



TsuInfo Alert

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National Tsunami Hazard Mitigation Program

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Oregon's Office of Emergency Management and Dark Horse Comics Team Up to Teach Tsunami Preparedness

Oregon Office of Emergency Management News Release October 12th, 2016

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SALEM, Ore. -- Oct. 12, 2016 -- Oregon's Office of Emergency Management and Dark Horse Comics team up to prepare for the Great Oregon ShakeOut on October 20 and introduce Without Warning: Tsunami, a new comic touting tsunami preparedness. The 16-page comic strip sequence chronicles a mother/daughter camping trip on the Oregon coast when an earthquake and resulting tsunami strike. The duo stays safe and helps others in danger.

Without Warning: Tsunami is the second time that the partners have come together to collaborate on bringing preparedness messaging to youth. In 2013, OEM's Geologic Hazards Program Coordinator Althea Rizzo approached Dark Horse with a proposal. An avid comic book fan herself, Rizzo knew that it was a good way to reach a new target audience. In August 2014, Without Warning was released, telling a story of an Oregon teen who reunites with her family after a major Cascadia Earthquake.



"The events in Tohoku, Japan in 2011 brought new awareness to the reality of what could happen in Oregon in the aftermath of a Cascadia quake," said Rizzo. "The first Without Warning comic helped to educate young people about what to do in the aftermath of a high-magnitude earthquake. This second comic about tsunamis is a logical follow up and story continuation."

Rizzo came up with both stories. Dark Horse Editor Shantel LaRocque then worked with writer Jeremy Barlow and artist David Hahn to have them scripted and illustrated.

Oregon is located in the Cascadia Subduction Zone, a 600-hundred mile earthquake fault stretching from offshore Northern California to Southern British Columbia. According to scientists and other experts, a large 9.0 or higher earthquake could strike Oregon at any time.

"Dark Horse is proud to support emergency preparedness and Oregon Emergency Management with the Without Warning: Tsunami comic," said Mike Richardson, Dark Horse Comics president. "We enjoy partnering with an organization dedicated to making Oregon's residents safe and prepared for a natural disaster, and are proud to contribute our talent and resources to the cause."

Without Warning: Tsunami was released on October 12 and is available online at <http://bit.ly/2dWuS0G>. Printed copies can be obtained through local county emergency management offices.

TsuInfo Alert

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This publication is free upon request and is available in print by mail and online at:

<http://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/tsunamis/tsuinfo-alert>



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FY16 NTHMP Grants Awarded

By Rocky Lopes, NOAA/National Weather Service Tsunami Program

NOAA's National Weather Service is pleased to announce \$5,750,515 in grant funds have been awarded or transferred within NOAA to support NTHMP partner projects to make coastal communities throughout the United States and its territories safer from tsunamis. NTHMP grants are provided to coastal states, territories, and participating university partners who have membership on the NTHMP Coordinating Committee.

FY16 NTHMP grants for the performance period from September 1, 2016 through August 31, 2017 or 2018, have been awarded to NTHMP partners to support these tasks.

The variety and number of tasks are an example of the difficult and challenging work undertaken by NTHMP partners to fulfill the NTHMP Mission "to mitigate the impact of tsunamis through public education, community response planning, and accurate hazard assessment."



A full description of the tasks that FY16 NTHMP grants are supporting can be viewed on the NTHMP website: <http://nws.weather.gov/nthmp/grants/2016grants/index.html>

PROJECT UPDATE

New Tsunami Response Tools for Decision Makers Presented to the International Emergency Management Society in San Diego

By Kevin Miller, Tsunami Program Officer CA Governor's Office of Emergency Services

On Thursday, September 15th, Kevin Miller, California Governor's Office of Emergency Services, Tsunami Program Officer, and NTHMP Mitigation & Education Subcommittee Co-Chair, provided a presentation titled "The FASTER Approach: A new tool for calculating real-time tsunami flood hazards" to The International Emergency Management Society (TIEMS) 2016 Annual Meeting. TIEMS is a global forum for education, training, certification and policy in emergency and disaster management, and is dedicated to developing and bringing the benefits of modern emergency management tools, techniques and good industry practices to society for a safer world. This is accomplished through the exchange of information, methodology innovations and new technologies, in an effort to improve society's ability to avoid, mitigate, respond to, and recover from natural and manmade disasters.



The meeting was held under the theme "Innovation and Urban Planning for Emergency Resilience in Large Cities" at the new, downtown San Diego Central Library facility. At nearly 500,000 square feet and standing nine stories high, the San Diego Central Library boasts the latest technology, an outdoor garden and courtyard café, an art gallery, and views of the San Diego Bay, Petco Park, and the San Ysidro Border Crossing—the busiest land-border crossing in the world. This meeting was convened to explore best practices and emerging technologies to facilitate coordination of resources, as well as urban planning strategies to build resilient communities. Presentations from US and international leaders provided unique insights on these important topics, and interactive sessions created an opportunity to discuss local and international perspectives.

Miller's presentation provided an overview of new, innovative tsunami evacuation and response tools for emergency managers in coastal communities supported by the National Tsunami Hazard Mitigation and the National Tsunami Programs at NOAA. The tsunami "Evacuation Playbook" approach provides detailed evacuation map scenarios and associated real-time response information for identifying areas where flooding could occur based on tsunamis from earthquake sources around the Pacific. This is critical information for evacuating populations along the shoreline. Additionally, "Maritime Playbooks," which depict where strong, damaging currents in harbors could occur during distant -source tsunamis of various sizes, are of vital importance to maritime interests and anyone on the water.

For less than worst case tsunamis, having these secondary evacuation and response measures in place have proven useful by providing more refined knowledge of emergency response and evacuation capability. These planning tools add value by incorporating forecasted tsunami amplitudes, with previously un-provided storm surge and tidal information, to more effectively describe which areas might get inundated for a particular tsunami event. Adding these variables is also known as the automated FASTER approach. These tools are being implemented by the State of California, which shares common coastal issues with other states like Hawaii, which have similar tsunami hazard levels and a large, vulnerable population.

Also, on a related note, Mark Benthien, Global Coordinator for the Great ShakeOut Earthquake Drills, spoke about ongoing efforts to communicate earthquake knowledge and increase awareness, reduce earthquake loss, and save lives. Mark's presentation also highlighted logical tie-ins to tsunami preparedness efforts coordinated through the TsunamiZone.org website, and the synergy of synchronized activities across many organizations that educate people about tsunami preparedness.

PROJECT UPDATE

The Commonwealth of Puerto Rico Recognized as TsunamiReady®

By Elizabeth Vanacore¹, Victor Huérfano¹, Roy Ruiz¹ and The PR Tsunami team²

The commonwealth of Puerto Rico (PR) is under tsunami threat. The last significant tsunami to affect the island occurred in 1918 along the entire western coast of the island after an earthquake of ~7.3 magnitude with approximately 100 casualties. Nowadays, more than 249,000 people live in the tsunami prone zone, the entire coastal regions have a higher density of critical infrastructure, and the number of visitor is in the order of millions. Consequently, tsunami preparedness is key to local hazard mitigation and emergency management planning. Over the past decade (Mayagüez, was the first PR community recognized as TsunamiReady in 2006), local, state, and federal agencies (NOAA and FEMA), have worked together with the PRSN/UPRM (The Puerto Rico Seismic Network, of the University of Puerto Rico at Mayagüez, Geology) to improve the preparedness of Puerto Rico to tsunamis. This effort was funded by the NTHMP (National Tsunami Hazard Mitigation Program) in strong partnership with the San Juan National Weather Service Forecast Office (NWS/San Juan) and the Caribbean Tsunami



NOAA/NWS Official map illustrating the TsunamiReady communities in Puerto Rico, as well as the StormReady communities and TsunamiReady supporters (<http://www.tsunamiready.noaa.gov/communities.shtm1>).



PR TsunamiReady Champions, from the left: Alberto Trabal (EMA, zone V, director), Dr. Rocky Lopes (NWS), Israel Matos (former WFO director), Carolina Hincapie (CTWP), Wilfredo Ramos (EMA), Prof. Aurelio Mercado (UPRM), Angel Crespo (EMA director), Ernesto Morales (WCM), Roberto Garcia (NWS/San Juan, director), Wildaomaris Gonzales (PRSN), Christa von Hillebrandt (CTWP, director), Dr. Victor Huerfano (PRSN, director) and Roy Ruiz (PRSN).

Warning Program (NWS/CTWP). The overall goal of this effort is to ensure that all the tsunami exposed communities (forty-four of them coastal municipalities as well as two interior municipalities) meet the TsunamiReady Guidelines. As of this summer (2016), this collaborative effort has culminated in recognition that all tsunami vulnerable communities in Puerto Rico have been awarded TsunamiReady Recognition.

Despite this recognition, work in tsunami preparedness continues on the island. TsunamiReady communities are in the process of reviewing and revising their tsunami response plans, continuing education strategies for locals and visitors, improving communication systems and signage, as well as participating in tsunami drills, in order to maintain and renew the TsunamiReady recognition. Additionally, work is now beginning to designate local businesses, hospital, and other interested partners as TsunamiReady Supporters

under the new NOAA/NWS program. Puerto Rico may have recently received recognition for having the entire island designated as TsunamiReady, but as with any disaster preparedness program our work in Puerto Rico will continue in order to maintain and improve tsunami hazard preparedness and mitigation.

¹ Puerto Rico Seismic Network, University of Puerto Rico at Mayaguez, Geology Department

² Dr. Victor Huérfano, PI; Dr. Elizabeth Vanacore, CoPI; Prof. Aurelio Mercado; Christa von Hillebrandt-Andrade; Dr. Alberto Lopez; Dr. Saylisse Davila; Dr. Jose Martinez Cruzado; Dr. Victor Rivera; Roy Ruiz; Ernesto Morales; Wildaomaris Gonzales; Wilfredo Ramos, Glorymar Gomez; PREMA and OMMES (Municipal Emergency Management Offices).

PROJECT UPDATE

TsunamiReady® Supporter Program Launched

By Rocky Lopes, NOAA/National Weather Service Tsunami Program

The TsunamiReady Supporter Program represents the next major growth area for the NWS TsunamiReady Program.

You can find the TsunamiReady Supporter Criteria and application form on this website: <http://www.tsunamiready.noaa.gov/supporters.shtml>

Background

In cooperation with NWS Regions, coastal Warning Coordination Meteorologists (WCMs), and NTHMP partners, the list of potential new locations to consider for "full" TsunamiReady recognition was reviewed recently. As anticipated, the number of potential "full" TsunamiReady locations is dwindling for the West Coast, Alaska, and Hawaii. All U.S. territory islands (American Samoa, Commonwealth of Northern Mariana Islands, Guam, Puerto Rico, and U.S. Virgin Islands) are now recognized as TsunamiReady.

The NWS Warning Coordination Meteorologist has the single sign-off on the TsunamiReady Supporter Program -- not the state TsunamiReady Board (or equivalent).



Estancia La Jamaca, La Parguera, Puerto Rico

There are many opportunities for the TsunamiReady Supporter Program, especially within coastal communities where achieving the TsunamiReady Recognition status has been difficult.



Supermercados Econo, Rincon, Puerto Rico

Tyree Wilde (WCM at WFO Portland, OR), in cooperation with his state Emergency Management colleague Dr. Althea Rizzo, pioneered the TsunamiReady Supporter Program unofficially in 2013 and designated eight sites as TsunamiReady Supporters.

Recently, Ernesto Morales, WCM at WFO San Juan PR, in cooperation with the NTHMP partner at the University of Puerto Rico/Mayaguez, took the opportunity to pilot the new TsunamiReady Supporter application and designated four new locations: two hotels, a supermarket, and a regional hospital.

Background and application information for the TsunamiReady Supporter Program can be found on the above-referenced website.

PROJECT UPDATE

TsunamiReady® Recognition Milestones

By Rocky Lopes, NOAA/NWS Tsunami Program

Two significant milestones for the National Weather Service TsunamiReady Program were reached in the last few months with the collaborative help of NTHMP partners.

Puerto Rico

Two inland Puerto Rico municipalities that could experience tsunami inundation from rivers were recognized as TsunamiReady in May, 2016. With these additional locations, now all 46 of the municipalities of Puerto Rico that could have effects from tsunamis are TsunamiReady. Achieving this “all-island” TsunamiReady recognition took more than ten years and was hard-won. (See related article on page 4).



First TsunamiReady Recognition for the Gulf of Mexico Coast

Santa Rosa County, Florida, achieved its TsunamiReady Recognition on September 27, 2016. This huge accomplishment came about due to the hard work and dedication among many people:

- Brad Baker, Santa Rosa County Emergency Management Director, who had the vision to include tsunami events in his county’s comprehensive plans. Mr. Baker and staff had to design new tsunami signage that would work for their location by removing words “In Case of Earthquake – Go to high ground or inland” since no earthquake would precede a tsunami on Gulf of Mexico shorelines. He also had to convince skeptical local elected officials about the local tsunami risk and overcome objections from some county officials who were concerned about heightening fear among beach visitors and causing a negative economic impact for tourism.
- Mr. Baker’s cause was supported by highly informative Gulf of Mexico tsunami research led by Dr. Juan Horrillo of Texas A&M University at Galveston. Dr. Horrillo is the NTHMP Science representative for the Gulf of Mexico region. His years of research were translated into NTHMP-formatted tsunami inundation maps made publicly accessible on the NTHMP website and his own website.
- Those maps were distributed by the NTHMP Gulf Coast emergency management representative Chayne Sparagowski to all Gulf Coast counties and communities, including Santa Rosa County. Mr. Sparagowski personally reached out to Santa Rosa County officials to help them interpret the map for inclusion in the county’s TsunamiReady Application using the most recently updated TsunamiReady Guidelines. Chayne was recognized as a TsunamiReady Champion for his above-and-beyond efforts at the NTHMP Mitigation & Education Subcommittee meeting in July. (See related article by Chayne Sparagowski on page 8).

The NWS TsunamiReady Program has come a long way since its inception in 2001, and its achievements can be directly tied to the partnership with the NTHMP.

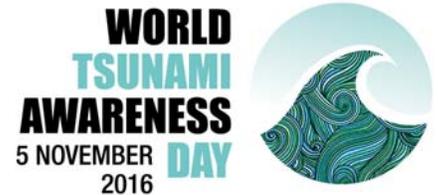
(Continues on Page 7)

PROJECT UPDATE & NEWS

UN Calls on World to Observe World Tsunami Awareness Day: November 5

In December 2015, the United Nations General Assembly designated November 5 as World Tsunami Awareness Day, calling on all international bodies, countries, nongovernmental organizations, and individuals to observe the day to raise tsunami awareness and share innovative approaches to risk reduction, both before and after a tsunami. This year, the focus of World Tsunami Awareness Day is on effective education and evacuation drills.

November 5 was chosen to honor the actions of a Japanese farmer and village chief credited with saving hundreds of lives from a tsunami in 1854. After recognizing the signs of a tsunami, he set fire to his harvested rice to attract the attention of villagers near the coast. As the villagers rushed to help, he told them to keep moving up the hill to safety, where they watched the tsunami destroy their village. In the aftermath, he helped his community rebuild to better withstand future events for the benefit of future generations.



Watch the video prepared to recognize the day at <https://youtu.be/8K9GGJSqeGA> and visit the World Tsunami Awareness Day website at <http://www.unisdr.org/2016/tsunamiday/> to access the General Assembly's resolution, tsunami resources and news, and information about drills and events.

TsunamiReady® Recognition Milestones

By Rocky Lopes, NOAA/NWS Tsunami Program

(Continued from Page 6)

As of September 30, 2016, there are 197 sites recognized as TsunamiReady. During the period from March 1 to September 30, 2016, the following sites received the first TsunamiReady recognition:

- Hyde County, NC
- Bayamon, PR
- Canovanas, PR
- Entire island of Puerto Rico
- Santa Rosa County, FL
- Monterey (City of), CA

The following communities renewed their TsunamiReady recognition between March 1 and September 30, 2016:

- Aberdeen, WA
- Barceloneta, PR
- Camuy, PR
- Depoe Bay, OR
- Florence, OR
- Grays Harbor County, WA
- Hancock County, ME
- Humacao, PR
- Kauai County, HI
- Lincoln County, OR
- Maunabo, PR
- Maui County, HI
- Naval Base Ventura County, CA
- Newport, OR
- Orange County, CA
- Patillas, PR
- Saipan, CNMI
- Seaside, OR
- Shoalwater Bay Tribe, WA
- Toledo, OR
- University of California Santa Barbara, CA
- Waldport, OR
- Westport, WA
- Yachats, OR
- Yabucoa, PR



PROJECT UPDATE

Santa Rosa County, Florida Becomes First TsunamiReady® Recognized Jurisdiction on the Gulf of Mexico

By: Chayne Sparagowski, NTHMP Gulf of Mexico Emergency Management Representative

On September 27, 2016, Santa Rosa County, Florida received the sign-offs for their TsunamiReady application, making the county the first TsunamiReady jurisdiction along the Gulf Coast.

The process began in July of 2015, when the county approached Jason Beamon, Warning Coordination Meteorologist at the National Weather Service Office in Mobile, AL. Recent research, conducted by the Texas A&M University at Galveston Tsunami Research Group led by Dr. Juan Horrillo, showed the deep water canyon landslides could result in a significant tsunami threat to areas of the Gulf Coast. The Santa Rosa County Emergency Management staff noted that while the tsunami potential is low risk, it would be a high impact event if it were to occur.

Santa Rosa was already quite proactive, having created a Tsunami/Rogue Wave Annex to their emergency management plan several years before, after hearing about Volusia County (on the Atlantic side of Florida) creating a plan. It wasn't until the newer data from Texas A&M University-Galveston came out that they decided to revisit the plan and look at becoming TsunamiReady.



Jason Beamon (left), Warning Coordination Meteorologist with the National Weather Service Mobile, AL office and Wanda Stafford (right), Florida Division of Emergency Management Region I Coordinator, review the TsunamiReady Guidelines during the site visit at Santa Rosa County Emergency Management.

Overcoming Waves of Challenges

Shortly after, we began developing a process on how we were going to go about meeting the 2015 TsunamiReady guidelines. "Being the first on the Gulf Coast we had to help establish what the standard was going to be", says Daniel Hahn, Santa Rosa County Emergency Management Plans Chief. Part of meeting the guidelines was assessing the direct threat to the county.

One of the initial hurdles was mapping. Overall, the Gulf of Mexico tsunami inundation had not been mapped. In fact, only a few communities to date have been. However, due to the increased interest, the Pensacola and Santa Rosa county coastline was next. Working with Horrillo, we created low resolution models that mapped out the maximum-of-maximum inundations across all seven tsunami sources considered in the Gulf. This map was made available in February of 2016, with high resolution maps coming in the future. Mapping indicated most of the barrier island and Navarre Beach would have significant inundation of up to 20 feet. This finding further increased interest in pursuing the recognition.

The next, and probably most significant challenge, was signage. Have you ever seen a sign indicating a tsunami inundation hazard area in the Gulf Coast? That's because up until Santa Rosa County created one, no such thing existed. The design was the first of what turned out to be several hurdles when it came to area signage.

Ultimately, the signage recommended for tsunami inundation areas didn't fit the Gulf of Mexico coastline. There wasn't an earthquake driven tsunami threat, so the conventional 'in case of earthquake go to high ground' message wasn't

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PROJECT UPDATE

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By: Chayne Sparagowski, NTHMP Gulf of Mexico Emergency Management Representative
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applicable. In addition, the other recommended signage of ‘entering a tsunami hazard zone’ was too basic for their needs. The emergency management staff decided that the Tsunami Smart signs best conveyed the information – as long as the ‘feel a very strong earthquake’ portion was removed. While this doesn’t follow the national signage recommendations, the TsunamiReady board signed off on it, because it conveys the hazard and safety information on a local level.

Hanging the signs also became a unique challenge as well. “The obvious one is scaring the tourist” says Brad Baker, Santa Rosa County Emergency Management Director. Beach sign pollution was also an issue. “It was not so much about our message as about what people considered sign pollution; too many signs on the beach,” added Hahn. Santa Rosa County had just recently completed a beach mile marker program for emergency responders, though up until now it was only virtually in dispatch. When faced with adding not one, but two new signs to the beachfront, opposition was present. According to Baker, they “overcame this by creating a dual purpose sign with beach mile markers to identify locations on the beach.”

Once these hurdles were completed, outreach and exercises began. Stakeholder buy-in was a challenge, but one of the most effective ways they were able to garner support was leveraging the Community Rating System under the FEMA National Flood Insurance Program. Taking part and becoming TsunamiReady recognized could allow the community to have lower insurance costs by increasing the amount of points they receive, something all coastal homeowners and businesses welcome. During community outreach and education, they maintained an all-hazards approach but added tsunami awareness and information into it. They also conducted a tsunami related exercise in May of 2016.

Vertical Achievement: In mid-July, a site visit was conducted by the local TsunamiReady board, which included Beaman, myself, and Wanda Stafford, Florida Division of Emergency Management Region I Coordinator. While the physical requirements had been met, some of the planning and outreach requirements were not, so we were not able to sign off on that day. A small hurdle though, considering all that we had already overcome. During the last few months those unchecked boxes were completed, and that led to the signoff that occurred on September 27, 2016. Hahn compliments those involved. “It was a good experience partnering with Mobile weather on this project, we appreciate their patience, and the patience and time of the committee in helping us achieve this goal”

Baker has good recommendations for those interested in pursuing their TsunamiReady recognition, saying, “the thing I can encourage anyone who wants to pursue this is to do your homework on the front side, engage stakeholders early in the process and make sure you have educated the administration about all of the benefits to being TsunamiReady before approaching the Board of County Commissioners for approval.”



One of several coastal tsunami signs installed by Santa Rosa County. A sign was placed at each beach access point on Santa Rosa Island and Navarre Beach.

TSUNAMI NEWS

India Evacuates 30,000 in Tsunami Drill

By Sarah Wade-Apicella, The United Nations Office for Disaster Risk Reduction

PATISUNAPUR, ODISHA, India, 7 September 2016 - Today not only marked the start of the two-day IOWave16 tsunami drill for 24 countries in the Indian Ocean, but also demonstrated the true power of people to take charge of their own safety and reduce loss of life against the most deadly of all natural hazards, a tsunami.

Nowhere was that more evident today than across 328 coastal villages in the Indian state of Odisha on the Bay of Bengal, a fatal shore for centuries past. Some 30,000 people were evacuated there today as part of a major awareness raising exercise in a year which will see the inauguration of the first-ever World Tsunami Awareness Day on November 5.

While a tsunami cannot be prevented, its impact can be greatly mitigated through regular community-wide preparedness including training and drills, timely warnings, effective response, public awareness and education.

See full article: <http://www.unisdr.org/archive/50152>



Christa von Hillebrandt-Andrade (NOAA Caribbean Tsunami Warning Program) and participants of the IOWAVE 16 Tsunami Drill.

UNESCO Director-General visits Pacific Tsunami Warning Center in Hawaii

United Nations Educational, Scientific and Cultural Organization (UNESCO) Press Release

UNESCO Director-General Irina Bokova visited the Hawaii Pacific Tsunami Warning Center (PTWC) and the International Tsunami Information Centre (ITIC), two key partners of the UNESCO Intergovernmental Oceanographic Commission, during her mission to Hawaii (USA) from 1 to 3 September.

This visit was an opportunity to renew UNESCO's commitment to ocean cooperation with the United States, in order to enhance ocean science and strengthen the resilience of societies facing natural disasters across the Pacific. "These two centers were established 50 years ago under the auspices of UNESCO, and our cooperation has never been so vital," said the Director General.

Dr. Laura Kong, Director ITIC, highlighted the need to combine excellence in ocean observation with constant capacity building of local communities. "It is not enough to invest in a robust tsunami warning system – to save lives, people must know what to do and where to go within the very first minutes – this is why awareness raising and education must be developed."

"The 2004 tsunami in the Indian ocean has been a decisive moment for the entire tsunami scientific community. It has fostered the creation of tsunami early warning systems all over the world, with the strong support and leadership of the UNESCO Intergovernmental Oceanographic Commission," said Charles McCreery, Director of PTWC.



See full article: <http://tinyurl.com/hy53ow9>

TSUNAMI RESEARCH

CURRENT RESEARCH

Chagué-Goff, C., Chan, J., Goff, J. and Gadd, P. (in press) Late Holocene record of environmental changes, cyclones and tsunamis in a coastal lake, Mangaia, Cook Islands. *Island Arc*. doi:10.1111/iar.12153.



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Peters, Jeff; Wood, Nathan; Wilson, Rick; Miller, Kevin, 2016, Intra-community implications of implementing multiple tsunami-evacuation zones in Alameda, California: *Natural Hazards*, v. 84, no. 2, p. 975-995, DOI: 10.1007/s11069-016-2469-8.



A Multi-Agency Collaboration in Washington State's Tsunami Workgroup: Functional Inter-Group Dynamics

California State University Long Beach Master of Science Thesis By Johanna Nielsen

ABSTRACT: Collaboration between groups is a critical component in community resilience. Yet, memorable disaster mismanagements illustrate the difficulty of collaboration. Historically, it was thought that poor interoperability between communications equipment was to blame, but as technology differences were resolved, collaboration efforts continued to suffer. Recently, experts and practitioners are turning to group culture to explain collaboration failures. However, the literature is disjointed and dispersed with many gaps. The purpose of this research was to better understand the essential culture aspects important to good collaboration. A survey was utilized to examine the culture of a long-standing, successful collaboration: The Washington State and Local Tsunami Workgroup. The Workgroup endeavors to balance both Home Agency and Workgroup identities, utilize a flat hierarchy to its full advantage, and value openness and diversity as a means to reach the goal of mitigation of tsunami damage. Resulting themes centered on identity, commonality, structure, and attitudes.



Access thesis online: https://emscholar.files.wordpress.com/2016/08/thesis_final.pdf

TSUNAMI NEWS & EVENTS

Master of Disaster

By Emily Dicken, Fire and Emergency Management Public Education Coordinator, Emergency Management BC

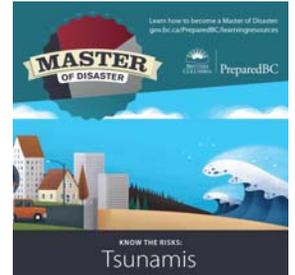
In the fall of 2016, Emergency Management BC launched its Master of Disaster program, a suite of learning resources that teaches grade 6 students about the hazards in their area and how to prepare for emergency events. The goal of this program is to inspire students to become curious about the science of hazards and to feel a personal responsibility to prepare themselves and their families.

Through a series of three learning modules, students will discuss the potential hazards in their region, learn what goes into an emergency kit, and discuss how to create an emergency plan. Following the in-class lessons, students are encouraged to take the worksheets home and fill them out with their families. Once all three modules are completed, the students will officially be a “Master of Disaster” and can print off their very own certificate of achievement.

The Master of Disaster resources were created for teachers to either use the lessons and supporting materials “as is,” or modified to suit the classroom’s needs. Each module builds upon the previous one and provides teachers with suggestions on how to achieve the outlined learning outcomes through suggested activities and worksheets. All lesson plans and supporting resources are electronically available on the Master of Disaster website (resources.gov.bc.ca/PreparedBC/learningresources).

Each learning module is designed to take about 50 minutes, with 30 minutes of the lesson guided by the teacher and 20 minutes of the lesson devoted to student participation. Module 1 “Personal Preparedness: Know the risks, make a kit” teaches students to identify hazards within their community and introduces them to the language of preparedness. Module 2 “Prepare your household: Make a plan” teaches students how to create an emergency plan and encourages them to continue this discussion with their family. Module 3 “In it Together: Neighbourhood preparedness” teaches students the importance of working together in a disaster and identifying strengths in themselves and others.

The Master of Disaster program was developed through a collaborative process led by Emergency Management BC. The design and development of the teaching and learning resources was done through a working group comprised of teachers, parent advisory committee (PAC) members, academics, private industry representatives, and emergency management practitioners. In under a year, this dynamic group developed this highly flexible learning resource that has increased the promotion of preparedness and hazard awareness across the province of British Columbia.



UPCOMING NTHMP & RELATED EVENTS

- ◆ November 5, 2016—United Nations Office for Disaster Risk Reduction (UNISDR) World Tsunami Awareness Day <https://www.unisdr.org/archive/48820>
- ◆ December 12-16, 2016—AGU Fall Meeting (San Francisco, California) <https://fallmeeting.agu.org/2016/>
- ◆ January 30-February 3, 2017—2017 NTHMP Annual Meeting (Portland, Oregon) <http://nws.weather.gov/nthmp/2017annualmeeting/>

