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**TSUNAMI 2004**

(Dedicated to the memory of the victims and survivors)

Written by Daphne Marion Bankien, Auckland, Email : [adrianaedel@yahoo.co.nz](mailto:adrianaedel@yahoo.co.nz)

The shores were peaceful, with a festive mood  
 There seemed no worry or care.  
 The folks all asleep that morning  
 Their future the next day unaware.

It came from the sea with a rage unknown  
 And hit on many a shore.  
 The Tsunami on a rampage  
 There was a struggle for life like never before.

“Tsunami! Tsunami!” they shouted aloud.  
 In terror and fear they ran.  
 But the strength of the wave like a mountain rose,  
 And covered the shores of the land.

Some stood dumbfounded as it swept them away  
 While some in fear tried to hide.  
 It gathered them all in its cold watery arms  
 And took them away with the tide.

Some struggled in vain to battle the waves  
 As it tossed them like tumbling weeds.  
 In violence it flushed out many that hid  
 To their cries it paid no heed.

Disaster had struck without a warning  
 The face of the land it had changed.  
 They cried for help with out-stretched arms  
 In the waves they had struggled in vain.

It had no face no feature or plan  
 No mind or heart to show.  
 But it shook the seas, rode the tides  
 And took back ten thousand and more.

Is it the hand of God or nature’s wrath  
 Or was it just natures way.  
 The sorrow and pain it had left behind  
 Will live for many a day.

They walked the streets in a vision of death.  
 Destruction scattered around  
 Could fate have been so violently cruel  
 Their unspoken grief profound.

There is still a wail of heartache and pain  
 While some are the living lost.  
 No way in life, no ray of hope  
 Their loved ones have paid the cost.

Will someone help to wipe their tears  
 Can anyone ease their pain.  
 Will anyone stretch a helping hand  
 To the path of hope again. ♦



# *TsuInfo Alert*

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Participants in the TsuInfo program can request copies of reports listed in this issue from:

Washington Geology Library  
Washington Department of Natural Resources  
Division of Geology and Earth Resources  
1111 Washington Street SE, MS 47007  
Olympia, WA 98504-7007  
360/902-1473; fax: 360/902-1785  
e-mail: [lee.walkling@wadnr.gov](mailto:lee.walkling@wadnr.gov)

**Back issues** are available at <http://www.dnr.wa.gov/geology/tsuinfo/>

The views expressed herein are those of the authors and not necessarily those of  
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*TsuInfo Alert*.



WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**  
**Doug Sutherland** - Commissioner of Public Lands



## **Building Community Partnerships**

By Inés Pearce (ines.pearce@seattle.gov)

Seattle Emergency Management

From: Natural Hazards Observer, v. 30, no. 2, p. 20-21.

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When it comes to emergency management, community partnerships, also known as public-private partnerships, are vital. Every community is made up of a number of potential partners: government, businesses, nonprofit organizations, the general public, and more. No one group is equipped to protect a community from disaster. Although government has the primary responsibility for protecting its citizens, there is competition for funds, and reducing disaster risks is one of many issues fighting for survival. While money can most certainly help a community minimize its risk, efforts can be enhanced by bringing other resources to bear to devise local solutions. This is where partnerships come into play. By working together, partners can better address community-wide safety needs.

### **Background**

Over the last four years, much of our government has been focused on terrorism, and communities have started to fall behind in addressing their natural hazards. An understandable national shift of attention and funds after September 11, 2001, unfortunately swung the pendulum from all-hazards planning to a single hazard focus. Prior to that fateful day, emergency management leaders were well on the way to increasing America's disaster resilience. But that momentum changed and local governments saw themselves directing staff and resources toward the new trends and the promise of money.

Following the multiple hurricanes in Florida and the Gulf states, attention seems to be shifting back to natural disaster risks. The problem is that decisions about programs and funding for natural events are probably a long way off. In the wake of Hurricane Katrina, there is much to be discussed and considered at the federal level, yet urgency exists to make improvements, and those of us on the front lines of local emergency management can't wait. In fact, any delay makes us more vulnerable to the possibility of a disaster, whether it is the result of a hurricane, earthquake, flooding, tornadoes, landslides, or some other hazard. We should act now by building on the current interest in participation from organizations and individuals in our own cities and towns.

### **Where Does a Community Start?**

A community partnership may be initiated by either the public or private sector. Either way, the emergency management office is a good place to start as it is typically in contact with organizations in the community, both public and private, and is already responsible for coordinating disaster mitigation, preparation, response, and recovery in their jurisdiction.

There are many organizations interested in collaborating with local emergency management, especially in the wake of Katrina. Nevertheless, the window of opportunity and interest may only be open for a short time, so we must act quickly. It is best to begin with those organizations that have expressed interest and build from there.

### **Misconceptions Must Be Overcome**

A public-private partnership can be a tremendous asset in addressing local and even regional risks. When building these relationships, it must be understood that there are some misconceptions held about each side of the partnership that could hinder progress. If these get addressed in the beginning stages and are stressed with new partners, the early development of the partnership will be much easier.

#### **Government's Take on the Private Sector**

**Myth:** The private sector will be a "cash cow," funding large and long-term projects.

**Reality:** Businesses fund a variety of projects each year, but their contributions are small and one-time only.

**Myth:** Money is the most important contribution.

**Reality:** While money is important, the most valuable resources the private sector can provide are expertise, services, and contacts, both internally and externally. Their time is key.

**Myth:** Businesses have a clear understanding of government's roles, as well as their own, in a disaster.

**Reality:** The general public and many businesses don't really understand the role of government and its limitations. Additionally, businesses don't see the important role they can play in the response and recovery of their community. This reality has changed following Hurricane Katrina as more people and businesses are becoming aware of the interrelatedness of the multitude of players in their communities.

#### **The Private Sector's Take on Government**

**Myth:** The public sector isn't interested in the needs of business.

**Reality:** Government understands the need for the business community to participate and represent their

own needs in policy making. Without input from the business community, government may make ill-informed decisions and important issues may get pushed to the side.

Myth: Government has its disaster bases covered.

Reality: Government is expected to have their bases covered in response, but less so in mitigation, preparedness, and recovery. Since the private sector spends more time on predisaster planning, it is a good resource for government to turn to for addressing a community's predisaster needs.

Myth: Federal assistance will be available to assist businesses when something happens.

Reality: While money will be available, businesses will have to meet certain criteria to receive it (and won't be enough to put things back the way they were). This myth has been the reason why some businesses don't take action to prepare. Needless to say, it isn't enough of a safety net to justify inaction.

Once they can get past these misconceptions, the public and private sectors can begin moving forward on developing partnerships. Of great benefit to communities are these new relationships, the two-way communication that is fostered, and the resulting long-term disaster reduction programs.

#### A Personal Perspective

My personal experience with public-private partnerships comes from directing Seattle Project Impact, a Federal Emergency Management Agency (FEMA) initiative that provided seed money to local communities, specifically geared toward mitigation, to try to break the disaster-repair-disaster cycle. In Seattle, we took the federal model a step further by building long-term, sustainable programs that could be first institutionalized and then exported to other cities, counties, states, or countries with similar needs. In turn, we have benefited from other communities sharing their ideas and experiences with us. We strongly believe in sharing information so as to avoid recreating the wheel.

In Seattle, we take a broader approach to defining the public-private partnership that incorporates the entire community. Our partners include local, state, and federal government; small and large businesses; academicians; scientists; neighborhood organizations; volunteer groups; researchers; educators; media; and many others. Everyone has an equal say; all are respected. There's always room for new partners to bring unique perspectives, and by not limiting participation, new ideas are inspired.

Beginning in 1997, our partnership created four mitigation programs that are still going strong today: Hazard Mapping, Regional Home Retrofit, School Retrofit, and Disaster Resistant Businesses. Hazard Mapping has become the foundation upon which all the other programs are built. If people don't understand the risk, they will see no value in mitigation. Hazard Mapping partners have been instrumental in providing us with the most current information about our local risks. We use this information as the basis for public education, which includes resources and information provided by partners on how residents can best protect themselves (e.g., retro-fitting).

We have learned a lot about our hazards in the last eight years. This information has facilitated, and will continue to do so, better decision making by planners, elected officials, and members of the business community. Our partners from the U.S. Geological Survey and the University of Washington, private consultants, GIS staff, hazard researchers, and other scientists have helped us build the case for action.

#### Conclusion

By sharing the responsibility of a community's all-hazards preparedness, community partnerships have become the key to successful emergency management programs. Government will never have enough resources or money to mitigate alone, but businesses and other members of a community can become more involved and make a difference. Every level and individual in a community is ultimately responsible for their community's resilience, first by taking care of themselves and their family, then by participating in taking their community to the next level of readiness. Many hands can move the immovable, and since we're in this together, let's begin building our community legacy today.

#### Internet Resources:

<http://www.seattle.gov/projectimpact/>

Seattle Project Impact

[http://www.seattle.gov/emergency\\_mgt/](http://www.seattle.gov/emergency_mgt/)

Seattle Emergency Management ♦

#### **DVD provides reality check for buyers of Oregon's coastal property**

Coastal resource managers know that the nation's shoreline is ever changing, which can put homes on eroding beaches and bluffs at risk. But many people purchasing coastal property may not know this, and the severe erosion caused by a winter coastal storm can come as a shock.

"We often hear from people who bought oceanfront property in the summer and had no idea of

the kinds of environmental forces and dynamics that would be impacting their site," says Steve Williams, coastal shores specialist for the Oregon Coastal Management Program.

"Winter comes along and they get elevated sea level rise during a storm with horrendous wind and rain, and the sand gets scoured off the beach, causing erosion problems or sand inundation or flooding."

"After hearing this story time and time again," the Oregon Coastal Management Program partnered with Oregon Sea Grant to create a DVD video that would "grab people's attention and help people take an interest in coastal hazards," Williams says.

*Living on the Edge, Building and Buying Property on the Oregon Coast* is intended to influence the behavior of prospective coastal property buyers and builders by giving them a "reality check" on the unique risks that come with developing along the ocean shore, and explaining the steps that should be taken to avoid problems, such as required due diligence and contacting a geologist.

The 25-minute DVD features dramatic video of coastal storms and erosion, as well as interviews with scientific experts, engineers, state and local planners, a mortgage banker, and a realtor. Four 10-minute featurettes go into more detail on coastal hazards and the resources homeowners and builders can tap into.

"The main thing we are trying to do is to educate people on the right questions to ask," Williams says.

While earthquakes and tsunamis are discussed, the primary focus of the DVD is on coastal erosion, accretion, and flooding. Oregon Sea Grant, Williams notes, had experience creating informational videos, which helped ensure the DVD was professionally done and cost-effective. "Sea Grant did basically all the editing and filming and we provided a grant to help fund it."

Released in October 2005, **the DVD is being distributed by the coastal program at no cost to local government planning departments, boards of realtors, homebuilder associations, and chambers of commerce** [emphasis added]. They are also using it as a training tool for local elected and appointed officials.

"We're targeting those people who are really involved in the sale and development of coastal property," says Williams. He notes that one city planner is making watching the video a prerequisite for applicants to receive a permit.

Sea Grant is selling the DVD for \$9.95 and is helping to promote the video by distributing press releases and advertising on its Web site. *Living on the Edge* also is available on VHS with subtitles for the hearing impaired.

"This is a really good tool for giving people an overview of coastal hazards," Williams says. "People moving to the coast often don't have any idea of what to expect. It's important to educate them and help them make the right decision."

To purchase the *Living on the Edge* DVD, point your browser to <http://seagrant.oregonstate.edu/sgpsubs/>. For more information on the DVD, contact Steve Williams at (541) 563-5324, or [Steve.Williams@state.or.us](mailto:Steve.Williams@state.or.us) From: Coastal Services, v. 9, no. 1, p. 7 <http://www.csc.noaa.gov/magazine/>

[NOTE: If you want to preview this DVD, contact Lee Walkling (see page 2).] ♦

#### **Natural disaster game educates museum visitors** By Liu Weifeng (China Daily)

Sporting four-dimensional glasses and a firmly fastened seatbelt, Ma Xiaozhou experienced torrential rain and gale-force winds and had no idea whether he was being shaken by an earthquake or submerged by a tsunami.

It proved to be both. What Ma experienced was a "dangerous" but harmless game, which allows you to get a taste of natural disasters via a high-tech movie.

"My hands are sweating because I tightened my grip while I was watching the movie," Ma said excitedly. Ma was among the first group of visitors to flock to Haidian Public Safety Museum, the first of its kind in China, which opened yesterday (June 2005). Visitors expecting a conventional museum are in for a shock.

"They come for the close contact with various simulated accidents, risks and disasters, which illustrate a vivid on-scene threat to raise people's safety awareness," said Yan Xinmin, director of the museum. The safety exhibition is divided into eight subdivisions to show people how to properly respond to emergencies like fires, floods, workplace hazards, natural disasters and public health threats.

The body of a car, bent out of shape after being crushed, is displayed at the eye-catching entrance of the centre. Beside the car reads the sombre reminder that one in five of the world's road deaths happens in China. China ranked No. 1 in traffic deaths in each of the past 10 years. About 107,000 people died in traffic accidents in the country last year.

Visitors will be taught basic first aid and survival skills at the museum, Yan added. Training in shouting from beneath rubble as well as survival skills needed during a tsunami, earthquake and dangers sparked by thunder and lightning, inflammable chemicals and torrential rain is available at the museum. Scientific education is also included, as well as a tour through a model of a human body and a demonstration of ways to wash your hands to prevent contagious diseases. Knot tying is also taught, in case you ever need to mount a daring escape and all you have at hand is a length of rope.

"It's so wonderful and comprehensive It fills the need for the general public to be equipped with the necessary self-rescue knowledge," said Chen Yan, head of a 15-member group visiting the museum. As part of an emergency rescue team for an electric utility, Chen and his colleagues know all about electricity-related accidents.

"For those working in high-risk industries, a visit to the museum is especially urgent," Chen said. Currently, the museum prefers to receive group visitors rather than individuals. Sponsored by the Haidian district government, the construction of the museum cost 20 million yuan (US \$2.4 million), and took three months to build.

From: China Daily 06/17/2005 page3  
[http://www.chinadaily.com.cn/english/doc/2005-06/17/content\\_452253.htm](http://www.chinadaily.com.cn/english/doc/2005-06/17/content_452253.htm) ♦

### **Governor requests AHAB funding**

From: Emergency Responder, Nov-Dec. 2005, p. 2  
Reprinted with permission

Washington's coastal counties could obtain an additional 10 All Hazard Alert Broadcasting (AHAB) systems under Gov. Christine Gregoire's proposed 2006 supplemental budget that was announced Dec. 20.

The governor's budget would allocate \$500,000 to the AHAB systems which would be assigned to Pacific, Grays Harbor, Jefferson and

Clallam counties. A primary role of the AHAB systems would be to provide tsunami alerts and warnings to coastal residents and visitors.

Her proposal would double the number of AHAB stations planned for Washington's coast by a federal appropriation approved in November.

"When it comes to emergency preparedness, it's not all about money. It's about how well are you organized? How ready?" Gregoire said. AHAB stations, which can be powered by battery, wind or solar energy, can be utilized by local, state or federal agencies to emit a voice message or tone alert.

The supplemental budget appropriation "represents a major commitment by Gov. Gregoire to improve our tsunami alert and warning system," said Jim Mullen, Emergency Management Division director.

Shortcomings in Washington's alert and warning systems were highlighted by many coastal county residents after a tsunami warning following an earthquake off the northern California coast last June failed to reach many communities.

The governor's supplemental budget also allocated \$400,000 to upgrade the University of Washington's Pacific Northwest Seismic Network. The proposal would expand the University of Washington's capability to provide a real-time map of ground shaking from an earthquake to better direct life safety response and to more precisely estimate earthquake damages and impacts. The updated technology at the UW will boost research into developing tools that might give us an early warning of an earthquake to help us better protect people and critical infrastructure.

Gregoire's budget proposal also call for:

- \* \$500,000 to the State Interoperability Executive Committee to help emergency crews across the state to communicate with each other more effectively.
- \* \$275,000 from the general fund and \$1.2 million from other state accounts for a data center in Eastern Washington that would back up law enforcement and transportation information in the event of an earthquake or other major disaster in the western part of the state.
- \* Five new positions in the Homeland Security Section of EMD's Programs Unit. ♦

### **Fourth Annual Tsunami Story Festival**

2006 marks the fourth anniversary of the Pacific Tsunami Museum's Tsunami Story Festival. It will take place on May 7, 2006 and the theme will focus on the railroad and the role the tsunamis had in "bringing the era to an end." In correspondence to the theme, the title of the 4th Annual Tsunami Story Festival is: "The End of the Line.". Please contact the museum if you would like more information about this exciting upcoming event.

Pacific Tsunami Museum, Hilo, HI <http://www.tsunami.org/events.htm>



Pacific County received TsunamiReady and Storm Ready awards from the National Oceanic and Atmospheric Administration's National Weather Service (NWS) Dec. 13 at the county's South Bend courthouse. Ceremony participants included (1-r) John Kaino, county commissioner; Steve Todd, meteorologist in-charge, Portland NWS; Pat Hamilton, county commissioner; Sheriff John Didion; Bud Caffel, county commissioner; and Stephanie Fritts, county emergency manager. (Pacific County photo)

from: Emergency Responder, Nov-Dec. 2005, page 1  
 Reprinted with permission ♦

#### NORFOLK, VIRGINIA, FIRST EAST COAST CITY DECLARED TSUNAMIREADY

On January 24, 2006, Norfolk, Virginia, became the first major East Coast city with a well designed tsunami emergency response plan to alert residents and visitors of tsunami threats, and evacuate areas if necessary. The National Oceanic and Atmospheric Administration granted Norfolk TsunamiReady status.

"In our view, the City of Norfolk has made tremendous progress on educating its citizens about all natural disasters, from hurricanes to tornadoes and winter storm, to east coast tsunamis. This program will enable the city to apply for additional reductions in the premiums paid into the National Flood Insurance Program which could result in an additional savings of over \$100,000 for the city and local taxpayers," added Ron Keys, director of emergency preparedness for the City of Norfolk.

Norfolk was also declared a Storm Ready city.

From: <http://www.publicaffairs.noaa.gov/releases2006/jan06/noaa06-007.html>

Additional information: <http://www.noanews.noaa.gov/stories2006/s2565.htm> ♦



## NEWS

### **Natural hazard mitigation planning—Opportunities for geoscientists**

Jeffrey B. Connelly and William Jay Sims  
Geological Society of America Abstracts with Programs, v. 37, no. 7, p. 342.

The Federal Emergency Management Agency (FEMA) defines hazard mitigation as any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event. Previously, federal legislation has provided funding primarily for disaster relief and recovery. The disaster experiences of the 1990's, however, made it clear that a proactive hazard risk management approach would be more cost effective than a disaster response driven system. In 1998, FEMA created a Hazard Mitigation Planning unit to promote and support the mitigation planning process at the state and community level.

The more recent Disaster Mitigation Act of 2000 (DMA 2000, Public law 106-390) reinforces the importance of mitigation planning and requires that states and communities have a FEMA-approved hazard mitigation plan in order to receive most Stafford Act assistance. Among the many requirements for an approved plan, the part most relevant to geoscientists is the risk assessment. A complete risk assessment must include hazard identification, a hazard profile, and a vulnerability assessment.

Based on experience gained over the past several years writing hazard mitigation plans at the state and community level, it was found that many risk assessments within hazard mitigation plans are conducted with little input from geoscientists. Incomplete or inaccurate risk assessments may result in incorrectly prioritized mitigation measures or strategies and therefore wasted dollars and/or efforts. Based on their unique understanding of the processes involved in natural hazards, geoscientists should seek opportunities to be involved in hazard mitigation planning efforts. Opportunities exist as only a small number of communities nationally have approved mitigation plans. We have also found it instructive for [geoscience] students to collaborate on such planning efforts to gain an understanding not only of the natural hazards, but also of the interactions of geoscience with society.

### **Tsunami workshop gets favorable reviews**

The following excerpt is from the QDNR Newsletter (Winter 2006, v. 4, no. 1, p. 5):

“A significant event that took place in October 2005 was the Tsunami Tabletop Exercise at the Quinault Beach Resort. This exercise was coordinated through the efforts of Anne Sullivan, manager of Grays Harbor Emergency Management Department, Chief Larry Ralston, and yours truly. Participants included representatives from the National Weather Service, United States Coast Guard, Washington State Emergency Management Division, Washington State Patrol, Washington State Department of Transportation, Washington State National Guard, Washington State Department of Natural Resources, as well as County and local emergency managers. The purpose of this exercise was to bring partner agencies together to discuss coordination of a unified response to a tsunami disaster. The exercise was also designed to raise participant awareness of the Tsunami Warning Plan and County Emergency Management Plan. The objectives of this exercise included providing a low stress environment that encouraged open dialogue among all participants, information exchange, and a discussion of roles and responsibilities. In all we had over 70 participants at the Tsunami Tabletop Exercise and all were in agreement that the exercise was a success.”

By Jesus (Jesse) Cardenas, reprinted with permission



### **Alaska hazard mapping**

The Alaska Tsunami Mapping Team has published its Tsunami Hazard Maps of the Homer and Seldovia Areas, Alaska. The maps and accompanying report are available for viewing and download on the Alaska Division of Geological & Geophysical Surveys web site at [www.dggs.dnr.state.ak.us](http://www.dggs.dnr.state.ak.us). Hard copies may be ordered by contacting [dggspubs@dnr.state.ak.us](mailto:dggspubs@dnr.state.ak.us). Direct links to available Alaska tsunami inundation maps are: Kodiak at <http://www.dggs.dnr.state.ak.us/pubs/pubs?reqtype=citation&ID=2860> and Homer/Seldovia at <http://www.dggs.dnr.state.ak.us/pubs/pubs?reqtype=citation&ID=14474>

From: Rod Combellick, Alaska



## Retirement



*Barbara Thurman of Washington State Emergency Management accepts 2004 Award of Excellence.*

Barbara Thurman, Washington EMD public education specialist, retired Sept. 27, 2005. Her work won many other awards, and she will be missed.

## PUBLICATIONS

*The Australian Journal of Emergency Management*, v. 20, no. 4 (November 2005) featured articles about volunteers and the work they do in disasters and emergency management. Available online:  
<http://www.ema.gov.au/agd/ema/emainternet.nsf/Page/RWP1A9004DEDED7E452CA256F4E007F92EB#current>.

*2005 Complete Guide to the Asian Tsunami Disaster* (Progressive Management, 2005, 1 CD, \$20). This is NOT a government publication. It is a compilation of reports and websites by governmental agencies gathered by Progressive Management, about whom I could find no information. All the material can be found elsewhere, online, free. ISBN 1-59248-397-6.

## WEBSITES

[http://www.csc.noaa.gov/rva\\_tools/](http://www.csc.noaa.gov/rva_tools/)

Through risk and vulnerability assessments, local and state officials can determine the impacts of coastal hazards on natural resources, people, and property. Assessment results are used to develop, prioritize, and utilize mitigation strategies. This web site provides information about all facets of risk and vulnerability

assessments and includes interactive mapping, techniques and applications, and a customizable, one-day training course for coastal managers.

From: Coastal Services, v. 9, no. 1, p. 1

[http://www.csc.noaa.gov/t\\_hat/](http://www.csc.noaa.gov/t_hat/)

T-HAT is an Internet mapping tool developed for Tutuila Island in American Samoa. Users can locate their area of interest and determine the potential risk for natural hazards such as floods, landslides, earthquakes, and tsunamis. The tool was created to help the island prepare for and mitigate the negative effects of these events. As long as relevant data are available, the model developed for T-HAT can be used for other Pacific islands.

From: Coastal Services, v. 9, no. 1, p. 1

[http://www.bom.gov.au/oceanography/tsunami/at\\_as\\_feature.shtml](http://www.bom.gov.au/oceanography/tsunami/at_as_feature.shtml)

[http://www.bom.gov.au/nmoc/oceanography/ATA\\_S.shtml](http://www.bom.gov.au/nmoc/oceanography/ATA_S.shtml)

Submitted by Wayne Johnston

[http://news.yahoo.com/s/nm/20051031/od\\_nm/malibu\\_dc;\\_ylt=Atl28a0drJMsOo\\_r3RDic03tiBIF;\\_ylu=X3oDMTA5aHJvMDdwBHNIYwN5bmNhdA](http://news.yahoo.com/s/nm/20051031/od_nm/malibu_dc;_ylt=Atl28a0drJMsOo_r3RDic03tiBIF;_ylu=X3oDMTA5aHJvMDdwBHNIYwN5bmNhdA)

Need a giggle? This is a press release about L.A.'s Malibu Colony and the tsunami safety brochures they received last year.

Submitted by Wayne Johnston

<http://www.ema.gov.au/library>

The EMA library is a national resource which, through its collection and various services, promotes and supports the Australian emergency management community. This includes course participants, researchers, government departments and where possible, members of tertiary institutions and the general public.

The EMA collection is unique in Australia because it covers the spectrum of emergency topics ranging from natural hazards to terrorism to technological hazards. Moreover, information exchange agreements with a number of disaster research establishments in the UK, USA, Canada, Japan and New Zealand, ensure receipt of materials that would otherwise be unavailable in Australia. The collection comprises: books, reports, journals, videos, emergency management plans, and cd-roms.

[http://www.bom.gov.au/nmoc/oceanography/ATA\\_S.shtml](http://www.bom.gov.au/nmoc/oceanography/ATA_S.shtml)

Australian tsunami alert system. ♦

## Added to the NTHMP Library

January – February 2006

Note: These, and all our tsunami materials, are included in the online (searchable) catalog at <http://www.dnr.wa.gov/geology/washbib.htm>. Type 'tsunamis' in the Subject field to get a full listing of all the tsunami reports and maps in the collection.

Adger, W. Neil; Hughes, Terry P.; Folke, Carl; Carpenter, Stephen R.; Rockstrom, Johan, 2005, Social-ecological resilience to coastal disasters: *Science*, v. 309, no. 5737, p. 1036-1039.

Allenby, Brad; Fink, Jonathan, 2005, Toward inherently secure and resilient societies: *Science*, v. 309, no. 5737, p. 1034-1036.

Applegate, David, 2005, Natural hazards--A year of living dangerously: *Geotimes*, v. 50, no. 12, p. 19-21.

Atwater, Brian F.; Musumi-Rokkaku, Satoko; Satake, Kenji; Tsuji, Yoshinobu; Ueda, Kazue; Yamaguchi, David K., 2005, The orphan tsunami of 1700--Japanese clues to a parent earthquake in North America: University of Washington Press and U.S. Geological Survey Professional Paper 1707, 133 p.

Borrero, Jose C., 2005 Field data and satellite imagery of tsunami effects in Banda Aceh: *Science*, v. 308, no. 5728, p. 1596.

Dengler, Lori A., 2005, The 2004 Indonesian earthquake and tsunami--Mitigation implications for Cascadia [abstract]: *Geological Society of America Abstracts with Programs*, v. 37, no. 7, p. 93.

Fisher, Michael A.; Normark, William R.; Greene, H. Gary; Lee, Homa J.; Sliter, Ray W., 2005, Geology and tsunamigenic potential of submarine landslides in Santa Barbara Channel, Southern California: *Marine Geology*, v. 224, no. 1-4, p. 1-22.

Geist, Eric L., 2005, Local tsunami hazards in the Pacific Northwest from Cascadia Subduction zone earthquakes: U.S. Geological Survey Professional Paper 1661-B, 17 p.

Gurpinar, Aybars, 2005, The importance of paleoseismology in seismic hazard studies for critical facilities: *Tectonophysics*, v. 408, no. 1-4, p. 23-28.

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### **Tsunami Glossary** (ITIC-UNESCO, 2003)

#### **M**

**Magnitude**.....a number assigned to a quantity by means of which the quantity may be compared with other quantities of the same class.

**Mareogram or marigram**.....1. Record made by a marigraph. 2. Any graphic representation of the rise and fall of the sea level, usually used to measure tides, may also show tsunamis.

**Maximum inundation**.....maximum horizontal penetration of the tsunami from the shoreline. A maximum inundation is measured for each different coast or harbor affected by the tsunami.

**Maximum run-up**.....maximum difference between the elevation at the maximum tsunami penetration (the inundation line) and sea-level at the time of the tsunami attack. A maximum run-up is measured for each different coast or harbor affected by the tsunami..

**Mean height**.....average height of a tsunami measured from the trough to the crest after removing the tidal variation.

**Mean sea level**.....the average height of the sea surface, based upon hourly observation of tide height on the open coast or in adjacent waters

which have free access to the sea. These observations are to have been made over a 'considerable' period of time. In the U.S., mean sea level is defined as the average height of the surface of the sea for all stages of the tide over a 19-year period.

**Microtsunami**.....a tsunami of such small amplitude that it must be observed instrumentally and is not detected visually. ♦

#### **STATE EMERGENCY MANAGEMENT OFFICES**

Alaska Dept of Military & Veteran Affairs  
Division of Homeland Security & Emergency Mgmt.  
PO Box 5750  
Fort Richardson, AK 99505-5750  
(907) 428-7000; toll-free 800-478-2337  
Fax (907) 428-7009  
<http://www.ak-prepared.com/>

California Office of Emergency Services  
PO Box 419047  
Rancho Cordova, CA 95741-9047  
(916) 845-8911; Fax (916) 845-8910  
<http://www.oes.ca.gov/>

Hawaii State Civil Defense, Dept. of Defense  
3949 Diamond Head Road  
Honolulu, HI 96816-4495  
(808) 734-2161; Fax (808) 733-4287  
<http://www.scd.state.hi.us>

Oregon Division of Emergency Management  
595 Cottage Street NE  
Salem, OR 97310  
(503) 378-2911, ext. 225; Fax (503) 588-1378  
<http://www.oregon.gov/osp/oem>

Washington State Military Dept.  
Emergency Management Division  
Camp Murray, WA 98430-5122  
(253) 512-7067; Fax (253) 512-7207  
<http://emd.wa.gov>

Provincial Emergency Program  
455 Boleskin Road  
Victoria, BC V8Z 1E7 Canada  
(250) 952-4913; Fax (250) 952-4888  
<http://www.pep.bc.ca/>

*updated 2-15-2005*

## NATIONAL TSUNAMI HAZARD MITIGATION PROGRAM STEERING GROUP

### NOAA

Jeff LaDouce, Chairman  
NOAA/NWS Pacific Region,  
737 Bishop St., Suite 2200  
Honolulu, HI 96813-3213  
Ph: 808-532-6416; Fax: 808-532-5569  
Jeff.Ladouce@noaa.gov

Landry Bernard, NOAA/NDBC  
Bldg 1100 Room 361C  
Stennis Space Center, MS 39529-6000  
Ph: 228-688-2490; Fax: 228-688-3153  
Landry.Bernard@noaa.gov

Eddie Bernard, NOAA/PMEL  
7600 Sand Point Way NE  
Seattle, WA 98115-6349  
Ph: 206-526-6800; Fax: 206-526-6815  
Eddie.N.Bernard@noaa.gov

Frank González, NOAA/PMEL  
7600 Sand Point Way NE  
Seattle, WA 98115-6349  
Ph: 206-526-6803; Fax: 206-526-6485  
Frank.I.Gonzalez@noaa.gov

Laura Furgione, Alaska Region Dir.  
NOAA/NWS, Alaska Region HQ  
222 W. 7<sup>th</sup> Ave. #23  
Anchorage, AK 99513-7575  
Ph: 907-271-5136; Fax: 907-271-3711  
Laura.Furgione@noaa.gov

James Partain, Alaska Region NOAA/NWS,  
222 W. 7th Ave., #23  
Anchorage, AK 99513-7575  
Ph: 907-271-5131; Fax: 907-271-3711  
James.Partain@noaa.gov

Laura Kong, ITIC  
737 Bishop St., Suite 2200  
Honolulu, HI 96813  
Ph: 808-532-6423; Fax: 808-532-5576  
Laura.Kong@noaa.gov

Brian Yanagi, ITIC  
737 Bishop St., Suite 2200  
Honolulu, HI 96813  
Ph: 808-532-6422; Fax: 808-532-5576  
Brian.Yanagi@noaa.gov

### DHS/FEMA

Chris Jonientz-Trisler, DHS/FEMA  
Region X,  
130 228th St. SW  
Bothell, WA 98021-9796  
Ph: 425-487-4645; Fax: 425-487-4613  
Chris.jonientztrisler@dhs.gov

Michael Hornick DHS/FEMA Region IX  
1111 Broadway, Suite 1200  
Oakland, CA 94607  
Ph: 510-627-7260; Fax: 510-627-7147  
michael.hornick@dhs.gov

### USGS

David Oppenheimer, USGS

345 Middlefield Rd., MS 977  
Menlo Park, CA 94025  
Ph: 650-329-4792; Fax: 650-329-4732  
oppen@usgs.gov

Craig Weaver, USGS  
c/o Geophysics  
Box 351650  
University of Washington  
Seattle, WA 98195-1650  
Ph: 206-553-0627; Fax: 206-553-8350  
craig@ess.washington.edu

### NSF

Richard Fragaszy  
The National Science Foundation  
ENG/CMS  
4201 Wilson Blvd., Room 545  
Arlington, VA 22230  
Ph: 703-292-7011; Fax: 703-292-9053  
rfragasz@nsf.gov

### Alaska

R. Scott Simmons  
Alaska Division of Homeland Security and  
Emergency Management  
P.O. Box 5750, Suite B-210, Bldg. 49000 Fort  
Richardson, AK 99505-5750  
Ph: 907-428-7016; Fax: 907-428-7009  
scott\_simmons@ak-prepared.com

Ervin Petty (Alt.), Alaska Division of  
Homeland Security and Emergency  
Management  
P.O. Box 5750, Suite B-210, Bldg. 49000  
Fort Richardson, AK 99505-5750  
Ph: 907-428-7015; Fax: 907-428-7009  
ervin\_petty@ak-prepared.com

Roger Hansen, Geophysical Institute,  
University of Alaska, P.O. Box 757320  
903 Koyukuk Dr.  
Fairbanks, AK 99775-7320  
Ph: 907-474-5533; Fax: 907-474-5618  
roger@GISEIS.alaska.edu

Rodney Combellick (Alt.)  
Alaska Dept. of Natural Resources  
Div. of Geological & Geophysical Surveys  
3354 College Road  
Fairbanks, AK 99709  
Ph: 907-451-5007; Fax: 907-451-5050  
rod@dnr.state.ak.us

### California

Richard Eisner, FAIA  
Governor's Office Of Emergency Services  
1300 Clay St., Ste. 400  
Oakland, California 94612  
Ph: 510-286-0888; Fax: 510-663-5339  
Rich\_Eisner@oes.ca.gov

Michael S. Reichle, Chief Seismologist, Dept  
of Conservation  
California Geological Survey  
801 "K" Street, MS 12-32  
Sacramento CA 95814-3530

Ph: 916-327-1813; Fax 916-322-4765  
Michael.Reichle@conservation.ca.gov

Don Hoirup, Jr., California Geological Survey,  
Dept. of Conservation  
801 K Street, MS 12-31  
Sacramento, CA 95814-3531  
Ph: 916-324-7354 ; Fax: 916-445-3334  
dhoirup@consrv.ca.gov

### Hawaii

Jeanne Johnston  
Civil Defense Division, State of Hawaii  
3949 Diamond Head Road  
Honolulu, HI 96816-4495  
Ph: 808-733-4301 ext. 552; Fax: 808-733-4287  
jjohnston@scd.hawaii.gov

Walter C. Dudley  
Civil Defense Division, State of Hawaii  
Pacific Tsunami Museum,  
200 W. Kawili St., Hilo, HI 96720  
Ph.: 808-933-3905; Fax: 808974-7693  
dudley@hawaii.edu

### Oregon

Jay Wilson, Oregon Emergency Management,  
P.O. Box 14370  
Salem, OR 97309-5062  
Ph: 503-378-2911 Ext. 22237;  
Fax: 503-373-7833  
jmwilson@oem.state.or.us

George Priest, Oregon Dept. of Geology &  
Mineral Industries  
Coastal Field Office  
P.O. Box 1033  
Newport, OR 97365  
Ph: 541-574-6642; Fax: 541-265-5241  
george.priest@dogami.state.or.us

Jonathan C. Allan (Alt.) Oregon Dept.  
of Geology & Mineral Industries  
Coastal Field Office, P.O.Box 1033  
Newport, OR 97365  
Ph: 541-574-6658; Fax: 541-265-5241  
jonathan.allan@dogami.state.or.us

### Washington

George Crawford, Washington. State Military  
Dept., Emergency Management Division  
Camp Murray, WA 98430-5122  
Ph: 253-512-7067; Fax: 253-512-7207  
g.crawford@emd.wa.gov

Timothy Walsh, Division of Geology & Earth  
Resources  
P.O. Box 47007  
Olympia, WA 98504-7007  
Ph: 360-902-1432; Fax: 360-902-1785  
tim.walsh@wadnr.gov

From: <http://www.pmel.noaa.gov/tsunami-hazard/tsuhaz.htm>

Updated Jan. 31, 2006♦

## VIDEO RESERVATIONS

To reserve tsunami videos, contact *TsuInfo Alert* Video Reservations, Lee Walkling, Division of Geology and Earth Resources Library, 1111 Washington St. SE, MS 47007, Olympia, WA 98504-7007; or e-mail [lee.walkling@wadnr.gov](mailto:lee.walkling@wadnr.gov)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Protecting Our Kids from Disasters (15 min.) Gives good instructions to help parents and volunteers make effective but

low-cost, non-structural changes to child care facilities, in preparation for natural disasters. Accompanying booklet. Does NOT address problems specifically caused by tsunamis.

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

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

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

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

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

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

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

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

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

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

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. ♦

NOTE: The TsunamiReady Education CD included in the 2005 Earth Science Week kit is available for borrowing, too..

Updated Jan. 23, 2006



# Infrequently Asked Questions

## Compiled by Lee Walking

### **What was Canada's most tragic historic earthquake to date?**

“Well, probably it was the January 26, 1700 Cascadia Earthquake on the west coast, but since there is no written record or first nations peoples' records of deaths, it stands as the November 18, 1929 “Grand Banks” earthquake that created an underwater landslide on the continental slope at the mouth of the Laurentian Channel (not on the Grand Banks), which in turn caused a tsunami. The death toll was 28 persons.”

From: Ruffman, Alan; Hann, Violet, in press, The revised death toll of the twenty-eight lives lost in the November 18, 1929 tsunami that struck Newfoundland and Nova Scotia: Memorial University of Newfoundland, 34 p.

### **Have there been other large earthquakes and tsunamis in the Indian Ocean in recent history?**

“Although unprecedented in area and magnitude, the Sumatra-Andaman earthquake and the resulting tsunami have historical analogs. In the last few hours of 1881, 6 years before the development of the world's first recording seismometer, an earthquake of moment magnitude 7.9 on the Richter scale toppled chimneys in the Andaman Islands and pounded the hulls of ships coasting by the Nicobar Islands. Some 20 min after flooding the coast of Car Nicobar, the resulting tsunami ripped the paper chart from the Port Blair tide gauge; 2 hours later, it hit the coast of India. A 1-m wave elicited curiosity on the beach at Madras before curling invisibly around the southern and western coasts of Sri Lanka to be again recorded near the tip of India. Sixty years later, in June 1941, an earthquake of 7.7 near Port Blair generated a smaller tsunami, damaging forests on the west coast of the Andaman Islands but leaving no numerical record of its run-up.

Yet the violence of these Andaman Island tsunamis was paltry compared to that of those tsunamis generated by earthquakes with magnitude over 8 in 19<sup>th</sup>-century Sumatra. Earthquakes in 1833 and 1861 are estimated to have generated waves 5 to 10 m high, causing massive damage on land but dissipating their energy southward and westward into a largely empty Indian Ocean.”

From: Science, v. 308, no. 5725, p. 1126.

### **What is the new name of the International Coordination Group for the Tsunami Warning System in the Pacific (ICG.ITSU)?**

During the Twentieth Session of the ICG/ITSU-XX held in Vina del Mar, Chile in October 2005, the ICG/ITSU was renamed as the “Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS)”. The change was made to align its name with other tsunami warning and mitigation systems that are being newly established as governing bodies under the auspices of the UNESCO Intergovernmental Oceanographic Commission (IOC).

From: <http://ioc3.unesco.org/itic/> on January 23, 2006

### **Who are the current members of ICG/PTWS?**

The 28 Member States: Australia, Canada, Chile, China, Colombia, Cook Islands, Costa Rica, Democratic People's Republic of Korea, Ecuador, El Salvador, Fiji, France, Guatemala, Indonesia, Japan, Malaysia, Mexico, New Zealand, Nicaragua, Peru, Philippines, Republic of Korea, Samoa, Singapore, Thailand, the Russian Federation, United States of America and Vietnam.

Note: Malaysia joined ITSU on 12 May 2005

Note: Vietnam joined ITSU on 1 September 2005

Updated: 17.12.05 Writer: Tammy Kaitoku From: <http://ioc3.unesco.org/itic/contents.php?id=200>

## Program, Registration and Housing Information THIRD TSUNAMI SYMPOSIUM

May 23-25, 2006  
The Tsunami Society  
2525 Correa Road, Room 215, HIG  
Honolulu, Hawaii 96822 USA

The Tsunami Society is sponsoring a Tsunami Symposium to be held May 23-25, 2006 at the East-West Center on the University of Hawaii, Honolulu, Hawaii campus. The Symposium will have the following special sessions and Chairmen.

Numerical Modeling - Dr. Zygmunt Kolawik  
Tsunami Preparedness - Dr. Dan Walker  
Tsunami Instrumentation - Dr. Eddie Bernard  
Experimental Modeling - Dr. Hermann Fritz  
Landslide Generated Tsunamis - Dr. Franziska Whelan  
Hawaii and Doak Cox - Dr. Jackie Miller  
12/26/2004 Tsunami - Dr. Barbara Keating  
Risk Analysis - Dr. Robert Sewell  
General Session - Mr. George Curtis

A FIELD TRIP will be led by Dr. Charles Helsley on Friday, May 26 showing Tsunami and Storm Activity of SE Oahu, Evidence of the 1946 Tsunami, Landslides and Geology of Honolulu Series Volcanics.

The registration fee will be \$150 for Tsunami Society members, and \$300 for others. The registration fee includes the Symposium program, morning and afternoon break refreshments, lunches and one ticket to the Symposium Banquet to be held at 6:00 p.m. at the beautiful Treetops Restaurant in Paradise Park on May 24, 2006. The meeting will be held at the University of Hawaii East-West Conference Center Asian Room. Economical Waikiki tour packages including air-room-car are available from many tour agencies.

Conference participants may stay next to the East-West Conference center on the University of Hawaii campus. Rooms at Lincoln Hall with private bathrooms are available for about \$50 per night single or double occupancy. To make reservations write to East-West Center Housing Office, 1777 East-West Road, Honolulu, HI 96848, Telephone 808-944-7805, FAX 808-944-7790. You need to inform them that you are a Tsunami Symposium participant.

For additional information contact the Tsunami Society President and Symposium Chairman, Dr. Barbara Keating 808-956-8143, e-mail Keating@soest.hawaii.edu. or the Program Chairman, Dr. Charles Mader, at 808-396-9855, e-mail MCCOHI@aol.com.

Please send abstracts of papers to be presented by February 1, 2006 and complete papers for publication in a Special Tsunami Symposium Issue of the Science of Tsunami Hazards by April 1, 2006 to Dr. Charles Mader, 1049 Kamehame Drive, Honolulu, HI 96825-2860. Abstracts and Papers may be sent by e-mail to MCCOHI@aol.com. The format for the abstracts will be the same as for the Second Tsunami Symposium Abstracts on the [www.sthjournal.org/program.pdf](http://www.sthjournal.org/program.pdf) site.

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### Tsunami Symposium Registration

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

E-MAIL \_\_\_\_\_

Registration Fee \$150. Member \_\_\_\_\_

or \$300. Non-Member \_\_\_\_\_

Banquet - 5/24/2006 \$ 20 per guest \_\_\_\_\_

Make check to "The Tsunami Society" TOTAL \$ \_\_\_\_\_

E-Mail registration without check to MCCOHI@aol.com or mail registration with check to The Tsunami Society, 2525 Correa Road, Room 215, HIG, Honolulu, HI 96822, USA.