



## VOLUME XXIII, NUMBER 3, January 1999

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## **Prediction in Policy: A Process, Not a Product**

*--an invited comment*

The earth sciences, backed by formidable arrays of data-gathering and processing technologies, now offer the apparently credible promise of predicting the future of nature. Policy makers, under pressure as always to deliver public benefit at low cost and even lower risk, have strong incentives to accept this promise as one response to environmental issues.

As part of the Science, Policy, and Outcomes Project, funded by the National Science Foundation, the authors are investigating the role of prediction in the making of environmental policies. Such policies relate to problems in planning for and responding to natural hazards (weather, floods, earthquakes, asteroids); planning for and responding to anthropogenic hazards (global climate change, acid rain, nuclear waste); managing natural resources (oil reserves, beaches); and regulating environmental impacts (mining).

We convened a workshop in Estes Park, Colorado, September 10-12, 1998 (along with our co-

investigators, Roger Pielke, Jr., and Dale Jamieson), that brought together a diverse group of people involved in various ways with the process of prediction. Among the 35 participants were a scientist who works on climate models, the former emergency manager of a major California city, a banker from a coastal city that is subject to hurricanes, a seismologist, a rancher, a former official at the federal Office of Management and Budget, an engineer who works on nuclear waste isolation, and a coastal geologist who studies beach erosion. The goal of the workshop was to apply the collective wisdom of a range of stakeholders (including natural scientists who make predictions and social scientists who are concerned with their use) to the problem of how scientific predictions should be used (or not used) in the development of effective policies relating to natural hazards, natural resources, and the environment.

## **Calibration vs. Extrapolation**

People listen to or read the morning weather report and then make a decision about clothing, accessories (umbrella? gloves? hat?), and mode of transport. This decision is backed by personal experience of weather and its local fluctuations, as well as a scientific and technical support infrastructure that in the U. S. issues on the order of 10 million weather predictions per year. These predictions, based in part on real-time observations of weather patterns, are aimed at providing the specific information that people need. The consequences of a poor prediction, or a poor decision based on a good prediction, are often modest--a wet shirt, perhaps a car skidding off the road--but, on rare occasions, severe--an airplane crash or failure to evacuate a town, for example. In any case, users have accumulated enough experience in comparing the prediction to the actual event to personally calibrate the weather prediction process.

Conversely, in other situations such personal experience is not possible. Members of Congress listen to testimony from scientists about nuclear waste disposal. Because radioactive waste remains dangerous for hundreds of thousands of years, disposal systems must operate effectively for at least that long. The relevant science uses analogy, mathematical models, and extrapolation to predict events far in the future. Thus, there is no basis in personal experience for evaluating or calibrating the actual performance of the disposal systems or the science. Decisions must be based on abstractions. Action must be taken, but the consequences of a poor prediction, or a poor decision based on a good prediction, are potentially disastrous, both politically (a lost election) and societally (radionuclides leaking into groundwater or even reaching the atmosphere).

## **The Complexity of Choice**

Decision making is forward looking, so the allure of prediction is strong. We look to predictions to help us make decisions that can mitigate or evade the impact of nature on society and of society on nature. In doing so, we need to recognize that prediction has become part of a complex decision-making process, a network of interrelationships that must function well across all of its connections if predictions are to serve society successfully. This integrated process involves policy makers (who solicit and pay for predictions), scientists (who make predictions), and decision makers (who use them--for everything from deciding whether to carry an umbrella to evacuating a city in the path of a hurricane; from establishing levels of insurance risk to negotiating an international environmental agreement).

The less frequent, less observable, less spatially discrete, more gradual, more distant in the future, and more severe a predicted phenomenon, the more difficult it is to accumulate direct experience. Where direct experience is sparse or lacking, other sources of societal understanding must be developed or the prediction process will not function effectively. Science alone does not create this understanding.

## Making the Right Decisions

What is necessary above all is an institutional structure that allows policy makers, decision makers, and scientists to interact closely throughout the entire prediction process, so that each knows the needs and capabilities of the others. It is crucial that this process be open, participatory, and conducive to mutual respect. Efforts to shield expert research and decision making from public scrutiny and accountability invariably backfire and fuel distrust and counterproductive policies and decisions.

How can the prediction process foster sound decision making?

- **Predictions must be generated primarily with the needs of the user in mind.** Television weather predictions focus primarily on temperature, precipitation, and wind, rather than thermal gradients, behavior of aerosols, and barometric pressure. For scientists to participate usefully in the prediction process, they must address the goals of the process, not the goals of science; they must listen to stakeholders. For stakeholders to participate usefully in this process, they must work closely and persistently with the scientists to communicate their needs and problems.
- **The prediction process must be open.** To create openness, stakeholders must *question predictions*. For this questioning to be effective, predictions should be as transparent as possible to the user. In particular, assumptions, model limitations, and weaknesses in input data should be forthrightly discussed. Especially in cases where personal experience may be limited (acid rain, asteroid impacts, global warming), public confidence in the validity of the prediction will derive in part from an understanding of how the prediction is generated. Black boxes generate distrust, especially when a prediction can stimulate decisions that create winners and losers.

Even so, many types of predictions will never be understood by decision makers in the way that weather predictions are understood. Experience is important and cannot be replaced, but the prediction process can be facilitated in other ways, for example by being totally open about predictions, warts and all; and by fully considering alternative approaches to prediction, such as no regrets public policies, adaptation, and better planning and engineering.

- **Uncertainties must be clearly articulated (and understood) by the scientists, so that users understand their implications.** Failure to understand uncertainties has contributed to poor decisions that then undermine relations among scientists and decision makers; we saw this during the Red River flood in Grand Forks, North Dakota. But understanding the uncertainties does not mean that the predictions will be useful. If policy makers truly understood the uncertainties associated with predictions of global climate change or nuclear waste behavior, they might decide

that strategies for action should not depend on predictions.

- **Alternatives to prediction must be evaluated as a part of the prediction process.** Rather than trying to predict the impacts of hard-rock pit mines on water quality as a basis for environmental regulation, it might be more feasible to spread risk through bonding or other types of insurance. Predicting the consequences of global climate change has caused policy gridlock; other approaches to mitigation and adaptation should be sought more vigorously.
- **Predictions themselves must be viewed as events.** The prediction process must include mechanisms for the various stakeholders to fully consider and plan what to do after a *prediction* is made.

## Healthy Decisions

When the prediction process is fostered by effective, participatory institutions, and when a healthy decision environment emerges from these institutions, the products of predictive science may even become *less* important. Earthquake prediction was once a policy priority; now it is considered technically infeasible, at least in the near future. But, in California, the close, institutionalized communication among scientists, engineers, state and local officials, and the private sector has led to considerable advances in earthquake preparedness and a much decreased dependence on prediction. On the other hand, in the absence of an integrated and open decision environment, the scientific merit of predictions can be rendered politically irrelevant, as has been seen with nuclear waste disposal and acid rain. That is, if there is no adequate decision environment for dealing with an event or situation, a scientifically successful prediction may be no more useful than an unsuccessful one.

These observations fly in the face of much current practice, where, typically, policy makers recognize a problem, scientists then do research to predict natural behavior associated with the problem, and predictions are finally delivered to decision makers with the expectation that they will be both useful and well-used. This sequence, which puts predictive research at the core of the decision environment, rarely functions well in practice. In contrast, our work suggests that, for virtually every environmental problem, the key to effective decision making lies in improving the decision environment itself. Such improvement may come from cost-effective, politically realistic alternatives to prediction. The goal of the decision environment must be good decisions, not good predictions.

**Daniel Sarewitz, Senior Research Scholar, Science, Policy, and Outcomes Project, Columbia University**

**Radford Byerly, Former Chief of Staff, U.S. House of Representatives, Committee on Science, Space, and Technology**

For more information on this project, see <http://www.dir.ucar.edu/esig/prediction/> on the World Wide Web.

This project is supported by a grant from the National Science Foundation, Societal Dimensions of

## Natural Hazards Center Wants Your Input



Most local officials have no personal experience dealing with disasters or disaster recovery, and they are often overwhelmed by the complex issues and decisions that follow. The Natural Hazards Center, with financial support from the Public Entity Risk Institute (PERI), is currently preparing a report and related products regarding the need, feasibility, form, content, timing, and operation of a Community Recovery Assistance Team Program to help local officials successfully manage postdisaster recovery. The project will explore the need for outside expert advice to help community officials avoid being overwhelmed by complex disaster recovery processes, address community impacts effectively, and capitalize on rebuilding opportunities. Among other possible benefits, such assistance could enable community officials to: 1) take decisive, informed action to restore key services and coordinate outside funding and other assistance; and 2) guide recovery activities to ensure consistency with the community's vision and objectives for long-term growth and disaster resiliency.

This project will develop a framework for creating teams of well-organized, experienced disaster professionals who could be mobilized to work directly with recovering communities. While such support might appear to be an obvious need, to our knowledge, technical assistance teams have been used only in a few instances. The initial phase of this project is a planning year that provides an opportunity to discuss the technical assistance needs of communities after disasters. Therefore, we would like the help of interested readers of the *Observer*. To successfully explore the Community

Recovery Assistance Team concept, we need your input on the following questions:

- 1) What are the biggest problems facing communities during recovery from catastrophe?
- 2) In what areas could disaster recovery teams be of most help to communities?
- 3) Based on your experience with disasters, how could the teams most help communities integrate mitigation into recovery?
- 4) Based on your experience with disasters, how could the teams most help communities in terms of broader long-term recovery and sustainable redevelopment?
- 5) What types of persons should comprise the teams-- what discipline, experience, etc.?
- 6) Do you know of any instances in which outside technical assistance has been provided to communities during recovery?
- 7) Do you know of others who might have useful information and be willing to respond these questions?

Finally, please share additional comments on the program with us. For further information on this project or to respond to these questions, contact *Jeanine Stevens, Natural Hazards Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; (303) 492-2149; fax: (303) 492-2151; e-mail: [jeanine.stevens@colorado.edu](mailto:jeanine.stevens@colorado.edu).*

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## ***The Three Centers, Part I . . .***

### **The Mid-America Earthquake Center**

In 1997, in a major initiative to advance earthquake science, the National Science Foundation (NSF) funded three centers across the U.S. to conduct and coordinate earthquake research for the nation (see the *Observer*, [Vol. XX, No. 2, p. 19](#)). The following is an update concerning one of those institutions-- the Mid-America Earthquake Center. We will examine the other centers in future issues of the *Observer*.

The Mid-America Earthquake (MAE) Center was the only one of the three NSF-funded centers that was entirely new and not established in conjunction with an existing program. The MAE Center is a consortium of seven central- and eastern-U.S. academic institutions<sup>1</sup>, headquartered at the University of Illinois at Urbana-Champaign.

The center's mission is to examine and mitigate problems associated with low-frequency, high-



consequence seismic events east of the Rocky Mountains. Following a multidisciplinary approach, the MAE center carries out research within three major programs: transportation networks, essential facilities, and hazard evaluation. The center also supports active programs for education and outreach.

The MAE center is now fully staffed and entering its second year of operation. In addition to overseeing active projects in all five program areas, it is collaborating with the other two NSF-funded centers--the Multidisciplinary Center for Earthquake Engineering Research (MCEER) and the Pacific Earthquake Engineering Research (PEER) Center--in transportation, social science, and education studies.

An important MAE Center focus is the creation of links to business, industry, and government, and to further that goal, it has just established a program entitled "access2" to provide business, industry, and government direct input to the center's research programs and access to its research products, expertise, and students. *Access2* is the first of three programs that will compose the MAE Center Business, Industry, and Government (B-I-G) Partnership Program, which will involve regional offices in Atlanta, Memphis, and St. Louis.

The best source of information about the Mid-America Earthquake Center is its Web site: <http://mae.ce.uiuc.edu>. The center also publishes a bimonthly newsletter; to subscribe or gain additional information, contact the MAE Center, 1241 Newmark Civil Engineering Lab, University of Illinois at Urbana-Champaign, 105 North Mathews Avenue, Urbana, IL 61801; (217) 244-6302; fax: (217) 333-3821; WWW: <http://mae.ce.uiuc.edu>.

**1. Consortium members include Georgia Institute of Technology, Massachusetts Institute of Technology, Texas A&M University, University of Illinois at Urbana-Champaign, University of Memphis, St. Louis University, and Washington University.**

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## FEMA/MCEER Establish NYC Earthquake Hazard Consortium

The Multidisciplinary Center for Earthquake Engineering Research (MCEER), headquartered at the State University of New York at Buffalo, is spearheading an effort sponsored by the Federal Emergency Management Agency's Region II office to build a consortium of organizations that will define and assess the vulnerability of the New York City metropolitan area to earthquake hazards.

Academic institutions; municipal, state, and federal emergency management agencies; public service organizations; and private corporations have been invited to participate in the consortium's activities. As seismic studies and a built environment inventory are developed for the metropolitan area, the consortium will try to foster local awareness by providing key groups with accurate vulnerability and loss estimation data as well as technical assistance regarding loss reduction.

MCEER is responsible for overall coordination of the project, which is overseen by a technical coordinator, an executive committee of representatives from some of the key participating agencies, and

an external technical advisory board. For additional information about the consortium, contact *Bruce Swiren, Earthquake and Hurricane Programs Manager, FEMA Region II, 26 Federal Plaza, Room 1337, New York, NY 10278-0002; (212) 225-7230; or Andrea Dargush, MCEER, State University of New York at Buffalo, Red Jacket Quadrangle, Buffalo, NY 14261-0025; (716) 645-3391; fax: (716) 645-3399; e-mail: [dargush@acsu.buffalo.edu](mailto:dargush@acsu.buffalo.edu); WWW: <http://mceer.buffalo.edu>.*

[Adapted from *MCEER Information News*, available on-line at <http://mceer.buffalo.edu/news/>]

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## IBHS Offers Improved Data on the Insured Costs of Disasters

Financial losses due to natural catastrophes have increased dramatically in recent years because of rapid population growth in high-risk coastal areas, increased property values, and more frequent occurrence of severe storms, particularly hurricanes. At the same time, complete data regarding these losses have not been available or in a format easily accessible to researchers.

To assist the study of insured losses from catastrophic events, the Institute for Business and Home Safety (IBHS) has developed a catastrophe paid loss database, which provides more detailed loss data than that provided by the Property Claim Services (PCS) data used by many insurers and researchers.

PCS has provided information to insurers since 1949 about insured catastrophe losses. The organization estimates insured losses associated with catastrophic events--those that result in losses above \$25 million. These estimates, issued shortly after an event occurs, are based on loss projections provided by insurers and post-event damage inspections by PCS representatives. However, because of the nature of the data, the detailed analyses that can be performed are somewhat limited.

By comparison, the IBHS database, which includes data for disaster losses from January 1994 to the present, uses actual claim payments as they occur over time to establish the ultimate insured cost of a catastrophe. The database provides the total loss estimate for each catastrophe and allows the data to be broken down by type of business loss; personal and commercial losses; building, contents, and time (e. g., business interruption) losses; and state, county, and zip code. The goal of this project is to create a better understanding of catastrophic losses and to provide a basis for research, mitigation, and public education.

A report on this data base was recently published by IBHS and can be obtained from *Patty Hatch, IBHS, 175 Federal Street, Suite 500, Boston, MA 02110-222; (617) 292-2003, ext. 223; e-mail: [phatch@ibhs.org](mailto:phatch@ibhs.org)*. For further information about the project, contact *Greta Ljung* at the address above or by calling (617) 292-2003, ext. 217, or by e-mailing [gljung@ibhs.org](mailto:gljung@ibhs.org).

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## IBHS Launches Program to Improve Safety of Nation's Child

## Care Centers



The United States is exposed to more types of natural disasters than any other nation, and America's children are among the most vulnerable to harm from these catastrophes.

Recognizing this problem, in December the Institute for Business and Home Safety (IBHS) launched *Protecting Our Kids from Disasters*, a national program to reduce the risk of natural disaster-related injury to children in approximately 93,000 child care centers in the United States. Supported by the insurance industry, IBHS is a nonprofit organization whose mission is to reduce deaths, injuries, property damage, economic losses, and human suffering caused by natural disasters.

Over the next five to 10 years, volunteers from the insurance industry, as well as others interested in performing this important public service, will work with child care centers nationwide to implement nonstructural safety measures. These modifications will not only prevent minor mishaps but will also help the centers better withstand the effects of windstorms, earthquakes, wildfires, and floods, thus speeding recovery after a disaster.

More information about *Protecting Our Kids from Disasters* is available from *Craig Horton, IBHS, 175 Federal Street, Suite 500, Boston, MA 02110-2222; (617) 292-2003, ext. 244; fax: (617) 292-2022; WWW: <http://www.ibhs.org>.*

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## On the Line

### The Kentucky Hazard Mitigation Adoption Program

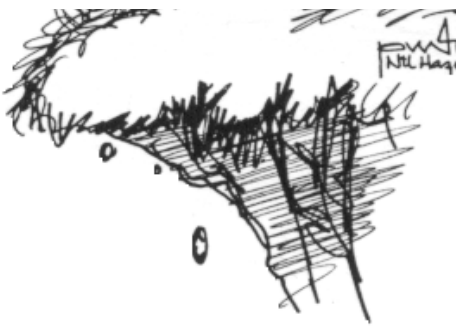
Mitigation planning to achieve disaster reduction and sustainable development is an objective strongly advanced by the Federal Emergency Management Agency (FEMA). Taking its cue from FEMA, the state of Kentucky decided to make mitigation planning a goal for each of the 120 counties in the state. To accomplish this goal, state disaster management officials turned to the Martin School of Public Policy and Administration at the University of Kentucky to aid the state hazard mitigation office in creating the Hazard Mitigation Adoption Program. In February 1998, an office was created within the Martin School, and a project administrator was hired.

The Martin School adopted a two-pronged approach: 1) develop outreach efforts to educate and inform decision makers and citizens about the need for mitigation planning, and 2) provide training and assistance in the development of those plans.

### Methods

The project uses a variety of approaches to fulfill its mission. A series of focus group meetings is being conducted throughout the state to gather information about the range of opinions and experiences of community leaders. Information from these sessions will then be used to identify key issues and develop a strategy for public education and training in hazard mitigation. The first four meetings were useful in developing a hazard mitigation workshop, presented for the first time in late June.





We are currently producing a public service video, *All Kentucky is at Risk*, which will be made available to all public access television stations, libraries, civic groups, and county officials. The video emphasizes developing community responsibility and raising public awareness of the need for mitigation against our state's natural hazards. Floods and landslides are the two major hazards Kentuckians face, although we are also at risk from a major earthquake along the New Madrid fault. Tornadoes and winter storms have also caused substantial damage in the state within the last couple of years.

As part of this project, we established a Web page, <http://www.uky.edu/Projects/MitigationKy>, to provide useful contacts, suggested readings, information about upcoming conferences and workshops, and links to other disaster management sites. We hope the Martin School can become a disaster resource center for Kentucky that uses its many assets to assist local citizens in developing disaster resistant communities.

## Initial Challenges

The initial challenges to the program have been establishing contacts in every county and building trust in the project objectives. Working through the 14 state disaster and emergency management area coordinators and the area development districts, we have compiled lists of local politicians and business leaders. However, in some areas, these resources have proven to be inadequate, making the process of identifying key people throughout the state difficult and slow.

In all instances, there has been a concerted effort to listen to the people in local communities and to see things from their perspective. We do not want the project to be viewed as just another state agency trying to tell local people what to do. Throughout the state, participants expressed their belief that local communities need more control over their disaster management decisions, but also need the financial support of the state to carry through with disaster mitigation projects. Local leaders have also expressed concern that the state does not demonstrate enough commitment from the top for disaster management and hazard mitigation.

In addition, community leaders indicated concern about what they see as conflicting information. We

often heard complaints that FEMA says one thing while the state emergency management office and the local emergency managers say another. A major barrier in designing mitigation plans within the counties is lack of building codes and ordinances--and particularly, lack of enforcement of those that do exist. Cultural differences also abound throughout the state, particularly in eastern Kentucky, where there is a lack of adequate land for development and a history of land misuse following decades of mining and timber extraction.

## Looking Forward

Focus participants stressed the need for community education as well as the need to develop disaster management and hazard mitigation educational tools suitable for elementary and middle schools. Most participants felt strongly that the message needs to be directed at children to effect a meaningful change in collective behavior.

Local officials also believe that unless mitigation efforts can be shown to have a positive financial effect upon the

community, it is unlikely citizens will buy into mitigation planning. In focus group sessions, we frequently heard the comment, Get to them through their wallet.

The project is a success and has been funded for an additional year. Working with the state geological society, which is housed on the University of Kentucky campus, we are seeking ways to incorporate other disciplines into the project. In addition, we are providing information and assistance to the city of Louisville, which was selected as a FEMA Project Impact community. We have developed presentations for the annual Governor's Emergency Management Workshop and are currently developing a hazard mitigation workbook based on the model mitigation plan for the state of Kentucky.

**Pat Trotter, Martin School of Public Policy and Administration, University of Kentucky**

For further information about the Hazard Mitigation Adoption Project, contact the author at the *Martin School of Public Policy and Administration, 415 Paterson Office Tower, University of Kentucky, Lexington, KY 40506-0027; (606) 257-8485, e-mail: [ptrott1@pop.uky.edu](mailto:ptrott1@pop.uky.edu).*



## Charleston House Demonstrates Sustainability

In an effort to educate homeowners about ways to reduce their risks from hurricanes and earthquakes, the South Carolina Sea Grant Consortium; the city of Charleston, South Carolina; and the Clemson Cooperative Extension Service have joined forces to transform a 125-year-old abandoned house into a model of sustainable building practices. The project, *113 Calhoun Street: A Center for Sustainable Living*, will become an example of how improved building materials and methods can help structures survive high winds, floods, and earthquakes. The center will educate architects, engineers, designers, contractors, and the general public through exhibits, workshops, and news releases. Using old and new construction practices, renovators will incorporate environmentally sound materials and building methods, leaving exposed areas for visitors to see how improvements were made.

Principle funding for the renovation and hazard retrofit phase of the project was provided by the Federal Emergency Management Agency (FEMA). Additional funds are being provided by State Farm Insurance and the South Carolina Association for Hazard Mitigation. Several companies have offered in-kind donations of products and services.

Modifications to the building include replacing the foundation with a block foundation and bolting the structure to it; elevating the building to base flood level; installing metal tie-downs from roof to foundation; improving the performance of roofing shingles in high winds; and attaching roof decking with screws and using adhesives to provide extra wind protection. In addition, the center will exhibit a variety of storm window coverings, methods for repairing flood damage, and techniques for securing heavy objects to prevent tipping and falling in earthquakes.

For more information about the Calhoun Street Project, contact *Bob Bacon, South Carolina Sea Grant Consortium, 387 Meeting Street, Charleston, SC 29401; (843) 727-2075; fax: (843) 727-2080; WWW:*



<http://www.csc.noaa.gov/SCSeaGrant/text/113Calhoun.html>.

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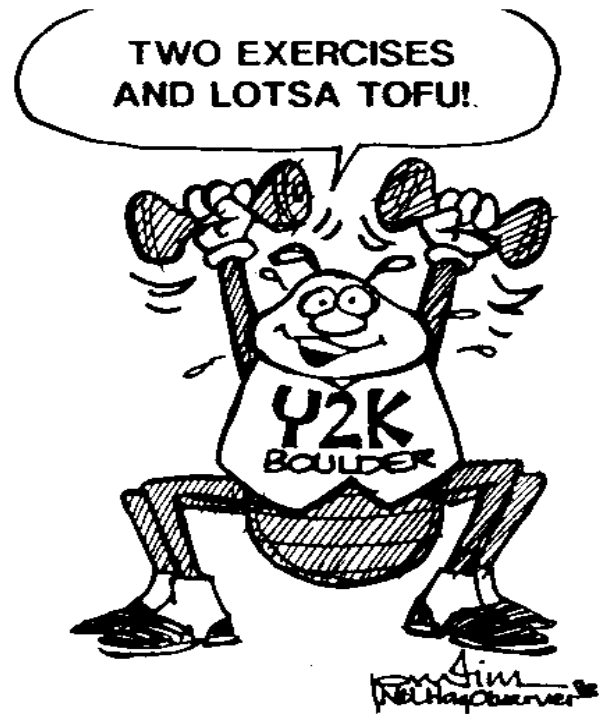
 [Return to the Natural Hazards Center Home page](#)



## Boulder's Approach to Y2K

Recently, readers contacted the editors regarding the Millennium Bug and were surprised to find that Boulder, Colorado, has already implemented a comprehensive program to address potential problems. They suggested an article to inform other *Observer* readers about these activities.

As the year 2000 approaches, concerns continue to increase about the potential impacts of the Millennium Bug on computers and complex systems (see the *Observer*, [Vol. XXIII, No. 2, p. 1](#)). News media are increasingly focusing on Year 2000 compliance as a significant business and public safety issue, and citizen groups, such as the Cassandra Project in Louisville, Colorado, are mobilizing to identify and address possible disruptions in the nationwide power grid and other systems that could lead to a loss of emergency services, heat, power, and food.



To deal with this emerging problem, the Boulder, Colorado, Multi-Agency Coordinating System (MACS), an interagency and interjurisdictional group that addresses local emergency management issues, is working on a Y2K contingency plan and undertaking educational efforts to ensure that citizens are prepared for this event. MACS consists of representatives from regional governments, fire and police departments, the Boulder Valley School District, the local American Red Cross, the local ambulance service provider, the University of Colorado, the Natural Hazards Center, the health department, the Cassandra Project, the Boulder County Healthy Communities Initiative, and other major community institutions.

Although most MACS member organizations expect to successfully address key Y2K service issues, effective delivery is contingent, at least in part, on continuance of electrical power from Public Service Company of Colorado. MACS is currently developing a planned emergency response to Y2K problems based on regional loss of electrical power. In particular, MACS is working to prepare and advise the public without exacerbating citizen concerns in a way that might lead to such actions as hoarding food, fuel, and medical supplies.

MACS is taking a multifaceted approach. Each agency is working to become Y2K ready internally, while informing the public about these activities and using the heightened level of awareness to educate citizens about the proper ways to prepare their homes and businesses for Y2K problems. Specifically, MACS is:

- conducting two Y2K exercises. One was held on December 7, 1998, using a winter storm scenario to educate participants about the types of issues that may arise with a widespread power grid failure and other systems malfunctions on January 1, 2000. During that exercise, participants learned about the potential for vehicle failure due to embedded chips, as well as transportation, sheltering, and communications constraints. A more extensive Y2K exercise will be held in mid-1999.
- working with the Cassandra Project and other neighborhood volunteer groups, which have held a national conference and several local neighborhood meetings, to inform citizens of agency preparedness activities and to provide information on household-level disaster preparedness. To date, several neighborhood-level meetings have been held and neighborhood groups have been formed specifically for dealing with Y2K issues. In coordination with these groups, American Red Cross/Federal Emergency Management Agency Certified Emergency Response Training was offered to 27 individuals, who have been certified to train others in proper disaster preparedness and response.
- providing a Y2K Web site through the City of Boulder to advise the public of these activities;
- including a Y2K message on the City of Boulder's recorded information line;
- providing information through the county extension office to help citizens assess their needs and to identify third-party resources for assistance. In particular, the extension office is working to help people avoid making poor choices, lose vital services, or become the victims of fraud.

In addition, the Red Cross is currently advising residents to prepare as they would for winter storms every year. In the event of service disruptions, they are suggesting that communities prepare to be self-sufficient for the first 72 hours. The county branch has ordered additional community disaster educational material and is making this information available to the public free of charge. They are also offering CPR and first aid classes, first aid kits, family disaster kits, and fire extinguishers for sale.

For information on these activities, contact *Larry Stern, Office of Emergency Management, Boulder County/City of Boulder, 1805 33rd Street, Boulder, CO 80301; (303) 441-3390; fax: (303) 441-3884; e-mail: [llssh@co.boulder.co.us](mailto:llssh@co.boulder.co.us)*. The City of Boulder Y2K Web site can be found at <http://bcn.boulder.co.us/boulder/y2k>, and the automated information line can be reached at (303) 441-4600; message #284.

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## The U.S. National Assessment of the Potential Consequences of Climate Variability and Change

A National Assessment of the Potential Consequences of Climate Variability and Change for the United

States is being conducted under the auspices of the U.S. Global Change Research Program (USGCRP), which coordinates participation of federal agencies in global change studies. The national assessment is focusing on what is known about the potential consequences of climate variability and change for the United States over the next 25-30 years (roughly one generation) and also over the next 100 years. The assessment, called for in the Global Change Research Act of 1990, will analyze and evaluate consequences for the environment, the economy, and society.

Fundamental questions to be addressed include:

- What are potential environmental problems and social issues within the United States that could be exacerbated by climate variability and change?
- How might climate variability and change aggravate or ameliorate existing problems, create new difficulties, or introduce opportunities?
- What options exist that can build resilience to current environmental stresses and lessen the detrimental impacts of climate change?
- What are the priority research and information needs (near- and long-term) that must be met to help policy makers reach wise decisions related to climate variability and change?

The national assessment has three components: a national synthesis; regional assessments; and economic, environmental, and societal sector analyses. Final reports from each component are to be completed by January 1, 2000, and are intended to serve as part of the U.S. contribution to the *Third Assessment Report of the Intergovernmental Panel on Climate Change*.

To inform participants and other interested parties, the USGCRP has just begun publishing *Acclimations*--a new bimonthly newsletter covering the national assessment. The newsletter appears as a link on the USGCRP Web site--<http://www.nacc.usgcrp.gov>--or it can be reached directly at <http://www.terra-comm.com/newsletter2/>. The newsletter addresses project activities; sectoral plans and accomplishments; regional workshop plans and post-workshop analyses and assessments; and related news items from federal agencies and other stakeholders. Comments and article submissions are welcome.

For more information about this study, see the project Web site: <http://www.nacc.usgcrp.gov>, or contact *Michael C. MacCracken, National Assessment Coordination Office, Suite 750, 400 Virginia Avenue, Washington DC 20024; (202) 488-8630; e-mail: [mmaccracken@usgcrp.gov](mailto:mmaccracken@usgcrp.gov)*.

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## Global Fire Monitoring Center Established in Germany

Recent research has provided considerable knowledge regarding both fire policy and management. However, in many developing countries this information is neither known nor accessible. During the fire and smoke disaster of 1997-98 in southeast Asia, for example, existing fire management expertise was

used to only a limited extent, resulting in confusion at national and international levels and delayed emergency response. These problems were due, in part, to the lack of a globally accessible fire information and monitoring system that national and international agencies involved in land-use planning, disaster management, or other fire-related tasks could rely upon.

To address this problem, in June 1998, a Global Fire Monitoring Center (GFMC) was established at the Max Planck Institute for Chemistry in Germany. In its first phase, the GFMC is archiving information and providing real-time or near-real-time information related to fire. The center is linking with other national and international information systems, and in the future, will expand to support operational aspects of international fire disaster management. The GFMC fire documentation, information, and monitoring system is now accessible through the Internet at <http://www.uni-freiburg.de/fireglobe>.

The GFMC is sponsored by the German Ministry of Foreign Affairs, as a German contribution to the International Decade for Natural Disaster Reduction (IDNDR), and the center is currently cooperating with the IDNDR and other U.N. agencies to identify operational problems and policy questions and develop appropriate responses.

For additional information about this new center and its long-range plans, contact *Johann G. Goldammer, Fire Ecology Research Group, Max Planck Institute for Chemistry, c/o Freiburg University, P.O. Box D-79085 Freiburg, Germany; tel: +49-761-808011; fax: +49-761-808012.*

(Note: See a [related article](#) in this *Observer* for information about a similar project undertaken in the U.S. by NASA and the University of Virginia.)

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## Washington Update

### Federal Budget Passes Congress (Finally!)

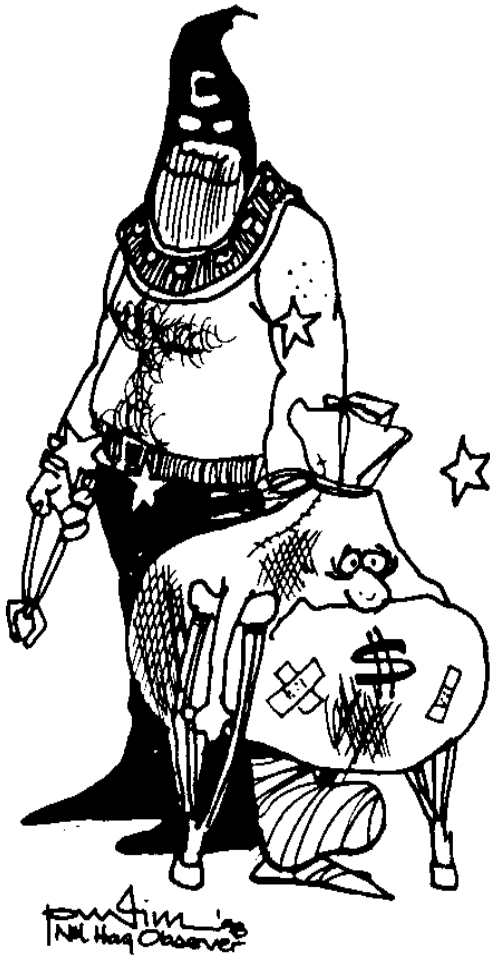
On October 21, 1998, President Clinton signed into law the legislation that appropriates funds for the Federal Emergency Management Agency (FEMA) and other independent agencies for fiscal year 1999. Among its numerous appropriations, Public Law 105-276 provides:

- nearly \$308 million to carry out the Robert T. Stafford Disaster Relief and Emergency Assistance Act, including \$40 million for various seismic retrofit projects in California;
- nearly \$2 million to provide direct loans as authorized under the Stafford Act;
- \$171 million for agency salaries and expenses;
- \$5.4 million for the Office of Inspector General;
- \$241 million for emergency management planning and assistance, including \$25 million for mitigation project grants;
- \$13 million to establish a Radiological Emergency Preparedness Fund for offsite radiological

emergency planning, preparedness, and response. The legislation also authorizes the FEMA director to assess and collect fees from those subject to FEMA's radiological emergency preparedness regulations in order to fund the program;

- \$100 million for FEMA's emergency food and shelter program;
- \$22.7 million from the National Flood Insurance Fund for salaries and expenses associated with flood mitigation and insurance operations; \$78 million for flood mitigation, including up to \$20 million for expenses.

The legislation also requires the United States Fire Administration to conduct a 12-month pilot project to promote the installation and maintenance of smoke detectors in high risk residential fire areas.



On the same day, President Clinton signed into law the Omnibus Appropriations Bill, Public Law 105-277, which provides funding for emergency management activities in other agencies, including:

- \$100 million to the Army Corps of Engineers for emergency repairs and dredging due to flooding;
- \$10 million to the National Park Service, \$1 million to the U.S. Geological Survey, and \$25 million to the U.S. Fish and Wildlife Service to repair damage due to hurricanes, floods, and other acts of nature;
- \$13 million to the U.S. Coast Guard for replacement and repair of its facilities damaged by

Hurricane Georges;

- \$71 million to the Small Business Administration for disaster loans for recovery from Hurricane Georges and other natural disasters;
- \$287 million to the Department of the Interior for wildfire management; and
- \$560 million to the U.S. Forest Service for wildland fire management.

The complete text of the bill can be obtained from most *federal depository libraries* or via the Internet at <http://thomas.loc.gov>, the Library of Congress Web site.

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## HUD Outlines Policies Governing Disaster Recovery Initiative

In October, the Department of Housing and Urban Development (HUD) announced in the *Federal Register* the policies and procedures governing its Disaster Recovery Initiative (see the *Observer*, [Vol. XXII, No. 2, p. 10](#)), a program to aid communities that receive presidential disaster declarations.

Initiative funds support activities of other federal agencies, but cannot be used for activities that are reimbursable or made available by FEMA, the Small Business Administration, or the U.S. Army Corps of Engineers. They are to be used primarily to benefit persons of low and moderate income through the redevelopment of viable urban communities by providing decent housing and a suitable living environment to victims of a disaster.

Public Law 105-174 provides \$130 million for this initiative, making funds available until October 1, 2001, and requires HUD to allocate funds to states based on unmet needs identified by the FEMA director. These unmet needs may fall under four categories: housing, business recovery, mitigation, and public works and facilities. The legislation also requires each state to contribute 25% matching funds or its equivalent value.

Eligible activities include those that benefit low and moderate income families, aid in the prevention or elimination of slums or blight, or meet other community development needs relevant to disaster recovery. Such activities may include property acquisition and relocation, debris removal, rehabilitation or reconstruction of residential and nonresidential buildings, work on public facilities, code enforcement, homeownership assistance, energy conservation, business recovery, job creation or retention, and related activities.

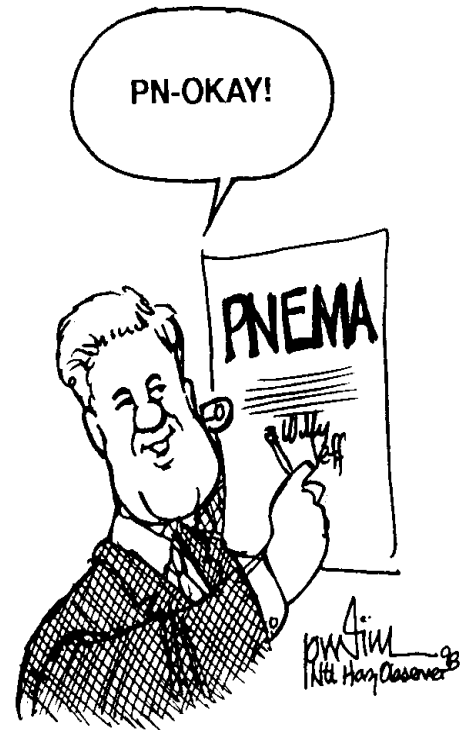
The public notice can be found in the October 22, 1998, issue of the *Federal Register* (Vol. 63, No. 204, pp. 56764-60344). For further information about the Disaster Recovery Initiative, contact *Jan C. Opper*, Office of Block Grant Assistance, Department of Housing and Urban Development, Room 7286, 451 Seventh Street, S.W., Washington, DC 20410; (202) 708-3587; fax: (202) 401-2044.

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## Congress Approves EM Compact

As of November 1998, the American and Canadian Pacific Northwest is a little safer and better prepared for emergencies and disasters because Congress approved and President Clinton signed into law the Pacific Northwest Emergency Management Arrangement, an agreement among the states of Alaska, Idaho, Oregon, and Washington with the Canadian province of British Columbia and the Yukon Territory.



The agreement, Public Law 105-381, establishes the Western Regional Emergency Management Advisory Committee that includes one member appointed by each signatory. It allows each signatory to seek the advice, cooperation, or assistance of any other Signatory in any civil emergency matter, and allows one signatory to request waiver of laws that may hinder or delay the rapid execution of civil emergency measures. In addition to numerous legal and logistical measures, the plan requires each signatory to exchange contact lists, warning and notification plans, and selected emergency plans and to call to the attention of their respective local governments and other jurisdictional authorities . . . the desirability of compatibility of civil emergency plans and the exchange of contact lists, warning and notification plans, and selected emergency plans.

Copies of the legislation can found at *your local federal depository library* or on-line at <http://thomas.loc.gov>.



## FEMA Issues Homeowner's Retrofitting Guide

Although many property owners want to protect their homes from floods, they often lack clear information about the options available to do so. FEMA recently released the *Homeowner's Guide to Retrofitting: Protect Your House from Flooding* (1998, 180 pp., free) to provide this information, which was written with special attention to the needs of flood victims and those who have little or no knowledge about flood protection methods or building construction techniques. The guide discusses meeting the National Flood Insurance Program substantial damage requirements, estimating preliminary costs, retrofitting in areas subject to multiple hazards, and obtaining technical and financial support.

Copies can be requested from the *FEMA Publications Distribution Facility, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520.*

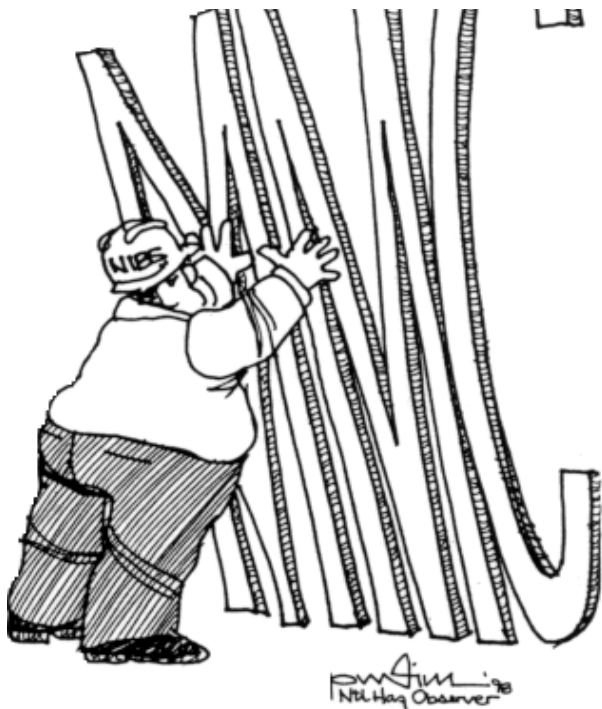
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## NIBS Establishes MMC

The National Institute of Building Sciences recently established the Multihazard Mitigation Council (MMC) to reduce losses caused by natural and other hazards through improved risk mitigation strategies, guidelines, practices, and related efforts. The council has broad interests, but is particularly interested in the concerns and responsibilities of public- and private-sector entities involved with structural and lifeline research, planning, design, construction, regulation, and management. MMC supports multihazard risk reduction by existing organizations and institutions so that these measures are part of established activities rather than separate efforts.







FEMA recently awarded a contract to the MMC to complete its organizational work, establish a membership base, finalize a five-year plan, and organize a broad peer review of the National Pre-Disaster Mitigation Plan submitted to Congress by FEMA (see the *Observer*, [Vol. XXIII, No. 2, p. 11](#)). The MMC will also advise FEMA about criteria for successful mitigation projects, including methods for assessing true costs and benefits and for ranking mitigation activities and projects. Currently, the MMC includes representatives from the American Red Cross, the National Association of Home Builders, the insurance industry, the research community, local planning and building departments, private corporations, state emergency service agencies, and the Association of State Floodplain Managers.

For more information, contact the MMC, 1090 Vermont Avenue, N.W., Suite 700, Washington, DC 20005; (202) 289-7800; fax: (202) 289-1092; e-mail: [thollenbach@nibs.org](mailto:thollenbach@nibs.org).

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## Witt Calls for NFIP Reform

In a speech last November before the National Press Club in Washington, D.C., James Lee Witt, director of the Federal Emergency Management Agency, recommended important changes to the National Flood Insurance Program. Witt stated that he feels it is time for Americans who insist on building their homes in disaster-prone areas to begin accepting the consequences of that choice, and that subsidized flood insurance should be limited and even eliminated in some cases.

Witt believes that flood insurance should no longer be provided to homeowners who have filed two or more claims that total more than the value of their home and who refuse to either elevate the structure or accept a buyout. In addition, he suggested the agency should charge people who live in high-risk areas

the fair market rates for flood insurance, rather than the subsidized rates currently available.

Currently, FEMA's Federal Insurance Administration is developing a repetitive loss strategy that will work to reduce the \$200 million annual repetitive flood losses in the U.S. For more information on this effort, contact the *Office of Emergency Information and Public Affairs, FEMA, 500 C Street, S.W., Room 824, Washington, DC 20472; (202) 646-4600; e-mail: [eipa@fema.gov](mailto:eipa@fema.gov)*; or view the text of the speech on-line at <http://www.fema.gov/library/wittspch11.htm>.

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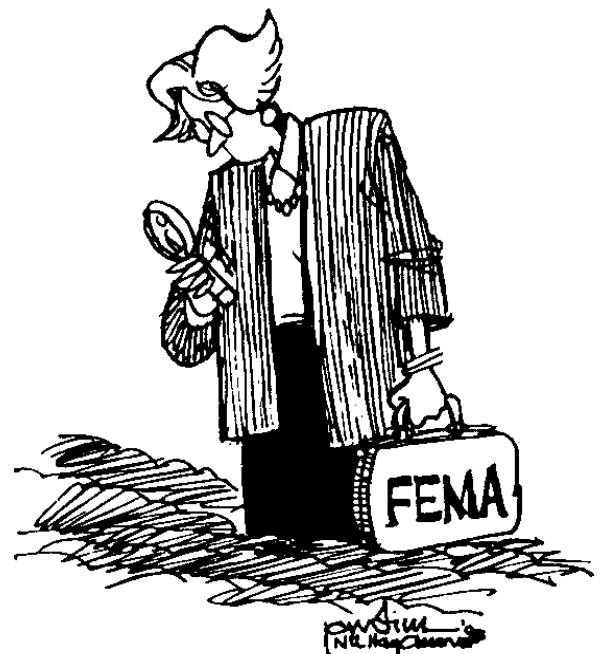
## FEMA Promoting Disaster-Resistant Universities

In the same speech mentioned above, FEMA Director James Lee Witt announced that the agency would enter into a new partnership with the nation's schools of higher education to create disaster-resistant universities. Citing the considerable federal government and private-sector investment in and reliance on America's universities, Witt declared that these resources must be better protected from both natural and human-caused calamities. Initially, FEMA will work with the University of California at Berkeley to develop a model for other schools to use to identify risks and undertake preventative actions. Also, FEMA will propose the establishment of a National Research Investment Protection Fund to help universities leverage additional resources for disaster prevention programs. For more information on this new effort, contact the *FEMA Office of Emergency Information and Public Affairs* at the address above.

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## FEMA Evaluating Erosion Hazards

The National Flood Insurance Reform Act of 1994 directs the Federal Emergency Management Agency (FEMA) to identify all communities with erosion hazards, estimate the amount of flood insurance claims attributable to erosion, and assess the economic impact of erosion on the National Flood Insurance Program (NFIP). The study is examining coastal and, if possible, riverine erosion.



## Coastal Hazards

FEMA has conducted the coastal portion of the study in two phases. The first involved the mapping of erosion hazard areas in 27 coastal counties in 18 states; the second included the inventory of structures in the mapped areas. The resulting data are being used to conduct an economic analysis of the impacts of erosion on coastal communities and the NFIP, as well as the benefits and costs of mapping erosion hazard areas.

FEMA contracted with representatives of 18 state Coastal Zone Management Programs to conduct the first phase of the study, and the mapping efforts were completed in December 1997. The second and final phase of the study was initiated in September of 1997 and is being conducted by the H. John Heinz III Center for Science, Economics, and the Environment. The inventory of structures was completed in November 1998 and the economic impact analysis was scheduled to be completed in December.

For additional information, contact *Mark Crowell*, FEMA, 500 C Street, S.W., Washington, DC 20472; (202) 646-3432; e-mail: [mark.crowell@fema.gov](mailto:mark.crowell@fema.gov).

## Riverine Hazards

FEMA is now conducting a study to determine the technological feasibility of mapping riverine erosion hazard areas (REHAs). The study will define riverine erosion processes, review geomorphic and engineering methods that could be used to map REHAs, evaluate methods used to predict and model REHAs, estimate the cost to study and map these areas, and determine elements that should be included in a program to map and regulate REHAs. The project will address past and ongoing research that assesses the effects of the many processes contributing to riverine erosion, concentrating on physical and statistical models that could be used to predict stream bank erosion.

A project working group of experts from state, local, and regional agencies; academia; and the private sector has been organized to provide guidance to FEMA in determining the feasibility of mapping REHAs. For additional information on this project, contact *Mike Grimm*, Project Officer, Western Studies Team, FEMA, 500 C Street, S.W., Washington, DC 20472; e-mail: [michael.grimm@fema.gov](mailto:michael.grimm@fema.gov). More information is available from the FEMA Web site: [http://www.fema.gov/mit/reha\\_stdy.htm](http://www.fema.gov/mit/reha_stdy.htm).

[Adapted from information provided in *Work in Progress*, the newsletter of the NFIP Map Modernization program.]

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## Some Interesting Numbers

**Number of people killed in international terrorist attacks in 1997--221**

**Number of people killed by human-exacerbated floods in the past eight months--10,914**

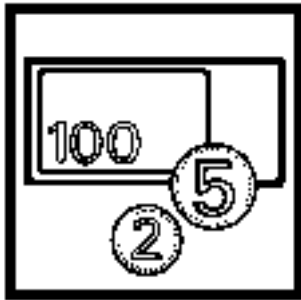
**Population of the United States--270 million**

**Number of the 400 million people living in China's Yangtze watershed who lost crops, were forced out of their homes or businesses, or suffered other damages from the flooding of the Yangtze River in 1998--240 million**

**Population of Italy--57 million**

**Number of people flooded out of their homes in China in 1998--56 million**

[These data appeared in the November/December 1998 issue of *WorldWatch* magazine.]



## **Contracts and Grants**

**Social Networks, Social Resources, and Hurricane Georges.** Funding Agency: National Science Foundation, \$67,915, 12 months. Principal Investigators: *Jeanne S. Hurlbert and John J. Beggs, Louisiana State University and A&M College, 117 David Boyd Hall, Baton Rouge, LA 70803: (504) 388-6877; e-mail: [jhurlbert@lapop.lsu.edu](mailto:jhurlbert@lapop.lsu.edu).*

The investigators will study social responses and communication patterns in the context of a natural disaster--Hurricane Georges, which struck the Gulf Coast of Mississippi and Alabama in August 1998. The researchers will survey 250 households regarding the respondents' core social networks prior to the storm and their use of formal versus informal sources of information and support. The study will provide insight on the processes surrounding preparation for and recovery from the hurricane in three communities.

**Panel Study of the Effects of El Niño on Los Angeles County Residents.** Funding Agency: National Science Foundation, \$298,400, 30 months. Principal Investigator: *Linda Bourque, Center for Public Health and Disaster Relief, UCLA School of Public Health, Box 951772, Los Angeles, CA 90095-1772; (310) 794-6646; fax: (310) 794-1805; WWW: <http://www.ph.ucla.edu/cphdr/>.*

UCLA's Center for Public Health and Disaster Relief will attempt to determine if relationships observed in previous earthquake studies can be applied to the El Niño event and assess if these relationships are

causal; to identify the physical, emotional, and economic effects of El Niño on the Los Angeles community; and to determine the role of media and public officials in preparedness activities.

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The Center for Public Health and Disaster Relief at the University of California, Los Angeles (see the article above), has begun publishing a free newsletter, *The Newsletter of the Center for Public Health and Disaster Relief*. For information on subscribing, contact the *Center for Public Health and Disaster Relief, UCLA School of Public Health, Box 951772, Los Angeles, CA 90095-1772; (310) 794-6646; fax: (310) 794-1805; e-mail: [locn@ucla.edu](mailto:locn@ucla.edu); WWW: <http://www.ph.ucla.edu/cphdr/>.*

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**Earthquake Hazard Reduction of Woodframe Construction.** Funding Agency: Federal Emergency Management Agency (FEMA) via the California Governor's Office of Emergency Services, \$5.5 million, 36 months. Principle Investigator: *John Hall, c/o California Universities for Research in Earthquake Engineering (CUREe), 1301 South 46th Street, Richmond, CA 94804; fax: (510) 231-5664; e-mail: [curee@nisee.ce.berkeley.edu](mailto:curee@nisee.ce.berkeley.edu).*

Funded through FEMA's Hazard Mitigation Grant Program, the California Institute of Technology (CalTech) and CUREe have launched a project to reduce damage and losses in woodframe construction due to earthquakes. The effort is, in part, a response to problems uncovered in the 1994 Northridge earthquake in which approximately half of all property losses were incurred by woodframe structures. Primary goals of the project include improving building codes and standards; making insurance ratings and loss estimates more accurate; and training building designers, inspectors, and contractors in effective woodframe construction techniques to mitigate seismic damage. The project has five elements: testing and analysis, field investigations, building codes and standards, economic aspects, and education and outreach. Individuals who would like to receive information about this project, including a project newsletter and requests for proposals, should send their name, affiliation, address, phone, fax, and e-mail address to *CUREe, 1301 South 46th Street, Richmond, CA 94804; fax: (510) 231-5664; e-mail: [curee@nisee.ce.berkeley.edu](mailto:curee@nisee.ce.berkeley.edu)*. For additional information, see <http://www.scec.org/news/98news/curee.html>.

**An Interactive, Intelligent, Spatial Information System (IISIS) for Disaster Management: A Community Model.** Funding Agency: Buhl Foundation, \$100,000, 12 months. Principal Investigator: *Louise Comfort, Graduate School of Public and International Affairs, 3E31 Forbes Quadrangle, University of Pittsburgh, Pittsburgh, PA 15260; (412) 624-5523 fax: (412) 624-4810; e-mail: [lkc@pitt.edu](mailto:lkc@pitt.edu).*

The purpose of the IISIS Project is to improve the capacity of communities to mitigate and respond to environmental risks. IISIS uses information processing technology to fulfill such organizational objectives as education, risk reduction, and timely action at multiple levels--households, businesses, public agencies, nonprofit organizations--to respond to hazards. The portion of the project funded by the Buhl Foundation will focus on developing a working prototype IISIS, using the University of Pittsburgh

as a community test site. The project team plans to extend the model regionally to examine water resources management, flood hazard reduction, and disaster management in western Pennsylvania. Details about the IISIS project are available on the World Wide Web at <http://quake.ucsur.pitt.edu:2000/>.

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# New Graduate-Level Disaster Programs

## The George Washington University

The George Washington University's Department of Engineering Management, supported by the GWU Institute for Crisis, Disaster, and Risk Management, is offering the degrees of Master of Science and Master of Engineering Management with a concentration in Crisis and Emergency Management. These 36-credit-hour programs are designed to provide interdisciplinary graduate education for persons engaged in or seeking professional careers in crisis, disaster, and emergency management.

The Department of Engineering Management is also soliciting applications for the Engineering Management Doctor of Science degree program from persons with research interests in the field of crisis, disaster, and emergency management. GWU's goal is to become an international center of excellence in interdisciplinary graduate education in these fields.

Commencing with the spring 1999 semester, a graduate-level Crisis and Emergency Management Certificate Program will be offered in addition to the degree programs. The program will consist of six selected courses and will be available for open enrollment or on a contractual basis to interested organizations. Credits earned in the certificate program may be applied to the master's and doctoral requirements.

All of the crisis and emergency management courses are held during the evening at the GWU Foggy Bottom Campus in Washington, D.C. See the Department of Engineering Management Web Site, <http://www.seas.gwu.edu/seas/emgt>, for general information concerning this program, course offerings, and overall graduate-level program information. Also, see the GWU Institute for Crisis, Disaster, and Risk Management Web Site, <http://www.seas.gwu.edu/seas/institutes/icdm>, for information on institute research, training, and education initiatives. Specific questions can be addressed to *Greg Shaw, Director of Training and Education, Institute for Crisis, Disaster, and Risk Management, The George Washington University Virginia Campus, 20101 Academic Way, Suite 220B, Ashburn, VA 20147-2604; (703) 729-8271; fax: (703) 729-8272; e-mail: [crisismgt@seas.gwu.edu](mailto:crisismgt@seas.gwu.edu)*.

## University of Delaware

On August 30, 1998, the University of Delaware initiated a new interdisciplinary, intercollege master's and Ph.D. program in Environmental and Energy Policy. Among the program's five major concentrations is one in disaster policy supported by staff of the Disaster Research Center at the University of Delaware. The concentration curriculum will include Federal Emergency Management Agency Higher Education Project emergency management courses. For additional information, contact *Sandy Matthews, Center for Energy and Environmental Policy, Graham Hall Mailstop, School of Urban*

*Affairs and Public Policy, University of Delaware, Newark DE 19716; (302) 831-8405; fax: (302) 831-3098.*

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## GWU and VPI Launch Joint Effort

The George Washington University, home of the Institute for Crisis, Disaster, and Risk Management, has joined forces with Virginia Polytechnic Institute and State University to form the Joint Center for Crisis and Disaster Management and Mitigation. This program represents a pooling of intellectual resources with respect to both natural and human-caused hazards; both universities, located in the Washington, D.C./northern Virginia area, have faculty with extensive hazards expertise. The center intends to conduct joint research and hold a series of presentations on the third Thursday of each month. To indicate interest in these sessions or to be included on the center's mailing list, contact the *Institute for Crisis, Disaster, and Risk Management, George Washington University, Virginia Campus, 20101 Academic Way, Room 220, Ashburn, VA 22011; (703) 729-8271; e-mail [crisismgt@seas.gwu.edu](mailto:crisismgt@seas.gwu.edu).*

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## The Internet Page(s)

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

## Hurricane Mitch

<http://www.colorado.edu/hazards/dr/dr276.html>

The Natural Hazard Center's *Disaster Research* e-mail newsletter #276 contains an extensive list of Web sites that provide country-specific details about the consequences of Hurricane Mitch, as well as information about relief and recovery needs and operations.

## All Hazards

<http://www.paho.org/english/ped/pedhome.htm>



The Pan American Health Organization's Emergency Preparedness and Disaster Relief Coordination Program has a new, redesigned Web site that provides an overview of the program; a section on "Dealing With Disasters" that includes discussion groups, donation guidelines, an index of contact persons in Latin America and the Caribbean, and situation reports; a catalog of publications, including full-text on-line documents and newsletters from PAHO; a link to the Regional Disaster Center in San José, Costa Rica, and its extensive database (11,000 documents) of hazards/disaster literature; information on PAHO's Humanitarian Supply Management System (SUMA); and extensive links to other disaster management resources on the Internet. There is also a special section on El Niño; links to World Health Organization Collaborating Centers; the latest issue of the Disaster Section's newsletter, *Disasters: Preparedness and Mitigation in the Americas*; and the findings from the PAHO/WHO conference on "Health Crises, Disasters, and the Internet" held last fall in Bogota, Colombia. The Web page is also available in Spanish.

<http://www.idndr.org>

The International Decade for Natural Disaster Reduction (IDNDR) has launched this new Web site, which includes background information about the Decade, IDNDR highlights, summaries of recent activities and descriptions of upcoming events, as well as various documents, statistics, and maps.

<http://www.disasternews.net>

The Disaster News Network, sponsored by Church World Service, is a new, under-construction Internet site offering comprehensive, timely news and information about response to U.S. disasters. In addition to articles about breaking events, individual sections provide up-to-date information about ongoing regional disasters. The site is intended to aid voluntary organizations involved in helping disaster survivors put their lives back together, and includes a nationwide database of disaster-related volunteer opportunities indicating where volunteers are needed. Other features include annotated disaster-related links, several specialized listserves, and soon, an on-line facility for making disaster relief donations.

<http://www.fema.gov/r-n-r/pa008.htm>

After several pilot tests earlier this year, the Federal Emergency Management Agency (FEMA) has fully instituted new streamlined procedures for administering public assistance following disasters (see the *Observer*, [Vol. XXII, No 6, p. 8](#)). The new grant delivery system gives local governments more control over the process, allowing them to perform much of the necessary damage assessment themselves. FEMA provides guidance on how to manage the program and can send experts into the field for special reviews, such as those involving environmental impacts and historic preservation. Information and guidance regarding the new program are available from the FEMA Web site above.

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

<http://www.fema.gov/mit/reduce.htm>

<http://www.fema.gov/mit/how2.htm>

<http://www.fema.gov/mit/sstory>

etc. . . .

We've mentioned the mitigation portion of the Federal Emergency Management Agency (FEMA) Web

site several times before, but, by golly, we're going to mention it again, since, as FEMA is want to say, "Mitigation is the cornerstone of emergency management." Besides, this continually updated site offers hundreds of pages on what individuals, families, and businesses can do to lessen disaster impacts. The mitigation section includes current mitigation news, the latest reports from FEMA's Project Impact, links to mitigation documents available from FEMA, the complete text of the National Mitigation Strategy, and information about the HAZUS disaster loss estimation software. At the second and third URLs above, it also offers extensive information on mitigation for homeowners, building professionals, communities, businesses, and school and child care facilities, as well as FEMA's "Mitigation How To Series"--specific instructions for protecting property from wildfires, flooding, and earthquakes. Finally, the fourth URL is the address of an interactive Web site through which individuals can transmit mitigation success stories to FEMA. After approximately 200 stories have been obtained, they will be posted on the site and users will be able to retrieve them using a search system. Additionally, as the site evolves, FEMA will add maps, photos, testimonials, and Web links to accompany stories and provide additional information.

<http://www.PrepareNow.org>

The Community Preparedness Web Project was undertaken to insure that the needs and concerns of vulnerable populations are addressed in the area of emergency preparedness and response. To achieve this, the PrepareNow Web site attempts to integrate community-based organizations into emergency planning and management. Vulnerable populations include (but are not limited to) persons who speak little or no English or who are physically or mentally disabled, geographically or culturally isolated, medically or chemically dependent, homeless, frail/elderly or children, or owners of pets or service animals. To further the project's goal, this site supports California Community Collaborative Groups (CCGs), which bring together community agencies serving vulnerable populations.

The PrepareNow Web site provides a collection of disaster preparedness information in various languages; information on vulnerable populations; links to traditional emergency service providers and other disaster resources; an index of CCGs; an events calendar; direct e-mail links to Bay Area programs addressing the preparedness of special needs populations; sample disaster plans, guides, and checklists; and other disaster preparedness information.

<http://www.disasterrecovery.net>

CAMPUSAFE is a new Web site supporting campus safety. It provides a unique, single point-of-contact for university, college, business/trade school, and high school campuses and is intended to assist administrators responsible for emergency planning and business continuity planning. It features a monthly newsletter and a menu of products for campus planning needs, including draft plans, procedures, checklists, and other emergency management products. Specific campus-focused vendors are showcased, along with seminars and trade show listings. Each month, CAMPUSAFE highlights useful Web sites providing best practices and free information. The site charges for some of its products, services, and information, but numerous resources and ideas are free.

<http://hrrc.tamu.edu/ircd.html>

The Web site for the International Research Committee on Disasters of the International Sociological Association provides information about the committee's purpose, structure, and members; copies of the newsletter *Unscheduled Events*; the table of contents, and subscription and submission information for the *International Journal of Mass Emergencies and Disasters*; and a list of related Web sites.

<http://www.ndm.co.uk>

Natural Disaster Management (NDM) Ltd will produce a commemorative volume summarizing the accomplishments of the International Decade for Natural Disaster Reduction and promoting the continuation of the goals and aims of the Decade beyond the year 2000. The main objective of the book is to communicate--across geographical regions, disciplines, and cultures--solutions to the multidisciplinary problems associated with natural disasters. NDM has established this Web site to provide readers, contributors, and supporting organizations a forum to learn about plans for the book; extracts from articles as they are submitted; and a guide to the Internet's disaster-related resources. Comments and/or contributions are welcome and should be sent to *Jon Ingleton, Editor and Publisher of Natural Disaster Management*; e-mail: [ndm\\_uk@msn.com](mailto:ndm_uk@msn.com); WWW: <http://www.ndm.co.uk>.

## Earthquakes

<http://www.georisk.com>

<http://www.georisk.com/georaws/gui/analyses.shtml>

At the second URL, the California risk management consulting firm, GeoRisk, provides the first release of its California Earthquake Risk Analysis Web Server. The server is a prototype to a multihazard, multiregional GIS-based Inter/intranet Web server called GeoRAWS (GeoRisk Analysis Web Server). GeoRAWS has three main analysis modules: exposure, hazard, and risk analyses. The exposure module analyzes the geographic and temporal distribution of exposure, based on California's population and building distributions. Exposure is aggregated at various levels of resolution at any given year from 1930 to the present and extrapolated to 2050. The hazard module complements new seismicity maps from the U.S. Geological Survey; it allows Internet users to view California's faults and seismicity and generate hazard maps for any given earthquake scenario using a number of parameters. The loss analysis module (part of the risk analysis module) allows users to estimate dollar losses for any given earthquake scenario in California. Users select a fault from a map and enter the scenario earthquake magnitude, along with other parameters, to determine loss estimates. Dollar losses are aggregated per line of business or occupancy (residential, commercial, industrial, etc.) at any geographic resolution. Inflation and changes in exposure and structural vulnerability over time are incorporated into the models. On-line documentation provides more background information. Questions and comments are welcome and should be e-mailed to [info@georisk.com](mailto:info@georisk.com).

<http://www.scec.org>

The Southern California Earthquake Center (SCEC) Web site is undergoing major renovation, and several sections have been added or expanded. Recent additions include the SCEC publication list in a searchable, sortable format, categorized earthquake resources, SCEC news briefs, the *SCEC Quarterly Newsletter*, a SCEC Core Institutions list with links to senior scientists and other personnel, SCEC

databases and resources on-line, education resources, and outreach stories by SCEC scientists. Currently under construction are "Specialty Pages" designed for specific target groups: the general public, media, engineers, and educators. In addition, the SCEC Data Center site--<http://www.scecdc.scec.org/>--offers pages of information about seismic activity in California.

## Floods

<http://water.usgs.gov/public/realtime.html>

From the U.S. Geological Survey's real-time streamflow page interested persons can monitor stream levels around the nation and watch as floods evolve.

## Lightning

<http://www.glatmos.com/lightinfo/recommendations.html>

An ad hoc "Lightning Safety Group" convened at the 1998 American Meteorological Society Annual Conference to determine recommended appropriate actions for individuals to take under various circumstances when lightning threatens. Their guidelines are presented at this URL.

## Wildfire

[http://modarch.gsfc.nasa.gov/fire\\_atlas/fires.html](http://modarch.gsfc.nasa.gov/fire_atlas/fires.html)

Recent conflagrations in Florida, Indonesia, Mexico, Russia, and other parts of the world have demonstrated the usefulness of earth-observing satellite data to support fire management and suppression. To make such data readily accessible, NASA's Goddard Space Flight Center and the University of Virginia have established this global fire monitoring Web site that provides up-to-date information about current fires around the globe as well as information about past fires and future plans. The site draws on satellite information from many sources. It includes sections on the state of the science, fire emissions, satellite systems, global data products, regional examples, Earth Orbiting System (EOS) generation sensors, research, related links, a list of references, and a bibliography. (Similar information is now being provided by the Global Fire Monitoring Center in Germany; see the [related article](#) in this *Observer*.)

## Climate Change

<http://www.ogp.noaa.gov/rrp>

NOAA's Office of Global Programs is currently conducting a climate variability impacts research project (see the [related story](#) in this *Observer*), part of which involves making daily summaries of impacts as reported by wire services and country/international news releases. These daily reports, as well as weekly summaries, are available from the Web site above. For additional information about this project, contact *Kelly Sponberg*, (301) 427-2089, ext. 194; e-mail: [sponberg@ogp.noaa.gov](mailto:sponberg@ogp.noaa.gov).

<http://www.fragileecologies.com/mglantz/>

For many years, Michael Glantz of the Environmental and Societal Impacts Group, National Center for Atmospheric Research, has been writing insightful essays (both in professional journals and for local newspapers) on the human dimensions of climate/meteorological hazards. This Web site gathers many of those writings, including an interesting recent piece about Hurricane Mitch.

## Talk

[majordomo@new-focus.org](mailto:majordomo@new-focus.org)

The International Association of Emergency Managers (IAEM) has initiated a Y2K discussion list for emergency managers to share thoughts and concerns about the Year 2000 problem. To join, send an e-mail message to [majordomo@new-focus.org](mailto:majordomo@new-focus.org) with the message "subscribe iaem-y2k" (with nothing on the subject line). You will receive an e-mail message asking you to confirm your registration. Anyone interested in emergency management and Y2K is invited to join.



## 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>.

*Virginia Emergency Management Conference--1999 Focus: Severe Weather. Williamsburg, Virginia: March 17-19, 1999.* Intended for local, state, and federal emergency services personnel, nonprofit and volunteer disaster assistance organizations, and all others concerned about severe weather--including individuals and organizations from outside Virginia--this conference will offer more than two dozen workshops on weather science, creative approaches to disaster response, methods for reducing risk, mental health of both responders and victims, current technologies, and much more. For details, contact the *Virginia Department of Emergency Services (VDES), 10501 Trade Court, Richmond, VA 23236*; or call (757) 491-2800; e-mail: [comcon@erols.com](mailto:comcon@erols.com). Additional information is also available from the VDES Web site: <http://www.vdes.state.va.us>.



*Floodplain Management Association (FMA) Spring Conference: "Technology and Modernization in Floodplain Management." San Diego, California: March 24-26, 1999.* As with most professions today, floodplain management has experienced rapid growth and change due to ever-improving technological capabilities. Professionals in every aspect of the discipline have experienced the need to understand and use the newest tools available to floodplain managers. This 16th FMA semiannual conference will provide a forum for learning about the latest innovations. Details are available from *Laura Hromadka, Conference Coordinator, FMA, P.O. Box 2972, Mission Viejo, CA 92692; (949) 766-8112; fax: (949) 459-8364; e-mail: [fmalaura@pacbell.net](mailto:fmalaura@pacbell.net).*

*Ninth Annual Disaster Recovery Contingency Planning and Business Continuation Using Telecommunications Conference and Trade Show. Sponsor: International Disaster Recovery Association (IDRA). Boston, Massachusetts: March 28-31, 1999.* The preliminary conference agenda includes sessions on Internet, intranet, and extranet communications; telecommunications disaster recovery; communications vulnerability and mitigation; wireless alternatives; auditing of telecommunications systems; emergency notification systems; and many other disaster communication topics. A conference flyer is available from *IDRA, c/o BWT Associates, P.O. Box 4515, Turnpike Station, Shrewsbury, MA 01545; (508) 845-6000; fax: (508) 842-2585; WWW: <http://www.idra.com>.*

*First U.S. Weather Research Program Science Symposium. Host: National Center for Atmospheric Research. Boulder, Colorado: March 29-31, 1999.* The focus of this symposium will be hurricanes and precipitation, and it will include both physical and social scientists. The objectives of the symposium are to provide an opportunity for those researchers funded by the program to exchange information on recent research and to stimulate interdisciplinary interaction. However, one need not be a program investigator to participate. Hence, social scientists studying the impacts of precipitation or hurricanes, or the use, misuse, or value of forecasts, should consider attending the symposium. It will provide an opportunity for past, present, and potential future participants in the program to share research with others interested in U.S. weather problems. A letter of invitation is available on the World Wide Web at [http://www.dir.ucar.edu/esig/socasp/zine/13\\_invite.html](http://www.dir.ucar.edu/esig/socasp/zine/13_invite.html), and an agenda is available at [http://uswrp.mmm.ucar.edu/uswrp/meetings/0329-31\\_99.html](http://uswrp.mmm.ucar.edu/uswrp/meetings/0329-31_99.html). For additional information, contact the *Environmental and Societal Impacts Group, National Center for Atmospheric Research, P.O. Box 3000, Boulder, CO 80307; (303) 497-8117; fax: (303) 497-8125; e-mail: [jan@ucar.edu](mailto:jan@ucar.edu).*

*21st Annual National Hurricane Conference. Sponsors: American Association of Wind Engineering, American Meteorological Society, and just about everyone else involved in hurricanes. Orlando, Florida: March 29-April 2, 1999.* General session topics for the 1999 hurricane conference include an overview of the 1998 hurricane season, William Gray's 1999 forecast, improvements in hurricane forecasting, mitigation strategies at work, and the effects of El Niño and La Niña on hurricane activity. The meeting also includes 36 workshops on other aspects of hurricanes. For a conference brochure, contact the *National Hurricane Conference, 2952 Wellington Circle, Tallahassee, FL 32308; (850) 906-9224; fax: (850) 906-9228; WWW: <http://www.netally.com/nhc>.*

*The UCLA Conference on Public Health and Disasters (The Multidisciplinary Context of Public Health*

*and Disasters*). Sponsor: *UCLA Center for Public Health and Disaster Relief, Redondo Beach, California: April 11-14, 1999*. The organizers hope to include both researchers and front-line practitioners who share an interest in how disasters affect the public's health. The provisional format includes plenary presentations on selected topics in disaster public health, with smaller workshop sessions examining these issues in detail. Potential topics include community preparedness, public health response to disasters, mental health, noninstitutional sources of help after disaster, and the role of the media. Additional information is available from *Eva Selski, Center for Public Health and Disaster Relief, UCLA School of Public Health, Box 951772, Los Angeles, CA 90095-1772; (310) 794-6646; fax: (310) 794-1805; e-mail: [eselski@ucla.edu](mailto:eselski@ucla.edu); WWW: <http://www.ph.ucla.edu/cphdr/>*.

*End of the Millennium West Coast Disaster Response Conference. Sponsors: Major British Columbia utilities and government agencies. Vancouver, British Columbia, Canada: April 25-26, 1999*. The first day of this conference will involve a disaster re-enactment, with fire, police, ambulance, and military services demonstrating what would happen in a badly damaged neighborhood after a catastrophic earthquake. There will also be an exhibit of an undamaged neighborhood with demonstrations and public information regarding how impacts could be prevented or lessened. The second day will consist of the actual Sixth Annual West Coast Disaster Response Conference with an experiential program using the sets and materials from the previous day. The key aim is to share practical information about what works and what does not in preparing citizens and schools using neighborhood programs. Additional information is available from *Epicentre Inc., Suite 1420-1188 West Georgia Street, Vancouver, BC, Canada V6E 4A2; (604) 682-6005; fax: (604) 682-0500; e-mail: [wgc@uniserve.com](mailto:wgc@uniserve.com)*.

*Natural Disaster Medical System (NDMS) Annual Conference. Washington, D.C.: May 7-12, 1999*. The 1999 NDMS conference will offer domestic and international strategies for preventing or reducing the health and medical consequences of all types of disasters. It will feature programs on counterterrorism and updates on clinical techniques, as well as sessions on extreme environmental events, disaster team development, information management systems, mass gathering events, critical incident stress management, sheltering and mass care, health system emergency planning, mass fatality operations, and new standards in emergency management. The program will offer approximately 20 hours of continuing education credit for a wide range of health practitioners and administrators. For additional information, contact the *Office of Emergency Preparedness/National Disaster Medical System, Department of Health and Human Services, 12300 Twinbrook Parkway, Suite 360, Rockville, MD 20857; (800) 872-6367 (press the "star" key) or (301) 443-1167; fax: (301) 443-5146; e-mail: [ndms@usa.net](mailto:ndms@usa.net); WWW: <http://www.oep-ndms.dhhs.gov>*.

*American Water Resources Association (AWRA) Spring Specialty Conference: "Potential Consequences of Climate Variability and Change to Water Resources of the United States." Atlanta, Georgia: May 10-12, 1999*. The National Assessment of the Potential Consequences of Climate Variability and Change (NACC) (see the [related story](#) in this *Observer*) is being conducted to inform Congress and the public regarding potential problems due to climate transformation. Recent extreme weather patterns and multibillion dollar effects on a wide range of businesses are stimulating the need for this study. Water is one critical national resource directly affected by climate variability, and, therefore, a water sector

assessment is a key part of the NACC. AWRA is dedicating its 1999 Spring Specialty Conference to this topic to support the review process. Questions about the program should be directed to *Michael J. Sale*, P.O. Box 2008, Mailstop 6036, Oak Ridge National Laboratory, Oak Ridge, TN 37831; (423) 574-7305; fax: (423) 576-8543; e-mail: [jon@ornl.gov](mailto:jon@ornl.gov). Details about conference venue, organization, and registration are available from the AWRA, 950 Herndon Parkway, Suite 300, Herndon, VA 20170-5531; (703) 904-1225; fax: (703) 904-1228; e-mail: [awrahq@aol.com](mailto:awrahq@aol.com); WWW: <http://www.awra.org>.

*1999 Conference on Flood Warning Systems, Technologies, and Preparedness: Third National Conference and Exposition of the National Hydrologic Warning Council incorporating the 16th Annual Conference of the ALERT Users Group. San Diego, California: May 11-14, 1999.* Its organizers describe this as the largest conference in the U.S. devoted to flood warning systems, technologies, and preparedness. Through a wide range of technical sessions and workshops, the meeting provides up-to-date information on preparing communities for floods. For a list of the many conference topics or other information, contact the *National Hydrologic Warning Council*, 10852 Douglass Road, Anaheim, CA 92806; Mark Heggli, (916) 574-2627; e-mail: [heggli@water.ca.gov](mailto:heggli@water.ca.gov); or Chris Crompton, (714) 567-6360; e-mail: [cromptonc@pfrd.co.orange.ca.us](mailto:cromptonc@pfrd.co.orange.ca.us); WWW: <http://www.alertsystems.org>.

*Technology Partnership for Emergency Management Workshop and Exhibition. Host: Oak Ridge National Laboratory. Gatlinburg, Tennessee: May 17-20, 1999.* This meeting will feature technology demonstrations, displays of state-of-the-art emergency systems, plenary talks, roundtable discussions, panels, and scenario analyses. For details, contact *John Sorensen*, Emergency Management and Preparedness Program, Oak Ridge National Laboratory, P.O. Box 2008, 4500N, Mail Stop 6206, Oak Ridge, TN 37831-6206; (423) 576-2716; fax: (423) 574-5938; e-mail: [jhs@ornl.gov](mailto:jhs@ornl.gov); WWW: <http://stargate.ornl.gov/StarGate/TPC99/TPC99.html>.

*Tsunami Symposium. Sponsor: Tsunami Society. Honolulu, Hawaii: May 25-27, 1999.* This symposium will address mega-tsunamis due to asteroids and landslides, new tsunami warning center capabilities, recent tsunami disasters, tsunami civil defense projects, and tsunami modeling. Papers are invited on these and other tsunami-related topics; summaries are due February 1, 1999, and should be directed to *Charles Mader*, Tsunami Symposium Program Chairperson, 1049 Kamehame Drive, Honolulu, HI 96825-2860; (808) 396-9855 or (970) 949-6845 (December 21-April 1). For additional information about the conference, contact the *Tsunami Society*, P.O. Box 25218, Honolulu, HI 96825; or call the symposium chairperson, *George Curtis*; (808) 963-6670.

*Hemispheric International Decade for Natural Disaster Reduction (IDNDR) Meeting for the Americas: Towards a Reduction in the Impact of Disasters in the 21st Century. San José, Costa Rica: June 1-5, 1999.* The United Nations IDNDR Secretariat is hosting this conference as a prelude to the closing of the International Decade for Natural Disaster Reduction. The meeting will provide a venue for examining accomplishments of the last 10 years as well as setting an agenda for the coming century. The main issues to be addressed include international exchange of expertise and resources; information and technology in disaster management; risk assessment; prevention and mitigation programs in the context of development; implementation of early warning systems; and local, national, and regional programs



and policies. For more information, contact *Helena Molin Valdes, IDNDR Regional Office for Latin America and the Caribbean, c/o Pan American Health Organization, P.O. Box 3745-1000, San José, Costa Rica; tel: (506) 257-3141; fax: (506) 257-2139; e-mail: [hmolin@undpcos.nu.or.cr](mailto:hmolin@undpcos.nu.or.cr).*

*Eastern Snow Conference 56th Annual Meeting: Monitoring Snow and Ice--Methods and Techniques for Operational Applications and Climate Change Studies. Sponsors: New Brunswick Department of Environment and others. New Brunswick, Canada: June 2-4, 1999. This annual meeting brings together the operational and research communities to examine the application of new and traditional techniques for mapping and managing snow and ice hazards. Additional information is available from D. Hall, Code 974, NASA Goddard Space Flight Center, Greenbelt, MD 20771; (301) 614-5771; fax: (301) 614-5808; e-mail: [dhall@glacier.gsfc.nasa.gov](mailto:dhall@glacier.gsfc.nasa.gov); WWW: <http://www.tor.ec.gc.ca/CRSYS/esc/>.*

*Public Risk Management Association (PRIMA) Annual Meeting. San Diego, California: June 6-9, 1999. Contact: PRIMA, 1815 North Fort Myer Drive, Suite 1020, Arlington, VA 22209; (703) 528-7701; fax: (703) 528-7966; e-mail: [primahq@aol.com](mailto:primahq@aol.com). Scholarships to aid risk managers and other professional staff from smaller organizations in attending this meeting are available from the Public Entity Risk Institute (PERI), 11350 Random Hills Road, Suite 800, Fairfax, VA 22030; (703) 934-6046; fax: (703) 352-7085; WWW: <http://www.riskinstitute.org>. The deadline for applications is February 15, 1999.*

*International Conference on Disaster Management and Medical Relief (DMMR). Sponsors: Netherlands Ministry of the Interior and Kingdom Relations and others. Amsterdam, Netherlands: June 14-16, 1999. This conference will address the apparently shrinking gap between emergency medicine and disaster medicine. It will consider best practices under a variety of circumstances, and delegates will examine how all tiers of authority, from the highest levels of government to relief managers on the ground, respond to the needs of their communities. The conference will comprise four half-day sessions, each with up to six parallel workshops examining disaster management and medical relief. Debate and discussion will constitute much of the program in order to promote the exchange of fresh ideas and to rigorously assess current efforts. For additional information, contact Dick Q.P. Fundter, Organising Committee and Conference Secretariat, Ministry of the Interior and Kingdom Relations, DMMR Project Office, H 1445, P.O. Box 20011, 2500 EA The Hague, Netherlands; tel: +31(0)70 302 7011, +31(0)6 5321 7511 (after 17.00 CET); fax: +31(0)70 302 1444; e-mail: [dmmr@minbiza.nl](mailto:dmmr@minbiza.nl); WWW: <http://dmmr.minbzk.nl/>.*

*Symposia and Workshop--"Crossing the Millennium: Integrating Spatial Technologies and Ecological Principles for a New Age of Fire Management." Sponsors: University of Idaho, Missoula Intermountain Fire Sciences Lab, and the National Interagency Fire Center. Boise, Idaho: June 15-17, 1999. The new Joint Fire Science Program established by Congress is "designed to provide a scientific basis and rationale for implementing fuels management activities, with a focus on activities that will lead to development and application of tools for managers." This collection of four symposia and one workshop will bring together research and management activities in the areas of 1) mapping, 2) GIS and remote sensing, 3) modeling, and 4) fire treatment. The program includes a plenary session, a poster session, the four concurrent symposia, the workshop, and field trips. Details, guidelines for abstract submission, and*

registration forms are available from *Greg Gollberg, Department of Forest Resources, University of Idaho, Moscow, ID 83844-1133; fax: (208) 885-6226; e-mail: [goll9151@uidaho.edu](mailto:goll9151@uidaho.edu); WWW: <http://firescience.for.uidaho.edu>*. Abstracts are due February 26, 1999.

*1999 Open Meeting of the Human Dimensions of Global Environmental Change Research Community. Sponsor: Institute for Global Environmental Strategies (IGES). Kanagawa, Japan: June 24-26, 1999.* An increasing number of researchers are interested in the human causes and impacts of global environmental change, while recognizing that local and regional scales are critical for their studies. Building on two earlier meetings, this 1999 gathering will promote the exchange of information on current research and teaching and encourage networking and community building. Plenary talks will address conflict and the environment; the role of lifestyles, attitudes, and behavior in global environmental change, as well as alternative development paths; decision-making processes--in particular the links between international, national, and local scales and the obstacles to transferring approaches from one region to another; land-use change; valuation of ecosystem services; and demographic change and the environment. In addition, there will be numerous sessions devoted to the presentation of research results. Additional information is available from the '99 Open Meeting Secretariat, IGES at Shonan Village Center, 1560-39, Kami-yamaguchi, Hayama, Kanagawa 240-0198, Japan: fax: +81 468 55 3709; e-mail: [hdgec@iges.or.jp](mailto:hdgec@iges.or.jp); WWW: <http://www.iges.or.jp/>.

*Water 99 Joint Congress: 25th Hydrology and Water Resources Symposium and Second International Conference on Water Resources and Environment Research. Sponsors: Department of Natural Resources, Queensland, Australia; World Meteorological Organization, UNESCO, and others. Brisbane, Australia: July 8-9, 1999.* This congress combines an Australian national meeting with the Second International Conference on Water Resources and Environment Research. Topics to be examined include floodplain modeling, floodplain management, flood warning systems, flood estimation, flood frequency analysis, urban drainage, stream monitoring, extreme meteorological events, GIS/remote sensing, and effects of climate change. A conference brochure can be obtained by contacting *Water 99 Joint Congress, P.O. Box 1280 Milton, Queensland 4064, Australia; tel: (+61 7) 3369 0477; fax: (+61 7) 3369 1512; e-mail: [hyd99@im.com.au](mailto:hyd99@im.com.au)*.

*Twelfth International Disaster Management Course. Offered by: Cranfield Disaster Management Centre. July 27-August 26, 1999. Shrivenham, Swindon, Wiltshire, U.K.* The Disaster Management Centre (CDMC) at Cranfield University promotes development-based disaster management through training, research, and consulting. One of its principle programs is its annual disaster management course. The curriculum is interactive and includes presentations, exercises, case studies, external visits and field trips, group discussion, and individual assignments. Participants can specialize in one of three areas: slow onset disasters, rapid onset disasters, and civil emergencies and human-caused disasters. Enrollment is limited to 35 participants. For a course brochure, contact the *Administrator, Disaster Management Centre, Cranfield University, RMCS, Shrivenham, Swindon, Wiltshire SN6 8LA, U.K.; tel: +44 1793 785287; fax: +44 1793 785883; e-mail: [disprep@rmcs.cranfield.ac.uk](mailto:disprep@rmcs.cranfield.ac.uk)*.

*Second International Disaster and Emergency Readiness Conference and Exhibition and Fifth*

*International Emergency Planning Conference. Offered by: Andrich International Ltd. The Hague, Netherlands: October 12-14, 1999.* This international forum for specialists in disaster and emergency preparedness will include more than 50 papers and an exhibition of the latest technologies, products, and services. The organizers have issued an invitation for papers dealing with disaster readiness to meet the needs of governments, industry, and organizations involved in the avoidance of disasters, major incidents, and emergencies, and the mitigation of their effects when they do occur. For an index of potential topics, submittal guidelines, and additional conference information, contact *Andrich International Ltd, 51 Market Place, Warminster, Wiltshire BA12 9AZ, U.K.; tel: +44 (0) 1985 846181; fax +44 (0) 1985 846163; e-mail: [ider@andrich.com](mailto:ider@andrich.com); WWW: <http://www.andrich.com/ider>.*

*Third Canada/Australia/U.S. Fire Safety Summit. Sydney, Australia: November 1-4, 1999.* At this meeting, speakers from each of the represented countries will make presentations about recent fires in which fire organizations became "unraveled," leading to escalation in the fires and consequent adverse effects. The speakers will try to identify points that led to the breakdowns, how the organizations responded, and the lessons to be learned from these disasters. Other potential speakers are invited to submit abstracts on topics ranging from equipment technology, to human factors, to specific fire incidents. For details, contact *Maria Greenlee, International Association of Wildland Fire, East 8109 Bratt Road, Fairfield, Washington 99012; (509) 523-4003; fax: (509) 523-5001; e-mail: [greenlee@cet.com](mailto:greenlee@cet.com).*

*International Association of Volcanology and Chemistry of the Earth Interior (IAVCEI) General Assembly 2000. Bali, Indonesia: July 18-23, 2000.* The theme of the millennium IAVCEI meeting is "Exploring Volcanoes: Utilization of their Resources and Mitigation of their Hazards." Beyond the actual congress, the program includes a number of pre-congress field excursions to Indonesian volcanoes and post-congress discussions regarding volcanic hazard mitigation systems and use of volcano-related resources. Abstracts are due February 29, 2000. Additional details are available from the *IAVCEI Conference Secretariat, Volcanological Survey of Indonesia, Jalan Diponegoro 57, Bandung 40122, Indonesia; tel: +62-22-772606; fax: +62-22-702761; e-mail: [iavcei@vsi.dpe.go.id](mailto:iavcei@vsi.dpe.go.id); WWW: <http://www.vsi.dpe.go.id/iavcei.html>.*

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## EENET Broadcasts Now Available via the Internet

For several years, the Federal Emergency Management Agency Emergency Management Institute's Emergency Education Network (EENET) has been presenting live broadcasts via satellite concerning disasters and emergency management. EENET is now offering these broadcasts, both past and present, via the Internet. Currently, three videos of past presentations are available for viewing via the Net: the October 15th broadcast of *Even the Smallest Communities Can Manage Fire Prevention*, and two training videos, *Asking for Help*, and *Recovering the Arts--Grand Forks, North Dakota*. These presentations can also be ordered on video tape. For complete information, including a schedule of upcoming presentations, see <http://www.fema.gov/emi/eenet.htm>, or contact *EENET, National*

Emergency Training Center, 16825 South Seton Avenue, Emmitsburg, MD 21727; (800) 500-5164; (301) 447-1068.

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## Four from IAFC

In 1999, the International Association of Fire Chiefs (IAFC), will be sponsoring the following conferences:

- *Fire-Rescue Med. Las Vegas, Nevada: April 26-28, 1999.*
- *International Hazardous Materials Response Teams Conference. Towson, Maryland: June 3-6, 1999.*
- *Response 99. Orlando, Florida: June 16-19, 1999.*
- *Fire-Rescue International. Kansas City, Missouri: August 28-31, 1999.*

For information about any of these meetings, contact the *Professional Development Department, IAFC, 4025 Fair Ridge Drive, Fairfax, VA 22033-2868; (703) 273-0911; fax: (703) 273-9363; e-mail: [education@iafc.org](mailto:education@iafc.org); WWW: <http://www.iafc.org/conference>.*

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## Help Wanted

### **EADP Professional Development Coordinator, University of North Texas**

The Center for Public Management and the Emergency Administration and Planning (EADP) Program at the University of North Texas are seeking a person to coordinate training and professional development for public- and private-sector emergency managers in a variety of settings. The position is a professional appointment at the university that requires at least a bachelor's degree in a relevant field plus experience in emergency management. The position also requires good computer and communication skills; Web design and adult learning/training experience is preferred. Salary is \$35,000 per year, plus benefits. Applicants should send a letter of interest, resume, and salary history to the *Search Committee, EADP Professional Development Coordinator, University of North Texas, P.O. Box 310617, Denton, TX 76203-0617*. Application review begins January 22 and will continue until the position is filled.

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## Recent Publications

### All Hazards

***Disaster Hits Home: New Policy for Urban Housing Recovery.*** Mary C. Comerio. 1998. 326 pp. \$39.95. To purchase a copy, contact the University of California Press, c/o California/Princeton Fulfillment Services, Inc., 1445 Lower Ferry Road, Ewing, NJ 08618; (800) 822-6657; fax: (800) 999-1958; e-mail: [orders@cpfs.pupress.princeton.edu](mailto:orders@cpfs.pupress.princeton.edu); WWW: <http://www.ucpress.edu/>.

Through case studies of six recent urban disasters--Hurricane Hugo in South Carolina; Hurricane Andrew in Florida; the Loma Prieta and Northridge earthquakes in California; and quakes in Mexico City, Mexico, and Kobe, Japan--Comerio demonstrates that several fundamental factors have changed in contemporary urban disasters. The foremost change is in scale; as more Americans move to coastal areas, future losses will rise due to increased development in high-hazard areas. Moreover, the visibility of disasters in news media will ensure the politicization of response. Finally, the federal government is now expected to be on scene with personnel, programs, and financial assistance, while private insurers are withdrawing disaster coverage from homeowners in earthquake- and hurricane-prone regions. Comerio proposes a comprehensive revision of the government's role in disaster response as well as more equitable programs for construction financing. She offers new criteria for housing recovery policy, for financial incentives for preparedness and mitigation, and for enhancing the use of private insurance.

***Partnerships in Preparedness: A Compendium of Exemplary Practices in Emergency Management. Volume III.*** 1998. 86 pp. Free. Copies can be requested from the FEMA Publications Distribution Facility, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520; <http://www.fema.gov/library/lib07.htm>.

This *Compendium* describes model public- and private-sector emergency management practices, including unique alliances among organizations, volunteer projects, examples of resource sharing, and other innovative approaches. It also refers readers to knowledgeable individuals for further information. Sections are organized alphabetically by state, and each program listing provides the name of the program; a contact person's name, address, e-mail, phone, and fax; program type; target population; program setting; startup date; program description; evaluation information; annual budget; and sources of funding. The compendium also indexes the entries by title, subject, location, and contact.

***Interagency Cooperation: FEMA and DOD in Domestic Support Operations.*** C.E. Fischer. 1997. 58 pp. \$12.00, microfiche; \$27.00, paper. Available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; (800) 553-6847 or (703) 605-6000; fax: (703) 321-8547; e-mail: [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov).

This paper examines interagency cooperation between the Department of Defense (DOD) and the Federal Emergency Management Agency (FEMA) under the Federal Response Plan, focusing on the

evolution of procedures for responding to natural disasters. While both FEMA and DOD have improved their ability to respond to disasters since Hurricane Andrew, some obstacles remain. Fischer notes that lack of funding for predisaster mitigation and the inability to use reserve forces are two of the most significant shortcomings.

*Why the United States is Becoming More Vulnerable to Natural Disasters. EOS Transactions, Vol. 79, No. 44 (November 3, 1998). Annual subscriptions: \$20.00, members of American Geophysical Union (AGU). To join, contact AGU, 2000 Florida Avenue, N.W., Washington, DC 20009; WWW: <http://www.agu.org>.*

This article presents the results of a study conducted by students from a Princeton University class entitled Dealing with Natural Disasters, which examined how the U.S. confronts these phenomena. The class attempted to determine the costs of natural disasters in the U.S. and why those costs are rising so rapidly. The students presented the results of their work to the White House Office of Science and Technology Policy and the National Science and Technology Council's Subcommittee on Natural Disaster Reduction. The group notes that natural disasters cost the U.S. approximately \$1 billion per week, even in the absence of a great earthquake or a catastrophic hurricane striking a major metropolitan area. They conclude that the increase in losses is due not simply to more insured losses being reported, but also to a real increase in property losses caused by a marked increase in population and property in disaster-prone areas of the U.S. In fact, states most affected by hurricanes and earthquakes have experienced the greatest increases. The effects are further amplified because the people moving to these regions represent the wealthier segment of our society, and their wealth is increasing.

*Ecology of Fear: Los Angeles and the Imagination of Disaster. Mike Davis. 1998. 498 pp. \$27.50, plus \$3.00 shipping. Available from Von Holtzbrinck Publishing Services, 16365 James Madison Highway, Gordonsville, VA 22942; (888) 330-8477; fax: (800) 672-2054; e-mail: [info@hholt.com](mailto:info@hholt.com); WWW: <http://www.hholt.com>.*

In *Ecology of Fear*, Davis looks at the widespread popular apprehension that the former Land of Sunshine is 'reinventing' itself, to use a fashionable gerund, as a Book of the Apocalypse theme park. In other words, the frequent disasters experienced by Los Angeles are becoming embedded in that city's collective psyche, simultaneously imposing a way of thinking that perpetrates false expectations from the natural environment and then explaining the inevitable natural disasters as proof of a malign and hostile nature. Davis concludes that southern California, in short, is suffering a profound crisis of identity. He looks at the political history of disaster in the region, examining the earthquakes in Santa Monica, the burning of Koreatown, the invasion of mountain lions, the movie *Volcano*, and even Los Angeles's underrated tornado problem. Arguing that paranoia has obscured the fact that Los Angeles has deliberately put itself in harm's way, he reveals how market-driven urbanization has, for generations, transgressed against environmental common sense. Davis illustrates how the floods, fires, and earthquakes experienced by Los Angeles were avoidable and unnatural tragedies.

*After Disaster: Agenda Setting, Public Policy, and Focusing Events. Thomas A. Birkland. American Governance and Public Policy Series. 1997. 188 pp. \$53.00, hardbound; \$20.95, paperback; plus \$3.50 shipping. To purchase, contact Georgetown University Press, P.O. Box 4866, Hampden Station,*



*Baltimore, MD 21211-4866; (800) 246-9606 or (410) 516-6997; fax: (410) 516-6998.*

Using a paradigm of public policy, disasters can be thought of as focusing events--sudden calamities that cause citizens and policy makers to pay more attention to a public problem and to press for solutions. In *After Disaster*, Birkland explores how and why some public disasters change political agendas, and, ultimately, public policies. He recounts important successes and failures in the policy process by analyzing the political outcomes of four types of events: earthquakes, hurricanes, oil spills, and nuclear accidents. Using empirical data, he presents a theory of where and when these events will gain attention and how they trigger political reactions.

***Response to Disaster: Fact Versus Fiction and Its Perpetuation--The Sociology of Disaster. Second Edition.*** Henry W. Fischer, III. 1998. 244 pp. \$47.00, clothbound; \$27.50, paperback. Copies can be purchased from University Press of America, 4720 Boston Way, Lanham, MD 20706; (301) 459-3366 or (800) 462-6420; fax: (301) 459-2118.

The second edition of *Response to Disaster* provides an updated version of the original 1994 version. Fischer adds new research and expands areas only briefly developed in the original. He provides readers with a basic understanding of how people and organizations usually respond to disasters, in contrast to how they are perceived to respond, as well as a description of how and why news organizations provide accurate and inaccurate information about disasters. He also discusses organizational response to disasters and assesses future needs in research to achieve more effective mitigation, planning, and response.

***Desindex: Disaster Bibliography, References 5001-6500.*** 1998. 524 pp. Free.

***Bibliodes: Information--Natural Disaster Reduction Begins with Information.*** No. 26. 1998. 136 pp. Free.

***UN-IDNDR Internet Conference: Solutions for Cities at Risk. 26 August - 25 October 1996.*** 1998. 291 pp. Free.

All three items are available from the Regional Disaster Information Center for Latin America and the Caribbean (CRID), Apartado 3745-1000, San José, Costa Rica; tel: (506) 296-3952; fax: (506) 231-5973; e-mail: [crid@netsalud.sa.cr](mailto:crid@netsalud.sa.cr); WWW: <http://www.netsalud.sa.cr/crid>.

*Desindex* contains the latest increment in CRID's project to compile bibliographic information in both Spanish and English on disasters. Each entry provides author, title, publisher, keywords, and in most cases, a brief description or annotation.

The latest *Bibliodes* volume addresses the idea that emergency management and response programs cannot function at optimal levels unless prompt and accurate information is available to assist decision makers. This bibliography is prefaced with three essays that discuss the need to provide useful information to as many people as possible in as many formats as possible; examine dissemination of such information through electronic channels such as the Internet, e-mail, and similar services; and present the conclusions and recommendations from An International Meeting on Harnessing the Internet for Disasters and Epidemics, held November 18-21, 1997, in Bogota, Colombia.

*Solutions for Cities at Risk*, an Internet conference organized by the United Nations Secretariat of the

International Decade for Natural Disaster Reduction, was one of the first on-line exercises by the U.N. It brought together almost 500 participants from 60 countries for two months. This publication contains the results of that meeting in the ether; topics include the use of disaster management scenarios; case studies in community involvement; telecommunications and early warning; planning; design, engineering, construction, and maintenance; the role of universities in urban disaster reduction; and environmental degradation and urban risk.

## Ice Storms

***Ice Storm '98.*** Eugene L. Lecomte, with Alan W. Pang and James W. Russell. 1998. 53 pp. Free. Copies can be requested from the Institute for Business and Home Safety, 175 Federal Street, Suite 500, Boston, MA 02110-2222; (617) 292-2003; fax: (617) 292-2022; WWW: <http://www.ibhs.org>.

Starting late on January 4, 1998, and continuing for the next six days, freezing rain fell on eastern Ontario, southwestern Quebec, and southern New Brunswick and Nova Scotia, probably producing the largest insured losses in Canadian history. The same storm covered areas in New York, Vermont, New Hampshire, and Maine in the U.S., although damage there was considerably less than that experienced in Canada. This report focuses on the experiences in Canada in order to both improve understanding among insurance practitioners and the general public about such events and to demonstrate ways to mitigate losses. It examines the potential impacts of global climate change, possible future ice storms, the effects of El Niño, the potential for such a storm in a major metropolitan area, future loss reduction, and sustainable building practices.

***A Call for Collaboration: The President's Long-Term Recovery Task Force Final Report on the January 1998 Ice Storm--Maine, New Hampshire, New York, Vermont.*** 1998. 26 pp. Free. Copies can be requested from Ed Rauer, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; e-mail: [ed.rauer@fema.gov](mailto:ed.rauer@fema.gov).

One month after the winter storm described above, the president activated a long-term recovery task force to assist the affected states, and that task force identified major areas of concern regarding long-term recovery (see the *Observer*, [Vol. XXII, No. 5, p. 11](#)). In September 1998, the task force reconvened with their state partners to assess recovery progress, and the results of that meeting are contained in *A Call for Collaboration*. Among its recommendations, the report suggests that the U.S. Department of Agriculture consider restructuring disaster assistance for farmers using the model of other federal assistance providers; recommends acceleration of the assistance process for producers of specialized agricultural products; urges a cooperative study of methods to mitigate utility losses in future ice storms; describes the economic recovery assistance provided; and details forest recovery activities.

## Hurricanes and High Winds

***NOAA/NIST/Insurance Industry Workshop on the Wind Peril, Held in Chantilly, Virginia, on June 4-5, 1996.*** R.D. Marshall and J.H. Golden. 1998. 92 pp. \$12.00, microfiche; \$29.50, paper. Copies can be purchased from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; (800) 553-6847 or (703) 605-6000; fax: (703) 321-8547; e-mail: [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov).

This report presents findings and recommendations developed during a two-day workshop that brought together administrators and researchers from federal laboratories involved with weather research and building technology as well as representatives from the insurance industry. It describes ongoing research and development and the needs and concerns of the casualty insurance industry regarding wind losses, including losses due to wind-driven hail.

***Buildings at Risk: Wind Design Basics for Practicing Architects.*** 1998. 82 pp. ***Workbook.*** 1998. 55 pp. Text and workbook, \$97.00, plus \$6.00 shipping. To order, contact the American Institute of Architects, Rizzoli Bookstore, 1735 New York Avenue, N.W., Washington, DC 20006; (202) 626-7541; fax: (202) 626-7519.

***Buildings at Risk*** was published to inform architects about wind hazards, the effects of wind on buildings, the building components most susceptible to high winds, building damage patterns, and suggested techniques for making buildings more resistant to wind damage. It contains information on types of wind and locations of wind risk, wind forces, aerodynamic pressure, internal pressure, debris impacts, resistance to wind loads, wind mitigation design for residential buildings, design of commercial buildings of all heights, building codes, and insurance. The workbook contains a series of questions that are tied to each chapter in the text, with an answer key provided at the back of each chapter.

***The North Carolina Shore and Its Barrier Islands: Restless Ribbons of Sand.*** Orrin H. Pilkey, William J. Neal, Stanley R. Riggs, Craig A. Webb, David M. Bush, Deborah F. Pilkey, Jane Bullock, and Brian A. Cowan. 1998. 340 pp. \$54.95, hardbound; \$18.95, paperback. To purchase a copy, contact Duke University Press, Box 90660, Durham, NC 27708-0660; (919) 687-3650; fax: (919) 688-4391.

The recent devastation wrought by Hurricane Fran and the perilous situation of the historic lighthouse at Cape Hatteras have reminded North Carolinians of the fragility of their coast. In ***The North Carolina Shore and Its Barrier Islands***, the authors argue for a policy of intelligent development--one in which residential and commercial structures adapt to, rather than confront, the changing nature of the shore. They include practical information on the numerous hazards of the region--storms, tides, floods, erosion, island migration, and earthquakes. They use diagrams and photographs to clearly illustrate coastal processes and the effects of hurricanes and northeasters, wave and current dynamics, and pollution and other hazards caused by over-development. The authors provide risk maps that focus on the natural hazards of each island and include construction guidelines to inform island management. Finally, they review the dynamics of coastal politics and management through an analysis of the controversies over the decision to move the Cape Hatteras lighthouse and a proposed effort to stabilize Oregon Inlet. This book is the latest in the series, *Living with the Shore*, from Duke University Press.

***Florida's Hurricane History.*** Jay Barnes. 1998. 340 pp. \$39.95, clothbound; \$19.95, paperback. Copies can be purchased from the University of North Carolina Press, Post Office Box 2288, Chapel Hill, NC 27515-2288; (800) 848-6224; fax: (800) 272-6817; e-mail: [uncpress@unc.edu](mailto:uncpress@unc.edu); WWW: <http://metalab.unc.edu/uncpress>.

Florida has a notoriously stormy past--the sunny peninsula has been hit by more hurricanes than any other state. In ***Florida's Hurricane History***, Barnes draws on meteorological research, news reports, first-person accounts, maps, and historical photographs to trace the notable hurricanes that have hit the

state in the last four and a half centuries. In addition to a chronology of storms--from those that swept away settlements and sank ships during the early colonial period to the devastating hurricanes Andrew (1992) and Opal (1995)--Barnes includes information on hurricane dynamics, formation, naming, and forecasting, along with appendices that list the deadliest, the costliest, and the most intense mainland hurricanes this century.

## **Earthquakes and Other Geologic Hazards**

### ***Proceedings of the NEHRP Conference and Workshop on Research on the Northridge, California Earthquake of January 17, 1994.***

***Volume I: Overview and Workshop Proceedings.*** 1998. 160 pp.

***Volume II: Earth Sciences.*** 1998. 464 pp.

***Volume IIIA: Engineering.*** 1998. 420 pp.

***Volume IIIB: Engineering.*** 1998. 447 pp.

***Volume IV: Social Sciences and Emergency Management.*** 1998. 366 pp.

*The complete set can be purchased for \$195.00 from California Universities Research in Earthquake Engineering (CUREE), 1301 South 46th Street, Richmond, CA 94804-4698; (510) 231-9557; fax: (510) 231-5664; e-mail: [curee@nisee.ce.berkeley.edu](mailto:curee@nisee.ce.berkeley.edu). For shipments within California, contact CUREE regarding applicable sales tax.*

These volumes comprise a compendium of research on the most costly natural disaster in U.S. history. The project was funded by all four principal agencies of the National Earthquake Hazard Reduction Program (NEHRP)--the National Science Foundation, the U.S. Geological Survey, the Federal Emergency Management Agency, and the National Institute of Standards and Technology. Social science topics include economic aspects, emergency response, public policy, unmet needs, housing damage and loss, transportation impacts, reconstruction, insurance, fire-related impacts, epidemiology, hazardous materials, and land-use planning and building code enforcement.

***The Northridge Earthquake: Vulnerability and Disaster.*** Robert Bolin, with Lois Stanford. 1998. 288 pp. \$110.00, plus \$4.00 shipping. To obtain a copy, contact Routledge Customer Service, 7625 Empire Drive, Florence, KY 41042; (800) 634-7064; fax: (800) 248-4724; e-mail: [cserve@routledge-ny.com](mailto:cserve@routledge-ny.com); WWW: <http://www.routledge-ny.com>.

In *The Northridge Earthquake*, the authors suggest that people's vulnerability is a result of inequalities in their access to resources and in their exposures to risk, and is compounded through poverty, discrimination, political powerlessness, and other conditions that lead to social and economic marginalization. They concentrate on the human aspects of the Northridge quake, examining social vulnerability and postdisaster recovery strategies, and they explain how vulnerability to disaster in California has been shaped by more than a century of immigration, urbanization, environmental transformation, and economic development. In addition, they examine other recent disasters to provide a global view of the social causes and effects of disasters in developed and developing countries and conclude with a discussion of vulnerability, sustainability, and social change.

### ***Pacific Earthquake Engineering Research Invitational Workshop Proceedings, May 14-15, 1998:***



***Defining the Links Between Planning, Policy Analysis, Economics and Earthquake Engineering.*** Mary Comerio and Peter Gordon. Publication #98-04. 1998. 84 pp. \$15.00. Available from the Pacific Earthquake Engineering Center (PEER), 1301 South 46th Street, Richmond, CA 94804-4698; (510) 231-09468; fax: (510) 231-9461; e-mail: [eerclib@eerc.ce.berkeley.edu](mailto:eerclib@eerc.ce.berkeley.edu); WWW: <http://peer.berkeley.edu>. For shipments within California, contact PEER regarding applicable sales tax.

The recently established PEER Center is committed to integrating social science and earthquake engineering research. To determine how this synthesis can best be accomplished, the center held a workshop in May 1998 to aid the development of a research agenda. As the authors of this report state, It appears that whereas performance-based engineering seeks optimal solutions to the achievement of given standards, social scientists can contribute to the derivation of optimal standards. In this sense, the complementarity of social science and earthquake engineering is clear. The details, of course, are where the interesting issues lie. There is no single social science perspective. And, the aggregation of individuals' preferences to some social welfare function from which optimal standards of structural design can be inferred is problematic. These two thoughts were repeated in various forms throughout the two days of the meeting. These proceedings include an extensive list of proposed research.

***The Duty to Disclose Geologic Hazards in Real Estate Transactions.*** Denis Binder. ***Chapman Law Review***, Vol. 1, No. 1 (Spring 1998). Free reprints can be requested from the author at the School of Law, Chapman University, 1240 South State College Boulevard, Anaheim, CA 98206; (714) 517-0380. This paper discusses the applicability of the historical notion of caveat emptor (let the buyer beware) as it applies to the disclosure of geologic hazards in the sale of property. It notes that the last half of the 20th century has witnessed a virtual collapse in the legal doctrine of caveat emptor, and the duty to disclose geologic hazards in real estate transactions changed to a quasi caveat vendor. Binder discusses the legal history of caveat emptor, issues relating to fraud, legal findings regarding latent defect, the implied warranty of habitability, disclosure applicability to successive sales, broker liability, case law, statutory constraints on caveat emptor, material facts, consumer protection, off-site conditions, nonphysical problems, the duty to disclose, foreseeable risks, and obvious hazards.

## **Wildfires and Fires**

***Western National Forests: Catastrophic Wildfires Threaten Resources and Communities.*** Statement of Barry T. Hill, Associate Director, Energy, Resources, and Science Issues, Resources, Community, and Economic Development Division, General Accounting Office. GAO/T-RCED-98-273. 1998. 23 pp. Free, single copies; \$2.00, each additional copy. Copies can be requested from the U.S. General Accounting Office (GAO), P.O. Box 37050, Washington, DC 20013; (202) 512-6000; fax: (202) 512-6061; e-mail: [info@www.gao.gov](mailto:info@www.gao.gov). Also, the complete text of the report is available on-line at <http://www.gao.gov>.

This report contains GAO testimony before the U.S. House of Representatives, Subcommittee on Forests and Forest Health, Committee on Resources. Hill presents preliminary GAO observations on the extent and seriousness of forest health-related problems among national forests in the interior West, the state of the Forest Service's efforts to address the most serious of these problems, and the barriers to successfully implementing that agency's efforts. The GAO concludes that an increasing number of large, intense, uncontrollable, and catastrophically destructive wildfires is the most serious threat to forest

health in the West because of increased accumulation of fuels after decades of wildfire suppression. Hill addresses the difficulties the Forest Service faces in reducing this threat, including lack of adequate data. He also discusses controlled fires and fuels removal issues.

***After the Fire: Returning to Normal.*** 1998. 16 pp. Free. Copies can be requested from the United States Fire Administration, Publications, 16825 South Seton Avenue, Emmitsburg, MD 21727; (301) 447-1660. The complete text is also available on-line. Printed copies can be ordered from the same site: <http://www.usfa.fema.org/usfapubs>.

This booklet is a guide to assist persons recovering from a fire. It includes sections on steps to take during the first 24 hours following a fire (such as securing the site), safety concerns, and issues regarding relocation; tips on dealing with insurers and what to do if not insured, valuing your property, using restoration services, and replacing valuable documents and records; tips for salvaging clothing, cooking utensils, electrical appliances, food, rugs and carpets, books, locks and hinges, walls, floors, and furniture; a guide on replacing burned money; and a brief discussion of how fire departments respond to house fires. It also contains a checklist to follow immediately after a fire.

## Y2K

***Year 2000 Best Practices Manual.*** Publication #98401. 1998. 50 pp., manual; 151 pp., appendices. \$45.00. Copies can be purchased from the Information Center, Metropolitan Washington Council of Governments, 777 North Capitol Street, N.E., Suite 300, Washington, DC 20002-4239; (202) 962-3200; fax: (202) 962-3201; e-mail: [infocntr@mwkog.org](mailto:infocntr@mwkog.org); WWW: <http://www.mwcog.org/ic/98401.html>.

This manual is tailored to aid local governments in dealing with Year 2000 (Y2K) computer-related problems. It presents solutions and strategies that reflect an investment of more than \$20 million by local governments and private organizations in the metropolitan Washington, D.C., area. It contains a guide for elected and senior officials describing the problem, the challenge to local governments, risk management, planning, and a recommended management approach. It then discusses fast-tracking Y2K projects, implementing best practices, and contingency planning. The appendix includes a variety of templates and forms that can be quickly customized and included as part of an agency's plan for dealing with the problem. They include a project checklist, tips on estimating systems costs, a cost factors checklist, a list of date-related issues to test for, an index of embedded systems problems, a Y2K risk matrix, a discussion of possible damages, an office orientation guide, and a guide on how to establish departmental and business continuity Y2K action teams.

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## GAO Reports on the Millennium Bug

As the 20th century draws to a close, the specter of widespread computer failures is drawing much attention in Washington, and the General Accounting Office has dedicated considerable time and effort to examining the potential impacts of the Millennium Bug on essential government services. Their most

recent reports include:

- ***Year 2000 Computing Crisis: The District of Columbia Faces Tremendous Challenges in Ensuring Vital Services Are Not Disrupted.*** Statement of Jack L. Brock, Jr., Director, Governmentwide and Defense Information Systems, Accounting and Information Management Division. GAO/T-AIMD-99-4. 1998. 9 pp.
- ***Year 2000 Computing Crisis: Status of Efforts to Deal with Personnel Issues.*** Report to the Chairman, Committee on Banking and Financial Services, House of Representatives. GAO/AIMD/GGD-99-14. 1998. 24 pp.
- ***Year 2000 Computing Crisis: Federal Reserve Is Acting to Ensure Financial Institutions are Fixing Systems, But Challenges Remain.*** GAO/AIMD-98-248. 1998. 12 pp.
- ***Year 2000 Computing Crisis: Progress Made at Department of Labor, But Key Systems at Risk.*** Statement of Joel C. Willemsen, Director, Civil Agencies Information Systems, Accounting and Information Management Division. GAO/T-AIMD-98-303. 1998. 15 pp.
- ***Medicare Computer Systems: Year 2000 Challenges Put Benefits and Services in Jeopardy.*** GAO/AIMD-98-284. 1998. 31 pp.

A single, printed copy of each report is free, and additional copies are \$2.00 each. To obtain copies, contact the *U.S. General Accounting Office, P.O. Box 37050, Washington, DC 20013; (202) 512-6000; fax: (202) 512-6061; e-mail: [info@www.gao.gov](mailto:info@www.gao.gov); WWW: <http://www.gao.gov>.*

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## Two New Disaster Glossaries

### Multi-Language Glossary on Natural Disasters

The ***Multi-Language Glossary on Natural Disasters***, edited by Kenzo Toki of Kyoto University, was published as an activity of the Japan National Committee of the International Decade for Natural Disaster Reduction (IDNDR). The 490-page glossary provides equivalent natural disaster terms in Japanese, English, French, and Spanish. Toki is presently editing an Asian version that will provide equivalent terms in English, Japanese, Chinese, and Korean. Free copies of the ***Multi-Language Glossary on Natural Disasters*** are available from *Kenzo Toki, Graduate School of Civil Engineering, Kyoto University, Yoshida Hon-machi, Sakyo-ku, Kyoto 606-01, Japan; tel: 81-75-753-5131; fax: 81-75-762-2005; e-mail: [toki@quake.kuciv.kyoto-u.ac.jp](mailto:toki@quake.kuciv.kyoto-u.ac.jp).*

### Draft Disaster Management Glossary

The United Nations Centre for Human Settlement (Habitat) in Kenya and the Disaster and Emergency Reference Centre in the Netherlands have developed a draft ***Disaster Management Glossary***. The terms are multidisciplinary, and most entries are coded according to disaster management sector (general, technological, natural, human settlement, emergency response, wildfire, etc.). For availability, contact the *Disaster and Emergency Reference Centre (DERC), P.O. Box 338, 2600 AH, Delft, Netherlands;*



fax: (3115) 278 4408; e-mail: [disaster.derc@usa.net](mailto:disaster.derc@usa.net).

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## Weather Service Puts Service Assessments on Web

Following weather-related disasters, the National Weather Service dispatches Service Assessment Teams to evaluate the effectiveness of their products and services during the event. Recent reports from these teams are now available on the Internet at <http://www.nws.noaa.gov/om/omdis.htm>. As of press time, the following Service Assessments were available:

- *Southeastern United States Tornadoes, April 8, 1998*. 1998. 18 pp.
- *The Central Texas Tornadoes of May 27, 1997*. 1998. 102 pp.
- *Ohio River Valley Flood of March 1997*. 1998. 38 pp.
- *Super Typhoon Paka, December 2 thru 21, 1997*. 1998. 34 pp.
- *Spencer, South Dakota, Tornado, May 30, 1998*. 1998. 34 pp.
- *Central Florida Tornado Outbreak, February 22-23, 1998*. 1998. 38 pp.
- *The Ice Storm and Flood of January 1998*. 1998. 50 pp.
- *Red River of the North 1997 Floods*. 1998. 77 pp.
- *March 1, 1997, Arkansas Tornado Outbreak*. 1997. 27 pp.
- *Hurricane Bertha, July 5-14, 1996*. 1997. 69 pp.
- *Hurricane Fran, August 28-September 8, 1996*. 1997. 52 pp.

Other reports are also listed, many of which have been mentioned in the *Observer* as Weather Service Disaster Survey Reports. All reports are available in PDF format.

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## Journal of Floodplain Management Calls for Papers and Articles

The Floodplain Management Association (FMA) recently announced publication of a new professional journal, the *Journal of Floodplain Management*. Unlike other water resources journals, this periodical will emphasize actual floodplain management experiences. Authors are encouraged to submit discussions and case studies that highlight projects, policies, and issues of interest to their peers. Authorship is open to anyone with experience or interest in floodplain management. Papers will be peer reviewed. The first issue of the *Journal of Floodplain Management* will be published in March. Authors interested in submitting articles for subsequent issues should contact *Ted Hromadka*; e-mail: [thromadka@exponent.com](mailto:thromadka@exponent.com), or FMA, P.O. Box 2972, Mission Viejo, CA 92692; (949) 766-8112; fax: (949) 459-8364.

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## Research Instantly Available from NAP Electronic Reading

## Room

The information age has just advanced to a new level for hazards researchers (and researchers in other fields, for that matter) with the creation of the National Academy Press (NAP) Reading Room on the World Wide Web. At that site, <http://www.nap.edu/readingroom/>, anyone interested in obtaining the latest research in a given field can view and print the complete text of NAP documents, reports, and books, as well as order them on-line and receive a 20% discount.

A few of the most recent titles of interest to readers of the *Observer* include:

- ***Reducing Disaster Losses Through Better Information*** (Prepublication Copy)(1998. 60 pp., price not yet available)-- <http://www.nap.edu/readingroom/records/0309063396.html>.
- ***Review of Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts*** (1997, 85 pp., \$19.00)--<http://www.nap.edu/readingroom/records/0309056322.html>.
- ***Earthquake Prediction: The Scientific Challenge*** (1996, 128 pp., \$12.80)--<http://www.nap.edu/readingroom/records/0309058376.html>.
- ***Report of the Observer Panel for the U.S.-Japan Earthquake Policy Symposium*** (1998, 72 pp., \$12.00)--<http://www.nap.edu/readingroom/records/0309056918.html>.
- ***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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Center phone number: (303) 492-6818

Fax: (303) 492-2151

E-mail: [hazctr@spot.colorado.edu](mailto:hazctr@spot.colorado.edu)

Publications Clerk: (303) 492-6819

E-mail: [jclark@spot.colorado.edu](mailto:jclark@spot.colorado.edu)

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## Staff

Sylvia C. Dane, Editor

David L. Butler, Tested and Found Y2K Compliant

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Mary Fran Myers, Co-Director

Jeanine Stevens, Program Manager

Diane Smith, Staff Assistant

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To contact the editor of the Natural Hazards Observer, send an e-mail message to [sylvia.dane@colorado.edu](mailto:sylvia.dane@colorado.edu).

[edu](#)

To contact the editor of Disaster Research, send an e-mail message to [david.butler@colorado.edu](mailto:david.butler@colorado.edu)

For other services or information provided by the Natural Hazards Center, send an e-mail message to [hazctr@spot.colorado.edu](mailto:hazctr@spot.colorado.edu)

To reach us by snail mail, send correspondence to:

Natural Hazards Research and Applications Information Center  
Institute of Behavioral Science #6  
University of Colorado at Boulder  
Campus Box 482  
Boulder, Colorado 80309-0482



[sylvia.dane@colorado.edu](mailto:sylvia.dane@colorado.edu)

January 12, 1999



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