TsuInfo Alert

prepared by the Washington State Department of Natural Resources on behalf of the
National Tsunami Hazard Mitigation Program
a state/federal partnership funded through the National Oceanic and Atmospheric Administration (NOAA)

Contents **Volume 14, Number 5 October 2012**

REPORT FROM MARYLAND

About Maryland Emergency Management Agency
http://mema.maryland.gov/Pages/AboutMEMA.aspx

MEMA – the Maryland Emergency Management Agency – was created by the Maryland legislature to ensure our state is prepared to deal with large-scale emergencies. MEMA is responsible for coordinating the state's response in any major emergency or disaster. This includes supporting local governments as needed or requested, and coordinating assistance with the Federal Emergency Management Agency (FEMA) and other federal partners.

While MEMA is part of the Maryland Military Department and under the authority of the Adjutant General, during emergencies the Governor may assume direct authority over the agency and the Executive Director of MEMA reports directly to the Governor.

A key element of MEMA is the Maryland Joint Operations Center (MJOC). Operated round-the-clock by National Guard and emergency management professionals, it was the first joint civilian-military watch center in the country. In addition to serving as a communications hub for emergency responders statewide and supporting local emergency management, the MJOC monitors local, state, national and international events, and alerts decision-makers in Maryland when a situation warrants.

In times of disaster, the Executive Director of MEMA activates the State Emergency Operations Center (SEOC) to support local governments as necessary or requested. Representatives from state departments and supporting agencies, as well as some federal agencies, the private sector and volunteer organizations, are present in the SEOC.

(*continued on page 3*)

State Offices and agencies of emergency management:
Gives mailing addresses, phone and fax numbers, websites.
Does not give personnel names or job titles.
http://www.fema.gov/about/contact/statedr.shtm

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Representatives have the authority to make decisions and allocate resources and funds necessary on behalf of their agency for emergency response. When the Governor declares a state of emergency, MEMA coordinates efforts with FEMA to request a Presidential Disaster Declaration and provide assistance to those impacted by the disaster.

The MEMA staff of emergency management professionals, which numbers in excess of 70 people, are divided into two directorates – Operations and Administration. The Operations Directorate includes exercise and training, planning, regional programs, mitigation and recovery, the Maryland Joint Operations Center, and critical infrastructure protection. The Administration Directorate handles agency logistics, personnel, supplies, fiscal services, grants managements, technology support, interoperability, and communications. The Executive Director's office manages all public affairs, direct interaction with the National Capital Region, and legislative activities.

The agency coordinates various federal programs, including the Homeland Security Grant Program, the Emergency Management Performance Grant, and FEMA mitigation and recovery programs. Working with federal and local partners under the Chemical Stockpile Emergency Preparedness Program, the mustard gas stored at Aberdeen Proving Grounds in Harford County was successfully neutralized in 2005.

MEMA's authority derives from Article 14 of the Annotated Code of Maryland. This Article creates MEMA and authorizes the political subdivisions of the state to create emergency management offices of their own. Currently, there are 26 local emergency management offices in Maryland – all 23 counties, along with Annapolis, Baltimore and Ocean City. Article 14 also gives the Governor emergency powers – such as temporarily waiving state laws that may interfere with emergency response operations.

Through our mitigation and recovery process, MEMA strives to reduce or eliminate the impact of future disasters. Close coordination with local jurisdictions and other state agencies may result in responsible land use, appropriate changes to our building codes, and suitable routes for hazardous material transportation to name just a few. Proper planning and preparedness are the keys to surviving a disaster. Therefore by working together with local emergency managers our action plans become pivotal in saving resources, funds, and most importantly, lives.

"Maryland Prepares" social media challenge rules

August 31, 2012; Launch date: September 1, 2012**.**

The idea for this challenge came from Washington State's Clark Regional Emergency Services Agency (@cresa) "30 Days, 30 Ways Challenge" and their creativity in making preparedness interactive.

Who can play?

We encourage everyone to participate in this challenge. Winners will be chosen from Maryland.

How do I play?

Every day in September a different challenge will be posted for you to view on Youtube.com. You can participate on Facebook, Twitter or via email.

YouTube Channel:
http://www.youtube.com/user/MarylandPrepares/videos

Facebook Page: Maryland Emergency Management Agency
https://www.facebook.com/MDMEMA

Twitter: @mdmema
http://twitter.com/MDMEMA

Gmail: MDPrepares@gmail.com

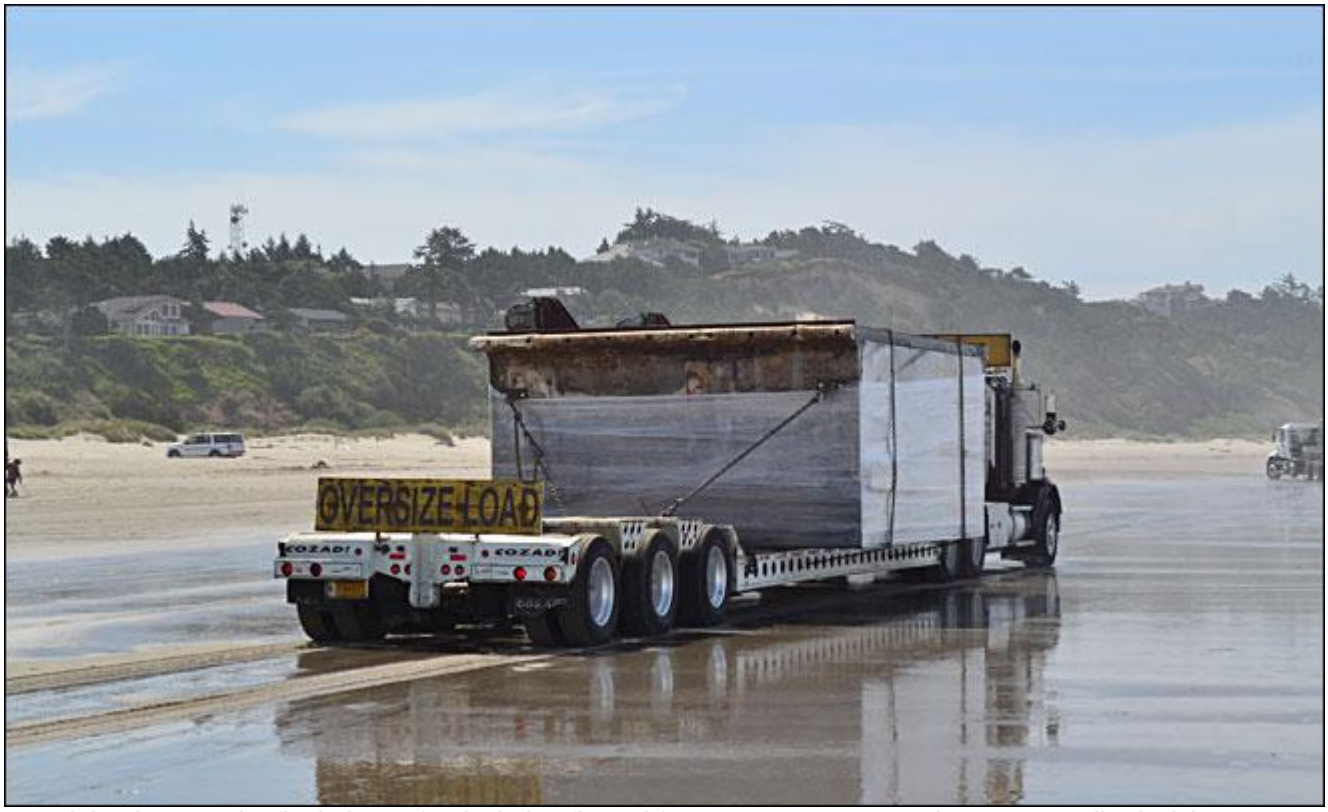
At the end of the month, the points and names of participants will be tallied into a spreadsheet. Make sure you use the same name for each challenge so your points can be tallied under the same name at the end of the month. If you are participating on Twitter, use the hashtag #MDPrepares with your answer.

The daily challenge will be posted every morning at 9:00 am Eastern Standard Time. Each challenge is worth one point unless stated otherwise. Some challenges will be worth more points than others so even if you miss a few, you can make up some points by participating in other daily challenges. Not all questions have a "correct" answer and will vary person to person; however, some questions have specific answers we will be looking for as responses. All questions will close for participation on September 30th at midnight.

Disclaimer: All inappropriate comments/posts will not be counted for the challenge and will be deleted immediately from the site.

From:
http://news.maryland.gov/mema/2012/08/31/maryland-prepares-social-media-challenge-rules/ ♦

OREGON



A truck hauls away the final piece of a dock that floated from Japan to Oregon. (Courtesy: Ballard Diving & Salvage)

Final piece of tsunami dock removed from Oregon beach

By KATU.com Staff
Posted Aug. 5, 2012
http://www.kval.com/news/local/Final-piece-of-tsunami-dock-removed-from-Oregon-beach-165069926.html
Reprinted with permission

NEWPORT, Ore. – The final piece of a concrete dock that floated from Japan to an Oregon beach is on its way to be salvaged.

Crews cut the dock, which broke free from a Japanese fishing port during last year's tsunami, into five pieces and hauled them away by truck. They worked with the Oregon Department of Fish and Wildlife to confirm that no invasive species were inside or under the 188-ton dock.

Thousands of people visited the beach this week to see the dock and watch the salvage effort.

"While no marine salvage is normal, this well-built dock and its relation to the tragedy that hit Japan last year will be remembered," said Scott Korab, the project manager for the removal.

Crew members took the dock to Sherwood, southwest of Portland, where it will be broken down into gravel. The City of Newport is working with Ballard Diving and Salvage to get a key portion of the dock for a memorial.

Tsunami dock memorial unveiling planned on March anniversary date

Saturday, September 15, 2012, 12:01 PM Updated: Saturday, September 15, 2012, 9:47 PM
By Lori Tobias, The Oregonian
Full story: http://www.oregonlive.com/pacific-northwest-news/index.ssf/2012/09/tsunami_dock_memorial_unveilin.html

Cannon Beach [Oregon] residents prepare tsunami stashes
http://www.registerguard.com
August 16, 2012

Residents are planning to store drums full of survival gear far enough inland and high enough to be safe if the big one hits the Oregon coast and sends tsunami waves ashore.

The Daily Astorian reports that the city is offering residents space in a shipping container and various sizes of drums, barrels and buckets that can be stored inside.

Full story, with photos:
http://www.kcby.com/news/local/Oregon-Coast-residents-prepare-tsunami--166817386.html

PACIFIC OCEAN

Pacific Ocean garbage mostly from home, not Japan tsunami

Report from Mary Crowley, Project Kaisei, concerning ongoing research into ocean debris. Full story: http://www.cbc.ca/news/canada/british-columbia/story/2012/08/08/bc-ocean-garbage-survey.html

VANCOUVER, B.C.

Sensors to sound tsunami warning for Vancouver Island

Deep, deep in the ocean, about 200 kilometres off the coast of Vancouver Island, an array of tsunami sensors are being installed, which will warn of impending tsunamis and offer vital information about where they might hit hardest.

Full story:
http://www.theprovince.com/news/Sensors+sound+tsunami+warning+Vancouver+Island/6680178/story.html

WASHINGTON

Nine new tsunami evacuation brochures for the Quinault Indian Nation have been posted to the Tsunami Evacuation Brochures webpage.

Under Grays Harbor County:
Amanda Park (general evacuation map; on Lake Quinault, no tsunamis but maybe seiches; no inundation area shown)
Quinault (general evacuation map; not on coast)
Taholah Ocean Tracts and Point Grenville (tsunami evacuation brochure)
Taholah Ocean Tracts and Point Grenville (general evacuation map; no inundation area shown)
Taholah Village (tsunami evacuation brochure)
Taholah Village (general evacuation map; no inundation area shown)
Tsa'alal (general evacuation map; not on coast)

Under Jefferson County:
Queets (tsunami evacuation brochure)
Queets (general evacuation map; no inundation area shown)♦

International partners—Worldwide, emergency management practice comes down to concepts that can be shared and duplicated
By Brett Hansard, manager of the Risk Communication Program at Argonne National Laboratory
Emergency Management, v. 7, issue 3, p. 24-29
Reprinted with permission

When Steve Murphy, the community emergency management coordinator of Dufferin County in Ontario, Canada, went on vacation to Alaska last year, he did something that drove his wife a little crazy—he stopped to say hello to some colleagues in Fairbanks. He also did the same thing on another trip they took to Panama.

"My employers are not going to pay me to travel the world to meet people," Murphy said. "So if I'll be in the area, I'll ask, 'Do you have time for a coffee?' No one has ever said no. And I've never left a visit thinking it was a waste of time."

Although the world—and the world of emergency management—was once separated by various natural and man-made barriers, now economic, social and especially technological changes are rapidly bridging those divides. And while in the past, an emergency manager from the out-skirts of Toronto might be thought to have little in common with a fellow practitioner in tropical Panama, today it is easier to see that far more unites them than divides them.

As Murphy put it, "When I talk to colleagues, no matter where they are from, the focus is always the same—people, property and the environment, usually in that order."

Carolyn Salem, an emergency management officer in the city of Greater Sudbury, Ontario, has found a similar connection, particularly through her interactions in online forums.

"I've never encountered an emergency manager who wasn't willing to share, and that promotes a real sense of community," she said. "Our field is very unique. It's not competitive in the same way a lot of other fields are. There are no challenges to openly sharing best practices. We have total freedom to share concepts and grow our ideas together. We can all learn from each other."

And yet, this opportunity for greater collaboration and information sharing comes at a time when the profession faces sustained pressure to do more

with less; less staff to protect against more and increasingly severe hazards, and less funding to prepare for ever more complex risks. So, is tapping into this dynamic global mix of thought, ideas, concepts, approaches and lessons just another entry on the to-do list of already overburdened emergency managers?

As William Bratton and Zachary Tumin suggest in their new book, *Collaborate or Perish!*, could it be "the difference maker, the force multiplier, the game changer" that "unleashes the power of the many to do together what none can do alone?"

As emergency management (or civil protection, as it is more commonly known outside of North America) continues to evolve and solidify its standing as a professional discipline, an intriguing mix of differences can still be found around the world.

In most developed countries, the basic underlying principles are the same, starting with the twin cornerstones of the beliefs that all disasters are local and that assistance is provided when local resources are overwhelmed. But that foundation can support a number of vastly different approaches, ranging from smaller national government roles, such as in the United Kingdom and Canada, where regional-level authority is greater than it is in the U.S., to the approaches used in countries like China and Russia, where response is largely a national, top-down function.

While a centralized national-level coordinating agency like FEMA is not unique, it is still rare to find a single government organization that encompasses all four phases of emergency management: preparedness, response, recovery and mitigation.

"The U.S. provides an interesting perspective to a lot of our international colleagues because of the comprehensive approach we offer. So looking at emergency management from preparedness to response to recovery to mitigation, not all countries envision it quite like that," said Candice Abinanti, an international relations specialist in FEMA's International Affairs Division.

"In Japan, for example, the lead for response falls on different ministries, depending on their different responsibilities for disasters," she said. "And China is similar. Instead of having one organization that has a comprehensive multi-hazard approach, each of those different ministries might jump into action, depending on what the disaster is."

And then there is the more diffused approach found in places like the Netherlands. "We don't have a FEMA-like organization," said Ronald Christiaans, a senior training adviser in the Ministry of Security and Justice.

"When you look at the Dutch system, it's organized through our safety regions. They are responsible for crisis and disaster management on a regional level. Our role in the National Operations Centre is to coordinate large-scale disasters."

New Zealand (and its 4Rs of reduction, readiness, response and recovery) has a similar system in place, where responsibility for civil protection is a local activity supported by the central government. "It's at the top level where the ministry of civil defense operates to help local territorial authorities develop plans for themselves and the local civil defense group," said Mathew Bannister, who is studying civil defense there. "This achieves a bottom-up plan."

Going back to Canada, Salem said the provinces have primary responsibility for their own emergency management plans and strategies, with the legislation that drives the municipalities coming from the provinces. The federal government typically gets involved only during major events.

Until recently, David Passey was director of civil emergency planning at the FEMA/U.S. Mission to NATO, working closely with all 28 member countries. One difference he observed was the wide variety of natural hazards for which the U.S. must prepare for compared to an individual European country, where risks tend to be fewer in number. (He said, however, that a common challenge for everyone is balancing concerns about terrorism against concerns about more regularly occurring natural disasters.)

Another important difference is the national government's role in recovery. "In a large incident, there may be financial assistance, but not the kinds of programs that FEMA has," Passey explained. "That's a major distinction—that for many European civil protection organizations when the response phase is over, the disaster is over. And then it goes back to being a local and individual responsibility."

And whereas some European countries are, in the words of Passey, "flabbergasted by the high number of volunteers in the U.S.," an exceedingly strong volunteer culture exists in Australia. According to Samantha Colwell, who works for an emergency services company there, trained volunteers from a variety of agencies are a critical part of disaster planning.

Passey saw divergence as well in how the military is used in emergencies. "Norway has a concept of total defense. They say, 'We have to use civilian and military resources for our total defense, because we can't afford to just use civilian responders if there is a big flood.' Whereas in Germany, there is a very large, well trained civilian reserve workforce that can be activated. The military will not get involved in civilian response."

Also notable is a closer relationship between the research and practitioner communities in some European countries than in the U.S. That connection, Passey said, allows research to be more integrated with policy and operational outcomes.

For David McEntire, associate professor in the College of Public Affairs and Community Service at the University of North Texas, this variety is precisely what makes the study of international emergency management systems so interesting—and important.

"It is critical that we learn from other countries," said McEntire, who edited a book on comparative emergency management for FEMA (which is available on the agency's Higher Education Program website). "On a fundamental level, we want to avoid mistakes that have been made elsewhere, and we want to learn from their successes." McEntire said that U.S. planning tends to focus more on emergency functions like evacuation and sheltering. He thinks Americans could learn from European counterparts, with their emphasis on leadership, crisis management and decision-making, particularly in times of uncertainty. He also noted that in Europe, and especially in the Scandinavian countries, more attention is paid to environmental risks, such as climate change.

In looking at different approaches from around the world, Canada's Murphy said the key is to keep an open mind. "If it's different, that doesn't mean it's right or wrong. It may not work for your community, but it works for someone else. We can still learn from it."

Brig. Gen. John Heltzel, director of the Kentucky Division of Emergency Management, said that when talking about humanitarian support, all the walls come down. "People are ready to get in and do whatever they can to ease human suffering and assist their fellow man," Heltzel said. "And it really does not matter where you're from. So I think emergency management can be that first handshake across the divide. The more we can lean into that, the better off we're going to be, because the planet isn't getting any bigger."

The language of emergency management and civil protection is increasingly a global one. For U.S. emergency managers wanting to engage with colleagues from around the world, the biggest challenge may simply be figuring how to start the conversation.

FEMA's International Affairs Division is the hub for U.S. engagement with the global emergency management community. Abinanti said her office is responsible for identifying lessons that can be learned from other countries, hosting visitors, facilitating the participation of subject-matter experts in conferences and workshops, and developing bilateral and multilateral partnerships.

One tool that FEMA hopes to see expanded is the international page on the lessons learned/ information sharing website, LLIS.gov. David Trissell, who works in Brussels as the FEMA at-taché to the U.S. Mission to the European Union, said FEMA and the EU signed an administrative arrangement last fall that sets out cooperation in certain areas, such as comparing lessons learned systems.

"We need to improve access for key member states in Europe who are interested in it," Trissell said. "Because they are going through the same system we are of trying to capture lessons learned and recognizing that a lot of information can be gained on how different states do it."

LLIS and other tools supported by new technologies are the next frontier in collaboration. Social media sites already allow like-minded emergency managers to create groups around shared interests; broadband communication can instantly connect people almost anywhere in the world; and webinars are a popular and economical way to share experiences. And no doubt there will be countless new platforms to come.

In their book, Bratton and Tumin identify "8 tests of readiness," one of which is to "create a platform, a physical or virtual clearing, that collaborators can find, get to, trust, and use. That's where you share knowledge, insight and assets, and take steps together."

Tumin, special assistant to the director and faculty chair of Harvard Kennedy School's Science, Technology and Public Policy Program, added, "If everyone is connected, the difference is who is going to be able to bring people together around those connections and make things happen?"

Heltzel, who chairs the Emergency Management Assistance Compact (EMAC) Committee of the National Emergency Management Association (NEMA), said, "We're looking at leveraging the technology to let us do more of this—a lot more video teleconferencing; a lot more virtual and online participation. And the great thing is, networks are letting us do this. That, for me, is the future of all this." He pointed to new EMAC agreements with Canada and Mexico as examples of how the U.S. is building international partnerships.

However, Heltzel emphasized the continued importance of meeting in person. He said becoming active in MEMA and the International Association of Emergency Managers is an excellent first step, and he has also found great value in the National Guard's Partnership for Peace initiative, through which states can partner with countries (like Kentucky has with Ecuador).

Many communities have access to similar connections through the Sister Cities program, which links U.S. cities with an international community. While those exchanges are often focused on economic development, emergency management could become an area of shared interest. And in an increasingly global age, a city may find more in common with a counterpart in another country than with a city in the same or another state.

"Large cities like Los Angeles, Chicago and New York have challenges that are similar to Tokyo, Berlin and London," Passey said. "New York City has more in common with them than with Binghamton in upstate New York."

Traditional conferences still provide excellent opportunities for networking. The recent International Disaster Conference and Expo in New Orleans had attendees from more than 25 countries, and the June 2012 World Conference on Disaster Management in Toronto [had] more than 40 countries represented. And, on an even larger scale, bodies like the United Nations, with its International Strategy for Disaster Reduction, and the World Bank, with its Global Facility for Disaster Reduction and Recovery, provide forums for new connections.

What is most important, Trissell said, is that no single approach be pursued at the expense of another. "You still have to maintain those individual, face-to-face interactions. But because of budgets and how people get their information today, you have to continue to be relevant in how you get your message out and exchange information. So using new technology is essential. But it is just another tool in the toolbox."

And finally, there is no substitute for the personal initiative of someone who simply wants to do his job better. Murphy said he is planning a trip to Las Vegas later this year, and to Botswana and Zambia in 2012. Emergency managers there should be expecting a call.♦

Cargo bikes could play key role in crisis

By April Baer | June 18, 2012 6:08 a.m. | Updated: June 22, 2012 7:57 a.m.

From: http://news.opb.org/article/cargo-bikes-could-play-key-role-crisis/

Over the weekend a hardened set of contenders pedaled 30 miles across Portland, each loaded down with a hundred pounds of food, propane, and tents. This isn't the new Ironman challenge. It's the Cargo Bike Disaster Trials.

Some local cyclists are trying to figure out how they can fit into the region's emergency management plans.

"You know, 100 pound loads, not out of the ordinary. Riding around the city, not out of the ordinary. Lifting bike over rocks—I can't say I haven't done that before!"

Joel Metz appreciates a bike challenge, but didn't really have to train for this competition. Metz delivers freight via cargo bike professionally for Portland's Magpie Messenger collective. On the day we talked, he was grabbing some boxes of paper product at Stumptown Printers.

Some years ago when Metz was living in the Bay Area, he heard emergency managers wanted to mobilize bike messengers. But not just because they're tough cyclists. At that time, many bike messengers carried wireless radio systems. And that's one of the few technologies disaster planners think will weather a major event.

Carmen Merlo runs Portland's Office of Emergency Management. Carmen Merlo, "We saw a much larger potential for the use of these bikes. During a large-scale event, or even an event such as a fuel shortage, you want to use sustainable practices that don't rely on fuel to get around, that can be open, even when larger emergency vehicles can't get through."

So her department agreed to sponsor the disaster trial. The staff are identifying parts of town that might be harder to serve in a disaster. They're working with cargo bikers to set up volunteer delivery routes for emergency supplies

But in Portland, the push to include cargo cyclists in emergency plans came from the bike community.

Ethan Jewett is one of the organizers of this years trials. He and some friends wanted to show the city that when the worst happens, like a major earthquake, cargo bikes have a role to play.

Jewett said, "The big thing is going to be the disruption of all the infrastructure that brings stuff in." City officials say not every Portlander can or should hit the streets, post-quake. It's probably more appropriate for most Portlanders to stay near their homes if they can. But Jewett says it's a good idea for people to consider bikes part of their personal plans for self-reliance.

This map from the city [see it in the online report] shows potential accessibility by Portland neighborhoods in an emergency.

Jewett explained, "I think Portland's already got some huge advantages in terms of preparedness, which is kind of a cool thing. If we had an earthquake tomorrow, a lot of people in Portland will be able to get around, you can take your bike and get a ride with some boat across the river at some point. You can't do that with your car."

What's more, Jewett notes the city's emergency management plans call for neighborhood hubs to establish supply lines for food, water, medicine, and radio communications. If cars can't reach those hubs, cargo bikes might.

There's no guarantee that the plan for cargo bikes will be perfect for the region's next big disaster. But cargo messenger Joel Metz points out he and his colleagues have to be ready for just about anything.

Metz said, "It's not so much that we can have this huge plan all made up. It's that we're really really good at operating without a plan, with things changing as they go along. And saying, 'Oh yeah, that plan you made just the other minute? It's different now! And worse!' "

Every day, bike messengers are doubling back to change routes, picking up unexpected clients, dodging hazards, dealing with aggressive weather, or hunkering down to fix a flat or a broken chain on the roadside.

For more on this story, see Arts & Life coverage. http://www.opb.org/artsandlife/nw-life/article/cyclists-portland-disaster-relief-trials/

Lessons learned at Japan's tsunami catastrophe: Local readiness and international urban search & rescue response

Part One – Updated July 6, 2012
By Larry Collins

Background: Challenges of modern tsunami readiness

It's become evident in recent years that few forces in nature or the manmade world match the lethality of tsunamis. So when they occur, the wise take note and glean whatever lessons can be learned and translated to action, so the next time we will be better prepared. In the last decade the world experienced two of the worst tsunami catastrophes in modern history, and some scientists remain concerned that more tsunami disasters are in the offing as huge subduction zones in different parts of the world (including the Pacific Northwest of the United States) reach their expiration date for rupture . Then there is the ever-present potential for offshore thrust faults to rupture or for huge under-sea cliffs to collapse, resulting in large tsunamis in coastal zones of the U.S. and other nations.

For the fire and rescue services in coastal zones vulnerable to tsunamis, a working understanding of tsunami dynamics and receiving, evaluating, and implementing lessons from recent tsunami disasters is critical to improving our ability to get people (including responders) out of the way of the next one, and to conduct effective post-impact search, rescue, firefighting, EMS, and haz mat operations. This has sometimes been a challenge in an age of an ever-widening scope of "all hazards" responsibility and challenges translating tsunami research to the realm of first responders and secondary responders in a way that results in action. Fortunately there have been some pioneering examples of collaborations between tsunami researchers, responders, and local/state/federal/international disaster planners and response officials that have resulted in effective tsunami warning, evacuation and response systems.

These improvements could not come at a better time. Throughout history, tsunamis have caused some of the deadliest disasters, erasing entire civilizations, mowing down forests, changing geography, and shaping human history and culture. But until recently, tsunamis remained in the realm of legend or a foggy historic memory for many people living in some of the most vulnerable coastal zones.

It's safe to say that many tsunamis in the history of mankind have been observed up close largely by those who never lived to tell about it. Others have been more well-documented by people who were able to get to high ground in time, and who passed on their experiences through oral history or the written word. Some disastrous tsunamis from the past have been drawn or painted. But very few tsunamis have been documented on film in meaningful ways that allow others to see and learn from the visceral experiences of actually seeing the destructive forces with their own eyes.

Sumatra tsunami foretold effects of Japan tsunami

All that changed in 2004 when a massive quake struck off the coast of Sumatra, eventually killing an estimated 280,000 people in more than a dozen nations. It was, at the time, the one of the most-photographed disasters in history. Few people who saw them can forget the photos and videos showing distant lines of white water approaching the coast while vacationers and locals alike stood transfixed on beaches, watching the water recede and exposing the sea bed right in front of their eyes—when in fact they should all have been running for their lives because a monster was approaching—a fact they didn't seem to understand until it was too late.

And there were the videos of tsunami waves suddenly rising up and smashing hotels and resort towns, carrying automobiles, homes, and stunned people away. Indelibly imprinted in the memories of many people around the world are images of flash floods of debris, automobiles, and people stampeding through city streets miles from the coast, as the seemingly unstoppable ocean swept inland. And who

could forget the images of children huddling in the eddy created by a telephone pole in a Sri Lanka street, as one by one they were picked off by that "oceanic flash flood", never to be seen alive again?

Many first responders and urban search and rescue (USAR) team members who received the USGS (United States Geological Survey) earthquake alert that night indicating a magnitude 9.4 earthquake off the Sumatra coast—long before tsunami buoys and warning systems had been installed in the Indian Ocean and coastal zones—were aware that it was likely that huge tsunamis were might be wiping out entire cities *right now* and sweeping across the ocean toward other countries.

But for hours after the "main shock" (followed by literally thousands of large aftershocks), there was no definitive word on whether tsunamis had actually been generated: Even many nations closest to the quake's epicenter did not have effective tsunami monitoring and warning systems, a factor that would later be cited as contributing to countless fatal encounters with the series of tsunamis that were at that moment racing across the water and wiping out coastlines and cities.

Discounting the catastrophic 1833 *Krakatoa* volcanic eruption (which generated colossal tsunamis that killed tens of thousands and caused barometric changes detected in pulses that encircled the Earth more than once), deadly tsunamis were assumed to be rare in that area of the world (compared to the more tsunami-prone Pacific). Consequently, when the Sumatra quake struck in 2004, there was a dearth of tsunami buoy systems to confirm the distinctive energy pulses of the tsunamis zipping across the ocean toward unsuspecting locals and tourists in more than a dozen nations.

To make matters worse, in 2004 there was, in some tsunami-vulnerable locations, a lack of public tsunami warning systems and public awareness. So even when it became evident that a major tsunami event actually *was* occurring, warnings frantically issued by the Pacific-based tsunami warning center personnel (whose normal warning area does not include the nations affected by this tsunami; in fact there was no warning center in place specifically for that part of the world in 2004) were often not received by the end users because there were no formally agreed-upon channels for issuing the warnings in other parts of the world.

To compound the disaster, warnings that were finally received by some nations in the tsunami's path were in some cases waylaid by officials who either were confused over who should deliver the warnings to the local coastal populations, how the warnings were to be delivered, or how to deal with delays receiving permission to *sound* the warning. The scenario could not have been much worse. In some cases, the warnings came far too late for coastal zones that that already been wiped out.

Important improvements in readiness following the Sumatra tsunami

Fortunately, many of these glitches have been fixed in the intervening years, and a major international effort has been focused on establishing effective tsunami warning systems in nations affected by this tsunami catastrophe. But on the day of the 2004 Sumatra quake, the fate of hundreds thousands of people in coastal zones nearest to the epicenter was a mystery to most of the world for hours. Many people in other parts of the world who went to bed having heard about a large earthquake near Sumatra knew nothing of the calamity that was occurring as they slept. It was only in the morning that they saw for themselves—via televised images and reports—the immensity of the tsunami catastrophe that had been generated by the Sumatra quake. And even then, it wasn't immediately clear just how big the overall impact area was. That awareness would take days.

Many hours after the quake had launched tsunamis up to 90 feet high at nearby coastlines, cities like Banda Ache (Indonesia) had yet to be heard from, and it turned out that most of the city had been flattened or washed away and tens of thousands had perished there as nine-story high waves peaked in some spots and the ocean rushed into the city from both sides of a coastal headland. Other population centers suffered similar fates.

With an estimated 280,000 dead, the 2004 Sumatra quake is considered the largest single life loss disaster in recent modern history. We have collectively learned from experiences in other tsunamis, *getting people out of the way of the tsunami itself, before it hits populated areas* is the number one life-saving action we can take.

Even Southern California, once thought an unlikely location for "near source" tsunamis, has been compelled to develop and implement extensive tsunami planning, warning, evacuation, and search and rescue plans after scientific studies after the 1994 Northridge earthquake found mechanisms that can cause near-source tsunamis to strike the most populated coastlines in North America within minutes.

One example of the change in tsunami readiness is found in Los Angeles County, where the concept of near-source tsunamis striking the sunny beaches might once have seemed laughable. A 180-degree reversal has occurred in the face of new revelations about the presence of previously unknown offshore thrust faults and the recent recognition that 2,600 foot high (deep) submarine cliffs sit just 1 mile

offshore, and that the collapse of one or more of these cliff faces could displace enough water to send tsunamis up to 40 feet high racing into densely populated coastal zones and beaches packed with visitors.

The County of Los Angeles (with coordination by the county's Office or Emergency Management) has spent years developing tsunami plans, public awareness and warning systems, and post-tsunami emergency response procedures and training. The city of Los Angeles was recently designated a TsunamiReady Community and the County is finalizing its TsunamiReady preparations. The fire departments with coastal jurisdiction and the lifeguards working with law enforcement and agencies like the U.S. Coast Guard have developed collaborative tsunami warning, evacuation, and post-tsunami response plans and capabilities, and they continue to hone these preparations based on lessons learned from recent tsunami events.

And in Japan, long known as perhaps the most tsunami-ready nation on Earth, preparations for major earthquakes and tsunamis continued. Japan has often been seen as bellweather for the effectiveness of earthquake engineering, planning, public education and emergency response. And Japan's culture of tsunami readiness has long been held up as an example for other nations. And rightly so: In Japan, tsunami planning and preparedness is a serious topic, and the long history of deadly tsunamis in that nation continue to emphasize the need for constant readiness.

Japan: Ground zero for yet another deadly tsunami

Sure enough, seven years after the Sumatra tsunami catastrophe, calamity struck again. But this time in a nation far better prepared for both earthquakes *and* tsunamis. On March 11, 2011, Japan—arguably the most earthquake-and-tsunami prepared nation in the world—was the setting for an epic tsunami tragedy whose effects are still being felt today, and whose reverberations will affect tsunami-prone nations for years to come.

The Japan quake was perhaps the most comprehensively documented tsunami catastrophe in history, having struck a technologically advanced nation whose state, news media, security, and private cameras were rolling throughout the event. The tsunamis decimated many of Japan's warning systems and defenses and overran entire modern cities as the world watched in real time.

Making the situation even more desperate was the tsunami's impact at several nuclear power plants, where the waves overtopped protective walls, flooded support facilities, and disrupted or disabled critical functions like the cooling of fuel rods. It was a double catastrophe, and as often happens in disasters, one problem seemed to compound the other—a lesson for all disaster-prone regions of the world.

Tsunami warnings were immediately issued by Japanese officials for the northeast coast of Honshu Island, which had been shaken for nearly 2½ minutes. Local tsunami warning systems—including strategically placed warning sirens—were activated along the entire northeastern Japan coastline. For many, there simply wasn't enough time to escape, even with the most sophisticated warning systems in the world. Minutes after the quake, a series of devastating tsunamis began overtaking coastal cities while the world watched live television coverage. When the ocean rushed forward onto the land, it overtook entire cities like an oceanic flash flood.

U.S. international response contingencies

As part of the U.S. Government response, the U.S. Agency for International Development (USAID) activated a Response Management Team (RMT) at its headquarters in Washington, D.C., and deployed a Disaster Assistance Response Team (DART) to help coordinate U.S. assistance operations on the ground in Japan. USAID then activated Virginia's Fairfax County Fire and Rescue Department (FCFRD) and the Los Angeles County Fire Department (LACoFD) USAR team (the teams are identified as USA Teams 1 and 2, or USA-1 and USA-2, respectively.

The Fairfax County team (USA-1) and the DART flew from the East Coast, rendezvoused with L.A. County (USA-2) at Los Angeles International Airport, and proceeded to Japan from there. Both teams' equipment caches were flown to Japan aboard American military cargo planes. Simultaneous to this, the West Coast states, Hawaii, and the U.S. government prepared for possible disaster-level tsunami impacts on American coastlines.

West Coast prepares for impact

As the calamity unfolded in Japan, U.S. officials faced impending tsunami impact hours later in Hawaii and along the West Coast of North America. A series of tsunami watches were issued by the Hawaiian and West Coast/Alaska Tsunami Warning Centers for possible tsunami impact on the Hawaiian Islands and the Pacific mainland coast as the waves spread across the Pacific at the speed of a jet aircraft. Tsunami watches and warnings were issued for at least 20 other nations.

California was placed under a Tsunami *Watch* (possibility of a tsunami; make appropriate preparations), which was later upgraded to a Tsunami *Warning* indicating that strategically positioned ocean buoys had confirmed a series of tsunami waves

The decision process for tsunami evacuation and response to a Pacific-wide event naturally involves hundreds of local, regional, state, and federal agencies and departments that need to use a unified approach in each region. Each state, region, county, and city has its own unique set of circumstances and challenges that must be recognized, understood, and addressed to ensure lives are protected. The worst thing would be to have people in harm's way who could have been forewarned and evacuated before the tsunamis struck, but were not. This is especially true of near-source events where tsunamis may strike shore in minutes. But there are also obvious dangers in evacuating millions of people in a matter of hours for a possible tele-tsunami event, if evidence like the tsunami buoy system and actual eyewitness accounts of the level of impact in other areas indicates that actual damaging or life-threatening tsunami waves aren't likely to materialize.

Decision-makers in of all affected coastal entities faced the problem of balancing between maintaining awareness in real-time of the indicators of the tsunami, and warning coastal residents to be prepared and in some cases to evacuate vulnerable coastal zones. Faced with a potentially disastrous series of tsunami impacts in Hawaii and the West Caost of the U.S., fire departments, law enforcement, lifeguard departments, local and state offices of emergency services, and other organizations activated their tsunami plans. Coastal evacuations were being ordered based on Tsunami *Warnings* issued by the tsunami warning centers in Hawaii and Alaska. In locales under Tsunami *Watch*, the public was alerted and contingencies readied developed for possible coastal evacuations if the *Watches* were upgraded to *Warnings*.

The state of Hawaii properly conducted wide-scale evacuations in anticipation of the tsunami, and in fact some of the Hawaiian beaches and coastal zones did experience significant movement of the ocean, which caused serious damage to some resorts and occupancies. On the mainland, as some Tsunami Watches were upgraded to Warnings, authorities alerted coastal residents and visitors, and in some cases ordered evacuation of vulnerable coastal zones.

Impact preparations in L.A. County

This process was especially complex in Southern California, with its huge at-risk population and a multitude of jurisdictional authorities.

As one example, the Los Angeles County Emergency Operations Center (EOC) was activated, along with the EOC's of the various coastal cities including the City of Los Angeles. "Department Operations Centers" (D.O.C.'s) of various fire and law enforcement agencies with coastal jurisdiction were also activated. The Red Cross and other civilian organizations with responsibility for supporting the tsunami warning/evacuation system also geared up for possible action. The L.A. County Lifeguards, a division of the LACoFD, were integrally involved in this process, including maintaining contact with the U.S. Coast Guard and lifeguard agencies in Hawaii and parts of the mainland that would be impacted first.

As the LACoFD's USAR team was preparing to respond, plans for a potentially damaging series of tsunamis striking the coast of Southern California were in full swing. The process included a continuing assessment of the anticipated impact and time (about 8:30 a.m. PST) based on a continuing stream of information from the Tsunami Warning Centers and other sources. This included development of an Incident Action Plan (IAP) and a coordinated plan for notifying the public, notifying the news media, and keeping people out of harm's way.

The IAP included contingencies for deployment of USAR companies, swiftwater rescue teams, fire boats, lifeguard units (the L.A. County Lifeguards are a Division of the LACoFD), firefighting units, EMS units, haz mat task forces, helicopters, heavy equipment, and other resources if the coast was hit hard. Also considered were contingencies for deploying one or more California Regional USAR task forces to the most densely populated coastal zones if there was a truly damaging tsunami impact resulting in wide-area search and rescue operations.

Initial operations included movement of fire department and lifeguard vessels[1] to the safety of deep water; warning residents and visitors to stay away from the beaches. The Incident Action Plan also included contingencies for relocation of land-based fire department and lifeguard resources to high ground/safe zones; staffing and staging specialized resources in high ground/safe zones; assisting law enforcement with evacuations if they became necessary; and a post-impact search and rescue plan that included land-based, boat-based, and helicopter-based rescue assets, casualty treatment and transportation, disposition of the dead, firefighting and conflagration-fighting operations, and dealing with haz mat releases and mass casualties.

The federal USAR teams are staffed three-deep in each position and LACoFD has two full equipment caches, so the department is capable of deploying multiple task forces simultaneously. Therefore, while LACoFD was preparing to launch USA-2 to Japan, the department's Technical Operations

[1] The Lifeguards are a division of the Los Angeles County Fire Department

Section was, at the same time also preparing for the possibility of local, regional, state, and federal (FEMA) USAR deployment in the event that L.A. County or other parts of the U.S. West Coast were hard hit by the tsunamis that were racing across the ocean toward the U.S. at the speed of a jet aircraft.

As the tsunami reached the Hawaiian islands with less-than-disastrous impact, and as increasingly specific information from the Pacific-based NOAA tsunami buoys indicated a series of "serious tidal surges" impacting the West Coast instead of "formed" tsunami waves that might rush inland and carry people away, a nuanced decision was in order.

In the case of Los Angeles County, a full-scale evacuation was not initiated. Instead, the public was warned to stay off the beaches, and the LACoFD deployed emergency watercraft into deep water, established lookouts, patrolled the coast, maintained local resources in a ready state, and prepared for the effects of strong tidal surges. Harbor and marinas, naturally, were considered at higher risk for damage because quickly rising and lowering water levels would cause currents and other effects that were difficult to predict with certainty. Businesses and residents in the marinas and harbors were notified to take appropriate precautions (including securing vessels, moving them to deep water, etc).

The impacts of the tsunami began developing around 8:30 a.m. in Southern California, causing serious damage in some areas, close calls in other areas, and at least one fatality in Northern California. In comparison with the catastrophic effects seen in Japan, the West Coast of the U.S. (including Hawaii) dodged a proverbial bullet. Tragically, many coastal residents of Japan were not so lucky.

End, Part One

The Author
Larry Collins is a Battalion Chief and a Task Force Leader of the L.A. County Fire Dep. (LACoFD) Urban Search and Rescue Team, identified for international response as "USA-2" and for domestic response as California USAR Task Force 2.♦

Latest issue of *Natural Hazards Observer* is online

To view the September 2012 issue, visit http://www.colorado.edu/hazards/o/index.html?utm_source=NHC+Master+List&utm_campaign=05b688b9fc-DR595&utm_medium=email ♦

Digging for tsunamis - Professor James Goff digs up evidence of tsunamis from the past to find clues that could prepare us for future threats.
Interview by Kathy Graham for ABC Science Online
http://www.abc.net.au/science/articles/2012/06/18/3525222.htm?site=science/meetascientist
Reprinted with permission

Professor James Goff digs up evidence of past tsunamis in the Pacific region *(Source: James Goff)*

The Pacific Ocean is more vulnerable to natural events than any other place in the world—around 85 percent of all tsunamis happen in this region.

In the past six years alone, major earthquake-triggered tsunamis have hit the Solomon Islands, Samoa, Chile, and Japan causing devastation. What makes the region so vulnerable is the Pacific Ring of Fire that pretty much defines the boundary of the Pacific Ocean and is where more earthquakes and volcanic eruptions occur than anywhere else in the world, says Professor James Goff.

"Here the vast Pacific tectonic plate is grinding merrily away against its neighbouring plates and causing absolute havoc," Goff says. As co-director of the Australia-Pacific Tsunami Research Centre and Natural Hazards Research Laboratory, Goff searches for geological evidence of past tsunamis. That information could help governments prepare for future events. "All [Pacific] nations are incredibly exposed to coastal hazards. What I want to know is how serious those hazards are," says Goff. Through studying the sedimentary deposits in a place of interest, Goff can discover proof of past havoc wreaked by giant waves.

Goff and his wife, Dr. Catherine Chague-Goff (another tsunami scientist in the team) developed much of the scientific 'toolbox' that's now used by tsunami scientists all over the world, to understand past tsunami events.

"When we study the characteristics of a deposit, we're looking for clues," he explains. "What is the

chemical composition? What sorts of microfossils are incorporated in the sediment? Do these come from the sea or the land? Has this event been replicated elsewhere in the area? It's like fitting together the pieces of a jigsaw puzzle."

Geological and oral history

Recently Goff and his team uncovered signs of distinct periods of interruption during early Polynesian settlement of the Pacific.

"The timing of these coincides with the occurrence of massive earthquakes and tsunamis, much larger than anything that's happened since we started keeping written records."

In working closely with local indigenous populations, Goff has been able to tap into a rich oral tradition that extends back through countless generations.

"If you can earn the trust of Polynesian people, they will share their stories with you about things such as sea monsters that came out of the ocean and destroyed the land and killed their ancestors. What's really exciting is we can use this information to guide us to where we should go digging our holes in the sand."

While evidence confirms that several past tsunamis have been larger than previously thought possible from the historic record, their frequency isn't increasing today because of, say, climate change, says Goff.

But due to the Asia-Pacific's high tectonic activity, even Australians have some cause for concern. The largest runup from a wave to strike our shores may have been only 6 metres or so back in 1977 from an Indonesian earthquake, but that does not mean there aren't dangers.

"Our coastline is developing very rapidly in that it's where people choose to live and, particularly in Western Australia, locate their industry. Our historic records are pathetic, going back a mere 200 years. Mother Nature works on a much longer time scale spanning hundreds and thousands of years," he says.

"We can never be fully prepared until we know the extent of the risk and that's what I'm here to find out."

Published 18 June 2012 ♦

FAS Federal Emergency Management Agency archive

http://www.fas.org/irp/agency/dhs/fema/?utm_source=NHC+Master+List&utm_campaign=05b688b9fc-DR595&utm_medium=email

Treasure trove of documents to explain how FEMA works. ♦

Wrong catastrophic disaster assumptions

By Eric Holdeman, Sept. 18, 2012
Emergency Management Blogs, Disaster Zone
http://www.emergencymgmt.com/emergency-blogs/disaster-zone/Wrong-catastrophic-disaster-assumptions-091812.html

Earlier today I was in a discussion on catastrophic planning and what assumptions that we may be making that are not correct.

A few things I contributed to the discussion were:

* Are we sure that elected and senior appointed officials will act appropriately and use the professional advice they are receiving from their emergency management staff? Or, will they listen to other voices, that advise courses of action that will only cause trouble either immediately or down the road?

* We continue to plan as though all our people resources are going to be there for us to allocate to various missions. I'm talking about law enforcement, fire, medical, hospital, emergency managers, teacher, etc. If the event is catastrophic and the above individuals and their families are in the disaster zone I don't think many will be at work.

Then there were a couple of good comments from others:

*We need to do a better job at managing the expectations of the average citizen and other special populations. It will not be business as usual or anything close to it in a catastrophic disaster. I believe we need to think not just about triaging patients, but the entire disaster. What can we accomplish and what do we need to just "write off" as impossible under the circumstances.

*Improvisation is an important aspect of responding to disasters. However, everyone can't be improvising in their respective silos. We need to find ways to coordinate as we improvise. The interdependent nature of the disaster response will ensure that our independent actions will surely impact others—sometimes negatively.

*Katrina was the first time in recent memory that foreign nations offered us disaster assistance. We need to get better at asking for help and orchestrating the use of international resources.

Lastly, it came to me that we can't count on catastrophes coming as single events. There is nothing to say that we might have multiple catastrophes—simultaneously. A hurricane in the Southeast and the "Big One" on the West Coast.

Wouldn't that be fun!

About this Blog:
Disaster Zone—Emergency Management Blogs
By Eric Holdeman, Emergency Management in the Blogosphere
http://www.emergencymgmt.com/emergency-blogs/disaster-zone/About-This-Blog.html

There are hazards everywhere—they exist no matter where you live and work. These hazards range from natural hazards such as floods, landslides, earthquakes, and hurricanes to technological hazards such as hazardous material spills, computer crashes, power failures and the like. Since the terrorist attacks of 9/11, much time and money has been focused on terrorism, which is a hazard that potentially threatens many aspects of our modern culture.

Disaster Zone is dedicated to sharing information about the world of emergency management and homeland security. There is a constant stream of new laws, plans, procedures, and technology solutions. Science is also being applied to studying human behavior and how we interact with one another and with all aspects of our environment. Taking advantage of science and applying it to how we perform our everyday functions is something we need to strive for.

The Internet has enabled us to share information with one another more easily than ever before. Check this Blog often for interesting information on all aspects of disaster prevention, mitigation, preparedness, recovery, and response. If you have information to share, please send Eric an e-mail and he will share it with the ever-growing community of practitioners dedicated to making our world a safer place to live.♦

Humanitarian icons
http://reliefweb.int/map/world/world-humanitarian-and-country-icons-2012?utm_source=NHC+Master+List&utm_campaign=05b688b9fc-DR595&utm_medium=email

If a picture is worth a thousands words, then these icons will save a lot of breath when trying to communicate emergency information during a crisis. The collection of icons, revised by the UN Office for the Coordination of Humanitarian Affairs for the fifth year running, can be used to quickly overcome barriers such as language, culture, or even confusion when you need to communicate warnings or coordinate responses. The icon set is available in a variety of formats.

From: Disaster Research 595, Sept. 20, 2012♦

Material added to the NTHMP Library
September–October 2012

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

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Urban growth, aging populations—A new era in disaster services
Natural Hazards Observer, v. 37, no. 1, p. 5
http://www.colorado.edu/hazards/o/archives/2012/sep12_observerweb.pdf

The dynamics of the modern world are creating new challenges for delivering services to people in times of crisis, says David Kaufman, director of the Federal Emergency Management Agency's Office of Policy and Program Analysis.

"When we move and look at technology, we see wholesale shifts in the ways in which we access and consume information," Kaufman says, in only one example among many of the changing reality of designing disaster-resilient communities. We place great "reliance upon automated systems that are at the front of our mind and not so at the front of our mind—the fact that in order to get an ATM withdrawal, the [global positioning system] needs to be working."

These new dynamics cut across a wide variety of issues. For the first time in the history of the world, he says, more people live in urban areas than in rural ones. In the United States, 82 percent of the population lives in 11 "megaregions." Population growth is increasing along the coasts, precisely in those areas which are most vulnerable to many natural hazards.

"At the same time, the population of the country is aging," he says. "I find that a particularly astonishing statistic is to look at the growth in the percentage of the population between now and 2025 who are over age 65 and what that means for the kinds of services, the kinds of support systems that are required in times of crisis."

All of this means that disaster experts are facing increased complexity and decreasing predictability. The advent of social media, in particular, has influenced the way that people respond in a disaster. Changes are occurring in whom people turn to for information in disaster situations—who they trust. "Trust is moving away from large institutions, both public and private," Kaufman says. "It is moving to networks. It is becoming increasingly important to understand who the influencers are for different groups of people—who do they turn to for information?"

If, for instance, an evacuation order is given in advance of a hurricane, an average resident is going to check in with four or five other people before deciding whether to obey it. Decision-making in a crisis is a social issue, he says.

This social contract has expanded. People have an expectation of input that is "qualitatively different from 20 years ago," Kaufman said. "We are grappling with designing plans and anticipating what people are going to do."

Kaufman says that emergency planners, researchers, and others in the field have to embrace the role that private and nongovernmental organizations are playing in this new paradigm. Trust is a critical issue, he says. He notes that this applies especially in the field of terrorism.

"Terrorism is, as much as anything, an attack on social trust. The object of terrorism is to erode the faith and confidence of a population in its governmental institutions, and to do that with a political objective, is the target of terrorism."

There is a great deal to be gained from the social sciences, he says. There are insights from the behavioral processes on how people behave in ordinary situations that influence the way they will behave under stress. Public citizens are the first responders. But people don't follow the plan in the disasters, so the plans must be flexible and adaptable to respond to the way that people actually behave.

Kaufman spoke on July 15 [2012] at the 37th Annual Natural Hazards Research and Applications Workshop held in Broomfield, Colorado. ♦

New approaches to the protection of infrastructure—Exploring the 'new normal' by learning from events of the recent past
Natural Hazards Observer, v. 37, no. 1, p. 7

Protection of infrastructure in the face of disasters requires new approaches and looking at "what is possible, beyond what is probable," says Cornell engineering professor and EERI distinguished lecturer Thomas O'Rourke.

It's necessary to "change the steps to the ecology of your mind," O'Rourke says, "to think of infrastructure in new ways, to think of hazards and the risks that you're bearing in new ways, and not accept standard probability as some sort of a comfort zone. There is infrastructure that is just too big to fail, and we are at some obligation to be able to identify and to do something about it."

Some of this "too big to fail" infrastructure is considered in much disaster work, but some that O'Rourke identified is less familiar. Failure of some could lead to multiple disasters, as when the recent Japanese Tohoku earthquake was followed by a tsunami, followed by catastrophic failures of the Fukushima nuclear power plants.

The infrastructure components that O'Rourke identified include the Southern California water supply, whose tunnels and aqueducts occasionally cross immediately over the San Andreas Fault; the San

Francisco fire protection system and auxiliary water supply; the New York City water supply; the New Madrid Zone transportation and liquid fuel lifelines; and the Mississippi Delta flood network.

"The new normal is that it's anything but normal," O'Rourke says. "If we don't come to our senses and change our perceptions after the events of the recent past, particularly with what we've learned combined from Hurricane Katrina, then woe be to us."

O'Rourke says that probability projections are not borne out by reality, especially in the case of nuclear power. "Nuclear power tends to target failure probabilities on the order of at least one times ten to the minus five to one times ten to the minus six per year. However, if we just look at the five major releases from Chernobyl, Three Mile Island, and the three reactors at Fukushima, over the reactor years that those reactors were in operation, it comes to the three times ten to the minus four per year, or about two orders of magnitude off the target for what we have been told is the reliability of those systems.

"These problems of course are compounded … by institutional constraints, politics, lack of perspective, and sometimes just plain dysfunction," he said. "So no normal, except new thinking."

After September 11, the nation operated under the concept of "total protection" for critical infrastructure. But Hurricane Katrina in 2005 changed that perspective, to get people thinking about the resilience of infrastructure, the inability to eliminate all residual risk. Especially after the Tohoku and Christchurch earthquakes, "We need to rethink infrastructure and rethink risk," O'Rourke said.

Thomas O'Rourke spoke on July 16 at the 37th Annual Natural Hazards Research and Applications Workshop held in Broomfield, Colorado. ♦

FEMA Corps develops the next generation of emergency managers

By Jim McKay, Sept. 13, 2012
Emergency Management online
http://www.emergencymgmt.com/training/FEMA-Corps-Next-Generation-Emergency-Managers.html

The federal government officially unveiled FEMA Corps in Vicksburg, Miss., on Sept. 19, inducting 240 enrollees into the emergency management program.

FEMA Corps is a partnership between FEMA and the Corporation for National and Community Service that adds additional support for response and recovery of disasters by new FEMA Corps teams within AmeriCorps. Each team will consist of 10 FEMA Corps members, 18- to 24-year-olds who have signed up for the program.

"We're really excited about the opportunity to bring more young people into emergency management to help serve the country," said FEMA Deputy Administrator Richard Serino ahead of the announcement. "They're going to eat, drink and live emergency management for 10 months."

FEMA Corps teams will support preparedness, response and recovery efforts by aiding survivors, helping with public communication efforts and more. The goal is to accumulate 1,600 FEMA Corps team members in the next 18 months, each serving a 10-month stint with the option for a second year. The second-year members will qualify to be team leaders. Until then AmeriCorps personnel will serve in that capacity.

The teams will respond to disasters anywhere in the country with the first teams heading to Louisiana and Mississippi to help with the Hurricane Isaac recovery effort. When fully operational, the program could save taxpayers approximately $60 million a year, FEMA says.

Enrollees go through six weeks of training with FEMA federal coordinating officers and AmeriCorps personnel. They also undergo training at the Center for Domestic Preparedness and receive a $5,500 stipend for the 10-month term, according to Serino. "Right now it's hard for people to get into emergency management and here's an opportunity for somebody to look at this as a possible career."

The benefits, according to a FEMA press release, include:1) Strengthening the nation's disaster response capacity. The partnership will provide a trained and reliable resource dedicated to support disaster operations, while enhancing the entire emergency management workforce. 2) Achieving significant cost savings to taxpayers. 3) Creating pathways to work for young people. By providing training, experience and educational opportunity, the partnership will prepare thousands of young people for careers in emergency management and related fields. 4) Promoting an ethic of national service. The partnership will strengthen our nation's culture of service and civic engagement by mobilizing corps members and community volunteers to provide critical disaster services. 5) Modernizing government operations to improve performance. By coordinating between agencies, FEMA will advance President Barack Obama's management goals of working across government, managing across sectors and promoting efficiency. ♦

The December issue of *TsuInfo Alert* will arrive in your mailboxes a bit later than usual...the Editor will be on vacation for the month of November, returning to work on December 3.

NEWS

The International Charter on Space and Major Disasters—USGS plays a key role in the United States and around the world

The International Charter on Space and Major Disasters was established in 1999 by the European and French space agencies (ESA and CNES). The charter's objective is to use space-based assets to contribute to managing natural or technological disasters. By 2007, the charter had grown to include government and commercial satellite operators in Canada, Argentina, Japan, the U.S, the United Kingdom, and China. The U.S. Geological Survey (USGS) entered the Charter in 2005, joining the National Oceanic and Atmospheric Administration (NOAA) as part of the U.S. team already in place.

Through its members, the charter provides access to a variety of space-based imaging and remote sensing systems. Emergency managers use defined processes to activate the charter and receive information. For each activation, the charter assigns a project manager to handle requests and ensure accurate information is delivered to the users. In a typical year, the charter is activated more than 20 times around the world. It's important to note the charter need not be invoked for the USGS Emergency Operations Program to respond to a local event in the United States.

USGS acts as the link to the charter in the U.S. As situations develop, the USGS team can use charter provisions to provide imagery to local responders. The charter views USGS and Landsat data as important resources for its participants. "Landsat data are very good for base maps in areas where they don't have any maps," explains USGS Disaster Response Coordinator Brenda Jones. "People can download the Landsat data and quickly make some very good pre-event maps."

The charter and the imagery it provides illustrate the value of technology in helping government and other organizations make effective decisions in a timely manner. As the emergency response community continues to evolve, it's expected to increase its use of imagery-based, GIS-related technologies.

From: EIJ Earth Imaging Journal, May/June 2012, p. 24 Reprinted with permission

Double the fund: UNDP ready to bank on disaster resilience

The United Nations Development Programme is upping the ante by making disaster risk reduction central to development activities, including doubling UNDP disaster reduction assistance over the next five years.

The commitment to increasing disaster resilience was announced last week in an address by UNDP head Helen Clark in Christchurch, New Zealand. That speech emphasized the need for collaboration between humanitarian and development agencies, as well as investment in protecting populations from disaster.

"I see our work in disaster risk reduction being about building fences at the top of cliffs, rather than being content to place ambulances at the bottom," she said.

The extra funding will correspond with a new phase in disaster risk reduction, as well. With the UN International Strategy for Disaster Reduction's Hyogo Framework for Action set to wrap up in 2015, UNISDR is planning for the next chapter in creating global disaster resilience.

"UNDP and other UN agencies have an important role to play in mainstreaming disaster risk reduction into their day-to-day development work and that experience is very important to the debate now underway among member States on a new international instrument for disaster risk reduction," UNISDR head Margareta Wahlström told the UN News Service. "It will be a major feature of next year's Global Platform on Disaster Risk Reduction."

Investment in disaster reduction is not only "cost effective and smart development," Clark told her Christchurch audience, it's also imperative to development strategies. Because the gains made by development are so easily be undone by disaster, they should be intrinsic to the foundation of growth, she said.

"In view of mounting disaster losses, investment in disaster risk reduction needs to be scaled-up exponentially."

From: Disaster Research 593, Aug. 23, 2012

Real-life resilience: Stories of disasters and the communities that survived them

When you eat, breathe, and sleep disaster, it can be easy to forget something simple—most people don't. Attendees at the Natural Hazards Workshop last week were reminded of that fact as they listened to tales of how three communities grappled with what was, for them, the unimaginable.

We weren't planning for it at all," said Administrator Gretchen Neggers, of the Town of Monson, Massachusetts, about a rare tornado that ripped through the small town last June. "Throw us three feet of snow—we're good, we can handle that."

Neggers painted a picture of the bewilderment many small communities must face in the wake of such an unexpected event. While there were no deaths, the destruction was significant. Town offices, the library, the police station, and the senior

center were all destroyed. The town's volunteer emergency manager was on vacation.

Enter the Federal Emergency Management Agency, which outnumbered the small town council and staff and blitzed the community with their business-as-usual disaster expertise.

"We learned in the first few days that there was a need for local leadership," Neggers said. "FEMA came to help, but we were a little confused about all the stuff FEMA did."

While the nuts and bolts of federal disaster assistance were getting sorted out, it became clear that what people needed to recover was each other. The first town meeting was less about getting information and more about being together in the same space, Neggers said. Since the disaster, group activities such as yoga and tai chi have became popular.

"People just wanted to be together and do things that made them be well again," Neggers said. The need to reestablish community was equally important for Joplin Schools following the May 22, 2011, EF5 tornado that killed seven students and one teacher, said Assistant Superintendent Angie Besendorfer.

Almost immediately after the storm, school district staff began trying to account for their students using the school auto-dialer, Facebook, Twitter, radio announcements, e-mail, text messages, and even going door-to-door where they could. In five days they had accounted for almost everyone.

Once their students were located, the schools set out to be a place of normalcy and provide help for kids and families reeling from the destruction. Even though the district had lost its administrative offices, it recognized the importance of getting the actual schools—all of which had been damaged—back on line as soon as possible.

"We knew we were not going to be satisfied with a field full of trailers," Besendorfer said. "It was a child's only junior year; it was their only second-grade year—it couldn't be a temporary education."

That attitude is similar to the advice given by Bob Dixson, mayor of Greensburg, Kansas, which was 95 percent destroyed by an EF5 tornado in 2007. Since then, the town has been largely rebuilt using sustainable building practices. Dixson told the audience that it was important for morale to take action and celebrate every success of recovery. "You've got to be engaged, don't wait for some agency come to save you," he said. "You pull yourself up by the bootstraps and you keep going."

Because of the near-complete devastation, Greensburg's residents literally had little left but each other. The dynamic created a unique process where the whole of the community became deeply involved in the rebuilding. This isn't merely the magical effect of surviving disaster, Dixson said.

"In the midst of disaster, all it does is magnifies where you are as a community," Dixson said.

While the statement hearkened to many Hazards Workshop conversations on how to create a resilient community that—like Monson, or Joplin, or Greensburg—could weather the storms of outrageous fortune and thrive, the Mayor reminded the audience that for all the study and planning and thought given to natural hazards, ultimately it's individuals that truly make the difference.

"You've got the answers, but that's academia," Dixson said. "And we can do all the pre-planning of the manual, but when a 210 mile-per-hour wind comes along the manuals are gone. What you've got to rely on is your human spirit."

From: Disaster Research 591, July 26, 2012

Practice makes perfect and other lessons in resilience

Disaster resilience comes with practice, whether it's practice from experiencing previous disasters or conducting disaster exercises. It also comes from growing strong social networks. And from the guidance of determined and collaborative leaders.

These are among the lessons learned by the authors of an upcoming National Academies report called *Increasing National Resilience to Hazards and Disasters*, which was commissioned to gain a broad, multidisciplinary perspective of how to best strengthen national resilience. Four of the report's 13 committee members spoke about their experiences compiling the report at the Natural Hazards Workshop last week.

Before the committee could begin to determine how to strengthen resilience, though, they had to tackle the oft-contested topic of what resilience is. They opted for a broad definition: the ability to prepare and plan for, absorb, recover from, or more successfully adapt to actual or potential adverse events.

With that in mind, the committee made several site visits to New Orleans; Cedar Rapids, Iowa; and Southern California to assess factors that increased a community's ability to recover from a disaster. They found that strong social networks, previous disaster experience, exercising disaster preparedness, and strong local leadership were critical components in fostering resilience.

One of the strongest examples of multiple qualities of resilience was the Vietnamese community in Village de l'Est, New Orleans. The small community of fishermen is largely made up of survivors of the Vietnam War and their children and grandchildren.

That shared history of survival—along with solid social networks stemming from a common heritage, occupation, and language—was manifested in the ability and will to rise from the wreckage of Hurricane Katrina.

"Members of the Vietnamese community have a collective identity as survivors," said Monica Schoch-Spana of the University of Pittsburgh Center for Biosecurity. "They viewed the destruction as a way to rebuild the community even stronger. They consider themselves a self-reliant people who were able to build new lives after leaving Vietnam."

That proved to be true as the people relied on their own social capital to rebuild. Many of the Vietnamese fishermen lent each other money to get back on their feet. Those who were successful in turn lent more people money, and the community members didn't have to rely on scarce bank loans to re-establish their businesses, Schoch-Spana said.

That momentum spread to the rest of Village de l'Est as well, and unlike many New Orleans communities, the city was able recover more quickly and mostly on its own.

"It had a positive influence on the rest of the community," Schoch-Spana said. "It distinguished itself by a high a high rate of return and a rapid rate of rebuilding with little government assistance."

Increasing National Resilience to Hazards and Disasters is expected to be released August 1.

From: Disaster Research 591, July 26, 2012

Commercial ocean liners could be equipped to track tsunamis

Though observational networks exist to provide warning of an impending tsunami, *Foster et al.* propose a way to improve observational ability at a relatively low cost compared to ramping up the use of existing techniques.

After a tsunami-generating event is detected, a sparse network of seafloor-mounted sensors tracks the propagating waves.

To add to these existing methods, the authors propose equipping thousands of volunteer commercial oceangoing ships with GPS sensors to directly measure the existence, propagation rate, and height of tsunami waves.

Full article can be found in *Geophysical Research Letters*, doi:10,1029/2012GL051367, 2012.

Bringing CERT to your workplace

Whether you are a business owner, a manager or an employee, disaster preparedness is critical to your bottom-line and to the welfare of your fellow employees. One of the best ways to ensure your business or organization is prepared for any emergency event is to introduce FEMA's Community Emergency Response Team (CERT) Program to your workplace. During the initial hours following a disaster, emergency personnel may be overloaded and unable to reach your office or business. CERT training provides you and members of your organization the decision-making and physical skills to offer immediate assistance to colleagues and associates in an efficient and effective manner without placing yourself in unnecessary danger.

Lear more about CERT training in the workplace: visit our 2011 Individual and Community Preparedness Award winner for Outstanding CERT Initiatives: NBC Universal CERT. The NBC Universal CERT program consists of 250 employee volunteers who have completed the standard CERT training. Led by one full-time Emergency Manager and a group of volunteers who act as a CERT advisory council, the NBC Universal CERT has developed a staging and accountability system for its members, created a Rapid Intervention Team, conducted numerous preparedness fairs and assisted in important drills and exercises.

Locate your local CERT Program and get started today!

From: DHS-FEMA Updates, Sept. 18, 2012

PUBLICATIONS

The Government Accountability Office (GAO) has done a study of *Federal Disaster Assistance* [For public assistance (PA)]
http://www.emergencymgmt.com/emergency-blogs/disaster-zone/gao-report-federal-disaster-assistance-091712.html

From: Disaster Zone, Emergency Management Blogs

Emergency Management

[Editor's note]: It's free. It's thought-provoking. It's award-winning. Besides confronting the big issues, it pokes around the cracks and crevices of emergency management to find and explore ignored, under-reported or unidentified issues. Since *Tsu-Info Alert* cannot reprint each and every article from *Emergency Management* (but would like to!) you must subscribe yourself.

Read every introduction or editorial that Jim McKay writes; track down and read everything by Eric Holdeman, in print or online.
Emergency Management magazine (FREE)
http://www.emergencymgmt.com/subscribe
Emergency Management e-mails
http://forms.erepublic.com/em-newsletter-subscribe

See page 15 of this issue about EM's blog.

Proceedings and results of the 2011 NTHMP model benchmarking workshop

This NOAA special report, completed in July 2012, is published by NOAA and Texas A&M University at Galveston. It is 436 pages long and is available online at http://nthmp.tsunami.gov/documents/nthmpWorkshopProcMerged.pdf or http://nthmp.tsunami.gov/index.html (Click on Proceedings in the What's New section).

Safari's Encounter with Coastal and Marine Hazards.

Karen Coetzee, editor. 24 pp., free. UNISDR Africa Educational Series. www.unisdr.org/we/inform/publications/26439.

A kid-friendly explanation of tsunamis, drought, and disaster in general, the story is told through the eyes of a family living on Kenya's coast. The vocabulary in the book can be technical, appropriate for older children. It includes a quiz at the end to test the reader. There are clear and informative illustrations of the chief weather patterns that affect Africa.

From: Natural Hazards Observer, v. 37, no. 1, p. 17.

Non-GPS navigation for security personnel and first responders[on foot]

This scientific paper, by Lauro Ojeda and Johann Borenstein (Journal of Navigation, v. 60, no. 3, p. 391-407) "introduces a "Personal Deadreckoning (PDR) navigation system for walking persons. The system is useful for monitoring the position of emergency responders inside buildings, where GPS is unavailable. The PDR system uses a six-axes Inertial Measurement Unit attached to the user's boot. The system's strength lies in the use of a technique known as "Zero Velocity Update" (ZUPT) that virtually eliminated the ill-effects of drift in the accelerometers. It works very well with different gaits, as well as on stairs, slopes and generally on 3-dimensional terrain."

WEBSITES

http://green-recovery.org/?page_id=2

The green recovery and reconstruction toolkit

After disaster strikes, those tasked with rebuilding homes and businesses might not have the time and energy to consider building back sustainably. With this toolkit, they won't need much. The kit was created to be delivered in a one-day workshop and contains all the materials needed in ten modules—a trainer's guide, training materials, PowerPoint slides, and other resources.

From: Disaster Research 593, Aug. 23, 2012

http://www.shakeout.org/southeast/?utm_source=NHC+Master+List&utm_campaign=87f520ea30-DR_592&utm_medium=email

Great Southeast Shakeout

The mammoth earthquake preparedness drill that put 12.5 million people at the ready last year is again expanding—this time to the Southeastern United States. The corresponding Web site has many of the same games and preparedness techniques we've become familiar with from other areas, but with new information and resources aimed at getting residents of Maryland, Virginia, North Carolina, South Carolina, and Georgia in shape for their drill on October 18, 2012.

From: Disaster Research 592, Aug. 9, 2012

http://ngdc.noaa.gov/hazardimages

NGDC releases new natural hazards images site.

The National Geophysical Data Center recently released an improved Natural Hazards Image site that provides a more efficient and dynamic user interface for discovery of and access to over 9,000 images of natural disaster impacts. The updated site utilizes a number of interface components to make browsing more intuitive and interactive and to provide geographic context to the images and events. Descriptive tags, or keywords, have been applied, enabling easier navigation and discovery.

From: WSSPC e-newsletter, Spring 2012

http://www.unisdr.org/campaign/resilientcities/toolkit/essentials?utm_source=NHC+Master+List&utm_campaign=037c1a8b61DR_591&utm_medium=email

Making Cities Resilient Toolkit

Another Hazards Workshop theme (for a couple of years running) is resilience. And while we're still no closer to solving the semantics of what resilience exactly means, many see it as building some sort of capacity to bear hardship before the hardship happens. That's the tack taken by the UN International Strategy for Disaster Reduction when it created this top ten list of things cities can do to reduce disaster risk—including budgeting for risk reduction, investing in infrastructure, implementing risk-compliant building requirements, and protecting ecosystems that naturally buffer risk.

The ten-point checklist—*Essentials for making cities resilient* is available at http://www.unisdr.org/campaign/resilientcities/toolkit/essentials

From: Disaster Research 591, July 26, 2012

http://www.tsunamiready.noaa.gov/ts-communities.htm

TsunamiReady communities are listed here.

http://ofb.ibhs.org/research?utm_source=NHC+Master+List&utm_campaign=037c1a8b61-DR_591&utm_medium=email

Institute for Business and Home Safety Research Center

If you want to watch a house burn to the ground or blow away in a hurricane but schadenfreude isn't really your thing, then there's the IBHS research center Web site. The site showcases work being done at IBHS's huge research center, which is capable of creating realistic hazards (including storms that generate up to 8 inches of rain per hour and the wind of a Category 3 hurricane). The center was created to test and demonstrate how small building elements can make a big difference when disaster strikes.

From: Disaster Research 591, July 26, 2012

Community preparedness tools and resources:

Community Preparedness Toolkit: http://www.citizencorps.gov/getstarted/toolkit/kitindex.shtm

Citizen Corps Program: http://www.citizencorps.gov/index.shtm

Youth Preparedness: http://www.citizencorps.gov/getstarted/youth/youthindex.shtm

Business Preparedness: http://www.citizencorps.gov/getstarted/business.shtm

Neighbors Helping Neighbors: http://www.citizencorps.gov/getstarted/neighborshelpingneighbors.shtm

From: FEMA, August 24, 2012

http://www.thespoof.com/news/us/107589/tsunami-driven-toyota-dealership-washes-up-in-california

Tsunami-driven Toyota dealership washes up in California

With the 'tsunami' of articles about Japanese tsunami debris washing up on U.S. shores, it was only a matter of time before this article caught our eye—a spoof of tsunami debris reports.

http://www.telegraph.co.uk/culture/film/filmreviews/9544282/The-Impossible-Toronto-Film-Festival-review.html

The Impossible, Toronto Film Festival, review.

"The effects sequences, masterminded by Spanish director J.A. Bayona (The Orphanage) in his English-language debut, are astonishingly visceral, grueling and relentless.... Later, a brief, anguished phone call from McGregor to his in-laws, on another desperate dad's borrowed mobile, is as wrenching a dive into naked emotional terror as you'll witness all year.... The movie's impact may not be remotely subtle, but that would be like demanding a subtle tsunami."

CONFERENCES/SYMPOSIUMS

October 13, 2012

2012 International Day for Disaster Reduction

Each year the UN International Strategy for Disaster Reduction sets aside a day to increase awareness about how we can reduce risk. This year, on October 13, UNISDR is asking women and girls to "step up" to the challenge. This interactive Web site lets visitors celebrate the many ways women and girls are working to create resilience to disaster and offers resources for those who want to do more. http://www.unisdr.org/2012/iddr/?utm_source=NHC+Master+List&utm_campaign=87f520ea30-DR_592&utm_medium=email

From: Disaster Research 592, Aug. 9, 2012

October 24-26, 2012

Ninth Canadian Risk and Hazards Network Symposium

Hosted by Canadian Risk and Hazards Network,Vancouver, Canada

This conference looks at the importance of relationships and partnerships in community resilience. Topics include the risks associated with cyberattacks, sharing responsibility for critical infrastructure resilience, disaster resilience planning, indigenous resilience and disaster management issues, and risk planning for major events.

For more information: http://www.crhnet.ca/annualsymposium/annualsymposium.htm

From: Disaster Research 591, July 26, 2012

November 7-8, 2012

Fourth International Conference on Geo-Information Technology for Natural Disaster Management

Hosted by Geoinformatics Center of the Asian Institute of Technology, Colombo, Sri Lanka. Cost and Registration: $300, open until filled.

This conference will present technological advancements for understanding natural hazards and their impacts. Topics include climate impacts on Himalayan glacier dynamics and water resources, intelligent evacuation route identification systems, a preliminary study on intraplate earthquakes in the Indian Ocean, a conceptual model for landslide prediction in Sri Lanka, cloud computing as an approach to natural disaster management, drought monitoring using GIS and remote sensing in Rajasthan, India, and the effects of coastal land use on tsunami inundation along the South Indian Coast.

From: Disaster Research 592, Aug. 9, 2012

→←→←

November 13, 2012
Emergency Management: Themes in Emergency Planning, Response, and Recovery

Hosted by Nottingham Trent University, Nottingham, England.

This conference will discuss the theoretical and empirical foundations of emergency management and new research implications for policy and practice. Topics include major incident response and crisis management, emerging trends in emergency response and disaster management, business continuity planning and disaster recovery, and community resilience and recovery.

For more information:
http://www.ntu.ac.uk/soc/news_events/conferences/emergency_conference.html

From: Disaster Research 591, July 26, 2012 ♦

Third IOC-GLOSS-IOCARIBE-CARIBE EWS
Caribbean training course for operators of sea level stations

The Third IOC-GLOSS-IOCARIBE-CARIBE EWS Caribbean training course for operators of sea level stations took place from June 5-9, 2012 in Mérida, Mexico. The course was organized within the framework of the Project "Strengthening sea-level observation network and coordination activities in the Caribbean" the Intergovernmental Oceanographic Commission IOC of UNESCO jointly with the U.S. National Oceanic and Atmospheric Administration (NOAA) and the National Mareographic Service of the Universidad Autónoma de Mexico (UNAM).

The purpose of the course was to provide the sea level station operators and data analysts in the region lectures and hands on training on the science and operations of sea level stations for tsunami and other coastal hazards warning purposes. The workshop included four days of lectures, presentations and exercises and two field trips to stations operated by the UNAM. Thirty-seven sea level station professionals from the Caribbean, Central America, northern South America, Mexico, U.S. mainland, Puerto Rico and Hawaii participated in the training activity. For more information on the course, contact the Caribbean Tsunami Warning Program (SR.CTWP@noaa.gov).

Submitted by Christa von Hillebrandt-Andrade

Tsunami meeting in U.K., Sept. 2012

The Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the Northeastern Atlantic, the Mediterranean and connected seas (ICG/NEAMTWS) met for its 9th Session in Southampton, UK, 11-13, Sept., 2012, at the National Oceanographic Center.

As of 2012, the NEAMTWS has three Candidate Tsunami Watch Providers. These centers are located in France, Turkey and Greece. Two additional countries, Italy and Portugal, reported they are working toward having their centers operational by 2013. During the meeting, the process that will be used by the ICG to accredit its Tsunami Watch Providers (TWP) was agreed upon. The TWP will be issuing to its subscribers earthquake parameters as well as the expected tsunami arrival times for forecast points provided by the participating Member States. Member States are in the process of subscribing to the corresponding services.

The ICG/NEAMTWS in addition to routine communication tests from the Tsunami Watch Providers, also agreed upon conducting a tsunami exercise on November 27- 28, 2012. Four scenarios will be used, with each one being conducted at a different time interval. The scenarios were provided by Portugal (Northeastern Atlantic) and France, Greece and Turkey for the Mediterranean. During the exercise each of these four countries will be issuing the products from their Tsunami Centers.

The NEAMTWS also has established a Tsunami Information Center (http://neamtic.ioc-unesco.org/) which has prepared and makes available information on tsunamis and good practices. Potential for more collaboration with the NOAA National Geophysical Data Center which maintains a global Tsunami Database, as well as the NWS International Tsunami Information Center was noted.

Bill Proenza, US NWS Southern Region Director, participated as an Observer and Head of the US Delegation. Other members of the US Delegation were Christa von Hillebrandt-Andrade, Manager of the US NWS Caribbean Tsunami Warning Program and Chair of the ICG/CARIBE EWS and Paula Dunbar, US National Geophysical Data Center.

From Left to Right. Thorkild Aarup, Technical Secretary, ICG NEAMTWS, Bill Proenza, Head of US Delegation, US NWS Director Southern Region, Christa von Hillebrandt-Andrade, Manager of US NWS Caribbean Tsunami Warning Program and Chair ICG CARIBE EWS, Francois Schindele, Chair ICG NEAMTWS and Trevor Guymer, Head of UK IOC Office and Host of ICG/NEAMTWS.

Submitted by Christa von Hillebrandt-Andrade ♦

INFREQUENTLY ASKED QUESTIONS

What if I have no internet, no landline, and my cellphone does not work at my house, now that I have no sirens, how will I be notified?

Even if you don't live in an inundation zone, it is recommended that you purchase a NOAA All-Hazard or Weather Radio for your house. A recent California ad advertised, "Get your own personal tsunami siren in your home!"

I received nothing but positive feedback about this method after the March 2011 event. These radios can be found at most electronic stores like Radio Shack, and at many Department Stores like Fred Meyer. Don't forget, we still have the traditional AM and FM broadcast radio and television. These provide very good coverage, and will be carrying the information also.

From: http://www.tillamookheadlightherald.com/news/article_0a927184-e6f8-11e1-8b96-0019bb2963f4.html

What important lessons were re-learned in the 11 March 2011 Tohoku tsunami?

According to S. Fraser, G. Leonard, D. Johnston (abstract, Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec. 2011), "this event has raised or reinforced several key points that should be considered for implementation in all areas at risk from tsunami around the world. Primary areas for discussion are the need for redundant power supplies in tsunami warning systems; considerations of natural warnings when official warnings may not come; adequate understanding and estimation of the tsunami hazard; thorough site assessments for critical infrastructure, including emergency management facilities and tsunami refuges; and adequate signage of evacuation routes and refuges."

At a recent Asia-Pacific Economic Cooperation summit, Japan announced it was sending something to the U.S. and Canada. What was it?

Stop. The answer is NOT a Harley Davidson, fishnet floats, docks, or tsunami debris.
Japan announced it would be sending $6 million to North America to assist the U.S. and Canada with tsunami debris clean-up.

From: http://www.thebristolbaytimes.com/article/1237japan_gifts_us_6_million_toward_debris

What percentage of the U.S. population might need special assistance or consideration when making public alerts?

Warning People with Unique Needs: A Bigger Issue Than You Might Think
BY: Rick Wimberly & Lorin Bristow | July 30, 2012

In working with a client recently, we were asked to estimate what percentage of the U.S. population might need special assistance or consideration when making public alerts. This included people with disabilities, people over the age of 65 (not already included in the disabilities group), and people with limited English proficiency (also not already included in the disability group).

Here's a high-level overview of our findings:

Estimates for People with Unique Alert & Warning Needs	
U.S. Population	313,900,000
People with disabilities	54,000,000
People over 65 without disabilities	15,390,000
People with Limited English Proficiency without disabilities	9,096,086
TOTAL PEOPLE WITH UNIQUE NEEDS	78,486,086
Percent of population	25%

This answer was printed from:
http://www.emergencymgmt.com/emergency-blogs/alerts/Warning-People-with-Unique-073012.html ♦