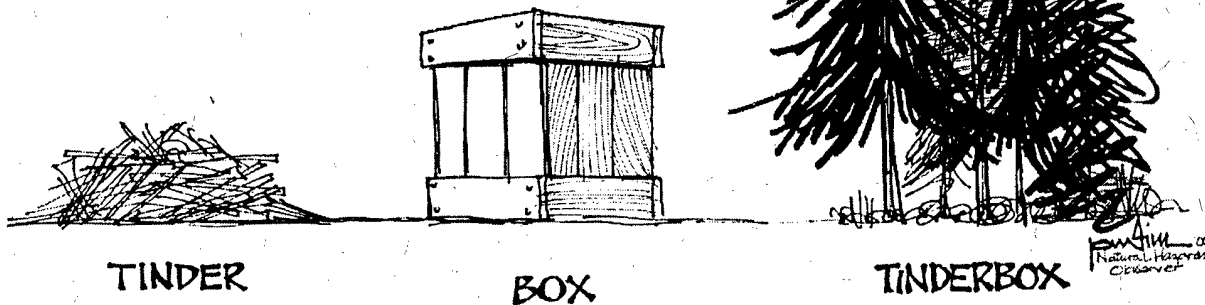


Natural Hazards Observer

VOLUME XXV NUMBER 1

September 2000

DISTRIBUTION STATEMENT A
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The Los Alamos Cerro Grande Fire An Abject, Object Lesson

—an invited comment

Not Unexpected

Initiating perhaps the worst fire season in the last 50 years, the Los Alamos Cerro Grande fire in New Mexico caught the nation's attention in May when over 200 homes burned because a prescribed fire got out of control. Certainly, those who made mistakes should be held accountable, but more importantly, there are significant lessons for planners and other segments of government and society to learn from this fire.

The area around Los Alamos has a history of threatening wildfires. In the past 21 years, three major fires have broken out near the Los Alamos National Laboratory, which has housed radioactive materials and toxic chemicals for decades. The Cerro Grande fire should not have come as a surprise.

According to an article in *Forest Magazine* by Keith Easthouse (September/October 1999), the three federal agencies that manage the wooded areas surrounding the laboratory (the U.S. Forest Service, the U.S. Department of Energy, and the National Park Service) were well aware of the potential for such a devastating fire. Although

officials with these agencies had expressed concern for the risks and conducted prescribed burns and thinning on their lands, their agencies never received adequate funding for fire mitigation. Further, the agencies did not coordinate efforts to reduce risks until a 1996 fire threatened the laboratory.

Still, the federal government was not alone in inadequately preparing for the Cerro Grande fire. When I visited the site, local folks said the county government had lacked funding for mitigation, but more importantly, failed to recognize the seriousness of the problem or to actively search for funding. Likewise, residents and officials felt the Department of Energy should have taken their responsibility to mitigate risks more seriously.

A Population Increasingly at Risk

Testifying before the House of Representatives Subcommittee on Forests and Forest Health in June 1999, Janice McDougale, Deputy Chief of the Forest Service, noted that, in addition to changes in forest conditions, increasing numbers of people are moving from urban areas to rural

areas near public lands. This in turn has increased the number of structures in wildlands near national forests, making them extremely vulnerable to fires. This trend, compounded by overly dense forests and accumulation of fuels, has created a volatile situation that must be addressed.

Building and Rebuilding to Prevent the Next Disaster

Although the Cerro Grande fire began as a prescribed burn, this fire could have just as easily started from a lightning strike or careless campfire. Instead of concerning ourselves with how the Cerro Grande fire started, we ought to pay greater attention to reducing risks and preventing future fires in susceptible areas. The fire should be an example of why building disaster-resistant communities of the sort called for by the Federal Emergency Management Agency's Project Impact is critical, why community planning is necessary to create such communities, and why, at the same time, more—not fewer—prescribed burns and other fuel management programs are needed.

Development plans should be based on sound site planning, building design and construction, and landscaping that reduces the risks of living in a forested environment. Recognizing this need, the National Fire Protection Association's Firewise Communities program and the Institute for Business and Home Safety are working to provide communities with reliable wildfire mitigation information.

There are reasons some homes in the Los Alamos region burned and others did not. Too often, development plans emphasize fire trucks and sprinkler systems to deal with fire hazards. Instead, communities must address the consequences of sprawl and adopt alternative ways of developing. In the June 1995 issue of *Planning* magazine, William Fulton outlined some of the wildfire issues affecting California. He determined that adding fire standards to general plans and subdivision regulations is not enough to prevent devastation. What is needed, he concluded, is the political will to keep people from building in the woods.

An oblique aerial photo of the Los Alamos area shows that the town is built at the base of a mountain on mesas surrounded by long, steep, forested canyons. The fire swept through the mountains and spread to various spots in the canyons. The houses that burned were in residential areas closest to the base of a forested mountain, and the greatest losses probably occurred in a newer subdivision tucked into the hills. These losses could have been reduced had the outer forested locations been avoided. Although controversial, limits to growth could have considerable potential for confining losses due to natural disasters. The city of Flagstaff and Coconino County in Arizona are proposing such growth boundaries under their new Regional Land Use and Transportation Plan. Encouraging compact development, growth boundaries, and infill, while using existing tools such as zoning, other laws and regulations, design review, and hazard mapping, could save property, and, in the future, lives.

Similarly, having reconstruction plans in place for Los Alamos prior to the fire would have enhanced land-use choices during rebuilding. Unfortunately, this careful

process may be adversely affected by the federal government's willingness to compensate victims quickly for their losses to allow rapid replacement of their structures. In this regard, the publication *Planning for Post-Disaster Recovery and Reconstruction*, jointly published by the American Planning Association (APA) and the Federal Emergency Management Agency (see the *Observer*, Vol. XXIII, No. 6, p. 7), is an invaluable tool for planners interested in establishing plans *before* their communities burn.

The Fundamental Need: Awareness

Planners and land-use officials in general need to become better informed and willing to address all natural hazards issues. Although the APA's *Growing Smart Legislative Guidebook*, published in 1996, includes a chapter on natural hazards, the January 2000 issue of *Planning* magazine, a special edition devoted to smart growth issues, did not mention hazards and public safety planning, nor did the March 1999 issue of APA's *Zoning News*, which dealt with the implications of growth area designations. Many planning professionals and local officials have not yet realized the difference between protecting the environment and protecting a population. Nor have they made the connection between limiting growth in hazardous areas and greater community protection from natural disasters.

Although much can be accomplished through land-use planning, we must recognize that it can only do so much. Protecting communities has to be a shared responsibility. Public planners are directed by the community and elected officials for whom hazard mitigation planning often is not a high priority. Clearly, awareness must be increased not only among planners but also among the people they serve.

Similarly, this hazard has not yet received the attention it deserves from the insurance industry. If homeowners pay less attention to wildfire mitigation because their buildings are insured or because there is no rate reduction benefit for undertaking mitigation, why should planners, governments, and other sectors of society try to make a difference?

No forested community is immune from a wildfire disaster. Lightning strikes and droughts will continue to occur (if not increase), campfires will get out of control, fuel will continue to accumulate, and more and more people will move into forests and the paths of forest fires. Is it not time we started looking at why we spend more money putting out fires and paying for lost homes than we do preventing these disasters?

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Planning Division
City of Flagstaff, Arizona

References

Easthouse, Keith. "Time Bomb in the Forest," *Forest Magazine*. (September/October 1999). The article is available via the Internet at <http://www.forestmag.org>. Annual subscriptions are available for \$12.95 from *Forest Magazine*, P.O. Box 11646, Eugene, OR 97440; (877) 437-8624.

Janice McDougle's testimony can be found in Printed Hearing Serial No. 106-42, U.S. House of Representatives, 106th Congress, available through any federal government repository library. The General Accounting Office report to the Subcommittee, *Western National Forests: A Cohesive Strategy is Needed to Address Wildfire Threats* (#GAO/RCED-99-65, part of which contains information presented by McDougle), can be obtained from the GAO or viewed on-line at <http://resourcescommittee.house.gov/106cong/forests/99jun29/rc99065.pdf>. Free printed copies can be requested from GAO, P.O. Box 37050; Washington, DC 20013; (202) 512-6000; fax: (202) 512-6061; e-mail: info@www.gao.gov.



Wildfire Web Sites

<http://www.colorado.edu/hazards/sites/wildfire.html>

This section of the Natural Hazards Center Web site is an annotated index of some of the more useful wildfire URLs we have encountered.

<http://www.nps.gov/band/fire.htm>

The U.S. Park Service's Bandelier National Monument, which suffered devastation due to the Los Alamos wildfire, has created this site to distribute information about the Cerro Grande fire. It contains a fire timeline, maps, satellite images, numerous photos of the fire, and press releases.

<http://www.fs.fed.us/fire>

For persons wanting information on the status of wildfires, the U.S. Forest Service Fire and Aviation Web site provides up-to-date reports and news regarding current and recent wildfires—as well as the wildfire potential—across North America. In addition, the library section offers numerous publications.

The Federal Response to the Cerro Grande Fire

The General Accounting Office

The Cerro Grande fire was the tragic result of a fire ignited by officials of the National Park Service, as part of a long-held policy of “controlled burns” to reduce vegetative buildup in forested areas. According to the General Accounting Office (GAO), the catastrophe indicates that National Park Service policies need to be revised to require peer review by those outside the Park Service.

Fire Management: Lessons Learned from the Cerro Grande (Los Alamos) Fire (GAO/T-RCED-00-257, 2000, 52 pp., free) presents the testimony of GAO Associate Director Barry T. Hill before Congress about the lessons learned from this wildfire. In addition to forgoing outside review of the burn plan, the Park Service underestimated the overall complexity of the burn and the resources needed to keep it under control.

Hill notes that one of the critical elements in determining whether to proceed with a controlled burn is the availability of sufficient resources if and when they are needed. Although the Park Service identified resources other agencies could provide, they did not check to see if the resources would be available if needed. A difference in agency interpretation of wildfire policy also added to the confusion surrounding resources. Forest Service officials believed that contingency resources were to be made available only after a prescribed fire became a wildfire. Consequently, there was a substantial delay in getting resources to the site after a Park Service official requested aid. Not surprisingly, Hill concludes that another important lesson is the need for more effective coordination and cooperation among all institutions affected by a controlled burn.

Copies of the report are available from GAO, P.O. Box 37050, Washington, DC 20013; (202) 512-6000; fax: (202) 512-6061; e-mail: info@www.gao.gov; WWW: <http://www.gao.gov>.

The Department of Energy

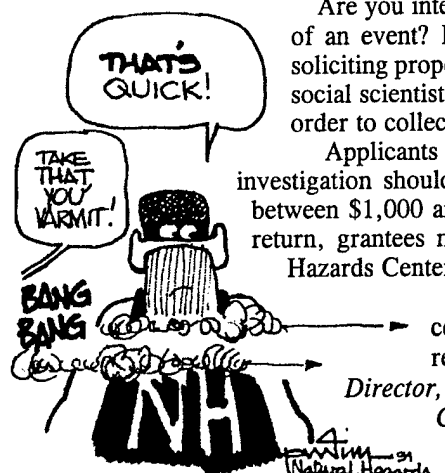
About 7,500 acres of land operated by the Los Alamos National Laboratory (LANL) were burned during the Cerro Grande fire, while another 35,500 acres burned along the mountain flanks above the laboratory and to the north of the site, making this New Mexico's most destructive fire in history. Because of the destruction, there is a high risk of flooding in both the LANL facility and residential communities downstream. On June 21, 2000, the Department of Energy (DOE), of which the laboratory is a part, published a notice of emergency action, describing the operations the agency is undertaking to reduce the flood risk and to protect sensitive cultural resources and habitat for endangered and threatened species. Moreover, the agency is working to prevent flooding of 74 sites and two nuclear facilities at risk for hazardous and radioactive materials releases.

The text of this emergency action is contained in the June 21 *Federal Register* (Vol. 65, No. 120, pp. 38522-38527). For further information on these activities, contact Elizabeth Withers, NEPA Compliance Officer, U.S. Department of Energy, Los Alamos Area Office, 528 35th Street, Los Alamos, NM 87544; (505) 667-8690; fax: (505) 665-4872; WWW: <http://www.lanl.gov>.

The Department of the Interior

Secretary of the Interior Bruce Babbitt has released the final report from an independent team that reviewed the events surrounding the Cerro Grande fire. It contains numerous recommendations for better management of controlled burns and for improved fire management generally. The team's complete report can be found on the Department of the Interior's Web site: <http://www.doi.gov/secretary/reviewteamfinal.htm>.

The Natural Hazards Center's Quick Response Program



Are you interested in undertaking research at the scene of a disaster within hours or days of an event? If so, here's an opportunity for you. The Natural Hazards Center is now soliciting proposals for its FY 2001 Quick Response (QR) Research Program, which enables social scientists from the U.S. to conduct short-term studies immediately after a disaster in order to collect perishable data.

Applicants with approved proposals are eligible to receive funding to carry out their investigation should an appropriate disaster occur in the coming 12 months. Grants average between \$1,000 and \$3,000 and essentially cover only food, lodging, and travel expenses. In return, grantees must submit reports of their findings, which are published by the Natural Hazards Center both on the Web and in hard copy.

Details about proposal submission requirements can be obtained from the center's Web site (<http://www.colorado.edu/hazards/qr2001.html>) or by requesting a 2001 QR Program Announcement from Mary Fran Myers, Co-Director, Natural Hazards Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; (303) 492-2150; fax: (303) 492-2151; e-mail: myersmf@colorado.edu. The deadline for proposal submission is October 16, 2000.

The full texts of Quick Response reports published since November 1995 can be obtained from the Natural Hazards Center's Web page: <http://www.colorado.edu/hazards/qr/qr.html>. A complete list of all past Quick Response reports and all our other publications, along with their prices, is available at no charge from <http://www.colorado.edu/hazards/publist.html>. This list is also available for \$4.00 from the Publications Clerk at the address above.

Three New Quick Response Reports

We publish Quick Response reports from the studies funded through our Quick Response Research Program as soon as they arrive at the Natural Hazards Center. Our latest additions include:

<http://www.colorado.edu/hazards/qr/qr128/qr128.html>

- **QR128: South Carolina's Response to Hurricane Floyd**, by Kirstin Dow and Susan L. Cutter of the Hazards Research Laboratory, University of South Carolina.

Dow and Cutter's study specifically examines evacuation decision making. They compare the attitudes of those who did and did not evacuate regarding several aspects of the massive exodus that occurred preceding Floyd.

<http://www.colorado.edu/hazards/qr/qr129/qr129.html>

- **QR129: An Analysis of the Socioeconomic Impact of Hurricane Floyd and Related Flooding on Students at East Carolina University**, by Bob Edwards, Marieke Van Willigen, Stephanie Lormand, and Jayme Currie, with Kristina Bye, John Maiolo, and Ken Wilson of East Carolina University.

This group of researchers undertook a preliminary socioeconomic assessment of the effects of Hurricane Floyd and related flooding on the students of East

Carolina University in Greenville, North Carolina—an area hard hit by flooding. A second purpose of the study was to identify the sources from which students received needed assistance and the ways students provided assistance and contributed to local relief efforts.

<http://www.colorado.edu/hazards/qr/qr130/qr130.html>

- **QR130: Information Technology and Efficiency in Disaster Response: The Marmara, Turkey Earthquake, 17 August 1999**, by Louise K. Comfort, University of Pittsburgh.

Comfort traveled to Turkey less than a month after the Marmara quake. Her report addresses four questions regarding information technology use following that disaster: How many and what types of technologies were used by which organizations during disaster response operations? In what ways did these technologies increase or decrease the use of information among the participating organizations during response to the disaster? To what extent did increased exchange and use of information facilitate adaptive change among organizations participating in disaster operations? To what extent did increased efficiency and effective performance in disaster response facilitate timely transition to recovery?

*A Silver Anniversary
and a Gem of a Workshop*

2000 Session Summaries Now Available

In July, hazards professionals from around the world gathered in Boulder, Colorado, for the 25th Annual Hazards Research and Applications Workshop. This was a particularly special year, marking the silver anniversary of the gathering. Despite its age, the meeting focused on the cutting edges of hazards issues, tackling such topics as the political economy of hazards, the National Pre-Disaster Mitigation Plan, evacuation and Hurricane Floyd, information technology in disaster management, insurance industry disaster mitigation activities, disaster recovery for small businesses, environmental justice, and ethical issues in emergency management.

To ensure that the ideas and discussions are not limited to those who attended the workshop, the Natural Hazards Center publishes brief summaries of each session, abstracts of the hazards research presented, and descriptions of the projects and programs discussed at the meeting. A set of all workshop materials, including the agenda and participant list, costs \$20.00, plus \$5.00 shipping. (For orders beyond North America, contact the *Publications Clerk* at the address below for shipping charges or see the publications ordering information on our Web site at <http://www.colorado.edu/hazards/puborder.html>).

Currently, the list of all session summaries and abstract titles is available on our Web site at <http://www.colorado.edu/hazards/ss/ss.html>. In November, the complete text of all session summaries will also be available at that site, although abstracts of hazards research, programs, and projects will not.

To order these materials, send your payment (checks should be payable to the University of Colorado) to the *Publications Clerk, Natural Hazards Research and Applications Information Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; (303) 492-6819; fax: (303) 492-2151; e-mail: janet.kroeckel@colorado.edu; WWW: http://www.colorado.edu/hazards*. Visa, Mastercard, American Express, and Diner's Club cards are also accepted.



A Modest Price Increase

And Still a Bargain

Although the *Natural Hazards Observer* is free to anyone within the borders of the United States, readers outside the U.S. must pay a subscription fee. In January 2001, the subscription rate will increase from \$15.00 to \$24.00. All subscriptions will begin anew on January 1, and subscribers will be billed accordingly.

For further information about this increase, or to subscribe or renew a subscription, contact the *Publications Clerk, Natural Hazards Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; (303) 492-6819; fax: (303) 492-2151; e-mail: hazctr@colorado.edu*.

Fourth Hazards Assessment Volume Due this Fall

In October, the Joseph Henry Press will release a monograph that presents lessons and understanding derived from the last 25 years of disasters. *Facing the Unexpected*, by Kathleen J. Tierney, Michael K. Lindell, and Ronald W. Perry, explores how these findings can improve disaster programs, identifies remaining research needs, and discusses disasters within the broader context of sustainable development. The book is the fourth volume resulting from a recently completed project—the Second U.S. Assessment of Research and Applications for Natural Hazards (see the *Observer*, Vol. XXIII, No. 4, p. 3).

Focusing on the nexus of social, cultural, and economic factors that are central to determining the nature and scope of disasters, the authors examine key questions regarding today's catastrophes: How do different people think about disaster? Are we more likely to panic or to respond with altruism? Why are 110 people killed in a Valujet crash considered disaster victims while the 50,000 killed annually in traffic accidents in the U.S. are not? Tierney, Lindell, and Perry not only review the influences that have shaped the U.S. system for disaster planning and response, but also compare technological versus natural disasters and examine the impact of technology on disaster programs.

Facing the Unexpected (ISBN 0-309-06999-8, 300 pp.) will be available in October from the Joseph Henry Press for \$47.95, plus \$4.50 shipping and handling for orders from the U.S. and Canada. International orders cost \$57.75 (contact the publisher for shipping costs). Joseph Henry Press offers a 20% discount for orders placed via the World Wide Web. To place an order, contact the *National Academy Press*, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (888) 624-7645 (toll free) or (202) 334-3313; fax: (202) 334-2451; WWW: <http://www.nap.edu/catalog/9834.html>.



Also Available from the Second Assessment of Natural Hazards . . .

The Second Assessment mentioned above involved more than 100 hazards researchers and practitioners and addressed the fundamental question: Why, despite all our knowledge about the causes of, consequences from, and remedies for disasters, do losses continue to rise?

The findings from that project are summarized in *Disasters by Design: A Reassessment of Natural Hazards in the United States* by Dennis S. Mileti (1999, 376 pp.). That book reviews hazards research from the last two decades, synthesizes what has been learned, and outlines a proposed shift in direction in research and policy for natural and related technological hazards in the United States. It also serves as background and introduction to other, more specific volumes resulting from the assessment: *Facing the Unexpected*, discussed above, and two earlier volumes—*Cooperating With Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities*, edited by Raymond J. Burby (1998, 368 pp.) and *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.).

Each of these volumes can be purchased for the same price as *Facing the Unexpected* from the National Academy Press at the address above.

Finally, a complete, extended bibliography for *Disasters by Design* is available from the Natural Hazards Center Web site: <http://www.colorado.edu/hazards/assessbib.html>. This list of references comprises all of the hundreds of citations provided by the many researchers, practitioners, reviewers, and other individuals who contributed to the assessment.

Reflections on the American Flood Legacy

Floodplain Managers Look to Future and Past

Looking Forward

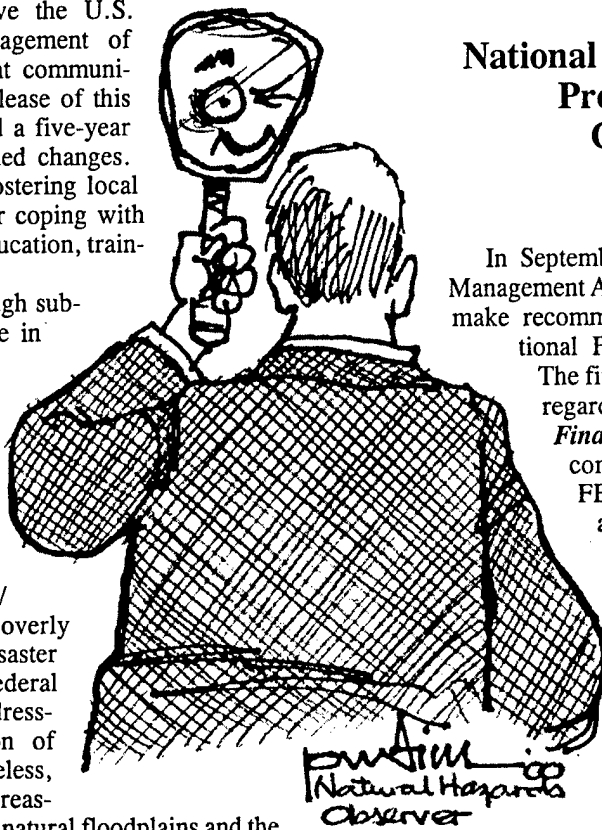
In June, the Association of State Floodplain Managers (ASFPM) released *National Flood Programs in Review—2000*, a detailed analysis that calls for fundamental shifts in national flood policies and programs. The report describes some of the key changes in federal floodplain management over the last several years and identifies improvements that would move the U.S. toward better long-term management of floodplains and disaster-resilient communities. In conjunction with the release of this report, the ASFPM has adopted a five-year strategy for implementing needed changes. The first year has two goals: fostering local and individual responsibility for coping with flood problems and enhancing education, training, and public awareness.

The report notes that, although substantial progress has been made in lessening flood risks, losses continue to rise and now approach \$5 to \$8 billion annually. Uses of the floodplain are intensifying due to local, state, and federal policies that encourage short-term thinking, improper assessment of risks, and too heavy a reliance on cost/benefit analysis. Additionally, overly generous criteria for issuing disaster declarations and consequent federal aid create a disincentive for addressing flood risks and protection of floodplain resources. Nevertheless, the ASFPM believes there is increasing recognition of the benefits of natural floodplains and the ecological systems that lie within them.

Looking Backward

The Nation's Responses to Flood Disasters: A Historical Account, by James M. Wright, chronicles the federal approach to floodplain management. Wright traces the forces and events that influenced floodplain management in the U.S. over the past 150 years, describing the issues of federal authority and responsibility before the 20th century, major floods and resulting legislation in the early 20th century, the broadening of solutions to flooding from the 1930s to the 1960s, the "flood insurance era" of the 1970s and 1980s, the environmental movement's influence on floodplain management, and the prevalence of disaster assistance in the 1990s.

National Flood Programs in Review—2000 (2000; 60 pp.; \$20.00, ASFPM members, \$25.00, nonmembers) can be ordered from ASFPM Publications, 2809 Fish Hatchery Road, Suite 204, Madison, WI 53713-3120; (608) 274-0123; fax: (608) 274-0696; e-mail: asfpm@floods.org. *The Nation's Responses to Flood Disasters* (2000, 112 pp., \$10.00) can be ordered from the same address. Be sure to add \$5.00 shipping for the first item, and \$2.00 for each additional item. Both documents are also available free from the ASFPM Web site: <http://www.floods.org>.



National Flood Insurance Program Releases Call for Issues Final Report

In September 1998, the Federal Emergency Management Agency (FEMA) invited the public to make recommendations for improving the National Flood Insurance Program (NFIP).

The first in a new series of annual updates regarding the NFIP, the *Call for Issues Final Report* (2000, 398 pp., free) contains those recommendations, FEMA's decisions on whether to adopt a recommendation, and an explanation of the agency's decisions. The report is divided into three sections: Federal Insurance Administration issues, mitigation floodplain management issues, and mitigation and hazard identification/mapping issues.

Insurance-related recommendations reflected a wide range of concerns' they included expanding

the mandatory flood insurance purchase requirement, simplifying flood insurance ratings, and changing wording on forms and guidance documents. Many suggestions were also received regarding community eligibility and compliance, general construction requirements, policy review, technical assistance, and mapping. Because FEMA must perform additional studies or coordinate followup activities with other levels of government and the private sector, this report will be updated annually until all the identified issues are addressed.

Printed copies of the *Call for Issues Final Report* can be requested from the FEMA Publications Center, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520. The complete report is also available free from the FEMA Web site: <http://www.fema.gov/nwz00/nfirpt.htm>.

Canadians Safe Guard Their Citizens

In order to increase public awareness of emergency preparedness in Canada, in 1995, government, private, and voluntary organizations created a national program called Safe Guard. As part of that effort, several documents of potential interest to *Observer* readers have been posted on the Emergency Preparedness Canada Web site: http://www.epc-pcc.gc.ca/research/scie_tech/index.html. The project also has its own Web site: <http://www.safeguard.ca/english/index.html>. Free printed copies of each of these documents can be requested by phone: (613) 991-7066; fax: (613) 996-0995; or e-mail: communications@epc-pcc.gc.ca.



- **Tsunami Runup Mapping as an Emergency Preparedness Tool: The 1929 Tsunami in St. Lawrence, Newfoundland**, by Alan Ruffman. Volume 1. 1996. 107 pp.
- **Guidelines on Cultural Diversity and Disaster Management**, by Gabriela Y. Solis, Henry C. Hightower, June Kawaguchi 1997. 40 pp.
- **Alternative to Sandbags for Temporary Flood Protection**, by Kevin Biggar and Srbojub Masala. 1998. 79 pp.
- **Emergency Preparedness and First Nation Communities in Manitoba**, by Donna Epp, C. Emdad Haque, and Beth Peers. 1998. 47 pp.
- **Federal Legislation for Disaster Mitigation: A Comparative Assessment Between Canada and United States**, by John Newton. 1997. 41 pp.
- **A National Mitigation Policy: Findings from National Consultations on Canada's Preparedness for Disasters**. 1998. 21 pp. (Available in printed format only.)
- **Departmental Planning Responsibilities for Emergency Preparedness**. 1995. 37 pp.
- **A Preliminary Assessment of the Effectiveness of Flood Damage Reduction Measures in Canada**. 1999. 151 pp.
- **Disaster Mitigation and Preparedness in a Changing Climate: A Synthesis Paper**, by James P. Bruce, Ian Burton, and I.D. Mark Egner. 1999. 38 pp.
- **Disaster Debris Management**, by Gabriel Y. Solis, Henry C. Hightower, Jim Sussex, and June Kawaguchi. 1996. 32 pp.
- **Draft Guidelines for the Planning and Operation of Emergency Reception Centres**, by James M. Hanna. 1996. 98 pp.
- **Emergency Preparedness Guidelines for Mass, Crowd-Intensive Events**, by James M. Hanna. 1995.
- **Emergency Roles and Responsibilities of NGOs in Canada**, by John Newton. 1999. 65 pp.
- **Emergency Site Management (ESM) System: A Doctrine Paper**, by Ron Kuban. 1998.
- **Guidelines for the Design and Construction of Mobile Command Posts and Similar Emergency Response Vehicles**, by James M. Hanna. 1993. 52 pp.
- **Managing Biological Risk, With an Emphasis on Risks Associated with Biotechnology**. 1995. 55 pp.
- **Strategic Planning Guide for the Evacuation of a Highly Urbanized Environment**, by Paul Beaulieu and Jean-François Marchand. 1996. 107 pp.

ProVention Consortium Launches Newsletter

In order to make disaster prevention and mitigation activities an integral part of development initiatives, the World Bank recently launched the ProVention Consortium—a global partnership of government agencies, international organizations, academic institutions, private businesses, private citizens, and other concerned groups (see the *Observer*, Vol. XXIV, No. 4, p. 3). In June, the consortium sent via e-mail the first issue of its **ProVention Consortium Newsletter**, which will be distributed once a month to provide information on projects, meetings, and conferences on disaster management. It will also contain interviews with prominent

disaster professionals as well as a special section that reports on a specific disaster-stricken country.

More information about the ProVention Consortium is available from the World Bank Web site: <http://www.worldbank.org/html/fpd/urban/provention/index.html>. Interested persons can also contact Melanie Zipperer, Disaster Management Facility, World Bank, 1818 H Street, N.W., Washington, DC 20433; (202) 473-1378; fax: (202) 522-3224 or (202) 522-2125; e-mail: DMF@worldbank.org; WWW: http://www.worldbank.org/html/fpd/urban/dis_man/dis_man.htm.



Focus on Wildfires . . .

U.N. Sets 2000 World Disaster Reduction Campaign

Disaster Reduction, Education, and Youth

The United Nations has announced its 2000 World Disaster Reduction Campaign and published an information kit in English, French, Spanish, and Russian for interested local governments and organizations. The kit includes scientific articles, a poster, and case studies of forest fire hazards and disaster prevention, as well as a booklet by and for young persons that includes personal accounts, essays, poems, and illustrations.

During the International Decade for Natural Disaster Reduction (1990-1999), the International Day for Disaster Reduction was a significant U.N. effort to raising awareness of disaster reduction in countries and communities around the world. Considering the success of this annual event, when the IDNDR came to an end and was succeeded by the International Strategy for Disaster Reduction (ISDR), the General Assembly of the U.N. decided to continue observing the day on the second Wednesday of October. Each year, the event will be the culmination of a year-long public awareness campaign organized by the secretariat of the ISDR to promote disaster prevention among communities and populations at risk.

The theme for 2000—Disaster Reduction, Education, and Youth—recognizes the importance of establishing a “culture of prevention,” as opposed to a culture of fatalism, by instilling awareness and knowledge beginning as early as possible in a child’s development. This year’s campaign will highlight wildfire hazards. The main objectives have been defined as:

- Promoting a shift from a mentality of reaction to hazards to one of management of risks,
- Promoting stronger commitment to incorporating disaster reduction into education curricula, and
- Promoting greater participation of youth in disaster reduction activities.

In support of this mission, the ISDR Secretariat is joining several other national and international agencies in hosting the Second Hemispheric Conference on Disaster Reduction in the Education Sector in the Americas in Caracas, Venezuela, October 2-4, 2000 (see page 12 of this *Observer*).

The secretariat invites interested individuals and educational institutions to send examples of exemplary national or local education programs that are participatory and demonstrably contribute to building a culture of prevention. The secretariat plans to publish these accounts later this year.

Along with the information kit mentioned above, the ISDR Secretariat has prepared other supporting materials, including an ISDR brochure, a guide to activities and actions that could be undertaken at the local level, a teacher’s guide, a children’s disaster booklet, T-shirts on the theme of forest fire mitigation, audio-visual materials, a CD-ROM, a report on the 1999 world disaster reduction campaign, a kids’ corner on the ISDR Web site (<http://www.unisdr.org>), and information on the U.N./Sasakawa Disaster Prevention Award.

The International Day for Disaster Reduction will be held on October 11, 2000, with celebrations taking place at the U.N. and locally around the globe. For an information kit, more information about the 2000 ISDR campaign, and suggestions for local activities and events, contact the *Awareness and Promotion Issues Officer*, U.N. ISDR Secretariat, Palais des Nations, CH-1211 Geneva 10, Switzerland; tel: (41 22) 917 90 00; fax: (41 22) 917 90 98/99; e-mail: isdr@un.org; WWW: <http://www.unisdr.org>. Interested persons can also contact Helena Molin Valdes, ISDR Unit for Latin America and the Caribbean; e-mail: hmolin@undpcos.nu.or.cr; or consult the Web site of the Regional Disaster Information Center, CRID, in San José, Costa Rica: <http://www.crid.or.cr>.

WASHINGTON UPDATE

FEMA and Heinz Center Say Coastal Erosion Will Destroy 87,000 Buildings

Over the next 60 years, erosion may claim one out of four houses within 500 feet of the U.S. shoreline. Driven by a rising sea level, large storms, flooding, and powerful ocean waves, nature is wearing away beaches and bluffs along U.S. ocean and Great Lakes shorelines and undermining waterfront houses, businesses, and public facilities. When Congress passed the National Flood Insurance Reform Act of 1994, it requested an in-depth analysis of proposed policy changes to federal programs that would address erosion hazards. The results of that study, conducted by the H. John Heinz III Center for Science, Economics and the Environment and funded by the Federal Emergency Management Agency (FEMA), were recently released.

Besides the startling findings above, the report *Evaluation of Erosion Hazards* (2000, 252 pp., free) states that those who live along the coast face as large a risk of damage from erosion as they do from flooding. Roughly 1,500 homes and the land on which they were built will be lost to erosion each year, with losses averaging \$530 million per year. At current enrollment levels, the National Flood Insurance Program (NFIP) will pay \$80 million a year for erosion damage, or about 5% of current premiums. Property values have already dropped by about 10% in erosion-prone areas, and most future damage will occur in low-lying areas that are also subject to the highest risk of flooding. To fully reflect the risks in these areas, flood insurance rates, which usually cover erosion losses, should be doubled over current rates.

The authors of this report make two recommendations for improved management of this hazard:

- "Congress should instruct the Federal Emergency Management Agency to develop erosion hazard maps that display the location and extent of coastal areas subject to erosion. The erosion maps should be made widely available in both print and electronic format."
- "Congress should require the Federal Emergency Management Agency to include the cost of expected erosion losses when setting flood insurance rates along the coast."

Despite higher risks, current flood insurance policyholders are paying the same rates for flood insurance as those in non-eroding areas. If rates for structures in erosion-prone areas are not adjusted, other flood insurance policy holders will have to subsidize what is likely to become a substantial cost. And, through the use of erosion maps, rate increases could be confined to the highest risk areas. Alternatively, more modest rate increases could be spread across a larger

"Coastal High Hazard Zone" that includes both the highest-risk flood and erosion-prone areas.

Copies of *Evaluation of Erosion Hazards* are available from Mark Crowell, FEMA, 500 C Street, S.W., Washington, DC 20004; (202) 646-3432; mark.crowell@fema.gov. The complete report, as well as a 20-page summary, are also available on-line at both the FEMA and Heinz Center Web sites: <http://www.fema.gov/nwz00/erosion.htm> or <http://www.heinzctr.org>.

FEMA Offers Best Practices in Coastal Construction

To mitigate losses from natural hazards in coastal areas, FEMA has published an updated coastal construction manual that presents a comprehensive approach for managing risk. The publication, *Coastal Construction Manual: Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas* (2000, free), provides technical guidance on the best practices for building along shorelines.

For the first time, the revised manual emphasizes land-use planning methods, including approaches that reduce the impacts of long-term erosion (see the preceding article). Careful land-use planning and site design are cited as critical predecessors to any development and building project. Rather than attempting to conquer the natural features of the coast, developers, the *Coastal Construction Manual* suggests, should consider options that incorporate the natural features of the land to reduce risk. The manual evaluates numerous practices for improving construction and reducing economic losses associated with coastal disasters and provides detailed guidance for implementing them.

FEMA has developed several training courses to support the new manual:

- A one-week course at the Emergency Management Institute (EMI), "Residential Coastal Construction Course" (E-386)—October 30-November 3, 2000; March 12-16, 2001; and September 10-14, 2001. For additional information, see <http://www.fema.gov/emi/grams/457.htm>.
- A two-day course that will be available in January 2001. Student training materials will be available free of charge.
- An independent study course that will be available soon by mail and on the FEMA Web site (see page 24 of this *Observer*).

The three-volume manual will also be available on CD-ROM (FEMA 55, Third Edition), and free copies of both

the print and CD-ROM editions can be ordered from the *FEMA Publications Center, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520.*

FEMA Releases Design and Construction Guidance for Community Shelters

FEMA's Building Performance Assessment Team investigation of the May 1999 tornadoes in Oklahoma and Kansas corroborated the supposition that severe winds pose a substantial threat to those in high-occupancy buildings (e.g., schools, hospitals and other critical care facilities, nursing homes, day-care centers, and commercial buildings) as well as to those in residential neighborhoods that lack access to shelters.

Recently FEMA, aided by a panel of nationally recognized experts, developed *Design and Construction Guidance for Community Shelters*. Prior to its development, there was no building code, standard, or comprehensive design guide that addressed design and construction of shelters for extreme winds. The designs presented in this document are intended to provide near-absolute protection, and these community shelters are intended to serve many different users. Detailed information is provided for both separate structures and safe rooms within larger structures. The manual includes decision-making software, checklists for evaluating existing buildings, case studies, and sample plans.

The guidance also discusses shelter location, design loads, performance criteria, and human factors that should be considered. In addition to construction drawings, emergency operation plans, and cost estimates, two case studies are presented that illustrate how to evaluate existing shelter areas and make shelter selections.

Copies of the manual, FEMA 361, are free and can be ordered from *FEMA Publications, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520.* For more information on FEMA's safe room initiative, see <http://www.fema.gov/mit/saferoom/>. For more information on FEMA's Building Performance Assessment Teams, visit <http://www.fema.gov/mit/bpat>.

Congress Finds Money for Disaster Victims

Congress was in a giving mood on June 30, 2000, passing an appropriations bill that provides \$661 million to help New Mexico rebuild following the Los Alamos fire, \$350 million for fighting other wildfires, and \$360 million to help North Carolina and other eastern states recover from last September's Hurricane Floyd-associated flooding and

other agricultural problems. Among the activities funded are housing assistance, agricultural assistance, economic development assistance, compensation to fishing operations for losses and equipment damage, and disaster loans.



The bill also provides \$1.5 million to study flood damage reduction options for the town of Princeville, North Carolina; \$2 million for preconstruction engineering and design of an emergency outlet from Devils Lake, North Dakota, to the Sheyenne River to reduce flooding; and \$25 million for the Agency for International Development to provide disaster assistance to Mozambique, Madagascar, and southern Africa. The Bureau of Land Management will receive \$200 million for emergency rehabilitation and wildfire suppression. The Forest Service gets \$2 million for emergency expenses resulting from damage caused by wind storms and \$150 million for emergency rehabilitation, presuppression, and wildfire suppression activities. Fifty million dollars has been made available to FEMA for the buyout or elevation of uninhabitable flooded properties.

The wildfire near Los Alamos, New Mexico, known officially as the Cerro Grande Fire (see page 1 of this *Observer*), received considerable attention, as Congress included the "Cerro Grande Fire Assistance Act" in the lengthy bill. This act, intended to compensate victims of the fire, acknowledges it was caused by the National Park Service and outlines procedures for compensating victims. In addition, \$10 million will fund an emergency conservation program to rehabilitate farmland damaged by the fires, \$4 million has been provided for watershed and flood prevention in areas scarred by the fires, and \$138 million was set aside to remediate damage to Department of Energy facilities.

The complete text of Public Law 106-246 can be found at any *federal repository library* or at the *Library of Congress Web site: <http://thomas.loc.gov>*.

EDUPLANhemisférico

The Hemispheric Action Plan for Vulnerability Reduction in the Education Sector

Education is a determining factor in both the creation and reduction of vulnerability to natural disasters, and education can clearly lead to major advances in disaster prevention.

Recognizing this fact, in 1992 the Organization of American States (OAS) initiated a process to create and implement a hemispheric action plan for disaster reduction in the education sector. This broad process of consultation and consensus, supported by international, regional, and national organizations, culminated in "EDUPLANhemisférico," a "Hemispheric Plan of Action for the Reduction of the Vulnerability in the Education Sector to Disasters," adopted during the first Hemispheric Conference on Disaster Reduction of the Education Sector in 1997.

EDUPLANhemisférico is now being presented to governmental and nongovernmental agencies to gather political, technical, and financial support for the implementation of programs in the following areas:

- Physical Infrastructure — development of adequate and safe educational buildings resilient to natural hazards. This effort encompasses planning, design, construction, repair, maintenance, and upgrading of new and existing educational facilities to ensure vulnerability reduction and safety.
- Public Participation — training and education of the general public to enable direct participation in preparedness, response, prevention, and mitigation of natural hazard impacts.
- Academic Aspects — changes in the curriculum of primary-, secondary-, and university-level education to prepare individuals and groups from various disciplines to work toward disaster reduction.

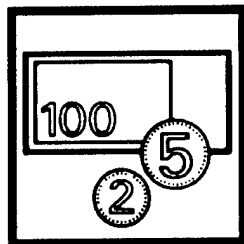
EDUPLANhemisférico is being implemented through local, national, and regional activities supported by "technical secretariats"—a wide variety of agencies, organizations, and educators involved in collaborative efforts to reduce vulnerability. Technical secretariats are directly involved with the institutions that operate at the community, educational, administrative, or geographic level. Their actions begin locally but can result in national, regional, and hemispheric application and impact. They develop programs, encourage citizen participation in making schools safer, and develop links to experts focusing on school infrastructure and hazard reduction.

As of May 2000, five organizations and institutions willing to commit time, personnel and (when available) funds to support mitigation had become technical secretariats. The Universidad Nacional de Trujillo in Peru serves as the general coordinator of EDUPLANhemisférico in Latin America and the Caribbean; in the U.S., a technical secretariat has been established at Texas Women's University.

EDUPLANhemisférico is actively seeking additional technical secretariats among all interested public and private institutions committed to disaster reduction in the education sector. Particularly important are networks of community-based NGOs, professional associations, technical associations, and development assistance institutions. People and organizations interested in learning more about EDUPLANhemisférico or becoming a technical secretariat, should contact Brenda Phillips, Department of Sociology and Social Work, Texas Women's University, P.O. Box 425557, Denton, TX 76205; (940) 898-2117; fax: (940) 898-2102; e-mail: brendaphillips@prodigy.net; or Jesús Angel Chávez Machado, Universidad Nacional de Trujillo, Peru; e-mail: jachm@unitru.edu.pe; or the Natural Hazards Project, Unit of Sustainable Development, OAS, 1889 F Street, N.W., Washington, DC 20006; (202) 458-6295; fax: (202) 458-3560; e-mail: natural-hazards-project@oas.org.

The technical secretariats will meet in Venezuela, October 2-4, 2000, for the Second Hemispheric Conference on Disaster Reduction of the Education Sector. More information on this meeting is available from the OAS Natural Hazards Project at the address above.





CONTRACTS AND GRANTS

Below are descriptions of recently awarded contracts and grants for the study of hazards and disasters. An inventory of contracts and grants awarded from 1995 to the present (primarily those funded by the National Science Foundation) is available on the Natural Hazards Center's Web site: <http://www.colorado.edu/hazards/grants.html>.

Wade Guice Hurricane Museum. Funding: Federal Emergency Management Agency (FEMA), Hazard Mitigation Grant Program, \$100,000, 12 months. For further information, contact *Clif Lusk or Robert Boteler, Mississippi Emergency Management Agency, P. O. Box 4501, Jackson, MS 39296-4501; (601) 352-9100; fax: (601) 352-8314; WWW: <http://www.memaorg.com/index2.htm>.*

This grant will contribute to a \$3.9 million project to create a museum in Biloxi, Mississippi, that will feature the latest in hurricane-resistant construction technology and promote greater public awareness of the risks from hurricanes. The building will demonstrate hurricane-resistant construction techniques through the use of cut-away panels located throughout the building. It will also serve as an education center for public officials, flood ordinance administrators, emergency managers, engineers, and other building professionals.

Tornado Shelter Options and Shelter-Seeking Behavior of Mobile Home Residents. Funding: National Science Foundation, \$84,040, six months. Principal Investigator: *Thomas W. Schmidlin, Department of Geography, Kent State University, Kent, OH 44242-0001; (330) 672-2045; fax: (330) 672-4304; e-mail: tschmidl@kent.edu.*

Occupants of mobile homes are highly susceptible to injury or death in tornadoes; approximately 45% of all tornado-related fatalities occurred among mobile home residents in the U.S. in the 1990s. This study will assess the shelter-seeking behavior of mobile home residents during a tornado threat, the availability of tornado shelters for mobile home residents in general, and the feasibility of using a nearby vehicle as an alternative shelter. Two vehicles, a sedan and a pickup truck, will be tested in a wind tunnel from five separate angles to determine the minimum wind speed required to lift and tip the vehicles.

The Anthropology of Health During Reconstruction in Post-Hurricane Honduras. Funding: National Science Foundation, \$71,378, 12 months. Principal Investigators: *James P. Stansbury and Anthony Oliver-Smith, Department of Anthropology, P.O. Box 117305, University of Florida,*

Gainesville, FL 32611-7305; (352) 392-2253; e-mail: jpstans@anthro.ufl.edu and aros@ufl.edu.

This project will investigate health and nutritional status in three hurricane-affected areas of Honduras. It is based on the hypothesis that health and nutritional status will be worse in large urban areas than in small regional cities. Relationships between health status and household income, demographic factors, educational levels, and hygiene will also be tested.

Research and Education in Natural Disaster Risk Assessment. Funding: National Science Foundation, \$200,000, 48 months. Principal Investigator: *Rachel A. Davidson, Department of Civil Engineering, University of North Carolina at Charlotte, 9201 University City Boulevard, Charlotte, NC 28223; (704) 547-2930; fax: (704) 510-6953 e-mail: radavids@uncc.edu.*

This study will examine the premise that natural disaster vulnerability has little influence on decisions related to buying, financing, insuring, and occupying structures. Its ultimate goal is to institutionalize natural hazards information within structure-related decisions. Davidson will develop a model system for rating a structure's multihazard natural disaster risk, apply the rating system to a sample of structures in three U.S. cities, and develop an interactive geographic information system application for disseminating the rating tool. She will also develop a course on natural disaster risk for engineers, include undergraduate students in the research, and mentor students from under-represented populations, particularly women.

Advanced Simulation Methods for Seismic Performance of Urban Regions. Funding: National Science Foundation, \$383,388, 14 months. Principal Investigator: *J. Donald Trotter, Engineering Research Center (ERC), Room 1, Box 9627, Mississippi State University, Mississippi State, MS 39762; (662) 325-3671; e-mail: trotter@erc.msstate.edu.*

This project will produce an integrated model of the relationship between earthquake faults and the distribution of various types of seismic damage, ranging from individual components and structures to collective damage among specific classes of structures. It is intended to provide policy

makers and emergency response agencies with information on the potential impacts of a major earthquake in a densely populated region. It will integrate earthquake ground motion modeling by Carnegie Mellon University's Quake Project (CMU-Quake), modeling and infrastructure systems created by the Pacific Earthquake Engineering Research (PEER) Center at the University of California-Berkeley, and the advanced computational and visualization methods employed by the ERC in computational field simulation at Mississippi State University.

An Investigation of the Geotechnical Aspects of the June 1999 Central Mexico Earthquakes: Preliminary Assessment. Funding: National Science Foundation, \$12,110, 12 months. Principal Investigator: *Jonathan D. Bray, Civil and Environmental Engineering, 437 Davis Hall, MC 1710, University of California, Berkeley, CA 94720-1710; (510) 642-9843; fax: (510) 642-7476; bray@ce.berkeley.edu.*

This funding will support publication of a report written by the response team from the University of California and the National Autonomous University of Mexico that investigated two earthquakes that occurred in the Central Region of Mexico in June 1999. The report will be made available in printed form and on the World Wide Web and will highlight key lessons from these quakes.

Geotechnical Earthquake Engineering Reconnaissance of the November 12, 1999, Duzce, Turkey Earthquake. Funding: National Science Foundation, \$25,000, six months. Principal Investigator: *Jean-Pierre Bardet, Department of Civil and Environmental Engineering, School of Engineering, University of Southern California; (213) 740-0608; fax: (213) 744-1426; e-mail: bardet@usc.edu.*

On November 12, 1999, a magnitude 7.2 earthquake occurred in the area of Duzce-Bolu, Turkey, resulting in extensive damage and loss of life. This funding provides partial support for a reconnaissance team that was dispatched shortly after the quake to document the geotechnical, engineering, geological, seismological, and tsunamigenic features. This is a multi-institutional award involving the University of California-Berkeley and the University of Southern California.

Rapid Generation of Ground Motion Maps of the 8/17/99 Turkey and 9/20/99 Taiwan Earthquakes. Funding: National Science Foundation, \$49,953, 12 months. Principal Investigators: *Paul G. Somerville and Arben Pitarka, URS Greiner Woodward Clyde, 566 El Dorado Street, Suite 100, Pasadena, CA 91101; (818) 449-7650, e-mail: Paul_Somerville@urscorp.com.*

Together, the Turkey and Taiwan quakes provide an unprecedented opportunity to understand large earthquakes and their effects on the natural and built environments; there are practically no recordings of magnitude 7 or larger earthquakes available for use in engineering analysis and design. The data from these quakes have the potential to greatly enhance scientific ability to characterize the ground motions in seismically active regions. This award will support the development of ground motion maps that take into account site conditions and should thus provide insight into the causes of damage and building failure.

High-Resolution Climate and Land-Use Records from Cave Stalagmites and County Gazetteers for China Over the Last 2,000 Years. Funding: National Science Foundation, \$10,000, 18 months. Principal Investigator: *George A. Brook, Department of Geography, GGS Building, Room #204, University of Georgia, Athens, GA 30602-2502; (706) 542-2856; fax: (706) 542-2388; e-mail: gabrook@arches.uga.edu.*

This award funds doctoral dissertation research to distinguish global environmental changes associated with natural variations in climate from those resulting from human activities. Studies of land-use and land-cover changes have generally been limited to the last 30 years. This project will explore the degree to which cave stalagmites can provide both climate and land-use data for the areas near and above caves, thereby allowing a more accurate assessment of the role of humans in environmental change. Stalagmite scientific analysis will be combined with meteorological records drawn from county gazetteers in China that provide information for more than 2,000 years.

Women's Leadership Training to Develop Neighborhood Networks in Ukraine. Funding: U.S. Department of State; \$126,929; 12 months. Principal Investigators: *Marion McNamara, Office of International Research and Development, Snell Hall, Oregon State University, Corvallis, OR 97331; (541) 737-6419; e-mail: mcnamarm@ucs.orst.edu; and Roberta Hall, Anthropology Department, Waldo Hall, Oregon State University, Corvallis, OR 97331; (541) 737-3860; e-mail: rhall@orst.edu.*

This project will create neighborhood networks in Uzhgorod, Ukraine, that are trained to prepare for and respond to an emergency. A group of 13 women from Ukraine will travel to Corvallis, Oregon, to learn how to set up these networks in a manner similar to the Neighborhood Watch program in the U.S. as well as how to teach emergency preparedness. Additionally, the project will work to establish professional ties between emergency service providers in Uzhgorod and Krakow, Poland.

Increasing the State of Washington State Emergency Management Division's GIS/Remote Sensing. Funding: Washington State Emergency Management Division, \$80,000, 12 months. Principal Investigators: *Robert Freitag, Frank Westerlund, and Earl Bell, Institute for Hazard Mitigation Planning and Research, Box 355740, University of Washington, Seattle, WA 98195-5740; (206) 616-2395; fax: (206) 685-9597; e-mail: bfreitag@u.washington.edu; WWW: <http://depts.washington.edu/mitigate>.*

This project assesses the feasibility of remote sensing for hazard mitigation and planning and the plausibility of developing a state geographic information system (GIS). It will also develop recommendations for implementation. The Washington State Emergency Management Division is particularly interested in GIS use for preliminary damage assessment, disaster operations, and mitigation analysis. They would like to determine the viability of obtaining and using geospatial data for hazard identification, mapping of populations and structures, and determining damage. The project will also evaluate the use of satellite imagery to determine pre-event conditions and to conduct post-event analysis.



THE INTERNET PAGES



Below are some recent disaster Internet resources we've encountered. For a list of some of the better sites dealing with hazards and disasters, see <http://www.colorado.edu/hazards/sites/sites.html>.

All Hazards

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

Although we've cited the Federal Emergency Management Agency's on-line library before, it deserves additional mention since it is one of the better Internet repositories of disaster information and since several new documents have been added.

Some of the library's current offerings include:

From the Mitigation section — <http://www.fema.gov/library/lib06.htm>:

- *Protecting Building Utilities from Flood Damage*—FEMA 348
- *NFIP Study Guide—Student Manual for Independent Study Course #9, Managing Floodplain Development Through the NFIP*

From the Response and Recovery section — <http://www.fema.gov/library/lib08.htm>:

- *Assessment of the Economic Impact of Hurricane Floyd on New Jersey Communities*
- *Assessment of the Economic Impact of Hurricane Floyd on Virginia Communities*
- *Assessment of the Economic Impact of Hurricane Floyd on North Carolina Communities*
- *Remote Sensing in Federal Disaster Operations—Standard Operating Procedures*
- *Your Civil Rights and Disaster Assistance*

The Legal section—<http://www.fema.gov/library/lib10.htm>—includes copies of disaster legislation, including the Robert T. Stafford Disaster Assistance and Emergency Relief Act, the *Code of Federal Regulations, Emergency Management and Assistance*, Executive Orders, FEMA congressional testimony, official notices, and all proposed and final FEMA rules from the *Federal Register*.

The Preparedness, Training, and Exercises section—<http://www.fema.gov/library/lib07.htm>—contains numerous publications on personal, family, and business mitigation, preparedness, response, and recovery—many in multiple languages. Indeed, the library has an entire section devoted to Spanish-language publications.

http://www.fema.gov/mit/tsd/ft_mhira.htm

The Federal Emergency Management Agency's *Multi-Hazard Identification and Risk Assessment* document is now available on-line. As part of the agency's national effort to mitigate human and economic losses caused by disasters, FEMA initiated a research project to document previous efforts to identify natural and technological hazards and assess associated risks. Subsequently, *Multi-Hazard Identification and Risk Assessment* was prepared to summarize the findings. It reviews virtually all atmospheric, geologic, hydrologic, and other natural hazards, as well as numerous technological risks. It then summarizes several risk assessment approaches, identifies the various activities that compose the National Mitigation Strategy, and concludes with a summary and numerous appendices.

<http://www.riskinstitute.org> (click on "Clearinghouse")

The Public Entity Risk Institute (PERI—see the *Observer*, Vol. XXII, No. 2, p. 20; Vol. XXIII, No. 1, p. 8) has recently upgraded the "Clearinghouse" section of its Web site. This searchable database now lists nearly 900 resources in five areas:

- Sources and Resources — brief profiles of organizations, groups, companies, or Internet-based resources with contact information;
- Training, Education and Professional Development — learning opportunities, including conferences, courses, seminars, certification programs, self-directed programs, on-line training, and workshops;
- Publications and Products — print and electronic publications and other media;
- Services — professional consultation and other services offered by the organizations listed in Sources and Resources;
- Information Resources — electronic or resource-center-based information services, such as databases, directories, clearinghouses, and special libraries.

<http://www.civil.buffalo.edu/aawe> (click on "Publications")

In the late 1990s, FEMA prepared a *National Pre-Disaster Mitigation Plan*, and subsequently asked the Multihazard Mitigation Council (MMC) to review it. The plan's premise is that the nation must place a stronger emphasis on the implementation of predisaster mitigation measures. It includes vision and mission statements and a list of guiding principles

and goals for achieving long-term disaster resiliency. The draft plan can be viewed on-line or downloaded from this American Association for Wind Engineering Web site.

<http://www.senate.gov/~edwards/cnhc/index.html>

Senators John Edwards of North Carolina and Ted Stevens of Alaska have formed a Congressional Natural Hazards Caucus to promote ways to reduce disaster losses and streamline disaster aid (see the *Observer*, Vol XXIII, No. 2, p. 14). On June 21 of this year, they convened the "Congressional Natural Hazards Caucus Forum on Reducing America's Vulnerability to Disasters" and heard testimony from several national disaster experts. Senator Edwards also called on a caucus work group to prepare a report on U.S. natural hazards mitigation that could serve as a basis for discussion by the full Senate. Subsequently, Senator Edwards' office established this caucus Web site, which provides background information and testimony from the June meeting.

<http://www.adrc.or.jp/>

<http://www.adrc.or.jp/highlights.asp>

Besides information about the center and disaster news of the region, the Web site of the Asian Disaster Reduction Center (ADRC) in Kobe, Japan, now provides the center's new biweekly newsletter *ADRC Highlights*. The newsletter is also distributed in English or Japanese through e-mail, fax, or regular mail. To subscribe to the e-mail version send your e-mail address to editor@adrc.or.jp. More information is available from the *Asian Disaster Reduction Center, Third Floor, IHD Building 1-5-1, Wakihamakaigan-dori, Chuo-ku, Kobe 651-0073, Japan; tel: +81-78-230-0346; fax: +81-78-230-0347; e-mail: editor@adrc.or.jp*.

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

The Connection newsletter, published by North American Emergency Management Inc., comprises articles on local preparation for and mitigation of emergencies written by the people involved. It includes profiles of specific local organizations and activities, particularly showcasing Community Emergency Response Teams (CERTs). The editors of *The Connection* welcome article submissions. The deadline for the next issue is February 15, 2001, and guidelines are available from the newsletter's Web site. In addition, the editors are assembling a list of CERT-type community programs with contact information for program coordinators. A submission form is also available from the site. For more information about CERTs, see the FEMA Web site: <http://www.fema.gov/emi/cert/>.

<http://coe-dmha.org/dr>

The Center of Excellence in Disaster Management and Humanitarian Assistance has made the entire text and appendices of *Disaster Response: Principles of Preparation and Coordination*, by Erik Auf der Heide, available on-line. The book, first published in 1989, is now out of print. However it remains a comprehensive source of disaster management information. The Web version is not simply the original text, but rather a new hypermedia edition, which the author is currently updating.

<http://www.ContinuityPlanner.com>

ContinuityPlanner.com is a free service hosted by the Disaster Recovery Information Exchange in Canada. Open to all individuals interested in business continuity planning, the site is nonprofit, supported by corporate sponsorship. It includes a job bank; sample business continuity plans, templates, and guides; back issues of the *Disaster Recovery E-zine*; members' Web pages; information on scheduled training and professional certification; links to other sources of current information; on-line bulletin boards and meeting rooms; and more.

<http://www.grid.unep.ch/preview/>

The United Nations Environment Program (UNEP) Global Resource Information Database (GRID) Project for Risk Evaluation, Information and Early Warning (PREVIEW) has developed a new tool for quickly locating relevant Web sites

UN-HiNet Being Updated

For several years, the Asian Disaster Reduction Center (see the item at left) has maintained a human resource information database known as UN-HiNet, in which approximately 1,400 researchers, administrators, and experts from 51 countries (primarily in Asia) are registered. The center is now revising the database and re-launching it as the "ADRC Expert Network" (ADRC E-Net). ADRC E-Net is a comprehensive database of human resource information that covers all hazard-related disciplines, especially disaster management, disaster research, and other disaster-related works. It consists of biographical information on researchers and engineers, university professors, members of research institutions or societies, government officials, experts, NGO staff, and other institutional staff. The information can be searched by country, field of study, name, and other dimensions.

ADRC has requested that experts who are already registered on UN-HiNet check their information at <http://unhinet.adrc.or.jp/> and, if necessary, revise it via <http://unhinet.adrc.or.jp/register.htm>, which also provides on-line registration for new participants.

from among 100 organizations offering reports, data, and early warning information on natural and complex hazards. The index covers climatic hazards (floods, droughts, tropical cyclones); tectonic hazards (earthquakes, tsunamis, volcanoes, landslides); "eco-degrading" hazards (erosion, forest fires, biodiversity loss, deforestation); and polluting hazards (air, water, soil, oil spills, nuclear waste). Information from the PREVIEW Web site can be accessed by theme or by geographical location. The offerings are not intended to be exhaustive, but instead represent a selection provided by the U.N. International Decade for Natural Disaster Reduction (IDNDR) Secretariat. The pages provide the names of the organizations, a description of their products, their objectives, and their Web URL.

<http://www.unicef.org/emerg>

The United Nations Children's Fund emergency Web site has been revamped. The new format enhances the availability of UNICEF field situation reports, thematic reviews, appeals, and references. Comments about the site and information requests can be e-mailed to emops@unicef.org.

<http://www.oxfam.org.uk/policy/papers/fgemg/fgemgsum.htm>

Oxfam has recently issued a policy paper entitled *An End to Forgotten Emergencies*, which is available from this Web site. The paper contends that humanitarian aid clusters around highly-visible disasters, while ignoring lower-profile crises and their many victims. It also maintains that donors give vastly disproportionate amounts of aid to a few well-known crises and trivial amounts to hundreds of other, hidden emergencies. The paper concludes with nine specific recommendations for making international aid more equitable.

<http://www.dhs.vic.gov.au/emergency>

The State of Victoria (Australia) Department of Human Services has numerous emergency management responsibilities. The department's recently updated Web site brings together all those responsibilities and interests in one site managed by the State Emergency Recovery Unit. The well-organized site includes sections on emergency management and recovery management, the Victoria Medical Emergency Response Plan, as well as dozens of fact sheets on various aspects of emergency planning and response (in 19 different languages!), many other on-line resource materials, and a "What's New" section offering disaster news and describing the latest publications from the department.

Climate Change, Drought, and El Niño

<http://www.cdc.noaa.gov/>

<http://www.cdc.noaa.gov/Drought/>

<http://www.cdc.noaa.gov/ENSO/>

The mission of the NOAA-CIRES Climate Diagnostics Center (CDC) is to understand climate variations on time scales ranging from a month to centuries and to use this information to predict climate variations. The CDC provides several Internet resources, including its "Map Room Weather Products" (http://www.cdc.noaa.gov/~map/maproom/text/weather_products.shtml), "Map Room Climate Products" (http://www.cdc.noaa.gov/~map/maproom/text/climate_products.shtml), and "Display and Analysis Web Pages for CDC Climate Data" (http://www.cdc.noaa.gov/PublicData/web_tools.html).

At the second URL above, the CDC offers a page entitled "Current and Anticipated Precipitation Anomalies over the U.S." that provides information on drought situations in the U.S. The page includes maps, graphics, other information, and forecasts regarding developing precipitation anomalies.

At the third address, the site provides "El Niño/Southern Oscillation (ENSO) Information" covering such questions as: What happens during an El Niño/La Niña cycle? What are the effects of El Niño/La Niña on climate and individual weather systems? and, What is the current state of El Niño/La Niña? Also included are FAQs, a glossary, other links and publications, forecasts and advisories, and educational resources.

<http://enso.unl.edu/ndmc>

<http://enso.unl.edu/monitor/monitor.html>

Given this summer's heat wave, *Observer* readers may be wondering where they can find the latest information on drought conditions. Seek no longer. The Web site of the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln, which we have mentioned before, offers everything you need, both to understand the current situation and to plan for and mitigate future events. At the second URL, the center now offers a "Drought Monitor," a comprehensive analysis of the current situation. Released each Thursday, the monitor reviews conditions across the country and provides an outlook for the coming weeks.

<http://www.nacc.usgcrp.gov>

The 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 climate change research. The assessment will provide a detailed understanding of the

consequences of climate change for the nation and is examining the possible coping mechanisms that exist to adapt to such change. The assessment, which includes regional activities, sectoral activities, and a broad synthesis, attempts to involve concerned stakeholders from both public and private institutions in evaluating consequences for the environment, economy, and society. A draft report of the National Assessment Synthesis Team, *Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change* is now available on the USGCRP Web site above. It notes several potential consequences—for example, increased summer drought and increased winter flooding—that should be of note to hazards researchers and managers. Much additional information about this major national assessment is also available from this URL.

Extreme Heat

<http://www.ozone.org/heatstress>
<http://www.psr.org/heatstress.html>

On July 26, Physicians for Social Responsibility and Ozone Action, a national environmental organization, released a report showing that extreme heat waves and overheated nights are becoming more frequent in cities and regions across the United States. Indeed, the report, *Heat Waves and Hot Nights*, states that in the U.S. the number of heat waves, high heat index days, and extremely warm nights has doubled since the 1950s and that each summer 2,000-3,000 people now die due to this hazard. Moreover, the findings in this report support predictions made in the draft *National Assessment of the Potential Consequences of Climate Variability and Change in the United States* (see above), which cites warmer temperatures, a higher heat index, and increased frequency of extreme weather events as potential impacts of human-induced global warming. *Heat Waves and Hot Nights*, including graphs of 171 individual cities and regional trends, is available from the Ozone Action Web site above, and more information about climate change and health impacts is available from the second address, part of the Web site for Physicians for Social Responsibility.

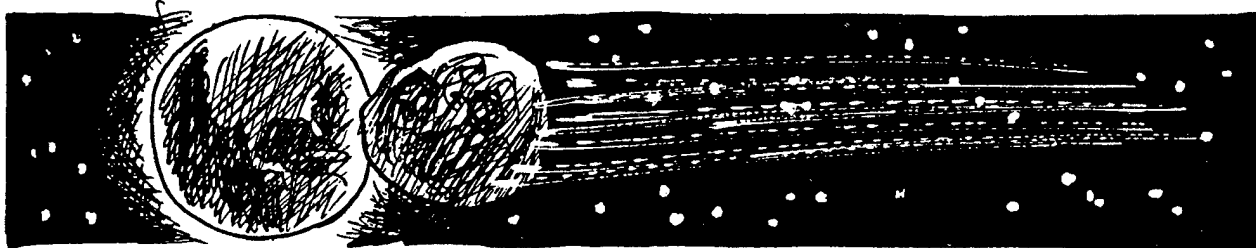
<http://www.scientificamerican.com/2000/0800issue/0800epstein.html>

Besides the report mentioned above, *Observer* readers interested in the health problems associated with global warming might also want to see the cover article from the August 2000 issue of *Scientific American*, "Is Global Warming Harmful to Health?" by Paul R. Epstein of the Center for Health and the Global Environment at Harvard Medical School. According to Epstein, computer models indicate that many diseases will surge as the earth's atmosphere heats up, and signs of the predicted troubles have already begun to appear. With both increased drought and increased weather extremes, including flooding, societies will suffer not only directly from these natural hazards, but also from the increased occurrence of both mosquito-borne and water-borne diseases. Epstein's prescription includes improved surveillance, better prediction, and actions that directly attack global warming itself. Nonetheless, he worries "that effective corrective measures will not be instituted soon enough, [that] the multiple factors that are now destabilizing the global climate system could cause it to jump abruptly out of its current state, [and that] such a sudden, catastrophic change is the ultimate health risk—one that must be avoided at all costs."

Comets, Asteroids, and Other Cosmic Catastrophes

<http://impact.arc.nasa.gov/index.html>

The "Asteroid and Comet Impact Hazards" Web site, offered by the Ames Space Science Division of NASA, provides background information about these space hazards, recent and archived news stories, reports and position papers from NASA, transcripts of recent congressional testimony on the threat, a list of currently known near-earth objects (NEOs) and projected future close encounters, an overview and reports regarding the NASA NEO Project, photographs and artist renderings of asteroid/comet encounters, and a bibliography and fact sheet on the NEO hazard.



Floods

<http://www.louisianafloods.org>

The Louisiana State University Agricultural Center's Cooperative Extension Service maintains an extensive Web site with information about various types of flooding—from hurricane storm surge to flash floods. The site has sections on flood

conditions, safety and recovery, emergency protection, and flood damage prevention. It provides numerous publications on flood mitigation and floodproofing, including a document prepared by the Extension Service entitled *Beyond the Basics* on flood risk and flood protection.

Dam Safety

<http://www.usbr.gov/dsis/research/documents/dso-99-06.pdf>

In September 1999, the U.S. Department of the Interior, Bureau of Reclamation, Dam Safety Office, published *A Procedure for Estimating Loss of Life Caused by Dam Failure*, by Wayne J. Graham (see the *Observer*, Vol. XXIV, No. 6, p. 25), which can now be downloaded from the site above. The report first recounts some historical dam failures, then provides observations on dam failure, and finally provides a step-by-step procedure for estimating potential loss of life.

Volcanoes

<http://books.nap.edu/books/0309070961/html/index.html>

The National Research Council recently conducted a review of the U.S. Geological Survey's Volcano Hazards Program (VHP), and the council's final report is now available, either to order or to view on-line, at this Web site. Interested persons might consult the "Executive Summary" and "Principal Conclusions and Recommendations," which site several issues and opportunities for the VHP. The issues include the limited hiring of new staff over the last 15 years, flat budgets, a lack of priority setting for specific volcano studies and hazard analyses, and a shift in focus from basic research to application and hazard mitigation. The opportunities include possible partnerships with other hazards institutions and the prospect of improved, comprehensive, consistent data management and dissemination in near real-time.



Earthquakes

<http://earthquake.usgs.gov>

As hazards Web surfers are well aware, the U.S. Geological Survey provides earthquake information up the wazoo via dozens of Internet avenues. However, the amount of information is daunting, and, in the past that abundance, along with the multiplicity of USGS sites, has sometimes made it difficult to locate and sort relevant information. To remedy that problem, the Survey has launched this Earthquake Hazards Program site—"Earthquake Hazards on the Web"—as an entry point for all USGS earthquake information. It provides information for both global and regional earthquakes and includes sections on earthquake activity past, present, and future; earthquake education for children, grownups, and teachers; earthquake products such as maps, publications, fact sheets, videos, etc.; earthquake research; the USGS regional centers and regional Web sites; seismic networks; and frequently asked questions about quakes.

<http://geohazards.cr.usgs.gov/eqint/html/zipcode.shtml>

This is the USGS "Zip Code Earthquake Ground Motion Hazard Look-up Page." Put in a ZIP code and out comes the predicted seismic ground motion for that location.

Disaster Medicine and Mental Health

<http://www.pwsrcac.org>

In the aftermath of the Exxon Valdez oil spill, the Prince William Sound Regional Citizens' Advisory Council (PWSRCAC) sponsored research to learn how to mitigate the psychological and sociological impacts of a major oil spill or other technological disaster. Their mitigation strategies are contained in the guidebook *Coping With Technological Disasters*. The guidebook was developed because of the council's need for a human impacts "contingency plan," and it provides a framework for communities to deal with the mental health issues of a catastrophic oil spill or other technological calamity. The guidebook and its appendices can be viewed at the address above, or the two-volume set can be purchased for \$40.00 from the *Prince William Sound Regional Citizens' Advisory Council*, 3709 Spenard Road, Anchorage, AK 99503; (907) 277-7222; fax: (907) 277-4523; e-mail: kaaihue@anch.pwsrcac.org.

<http://www.who.int/peh/>

http://www.who.int/peh/air/vegetation_fires.htm

Via the second Web address above, the World Health Organization (WHO) Protection of the Human Environment (PEH) Program offers *Health Guidelines for Vegetation Fire Events*, a document describing wildfires generally, discussing the health problems related to fire-caused air pollution, and laying out guidelines for public health preparedness for and response to this problem. Besides bounteous information on the wildfire health hazard, the document provides an extensive bibliography, a list of acronyms, a glossary, and 10 other appendices with additional information.

E-mail Lists

philrisknews-request@infra.kth.se

Philrisknews is an electronic newsletter for people interested in the philosophy of risk, uncertainty, and safety. The newsletter is edited by Sven Ove Hansson and Martin Peterson and distributed by the philosophy group at the Royal Institute of Technology, Stockholm, Sweden. The initial issue introduces the newsletter, provides an article entitled "What is Philosophy of Risk?," offers a list of recent publications, and presents the first part of a bibliography on risk and ethics. The editors welcome contributions, which can be e-mailed to owner-philrisknews@infra.kth.se. To subscribe to *Philrisknews*, send an e-mail message with the single word "subscribe" to philrisknews-request@infra.kth.se. If you experience subscription problems, e-mail owner-philrisknews@infra.kth.se.

risk-com-request@umich.edu

A new e-mail discussion group has been formed by members of the Risk Communication Specialty Group of the Society for Risk Analysis. Risk-com is an unmoderated public discussion forum, designed to promote communication among those interested in this growing field. To subscribe, send an e-mail message to the address above with the word "subscribe" as the subject of the message.

<http://www.emergency-world.com/fire-l/>

The list owner of the fire-l@cornell.edu listserve has announced that the list has moved. People can now subscribe to it by sending a blank e-mail message to fire-l-subscribe@topica.com, or by visiting the URL above.

Introducing the African American Emergency Preparedness and Information Project (EPIP)

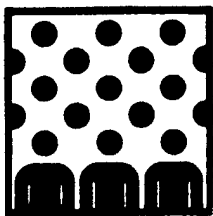
Recent statistics cited by the U.S. Fire Administration indicate that African American citizens are 2.5 times more likely to be killed by fire than the general population. Moreover, due to the proliferation of natural disasters, fires, and chemical and biological threats across the U.S., minority communities located in inner cities and rural communities will encounter ever increasing risks in the future. These risks are amplified because minority communities in general, and African American communities in particular, have received less emergency preparedness training, education, and information than most other populations.

To address this situation, FEMA is sponsoring the African American Emergency Preparedness and Information Project (EPIP)—a public/private partnership whose aim is to alert national institutions and organizations in African American communities about the importance of emergency preparedness. EPIP has the ultimate objective of bringing greater awareness to the African American population about the risks posed by disasters and the importance of preparing for and mitigating these hazards.

EPIP functions as an information resource center linking segments of the African American community to disaster readiness information. Using on-line communications, workshops, and information bulletins, EPIP is putting organizations in touch with the wealth of emergency preparedness information available from FEMA, other federal agencies, and public and private emergency response organizations.

The project has established a Web site—<http://www.epipgateway.com>—designed to reach minority communities with information about creating disaster-resistant families, communities, institutions, businesses, and organizations. The site is also hosting on-line discussions and experimenting with other communication media.

For more information about the Emergency Preparedness and Information Project, contact EPIP, P.O. Box 70427, S.W., Washington, DC 20024; fax: (202) 347-1081, or see the Web site above.



CONFERENCES and TRAINING

Below are the most 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>.

First International Congress on Disaster Psychiatry. Sponsors: Disaster Psychiatry Outreach (DPO), Mount Sinai Medical Center, and New York State Office of Mental Health. New York City: October 14, 2000. This meeting will examine such topics as epidemiology, debriefings and therapeutic interventions, the media, psychological impacts on children and adolescents, secondary victims, long-term follow-up studies, biology of trauma, first person accounts, and more. For details, contact *Craig L. Katz, DPO, P.O. Box 91, New York, NY 10159-0091; (212) 860-8665; e-mail: craigkatz@aol.com; WWW: <http://www.disaster-psychiatry.org>.*

Euro-Mediterranean Millennium Meetings on Forest Fires and Special Session on Forest Fire Research. Sponsors: U.N. International Strategy for Disaster Reduction (ISDR) and others. Hyères les Palmiers, France: October 24-27, 2000. These meetings will address decision makers and their concerns regarding forest fire risk management and operational command, researchers who are seeking solutions to these problems, all other persons directly or indirectly involved in forest fire prevention and suppression, and manufacturers and business persons who can offer new technologies and approaches to wildfire management and protection. The objective is both to find innovative, practical solutions and to define a coherent strategy that can be shared by all Mediterranean countries affected by wildfires. One particular focus will be the management of fires at the urban/wildland interface.

The meetings, which are open to and intended for persons from beyond the Euro-Mediterranean region, will include symposia, workshops, exhibitions, and other forums specifically designed to encourage networking and conversation. On October 24, 2000, the day before the meetings, the Centre d'Essais et de Recherche de l'Entente (CEREN), in collaboration with the European Commission, will host a special session on state-of-the-art forest fire research. More information on the entire program is available from *Entente Interdepartementale, Comité d'Organisation des Rencontres, Euroméditerranéennes Feux de Forêt 2000, Domaine de*

Valabre, 13120 Gardanne, France; tel: +33-4.42.94.95.00; fax: +33-4.42.94.95.29; e-mail: entente@rff2000.com; WWW: <http://www.rff2000.com>.

Australian Earthquake Engineering Society Annual Conference. Hobart, Tasmania, Australia: November 15-16, 2000. The theme of this conference is "Dams, Fault Scarps, and Earthquakes," and the organizers are offering a postconference field trip to the Lake Edgar fault scarp and Gordon Dam. Recognizing that the seismic risk to infrastructure in Tasmania is significant, the meeting itself will address such fundamental questions as: How can the structural integrity of dams and the safety of people downstream be ensured? How can earthquake resistance be designed into public utilities? How can communities be warned and, if necessary, evacuated in a safe and timely manner? What emergency procedures are or should be established and who should be involved? What are the worst case scenarios? For further information, contact *Barbara Butler, P.O. Box 829, Parkville, Victoria 3052, Australia; tel: +61 3 8344 6712; fax: +61 03 8344 4616; e-mail: bbutler@civag.unimelb.edu.au; WWW: <http://www.aees.org.au>.*

Public Risk Management Association (PRIMA) 2000 Risk Management Seminar on Crisis Management. Pensacola, Florida: November 17, 2000; Seattle, Washington: December 5, 2000; Portland, Oregon: December 6, 2000. PRIMA's crisis management seminar is intended for risk managers and other personnel working for public entities who must deal not only with disasters, but also with the wide range of other crises that can constitute emergencies—from civil disturbances to major technological disruptions. The seminar will show participants how to develop a crisis management plan (similar to, but not the same as, a disaster management plan) and use it in various situations. For details, contact *PRIMA, 1815 North Fort Myer Drive, Suite 1020, Arlington, VA 22209-1805; (703) 528-7701; fax: (703) 528-7966; e-mail: info@primacentral.org; WWW: <http://www.primacentral.org>.*

Inaugural Symposium on Health and Humanitarian Action. Organized by the International Association for Humanitarian Medicine (IAHM). Palermo, Italy: November 17-18, 2000. The purpose of the IAHM is to provide health care when needed to patients in or from developing countries, to offer relief to victims of disasters, to mobilize hospitals and health specialists in developed countries to aid such patients on a humanitarian basis, and to collaborate with and develop partnerships among other institutions pursuing these goals. This inaugural symposium is intended to promote these aims; it will not be a conference in the usual sense, but rather a "smaller, dense, brainstorming and thought-provoking session." For details, contact M. Masellis, c/o Divisione Chirurgia Plastica e Terapia della Ustioni, Ospedale Civico Benfratelli, Via C. Lazzaro, 90217 Palermo, Italy; tel: 39 091 6663631/34; fax: 39 091 596404; e-mail: mbcpa@cres.it; WWW: <http://www.medbc.com/notice/palerm.htm>.

Mid-America Earthquake (MAE) Center Annual Meeting and Research Assistant Symposium. New Orleans, Louisiana: November 18-20, 2000. The MAE Center specializes in the study of intraplate, midcontinent earthquakes and events in areas where seismic risk is lower, less well known, or more poorly understood. The research of MAE Center members will be presented at this meeting. A complete agenda is available from the MAE Center, 1241 Newmark Laboratory, 205 North Mathews, University of Illinois-Urbana-Champaign, Urbana, IL 61801; (217) 244-6302; fax: (217) 333-3821; WWW: <http://mae.ce.uiuc.edu>.

Second Kampala Conference on Earthquake Disaster Preparedness: "Reducing Earthquake Effects in Developing Countries." Sponsor: Uganda Seismic Safety Association and others. Kampala, Uganda: December 4-5, 2000. Recognizing the increasing earthquake vulnerability of the world's population due to rapid worldwide urbanization, the sponsors of this conference will bring together as many stakeholders as possible—from politicians, to seismologists, to construction professionals—to examine ways to limit the consequences of earthquakes in developing countries. The official language of the conference will be English. Abstracts are due September 30. More information is available from B.M. Kiggundu, Faculty of Technology, Makerere University, P.O. Box 7062, Kampala, Uganda; e-mail: dean@techmuk.ac.ug; or E.M. Twesigomwe, same address as above; tel: 041 531498; fax: 041 531061; e-mail: physics@starcom.co.ug.

American Meteorological Society (AMS) Annual Meeting. Albuquerque, New Mexico: January 14-19, 2001. The annual AMS conference traditionally includes numerous sessions on meteorological hazards—from floods to drought, hurricanes to blizzards. Indeed, this edition will be built around two large interdisciplinary symposia: "Precipitation Extremes: Prediction, Impacts, and Responses" and "Climate Variability, the Oceans, and Societal Impacts." For more information about the 2001 meeting, contact AMS, Meetings Department, 45 Beacon Street, Boston, MA 02108-3693; (617) 227-2425; fax: (617) 742-8718; e-mail: amsinfo@ametsoc.org; WWW: http://www.ametsoc.org/AMS/meet/81annual/81annual_right.html.

Cities on Volcanoes 2. Sponsors: New Zealand Earthquake Commission and others. Auckland, New Zealand: February 12-16, 2001. This meeting will provide a venue wherein specialists from the many relevant disciplines can gather to evaluate volcanic hazard preparedness and management and determine improved means of achieving volcanic safety in cities and densely populated areas. A conference circular is available from the Secretary, Cities on Volcanoes 2, Wairakei Research Centre, Private Bag 2000, Taupo, New Zealand; tel: +64 7 374 8211; fax: +64 7 374 8199; e-mail: citiesonvolc2@gns.cri.nz.

Biennial Arid West Floodplain Management Conference. Sponsors: New Mexico Floodplain Management Association (NMFMA) and Association of State Floodplain Managers (ASFPM). Albuquerque, New Mexico: March 20-23, 2001. In addition to two full days of talks by speakers from across the West, this conference will offer workshops spanning everything from elementary issues to the most technical problems. It will also host a National Flood Insurance Program training course and an examination to qualify as a New Mexico certified floodplain manager. A call for papers will be issued soon. For details, see <http://weather.nmsu.edu/nmfma/index.htm>, or contact Les Bond, NMFMA, P.O. Box 531, High Rolls, NM 88325; (877) 682-1389 (toll free); fax: (505) 682-1369; e-mail: bond@wazoo.com.

Eighth Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst. Sponsor: National Ground Water Association, GeolInstitute of the American Society of Civil Engineers, and others. Louisville, Kentucky: April 1-4, 2001. Karst is limestone terrain characterized by sinkholes, caverns, underground streams, and related geological phenomena that can make such regions interesting, if not disturbing, places to live. This conference will include a field trip to the Mammoth Cave area. More information is available from P.E. LaMoreaux and Associates, 106 Administration Road, Suite 4, Oak Ridge, TN 37830; (865) 483-7483; fax: (865) 483-7639; e-mail: pela@icx.net; WWW: <http://www.pela.com/8thcon.htm>.

Millennial Meeting of the Seismological Society of America (SSA). Hosted by the John A. Blume Earthquake Engineering Center, Stanford University, and the U.S. Geological Survey, Menlo Park Campus. San Francisco, California: April 18-20, 2001. The 96th SSA conference, commemorating the 95th anniversary of the 1906 San Francisco earthquake, will feature technical sessions touching on everything from the historical seismicity of the area to the newest techniques in earthquake monitoring and analysis. It will also include field trips, workshops, and other opportunities to learn about the latest advances in seismology. Abstracts are due January 19, 2001. For more information, see <http://www.seismosoc.org/meetings/ssa2001.html>, or contact Anne S. Kiremidjian, John A. Blume Earthquake Engineering Center, Stanford University, Department of Civil and Environmental Engineering, Building 540, MC 4020, Stanford, CA 94305-4020; (650) 723-4164; fax: (650) 725-9755; e-mail: kiremidjian@ce.stanford.edu; or David P. Schwartz, U.S. Geological Survey; (650) 329-5651; e-mail: dschwartz@usgs.gov.

Canadian Geophysical Union (CGU) Annual Meeting and the 58th Annual Eastern Snow Conference. Ottawa, Ontario, Canada: May 14-17, 2001. Abstracts for either conference are due January 31, 2001. For information on the CGU conference, contact S. Pagiatakis, Geomatics Canada, 615 Booth Street, Ottawa, Ontario, Canada K1A 0E9; (613) 995-8720; fax: (613) 992-6628; e-mail: sppagiat@nrcan.gc.ca; WWW: <http://www.cgu-ugc.ca>. For information on the snow conference, contact J. Pomeroy, Centre for Glaciology, Institute of Geography and Earth Sciences, University of Wales, Aberystwyth, U.K. SY23 3DB; tel: +44-1970-622781; fax: +44-1970-622659; e-mail: john.pomeroy@aber.ac.uk; WWW: <http://www.msc-smc.ec.gc.ca/crysys/esc/>.

2001 Technology Partnerships for Emergency Management Workshop and Exhibition. Sponsors: Federal Emergency Management Agency and others. San Diego, California: May 21-24, 2001. The Technology Partnerships Workshop has become an annual event showcasing the latest innovations in disaster and emergency preparedness, mitigation, and response. For information on the 2001 edition, see <http://www.foundation.sdsu.edu/technologysolutions> or contact Brenda-Lee Karasik, (619) 553-2101, e-mail: brenda@spawar.navy.mil; or Dale Gurley, (619) 553-5630, e-mail: gurley@spawar.navy.mil.

Coastal Zone '01. Sponsors: NOAA Coastal Services Center and others. Cleveland, Ohio: July 17-19, 2001. Conference themes include such topics as building sustainable coastal communities, confronting growth issues and challenges associated with expanding ports, building consensus on coastal issues, and addressing other problems associated with human occupation of ocean, sea, and lake waterfronts. Complete information is available from the NOAA Coastal Services Center, 2234 South Hobson Avenue, Charleston, SC 29405-2413; e-mail: csc@csc.noaa.gov; WWW: <http://www.csc.noaa.gov/cz2001>.

World Congress on Disaster Reduction. Sponsors: American Society of Civil Engineers (ASCE) Council on Natural Disaster Reduction and others. Washington, D.C.: August 19-24, 2001. The two overarching themes of this congress will be the development of sustainable societies in the face of natural and technological hazards and the provision of disaster technical assistance to achieve that goal. The congress will serve as a "global rallying point" for new and ongoing national and international hazard mitigation efforts. It is intended to strengthen and create new regional and global alliances, establish a realistic blueprint for future global disaster reduction, promote innovative technology and resource sharing among communities, identify possible new regional projects and generate public and private support for them, and establish science and technology centers of excellence to develop and disseminate science- and community-based solutions to specific hazards problems. For an initial congress announcement and further information, contact Walter Hays, ASCE, 1801 Alexander Bell Drive, Reston, VA 20191; (703) 295-6054; e-mail: whays@asce.org; or Michael Cassaro, ASCE; e-mail: macass@aye.net.

Fifth European Sociological Association Conference. Helsinki, Finland: August 28-September 1, 2001. This meeting will incorporate several proposed sessions of the association's "Disaster and Social Crisis Research Network":

- I. Disasters and Social Crises: Visions and Divisions in American and European Approaches. Coordinators: Wolf Dombrowski, Disaster Research Unit, University of Kiel, Germany, e-mail: wdombro@soziologie.uni-kiel.de; Robert A. Stallings, School of Policy, Planning, and Development, University of Southern California, USA, e-mail: rstallin@usc.edu.
- II. Deconstructing Disaster Management: Beyond the Command and Control Model. Coordinator: Maureen Fordham, Anglia Polytechnic University, U.K., e-mail: m.h.fordham@anglia.ac.uk.
- III. The Contributions of Sociology to Disaster Research and Vice Versa. Coordinators: E.L. Quarantelli, Disaster Research Center, University of Delaware, USA, e-mail: elqdr@udel.edu; Bruna de Marchi, ISIG Institute of International Sociology of Gorizia, e-mail: bruna.de-marchi@libero.it.
- IV. Global Accumulation of Capital as a Factor in Social Crises and Complex Disasters. Coordinator: Vera Vratusa, Faculty of Philosophy, University of Belgrade, Yugoslavia, e-mail: vvratusa@f.bg.ac.yu.
- V. Disaster and Sociocultural Changes: Changes Other than Those in the Organization of Civil Protection. Coordinator: Nicholas Petropoulos, Emergencies Research Center, Athens, Greece, e-mail: erc@otenet.gr.

Sociologists and other social scientists who would like to make a presentation in one of these sessions should submit an abstract of not more than 250 words, no later than January 31, 2001, to the respective session coordinators.

Third International Disaster and Emergency Readiness Conference. Organized by: Andrich International Ltd. The Hague, The Netherlands: October 23-25, 2001. This wide-ranging conference covers such topics as the use of information technology for disaster management training and operations, risk and damage assessment, risk reduction, crisis management in the transport industry, emergency planning, fire service and disaster, disaster management, media and disasters, nuclear accidents, handling major events, local authorities and emergency management, business continuity, warning systems, disaster recovery, and learning from experience. For a conference brochure, contact Mrs. Jan Tucker, IDER Project Manager, Andrich International Ltd, 51 Market Place, Warminster, Wiltshire BA12 9AZ, U.K.; tel: +44 (0)1985 846181; fax: +44 (0)1985 846163; e-mail: jan@andrich.com.

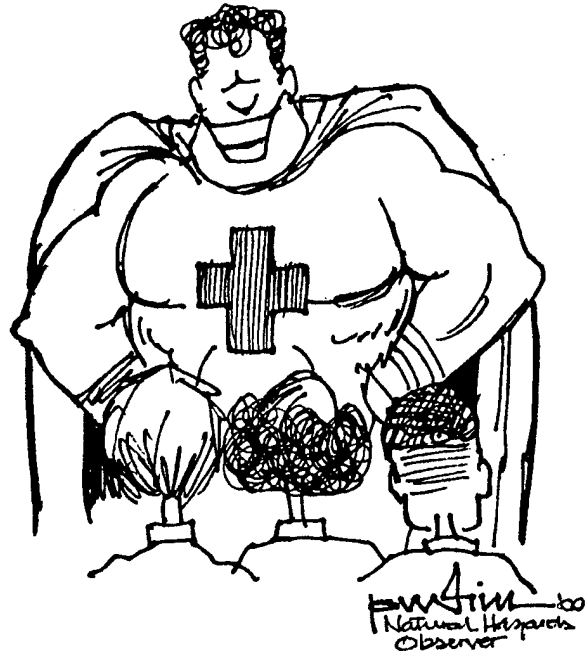
Twelfth European Conference on Earthquake Engineering. Organizers: European Association for Earthquake Engineering and others. London, U.K.: September 9-13, 2002. A call for abstracts is being issued this fall. For a program and registration information, contact 12ECEEE Secretariat, Institution of Civil Engineers, One Great George Street, London SW1P 3AA, U.K.; tel: +44 (0)20 7665 2314; fax: +44 (0)20 7233 1743; e-mail: 12ceee@ice.org.uk; WWW: <http://www.bham.ac.uk/CivEng/seced/12ceee01.htm>.

Red Cross Releases "Masters of Disaster" Children's Disaster Safety Curriculum

The "Masters of Disaster" children's disaster safety curriculum (see the *Observer*, Vol. XXIV, No. 4, p. 11) is now complete and available for Red Cross chapters and stations to order from the agency's General Services Division. The curriculum is intended to aid teachers of science, math, social studies, and language arts in teaching about the hazards of hurricanes, floods, tornadoes, lightning, earthquakes, and, in general, family disaster preparedness, within their regular lesson plans. A complete listing of national teaching standards and which lessons in the curriculum help meet those standards is included with each package.

The curriculum comes as a set of materials in a box, and there are separate boxes for teachers of grades K-2, 3-5, and 6-8. Within each box is a teacher's guide, activities book (with reproducible activity pages), age- and hazard-specific video, interactive poster, and, for the K-2 and 3-5 kits, stickers and an order card for *The Notagains*, a disaster preparedness CD-ROM. A class set of all materials (for up to 30 students) is included in each box.

These items are available for order *only* from local Red Cross chapters or stations, which can provide price and availability information. Schools or other third parties should not contact the Red Cross General Services Division or offices of the Red Cross National Headquarters to place orders. For details about the Masters of Disasters curriculum, see the American Red Cross Web site: <http://www.redcross.org/disaster/masters/index.html>.

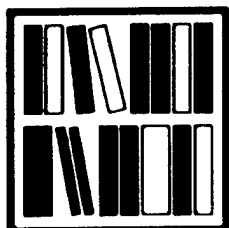


New Self-Study Courses from FEMA

The Federal Emergency Management Agency's Emergency Management Institute (FEMA/EMI) offers numerous courses through its Independent Study Program (see the *Observer*, Vol. XXIV, No. 2, p. 21). The self-paced courses are designed for both the general public and people with emergency management responsibilities. Each course includes lessons with practice exercises and a final examination. Persons scoring 75% or better on the exam are issued a certificate of completion by EMI. The average course completion time is 10-12 hours. Dozens of courses are available; the most recent additions include:

- IS-9: *Managing Floodplain Development Through the National Flood Insurance Program (NFIP)*
- IS-12: *Property Acquisition* (restricted to federal, state, and local government officials or designated contractors)
- IS-324: *Community Hurricane Preparedness*
- IS-394: *Mitigation for Homeowners*
- IS-513: *The Professional in Emergency Management*
- IS-600: *Special Considerations for FEMA Public Assistance Projects*
- SS-534: *Emergency Response to Terrorism*

Any interested person can view course descriptions, download complete course materials, and register for course credit via the EMI Independent Study Web page: <http://www.fema.gov/home/emi/ishome.htm>. Alternatively, prospective students can contact FEMA/EMI, Independent Study Program, 16825 South Seton Avenue, Emmitsburg, MD 21727-8998; (301) 447-1200; e-mail: independent.study@fema.gov.



RECENT PUBLICATIONS

Below are summaries of some of the recent, more useful publications on hazards and disasters received by the Natural Hazards Center. A complete bibliography of publications received from 1995 through 2000 is posted on our World Wide Web site: <http://www.colorado.edu/hazards/bib/bib.html>.

All Hazards

Business Continuity: Best Practices. Andrew Hiles. 2000. \$159.00, plus shipping. Includes 2001 supplement when published. To purchase, contact Rothstein Associates, Inc., 4 Arapaho Road, Brookfield, CT 06804-3104; (203) 740-7444; fax: (203) 740-7401; e-mail: info@rothstein.com; WWW: <http://www.DisasterRecoveryBooks.com>.

Research has shown that the ability of an organization to respond effectively during a crisis is a greater factor in ensuring its survival than the amount of insurance coverage it carries. *Business Continuity* provides a framework for implementation of "10 core units of competence." It offers a step-by-step guide to ensuring business survival following a disaster or other severe event that interrupts daily operations. Topics include understanding contingency planning in general, evaluating risk, analyzing business impacts, developing strategies for ensuring continuation of business, responding to emergencies, drafting and implementing a plan, increasing awareness and training, maintaining and exercising a plan, and applying existing standards and guidelines (e.g., NFPA 1600) to a plan.

Resources for Recovery: Post-Disaster Aid for Cultural Institutions. National Endowment for the Arts, Federal Emergency Management Agency (FEMA), and Small Business Administration (SBA). 2000. 20 pp. Free. Copies can be requested by calling the FEMA, Publications Center, (800) 480-2520.

Preservation of our cultural heritage can fall to arts centers, conservation and historic preservation organizations, historical societies, libraries, museums, theaters, or other institutions. *Resources for Recovery* identifies federal financial aid and information resources that assist cultural institutions in recovering from disasters. It offers tips on what to do both before and after a disaster strikes; outlines assistance provided by FEMA, SBA, the National Endowment for the Arts, the National Endowment for the Humanities, and the Institute of Museum and Library Services; and lists Web sites that provide conservation expertise.

Helping the Children: A Practical Handbook for Complex Humanitarian Emergencies. Anna Mandalakas, Kristine Torjesen, Karen Olness, Editors. 1999. 138 pp. \$12.50. Published by Health Frontiers; distributed by Johnson & Johnson Pediatric Institute, P.O. Box 140097, St. Louis, MO 63114-9907; (toll free) (877) 565-5465; fax: (toll free) (877) 565-3299; WWW: <http://www.jnjPediatricInstitute.com> (click on "Catalog"). (Spanish and Albanian editions are available.)

Helping the Children is intended to aid both health professionals and relief workers who may not be child health experts during both human-caused and natural disaster relief efforts. The handbook offers practical guidance in such areas as:

- Personally preparing for the experience of providing relief care to children during a disaster;
- Assessing problems and priorities for children, from the basic needs of food, water, and shelter, to unique physical, emotional, and safety issues;
- Conducting health assessments and planning medical care that is adapted to the age and stage of pediatric patients;
- Identifying and addressing psycho-social issues based on developmental stages;
- Employing skills in conflict resolution, negotiation, and cross-cultural communication; and
- Understanding basic tenets of international law relating to disasters.

The booklet contains additional information on such things as landmines, obstetrics, and ethical issues.

The Management of Nutrition in Major Emergencies. World Health Organization (WHO). 2000. 250 pp. \$64.80 (U.S.) or 72.00 Swiss francs. Order from WHO Publications Center USA, 49 Sheridan Avenue, Albany, NY 12210; (518) 436-9686; fax: (518) 436-7433; e-mail: Qcorp@compuserve.com; or WHO, Marketing and Dissemination, 1211 Geneva 27, Switzerland; tel: (41 22) 791 24 76; fax: (41 22) 791 48 57; e-mail: bookorders@who.ch.

This WHO manual is a practical guide to measures needed to ensure that the food and nutrition needs of disaster-stricken populations, refugees, or internally displaced persons are adequately met. It offers expert advice not only on nutrition, but also on emergency management, including preparedness and long-term recovery. The proposed programs emphasize the engagement of local health services and other authorities as the best strategy for building national capacity and ensuring rapid recovery. With checklists, tables, and diagrams, the manual first discusses the process for meeting nutritional requirements; then surveys the major nutritional deficiency diseases that appear in emergencies; discusses the assessment and surveillance of nutritional status; describes feeding programs; outlines steps to prevent, treat, and control communicable diseases; and surveys the larger context of emergency preparation and response. This guide is currently available in English, and a French version is being prepared.

Contingencies, Emergency, Crisis, and Disaster Management: Emergency Management in the Third Millennium—TIEMS 2000. 2000. 512 pp. \$40.00. To order, contact Kathy Kowalski, Pittsburgh Research Laboratory, 636 Cochran Mill Road, Pittsburgh, PA 15236; (412) 386-4531.

This volume contains the proceedings of the seventh annual conference of the International Emergency Management Society (TIEMS), held in Orlando, Florida, in May. Topics include natural disasters, social science and emergency management, training, decision support, human-caused disasters, organizational issues, civil-military cooperation in disaster management and humanitarian assistance, disaster response, risk assessment, and risk monitoring.

IDER '97 Conference Proceedings. 1997. 388 pp. £40.00.

IDER/IEPC '99 Conference Proceedings. 1999. 306 pp. £60.00.

Postage and handling must be included for each book: £4.50 for Europe; £9.00 for North America; £10.50 for other locations. (A discount of £10.00 is offered with the purchase of both volumes.) These books can be ordered from Andrich International Limited, attn: Jan Tucker, 51 Market Place, Warminster, Wiltshire BA12 9AZ, U.K.; tel: +44 1985 846181; fax: +44 1985 846163; e-mail: ider@andrich.com.

The United Nations; the Dutch Ministry of Transport, Public Works, and Water Management; and the International Air Transport Association cosponsor the biennial International Disaster and Emergency Readiness (IDER) Conference, which, in 1999, met in conjunction with the International Emergency Planning Conference (IEPC) (see page 23 of this *Observer*). The proceedings from these meetings, comprising papers from emergency management experts from around the world, cover everything from various technological advances in the discipline to health issues, large event planning, emergency management education, and a host of other topics.

World Disasters Report: Focus on Public Health. 2000. \$25.00, plus \$4.50 shipping. To order, contact Eiron Inc., P.O. Box 40072, Washington, DC 20016; (202) 966-3240; fax: (202) 244-0913; e-mail: eironinc@aol.com; WWW: <http://www.wdn.com/yellowdog>.

According to the International Federation of Red Cross and Red Crescent Societies (IFRC), diseases are a far greater threat to public health than natural disasters. In 1999, while up to 100,000 people were killed by natural disasters, some 13 million died of infectious diseases. The IFRC devoted this year's *World Disasters Report* to this issue. Its chapters assess public health priorities; AIDS in Africa (70 per cent of the world's HIV-positive people live south of the Sahara); North Korea's failing public health system; continued fallout from the Chernobyl catastrophe in the post-Soviet era; and the continuing crisis in Kosovo. Additional chapters look at the distribution of international aid, a proposed international response law, disaster data, and IFRC response activities.

Hurricanes

Encyclopedia of Hurricanes, Typhoons, and Cyclones. David Longshore. 2000. 384 pp. \$45.00. Available from Facts On File, Inc., 11 Penn Plaza, 15th Floor, New York, NY 10001; (800) 322-8755, ext. 228; fax: (800) 678-3633; WWW: <http://www.factsonfile.com>.

This encyclopedia covers all major aspects of tropical cyclones, from "advection" to "Y-named storms." It covers meteorological terms, scientific measurement of these storms, biographical information on key figures in the history of hurricane scholarship, geographic distribution, histories of specific storms and their effects on civilizations, the culture and folklore of cyclonic storms, methods of tracking, and cyclone structure and development. Longshore includes a 700-year chronology of global tropical cyclone activity, as well as appendices that provide a sample hurricane tracking chart, instructions on plotting approaching storm systems, and a list of named storms.

Coordination of Disaster Response and Humanitarian Assistance Efforts Between Civilian and Military (U.S. Southern Command) Groups During the Hurricane Mitch Crisis: An Assessment of Information Flow Obstacles and Opportunities. Nicholas F. Colmenares. 2000. 30 pp. \$5.00. Copies can be obtained from the author by e-mailing carmaworld@aol.com.

This report assesses how military and civilian groups working in disaster relief and humanitarian assistance were able to share information and coordinate their efforts when responding to Hurricane Mitch in Honduras. Colmenares examines the military's approach to the

disaster, including internal resource evaluation and use, and how this information was communicated to civilian organizations. He found that individuals use the ideas and resources closest to them, as well as those that most directly pertain to their roles and responsibilities, sometimes making the resolution of issues among institutions exceedingly difficult. Colmenares outlines the criteria for "successful" information sharing according to those who participated in the disaster response, describes sources of data, discusses the need for improved military disaster planning through greater participation of civilians, and describes limits to effective information flow and response coordination.

Floods

Permitting Disaster in America: How Reforming "Rubber Stamp" Wetland Destruction Permits Will Protect Your Family from More Flood Risks. Brett Hulsey et al. 2000. 23 pp. \$20.00. Copies are available from the Sierra Club, 214 North Henry Street, Madison, WI 53703; (608) 257-4994.



In *Permitting Disaster in America*, the Sierra Club argues for expanded protection of wetlands and floodplains as one means to mitigate the increasing flood hazard in the U.S., and the club offers a host of studies, data, and other information to support its stand. The report also suggests steps that families can take to protect themselves—from avoiding habitation in floodplains to becoming politically involved and demanding that Congress and federal agencies change their policies toward wetland development. The Sierra Club has several other reports available from its "Protect Our Families from Floods" Project, including *Floods, Deaths, and Wetland Destruction*; *Subsidizing Disaster*; *Red River Rampage*; and *Permitting Disaster in Illinois, Indiana, Iowa, Kentucky, Minnesota, Missouri, New York, New Jersey, North Dakota, Oklahoma, Oregon, Pennsylvania, South Dakota, Washington, and Wisconsin*. To obtain these reports, contact the Sierra Club at the address above.

Earthquakes

The Marmara, Turkey Earthquake of August 17, 1999: Reconnaissance Report. Charles Scawthorn, Editor. Technical Report MCEER-00-0001. 2000. 200 pp. \$35, plus shipping and handling. Order from the Multidisciplinary Center for Earthquake Engineering Research (MCEER), State University of New York at Buffalo, Red Jacket Quadrangle, Buffalo, NY 14261; (716) 645-3391, ext. 126; fax: (716) 645-3399; e-mail: mceer@acsu.buffalo.edu; WWW: <http://mceer.buffalo.edu>.

The Marmara quake killed approximately 17,000 people and devastated the prime industrial area of Turkey. An especially tragic aspect of this disaster was that, on the basis of historic seismicity, it was clearly foreseen and anticipated by leading seismologists and earthquake engineers. Unfortunately, rapid population growth and development in recent years, and an accompanying lack of building code enforcement, were the main factors leading to the great loss of

life and property. These and other findings are detailed in this report based on field investigations by several MCEER researchers immediately following the magnitude 7.4 quake. The report contains observations on the seismic event itself, impacts to buildings and infrastructure, emergency response, search and rescue, and postearthquake restoration efforts. It also includes a section entitled "The Marmara Earthquake: A View from Space," detailing high-level reconnaissance investigations using various advanced technologies.

Strategic Plan for Loss Reduction and Risk Management: University of California, Berkeley. Working Paper 2000-03. 2000. 54 pp. Free. The complete report can be obtained on-line from the Institute of Urban and Regional Development's Web site: <http://www.iurd.ced.berkeley.edu/pub/WP-2000-03.pdf>.

The Disaster-Resistant University program of the University of California-Berkeley is part of FEMA's Project Impact and is an initiative to reduce future disaster risks at institutions of higher learning. In our July issue, we mentioned the results of an economic analysis of potential losses from a magnitude 7 earthquake on the nearby Hayward Fault (see the *Observer*, Vol. XXIV, No. 6, p. 11). This plan, a companion to that report, was prepared by the Office of the Vice Provost and the Disaster-Resistant University Steering Committee to increase the safety of the university community and sustain operations in the event of an earthquake, flood, or fire. It describes the steps necessary to achieve these goals, actions to take to reopen the university within 30 days of a disaster, responsibilities of university decision makers, the risks the campus faces and resources for reducing these risks, an inventory of campus buildings and their uses, campus utility systems, nonstructural mitigation activities, emergency response, business continuity planning, recovery planning, education and training, and plan maintenance.

Decisions to Demolish. Martha Blair Tyler and Karen Kristiansson. 135 pp. \$10.00 (includes shipping). Available from Spangle Associates, 3240 Alpine Road, Portola Valley, CA 94028-7592; (650) 854-6001; fax: (650) 854-6070.

Decisions to Demolish is the final report from a study of demolition after earthquakes funded by the National Science Foundation. The study found that only 9% to 10% of red- and yellow-tagged buildings were demolished after the Loma Prieta and Northridge earthquakes in 1989 and 1994, while over 90% of damaged buildings were repaired. Single-family residences accounted for almost 70% of all demolitions.

The Spangle Associates research team not only investigated which structures were torn down, but also why they were dismantled as well as the consequences of demolition. They found that local government decisions to demolish were primarily based on public safety concerns; decisions by the owners of private property were more often based on economic exigencies, such as the costs of alternatives and the availability of financing. For some communities, downtown demolitions helped define opportunities to re-plan and invigorate areas in decline before the earthquake, and the reconstruction also provided an opportunity to improve safety. However, all communities lost historic buildings; thus, one of the chief lessons from the study is the need to retrofit important, culturally valuable buildings before the next quake. Finally, the research team also found that affordable housing could become less available because of demolition, since apartment buildings and single-room occupancy hotels that house lower-income families were less likely to be replaced.

Financial Management of Earthquake Risk. Earthquake Engineering Research Institute (EERI) Endowment Subcommittee on Financial Risk Management. 2000. 127 pp. \$7.00, plus \$3.00 shipping. (California residents include 8 1/4 % sales tax). Available from EERI, 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eeri@eeri.org; WWW: <http://www.eeri.org/Publications/Publications.html>.

This most recent publication in EERI's Endowment Fund White Paper series examines how financial risk is managed in the residential, commercial, small business, lifelines, and government sectors; how risk can be reduced, transferred, or avoided through the use of insurance, mortgages, and capital market instruments; and how

earthquake engineering expertise fits into this process. The discussion will help engineering students and faculty understand some of the different career options that use engineering knowledge, practicing engineers understand how the information they provide to clients is part of a larger process of financial risk management, and financial managers understand how the financial and earthquake engineering communities are interrelated.

EERI has also published the most recent volume in its oral history series: **Connections: The EERI Oral History Series, Nicholas F. Forell.** 2000. 48 pp. \$15.00, plus \$3.00 shipping. (California residents include 8 1/4 % sales tax). The seventh in the series, this interview with Forell explores his role in the development of seismic design codes and his efforts generally to raise engineering standards for buildings constructed in earthquake-prone areas.

The latest volume in EERI's "Learning from Earthquakes" Series is also available: **El Quindío, Colombia Earthquake, January 25, 1999.** EERI El Quindío Reconnaissance Team. 2000. 79 pp. \$15.00, plus shipping (\$5.00, domestic; \$8.00, international). (Again, California residents include 8 1/4 % sales tax.) Interested persons should also note that EERI has numerous free preliminary reconnaissance reports available on the Web regarding many recent major quakes around the world; see <http://www.eeri.org> (click on "EQ Reports").

Adoption and Enforcement of Earthquake Risk-Reduction Measures. Peter J. May, T. Jens Feeley, Robert Wood, and Raymond J. Burby. PEER 1999/04. 1999. 92 pp. \$15.00. Available from the National Information Service for Earthquake Engineering (NISEE), Pacific Earthquake Engineering Research (PEER) Center, 1301 South 46th Street, Richmond, CA 94804-4698; (510) 231-9401; fax: (510) 231-9461.

The authors studied the sociopolitical implications of seismic provisions of local building codes in several areas of the country. Specifically, from a national survey of building code officials, they explored 1) making building codes effective tools in earthquake hazard mitigation at the national level, 2) the policy challenges of seismic mitigation in the western U.S., and 3) the role of "policy entrepreneurs" in the adoption of seismic-related provisions by local governments within California. The researchers' conclusions are diverse, but they did find that regulatory approaches adopted by federal and state governments are important in determining local enforcement of building code provisions. In addition differing local political and economic contexts also influenced regulatory actions by local government. The adoption of regulations was more affected by past earthquakes, whereas the enforcement of building codes is more related to the extent of the earthquake hazard.

An Invitation to Publish in the International Journal *Natural Hazards*

Despite the misconception that it contains only papers dealing with the physical sciences, the peer-reviewed journal, *Natural Hazards*, publishes manuscripts on all aspects of natural hazards, and the editors welcome papers related to the social, economic, and mitigation aspects of hazards and disasters. Interested persons should send manuscripts to the Editorial Office, *Natural Hazards*, Kluwer Academic Publishers, P.O. Box 17, 3300 AA, Dordrecht, Netherlands.

In addition, the editors are also seeking individuals to edit special issues on specific topics related to natural hazards. Editors of special issues can invite up to three colleagues to become co-guest editors, and the publishers will consider printing single (six manuscript) or double (twelve manuscript) issues and in rare cases a triple issue. Guest editors will choose reviewers, obtain all manuscripts, and submit the final revised copies with the necessary reviews. For more information, contact Tad Murty, Baird & Associates, 1145 Hunt Club Road, Suite 1, Ottawa, Ontario, Canada K1V 0Y3; (613) 731-8900; fax: (613) 731-9778; e-mail: tmurty@baird.com; WWW: <http://www.baird.com>.

THE HAZARDS CENTER

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER was founded to strengthen communication among researchers and the individuals and organizations concerned with mitigating natural disasters. The center is funded by the National Science Foundation, Federal Emergency Management Agency, National Weather Service, U.S. Geological Survey, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Department of Transportation, U.S. Bureau of Reclamation, National Aeronautics and Space Administration, the Institute for Business and Home Safety, and the Public Entity Risk Institute. Please send information of potential interest to the center or the readers of this newsletter to the address below. The deadline for the next *Observer* is September 20, 2000.

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Cartoons for the *Observer* are drawn by Rob Pudim.

NATURAL HAZARDS OBSERVER

ISSN 0737-5425

Printed in the USA.

Published bimonthly. Reproduction with acknowledgment is permitted and encouraged.

The *Observer* is free to subscribers within the U.S. Subscriptions beyond the U.S. cost \$24.00 per year. Back issues of the *Observer* are available for \$4.00 each, plus shipping and handling. Orders must be prepaid. Checks should be payable to the University of Colorado.

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