



# TsuInfo Alert

prepared on behalf of the

**National Tsunami Hazard Mitigation Program**

by the Washington Department of Natural Resources

## Contents

Volume 1, Number 11, November 1999

Tsunami Program News.....	1
Stormweb Emergency Information System.....	5
New Tsunami Mitigation Materials .....	6
Book Reviews.....	7
Directories .....	8
Infrequently Asked Questions .....	9
New Program Participants.....	9
Order form.....	11

## Tsunami Program News

### Tsunami Forums Are Scheduled For Pacific and Grays Harbor Counties

Informational forums will be held at four sites in Pacific and Grays Harbor Counties, Washington to preview the revised local tsunami evacuation routes. The meeting dates and locations are:

- Nov. 15, Long Beach - Hilltop Elementary Auditorium
- Nov. 16, South Beach - Ocosta School Commons
- Nov. 17, Interior Harbor - Nordic Inn Convention Center
- Nov. 18, North Beach - Ocean Shores Convention Center

The forums will begin at 6:30 pm.. Invited speakers include: Dr. Eddie Bernard, Director of NOAA/Pacific Marine Environmental Laboratory; Timothy Walsh, Geologist, WA State DNR; scientists who have studied past tsunamis, and representatives from federal agencies (the West Coast Alaska Tsunami Warning Center, the Federal Emergency Management Agency and the National Weather Service Seattle and Portland). State and Local officials will be on hand to discuss local efforts for mapping, evacuation, warning and planning, and there will be time for questions at the end of each session.

These free forums are intended for the general public and local businesses and all are welcome.

For further information about these workshops, contact Karin Frinell-Hanrahan, Deputy Director, Grays Harbor County Department of Emergency Management, at (360) 249-3911, [kfh@co.grays-harbor.wa.us](mailto:kfh@co.grays-harbor.wa.us), or Stephanie Fritts, Director, Pacific County Emergency Management Agency, at (360) 875-9340.

### Public Affairs Strategy: National Tsunami Hazard Mitigation Program

The Public Affairs Strategy "document provides guidance to increase awareness and support of the Tsunami Hazard Mitigation Implementation Plan through media education and offers suggestions for outreach opportunities."

Its goals include 1) educating constituents about tsunami research and programs in order to generate support and a greater awareness of preparedness; 2) describing the role and operations of the agencies and institutions involved in tsunami mitigation; 3) describing the components of the Tsunami Hazard Implementation Plan, including Federal/State coordination efforts, tsunami inundation maps, deployment of deep ocean buoys, and seismic station network expansion and improvement; and 4) building public recognition and understanding of the new standardized Tsunami Zone and Evacuation signs and the existence of local inundation maps.

The National Tsunami Hazard Mitigation Program Public Affairs Strategy is online at <http://www.pmel.noaa.gov/tsunami-hazard/pastrat.html>.

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from: <http://www.pmel.noaa.gov/tsunami-hazard/pawglist.html>

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(continued, p. 3)

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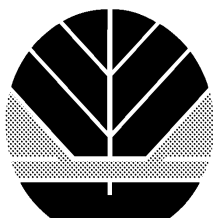
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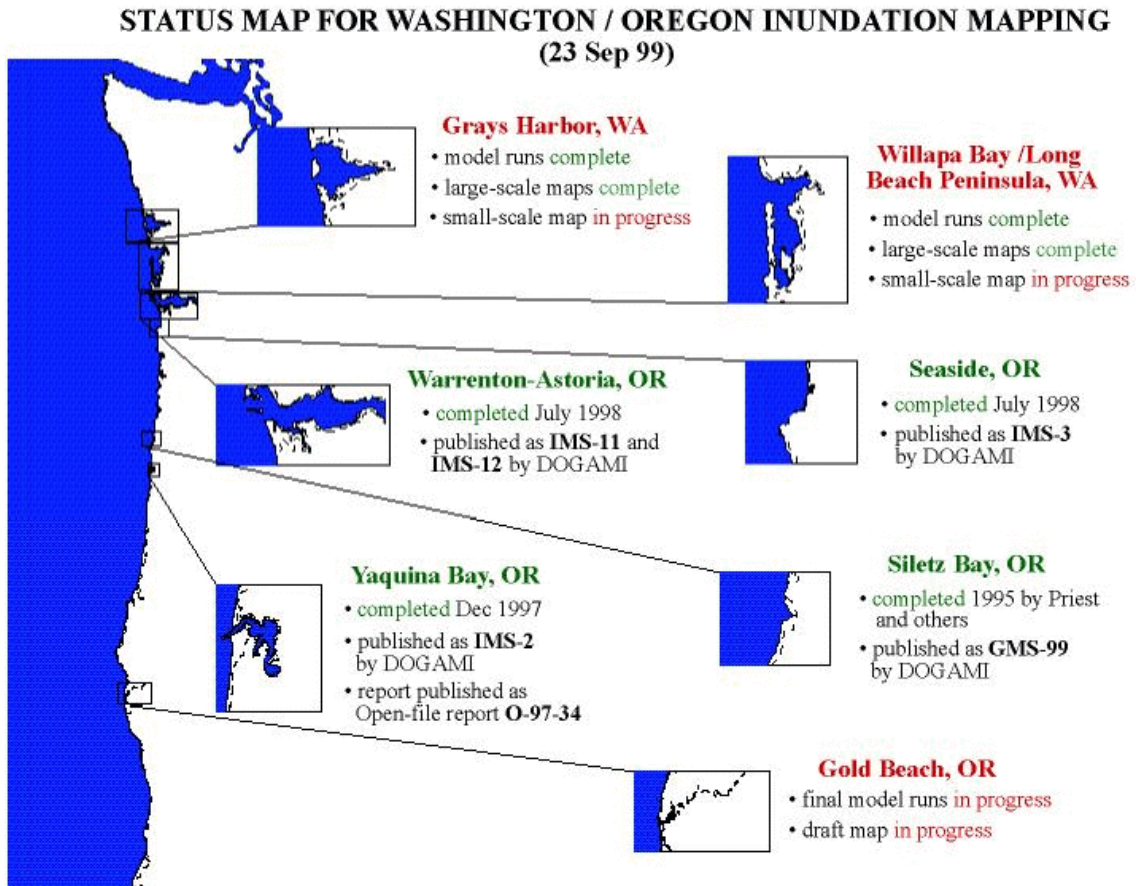
### **Alert Your Local Media**

<http://www.fema.gov/media>

FEMA has unveiled a new Web page to assist the press in covering the agency and in gathering information for disaster-related news stories. The media section includes the latest advisories, breaking news, and disaster archives. It also provides downloadable, high-resolution photos and graphics, audio spots, biographies, speeches, background information and fact sheets, and a listing of FEMA public affairs officers. In addition, reporters can enroll in a list-serve to receive FEMA press releases via e-mail.

(from *Disaster Research*, October 22, 1999)

**Figure:** Status map for the Washington/Oregon inundation mapping.  
from: <http://newport.pmel.noaa.gov/time/status.htm>.



**Stormweb Emergency Information System:  
Emergency Information for Coastal Washington and the Olympic Peninsula**  
(from: <http://www.stormweb.com/>)

Since 1996, the Stormweb Emergency Information System has provided realtime disaster reports and emergency information to the residents of Coastal Washington and the Olympic Peninsula. Under normal circumstances, Stormweb provides links to surface and marine weather, PNW satellite and Doppler radars, road conditions, tides, rivers and more. Stormweb also offers a broad database of disaster preparedness information and a comprehensive library for the researcher. (10-21-99, the library and database were temporarily offline.) When potential emergency conditions begin to develop, Stormweb operates at a heightened level behind the scenes. Conditions are monitored around the clock and sent out to Stormweb subscribers via email when warranted. Watches are posted online when they are issued. As emergency conditions progress from watch to warning status, Stormweb shifts to 24 hour realtime reporting for the duration of the event. Information is gathered, sorted and posted from local agencies including Emergency Management, Fire and Rescue Services, Public Safety, Environmental Health, Schools, Utilities, HAZMAT and Emergency Medical Services. Local information is then combined with information from a variety of online sources from the WSDOT, NWS, NEIC, USGS, WCATWC, USACE, TAMU and UW to help bring the most comprehensive realtime emergency reports possible to the internet community.

For a tutorial on how the system operates, Stormweb invites you to read the Site Primer. There you will find information on navigation, scheduled update times, abbreviations, archives, system notes and much more.

Lastly, Stormweb offers a unique advisory system called STORMWEB\_ALERT. This system provides emergency bulletins, preparedness education information and periodic newsletters via electronic mail, 24 hours a day - at no cost. If you use your email on a frequent basis, if you commute, if you are interested in training opportunities and emergency road closures etc, this system is for you. The website allows you to subscribe to the STORMWEB\_ALERTS online."

From the *Site Primer* page:  
<http://www.stormweb.com/primer.html>

"...Stormweb has a three sided mission. It simultaneously caters to the information and education needs of the private citizen as well as the specialized needs of the emergency services professional while effectively bridging the gap between the two.

Completing the EIS triangle is the Stormweb R.A.I.N. project. The Restricted Access Information Networks were developed and launched in late 1998. Stormweb RAIN is a series of password protected areas that include, among other things, a set of electronic bulletin boards designed exclusively for the use of emergency service professionals. Information exchange between agencies and individuals, across jurisdictions, around the state, country and even the world became possible via web conferencing in a relatively secure environment."

From the *Sponsors* page:  
<http://www.stormweb.com/sponsor.html>

"The Stormweb site and email alert systems are funded in part by money generated through private contributions and website construction projects for participating agencies and sympathetic businesses. This method allows us to keep the website free access for the public and also free of advertising." (A list of sponsors is included, indicating the type of support.)

## New Tsunami Mitigation Materials, October, 1999

compiled by

Connie J. Manson

**Note: Free reprints of these materials are available. (See order form, p. 11)**

### British Columbia

1. Adams, John; Halchuk, Stephen; Basham, P. W.; Weichert, D. H., 1996, Trial seismic hazard maps of Canada--1995; Final values for selected Canadian cities: Geological Survey of Canada Open File 3283, 97 p.

### California

2. Ritter, J. W.; Dupre, W. R., 1972, Map showing areas of potential inundation by tsunamis in the San Francisco Bay region, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-480, 2 sheets, scale 1:125,000.

### Papua New Guinea

3. Reed, Christina, 1999, Tsunami earthquakes find common ground: *Geotimes*, v. 44, no. 10, p. 8-10.

### Oregon

4. Priest, G. R.; and others, 1999, Tsunami hazard map of the Astoria area, Clatsop County, Oregon: Oregon Department of Geology and Mineral Industries Interpretive Map Series IMS-11, 1 sheet, scale 1:24,000, with 4 p. text.

5. Priest, G. R.; and others, 1999, Tsunami hazard map of the Warrenton area, Clatsop County, Oregon: Oregon

Department of Geology and Mineral Industries Interpretive Map Series IMS-12, 1 sheet, scale 1:24,000, with 5 p. text.

6. Wang, Yumei; Clark, J. L., 1999, HAZus earthquake risk assessment for Oregon [abstract]: *Geological Society of America Abstracts with Programs*, v. 31, no. 7, p. A-198.

### Cascadia subduction zone

7. Hyndman, R. D.; Yamano, M.; Oleskevich, D. A., 1997, The seismogenic zone of subduction thrust faults: *The Island Arc*, v. 6, no. 3, p. 244-260.

8. McNeill, L. C., 1999, Structure and seismic hazards of the offshore Cascadia forearc and evolution of the Neogene forearc basin [abstract]: *Dissertation Abstracts International*, v. 59, no. 12, Section B, p. 6235-B.

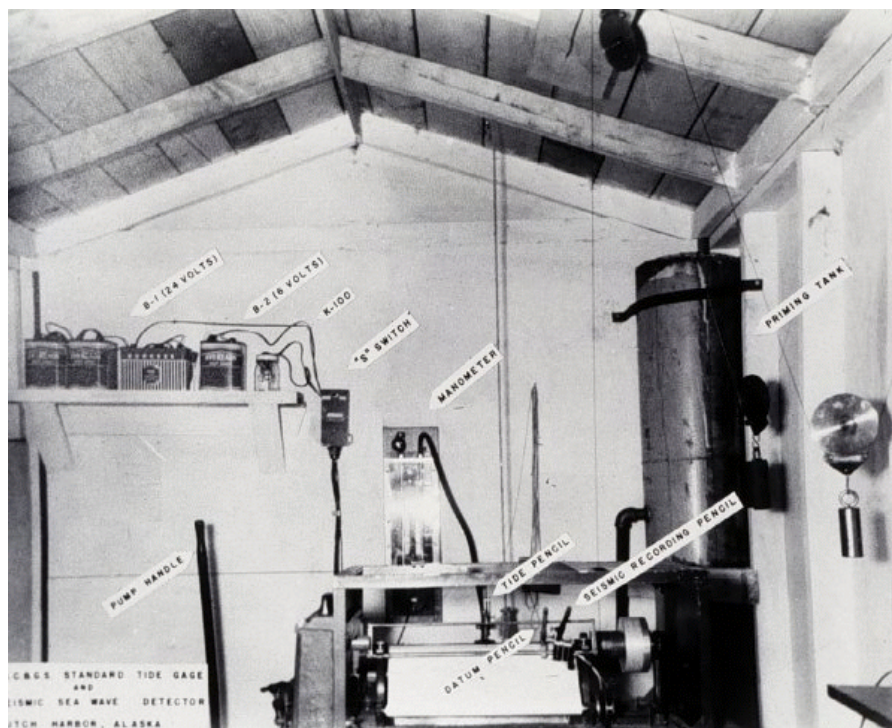
### Washington

9. Laane, J. L.; Chen, W.-P., 1989, The Makran earthquake of 1983 April 18--A possible analogue to the Puget Sound earthquake of 1965?: *Geophysical Journal International*, v. 98, no. 1, p. 1-9.

**Figure:** 1949 photo of the tsunami warning station at Dutch Harbor, Alaska.

credit: C&GS Season's Report Knox 1949-127.

from: [http://www.photolib.noaa.gov/lb\\_images/history/c&gs/theb2706.htm](http://www.photolib.noaa.gov/lb_images/history/c&gs/theb2706.htm)



## BOOK REVIEWS

by  
Lee Walkling

***Disaster Debris Management***, by Gabriela Y. Solis, Henry C. Hightower, Jim Sussez, and June Kawaguchi, 1996, Emergency Preparedness Canada, 28 p.

Major disasters damage structures and create massive amounts of debris that can interfere with transportation, cause safety problems and hinder rescue work. This paper deals with post-disaster debris management options, including the allocation of responsibilities, policy definition and implementation, worker and public safety, communications, collection, transportation, disposal, hazardous waste, environmental concerns, reuse and recycling, and program administration. The report concludes with an extensive bibliography.

As stated in the Introduction, "Major disasters during the last decade have raised questions regarding response delays and significant environmental impacts due to the debris generated. Medical care, transportation of victims or relief teams, fire fighting, provision of shelter, food, clothing, and water supplies were all delayed due to transportation difficulties as a result of debris-blocked roads.

"The amount of debris generated by some disasters was equivalent in volume to years, if not decades, of normal solid waste production in the affected jurisdictions. Thus, landfill capacities were overwhelmed; roads were damaged by trucks hauling debris; dust produced by clearance operations annoyed the population for several months; tons of waste were burned; and some disposal sites were established without adequate environmental consideration (including the disposal of hazardous wastes). The financial and environmental costs were devastating. Debris management was not considered a serious issue, relative to the emergency plans regarding people's safety and well-being. The lesson learned is that, in order to protect people, planning should be based on a systems approach, whereby every component is functional in itself and is coordinated into a cohesive working response."

**FREE** paper copies are available from Emergency Preparedness Canada, 122 Bank Street, 2nd Floor, Jackson Building, Ottawa, Ontario, Canada K1A 0W6, and may also be downloaded from: [http://www.epc-pcc.gc.ca/pub/manuals/en\\_debris.html](http://www.epc-pcc.gc.ca/pub/manuals/en_debris.html)

***The Role of the Wildlife Rehabilitator in Disaster Preparedness and Response***, by Stephen Dickstein and Guy R. Hodges, 1997: FEMA, 14 pp. (Full text online at <http://www.fema.gov/home/fema/iwrcpap.htm>)

As stated in the paper's Abstract, "Natural disasters, technological accidents, and other crisis situations can have a devastating impact on wildlife. Much as the human victims of disaster are in need of assistance, so too must many wild animals rely on human intervention for their

survival. While wild animals are commonly left to fend for themselves, a helping hand could make the difference between life and death.

This paper will discuss the role of the licensed wildlife rehabilitator in the disaster preparedness and response network. The authors will explore:

- 1) The current framework of the disaster response network as it applies to animals...
  - 2) The potential impediments which wildlife can pose for disaster or relief workers
  - 3) The impact of disasters on wild animals and their behavioral response to their predicament
  - 4) How the wildlife rehabilitator fits into the capture, medical care and temporary sheltering of wildlife
  - 5) Mechanisms through which the wildlife rehabilitator can provide advisories or practical tips to the public..."
- A bibliography of sources is included.

***Animal Management in Disasters***, by Sebastian E. Heath, 1999: Mosby-Year Book, Inc., 330 p.

This book "is the first textbook on veterinary care and treatment of animals before, during, and after a disaster. Heath wrote this book to educate those who care for animals about the broad range of issues they face in all four phases of emergency management: mitigation, preparedness, response, and recovery. He describes the history of veterinary disaster management, discusses common myths and inappropriate assumptions regarding disasters and animals, describes the types of hazards that exist in the U.S., and asserts that the principal goal of animal care professionals should be to reduce the occurrence and impact of common, local disasters so that they are better prepared for catastrophic events. In his section on business, Heath emphasizes that all disaster preparedness starts at the local level and that animal-related businesses must be prepared for any contingency. His section on the "Structure of Emergency Management" discusses the authority under which the animal care and emergency management professions operate, their relevant expertise, and their typical resources; in this section, he proposes a "Veterinary Incident Management System." The section on disaster relief covers the management of disaster relief and some of the common obstacles faced by veterinary disaster responders. In subsequent sections, Heath also discusses typical problems that arise for different types of animals, food safety, and international issues. Appendices contain extensive contact information and lists of resources, sample memoranda of understanding, model emergency operations plans, a glossary of emergency management terms, a summary of relevant state laws, and other useful tools."

---March 1999, *Natural Hazards Observer*, p. 20.

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## *Infrequently Asked Questions*

compiled by  
*Lee Walkling*

### ***Where are the most tsunamis generated?***

*The distribution of tsunami generation around the world is:*

*Japan region, 29%*

*South Pacific, 18%*

*South America, 9%*

*Taiwan, Philippines, Ryukyu Islands region, 11% Kuril  
Islands and Kamchatka, 11%*

*Mexico and Central America, 7%*

*Alaska and Aleutian Islands, 6%*

*Indonesia, 6%*

*West Coasts of Canada and the United States, 2% Hawaii, 2%*

*from: <http://www.shoa.cl/oceano/itic/commpplan.html>*

### ***Who said, "Mitigation is the vaccination against the tsunami hazard?"***

*That's the last sentence in Eddie Bernard's 1999 article "Tsunami," in *Natural Disaster Management* (edited by Jon Ingleton, Tudor Rose, 1999) on page 60. As you all know, he is the Director of the Pacific Marine Environmental Laboratory (NOAA) in Seattle, WA.*

### ***What is a seiche? And how do you pronounce it???***

*According to a dictionary, a seiche (s~ysh) is an oscillation of the surface of a lake or landlocked sea. "...that varies in period, depending on the physical dimensions of the basin, from a few minutes to several hours, and in height from several centimeters to a few meters; that is initiated chiefly by local changes in atmospheric pressure, aided by winds, tidal currents, and small earthquakes," adds The Glossary of Geology.*

*This phenomenon is closely related to tsunamis but is a standing wave rather than a traveling wave. It is the "sloshing" as with water in a basin; these have periods depending on the length and depth of the water," clarifies the *Tsunamis Affecting the West Coast of the United States, 1806-1992* (Lander, James F.; Lockridge, Patricia A.; Kozuch, Michael J., 1993: U.S. National Geophysical Data Center Key to Geophysical Records Documentation 29, p. 2.)*

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A few **FREE** copies of *Guide For All-hazard Emergency Operation Planning*, FEMA, 1996, State and Local Guide (SLG) 10 are available from the Washington Division of Geology and Earth Resources. (See page 2 of this issue for ordering instructions.)

### **National Geophysical Data Center**

"The Solid Earth Geophysics Division of the National Geophysical Data Center (NGDC) continues to acquire, process, and analyze technical data that are useful in natural hazards risk assessment. Many of these data are now searchable on the Web including the geologic hazards photographs, significant earthquake data, earthquake intensity data, the earthquake strong motion inventory, and tsunami data (<http://www.ngdc.noaa.gov/seg/hazard/hazards.shtml>). The on-line version of the Natural Hazards Data Resources Directory has been updated. The Directory includes information on over 250 organizations that provide data and information on Geological Hazards, Meteorological Hazards, and Societal Response. The Directory also contains an extensive appendix that lists over 500 state, federal, and other hazard-related organizations.

NGDC developed and released an on-line "Natural Hazards Quiz." The quiz presents multiple-choice questions on all types of natural hazards. The questions range in difficulty and include historic, mitigation, and scientific information. The work on the Quiz and the Directory was done with funding from the Institute for Business and Home Safety."

The Institute for Business & Home Safety (IBHS) is an initiative of the insurance industry to reduce deaths, injuries, property damage, economic losses and human suffering caused by natural disasters. (<http://www.ibhs.org>)

(from *Earthquake Quarterly*, Summer 1999, p. 4)

### **Oops!**

A correction for folks in Washington. Copies of *Surviving a tsunami--Lessons from Chile, Hawaii, and Japan*, by Brian Atwater (and others) are only available from the Washington Division of Geology and Earth Resources (see page 2 for ordering instructions).

**ORDER FORM**  
**TsuInfo Alert, v. 1, no. 11, November 1999**

**Requests for articles (listed this issue, p. 6)**

- \_\_\_ 1. Adams, John; Halchuk, Stephen; Basham, P. W.; Weichert, D. H., 1996, Trial seismic hazard maps of Canada--1995; Final values for selected Canadian cities: Geological Survey of Canada Open File 3283, 97 p.
- \_\_\_ 2. Ritter, J. W.; Dupre, W. R., 1972, Map showing areas of potential inundation by tsunamis in the San Francisco Bay region, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-480, 2 sheets, scale 1:125,000.
- \_\_\_ 3. Reed, Christina, 1999, Tsunami earthquakes find common ground: *Geotimes*, v. 44, no. 10, p. 8-10.
- \_\_\_ 4. Priest, G. R.; and others, 1999, Tsunami hazard map of the Astoria area, Clatsop County, Oregon: Oregon Department of Geology and Mineral Industries Interpretive Map Series IMS-11, 1 sheet, scale 1:24,000, with 4 p. text.
- \_\_\_ 5. Priest, G. R.; and others, 1999, Tsunami hazard map of the Warrenton area, Clatsop County, Oregon: Oregon Department of Geology and Mineral Industries Interpretive Map Series IMS-12, 1 sheet, scale 1:24,000, with 5 p. text.
- \_\_\_ 6. Wang, Yumei; Clark, J. L., 1999, HAZus earthquake risk assessment for Oregon [abstract]: *Geological Society of America Abstracts with Programs*, v. 31, no. 7, p. A-198.
- \_\_\_ 7. Hyndman, R. D.; Yamano, M.; Oleskevich, D. A., 1997, The seismogenic zone of subduction thrust faults: *The Island Arc*, v. 6, no. 3, p. 244-260.
- \_\_\_ 8. McNeill, L. C., 1999, Structure and seismic hazards of the offshore Cascadia forearc and evolution of the Neogene forearc basin [abstract]: *Dissertation Abstracts International*, v. 59, no. 12, Section B, p. 6235-B.
- \_\_\_ 9. Laane, J. L.; Chen, W.-P., 1989, The Makran earthquake of 1983 April 18--A possible analogue to the Puget Sound earthquake of 1965?: *Geophysical Journal International*, v. 98, no. 1, p. 1-9.

**Video reservations (listed in the October 1999 issue, p. 6)**

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|--|---|
| ___ Adventures of Disaster Dudes                               | ___ The Restless Planet                 |
| ___ The Alaska Earthquake, 1964                                | ___ Tsunami and Earthquake Video        |
| ___ Cannon Beach Fire District Community Warning System (Cows) | ___ Tsunami: Surviving the Killer Waves |
| ___ Disasters Are Preventable                                  | ___ Understanding Volcanic Hazards      |
| ___ Killer Wave: Power of the Tsunami                          | ___ The Wave: a Japanese Folktale       |
| ___ The Prediction Problem                                     | ___ Waves of Destruction                |

Check the title(s) you would like and indicate the date of your program. The video(s) will be mailed one week before the program date. You will be responsible for return postage.

Program date: \_\_\_\_\_

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