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Disaster responses provide painful, useful lessons

By Susan Taylor Martin, Times Senior Correspondent

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St. Petersburg Times

From: <http://www.tampabay.com/news/world/disaster-responses-provide-painful-useful-lessons/1065473>

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Haiti is just the latest in a series of countries — Indonesia, Pakistan, Iran, China and India — to be struck by a major earthquake in recent years. But lessons learned from other quakes could help the Western Hemisphere's poorest nation emerge in better shape than before.

"The Chinese term for disaster is two characters — crisis and opportunity — and many people have to see the actual extent of exposure before they are willing to make changes," says Louise Comfort, an expert on disaster response at the University of Pittsburgh. "After the 2004 earthquake and tsunami in Aceh, it was so terrible people realized they were better working together than fighting one another." Aceh, Indonesia — then wracked by civil war — is now largely at peace and 127,000 homes have been rebuilt to tough new standards.

As horrific as conditions are, Haiti is fortunate to be just 800 miles from the United States and its vast civilian and military resources. Within a day of Tuesday's quake, supplies were on their way as American teams set up a temporary control tower at the Port-Au-Prince airport to handle the crush of humanitarian flights.

Unlike other recent earthquakes, this one struck a nation's capital, damaging or destroying what few government resources there were. The inability of Haiti's government to respond puts a huge burden on international agencies, which must get food, medicine and other aid to victims despite blocked roads and widespread power outages.

"We need to do the first things first, get through the first two weeks," said former President Bill Clinton, the U.N. special envoy to Haiti. "And there has to be very close coordination between the United States military and any other military assets we have."

In coming days, aid workers might also heed a report by ALNAP, a consortium of humanitarian organizations, titled, "Learning From Earthquake Relief and Recovery Operations."

Lesson one

Don't prolong the relief phase, the immediate aftermath of a quake when the goal is to save lives and reduce suffering. After the Indonesian disaster, economic recovery was delayed because even people who had jobs stopped going to work and instead stood in line "each day to sign up for different items from different donors," the report says.

(continued on page 3)

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(continued from page 1)

In contrast, a well-run relief effort can end fairly quickly. Within 24 hours of the 2003 Iranian quake, all of the homeless had been sheltered in 70,000 tents.

Lesson two

Don't overstate the risk of disease. Despite a popular perception, outbreaks of cholera and other communicable diseases are rare after disasters.

"The problem with basing actions on myths is that resources that could be better used for dealing with real problems are frittered away on imaginary ones," the report says. Although there was no confirmed case of cholera in Aceh, an immunization campaign targeted 160,000 people with expensive oral vaccines.

Lesson three

Give cash to local people for short-term work like clearing rubble. As shown by the pancaked structures in Port-au-Prince, earthquakes create huge amounts of rubble that must be cleared before rebuilding starts. The debris often contains materials that can be used for temporary shelter or salvaged for resale, like wiring.

Cash-for-work programs are controversial. Critics say they undercut traditions of volunteer communal labor, such as neighbors repairing or rebuilding homes. But as the 2006 quake in Yogyakarta, Indonesia, demonstrated, "cash has not only proved to be the most flexible form of assistance, but it has also had a significant impact on the recovery of the local economy," researchers found.

Lesson four

Restoring livelihoods is the key to recovery, but is also hard to do right. After the 2004 Indonesian quake and tsunami, aid groups concentrated on getting new boats instead of repairing damaged ones so fishermen could quickly get back to sea. That decision had another negative consequence: So many people got boats, there weren't enough crew members for larger ships that were able to go beyond over-fished coastal waters.

In Bam, Iran, aid groups gave irrigation for orchards a low priority, devoting resources to shelter, schools and drinking water. But survivors gave irrigation the highest priority because they feared losing their date and citrus trees.

In general, victims "constantly emphasized the need to restore livelihoods rather than receive relief and expressed some frustration that outsiders did not listen to them on this," the report says.

Lesson five

Don't rebuild vulnerability. Any new construction should be designed and built to resist major hazards — in Haiti's case, hurricanes as well earthquakes. Indonesia

and Pakistan upgraded their building codes in high-risk areas after disaster struck.

The report warns that recovery from earthquakes often takes longer than anticipated; in Aceh, "temporary" shelters were still going up 18 months after the quake and tsunami. And disaster response is "no magic bullet" for undoing the corruption, poor governance, underdevelopment and social inequalities that make places like Haiti so vulnerable to catastrophe in the first place.

But earthquakes can bring about positive changes, especially if the local population is integrally involved in the recovery. The weeks and months after a quake are also the prime time to stress community preparedness for the next disaster because most survivors are rescued by friends and neighbors, not organized teams.

Outsiders, though, sometimes overlook what locals manage to do under extreme conditions. In the 2001 Gujarat, India, quake, "while thousands were pulled from the rubble by neighbors and local officials, the (British) media focused on the 69-strong British team that rescued just seven people," the report notes. ♦

HAITI SECTION

To: U.S. and Canadian Atlantic, and Gulf of Mexico coastal regions
From: NOAA/NWS/West Coast and Alaska Tsunami Warning Center
Subject: Tsunami Information Statement #1 issued 01/12/2010 at 6:03PM AST

A strong earthquake has occurred, but a tsunami **IS NOT** expected along the coasts of Puerto Rico, the Virgin Islands, U.S. Atlantic and Gulf of Mexico states, and Eastern Canadian provinces. **NO** tsunami warning, watch or advisory is in effect for these areas.

Based on the earthquake location, magnitude, and historic tsunami records, a damaging tsunami **IS NOT** expected along the Puerto Rico, Virgin Islands, U.S. Atlantic, Eastern Canadian and Gulf of Mexico coasts. Earthquakes of this size can generate destructive tsunamis along the coast near the epicenter. Authorities in the epicentral region should be aware of this possibility and take appropriate action.

At 5:53 PM Atlantic Standard Time on January 12, an earthquake with preliminary magnitude 7.3 occurred in the Haiti region. (Refer to the United States Geological Survey for official earthquake parameters.)
<http://wcatwc.arh.noaa.gov/2010/01/12/333319/01/message333319-01.htm>

Don't look away: Haitian catastrophe could be a chance to see the dimensions of resilience

Disaster Research 538, Jan. 20, 2010

It's no overstatement to say that all eyes have been on Haiti since the nation was rocked by a shallow, 7.0 magnitude earthquake on January 12. The nature of those gazes, however, has varied distinctly. In the beginning, there were the furtive, train-wreck glances of social media and the frustratingly slow, only slightly more in-depth views from breaking news reports. Now, even while the delivery of aid is spotty, some look ahead to the coming days of immediate recovery and others look to past events that exacerbated the losses in what was already a devastating disaster.

And more than likely, the world will soon look away. It wouldn't, after all, be the first time. Haiti has been battered by disaster—natural, political, social, and economic—for centuries. In the last decade, especially, we've had good reason to focus on the beleaguered nation, but somehow couldn't maintain eye contact, as former Clinton politico David Rothkopf pointed out in a post on the [National Public Radio](#) Web site Wednesday.

"We have watched repeatedly as hurricanes have battered Haiti and left it staggered because just a few hundred miles away from the richest country on earth was one so deprived that it was ill-equipped even for the predictable weather that came with so many autumns," he wrote. "We knew all this and yet with every failure to act or to follow through on a good intention, we assured yesterday's outcomes."

More good intentions will undoubtedly rise from the rubble of the Haitian quake; the question is how can they be manifested into a resilient nation once the media spotlight winks out.

"We are all very aware of the 'CNN effect' in disasters," said Natural Hazards Center Director Kathleen Tierney. "While the cameras are there to highlight the plight of disaster victims, the whole world is watching. "But what happens when the media leave and the drama of lives being saved transitions into the gritty business of providing for the daily survival needs of hundreds of thousands of victims? Aid workers and agencies converge to provide assistance to disaster-stricken communities, but what happens when they leave and move on to the next disaster? What will it take to meet the challenges of recovery in a devastated nation?"

While much of the discussion is shortsighted, some have begun to speculate on those questions—and perhaps even provide a glimmer of the answers.

"First we must care for the injured, take care of the dead, and sustain those who are homeless, jobless and hungry," Bill Clinton, former president and the United Nation's special envoy for Haiti, wrote in the *Washington Post* last week. "As we clear the rubble, we will create better tomorrows by building Haiti back better: with stronger buildings, better schools and health care; with

more manufacturing and less deforestation; with more sustainable agriculture and clean energy."

But promises to build back better aren't enough, writes GeoHazards International Founder Brian Tucker in a *Guardian* editorial. Locals need to be trained to construct buildings that are resistant to disaster, they need to be educated on disaster preparedness, and laws and infrastructure must be put in place to assure disaster mitigation.

"I would call for agencies soliciting funds for the response to and recovery from the Haitian earthquake to commit 10 percent of the amount that they collect to mitigating future earthquakes..." he writes. "Why 10 percent? Because the rule of thumb is that each dollar invested in preventing natural disasters saves 10 dollars in future damage."

While those overarching efforts are certainly necessary, others see a bottom-up approach as potentially more valuable when brick meets mortar. A recent *New York Times* [article](#) highlighted the need for small-er, localized efforts to get the most staying power out of paradigm shifts.

"You can't just sweep in from outside and drop something in and say, 'This is exactly what you need,'" Laura Sampath, manager of the International Development Initiative at the Massachusetts Institute of Technology, is quoted as saying. "It has to be almost driven from the community."

Whatever the outlook for Haiti in the months and years ahead, the most important challenge for pragmatists and visionaries alike will be not to look away from the destruction. Haiti, so often overlooked, will deserve more than a second glance and the type of scrutiny that's been denied to it thus far.

"Good intentions and a pregnant moment were overtaken by events ... and in a way, that's when [the] tragedy began," Rothkopf wrote. "With every dollar withheld, with every program withdrawn, with every aid worker shifted to a different front in a more politically pressing development initiative, somebody's death was foretold."

UN officials give eyewitness accounts of moment Haiti quake struck

<http://www.un.org/apps/news/story.asp?NewsID=33487&Cr=haiti&Cr1=>



Kim Bolduc, UN Humanitarian Coordinator in Haiti

14 January 2010 – At 4:53 p.m. on Tuesday David Wimhurst, United Nations Communications Director in Haiti, was working on the third floor of the Christopher Hotel, headquarters for the world body's mission in the capital, Port-au-Prince, when the massive 7.0 magnitude quake struck.

"It accelerated with extreme violence," he told a news briefing in New York by video-conference from ground zero today. "The entire building was shaking violently and I was hanging on to furniture just to stop myself from being thrown around the room and praying that the big concrete pillar in the middle of my office would not break and bring the whole building down on me.

"When it subsided, the central part of the MINUSTAH [UN mission in Haiti] headquarters had collapsed and blocked off access to the outside from my office so all the people like me had to get out of my window and go down three storeys on a ladder, a rather rickety ladder," he said of the quake that had turned much of the hotel into a pile of rubble.

Scores of UN staff were killed or injured and some 150 others are still unaccounted for, including Secretary-General Ban Ki-moon's Special Representative Hédi Annabi, both in the hotel and elsewhere. It must be expected that more bodies will be found as the concrete is moved, said Mr. Wimhurst, adding that he thinks the final overall Haitian toll, which some have estimated at scores of thousands, will be very large.

In another part of town Kim Bolduc, the Deputy Special Representative of the Secretary-General and UN Humanitarian Coordinator in Haiti, was working on the second floor of the main UN Development Programme (UNDP) building when the quake struck.

"It was extremely violent, I didn't even have time to seek cover," she told the same briefing. "I was sitting on my chair and holding on to the table. Everything collapsed around. I saw the wall in front of me opening up with a very large crack and I was just hoping that it would stop. It lasted a long time."

The building was very badly damaged but still standing, while a second UNDP building across the street collapsed completely.

Ms. Bolduc, a Canadian citizen of Vietnamese origin, described heart-rending scenes in the aftermath – "many bodies on the streets, a lot of injured just lying around, houses destroyed, very new and lush buildings just collapsed, the situation is very dire" with people sleeping in the streets.

"People are all in a state of shock, they're not really talking, they are just gathering and sitting together, just waiting for something to happen and fearing after-shocks," she added.

Mr. Wimhurst, also a Canadian, warned of potential anger among the population as their expectations outrun the ability of humanitarian organizations to meet their needs. "It's a hopeless situation," he said. "They want

us, they expect us to provide them with help, which is of course what we want to do but we're not in a situation yet where we can do that on a massive scale and, unfortunately, they're slowly getting more angry, I think, and impatient..."

"We're all rather aware of the fact that the situation is getting more tense as the poorest people, who do not need so much, are waiting for deliveries, and of course we're trying to do everything we can to get them the help they need. I think tempers might become frayed."

He said he was confident that MINUSTAH had sufficient numbers of military and police in the Port-au-Prince area to handle the situation, but it would bring in reinforcements from other parts of the country if necessary.

"One of the problems is that the national Haitian police are not visible at all, they've simply vanished, they've disappeared so all law and order requirement have to be maintained by us," he added, although he said this was not a criticism of the police since their family members had been killed or injured and their homes destroyed.

MINUSTAH was set up in 2004 after then president Jean-Bertrand Aristide went into exile amid violent unrest. Currently it has more than 9,000 military and police personnel and nearly 2,000 civilian staff.

HAITI WEBSITES

Ushahidi Haiti

<http://haiti.ushahidi.com/main>

Created to chart political unrest in Kenya, Ushahidi collects crisis information sent from cell phones, e-mails, or other web-based technologies, aggregates it, and maps it. This page, customized for the 2010 Haitian earthquake, has been a work in progress since the early hours of the event.

From: Disaster Research 538, Jan. 20, 2010

Crisis Commons Haiti Earthquake Wiki

[http://wiki.crisiscommons.org/index.php?title=Haiti/2010 Earthquake](http://wiki.crisiscommons.org/index.php?title=Haiti/2010_Earthquake)

Crisis Commons, an international project that provides technological tools for disaster response and mitigation, has been holding Crisis Camps—crisis-specific brainstorming/production sessions—across the nation. This wiki shows what's come of the camps so far and is a wealth of links to further resources.

From: Disaster Research 538, Jan. 20, 2010

Haiti Supersite

<http://supersites.unavco.org/haiti.php>

This supersite (which aggregates geological hazards information from NASA, Group on Earth Observations, and the NSF) is now hot off the presses for Haiti, featuring fresh Synthetic Aperture Radar (SAR) image-

ry, and seismological, topographical, and GPS data. Those interested in studying the January 12 earthquake from an earth science perspective will find everything from the earth's surface deformation to resource links.

From: Disaster Research 538, Jan. 20, 2010

GSA PROVIDES OPEN ACCESS TO HAITIAN EARTHQUAKE RESEARCH

Boulder, CO, USA - In response to the 12 January 2010 earthquakes in Haiti, The Geological Society of America has compiled a list of open-access papers on the Caribbean plate and the Enriquillo-Plaintain fault line. These articles, from *GSA Bulletin* and the GSA Special Papers collection, span the years 2009 to 1954.

Access the literature at:

<http://www.gsapubs.org/site/misc/Haiti.xhtml>.

Please make reference to The Geological Society of America, GSA BULLETIN, or the referenced GSA Special Paper in articles published.

Contact Christa Stratton for additional information or assistance. www.geosociety.org

Received Jan. 14, 2010

CNN I'm alive: Messages from Haiti

<http://www.ireport.com/ir-topic-stories.jspa?topicId=389953>

As part of CNN's Missing Person's project, CNN crews on the ground in Haiti are working to relay messages from those affected by the earthquake back to their loved ones.

CNN's medical correspondent reports from the front lines.

<http://www.oprah.com/oprahshow/CNNs-Dr-Sanjay-Gupta-Reports-from-Haiti>

His reports deals with what worries him most about emergency medical care in Haiti.

RECOMMENDED HAITI ARTICLES ONLINE

(for which *TsuInfo Alert* did not get reprint permission)

Aid effort tougher than tsunami, Oxfam says

BBC News

<http://news.bbc.co.uk/2/hi/americas/8464330.stm>

Charl van der Merwe, a project manager for Oxfam in Haiti, reports on aid efforts and the struggle to get supplies and help to those who need it...a first-hand account, dated Jan. 17, 2010

Relief effort hits close to home for Pena (an eyewitness account)

http://mlb.mlb.com/news/article.jsp?ymd=20100118&content_id=7933838&vkey=news_mlb&fext=.jsp&c_id=mlb

Baseball star Carlos Pena experiences the earthquake in Santo Domingo. His account shows that some people have been paying attention to earthquake and tsunami education.

First-hand accounts from our correspondents in Port-Au-Prince (France 24 International News)

<http://www.france24.com/en/20100121-haiti-earthquake-bell-aftermath-humanitarian-aid-special-correspondent>

International aid arrives to face logistical nightmare

<http://www.france24.com/en/20100115-haiti-earthquake-international-aid-logistical-nightmare> ♦

Twitter tells the story of devastation following quake

<http://www.france24.com/en/20100113-twitter-ablaze-with-messages-support-distress-following-major-quake-haiti-social-networking-microblogging-site>

“The storm of Twitter activity following the earthquake in Haiti is a reminder of how social networking sites – rather than traditional news media - have become the first stop for information about and reactions to major catastrophes.”

“Build back better” in Haiti: Lessons from the Indonesian tsunami

http://www.brookings.edu/opinions/2010/0121_haiti_aid_kharas.aspx

“The calamity in Haiti is a reminder that the tragedy of disasters is not natural, but manmade. The loss of life that officials now estimate to be between 100,000 to 200,000 would place the Haitian quake as the 7th most deadly earthquake in history. It is no accident that all disasters with the greatest loss of life are in poor areas. When disasters strike poor countries, they kill people; when they strike rich countries, they damage property.”

Based on Indonesian recovery plans, Homi Kharas of The Brookings Institute argues that plans for Haiti's recovery should establish a Haiti Reconstruction Agency, focus on livelihoods and jobs, and maintain transparency.

The Haiti quake must not be dismissed as an ‘act of God’

<http://www.guardian.co.uk/commentisfree/2010/jan/14/p-repairing-for-earthquakes-building-safety>

Complete text of Brian Tucker's plea for mitigation and preparedness beyond “Build back better.” There is also a link to this text on page 4.

A deadly quake in a seismic hot zone

<http://www.nytimes.com/2010/01/26/science/26fault.html>

NY Times report on the geology and earthquake potential of the Caribbean region. ♦

REGIONAL REPORTS

ALASKA

UAF researchers chart tsunami danger to coastal towns

by Jeff Richardson / jrichardson@newsminer.com

12.13.09 Reprinted with permission

http://www.newsminer.com/pages/full_story/push?article-UAF+researchers+chart+tsunami+danger+to+coastal+towns%20&id=5132647UAF+researchers+chart+tsunami+danger+to+coastal+towns&instance=home_news_window_left_top_4



Roger Hansen, left, Elena Suleimani, middle, and Dmitry Nicolsky of the Alaska Earthquake Information Center pose in their offices Tuesday, Dec. 8, 2009, on the University of Alaska Fairbanks campus. The team of researchers are mapping tsunami inundation zones for coastal Alaska communities. Sam Harrel/News-Miner

FAIRBANKS — A team of University of Alaska Fairbanks researchers traveled to Seward last week to deliver the news: The Kenai Peninsula coastal community is a candidate to be inundated by a massive tsunami. But the grim sight of a massive wall of water rolling through the streets of Seward was a welcome presentation — mostly because it happened on a computer screen. Using a combination of geographic data and complex computer modeling, the UAF research team was able to use animation to show specifically where and how a hypothetical tsunami could affect the city. The scenario will be played out at other coastal Alaska towns in the years ahead, allowing them to use the information for planning, future development and creating better evacuation routes.

“It’s a very valuable drill,” said Phillip Oates, the Seward city manager. “It’s very useful to see what the event would be from a computer simulation.”

Not so long ago, Elena Suleimani said it was tough to get anybody interested in tsunami research. The UAF research analyst at the Alaska Earthquake Information

Center has spent more than a decade studying and mapping the massive waves, but despite the sensational possibility of deadly floods and swamped coastlines, it was not a subject that seemed to attract much attention.

That isn’t the case anymore. In 2004, an earthquake in the Indian Ocean off the coast of the Indonesian island of Sumatra triggered a tsunami that killed nearly 230,000 people. Since then, the list of Alaska communities asking for tsunami mapping has grown from 11 to more than 70.

“Before Sumatra, we couldn’t even find communities that were interested in tsunamis,” Suleimani said.

Inundation maps also have been done in Kodiak, Homer and Seldovia. Next up are Whittier, Cordova, Sitka and Valdez. Whittier is in the early stages of its mapping process, but Suleimani said it’s already discovered a few interesting details, including the presence of a rail yard in an inundation zone.

“I think this is going to be a tremendous resource, asset for the community,” Whittier City Manager Mark Earnest said.

The project gained momentum in 1998, when the National Tsunami Hazard Mitigation Program was funded, giving each coastal state the ability to chart hazards. The “inundation mapping” project combines the forces of a variety of state and federal agencies — UAF’s Alaska Earthquake Information Center, the Alaska Division of Geological and Geophysical Surveys, the Alaska Division of Homeland Security, NOAA’s National Geophysical Data Center, and the Arctic Region Supercomputing Center.

The process has come a long way in the past decade. In 1998, when the first inundation map of Kodiak was made, it was superimposed on a basic topographic chart. The most recent maps of Seward include detailed computer animation, capable of showing how earthquakes of various strengths and locations would affect the community.

The mapping determined that 210 million cubic meters of sediment collapsed into Resurrection Bay when the 1964 Good Friday earthquake hit, raising the floor of the bay by 13 meters. Landslides also diverted several creeks, changing the drainage patterns in the area.

Those factors mean the danger zones for a tsunami aren’t necessarily the same as they were back in 1964. “It’s pretty straightforward,” Suleimani said, “but people need to know.”

A few factors have aided the process in the past few years. Geographic data, which is often incomplete or inaccurate in Alaska, is steadily improving as more surveys are made. Meanwhile, UAF seismologist Dmitry Nicolsky arrived in January 2008 and programmed new software that allows researchers to better simulate tsunamis.

Suleimani said it's a more rigorous process in Alaska than in most places. Some states, such as Oregon, have predictable tsunami danger along the entire coastline. That isn't the case in Alaska, where uneven topography gives each community unique problems.

"In Alaska, every community has its own specifics in every aspect," Suleimani said.

Suleimani said the threat of a tsunami is more than just an abstract exercise. In the past 4,000 years, researchers have been able to find evidence of seven Alaska earthquakes the size of the one that shook the state in 1964.

"They happen regularly, just not always in someone's lifetime," Suleimani said.

Oates said the tsunami simulation largely confirmed an outcome that Seward residents had already expected. But he said the presence of a "living document" will add another ingredient to future planning decisions that city leaders make.

"Something like this is always useful," he said.

CALIFORNIA

Cal EMA, CGS, and USC join state, federal and local emergency responders to launch new California tsunami inundation maps

MATHER – Today, representatives from the California Emergency Management Agency (Cal EMA), the California Geological Survey (CGS) and other state, federal, and local government officials participated in a press event to launch the newly updated California Tsunami Inundation Maps. Held at the Moscone Center in San Francisco, CA, and coinciding with the American Geophysical Union Conference, this media event provided all contributors opportunity to discuss the value of such maps in the area of emergency preparedness, and the value of the partnership between these agencies and Tsunami Research Center at the University of Southern California, which also contributed to producing the maps.

"California's coast is subject to tsunamis from both local offshore earthquakes and underwater landslides, and distant sources, such as the 1964 Alaskan quake that spawned a deadly tsunami in Crescent City – it's important to educate the public, and prepare them for the very real possibility of a tsunami emergency" said Cal EMA Secretary Matthew Bettenhausen.

This collaborative group, known as the California Tsunami Program, works closely with local government emergency planners to provide assistance and guidance to help prepare communities for the next tsunami. For more than two years specialists have been developing and modeling offshore earthquake and submarine landslide scenarios in order to identify the potential tsunami inundation for each coastal community.

"These maps show the maximum inland inundation as a product of the 40 different tsunami scenarios we

looked at for California," states Rick Wilson from CGS who was the state scientific lead on the project.

The resulting 130 maps, which are based on the most up-to-date methodologies, cover vulnerable areas along the California coast, about 50% of the state's 840 mile-long coastline. These maps also encompass approximately 90% of the coast from Santa Barbara to the Mexico border, and 100% of the San Francisco Bay Area, the first time the state has developed tsunami inundation maps inside the Bay.

Funded through the National Tsunami Hazard Mitigation Program, the state program has worked with county and city emergency managers to help incorporate these tsunami inundation maps into their emergency response plans. The finalized maps are now available to the public through the Cal EMA and CGS websites. (www.conservation.ca.gov/cgs and myhazards.calema.coa.gov)

Jim Goltz, Manager of the California Tsunami Program at Cal EMA, stressed the importance of a well-educated and highly aware public, and how communities should be aware of natural warning signs and official warning signs. Natural warning signs include:

- Strong ground shaking
- A loud ocean roar
- An advancing wave on the horizon, or the water receding unusually far from the beach, exposing the sea floor.

"The public shouldn't wait for an official warning for a tsunami caused by a local earthquake. If you are on the coast and feel strong shaking, you should know to first protect yourself from the earthquake, then move to high ground and stay there," according to Kevin Miller, also with Cal EMA, working to map the threat along the coast.

"With the devastating Samoa Islands tsunamis fresh in our minds, Californians should identify if they are at risk to tsunamis where they live, work, or play," Goltz said. The state has developed updated brochures so that everyone can educate themselves in advance of tsunami hazards where they live or work.

The California Tsunami program recommends that the public visit the state websites below to see the new inundation maps, find links to local emergency preparedness and planning websites, and find out more about tsunami hazards and what they should do if a tsunami is coming. For more information visit: www.myhazards.calema.ca.gov; California Geological Survey www.consrv.ca.gov/cgs; NOAA West Coast and Alaska Tsunami Warning Center www.catwc.arh.noaa.gov

Let's make the coverage in this Regional section more widespread. Send *TsuInfo Alert* reports on your activities, programs, and products. Email address, page 2.

HSU guide seeks to improve quake, tsunami readiness

The Times-Standard

http://www.times-standard.com/localnews/ci_13813775

Posted: 11/18/2009 01:15:32 AM PST

Humboldt State University's Humboldt Earthquake Education Center, in coordination with the Redwood Coast Tsunami Group, has produced a new edition of the preparedness handbook "Living on Shaky Ground," which will soon update northern California residents on how to survive the kind of devastation wreaked five years ago when an Indian Ocean tsunami killed at least 230,000 people in 11 countries. It was the worst recorded tsunami ever.

The new booklet addresses one of the main reasons for the high casualties in the south Asia disaster -- simple ignorance of the dangers. It is based on the latest scientific, engineering and sociological research, is written in easy-to-read prose and thoroughly illustrated to make its points clear.

The full title is, "Living on Shaky Ground: How to Survive Earthquakes and Tsunamis in Northern California." It contains tips and information on how to get ready, what to do when disaster strikes and the steps to take to hasten recovery.

The updated version will be distributed as an insert in 38 newspapers in 14 counties, beginning Dec. 6. It also will be given to all students in Humboldt and Del Norte County public schools and made available by many county offices of emergency services, tribes and rancherias, Redwood National and State Parks and the American Red Cross. The Trinity and Colusa County offices of education also will have copies.

CEO Glenn Pomeroy of the California Earthquake Authority, which funded the handbook's development, said his agency is committed to helping California residents recover from damaging earthquakes.

"Residents throughout northern California will benefit from this important resource that local members of the California Earthquake Country Alliance worked together to produce," he said.

The book will help stimulate dialogue that could save people's lives, said Lori Dengler, chair of HSU's Geology Department.

"One of the most important aspects of this publication is the opportunity it provides to generate discussion, culminating in action," said Dengler, who led the handbook's preparation.

"One of the main things to come out of sociological research is that, before people act, they need to talk things through," she said. "It's a process sociologists call 'milling.' People are more likely to store food and water, secure their bookshelves, recognize natural warnings of a tsunami and write up a family preparedness plan if they have talked about it with others. So 'Living on Shaky

Ground' is intended not just to instruct, but to engender discussion and stimulate action. "

Additional copies of the booklet may be requested through the Humboldt Earthquake Education Center at Humboldt State University by calling 826-6019 or e-mailing to rctwg@shakyground.edu. The electronic version and supplemental material can be downloaded at www.humboldt.edu/shakyground.

JAMAICA

Tourism stakeholders benefit from tsunami preparedness workshop

OCHO RIOS (JIS): Jamaica Information Service

January 12, 2010

http://www.jis.gov.jm/officepm/html/20100112t150000-0500_22468_jis_tourism_stakeholders_benefit_from_tsunami_preparedness_workshop.asp

Stakeholders in the tourism sector were yesterday (January 11) educated about tsunami preparedness and management strategies, as the Office of Disaster Preparedness and Emergency Management (ODPEM) staged the first of two earthquake/tsunami workshops. The session, held at Gran Bahia Principe Hotel in Runaway Bay, St. Ann, was part of activities by ODPEM to mark Earthquake Awareness Week from January 9 to 15 under the theme: 'Learn, Plan, Prepare. the next big quake could be near.'

"The focus of this first workshop is the tourism sector. We are mindful that a lot of our properties are beachfront and one of the questions that is repeatedly asked is, 'what of the threat of a tsunami?' hence the decision to have something for the tourism sector with special emphasis on tsunamis and earthquakes," explained Training Manager at ODPEM, Miss Cheryl Nichols.

She informed that the other workshop will be held on Thursday (Jan. 14) at the downtown Kingston offices of the Ministry of Health and will target those businesses along the waterfront.

According to Miss Nichols, ODPEM is placing emphasis on preparedness as "we are in what is considered to be a return period for a major earthquake, so we are saying the more you know the better prepared you are for when the next big earthquake occurs."

She noted that while there is no tsunami warning system in place for Jamaica, persons should be guided by the fact that earthquakes of a particular magnitude could generate a tsunami.

She informed that the region is working on a tsunami warning protocol. "The initial document has been put together and some approval has been given up to the level of CARICOM and we are waiting on that final green light," she stated.

A tsunami is a large often destructive sea wave produced by a submarine earthquake. On December 26,

2004 a massive tsunami, triggered by a magnitude nine tremor, occurred off the west coast of Sumatra, Indonesia, killing more than 150,000 people in a dozen countries bordering the Indian Ocean.

In the meantime, Ms. Nichols is appealing to Jamaicans to take seriously the issue of disaster preparedness.

"We must get away from the notion that disaster preparedness is ODPEM's business only. It is everybody's business, so if we take individual responsibility, we will be better prepared as a nation collectively," she argued.

Representative of the Runaway Bay Heart Hotel and Training Institute, Monique Stevens, told JIS News that she benefitted tremendously from the training workshop.

"We tend to think that we know all about disaster preparedness at our properties but every time we attend seminars like this we get a little bit more information, so it was very good for me to be here today and of course, we look forward to more of these seminars where we can come and learn a lot," she said.

OREGON

Coastal processes and hazards

Compiled by the Oregon Department of Geology and Mineral Industries

Oregon Geology, v. 69, no. 1, p. 63

One of the most important tasks for DOGAMI is helping coastal communities understand and mitigate for the risk of possible tsunamis. Communities located in exposed, low-lying areas along the Oregon coast face the risk of inundation by tsunamis produced by earthquakes around the Pacific Rim far from Oregon, as well as local earthquakes on the Cascadia subduction zone.

As part of this important effort, DOGAMI has begun remapping the state's entire coastline for tsunami inundation using state-of-the-art computer models, coupled with laser based terrain mapping and field-based geologic investigations. Coastal geologists Rob Witter and George Priest have finished 2 years of field investigations and new computer modeling that details the landward extent of sand deposits left by Cascadia tsunamis that inundated the lower Ecola Creek valley in Cannon Beach over the last 2,000 years.

From these efforts, DOGAMI, along with its many partners, including the City of Cannon Beach and the Seaside School District, have created a new tsunami evacuation brochure for Cannon Beach using this ground-breaking research. The brochure and map can be found online

(<http://www.oregongeology.org/pubs/tsubrochures/CannonEvac.pdf>). This is the first of a new generation of tsunami evacuation brochures that will result from the remapping of the coastline for tsunami inundation. Similar efforts are now underway near Bandon.

DOGAMI has also received a generous grant from the NOAA National Tsunami Hazard Mitigation Program to accelerate mapping and outreach activities at the Oregon coast. DOGAMI assisted the City of Cannon Beach with efforts to install public education signs that feature the new tsunami evacuation map and other education information. James Roddey, Earth Science Information Officer with DOGAMI, was the technical advisor for the state-wide magnitude 9.0 Cascadia Peril earthquake and tsunami exercise.

Tsunami risk outreach

Compiled by the Oregon Department of Geology and Mineral Industries

Oregon Geology, v. 69, no. 1, p. 65

April is Earthquake and Tsunami Awareness Month in Oregon. In both 2008 and 2009, DOGAMI staffers led workshops and town hall meetings up and down the Oregon coast as part of the Tsunami Road Show with presenters from OEM, the National Weather Service, and local emergency management agencies.

In addition to duties with the Cascadia Peril (see <http://www.dailyastorian.info/main.asp?SectionID=2&SubSectionID=395&ArticleID=60019&TM=52902.64> or <http://www.humaninet.org/cascadiaperil.html>) in April 2009, Earth Science Information Officer Roddey produced and co-wrote an 8-minute video on tsunami preparedness for Oregon in partnership with USGS. The video will be distributed to coastal communities and will be available on the OregonGeology.org website. [EDITOR'S NOTE: The NTHMP Library has a copy which can be borrowed. (See page 27)]

WASHINGTON

Grays Harbor County all hazards guide

During the week of November 22nd, Grays Harbor County, Washington residents received a new publication jointly developed by Washington State Emergency Management's Earthquake/Tsunami Program and Grays Harbor Emergency Management entitled "Grays Harbor County All Hazards Guide". The All Hazards Guide was distributed in the Sunday edition of The Daily World newspaper as well as the once-weekly local editions that are targeted towards specific neighborhoods. The Guide is intended to serve as a compendium of resources that can easily be used by county residents and businesses to mitigate, prepare for, and respond to the hazards they are most likely to face. Further, the All Hazards Guide seeks to provide a 'one-stop shop' for federal, state, and local emergency management contact information. This resource document was patterned after the hurricane preparedness guides that have been successfully used in the southeast for the past decade.

In addition to being easy to distribute on a large scale with relatively little cost via newspaper media, the

Guide was intentionally designed as a template that can readily be modified by other coastal and inland counties to provide a similar resource document without the expense of hiring a graphic artist. Continuing support for annual reprints of the publication can be provided by local businesses through advertisements. While the focus of the Guide is on the most frequently occurring hazards, earthquake/tsunami preparedness and response are the primary components. The center pages include color tsunami evacuation maps that are applicable to the County as well as large section on tsunami preparedness. The project was completed using funding from NOAA's National Tsunami Hazard Mitigation Program.

The Guide can be accessed at the following site:
<http://www.co.grays-harbor.wa.us/info/DEM/Docs/AllHazDocs/GHCAIHHazardsGuide.pdf>

From: John Schelling, EMD

AMERICAN SAMOA

NOAA assesses post-tsunami marine debris in American Samoa

December 14, 2009

A NOAA team has begun a survey of marine debris generated by the devastating September 29 tsunami in American Samoa. The team is carefully measuring the amount and impact of debris such as roofing and domestic goods in coral reef habitat near villages severely affected by the tsunami.

Since arriving in the area on November 29, NOAA personnel have been working with territorial agency representatives, village mayors, local news outlets and other federal agencies on all aspects of the operation, including determining survey areas, outreach to communities and equipment logistics.

"We're working alongside other territorial and federal agencies and numerous volunteers on cleanup and restoration efforts," said Jeff LaDouce, director of the NOAA National Weather Service Pacific Region and NOAA's lead in American Samoa recovery efforts. "They're excellent resources and partners in efforts to ensure safe and healthy waterways."

Tsunamis are a natural occurrence, and corals can recover from damage by waves, sediment and plant debris resulting from a tsunami. However, marine debris, whether from a tsunami or overflowing trash can, is a different story.

"The very products that make our lives more comfortable — things like corrugated metal roofs, plastic garbage bins, and bulky mattresses — can wreak havoc when they're deposited on coral reefs. And they can continue to move around in big waves, increasing the footprint of their damage," said Kris McElwee, NOAA's marine debris on-site coordinator.

Several areas have been surveyed by NOAA divers including waters off two of the hardest hit villages, Amanave and Leone, as well as the Fagatele Bay National Marine Sanctuary. While some marine debris has been removed, including over 1,200 pounds of debris from Leone Bay, NOAA's priority is measuring and documenting the impacts of the debris.

"We're glad that we can assist in these important efforts, and step by step, help American Samoa towards recovery," said Kyle Koyanagi, NOAA marine debris field operations lead.

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.

Editor Note: Photos and video are available online.
http://www.noaanews.noaa.gov/stories2009/20091214_tsunamidebris.html ♦

ITIC report

ITIC tsunami mitigation contributions to American Samoa

UNESCO/IOC-NOAA International Tsunami Information Center

contributed by Laura Kong and Brian Yanagi

Overview:

The Samoa tsunami of September 29, 2009 killed 34 people in American Samoa (AS), although thousands of AS citizens lived along its coastlines. The local tsunami struck 10 – 20 minutes after the magnitude 7.9 earthquake occurred in the Tonga Trench. Time of day was fortuitous, as the earthquake was felt when most people were awake in their closely-knit villages, rather than at work or school. Most of the AS tsunami survivors saved themselves before official warnings could reach them. The small casualty rate can be attributed to an educated AS citizenry through various activities including 20 years of past public awareness and preparedness workshops coordinated and/or delivered by TEMCO and NWS Pago Pago. Citizenry awareness was a result of the 2004 Indian Ocean tsunami, tsunami hazard zone street signage; tsunami exercises (Exercise Pacific Wave 2006 & 2008); ITIC and PTWC 2009 AS governmental stakeholder trainings (pre- and post-Samoa tsunami) in coordination with ASDHS and NWS Pago Pago; citizenry awareness from a March 2009 magnitude 7.6 Tonga Islands earthquake event; and a timely territory-wide disaster awareness campaign in September 2009.

The following describes ITIC direct tsunami mitigation contributions to AS in 2009:

Pre – Samoa Tsunami

In February and June 2009, PTWC and ITIC conducted tsunami outreach activities:

The trips provided tsunami outreach to build awareness and understanding on tsunamis, its hazard to countries in the Southwest Pacific, and on the tsunami warning and advisory services provided by the PTWC. For both, the Directors of ITIC and PTWC provided briefings and training. For the Pacific, the ITIC serves as a primary resource to assist countries to build and strengthen their national tsunami warning and mitigation system and carries out its information and capacity building activities per NOAA-UNESCO/Intergovernmental Oceanographic Commission (IOC) arrangements. The PTWC serves as the operational headquarters for international tsunami advisory services to Pacific countries. The ITIC and PTWC serve as international centers of the US to help other countries. The US does this a Member State of the IOC, and as such actively participates and supports its various tsunami Intergovernmental Coordination Groups (ICGs). These include the Pacific Tsunami Warning and Mitigation System (ICG/PTWS, since 1965), Caribbean Tsunami and Other Coastal Hazards Warning System (ICG/CARIBE-EWS, since 2005) and Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS, since 2005).

- 2 days (February) of tsunami hazard and warning procedures briefings with NWS Pago Pago and AS stakeholders, and a seminar at the American Samoa Community College.
- 4 days (June) with stakeholders, including tsunami SOP meetings with NWS Pago Pago and AS Department of Homeland Security, 2 1-day tsunami outreach seminars for all stakeholders, distribution of tsunami awareness and tsunami warning decision support tools to stakeholders, and installation/upgrade of tools at NWS Pago Pago. Issues related to the tsunami warnings in 2006 and 2009 were discussed. A draft new PTWC tsunami product for AS was introduced as a way of simplifying the warning content and making it more useful and effective.

Post - Samoa Tsunami

In November 2009, ITIC conducted the following activities:
ITIC's role for this mission was to facilitate processes and activities to be able to more quickly, efficiently and effectively achieve long-discussed goals of implementing a sound end-to-end tsunami warning to a prepared public. ITIC's tsunami expertise, advice, and presence was well appreciated for all activities. ITIC continues to advocate for stakeholder coordination, and where possible for collaboration and partnership in order to build a seamless end-to-end early warning system that incorporates the latest hazard risk assessments and that is backed by sustained preparedness through outreach at all levels. During the visit, daily meetings were convened with ASDHS and NWS Pago Pago to discuss tsunami miti-

gation needs based on outcomes and issues stemming from the previous day's activities. In 2010, ITIC is continuing to work closely to assist American Samoa.

- Two Stakeholder sessions to gather comment on the next steps in tsunami mitigation for American Samoa (AS). A short summary of action topics that ASDHS requested NHTMP funding for was given as an overview to start the discussion session. The session provided feedback in order to ascertain priorities and needs.
- Two Emergency Alert System (EAS) Committee meetings. One session was informal to illustrate how the Hawaii EAS works for tsunamis. One session was a formal EAS meeting to discuss progress and needed actions. An EAS-focused timeline was presented, and corrections/feedback provided by participants. NWS Pago Pago reported improvement actions to harden its EAS components, including the installation of dedicated line for access to NWR/EAS.
- Six Outreach sessions (three sessions at schools in affected villages, and three sessions at village meeting centers in affected villages). All were led by ASDHS with input from NWS Pago Pago, FEMA, and ITIC. ITIC tsunami awareness materials were used and distributed. Awareness materials were left with ASDHS and NWS Pago Pago for their use in future outreach activities. 19 more outreach sessions were conducted in December using ITIC materials. ITIC replenished stock in January 2010.
- Installation of and training on real-time earthquake monitoring software (CISN v1.52) and sea level data collection and monitoring software (Tide Tool v7.10) at the NWS Pago Pago and ASDHS Emergency Operations Center (EOC). SOP materials and alerting reference materials were left with both organizations. The CISN is used by both centers as a reliable means for earthquake information and tsunami message receiving.
- Collection of raw and high-resolution tsunami event video footage and/or photos. These are being compiled to produce a video document of tsunami wave arrival in American Samoa, and will be placed in a GIS tool to allow for tsunami evacuation map development and other tsunami recovery needs. ♦



National Tsunami Exercises

March 24, 2010

In December 2009, the Atlantic tsunami exercise handbook (LANTEX10) for the 1300UTC March 24, 2010 exercise were sent out. “The exercise will be triggered by a test message from the WC/ATWC. The kick-off message will not have any tsunami warning information. It will tell participants to refer to the first message in the Handbook which contains a series of 19 messages. From there on, the Handbook lists when each message should be released.

The exercise simulates a magnitude 7.5 earthquake off the New England coast and associated continental slope slump which generates a large tsunami.

NTHMP and NOAA are providing the framework for this exercise. Level of participation is up to each emergency management organization.

A Pacific tsunami exercise framework (Pacifex 2010) will be issued by the end of the year (2009). The Pacific exercise will also take place on March 24, 2010 and will simulate a large earthquake and tsunami south of the Alaska Peninsula. As with the last similar simulation exercise (Pacific Wave), this exercise will be kicked off with a “dummy message” sent by WC/ATWC—that message will only announce the beginning of the exercise—all simulation bulletins will be in the handbook and participants should be referred there. The exercise will begin at 1700UTC on March 24, 2010. The plan is for a 9.0 earthquake in the Aleutians. The exercise scenario calls for amplitudes up to about 2.5 meters on the west coast (highest in CA).

The March date was chosen to coincide with the National Tsunami Awareness week (if approved) and end-to-end tsunami warning communications testing planned for Alaska and California.”

From: Paul Whitmore, National Tsunami Hazard Mitigation Program Warning Coordination Subcommittee co-Chair, Dec. 15, 2009.

Washington: The EQ/Tsunami Program is planning a brief table top using this material (Pacifex 2010 handbook) at the next State/Local Tsunami Workgroup meeting, which is tentatively scheduled for Wednesday, February 17, 2010 from 10:30 AM to 2:30 PM at the Pacific County Courthouse in South Bend. This way, our involvement will not interfere with any local/tribal jurisdictions that choose to participate in March.

From: John Schelling, EMD ♦

FEMA And the FCC announce adoption of standards for wireless carriers to receive and deliver emergency alerts via mobile devices

Release Date: December 7, 2009

<http://www.fema.gov/news/newsrelease.fema?id=50056>

» [En Español](#)

WASHINGTON, D.C. -- As part of the Integrated Public Alert and Warning System (IPAWS), the nation’s next generation of emergency alert and warning networks, the Department of Homeland Security’s Federal Emergency Management Agency (FEMA) and the Federal Communications Commission (FCC) today announced the adoption of the design specifications for the development of a gateway interface that will enable wireless carriers to provide its customers with timely and accurate emergency alerts and warnings via their cell phones and other mobile devices.

The Commercial Mobile Alert System (CMAS) is one of many projects within IPAWS intended to provide emergency managers and the President of the United States a means to send alerts and warnings to the public. Specifically, CMAS provides Federal, state, territorial, tribal and local government officials the ability to send 90 character geographically targeted text messages to the public regarding emergency alert and warning of imminent threats to life and property, Amber alerts, and Presidential emergency messages. The CMAS is a combined effort of the federal government and cellular providers to define a common standard for cellular alerts.

Today’s announcement marks the beginning of the 28-month period, mandated by the FCC in August 2008, for commercial mobile service providers who have elected to participate in the design specifications known as CMAS to develop, test and deploy the system and deliver mobile alerts to the public by 2012.

“Working as a team with our partners in the public and private sectors, the adoption of the CMAS standard brings us even closer to making the nation’s next-generation of emergency alerts and warnings – Integrated Public Alert and Warning System (IPAWS) – a reality,” said FEMA Administrator Craig Fugate. “Our goal is simple, to give one message over more devices to more people for maximum safety.”

“Today’s announcement brings us one step closer to ensuring that Americans receive critical emergency alerts and warnings to protect themselves on the go, anywhere, anytime,” said FCC Chairman Julius Genachowski. “I applaud FEMA for its leadership and look forward to working with both FEMA and the wireless industry to expedite the delivery of this important public safety service to consumers.”

Wireless carriers who choose to participate in the CMAS will relay authorized text-based alerts to their subscribers. To ensure that persons with disabilities who subscribe to wireless services receive these emergency alerts, the FCC adopted rules in 2008 that will require participating wireless carriers to transmit messages with both vibration cadence and audio attention signals.

The adoption of CMAS culminates the collaborative specification development work between FEMA, the Department of Homeland Security Science and Technology Directorate (DHS S&T), the Alliance of Tele-

communications Industry Solutions (ATIS), and the Telecommunications Industry Association (TIA) and begins the next phase of CMAS collaboration with industry in which FEMA will build the Federal Alert Aggregator/Gateway. This collaboration with industry is a key component of the Integrated Public Alert and Warning System (IPAWS) Programs' ability to provide alerts and warnings to the public through as many means as possible, including commercial mobile services.

FEMA's mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards. ♦

NEWS

Purpose statement - Strengthening disaster recovery for the nation

From: <http://disasterrecoveryworkinggroup.gov/>

At the President's request, the Secretaries of Homeland Security and Housing and Urban Development are co-chairing a Long-Term Disaster Recovery Working Group composed of the Secretaries and Administrators of more than 20 departments, agencies and offices. This high-level, strategic initiative will provide operational guidance for recovery organizations as well as make suggestions for future improvement. An intensive stakeholder outreach effort during October and November, 2009, involving State, local, and tribal government representatives, as well as a wide array of private organizations and private non-profit organizations, will inform these efforts.

We've created this Web site to allow a large and broad group of stakeholders to easily provide their input on the areas the Long-Term Recovery Working Group will be considering. We know there are many groups and individuals with information, ideas and comments that want to participate in this process. This input, coupled with that gathered from other outreach efforts (VTCs, Stakeholder Forums, research on past efforts/reports, calls and direct e-mails), will be the raw material the Working Group will review to develop both the Report to the President and the draft of the National Disaster Recovery Framework. The site also serves as a centralized source of news and information on the Long-Term Recovery Working Group's efforts. To allow the Working Group time to review and analyze the large amount of input expected we ask that you provide your comments as early as possible and no later than Mid-December.

Launch of multimedia documentary marking the fifth anniversary of the tsunami

"Dec. 15—Thomson Reuters Foundation and the International Federation of Red Cross and Red Crescent

Societies (IFRC) announced the launch of a new multimedia web documentary "Surviving the Tsunami—Stories of Hope," produced jointly to mark the fifth anniversary of the Indian Ocean tsunami in 2004.

Combining powerful imagery by award-winning Reuters photojournalists with eyewitness testimony and interactive graphics, the documentary reveals the strength of the human spirit in the face of catastrophe."

To view the web documentary, visit <http://tsunami.trust.org>.

From: <http://www.ifrc.org/docs/news/pr09/6609.asp>

Oregon seismic rehab grants

In 2009, Oregon will establish a new seismic rehabilitation grant program, which will provide state bonds funds to help strengthen public school buildings prone to major structural damage. This program has been created to eliminate collapse-prone, high-occupancy school buildings and to increase community preparedness. The program will be administered by Oregon Emergency Management. Grant applications can be accessed at <http://www.oregon.gov/OMD/OEM/>.

The Pacific Northwest's extreme disaster is a magnitude 9 earthquake on the Cascadia subduction zone, which would produce minutes of strong ground shaking, coastal subsidence, landslides, liquefaction, lateral spreads, and a near-field tsunami. Since 2001, state laws have required public schools to meet seismic life safety with a deadline of 2032. Due to the lack of seismic engineering and construction of most older school buildings, over 1,000 school buildings are at high risk. Seismic survey results for specific schools are provided on

<http://www.oregongeology.org/sub/projects/rvs/default.htm> and <http://www.ode.state.or.us/search/page/?id-2061>.

Under the leadership of Senate President Peter Courtney, the Oregon Legislature provided \$15 million bond funds for public schools, \$15 million bond funds for emergency facilities, and three staffers for the new seismic rehabilitation grant program. In addition, the Legislature provided \$31 million for seismic mitigation for university buildings and \$3 million for seismic upgrades for community college buildings.

From: EERI Newsletter, v. 43, no. 8, p. 7.

Disaster Response Team includes communication specialists

Pan American Health Organization/ World Health Organization (PAHO/WHO) has completed the first stage of training and development of tools for information management and communication for disaster response. During this two-year process, a group of communication specialists was identified who have the skills and qualifications to support the Disaster Response Team in emergencies and disasters. A manual on communication and information management in Spanish and

English was prepared (see Publications, below) and a short field guide was endorsed at workshops in Guatemala and Barbados.

Representatives from several key partner organizations attended the workshops. For more information on this initiative, contact Ricardo Perez, perezric@pan.ops-oms.org.

From: Disasters Preparedness and Mitigation in the Americas, Issue 112, p. 2.

Addressing urban risk is new theme for disaster reduction campaign

The International Strategy for Disaster Reduction (ISDR) has announced “Building resilient cities, addressing urban risk” as the theme for the 2010-2011 World Campaign for Disaster Risk Reduction. The campaign builds on “cities at risk” and “urban risk” issues developed by the ISDR and its partners around the world. The campaign targets local governments of different size, characteristics, risk profiles, and locations.

The objectives of the 2010-2011 campaign are to: (a) enhance general awareness about urban risk and apply disaster risk reduction to climate change adaptation, (b) create agreements between national and local authorities for investing in urban risk reduction in a sustainable way, and (c) facilitate the use of disaster risk reduction measure in local and urban planning and to protect critical infrastructure such as schools, hospitals, and drainage systems.

The campaign will emphasize three lines of action: communicating clearly and raising awareness about local and urban risk, political engagement, and technical tools and capacity building. For the health sector, the campaign presents the opportunity to continue inter-sectoral work and promotion of the hospital safety campaign within the context of safe cities. For more details about the campaign, contact isdr@un.org or visit www.unisdr.org.

From: Disasters Preparedness and Mitigation in the Americas, Issue 112, p. 4.

How will PS-Prep affect you?

The Department of Homeland Security recently announced new proposed standards for the private sector to improve preparedness for disasters and emergencies. The Voluntary Private Sector Preparedness Accreditation and Certification Program (PS-Prep) is a partnership between DHS and the private sector that enables private entities to receive emergency preparedness certification from a DHS accreditation system created in coordination with the private sector. Learn about these proposed standards and how they will affect business continuity, emergency management and other private and public sectors.

From: <http://www.fema.gov/privatesector/preparedness/index.htm>

CRID and UNICEF cooperate on education and risk management

The Foundation for the Coordination of Information Resources for Disaster Prevention (FundaCRID) signed an agreement with UNICEF to launch a website specializing in resources on education and risk management. This website will make it easier for authorities, teachers, technicians, and cooperating institutions to access materials about risk reduction for the education sector. It will also open the door to greater specialization for the Regional Disaster Information Center (CRID) in a critical area of risk management, allowing the development of products and services that are tailored to the needs of the educational community.

This agreement provides CRID with new opportunities for cooperation with other partners, which, like UNICEF, are active in the field of education and risk management, including ministries of education in Latin America.

A practical manual on information tools and resources on disaster preparedness in the education sector is being developed. This manual is one of the products of a DIPECHO project that CRID has been collaborating on since November 2008. For more information, contact isabel.lopez@crid.or.cr.

From: Disasters Preparedness and Mitigation in the Americas, Issue 112, p. 4.

Multi-hazard bridge project closely aligned with AASHTO's (American Association of State Highway and Transportation Officials) strategic plan for US bridges

George Lee, principal investigator of MCEER's Federal Highway Administration-funded research project on “Principles of Multiple-Hazard Design for Highway Bridges,” updated AASHTO's Technical Committee T-5 on load and load distribution and on progress to date in the ongoing research project.

In the project, MCEER is critically examining the fundamental approaches used in bridge design today in order to better account for extreme events including potential vehicular or vessel collision, hurricane forces, and wave vulnerability, among others. Harry Capers, Arora Associates, former state bridge engineer from New Jersey, is assisting MCEER by providing end user input and acting as a liaison with appropriate AASHTO technical committees. Dr. Phil Yen is FHWA's contract officer technical representative.

From: MCEER Bulletin, v. 23, no. 1, 2009, p. 4. (<http://mceer.buffalo.edu>)

Folk wisdom

“The Wall Street Journal recently reported that the United Nations has asked anthropologists across Asia and the Pacific to collect and record the kind of indigenous knowledge that was key to the Simeulue islanders'

survival. That type of knowledge also helps residents of the Philippines' Batanes Islands to ride out the 15 typhoons they endure in a typical year. Villagers in north-west India construct earthquake-resistant homes with simple, timber-framed masonry - a technique considered to be archaic and unsophisticated, but a life-saver there.

Such knowledge will become even more important as more of the world's poor cluster in mega-cities. The United Nations estimates that 3.9 billion people will live in urban areas of developing countries by 2015. The poorest of those people, living in shanties in cities that lack basic infrastructure, will be most vulnerable to natural disasters. Preserving and passing on knowledge such as how to build safer homes and how to anticipate dangerous weather could save millions of lives."

From:

<http://www.sacbee.com/846/story/2429933.html> (full story)

Folk wisdom saves lives

McClatchy-Tribune News Service

Published: Wednesday, Dec. 30, 2009 - 12:00 am

From an editorial that appeared in the Chicago Tribune on Monday, Dec. 28

San Diego prepares for potential tsunamis

Tsunami hazard warning signs are showing up in several San Diego coastal neighborhoods, as part of a county and city effort to prepare for tsunamis. The city of San Diego plans to spend grant money from the National Oceanic and Atmospheric Administration to prepare coastal areas for tsunamis, through warning signs, public education and preparedness, and training for emergency managers.

Global tsunami deposits database [abstract]

By Vinita Ruth Brocko and Paula K. Dunbar

A result of collaboration between NOAA's National Geophysical Data Center (NGDC) and the Cooperative Institute for Research in the Environmental Sciences (CIRES), the Global Tsunami Database includes instrumental records, human observations, and now, information inferred from the geologic record. Historical reports, tide gauge data, Deep Ocean Assessment and Reporting of Tsunamis (DART) data, and information gleaned from published tsunami deposit research history around the world. Tsunami history provides clues to what might happen in the future, including frequency of occurrence and maximum wave heights. However, instrumental and written records commonly span too little time to reveal the full range of a region's tsunami hazard. The sedimentary deposits of tsunamis, identified with the aid of modern analogs, increasingly complement instrumental and human observations. By adding the component of tsunamis inferred from the geologic record, the database extends the record of tsunamis backward in time. Deposit locations, their estimated age and descriptions of the deposits themselves fill in the tsunami record.

Tsunamis inferred from proxies, such as evidence for coseismic subsidence, are included to estimate recurrence intervals, but are flagged to highlight the absence of a physical deposit. NGDC and CIRES welcome contributions and suggestions to improve the content and presentation of the database. Authors may submit their own descriptions and upload digital versions of publications. The data and information may be searched and viewed using tools designed to extract and display data from the Oracle database (selection forms, Web Map Services, and Web Feature Services). For example, users may select or sort by many fields, including event, location, region, age of deposit, author, publication type, grain size, composition, presence/absence of plant material. They may find tsunami deposit references for a given location, event or author; search for particular properties of tsunami deposits; and even identify potential collaborators. Users looking for all the information regarding an historical event may gather human observations, deposit descriptions gathered during field surveys, DART data, even tide gauge information when available. Finally, users may download the original publications that are in the public domain.

Global tsunami deposits database:

<http://www.ngdc.noaa.gov/hazard/deposits.shtml>

From: Eos (American Geophysical Union Transactions), v. 89, no. 53, Suppl., p. F1764-F1765

PUBLICATIONS

Earthquakes and tsunamis in the past: A guide to techniques in historical seismology

By Emanuela Guidoboni and John E Ebel. 2009. ISBN: 978-0-521-83795-8. 590 p. Cambridge University Press, \$160.

A book about hazards, but not exactly a hazards book, this volume examines historical methods for uncovering earthquakes and tsunamis. A collaboration between a historian and geologist, it cuts a wide swath, from the mythology of earthquakes, to their geological causes, to their literary description—Johann Wolfgang von Goethe, for instance, takes a mild bruising from the authors for applying his imagination to the 1787 quake in Calabria.

From: Natural Hazards Observer, v. 34, no. 3, p. 25.

Gestión de la información y comunicación en emergencias y desastres

PAHO/WHO has published a new manual to help information management and communication specialists who are involved in disaster preparedness and response activities in the health sector. The manual gives recommendation on how to manage information and to communicate with the public in emergency situations. It also addresses the production of situation reports, how to deal

with the media, and preparing messages for the public and general educational and informational materials.

The guide is useful for courses and training activities and complements other efforts by PAHO/WHO to develop better communication for risk management. It is the result of extensive consultation, with input from a large number of media and disaster management professionals in Latin America and the Caribbean. For more information, write to perezric@paho.org.

To download a copy of the manual in PDF format, visit: www.paho.org/disasters.

From: Disasters Preparedness and Mitigation in the Americas, Issue 112, p. 10.

Training manual on gender and climate change

This manual is published (in English) by the International Union for Conservation of Nature (IUCN), United Nations Development Programme (UNDP), and the Global Gender and Climate Alliance. It is available from CRID, crid@crid.or.cr.

From: Disasters Preparedness and Mitigation in the Americas, Issue 112, p. 12.

Empire of Blue Water

This book by Stephan Talty is an account of Captain Henry Morgan, his place in history and the rise and fall of buccaneers, privateers, and pirates. It also contains (in the last chapter) the most graphic descriptions of the tsunami at Port Royal in 1692 and its horrors, as told by eyewitnesses.

NEHRP Tech Brief #2

The National Institute of Standards and Technology (NIST) has released NEHRP Seismic Design Technical Brief No. 2, *Seismic Design of Steel Special Moment Frames: A Guide for Practicing Engineers*, NIST GCR 09-917-3. Contributors include EERI members Ronald Hamburger, Helmut Krawinkler, James Malley, Douglas Foutch, Roberto Leon, and Thomas A. Sabol.

The document was developed for the NEHRP Consultants Joint Venture, which is a partnership of the Applied Technology Council and the Consortium of Universities for Research in Earthquake Engineering. The brief can be downloaded from <http://nehrrp.gov/pdf/nistgcr9-917-3.pdf> and <http://www.nehrrp-consultants.org>.

From: EERI Newsletter, v. 43, no. 8, p. 3

Adapting to coastal climate change: A Guidebook for development planners

USAID has released *Adapting to Coastal Climate Change: A Guidebook for Development Planners*, proposing ways to assess climate change vulnerability and incorporate adaptation options into development plans at local and national levels. The guidebook is available at www.crc.uri.edu/download/CoastalAdaptationGuide.pdf.

From: Coastal Connections, v. 7, issue 6, p. 3.

Geospatial information technology for emergency response

Edited by Sisi Zlatanova and Jonathan Li. 2008. ISBN: 978-0-415-42247-5. 381 p., Taylor & Francis Group, \$195.95 hardcover.

The lessons learned from disasters have highlighted the importance of geospatial information technology in the critical period immediately following an event. The information provided by geospatial technologies is invaluable in supporting emergency and disaster management. New developments and applications from the field of geospatial information continue to stream into contemporary practice. Zlatanova and Li present a new collection of work from 33 researchers to “represent the very best of current thinking from a number of pioneering studies over the past four years.”

This edited volume is the sixth in a series from the International Society for Photogrammetry and Remote Sensing. The authors consolidate an incredible amount of information into 17 chapters, divided into six parts: (1) policy and legislation, (2) data collection and products, (3) 3D data management, (4) emerging technologies, (5) integration of heterogeneous data, and (6) applications and solutions. Key topics include real-time data, 3D modeling, and recommendations on the management of data in a changing and uncertain environment. The chapters offer a high level of technical detail to be appreciated by both the novice and experienced user.

Unlike many other collections, this book includes an international perspective and the insights of researchers from 10 countries. One of its limitations, inevitable in this fast-moving field, is the reality that within the next decade certain aspects of this volume will become obsolete as the technology advances. However, the underlying principles and concerns will remain relevant and useful. This book will be most useful to advanced students and professionals engaged with the application of geospatial information technology. For the interested reader, it is an accessible volume that offers a considerable breadth of current knowledge.

From: Natural Hazards Observer, v. 34, no. 3, p. 23.

The PAHO/WHO regional emergency response team - Field manual.

Guidelines for activating the PAHO/WHO Health Emergency Response Team, including the Team's responsibilities during different phases of the emergency. The complete package includes forms and verification lists to aid in the gathering of information for an evaluation of needs in the health sector.

From: <http://new.paho.org/disasters/?lang=en>

WEBSITES

<http://tsunami.trust.org/>

Surviving the tsunami (with eyewitness accounts and personal stories)

This site combines firsthand accounts the 2004 Indian Ocean survivors with damage maps and a multimedia play-by-play of the event, for a complete look at crippling tsunami that killed more than 225,000 people. A comprehensive list of resources and early warning advancements finishes the site, which is a collaboration between Thomson Reuters and the International Federation of Red Cross and Red Crescent Societies.

From: Disaster Research 538, Jan. 20, 2010

<http://www.projectwhitehorse.com/index.htm>

Project White Horse

When disasters and emergencies strike, people often look for someone to gallop in on a white horse to save the day—and this Web site aims to saddle up riders. Billed as a forum for exchanging ideas on decision making and leadership, the site is part e-zine, part online community, with an emphasis on building leaders prepared to respond quickly and wisely in times of crisis.

From: Disaster Research 537, p. 8

<http://www.who.edu/home/interactive/tsunami/>

Interactive Tsunami Guide

In a wave of recent tsunami sites, this flashy, fact-filled offering from the researchers at the Woods Hole Oceanographic Institution rises above the rest. The site teaches everything from tsunami science to how they're studied to how to survive one. Interactive maps, firsthand accounts from survivors, and tsunami videos are just some of interesting and useful information you'll find.

From: Disaster Research 537, p. 8

CONFERENCES, SYMPOSIUM

March 8-10, 2010

Fifth International Conference on Pedestrian and Evacuation Dynamics

National Institute of Standards and Technology, Gaithersburg, Maryland; Cost and Registration: \$650, open until filled.

This conference will address the changing dynamics of pedestrianism and evacuation. Changes in pedestrian activity, development, and human behavior mean policy makers, designers, and emergency managers must be better prepared to respond to emergency events. Topics will include vertical egress systems, behavioral theory, and engineering guidance.

April 6-7, 2010

Partners in Emergency Preparedness Conference

Washington State University, Tacoma, Washington; Cost and Registration: \$250 before February 12, 2010, Closed April 2, 2010.

This conference boosts emergency preparedness efforts through outreach. Topics include earthquake research, contingency planning, school safety, public health preparedness, homeland security, and public information.

June 20-23, 2010

Disaster Management Conference

The Canadian Centre for Emergency Preparedness (CCEP) has announced the 20th World Conference on Disaster Management (WCDM), to be held in Toronto, Canada, June 20-23, 2010. Its theme will be "20 years of Progress—Are We Prepared to Face Future Challenges?—Emergency Management and Business Continuity Working Together." The program will include experts in emergency planning and management, business continuity, emergency response, risk management, IT disaster recovery, disaster management research, emergency communications, emergency health, and community planning.

Presentations will fall into one or more of the following areas: lessons learned, emerging trends, the human element, technical issues, principles and practices, and research and development. For more information, visit <http://www.wcdm.org/>

From: EERI Newsletter, v. 43, no. 11, p. 10.

EXERCISES

March 24, 2010

The Atlantic tsunami exercise (LANTEX 10) is scheduled for March 24, 2010 at 1300UTC. The exercise will simulate a magnitude 7.5 earthquake off the New England coast and associated continental slope slump which generates a large tsunami.

NTHMP and NOAA are providing the framework for this exercise. Level of participation is up to each emergency management organization.

A Pacific tsunami exercise will also take place on the same date, chosen to coincide with the national Tsunami Awareness Week.

From: NTHMP Warning Coordination Subcommittee

See also, page 13.

**Western States Seismic Policy Council Names 2010 Awards in Excellence Winners;
Humboldt County Chapter of the American Red Cross wins 2010 Overall Award in Excellence**

The Western States Seismic Policy Council Board of Directors is pleased to announce the winners of the 2010 WSSPC Awards in Excellence. The *Overall Award in Excellence in Outreach to General Public and Non-Profit Agency Efforts* went to the Humboldt County Chapter of the American Red Cross, for their program *Living on the Faultline – and Along the Coast in Humboldt County*. The program consists of one and three-hour courses offered one to three times a month by the Humboldt County Chapter of the American Red Cross. Participants receive a 32-page manual with checklists and specific steps for preparedness. Local hardware stores have partnered with the Red Cross to offer discount coupons on preparedness supplies to program participants.

“We are deeply honored to be the recipient of the 2010 Overall WSSPC Award in Excellence”, said Judy Warren, the Humboldt County Red Cross volunteer who created the course. “The genesis of the current *Living on the Faultline and Along the Coast* course is based on some 30 years experience as a Red Cross disaster services instructor. When I first volunteered with the American Red Cross, I thought that I was well-prepared for the inevitable earthquakes of the San Francisco Bay Area. However, when the 1989 Loma Prieta Earthquake occurred, all my preconceptions of being well-prepared changed. What I learned through personal experience has allowed me to create and teach a more pertinent class.”

From: http://www.wsspc.org/Awards/2010/PR_awards10.pdf

Western States Seismic Policy Council 2010 Awards in Excellence

Awards will be presented at the WSSPC Annual Conference held with the Natural Hazards Center Workshop Awards in Excellence Banquet, Friday July 9, 2010



**WESTERN STATES SEISMIC POLICY COUNCIL
ANNOUNCES RECIPIENTS OF
THE 2010 AWARDS IN EXCELLENCE**

Overall Award In Excellence

Award Categories: Outreach to General Public and Non-Profit Agency Efforts

Living on the Faultline and Along the Coast
Humboldt County Chapter of American Red Cross

Nomination

Living on the Faultline Participants' Manual

Living on the Faultline Course Notes

Award Category: Research

Quaternary Faults in Nevada - Map 167
Nevada Bureau of Mines and Geology

Nomination

Quaternary Faults in Nevada Map

Award Category: Legislation

Oregon Senate Bill 5505
Oregon State Legislature, Peter Courtney, Senate President

Nomination

Oregon Senate Bill 5505

From: <http://www.wsspc.org/Awards/2010/2010recipients.html>

Tsunami warning decision support tools

These following are useful decision support tools available free-of-charge to governments and other recognized authorities involved in tsunami warning hazard mitigation. For more information, contact the ITIC (itic.tsunami@unesco.org) or its Director (Laura Kong) l.kong@unesco.org

1. Real-Time Earthquake Display (RTED) Tool – was developed by US Geological Survey and the California Office of Emergency Services (California Integrated Seismic Network, CISN). This GIS display provides real-time earthquake information as broadcast by the US Geological Survey National Earthquake Information Center (NEIC). The USGS NEIC serves as the World Data Center for Seismology. Available since 2005.

2. Tsunami Warning Operations: Sea Level Monitoring – Tide Tool and IOC Sea Level Monitoring Facility

Tide Tool is an operations tool developed and supported by the Pacific Tsunami Warning Center for the decode, display, and manipulation of sea level data (coastal and DART deep-ocean stations) transmitted over the WMO Global Telecommunications System (GTS). The tool continuously decodes sea level in real-time and displays the time series on a computer screen, as well as station metadata and transmission information. Non-operational versions also exist for data transmissions through the internet and for archived data. Available since 2005.

The IOC Sea Level Monitoring Facility, developed originally under the IOC IODE Project for the ODIN-AFRICA sea level network in 2006, is a web-based real-time monitoring tool for sea level stations globally. The tool provides sea-level data, station status, station information, data plots, and other database services. This tool should be used with caution for operational purposes since timely web access cannot be guaranteed all over the globe during emergencies. Available since 2008.

3. PTWC Tsunami Messages: RANET Alert Watcher SMS text message

The PTWC, through the RANET project, provides an SMS Heads-up alert to government authoritative tsunami warning and response agencies. The messages are brief in order to alert the recipient that official message (which is longer) has been sent. Available since 2005.

4. Tsunami Bulletin Board (TBB)

The TBB is an email list serve that provides immediate sharing of tsunami information by and among tsunami professionals (scientists, researchers, emergency officials, and other officials). PTWC and WC/ATWC bulletins are immediately posted to TBB. Its purpose is to provide an open, objective scientific forum for the posting and discussion of tsunami news, information,

and research. It is not open to the media or the general public, and is not intended for advertising or activities of a commercial nature. The TBB began in 1995.

5. Tsunami Travel Time Software

The World Data Center for Marine Geology and Geophysics (WDC-MGG), co-located at the NOAA National Geophysical Data Center, serves as the world's recognized tsunami database and archiving centre. The WDC-MGG and the ITIC are providing free-of-charge, tsunami travel time calculation and display software to government organizations involved in providing tsunami warning and mitigation services. Other interested organizations and individuals are requested to obtain the software directly from the developer. The Tsunami Travel Time (TTT) software is used by the NOAA Pacific Tsunami Warning Center for its operations calculations. Map graphics are made using the open-source Generic Mapping Tools (GMT). Available since 2007.

6. Tsunami Historical Database

The WDC-MGG provides extensive online, web-based and offline tools and other hazards information services. In 2009, the WDC-MGG and ITIC began distributing an enhanced offline tool (TsuDig GIS tool) that accesses the WDC database and includes features of specific use and interest to tsunami warning and emergency response decision-makers. Since the 1990s, with the last features update in 2005, the Novosibirsk Tsunami Laboratory (NTL) has provided the WinITDB as an offline, stand-alone tool working on Windows platform; a useful feature included is a tsunami travel time calculator.

7. Google Earth Database Files

The Google Earth visualization tool can be used to display a number of tsunami-related databases. These include files for USGS-located earthquakes (in near real-time), WDC/NGDC Historical Tsunami Database as well as Significant Earthquakes and Volcanic Eruptions, the IRIS Global Seismic Network, and the PTWC-received Sea Level Network.

8. TsunamiTeacher Tsunami Resource Toolkit

TsunamiTeacher brings together authoritative and reliable materials of interest to a range of stakeholders involved in tsunami warning and mitigation. Sections cover the roles of the media, educational systems, and the public (government) and private sectors. The tool is available as an electronic resource (<http://ioc3.unesco.org/TsunamiTeacher>), and as an offline DVD from ITIC. Available since 2006.

For more information, contact the ITIC (itic.tsunami@unesco.org) or its Director (Laura Kong, l.kong@unesco.org) ♦

Material added to the NTHMP Library

January – February 2010

Note: These, and all our tsunami materials, are included in the online (searchable) catalog at <http://www.dnr.wa.gov/ResearchScience/Topics/Geology/PublicationsLibrary/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.

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INFREQUENTLY ASKED QUESTIONS

Why did lifeguards in Java (17 July 2006) fail “to recognize the initial recession of water that typically precedes a tsunami?”

The tsunami “was masked by large, wind-driven waves breaking on the shore.”

From: *Nature*, v. 463, no. 7277, p. 968.

The island of Hispaniola is one-third Haiti and two-thirds Dominican Republic. Has the Dominican Republic suffered any damage from the earthquake?

The earthquake was felt in the Dominican Republic, which occupies the eastern part of Hispaniola, and its capital, Santo Domingo, about 200 miles from Haiti, according to *The New York Times*. The newspaper reported that high-rise buildings in Santo Domingo shook, but they were undamaged. The Dominican Republic was

included in a tsunami warning issued by the National Weather Service’s Pacific Tsunami Warning Center shortly after the quake.

What other Earth-alterations were caused by the 2004 earthquake-tsunami?

“Scientists calculated that the colossal tsunami-causing 2004 Sumatran earthquake caused a slimming of the Earth that shortened the day by a few millionths of a second and shifted the North Pole by an inch.”

(Editor’s note: I cannot find my source for this piece of trivia. Take it with a grain of salt)

Why were the Japanese tourists in Ocean Beach laughing?

In Ocean Beach, Jim Grant noticed three Japanese tourists scratching their heads over a newly posted warning sign depicting huge breaking waves with a fat arrow underneath pointing eastward up Newport Avenue. The sign reads: “Tsunami Evacuation Route.”

Grant asked the young male visitors why they were laughing. They replied, in broken English: “What? You can’t figure out which way to run in case of tsunami?” <http://www.signonsandiego.com/news/2010/jan/12/age-earns-runner-elite-racing-number-carlsbad-cont/> Jan. 12, 2010

Prior to January 12, 2010, when was the most recent major earthquake in the Caribbean area? What was its magnitude? How many people did the resulting tsunami kill?

ScienceDaily (Feb. 8, 2005) — A dozen major earthquakes of magnitude 7.0 or greater have occurred in the Caribbean near Puerto Rico, the U.S. Virgin Islands and the island of Hispaniola, shared by Haiti and the Dominican Republic, in the past 500 years, and several have generated tsunamis. The most recent major earthquake, a magnitude 8.1 in 1946, resulted in a tsunami that killed a reported 1,600 people.

From:

http://images.google.com/imgres?imgurl=http://www.sciencedaily.com/images/2005/02/050205102502-thumb.jpg&imgrefurl=http://www.sciencedaily.com/releases/2007/07/070712134521.htm&usq=CgPIhtsI1YBcVSECHF9axjAnI1w=&h=50&w=69&sz=2&hl=en&start=176&um=1&itbs=1&tbnid=Dfw416xJezTjFM:&tbnh=49&tbnw=68&prev=/images%3Fq%3Dhispaniola%2Bearthquake%2Bfault%26ndsp%3D20%26hl%3Den%26rlz%3D1T4RNWG_enUS312US312%26sa%3DN%26start%3D160%26um%3D1 ♦



VIDEO-CD-DVD RESERVATIONS

To reserve tsunami videos, CDs or DVDs, contact 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. **These programs are available to all NTHMP participants, with a 3-week loan period.**

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. ♦



NEW! Tsunamis: Know What to Do! (8 min. DVD)

TsuInfo Alert Program Receives High Marks!

By: *John D. Schelling, Earthquake/Volcano/Tsunami Program Manager*
Washington State Emergency Management Division
January 11, 2010

In January 1999, the *TsuInfo Alert* program was established as the information delivery component of the National Tsunami Hazard Mitigation Program (NTHMP). At the time, information about tsunami hazards and mitigation was sparse and widely scattered. Compounding this, many of the at-risk coastal communities are small, have limited resources, and are distant from universities or other significant information centers. To help remedy these issues, *TsuInfo Alert* was created with a mission to collect pertinent reports and resources and provide them to tsunami scientists, planners, and emergency managers.

During the 2008 NTHMP Coordinating Committee meeting, the Committee discussed opportunities to improve the *TsuInfo Alert* program. John Schelling from Washington State Emergency Management led this effort along with members of the Mitigation and Education Subcommittee (MES) including: Christa von Hillebrandt-Andrade, Puerto Rico Seismic Network, Erv Petty, Alaska Emergency Management, Charles Williams, Alabama Emergency Management, and Kevin Richards, Hawaii Civil Defense.

To obtain feedback from the *TsuInfo Alert* community, a 21-question online survey was developed and distributed via email to *TsuInfo* subscribers in September 2009. Sixty-four (64) respondents started the survey and roughly 40 of the 64 respondents completed the entire review. Key findings indicate the majority of survey respondents:

- Are satisfied with *TsuInfo Alert* and feel that it adds value to their work.
- Feel *TsuInfo Alert* is a timely, accurate, and useful publication that presents a depth of information on a variety of topics that are of interest to the diverse tsunami hazard mitigation community.
- Prefer to receive both an electronic and paper copy of *TsuInfo Alert*.
- Not only read *TsuInfo Alert*, but distribute both electronic and paper copies of *TsuInfo Alert* to their colleagues and business associates.
- Give *TsuInfo Alert* comparatively high marks against other professional newsletters and material loaning services.
- Are very likely to recommend *TsuInfo Alert* to their colleagues and business associates.
- Would like to see additional information provided on a variety of topics that include, but are not limited to: conferences and professional development opportunities, educational curriculum, scientific research papers, in-depth articles, information on events and exercises, and information on NTHMP partner activities.
- Were aware that *TsuInfo Alert* also served as the current repository for the NTHMP and provided a material loaning service. However, a significant number of respondents were unaware that this service existed. Those that had previously used the material loaning service found that it worked like they had expected.

The NTHMP Mitigation and Education Subcommittee and Coordinating Committee will discuss the program review report as well as some preliminary recommendations that have been developed to help meet the needs of *TsuInfo Alert* subscribers at the January 2010 Annual NTHMP Meeting in Pasadena, California.

To obtain a copy of the full program review report, please contact John Schelling via email at j.schelling@emd.wa.gov or 253.512.7084. ♦