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 13, Number 1 February 2011**

Report from American Samoa

Several important emergency management lessons were driven home by the 2009 tsunami

Submitted by John Goeke

The tsunami had what will be a permanent impact on building practice in the territory. Not surprisingly, the traditional "fale" style buildings which are raised oval platforms with roofs but no walls sustained very little damage even if they were totally inundated. More substantial buildings that were built in this post and ring beam style with walls but many large windows also escaped major structural damage. Steep hills close to the shore line severely limit the space for building and make it nearly impossible to relocate buildings to higher ground. Many people whose homes were destroyed have decided to rebuild on the same footprint. Even the village of Poloa where the water rose nearly 50 feet will likely rebuild everything except the school. Acutely aware of the risk, most people are building stronger foundations and raising their floor levels. The American Samoa Development Bank building which is located at the bottom of Pago Pago Harbor where the water was up to 20 feet deep will be rebuilt in the same location and will exemplify sound VE flood zone building practice.

Some of the people who did not escape the tsunami spoke neither English nor Samoan. Now tsunami preparedness information is being broadcast in English, Samoan, Chinese, Fijian, Korean, Tagalog and Tongan.

Several people and one full bus load of school children were exposed to significant risk by fleeing along the coast line in order to get to higher ground when safe areas were close by. It is apparent that traffic jams on coastal roads are a significant potential risk. Again, the steep hills close to the shoreline make it difficult to get much higher than 40 feet above sea level and only a handful of roads reach that height. "How high is high enough?" This is a critical question - particularly for local tsunami events. Many trails have been built by villages and individuals to provide immediate access to high ground in areas where no roads run inland. The Department of Homeland Security has built trails or designated routes and safe gathering zones for each of the schools that are in inundation zones and there is an ongoing program to improve the accessibility of these and the village routes many of which will be made wheel chair accessible and be outfitted with solar powered lighting. Escape routes no more than a half a mile apart have been designated along the main coastal road between the two major population centers Tafuna and Pago Pago.

Another important question is how long is long enough to stay out of the inundation zone. The importance of staying in a safe area long enough was highlighted during the Chile event. While the water did not rise much above highest high tide, there was extreme turbulence in Pago Pago Harbor and a few of the boats who left the harbor before the start of the event came back to port before it was over and nearly capsized.

(continued on page 3)

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(continued from page 1)

The Territory's emergency alert system includes 48 sirens which are being installed to be audible at nearly every household and while it will be difficult to activate them fast enough to sound an alert for the nearest possible tsunami source, the sirens will be very effective in all cases for the all clear signal. The sirens can be activated by radio and satellite and will also be hard wired. They will broadcast tones, prerecorded voice messages and live transmissions. Villages still drill with the traditional oxygen tank bells and have adopted a special pattern for tsunami warning. Another key component to the territory's warning system is 1500 NOAA weather radios that will be distributed to the public. An additional link to the schools and gathering areas through handheld two-way radios is expected to help bridge the communication gap that results from an overloaded cellular system during warnings and events.

A month long public outreach and education effort conducted by the Department of Homeland Security just prior to the tsunami is credited with saving hundreds of lives. The tsunami itself was an experience that will not be forgotten and it provided first hand in depth knowledge of what can happen. Over one hundred outreach and education events since have been aimed at a wide spectrum of the population including schools, church and community groups and special target audiences such as people with limited mobility due to age or infirmity. Face to face exchange has proven far more effective than print or broadcast information and will continue to be the principal outreach strategy.

Most of the content of the first outreach program and subsequent efforts has been provided to the territory by ITIC and the NTHMP program. ITIC has also conducted very effective workshops on mapping, modeling and warning systems for local first responders, government agencies, media and community leaders. ITIC also trained key emergency operation center personnel on Tsudig, CISN and Tide Tool software and introduced them to several important websites. Access to the DART buoy reports proved very useful for estimating the likely local run-up from the Chile event and CISN provides an important backup source of earthquake location and magnitude information.

The territory's efforts at tsunami modeling are hampered by the lack of high resolution elevation data. Two projects are underway to verify and enhance what data is available. One is a mobile LIDAR survey that was conducted along coastlines that are either particularly vulnerable to high run-up or where critical infrastructure is located close to sea level. The other is an ADCP survey of the near shore bathymetry in these same areas. A multi-agency group is working toward an island wide aerial LIDAR survey but it will be very expensive and take several years to complete. In the meantime preliminary inundation maps will be created using the available data. Maps showing the elevation of well known buildings and geographical features have proven very useful in working with villages and families to identify escape routes and safe areas. However, due to the small number of visitors and local familiarity with the terrain, extensive publication of maps is not a high priority at this time. Lately, Google Earth software has been used to exchange information among evacuation route planners with a target of providing local GIS experts with the data necessary to create new layers in the territory's GIS database. This spreads the field work burden among a number of people not all of whom need to be GIS experts.

American Samoa is remote, isolated and short of technical resources. However participation in the NTHMP has created internal and external partnerships that go a long way toward overcoming these limitations.

Manaea Leuta mfleuta@hotmail.com at DHS or Carol Baqui Carol.Baqui@noaa.gov at the National Weather Service Office Pago Pago can be contacted for more information about the outreach program

The chairman of the local EAS committee is Dave Mussik at daverf1@samoatelco.com

Christin Reynolds at christin.reynolds@doc.as is the territorial GIS coordinator and also coordinated the mobile LIDAR project; the ADCP project is an offshoot of an ocean current mapping project being conducted by Phil Wiles at phil.wiles@asepa.gov

Tsunami awareness information can be obtained from ITIC at http://itic.ioc-unesco.org/ ♦

REGIONAL REPORTS

OREGON

New bridge needed for Cannon Beach?

According to a November 18, 2010 article in the *Daily Astorian*, "The city's emergency preparedness committee says the existing bridge across Ecola Creek could collapse, stranding students at Cannon Beach Elementary School and those at the Cannon Beach Conference Center. Their solution is a stationary pedestrian bridge made of concrete or a floating bridge made of wood."

The *Daily Astorian* reports costs would be $1.6 million to $3 million. The Cannon Beach mayor is looking for an alternative that would cost $300,000-$600,000.

From:
http://www.mycentraloregon.com/news/state/ap/376828/Bridges-pose-evacuation-plan-hitch-for-Ore-town.html

WASHINGTON

Tokeland vertical evacuation project (Tokeland/North Cove, Washington)

A November 8, 2010, public open house meeting was held at the Shoalwater Bay Tribal Center meeting room in Tokeland, Washington. The University of Washington Hazards Mitigation Institute, with state, local, and tribal emergency management agencies presented final project information regarding tsunami vertical evacuation opportunities in the Tokeland/North Cove area.

Results from the previous Tokeland/North Cove meetings (June 22, 2010, and July 13, 2010) were presented, illustrating where potential vertical evacuation sites could be located. The meeting was an opportunity for attendees to participate in an interactive environment and learn about tsunami vertical evacuation.♦

NTHMP REPORTS

NTHMP Warning Coordination Subcommittee Update

Activities completed and underway during 2010 by the NTHMP Warning Coordination Subcommittee include:

- April, 2010; PTWC Adopts new advisory definition for domestic products.
- NWS Samoa Tsunami Assessment completed in May, 2010 and posted at http://www.weather.gov/os/assessments/index.shtml
- 2010 Atlantic and Pacific tsunami exercises conducted on March 24, 2010
- Live code EAS tests conducted in northern California, Alaska, and Puerto Rico on March 24, 2010
- West coast tsunami EAS and NOAA Weather Radio test conducted on September 15, 2010.
- Monthly U.S. communication tests performed throughout year with response rate of over 95%.
- 2011 tsunami exercises planned and manuals completed for an Atlantic exercise simulating a tsunami generated near the Virgin Islands and a Pacific exercise simulating a Cascadia tsunami. Both exercises are planned for March 23, 2011. Manuals are available for download at wcatwc.arh.noaa.gov.
- NWS marine zone codes removed from WCATWC Pacific tsunami products in August, 2010. This change coincided with changing the break points used to define WCATWC warning, watch, and advisory regions to the break points used by NWS public (onshore) forecast zones. This change ensures that zones included in alerts are consistent with the break points listed in the message.
- Canadian forecast zones have been identified with pseudo-codes matching the NWS format. These zones are included in WCATWC messages as of November, 2010.
- Prototype tsunami.gov web site developed which will incorporate warning messages from both TWCs and will consolidate disparate NOAA tsunami web sites.
- Plan developed for NTHMP to respond to future tsunami warnings. The response plan includes issuance of the WCS-developed warning effectiveness survey and NTHMP actions related to post-event physical surveys.
- WCATWC message content updated as agreed to during the 2010 meeting.

2011 National Tsunami Awareness Week NTHMP member activities

State of California

Building on the success of its 2010 Tsunami Live Code Test in Del Norte, Humboldt, and Medicino Counties, the State of California's primary focus for the March 23, 2011 test will expanding the live-code test to the San Francisco Bay area. This will increase the coverage of the test to include 11 counties total, from Del Norte to Monterey, covering the northern half of the state's coastline. This effort will include a significant education and outreach element through the city and county emergency services organizations and the Bay Area media outlets.

California will also expand the distribution of available outreach materials (posters, videos, pamphlets, education notes) statewide. This includes a special effort to gain the support of the state Department of Education to call for tsunami education in schools statewide during the 2011 National Tsunami Awareness Week. Part of this effort has included highlighting Tsunami education during the Fall 2010 California Science Teachers Association meeting in Sacramento.

In addition, California is working with the National Weather Service Warning Coordination Meteorologists toward having TsunamiReady recognition ceremonies during the 2011 National Tsunami Awareness Week.

Additional Tsunami Awareness Week activities in California include: Tsunami evacuation exercises, tabletop exercises with emergency personnel, tsunami sign placement campaigns, and local media outreach.

Expected participant in the National Pacific tsunami exercise (PACIFEX11)

Puerto Rico

Puerto Rico will participate in the National Atlantic Tsunami Exercise (LANTEX11) with the activation of the EAS, table top exercises, drills, full scale exercises and a press conference.

The Aguada and Cabo Rojo municipalities will complete all requirements for TsunamiReady by the awareness week with tsunami exercise. With these two munici-

palities all of western Puerto Rico will have met TsunamiReady requirements.

Puerto Rico is also working toward publishing the Puerto Rico Media Tool Kit during the awareness week.

State of Alaska

The State of Alaska's will have a Proclamation for Tsunami Awareness Week

The State of Alaska will hold a Live Code tsunami warning test. The partnership for the live code test includes State EM, NOAA, NWS, and AK Broadcasters Assn (ABA). Marine dissemination is coordinated with the USCG. The USCG sends out Notice to Airmen (NOTAMs) during the test. The State of Alaska will also coordinate with the BC Government, FEMA, DoD. Press releases and PSA's will be sent out to all media prior to the live code test, and information regarding the live test is broadcast on the Statewide Alaska Weather show nightly one week prior to the test. An online post-test survey will be conducted to evaluate the test. The State of Alaska will also directly call all tsunami threatened communities to verify they received the test and to verify contact names/numbers.

Tsunami Information flyers will be sent to schools.

The "Quake Cottage" will visit a coastal community (probably Homer, AK) where earthquake and tsunami preparedness will be presented.

Throughout the week tsunami preparedness information will be broadcast during the evening local news.

Tsunami Brochures, fliers, children's booklets, etc. will be widely distributed.

The State of Alaska will participate in the planned Open House at the West Coast/Alaska Tsunami Warning Center in Palmer, Alaska.

State of Washington---TBD

State of Oregon---TBD

State of Maine---TBD

State of New Hampshire---TBD

State of Connecticut---TBD

State of Massachusetts---TBD

State of Rhode Island---TBD

State of New York---TBD

State of New Jersey---TBD

State of Delaware---TBD

State of Maryland---TBD

State of Virginia---TBD

State of North Carolina---TBD

State of South Carolina---TBD

State of Georgia---TBD

State of Florida---TBD

State of Mississippi---TBD

State of Alabama---TBD

State of Louisiana---TBD

State of Texas---TBD

State of Territory of the U.S. Virgin Islands

Expected participant in National Atlantic tsunami exercise (LANTEX11)

NOAA

West Coast/Alaska Tsunami Warning Center will conduct the following activities during this year's Tsunami Awareness Week: 1) Lead the National Atlantic tsunami exercise (LANTEX11). Participate in the Alaska and Northern California end-to-end communications tests, and 3) Host an open house at the WCATWC.

National Weather Service Western Region, San Diego, CA Weather Forecast Office will promote the Tsunami Awareness Week (well in advance) with their coastal counties and communities and encourage them to do what they can to increase awareness. This will include advertisements on NWS, adding pertinent links to their webpage, and coordinating with media.

National Weather Service Southern Region, Melbourne, Florida Weather Forecast Office is coordinating with the Brevard, County Emergency Management Agency to test the receipt of a County EM generated tsunami drill message to beach-side hotels as part of their 2011 Tsunami exercise. This message will originate from EOC on HEARO radio VHF channel, and they will possibly tie message receipt to some other required action by the hotel management/staff.♦

Warning Coordination Subcommittee e-mail, January 20, 2011, from Paul Whitmore:

The March 23, 2011 Pacifex11 exercise manual is now finalized and can be downloaded from the wcatwc web site at wcatwc.arh.noaa.gov. Both the Pacifex11 and CaribeWave/Lantex11 manual are available through a front page news item. Wednesday March 23, 2011 will be a busy day:

– The CaribeWave exercise starts at 1300UTC (9AM EDT) with a kick-off message from the TWCs.

– Shortly after the start of CaribeWave, Puerto Rico will conduct a live code EAS test.

– At 11:00AM PDT, the northern California live code EAS test will be conducted.
– At 9:45AM AKDT, the Alaska live code EAS test will be conducted.
– At 11:00AM PDT, the Pacifex exercise starts with a kick-off message from the TWCs.
– There may also be a live code test conducted in Hawaii that day.♦

NATIONAL WEATHER SERVICE DIRECTIVE

Department of Commerce • National Oceanic & Atmospheric Administration • National Weather Service
NATIONAL WEATHER SERVICE INSTRUCTION 10-703
DECEMBER 22, 2010
Operations and Services
TSUNAMI WARNING SERVICES, NWSPD 10-7
POST-TSUNAMI SURVEYS

NOTICE: This publication is available at:
http://www.nws.noaa.gov/directives/.
http://www.weather.gov/directives/sym/pd01007003curr.pdf

OPR: W/OS21 (J. Rhoades) Certified by: W/OS21 (T. Pierce) Type of Issuance: Routine

SUMMARY OF REVISIONS: This supersedes NWS Instruction 10-703, dated January 17, 2007, and recertified on November 13, 2008.

1. Changed the OPR and certifying responsibility from NWS Pacific Region Headquarters to the Office of Climate, Water, and Weather Services.
2. Ensured the Directive focuses on both domestic and international post-event surveys.
3. Added references to Intergovernmental Oceanographic Commission's (IOC) Post-Tsunami Field Guide.
4. Made minor wording changes to Section 2, 3, and 4 for clarification.
5. Added domestic post-tsunami warning effectiveness surveys.

Signed December 8, 2010
David B. Caldwell Director,
Office of Climate, Water, and Weather Services

Post-Tsunami Surveys
Table of Contents Page

1. Introduction

This instruction describes the process for conducting a domestic or international post-tsunami survey (PTS) as well as a domestic post-tsunami warning effectiveness survey (WES).

A PTS is an investigation to determine the physical extent of tsunami inundation and to capture eyewitness accounts of the impact. A PTS follows a different process from the NWS Service Assessments. NWS Service Assessments are conducted after unusually destructive and significant hydrometeorological, oceanographic, or geologic events resulting in warning and/or other operational activities by the NWS. See National Weather Service Instruction (NWSI) 10-1606 for the policies and procedures associated with Local, Regional, and National Service Assessments within the NWS.

A WES is an assessment of the U.S. tsunami warning system. A WES is conducted after a tsunami warning and/or advisory has been issued for a location within the U.S. The tsunami warning system includes NWS Tsunami Warning Centers (TWC), Weather Forecast Offices, National Tsunami Hazard Mitigation Program (NTHMP) partners, and local warning capabilities. A WES is conducted in conjunction with the NTHMP, and consists of surveys provided to emergency management personnel and the public.

2. Post-Tsunami Surveys

The purpose of a PTS is to observe and document the effects of tsunamis, especially through tsunami eyewitness reports, and to collect perishable data on tsunami impacts, in order to: a) learn about the nature and impact of the tsunami; and b) be able to make recommendations on the need for further research, planning, mitigation, and preparedness. These data are immediately made available and shared with the affected country in order to facilitate damage assessment needs and enable more informed disaster response decision-making.

2.1 Criteria

A PTS is triggered by the occurrence of a destructive tsunami and/or request for assistance through the IOC as described below.

2.2 Authority

A domestic PTS is initiated by the Director of OCWWS and coordinated by the International Tsunami Information Center (ITIC). Any PTS conducted in the

U.S. should be coordinated with the appropriate NTHMP Federal/state/territory/commonwealth partner agency. NWS personnel who are approached by outside agencies to serve on a survey team should notify the ITIC Director and their first-line supervisor as soon as possible to let him/her know a request was made.

Upon request, an international PTS is conducted under the auspices of the United Nations Educational, Scientific and Cultural Organization (UNESCO) Intergovernmental Oceanographic Commission (IOC), following a destructive tsunami to assist authorities in other countries. A PTS is organized and facilitated by ITIC at the request of UNESCO/IOC.

Additional coordination efforts are required for an international PTS. A formal request will be submitted to the Department of State (DOS) by the affected country. When requested by the IOC to lead or support a survey, the ITIC will organize a survey team to investigate tsunami damage and inundation in the affected foreign country. The Director of the NWS Pacific Region and the NOAA Tsunami Program Manager will be notified by the ITIC Director when any international PTS team is being formed, whether the team includes U.S. Government personnel or not. An International PTS involving U.S. Government personnel is approved by the DOS.

2.3 Process

The ITIC conducts domestic PTSs, and coordinates international PTSs. These multi-sectoral surveys may document marine and terrestrial environmental, geological, seismological, tectonic, geotechnical, structural, human, social, and economic impacts, in addition to tsunami runup and inundation. Refer to the IOC's Post-Tsunami Field Guide, First Edition, dated 1998 (IOC Manuals and Guides No. 37), online at: http://ioc3.unesco.org/itic/files/MG037.pdf, for procedures and guidance on conducting national and international surveys.

Standardized PTS instructions, procedures, and guidance will be made available to all participating nations by the ITIC to enable those countries to conduct their own surveys.

The ITIC will coordinate with PTS team members to develop a summary report immediately following their survey(s). The summary report will include the data collected, preliminary results, and any recommendations for improving mitigation and preparedness. The ITIC, in coordination with the UNESCO IOC, will compile the reports and make them available to the affected countries. ITIC and the World Data Center for Marine Geology and Geophysics (co-located at the NOAA National Geophysical Data Center) hosts a PTS data repository. The ITIC will coordinate with PTS leaders to obtain quality-controlled data in a timely manner for permanent archiving of the essential tsunami event information at WDC-MGG/NGDC.

3. Domestic Post-Tsunami Warning/Advisory Effectiveness Surveys

3.1 Criteria

A domestic post-tsunami WES may be conducted following a tsunami warning or advisory along the U.S. Coast.

3.2 Authority

The Chair of the NTHMP, with input from the NTHMP Program Administrator or a NOAA Warning Coordination SubCommittee Co-Chair, will initiate the domestic post-tsunami WES.

3.3 Process

The Director of the ITIC will facilitate a post-tsunami WES. Emergency Management and the general public are the targeted participants of a post-tsunami WES. Following the issuance of a tsunami warning or advisory, the ITIC will conduct an emergency management and public survey using the questionnaires and procedures developed and approved by the NTHMP Warning Coordination SubCommittee. The ITIC will utilize the following procedure to conduct the surveys.

3.3.1 Conducting the Emergency Management Survey

• Within one week of the warning or advisory, the ITIC will contact affected state NTHMP mitigation representatives and provide the questionnaire with basic instructions concerning who to contact, timeline, and reporting procedures.

• State NTHMP tsunami mitigation representatives will forward the questionnaire to emergency management representatives in their warning or advisory jurisdiction, providing instructions and requested timelines for completion. This may involve travel to jurisdictions for direct interaction with emergency management leaders.

• Within six weeks of the warning or advisory, state NTHMP representatives will return questionnaires to ITIC for compilation of results.

• Within ten weeks of the warning or advisory, ITIC will compile the questionnaire results, and assemble a report on the results. The results should be compared to previous events to identify trends, best practices, and problems.

• The final report will be made public on the NTHMP web site.

3.3.2 Conducting the Public Feedback Survey

• Within one day of the warning or advisory, a prominent link to the public feedback questionnaire on the NTHMP web site will be displayed on TWC and ITIC web sites.

• Two weeks after the warning or advisory, the link will be removed.

• Within ten weeks of the warning or advisory, ITIC will collect and assemble a report on the public question-

naire results. The results should be compared to previous events to identify trends, best practices, and problems.

• The final report will be made public on the NTHMP web site. ♦

A critical link—Amateur radio operators fill communications gaps and provide situational awareness to emergency managers during and after disasters

By Corey McKenna

Emergency Management, v. 5, no. 3, p. 58, 60.

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Immediately after the Jan. 12 earthquake in Haiti that killed 230,000 people, injured an estimated 300,000 more and destroyed much of Port-au-Prince, medical teams from the University of Miami Project Medishare program had sporadic communication with the United States and the nearby U.S. Naval Ship (USNS) Comfort's Medical Treatment Facility—until teams of amateur ham radio operators arrived, that is.

"They had already lost one satellite link, The other one was not reliable," said Julio Ripoll, an architect for the University of Miami Medical School who coordinated amateur radio communications during the disaster. "So they were worried that they would not be able to communicate to Haiti from Miami in case they lost their other satellite link."

What was initially designed as a back-up system soon handled all local emergency communications. Before Ripoll's teams of radio operators arrived, the field hospital had very little communication directly with the USNS Comfort. "They would send an e-mail by using a BlackBerry," Ripoll said, "and sometimes it would sit there for quite a while before someone saw it."

The amateur radio station became a critical communication link. "When we had patients who would come in and needed emergency surgery that we couldn't handle, we called the Comfort," he said, "and then we would coordinate either the helicopter medevac or [transport] a few times by speedboat if it was in the middle of the night."

That's just one example of how amateur radio operators, who use various types of radio communication equipment for nonprofit purposes, can provide a valuable resource during a disaster.

Links with emergency responders

Volunteer radio operators assisting emergency personnel fall into two groups: Radio Amateur Civil Emergency Service (RACES) and Amateur Radio Emergency Service (ARES) members. Many people participate in both organizations, but the main difference between the two is that ARES members provide emergency communications *before* an emergency has been officially declared, while RACES operators, which are registered with state and local governments, are activated *after* an emergency declaration. RACES members may operate from state emergency operations centers (EOCs).

The American Radio Relay League (ARRL), a U.S. organization of amateur radio operators, has memorandums of understanding with numerous organizations, including FEMA, the American Red Cross, National Weather Service and the Association of Public-Safety Communications Officials International. As a result of those agreements, the ARRL trains with and works to develop these organizations' amateur radio communications capacity. It also builds relationships with these organizations to collaborate during disasters.

About 684,000 amateur radio operators are ARRL members. The best way for these ham operators to connect with local responders is to participate in their local Community Emergency Response Teams (CERT). "We may, in our case, probably connect with CERT, and so we'll probably be linked up close with the fire department,' said Charlie Lum Kee, founder of the Virgin Valley Amateur Radio Club in Mesquite, Nev., and leader of the local CERT program. "We do have a little bit of a plan for our area as to where we would locate individuals [in an emergency]."

Amateur radio operators can also get special license plates displaying their call signs, which identify them to emergency crews, getting them past roadblocks and into the affected area to provide communications assistance. In Oregon, about 1,800 RACES volunteers are authorized to work in state and county EOCs facilitating communication during disasters. For example, during the Great Coastal Gale of 2007 that knocked out communications to the state's Columbia, Clatsop and Tillamook counties, ham radio operators used a radio frequency messaging system called Winlink to transmit the counties' requests for assistance to the state's Office of Emergency Management. "Monday morning the governor came in and we were briefing and later on called amateur radio operators 'angels' because that was the only source of communication we had to the coast," said Marshall McKillip, the Emergency Management Office's communication officer.

Following the storm, Oregon Gov. Ted Kulongoski funded improvements to the state's amateur radio infrastructure with a $250,000 grant for Winlink systems in each of the State's 36 county-level EOCs. "We bought the appropriate equipment and then organized the delivery, the set up, the training and everything with amateur radio resources," McKillip said. "It was quite a task for the amateurs to take on, but they did a great job."

Assorted roles

Amateur radio operators can play a variety of roles that allow public safety officials to maximize their resources, including facilitating communications; providing emergency managers with on-scene situational awareness; and helping manage large-scale events, such as state fairs and marathons.

Earlier this year as blizzards blanketed Delaware, RACES members manned ham radio stations at the Sussex County EOC, and 60 ARES members drove around the county's 958 square miles reporting what they were seeing and confirming reports from the National Weather Service. "While [the police and emergency medical service] were moving around, they had better things to do than stop and measure the snow," said Walt Palmer, public information officer for the ARRL in Delaware. "So that's where amateur radio's guys were coming in."

At one point during the storms, the county set up two shelters for approximately 70,000 residents, all of whom were without electricity, and deployed an amateur radio operator to the larger shelter to facilitate communication with the EOC. "We were able to get good information back from the shelter as to how many people were there, were they making out OK and that kind of thing." Said Sussex County EOC Director Joe Thomas. "We actually tried to get an operator in the second shelter, but we never did get to that point because of the snowstorm."

In the aftermath of a disaster, amateur radio operators are often the first to report what happened to emergency managers so they can start formulating a response. "Let's say up the street a nuclear facility has an issue, and we start losing power here. The ham operators would start reporting that because we would be the ones on the ground," Palmer said. "Our job is to communicate that to public officials. Our mantra for that is 'Provide the right information to the right people at the right time so they can make the right decision.'"

Communities countrywide have signature large-scale events like state fairs, marathons and food festivals during which amateur radio operators can work with the public safety personnel so the departments can maximize their resources. "Rather than use police or other county or state officers, ham radio operators will come together and we'll get assigned to different points around, let's say, a 26-mile race course," Palmer said. "We're there just to observe. If somebody has a problem, if a runner goes down or a bicycle falls apart or whatever, our guys are there and they're able to report back so a proper response can be orchestrated to help that runner."

If Delmarva Peninsula—a popular resort area on the East Coast with a winter population of 700,000 that can swell to 4 million in the summer—needs to be evacuated, ham radio operators can monitor traffic or facilitate communications between shelters and EOCs.

'While the Red Cross does a terrific job with the shelters, they're there helping to prepare food and take care of the residents of the shelter," Palmer said. "They don't always have the communication needs to get information back to the EOC—we have this many special needs people; we need more insulin because we have a problem here with a lot of diabetics. Amateur radio folks will be assigned to shelters to move that kind of traffic."♦

CERT online training

http://www.citizencorps.gov/cert/newsletter/CERT%20Newsletter%20January%202010.pdf See page 9-10♦

Local programs adapt as FEMA considers changes to CERT

By Corey McKenna on September 23, 2010
Emergency Management journal online
http://www.emergencymgmt.com/training/FEMA-Considers-Changes-CERT.html
Reprinted with permission

As FEMA considers changes to the Community Emergency Response Team (CERT) program, local coordinators offer their own solutions. At the Red Cross Emergency Social Data Summit on Aug. 12, FEMA Administrator Craig Fugate said the agency was looking at ways to use CERT to increase the level of disaster preparedness education in the United States.

Fugate said he's looking at increasing the relevancy of CERT training for young adults and high school students. "We're also looking at are there ways we can take the CERT training and break it down, because a lot of groups have approached us said, 'We think this is really great, but the attention span of our audience won't get you there,'" he said.

The agency is looking at ways of implementing disaster preparedness education into the curriculum of the nation's schools. "[The] Red Cross and others have built tremendous tool kits for children in the public schools and private school systems to begin that process early. But it's not very consistent across this country," Fugate said.

"And I think, in any social context of trying to change behavior across a community over the long term, we know that if you're not talking to different groups — particularly focusing on children when they are willing and impressionable on these issues — it's hard to come in after we're adults and talk about this stuff."

On the Ground

Asked about what the federal government could do to improve the program, local CERT leaders pointed to the need for increased funding to continue training programs and equip volunteers, and an updated curriculum including an advanced module for students who complete the initial training.

Carol Willis, a Teen CERT coordinator from Sacramento who participated in the summit webcast, said national preparedness curriculum standards would benefit area students. "Teen CERT is good because it reaches some of the students in the schools, but it doesn't reach all of them, and I really think there needs to be something that every student gets," Willis said. "They may not be responders, but hopefully they wouldn't panic and they everybody is to be aware of what to do in a disaster."

According to a CERT website, Teen CERT is taught to teenagers in high schools and the community. It also will help school safety teams during an emergency or disaster that affects the school.

Even schools that implement Teen CERT into the curriculum can find sustaining the program challenging. "What I'm finding that happens is that the teacher that teaches it then goes to another district or goes somewhere else and nobody picks it up," Willis said.

That's what happened to the program at Sacramento's Natomas High School, which graduated a class of 30 students in March 2008. "It was our old activities director — she brought in the trainer, the kids got trained, we did the assembly, they had the packs [and] she then left. She's not even at our school any more," said Angela Herrera, the school's assistant principal for student services.

Natomas High School is currently working with the district office to restart the program, Herrera said. Also, programs supported by grants can take a hit when funding runs out. "The situation I have right now is I was contracted to [the U.S. Department of] Homeland Security when I started Teen CERT," Willis said. "That grant money is now gone, and so I'm teaching it on a voluntary basis at this point."

Coordinators mentioned the turnover of CERT volunteers who take the course for a variety of reasons — including being able to help themselves and their families during disasters or being able to assist first responders — and the need to fill a gap in available volunteers.

One local government would like to put a Teen CERT program in the local high schools to fill future needs for volunteers during disasters. "We have several small communities in our county, for instance, and those people are already volunteering for the fire department or EMS service or something of that nature," said James Fair, the Sumner County, Kan., emergency manager."That's a way for us to be able to have each of those communities prepared and protected," he said.

Updated Curriculum

The Carnation-Duvall Citizen Corps Council in Washington state taught a CERT class to a group of teachers who requested it. It also offers CERT members additional training, including classes in the Incident Command System, Red Cross sheltering and ham radio as well as Fire Corps training and Neighborhood Watch programs.

Council President Kathy Brasch would like to see updated textbooks and a continuing education program specific to CERT. "I know individual CERT programs have started to develop their own additional training as well, but there is not a formal program," she said. "Also, we'd love to see the latest curriculum. I know they've been talking about it for a number of years, but we haven't seen the actual new curriculum and the train-the-trainer courses come out."

Brasch said her program's textbooks date from about 2000.

"I know they started putting together a new curriculum about two years ago, and it's still in the testing phase," she said. "I've been told that it's supposed to be coming out in the next couple of months. So we're looking forward to that."

The U.S. Department of Education (DOE) has not yet developed a framework for disaster preparedness education in the nation's K-12 schools. However, training students in disaster preparedness is an allowable expense under Readiness and Emergency Management for Schools (REMS) grants, said Sara Strizzi, a subject-matter expert with the DOE. The department recently announced that $28.8 million in REMS grants were awarded to 98 school districts across the country.

On Sept. 15, FEMA, the DOE and the Red Cross hosted the National Summit on Youth Preparedness to discuss development of standards for preparedness education curriculum in K-12 schools. A FEMA spokeswoman said a report on the summit's findings would be published at a later date.♦

IS-22 *Are You Ready? An in-depth guide to citizen preparedness*—Course overview

http://training.fema.gov/EMIWeb/is/is22.asp

The "*Are You Ready? An In-Depth Guide to Citizen Preparedness*" has been designed to help the citizens of this nation learn how to protect themselves and their families against all types of hazards. It can be used as a reference source or as a step-by-step manual. The focus of the content is on how to develop, practice, and maintain emergency plans that reflect what must be done before, during, and after a disaster to protect people and their property. Also included is information on how to assemble a disaster supplies kit that contains the food, water, and other supplies in sufficient quantity for individuals and their families to survive.

There are real benefits to being prepared:

• Being prepared can reduce fear, anxiety, and losses that accompany disasters. Communities, families, and individuals should know what to do in the event of a fire and where to seek shelter during a tornado. They should be ready to evacuate their homes and take refuge in public shelters and know how to care for their basic medical needs.

• People also can reduce the impact of disasters (flood proofing, elevating a home or moving a home out of harm's way, and securing items that could shake loose in an earthquake) and sometimes avoid the danger completely.♦

CERT behind bars

As a disaster response training program, CERT is available for anyone who wants to prepare themselves and their community for a disaster. But does that really mean anyone? Even someone incarcerated? For the Matanuska Susitna CERT in Alaska, the answer was yes. In 2009, they became the first CERT in the country to offer training to prison inmates.

For 5 days in December, five CERT members taught basic training to 23 inmates at the medium-security Palmer Correctional Center (PCC) in Palmer, Alaska.

"Our city is a small community on a hill," said PCC education coordinator Gary Olsen. "This training helps [the inmates] to connect to other people and help [the] community at large."

Palmer is located in the Matanuska Susitna Borough, a largely rural area approximately the size of West Virginia with a population of around 86,000. The Matanuska Susitna CERT began in 2003 and has trained around 1,000 people.

The idea to bring CERT to the prison originated when Olsen learned of the basic training from a friend who had completed the course. Olsen saw it as a perfect opportunity to educate and prepare some of PCC's inmates for a disaster. He took his idea to Bea Adler, Emergency Management Programs Coordinator for the borough and the CERT coordinator. Adler was excited about the opportunity to contribute to the prison's proactive education program.

"I never turn down an opportunity to get the message out. Anytime there are any open ears or minds, I'm there," said Adler. The inmates come from across the state, and when they return to their homes, they will bring their CERT training and knowledge back, too. "I saw it as the opportunity to expose inmates to something they might not have thought about before," said Adler.

Olsen and Adler then pitched the idea to prison administrators. "The reaction was very positive," said Olsen. PCC already offers classes on CPR, and administrators saw this as an opportunity to further equip the inmates in the event of a disaster.

Before Adler and her team could teach the class, administrators reviews the course, making some modifications and laying out several ground rules. Adler considered the changes just another part of being a volunteer. "One of the things that is important for a non-professional disaster responder is the ability to improvise. So teaching them to improvise was actually a good thing."

A class of 23 completed the training.

A second class was taught in June, training 30 inmates.

Full article: http://www.citizencorps.gov/cert/newsletter/CERT_Newsletter_October2010.pdf ♦

6 steps to create tsunami evacuation maps

December 2010

by

UNESCO/IOC-NOAA International Tsunami Information Center (Laura Kong, Brian Yanagi);
SeismicReady Consulting, Inc. (George Crawford);
NOAA PMEL (Nic Arcos)

1. **Agree on the need to create or upgrade Tsunami Evacuation Maps as a foundation for tsunami preparedness and mitigation.** A Hazard Identification Vulnerability Analysis (HIVA) should be completed prior to the evacuation planning process. Stakeholders are:

a. Owners of evacuation maps: State and/or local emergency management agencies (EMA);

b. Developers of evacuation maps: State and/or local EMA, local first responders (police, fire, land and marine/port/harbor transportation, ocean/beach safety officials) and other organizations involved in response (hospitals, utilities, Red Cross, NGO/private sector), hotels/tourist sector). Planning and development agencies may also be involved. Federal agencies such as NOAA PMEL, NWS, tsunami warning and information centers may also want to participate;

c. Owners and developers of inundation maps: Science organization(s) involved in collecting data, identifying scenarios, conducting modeling, and compiling results to create inundation map, e.g., federal/state/local agencies (NOAA, USGS, or local equivalents), universities, private consultants, etc.

2. **Organize and convene a Tsunami Inundation and Evacuation Mapping Technical Committee (Modeling and Mapping, M & M, Committee).** The Committee may further sub-divide into an Inundation Modeling Committee and a Evacuation Mapping Committee. In total, the M & M Committee should consider to include:

a. State/local jurisdictions, with support of Federal/State/Local government;

b. Scientists (Federal, State, Local Geological Survey or equivalent, universities, etc);

c. Other government and NGO stakeholders, including community representatives.

Determine goals and outcomes of "Tsunami Mapping Project."

Determine availability of pre-existing tsunami hazard and risk and tsunami modeling studies, bathymetric and topographic data.

3. **Obtain funding for Tsunami Mapping Project from Federal/State/Local Government or other sources.** Coordinate with NTHMP and TsunamiReady Programs, as these may be able to provide funding. Also consider other grant programs that are available (i.e., FEMA, SEA Grant, Coastal Service Center, etc).

4. **M & M Committee (or Inundation Modeling Sub-Committee) reviews and recommends various options for obtaining tsunami inundation maps**. *Funding may not be available to do tsunami modeling. However, based on the HIVA and some of the sources below, inundation maps could be generated until funding becomes available. If funding is available for tsunami modeling, select tsunami modeling contractor to produce tsunami inundation maps*.

Models will use data from various sources, including:

a. Historic tsunami inundation/runup data;

b. Credible or worst-case tsunami-generating earthquake or landslide scenarios;

c. Current scientific papers on the area of interest;

d. Indigenous knowledge or oral history of the area of interest;

e. Bathymetry, topography unique local conditions.

5. **M & M Committee (or Evacuation Mapping Sub-Committee) leads development of evacuation maps from inundation maps using evacuation map criteria.** This will take several meetings with community to obtain input and 'buy-in'.

a. Determine criteria for determining evacuation route and assembly areas. Evacuation Assembly Areas should be further inland of the inundation lines. Safety factors to consider include:

i. Ease of egress by foot including for special needs populations;

ii. Proximity and location of high ground (hills, cliffs, man-made vertical refuges (berms, buildings, etc);

iii. Presence of buffer areas;

iv. Knowledge of flood zones, types of roadways and locations;

v. Availability of identifiable landmark locations for easier evacuation routing;

vi. HAZMAT sites and other potential hazards (secured gates or high fences, lumber yards or harbors with potential floating debris etc.) that could cause evacuation problems;

vii. Locations of special needs population in hazard zone (i.e. hospitals, elder care or nursing facilities, schools, day care centers, non-English speakers, transient populations, etc).

b. Organize and convene local workshop to obtain community input to tsunami evacuation map development.

i. Invite all stakeholders who have a response, coordination, or special needs requirement (I.e. hospital, retirement center, schools). Stakeholders will be local government, transportation, response, NGO and private sector;

ii. M & M Committee presents modeling and inundation mapping efforts;

iii. Goal is: Based on inundation map, identify high vulnerability areas in the community, centers of population (social, gender, religious, cultural, etc), and special needs populations, determine desirable evacuation routes and assembly areas knowing tsunami wave arrival time and time it takes to walk to an safe assembly area (e.g., 2 mph based on guidance in FEMA 646 Publication on Vertical Evacuation). Consider community risk for both local and distant tsunamis, and their implications for designating safe assembly areas and type of evacuation (foot or vehicular; for local tsunami, evacuation should be by foot).

c. Evacuation Mapping Sub-Committee develops Draft evacuation map.

i. Review modeling inundation results;

ii. Develop evacuation map following NTHMP Standards.

d. Convene community town meetings to solicit input to Draft evacuation lines. Engage and explain inundation mapping results and draft evacuation line maps. Involve and invite community input to finalize the drawing the lines, evacuation / safe zones and routes.

e. Evacuation Mapping Sub-Committee consolidates community input. Draw final evacuation lines. Identify potential safe evacuation/assembly areas and routes. Field visits to view topographic and built environment conditions may be needed. Evacuation routes should be walked to confirm ease and timing of successful egress.

f. Convene community meeting to solicit input to draft (1) safe evacuation/assembly areas, refuges, or shelters, and (2) evacuation routes.

g. Evacuation Mapping Sub-Committee consolidates community input. Incorporate final (1) safe evacuation areas and (2) evacuation routes onto map with evacuation line / zones.

6. **Publish tsunami evacuation maps**. As new or better data become available, or new coastal development occurs, update tsunami inundation and evacuation maps.

a. Develop tsunami evacuation brochure to be used in education and awareness activities;

b. Develop and implement process to educate at-risk community (including visitors and those who work in evacuation zones) on tsunamis, tsunami warnings, and evacuation. These should include community workshops to (1) create general awareness of the newly developed evacuation maps and (2) teach community members how to read evacuation maps.

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Sustainable Marine Research Center studies tsunamis
by Bridgette Meinhold, 10/13/10 , originally published by Inhabitat.com
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http://inhabitat.com/2010/10/13/sustainable-marine-research-center-studies-tsunamis/

While this incredible Marine Research Center's may appear quite futuristic in form, the design was actually inspired by the structure of an ensuing tsunami wave. Designed by Maine-based Solus4, this off-shore research center was an entry for a competition co-sponsored by Arquitectum and Universitas Pelita Harapan in Indonesia. Still feeling the aftereffects of the 2004 Indian Ocean tsunami which devastated countless communities, the competition was initiated to address the need for tsunami research and the development of effective disaster relief measures. Solus4's response is fluid building that not only provides space for study and research, but generates all of its own power and clean water.

The concept for the 2,500 sq m offshore marine center is a colossal white structure located about 150 meters off the of shoreline of Kuta Beach in Bali. Large windows provide views of the surrounding ocean environment, while underwater viewing rooms offer visitors views of the aquatic life. The marine center provides space for research labs, living quarters for the scientists, a seawater pool, an aquatic garden library and an auditorium. Scientists working and living aboard the research center will be studying the tsunamis and disaster response.

The design of the research center was inspired by the form a tsunami wave takes as it proliferates across the water. Apart from taking a cue from nature, the center will also be energy efficient and capable of producing its own power and clean water. Tidal generators will be used along with photovoltaics to generate electricity, while solar passive and energy efficient design will minimize energy usage. Rainwater will be collected and seawater conversion systems will provide potable water for the facility. Sea-sourced water will be used to provide radiant cooling to the skin of the building. [Editor's note: visit the website, the drawings are stunning.] ♦

Bypassing bureaucracy to aid communications
Emergency Management, p. 15, Sept-Oct. 2010
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Placing wireless antennas and towers throughout a city can be a bureaucratic nightmare. Few citizens want 60- to 70-foot structures planted in front of their homes.

Some cities like Seattle are finding ways to altogether avoid this common "not-in-my-backyard" conundrum. Seattle Chief Technology Officer Bill Schrier struck a deal with the Seattle Housing Authority (SHA) to install Long Term Evolution (LTE) wireless antennas atop the SHA's public housing, many of which are apartment buildings. Fire stations in some parts of the city will also be outfitted with antennas. The 38-antenna network will power 1,5000 wireless modems in police cars, fire engines, public utility trucks and devices used by building inspectors in the field. The antennas will use a slice of the 700 MHz spectrum the FCC recently released to 21 municipalities.

In exchange for building space, the city will extend the new fiber installations for the antennas to individual housing units within the SHA buildings. A third-party vendor will sell service subscriptions using those connections.

For blanket connectivity, LTE antennas must be placed in every neighborhood. Schrier said the city might need to erect a few antenna towers where there aren't any SHA buildings or fire stations in order to complete the network. Those would involve the normal bureaucracy of neighborhood approvals, Schrier explained. "I think we'll need only three or four additional cell towers," Schrier said. "Most neighborhoods have some sort of Seattle Housing Authority building."LTE networks enable law enforcement to give traffic priority to certain types of communications, like video and voice, over others like Web browsing and e-mail. Law enforcement and public safety are often stuck using commercial networks for video and smartphones, which keeps them at the same level as commercial users. That becomes a problem during emergencies when networks reach capacity, and consequently responders get poor connectivity.

Schrier said another advantage of the LTE standard is that it could enable government to buy cheaper communications equipment because the standard works with commercial devices. Law enforcement networks typically use a standard called Project 25, which isn't compatible with cheaper commercial devices.

"The typical radio you see a cop or firefighter using is at least $2,500 for that one device, and it could be as much as $5000," Schrier said. "Compare that to your Blackberry, which might be $200." These more expensive devices offer ruggedized features." ♦

NEWS

The hazards data distribution system is updated

After a major disaster, a satellite image or a collection of aerial photographs of the event is frequently the fastest, most effective way to determine its scope and severity. The U.S. Geological Survey (USGS) Emergency Operations Portal provides emergency first responders and support personnel with easy access to imagery and geospatial data, geospatial Web services, and a digital library focused on emergency operations. Imagery and geospatial data are accessed through the Hazards Data Distribution System (HDDS). HDDS historically provided data access and delivery services through non-graphical interfaces that allow emergency response personnel to select and obtain pre-event baseline data and (or) event/disaster response data. First responders are able to access full-resolution GeoTIFF images or JPEG images at medium- and low-quality compressions through ftp downloads.

The USGS Fact Sheet 2010-3053 which explains the update is available at http://pubs.usgs.gov/fs/2010/3053/pdf/fs2010-3053.pdf

USGS HDDS home page: http://hdds.usgs.gov/hdds2/

PUBLICATIONS

Building community disaster resilience through private-public collaboration

This National Academies Press book was prepared by the Committee on Private-Public Sector Collaboration to Enhance Community Disaster Resilience, Geographical Science Committee, National Research Council, in 2010. It is available at no cost at http://books.nap.edu/catalog.php?record_id=13028. It is 132 pages.

Where the first wave arrives in minutes

Yulianto, Eko; Kusmayanto, Fauzi; Supriyatna, Nandang; Dirhamsyah, Mohammad, compilers, 2010, *Where the first wave arrives in minutes--Indonesian lessons on surviving tsunamis near their sources*: United Nations Educational, Scientific and Cultural Organization, Intergovernmental Oceanographic Commission IOC brochure 2010-4, 28 p. http://unesdoc.unesco.org/images/0018/001898/189842e.pdf

NEHRP Recommended Seismic Provisions for New Buildings and Other Structures

The Federal Emergency Management Agency (FEMA) has announced that the 2009 edition of the *NEHRP Recommended Seismic Provisions for New Buildings and Other Structures*, FEMA P-750 and FEMA P-750 CD, are now available, at no cost, from the Publications Warehouse and online from the FEMA Library.

In a series first published in 1985, the 2009 *NEHRP Provisions* marks the seventh update of this key resource document. This new edition adopts by reference the national load standard, ASCE/SEI 7-05, which allows the *Provisions* to resume its role as a research-to-practice resource for introducing new knowledge, innovative concepts, and design methods to improve the national seismic standards and codes.

The *2009 NEHRP Provisions* is presented in a new one-volume format with three parts: Provisions, Commentary, and Resource Papers. The accompanying CD (FEMA P-750 CD) contains the digital version of the Provisions, the USGS Seismic Design Maps, the *Provisions*-based design maps proposed to ASCE7-10 and 2012 I-codes, and other supporting materials.

To place an order, call 1-800-480-2520 or fax your request to 240-699-0525.

To view or download other NEHRP publications and products or to sign up for updates on earthquake risk mitigation publications, news, and events, visit http://www.fema.gov/plan/prevent/earthquake/publications.shtm.

From: EERI Newsletter, v. 45, no. 1, p. 10

Disaster Resource Guides (quarterly)

Get your free subscription at http://disaster-resource-com/cgi-bin/freeguide.cgi

The Disaster Resource Guide is growing to meet the changing needs of the business continuity, emergency management and homeland security marketplace. There is an annual directory, and three quarterly issues which investigate a single content category.

You can also receive the weekly Continuity e-GUIDE. Sign up for the Wednesday e-newsletter, also free to qualified professionals.

Citizen Corps New Digest [e-mails]

The Citizen Corps News Digest is provided by FEMA's Individual & Community Preparedness Division to highlight community preparedness and resilience resources and activities recently announced by federal agencies and Citizen Corps partners. Subscribe by emailing fema@service.govdelivery.com

Citizen Corps website: www.citizencorps.gov.

You can also sign up to receive alerts during disasters in your state.

National CERT Newsletter (quarterly)
http://www.citizencorps.gov/cert/newsletter.shtm ♦

WEBSITES

http://www.csc.noaa.gov/legislativeatlas/
Legislative Atlas

Pinpoint a place of interest and use this program to download information about the various ocean-related laws, policies, and jurisdictions.

From: NOAA Coastal Services Center Products & Services Catalog, v. 1, p. 10.

http://itic.ioc-unesco.org
International Tsunami Information Center

Make note of the new website for ITIC.

http://www.snapev.com
Special Needs Assistance Program EVERYWHERE (SNAPev^{TM}) is the first national online & phone registry that stores and maps basic medical and personal information related to the special needs and elderly population that gives government and public safety agencies around the clock access to the information before, during, and after an emergency or disaster. This program is voluntary and cost $12 annually for each individual to sign up. Businesses can register as well to give government and public safety agencies a daily count of their populace. Features that come with our service are:

- Registration by Phone - 1-877-9SNAPev (1-877-976-2738) is available 24/7.
- Personal Update Notification - A monthly reminder to update your information by phone, text message, or email.
- TXT-Alert Program - An emergency alert system used by sending text messages to cell phones of registrants and their emergency contacts.
- Check-Up Program (Optional) - A monitoring program for calling selected individuals daily, weekly, or monthly for an additional $5 a month.

This information can be used in emergency management and alert systems, such a 911, E Team, WebEOC, Reverse911 and CodeRED.

CLASSES/WORKSHOPS/WEBINARS

Disaster Recovery Journal's **monthly webinar series**

DRJ's monthly webinar series is archived and available online at www.drj.com (Events tab, DRJ Webinars). "This webinar series delivers invaluable details on various topics regarding disaster recovery and business continuity planning."♦

Material added to the NTHMP Library

January – February 2011

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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Career tips

University of Washington Business Continuity Manager Scott Preston wrote a guide, *Suggested Career Tips for Emergency Management*, that outlines steps for starting a career path in emergency management:

Take independent courses in emergency management to learn about the field—FEMA offers a variety of online self-study courses.

Volunteer—Volunteer with your state, county or local emergency management office.

Take advantage of free professional magazines and publications—*Natural Hazards Observer*, *Continuity Insights* and (of course) *Emergency Management*.

Join a professional association and get certified—The International Association of Emergency Managers offers the Certified Emergency Manager and Associate Emergency Manager programs.

Be creative!—An emergency manager might be called something different and still have emergency management responsibilities in areas like public works, public health, special districts or private industry.

Read the full guide online at www.emergencymgmt.com/careertips

From: *Emergency Management*, v. 5, no. 6, p. 40.

Creating community emergency response teams (CERT) in the private sector

By Connie Tillman

Disaster Resource Guide Quarterly, v. 15, no. 1, p. 36, 38

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Businesses are facing increasing challenges today from threats of terrorism and manmade and natural disasters. Corporate leaders are inundated with information and choices on how to prepare their businesses against these disasters. As President Obama declared, "Preparedness is an essential element of a resilient and secure nation. My administration has made preparedness a top priority."

Background

Organizations must pick from a quagmire of preparedness choices as they decide what is a good fit for their business. One increasingly attractive approach is to develop Community Emergency Response Teams (CERT) in the private sector. The CERT approach is not a new or novel idea. First responders (in the public sector) have employed the CERT philosophy for years and are the biggest proponents of helping the private sector implement

CERT. CERT was born out of disaster. During the rescue efforts of the 1985 Mexico City earthquake, hundreds of volunteers wanting to help were either injured or killed because they lacked training. CERT, which formed in California as a result of the lessons learned in Mexico City, uses volunteers to assist with everything from earthquakes to wildfires.

Traditionally, however, CERT has been sponsored by city and state governments and operated exclusively in the public sector through volunteerism. Only in very recent years has the idea of developing CERT teams in the private sector become a reality. Many organizations erroneously assume that in times of disaster, local first responders will be there to help. The police, fire and EMS will arrive on the scene to care for the injured and restore peace and order. Right? Maybe not! If they aren't available, you may find that your first responders are members of your own organization.

Why CERT?

Let's assume for a minute that the unthinkable happens. It certainly would be better for them (first responders in your organization) to be properly trained with the fundamental understanding of what actions they should take when disaster strikes.

Implementing a CERT training program will show employees that the company cares about their, and the community's, health and well-being. Creating a culture of preparedness and caring that transcends from the work place to the broader community is a win-win for everyone.

When considering CERT training, talk to other organizations with CERT teams and see how they have been adopted within their organizations. Check with your local fire department, because they will know where to find CERT members. Look through CERT emergency kits and what is in them.

Top management commitment

CERT training requires complete buy-in from the top down, along with a willingness to invest (employee time, money for equipment and training, etc.). Don't assume that CERT will sell itself. Use all internal communications available to you to generate interest, such as orientation sessions, internal media, email updates and bulletin boards. Using your company logo and the CERT logo (accessible on the Web), create flyers announcing the coming of the program. Obtain free preparedness literature from FEMA, your state health and human services departments, or the Red Cross. Plan a noon brown-bag question-and-answer program where employees can talk to experienced CERT team members. Leave the information in areas where people are sure to pick it up and at least browse through it. Try to do this at least 3 to 6 months before launching CERT.

CERT program tips

The next step involves building partnerships with outside agencies and businesses. One way to do this is to know your neighbors. For example, Joe Smith owns the pizza parlor next door, so you offer him a space at CERT training. Then if something happens to your building, he may reciprocate in kind with sheltering and food.

Build a relationship with the local fire chief. Have the fire department visit your facility and become familiar with your building(s). Knowing names and faces helps when you need trainers for modules like search and rescue, medical ops and fire safety. Who knows rescue better than the fire department? Another win-win for everyone!

Barter and trade services whenever possible. In these tight economic times no one is interested in spending a great deal of their revenue on another training program. Another benefit of bartering is that it will produce relationships with your great 'community.' The most important facet of building these community relationships, however, is that in an emergency, people already know one another. It is much easier to work together when you have some knowledge of each other first, before disaster brings you together.

The next phase of developing a CERT program is purchasing supplies. Use materials you already have available before purchasing new. Each training module for CERT requires specific materials, such as manuals, dust masks, fire extinguishers, flashlights, duct tape, and wood. You may be able to have a local restaurant or car dealership sponsor the purchase of flashlights—publicity for them and equipment for you. Maybe in return, you offer to let someone from their business join your program. Fire extinguishers are another item than can be obtained relatively inexpensively. Fire extinguishers must be decommissioned after a number of years. Check with your building maintenance department, local schools or hospitals for decommissioned extinguishers. Offer to empty the extinguishers and return them afterwards so they can be recycled for scrap metal.

CERT training

Training is the final piece. Lists of volunteer trainers are usually available from your state Emergency Management Agency or your local city Emergency Management Agency, the local Citizen Corp Council, or the area fire department. If time away from work is not feasible, consider training sessions during lunch, evenings, or Saturdays.

The 8 training modules that make up CERT are:

- *Disaster Preparedness* is an overview of the program and an understanding of how we, as individuals, can be prepared for various events like tornadoes, earthquakes, fires, medical emergencies, tsunamis, etc.
- The *Fire Safety* module gives the student a clear understanding of how to attack a fire, the types of fire extinguishers available, how to use a fire extinguisher

properly and how to shut off utilities. This is always a favorite class.

- *Disaster Medical Ops I* trains CERT members about injuries often seen in a disaster, how to control bleeding, how to recognize shock, how to determine who can be helped and who cannot, what the "killers" are, and how to triage patients.
- *Disaster Medical Ops II* teaches members about hygiene and sanitation issues, the establishment of treatment areas, and conducting head to toe assessments. Students get to practice splinting and bandaging wounds, and stabilizing patients. The medical ops modules are good practice for everyone.
- *Search and Rescue* teaches students how to safely extract victims who may be trapped, how to conduct a safe and thorough building sweep, and how to mark a building so other first responders will know the building has been checked and cleared.
- The *Disaster Psychology* module helps the CERT member understand the importance of empathy, how to recognize individuals who may need follow-up mental health assistance, and how to recognize when the situation has become too much for them.
- *CERT Organization* is a very important piece for members. This module teaches the fundamentals of incident command, command posts and operating in a unified structure. It teaches them their role in the bigger scheme of things. All students come away with a better appreciation for how everyone works together in a real emergency.
- The final module, *Terrorism*, gives the CERT members some insight into identifying the difference between manmade disasters and criminal activity, and what actions to take.

The Final Exercise simulates a disaster that puts all the skills and training together. It gives company leaders a chance to witness, first hand, the success of the program, the relationships that have been developed, and the real, tangible advantage that CERT brings to the organization

About the author

In March of 2009, Saint Louis University became a model of success for building a CERT program in the private sector. In one year, over 90 students and staff were trained. Some of these trainees have gone on to become trainers themselves. If you or your organization would like to start a CERT program, SLU would be happy to assist you. For more information, please contact Connie Tillman, MPA, Emergency Preparedness Coordinator for Saint Louis University, tillmanc@slu.edu. ♦

Directory of CERT programs by State
http://www.citizencorps.gov/cc/CertIndex.do?submitByState

FEMA honors local achievement in community resilience

The Federal Emergency Management Agency (FEMA) is pleased to announce the finalists of the 2010 National Citizen Corps Achievement Awards. Administered by FEMA and implemented locally, Citizen Corps is a grassroots movement to actively engage civic leaders and the public in community safety and disaster preparedness. "These awards demonstrate the tremendous strides communities across the nation are making to increase government collaboration with community leaders and to include the public as partners in community preparedness," said FEMA Administrator Craig Fugate.

2010 Winners

Outstanding State Citizen Corps Initiatives Award
- **North Dakota Citizen Corps Council**

Outstanding Citizen Corps Council Award – Serving a Population over 750,000
- **Fresno Citizen Corps Council (CA)**

Outstanding Citizen Corps Council Award – Serving a Population under 750,000
- **Washoe County Citizen Homeland Security Council (NV)**

Collaborative Preparedness Planning Award
- **Citizen Corps Council of Pierce County (WA)**

Preparing the Public Award
- **East Baton Rouge Parish Citizen Corps Council (LA)**

Preparing Community Organizations Award
- **Cedar Park Citizen Corps Council (TX)**

Volunteer Integration Award
- **District of Columbia Citizen Corps Council (DC)**

Newcomer Award
- **New Lenox Citizen Corps (IL)**

Outstanding Council Serving a Rural Area
- **Citizen Corps Council of North Idaho (ID)**

Individual Achievement Awards
- **David Ball** - Riverside, California
- **Timika Hoffman-Zoller** - Chicago, Illinois
- **Mary Jean Erschen** - Lodi, Wisconsin

From: http://www.citizencorps.gov/councils/awards/ ♦

CONGRATULATIONS

Congratulations to Raymond, WA and South Bend, WA for becoming the first 2011 TsunamiReady communities.♦

Infrequently Asked Questions

What is Citizen Corps?

Citizen Corps is FEMA's grassroots strategy to bring together government and community leaders to involve citizen in all-hazards emergency preparedness and resilience.

The mission of Citizen Corps is to harness the power of every individual through education, training, and volunteer service to make communities safer, stronger, and better prepared to respond to the threats of terrorism, crime, public health issues, and disasters of all kinds.

The Citizen Corps mission is accomplished through a national network of state, local, and tribal Citizen Corps Councils. These Councils build on community strengths to implement the Citizen Corps preparedness programs and carry out a local strategy to involve their community.

There are currently 2,442 Councils, service 228,226,665 people—or 80 percent of the total U.S. population.

Everyone can do something to help make our families and our communities safer through:

- Personal responsibility: Developing a household preparedness plan and disaster supplies kits, observing home health and safety practices, implementing disaster mitigation measure, and participating in crime prevention and reporting
- Training: Taking classes in emergency preparedness, response capabilities, first aid, CPR, fire suppression, and search and rescue procedures
- Volunteer service: Engaging individuals in volunteer activities that support first responders, disaster relief groups, and community safety organizations. Everyone can do something to support local law enforcement, fire, emergency medical services, community public health efforts, and the four stages of emergency management—prevention, mitigation, response and recovery efforts.

Go to http://www.citizencorps.gov/ for more information.

From: On Call , Disaster Reserve Workforce News, March/April 2010, p. 2 http://www.fema.gov/pdf/dae/201004.pdf

What is liquefaction and why should we worry about it?

"Liquefaction is a physical process that takes place during some earthquakes that may lead to ground failure. As a consequence of liquefaction, soft, young, water-saturated, well sorted, fine grain sands and silts behave as viscous fluids rather than solids. Liquefaction takes place when seismic shear waves (from the earthquake) pass through a saturated granular soil layer, distort its granular structure, and cause some of its pore spaces to collapse. The collapse of the granular structure increases pore space water pressure, and decreases the soil's shear strength. If pore space water pressure increases to the point where the soil's shear strength can no longer support the weight of the overlying soil, buildings, roads, houses, etc., then the soil will flow like a liquid and cause extensive surface damage. "

From: *Asian Disaster Management News*, v. 16, no. 1, (Jan.-Apr., 2010), p. 8.

THE classic photo of what liquefaction can do: http://www.norcalblogs.com/watts/images/Liquefaction_at_Niigata.jpg or http://www.smate.wwu.edu/teched/geology/GeoHaz/eq-general/eq-general-05.JPG

Which earthquake and tsunami led to the establishment of the Pacific Tsunami Warning System?

The 1960 Chilean earthquake.

VIDEO-CD-DVD RESERVATIONS

To reserve tsunami videos, CDs or DVDs, contact Lee Walkling, Division of Geology and Earth Resources Library, 1111 Washington St. SE, MS 47007, Olympia, WA 98504-7007; or e-mail lee.walkling@dnr.wa.gov. **These programs are available to all NTHMP participants, with a 3-week loan period.**

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

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

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

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

Cascadia: The Hidden Fire–An Earthquake Survival Guide (10 min.). Global Net Productions, 2001. A promo for a documentary about the Cascadia subduction zone and the preparedness its existence demands of Alaska, Oregon and Washington states. Includes mention of tsunamis.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Tsunami: Surviving the Killer Waves (13 min.). 2 versions, one with breaks inserted for discussion time.

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

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

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

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

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

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

Waves of Destruction (60 min.) An episode of the "Savage Earth" series. Tsunamis around the Pacific Rim.

Who Wants to be Disaster Smart? (9 min.). Washington Military Department/Emergency Management Division. 2000. A game show format, along the lines of *Who Wants to be a Millionaire*?, for teens. Questions cover a range of different hazards.

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

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