TsuInfo Alert

prepared by the Washington State Department of Natural Resources on behalf of the
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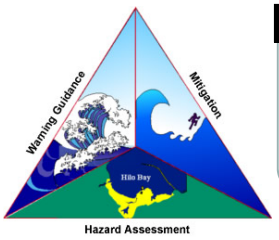

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WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands
Division of Geology and Earth Resources
David K. Norman - State Geologist

TsunamiReady Guidelines Project

By Rocky Lopes, Deputy Program Manager for Stakeholder Engagement
Tsunami Program, NOAA/National Weather Service

The TsunamiReady® Guidelines have been in place and unchanged since 2001. The National Weather Service (NWS) began reviewing the guidelines to consider updating them in 2007. In 2010, at the urging of the Coordinating Committee of the National Tsunami Hazard Mitigation Program (NTHMP), a multiyear contract was awarded to Dr. Chris Gregg of East Tennessee State University to use a social science process to review the Guidelines with stakeholders and make recommendations for updated TsunamiReady Guidelines.

Dr. Gregg and his team's initial work focused on draft guidelines developed by the NOAA Tsunami Program, NWS Weather Forecast Offices, and the NTHMP. The research team conducted a series of focus groups with emergency managers and community stakeholders from communities in seven U.S. states and territories to solicit feedback on the draft guidelines.

Based on the findings from the focus groups and ongoing collaboration with the NOAA Tsunami Program, NWS Weather Forecast Offices, and the NTHMP, the research team developed a second draft of the guidelines. A second series of focus groups was held with emergency managers and community stakeholders from six of the seven original communities to solicit feedback on the revised guidelines. A report titled *Proposed and Existing Guidelines for Recognition in the NWS TsunamiReady Community Program* is based on these focus group findings.

These guidelines correspond with ongoing improvements to the NWS StormReady® Guidelines, which have been made to better align the program with the National Incident Management System (NIMS). Emergency Managers are very familiar with NIMS and will find the new proposed structure and format familiar.

Dr. Gregg's recommendations and his full report are now available. Visit http://nws.weather.gov/nthmp/tr/

We encourage you to read the report. I will be facilitating a number of conference calls/webinars about these proposed TsunamiReady Guidelines in collaboration with my experienced colleague, Troy Nicolini, Warning Coordination Meteorologist at the NWS Forecast Office in Eureka, California. If you wish to participate in these conversations, have input, suggestions, or ideas about the proposed guidelines, please send me an email (Rocky.Lopes@noaa.gov) to request to be added to the email list about this project.

Our overall goal is to develop updated TsunamiReady Guidelines that are useful by all involved with the NWS TsunamiReady Program. The process will take time, but through full engagement and with your participation, we will be successful.

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http://www.dnr.wa.gov/researchscience/topics/geologypublicationslibrary/pages/tsuinfo.aspx

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NATIONAL TSUNAMI HAZARD MITIGATION PROGRAM LIBRARY CATALOG:
http://69.63.217.22/D92019/OPAC/Index.aspx

U.S. Virgin Islands Hosted the Ninth Session of the Caribbean Tsunami Warning System

By Bernardo Aliaga, IOC UNESCO

The U.S. Virgin Islands have been designated as TsunamiReady by the United States Department of Commerce National Oceanic and Atmospheric Administration (NOAA). "We have worked long and hard for this recognition and as a result of our efforts, the territory is better prepared to save lives from the onslaught of tsunamis through our extensive planning, education and public awareness. It is not a matter of if, but a matter of when," Governor de Jongh said at the recognition ceremony that was held during the Ninth Session of the Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS-IX).

ICG/CARIBE-EWS-IX May13th-15th, 2014

The ICG/CARIBE-EWS-IX was held in St. Thomas, U.S. Virgin Islands, from May 13th to 15th, 2014, hosted by the Virgin Islands Territorial Emergency Management Agency (VITEMA). The meeting was attended by 56 participants from 15 Caribbean countries and territories and 5 organizations: Caribbean Tsunami Information Centre [CTIC], Science Applications International Corporation [SACI], Puerto Rico Seismic Network [PRSN], UNAVCO, Inc., and the University of the West Indies Seismic Research Centre [SRC].

The gathering noted the achievements in 2013-2014 including the launching of the CTIC, established in Barbados; the successful CARIBE WAVE 2014, on March 26th, 2014, with 47 of the 48 Member States and territories participating including close to 200,000 participants. It also noted the increased number of communities receiving the TsunamiReady recognition in the region.

Participants called for Member States contributions towards the CTIC to enable it to fully play its role as a key instrument for tsunami preparedness and awareness in the Caribbean region.

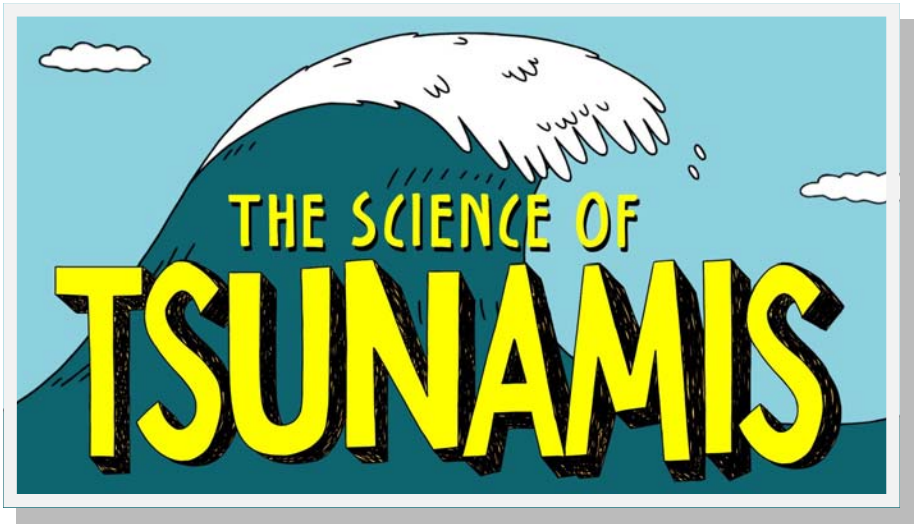
For more information: http://ioc-unesco.org/index.php?option=com_oe&task=viewEventRecord&eventID=1431

TSUNAMIS & EDUCATION

VIDEO: How Tsunamis Work

By Alex Gendler, TED-Ed

Video summary: The immense swell of a tsunami can grow up to 100 feet, hitting speeds over 500 mph -- a treacherous combination for anyone or anything in its path. Alex Gendler details the causes of these towering terrors and explains how scientists are seeking to reduce their destruction in the future.



See video and lesson here: http://ed.ted.com/lessons/how-tsunamis-work-alex-gendler

Earthquake-Tsunami Science & Preparedness Workshops for Coastal Educators

By Cascadia Earthscope Earthquake and Tsunami Education Program

Through a grant from the EarthScope Program of the National Science Foundation (NSF), CEETEP offers four-day workshops to foster community engagement of earthquake science and preparedness, and to encourage collaboration and exchange between formal and informal coastal educators.

CEETEP participants from the August 2013 workshop. Photo by Beth Pratt-Sitaula (UNAVCO, CWU).

EarthScope is a multi-decade effort to explore the structure and evolution of the North American continent. It includes seismic, GPS, and other geophysical instruments to monitor the Cascadia Subduction Zone and advance our understanding of the region's geohazards. Each CEETEP workshop includes K-12 teachers, park and museum interpreters, and emergency management educators from coastal areas. Through a problem-solving approach to subduction zone geology, participants learn how: 1) geoscientists developed our current understanding of Pacific Northwest plate tectonics, earthquakes, and tsunamis; 2) EarthScope is advancing knowledge about the active Earth in Oregon and Washington; and 3) collaboration on education, interpretation, and preparedness makes coastal communities more resilient to earthquake and tsunami hazards. Three days of classroom and interpretive activities on Pacific Northwest geology and EarthScope science will be complemented by a field day investigating Cascadia earthquakes and tsunamis, and visits to seismic and GPS installations.

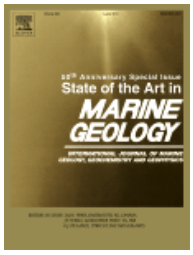
See more information: http://www.unavco.org/highlights/2014/ceetep.html

IN PRESS/RECENTLY PUBLISHED

Seismic-driving of sand beach ridge formation in northern Honshu, Japan?

By James Goff (University of South Wales), Daisuke Sugawara (Institute of Disaster Science, Tohoku University)

Abstract: The coastal Sendai Plain consists of an extensive sand beach ridge system that was inundated by the 2011 Tohoku-oki tsunami. The spatial and temporal extent of these beach ridges appears to match well with the record of past earthquakes and tsunamis in the region and it is proposed that they could have formed as a result of a process called "Seismic-Driving". This process recognises the widespread and catastrophic disruption of the environment caused by a large earthquake. A series of immediate and delayed after-effects created by a cascade of geomorphological processes linking the earthquake with beach ridge formation is examined for the Sendai Plain. The significance of the role played by volcanic eruptions, smaller earthquakes and climate-related, high intensity and duration rainfall activity is also highlighted.



At a region-wide scale, the beach ridge systems of Ishinomaki, Akita, Aomori and Tanabu are also considered alongside those of the Sendai Plain. Throughout northern Honshu there appears to be synchronous beach ridge formation, albeit based upon a moderately poor chronological resolution. Further data indicate that there may also be contemporaneous evidence on Hokkaido to the north. More detailed research is now needed in order to secure a higher resolution dataset of the spatial and temporal extent of beach ridges throughout the region in order to determine whether they preserve a record of the magnitude and frequency of earthquakes (and potentially tsunamis) related to activity on both the Japan and Kuril Trenches.

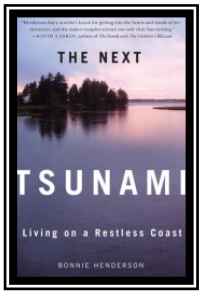
If strong seismic-driving linkages can be proven it offers the intriguing possibility of being able to develop a far more comprehensive record of past earthquakes and tsunamis (local, regional and distant) than currently exists. Records could be based on both tsunami deposits in the low-lying swales and the spatial and temporal extent of the intervening beach ridges.

Access article in Marine Geology: http://www.sciencedirect.com/science/article/pii/S0025322714000917

The next tsunami: Living on a restless coast

By Bonnie Henderson

On a March evening in 1964, ten-year-old Tom Horning awoke near midnight to find his yard transformed. A tsunami triggered by Alaska's momentous Good Friday earthquake had wreaked havoc in his Seaside, Oregon, neighborhood. It was, as far as anyone knew, the Pacific Northwest coast's first-ever tsunami.



More than twenty years passed before geologists discovered that it was neither Seaside's first nor worst tsunami. In fact, massive tsunamis strike the Pacific coast every few hundred years, triggered not by distant temblors but by huge quakes less than one hundred miles off the Northwest coast. Not until the late 1990s would scientists use evidence like tree rings and centuries-old warehouse records from Japan to fix the date, hour, and magnitude of the Pacific Northwest coast's last megathrust earthquake: 9 p.m., January 26, 1700, magnitude 9.0—one of the largest quakes the world has known. When the next one strikes—this year or hundreds of years from now—the tsunami it generates is likely to be the most devastating natural disaster in the history of the United States.

In The Next Tsunami, Bonnie Henderson shares the stories of scientists like meteorologist Alfred Wegener, who formulated his theory of continental drift while gazing at ice floes calving from Greenland glaciers, and geologist Brian Atwater, who paddled his dented aluminum canoe up muddy coastal streams looking for layers of peat sandwiched among sand and silt. The story begins and ends with Tom Horning, who grew up to be a geologist and return to his family home at the mouth of the river in Seaside—arguably the Northwest community with the most to lose from what scientist Atwater predicts will be an "apocalyptic" disaster. No one in Seaside understands earthquake and tsunami science—and the politics and complicated psychology of living in a tsunami zone—better than Horning

View synopsis and purchase book at OSU Press: http://osupress.oregonstate.edu/book/next-tsunami

TSUNAMIS & TECHNOLOGY

How a smartphone app helps ensure tsunami warnings

By Erin Cassidy, AccuWeather

On the islands of Hawaii, public officials face a unique problem in maintaining the tsunami sirens. These sirens are often vandalized and have their batteries removed, rendering them ineffective in case of an impending tsunami.

However, a re-purposed app from the non-profit organization Code for America provided an opportunity to utilize technology to solve a simple, but crucial, problem.

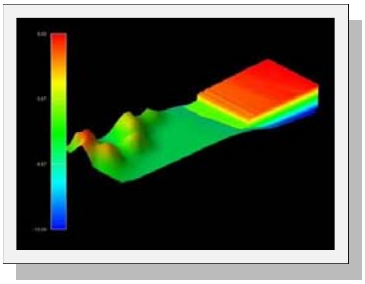
Code For America is a non-profit organization that offers year-long fellowships to talented programmers and visionaries to provide services to overhaul the outdated and overburdened local governments.

The original app named Adopt-a-Hydrant was created in January of 2011 during a massive snowstorm in Boston. The Code for America fellow Erik Michaels-Ober noticed the fire hydrants were engulfed in snow, and therefore difficult for emergency services to access.

See full article: http://www.accuweather.com/en/weather-news/smartphone-app-tsunami-warning/25426378

Fujitsu and Tohoku University Develop 3D Tsunami Simulator Enabling Highly Precise Tsunami Forecasting

By Fujitsu



Fujitsu Limited today announced that, based on its joint research with Tohoku University that began in 2012, the two have developed a 3D tsunami simulator that can replicate in fine detail the surge of water in urban areas as well as river surges caused by a tsunami. The joint research succeeded in combining a 2D tsunami-propagation simulation technology developed by Professor Fumihiko Imamura, director of the International Research Institute of Disaster Science in Tohoku University with Fujitsu's 3D fluid simulation technology. As a result, the researchers were able to accurately replicate the complex changes a tsunami undergoes as it interacts with coastal topography or buildings in urban areas, as well as the process of water surges in urban areas and rivers.

See full article:

http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0414-01.html

ANU researchers gain greater insight into speed, source of tsunamis

By Megan Gorrey, The Sydney Morning Herald

Researchers at the Australian National University have used new data to tweak tsunami simulation models and provide more accurate information about the timing and shape of the deadly giant waves.

Australian National University

Phil Cummins and Sebastien Allgeyer have used the country's biggest supercomputer, nicknamed "Raijin", at the National Computational Infrastructure centre at ANU, to investigate the scientific models used to detect and monitor tsunamis.

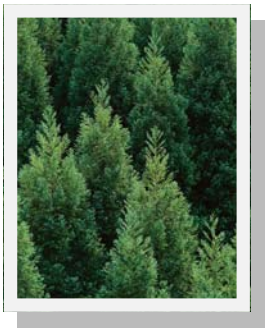
The pair used the supercomputer to simulate the giant wave that hit Chile in 2010 and the Japanese tsunami of 2011. They noticed the tsunamis travelled more slowly than the computerised models predicted.

See full article: http://tinyurl.com/kxzvbgz

COASTLINE PROTECTION

Tree species choices critical to effective coastal bioshields

By SciDev.Net



[Thiruvananthapuram, India] Injudicious site and species selection while planting 'bioshields' — plantations that protect coastlines against natural disasters — could be ecologically damaging in the long term, a study warns.

Catastrophic cyclones and a devastating tsunami over the last decade have prompted the planting of bioshields, but whether they actually work to protect the coastline remains unanswered, the study published online in February in Acta Oecologica says.

Bioshields range from pristine ecosystems of mangroves to plantations of such species as Casuarina equisetifolia or 'whistling pine'. After the Indian Ocean tsunami in December 2004, governments across South Asia launched large-scale planting of bioshields as part of coastal restoration efforts.

Nibedita Mukherjee and colleagues from Université libre de Bruxelles, Brussels, and the Centre for Ecological Sciences, Indian Institute of Science, Bangalore, surveyed coastal districts in the southern Indian states of Andhra Pradesh, Tamil Nadu and Kerala and interviewed key persons involved in formulating the bioshield policy and implementing it.

See full article: http://www.scidev.net/global/environment/news/tree-species-choices-critical-to-effective-coastal-bioshields-1.html

Cheaper, better tsunami protection

By R.J. Bathurst and Y. Miyata, Research Matters (Ontario Universities)

An enduring and fruitful international collaboration was initiated in 2005 when Professor Yoshihisha Miyata from the Department of Civil and Environmental Engineering at the Japanese National Defense Academy (JNDA) spent a sabbatical year at the Royal Military College of Canada (RMCC) with Professor Richard J. Bathurst in the Department of Civil Engineering. The two scholars have visited each other in their home institutions each year ever since. In 2010 Professor Bathurst was the recipient of a prestigious JSP Fellowship from the Japanese Government to collaborate in Japan with Professor Miyata.

Their work has been principally in the area of the development of earthquake resistant reinforced soil wall design and analysis methodologies. These structures are similar to conventional earth retaining walls except the soil behind the walls is reinforced with metallic strips, bars or anchors, or using advanced high-performance polymer (plastic) sheets. In addition to being earthquake resistant these systems have been shown to cost about 50% of conventional solutions.

A unique feature of their work has been the gathering of performance data from full-scale instrumented retaining walls constructed at the Public Works Research Center in Japan and at the Full-Scale Retaining Wall Test Facility at RMCC. These are the only two dedicated laboratories in the world that can carry out this type of research.

The two researchers received the Gold Medal of the International Geosynthetics Society in 2010 for their collaborative work. In addition, they have received four awards from technical societies in Japan and one award from the Canadian Geotechnical society.

View full article: http://yourontarioresearch.ca/2014/05/cheaper-better-tsunami-protection/