

## Coming Soon to a Mailbox Near You!

We're going to evaluate the *Natural Hazards Observer*. We're dead serious about our little newsletter and are taking the time and resources to take stock in the *Observer* and perhaps chart new directions. At the Hazards Center, we've been talking about hazards and hazards research for almost 28 years. We think the *Observer's* pretty good, and believe we've created a dynamic voice for the natural hazards community that has chronicled disaster research and mitigation since the Hazards Center's inception. Every two months, the *Observer* gets sent around the world and makes its way to thousands and thousands of people. And soon, we're going to ask 1,000 of you, who have been receiving the publication for free, to step up to the plate and tell us what you think.

We know you're busy and don't have time to fill out a questionnaire—heck, we don't like to fill them out ourselves! But we want you to interrupt your lives anyway and make an exception in this case. If you're one of the lucky few to receive our questionnaire, please take a moment and share your thoughts about the

*Observer* with us. The Hazards Center hasn't had the money to conduct a survey like this for the past twenty years, and even today, we are struggling to keep the cost low and the response rate high. Help us make the *Observer* a better publication. The questionnaire won't be long and we're depending on the quality of the answers of the people who receive and send it back (quickly) to keep expenses down. There are no right or wrong answers—just tell us what you think! Remember, you'll be speaking not only for yourself, but as a representative of your colleagues, fellow professionals, or educators. We want the best possible feedback, and that depends on you.

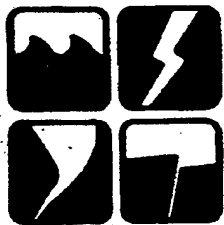
The Directors of the Center are sending out this request so that you'll know how important this survey is to us. We don't want to pester you for your response, send you postcards, or call you on the phone, but we would like to hear from you. Center staff will be hand-addressing and sending out surveys within the next month or so. Check your mailbox, and keep us informed.

Dennis Milet  
Mary Fran Myers

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VOLUME XVII NUMBER 4

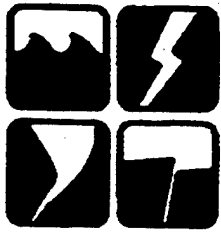
MARCH 2003



NATURAL HAZARDS

# Observer

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NATURAL HAZARDS

# Observer

VOLUME XVII NUMBER 4

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## USGS—Providing Science and Monitoring to Protect Communities

—an invited comment

The Earth is a life-giving yet lethally dangerous planet, whose power we ignore at our peril. Science provides tools to recognize nature's forces, to understand its processes, and to reduce its hazards. The U.S. Geological Survey (USGS), through its scientific research, monitoring, analysis, and information-sharing activities, works with partners across the nation and around the world to reduce the toll of human suffering and loss caused by natural disasters.

Each natural hazard presents a unique set of challenges. USGS hazards programs have evolved in different ways, in response to the needs of our partners and our

society, as well as scientific and technological advances. A brief overview of our major programs follows.

### Earthquake Hazards

The USGS identifies and characterizes earthquake hazards, monitors seismic activity, and conducts research in support of hazard assessments and loss reduction practices. The Survey coordinates its activities with the three other National Earthquake Hazards Reduction Program agencies—the Federal Emergency Management Agency (FEMA), the National Science Foundation, and the Na-

tional Institute for Science and Technology—but is the only agency providing national earthquake monitoring and notification.

We are currently developing the Advanced National Seismic System (ANSS), an effort to modernize, expand, and integrate earthquake recording and notification nationwide. As authorized by Public Law 106-503, ANSS will be a nationwide network of at least 7,000 urban and regional seismometers to provide critical information to emergency response officials, engineers, researchers, and the public. ShakeMap, a key ANSS product, shows the regional severity and distribution of ground shaking on the Internet within a few minutes after an earthquake, allowing emergency responders to quickly assess areas of likely damage. ShakeMap is now available in Los Angeles, the San Francisco Bay area, Salt Lake City, and Seattle and is expanding to other regions. As of FY 2002, approximately 350 ANSS stations have been installed. For more information, visit <http://earthquake.usgs.gov>.

### Floods

The Survey's National Streamflow Information Program (NSIP) provides information on the characteristics of flooding on American rivers for the design and evaluation of mitigation measures. The program also provides real-time data to guide citizens, businesses, and public safety officials as they take short-term actions to avoid flood damages or recover from the effects of flooding. A national network of about 7,000 stream-gage stations provides long-term, historical information as well as real-time information current to within a few hours. Most of these stations are jointly funded in partnerships with over 800 state, local, or other federal agencies; the rest are funded by NSIP. The National Weather Service depends on USGS historical and current streamflow information to calibrate forecast models and make flood forecasts. Streamflow records are also vital to assessing flood risk and evaluating how flood risks are changing due to land-use alterations, construction of dams and levees, and long-term climate variation. Recent enhancements to the network include increasing the number of real-time stream-gages and flood-hardening gages, and establishing new gages at critical National Weather Service flood forecast locations. NSIP is currently funded at about 10% of the cost of full implementation. A web site describing this program can be found at <http://water.usgs.gov/nsip/>.

### Wildland Fire

USGS program managers and scientists are assisting in implementing the National Fire Plan by providing mapping and geographic information system (GIS) technical assistance to communities at risk. We actively participate in the Joint Fire Science Program of the departments of the Interior and Agriculture, which focuses on fuel management and reduction of fire hazards. USGS scientists assist Burned Area Emergency Response teams and assess the effects of fire on watersheds, municipal water supplies, water quality, and rates of soil erosion and sedimentation. USGS scientists work with FEMA to evaluate the risk of floods and debris flows from burned areas and to

study how to control invasion of non-native plants and restore ecosystems to reduce future fire hazards. The USGS also provides spatial technologies and research in support of wildfire prediction, monitoring, and fire-fuel mapping. The Survey has teamed with federal firefighting agencies and private industry to form the Geospatial Multi-Agency Coordination Group, which provides real-time information to assist operations personnel in prioritizing the use of wildfire suppression resources and ensuring public and firefighter safety. To learn about these efforts, go to <http://geomac.gov> or <http://firescience.cr.usgs.gov>.

### Landslide Hazards

Landslide scientists provide objective information to reduce risk from landslides throughout the U.S. Our landslide hazards investigations, conducted in partnership with federal, state, and local governments, focus on the urban environment, hazards to infrastructure, and slides that occur in association with other natural disasters such as earthquakes, volcanic eruptions, floods, and wildfires. Landslide hazard assessments provide the scientific basis for land use and emergency planning decisions as well as cost-benefit analyses of possible loss reduction measures. The USGS collaborated with the American Planning Association to develop the guide, *Landslide Hazards and Planning*, to help planners incorporate hazards information into their comprehensive planning to minimize losses from landslides (available through the American Planning Association in spring 2003). Additional information about this program can be found at <http://landslides.usgs.gov/>.

### Coastal Hazards

The USGS provides information to help understand and predict coastal erosion and other storm effects on the shoreline and to identify and evaluate offshore earthquake, tsunami, and landslide hazards. In cooperation with the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA), we are compiling baseline data that will lead to a national assessment of coastal change resulting from storms, erosion, and sea-level rise. Scientists are completing a series of maps of coastal vulnerability to sea-level rise for the nation's Atlantic, Pacific, and Gulf of Mexico coasts. Coastal scientists are also mapping active submarine faults in southern California and the Caribbean. This information complements previous assessments of offshore geologic hazards and provides data for models to estimate the hazards posed by earthquakes, landslides, and tsunamis. We are also working closely with NOAA to reduce losses from tsunamis through analyses of tsunami deposits and offshore earthquake source characterizations. To learn more about our efforts in the coastal realm, visit our web page: <http://marine.usgs.gov/>.

### Volcano Hazards

With nearly 70 active and potentially active volcanoes, the U.S. is among the most volcanically vigorous nations in the world. Volcanic hazards include lava flows, landslides and debris flows, and ash clouds that may interfere

with air traffic thousands of miles from an eruption. The Volcano Hazards Program helps to mitigate the harmful impacts of volcanic activity by monitoring active and potentially active volcanoes, assessing hazards and issuing warnings, assisting in the development of crisis response plans, responding to volcanic crises, and conducting research on volcanic processes.

Additionally, through a joint effort with the U.S. Agency for International Development (USAID), the USGS responds to selected volcanic crises around the world. At the request of other countries and working through USAID and the State Department, Survey scientists in the Volcano Disaster Assistance Program (VDAP) help developing countries monitor and interpret volcanic unrest and assess possible consequences of eruptive activity. Since VDAP began in 1986, USGS volcanologists have responded to volcano crises in more than 20 countries. Current interagency priorities are to improve volcano-monitoring capabilities and conduct hazard assessments in Central America and Indonesia. For details on our volcano programs, view <http://volcanoes.usgs.gov/>.

### The National Map

The National Map is an up-to-date digital database combining information from the USGS, other federal agencies, and state and local jurisdictions to provide a single mapping framework for the country. In addition to conducting pilot mapping activities in cooperation with states, the USGS is implementing the National Map for the highest priority urban areas, which are home to more than 160 million people. The National Map provides monitoring information about land surface, land use, and land cover as well as the status, trends, causes, and effects of changes in land surface. When fully implemented, the map will provide a comprehensive, integrated, nationwide infrastructure that will increase the access, use, and quality of geospatial information for all communities.

The National Map will give organizations the mapping tools they need to prepare for, respond to, and recover from natural and human-induced disasters. Interested readers can go to <http://nationalmap.usgs.gov/> for more information.

### Working with Partners to Protect Communities

The USGS serves the country by providing relevant, impartial scientific information to describe and understand the earth. A key part of the USGS mission is minimizing loss of life and property from natural disasters, as authorized by the Disaster Relief Act of 1974 (also known as the Stafford Act). To achieve this goal, the USGS works with federal, state, and local agencies to assist in emergency response efforts when catastrophes strike and conducts research and monitoring activities to provide information to citizens about the hazards that may exist in their communities. The USGS brings a unique combination of capabilities to these tasks, including both single-discipline expertise in areas such as earthquakes and volcanoes and multidisciplinary expertise suitable for dealing with hazards such as wildland fires. Partnerships with state and local governments, scientists in academia and other federal agencies, and those in the private sector are essential to the USGS. We work closely with others in order to understand their problems, and our effectiveness depends on communicating our scientific information to help others make informed decisions about keeping people and property safe from extreme natural events. We look forward to working with all of you to make our planet a safer place to live.

Charles G. Groat  
Director  
U.S. Geological Survey



## PPW Calls for All Hazards Warning System



The United States is lacking a warning system for natural and human-caused disasters that uses standard terminology and protocols. Developing such a system would help the public to better understand and respond to all types of threats, according to a report issued by the Partnership for Public Warning (PPW), a group of experts in disaster warning and disaster information (see the *Observer*, Vol. XXVI, No. 4, p. 9).

The public currently receives warnings through a hodgepodge of systems controlled by various levels of government. Alerts are triggered by different levels of threat and use different, sometimes confusing, names. PPW believes the public would be better served by a uniform all-hazards public warning system that would:

- take into consideration current research about human response to warnings that challenges common beliefs that warnings generate panic and false warnings greatly diminish the tendency of people to heed future warnings;
- incorporate training for both populations at risk and emergency managers;
- use standardized terminology such as “warning” and “watch”; and
- employ a standard protocol for issuing warnings.

PPW hopes to develop a strategy for a national warning system that would use technology to distribute warnings via television, radio, pagers, cell

phones, the Internet, and other devices. The group also hopes the new Department of Homeland Security will be given the task of developing the system.

The report, *Developing a Unified All-Hazard Warning System* (PPW Report 2002-02, 2002, 47 pp., free), can be found on the PPW web site: [http://www.partnershipforpublicwarning.org/ppw/docs/11\\_25\\_2002report.pdf](http://www.partnershipforpublicwarning.org/ppw/docs/11_25_2002report.pdf). For more information about this effort, contact the Partnership for Public Warning, Mail Stop N655, 7515 Colshire Drive, McLean, VA 22102-7508; (703) 883-2745; e-mail: [jkim@partnershipforpublicwarning.org](mailto:jkim@partnershipforpublicwarning.org).

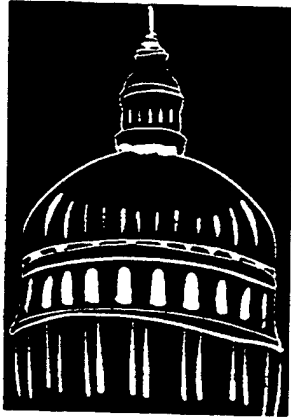
## AMA Creates Center for Disaster Preparedness and Emergency Response

In December 2002, the American Medical Association (AMA) announced the creation of a Center for Disaster Preparedness and Emergency Response to respond to natural disasters and terrorist attacks. The center will work to integrate organized medicine into the development of policy and educational materials to support physicians and other constituencies.

The new center will focus on the role of the physicians in emergencies. It will assist the Department of Homeland Security, federal agencies, and medical societies to improve medical community's ability to respond to catastrophic events. The recent anthrax attacks demonstrated that the medical system needs more integrated planning. In addition, failures in laboratory response, surveillance, and communication compounded response difficulties. The center has received initial funds from the AMA, but hopes to obtain additional funding from foundations or grants from federal agencies, such as the Centers for Disease Control and Prevention.

For more information about this new center, contact the American Medical Association, 515 North State Street, Chicago, IL 60610; (312) 464-5000; e-mail: [DisasterPreparedness@ama-assn.org](mailto:DisasterPreparedness@ama-assn.org). To view AMA's web site on disaster preparedness and medical response, go to <http://www.ama-assn.org/ama/pub/category/6206.html>.





# WASHINGTON UPDATE

## FEMA Releases Guide to Help Citizens Prepare for Disaster

The Federal Emergency Management Agency (FEMA) recently announced the availability of a publication to help individuals prepare themselves and their families for disasters. *Are You Ready? A Guide to Citizen Preparedness* (publication no. H-34, 2003, 112 pp.) brings together facts on disaster survival techniques, disaster-specific information, and how to prepare for and respond to natural and human-made disasters.

AS IS USUALLY  
THE CASE, THE  
ANSWER IS A  
RESOUNDING  
"NO".



*Are You Ready?* provides step-by-step outlines on preparing a disaster supply kit, emergency planning for people with disabilities, locating and evacuating to a shelter, and contingency planning for family pets. Human-caused threats from hazardous materials and terrorism are discussed in detail.

The guide also describes ways citizens can become involved with efforts to safeguard their neighborhoods and communities through FEMA's Citizen Corps initiative and its Community Emergency Response Team training program.

Printed copies of *Are You Ready?* are free and available from the *FEMA Publications Distribution Center*, P.O. Box 2013, Jessup, MD 20794-2012; (800) 480-2520; fax (301) 362-5335. The document can also be downloaded from <http://www.fema.gov/areyouready>. Information about FEMA's Citizen Corps program can be found on-line at <http://www.citizencorps.gov>.

## Congress Funds Sea Grant for Five More Years

To help protect American oceans, lakes, and bays, the National Sea Grant Program encourages the wise stewardship of marine resources through research, education, outreach, and technology transfer. Sea Grant is a partnership between universities and the National Oceanic and Atmospheric Administration (NOAA) that began in 1966, when the U.S. Congress passed the National Sea Grant College Program Act. Sea Grant makes a wealth of information on marine topics available, from public school curriculum materials to advanced scientific research.

Public Law 107-299, passed by Congress on November 26, 2002, amends the National Sea Grant College Program Act to require the secretary of Commerce to develop a strategic plan at least quadrennially. The law requires that the plan be integrated with the strategic plans of the Department of Commerce and NOAA as well as balance local, regional, and national needs.

The legislation also revises the requirements of sea grant college and institute programs and requires the director of the National Sea Grant College Program to rate programs according to their relative performance. It also requires the secretary, acting through the Under Secretary of Commerce for Oceans and Atmosphere, to contract with the National Academy of Sciences to evaluate the new rating system.

Congress also provided funding for fiscal years 2004 through 2008; grants will support research on the control of zebra mussels and other aquatic non-native species, oyster health, harmful algal blooms, and fishery extension activities.

To learn more about the program and the new legislation, contact the *National Sea Grant Program, National Oceanic and Atmospheric Administration, 1315 East-West Highway, Silver Springs, MD 20910; (301) 713-2431; fax: (301) 713-0799; <http://www.nsgo.seagrant.org/>.*

## GAO Looks at Management Challenges of Homeland Security

While significant progress has occurred over the past several months in addressing the demands of homeland security, the federal government still faces numerous challenges, including implementing the Department of Homeland Security and coordinating the homeland security related roles and responsibilities of many entities in the public and private sectors. To better understand the federal government's response since the September 11 terrorist attacks, members of the Senate Committee on Governmental Affairs requested that the General Accounting Office (GAO) conduct a government-wide review of changes to the missions and activities of agencies involved in homeland security. The results are now available in the report *Homeland Security: Management Challenges Facing Federal Leadership* (Report GAO-03-260, 2003, 66 pp., free).

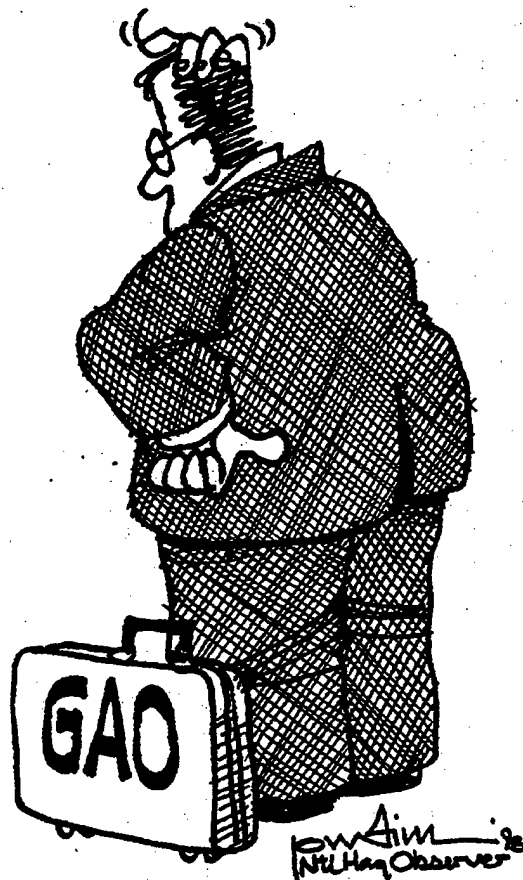
GAO found that the federal government's response to homeland security issues is still evolving. Although a new homeland security emphasis is underway, agencies will be challenged to meet their dual or unrelated missions while still maintaining and strengthening homeland security operations. Federal coordination and collaboration efforts have increased through information sharing activities among federal, state, and local agencies. However, more needs to be done to enhance their effectiveness. Federal efforts to improve homeland security will also require a results-oriented approach to ensure mission accountability and sustainability over time.

To establish accountability, GAO recommends that the Department of Homeland Security (DHS) and the Office

of Management and Budget (OMB) guide development of performance measures and clarify the roles of parties. Also, DHS and OMB should ensure implementation of broad-based management practices and principles that will improve the operability of DHS. Finally, the Office of Personnel Management should develop and implement a long-term human capital strategy for homeland security activities.

Copies of the printed report can be obtained from the GAO, 441 G Street, N.W., Room LM, Washington, DC 20548; (202) 512-6000; fax: (202) 512-6061; the report can be downloaded from <http://www.gao.gov/cig-bin/getrpt?GAO-03-260>.

Another GAO report that looks at these issues is *Highlights of a GAO Forum: Mergers and Transformation: Lessons Learned for a Department of Homeland Security and Other Federal Agencies* (GAO-03-293SP, 2002, 14 pp., free). This report contains the results of a forum convened by GAO to examine useful practices and lessons learned from major private and public sector organizational mergers, acquisitions, and transformations that federal agencies could implement during the transition to the new Department of Homeland Security. This free report can be requested from the GAO at the address above or found on-line at <http://www.gao.gov/new.items/d03293sp.pdf>.



## IG Looks at FEMA Assistance to NY Following September 11

The terrorist attacks of September 11, 2001, caused catastrophic physical damage and loss to businesses and residences in lower Manhattan. The majority of those affected required some sort of assistance to cope. Because federal, state, and local governments had never before experienced some of the consequences of this kind of event, the Federal Emergency Management Agency (FEMA) re-examined its authorities under the Robert T. Stafford Disaster Relief and Emergency Assistance Act.



The results of that examination have recently been published in the FEMA Office of Inspector General's (IG) report, *FEMA's Delivery of Individual Assistance Programs: New York—September 11, 2001* (2002, 78 pp., free). The document focuses on issues that need to be addressed by both FEMA and Congress as they consider regulatory and legislative changes to improve FEMA's delivery of assistance to victims of future terrorist attacks that result in presidential disaster declarations.

Due to the unique circumstances of this disaster (i.e., a terrorist attack rather than a natural disaster), FEMA applied its authorities and programs more broadly than ever before. Still, FEMA does not have authority to deal with the gamut of economic losses suffered or to address the issue of possible air contamination and its impacts on the population of New York City beyond assessing threats to immediate health and safety. The agency also encountered difficulties regarding lawfully present non-citizens and certain nonprofit organizations. In addition, FEMA had trouble coordinating with other federal agencies that were responding to the event.

The report recommends that FEMA become more proactive in using expertise from other resources and focus on improving community and organizational outreach after events that affect large, diverse populations. Also, Congress may want to consider legislation to develop a program similar to FEMA's Mortgage and Rental Assistance program, but with the additional flexibility to address economic losses and financial hardships. Ultimately, Congress may wish to consider whether FEMA or another agency should administer grants to small businesses adversely affected by disaster.

Copies of the report are available from the Office of Inspector General, Inspections Division, Suite 505, 500 C Street, S.W., Washington, DC 20472; (202) 646-4166; fax: (202) 646-3901; <http://www.fema.gov/ig>.

## DHS Web Site Up and Running

The Department of Homeland Security (DHS) is moving into its new headquarters in northwest Washington, D.C., and shuffling agencies and personnel to meet its legislative mandate to make the U.S. a safer place to live. To help keep interested individuals up to date, DHS has launched a web site at <http://www.dhs.gov>. The site includes information on the components of the department, including:

- Border and Transportation Security
- Emergency Preparedness and Response
- Information Analysis and Infrastructure Protection
- Science and Technology
- Management
- Coast Guard
- Secret Service
- Citizenship and Immigration Services
- State and Local Government Coordination
- Private Sector Liaison

In addition, the site describes the federal government reorganization plan, its progress, and historical background; budget priorities (mainly duties related to terrorism preparedness and response); and links to all 22 agencies slated to become part of DHS.

The department will move forward to improve security at the nation's borders, implement grant programs to ensure that first responders are properly trained and equipped, decrease the vulnerabilities of critical infrastructure, protect against bio-terrorism, advance research in science and technology aimed at countering terrorist attacks, improve intelligence analysis and coordination, and recapitalize the Coast Guard.

The web site also includes information on how citizens can assist in homeland security actions, such as volunteering and preparing their households for emergencies. Governments at all levels can find tips for working with the agency, as can businesses looking for contract opportunities. Further, those who are interested in working for the agency can view current job postings, while federal employees can read the latest on agency reorganization and how it will affect them.

# ISDR Request for Risk Vulnerability Tools and Practices Assistance

The International Strategy for Disaster Reduction (ISDR) task force on disaster reduction has established three working groups to follow up on the initiatives developed during the International Decade for Natural Disaster Reduction (IDNDR), which concluded in 2000. The working groups have been convened to address a variety of tasks: Working Group 1 (WG1) will address climate change and variability; Working Group 2 (WG2) will deal with early warning; Working Group 3 (WG3) will work with the quantification of risks, vulnerability, and the impact of disasters.

WG3 has developed a work plan and scope of operations, and will focus on exchanging information about the activities of like-minded organizations with the goal of developing a common set of global indicators and indexes for vulnerability and risk assessment. WG3 will also complete a review of current local practices and assessment tools, as well as develop a risk-vulnerability index that will be compatible with other social and economic development indicators.

At this stage of their work, WG3 is looking for information on existing assessment tools or practices that are currently in use. These include assessment systems, methods, or tools; training materials; case studies or materials to aid in the assessment of methods and tools; and conceptual work related to risk-vulnerability assessment methods. If you are aware of relevant assessment tools, systems, or methods, please share them with ISDR.

All materials will be appropriately credited to the institute or organization of origin. For more information about this project, or to contribute materials or information, contact *Esteban Leon, United Nations Human Settlement Programmes (UN-HABITAT); P.O. Box 30030, Nairobi, Kenya; tel: (254-2) 624191; e-mail: esteban.leon@unhabitat.org; http://www.unhabitat.org/.*



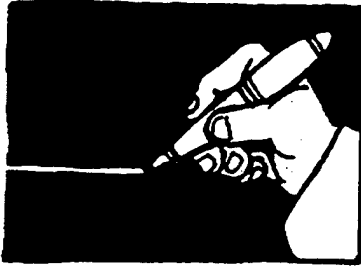
## Corporate Social Responsibility and Disaster Reduction

Interest in the role of business in sustainable and equitable development has grown in recent years, but disaster mitigation and preparedness have scarcely featured in the debate. There have been some calls for greater private sector involvement, but little attempt to explain what role it might play.

A research team managed by the Benfield Greig Hazard Research Centre has just completed a study of corporate social responsibility (CSR) in this area. It found little business engagement and many factors inhibiting business commitment, but concluded that further development is possible if a pragmatic, experience based, and long term approach is taken.

The project's outputs are on-line at: <http://www.bghrc.com/DMU/DMUSetup/Projects/corp.htm>. Seven research reports are posted (a global overview, and six studies from five disaster prone South Asian countries), along with a set of conclusions and recommendations for future action.

If you have specific questions about this project, or are interested in building upon this work through further research or practical initiatives, contact *John Twigg, Benfield Greig Hazard Research Centre, University College London, Gower Street, London WC1E 6BT, U.K.; e-mail: j.twigg@ucl.ac.uk.*



## ON THE LINE

### All-Hazards Planning What Does It Mean?

The Department of Homeland Security has incorporated the Federal Emergency Management Agency (FEMA) as one of its foundational building blocks (see the *Observer* Vol. XXVI, No. 3, p. 5). This shift has many people in the emergency management field concerned about the future of all-hazards planning, and worried that planning for non-terrorist related hazards and events will be neglected or overlooked by the new department. It is feared that all-hazards plans will become one-hazard plans, with a sole emphasis on terrorism.

This concern arises from past experiences with the "stovepipe" approach of creating stand-alone plans tailored for specific hazards. This classic approach consisted of areas of specialized planning that functioned without recognizing or taking into account the cross-cutting nature of emergency response and preparedness, such as communications systems, command issues, and control. Proponents of stand-alone plans, however, countered that emergency planning had to account for unique differences among types of hazards and their responses. They argued that a generic "all-hazards" approach was too broad and not able to adequately address the crucial differences between responding to an earthquake and a nuclear accident.

With time, these competing perspectives have merged to create the current all-hazards concept of emergency planning that addresses concerns expressed by both points of view. This perspective is widely in use today.

#### All-Hazards Approach and Terrorism

If an all-hazards approach is the answer, then why are so many concerned about its accepted use for emergency management in this age of terrorism? Many emergency managers believe that the approach's utility and generic aspects will be lost on those who are new to the field or those whose overriding concern is terrorism. Conversely,

many terrorism specialists are concerned that the planning and preparedness challenges of terrorism, as a unique hazard event, will be overlooked.

Essentially, we have returned to the debate between the two paradigms of the emergency planning spectrum. This artificial rift again demonstrates misconceptions about a comprehensive and responsive all-hazards approach and its applicability to emergency planning and management.

#### Legislative Roots

The concept of all-hazards planning was originally put forth by FEMA in its Civil Preparedness Guides (CPG), in particular CPG 1-8, *Guide for the Development of State and Local Emergency Operations Plans* (EOP). CPG 1-8 was updated in 1996 by the *Guide for All-Hazard Emergency Operations Planning, State and Local Guide* (SLG 101). Both publications acknowledge the flexibility inherent in disaster and hazards planning, and the need to combine hazard specific activities with a core approach that encompasses responses that are appropriate to all hazards.

Chapter 5 of CPG 1-8 states, "To be logical, a planning process must address each hazard that threatens the jurisdiction. It is important, therefore, that the hazards identification process be completed at the beginning of the planning process. Generic planning, as reflected in the functional annexes, does not ignore hazards; it addresses all of them collectively. It is inevitable, however, that the unique characteristics of various hazards will not be adequately covered in the annexes." Hazard-specific appendices fulfill this role.

The SLG 101 states that the functional approach should:

- avoid duplication of the planning effort for every hazard and every task, by dividing the emergency operat-

ing plan (EOP) into four levels of specificity (basic plan, functional annexes, hazard-specific appendices, and standard operating procedures);

- serve in hazardous situations by organizing the EOP around performance of generic functions; and
- emphasize hazards that pose the greatest risk to a jurisdiction, through the use of hazard-specific appendices.

As appropriate, the plan should quantify the risk area, geography, and demographic considerations that apply to each hazard.

Further, as planning philosophies, neither a one hazard, specialty planning approach nor a generic, one-size-fits-all approach of strict functional planning is recommended. A true all-hazards approach, therefore, contains a solid foundation that provides for the scope of functions and activities that need to be addressed in all incidents.

Hazard analyses examine unique but interrelated hazards to provide a framework for comprehensive, thorough, and all-hazards analysis, whether the incident is natural, chemical, biological, or nuclear. The FEMA document, *Understanding Your Risks, Identifying Hazards and Estimating Losses* (386-2), along with *Community Vulnerability Assessment Tool* (available on CD-ROM), illustrate this point well. These documents were originally published for mitigation activities, but since all hazard analysis should consider mitigation opportunities, they are certainly applicable. If mitigation is not feasible, we must be prepared to respond. *The Guide for All-Hazard Emergency Operations Planning* underscores this when it states, "Hazard analysis is the basis for both mitigation efforts and EOPs."

### Planning and Resource Allocation

To be carried out correctly, this approach takes a great deal of work over a long period of time. At the local level, if an emergency management agency is understaffed, it is difficult for a planning team to acquire the necessary expertise to conduct a comprehensive hazard analysis and create hazard-specific plans. Larger metropolitan areas may have adequate resources to support specialized planners, but even then, most municipalities do not allocate sufficient resources.

In these cases, it is possible that state or federal planners could provide the needed expertise to assist local planners with the technicalities of hazard specific planning. This is analogous to the medical field, when a general practitioner consults with an appropriate specialist for help with a particular diagnosis or treatment that may be outside the practitioner's scope of practice.

However it is implemented, FEMA has issued additional planning guidance that incorporates terrorism planning into a hazard-specific section of an EOP. In conjunction with the guide, these documents provide a complete framework in which both response and management extremes are blended together, balanced, and incorporated into a single, working unit.

### What Now?

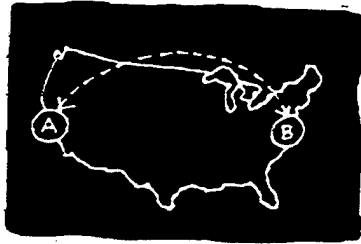
The Department of Homeland Security, with FEMA as a major structural component, would be short-sighted to ignore existing documents developed from lessons learned in real life incidents that have been used by so many people for so many years.

This is especially true for the core all-hazards aspects of emergency planning. However, as the FEMA documents state, we must not ignore the hazard-specific aspects of the current practice of emergency planning. To truly have an all hazards plan, we must plan for all-hazards.

Lloyd Bokman  
Ohio Emergency Management Agency  
Columbus, Ohio



- Federal Emergency Management Agency  
1990 *Guide for the Development of State and Local Emergency Plans*. (Out of Print.) Washington D.C.
- Federal Emergency Management Agency  
1996 *Guide for All-Hazards Emergency Operations Planning: State and Local Guide* SLG-101. Washington D.C.
- Federal Emergency Management Agency  
2001 *Understanding Your Risk: Identifying Hazards and Estimating Losses, State and Local Mitigation Planning How-to-Guide* FEMA 386-2. Washington D.C.
- National Oceanic and Atmospheric Administration  
1999 *Community Vulnerability Tool: New Hanover County, North Carolina*. NOAA/CSC/99044-CD. FEMA Region IV, Charleston, S.C.



# 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 web site: <http://www.colorado.edu/hazards/conf.html>.

**Local Response to Terrorism: Lessons Learned from the 9-11 Attack on the Pentagon.** Sponsors: International Association of Fire Chiefs, the Office for Domestic Preparedness (U.S. Department of Justice), the Federal Bureau of Investigation, and the International City/County Management Association. Arlington, Virginia: March 19-21, 2003. Hosted by the Arlington County Fire Department, this conference is designed to bring together teams of high-level policymakers from local jurisdictions to learn from Arlington County's experiences responding to the terrorist attack on the Pentagon. It will provide participants with an opportunity to analyze the response capacity within their own jurisdictions. For more information, contact Melinda Watters, Arlington-RPI, 3877 Fairfax Ridge Road, Suite 200, North Fairfax, VA 22030; (703) 383-4580; e-mail: [mwatters@titan.com](mailto:mwatters@titan.com); <http://www.arlingtonafteraction.com>.

**7th U.S./Japan Workshop on Urban Earthquake Hazard Reduction.** Sponsor: Earthquake Engineering Research Institute (EERI). Maui, Hawaii: March 24-27, 2003. This workshop will provide an opportunity to continue to build cooperative research and practice through exchange of information and personnel; focus on changes in mitigation and emergency management practices resulting from recent disasters; and examine reconstruction in Northridge, Kobe, Chi Chi, Kocaeli, Bhuj, and New York City. For information, contact EERI, 499 14th Street, Suite 320, Oakland, CA 94612; (510) 451-0905; e-mail: [eeri@eeri.org](mailto:eeri@eeri.org); <http://www.eeri.org/news/Meetings/abstracts.html>.

**Critical Incident Stress Management Conference.** Sponsor: International Critical Incident Stress Foundation, Inc. (ICISF). Des Moines, Iowa: March 27-30, 2003. Participants will receive training in the ICISF model, network with practitioners from around the world, and discuss stress management issues with others. For registration information, contact ICISF, 3290 Pine Orchard Lane, Suite 106, Ellicott City, MD 21042; (410) 750-9600; <http://www.icisf.org/registration>.

**2003 Partners in Emergency Preparedness Conference.** Sponsor: Washington State University. Bellevue, Washington: April 22-23, 2003. This conference is designed for emergency management and continuity professionals from

business and industry, government, education, nonprofit, and volunteer organizations. Sessions include continuity planning, critical infrastructure protection, public health preparedness, bioterrorism, urban wildland response, and effective information flow within an emergency operations center. This conference also offers a series of sessions related to schools and non-profit organizations such as volunteer coordination and training, epidemics, and grant writing. For more information, contact *Conferences and Professional Programs*, P.O. Box 645222, Washington State University, Pullman, WA, 99164-5222; (509) 335-3530; e-mail: [wsu-conf@wsu.edu](mailto:wsu-conf@wsu.edu); <http://capps.wsu.edu/emergencyconf/>.

**Tenth International Conference of Fire Service Women.** Sponsor: Women in the Fire Service, Inc. Denver, Colorado: April 23-27, 2003. The conference offers workshops on gender and diversity issues, fire service training, and leadership development. Conference registration information is available by calling (608) 233-4768; or on-line at <http://www.wfsi.org/Denverconf.html>.

**2003 ASDSO West Regional Conference.** Sponsor: Association of State Dam Safety Officials. Oklahoma City, Oklahoma: May 7-9, 2003. This educational conference is geared toward dam safety officials, engineers, and dam owners/operators in the West. For more information, contact Cecil Bearden, Oklahoma Water Resources Board; (405) 530-8800; <http://www.damsafety.org/>.

**Second UCLA Conference on Public Health and Disasters (CPHD).** Sponsor: Center for Public Health and Disasters. Torrance, California: May 18-21, 2003. The health consequences of natural disasters cut across many disciplines. This conference will bring together academicians, researchers, policy practitioners, and professionals to stimulate a dialog to improve the public health response to disasters. For complete information, contact Tamiza Z. Teja, CPHD, 1145 Gayley Avenue, Suite 304, Los Angeles, CA 90024; (310) 794-0864; e-mail: [tzteja@ucla.edu](mailto:tzteja@ucla.edu); <http://www.ph.ucla.edu/cphdr/conference.html>.

**Fourteenth Global Warming International Conference and Expo: Extreme Events and Energy, Agricultural, and Natural Resource Management.** Sponsor: Global Warming Interna-

*tional Center. May 27-30, 2003.* The goal of this conference is to provide an international and interdisciplinary review forum for resource and technology managers on global warming, its impacts on economic sectors, effective mitigation, and national mitigation compliance. Themes include extreme events and impacts assessment, remote sensing, agriculture and forestry, human health impacts, international law, and education. Registration information is available from *Global Warming International Center, 22W381 75th Street, Naperville IL 60565-9245; (630) 910-1551; http://www.globalwarming.net/gw14-overview.asp.*

*Fourth International Conference on Ecosystems and Sustainable Development (ECOSUD). Sponsors: University of Siena and Wessex Institute of Technology. Siena, Italy: June 2-4, 2003.* The focus of this meeting is on the presentation and discussion of recent work on ecosystems, sustainable development, engineering, and modeling, including ecological modeling, socioeconomic ecology, conservation, management and recovery, and health. For more information or to register, contact *Gabriella Cosutta, ECOSUD 2003, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton, SO40 7AA, U.K.; tel: 44 238 029 3223; e-mail: gcosutta@wessex.ac.uk; http://www.wessex.ac.uk/conferences/2003/ecosud03/.*

*Association of State Dam Safety Officials (ASDSO) 2003 Northeast Region Biennial Conference. Lake Harmony, Pennsylvania: June 4-6, 2003.* This conference is geared toward dam safety engineers and dam owners/operators from throughout the northeastern U.S. Technical sessions include: hydrology and hydraulics, geotechnical issues, dam rehabilitation, and instrumentation. Non-technical sessions include emergency action planning, insurance, and financing. For complete guidelines and conference information, contact *John Richey, New Jersey Department of Environmental Protection, Dam Safety Division, P.O. Box 419, Trenton, NJ 08625; (609) 984-0859; e-mail: ruchej@dep.state.nj.us.*

*The 3rd Canadian Conference on Geotechnique and Natural Hazards. Sponsors: Geotechnical Society of Edmonton and the Canadian Geotechnical Society. Edmonton, Alberta: June 8-10, 2003.* This conference will highlight recent advances in geohazard risk assessment and mitigation throughout Canada, with the goal of promoting interdisciplinary discussion and networking among Canadian geoscience practitioners. For registration information, contact *Nigel Goldup, EBA Engineering Consultants Ltd., 14535 118 Avenue N.W., Edmonton, Alberta T5L 2M7 Canada; (780) 451-2121; e-mail: ngoldup@eba.ca; http://www.geohazards2003.eba.ca.*

*Safety of the Mega-City: Problems, Solutions, International Experience. Sponsors: Russian Federation Ministry for Emergency Situations in support of Moscow City Government, and International Science and Technology Center (ISTC). Moscow, Russia: June 17-19, 2003.* ISTC promotes the nonproliferation of weapons technology of mass destruc-

tion and coordinates the efforts of governments, organizations, and private sector industries to provide opportunities to redirect efforts to peaceful science. More information is available from *Ekaterina Pankratova; ISTC, Moscow; tel: 7 (095) 797 47 59; e-mail: pankratova@istc.ru; http://www.istc.ru/.*

*Coastal Zone Management Through Time. Sponsors: U.S. Departments of Commerce, Energy, Interior, and Transportation, and the Environmental Protection Agency. July 13-17, 2003; Baltimore, Maryland.* Four overarching themes will shape discussions on coastal zone management in the past, present, and future: port and harbor management, regional land management, management responses to coastal hazards, and management of aquatic resources. Complete information is available by contacting *Gale Peek, Charleston Events, P.O. Box 30383, Charleston, S.C. 29417; (843) 740-12301; e-mail: gale.peek@noaa.gov; http://www.csc.noaa.gov/cz/2003/.*

*International Conference on the Impact of Global Environmental Problems on Continental and Coastal Marine Waters. Sponsors: Network for Environmental Assessment and Remediation (NEAR) and the World Health Organization. July 16-18, 2003; Geneva, Switzerland.* This meeting will provide a forum for research and science involving continental and coastal waters, water-related risk, and aquatic habitats. For more information, contact *Jenny Walker, Liquid Assets, Morawel, Glanmor Terrace, New Quay, Ceredigion, SA45 9PS, United Kingdom; e-mail morawel@tinyworld.co.uk; http://www.unige.ch/sciences/near/.*

*The Second Mediterranean Emergency Medicine Congress. Sponsors: National Association of EMS Physicians, Foundation for Education and Research in Neurological Emergencies. Sitges/Barcelona, Spain: September 14-17, 2003.* The conference will have sessions on pre-hospital care, neurological emergencies, disaster medicine, emergency medicine research, and more. For complete information, contact the *Mediterranean Conference Secretariat, 611 East Wells Street, Milwaukee, WI 53202; (414) 276-7390; e-mail: barcelona@emcongress.org; http://www.emcongress.org.*

*Sixth European Sociological Conference: Disaster and Social Crisis Research Sessions. Sponsor: European Sociological Association. Murcia, Spain: September 23-26, 2003.* Ten proposed sessions relating to the impacts of disasters and crises across a number of indicators are being planned for this conference. For information about these special sessions, e-mail *N. Petropoulos at erc@otenet.gr.* General conference information is available from the *Departamento de Congresos - Viajes CajaMurcia, Avenida Gran Via Escultor Salzillo, 5 - Entlo. Dcha., 30.004 Murcia, Spain; tel: 00 34 968 225 476; http://www.um.es/ESA/principal\_ingles.htm.*

*First Conference on Sustainable Planning and Development 2003. Sponsor: Wessex Institute of Technology. October 1-3, 2003; Skiathos Island, Greece.* This conference will examine

spatial planning and regional development in an integrated way and in accordance with the principles of sustainability. It is geared toward planners, environmentalists, engineers, ecologists, policy makers, researchers, and academics. For more information, contact Rachel Green, *Sustainable Planning and Development 2003*, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton, SO40 7AA, U.K.; tel: 44 238 029 3223; e-mail: rgreen@wessex.ac.uk; http://www.wessex.ac.uk/conferences/2003/planning03/.

**XI World Water Congress: Water Resources Management in the 21st Century.** Sponsor: International Water Resources Association. Madrid, Spain: October 5-9, 2003. The focus of this meeting is to make the fullest possible use of research in solving water resources problems. The major themes include: water planning under uncertainty (climatic variability and change); valuing water; the impacts of new technologies; and the influence of socioeconomic, cultural, and religious factors in water resource policies. Complete information is available from the *XI Water Congress*, Centro de Estudios Hidrográficos, Paseo Bajo Virgen del Puerto, 3, 280005, Madrid, Spain; e-mail: wwater2003@cedex.es; http://www.cedex.es/wracongress2003/en/hoja2\_en.htm.

**2003 International Conference on Seismic Bridge Design and Retrofit.** Sponsor: American Concrete Institute (ACI). La Jolla, California: December 8-9, 2003. Topics to be discussed at this conference include new seismic design approaches, effects of vertical accelerations on bridge response, evaluation and application of seismic response modification devices in bridge design and retrofit, and more. For details, contact Phyllis O. Erebtor at ACI, P.O. Box 9094, Farmington Hills, MI 48333; (248) 848-3784; e-mail: phyllis.eretbor@concrete.org; http://www.concrete.org.

**IX International Symposium on Landslides.** Sponsors: International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE), International Society of Engineering Geology (IAEG), and International Society of Rock Mechanics (ISRM). Rio de Janeiro, Brazil: June 24-July 4, 2004. Practicing and consulting engineers, geologists, researchers, construction managers, government officials, product suppliers, and others are invited to attend and present their recent experiences and developments in the field of landslide hazards. Detailed information is available by contacting Secretariat 9 ISL-Rio 2004, Programa de Engenharia Civil COPPE-UFRJ, P.O. Box 68506, CEP 21.945-970, Rio de Janeiro-RJ-Brazil; tel: 55 21 562-7200; e-mail: 9isl@geotec.coppe.ufrj.br; http://www.quattri.com.br/isl/inter.html.



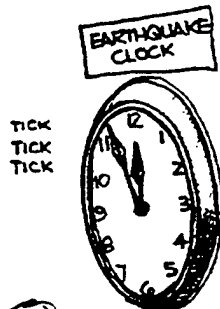
## Be the Future of Earthquake Engineering Research

The Network for Earthquake Engineering Simulation (NEES) announces a new consortium of earthquake researchers and educators. The consortium (NEES Consortium, Inc.) was established under a developmental award from the National Science Foundation to provide leadership and management services for NEES, the George E. Brown, Jr. Network for Earthquake Engineering Simulation. The consortium will provide collective leadership through using advanced technology to link laboratory facilities and data infrastructure. These linkages will provide unparalleled opportunities for collaborative research integrating experimentation with computational simulation.

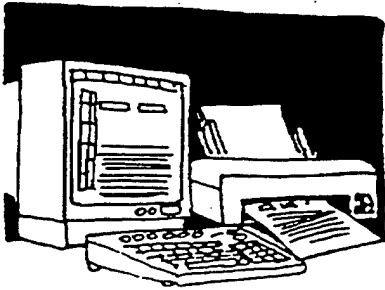
NEES is a national, networked, earthquake simulation resource that includes geographically distributed research equipment sites that are built and operated to advance earthquake engineering (see the *Observer* Vol. XX VI, No. 3, p. 19). The goal of NEES is to accelerate progress in earthquake engineering research and improve the seismic design and performance of civil and mechanical infrastructure systems. A core concept behind NEES is to provide open access to and use of facilities

and data by the earthquake engineering community, including researchers, educators, students, practitioners, and information technology practitioners.

Details about the consortium, including its organization, members, committees, reports, and archives are found on the NEES web site (listed below). Individual, institutional, and site-based consortium memberships are available. Membership fees will be waived for 2003, and if you apply for consortium membership before March 26, 2003, you will be eligible to serve on the NEES Consortium board of directors. For complete information on the consortium, or to apply for membership, visit <http://www.nees.org/>.







# INTERNET PAGES

Below are new or updated Internet resources that the Natural Hazards Center staff have found informative and useful. For a more complete 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.huebnergeneva.org>

The S.S. Huebner Foundation at the University of Pennsylvania's Wharton School and the Geneva Association (Geneva, Switzerland), have collaborated on a new web site to provide an international resource and clearinghouse for educators and researchers in the fields of insurance economics and risk management. Course syllabi, lectures, and working papers will be posted on the site.

<http://www.riskinstitute.org>

Clicking on "receive news and updates via e-mail" signs you up to receive the Public Entity Risk Institute's (PERI) upcoming regular electronic newsletter to keep interested folks current on new developments in risk management resources, products, and information that will be available on PERI's web site. Also at this URL, copies of papers and presentations from PERI's recent community emergency services symposium are available, under the "symposium papers" section. Topics span a variety of themes.

<http://www.science.gov>

This government web site is a gateway to science information that is provided by U.S. agencies, including research and development results. Topic headings range from agriculture and food to natural resources, ocean sciences, and physics.

<http://acds.co.za/forum>

The African Center for Disaster Studies (ACDS) at Potchefstroom Christian University in South Africa aims to bring together practitioners from different fields to discuss issues related to disaster risk and management and has created a discussion forum at this site. Free registration is required.

<http://www.nonprofitrisk.org/cares/cares.htm>

The Non-Profit Risk Management Center (NRMC) recently expanded its risk evaluation systems for nonprofit organizations into the Nonprofit Computer Assisted Risk Evaluation System (Nonprofit CARES) that is now available on-line. CARES is designed to help nonprofits develop risk management plans.

<http://www.pep.bc.ca/hrva/hazard.html>

The province of British Columbia, Canada, has produced an on-line, dynamic hazard, risk, and vulnerability assessment tool that may be of interest to communities wishing to conduct a risk assessment.

<http://html.adrc.or.jp/dbs/trans2.asp?lang=en>

The Asian Disaster Reduction Center (ADRC) offers an on-line glossary of natural disaster-related terms in English, French, Spanish, and Japanese. The glossary is intended to be an information sharing tool.

## Terrorism

<http://transit-safety.volpe.dot.gov/training/EPSSeminarReg/CD/index.htm>

This site provides an on-line version of a CD-ROM produced by the Federal Transit Administration, titled "Connecting Communities: Emergency Preparedness and Security Resources." The web site provides information on terrorism, transit, rail, emergency management, weapons of mass destruction, along with classroom-oriented lesson plans and links. To obtain the CD-ROM, visit <http://transit-safety.volpe.dot.gov/training/EPSSeminarReg/default.asp>.

<http://www.smallpox.gov/>

Health and Human Services (HHS) has unveiled a web site to provide timely information and answer common questions about the president's smallpox vaccination plan. The site provides a wide variety of information, ranging from basic vaccination questions to more technical public health and responder information.

<http://www.ntis.gov/hs/>

The National Technical Information Service (NTIS) is the federal government's central source for the sale of scientific, technical, engineering, and related business information produced by or for the U.S. government. Their new Homeland Security Information Center web site brings together a spectrum of homeland security-related documents and information, all available for purchase.

[http://ppri.tamu.edu/homeland\\_security/](http://ppri.tamu.edu/homeland_security/)

The Public Policy Research Institute (PPRI) at Texas A&M University has unveiled a new Homeland Security web site. The Disaster and Emergency Management Information Network (DEMIN) is a database of domestic security and emergency management data and bibliographic resources. It aims to provide access to the abundance of emergency management and homeland security web-based resources from across the country and around the world.



## Wildfire

<http://www.wildfirelessons.net>

The Wildfire Lessons Learned Center recently launched a web site that focuses on ways to improve safe work performance and organizational learning in interagency wildland fire situations. It includes a quarterly newsletter titled *Scratchlines* and a virtual library.

## Earthquakes

<http://geohazards.cr.usgs.gov/eq/>

U.S. Geological Survey (USGS) scientists and partners have revised and updated the national seismic hazard maps that provide information essential to seismic design provisions of building codes in the United States. Engineers and planners now have updated information to ensure that buildings, bridges, highways, and utilities are built or rebuilt to meet modern seismic design provisions and are better able to withstand earthquakes. The updated, color-coded versions of the maps (red is high; blue is low) are available at the web site above.

## Floods and Drought

<http://fpmtaskforce.water.ca.gov>

In California, approximately 30 local, state, and federal stakeholders active in floodplain management participated in a bipartisan committee to reduce flood losses. The series of working group meetings and public participation sessions resulted in policy recommendations for the Department of Water Resources and the governor's office. The final report is available on this site.

## Volcanoes

<http://hvo.wr.usgs.gov/kilauea/update/>

By January 3, 2003, Kilauea Volcano in Hawaii had been erupting for 20 years. The eruption, which began in 1983 and shows no signs of slowing down, has covered 189 buildings and almost eight miles of highway and added 544 acres to the island's southern shore. Kilauea is Hawaii's youngest volcano and one of the most active. U.S. Geological Survey scientists watch this incredibly active volcano 24 hours a day, and volcanic images and current information are available at this web site.



## 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 from the Natural Hazards Center's web site: <http://www.colorado.edu/hazards/grants.html>.

**A Comparative Evaluation of Post-Disaster Municipal Recovery Strategies: What Works and What Doesn't.** Funding: Public Entity Risk Institute (PERI), \$149,800, 12 months. Principal Investigator: *Daniel Alesch, Center for Organizational Studies, Department of Public and Environmental Affairs, MAC A327, University of Wisconsin-Green Bay, Green Bay, WI 54311; (920) 465-2045; e-mail: aleschd@uwgb.edu.*

This new grant allows the Center for Organizational Studies to expand its focus on recovery of small businesses from disastrous events to include disaster recovery programs in local governments. A grant from PERI in 2000 enabled the Center to launch a three-year study aimed at helping small not-for-profit and small business

organizations survive earthquakes, river floods, and other significant natural disasters. The new study also will take into account willful acts of destruction.

**Weather Information Network Enabled Mobile System.** Funding: National Science Foundation, \$98,291, 12 months. Principal Investigator: *Darryl Sale, Denet Labs, 4300 Dartmouth Drive, Grand Forks, ND 58202-8372; (701) 777-6543; e-mail: darryl@denetlabs.com.*

This project will determine the feasibility of using an existing nationwide communication system to provide the traveling public with weather information through portable units that can be used in automobiles, aircraft, and pleasure boats.

**Mechanisms of Community Reassembly After a Catastrophic Fire.** Funding: National Science Foundation, \$28,372, 12 months. Principal Investigators: *Nathan J. Sanders and Erik S. Jules, Department of Biological Sciences, Humboldt State University, Arcata, CA 95518; (702) 826-3229; e-mail: njs12@humboldt.edu.*

During the summer of 2002, western North America experienced one of the largest forest fires in recorded history. The Biscuit Fire burned nearly half a million acres in Oregon and California. The researchers involved with this project will examine the ecological aspects of ant and plant community interactions and reassembly after catastrophic fire.

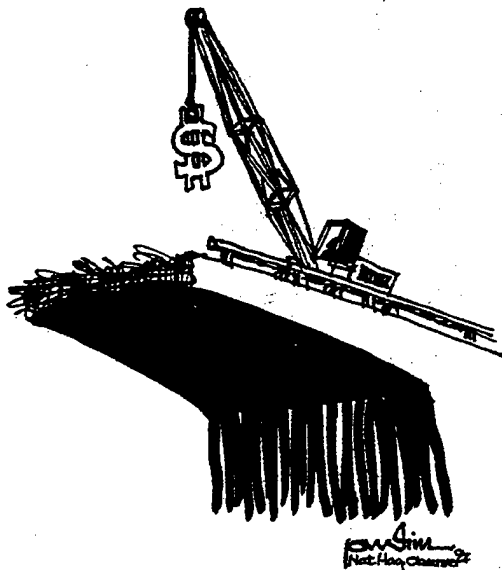
**Animated Real-Time Road Traffic Visualization for Broadcast and the Internet.** Funding: National Science Foundation, \$9,700, six months. Principal Investigator: *Andre P. Gueziec, Triangle Software, 365 America Avenue, Sunnyvale, CA 94085-4402; e-mail: andre@trianglesoftware.com.*



This Small Business Innovation Research project will provide practical tools for visualizing real-time road traffic data and computer-generated traffic simulations using animation for broadcast and the distribution via the Internet. Potential applications include TV broadcasts, traffic control centers, police dispatch centers, and facilities conducting transportation research and planning.

**Disruptions in Independent Infrastructures.** Funding: National Science Foundation, \$93,303, 12 months. Principal Investigators: *William A. Wallace and John E. Mitchell, Decision Sciences and Engineering Systems, Rensselaer Polytechnic Institute, 110 8th Street, Troy, NY 12180; (518) 276-6854; e-mail: wallaw@rpi.edu.*

This research will help ensure an efficient, effective, and equitable distribution of resources in responding to events (natural or human-caused) that create disruptions in infrastructure systems and will aid in designing infrastructure systems that are robust under disruptions. The investigators will develop a set of definitions of critical infrastructure independencies, a model of infrastructure systems that incorporates interdependencies among and between systems, and algorithms to run the model for vulnerability assessment and emergency response. They hope to improve the ability to mitigate the impact of and response to events that have the capability to cause large-scale, catastrophic damage to critical infrastructure systems.



**Multivariate Geospatial Analysis of Engineering and Flood Response, Mississippi River System, USA.** Funding: National Science Foundation, \$285,000, 24 months. Principal Investigator: *Nicholas Pinter, Department of Geology, Southern Illinois University-Carbondale, Mail-code 4324, Carbondale, IL 62901; (618) 453-7375; e-mail: npinter@geo.siu.edu.*

Recurrent flooding along the Mississippi River has led to assertions that human activities have increased the magnitude and frequency of large river flooding. This hypothesis, however, remains unverified and politically controversial. The purpose of this research is to provide a tool for quantifying human-forced floods on rivers. Magnification of flood hazard will be measured from analysis of long-duration gaging stations on the Red River, the Tar River, and the Mississippi River. The data will be used in conjunction with a GIS database of engineering structures and their history of construction or modification over the past 70 to 100 years. Creation of this type of database was a major recommendation of the Interagency Floodplain Management review following the widespread flooding in 1993. The database will provide a tool for assessment of the impact on flood levels of any incremental engineering addition to the Mississippi or similar rivers.

**Learning to Listen: An Ethnographic Pilot Study of Information Communication as an Indicator of Organizational Stress and Crisis Response.** Funding: National Science Foundation, \$75,761, 12 months. Principal Investigator: *Allen Batteau, Institute for Information Technology and Culture, Wayne State University, Detroit, MI 48202; (313) 577-2352; e-mail: a.batteau@wayne.edu.*

Accidents and disasters in many industries, including health care, transportation, manufacturing, and financial institutions, are seen as organizational failures to adapt. Some organizations, however, are able to maintain a high level of reliability in fast-paced and complex environments. This adaptive capability is achieved through organizational flexibility, teamwork, and a sense of common purpose. The investigator in this project will observe the adaptive capabilities of organizations by examining elements of discourse in informal communication, including phrase-length, tempo, and intonation? elements of speech through which interpersonal relationships are built and maintained. Researchers hope to be able to monitor changes in flexibility, teamwork, and focus in a workgroup.

**Reconnaissance Survey of the September 9, 2002, Papua-New Guinea Earthquake and Tsunami.** Funding: National Science Foundation, \$36,000, one month. Principal Investigator: *Costas B. Synolakis, Department of Civil Engineering, University of Southern California, University Park, Los Angeles, CA 90089; (213) 740-0613; e-mail: costas@usc.edu.*

This funding will support a reconnaissance survey of the earthquake and subsequent tsunami that struck Papua-New Guinea in 2002. The tsunami reportedly killed only two people, in comparison to the 1998 tsunami that killed 2,200 people, although the 2002 quake was a stronger temblor and its epicenter was located at approximately the same distance from the impacted coastline as the 1998 event. Researchers will explore why the 2002 tsunami had a lesser impact than the 1998 event. They hope to obtain knowledge relevant to the western coast of the United States, where offshore earthquakes of similar magnitude are possible.



## RECENT PUBLICATIONS

Below are summaries of some of the recent, most useful publications on hazards and disasters received by the Natural Hazards Center. Due to space limitations, not all publications include a description. However, all items contain information on how to obtain a copy. A complete bibliography of publications received from 1995 to the present can be found on our web site: <http://www.colorado.edu/hazards/bib/bih.html>.

### All Hazards

**Tools and Techniques: An Encyclopedia of Strategies to Mitigate the Impacts of Natural Hazards.** 2002. 176 pp. Free. The North Carolina Division of Emergency Management, Hazard Mitigation Section, Risk Assessment and Planning Branch and Hazard Mitigation Planning Clinic, 1830-B Tillery Place, Raleigh, NC 27604; (919) 715-8000; <http://www.ncem.org/mitigation/Library/Encyclopedia2.pdf>.

Natural hazards are a part of the natural environment, and in the absence of a built environment, they impact a highly regenerative, adaptable, and resilient environment. However, when natural hazards interact with the built environment, the result is often disastrous: expensive, time-consuming, socially damaging, and most importantly, largely avoidable with appropriate community planning. This encyclopedia, produced by the North Carolina Division of Emergency Management, Hazard Mitigation Section, Risk Assessment and Planning Branch, and the Hazard Mitigation Planning Clinic, Department of City and Regional Planning, University of North Carolina at Chapel Hill, focuses on mitigating natural hazards through planning. *Tools and Techniques* is intended to support the creation of mitigation policies that are based on sound vulnerability and hazard assessment processes.

**Mental Health in Emergencies: Mental and Social Aspects of Health of Populations Exposed to Extreme Stressors.** 2003. 8 pp. Free. Copies of this document can be obtained from the World Health Organization web site: [http://www5.who.int/mental\\_health/download.cfm?id=0000000640](http://www5.who.int/mental_health/download.cfm?id=0000000640).

This document summarizes the position of the Department of Mental Health and Substance Dependence on assisting populations exposed to extreme stressors, such as refugees, disaster survivors, internally displaced persons, or victims of terrorism. It focuses on strategies that may be useful in resource-poor countries.

**Living With Risk: A Global Review of Disaster Reduction Initiatives. Preliminary Version.** 2002. 387 pp. Free. Copies can be obtained from the UN Inter-Agency Secretariat for the International Strategy for Disaster Reduction (ISDR), Palais des Nations CH-1211, Geneva 10, Switzerland; fax: (41-22) 917-0563; e-mail: [GRISdr@un.org](mailto:GRISdr@un.org). The complete report can also be downloaded from <http://unisdr.org/unisdr/Globalreport.htm>.

*Living with Risk* is an effort by the United Nations ISDR to gather and organize information on disaster risk reduction initiatives. The review presents the contexts of sustainable development and disaster risk reduction and is followed by a discussion of risk trends and assessment. Topics include policy and institutional frameworks, knowledge and information management, and the applications of specific risk reduction measures.

**Methods of Disaster Research.** 2002. 524 pp. \$22.94. Robert Stallings, editor. To order, contact Xlibris, 436 Walnut Street, 11th Floor, Philadelphia, PA 19106-3703; (215) 923-4686; e-mail: [orders@xlibris.com](mailto:orders@xlibris.com); <http://www2.xlibris.com/index.asp>.

The methods employed in disaster research are indistinguishable from those used throughout the social sciences, yet they are often applied under unique circumstances. Researchers new to this field need to understand how the disaster context affects the application of research. This volume, written by some of the world's leading specialists in disaster

research, provides a primer on disaster research methods. Among the topics covered are qualitative field studies and survey research; underutilized approaches such as cross-national studies, simulations, and historical methods; and newer tools utilizing geographic information systems, the Internet, and economic modeling.



### Guide on the Special Needs of People

**With Disabilities for Emergency Managers, Planners, and Responders.** 2002. 32 pp. Emergency management professionals may receive up to three free copies of the Guide. Other requests may include charges for shipping and handling. Requests should be made to the National Organization on Disability (NOD), 910 Sixteenth Street, N.W., Suite 600, Washington, DC 20006; (202) 293-5960; fax: (202) 530-0727; e-mail: [epi@nod.org](mailto:epi@nod.org). The Guide can also be downloaded from the NOD web site: <http://www.nod.org/pdf/files/epi2002.pdf>.

This publication highlights key disability concerns for officials and experts responsible for emergency planning in their communities. It also helps emergency managers, planners, and responders make the best use of resources to include all citizens of the community in emergency preparedness. The Guide describes the experiences of disabled individuals in community disasters, presents the results of a Harris poll on disability and disaster preparedness, discusses community disability disaster preparedness, offers tips for involving disabled communities in disaster planning and preparedness, examines evacuation planning for people with disabilities, and

provides pointers for including this community in the recovery phase. A list of tools and resources for special emergency planning needs is also included.

**Children in Disasters: After the Cameras Have Gone.** Amer Jabry, editor. 2002. 51 pp. Free. *Plan International United Kingdom*, 5-6 Underhill Street, London NW1 7HS England; tel: 020 7482 9777; <http://www.plan-uk.org/pdfs/Children.pdf>.

An estimated 77 million children under 15 had their lives severely disrupted by a natural disaster or an armed conflict each year between 1991 and 2000. Over the same period, an estimated 115,000 children under 15 were killed annually as a result of these events. These figures are conservative, as children generally make up the largest segment of populations affected by disaster. This report uses case studies that illustrate Plan International's experience with working with children in disasters and points to recommended actions for organizations that are involved with disaster relief, recovery, and preparedness.

**A Nation Prepared: Federal Emergency Management Agency Strategic Plan, Fiscal Years 2003-2008.** 2003. 67 pp. Free. Copies can be requested from the FEMA Distribution Center, P.O. Box 2013, Jessup, MD 20794-2012; (800) 480-2520; fax: (301) 362-5335. The report can also be found on the FEMA web site: [http://www.fema.gov/pdf/library/fema\\_strat\\_plan\\_fy03-08\(append\).pdf](http://www.fema.gov/pdf/library/fema_strat_plan_fy03-08(append).pdf).

The terrorist attacks in September 2001 caused FEMA to re-evaluate and refocus its priorities to address all hazards, natural and human-caused, including weapons of mass destruction. As a result, FEMA developed a new strategic plan to guide its mission in the upcoming years, particularly with the creation of the Department of Homeland Security. This report describes FEMA's core values, the goals of the agency, themes of the plan, challenges to implementation, and the strategic plan.

**Challenging Disasters: Natural Disaster Reduction in the Context of Intergovernmental Relations.** Timo Hellenberg. 2002. 262 pp. €36 (Euros) plus 8% Value Added Tax. To order, contact Elina Kahla, Kikimora Publications, c/o the Aleksanteri Institute, P.O. Box 4, University of Helsinki; tel: +358-9-191 23 824; e-mail: [Elina.Kahla@helsinki.fi](mailto:Elina.Kahla@helsinki.fi); <http://www.helsinki.fi/aleksanteri> or <http://www.kikimora-publications.com>.

This publication identifies those intergovernmental organizations that deal with natural disaster mitigation and prevention, as well as the methods and procedures they use to accomplish their mission. It also identifies the functional overlap of many of these institutions. The author has undertaken an exhaustive cross-sectoral organizational analysis to catalog all of the essential United Nations agencies and related military structures that deal with natural disaster reduction.

**Is Your Home Protected from Water Damage? A Homeowner's Guide to Water Damage Prevention.** 2003. 27 pp. Free. To view the guide, see [http://www.ibhs.org/research\\_library/view.asp?id=342](http://www.ibhs.org/research_library/view.asp?id=342).

**You Can Go Home Again: Returning Home After a Natural Disaster.** 2003. 2 pp. Free. This brochure can be downloaded from [http://www.ibhs.org/research\\_library/downloads/323.pdf](http://www.ibhs.org/research_library/downloads/323.pdf).

For information on obtaining printed copies of both publications, contact the Institute for Business and Home Safety (IBHS), 4775 East Fowler Avenue, Tampa, FL 33617; (813) 286-3400; fax: (813) 286-9960; <http://www.ibhs.org>.

**Evacuating High-Rise Buildings.** OSHA Fact Sheet. 2003. 2 pp. Free. For single copies, contact the Occupational Safety and Health Administration (OSHA), Publications Office, 200 Constitution Avenue, N.W., N-3101, Washington, DC 20210; (800) 321-6742; fax: (202) 693-2498; [http://www.osha.gov/OshDoc/data\\_General\\_Facts/evacuating-highrise-factsheet.pdf](http://www.osha.gov/OshDoc/data_General_Facts/evacuating-highrise-factsheet.pdf).

## Coastal Events

**Engineered Coasts.** Jiyu Chen, Doeke Eisma, Kenji Hotta, and H. Jesse Walker, editors. 2002. 320 pp. \$97.00. Copies are available

from Kluwer Academic Publishers, Order Department, P.O. Box 358, Accord Station, Hingham, MA 02018-0358; (781) 871-6600; fax: (781) 871-6528; e-mail: [kluwer@wkap.com](mailto:kluwer@wkap.com); <http://www.wkap.nl>.

Increasing population, expanding industry and commerce, and tourism are placing added pressures on coastal zones. Through a series of case studies, this book illustrates the variety of changes already made along coastlines throughout the world. Examples of engineering projects along coastlines in China, Japan, the Netherlands, and the United States highlight activities associated with protection against coastal erosion, reclamation, and harbor construction.

**The Great Sea Island Storm of 1893.** Bill and Fran Marscher. 2001. 136 pp. \$12.95. To order a copy, contact iUniverse Publishers; (877) 823-9235; <http://www.iuniverse.com/>.

In a single night near the end of the 19th century, a gigantic hurricane ripped through the islands and lowlands of Georgia and South Carolina, immediately killing as many as 2,000 people, and perhaps 1,000 more from injury, dehydration, starvation, and illness. Because it demonstrated to the nation that these storms were killers on land as well as at sea, this hurricane was instrumental in the development of organized disaster relief in the U.S. The authors have gathered historical artifacts to explore the meaning of this event to those who struggled to survive its impact over 100 years ago.

**Human Links to Coastal Disasters.** 2002. 139 pp. Free. Copies are available from the H. John Heinz Center for Science, Economics and the Environment; 1001 Pennsylvania Avenue, N.W., Suite 735 South, Washington, DC 20004; (202) 737-6307; <http://www.heinzctr.org>.

The unique environment of the world's coasts, combined with the rapid rise in human habitation and coastal development, create a complex set of circumstances that place individuals and communities at risk. To date, most efforts to reduce coastal vulnerability have focused on the hazards, the built environment, or the biophysical environment. Human vulnerability is often the result of circumstances that place people at risk, reduce their means of response, or deny them protection. Reducing vulnerability is an integral concern in developing and evaluating disaster policies. This study explores disaster-resistant communities, starting with individual households and communities, and focuses on the human links with disaster preparedness, response, and mitigation.

## Earthquakes

**Connections: The EERI Oral History Series, Clarence R. Allen.** Stanley Scott, interviewer. 2002. 119 pp. \$15.00. Available from the Earthquake Engineering Research Institute (EERI), 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: [eeri@eeri.org](mailto:eeri@eeri.org); <http://www.eeri.org/Publications/pubs.html>.

This is the 10th volume of EERI's oral history series to preserve the recollections of some of those who have pioneered earthquake engineering and seismic design. Clarence R. Allen, a geophysicist from Caltech, has been a major contributor to the art and science of earthquake engineering, earthquake prediction, and seismic safety. Based upon four interviews recorded during 1995 and 1996, this volume explores the life, professional career, and policy contributions of this distinguished scientist.

**Overcoming Obstacles to Implementing Earthquake Hazard Mitigation Policies: Stage 1 Report.** Daniel J. Alesch and William J. Petak. Technical Report MCEER-01-0004. 2001. 106 pp. \$25.00. Copies are available from the Multi-Disciplinary Center for Earthquake Engineering Research, Red Jacket Quadrangle, State University of New York at Buffalo, Buffalo, NY 14261; (716) 645-3391; fax: (716) 645-3399; email: [mceer@acsu.buffalo.edu](mailto:mceer@acsu.buffalo.edu).

This report is the result of a project on overcoming obstacles to implementing earthquake hazard mitigation policies. It identifies fundamental concepts, followed by an overview of the implementation process. The results of an extensive literature review about decision-making that incorporates perspectives from political science, sociology, social psychology, organizational behavior, and

general systems theory is presented. Special emphasis is given to initiating mitigation measures to reduce the risk of earthquakes. Organizational requirements for implementation, networking, and barriers to execution are also discussed.

*Effects of the Nisqually Earthquake on Small Businesses in Washington State.* Jaqueline Meszaros and Mark Figener. 2002. 47 pp. Free. Copies can be found on the University of Washington web site: <http://faculty.washington.edu/meszaros/misquallysmallbusiness.pdf>.

The 2001 Nisqually earthquake was a large magnitude quake that yielded relatively mild ground shaking. Yet, it was the costliest natural disaster in Washington state history. The most common disruptions from the quake were human, and they resulted in hard-to-estimate indirect costs to businesses. In this study, undertaken by the Economic Development Administration and Washington State, 60% of all small businesses reported that employees were distracted and unable to work for a period after the shaking stopped, and in some firms employees left work entirely. This report explores the impact of the earthquake on the region's small businesses,



ranging from direct physical losses (such as building damage) to inventory damage and operational disruption. The report also considers the impact of insurance and damage levels to preparedness for future earthquakes.

## Terrorism

*The September 11, 2001, Terrorist Attacks: Critical Infrastructure Protection Lessons Learned.* Number IA02-001. 2002. 23 pp. Free. Copies are available from the Government of Canada, Office of Critical Infrastructure Protection and Emergency Preparedness (OCIEPEP), 122 Bank Street, 2nd Floor, Ottawa, ON Canada, K1A 0W6; (800) 830-3118 or (613) 944-4875; fax: (613) 998-9589; e-mail: [communications@ociepep-bpiepc.gc.ca](mailto:communications@ociepep-bpiepc.gc.ca); <http://www.ociepep-bpiepc.gc.ca>.

This report was compiled to assist Canadian critical infrastructure owners and operators with business continuity planning and emergency management preparations by identifying lessons that can be learned from the terrorist attacks on September 11, 2001, in the U.S. Conclusions touch on critical infrastructure decision making, communications, transportation, energy, banking and finance, and government. The report also contains a list of reports that were used in the analysis of critical infrastructure protection lessons.

*September 11: More Effective Collaboration Could Enhance Charitable Organizations' Contributions in Disasters.* GAO-03-259. 2002. 40 pp. Free. Copies can be obtained from the U.S. General Accounting Office, P.O. Box 37050, Washington, DC 20013; (202) 512-6000; fax: (202) 512-6061; TDD (202) 512-2537; e-mail: [info@www.gao.gov](mailto:info@www.gao.gov). The complete text of the report is also available on-line at <http://www.gao.gov>.

Although it may be difficult to precisely tally the amount of funds raised in response to the September 11 attacks, 35 of the larger charities have reported raising an estimated \$2.7 billion. About 70% of this money has been distributed to survivors or spent on disaster relief, such as direct cash assistance and a wide range of services. Some of these charities plan to use funds to provide longer-term services, including scholarships, mental health counseling, and employment assistance. In this report, GAO concludes that future charitable responses in disasters would be improved by easing access

to aid, enhancing coordination among charities and the Federal Emergency Management Agency (FEMA), and planning for future events.

## Climate Change

*The End of Development? Global Warming, Disasters, and the Great Reversal of Human Progress.* Jonathan Walter and Andrew Simms. 2002. 20 pp. Free. Available from New Economics Foundation, Cinnamon House, 6-8 Cole Street, London, SE1 4YH England; tel: 44 (020) 7089 2800; <http://www.neweconomics.org/default.asp?strRequest=pubs&strContext=pubdetails&intPubID=119>.

Unsustainable use of natural resources such as fossil fuels, coastal development pressures, and population growth, combine to impact the world's hydrological cycle and weather patterns. These changes will result in more frequent sudden-impact hazards, such as tropical cyclones, that will cause disaster-related costs to increase. This report examines the pitfalls of "development as usual" and makes the case that a new development paradigm for the world is needed, one that includes a long-range understanding of risk and vulnerability.

*A Brain for All Seasons: Human Evolution and Abrupt Climate Change.* William H. Calvin. 2002. 341 pp. \$25.00. To purchase a copy, contact the University of Chicago Press, 1427 East 60th Street, Chicago, IL 60637; fax: (773) 702-9756; <http://www.press.uchicago.edu>.

According to the author of *A Brain for All Seasons*, abrupt climate changes are driving engines for brain evolution. As a neurobiologist, Calvin has studied the mechanisms of the brain for decades. One thing he puzzled over was why our ancestors' brain sizes increased in size so drastically during the Ice Age. Calvin identified a correlation between abrupt climate change (of which the Ice Age is a primary example) and brain evolution. He puts forth a theory that these "whiplash" climate changes require entirely new modes of thinking, communicating, and learning. Because abrupt shifts in climate change ecosystems, they force humans to invent or relearn ways to survive.

*Satellite Image Atlas of Glaciers of the World-North America.* Professional Paper 1386-J. 2003. 400 pp. \$76.00, plus \$5.00 shipping. To purchase a copy, contact the U.S. Geological Survey (USGS), Information Services, Box 25286, Federal Center, Denver, CO 80225; e-mail: [infoservices@usgs.gov](mailto:infoservices@usgs.gov); (888) 275-8747. The atlas is also available on-line at <http://pubs.usgs.gov/prof/p1386j/>.

This report is a review of historical and on-going changes in North American glaciers using Landsat imagery acquired primarily during the 1970s. Long-term observation of fluctuations of glaciers provides an important indicator of changes in regional and global climates as well as monitoring of volcanoes capped by glaciers that pose significant threats in the forms of lahars and jokulhlaups (mudflows and glacier outburst floods). This book is the result of a collaborative effort between the USGS, the National Park Service, U.S. and Canadian universities, the Geological Survey of Canada, and the International Glaciological Society of the United Kingdom. It provides an accurate regional inventory of glacier ice in Canada, the conterminous United States, and Mexico.

## Drought

*Drought and Drought Mitigation in Europe.* Jürgen V. Vogt and Francesca Somma, editors. 2000. 355 pp. \$130.00. Copies can be purchased from Kluwer Academic Publishers, Order Department, P.O. Box 358, Accord Station, Hingham, MA 02018-0358; (781) 871-6600; fax: (781) 871-6528; e-mail: [kluwer@wkap.com](mailto:kluwer@wkap.com); <http://www.wkap.nl>.

Drought is one of the major natural hazards, resulting in significant economic, social, and environmental costs. In Europe, water shortage is an important problem in many regions. However, despite the increasing awareness of this hazard, there are no European drought policies, and institutional frameworks to cope with drought are weak. This book is dedicated to furthering our understanding of the drought problem in Europe and discusses policy and manage-

ment options to mitigate its impacts. It covers topics that range from the detection of water stress to the planning of mitigation strategies.

## Landslides

**Web-Based GIS Landslide Inventory.** Brett Rose, Matthew Mauldon, Eric C. Drumm, Harry Moore, Len Oliver, and Bill Trolinger. 2002. 14 pp. Free. Available from the American Society of Civil Engineers (ASCE), CE World, 1801 Alexander Bell Drive, Reston, VA 20191-4400; (800) 548-2723; <http://www.ceworld.org/ceworld/Presentations/geomatics/Rose1.cfm>.

A GIS-based landslide inventory management system has recently been developed for the Tennessee Department of Transportation (TDOT). The system has two main components: a statewide spatial database that is easily accessible to engineers, planners, and others; and the ability to produce landslide thematic maps for the visualization of landslide information on the Internet.

**Recommended Procedures for Implementation of Department of Mines and Geology Special Publication 117 Guidelines for Analyzing and Mitigating Landslide Hazards in California.** T.F. Blake, R.A. Hollingsworth, and J.P. Steward, editors. 2002. 132 pp. Free. Southern California Earthquake Center (SCEC), University of Southern California, 3651 Trousdale Parkway, Suite 169, Los Angeles, CA 90089-0742; (213) 740-5843; e-mail: [SCECinfo@usc.edu](mailto:SCECinfo@usc.edu); <http://www.scec.org/resources/catalog/LandslideProceduresJune02.pdf>.

With the implementation of the Seismic Hazards Mapping Act in California, general guidelines for evaluating and mitigating seismic hazards in California were published by the California Department of Conservation, Division of Mines and Geology (DMG), in 1997 as Special Publication 117. Officials of the City of Los Angeles requested assistance in the development of procedures to implement DMG requirements. SCEC convened a committee to develop such procedures, and has recently published the resulting recommendations.

## Floods

**A Stream Corridor Protection Strategy for Local Governments.** 2002. 72 pp. Free. Copies can be downloaded from the Institute for Environmental Negotiation at the University of Virginia: <http://www.igean.org/html/whatsnew.cfm?id=491>.

This guide was created to help local governments and others formulate protection strategies for local streams. It provides a primer for project planning and the development of tools to protect and restore stream corridors. Stream protection strategies help communities cope with floods, preserve natural habitat, and ensure clean water. While targeted to communities within the Chesapeake Bay watershed, the guide may also benefit all local government planners, engineers, planning commission members, boards of supervisors, and council members.

**The Extremes of the Extremes: Extraordinary Floods.** Arni Snorason, Helga P. Finnsdottir, and Marshall Moss, editors. IAHS Publication No. 271. 2002. 408 pp. £60. Copies can be ordered from Jill Gash, IAHS Press, Centre for Ecology and Hydrology, Wallingford, Oxfordshire OX10 8BB, U.K.; tel: +44 1491 692422; fax: +44 1491 692448; e-mail: [jilly@iahs.demon.co.uk](mailto:jilly@iahs.demon.co.uk).

Extreme floods are among the most destructive forces of nature, and there is a perception that they are occurring with higher frequency now than in the past. This is a cause for international concern and calls for an understanding of the circumstances that might generate such events. This was the motive for the Reykjavik symposium on extraordinary floods, the "Extremes of the Extremes," convened by the International Association of Hydrological Sciences (IAHS) and the Hydrological Service in Iceland; this publication is an outcome of that meeting. The main focus of this volume is the geophysical processes related to floods, but the statistical and mathematical aspects of flood analysis and forecasting are also ad-

ressed, and the issues of flooding and flood abatement are put into economic, social and ethical perspective. The 60 papers in this volume have been grouped under the following themes: physical processes related to floods, prehistoric and historic floods, case studies, geomorphological and environmental questions related to floods, statistical analysis and forecasting, and predictability and abatement of floods.

**Compensating for Wetland Losses Under the Clean Water Act.** 2001. 340 pp. \$49.95. Copies are available from the National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (888) 624-8422 or (202) 334-3313; fax: (202) 334-2451; <http://www.nap.edu>. To view the entire document free online, go to <http://www.nap.edu/catalog/10134.html>.

**Flood Risk and Insurance in England and Wales: Are there Lessons to be Learned from Scotland?** David Crichton. 2002. 168 pp. Free. Available from the Benfield Greig Hazard Research Centre, Department of Earth Sciences, University College London, Gower Street, London WC1E 6BT; tel: 44 (0) 20 7679 3637; <http://www.bghrc.com>.

This comprehensive report addresses many of the flood-related problems currently facing the property insurance market in the United Kingdom and presents some of the background leading up to the decision of insurers to maintain the current flood insurance guarantee only until the end of 2002. Chapters include planning issues, flood hazards, health and climate change, disseminating flood warnings, and dams and reservoirs. Without drastic mitigation activities, the costs related to flooding in England and Wales will rise dramatically.

**Results-Oriented Management: Agency Crosscutting Actions and Plans in Border Control, Flood Mitigation and Insurance, Wetlands, and Wildland Fire Management.** GAO-03-321. 2002. 66 pp. Free. Copies can be obtained from the U.S. General Accounting Office, P.O. Box

37050, Washington, DC 20013; (202) 512-6000; fax: (202) 512-6061; TDD (202) 512-2537; e-mail: [info@www.gao.gov](mailto:info@www.gao.gov). The complete text of the report is also available on-line at <http://www.gao.gov>.

## Electronic Fare

**Using GIS to Demonstrate Successful Floodplain Management.** FEMA 416 CD. 2002. CD-ROM. Free. Copies are available from the FEMA Distribution Center, P.O. Box 2013, Jessup, MD 20794-2012; (800) 480-2520; fax: (301) 362 5335.

This floodplain management case study explains how GIS was used as the technical foundation for an enhanced floodplain management program. It includes a slide presentation that illustrates the use of GIS by Kinston, North Carolina, as an example of successful floodplain management. The CD allows users to view sample maps data, photographs, resource documents, GIS database sources, and web resources to aid communities in the development of successful mitigation strategies.



## 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, the Federal Emergency Management Agency, the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Department of Transportation, the U.S. Bureau of Reclamation, the U.S. Forest Service, the National Aeronautics and Space Administration, the Centers for Disease Control and Prevention, the Institute for Business and Home Safety, and the Public Entity Risk Institute. Please send information of potential interest to the center or the readers of this newsletter to the address below. The deadline for the next *Observer* is March 21, 2003.

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