduce Cook. As it turns out, he's a man who needs no introduction.

"They told me you weren't going to be here!" Cook interjected. Then with perfect comedic timing he intoned, "You almost wasn't!" He and Murakami both rose to their feet and hugged heartily. Cook's pronouncement elicited laughter from those in attendance.

Anybody who expected a teary-eyed reunion should have been forewarned when Cook was shepherded into the proceeding and seated next to Saiki, a former public school teacher and administrator who retired as principal of Hilo High School in the mid-1990s. "She used to be a schoolteacher," quipped Cook, who quit high school to join the Navy in 1943 at age 17 and went on to a Navy career. "I'm allergic." A couple of years ago, Cook and other living World War II veterans were awarded their high school diplomas as a token of gratitude for their service.

Murakami said that his rescue and his family are both gifts from God. "When I was young, I thought, 'One of these days when I get married, I'm going to have four children. Two boys and two girls.' It happened that way. God is with me."

Murakami, retired gardener and landscaper who lives in Los Angeles, also has six grandchildren and one great-grandchild. But if not for either a stroke of luck or divine intervention, it might never have happened.

"The first pass they went by, the boat missed me," Murakami said. "Then I looked again. It came around a second time and they saved me. Cook said it was the

last trip they could make because they were too close to shore. I passed out after I grabbed hold of him. Because I had to use all my strength to be saved."

"That was the last thing I remember. The next thing I knew, I was in a bunk bed." That bunk bed was in a military hospital in Hilo, where the warship dropped Murakami off. His mother and sister passed him while he was sleeping in the hospital; because he was so sunburned they did not recognize him. After he was discharged the following day, Murakami took a bus and hitchhiked home to Honohina where he found his family planning his funeral. That funeral could have been a real possibility, Cook said, even after the vessel spotted Murakami.

"It was nasty," he recalled. "He was real close to a sea wall that you can't see in these photos. We figured it we didn't get him, we'd be picking up his body." Cook, who was just shy of 20 when the rescue occurred, recalled that Murakami was heavy, just dead weight.

Cook cleared up one mystery and created another at the ceremony. It was previously believed that he was the sinewy sailor gripping Murakami's hand and dragging him up the cargo net they used as a rope ladder over the ship's side.

"That's not me," Cook said, adding he doesn't remember the identity of the sailor gripping in the photo. He had an even more dangerous job, one unseen by the camera. "I was underneath pushing (Murakami) up. I had him on my shoulders."

Beago, the photographer who chronicled the events leading up to the reunion, is in ill health and was unable to make it to Hawaii for either the made-for-TV reunion "comedy bash" or the museum's Sunday night Laupahoehoe Rescue Reunion Dinner. But if he had not sent the museum the photos five years ago this month, then Murakami, whose visions about a future family proved to be on the mark, might not have fulfilled another of his predictions. "I told myself I can't die before I meet this man."

Additional photographs,

<http://www.tsunami.org/survivors.html> ♦



"Yoshikazu Murakami points to David Cook"
Photo courtesy of Pacific Tsunami Museum

Bay putting plans in place to combat tsunami danger

By Guy Rogers, Environment Editor, WeekendPost, South Africa

<http://www.weekendpost.co.za/article.aspx?id=437984>

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The Nelson Mandela Bay Municipality is in the first stages of preparing a modelling system to gauge the impact of tsunamis on Algoa Bay.

The project is one aspect of the municipality's integrated coastal management plan, project co-ordinator Don McGillivray explained at the 6th Coastal & Marine Tourism Congress at the Boardwalk yesterday. McGillivray said the model would dovetail with the one already established by international earthquake and tsunami monitors.

The only tsunamis which can affect the Eastern Cape are ones triggered by earthquakes in the Sumatra Fault, off Indonesia, like the event of September 2007.

"But each time there is an earthquake out of that zone the fault moves south, shortening the distance the quake energy must travel beneath the sea to get to us, and increasing the size of the potential wave."

Another part of the metro's integrated beachfront plan centres on the development of artificial reefs, and equipment is already installed underwater recording the direction and power of waves and currents, he said.

Also in the integrated beachfront plan is the erection of a 40m high mast light at Pollok Beach, for night surfing. The mast will be fitted with four 1000w floodlights with both a directional beam for the surfers and a more diffuse one to allow for beach volleyball and other games.

There will be several cameras installed on top of the mast, including one to help combat crime and another to record wave conditions. The footage from the latter could be fed straight into the Bay's webpage. ♦

Cutler Bay's school bus brigade

Natural Hazards Observer, July 2009, v. 33, no. 6, p. 5

When Hurricane Andrew pummeled the south Florida coast in 1992, Cutler Bay was one of the hardest hit jurisdictions. In 2005, Hurricane Katrina left more than 20 inches of rain in Cutler Bay, a town of about 25,000 in Miami-Dade County, making rescue and supply transport virtually impossible. Cutler Bay's town manager, Steven Alexander, and Director of Public Works Ralph Casals knew high-clearance, large emergency response vehicles were needed to protect the municipality from inevitable future disasters.

But with a cost of nearly \$300,000 per manufactured emergency response vehicle, the town recognized that cost would be prohibitive and therefore an innova-

tive solution would be needed. Creativity took hold, and Alexander and Casals led an effort to convert surplus school buses to effective emergency response vehicles. The *Natural Hazards Observer* spoke with Ralph Casals about the town's efforts.

Can you briefly tell us about Cutler Bay and its vulnerability to disaster?

The town of Cutler Bay is a coastal community, located 25 miles south of Miami and bordered to the east by Biscayne Bay. The highest elevation within the town is nine feet above sea level. Any type of significant tidal surge will cause a great deal of damage to homeowner's properties and pose a serious issue to the town's first responders.

Considering your experience in Hurricane Andrew and your risk to future disasters, why not just purchase manufactured emergency response vehicles?

One short answer: costs. These large, high vehicles that can transport personnel and supplies—food, equipment, communication—can range in cost from several tens of thousands to as high as a hundred thousand dollars.

Why school buses?

The school buses were used due to the body frame's height. Additionally, the buses are currently powered by diesel fuel and can be converted into bio-diesel.

Can you describe the conversion processes? What do the buses look like now?

Town staff removed several rows of seats from the buses and custom built racks to hold barricades, traffic cones, portable generators, and other emergency supplies.

How much did the project cost? How much savings did you see by choosing existing school buses instead of other types of emergency response vehicles?

The town acquired the buses from the Miami-Dade School Board, through an agreement which allowed the town to purchase the buses for \$10 each. The buses will be utilized to transport emergency supplies and equipment into several flood prone areas. Additionally, some of the buses remain intact and can be utilized to transport evacuees from the affected disaster zone.

Describe how you manage and use the fleet. What kind of collaboration is there among government agencies? What kind of non-hazard uses do the buses have?

The buses are not used on a daily basis, but throughout the month the buses are used during the special events and community outreach meetings. In regards to collaboration amongst surrounding governmental agencies, the town is an active participant with the county and regional emergency operation centers. The buses are listed as available equipment that would be utilized to support any type of disaster recovery efforts. ♦

STATE EMERGENCY MANAGEMENT OFFICES
updated 3-31-2006

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
3650 Schriever Ave.
Mather, CA 95655
(916) 845-8510; 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) 733-4300; Fax (808) 733-4287
<http://www.scd.state.hi.us>

Oregon Division of Emergency Management
PO Box 14370
Salem, OR 97309-50620
(503) 378-2911; Fax (503) 373-7833
<http://www.oregon.gov/OOHS/OEM/>

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

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

ALSO:

American Samoa Territorial Emergency Management
Coordination (TEMCO); American Samoa Government
P.O. Box 1086
Pago Pago, American Samoa 96799
(011)(684) 699-6415; (011)(684) 699-6414 FAX

Office of Civil Defense, Government of Guam
P.O. Box 2877
Hagatna, Guam 96932
(011)(671) 475-9600; (011)(671) 477-3727 FAX
<http://ns.gov.gu/>

Guam Homeland Security/Office of Civil Defense
221B Chalan Palasyo
Agana Heights, Guam 96910
Tel:(671)475-9600; Fax:(671)477-3727
www.guamhs.org

CNMI Emergency Management Office
Office of the Governor
Commonwealth of the Northern Mariana Islands
P.O. Box 10007
Saipan, Mariana Islands 96950
(670) 322-9529; (670) 322-7743 FAX
www.cnmieo.gov.mp

National Disaster Management Office
Office of the Chief Secretary
P.O. Box 15
Majuro, Republic of the Marshall Islands 96960-0015
(011)(692) 625-5181; (011)(692) 625-6896 FAX

National Disaster Control Officer
Federated States of Micronesia
P.O. Box PS-53
Kolonias, Pohnpei - Micronesia 96941
(011)(691) 320-8815; (001)(691) 320-2785 FAX

Palau NEMO Coordinator, Office of the President
P.O. Box 100
Koror, Republic of Palau 96940
(011)(680) 488-2422; (011)(680) 488-3312

Puerto Rico Emergency Management Agency
P.O. Box 966597
San Juan, Puerto Rico 00906-6597
(787) 724-0124; (787) 725-4244 FAX

Virgin Islands Territorial Emergency Management -
VITEMA
2-C Contant, A-Q Building,
Virgin Islands 00820
(340) 774-2244; (340) 774-1491

REMINDER

The Tsunami Society will hold its 4th International
Tsunami Symposium in Toronto, Canada, July 25-29,
2010, in conjunction and co-sponsorship with the 2010
US-CANADA joint conference on earthquake engi-
neering, "Reaching Beyond Borders."

Tsunami are not restricted to the open ocean. They can
occur in bays, fjords, inland seas, and lakes.

From: Bryant, Edward, 2001, Tsunami—The
underrated hazard: Cambridge University Press, p. 23

NEWS

September is National Preparedness Month

National Preparedness Month is sponsored by the Department of Homeland Security and promoted around the nation through its *Ready* Campaign and FEMA's Community Preparedness Division, as well as through thousands of partners. The website (<http://www.ready.gov/america/npm08/intro.html>) contains a Preparedness Tip for each day in September. For more information and activities, check the four 'folders'... Get a kit, Make a plan, Be informed, and Get involved.

From: FEMA's Citizen Corps Newsletter, Sept. 2007

Sci-Fi writers get security officials thinking

Truth was stranger than fiction at a recent homeland security conference where police commanders looked into computer capabilities à la the *Star Trek Enterprise* and information officers considered the merits of telepathy. More mythic than the subject matter, though, were the consultants—an elite squad of science fiction writers that proffer their imaginations to security officials “in the national interest,” according to their motto.

It's not the first time the Sci-Fi set—which operate under the name Sigma—have hobnobbed in high-level government circles, according to an article in the *Washington Post*. The group, which formed about 15 years ago, has consulted with the Department of Energy, Army, Air Force, NATO and other agencies. Their latest gig at the 2009 Homeland Security Science and Technology Stakeholders Conference was an effort to help security officials think outside the box.

“Fifty years ago, science-fiction writers told us about flying cars and a wireless handheld communicator,” Homeland Security's Science and Technology division spokesman Christopher Kelly told *USA Today*. “Although flying cars haven't evolved, cell phones today are a way of life. We need to look everywhere for ideas, and science-fiction writers clearly inform the debate.”

The writers also have a healthy dose of sci with their fi—a majority of the 40 or so Sigma members have PhDs in the physical sciences. “We're well-qualified nuts,” Sigma's Jerry Pournelle told *USA Today*.

Chatting about improbable scenarios might seem like a pleasantly diverting way to stimulate original thinking, but one might wonder, can anything really come of it? Although the answer could be unknowable, scoffers might want to check out an unrelated—or is it?—Homeland Security Science and Technology [news release](#).

Titled *Triage Technology with a Star Trek Twist*, the release hails the early prototype of a device that can give first responders vital readings on a patient—pulse, body temperature, and respiration—quickly and from a distance. For those not up on *Star Trek* minutiae, the

machine mirrors the Tricorder used by Doctors Bones and Crusher to determine the ills of *Enterprise* crewmembers.

Although the new technology, called the Standoff Patient Triage Tool, doesn't have the subtlety of a Tricorder, developer see great potential for increasing triage evaluation times and accuracy. Now if they could only perfect that transporter, evacuations would be a breeze.

From: Disaster Research 526, June 4, 2009

NOAA simulation helps prepare Santa Barbara for tsunami and coastal floods

NOAA scientists have created a high-resolution digital elevation model (DEM) of Santa Barbara, California, that simulates the effects of deadly tsunamis and coastal floods.

DEMs are detailed coastal relief maps constructed from near-shore sea floor depth and land elevation data. They provide a framework that allows scientists to forecast the magnitude and extent of coastal flooding caused by a tsunami or storm surge with greater accuracy.

The model enables scientists and emergency managers to develop life-saving plans to protect residents in Santa Barbara County and the nearby coastal communities of Ventura and Oxnard. For the full write-up, visit http://www.noanews.noaa.gov/stories2009/20090204_santabarbara.html

From: WSSPC E-Newsletter, Spring 2009, March 16, 2009, p. 5.

FEMA announces availability of \$1.8 billion in preparedness grants

The Federal Emergency Management Agency announced it will distribute \$1.8 billion in preparedness grants to help states, urban areas, tribal governments, and non-profit agencies enhance their readiness for disaster. The grants, to be used for preparedness, prevention, response, and recovery capabilities, are broken into four categories:

- Homeland Security Grant Program (\$1.7 billion)
- State Homeland Security Program Tribal (\$1.7 million)
- Nonprofit Security Grant Program (\$15 million)
- Regional Catastrophic Preparedness Grant Program (\$34 million)

More information on the grants, including application instructions (which will vary by grant program), is available on the [FEMA Grant and Assistance Web site](#).

From: Disaster Research 527, June 18, 2009

WEBSITES

http://online.fema.net/homepage/hp_stories/122908.shtm

FEMA launched a new disaster assistance website Disasterassistance.gov, as part of the Disaster Assistance Improvement Plan (DAIP). This website centralizes the application process for federal disaster assistance and

offers a clearinghouse for information on programs administered at the federal, state and local levels.

To develop the website, DHS/FEMA partnered with 16 federal agencies that collectively sponsor more than 50 forms of disaster assistance. Currently, the site includes only limited forms of federal assistance; however, over the coming months the website will add federal assistance programs administered at the state level, then local and tribal, and finally those of the public non-profit organizations.

From: WSSPC E-Newsletter, Spring 2009, March 16, 2009, p. 4.

<http://www.emdat.be>

The Center for Research on Epidemics and Disasters (CRED) has been maintaining EM-DAT, a global emergency events database since 1988. EM-DAT contains essential core data on the occurrence and effects of over 17,000 disasters from 1900 to the present, and provides geographical, temporal, human and economic information on disasters at the country level. EM-DAT is compiled from various sources, including UN agencies, NGOs, insurance companies, research institutes and press agencies.

From: WSSPC E-Newsletter, Spring 2009, March 16, 2009, p. 4.

<http://www.umapper.com/>

You don't have to be a techno-cartographer to create fun and useful interactive maps. All you need is UMapper software to overlay a variety of information onto a map of your building, your county, or any other location. Create educational games, visualize emergency exit routes, map residents with special needs, or anything else you dream up. Once your map is created, UMapper writes it in universal code so it can be easily embedded on your Web site.

From: Disaster Research 526, June 4, 2009

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

Data.gov is going to be huge—literally a gargantuan collection of what could eventually encompass the majority of all data ever collected by the U.S. government. But for now, it's 47 data sets arranged to give you a feel for how for how users can download info, analyze data, and even create fun widgets for your Web site. Check it out—you'll be able to say you knew it when...

From: Disaster Research 526, June 4, 2009

<http://eden.lsu.edu/default.aspx>

The Extension Disaster Education Network (EDEN) was created to help extension educators provide quality online resources and networking connections on disaster preparedness, recovery, response, and mitigation. Visitors to the site can join EDEN or access information organized by state or category.

From: Disaster Research 526, June 4, 2009

http://www.crid.or.cr/crid/ing_multimedia.shtml

CRID (Regional Disaster Information Center) has made available over 250 multimedia resources including videos, photographs, radio material, computer graphics and interactive DVDs and CDs. These can all be consulted online through the database which CRID updates weekly for specialists, technicians and the general public. In the multimedia resources section you can find updated reports on earthquakes, floods, landslides and other events which cause emergencies and disasters.

From: Disaster Preparedness and Mitigation in the Americas, issue 111, April 2009.

http://www.crid.or.cr/dipecho/acerca_proyecto.shtml

In the framework of the Sixth Plan of Action of the DIPECHO program in Central America, CRID is carrying out a project for the development and strengthening of information management in disaster risk reduction. CRID has created a web page with all information relating to the project: partners and actors involved, results, documents of interest related to legal norms in the region and contact information of DIPECHO partners.

From: Disaster Preparedness and Mitigation in the Americas, issue 111, April 2009.

<http://www.paho.org/English/dd/PED/newsletter.htm>

The current issue and back issues (to 1996) of *Disasters Preparedness and Mitigation in the America* are available online. Edited by the Pan American Health Organization, these newsletters deal with issues of risk management, natural hazards and health-related topics.

PUBLICATIONS

George Washington University Crisis and Emergency Management Newsletter

The students in the Crisis and Emergency Management class at George Washington University prepare a newsletter that focuses on current disaster management trends.

The April 2009 newsletter is available online, with past issues: <http://www.seas.gwu.edu/~emse232/>.

International Codes

The 2006, 2003 and 2000 editions of the International Codes, standards and more than 300 related documents are now available on the Internet at www.eCodes.biz. The new Premium eCodes is cost-effective, integrates codes and standards into a single, online library form and allows users to print, search, compare documents and customize options to meet specific needs.

For the full press release, visit www.iccsafe.org/news/nr/2008/1022eCodes.html

From: WSSPC E-Newsletter, Winter 2008, December 17, 2008, p. 4.

2009 UNISDR Terminology on DRR

The United Nations International Strategy for Disaster Reduction (UN/ISDR) has released an updated version of the 2004 Terminology: Basic Terms of Disaster Risk Reduction titled ***2009 UNISDR Terminology on DRR***. The revisions include addition of words that are central to the contemporary understanding and evolving practice of DRR and the exclusion of words that have a common dictionary usage. A number of emerging new concepts that are not yet in widespread use but are of growing professional relevance have also been included.

For more information and to view the full article: <http://unisdr.org/eng/library/lib-terminology-eng.htm>.

From: WSSPC E-Newsletter, Spring 2009, March 16, 2009, p. 5.

Disaster prevention for schools: Guidance for education sector decision-makers

Published by the United Nations International Strategy for Disaster Reduction (UNISDR) as part of the Thematic Platform for Knowledge and Education, this document asks school administrators, teachers, education authorities and school safety committees “Are your schools safe?” It then details an approach to safeguarding the rights of all children to both education and safety.

To view the full document, visit http://www.preventionweb.net/files/7344_DPforSchoolsm.pdf

From: WSSPC E-Newsletter, Spring 2009, March 16, 2009, p. 7.

Emergency Preparedness for Persons with Disabilities and Special Needs

This final workshop report offers recommendations for creating a standards-based approach to assisting those with special needs during emergencies and natural disasters. Suggestions include incorporating the special needs population in training and disaster exercises, making the public understand that even temporary injury or illness can make them a person with special needs, developing standards for emergency evacuation equipment, and more.

http://www.ansi.org/news_publications/news_story.a.spx?menuid=7&articleid=2200

From: Disaster Research 526, June 4, 2009

Research Digest

The latest issue of *Research Digest*, our (Natural Hazards Center, University of Colorado at Boulder) quarterly publication that compiles recent hazards and disaster research in an easily-accessible format, is now available online. *Research Digest* includes complete references to and abstracts of current research in 24 different topic areas.

Most articles are cataloged as part of the [Natural Hazards Center Library](#) holdings, so check with your local institution for article availability or our library will

copy (subject to copyright restrictions) difficult to obtain material for the cost of reproduction and shipping.

From: Disaster Research 527, June 18, 2009

Response to Disaster: Fact versus Fiction and its Perpetuation

The third edition (2008) of *Response to Disaster: Fact versus Fiction and its Perpetuation—The Sociology of Disaster*, by Henry W. Fischer, III, can be ordered now. The original research of the author is combined with the relevant research literature to describe the behavioral and organizational challenges commonly experienced before, during and after disasters. Actual problems are contrasted with those often misperceived to occur, i.e., the disaster mythology. The role of the mass media in both helping with an effective response as well as their role in the perpetuation of the disaster mythology are revealed through case studies which the author has conducted during the post-impact and long-term recovery periods of major and minor disasters throughout the USA and beyond. Lay perceptions are compared with those of emergency personnel and mass media reporters. Problems encountered by emergency response organizations are also compared and contrasted with lay and media perceptions. The response to September 11, 2001, the South Asian tsunami and Hurricane Katrina are included in this third edition. Data was gathered through a variety of research methods, including mail-questionnaires, participant observation/field work, interviews and content analysis. Available from University Press of America, 1-800-462-6420.

From: UnScheduled Events, v. 27, no. 3, p. 2.

Managing for Long-Term Community Recovery in the Aftermath of Disaster

The Public Entity Risk Institute (PERI) recently published *Managing for Long-Term Community Recovery in the Aftermath of Disaster*. The book is a guide to help local officials and community leaders understand what is required for long-term recovery following a disaster. Co-authored by EERI (Earthquake Engineering Research Institute) members Daniel Alesch and Lucy Arendt along with James Holly, the book distills the experience of dozens of communities to determine the elements that make a community viable in the long term. For additional information or to place an order (\$35), visit www.riskinstitute.org/bookstore.

From EERI Newsletter, v. 43, no. 4, p. 7.

***Managing for Long-Term Community Recovery in the Aftermath of Disaster* (Second review)**

The next frontier for hazards research is community resilience. This book offers a concrete approach to what it calls “community recovery,” focusing on methods to create vibrant and strong communities that are most likely to recover successfully from a disaster.

The authors examine in detail their seven critical steps for preparing for “the next event” so that a community is most likely to recover from it. These are: plan; diversify; network; standardize; position the community; partner; and “start today.”

Managing for Long-Term Community Recovery should prove a very valuable book for people on the ground building resilient communities. It focuses on the pragmatic steps from the social and psychological to taxes and insurance.

Few of these steps will be easily accomplished. The “diversify” step listed above, for instance, refers to economic diversity. “Too much dependency on one industry or too much density in one location seems to increase the likelihood of community collapse,” the authors write.

This is an uncontroversial insight, but “diversifying the economy” is already the number one priority of most communities across the country. The difficulty of accomplishing it is hard to overstate.

Nonetheless, this book should be on the shelf of all emergency planners, if only to remind them that planning for and recovering from a disaster is a complex, inter-linked, step-by-step process.

From. *Natural Hazards Observer*, July 2009, v. 33, no. 6, p. 18. ♦

Material added to the NTHMP Library, July - August 2009

Note: These, and all our tsunami materials, are included in the online (searchable) catalog at <http://www.dnr.wa.gov/ResearchScience/Topics/GeologyPublicationsLibrary/Pages/washbib.aspx>. Click on SEARCH DATABASE, then type ‘tsunamis’ in the Subject field to get a full listing of all the tsunami reports and maps in the collection.

Allen, Stewart C. R.; Greenslade, Diana J. M., 2008, Developing tsunami warnings from numerical model output [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. WP7.

Bhaduri, Budhendra; Tuttle, Mark; Fernandez, Steven, 2008, A solutions network for disaster preparedness and response [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. JA13.

Blanc, P.-L., 2009, Earthquakes and tsunami in November 1755 in Morocco--A different reading of contemporaneous documentary sources: *Natural Hazards and Earth Systems Sciences*, v. 9, no. 3, p. 725-738.

Bouchard, Richard H.; Henderson, Dan; Locke, Lea, 2008, From one extreme to another--Tsunami, hurricane, and El Nino observations from the NDBC Ocean

Observing Systems of systems [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. JA22-JA23.

Bouchard, Richard H.; Wang, Dailin; Branski, Fred, 2008, Faster from the depths to decision--Collecting, distributing, and applying data from NOAA's deep-sea tsunameters [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. JA75.

Burbidge, David R.; Thomas, Christopher; Thio, Hong Kie; Cummins, Phil R., 2008, Assessing the likelihood of a major tsunami offshore Australia and countries in the southwest Pacific [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. WP8.

Chen, Guan-Yu; Liu, Jin-Chu, 2008, Evaluating the location of tsunami sensors--Methodology and application to the northeast coast of Taiwan [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. WP8.

Cummins, Phil R., 2008, Four years after the Sumatra-Andaman earthquake--Are there things we haven't learned? [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. WP9.

Cummins, Phil R.; Baba, Toshitaka; Thio, Hong Kie, 2008, Finite fault inversion for large earthquakes and its potential use in tsunami warning [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. WP117.

Dunbar, Paula, 2009, Integrated tsunami data for better hazard assessments: *Eos (American Geophysical Union Transactions)*, v. 90, no. 22, p. 189-190.

Fernandez, Steven; Li, Huiping, 2008, Perception-based impact upon community resilience in the aftermath of natural disasters [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. JA15.

Fritz, Hermann M.; Kalligeris, Nikos, 2008, Comparison of the 2007 Solomon Islands and Peru tsunamis [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. WP8.

Fritz, Hermann M.; Kalligeris, Nikos; Borrero, Jose C., 2008, Peru 2007 tsunami runup observations and modeling [abstract]: *Eos (American Geophysical Union Transactions)*, v. 89, no. 23, p. JA136.

Goff, J. R.; Chague-Goff, C. 2009, Brief communication--Cetaceans and tsunamis--Whatever remains, however improbable, must be the truth?: *Natural Hazards and Earth Systems Sciences*, v. 9, no. 3, p. 855-857.

- Goff, J. R.; Lane, E.; Arnold, J., 2009, The tsunami geomorphology of coastal dunes: Natural Hazards and Earth Systems Sciences, v. 9, no. 3, p. 847-854.
- Goto, Kazuhisa; Imamura, Fumihiko; Koshimura, Shunichi; Yanagisawa, Hideaki, 2008, Observations and modeling of environmental and human damages by the 2004 Indian Ocean tsunami [abstract]: Eos (American Geophysical Union Transactions), v. 89, no. 23, p. JA23.
- Goto, Kazuhisa; Okada, Kiyohiro; Imamura, Fumihiko, 2008, Distribution and characteristics of boulders transported by storm and tsunami waves at Ryukyu Island chain, Japan [abstract]: Eos (American Geophysical Union Transactions), v. 89, no. 23, p. WP6.
- Gramling, Carolyn, 2009, Giant dunes, not mega-tsunami deposits?: Earth, v. 54, no. 8, p. 12-13.
- Greenslade, Diana J. M.; Simanjuntak, M. Arthur; Allen, Stewart C. R., 2008, An enhanced tsunami scenario database for the Australian Tsunami Warning System [abstract]: Eos (American Geophysical Union Transactions), v. 89, no. 23, p. WP8.
- Koiwa, Naoto; Matsumoto, Hide-aki; Watanabe, Yohei; Tanavud, Charlchai, 2008, Spatial distribution of tsunami deposits by 2004 Indian Ocean tsunami along alluvial plains, southwestern Thailand [abstract]: Eos (American Geophysical Union Transactions), v. 89, no. 23, p. WP6.
- Moersdorf, Paul F.; Burnett, William; Teng, Chung-Chu; McArthur, Shannon; Bouchard, Richard; Collins, Steve, 2008, The U.S. Tsunami Detection Buoy network in the western Pacific [abstract]: Eos (American Geophysical Union Transactions), v. 89, no. 23, p. WP7.
- Nichol, Scott L.; Lian, Olav B.; Horrocks, Mark; Goff, James R., 2007, Holocene record of gradual, catastrophic, and human-influenced sedimentation from a backbarrier wetland, northern New Zealand: Journal of Coastal Research, v. 23, no. 3, p. 605-617.
- Okal, Emile A.; Synolakis, Costas E., 2008, Simulated tsunami hazard in the Indian Ocean [abstract]: Eos (American Geophysical Union Transactions), v. 89, no. 23, p. WP8.
- Suarez, Gerardo; Albini, Paola, 2009, Evidence for great tsunamigenic earthquakes (M 8.6) along the Mexican subduction zone: Bulletin of the Seismological Society of America, v. 99, no. 2A, p. 892-896.
- Suppasri, Anawat; Imamura, Fumihiko; Koshimura, Shunichi, 2008, Comparison among the proposed source models for the 2004 Indian Ocean tsunami [abstract]: Eos (American Geophysical Union Transactions), v. 89, no. 23, p. WP6-7.
- Taylor, Frederick W.; Frolich, Cliff; Hornbach, Matt; Shen, Chuan Shou; Moala, Apai, 2008, Giant boulders cast ashore on Tongatapu Island--Evidence of a great tsunami or a gigantic typhoon? [abstract]: Eos (American Geophysical Union Transactions), v. 89, no. 23, p. WP8-9.
- Titov, V. V.; Gonzalez, F. I., 1997, Implementation and testing of the method of splitting tsunami (MOST) model: NOAA Technical Memorandum ERL PMEL-112; NOAA Pacific Marine Environmental Laboratory Contribution 1927, 11 p.
- U.N. International Strategy for Disaster Reduction, 2007, Words into action--A guide for implementing the Hyogo Framework: U.N. International Strategy for Disaster Reduction, 165 p.
- Villholth, Karen G.; Vithanage, Meththika; Goswami, Rohit R.; Keyakumar, Paramsothy; Manaperi, Sanjeeva, 2008, Salinity impacts of the Indian Ocean tsunami on groundwater and local water supply--Lessons learned from integrated research and support to remediation [abstract]: Eos (American Geophysical Union Transactions), v. 89, no. 23, p. JA136. ♦

FINAL DRAFT: Strategy for introducing tsunami end-to-end testing in California

Prepared by the OES Earthquake and Tsunami Program (California)

Background: A group of OES staff under the leadership of Chief of Staff Tina Curry has been working with the National Weather Service and the coastal operational areas to develop support and implement a plan to carry out California's first end-to-end tsunami communications test in March 2008. The objective is to use live TSW codes that will activate the Emergency Alert System (EAS) in an effort to test the process of issuing a tsunami warning from its origin at the West Coast and Alaska Tsunami Warning Center to the public recipients who are to be warned. Although the intent of this type of warning test is fairly clear (we do not know if it will work in an actual emergency if it is not tested) there has been considerable resistance to conducting these tests, first from the FCC and more recently the California Broadcasters Association and from many of the coastal OA's that had previously expressed an interest in participating in end-to-end tests.

The principal objection is based on concern that there will be unnecessary evacuations due to misunderstandings on the part of the public receiving the test message. In addition, many stakeholders question the costs and benefits of the necessary public information effort, have

(continued on page 19)

Infrequently Asked Questions

Are there tsunami videos on YouTube?

Just typing in “tsunamis” on the YouTube homepage got 21,600 hits on July 27, 2009, but those included Tsunami restaurants and Tsunami sports teams and Tsunami musicians.

[Tsunamis: Know What to Do \(60 mgs\) Captioned](#)
[Non captioned version \(faster download via YouTube](#)
<http://www.weather.gov/stormready/tsunamiready/>

Nature magazine has a 10 minute YouTube video, ‘starring’ Brian Atwater and Brian McAdoo about tsunamis and the 2004 Indian Ocean tsunami called *Ancient Tsunamis*.

There is dramatic footage on YouTube in the *Tsunami Hits Thailand and South East Asia* 8 minute video.

What is the current count for StormReady and TsunamiReady communities?

As of July 17, 2009, there are 1482 StormReady® sites in 50 states, Puerto Rico and Guam: 756 Counties, 634 Communities, 31 Universities, 6 Indian Nations, 15 Commercial sites, 8 Military sites, 11 Government sites.

There are 66 TsunamiReady sites in 10 states, Puerto Rico and Guam, plus 89 StormReady supporters. The full list is given at <http://www.stormready.noaa.gov/communities.htm>.

What are the three basic steps to obtaining a Presidential disaster declaration (in Washington)?

1. Local governments, special purpose districts, and Indian tribes conduct a preliminary inventory of damage to public facilities such as roads, bridges, utilities, and parks. They also collection information from homeowners and businesses about uninsured damages. This information is sent to the Washington Military Department, Emergency Management Division (EMD), to plan how many and what type of damage assessment teams are needed and where.
2. EMD, in conjunction with the Federal Emergency Management Agency (FEMA), organizes and dispatches teams to the community to determine the extent and dollar cost of the damages. Each team includes local, state and federal disaster officials. Teams assess damage to individuals, farms, and small businesses, as well as damage to public facilities.
3. The information collected helps the Governor decide whether the recovery effort is beyond the capacity of local and state government. The Governor can request a disaster declaration from the President. The Governor’s request is sent to the President through the FEMA Region X office in Bothell, Washington.

Are there tsunami blogs?

<http://tsunamihelp.blogspot.com/> South-East Asia Earthquake and Tsunami Blog.

Also, there is an interesting article about blogging during natural hazard crises:

“Tsunami Blogs Respond to Disaster”

by Miguel Ramos | Library Technician, Inter-Library Loans, Western Washington University
and Paul S. Piper | Librarian, Western Washington University

What can modify a tsunami as it approaches land?

Reefs, bays, entrances to rivers, undersea features and the slope of the beach can all help to modify an approaching tsunami.

From: Physics of Tsunamis, 1-14-99; current page is

<http://www.geophys.washington.edu/tsunami/general/physics/physics.html>

VIDEO-CD-DVD RESERVATIONS

To reserve tsunami videos, CDs or DVDs, contact *TsuInfo Alert* Video Reservations, Lee Walkling, Division of Geology and Earth Resources Library, 1111 Washington St. SE, MS 47007, Olympia, WA 98504-7007; or e-mail lee.walkling@dnr.wa.gov

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.

Business Survival Kit for Earthquakes & Other Disasters; What every business should know before disaster strikes (27 min.). Global Net Productions for the Cascadia Regional Earthquake Workgroup, 2003. With CD disaster planning toolkit & other data.

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

Cascadia: The Hidden Fire—An Earthquake Survival Guide (10 min.). Global Net Productions, 2001. 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.

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.

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

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.

International Tsunami Information Centre, 2004, Tsunami warning evacuation news clips and video footage. UNESCO /IOC International Tsunami Information Centre, 1 **DVD**, 12 min.

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

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

Not Business as Usual: Emergency Planning for Small Businesses, sponsored by CREW (Cascadia Regional Earthquake Workgroup) (10 min.), 2001. 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.

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.)

Ocean Fury—Tsunamis in Alaska (25 min.) VHS and **DVD**. Produced by Moving Images for NOAA Sea Grant College Program, 2004.

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. 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.

Run to High Ground (14 min.). Produced by Global Net Productions for Washington Emergency Management Division and Provincial Emergency Program of British Columbia, 2004. Features storyteller Viola Riebe, Hoh Tribe. For K-6 grade levels. Have video and **DVD** versions.

Tsunami and Earthquake Video (60 min.). "Tsunami: How Occur, How Protect," "Learning from Earthquakes," "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.). 2 versions, one with breaks inserted for discussion time.

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

Tsunami Evacuation PSA (30 sec.). DIS Interactive Technologies for WA Emergency Management Division. 2000.

TsunamiReady Education CD, 2005, American Geological Institute Earth Science Week kit.

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

UNESCO/IOC International Tsunami Information Centre, 2005, U.S. National Tsunami Hazard Mitigation Program public information products—B-roll footage, tsunami science, warnings, and preparedness: UNESCO/IOC International Tsunami Information Centre, 1 **DVD**, 57 min.

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. ♦



(continued from page 16)

doubts about the necessity of such tests or, as some OAs have expressed, their tsunami planning efforts have not matured to the point that they are comfortable with such tests. These concerns have persisted despite assurances that extensive planning and a pre-test public information campaign will precede the test and that care will be taken in providing voice over at the time of the exercise indicating that this is a test.

Last year, OES in partnership with NOAA; National Weather Service had planned to hold an end-to-end test but permission to proceed from the FCC came too late to adequately prepare for the test. This year, the issue of end-to-end tsunami testing was discussed at a recent California Broadcasters Association meeting and the response to the proposed test was negative. In addition, some of the northern coastal OA's that had previously expressed an interest in participating in an end-to-end test have since backed away from participation. Only Monterey, Humboldt and Del Norte have continued to affirm their willingness to take part in the test.

Thus, we recommend a logical approach which is a phased multi-year plan, building interest, confidence and capability over time; at the same time we must provide evidence to the legislature and others concerned about tsunami readiness that we are making progress.

Year 1: 2007/08 Though a conservative approach, we recommend a tsunami end-to-end communications test in Humboldt County only in March 2008. Although other counties have expressed a willingness to participate in end-to-end tests next year, we feel that any end to-end test must be conducted in contiguous counties due to the EAS communications "spillover" into bordering counties that are not participating. Thus, Monterey and Del Norte were eliminated due to EAS spillover into both the wider Bay Area in the case of Monterey and into Curry County, Oregon in the case of Del Norte. Humboldt County OES has agreed to participate in the test and we are prepared to move forward in communicating with local broadcasters and elected officials to secure support. Thus, our strategy for March 2008 is as follows.

Working in cooperation with the National Weather Service, the Redwood Coast Tsunami Work Group, and Humboldt County OES, we will

- Secure the support of Humboldt County elected officials including the City Council of Eureka and the Humboldt County Board of Supervisors. Hold a briefing for all city and

county departments to explain the objectives of the test.

- Through the NWS Western Regional Office, coordinate planning with other states conducting end-to-end tsunami communications tests on the same day in 2008 and work with NWS Public Affairs staff in assuring the consistency of messages to the public and public service announcements prior to the test.
- Carry out a program of outreach to local news organizations with particular emphasis on the LP1 organizations that carry EAS messages explaining the purpose of the test and securing their support.
- Carry out a program of outreach to coastal residents of Humboldt County in particular and residents of all parts of the county in general.
- Promote the implementation of public education events leading up the March 2008 exercise including planned evacuations on the day of the test.
- Brief the California Broadcasters Association on the planned test in Humboldt County and ask that they assign an observer on the day of the test. In anticipation of the briefing, prepare materials for the CBA that explain our objectives in carrying out an end-to-end tsunami test.
- Notify the FCC that California will hold an end-to-end tsunami test on March 26, 2008.
- Hold regular conference calls at least once per month that include representatives of all participating agencies.

Year 2: 2008/09 Depending on the success of the March 2008 Humboldt County End-to-End Tsunami Test, we hope to expand participation in the Year 2 test to include all of northern California from Del Norte south to Monterey inclusive. Expansion to include additional counties assumes that the Humboldt County exercise was completed with a minimum of problems, such as unnecessary evacuations due to confusion or lack of adequate outreach, negative press coverage from key local or regional news organizations, or continued opposition to testing by the CBA. The strategy for year 2 will include the following steps:

- Through the California Tsunami Steering Committee, secure the support and participation of all northern California Operational Areas in a March 2009 Tsunami End-to-End Communications Test.
- Secure the cooperation of all state and federal agencies likely to participate in the end-to-end test through the lead agencies (i.e. OES and NWS).
- Work through Operational Area OES to secure the support of elected officials at the city and

- Building on the presumed success of the 2008 test, conduct a comprehensive outreach program with the LP1 and LP2 organizations in the region, again working through the CBA.
- Through a coordinated outreach effort lead by OES (Earthquake and Tsunami Program, OPI, CSWC), NWS (Eureka and Monterey Weather Forecast Offices) and the California Tsunami Steering Committee, inform northern California coastal residents, visitors and coastal county residents in general of the planned test and its objectives.
- Notify the FCC of California's intention to conduct a tsunami end-to-end test in March 2009.
- Invite Board of the CBA to serve as observers and test evaluators for the end-to-end exercise.
- Hold regular conference calls at least once per month and more often in the last 3 months prior to the test.
- Encourage local government to organize special public education events leading up to the test and conduct selected evacuations on the day of the test.

Year 3: 2009/2010 Once again, contingent upon the successful execution of the end-to-end test in northern California in March 2009, an attempt will be made to involve the entire state of California in a tsunami end-to-end test in March 2010. The achievement of this objective will require a major planning effort and a significantly expanded outreach program that may necessitate external funding and additional support from NOAA and the NWS. However, it must be assumed that the experience of having completed a test the previous year which included nine northern California counties and one major metropolitan area, provided valuable lessons that will be applied as the test goes statewide. The measures to be taken to prepare for a statewide end-to-end tsunami communications test in 2010 include:

- Through the California Tsunami Steering Committee, secure the support and participation of all California Operational areas to participate in a March 2010 Tsunami End-to-End Communications Test.
- Secure the cooperation of all state and federal agencies likely to participate in the end-to-end test through the lead agencies (i.e. OES and NWS).
- Work through Operational Area OES to secure the support of elected officials at the city and county levels. OES and NWS

personnel will be prepared to address city councils and boards of supervisors to explain goals of the tests, as necessary.

- Building on the presumed success of the 2009 test, conduct a comprehensive outreach program with the LP1 and LP2 organizations in the state, again working through the CBA.
- Through a coordinated outreach effort led by OES (Earthquake and Tsunami Program, OPI, CSWC), NWS (all California Weather Forecast Offices) and the California Tsunami Steering Committee, inform California coastal residents, visitors and coastal county residents in general of the planned test and its objectives.
- Notify the FCC of California's intention to conduct a tsunami end-to-end test in March 2010.
- Invite the Board of the CBA to serve as observers and test evaluators for the end-to-end exercise.
- Hold regular conference calls at least once per month and more often in the last 3 months prior to the test.
- Encourage local government to organize special public education events leading up to the test and conduct selected evacuations on the day of the test.

From: http://nthmp.tsunami.gov/documents/statagicplan_end-to-endtesting_2008-2010.doc

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First test , Humboldt County only, March 26, 2008
<http://www.wrh.noaa.gov/eka/misc/tsunamitest.php>

Second test, Del Norte, Humboldt, and Mendocino Counties, March 25, 2009
<http://tomonkgoe.blogspot.com/2009/03/tsunami-warning-test-set-for-wednesday.html> ♦

Tsunami work nets award *(continued from page 6)*

said Peggy O'Neal, the planning director for the tribe who hired Nessier as the emergency services coordinator.

Through her work, Nessier made the Yurok Tribe the first to be recognized in California as tsunami-ready. She also organized the largest tsunami evacuation drill ever conducted in California when she orchestrated the evacuation of buildings and low-lying areas in the Klamath region last November.

"I really feel like this has been a whole group and community effort," Nessier said, adding that she appreciates the recognition. "There's been a lot of support in a lot of different ways to get me here. I really in no way can take all the credit for that."♦