

Natural Hazards Observer

VOLUME XXIII, NUMBER 4, March 1999

Table of Contents

an invited comment

[Modeling Cities: The Los Alamos Urban Security Initiative](#)

[Re-examining Natural Hazards in the U.S.](#)

The Three Centers, Part 2

[The Pacific Earthquake Engineering Research \(PEER\) Center](#)

[World Bank Announces New Disaster Management Facility](#)

[Introducing the Asian Pacific Disaster Management Center](#)

On the Line

[WEBEX: A Successful Experiment in Emergency Management](#)

[Open GIS Addresses Disaster Management](#)

[Researchers Correct Suicide Study](#)

[Washington Update](#)

- **[FEMA Formalizes Emergency Management Policy with Native American Governments](#)**
- **[FEMA Will Launch Pilot Mapping Program](#)**

[From the Hazards Center Web Site](#)

[The Internet Page\(s\)](#)

[Additional Y2K Resources](#)

[Conferences and Training](#)

[From FEMA/EMI](#)

[IDNDR Wrapping Up the Decade](#)

[Seismic Rehabilitation Guidelines and Maps Available On-Line](#)

[UC Extension Offers Internet Emergency Management Course](#)

[Help Wanted: Interns Sought for the Natural Hazards Project, OAS](#)

[A National Plan for Wind Hazard Mitigation? AAWE Seeks Your Thoughts](#)

[Wind Hazard Mitigation Consortium Developing](#)

[Seeking Lightning Authors](#)

[Contracts and Grants](#)

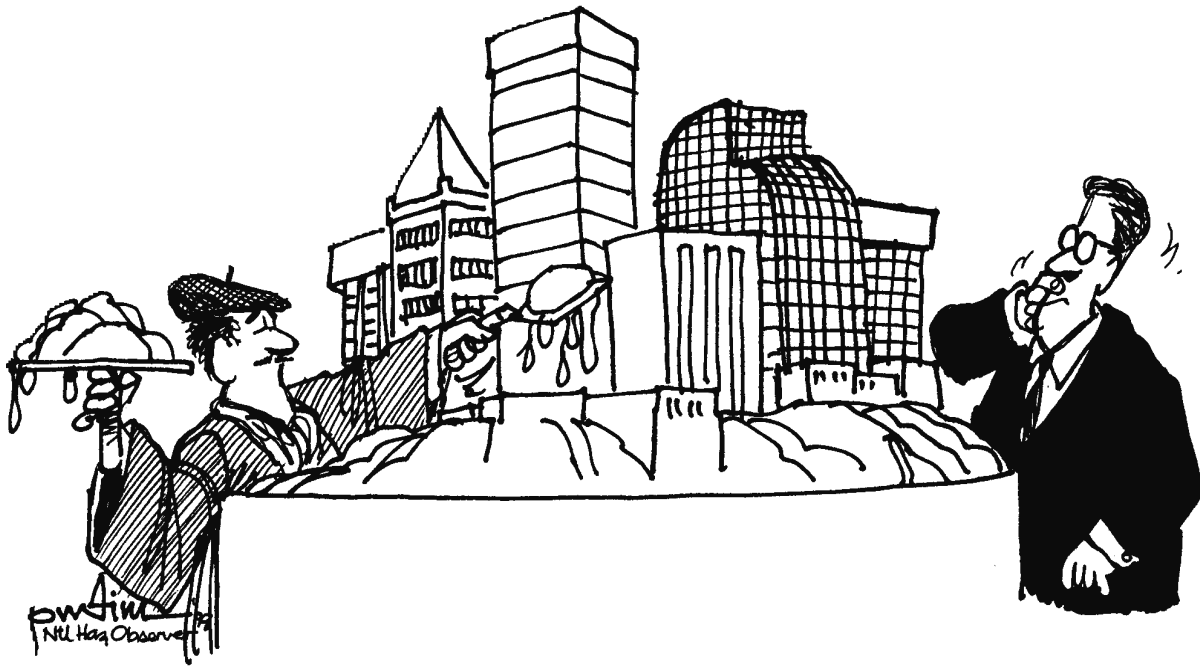
[USWRP Seeking Research Proposals](#)

[EENET Plans Regular Wednesday Programs for 1999](#)

[Recent Publications](#)

[Introducing *Risk Management Journal*](#)

[Who We Are](#)



Modeling Cities: The Los Alamos Urban Security Initiative

--an invited comment

All cities, regardless of size, have a unique set of problems related to security, local economy, energy and water distribution systems, other infrastructure, transportation, and the environment. A comprehensive understanding of how a city works can provide the means to better evaluate vulnerabilities related to natural hazards, such as earthquakes or hurricanes, or to human-caused terrorist attacks. For cities to be safe and sustainable, we must implement long-range urban planning and risk assessment tools and not rely on reactive decision making. The tools must be based on an accurate assessment of the inter-relationships among the many complex processes that occur in an urban environment.

When a disaster strikes a city, the consequences are complicated and far-reaching. As our cities continue to grow and modernize, they become major societal junctures where separate infrastructure elements depend strongly upon each other to function effectively. For example, when a major earthquake strikes Los Angeles, there will be immediate and obvious consequences, such as downed freeway overpasses, that will complicate emergency response and the economic activity of the city and slow the repair of damaged electrical substations and transmission lines. Since traffic flow on surface streets (now the preferred routes because of the damaged freeways) depends highly on electrical power for traffic lights, the electrical problems feed back into the transportation problems. Mitigation of these and other complex feedback processes demands an integrated approach in which natural processes and a range of infrastructure processes are examined together. The Urban Security Project at Los Alamos National Laboratory is building such an approach.

The Urban Security Initiative begins with computer simulations and geographic information systems

(GIS). A distributed computing architecture is being developed that allows users to conduct computer simulations of a broad range of natural and infrastructure processes. While the simulations of various processes may run on a variety of computers (ranging from supercomputers to desktop personal computers), the computers can talk to each other through the single interface developed by the initiative. Similarly, users need only interact with the single interface. GIS provides initial and boundary conditions for simulations based on real data and received simulation output so that real data and simulations can be compared in a common format. In addition, GIS is used to compare different simulations as data are passed from one process to another (e.g., earthquake ground motion to freeway vulnerability).

This approach is moving the Urban Security team toward several goals--one of which is to prepare libraries of simulated disaster scenarios. These libraries can then be used to help in planning and training before a disaster happens. A second goal is to use the simulation tools rapidly during a disaster, in order to maximize the effectiveness of emergency response.

The Los Alamos Urban Security Team includes environmental engineers, geologists, software designers, natural hazard specialists, mathematicians, hydrologists, civil engineers, atmospheric scientists, chemists, GIS specialists, and transportation experts who work in collaboration with urban planners and environmental scientists from academia and the government.

The First Two Years

The overall project goal is to establish links among models of all subsystems that make up a city. For the last two years, the project has been dedicated to five areas:

- **Urban air and water transport pathways.** In order to follow pollutants through the air and water, we are linking cross-disciplinary subsystem models, tailored for urban applications, and writing interface modules. We are focusing on the transport and fate of nitrates because 1) they track through both air and water pathways; 2) the physics, chemistry, and biology of the complete cycle are not well understood; 3) nitrates have important health, local ecosystem, and global climate implications; and 4) the problem requires us to stretch our capabilities in nontraditional areas, including several relating to urban infrastructure and security. Currently, we are simulating the fate of nitrates in the Los Angeles basin, from their production by nitrate-precursors such as auto emissions and industrial processes, to their dispersion and chemical evolution as they are transported by regional winds, and eventually deposited as wet or dry materials. We are tracing their path after rainstorms into surface water and into the stormwater system, and then into wetlands where dispersion and biologically mediated chemical reactions take place.
- **Earthquakes and urban infrastructure.** A major earthquake will damage roads and bridges, cause widespread electrical outages, break water and gas mains, and, in general, create havoc throughout a city. The potential for damage to multiple systems will complicate planning for emergency response, mitigation, and recovery. Analysis tools must include high-quality earthquake ground motion simulations, state-of-the-art damage estimations, and simulations of

damaged systems. To do this, a multilayered GIS database coupled with geophysical and engineering models must be developed. As a first step, Los Alamos, the Southern California Earthquake Center, and Los Angeles Water and Power are collaboratively analyzing the effects of major earthquakes on the electrical distribution system within the Los Angeles basin.

- **City recovery and growth.** Modeling recovery and growth after an earthquake in Los Angeles must also involve an integrated, systems approach. We are using a strategy that includes rule-sets for growth based on such parameters as land use, terrain slope, demographics, access to roadways, etc. Such urban dynamics are already being modeled in order to evaluate responses to planning decisions. We intend to incorporate these environmental process-based models as well as their interactions (between each other and with other models such as those addressing economics and demographics).
- **Airborne toxic release/traffic exposure.** Our team is linking Los Alamos-developed fluid dynamics models and traffic simulations and using them to study plume dispersion and vehicle exposure in an urban environment. As an example of their applicability, these tools could be used by emergency response crews to estimate exposures to vehicles that unwittingly drive through a poisonous cloud emanating from an overturned chemical tanker. Or, if a chemical or biological agent were released in a downtown area, they could be used to determine how the toxic agent would spread, where it would end up, and how much was transported away from the scene by moving vehicles.
- **Framework design.** In the past, modeling efforts at Los Alamos have been narrowly focused, and efforts to link existing models have been both tedious and uncommon. New advances have made a more general solution to this problem possible. The Urban Security Initiative employs a computer server and its associated database of past calculations, application servers that perform simulations and other functions such as visualization and data analysis, and client machines that provide graphical user interface. This design makes it possible to link existing and new models and simulations across multiple languages and platforms, retrieving past results, repeating and modifying past calculations, and managing large amounts of data while assuring security and confidentiality. The design is platform and language neutral, allows universal access via the Internet, supports distributed components, and allows immediate interaction with new or existing modules.

The long-term goal of the Los Alamos Urban Security Initiative is to link these five areas with models of other urban systems, creating a system of systems to be used for emergency worker training in virtual environments, emergency response, and long-term urban planning. These tools will be available at different levels of complexity for a variety of users, ranging from urban planners to civil defense officials. Our goal is to make a major leap forward in developing the tools required to strengthen cities within the U.S. and around the globe.

Grant Heiken, Los Alamos National Laboratory

For more information about this project, contact the author at *EES-1, MS F665, Los Alamos National Laboratory, Los Alamos, NM 87545; (505) 667-8477; fax: (505) 665-3687; e-mail: heiken@geology.*

[lanl.gov](http://www.lanl.gov), or access the project Web site: http://www.ees.lanl.gov/EES5/Urban_Security/.



Re-examining Natural Hazards in the U.S.

The Assessment of Research on Natural Hazards

Twenty-five years ago, geographer Gilbert F. White and sociologist J. Eugene Haas published a pioneering report on the U.S.'s ability to withstand and respond to natural disasters. At that time, research on disasters primarily involved physical science and engineering. As White and Haas pointed out in their *Assessment of Research on Natural Hazards* (1975), little attempt had been made to tap the social sciences to better understand the economic, social, and political significance of extreme natural events.

Their work attempted to fill this void and, perhaps more importantly, they advanced the critical notion that, rather than simply picking up the pieces following disasters, the U.S. could employ better planning, land-use controls, and other preventive and mitigative measures to reduce disasters' toll. The report also paved the way for an interdisciplinary approach to disaster research and management, encompassing areas such as climatology, economics, engineering, geography, geology, law, meteorology, planning, seismology, and sociology. To this day, professionals in those and other fields continue to investigate how engineering projects, warnings, land-use management, planning for response and recovery, insurance, and buildings codes can be used collectively to help individuals and groups adapt to natural hazards, as well as reduce the related deaths, injuries, costs, and social disruptions that occur.

Moving Toward a Sustainable Future

Recently, more than 100 hazards researchers revisited the work of White and Haas to reassess the state of natural hazards knowledge in the U.S. by conducting the Second U.S. Assessment of Research and

Applications for Natural Hazards (see the *Observer*, [Vol. XXIII, No. 1, p. 5](#)). Within a few weeks, every *Observer* subscriber will receive a 16-page, full color summary brochure describing the project. However, we encourage readers to get the full results of this national, broad-based research effort by ordering the soon-to-be-available full summary volume, *Disasters by Design: A Reassessment of Natural Hazards in the United States* (1999, \$47.95), by Dennis S. Mileti, from the Joseph Henry Press of the National Academy of Science.

Among many conclusions, researchers found that one of the central problems in coping with disasters has been the belief that we can use technology to control nature. Also, most strategies for coping with hazards have failed to take into account the complexity and changing nature of hazards. Moreover, events in the past 25 years have shown that natural disasters and related technological hazards are not problems that can be solved in isolation. Losses from hazards result from shortsighted and narrow conceptions of the relationship of humans to the natural environment.

To redress these shortcomings, the researchers recommend that the U.S. shift to a policy of sustainable hazard mitigation. This concept links wise management of natural resources with local economic and social resiliency. Sustainability means that a locality can tolerate--even overcome--damage, diminished productivity, and reduced quality of life caused by an extreme event without significant outside assistance. To achieve sustainability, communities must take responsibility for choosing where and how development proceeds. *Disasters by Design* outlines six objectives that must be met simultaneously to reduce losses:

- maintain and enhance environmental quality;
- maintain and enhance people's quality of life;
- foster local resiliency and responsibility;
- recognize that vibrant local economies are essential;
- ensure inter- and intragenerational equity; and
- adopt local consensus building.

Disasters by Design also advances several approaches for mitigating the effects of natural hazards, including pursuing sustainable land use, developing effective warnings, adopting engineering and building codes, furthering the use of insurance, employing new technology, promoting local consensus and capability enhancement, establishing a holistic government framework, conducting a nationwide hazard and risk assessment, building national databases, providing comprehensive education and training, measuring progress, and sharing knowledge internationally.

Prepublication orders of *Disasters by Design* are being accepted by the *National Academy Press*, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313; fax: (202) 334-2451; WWW: <http://www.nap.edu>.

Two prior publications from this project are also available from the National Academy Press. Interested persons can view and print the complete text of these documents and/or order them on-line for a 20%

discount.

- *Cooperating With Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities*, edited by Raymond J. Burby (1998, 368 pp., \$38.36); <http://www.nap.edu/readingroom/records/0309063620.html>.
 - *Paying the Price: The Status and Role of Insurance Against Natural Disasters in the United States*, edited by Howard Kunreuther and Richard J. Roth Sr. (1998, 320 pp., \$38.36): <http://www.nap.edu/readingroom/records/0309063612.html>.
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The Three Centers, Part 2 . . .

The Pacific Earthquake Engineering Research (PEER) Center

The Pacific Earthquake Engineering Research (PEER) Center is a consortium of universities working in partnership with business, industry, and government to reduce the risks posed by major earthquakes. PEER is one of three centers established by the National Science Foundation in October 1997¹ (see the *Observer*, [Vol. XX, No. 2, p. 9](#)). [We featured the Mid-America Earthquake (MAE) Center in the January 1999 issue of the *Observer* (see [Vol. XXIII, No. 3, p. 4](#)) and will provide information about the Multidisciplinary Center for Earthquake Engineering Research (MCEER) in our next issue.] PEER brings together researchers and facilities from the western states of Alaska, Washington, Oregon, Hawaii, Nevada, Utah, and California. The center is headquartered at the University of California-Berkeley.

Research Program

PEER has developed a Performance-Based Earthquake Engineering Framework to guide its multidisciplinary research. This framework, supported by multiple research projects, combines hazard assessment with performance descriptions to produce reliability-based design and rehabilitation methods. Assessment of cost-effectiveness and implementation potential combines socioeconomic analysis with seismological, geotechnical, structural, and materials engineering models, concepts, and techniques.



One PEER effort is to examine the overall impacts of transportation system failures--including effects on emergency response, traffic patterns, and the economy--in the aftermath of a quake. Researchers from Stanford and the University of Southern California will determine how a region will recover economically when key transportation links are knocked out of service for days, months, or even years. The goal is to develop better software tools and analytical models for transportation planning and response in earthquake-prone urban areas. This will be PEER's first demonstration project, and it will involve a detailed, three-year study of San Francisco's roads, bridges, ports, railways, and airports.

Education Program

The aim of the PEER education program is to increase young students' knowledge about the effects of earthquakes in urban regions and to stimulate their interest in earthquake engineering; PEER's K-12-14 Public Education Program is tailored for teachers, students, and the general public. PEER also administers an undergraduate summer intern program, an earthquake engineering undergraduate scholars course, and earthquake engineering graduate fellowships. Additionally, continuing education is available through workshops and training courses for practicing engineers and other professionals.

Business and Industry Partnership Program

PEER is working with business and industry partners to define projects relevant to the objectives of both PEER and the industry. In this program, focused seminars with one or more partners and center researchers are used to establish a preliminary scope of a project. PEER helps partners to assess risk management decisions, develop and verify new hardware and construction techniques, and devise new analysis and design approaches that can be used to preserve structures and inventories in major earthquakes. As suggested above, a principal mission of PEER is to develop performance-based engineering approaches that allow owners to specify their desired performance objectives.

Publications

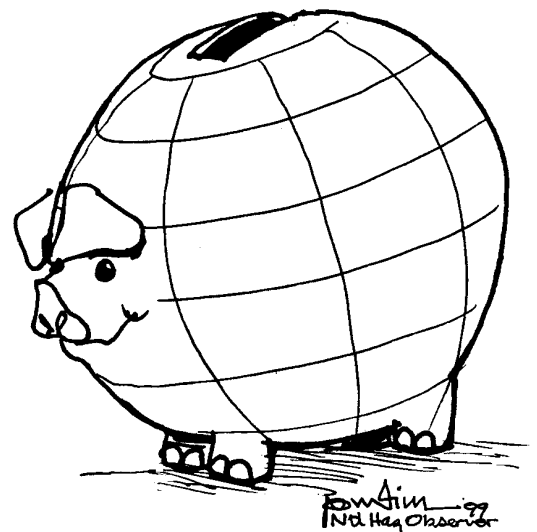
PEER publishes technical reports, quarterly newsletters, and related Web pages (<http://peer.berkeley.edu/>). Recent reports include:

- **PEER-98/04 Pacific Earthquake Engineering Research Invitational Workshop Proceedings: May 14-15, 1998: Defining the Links Between Planning, Policy Analysis, Economics and Earthquake Engineering**, by M. Comerio and P. Gordon.
- **PEER-98/05 Rocking Response and Overturning of Equipment Under Horizontal Pulse-Type Motions**, by N. Makris and Y. Roussos.
- **PEER-98/07 Empirical Evaluation of Inertial Soil-Structure Interaction Effects**, by J.P. Stewart, R.B. Seed, and G.L. Fenves.

For further information about any of these activities, contact the *Pacific Earthquake Engineering Research Center*, 1301 South 46th Street, Richmond, CA 94804-4698; (510) 231-9554; peer_ctr@eerc.berkeley.edu; WWW: <http://peer.berkeley.edu>.

World Bank Announces New Disaster Management Facility

The mission of the World Bank is to reduce poverty and improve living standards through sustainable growth and investment in people, and believes that to do this, disaster prevention and mitigation must become integral parts of development planning. Thus, on July 13, 1998, the World Bank created the Disaster Management Facility (DMF) to provide operation support, promote capacity building, and establish partnerships with both the international and scientific communities to work on disaster issues.



Specifically, the DMF will promote:

- the management of risk vulnerability in member countries and the reduction of vulnerability in the World Bank portfolio;
- sustainable projects and initiatives that incorporate effective prevention and mitigation;
- the inclusion of risk analysis and disaster prevention in World Bank operations, analyses, and country assistance strategies;
- training in disaster prevention, mitigation, and response; and
- policy, institutional, and physical interventions to reduce catastrophic losses from natural disasters through structural and nonstructural measures, community involvement, and

partnerships with the private sector.

Among the strategies and measures the DMF will use to accomplish these goals are market incentives for mitigation investment, support to both member countries and other World Bank departments involved in risk reduction activities, review of the World Bank's disaster assistance portfolio to determine lessons for future investments, review of the World Bank policy on emergency assistance, identification and dissemination of model practices, creation of a DMF Web site, and training.

For further information on the DMF and its activities, contact *Alcira Kreimer, Disaster Management Facility, World Bank, Room F4K-282, 1818 H Street, N.W., Washington, DC 20433; (202) 473-3205; fax: (202) 522-3224; e-mail: akreimer@worldbank.org; or Margaret Arnold; (202) 473-1378; e-mail: marnold@worldbank.org.*

Introducing the Asian Pacific Disaster Management Centre

Natural events in the Asia-Pacific region--such as the recent El Niño-related crises and their direct impacts on economies, food security, agricultural production, water, sanitation, the environment, and health--have demonstrated the urgent need for strengthening national and regional capabilities for disaster prevention, mitigation, preparedness, response, and recovery. Recently established in the Philippines as an independent, nonprofit, regional resource center, the Asian Pacific Disaster Management Centre (APDMC) is a direct response to this need. It provides disaster and risk management services to both the public and private sectors, and serves communities of the region by providing technical assistance, emergency planning and analysis, risk management consultation, training, research, education, information, and other support to deal with both natural and human-caused disasters. For more information, contact *APDMC, P.O. Box 1005, Makati Central Post Office, 1250 Makati City, Philippines; fax: (632) 826-0389; e-mail: apdmc@nsclub.net; WWW: <http://165.220.12.166/apdmc>.*

Editors' note: The new Asian Pacific Disaster Management Centre (APDMC) should not be confused with the previously existing Asian Disaster Management Center (ADPC) in Bangkok. The two are separate initiatives.

APDMC Courses

The APDMC recently announced some of its international training courses for 1999:

- *Risk Management Course for Managers of Disaster Rehabilitation Programs. Makati City, Philippines: October 4-8, 1999.*
- *Risk Management of Industrial and Technological Hazards (ISO 14001 Principles). Makati City, Philippines: March 22-26 and November 8-12, 1999.*

- *Local- and Community-Level Disaster Risk Management. Tagaytay City, Philippines: May 17-28, 1999; Dhaka, Bangladesh: November 15-26, 1999.*
- *Executive Development Program for Risk and Disaster Managers. Makati City, Philippines: July 1999.*

For more information or registration materials, contact *Sanny Jegillos, APDMC, P.O. Box 1005, Makati Central Post Office, 1250 Makati City, Philippines; tel/fax: (632) 826-0389; mobile phone: (63) 0915-806-4850; e-mail: sannyj@nsclub.net or apdmc@nsclub.net.*

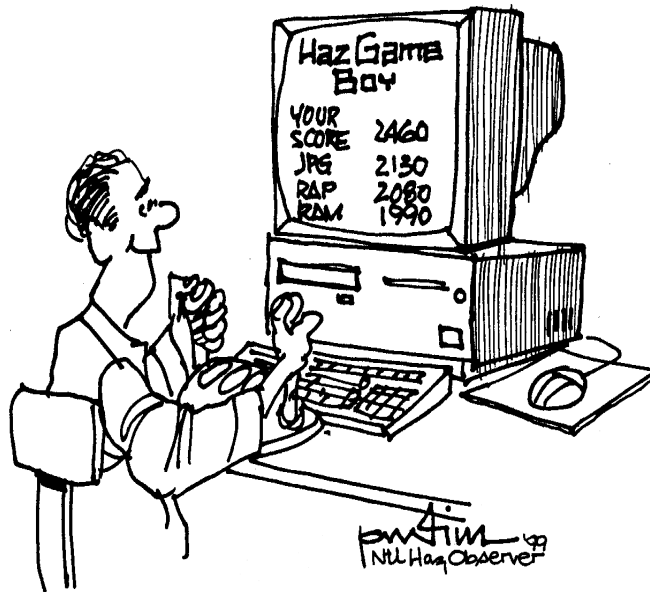
On the Line

WEBEX: A Successful Experiment in Emergency Management

WEBEX was a recent experiment in the use of Internet live chat technology to conduct an on-line exercise in emergency management. The effort was an experiment to determine whether it is possible to conduct an exercise with a wide variety of players who have little or no live chat experience. The results were extremely positive.

The WEBEX experiment took place during the November 1998 Virtual Fire and Rescue Exposition (VFRE), an on-line conference hosted by *National Fire & Rescue Magazine*, with an audience of fire and emergency management professionals. Almost all planning for the event took place on-line through weekly meetings using the Emergency Information Infrastructure Partnership (EIIP) chat facility.

We used a train derailment scenario involving hazardous materials and elements of terrorism (loosely adapted from a set of interactive training CD-ROMs, *Decision Making Skills for Public Officials During a Hazardous Materials Incident*); permission and supporting materials were provided by the Federal Emergency Management Agency's Emergency Management Institute (EMI) and the Preparedness, Training, and Exercises Directorate. Five separate chat rooms, representing the on-scene incident command post, staging and triage areas, an emergency operations center, and a media briefing area, were planned. Five communications officers were trained in chat techniques to facilitate communications among rooms. Potential roles were identified, and volunteer role players were recruited via various Internet media. Two practice sessions, using a different scenario, were held.



The exercise was conducted the evening of November 5th and consisted of a 30-minute pre-exercise briefing, 1½ hours of exercise play, and a 30-minute follow-up session. Seven major events were predefined, with a master controller cuing the events to the communications officers in each room, based on the progress of the exercise and the time available.

Evaluators, preassigned for each room, measured the progress of player responses against expected actions and reported exercise status to the master controller. Both event messages and expected actions were laid out in a commonly available document in spreadsheet form. Background materials were provided to the players in advance via a World Wide Web site; these included maps, planning documents, and the opening scenario with photos for the fictitious Central City incident. In addition, an exercise overview, video and audio descriptions, and a players list were provided. During the exercise, additional photos were introduced to provide visual reference and clues.

Conference attendees were invited to either observe or participate. Approximately 50 players and observers stayed throughout the event, and at least 77 were on-line at one point. Professionals from the private sector, fire services, emergency medical services, emergency management, and other local government agencies were involved.

Again, the objective was not to demonstrate technical perfection of response, but rather, to see whether the whole concept of conducting an exercise via the Internet was feasible and to learn what improvements might be made. Further, the experience was designed to be challenging and stimulating to all involved, thereby encouraging similar exercises in virtual communities.

Again, the outcome was very encouraging:

- One practice session in chat technique appeared sufficient, even for those who had never chatted previously.
- Interaction among players was highly realistic and included the usual challenges in human com-

munication.

- A planned formal debriefing was abandoned in light of the excitement generated by the exercise, and the time was used instead for participants to express their reactions. The most frequent question was, and continues to be, When are we going to do it again?

This training technique shows real promise. The Internet environment seems to have the appeal of on-line gaming while creating an interactive experience among professionals

of similar backgrounds. Using this technique in real communities or regions may also help participants understand the wide range of concerns and problems typically involved in response to a disaster or major incident. Although no follow-up event is currently planned, we expect another WEBEX or similar exercise sometime in the future and encourage other organizations to conduct experiments of their own.

For further information about this experience in on-line emergency exercising, contact *Amy Sebring*, EIIP Project Coordinator, 4121 Claudia, Corpus Christi, TX 78417; (512) 937-4177; e-mail: asebring@emforum.org; or *Avagene Moore*, EIIP Coordinator, 1017 Hayes Road, Lawrenceburg, TN 38464-4007; (931) 762-4768; e-mail: amoore@emforum.org. The complete set of exercise materials can also be found on the Internet at <http://www.emforum.org/webex>.

 [Next Page](#)

 [Return to the Index of the *Natural Hazards Observer*](#)

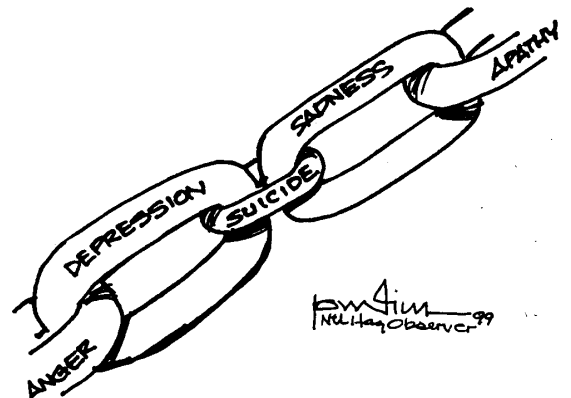
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Open GIS Addresses Disaster Management

The Open GIS Consortium (OGC) is a tax-exempt group whose mission is to promote the development and use of open standards and techniques in geoprocessing and related information technologies. OGC now includes a special interest group addressing the needs of the disaster management community for geospatial information and decision-support technology. This initiative by OGC reflects recent studies arguing that improved effectiveness in disaster management can only be achieved with better tools for the exchange and use of information. The group has recently produced a white paper that describes its mission and is currently offering for review a workplan and discussion paper regarding possible future work to address the needs of the disaster management community. These materials, contact information, and related documents are available at the group's Web site: <http://www.opengis.org/disaster/>.

The special interest group plans to meet six times this year in various locations around the globe. Through these meetings, it will solicit input from and determine geoprocessing problems and needs among the disaster management community. If necessary, the group will make recommendations regarding revisions to existing standards and possible demonstration projects to test potential solutions. Persons interested in these issues should contact *Lance McKee, Open GIS Consortium, Inc., 35 Main Street, Suite 5, Wayland, MA 01778-5037; (508) 655-5858; fax: (508) 655-2237; e-mail: lmckee@opengis.org; WWW: <http://www.opengis.org>.*

Researchers Correct Suicide Study



Natural disasters probably do not increase suicide rates after all. In a letter that appeared in the January 14, 1999, issue of the *New England Journal of Medicine* (Vol. 340, No 2), the authors of an extensive study conducted by the Centers for Disease Control and Prevention describe an error they made in counting the number of suicides that occurred in 377 U.S. counties that experienced a single disaster in

the U.S. in 1990 (see the *Observer*, [Vol. XXII, No. 5, p. 4](#)). In that research, the authors reported an increase in suicide rates after a disaster; however, following correction of a computer programming error, the new analysis showed no significant increase.

Interestingly, the researchers reported a separate analysis of suicide rates in 70 counties affected by *two* disasters. They noted that

when we compared rates before the disasters with rates in the first two years after the second disaster, we found an increase of 14.8 percent. . . This result was obtained with the use of a different set of computer programs and was not affected by the programming error.

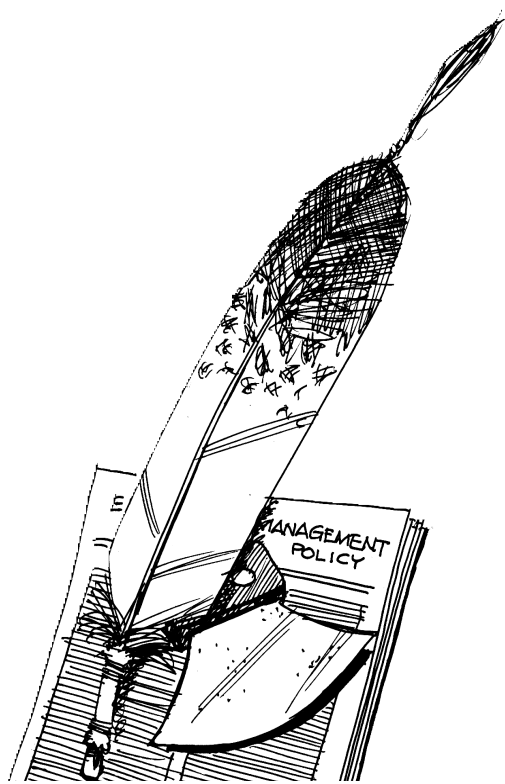
Despite the differing results, the researchers stick to their original conclusion that mental health support is needed after severe disasters.

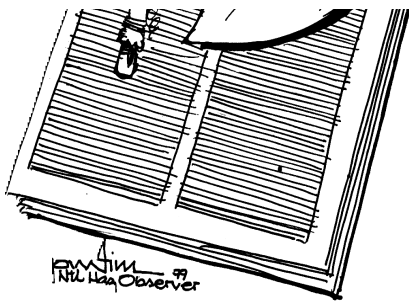
The original research article appeared in the February 5, 1998, issue of the *New England Journal of Medicine* (Vol. 338, No 6). The complete text of the letter can be found on the journal's Web site: <http://www.nejm.org/content/1999/0340/0002/0148.asp>.

Washington Update

FEMA Formalizes Emergency Management Policy with Native American Governments

American Indian and Alaska tribal governments hold a unique status in the U.S., having many of the rights and benefits of sovereign nations. Recently, in a final policy statement contained in the January 12 issue of the *Federal Register* (Vol. 64, No. 7, pp. 2095-2097), James L. Witt, director of the Federal Emergency Management Agency (FEMA), announced his agency's commitment to working with native American nations on emergency management issues.





In 1994, President Clinton directed agencies to ensure the federal government maintains a government-to-government relationship with federally recognized tribal governments. As a result, FEMA has been developing a policy to encourage cooperation and partnership between and among federal, tribal, state, and local governments to resolve issues of mutual concern related to emergency management.

Promising that FEMA will use its best efforts to institutionalize this policy within the fundamental tenets of the Agency's mission, Witt designated the agency's Preparedness, Training, and Exercises Directorate to serve as liaison between FEMA and sovereign tribes on policy issues. Further, he noted that each of the 10 FEMA regional offices has a designated individual as the focal point for the coordination and implementation of this policy.

The same issue of the *Federal Register* contains an in-depth discussion of comments FEMA received while considering this policy (pp. 2099-2107). Copies of the *Federal Register* can be found at any *federal depository library* or via the Internet at <http://www.access.gpo.gov>. For more information on this new policy, contact *Kyle W. Blackman, FEMA, 500 C Street, S.W., Washington, DC 20472; (202) 646-2776; e-mail: kyle.blackman@fema.gov*.

FEMA Will Launch Pilot Mapping Program

During the past 30 years, thousands of miles of floodplain have been carefully mapped and analyzed under FEMA's National Flood Insurance Program (NFIP). These studies have affected local zoning, mitigation policy, and flood insurance coverage. However, in many areas, the floodplains are changing faster than either FEMA or the participating communities can update the information. Urbanization, new land uses, and natural forces such as erosion and siltation have drastically altered floodplains, and many new areas are susceptible to floods but remain unmapped.

The cost of updating the nation's flood insurance studies could range as high as \$800 million, and addressing the backlog of studies and revisions would require FEMA to divert personnel and resources from other important programs, such as disaster response, recovery, emergency preparedness, and mitigation. Thus, FEMA is establishing a new program, Cooperating Technical Communities (CTC), to ensure a high standard of quality and program compliance among communities that have both the

interest in and capability of performing map updates.

Currently, the consulting firm of Dewberry and Davis, which has served as a technical assistance contractor for the NFIP since 1974, is developing guidelines and specifications for the CTC regarding preparation and maintenance of digital and standard flood insurance rate maps and other aspects of the mapping process. Dewberry and Davis will also coordinate assistance, develop selection criteria for CTC candidates, create a public awareness program, and develop training materials. The first agreements will be made with pilot communities this year.

For more information on this project, contact *Allen Groover, Dewberry & Davis, 8401 Arlington Boulevard, Fairfax, VA 22031-4666; (703) 849-0100; fax: (703) 849-0118; <http://www.dewberry.com>.*

<http://www.colorado.edu/hazards...>

From the Hazards Center Web Site

A Working Paper

The Natural Hazards Information Center recently published a new working paper (#101)--*A Case Study of Re-Establishing a Utah Seismic Safety Commission*, by Elliott Mittler. The study is one of several undertaken by Mittler in a n NSF-funded assessment of state roles in disaster mitigation and management and is the fourth in the series to be published on the Hazards Center Web site. Mittler's objective is to clarify why states have taken the initiative to develop in-state programs, to determine how other states can be encouraged to follow suit, and to determine an appropriate role for the federal government in supporting state initiatives.

This particular study examines why and how the state of Utah decided to re-establish a seismic safety commission. Mittler surveys the history of earthquake mitigation in the state and points out the political factors that deterred re-creation of such a commission and how those barriers were overcome. Working Paper #101 is available from the Hazards Center Web site at <http://www.colorado.edu/hazards/wp/wp.html>. Persons without access to the World Wide Web can obtain printed copies for \$9.00, plus \$3.00 domestic shipping and handling. To order a copy, or to determine overseas costs, contact the *Center Publications Clerk at the address below* or consult the Hazards Center on-line publication order form available from <http://www.colorado.edu/hazards/puborder.html>.

Six Quick Response Reports

With financial support from the National Science Foundation, the Natural Hazards Center sponsors "Quick Response" research--studies of the effects of and immediate response to disasters. Upon completing their work, quick response researchers submit brief reports of their findings to the center,

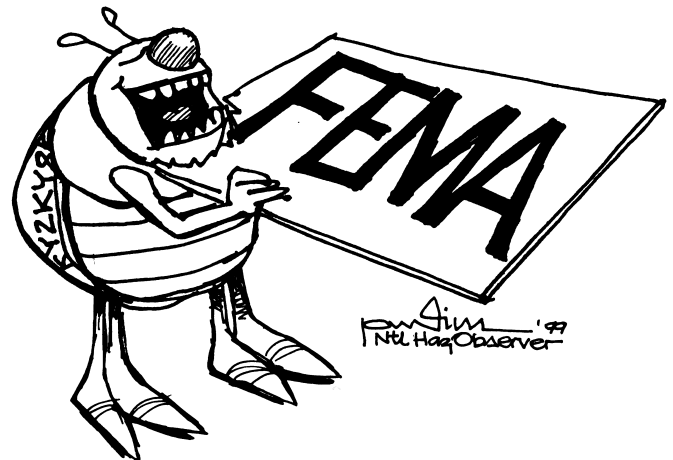
which publishes them immediately via the World Wide Web. The newest reports include:

- <http://www.colorado.edu/hazards/qr/qr110/qr110.html>. **QR110: Emergent Coordinative Groups and Women's Response Roles in the Central Florida Tornado Disaster, February 23, 1998**, by Jennifer Wilson and Arthur Oyola-Yemaiel
- <http://www.colorado.edu/hazards/qr/qr111/qr111.html>. **QR111: Public Health Emergency Response: Evaluation of Implementation of a New Emergency Management System for Public Health in the State of Georgia**, by Lora S. Werner, Matt Naud, and Anita Kellogg
- <http://www.colorado.edu/hazards/qr/qr112.html>. **QR112: Impact of Hurricane Bonnie (August 1998): North Carolina and Virginia with Special Emphasis on Estuarine/Mainland Shores and a Note About Hurricane Georges, Alabama**, by David M. Bush, Tracy Monegan Rice, Andrew S. Coburn, Robert S. Young, and Matthew Stutz
- <http://www.colorado.edu/hazards/qr/qr113.html>. **QR113: The Mass Media, Political Fragmentation, and Environmental Injustice in Puerto Rico: A Case Study of the Floods in Barrio Tortugo**, by Marla Perez-Lugo
- <http://www.colorado.edu/hazards/qr/qr114.html>. **QR114: Effectiveness of Geographic Information Systems (GIS) Applications in Flood Management During and After Hurricane Fran**, by Ute J. Dymon
- <http://www.colorado.edu/hazards/qr/qr115.html>. **QR115: A Review of Relief: An Examination of the Response to Hurricane Georges in the Dominican Republic**, by David A. McEntire

The entire list of quick response reports is available at <http://www.colorado.edu/hazards/qr/qr.html>. In addition, printed copies can be purchased for \$5.00 each, plus shipping charges (\$3.20 for the U.S.; \$4.00, Canada, Mexico, and international surface mail; and \$5.00 for international air printed matter). Orders should be directed to the *Publications Clerk, Natural Hazards Research and Applications Information Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482, (303) 492-6819; fax: (303) 492-2151; e-mail: jclark@spot.colorado.edu*. Again, an on-line publication order form is available from <http://www.colorado.edu/hazards/puborder.html>.

A Y2K Page

We realize that on-line material concerning the Y2K conundrum abounds, but nevertheless we have added a brief page to our own Web site to direct emergency managers and others interested in the hazard/disaster implications of this looming problem to good starting (and ending) points for Y2K information. If you're interested, see <http://www.colorado.edu/hazards/sites/y2k.html> (as well as the [article below](#) in this *Observer*).



And an Annual Report

Almost 15,000 people receive this newsletter, and another 2,000+ receive *Disaster Research*, the Natural Hazards Center's e-mail newsletter. The center's Web site now offers 35 Quick Response reports and seven Working Papers. If you would like more information about what the center has been up to lately, including the titles of all recent publications, see the *Natural Hazards Research and Applications Information Center 1998 Annual Report*, now on-line at <http://www.colorado.edu/hazards/annrpt/98annrpt.html>.



The Internet Page(s)

For an extensive, annotated list of useful hazard Internet sites, see:
<http://www.colorado.edu/hazards/sites/sites.html>

All Hazards

<http://www.fema.gov/EMI/edu/higher.htm>

One of the aims of the Federal Emergency Management Agency (FEMA) is to encourage the spread of emergency-management-related education among colleges and universities across the United States. To further this goal, FEMA's Emergency Management Institute (EMI) has created an annotated list of colleges, universities, and institutions offering emergency management courses at various levels--from certificate to graduate degree programs. Additionally, EMI has developed its own outline of a potential emergency management curriculum, is working with a variety of institutions to develop these courses, and has recently issued a third course in this series--*The Political and Policy Basis of Emergency Management* (see the *Observer*, [Vol. XXIII, No. 2, p. 22](#)). The institute is also maintaining a working draft of an emergency management bibliography for anyone developing hazards or emergency-management-related courses. All of this information, the courses developed so far, and the related materials are available at the URL above. Questions concerning the Higher Education Project can be addressed to *Wayne Blanchard, FEMA, NETC/EMI, Building N, Room 430, 16825 South Seton Avenue, Emmitsburg, MD 21727; (301) 447-1262; fax: (301) 447-1598; e-mail: wayne.blanchard@fema.gov*.

http://www.cdc.gov/nceh/programs/emergenc/prevent/prev_em.htm

The Centers for Disease Control and Prevention (CDC), National Center for Environmental Health (NCEH), has issued several on-line *Prevention Guides to Promote Your Personal Health and Safety Before, During, and After Emergencies and Disasters* in both English and Spanish. The guides in English cover earthquakes, extreme cold, extreme heat, floods, and hurricanes. Only the flood and hurricane guides are currently available in Spanish. As an example of the information available, the earthquake guide covers general facts about earthquakes, how to prepare for an earthquake, how to inspect a home for possible hazards, what to do during and after a quake, and issues concerning people with special needs. It includes several checklists, including suggested first aid and survival kits for the home, automobile, and workplace.

<http://www.dr.org/ppcont.htm>

DRI International, an organization specializing in education for business continuity and disaster planning, has placed an entire manual--*Professional Practices for Business Continuity Planners*--on-line at this URL. The document includes "subject areas" covering project initiation and management, risk evaluation and control, business impact analysis, developing business continuity strategies, emergency response and operations, developing and implementing business continuity plans, awareness and training programs, maintaining and exercising business continuity plans, public relations and crisis coordination, and coordination with public authorities. Each subject area provides a description of the area, information on the role of the professional, and an outline of the knowledge a professional should possess within that area.

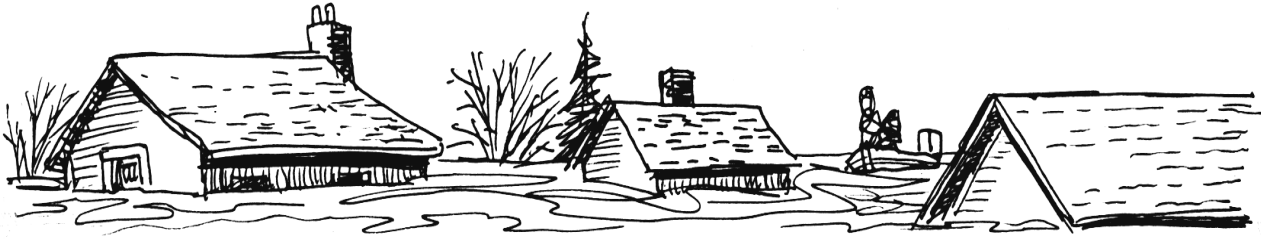
<http://www.terraserver.microsoft.com>

Have you ever wondered what Yankee Stadium, or your back yard, looks like from 100,000 feet? Co-sponsored by Microsoft Corporation, the U.S. Geological Survey, Aerial Images, and Compaq Computer, this site offers a "World Imagery Database"--with aerial shots covering much of the United States as well as some other parts of the world.

Floods

<http://www.ag.ndsu.nodak.edu/flood/home.htm>

The North Dakota State University Extension Service offers this extensive Web section entitled "Coping with Floods," which covers resources for homeowners and family members and discusses both how to prepare for flooding and steps to take after a flood. The site includes detailed information on everything from assessing electrical system and appliance damage to dealing with financial concerns.



Tornadoes

<http://whyfiles.news.wisc.edu/013tornado/index.html>

The mission of the "Why Files" is to "explore the issues of science, math, and technology that lurk behind the headlines of the day." Founded in 1996 as a project of the National Institute for Science Education with support from the National Science Foundation, and produced by the Graduate School of the University of Wisconsin, the files include this section, which provides background information on tornadoes, including an explanation of these phenomena and information on prediction, personal protection, and tornado effects on the natural landscape.

Earthquakes

<http://www.eeri.org>

The Earthquake Engineering Research Institute (EERI) Web site, which offers a wealth of information about the mitigation of seismic hazards, now includes an updated version of EERI's *Earthquake Spectra* database, with searchable abstracts from *Earthquake Spectra* (the EERI journal) articles, as well as links to other Web sites offering databases of earthquake-related articles.

<http://www.geohaz.org/kvermp.html>

Speaking of seismic mitigation, GeoHazards International, a company specializing in the evaluation and reduction of earthquake hazards in developing nations, has undertaken a project within the framework of the Asian Disaster Preparedness Center's Asian Urban Disaster Mitigation Program (see the *Observer*, Vol. XXI, No. 2, p. 8) to assess and mitigate earthquake risks in the Kathmandu Valley of Nepal. The objectives of the Kathmandu Valley Earthquake Risk Management Project include evaluating the region's seismic risk and prescribing an action plan for managing that danger; reducing the region's public schools' vulnerability; raising awareness among the public, government officials, the non-Nepalese residents of Kathmandu Valley, and international organizations about the valley's earthquake risk; and building local institutions that can sustain this project. This Web site provides background information about the project. Interested persons can also contact *GeoHazards International*, P.O. Box 7316, Stanford, CA 94309-7316; (650) 614-9050; fax: (650) 614-9051; e-mail: info@geohaz.org.

Talk

wind_haz_mit@egroups.com

Persons involved or interested in wind engineering or hazard reduction are invited to join the new cross-disciplinary, moderated e-mail discussion group--wind_haz_mit@egroups.com. Questions concerning this discussion list should be directed to *James Cohen, James Cohen Consultants, P.O. Box 130, Pennington, NJ 08534; (609) 730-0510; fax: (609) 730-0511; e-mail: jccpc@msn.com; WWW: <http://www.egroups.com/info/help.html>.*

highered@emforum.org

The Emergency Information Infrastructure Partnership (EIIP) has announced the establishment of an "Emergency Management Higher Education" mailing list in support of and in partnership with FEMA's Higher Education Project (see the FEMA higher education Web site mentioned above). This mailing list is being provided to foster communication among educators at the post-secondary level with existing or planned programs in emergency management and others interested in supporting these efforts or establishing similar programs. For more information, contact the EIIP project manager, *Amy Sebring, e-mail: asebring@emforum.org*, or see the EMForum Web site: <http://www.emforum.org>.

<http://www.naem.com/connection.html>

The *Connection Newsletter* offers articles by people involved in community disaster preparedness on a daily basis; its aim is to share good ideas about civilian disaster preparedness programs. The first edition provides background information and a sampling of existing community-based programs from around the country, and the editors provide an on-line form for the submission of future articles.

Additional Y2K Resources

President's Council on Y2K

Earlier this year, the President's Council on Year 2000 Conversion introduced a new toll-free Y2K information line--*1-888-872-4925*--as well as other council initiatives for disseminating information about the Y2K computer problem. Supported by the General Service Administration's Federal Information Center (FIC), the toll-free line is intended to provide "consumers with the latest information on how the problem may, or may not, affect government services, banks, household appliances, and other things they depend upon in their daily lives." The line also provides information on such additional areas as power, telephones, and other utilities, and uses both recorded messages and live information specialists to provide information. The FIC will also soon provide a "fax-on-demand" system to provide callers with printed information.

The President's Council has also created a special consumer information area on its Web site, <http://www.y2k.gov>, and is now issuing quarterly reports summarizing existing industry and public-sector assessments for key areas that could be affected by Y2K problems (see the Web site for recent issues). In addition, the U.S. Federal Government's Gateway for Year 2000 Information Directory and the

companion CIO (Chief Information Officer) Council Committee on Year 2000 Information Directory--
<http://www.itpolicy.gsa.gov/mks/yr2000/cioy2k.htm> and <http://www.itpolicy.gsa.gov/mks/yr2000/cioy2k.htm>--provide access to abundant information on both policy and recommended actions to deal with this looming problem.

American Red Cross

The American Red Cross has taken the lead in providing concrete suggestions to local citizens about how they can prepare for Y2K. The agency has revised its Y2K Web page--<http://www.redcross.org/disaster/safety/y2k.html>--with an updated preparedness brochure and "Frequently Asked Questions" section. The agency says that it is now receiving about 700,000 hits a week on this site and has also accommodated requests for over two million printed copies of its Y2K brochure through its local chapters.



FEMA

The Federal Emergency Management Agency (FEMA) continues to provide considerable information on the problem through the Y2K section of its Web site--<http://www.fema.gov/y2k>. The agency has completed an initial assessment of Y2K preparedness in the emergency services sector and forwarded the results to the President's Council on Year 2000 Conversion; details are available from <http://www.fema.gov/nwz98/y2k1216.htm> and <http://www.fema.gov/y2k/rpt1216.htm>. Additionally, in February and March, FEMA conducted Y2K Consequence Management Workshops in 10 cities around the country to identify critical issues, assess vulnerabilities, review contingency plans, and consider policies and decisions that need to be initiated to deal with possible Y2K consequences. Participants included state Y2K emergency coordinators, emergency managers, and state fire marshals, as well as regional representatives of FEMA's Federal Response Plan partners.

IAEM

On another front, the entire 24-page January issue of the *IAEM Bulletin*, the newsletter of the International Association of Emergency Managers, focuses on Y2K issues for emergency management. It includes articles by practicing emergency managers on recent progress in Y2K remediation, possible planning scenarios, exercises, school planning, citizens group involvement, and public information. The issue has been posted on the IAEM Web site: <http://www.iaem.com>.

And a few other resources

Another useful Y2K Web site is <http://www.lawsonline.com/bulletin.htm>--the *Lawcheck Bulletin*--the latest issue of which is entitled "Y2K and You." The bulletin has researched state government home pages to determine which states have addressed the Y2K problem and lists Y2K Web pages with contact information for all 50 states. The organization also gathered an assortment of "the most reliable, useful, and informative" Y2K-related links and has grouped them into the following categories: state governments, frequently asked questions and glossaries, articles, humor, small business, telecommunications, utilities, finance, education, medical, correctional facilities, transportation, legal, insurance, local governments, federal government, the White House, and home use.

Interested Net surfers might also look at <http://www.davislogic.com>, which includes a "Y2K Emergency Management Page" (<http://www.davislogic.com/emergncy.htm>).

Finally, the Wisconsin Department of Administration offers another useful page at <http://www.y2k.state.wi.us/>, which includes *Countdown 2000: A Handbook for Local Governments and Schools*; an electronic newsletter, *The Countdown Gazette*; and a lot of other information on individual, state agency, local government, and business preparedness for Y2K.

 [Next Page](#)

 [Return to the Index of the Natural Hazards Observer](#)

 [Return to the Natural Hazards Center Home page](#)



Conferences And Training

Below are recent conference announcements received by the Natural Hazards Center. A comprehensive list of hazard/disaster meetings is posted on our World Wide Web site: <http://www.colorado.edu/hazards/conf.html>.

Year 2000 Contingency Planning and Emergency Management for Municipalities and Local Government. Offered by: International Quality and Productivity Center (IQPC). Atlanta, Georgia: April 13-14, 1999 (pre-conference and post-conference workshops: April 12 and 15); Chicago, Illinois: April 19-20, 1999 (pre-conference and post-conference workshops: April 18 and 21). These conferences will look at how any organization can manage Y2K emergencies. They will show participants how to incorporate emergency response strategies into their Y2K plans and will feature pragmatic approaches for identifying critical problems and developing viable responses. Additional information is available from IQPC, 150 Clove Road, P.O. Box 401, Little Falls, NJ 07424-0401; (800) 882-8684 or (973) 256-0211; fax: (973) 256-0205; e-mail: info@iqpc.com; WWW: <http://www.iqpc.com>. [Note: IQPC offers a series of Y2K seminars for various sectors--health, utilities, local government, business, etc.; see their Web site for details.]

Fifth World Congress on Stress, Trauma, and Coping in the Emergency Services Professions. Sponsor: Critical Incident Stress Foundation, Inc. (ICISF). Baltimore, Maryland: April 23-25, 1999 (preconference workshops: April 21 and 22). Plenary sessions during this congress will include speakers involved with the TWA Flight 800 and Swissair Flight 111 disasters, the U.S. embassy bombings, and other recent mass emergencies. Other topics will include violence in schools and the workplace; terrorism; the media and critical incident stress management (CISM); CISM team development and management; crises with children and families; innovative therapies; and recent research on traumatic stress, disaster, and CISM. To receive additional information, contact Shelley Cohen, ICISF, 10176 Baltimore National Pike, Unit 201, Ellicott City, MD 21042; (410) 750-9600; fax: (410) 750-9601; e-mail: wcong5@icisf.org; WWW: <http://www.icisf.org>.

Global Disaster Information Network Conference. Sponsors: Mexican National Government, U.S. State Department, and the World Bank. Mexico City, Mexico: May 12-15, 1999. The Global Disaster

Information Network (GDIN) is a proposed international system that would use advanced technologies to integrate and disseminate information to aid not only response and recovery, but also preparedness and long-term mitigation of disasters (see the *Observer*, [Vol. XXII, No. 4, p. 3](#)). For detailed conference information and several background papers on this project, see <http://www.state.gov/www/issues/relief/gdin99.html>, or contact *Larry Roeder, U.S. Department of State, 2201 C Street, N.W., Washington, DC 20520; (202) 647-5070; fax: (202) 647-9722; e-mail: lroeder@hotmail.com*.

1999 National Flood Conference: "Climbing to New Heights." Sponsor: National Flood Insurance Program (NFIP). Denver, Colorado: May 16-19, 1999. The 1999 National Flood Conference will offer more than 30 seminars, roundtables, and workshops for all NFIP stakeholders--from insurance agents, to local planning officials, to emergency management professionals. These sessions will address everything from "Hot Issues in the NFIP" to repetitive loss problems, mapping program changes, and the role of community officials in promoting the NFIP. Additional information is available from the *NFIP, 7700 Hubble Drive, Lanham, MD 20706; (301) 918-1439; TDD: (301) 918-1409; e-mail: becky.reardon@fema.gov; <http://www.fema.gov/nfip/99conf.htm>*.

26th Annual Water Resources Planning and Management Conference: "Preparing for the 21st Century." Sponsor: American Society of Civil Engineers (ASCE). Tempe, Arizona: June 6-9, 1999. ASCE's Water Resources Conference includes sessions on various aspects of flood and drought planning, control, and prevention. For details, contact *ASCE Conferences, 1801 Alexander Bell Drive, Reston, VA 20191-4400; (800) 548-2723 or (703) 295-6300; fax: (703) 295-6144; e-mail: conf@asce.org; WWW: <http://www.asce.org/conferences/wrpm99/index.html> or <http://water99.asce.org/Water99/>*.

SR/DR (Search and Rescue/Disaster Response) '99 Convention and Expo. Nashville, Tennessee: June 23-26, 1999. SR/DR brings together professionals and volunteers from all areas of the fire/rescue and search and rescue (SAR) communities. It offers over 100 educational sessions and hands-on workshops covering 11 specialty tracks: terrorism response, canine SAR, vehicle extrication, emergency medical system (EMS) operations, high angle/technical rescue, collapsed structure rescue, wilderness SAR, urban SAR, confined space rescue, hazardous materials disaster response, and water rescue. More information and a conference brochure are available from *SR/DR '99, 2413 West Algonquin Road, Suite 411, Algonquin, IL 60102; (715) 547-3340; e-mail: srdr@newnorth.net; WWW: <http://srdr.com>*.

The Emergency Planning Society (EPS) Annual Conference. Edinburgh, Scotland: July 19-21, 1999. The Emergency Planning Society is a professional organization in the United Kingdom open to all persons with an involvement with any form of crisis, emergency, or disaster planning and management (see the *Observer*, [Vol XXIII, No. 2, p. 6](#)). Details about their annual meeting were not available at press time, but more information is available from *Peter Brodie, Business Manager, Emergency Planning Society, Pyramid House, Fourth Way, Wembley, Middlesex, U.K. HA9 0LJ; tel: 0181 937 4958; fax: 0181 937 4957; e-mail: Conference@emergplansoc.org.uk; WWW: <http://www.emergplansoc.org.uk>*.

From FEMA/EMI

The Federal Emergency Management Agency's Emergency Management Institute (EMI) offers a broad range of hazards/disaster training. A few of the upcoming courses include:

- *Basic Hazards in the U.S. (HAZUS) Training. April 26-29, 1999.* EMI contact: *Lillian Virgil, (301) 447-1490.*
- *Retrofitting Flood-Prone Residential Buildings. May 3-7, 1999.* EMI contact: *Dan Bondroff, (301) 447-1278.*
- *Multihazard Building Design Summer Institute. July 19-23 (earthquake and fire), July 26-30 (flood and wind), 1999.* For more information and an on-line registration form, see <http://www.fema.gov/emi/mbdsi3.htm>. EMI contact: *Joe Bills, e-mail: joe.bills@fema.gov.*

All courses are conducted at the EMI campus in Emmitsburg, Maryland. More information is available from *FEMA/EMI, 16825 South Seton Avenue, Emmitsburg, MD 21727; (301) 447-1000; WWW: <http://www.fema.gov/EMI>.*

Ninth International Conference and Field Workshop and Conference on Landslides (9th ICFL). Southern England: September 5-16, 1999. The 9th ICFL field workshop, which begins at Heathrow Airport, London, and travels to the Isle of Wight and across southern England and Wales, is limited to 45 participants. The conference, which takes place on September 16, will focus on "problems of slope stability and land use." Abstracts are due March 31. For a complete itinerary and program, contact *R.G. Thomas, 6 The Esplanade, Plymouth PL1 2PJ, U.K.; tel: +44-1752-674291; fax: +44-1752-233117; e-mail: rgthomas@eurobell.co.uk; or J. Griffiths, Geology Department, University of Plymouth, Plymouth PL4 8AA, U.K.; tel: +44-1752-233101; e-mail: jlgriffiths@plymouth.ac.uk.*

Western States Seismic Policy Council (WSSPC) 21st Annual Conference. Santa Fe, New Mexico: September 6-9, 1999. WSSPC is a regional organization that includes representatives from the earthquake programs of thirteen western states, three U.S. territories, one Canadian province, and one Canadian territory. The primary aims of WSSPC have been to improve public understanding of seismic risk; improve earthquake preparedness and cooperation within the region; and to promote transfer of mitigation technologies at the local, state, interstate, and national levels. In recent years, the council has increasingly focused on the formulation and institutionalization of effective seismic policies, and a good deal of the WSSPC annual conference will focus on practicable local, state, and national policies and approaches. The conference will also feature a field excursion to seismic sites of northern New Mexico. For details about this year's meeting, contact WSSPC, *121 Second Street, 4th Floor, San Francisco, CA 94105; (415) 974-6435; fax: (415) 974-1747; e-mail: wsspc@wsspc.org; WWW: <http://www.wsspc.org>.*

Chemical Emergency Preparedness and Prevention (CEPP) Conference. Sponsor: U.S. Environmental

Protection Agency (EPA). Washington, D.C.: September 20-23, 1999. The U.S. EPA Region III 1999 CEPP Conference will provide updated information on the regulations covering emergency planning within communities for chemical emergencies. Specifically, the conference targets emergency planners and responders; military, medical, and industry personnel; and any other people and organizations affiliated with EPCRA--the Emergency Planning and Community Right-to-Know Act. The conference will address such basic questions as: Where are these dangerous materials and how do they affect my community? How do we use them safely? How do we plan for emergencies? How can individuals and agencies make a difference? For more information, contact *Al Brown, Conference Director, EPA Region III (3HS33), 1650 Arch Street, Philadelphia, PA 19103-2029; (215) 814-3302; fax: (215) 814-3254; e-mail: brown.alan@epa.gov; WWW: <http://www.epacepp.com>.*

Dam Safety '99--Association of State Dam Safety Officials (ASDSO) 16th Annual Conference. St. Louis, Missouri: October 10-13, 1999. The ASDSO Annual Conference will cover hydrology and hydraulics; geotechnical issues; emergency preparedness; dam design, construction, inspection, rehabilitation, and removal; dam safety regulatory programs; and other topics relevant to the safe operation of dams. For details, contact *ASDSO, 450 Old Vine Street, Second Floor, Lexington, KY 40507; (606) 257-5140; fax: (606) 323-1958; e-mail: damsafety@aol.com.*

"First Due" Fire and Rescue Conference and Exposition. Sponsor: Fire Rescue Magazine. Las Vegas, Nevada: October 20-23, 1999. This educational event provides fire and rescue personnel an opportunity to receive training in all aspects of their profession and to view first hand the latest technical innovations. More information is available from *Jems Communications, P.O. Box 2789, Carlsbad, CA 92018; (760) 431-9797; fax: (760) 431-8176; e-mail: kevin.flanagan@mosby.com; WWW: <http://www.jems.com>.*

Sixth Annual Congress on Natural Hazard Loss Prevention. Sponsor: Institute for Business and Home Safety (IBHS). Memphis, Tennessee: October 27-28, 1999. IBHS is an insurance industry institution created to reduce death, injury, property damage, economic loss, and human suffering caused by natural disasters. Since its establishment, the institute has hosted an annual congress focusing on various aspects of natural hazards mitigation. IBHS believes that it is essential to educate people about the natural hazards that pose a threat and to motivate people to take appropriate action. Hence, the aim of the IBHS congress is to provide new knowledge about hazard loss reduction and the tools to apply that knowledge. Details about this year's agenda are available from *IBHS, 175 Federal Street, Suite 500, Boston, MA 02110; (617) 292-2003; fax: (617) 292-2022; e-mail: info@ibhs.org; WWW: <http://www.ibhs.org>.*

International Association of Emergency Managers (IAEM) Annual Meeting. Louisville, Kentucky: November 13-16, 1999. IAEM (formerly the National Coordinating Council on Emergency Management--NCEM) is a nonprofit educational organization dedicated to promoting the goals of saving lives and protecting property during emergencies and disasters. It is the chief professional organization for emergency managers. The IAEM annual conference offers sessions on the most pressing topics currently facing emergency managers, as well as the latest tools available to deal with those problems. For details, contact *IAEM, 111 Park Place, Falls Church, VA 22046-4513; (703) 538-*

1795; fax: (703) 241-5603; e-mail: iaem@aol.com; WWW: <http://www.iaem.com>.

Association of State Floodplain Managers (ASFPM) 24th Annual Conference. Austin, Texas: June 17-23, 2000. With more than 100 speakers and 400 to 450 participants, the ASFPM annual conference represents an important resource for all community, state, and federal floodplain managers. As an additional benefit, many of the most important consulting firms and product vendors in this field participate and display their products. For more information, contact ASFPM, 4233 West Beltline Highway, Madison, WI 53711; (608) 274-0123; fax: (608) 274-0696; e-mail: asfpm@floods.org; WWW: <http://www.floods.org>.

31st International Geological Congress. Rio De Janeiro, Brazil: August 6-17, 2000. The theme of the year 2000 congress is "Geology and Sustainable Development," and it will include sessions on global monitoring to minimize effects of natural hazards. More information is available from the *Executive Office for the 31st International Geological Congress, Av. Pasteur, 404, Anexo 31 IGC, Urca, Rio de Janeiro, RJ CEP 22.290-240, Brazil*; tel: +55-21-295-5847; fax: +55-21-295-8094; e-mail: 31IGC@31IGC.org; WWW: <http://www.31IGC.org>.

Second International Conference on Debris-Flow Hazards Mitigation: Mechanics, Prediction, and Assessment. Sponsors: American Society of Civil Engineers and others. Taipei, Taiwan: August 16-18 (post-conference field trip: August 18-20), 2000. This conference will focus on the translation of information about debris flow mechanics into actual hazard assessment, prediction, preparedness, response, and mitigation. The goal is to promote worldwide interaction among geoscience researchers and persons involved in debris flow management. For conference details, contact *Ko-Fei Liu, Department of Civil Engineering, National Taiwan University, No. 1, Sec. 4 Roosevelt Road, Taipei, Taiwan, R.O.C.*; tel: 886-2-2365-5405; fax: 886-2-2363-1588; e-mail: kfliu@ccms.ntu.edu.tw.

Fourth International Conference of Local Authorities Confronting Disasters and Emergencies--LACDE 4. Reykjavik, Iceland: August 28-31, 2000. The main theme of the year 2000 LACDE conference will be "The Links Between Science and Local Authorities." Hence, the meeting will address how local authorities can benefit from science and new technology in disaster prevention and mitigation. It will also examine issues in communication between the two disciplines concerning such matters as hazard prediction and warning. Another important focus will be partnership and interaction between government and local authorities, with government officials from all levels invited to participate. Conference materials are available from the *Union of Local Authorities in Israel, 3 Heftman Street, P.O. Box 20040, Tel Aviv 61200, Israel*; tel: +972-3-695-5024; fax: +972-3-691-6821; e-mail: ulais@netvision.net.il; WWW: <http://www.ladpc.gov.il>.

IDNDR Wrapping Up the Decade

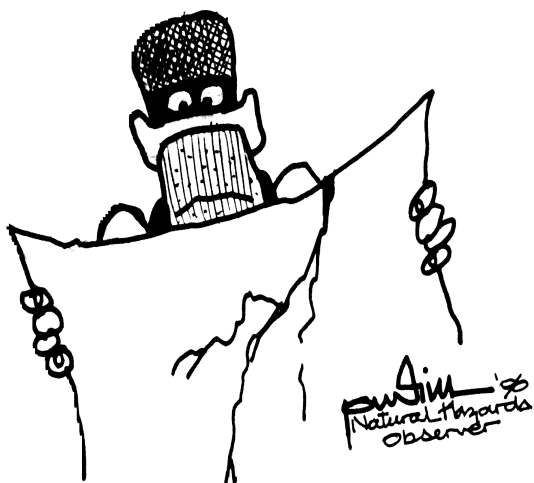
The United Nations International Decade for Natural Disaster Reduction (IDNDR) Secretariat recently listed several of this year's concluding IDNDR events. They include:

- *International Conference on Mountain Natural Hazards. Grenoble, France: April 12-14, 1999*
- *IDNDR Regional Conference for the Mediterranean. Valencia, Spain: May 4-7, 1999*
- *Euro-Mediterranean Symposium for Vulnerability Reduction and Risk Management. Hammamet, Tunisia: May 27-29, 1999*
- *IDNDR Hemispheric Conference for Latin America and the Caribbean: Towards the Reduction of the Impact of Natural Disasters for the Americas in the 21st Century. San Jose, Costa Rica: June 1-5, 1999*
- *International IDNDR Conference on Disaster Prevention, Land Use Planning, and Sustainable Development. France: June 17-19, 1999*
- *IDNDR Programme Forum 1999. Geneva, Switzerland: July 5-9, 1999*

For details, contact *Madeleine Moulin-Acevedo, U.N. IDNDR Secretariat, Palais des Nations, CH-1211 Geneva 10, Switzerland; tel: (41-22) 917-9709; e-mail: madeleine.moulin-acevedo@dha.unicc.org.*

Seismic Rehabilitation Guidelines and Maps Available On-line

The Federal Emergency Management Agency's publication *FEMA 273--National Earthquake Hazard Reduction Program (NEHRP) Guidelines for the Seismic Rehabilitation of Buildings*, and the companion *FEMA 274--NEHRP Commentary* (see the *Observer*, Vol. XXII, No. 3, p. 12), are now available on the World Wide Web at <http://www.degenkolb.com/fema273/index.html>. Both documents can be viewed and downloaded in their entirety. The seismic maps that accompany *FEMA 273* are available at <http://geohazards.cr.usgs.gov/eq/>. This Web site also offers *FEMA 273* users a mechanism for transmitting comments and recommendations to FEMA for improving and clarifying the existing document.



FEMA and the American Society of Civil Engineers (ASCE) are converting *FEMA 273* into a

prestandard--the first step in turning *FEMA 273* and *274* into an ASCE/American National Standards Institute (ANSI) approved national consensus standard that can be referenced by building codes and contracts. The prestandard will be completed by June 2000.

For more information, contact *Jim Rossberg, ASCE World Headquarters, 1801 Alexander Bell Drive, Reston, VA 20191-4400; (703) 295-6196; e-mail: jrossberg@asce.org.*

UC Extension Offers Internet Emergency Management Course

UC Extension Online--a collaboration between the University of California-Berkeley Extension and the Center for Media and Independent Learning (CMIL)--has announced a new course--*Introduction to Emergency Management*--available via the Internet at <http://learn.berkeley.edu>. The course provides theoretical and practical knowledge about emergency management through the exploration of fundamental terms, concepts, and principles; the history of disasters; and the evolution of the profession. It also explores the four elements of a comprehensive emergency management program: mitigation, preparedness, response, and recovery. It is intended for individuals in both the public and private sectors who have emergency management responsibilities and is recommended as preparation for the Emergency Preparedness Planning and Management Certificate Program offered by the University of California-Berkeley Extension. For more information, visit the UC Extension Online Web site: <http://learn.berkeley.edu>; or contact *University of California Extension, Center for Media and Independent Learning, 2000 Center Street, Suite 400, Berkeley, CA 94704; (510) 642-4124; fax: (510) 643-9271; e-mail: askcmil@uclink4.berkeley.edu.*

Help Wanted

Interns Sought for the Natural Hazards Project, OAS

Would you like to spend three months in Washington, D.C.? Can you speak any two of the four official Organization of American States (OAS) languages: English, French, Spanish, or Portuguese? Are you interested in international work experience related to Latin America and the Caribbean?

The Natural Hazards Project (NHP) of the OAS is looking for energetic, well-rounded undergraduate and graduate students interested in natural disaster vulnerability reduction and prevention to work as interns with the Unit for Sustainable Development and Environment (USDE). The NHP works on flood hazard mitigation, transportation corridor vulnerability reduction, and school building vulnerability reduction to natural hazards in the Americas. Applicants with architecture, cartography, civil engineering, economics, environmental, geography, new media (Internet), or statistics backgrounds are encouraged to apply; however all interested applicants will be fully considered. Interns in the NHP are

directly involved in project work alongside project coordinators and the principal adviser.

The OAS offers three-month internships starting in January, June, and September of each year. For more information about the Organization of American States and the internship program, see the OAS Web Page: <http://www.oas.org>. Interested persons should send their applications directly to USDE/NHP. To find out more about the Natural Hazards Project and current activities, please go directly to the project Web pages: <http://www.oas.org/en/prog/nhp> and <http://www.oas.org/EN/PINFO/HR/jobstudy.htm>; or contact the office directly: *Organization of American States, Natural Hazards Project, Unit for Sustainable Development and Environment, 1889 F Street, N.W., Washington, DC 20006; (202) 458-6295; e-mail: natural-hazards-project@oas.org.*

A National Plan for Wind Hazard Mitigation?

AAWE Seeks Your Thoughts

Many recent studies have cited the need for a national plan for wind hazard mitigation as part of a national mitigation plan. These and other reports have identified needs for and benefits of advancing wind hazard mitigation, but have generally not suggested effective ways to actually implement such programs. Unfortunately, like other hazards, the extreme wind hazard is not a simple problem. It can be random in both time and space, it is dealt with in only a piecemeal way by the design and construction industries, it is overseen by a fragmentary government and regulatory structure, and it is usually met with relative indifference by the public. Only when an actual event--a hurricane, tornado, or other high-wind disaster--occurs, do the public and various levels of government become concerned, and even then, the interest and potential commitment are often short-lived.



Of course, no professional organization can dictate to other groups, agencies, or segments of government how they should determine their priorities or allocate their resources. Yet it should be possible to work with these groups to increase their awareness that protection against extreme winds is not only possible, but potentially cost-effective; that warning systems are not the only answer to such hazards; and that the risk can be significantly reduced through thoughtful design, construction, regulation, and code enforcement. Such an effort requires sustained commitment and involvement from the wind hazard

management community, particularly when retrofitting existing structures to be wind-resistant.

One possible approach to developing a national plan would be to involve members of the American Association for Wind Engineering (AAWE) and other interested persons in an ongoing dialogue to develop a skeleton plan--perhaps through the AAWE Web site. As ideas are developed, the site could provide both a venue for discussion and dynamic blueprint of a national plan. Persons without access to the Web could be updated through e-mail or printed mailings.

The AAWE is currently seeking comments on this approach and on the potential elements of a national wind hazard mitigation plan. Comments should be addressed to *Michael P. Gaus, AAWE, c/o Department of Civil Engineering, Room 212 Ketter Hall, University of New York at Buffalo, Buffalo, NY 14260-4300; (716) 645-2180, ext. 2410; fax: (716) 645-3733; e-mail: gaus@eng.buffalo.edu; WWW: <http://www.civil.buffalo.edu/aawe>.*

[Adapted from *The Wind Engineer: Newsletter of the American Association for Wind Engineering*. Persons interested in subscribing, should contact the AAWE at the address above.]

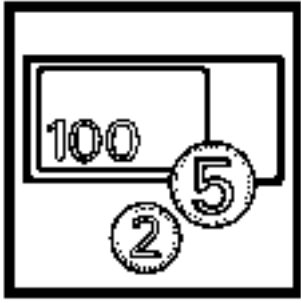
Wind Hazard Mitigation Consortium Developing

A group of universities are working together to develop a coordinated Wind Hazard Mitigation Consortium. Cooperating in this effort are Virginia Tech, Clemson, Florida International, Johns Hopkins, Louisiana State, North Carolina State, and Notre Dame universities, as well as the State University of New York at Buffalo and the University of Delaware. The consortium has put together a comprehensive plan to develop knowledge and solutions concerning both technical and socioeconomic aspects of wind hazards and is currently seeking support for this plan. For information about this effort, contact *H.W. Tieleman, Engineering Science and Mechanics Department, Virginia Tech University, Blacksburg, VA 24061; (540) 231-4190; fax: (540) 231-4574; e-mail: tieleman@bt.edu.*

Seeking Lightning Authors

The National Lightning Safety Institute (NLSI) intends to edit a book--*Lightning Safety: Theory and Practice*--to be published in the year 2000. Modeled after R.H. Golde's *Lightning Protection* (Academic Press, 1977), the book will be aimed at authorities having jurisdiction for lightning protection issues. NLSI seeks authors interested in making contributions to the text, either with original works or revised papers. Potential topics include air terminals, grounding, bonding, shielding, transient limiters, personal safety, structure safety, case studies, detection and detectors, maintenance and testing, medical aspects of lightning hazards, and other lightning safety topics. For details, please contact *Richard Kithil, NLSI, 891 North Hoover Avenue, Louisville, CO 80027; (303) 666-8817; fax: (303) 666-8786; e-mail:*

rich@lightningsafety.com; WWW: <http://www.lightningsafety.com>< /A>.



Contracts and Grants

Strategies for Coordinating Disaster Responses. Funding agency: National Science Foundation, \$350,940, 24 months. Principal Investigator: *Thomas E. Drabek, Department of Sociology, University of Denver, Denver, CO 80208-0209; (303) 871-2947 or 871-2050; fax: (303) 741-0390; e-mail: zted@aol.com.*

This project will document strategies used by local emergency managers to coordinate responses to earthquakes, hurricanes, floods, and other natural disasters. It has five objectives: 1) identify key strategies implemented by local emergency managers to coordinate the multiorganizational networks that emerge following natural disasters; 2) document the composition and longevity of these networks; 3) identify their components, functions, time and duration of mobilization, as well as degree of integration into the overall response network; 4) assess relationships among strategies used and aspects of multiorganizational networks, including speed of formation, stability, and shape; and 5) disseminate the strategies and policy implications to local and state emergency managers.

1998 Volcan Casita Mudflow, Nicaragua. Funding agency: National Science Foundation, \$5,485, 12 months. Principal Investigator: *Michael F. Sheridan, Department of Geology, Box 603050, University of Buffalo, NY 14260-3050; (716) 645-6800, ext. 6100; fax: (716) 645-3999; e-mail: mfs@acsu.buffalo.edu.*

In one of the worst volcano-related disasters of the decade, torrential rains produced by Hurricane Harold filled the summit crater of Volcan Casita, Nicaragua, leading to a break in the crater wall and the creation of water-saturated volcanic debris that swept down the mountain, enveloping and demolishing several villages. Volcanic mudflows such as this pose a major hazard to populations throughout the world, yet understanding of triggering mechanisms, flow characteristics, and material properties is limited. This grant will fund a one-week field campaign to measure and sample fresh lahar deposits, collect eye-witness accounts of the event, and obtain aerial observations of the source and outflow. These data will be used to construct a model of the mudflow in order to assess and mitigate the risks from these phenomena.

State Regulation of Building Safety: Policy Choices, Institutions, and Interests. Funding agency: National Science Foundation; \$92,979, 24 months. Principal Investigator: *Alka Sapat, School of Public*

Administration, University Tower, 220 S.E. Second Avenue, Florida Atlantic University, Fort Lauderdale, FL 33301; (954) 762-5687; fax: (954) 762-5673; e-mail: asapat@acc.fau.edu.

This research will examine state-level variations in the adoption, scope, and coverage of state building safety regulations and the factors that determine those variations. The study will address two critical issues: the factors that account for variations in state adoption of codes and what can be done to foster state adoption of hazard mitigation provisions in building codes. In particular, the project seeks answers to the following: What is the impact of information provision strategies by federal agencies, model organizations, and policy networks on state policy choices? How do these factors relate to various sociopolitical and economic factors at the state level? The investigator will conduct a comparative analysis of all 50 states and case studies of four states: Florida, Texas, Oregon, and Idaho.

Comparing Community Response to Hurricanes Georges and Andrew in Miami-Dade and Monroe Counties, Florida. Funding agency: National Science Foundation, \$96,145, 12 months. Principal Investigators: *Betty Hearn Morrow and Nicole Dash, International Center for Hurricane Research and Mitigation, Department of Sociology and Anthropology, Florida International University, Miami, FL 33199; (305) 348-3217; fax: (305) 385-7364; e-mail: morrowb@fiu.edu.*

The major questions this research addresses are: At the time of landfall, were the communities of Miami-Dade and Monroe counties better prepared to resist the potential impacts of Hurricane Georges than they were at the time of Hurricane Andrew? What factors best explain differences in disaster response at both the household and community levels?

The Economic Benefits of a Disaster Resistant University. Funding agencies: Federal Emergency Management Agency and University of California-Berkeley, \$750,000, 12 months. Principal Investigator: *Mary C. Comerio, Department of Architecture, 335 Wurster Hall, University of California-Berkeley, Berkeley, CA 84720-1800; (510) 642-2406 or 642-4942; fax: (510) 643-5607; e-mail: mary_comerio@ced.berkeley.edu.*

This study will develop a model for assessing potential earthquake losses to universities based on six criteria: soil conditions (or other hazard-specific variables); infrastructure conditions; building structural conditions; building nonstructural conditions; building uses (e.g., classrooms, research labs, libraries, etc.); and building occupancies. A multi-facility data matrix for three different earthquake scenarios will be used to determine detailed estimates of direct and indirect losses to the region (in terms of employment, wages, related business, and housing), and to the campus (in terms of student and faculty retention, capacity to sustain research, and national standing). The model will demonstrate methods for estimating potential losses so that planning for human safety can be combined with planning for continued operation. Eventually, the model will be made available to other universities for testing and implementation.

 [Next Page](#)

 [Return to the Index of the *Natural Hazards Observer*](#)



[Return to the Natural Hazards Center Home page](#)

USWRP Seeking Research Proposals

The U.S. Weather Research Program (USWRP) is an interagency effort supporting research and technology development to improve weather services. The program's overarching objective is to improve the specificity, accuracy, and reliability of weather forecasts for disruptive, high-impact weather. The program has established as its initial focus a coordinated effort to determine the best practicable mix of observations, data assimilation schemes, and forecast models for operations beyond the year 2000. The National Science Foundation (NSF), National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), and the Office of Naval Research (ONR) all participate in the USWRP.

The USWRP is currently soliciting research proposals for FY 99. Although the principal focus is the physical sciences, behavioral, economic, and societal research will be supported as well. The six major areas of social science emphasis are:

- Information use in weather forecasting
- Policy, politics, and decision making relating to weather events
- Individual and social responses to weather events
- The economic impacts of weather events
- The interaction between social policies, characteristics of the built environment, and weather events
- The social and economic impacts of weather forecasts

Social scientists interested in these areas should contact *Jeryl Mumpower, National Science Foundation, Room 995, 4201 Wilson Boulevard, Arlington, VA 22230; (703) 306-1757; fax: (703) 306-0485; e-mail: jmumpowe@nsf.gov*. Guidelines for proposal submission are available from <http://www.nsf.gov>.

Proposals must be submitted by May 11, 1999.

Questions concerning the USWRP should be directed to *William H. Hooke, U.S. Weather Research Program, U.S. Department of Commerce, 14th and Constitution, HCHB, Room 5835, Washington, DC 20230; (202) 482-5419; fax: (202) 482-4636; e-mail: william.hooke@noaa.gov; WWW: <http://uswrp.mmm.ucar.edu/uswrp.html>*.

EENET Plans Regular Wednesday Programs for 1999

The Federal Emergency Management Agency's Emergency Education Network (EENET) has announced that this year, every Wednesday at 2:00 p.m. (eastern time) the network will broadcast a

variety of shows for the public safety community. These will include:

- EENET for Trainers Series First Wednesday
- Disaster Operations Series Second Wednesday
- National Alert Series Third Wednesday
- Mitigation Series Fourth Wednesday

For more information, contact *EENET*, 16825 South Seton Avenue, Emmitsburg, MD 21727; (800) 500-5164 or (301) 447-1068; e-mail: eenet@fema.gov; WWW: <http://www.fema.gov/emi/eenet.htm>.

Recent Publications

All Hazards

Natural Hazard Mitigation: Recasting Disaster Policy and Planning. David R. Godschalk, Timothy Beatley, Philip Berke, David J. Brower, and Edward J. Kaiser. 1999. 450 pp. \$45.00. To order a copy, contact Island Press, Box 7, Department 2PR, Covelo, CA 95428; (800) 828-1302; WWW: <http://www.islandpress.org>.

The costs of natural disasters are reaching catastrophic proportions, making hazard mitigation an important national policy issue. Though disasters cannot be prevented, the government can develop better land-use planning to help prevent the damages caused by these events. *Natural Hazard Mitigation* examines the changes in federal policy that resulted from costly disasters that occurred in the late 1980s and early 1990s, focusing on the outcomes of the Stafford Disaster Relief and Assistance Act, the basic U.S. disaster law. The authors look at how mitigation has worked over time and how it can be made to work more effectively by examining six case studies of natural disasters and the responses to them: Florida after Hurricane Andrew, the Midwest after the 1993 floods, California after both the Loma Prieta and Northridge earthquakes, Massachusetts following Hurricane Bob, and Tennessee after a series of floods and storms in the early 1990s. In addition, the authors describe how federal hazard mitigation funds have been spent, examine what goes into decision making following a disaster, look at how government officials rate the effectiveness of the mitigation system, and suggest changes that could alleviate some widely recognized problems with current methods of responding to disasters.

Animal Management in Disasters. Sebastian E. Heath. 1999. 330 pp. \$39.95. Copies can be purchased from Mosby-Year Book, Inc., 11830 Westline Industrial Drive, St. Louis, MO 63146-3318; (800) 426-4545; fax: (800) 535-9935; WWW: <http://www.mosby.com>.

Animal Management in Disasters 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 involved 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, 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 the 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, memoranda of understanding, components of emergency operations plans, a glossary of emergency management terms, a summary of relevant state laws, and other useful tools.

Journal of the American Society of Professional Emergency Planners. 1998 Edition. 158 pp. \$18.00. To order a copy, contact Robert C. Goldhammer, American Society of Professional Emergency Planners, c/o the International Association of Emergency Managers, 111 Park Place, Falls Church, VA 22046-4513. For additional information, visit the organization's Web site: <http://www.aspep.org/index.htm>.

The American Society of Professional Emergency Planners (ASPEP) is an organization of certified emergency managers dedicated to the advancement of knowledge about disasters and the improvement of the practice of emergency management. To achieve these goals, ASPEP provides continuing education, professional development and exchange, and the publication of this annual journal. The latest edition of the *ASPEP Journal* includes articles on Virginia's emergency medical services task forces, resource consolidation, the 1997 flood at the Louisiana State Penitentiary, debris management, fault tree analysis, computer-based simulations, a professional exchange visit to China, managing the impacts of a volcanic eruption, the Great Ice Storm of 1998, the Kobe earthquake, emergency public information, and public-private partnerships.

ASPEP (see the article above) is soliciting papers for its 1999 journal, which will be published in November. The journal is committed to the sharing of ideas, research, lessons, practice, and opinion, and serves as a forum for all disciplines involved in emergency management. Submissions are due July 31, 1999. For details, on the World Wide Web see: <http://www.aspep.org/index.htm>; or contact *Thomas M. Heath, Gamewell Emergency Management Services; (905) 844-6597; fax: (905) 849-9715; e-mail: tmheath@globalserve.net*.

Disasters Don't Have to Be Disastrous: A Step-by-Step Community Prevention and Disaster Relief Guide for Broadcasters. 1998. 12 pp. Free. Copies can be requested from Jennifer Livengood, National Association of Broadcasters, 1771 N Street, N.W., Washington, DC 20036; (202) 429-5448; (202) 429-5410.

For broadcasters, natural disasters pose the challenge of staying on the air, if circumstances allow, in order to provide important information regarding news, weather, safety, survival, recovery, and other essential communications. This guidebook for broadcasters provides tips for building a disaster-resistant community, identifying risks, undertaking prevention planning, keeping a community informed during a disaster, working with local or state offices of emergency management, gathering information, understanding the types of information people need, creating a disaster communications plan, and broadcasting through a crisis. It also provides guidance on what to do after a disaster, including finding out what assistance is available, drawing attention to opportunities for aid, and organizing a relief drive. It includes scripts for several public service announcements stations can use to help people prepare for such events.

Man-Made Disasters. Barry A. Turner and Nick F. Pidgeon. Second Edition. 1997. 208 pp. \$49.95, plus \$4.00 handling. Copies can be purchased from the Butterworth-Heinemann Fulfillment Center, 225 Wildwood Avenue, Woburn, MA 01801; (800) 366-2665 or (781) 904-2500; fax: (800) 446-6520 or (781) 933-6333; e-mail: orders@bhusa.com; WWW: <http://www.bh.com>.

Originally published in 1978 with the working sub-title *The Failure of Foresight*, this was one of the first books in the United Kingdom to systematically look at the causes of a wide range of disasters. It still provides a theoretical basis for studying the organizational origins of disasters, bringing together relevant work based on inquiries into accidents and disasters in Britain over an 11-year period. This updated edition includes a final chapter covering more recent events. ***Man-Made Disasters*** describes attempts to understand disasters, analyses of specific disasters, and understanding of the evolution of disasters. It also examines other phenomena that contribute to such events, including human errors and communication difficulties, order and disruption, information, and rationality in organizations. Finally, it looks at the origins of disasters and recent insights regarding culture, politics, and organizational learning.

They Laughed at Noah: Preparing for Natural Disasters. Kellye A. Junchaya. 1999. 272 pp. \$12.95, plus \$3.00 shipping. (New Jersey residents, add 6% sales tax.) Copies can be purchased from MedCap, Distribution Services, P.O. Box 2085, Clifton, NJ 07015; (877) 835-6624; e-mail: medcap.pub@juno.com.

In ***They Laughed at Noah***, Junchaya wonders why most people wait until the last minute to buy extra food and get ready for emergencies. She believes the main reason is that most people simply do not know how to prepare for such events. In fact, she states that if people really know how to be prepared and store extra food and water in small spaces and not have to spend a lot of money to protect their families and feel secure, more people would do it. Based on that premise, Junchaya outlines the characteristics and impacts of several types of natural disasters, including avalanches, hurricanes, drought, seismic events, floods, severe weather, and tornadoes. She then discusses family planning and emergency supplies, first aid kits, supplies for automobiles, and evacuation. Her final section provides detailed information on food and water supplies, including material on basic and long-term storage as

well as suggestions regarding specific foods, shopping, preservation, preparation, and planning.

Disaster Management: Crisis & Opportunity--Hazard Management and Disaster Preparedness in Australasia and the Pacific Region. Volume 1. 1998. 382 pp. \$25.00 (U.S.). Copies can be purchased from James Cook University, Centre for Disaster Studies, P.O. Box 6811, CAIRNS Queensland 4870, Australia; tel: +61 7040 421 215; fax: +61 7040 421 214; e-mail: linda.berry@jcu.edu.au or david.king@jcu.edu.au; WWW: <http://www.tesag.jcu.edu.au/cds/cdsweb.htm>.

This volume comprises the proceedings of an emergency management conference held in 1998 in Australia. Papers address a wide range of topics, including understanding climate, floodplain management, El Niño, bushfires, flood warnings, volcano monitoring, hazardous materials, tropical cyclones, hazard assessment, multiorganizational participation, economic impacts of poor crisis communication, hail damage, drought assessment, sustainability, air disaster response, land-use planning, education, and disaster recovery.

Guidelines for Action: The Role of Public Works in Emergency Management. James L. Martin. 1998. 44 pp. \$30.00, members of the American Public Works Association; \$40.00, nonmembers.

Recovering from Disaster. 1998. \$30.00, members; \$40.00, nonmembers.

Both items can be purchased from the American Public Works Association (APWA), 2345 Grand Boulevard, Suite 500, Kansas City, MO 64108-2625; (816) 472-6100; fax: (816) 472-1610; e-mail: apwa@apwa.net; WWW: <http://www.pubworks.org>.

The first publication is a primer for public works departments involved in emergency management. It discusses roles and responsibilities in reducing disaster exposure, preparing for disasters, and responding to and recovering from these events. It recounts local public works experiences dealing with disasters and provides answers to frequently asked questions. Sections address management and control of emergencies, mitigation and risk analysis, emergency preparedness, emergency response, recovery, emergency operations plans, health and safety codes, and hazardous materials.

The second volume contains a generic public works emergency management plan.

Understanding Vulnerability: South Asian Perspectives. John Twigg and Mihir R. Bhatt, Editors. 1998. 84 pp. \$25.00, plus \$5.00 shipping. Copies can be purchased from Stylus Publishing, LLC, P.O. Box 605, Herndon, VA 20172-0605; (800) 232-0223 or (703) 661-1581; fax: (703) 661-1501.

This book was published under the auspices of Duryog Nivaran, a network of individuals and organizations working in South Asia to promote disaster mitigation (see the *Observer*, Vol. XX, No. 5, p. 11). A combined effort of Duryog Nivaran and the Intermediate Technology Development Group in the United Kingdom, ***Understanding Vulnerability*** focuses on the issues that determine exposure to natural disasters in this region. It includes case studies of poor women in India who face a wide range of natural and human-caused hazards; Nepali villagers who live under the permanent threat of mountain floods and landslides; and village society in Sri Lanka's Dry Zone, for which drought is a persistent hazard. The final essay discusses ways of understanding vulnerability by learning from vulnerable people.

Floods

Hydrologic Hazards Science at the U.S. Geological Survey. 1999. 92 pp. \$15.00. (20% discount if ordered via the Internet.) Also, the complete volume can be viewed on-line at <http://www.nap.edu/readingroom/>. To purchase this book the old-fashioned way, contact the National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313; fax: (202) 334-2451. You can also e-mail the Customer Service staff at amerchan@nas.edu. Call or consult the Web site for shipping charges.

This report was produced by the Committee on U.S. Geological Survey Water Resources Research at the National Research Council, which advises the U.S. Geological Survey (USGS) on scientific, research, and programmatic issues. Noting that losses of life and property in the U.S. resulting from hydrologic hazards--floods, droughts, and related phenomena--are significant and increasing, the committee believes that having the best possible hydrologic data and knowledge available is essential for reducing these hazards. This report recommends that the USGS's Water Resources Division expand its efforts to document and analyze extreme hydrologic events, both during and after their occurrence, and outlines eight activities to make this possible. Additionally, the report recommends that the agency build on its expertise in disseminating water resources data, that it consider expanding its outreach activities, particularly as they relate to risk-based interpretation and simulation of flooding conditions, and that the USGS play a prominent role in risk-based decision making regarding hydrologic hazards, particularly regarding probability and magnitude of extreme events as they relate to land use, climate, and stream flow regulation. Finally, the report notes that the ultimate goal of the hydrologic hazards program is to help protect lives and property from hazards while maintaining and protecting ecological communities.

Defence from Floods and Floodplain Management. John Gardiner, Ödön Starosolszky, and Vujica Yevjevich, Editors. 1995. 580 pp. \$291.00, plus \$4.00 shipping. Available from Kluwer Academic Publishers, 101 Philip Drive, Assinippi Park, Norwell, MA 02061; (781) 871-6600; fax: (781) 871-6528; WWW: <http://www.wkap.nl>.

This volume presents the proceedings of the NATO Advanced Study Institute on Defence from Floods and Floodplain Management, held in Budapest, Hungary in 1994. It discusses floodplain management issues such as the maintenance and operation of various flood control structures to reduce the impacts of flooding, including water resources systems, dams, and levees; forecasting and flood monitoring; ice and floods; and flooding responses. The volume also examines floodplain management issues, such as modeling, land-use planning, using geographic information system technology, and flood risk mapping. Finally, it discusses ecological and social aspects of flooding, including the U.S.'s National Flood Insurance Program, public perceptions of risk, public policy and coastal hazards, hydrological and ecological systems in the floodplain, water quality, sustainable use of the floodplain, and the establishment of consensus on water management policy in the Netherlands.

Drought

"2000 Years of Drought Variability in the Central United States," Bulletin of the American Meteorological Society, Vol. 79, No. 12 (December 1998). Connie A. Woodhouse and Jonathon T.

Overpeck. Free with individual membership in the American Meteorological Society; \$80.00 for institutions. The complete text is also available free via the Internet: <http://ams.allenpress.com>. For further information, contact the American Meteorological Society, 1701 K Street, N.W., Suite 30, Washington, DC 20006; (617) 227-2426, ext. 214; e-mail: amsjol@ametsoc.org.

According to the authors of this paper, droughts are the most devastating natural hazards faced by the U.S. today. Noting that severe droughts of the 20th century have had tremendous impacts on the economy, society, and environment, particularly in the Great Plains, the authors examine the paleoclimatic record to determine the full range of past drought variability, including the range of magnitude and duration of drought in the U.S. Using historical documents, tree rings, archaeological remains, lake sediment, and geomorphic data, they conclude that the severe droughts we experienced in the 1930s (the Dust Bowl era) and the 1950s, were superseded by more severe droughts during the last 2000 years. In particular, some droughts prior to 1600 appear to have lasted longer and covered a wider area than those of the 20th century. The authors conclude that droughts more severe than those experienced in the past 100 years are likely to occur in the future and may be exacerbated by greenhouse warming in the next century.

Earthquakes and Other Geological Hazards

***Seismic Rehabilitation of Buildings: Strategic Plan 2005.** FEMA 315. 1998. 160 pp.*

***Home Builder's Guide to Seismic Resistant Construction.** FEMA 232. 1998. 85 pp.*

Both items are free and can be requested from the Federal Emergency Management Agency (FEMA), Publications Distribution Facility, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520.

***Seismic Rehabilitation of Buildings**, which builds on previous FEMA documents relating to its Program on the Seismic Safety of Buildings (see the *Observer*, [Vol. XXIII, No. 2, pp. 12](#) and [26](#)), presents 25 recommended tasks and four objectives to be undertaken by FEMA's Mitigation Directorate in the coming years. Recognizing the continuing national challenge posed by hundreds of thousands of earthquake-vulnerable buildings, this strategic plan outlines ways for FEMA to promote existing building practices, monitor and refine existing building materials, develop new tools for seismic rehabilitation, and consider several new directions for agency's Existing Buildings Program that could make seismic rehabilitation more successful.*

The ***Home Builder's Guide to Seismic Resistant Construction*** was created to encourage homeowners and builders of one- and two-family residences to reduce vulnerability to earthquakes. It discusses how earthquake forces affect conventional residences; how basic structural components can be assembled to achieve earthquake resistance; and how essential features, such as foundations, walls, floors, and roofs, interact to resist quakes. The guide includes sections on site selection; masonry chimneys; concrete, clay, and stone masonry; and building codes and references. It also contains a home builders check list and a typical floor plan demonstrating earthquake resistance.

***Living with Earthquakes in the Pacific Northwest.** Robert S. Yeats. 1998. 304 pp. \$21.95, plus \$3.00 shipping. To order a copy, contact the University of Arizona Press, 1230 North Park Avenue, Suite 102, Tucson, AZ 85719; (800) 426-3797 or (520) 626-4218; e-mail: orders@uapress.arizona.edu; WWW: <http://osu.orst.edu/dept/press>.*

In the past couple of decades, scientific research has uncovered more and more evidence of the risks posed by earthquakes in the Pacific Northwest. Noting that there are hundreds of mapped faults in Oregon, Washington, and British Columbia, and that subduction zone earthquakes could produce events of magnitudes of 8 or 9, the author believes the Pacific Northwest has a lot to do to prepare for its next major quake. In *Living with Earthquakes*, Yeats outlines the basics of plate tectonics, the origin of earthquakes, the difference between crustal and subduction zone quakes, and the special risks created by tsunamis and soil liquefaction. From there, he discusses human aspects of the seismic risk, including earthquake insurance, government planning, quake forecasting and prediction, and building codes. Finally, he offers advice for the average homeowner on preparing their dwelling and family for an earthquake.

Loss Assessment of Memphis Buildings. Daniel P. Abrams and Masanobu Shinozuka, Editors. Technical Report #NCEER-97-0018. 1997. 262pp. \$20.00. Copies can be purchased from MCEER Publications, Multidisciplinary Center for Earthquake Engineering Research, State University of New York at Buffalo, Red Jacket Quadrangle, Buffalo, NY 14261; (716) 645-3391; fax: (716) 645-3399; e-mail: mceer@acsu.buffalo.edu; WWW: <http://mceer.buffalo.edu>.

This report contains the results of a project to integrate various disciplines to estimate probable losses of concrete and masonry buildings in Memphis, Tennessee due to an earthquake. Seismologists created synthetic earthquake motions and used them with models provided by structural engineers to generate data on losses for these types of buildings. These losses were then assessed by socioeconomic researchers who applied damage probabilities and repair cost models to estimated building inventories. The overall purpose of this project was to develop a standard method that could be applied to other building types in other geographical regions. Detailed results of the loss estimates are included.

This Dynamic Earth: The Story of Plate Tectonics. W.J. Kiouss and R.I. Tilling. 1996. 77 pp. \$6.00. Copies can be purchased from the U.S. Geological Survey, Information Services, Box 25286, Building 810, Denver Federal Center, Denver, CO 80225; (303) 202-4700; fax: (303) 202-4693. The complete text is also available via the Internet at <http://pubs.usgs.gov/publications/text/dynamic.html#anchor19309449>.

In the early 1960s, the emergence of the theory of plate tectonics started a revolution in the earth sciences. Since then, scientists have verified and refined this theory, and we now have a much better understanding of how our planet has been shaped by plate tectonic processes. This booklet gives a brief introduction to the concept of plate tectonics, highlighting some of the people and discoveries that advanced the development of the theory, as well as the progress since it was first proposed. It contains sections on the geological history of the earth, tectonic plates, moving continents, ocean floors, earthquakes, plate motions, convergent boundaries, transform boundaries, hotspots, unanswered questions in the science, and plate tectonics and their impacts on people.

The Loma Prieta, California Earthquake of October 17, 1989--Recovery, Mitigation, and Reconstruction. Joanne M. Nigg, Editor. Professional Paper 1553-D. 1998. 90 pp. \$8.50, plus \$3.50 shipping. Copies can be purchased from the U.S. Geological Survey, Map Distribution, Box 25286, M.S. 306, Federal Center, Denver, CO 80225; (800) 435-7627; fax: (303) 202-4693.

The papers in this report reflect the broad spectrum of issues that arise following a major damaging urban earthquake. Contributors examine the macroeconomic effects of the quake, sheltering and housing of low-income and minority groups in Santa Cruz County; hazards mitigation and recovery; local earthquake mitigation programs and perceptions of their effectiveness after the quake; rebuilding in areas of ground failure; the state of California's response to the quake; and lessons from the quake that apply to earth science, earthquake response, and hazard mitigation.

Proceedings Volume: Basin and Range Province Seismic-Hazards Summit. William R. Lund, Editor. 1998. 206 pp. \$15.00. To obtain a copy, contact the Western States Seismic Policy Council, 121 Second Street, 4th Floor, San Francisco, CA 94105; (415) 974-6435; fax: (415) 974-1747; e-mail: wsspc@wsspc.org; WWW: <http://www.wsspc.org>.

This volume contains the proceedings of a meeting that examined seismic hazards in and seismic policy for the Basin and Range Province, a geologic region that falls in several western states. Seismic hazard characterization in this region poses several distinct challenges, since the area has hundreds of thousands of potentially active faults, long earthquake recurrence intervals, alluvial basins, and sparse historical earthquake records. The conference provided a scientific basis for determining seismic policy in the region, such as funding for research at the federal level, guidelines for evaluating and mitigating seismic hazards, and changes in building codes adopted by local governments. Among the topics addressed by papers in this volume are building code ground-shaking criteria, information emergency managers need from geoscientists, land-use planning in Utah, the potential for tectonically induced flooding by the Great Salt Lake, hazard assessment, and state seismicity and probability maps.

Vrancea Earthquakes: Tectonics, Hazard and Risk Mitigation: Contributions from the First International Workshop on Vrancea Earthquakes, Bucharest, November 1-4, 1997. F. Wenzel, D. Lungu, and O. Novak, Editors. 1998. 396 pp. \$170.00. To obtain a copy, contact Kluwer Academic Publishers, Order Department, P.O. Box 322, 3300 AH Dordrecht, The Netherlands; tel: +31-78-6392392; fax: +31-78-6546373; e-mail: orderdept@wkap.nl; WWW: <http://www.wkap.nl>.

This volume contains peer-reviewed papers presented at a workshop in Bucharest on strong earthquakes in the Romanian Vrancea area that have caused extensive damage and loss of life over the last several centuries. In 1977, a magnitude 7.4 quake caused more than 1500 casualties, the majority occurring in Bucharest. Papers address such topics as seismotectonics, strong ground motion, hazard assessment, site effects, microzonation, structural damage, earthquake resistant design, risk assessment, and disaster management.

The Earth in Turmoil: Earthquakes, Volcanoes, and Their Impact on Humankind. Kerry Sieh and Simon LeVay. 1998. 324 pp. \$24.95, plus \$5.50 shipping. Available from VHPS/W.H. Freeman, 175 Fifth Avenue, New York, NY 10010-7848; (800) 288-2131; fax: (800) 818-9907; WWW: <http://www.whfreeman.com>.

Earthquakes and volcanoes cause untold personal and economic devastation each year. ***The Earth in Turmoil*** describes earthquakes and volcanoes from the point of view of scientists who are trying to understand their causes and forecast future activity in order to reduce this destruction. Organized according to U.S. region, it provides accounts of past disasters and predictions for future events,

including a final chapter on how people can mitigate the damaging effects of earthquakes through individual and collective action. Topics include earthquakes in the Pacific Northwest, Mount St. Helens, the San Andreas Fault, earthquakes on urban faults, the Mammoth Lakes, earthquakes in the Basin and Range Province, the volcanoes at Yellowstone, the Mississippi and New Madrid earthquakes, quakes on the Atlantic Coast, and Hawaiian volcanoes.

Fire and Mud: Eruptions and Lahars of Mount Pinatubo, Philippines. Christopher G. Newhall and Raymundo S. Punonbayan, Editors. 1996. 1,126 pp. \$80.00, plus \$5.00 shipping. To obtain a copy, contact the University of Washington Press, P.O. Box 50096, Seattle, WA 98145-5096; (800) 441-4115; fax: (800) 669-7993; e-mail: wwpress@u.washington.edu; WWW: <http://www.washington.edu/uwpress>.

Fire and Mud documents the reawakening of Mount Pinatubo following a 500-year sleep; it includes 21 technical papers describing the scientific and human story of the 1991 eruption. Ten times larger than the Mount St. Helens explosion in the U.S., this eruption threatened a million people and sent a giant ash cloud 35 kilometers into the sky, searing the surrounding area with hot blasts. In this book, volcanologists and other experts from 10 countries explore the precursors, processes, and products of the eruption, as well as the record-setting erosion and lahars that followed. Of particular interest to ***Observer*** readers are papers on eruption hazard assessments and warnings, building damage, socioeconomic impacts, impacts on aircraft operations, and atmospheric impacts.

Magnitude 8: Earthquakes and Life Along the San Andreas Fault. Philip L. Fradkin. 1998. 336 pp. \$27.50. To purchase a copy, contact Von Holtzbrinck Publishing Services, 16365 James Madison Highway, Gordonsville, VA 22942; (888) 330-8477; fax: (800) 672-2054; WWW: <http://www.henryholt.com>.

In ***Magnitude 8***, Fradkin, a self-described environmental historian, describes the seismic history and potential impacts of a major earthquake along the San Andreas Fault. He presents a scenario of such a quake hitting the San Francisco region in mid-afternoon on a weekday, discusses the nature of seismic events, presents a brief history of earthquakes in the Old and New Worlds, followed by a history of quakes along the fault, discusses in detail the 1906 San Francisco quake, outlines the Parkfield experiment and other earthquake prediction efforts, and recounts the impacts of the Loma Prieta and Northridge earthquakes.

Connections: The EERI Oral History Series--William W. Moore. Stanley Scott, Interviewer. 1998. 145 pp. \$15.00, plus \$5.00 shipping. Copies can be purchased from the Earthquake Engineering Research Institute (EERI), 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eeri@eeri.org; WWW: <http://www.eeri.org>. California residents, please add sales tax amount applicable in your county or district.

This publication is the fifth volume in the EERI Oral History Series, which provides in-depth interviews with important individuals in earthquake engineering. This issue is devoted to William Moore, co-founder of the engineering firm Dames & Moore and one of the first engineers to use probabilistic seismic hazard assessment methods in his work. This technique has since been adopted by the U.S. Geological Survey and was used in their development of seismic hazard maps for the most recent National Earthquake Hazard Reduction Program seismic guidelines. Moore was also the first president

of the Applied Technology Council, created following the 1971 San Fernando Earthquake, and the first chair of the Building Seismic Safety Council. In this volume, Moore reflects on those events as well as the shift of engineering firms to environmental work, the quality of the profession, the history of structural engineering in California, the human side of engineering and the wise use of technology, and earthquake-related activities.

Introducing *Risk Management Journal*

The Scarman Center for the Study of Public Order, University of Leicester, U.K., now publishes *Risk Management*, a quarterly journal designed to bridge the gap between practice and research and to develop new thinking and good practice for those involved in different aspects of risk management. The journal facilitates the exchange of expertise across countries, disciplines, and professions. Subscriptions cost £175 for orders outside the U.K. For additional information, contact *Martina McGuinness, Scarman Center for the Study of Public Order, University of Leicester, The Friars, 154 Upper New Walk, Leicester LE1 7QA, U.K.*; tel: 44 116 252 5700; fax: 44 116 252 3944; e-mail: mmm10@le.ac.uk.

Who We Are

The Hazards Center

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER was founded to strengthen communication among researchers and the individuals and organizations concerned with mitigating natural disasters. The center is funded by the National Science Foundation, Federal Emergency Management Agency, National Oceanic and Atmospheric Administration, U.S. Geological Survey, U.S. Army Corps of Engineers, U.S. Forest Service, Environmental Protection Agency, U.S. Department of Transportation, National Aeronautics and Space Administration, the Institute for Business and Home Safety, and the Public Entity Risk Institute. Please send information of potential interest to the center or the readers of this newsletter to the address below. The deadline for the next *Observer* is *March 20, 1999*.

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Cartoons for the *Observer* are drawn by Rob Pudim

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The *Observer* is free to subscribers within the U.S. Subscriptions beyond the U.S. cost \$15.00 per year.

Back issues of the *Observer* are available for \$2.00 each, plus shipping and handling. Orders must be prepaid. Checks should be payable to the University of Colorado.

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Last updated March 2, 1999

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 [Return to the Table of Contents for this *Observer*](#)

 [Return to the Index of the *Natural Hazards Observer*](#)

 [Return to the Natural Hazards Center Home page](#)