

# NATURAL HAZARDS Observer

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Dear Readers:

This "Invited Scenario" represents the first in a series of articles that the *Natural Hazards Observer* will bring to you over the next year, examining "Disasters Waiting to Happen" – some of the great catastrophes threatening the U.S. and the rest of the world that somehow manage, most of the time, to hide just below our day-to-day consciousness. The events covered – from volcanic eruptions to lasting drought – are not Hollywood fantasies. At the same time, these scenarios are just that – scenarios, not fact and not predictions. They are intended to spark discussion about creative approaches to mitigation, because none of what you read here is written in stone. Our future is in our hands. These natural hazards will occur. The consequences depend on us. Herewith the first scenario, written as a newspaper article one week after the big one hits southern California.

– The Editors

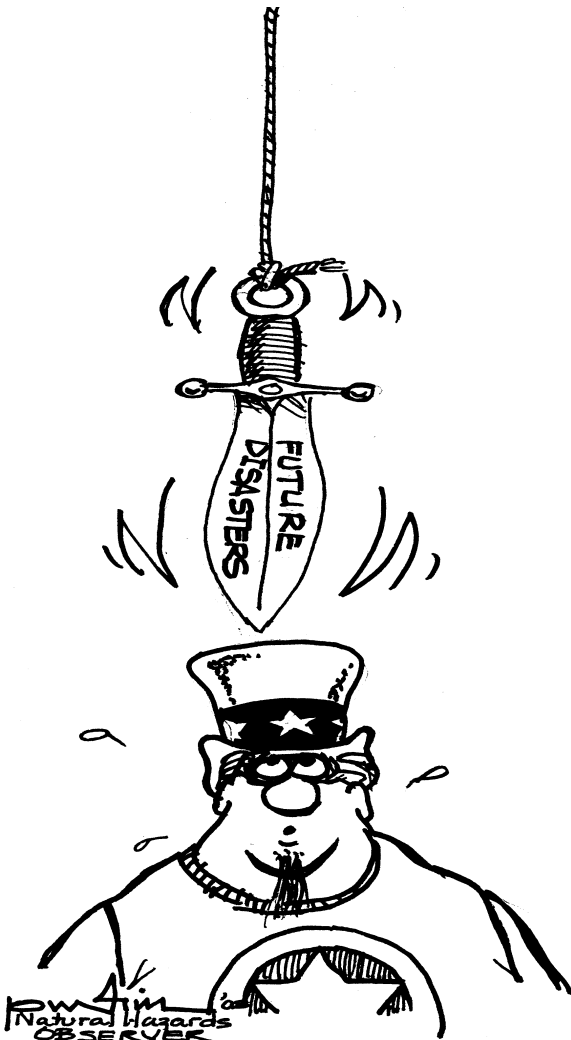
## L.A.'s "Puente Hills" Earthquake One Week Later

– an invited scenario

Last week's devastating magnitude 7.1 earthquake in southern California, named the "Puente Hills" earthquake after the fault that moved, has affected the lives of everyone in the metropolitan Los Angeles area and far beyond. More than 5,000 deaths have now been attributed to the quake. Only 200 of these deaths were people at home, partly because the earthquake occurred at 2:00 p.m.

The region's hospital system has been severely impacted by the earthquake. Before the quake, Los Angeles County had over 25,000 licensed hospital beds. Because of building damage, loss of utilities, and other factors, after the earthquake the number of available beds dropped to 10,000. Many of these beds were in use by patients already in the hospitals. With approximately 17,000 people requiring hospitalization, those in less critical condition were routed to hospitals in surrounding counties. Emergency management officials have estimated that 55,000 others were injured and required treatment but fortunately did not need hospitalization. As of yesterday, 50% of the beds were back in service. Within a month 75% are expected to be operational.

Search and rescue and other response activities continue at most sites of major incidents. Emergency management



officials reported that response was greatly enhanced by having access to rapid information from California's Integrated Seismic Network. Within five minutes of the powerful earthquake, "ShakeMaps" were available on the web, identifying the areas where shaking was most severe (central and downtown Los Angeles and regions of the San Gabriel valley). These areas became the focus of reconnaissance activities; then, as specific needs were identified, efforts were initiated to extinguish fires, rescue people trapped in collapsed buildings, and provide medical care for the injured. All of the 220 fires ignited because of the earthquake are now contained. Fire suppression efforts were hindered initially by loss of water supply in many areas.

Aftershocks have been frequent in the week since the magnitude 7.1 earthquake struck. Thousands have been recorded, including four that have exceeded magnitude 5. The largest aftershock was a magnitude 6 that brought down dozens of buildings already weakened by the mainshock. Fortunately, there were no additional casualties as all of these buildings had been evacuated. Search and rescue teams, working in some of these structures, were able to scramble to safety thanks to an early alerting system installed the day after the earthquake. The system is based on portable sensors and sirens that provide a few seconds warning before ground motion from an aftershock reaches the site of response activity. These sensors were installed by the U.S. Geological Survey working closely with scientists at the California Institute of Technology (Cal Tech) and other institutions of the Southern California Earthquake Center (SCEC), headquartered at the University of Southern California (USC).

### **Damage, Damage Assessment, and HAZUS**

Response efforts were also aided by the use of the Federal Emergency Management Agency's HAZUS loss estimation software, which projected that up to 105,000 people would require shelter immediately due to damage to their homes caused by shaking or fire, loss of utilities, and other disaster-related problems. Based on these projections, disaster planners were able to mobilize personnel and supplies to open 260 shelters on the day of the earthquake. With each large aftershock, additional damage has increased the number of people seeking shelter to over 115,000. An additional 30 shelters have been opened to accommodate increased demand. Several cities have mobilized "re-assurance teams" to convince those who have evacuated undamaged homes to return because shelter demand has been so heavy in the aftermath of the earthquake.

Many people reported that they felt shaking that lasted for well over a minute, though scientists have reported that movement on the fault lasted for less than 15 seconds. A recent SCEC report may explain this difference; it states that some areas will experience strong shaking for much longer than the actual fault movement due to differences in soil type and thickness at a given location. These factors cause amplification of the seismic waves traveling away from the fault, and waves can reverberate within the thick layers of sediments under many parts of the Los Angeles area. These

effects contributed to the extent and level of damage in this earthquake.

Initial HAZUS estimates projected nearly a half-million buildings to be at least moderately damaged in last week's earthquake. Of these, 21,000 buildings may be totally destroyed. Ongoing local building safety evaluation efforts were greatly enhanced when volunteer engineers from other parts of the state participated in California's Safety Assessment Program for inspecting homes and businesses to determine whether residents and employees can return, arrived within two days of the seismic event. Nevertheless, it will be weeks before the vast number of buildings requiring evaluation are all inspected and actual numbers of damaged buildings tallied.

Based on early observations, it appears that the greatest damage has been to wood-frame apartment buildings and condominiums with "soft first stories," typically four- to six-story structures with parking areas beneath all or portions of the first floor. Mobile homes fared poorly as well. Tall steel-frame buildings, including several high-rise buildings in downtown Los Angeles sustained severe damage. Many of these buildings may have been damaged in the 1994 Northridge earthquake and were therefore susceptible to further damage. Although none of LA's tallest buildings suffered catastrophic collapse, some are believed to be so badly damaged that demolition may be necessary.

Using HAZUS, experts initially projected the total dollar loss from building damage and fires to be over \$52 billion. More than half of this loss was projected to be damage to residential buildings. Additionally, business interruption losses are expected to reach more than \$14 billion. Actual totals will take some time to tabulate as building officials complete inspections and economic losses are assessed over time.

Despite very strong shaking over much of the Los Angeles Basin and surrounding areas, no freeway bridges collapsed completely. The California Department of Transportation (Caltrans) reports that the bridge retrofit program, which benefited from lessons learned in the 1994 Northridge and earlier earthquakes, paid off both in expensive repairs that were avoided and, most importantly, in the preservation of the operation of the region's transportation system. This greatly aided emergency response. Although there was some ground failure of bridge approaches, local public works departments quickly responded and few detours were needed.

### **The Puente Hills Fault**

The Puente Hills fault was discovered in 1999 by a team of SCEC scientists led by Harvard University professor John Shaw. The fault runs from northern Orange County to downtown LA and is completely buried by sediment. It was dubbed the Puente Hills thrust fault after the highlands above the eastern end of its 25-mile (40-kilometer) length. In 2003, SCEC scientists James Dolan and Shari Christofferson at USC, with John Shaw, published a study that showed that the Puente Hills thrust fault has experienced four major earthquakes in the past 11,000 years. These quakes may have

been even larger than last week's magnitude 7.1 event.

Lists of earthquake-related informational resources and services are available on-line at <http://www.earthquakecountry.info>, a web site developed by SCEC for the "Earthquake Country Alliance." This group of science, engineering, response, and community organizations was formed to prepare for the ten-year anniversary of the 1994 Northridge earthquake in January 2004.

This scenario was written by Mark Benthien of the Southern California Earthquake Center and Jim Goltz of the California Office of Emergency Services, based on loss estimates generated by Hope Seligson of ABS Consulting using HAZUS-99. Ground motion data for HAZUS calculations were obtained from scenario ShakeMap data developed by David Wald of the U.S. Geological Survey, available at <http://www.trinet.org/shake/archive/scenario.html>. Scaling factors have been applied to update building loss and casualty estimates, since the HAZUS-99 default building inventory and demographic data was developed in 1994.

## Some Selected Internet Resources About Earthquake Hazards

<http://www.scec.org>

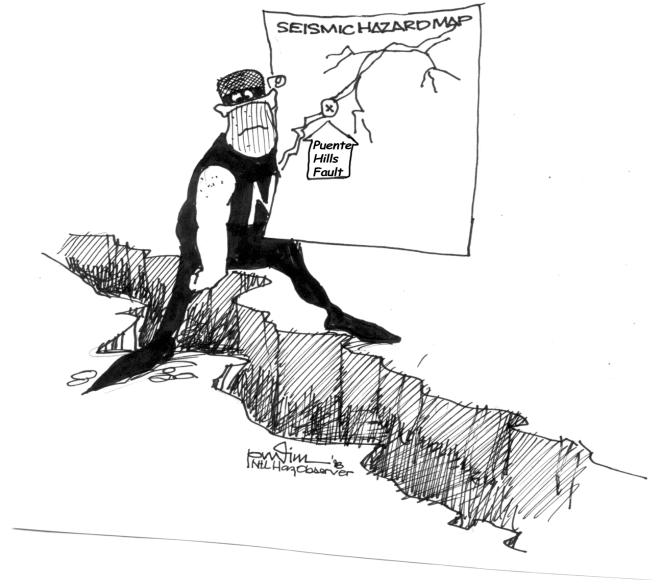
The Southern California Earthquake Center (SCEC), the source of the scenario above, is a Science and Technology Center of the National Science Foundation that brings scientists together from multiple institutions for joint research to reduce vulnerability to earthquake hazards in southern California. The formal mission of the center is to promote earthquake hazard reduction by estimating when and where future damaging earthquakes will occur, calculating the expected ground motion, and disseminating that information to the public.

<http://earthquake.usgs.gov>

The U.S. Geological Survey (USGS) provides much earthquake information via dozens of different Internet avenues; however, this Earthquake Hazards Program site provides an entry point for almost all USGS earthquake information on the web. It includes pages covering the latest quakes, earthquake facts and lists, hazards and preparedness, information for children, earthquake science and technology, and links to related and regional sites.

<http://www.eeri.org>

The Earthquake Engineering Research Institute (EERI) is a technical society of engineers, geoscientists, architects, planners, public officials, and social scientists (including researchers, practicing professionals, educators, government officials, and building code regulators). The recently remodeled EERI web site provides a list of upcoming EERI



meetings and other events; descriptions of EERI services; a catalog of the many publications, slides, and videos available from the institute; and other information and news about earthquakes and earthquake hazard mitigation.

<http://mceer.buffalo.edu>

<http://peer.berkeley.edu>

<http://mae.ce.uiuc.edu>

These are the web sites of the three National Science Foundation-sponsored Engineering Research Centers (ERCs) – the Multidisciplinary Center for Earthquake Engineering Research (MCEER), the Pacific Earthquake Engineering Research (PEER) Center, and the Mid-America Earthquake (MAE) Center, founded to pursue cutting-edge research in seismic engineering and provide earthquake hazard mitigation information and education to both students and the wider population of people, businesses, and institutions threatened by earthquakes. These sites offer a broad array of useful information and touch on everything from design and engineering to economics and policy planning.

<http://www.eqnet.org>

EQNet is a collaborative effort of many of the institutions providing earthquake information in the U.S. It is a free, one-stop source for locating Internet information related to earthquake hazards mitigation.

<http://www.fema.gov/hazards/earthquakes>

The Federal Emergency Management Agency (FEMA) web site hosts several different pages with information about earthquakes and earthquake mitigation. The page listed above describes earthquake hazards and provides information about what to do before, during, and after a quake; links to information about the National Earthquake Hazards Reduction Program (NEHRP); offers several mitigation success stories.

These are only a few of the many useful earthquake web sites. For a list of recommended sites, see the Natural Hazard Center's web page: <http://www.colorado.edu/hazards/sites/earthquakes.html>.

*New and Improved!*

# Announcing a Revamped *HazLit* and a Redesigned Web Site (Along With a Reminder of Oldies But Goodies)

## Our New All-Hazards On-line Library Search Engine

Over the years *HazLit*, the Natural Hazards Center's on-line bibliographic database, has served countless researchers and practitioners in locating resources on human adaptation to natural hazards and disasters. Now, thanks to a grant from the Public Entity Risk Institute, members of the hazards community can more directly access information on the books, reports, periodicals, videos, and CD-ROMs available in the center's library.

At the revamped *HazLit* site, <http://www.colorado.edu/hazards/library>, users will find an overall description of the library and its services, instructions for using *HazLit*, links to other disaster-related libraries and information centers, and a link enabling users to e-mail library staff with disaster-related questions. Most importantly, *HazLit* is now equipped with expanded search capabilities that allow simple and complex searches based on author, title, date of publication, and keywords. In addition to the many annotated database records, *HazLit* also provides direct links to several online documents. Users will see a marked improvement in the speed and convenience of the new database.

The Natural Hazards Center Library is committed to assisting hazards researchers and practitioners in acquiring the information they need to do their jobs. We welcome feedback regarding *HazLit* and other library services. Please send comments to Wanda Headley, Natural Hazards Research and Applications Information Center, University of Colorado, 482 UCB, Boulder, CO 80309-0482; (303) 492-5787; e-mail: [wanda.headley@colorado.edu](mailto:wanda.headley@colorado.edu).

## It's Time to Get with the Times

Not to be outdone by the library staff, the Hazards Center web site managers are trading the old site design for a more up-to-date and user friendly look. All of the useful information that was there before still remains, but users will be able to navigate the site and locate information more quickly. The new site will have the same URL as the current one and will provide easier access to the variety of information that the center provides.

We are excited to announce a variety of new web-based features, including issue close-ups, program profiles, and more! Please see <http://www.colorado.edu/hazards> and contact us if you have suggestions or comments on our new site.

## Still the One

And if you need more than just a new, pretty face, be sure to check out the many on-line products and resources the center's web site has offered for many years, including our regular publications as well as useful information such as where to get the latest research on volcanic eruptions.

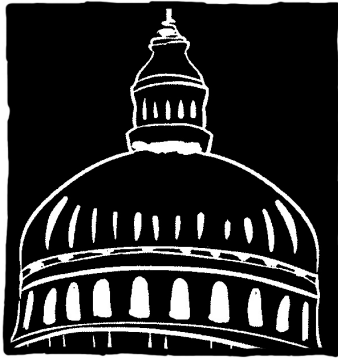
Past and current issues of our two periodicals, the electronically distributed *Disaster Research* and the *Natural Hazards Observer*, are posted on our web site. Readers can



search issues published from 1994 to the present and browse individual issues. Both *Disaster Research* (<http://www.colorado.edu/hazards/dr/dr.html>) and the *Observer* (<http://www.colorado.edu/hazards/o/o.html>) are posted in HTML format with activated links for easy navigation to web sites mentioned in the text. The *Observer* is also posted in PDF format so that readers can download and print copies from their computer.

## For More Information

If you require further information about any of our services, please visit our web site or contact the Natural Hazards Center, University of Colorado, 482 UCB, Boulder, CO 80309; (303) 492-6818; fax: (303) 492-2151; e-mail: [hazctr@colorado.edu](mailto:hazctr@colorado.edu).



# WASHINGTON UPDATE

## Secretary Ridge Approves Initial National Response Plan

On October 10, 2003, U.S. Department of Homeland Security (DHS) Secretary Tom Ridge approved an interim Initial National Response Plan (INRP) designed to promote a unified approach to domestic incident management across the nation. The department describes the INRP as a first step toward the overall federal goal of integrating the current set of federal domestic prevention, preparedness, response, and recovery plans into a single all-hazards plan. The INRP will be supported by the National Incident Management System (NIMS), an arrangement under development that will result in standardized incident management processes, protocols, and procedures (see the *Observer*, Vol. XXVII, No. 5, p. 5). A final NRP will eventually replace the INRP.

The INRP was created and vetted by representatives of federal, state, territorial, local, and tribal government, as well as representatives of various professions involved in emergency management. The plan links the current Federal Response Plan, the U.S. Government Interagency Domestic Terrorism Concept of Operations Plan, the Federal Radiological Emergency Response Plan, the Mass Migration response plans, and the National Oil and Hazardous Substances Pollution Contingency Plan.

The INRP designates the National Homeland Security Operations Center (HSOC) as the primary national-level hub for operational communications and information pertaining to domestic incident management. Located at DHS headquarters in Washington, D.C., the HSOC will provide threat monitoring and situational awareness for domestic incident management on a 24-hour basis. The plan also identifies an Interagency Incident Management Group (IIMG), made up of senior representatives from federal departments and agencies, including DHS components, and nongovernmental organizations to facilitate national-level situation awareness, policy coordination, and incident coordination. In addition, the secretary of DHS may designate a Principal Federal Official (PFO) during a domestic incident to serve as the

personal representative of DHS locally during an incident. The PFO will oversee and coordinate federal incident activities and work with local authorities to determine needs and provide federal assistance. Further, federal activities at a local incident site will be integrated through a Joint Field Office (JFO) that will help coordinate federal, state, and local authorities. The JFO is expected to incorporate existing entities such as joint operations centers, disaster field offices, and other federal offices and teams that provide support on-scene.

For more information about the INRP, see the DHS web site: <http://www.dhs.gov>; specifically, <http://www.dhs.gov/dhspublic/display?content=1936>. The plan itself can be downloaded from [http://www.dhs.gov/interweb/asset\\_library/Initial\\_NRP\\_100903.pdf](http://www.dhs.gov/interweb/asset_library/Initial_NRP_100903.pdf).

## Plan to Cut Wildfire Threat Signed into Law

On December 4, 2003, President Bush signed legislation to reduce the risk of fire in national forests by promoting the removal of brush and diseased trees, especially near homes and towns. The final bill, which follows a three-year impasse on wildfire legislation, puts into law President Bush's "Healthy Forests Initiative," which streamlines the approval of projects to thin overgrown forests by limiting public participation such as appeals and environmental reviews. Much of the president's forest plan had already been implemented through administrative action. Opponents fear that the law will leave old-growth trees and remote, roadless areas of forests vulnerable to logging and timber interests.

The measure authorizes \$760 million a year for thinning projects on 20 million acres of federal land, a \$340 million increase from current spending. At least half of all money spent must be for projects near homes and communities, particularly those in the wildland-urban interface. The legislation expedites environmental reviews of fuels treatment projects and requires the U.S. Forest Service and the Department of the Interior's Bureau of

Land Management to fully maintain, or contribute, toward the restoration of old growth trees. It also creates a major change in the way federal courts consider legal challenges to tree-cutting projects. Judges will have to weigh the environmental consequences of inaction and the risk of fire in cases involving thinning projects, and any court order blocking such projects must be reconsidered every 60 days.

The complete legislation (H.R. 1904) can be viewed on-line at <http://thomas.loc.gov/>. For information about the White House's "Healthy Forests Initiative" see <http://www.whitehouse.gov/infocus/healthyforests/>, and for a copy of *Healthy Forests: An Initiative for Wildfire Prevention and Stronger Communities* see <http://www.whitehouse.gov/infocus/healthyforests/toc.html>.

## DHS Announces \$2.2 Billion for State and Local First Responders. . .

On November 3, 2003, DHS Secretary Tom Ridge announced the allocation of over \$2.2 billion for grants to be administered by the Office for Domestic Preparedness to help first responders prevent, prepare for, respond to, and recover from potential acts of terrorism. For the first time, states are able to go on-line and use a single form to apply for the funds (general information about this program is available at <http://www.dhs.gov/dhspublic/interapp/editorial/editorial0355.xml>). The grants are distributed through three programs to benefit first responders by providing additional resources to state and local government counterterrorism activities (see the *Observer*, Vol. XXVIII, No. 2, p. 6):

- The State Homeland Security Program, which received \$1.7 billion for public safety and law enforcement planning, training, equipment, exercises, and other costs associated with strengthening local capabilities;
- The Law Enforcement Terrorism Prevention Program, which received \$500 million to aid law enforcement offices through grants that will help those offices enhance their capabilities for detecting, deterring, disrupting, and preventing acts of terrorism with a specific focus on preventing the use of weapons of mass destruction (WMDs), and;
- Citizen Corps, which received \$35 million for direct grants to states. These funds will support planning, outreach, and management of Citizen Corps programs and activities by local Citizen Corps Councils. The broad goal is to engage all citizens in homeland security, community preparedness, and family safety. In addition, the funds will be used to conduct public education to inform citizens about their role in crime prevention, mitigation, emergency preparedness for all hazards, and public health measures, including those related to bioterrorism. The grants will also be used to develop and implement Citizen Corps programs that provide training and volunteer opportunities that support first responders, disaster relief groups, and community safety efforts.

Since March 1, 2003, DHS has allocated or awarded over \$6 billion to fund first responders. In addition to the single application process mentioned above, DHS is launching an interagency grants and training web site: <http://www.dhs.gov/grants>, which provides information on homeland security and public safety grant opportunities offered by DHS and other federal agencies, including the Department of Health and Human Services, the Department of Justice, and the Environmental Protection Agency, as well as a link to the *Compendium of Federal Terrorism Training for State and Local Audiences*, an interagency site listing training opportunities available to state and local emergency personnel. For more information, see <http://www.dhs.gov>, or contact the *DHS, Public Affairs Office, Washington, DC 20528; (202) 282-8000*.



## . . . And Even More Pennies from Heaven

Ten days after announcing the distribution of the \$2.2 billion cited above, DHS announced the allocation of an additional \$725 million from the FY 2004 budget for the Urban Area Security Initiative (UASI), which provides U.S. urban areas with grants to help them improve their overall security and preparedness for acts of terrorism. The funds are in addition to the nearly \$800 million that the department's Office for Domestic Preparedness awarded to urban areas in FY 2003. Homeland Security Secretary Tom Ridge stated that the funds will be going to "designated states, which will then work with counties and cities to form regions that will work together through mutual aid agreements, interoperable communications, statewide intelligence centers, and community and citizen participation. Our goal is to ensure that all of these neces-

sary elements are communicating and coordinating to prevent a crisis and to be ready if one occurs.”

Approximately \$675 million will be distributed in the form of grants through states to urban areas selected using a formula that takes into account factors such as critical infrastructure, population density, and credible threat information. Allocations to the cities, contiguous counties, and mutual aid partners will be based on an urban area assessment and strategic plan. Eighty percent of the funds allocated to a state under this program must be awarded to the designated cities and contiguous counties within the identified urban areas based on the strategic plan. The state may use the remaining 20% for further security enhancements within an urban area.

At the same time, DHS is distributing \$50 million through the states as grants to mass transit agencies to help those agencies improve security. The transit systems receiving funds were determined based on the number of annual riders and overall track mileage. The funds can be used for installation of physical barricades, area monitoring systems, and integrated communications systems, as well as for prevention planning, training, and exercises. Each transit system is required to conduct an assessment and develop a preparedness plan on which to base resource allocations.

For more information about this funding, including a list of recipients, see the DHS web sites: <http://www.dhs.gov/dhspublic/display?content=2218> and [http://www.dhs.gov/interweb/assetlibrary/UASI\\_FY04\\_Allocations.doc](http://www.dhs.gov/interweb/assetlibrary/UASI_FY04_Allocations.doc).

## **FEMA Increases Individual and Family Disaster Assistance**

Annually, the Federal Emergency Management Agency (FEMA) re-examines its “disaster impact indicators,” i.e., the per capita cost of a disaster that qualifies a county or state for disaster assistance. Based on annual changes in the Consumer Price Index published by the Department of Labor, those levels have been increased by FEMA for disasters occurring on or after October 1, 2003. The countywide per capita impact indicator was revised to \$2.77 and the statewide indicator to \$1.11. Further information about these revisions is available from *James Walker, Recovery Division, FEMA, 500 C Street, SW, Washington, DC 20472; (202) 646-3834*.

Along with these changes, FEMA announced an increase in the maximum amount of assistance available to individuals and households, as provided by Section 408 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The maximum amount of Individual and Household Program financial assistance with respect to a single emergency or major disaster is now \$25,600. The maximum amount of repair assistance is \$5,100, and the maximum amount of replacement assistance is \$10,200. At the same time, FEMA announced an increase in the maximum Small Project Grants awards to state and local governments and private nonprofit facilities as provided by Section 422 of the Stafford Act. The new ceiling is \$54,100 for all disasters declared on or after October 1, 2003. Details about this policy revision are available from

*Berl Jones, Recovery Division, FEMA, 500 C Street, SW, Washington, DC 20472; (202) 646-4235*. The announcements of these changes appeared in the October 15, 2003, *Federal Register* (Vol. 68, No. 199, p. 59413), which is available at <http://www.gpoaccess.gov/fr/index.html>.

## **FEMA/U.S. Fire Administration: Lessons from Texas A&M Tragedy Apply to All Emergency Response**

In keeping with a 90-year-old tradition, 58 people were constructing the fourth tier of the 1999 bonfire stack on the campus of Texas A&M University during the early morning hours of November 18, 1999. The bonfire is ignited every year on the eve of the football game between Texas A&M and its arch rival the University of Texas at Austin. The 40-foot stack, consisting of approximately 5,000 logs, collapsed, killing 12 people and sending 28 to area hospitals. The rescue and recovery effort lasted almost 24 hours and involved over 3,200 individuals from over 50 different agencies.

Shortly after the incident, the president of the university appointed an independent commission to determine the cause of the collapse. On May 2, 2000, the commission released its findings, concluding that the bonfire collapsed due to a number of both physical (design and engineering) and organizational factors. The organizational factors resulted in an environment in which a complex and dangerous structure was built without adequate physical controls. Organizational failures included the absence of an appropriate written design or design process; a “cultural bias,” which impeded risk identification; and the lack of a proactive risk management approach.

In November 2003, FEMA issued a technical review of the incident response and the consequent lessons for emergency managers. According to the review, entitled *Bonfire Collapse, Texas A&M University, College Station, Texas – November 1999* (Technical Report Series USFA-TR-133), emergency responders dealing with such emergencies should “think big” and order additional resources immediately to meet possible management needs. The tragedy also “shows the importance of pre-incident planning. In this case, there had been a tabletop exercise with city and university responders just one week prior to the event and the university’s emergency management service personnel had conducted a drill just two weeks before.” The review, compiled by the U.S. Fire Administration (USFA), also pointed out the importance of a strong incident command system, which was in place at this event. Other lessons cited in the report include:

- The advantages of having additional electric power and hardwired telephone lines brought to the scene’s command post to help with communications as the magnitude of the emergency quickly exceeded the capabilities of the existing emergency responder systems, the telecommunications system of the community, and two local hospitals;

- The need to consider redirecting noncritical patients to alternative medical facilities in an event involving multiple casualties, since the capabilities of local hospitals can be easily overwhelmed;
- The need to provide additional staffing to hospitals, which may require help in a multicasualty incident to assist with unloading patients and dealing with families and friends of the injured; and
- The need to control rumors. So much misinformation was broadcast following the collapse that two local hospitals turned off their television sets to reduce anxiety.

The FEMA news release summarizing this report is available at <http://www.fema.gov/news/newsrelease.fema?id=7774>. The report is available at <http://www.usfa.fema.gov/fire-service/techreports/tr133.shtm/>.

### **FEMA and HOPE Coalition America Announce Economic Recovery Service for People Affected by Disasters**

On November 6, 2003, FEMA and the nonprofit group HOPE Coalition America, a private-sector led coalition comprised of leading Los Angeles area and national businesses as well as several leading community based organizations and foundations, announced a public/private partnership to improve disaster recovery assistance; HOPE Coalition America will now provide counseling to victims of selected disasters. The partnership will also strengthen the ability of the nation's emergency managers to meet the short-, medium- and long-range economic and financial challenges faced by people and communities affected by natural disasters and national tragedies. The free service is now available to victims of last fall's California wildfires and will subsequently be provided for selected future disasters as determined by FEMA and HOPE Coalition America under the formal agreement they have signed.

In addition to coordinating the resources of numerous federal agencies and the American Red Cross to support disaster response efforts of state and local governments, FEMA manages a wide array of federal disaster assistance to aid individual and community recovery. The assistance can include:

- Grants for temporary housing, home repairs, and replacement of essential household items;
- Grants to replace personal property and help meet medical, dental, funeral, and transportation needs;
- Unemployment benefits for workers with disaster-related job losses;
- Low-interest loans for uninsured residential, business, and farm property losses; and
- Crisis counseling services, income tax assistance for casualty losses, and advisory aid for legal needs, veteran benefits, and social security matters.

FEMA also assists community recovery by providing funds to state and local governments for debris removal, emergency protective measures, the restoration of damaged infrastructure, and mitigation measures that reduce future disaster risks.

Operation HOPE, Inc., is a national leader in promoting economic recovery. It accomplishes this goal through HOPE Coalition America, which brings together senior executives and professionals from financial services, legal industries, and other organizations to provide financial counseling to people and small businesses affected by natural disasters and national emergencies. HOPE Coalition counseling services include helping clients to:

- Establish an emergency budget;
- Manage financial reintegration and restructuring;
- Create a personal financial inventory;
- Understand credit card rights and responsibilities;
- Access homeowner relief programs; and
- Determine and use other useful emergency assistance and social services programs, public interest legal services, and education and career transition services.

People affected by natural disasters or national emergencies will be able to contact HOPE Coalition America by calling (888) 388-4673, or by visiting the HOPE Coalition America web site, <http://www.hopecoalitionamerica.org>, which also provides extensive background information about the coalition. Again, the service is now available to victims of the California wildfires.

More information about the cooperative agreement is available from the FEMA web site: <http://www.fema.gov/news/newsrelease.fema?id=7711>.

### **Multihazard Mitigation Fellowship**

In an effort to raise awareness and ensure that hazard mitigation is effectively incorporated into future urban and rural planning, FEMA is offering Community Planning Fellowships for 2004-2005. Fellowships provide graduate students an opportunity to familiarize themselves with hazard mitigation and planning. Three fellowships are scheduled for the 2004-2005 academic year.

The Office of Wetlands, Oceans, and Watersheds of the Environmental Protection Agency (EPA) is joining FEMA and providing funding so that one of the fellows can study how communities, regional organizations, and states effectively address watershed planning and floodplain management issues. The deadline for submitting applications is January 26, 2004. The fellowship announcement and application can be downloaded from <http://www.nibs.org/MMC/mmcactiv4.html>. For more information contact the *Multihazard Mitigation Council of the National Institute of Building Sciences, 1090 Vermont Avenue NW, Suite 700, Washington, DC 20005; (202) 289-7800.*



# USC Named First Homeland Security Center of Excellence

To help protect America from terrorists and weapons of mass destruction, the Department of Homeland Security (DHS) Office of University Programs has established the Homeland Security Scholars and Fellows Program (see the *Observer*, Vol. XXVIII, No. 1, p. 10) and the Homeland Security Centers of Excellence initiative, a program to launch multidisciplinary research centers that will examine key national security issues. The centers were mandated by the Homeland Security Act (see the *Observer*, Vol. XXVII, No. 3, p. 5) in which Congress called for the establishment of a coordinated, university-based system to enhance the nation's ability to anticipate, prevent, respond to, and recover from various kinds of terrorist attacks.

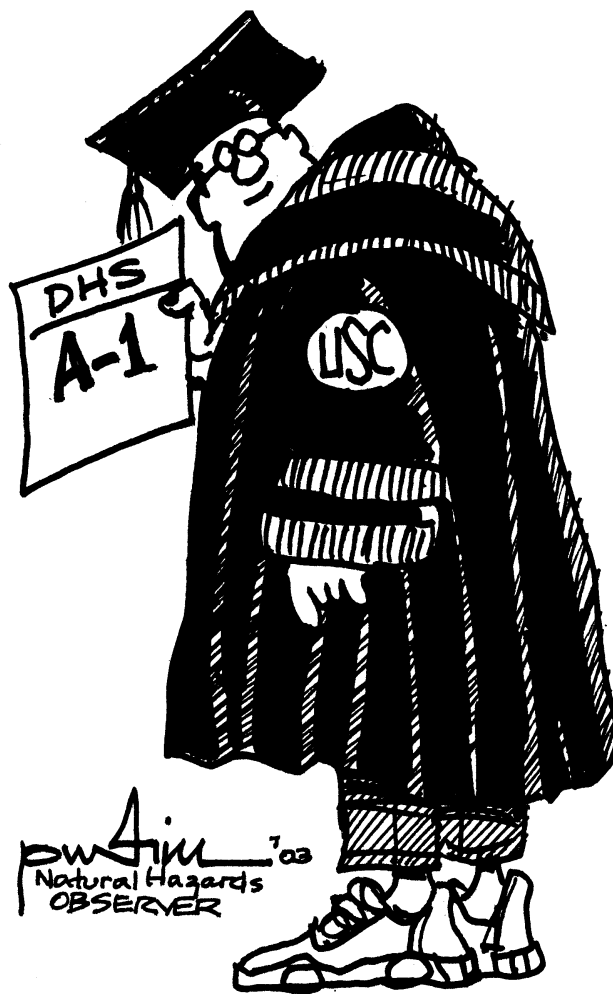
In November, the University of Southern California (USC) was chosen as the first university to house a Center of Excellence. DHS anticipates providing the university with \$12 million over the next three years to support the study of risks and economic consequences related to terrorist threats and events. DHS and USC are currently negotiating those grants.

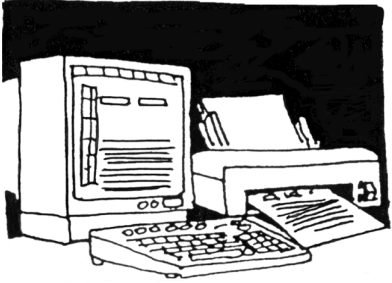
The USC center, to be known as the Homeland Security Center for Risk and Economic Analysis of Terrorism Events, will address both the targets and methods of terrorism, emphasizing protection of the nation's critical infrastructure, such as electrical power, transportation, and telecommunications. It will host a strong, integrated program of research, education, and technology transfer to advance the nation's security. Specifically, the center anticipates developing computer models and tools for planning responses to emergencies with the goal of minimizing the threat to human lives and reducing economic impacts. Additionally, it will launch an educational program, conduct a cybersecurity study, and support other university centers as they are established. The educational program will include professional workshops, fellowships, outreach to local and regional communities, and distance learning courses that could lead to master's degrees or certificates in such areas as cybersecurity and a variety of engineering fields related to homeland security.

Even though USC will house the center, university officials describe it as a national effort. Researchers at USC will collaborate with experts from the University of California at Berkeley, Massachusetts Institute of Technology, New York University, and the University of Wisconsin at Madison.

DHS plans to establish up to nine additional centers that will undertake a spectrum of short- and long-range research covering the physical, information, life, social, and engineering sciences. Some specific areas of concern include behavioral research on terrorism and countermeasures, public and health safety technology transfer, agro-bioterrorism countermeasures, and research and development of needed response technologies and operations.

For more information about USC's Homeland Security Center of Excellence, see the university's web sites: <http://www.usc.edu/dept/ise/hsc> and <http://www.usc.edu/usnews/story.php?id=9582>. More information on the Center of Excellence program is available from the U.S. Department of Homeland Security web site: <http://www.dhs.gov>.





# INTERNET PAGES

Below are new or updated Internet resources that 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/sites/sites.html>.

## All Hazards

<http://www.geohazards.mtu.edu>

Michigan Tech University and the U.S. Peace Corps have announced an opportunity for students who want to work abroad and are interested in the mitigation of geological hazards. The program offers field-based experience through a Peace Corps assignment. It initially targets Central American countries facing significant challenges in geological hazards. For details, contact *William Rose, Michigan Tech University, Houghton, MI 49931; (906) 487-2367; e-mail: raman@mtu.edu*.

<http://www.disaster-info.net/newsletter/92/helid.htm>

The 2003 edition of the *Health Library for Disasters*, an on-line collection of information resources on public health in disasters and complex emergencies, has just been released by the World Health Organization and the Pan American Health Organization. The library is fully searchable with a variety of key terms.

<http://www.fema.gov/kids/games/board>

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) has unveiled an interactive web-based board game for children as part of its commitment to educating young people about disaster preparedness and risk reduction. The board game is called "Disaster Discovery."

[http://online.northumbria.ac.uk/geography\\_research/gdn/resources/bibliographies.html](http://online.northumbria.ac.uk/geography_research/gdn/resources/bibliographies.html)

This URL is a link to a newly revised gender and disasters bibliography.

[http://www.fema.gov/tab\\_education.shtm](http://www.fema.gov/tab_education.shtm)

At this URL, FEMA offers a community-based predisaster mitigation curriculum designed to involve emergency management and community and faith-based organizations (CBOs/FBOs) in predisaster mitigation at the local level.

Also through FEMA, the Department of Homeland Security (DHS) is introducing a new course to raise awareness for the need to reduce the consequences of disasters on small businesses. Small- to medium-sized businesses, which provide nearly 80% of the jobs in an average community, are at great risk for failure after a disaster. To help prevent business losses, this course, offered by FEMA's Emergency Management Institute (EMI), brings together state and local officials, economic development leaders, emergency managers, and other stakeholders to develop business loss prevention strategies, share concerns, and raise awareness of each other's priorities. Information about these classes, along with many others offered through EMI, can be found at <http://training.fema.gov/EMIWeb/>.

<http://training.fema.gov/EMIWeb/edu/facultypos.asp>

FEMA's Higher Education Program, a division of EMI, mentioned above, has begun posting emergency management faculty vacancies on the Higher Education web site.

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

Since January 2002, there has been nearly a 100% increase in the number of states where Community Emergency Response Team (CERT) training is available. The *Connection* newsletter, comprising articles written by the people from around the country who are involved in community preparedness on a daily basis, is seeking contributions. Suggested topics include emergency responses in which CERT teams were involved, schools and preparedness training, innovative CERT ideas, and

how CERTs are maintaining skills and motivation. Complete guidelines for article submission can be found at <http://www.naem.com/connection/guidelines.html>.

<http://www.nmfi.org/index.htm>

The National Mass Fatalities Institute (NMFI), an organization established to help communities, businesses, industries, government, and disaster response agencies effectively plan for, respond to, and recover from a mass fatalities incident, now offers an on-line newsletter, which will be sent out periodically to provide updated news, information, and event listings to help communities and organizations prepare for mass fatality incidents. To sign up for this free newsletter, send an e-mail to [nmfi@kirkwood.edu](mailto:nmfi@kirkwood.edu).

<http://www.geoplace.com/gw/2003/0311/0311ngis.asp>

The relationships between geospatial data, geographic information systems, and risk analysis for natural disasters, technological accidents, terrorist attacks, and regional conflicts are explored in this column at *GeoSpace.com*, a resource for geospatial information.

<http://www.fema.gov/news/newsrelease.fema?id=8412>

The FEMA web site recently featured a series of three articles entitled “North Carolina: Mitigation in Action” that describe measures taken to alleviate flood and hurricane damage. In particular, they look at steps taken after recent devastating storms, such as hurricanes Fran in 1996 and Bonnie in 1998, and show how those measures prevented further damage last summer when Hurricane Isabel came ashore. The articles offer numerous examples and tips that could be adopted elsewhere.

<http://www.ibhs.org/publications/list.asp?id=72>

The Institute of Business & Home Safety (IBHS) has posted presentations from insurance company representatives, emergency management officials, academics, government officials, and others, who participated in the 2003 IBHS congress.

<http://www.tiems.org/>

The International Emergency Management Society (TIEMS) has unveiled a new and updated web site that provides access to proceedings and papers from past TIEMS conferences.

<http://www.osha.gov/SLTC/etools/ics/index.html>

The Department of Labor, Occupational Safety and Health Administration (OSHA) has released its latest web-based training tool on the Incident Command System (ICS). This web course highlights planning, preparation, and implementation of an ICS system, and includes a section outlining OSHA standards that affect ICS workers, along with additional guidance applicable to emergency response safety and health.

[http://www.riskinstitute.org/lib\\_art.asp?art\\_id=1081](http://www.riskinstitute.org/lib_art.asp?art_id=1081)

On its web site, the Public Entity Risk Institute (PERI) has posted abstracts of the articles in the volume *Beyond September 11th: An Account of Post-disaster Research*, published by the Natural Hazards Center (see the *Observer*, Vol. XXVIII, No. 2, p. 3). These articles were authored by researchers who studied the immediate effects of September 11, 2001, in the days, weeks, and months following the disaster.

<http://gets.ncs.gov/>

The Government Emergency Telecommunications Service (GETS), provided by the Office of the Manager, National Communications System (OMNCS), supports federal, state, and local government, industry, and nonprofit organization personnel in performing national security and emergency preparedness (NS/EP) missions. GETS provides emergency access and priority processing in the local and long distance segments of the Public Switched Network (PSN). It is intended to be used during an emergency or crisis when the probability of completing a call over normal or alternate telecommunication means is low.

[http://www.txregionalcouncil.org/cc\\_cert/citizen\\_corps.htm](http://www.txregionalcouncil.org/cc_cert/citizen_corps.htm)

The Texas Association of Regional Councils local Citizens Corps Councils web page includes an overview of the state's Comprehensive Citizen Corps program in Power Point format from a recent presentation given at the Volunteers in Homeland Security Conference in November. The presentation covers statewide program goals, structure, funding, and activities.

## Homeland Security

[http://www.dhs.gov/dhspublic/interapp/editorial/editorial\\_0355.xml](http://www.dhs.gov/dhspublic/interapp/editorial/editorial_0355.xml)

The Department of Homeland Security (DHS) has announced a new web page for information on grant opportunities from the department and elsewhere in the federal government, including public health preparedness grants under Health and Human Services, counter-terrorism grants under the Department of Justice, and water-security grants from the Environmental Protection Agency. (See the Washington Update section of this *Observer*.)

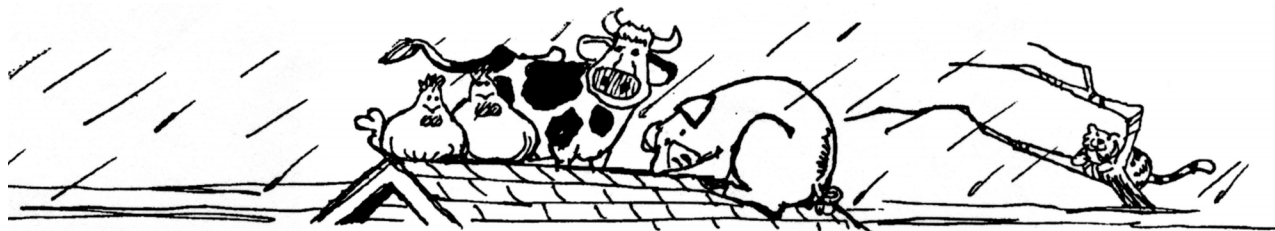
<http://www.fema.gov/compendium>

DHS has recently launched a searchable web-based “compendium of federal terrorism training,” a database originally developed by the army in 1998 and significantly updated and redesigned by FEMA’s Emergency Management Institute. This new resource provides state and local officials with a single location from which they can easily find information on terrorism training available from federal departments and agencies. Users can query specific subject areas, departments, or agencies and print out customized lists of available training.

## Earthquakes

<http://www.eeri.org/>

The Earthquake Engineering Research Institute (EERI) has unveiled a newly reorganized web site. EERI is a national, nonprofit, technical society of engineers, geoscientists, architects, planners, public officials, and social scientists.



## Floods and Severe Weather

<http://www.nws.noaa.gov/om/water/turnaround.shtml>

Each year, more deaths occur due to flooding than because of any other thunderstorm-related hazard. “Turn Around Don’t Drown” is a new campaign begun by the Federal Alliance for Safe Homes (FLASH) and the National Weather Service to educate people about flood risks. This site includes information about the program along with downloadable signs and brochures.

<http://www.wvca.us/flood.php>

The West Virginia statewide flood protection task force is in the final stages of developing a statewide flood protection plan. This site presents the draft plan. For additional information, e-mail Russ Campbell, [rcampbell@wvca.us](mailto:rcampbell@wvca.us); or Richard Drum, [richard.g.drum@lrh01.usace.army.mil](mailto:richard.g.drum@lrh01.usace.army.mil).

<http://www.climatecentre.org>

The Netherlands Red Cross and the International Federation of Red Cross and Red Crescent Societies recently signed an agreement confirming cooperation for a new “Center on Climate Change and Disaster Preparedness” to facilitate working relationships between Red Cross/Red Crescent Societies and country or regional climate experts in areas relevant to disaster preparedness. Along with a variety of projects, the center has already conducted climate change and disaster preparedness assessments in Vietnam, Nicaragua, Mozambique, Ethiopia, and locations in the Pacific. Work is continuing in Nicaragua (through the Nicaraguan Red Cross) in three communities to raise awareness about risks due to climate change, train volunteers to assist with emergency response, and strengthen partnerships with government agencies and others already working on these issues.

## Fire

<http://www.osha.gov/dep/fire-expmatrix/index.html>

The Occupational Safety and Health Administration (OSHA) recently developed this on-line “Fire and Explosion Planning Matrix” to help employers reduce their vulnerability to, or the consequences of, a terrorist explosive device or act of arson.

<http://www.redcross.org/disaster/masters/>

The Red Cross is now providing lesson plans and activities for children ages 5-13 to help them and their families prepare for a fire. The materials, developed with support from the United States Fire Administration (USFA), are aimed at reducing the injuries and fatalities among children due to residential fire. The information is obtainable by clicking on the “fire prevention and safety” icon on this web site.

<http://www.usfa.fema.gov/inside-usfa/newsletter/2003/news100103.shtm>

The USFA has also begun publishing an on-line newsletter available at this URL.

<http://www.usfa.fema.gov/applications/publications/>

Every year, more fire departments are implementing geographic information systems (GIS) in their departments for geographical analysis and display of department activities. To facilitate this change, the USFA has released a CD-ROM tutorial, which offers an introduction to GIS for the fire service and links to more advanced information and key resources. Included with the CD-ROM is a video called "Mapping the Future of Fire," which demonstrates actual use by the Wilson, North Carolina, fire department. The tutorial can be obtained at no cost at the URL above (search for publication FA-259).

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

The Federal Emergency Management Agency and the Fire Safety Council have joined to create this one-stop information resource for residential fire safety and prevention information that is distributed by the federal government.

<http://geomac2.cr.usgs.gov/>

The Geospatial Multi-Agency Coordination web site was started at the request of fire managers who needed real-time geospatial information on the status, location, and proximity of wildfires to life, property, and infrastructure. A visual presentation of active fires gives managers a better idea of where to focus resources. This site received an unprecedented number of hits during the recent California wildfires. Server capabilities have been updated to accommodate future events.

## Avalanche

<http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh55.htm>

*Snow Avalanche Management in Forested Terrain*, a Canadian Ministry of Forests publication, is available on-line in PDF format at this site. The book addresses snow and avalanche phenomena in a forestry setting and outlines harvest design and silvicultural strategies to reduce avalanche risk.

## Hurricanes

<http://www.usatoday.com/weather/hurricane/whhistory.htm>

This hurricane web site, maintained by *USA Today*, includes historical information and a wide variety of hurricane-related resources and links.

<http://www.ncddc.noaa.gov/cra>

The Coastal Risk Atlas (CRA), a joint project of the National Coastal Data Development Center (NCDDC) and the National Oceanic and Atmospheric Administration Coastal Services Center (CSC), is an on-line risk/vulnerability tool for analyzing coastal storms. The site features several Internet map services providing hazard, demographic, and critical facility information for the Mississippi Gulf Coast and northeast Florida. It also offers maps providing other spatial data as well as real-time observations.

## Hazards and GIS: Help Spread the Word!

During the 2003 Natural Hazards Workshop held in Boulder, Colorado, this past summer, a group of 50 participants met to discuss common interests in hazards applications of geographic information systems/sciences (GIS). Acting on a recommendation from the group, a new web site has recently been launched to encourage sharing of information about how the hazards community is using GIS for hazards-related activities and to provide useful and easily accessible resources for everyone. The web site can be found at <http://hazards.lsu.edu>.

The site is active, and the managers have issued a general call to all those who are interested in GIS and hazards, encouraging them to link to the web page and provide suggestions, pertinent links, comments, or anything else they consider useful. There are countless potential cosponsors and participants for this effort from the various public, private, and nonprofit agencies and organizations currently working with hazards and GIS.

Specifically, site organizers are looking for the following input: information on any available GIS resources for hazards-related data, hazards research that is using GIS, and any other general suggestions. Please contact either *Lavanya Gandluru*, [lgandl1@lsu.edu](mailto:lgandl1@lsu.edu); or *John C. Pine*, Department of Environmental Studies, 42 Atkinson Hall, Louisiana State University, Baton Rouge, LA 70803; (225) 578-1075; e-mail: [jpine@lsu.edu](mailto:jpine@lsu.edu); <http://hazards.lsu.edu>.

# Harvard Launches Bioterrorism Preparedness Academy

Last fall, the Centers for Disease Control and Prevention (CDC) awarded \$250,000 to Harvard University's School of Public Health and Kennedy School of Government to establish a National Preparedness Leadership Academy (NPLA). Reflecting national concern regarding bioterrorism and other terror threats, this university-wide training initiative will be geared toward senior government officials with responsibilities for preparedness and public health. The NPLA will develop a curriculum and training program to help officials at all levels of government better understand and meet the challenges of comprehensive national preparedness. The academy will strive to establish "connectivity" among this group in order to create a "seamless web of people, organizations, resources, and information that can best contend with a bioterrorist attack."

Once the framework of the NPLA is established, the CDC plans to provide additional funding. The developers of the academy hope that it will help prepare the U.S. not only for bioterrorism but also for emergent infectious diseases and natural disasters that might threaten public health. For further information, see <http://www.hsph.harvard.edu/press/releases/press10172003.html>; or contact Kevin C. Myron, Office of Communications, Harvard School of Public Health; (617) 432-3952; e-mail: [kmyron@hsph.harvard.edu](mailto:kmyron@hsph.harvard.edu); or Doug Gavel, Communications Officer, Kennedy School of Government, Harvard University; (617) 495-8290; e-mail: [doug\\_gavel@harvard.edu](mailto:doug_gavel@harvard.edu).



## Pitt and Hopkins Open New Biodefense Center

The University of Pittsburgh Medical Center has joined with the Johns Hopkins Center for Civilian Biodefense Strategies to open a new Center for Biosecurity at the University of Pittsburgh Medical Center. With the threat of bioterrorism gaining currency as a potential national hazard, the center will incorporate both biodefense policy studies and research. The center will work to prevent the development and use of biological weapons, to catalyze advances in science and governance that diminish the power of biological weapons as agents of mass lethality, and to lessen the human suffering that would result if prevention fails.

The center will be headquartered in Baltimore and have offices in Washington, D.C. and Pittsburgh. The center's various projects will seek to:

- Provide independent, critical analysis for decision makers in government, national security, bioscience, medicine, and public health and promote the responsible use and governance of biotechnologies and bioscience;
- Build international networks of scientists, scholars, medical and public health practitioners, and decision makers to improve communication, create links and facilitate development of new knowledge and ethical standards;
- Create model medical and public health operational systems to manage epidemics and other high consequence events in times of peace and crisis; and
- Develop scenarios for decision makers that illustrate the key challenges in bioterrorism preparedness and response and offer possible paths forward.

For more information, contact the center directly at *The Johns Hopkins University, Center for Civilian Biodefense Strategies, 111 Market Place, Suite 830, Baltimore, MD 21202; (443) 573-3304; <http://www.upmc-biosecurity.org>.*



# 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>.

*Wildland Fire 2004. Sponsors: International Association of Wildland Fire, U.S. Forest Service, Department of the Interior, and the International Association of Fire Chiefs (IAFC). Reno, Nevada: March 3-5, 2004.* This conference will bring together fire service leaders from the local, state, and federal levels to address a critical problem facing fire departments all over the world: issues surrounding the wildland/urban interface. Registration information is available from the *International Association of Wildland Fire c/o IAFC, 4025 Fair Ridge Drive, Fairfax, VA 22033; e-mail: wildlandfire2004@iafc.org; http://www.iafc.org/pdf/conf/WF04\_confguide.pdf*.

*Spring World 2004. Sponsor: Disaster Recovery Journal (DRJ). Orlando, Florida: March 7-10, 2004.* This business continuity conference includes pre- and post-conference courses to supplement its conference tracks, presentations, and networking opportunities on an array of topics including knowledge sharing, operational resiliency, terrorism response, lessons learned from past disasters, business recovery plans, continuity issues, and more. For more information contact *DRJ, P.O. Box 510110, St. Louis, MO 63151; http://www.drj.com*.

*43rd Emergency Management Conference. Sponsor: Texas Department of Emergency Management (DEM). Waco, Texas: March 7-10, 2004.* This conference includes training, workshops, breakout meetings, and general sessions. For more information, contact *Valerie Ehrhardt, DEM Public Information Office, P.O. Box 4087, Austin, TX 78773; (512) 424-2138; e-mail: valerie.ehrhardt@txdps.state.tx.us; http://www.txdps.state.tx.us/dem/conference\_2004\_index.htm*.

*Crisis Management in Europe: Problems and Perspectives. Sponsor: European Crisis Management Academy (ECMA). Bled, Slovenia: March 11-14, 2004.* This conference is part of the NATO Partnership Work Program for 2004 and the Project on Disaster Management Training for Southeastern Europe. It will address crucial crisis management issues such as decision making, leadership and coordination, crisis

communication and information management, psychological dimensions of crises, civil-military cooperation during a crisis, and the role of supra-national institutions in crisis management. For more information contact *Erik Kopac; tel: +386 1 589 2357; e-mail: erik.kopac@uni-lj.si*.

*Three Days: Three Short Courses for Regulators and Radiation Health Specialists in Emerging Topics in Radiation Protection and Risk Assessment. Sponsor: Risk Assessment Corporation. Kiawah Island, South Carolina: March 16-18, 2004.* These courses include information on risk assessment, recommendations of the International Commission on Radiological Protection, and suggestions of how to work with stakeholders on issues of risk assessment. Registration details and a course outline can be obtained by contacting *Kristen Jacobucci, 417 Till Road, Neeses, SC 29107; (312) 372-1255; e-mail: kjacobucci@caps-ltd.com; http://www.racteam.com/Courses/2004Course.htm*.

*International Conference On Managing Seismic Risk In Developing Countries (MSRDC). Sponsor: Disaster Management Institute (DMI). Bhopal, India: March 17-19, 2004.* MSRDC 2004 will provide a platform for technologists, administrators, and disaster management professionals to review and evaluate recent developments in earthquake disaster management in developing countries, with the goal of enhancing efforts to mitigate and combat such disasters. Conference topics include low-cost earthquake construction and retrofitting techniques, design and construction practices in developing countries, risk assessment and rehabilitation in developing countries, and seismic vulnerability and safety of building structures. Conference information is available from *K.S Parmar, MSRDC 2004, DMI, Paryavaran Parisar, E-5, Arera Colony, Bhopal 462016 Madhya Pradesh, India; e-mail: msrdc2004@dmibpl.org or colaksparmar@hotmail.com; http://www.dmibpl.org/int-conf.htm*.

*The GeoTec Event: Pathways to Integration. Sponsor: GeoTech Media. Toronto, Canada: March 28-31, 2004.* With a theme of "Navigating Pathways to Integration," this

conference will explore the adoption of geotechnology into mainstream information technology. Of special interest to natural hazards researchers is the emphasis on providing a broad overview of geospatial technology applications. Event details are available from *Matt Ball, GeoTec Media, 6666 Gunpark Drive, Suite 102, Boulder, CO 80301; (303) 544-0594; e-mail: EventInfo@GEOTecEvent.com; http://www.geoplace.com/gt/callforpapers/default.asp.*

*The 2004 Homeland and Global Security Summit. Sponsor: Equity International. Washington, D.C.: March 31-April 1, 2004.* Homeland security spending in the U.S. is projected to increase in coming years. This summit will provide the latest information on spending and programs, including sessions on funding and agency priorities, new grants for emergency management, public safety, disaster response, and more. Program and registration details are available from the *Center for Homeland and Global Security, a division of Equity International, Inc., 1101 Pennsylvania Avenue, NW, 6th Floor, Washington, DC 20004; (202) 756-2244; http://www.globalsecurity.bz.*

*26th Annual National Hurricane Conference (NHC). Sponsor: Florida Shore and Beach Preservation Association. Lake Buena Vista, Florida: April 5-9, 2004.* The goal of this conference is to improve hurricane preparedness, recovery, and mitigation in order to save lives and property in the U.S. and the tropical islands of the Caribbean and Pacific. It is a national forum for federal, state, and local officials to exchange ideas and recommend policies to improve emergency management and includes a number of training sessions. Information is available from *David Tait, NHC, 2952 Wellington Circle, Tallahassee, FL 32309; (850) 906-9224; e-mail: mail@hurricanemeeting.com; http://www.hurricanemeeting.com.*

*Disaster Response Conference 2004. Sponsors: Chesapeake Health Education Program (CHEP) and the National Disaster Medical System (NDMS). Dallas, Texas: April 17-21, 2004.* This conference will promote interaction between local, state, and federal public health practitioners and policy makers. Practitioners from a variety of governmental, academic, and volunteer agencies will present their views on key topics such as counter-terrorism, weapons of mass destruction, clinical medicine, mental health, response teams, and international coordination. Conference details can be obtained from *CHEP/NDMS Headquarters, 11E Building 82H, Perry Point, MD 21902; (410) 642-1857; http://www.ndms.chepinc.org/.*

*Symposium on Rural Crisis Intervention. Sponsor: Rocky Mountain Region Disaster Mental Health Institute. Casper, Wyoming: April 21-24, 2004.* The purpose of this national symposium is to advance understanding of crisis intervention in rural America. Participants will present research results in crisis intervention and discuss critical incident stress management and debriefing, disaster mental health services, and advances in service delivery. Abstracts are due January 30, 2004, and should be e-mailed to: *conference@mail2.wyoming.com.* Symposium information is available from *George Doherty, Rocky Mountain Region Disaster Mental*

*Health Institute, Box 786, Laramie, WY 82073.*

*Second International Conference on Post-Disaster Reconstruction: Planning for Reconstruction. Sponsor: Coventry University, Center for Disaster Management, and the University of Montreal, I-Rec team. Coventry, U.K.: April 22-23, 2004.* This conference will provide a forum for practitioners and academics from around the world to present their research on vulnerability and risk mapping, coping mechanisms, disaster planning, interorganizational arrangements, needs assessment, damage evaluation, community participation, environmental monitoring in reconstruction, and other areas. For conference details, contact *Andrew Fox, Planning for Reconstruction, School of Science and the Environment, Coventry University, Priory Street, Coventry CV1 5FB, U.K.; tel: 024 7688 7688; e-mail: a.fox@coventry.ac.uk; http://legacywww.coventry.ac.uk/legacy/se/research/i\_rec\_call.htm.*

*Colorado Mitigation and Wildfire Conference (CMWC). Colorado Springs, Colorado: April 23-25, 2004.* This conference will focus on preparing for and managing fires in the wildland-urban interface. Firefighters, planners, policy makers, public groups, and private industry will develop ideas to help reduce the loss of life, property, and natural resources in these areas. Information is available from the *CMWC, 100 Jefferson County Parkway, Suite 4550, Golden, CO 80419; (303) 271-8217; http://www.wildfirecolorado.org.*

*International Workshop on Information Systems for Crisis Response and Management (ISCRAM2004). Sponsor: Tilburg University. Brussels, Belgium: May 3-4, 2004.* This workshop is designed for information systems researchers who are working in the areas of crisis planning, response, and management, along with emergency response personnel and national and international policy makers in emergency response. General information can be obtained from *Tilburg University, Warandelaan 2, P.O. Box 90153, 5000 LE Tilburg, The Netherlands, tel: +31 (0) 13 466 91 11; http://www.tilburguniversity.nl/isgram2004.*

*Basin and Range Province Seismic Hazards Summit II: Evaluating Approaches, Techniques, and Policies for Seismic Hazard Characterization in Extensional Regions. Sponsors: Western States Seismic Policy Council, U.S. Geological Survey, and Federal Emergency Management Agency. Reno, Nevada: May 16-19, 2004.* The basin and range province of North America is a land of contrasts and challenges for seismic hazard analysis and application. This meeting brings together 10 state geological surveys, the U.S. Geological Survey, university professors, and those working in science and engineering geology to discuss seismic hazard analysis. It will entail a sequence of summary talks given on specific topics relevant to the basin and range province. Abstract titles are due by February 5, 2004. Titles, abstracts, and paper submissions can be sent to *Terri Garside, Nevada Bureau of Mines and Geology, University of Nevada, Reno, Nevada, 89557; e-mail: tgarside@unr.edu; http://www.unr.edu/content/.*



*14th World Conference on Disaster Management. Sponsor: Canadian Centre for Emergency Preparedness (CCEP). Toronto, Canada: June 20-23, 2004.* This meeting will address issues common to all aspects of disasters and emergency management. For detailed information contact CCEP, 1005 Skyview Drive, Suite 323, Burlington, Ontario L7P 5B1, Canada; (905) 331 2552; <http://www.wcdm.org>.

*Second Annual Conference: Risk Management (ETR2A). Sponsors: European Telecommunications Resilience and Recovery Association, Northeast Development Agency, and Northumbria University. Newcastle upon Tyne, U.K.: June 24-25, 2004.* This conference will bring together business, the public sector, and academia to address issues surrounding business, telecommunications, and public life in preparing for and responding to emergencies. Abstracts must be received by March 26, 2004, and should be sent electronically to [info@etr2a.org](mailto:info@etr2a.org) or to the address below. Abstract guidelines and conference information are available from the ETR2A Conference Office, Benchmark Communications, 63 Westgate Road, Newcastle upon Tyne, NE1 1SG, UK; tel: 0191 241 4523; <http://www.etr2a.org/>.

*Smart Structures Technology and Earthquake Engineering. Sponsors: Japan Society for the Promotion of Science, National Science Foundation, and Asia-Pacific Network of Earthquake Engineering Research. Osaka, Japan: July 6-9, 2004.* Earthquake engineering has undergone a transformation from discipline-oriented investigations to network-based efforts that rely on cross-cutting solutions. This symposium is dedicated to facilitating that shift. Further information is available from Ma Hua, Osaka University, Osaka, Japan; e-mail: [mahua@arch.eng.osaka-u.ac.jp](mailto:mahua@arch.eng.osaka-u.ac.jp); <http://www.nees.org/info/SE041119.pdf>.

*AWRA 2004 Spring Specialty Conference: Geographic Information Systems (GIS) and Water Resources III. Sponsor: American Water Resources Association (AWRA). Nashville, Tennessee: May 17-19, 2004.* This conference will host both practical workshops and technical exchange on applications where GIS is making great advances. It will include keynote talks on major topics, followed by papers on specific applications. The format will allow participants plenty of opportunities to interact with researchers and practitioners in the GIS field and water resources management. Conference details are available from Kenneth J. Lanfear, U.S. Geological Survey, Reston, VA; (703) 648-6852; e-mail: [lanfear@usgs.gov](mailto:lanfear@usgs.gov); <http://www.awra.org/meetings/Nashville2004/index.html>.

*The International Emergency Management Society (TIEMS) Annual Conference. Melbourne, Australia: May 18-21, 2004.* With the theme of "facing new challenges," participants will hear from international practitioners regarding the latest techniques, equipment, and theories in emergency management. Conference information may be obtained from Norm Free, Shire of Yarra Rangers, P.O. Box 105, Lilydale, Victoria, Australia; tel: +61 3 9294 6703; e-mail: [n.free@yarraranges.vic.gov.au](mailto:n.free@yarraranges.vic.gov.au); <http://www.tiems.org/>.

*International Snow Science Workshop 2004. Sponsors: American Avalanche Association, American Avalanche Institute, Jackson Hole Mountain Resort, U.S. Forest Service, and Wyoming Department of Transportation. Jackson Hole, Wyoming: September 19-24, 2004.* Snow scientists and avalanche professionals from many nations will come together at this meeting to present papers and exchange information. The meeting will continue the theme of past workshops of merging theory and practice. Registration information and workshop details are available from the International Snow Science Workshop, American Avalanche Institute, P.O. Box 308, Wilson, WY 83014; (307) 733-3315; e-mail: [Issw@aol.com](mailto:Issw@aol.com); <http://www.issw.net>.

### **IBHS/ACSP Seek Papers on Planning and Natural Hazards**

The Institute for Business & Home Safety (IBHS) and the Association of Collegiate Schools of Planning (ACSP) are seeking papers to be presented at the ACSP conference October 21-24, 2004, in Portland, Oregon. The two organizations will grant one award recognizing scholarship in the field of planning and natural hazards.

Papers should cover land use or other types of planning that address natural hazards, such as flooding, coastal erosion, land subsidence, earthquakes, or other geologic or meteorological hazard risks that can be minimized through community, regional, or state planning. Undergraduate, graduate, and joint faculty/student papers are eligible.

Abstracts must be submitted directly to the ACSP conference organizers between January 5 and February 16, 2004, and submission procedures can be found at <http://www.acsp.org>. At the same time, copies of the abstracts should be sent by e-mail to the ACSP-IBHS committee chair (e-mail below) with a cover memo indicating intent to submit a paper for the ACSP-IBHS award. Authors whose abstracts are accepted for presentation at the conference are then eligible for the award. They should submit their final papers electronically to the ACSP-IBHS committee chair by May 25, 2004. Papers should not to exceed 20 pages and will be reviewed during the summer of 2004. The winner will be notified in September.

Send abstract submissions to Robert Paterson, Graduate Program in Community and Regional Planning, School of Architecture and Planning, University of Texas, Austin, TX 78712-1160; e-mail: [paterson@uts.cc.utexas.edu](mailto:paterson@uts.cc.utexas.edu); <http://www.acsp.org>.

## UNDP, Swiss Re, and Harvard to Assess Risks of Climate Change

In October 2003, the United Nations Development Program (UNDP) announced a new partnership to investigate the risks posed by climate change and loss of biodiversity that can contribute to natural disasters, the spread of diseases, and other health hazards that often hit poor communities hardest. The initiative partners include UNDP, the reinsurance company Swiss Re, and Harvard Medical School's Center for Health and the Global Environment. Together, they are establishing working groups to assess four areas: heat waves and air pollution, emerging infectious diseases, extreme weather events, and impacts on ecosystems. In part, the partnership is a response to the need expressed by many developing countries for assistance in analyzing and mitigating the impact of these risks on communities. Improved risk management could help extend disaster-related insurance to countries where it is currently not available.

When Hurricane Mitch struck Central America in 1998, it claimed 5,700 lives and inflicted \$3.8 billion in economic losses in Honduras. However, nearby Belize suffered far less damage, indicating that environmental management, particularly of forests, wetlands, and coral reefs, can play a key role in reducing the toll of disasters on vulnerable communities. There is also strong evidence that climate change and ecosystem degradation can cause existing diseases, such as malaria and West Nile virus, to spread more quickly and also stimulate the emergence of new infectious diseases.

Weather-related insurance losses have increased five-fold since the 1950s, currently reaching \$40 billion a year, and are expected to grow to \$150 billion a year within the next decade. Although 96% of disaster-related deaths occur in developing countries, insurance against such risks is not available in almost all of those nations, making this a central issue in poverty reduction efforts.

The climate change and biodiversity risk assessment will support sound environmental management, such as restoring forests for flood and erosion control, protecting watersheds, and promoting other risk-mitigation activities. In turn this will ensure wider availability of disaster insurance and facilitate progress toward the eradication of poverty and other long-term development goals.

For more information about this initiative, see the UNDP web site: <http://www.undp.org/dpa/frontpagearchive/2003/october/9oct03/>; or contact Charles McNeill, [charles.mcneill@undp.org](mailto:charles.mcneill@undp.org); or Arun Kashyap, UNDP Energy and Environment Group, [arun.kashyap@undp.org](mailto:arun.kashyap@undp.org); or Victor Arango, UNDP Communications Office, [victor.arango@undp.org](mailto:victor.arango@undp.org).

## FM Global Establishes Center to Study Hazard Impacts

FM Global, an international commercial and industrial property insurer, has opened a campus where researchers will conduct studies and scenario-based tests to help companies better understand the impacts of natural hazards and demonstrate how to prevent them from affecting property and business operations. The campus, located in West Glocester, Rhode Island, can recreate warehouse-sized fires, hurricane-strength windstorms, dust explosions, and electrical hazards that can be studied by scientists and engineers. The research will help determine the long-term performance of building materials and the most sound ways for businesses to protect their property.

The facility houses the world's largest fire technology laboratory to enable the replication of large fires and the testing of the latest fire-protection technology. It will also include a new natural hazards laboratory capable of creating category 5 hurricane winds and launching lumber, hail, and other wind-blown projectiles at speeds up to 90 mph. The laboratory can recreate other weather extremes, such as damaging ultraviolet rays, as well as freezing, thawing, and hail. The electrical hazards laboratory is able to test explosion-proof and flameproof equipment for use in hazardous locations, and a dust-explosion bunker will allow the simulation of the devastating effects of such events.

Nearly 60% of companies report that property risks such as fires, explosions, natural disasters, and mechanical and electrical breakdowns pose the greatest threat to their economic viability. FM Global notes that more than one-third admit they are not prepared to recover from such a disruption. More information about the new center is available from FM Global, 1301 Atwood Avenue, P.O. Box 7500, Johnston, RI 02919; (401) 275-3000; <http://www.fmglobal.com/about/campus/campus.asp>.





# CONTRACTS AND GRANTS

Below are descriptions of recently awarded contracts and grants related to hazards and disasters. An inventory of awards from 1995 to the present (primarily National Science Foundation grants) is available from the Natural Hazards Center web site: <http://www.colorado.edu/hazards/grants.html>.

**Cooperative Research: Coastal Tsunami Effects: Mitigation Component.** Funding: National Science Foundation, \$128,000, four years. Principal Investigator: *Jane Preuss, GeoEngineers, Inc., 8410 154th Avenue, N.E., Redmond, WA 98052; e-mail: jpreuss@geoengineers.com.*

This award supports a group research project focusing on specific aspects of tsunami coastal hazards mitigation. In this work, the first priority is to accurately identify the tsunami inundation zone. Recently, the National Oceanic and Atmospheric Administration launched a comprehensive program to estimate potential inundation zones along the Pacific Coast (California, Oregon, Washington, Alaska, and Hawaii; see <http://www.pmel.noaa.gov/tsunami/time>). The next priority is to reduce loss of life and property damage within the identified inundation zones. This project will address several aspects of the dynamics of tsunami inundation resulting in scenarios of flooding.

**Decision Technologies for Managing Critical Infrastructure Interdependencies.** Funding: National Science Foundation, \$400,000, 30 months. Principal Investigator: *William A. Wallace, CII 5117, Rensselaer Polytechnic Institute, Troy, NY 12180-3590; (518) 276-6854; e-mail: wallaw@rpi.edu.*

As documented in a recent report to the U.S. Congress (see the previous *Observer*, Vol. XXIII, No. 2, p. 16), it is vital that critical infrastructure systems, ranging from electrical grids to highways, not be degraded by willful acts such as terrorism or by natural or random events such as earthquakes, design flaws, or human error. Compounding this problem, infrastructure systems and their managers increasingly rely on other infrastructure systems in order to deliver key services. The objective of this research is to improve understanding of and support for the management of interdependent critical infrastructure systems in which the impact on one system affects others. The particular aim is to develop techniques to mitigate or respond to events that could affect interdependent critical infrastructure systems and to provide decision makers with means for using those models. The techniques developed will be embedded in computer-based decision aids designed to assist managers both when disruption occurs and prior to events, when decision makers can model different event scenarios, assess impacts, and

formulate strategies for minimizing lost service and promptly restoring infrastructure.

**Cooperative Research on Seismic Resistant Design of Low-Cost Housing Units.** Funding: National Science Foundation, \$4,800, one year. Principal Investigator: *James K. Wight, Civil and Environmental Engineering, 2368 G.G. Brown Building, University of Michigan, Ann Arbor, MI 48109-2125; (734) 763-3046; e-mail: jwight@umich.edu.*

For most major earthquakes, the largest loss of life is typically caused by the collapse of low-cost structures that have not been adequately designed and/or constructed. This study will explore the use of high-performance concrete for the fabrication of low-cost seismic-resistant housing. The study is the first step in a long-term cooperative research effort to develop a variety of standard designs for low-cost housing in moderate- to high-risk seismic zones in Mexico and other Central and South American countries.

**Center for Collaborative Adaptive Sensing of the Atmosphere (CASA).** Funding: National Science Foundation, \$17 million, five years. Principal Investigator: *David J. McLaughlin, University of Massachusetts-Amherst, Marcus Hall, 100 Natural Resources Road, Amherst, MA 01003; (413) 545-0962; e-mail: dmclaugh@mirsl.ecs.umass.edu.*

Our ability to monitor, anticipate, and respond to changing circumstances and events in the atmosphere is increasingly important. Hazardous weather, such as thunderstorms, snow storms, tornadoes, microbursts, and floods, as well as lofted radiological, chemical, and biological agents can, in a matter of minutes or hours, destroy or contaminate life and property over vast areas. Yet the lower troposphere and, particularly, the atmospheric boundary layer which comprise the portion of the atmosphere that contains the bulk of both natural and human-made hazards is grossly undersampled by today's sensing technologies. McLaughlin and several colleagues have proposed a new paradigm in which systems of distributed, collaborative, and adaptive sensing (DCAS) networks are deployed to overcome the fundamental limitations of current approaches. The improved sensitivity and resolution of these systems will lead to significant reductions in tornado false alarms, vastly improved

precipitation estimates for flood prediction, fine-scale wind field imaging and thermodynamic state estimation for use in airborne hazard dispersion prediction, and other applications. The Center for Collaborative Adaptive Sensing of the Atmosphere (CASA) will host the interdisciplinary group developing this system.

**Pacific Earthquake Engineering Research (PEER) Center.** Funding: National Science Foundation, \$8,075,000, nine years. Principal Investigator: *Jack P. Moehle, EERC/PEER, Building 451 RFS, University of California-Berkeley, Berkeley, CA 94720-3580; (510) 231-9554; e-mail: moehle@peer.berkeley.edu.*

The PEER Center is a consortium of nine core institutions, closely linked and regularly interacting through electronic networks. PEER's goal is to develop urban earthquake risk reduction technologies within a performance-based earthquake engineering framework. The research program comprises five basic areas: policy, planning, and economics; seismic hazards; performance assessment; systems reliability; and innovative technologies. PEER is a problem-focused, integrative center that bridges disciplinary gaps and barriers. It is one of three earthquake engineering research centers in the U.S. (along with the Multidisciplinary Center for Earthquake Engineering Research [MCEER] and the Mid-America Earthquake [MAE] Center) whose goals are to create new knowledge and technology; educate the next generation of earthquake engineers and scientists; and provide outreach to industry, government, educational institutions, and other potential user groups.

**Multidisciplinary Program in Wind Science and Engineering.** Funding: National Science Foundation, \$2,316,196, five years. Principal Investigator: *Kishor C. Mehta, Wind Science and Engineering Research Center, Box 41023, Texas Tech University, Lubbock, TX 79409-1023; (806) 742-3476; fax: (806) 742-3446; e-mail: kishor.mehta@wind.ttu.edu; http://www.wind.ttu.edu.*

The objective of this Integrative Graduate Education and Research Traineeship (IGERT) program is to produce a cadre of professionals prepared for broader multidisciplinary research, comprehensive planning, and balanced decision making by creating an integrated graduate research and training program leading to an interdisciplinary doctoral degree. The program will build on Texas Tech's strong history of wind-related research. National Science Foundation IGERT fellows will take core courses in atmospheric sciences, wind-related engineering, economic/risk management, ethics, and GIS, and participate in laboratory courses in meteorological measurement, wind-related engineering experimentation, and statistical analysis of random phenomena. A one-semester internship in a national laboratory, industrial organization, or governmental agency is also part of the program. This training, along with selected courses in a specific discipline, will prepare the fellows to pursue multidisciplinary research in wind science and engineering.

**A Foundation for Emergency Egress Simulation.** Funding: National Science Foundation, \$99,250, six months. Principal Investigator: *Daniel V. Swenson, Thunderhead Engineering, 1006 Poyntz Avenue, Manhattan, KS 66502-5459; (785) 770-8511; e-mail: swenson@thunderheadeng.com.*

The aim of this Small Business Innovation Research (SBIR) project is to develop a new method for modeling emergency egress from buildings. The primary focus is evacuation due to fires, but the software will also support simulation of exposure and response to biological and chemical agents. The project will couple egress analysis to time-varying fire conditions (e.g., smoke density and heat), thus enabling simulation of emergency situations in which, for example, some exit paths become blocked. In addition to incorporating current human response

models, the software will allow researchers to specify more complex individual behavior based on the results of recent studies of observed human behavior during emergencies. The software will enable researchers to add their own models of human behavior to the analysis and potentially facilitate peer reviews, an essential component to robust fire protection design. Egress analysis is a critical component, with fire simulation, in the implementation of "performance-based building design." This new approach, as compared to traditional rule-based (prescriptive) design, is being adopted in the U.S. to save building cost and reduce injury.

**Collaborative Research: Earthscope-Acquisition, Construction, Facility Management, Operations and Maintenance/USArray and Earthscope Office.** Funding: National Science Foundation, \$1, five years. Principal Investigator: *David W. Simpson, Incorporated Research Institutions for Seismology (IRIS), 1200 New York Avenue, NW, Washington, DC 20005; (202) 682-2220; e-mail: simpson@iris.edu.*

EarthScope is a scientific infrastructure initiative involving the development and integration of new observational facilities that address fundamental questions about the evolution of continents and the processes responsible for earthquakes and volcanic eruptions (see the *Observer*, Vol. XXVI, No. 1, p. 7). The integrated observing systems that will comprise the EarthScope facility include: USArray that maps the earth's interior in 3-D; the Plate Boundary Observatory that monitors the distortion of the earth's surface by means of geodetic systems; and the San Andreas Fault Observatory at Depth (SAFOD) that monitors an active plate boundary fault at depth. These systems capitalize on recent technological developments to provide earth scientists with synoptic and high-resolution data derived from a variety of geophysical sensors. All data from the EarthScope facility will be openly available in real-time to support both research and education. EarthScope will also aid hazard assessment and resource management.

This is only one of several recently awarded grants for construction and operation of Earthscope. Persons interested in learning about other Earthscope awards should see the NSF web site: <http://www.nsf.gov> and via the awards search page, <http://www.nsf.gov/verity/srchawdf.htm>, search for grants with the term "Earthscope" (see, for example, awards #0350025, 0350028, 0208457).

**GEON: A Research Project to Create Cyberinfrastructure for the Geosciences.** Funding: National Science Foundation, \$481,000, two years. Principal Investigator: *Charles M. Meertens, University Corporation for Atmospheric Research (UCAR), P.O. Box 3000, Boulder, CO 80307-3000; (303) 497-8011; e-mail: chuckm@ucar.edu.*

The GEOscience Network (GEON) project will use leading-edge information management research to create a cyber infrastructure for the solid earth geosciences that will integrate multidisciplinary geoscience data sets in four dimensional (4D) space. The need to manage the large amount of diverse earth science data has been recognized in a series of NSF-sponsored community meetings on geoinformatics. GEON, which represents a collaboration between information technology (IT) and earth science researchers, will provide the foundation for a national geoinformatics program. GEON will support the study of a wide range of phenomena including the interplay between tectonics and the evolution of sedimentary basins; the role of mountain building in the evolution of climate and life; broader predictive understanding and modeling capabilities of geologic hazards, such as earthquakes and volcanoes; the 4-D reconstruction of the Earth through time; and the management of the natural resources of our planet. Each of these problems requires

interdisciplinary research, and the goal of GEON is to develop the necessary IT foundations to support such work.

**Framework for Integrating Geospatial and Online Data to Respond to Unexpected Events.** Funding: National Science Foundation, \$1,180,000, four years. Principal Investigator: *Craig A. Knoblock, Information Sciences Institute, University of Southern California, 4676 Admiralty Way, Marina del Rey, CA 90292; (310) 448-8786; e-mail: knoblock@isi.edu.*

Much of the work on information integration has focused on the dynamic integration of structured data sources, such as databases or XML data. With more complex types of geospatial data, such as satellite imagery, maps, and vector data, researchers have focused on limited types of integration, such as combining vector data with imagery. With the enormous amount of data now available, there is a major opportunity to integrate non-web-based and web-based information sources. This project will focus on rapidly integrating and using the wide variety of geospatial and on-line data available today. The research will be conducted by the University of Southern California's Center for Research on Unexpected Events and should greatly improve the nation's ability to respond to such occurrences.

### NLM Issues Information Infrastructure Awards Aiding Disaster Management

On October 6, 2003, the National Library of Medicine (NLM) announced eleven awards totaling almost \$40 million over three years to "apply scalable advanced network infrastructure to health care testbeds." This is the third phase of the Next Generation Internet research program announced in 1998. Several of the awards were directly relevant to emergency management and disaster medicine. Many of them involve the development of computer network-based systems to aid hospitals and other first responders in managing disasters and other mass casualty events. For summaries of all the awards, see <http://www.nlm.nih.gov/research/siiawards.html>.

### DHHS Helping NYC (and Others) Deal with Public Health Emergencies

Last fall, the Health Resources and Services Administration, of the U.S. Department of Health and Human Services (DHHS) announced a noncompetitive cooperative agreement with the Fund for the City of New York. The award supports the efforts of the New York City Department of Health and Mental Hygiene to develop model approaches for addressing the special needs of high-density metropolitan areas with high levels of risk for bioterrorism attacks and other public health emergencies. Because of its population density, experience with previous terrorist attacks, and subsequent efforts to improve response capacity, New York City was cited as uniquely qualified to demonstrate methods that could be adapted by other health departments and government agencies regarding how to deal with bioterrorism threats and actual events.

A particular focus of this 18-month, \$5 million agreement is the development and evaluation of best practice guidelines for emergency preparedness in primary care settings, including effective models of clinical training. One aim is to ensure that federally qualified health centers are sufficiently involved in regional planning for, and actual response to, bioterrorist events or other public health emergencies. Beyond developing best practice guidelines and educational curricula, this effort will include testing, evaluating, and refining these products and formulating preparedness exercises such as hospital-based, web-accessible bioterrorism tabletop exercises to help identify the strengths and weaknesses of existing plans.

Information about this award can be found in the September 29, 2003, *Federal Register* (Vol. 68, No. 188, pp. 55968-55969). Additional information is available from *Michael Millman, Director, Division of Information and Analysis, Office of Planning and Evaluation, Health Resources and Services Administration, DHHS, Parklawn Building, Room 14-45, 5600 Fishers Lane, Rockville, MD 20857; (301) 443-0368.*





# RECENT PUBLICATIONS

## All Hazards

**Working with Women at Risk: Practical Guidelines for Assessing Local Disaster Risk.** Elaine Enarson, Marta Gonzáles, Lourdes Meyreles, Betty Hearn Morrow, Audrey Mullings, and Judith Soares. 2003. 104 pp. Available free on-line in English and Spanish through the Gender and Disaster Network; [http://online.northumbria.ac.uk/geography\\_research/gdn/resources/papers.html](http://online.northumbria.ac.uk/geography_research/gdn/resources/papers.html). Also available from the International Hurricane Center, Laboratory for Social and Behavioral Research, Florida International University, M.A.R.C Building #360, Miami, FL 33199; (305)348-1607; [http://www.ihc.fiu.edu/labr/Pages/LSBR\\_CVALW.html](http://www.ihc.fiu.edu/labr/Pages/LSBR_CVALW.html).

For the past two years, a team of researchers in the U.S., Dominican Republic, St. Lucia, Dominica, and El Salvador have been developing a new way of studying community vulnerability in the face of hazards and disasters. Their approach builds upon the local knowledge of women, whose social roles make them exceptional sources of information on risk and risk behavior, although their views are often overlooked. This guide presents the results of this research, explores the role of gender in community assessment, discusses specific strengths and challenges for women in disasters, and presents a new model of vulnerability and resource assessment.

**American Ground: Unbuilding the World Trade Center.** William Langewiesche. ISBN 0-86547-675-6. 2003. 230 pp. \$13.00. Available from Farrar, Straus and Giroux, 19 Union Square West, New York, NY 10003; (212) 206-5340; <http://www.fsgbooks.com/northpointpress.htm>.

Following the September 11, 2001, terrorists attacks, the author obtained unrestricted access to the disaster site and those involved in the cleanup of the World Trade Center collapse. Originally a series of articles in the *Atlantic Monthly*, this book dissects the details of the collapse and captures the contests of politics and personality that ensued. At the center is the team of engineers, many instrumental in building the towers, who had to orchestrate their disassembly. As the work got under way, many other groups (firefighters, police, widows, bureaucrats, and even profiteers) became involved. *American Ground* provides a thorough account of the many complex, lengthy, and often emotionally wrenching dimensions of what may have been the largest disaster recovery operation in U.S. history.

**Handbook for Estimating the Socio-economic and Environmental Effects of Disasters.** Ricardo Zapata Marti, editor. 2003. 357 pp. Available from the United Nations, Economic Commission for Latin America and the Caribbean and the International Bank for Reconstruction and Development, through the Provention Consortium web site at <http://www.proventionconsortium.org/toolkit.htm>.

Disasters have a major impact on the living conditions, economic performance, and environmental assets and services of affected countries. Their consequences may be long-term, irreversible, and more socially significant in developing countries, where they affect the

poorest and most vulnerable populations. This on-line publication looks at social sectors and infrastructure along with the overall effects of damage in order to provide a framework for estimating the financial impact of a given disaster to help determine the value of lost assets and define reconstruction requirements.

**Building Safer Cities: The Future of Disaster Risk.** Alcira Kreimer, Margaret Arnold, and Anne Carlin, editors. World Bank Disaster Risk Management Series No. 3. ISBN 0-8213-5497-3. 2003. 320 pp. \$35.00. Available from World Bank Publications, P.O. Box 960, Herndon, VA 20172-0960; (800) 645-7247; (703) 661-1580; fax: (703) 661-1501. The book can also be purchased on-line from <http://publications.worldbank.org/ecommerce/>; specifically, see [http://publications.worldbank.org/ecommerce/catalog/product?item\\_id=2337355](http://publications.worldbank.org/ecommerce/catalog/product?item_id=2337355).

Disaster impacts are becoming more severe. Annual direct losses for weather-related events have increased from \$3.9 million in the 1950s to \$63 million in the 1990s. Moreover, a number of ongoing trends such as population growth, environmental degradation, climate change and its correlative effects, and globalization have the potential to cause broader and more severe impacts than ever before. At the same time, relative to events in wealthier nations, disasters in developing countries can inflict massive casualties and cause major setbacks to economic and social development by diverting development funds to emergency relief and recovery. By empowering communities and individuals to implement effective disaster risk reduction strategies, families, communities, and entire countries can become more resilient when disasters strike. This volume, comprising papers presented at a 2002 meeting to promote awareness among development agencies regarding the urgent need to address urban vulnerability to hazards, presents a variety of perspectives on this topic.

**Terrorism and Disaster: New Threats, New Ideas.** Lee Clarke, editor. ISBN 0-7623-1043-X. 2003. 160 pp. \$90.00. Available in the U.S. from Elsevier, Customer Service Department, 11830 Westline Industrial Drive, St. Louis, MO 63146; <http://www.elsevier.com>.

The attacks on September 11, 2001, have been called signal events of the 21st century. Since 2001, scholars have been asking new questions about extreme events and focusing on innovations in the methods, theories, and concepts regarding terrorism and disaster. This book draws from several disciplines to address the following key questions: What does the response to the collapse of the World Trade Center tell us about disaster response generally? What has it meant for civil liberties in the U.S.? How do we conceptualize panic and mass response?

**Disaster Reduction in Asia - ISDR Informs.** Biannual Newsletter. To obtain a printed copy, contact the United Nations International Strategy for Disaster Reduction (UN/ISDR) Secretariat, Palais des Nations, CH 1211 Geneva 10, Switzerland; tel: +41 22 917-2103; fax: +41 22

917-0563; e-mail: [isdr@un.org](mailto:isdr@un.org); or, better yet, download the newsletter in PDF format from <http://www.unisdr.org>.

The inaugural issue of this magazine is entitled "Issue 0" to mark the birth of this collaborative publication of UN/ISDR, the Asian Disaster Preparedness Center, and the Asian Disaster Reduction Center. The newsletter includes statements from the directors of each of the sponsoring agencies regarding their roles in Asian disaster management and their hopes and expectations for the Second World Conference on Disaster Reduction to be held in Asia in 2005. It also includes information about other disaster reduction events and developments in the region.

**Interim Report: Causes of the August 14th Blackout in the United States and Canada.** U.S.-Canada Power System Outage Task Force. 2003. 134 pp. Available free on-line from the Office of Electric Transmission and Distribution, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington DC 50285; <https://reports.energy.gov/814BlackoutReport.pdf>.

A day after the electric power blackout in the Northeast, President Bush and Canadian Prime Minister Cretien created a joint task force to investigate the causes of the blackout and means to reduce the possibility of future outages. The task force divided its work into two phases: an investigation of the outage to determine the cause and why it was not contained, and recommendations to reduce the possibility of future outages and minimize their potential scope. This interim report does not yet attempt to draw broad conclusions or suggest policy recommendations. The task force will hold three public forums during which the public will have the opportunity to comment on the report. It is also possible to submit electronic comments and recommendations to either [blackout.report@hq.doe.gov](mailto:blackout.report@hq.doe.gov) (U.S.) or [poweroutage@nrcan.gc.ca](mailto:poweroutage@nrcan.gc.ca) (Canada).

**Enhancing New York City's Emergency Preparedness: A Report to Mayor Michael R. Bloomberg.** New York City Emergency Response Task Force. 2003. 24 pp. Available free on-line at [http://www.nyc.gov/html/om/pdf/em\\_task\\_force\\_final\\_10\\_28\\_03.pdf](http://www.nyc.gov/html/om/pdf/em_task_force_final_10_28_03.pdf).

The power outage of August 14, 2003, was one of the more severe emergency management challenges faced by New York City since 2001, and the consensus is that the city and its citizens responded well and recovered quickly. Those successes notwithstanding, the city felt that it was important to learn from the experience and find ways to improve current practices. In particular, because the blackout occurred at a fortuitous time (beginning during daylight, in good weather, and at the end of the work week), the mayor recognized that another event could pose significantly greater challenges and therefore established a task force to review the event. The task force contacted every city agency and conducted extensive outreach and surveys among the public, private, and nonprofit sectors. It examined the impacts of the outage and resulting issues in six broad areas: emergency response; business continuity; the city as employer; communications; transportation; and public health, safety, and preparedness.

**Emergency Response and Emergency Management Law.** William C. Nicholson. ISBN 0-398-07406-2. 2003. 345 pp. \$79.95. Available from Charles C. Thomas, Publisher, Ltd., 2600 South First Street, Springfield, IL 62704; (800) 258-8980; [http://www.cctomas.com/details.cfm?P\\_ISBN=0398074062](http://www.cctomas.com/details.cfm?P_ISBN=0398074062).

Emergency response law is not often considered in either the legal or emergency response literature. In addition, very few attorneys are current in emergency management law. This volume begins by examining the duty to respond and continues through the wide range of legal issues that arise during response. Chapters cover the responsibility to act, vehicle and dispatch issues, scene management, hazardous materials, use of volunteer resources, local and federal government responsibilities, and the broader issues of emergency management. A variety of relevant legal cases are profiled.

**An Operational Framework for Mainstreaming Disaster Risk Reduction.** Thomas Mitchell. Benfield Hazard Research Centre Disaster Studies Working Paper 8. 2003. 29 pp. Available from the Benfield Greig Hazard Research Centre, Department of Earth Sciences, UCL, 136 Gower Street, London, WC1E 6BT, UK; tel: +44 (0)20 7679

3449; [http://www.benfieldhrc.org/SiteRoot/disaster\\_studies/working\\_papers/workingpaper8.pdf](http://www.benfieldhrc.org/SiteRoot/disaster_studies/working_papers/workingpaper8.pdf).

This working paper introduces a "Disaster Risk Reduction (DRR) Mainstreaming Framework" for application at the national level. It argues that any framework must be flexible enough to be modified through a participatory process and have specific benchmarks or grades that are locally derived. The paper also places the framework in the context of other similar initiatives and discusses current debates and definitions of "disaster risk reduction" as a precursor to formulating a framework. The DRR Mainstreaming Framework is divided into four sections: politics and legislation, policy, knowledge, and practice. Overall the framework incorporates 20 indicators with associated benchmarks, and this paper concludes by calling for further testing of the DRR Mainstreaming Framework in diverse environments.

**Building a Disaster-Resistant University.** FEMA 443. Federal Emergency Management Agency (FEMA), 500 C Street, SW Washington, D.C. 20472. 66 pp. Free. Available on-line at <http://www.fema.gov/fima/dru.shtm>; or by calling the FEMA Publications Warehouse, (800) 480-2520.

The FEMA Disaster Resistant University program was created to reduce potential loss of life, damage, and expense that might follow a natural disaster striking a college or university. The program is intended to help those institutions identify vulnerabilities, assess risks, and promote comprehensive predisaster planning and mitigation. This book is both a how-to manual and a distillation of the experiences of six universities and colleges across the country that have been working over the past several years to become more disaster-resistant.

## Disaster Health

**Trauma Interventions in War and Peace: Prevention, Practice, and Policy.** Bonnie L. Green et al., editors. ISBN 0-306-47724-6. 2003. 411 pp. \$65.00. Available from Kluwer Academic Publishers, 233 Spring Street, New York, NY 10013; or P.O. Box 989, 3300 AZ Dordrecht, The Netherlands; tel: +31 (0)78-6576266; <http://www.wkap.nl>.

With traumatic stress an increasing global challenge, the United Nations, the nongovernmental community, and government offices must be prepared to address the psychological aftermath of large-scale catastrophes and individual or group violence. This book provides a broad framework for mental health interventions in the wake of abuse, torture, war, and disaster on individual, local, regional, and international levels and identifies programs that can be implemented at every level. These programs include social policy, safety programs, public education, coordination, capacity building, training, self-help, counseling, and clinical intervention. A core group of chapters covers the general concepts of traumatic stress, intervention, and social deprivation, while others focus on specific traumatic events, addressing, in each case, the scope of the problem, reactions to the traumatic stressor, intervention issues, and recommendations.

**Preparing for the Psychological Consequences of Terrorism: A Public Health Strategy.** Adrienne Stith Butler, Allison M. Panzer, Lewis R. Goldfrank, editors. Committee on Responding to the Psychological Consequences of Terrorism, Institute of Medicine, National Academies. 2003. 184 pp. \$36.00 (\$32.40, if purchased on the Internet). Available from National Academies Press, 500 Fifth Street, NW, Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313; <http://www.nap.edu>.

Terrorism, regardless of its form, can be psychologically devastating. The broad nature of these consequences demands both planning and a full public health response. Yet the nation's mental health, public health, medical, and emergency response systems currently are not able to meet the psychological needs resulting from acts of terrorism. Management of psychological consequences of terrorism will require a range of interventions at multiple levels and involve a variety of service providers. This volume offers a public health strategy that can serve as a basis for more comprehensive plans and provides a vision for assessing the completeness and effectiveness of plans and for addressing gaps in preparedness and response.

## Earthquakes

**Securing Society Against Catastrophic Earthquake Losses: A Research and Outreach Plan in Earthquake Engineering.** Earthquake Engineering Research Institute (EERI). EERI Publication No. RP-2003. ISBN 0-943198-03-8. 2003. 106 pp. \$15.00, plus shipping and sales tax for California residents. Copies are available from EERI, 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eeri@eeri.org; [http://www.eeri.org/cds\\_publications/catalog/](http://www.eeri.org/cds_publications/catalog/) (click on the Publications link under the Categories heading, then on Special Issues).

A panel of scientists and engineers from throughout the U.S. spent three years preparing a new, comprehensive vision for the rapid development and deployment of research and knowledge to create safer, more resilient communities. EERI states that "the plan represents the best opportunity to positively influence the reauthorizing legislation for the National Earthquake Hazards Reduction Program (NEHRP) and identifies the needed level of funding to carry out critical research and implementation." It identifies new research in both basic and applied science and engineering that must be investigated over the next two decades to protect life, property, and the economic stability of the nation in the event of a moderate or major earthquake anywhere in the U.S.

A complete list of EERI publications, (as well as CD-ROMs and videos) is available from the web site above; several can be downloaded for free. Some of the more recent titles include:

- **Collection and Management of Earthquake Data: Defining Issues for an Action Plan.** EERI Publication No. 2003-03. 2003. 124 pp. \$20.00 plus shipping and sales tax for California residents.
- **Lessons Learned Over Time, EERI Learning From Earthquakes Program Volume IV.** EERI Publication No. 2003-02. 2003. \$15.00, plus shipping and sales tax for California residents. This report examines the earthquake performance of highway structures in Turkey and the remedial actions that were taken.
- **Evaluation of Tsunami Risk to Southern California Coastal Cities.** Mark R. Legg, Jose C. Borrero, and Costas E. Synolakis. EERI/ FEMA NEHRP Professional Fellowship Report. 2003. 40 pp., plus appendices. Available free from EERI's web site.

**Advancing Mitigation Technologies and Disaster Response for Lifeline Systems.** James E. Beavers, editor. American Society of Civil Engineers (ASCE) Technical Council on Lifeline Earthquake Engineering Monograph No. 25. ISBN 0-7844-0687-1. 2003. A whopping 1,094 pp. \$93.75, ASCE members; \$125.00, nonmembers (see the ASCE web site for overseas prices, which are slightly higher). Order from ASCE Publications, 1801 Alexander Bell Drive, Reston, VA 20191; (800) 548-2723; <http://www.pubs.asce.org>.

This volume presents the proceedings of the Sixth U.S. Conference and Workshop on Lifeline Earthquake Engineering held in 2003. It includes 107 state-of-the-art reports and the results of studies by investigators who have analyzed and evaluated the effects of natural and technological hazards on lifelines. Although the conference focused on earthquake engineering, the papers draw on and are applicable to a wide range of hazards.

Some other recent publications from ASCE include:

- **Seismic Evaluation of Existing Buildings, SEI/ASCE 31-03 (ASCE Standard No. 31-03).** ISBN 0-7844-0670-7. 2003. 444 pp. \$112.50, members; \$150.00, nonmembers. **Seismic Evaluation of Existing Buildings** presents a three-tiered process for evaluation of buildings subject to any level of seismicity.
- **Sinkholes and the Engineering and Environmental Impacts of Karst.** Barry F. Beck, editor. ASCE Geotechnical Special Publication No. 122. ISBN 0-7844-0698-7. 2003. 744 pp. \$120.00, members; \$90.00, nonmembers.

## Hydrological Hazards and Water Resources Management

**Coping Strategies and Early Warning Systems of Tribal People in India in the Face of Natural Disasters: Case Studies in Mayurbhanj, Orissa and Durgapur, Rajasthan, India.** International Labor Office (ILO). ISBN 92-2-113207-2. 2002. 63 pp. Available free on-line from the ILO, CH-1211, Geneva 22, Switzerland; <http://www.ilo.org/public/english/region/asro/newdelhi/download/ilcoop.pdf>.

Tribal communities are often characterized by geographical isolation and social exclusion. Their livelihoods are dependant upon local natural resources, rendering them particularly vulnerable to natural hazards. In India, a recent hurricane and earthquake have resulted in organized disaster management planning. Still, recurrent phenomena, such as drought and flooding, remain problems, and efforts to deal with these hazards must involve those most affected, including tribal communities. The warning systems, coping mechanisms, preparedness strategies, and other adaptive procedures of these communities need to be understood and, where appropriate, incorporated into plans and procedures. Hence, the ILO has undertaken studies of the coping mechanisms of Indian tribal people in the face of drought (Durgapur) and flood (Mayurbhanj). This report provides insight into the social and economic dimensions of natural disasters in tribal communities and offers recommendations for wider application at policy and program levels both in the immediate future and long-term.

**Water for Life: Water Management and Environmental Policy.** James L. Wescoat, Jr., and Gilbert F. White. ISBN 0-521-36211-3, hardback; ISBN 0-521-36980-0, paperback. 2003. 342 pp. \$95.00, hardback; \$20.00, paperback. Available from Cambridge University Press, 40 West 20th Street, New York, NY 10011-4221; (212) 924-3900; <http://www.cup.org>.

Successful water management is crucial for the health of natural environmental systems and the support of human society. These two aspects are interdependent, but decisions about one are often made without regard to effects upon the other. This book analyzes the relationships among water management, environmental conditions, and public policy. It combines a careful review of the character and evolution of water management and an evaluation of management from the standpoint of the quality of the natural environment. Topics covered include social decision making, domestic and industrial water supply and waste disposal, groundwater use, river channel and floodplain management, and integrated river basins.

**The Cost of Rehabilitating Our Nation's Dams: A Methodology, Estimate, and Proposed Funding Mechanisms.** Revised edition. Prepared by a committee of the Association of State Dam Safety Officials (ASDSO). 2003. 62 pp. Available free on-line from ASDSO, 450 Old Vine Street, Lexington, KY 40507-1544; (859) 257-5140; <http://www.damsafety.org/documents/pdf/Cost%20of%20Rehabing%20Dams%20Report.pdf>.

Since the establishment of the National Dam Safety Program, there has been increasing awareness of both the number of dams and their safety requirements. Many of the country's dams are in disrepair. ASDSO has compiled state and national estimates of the cost of dam rehabilitation. The cost of upgrading or repairing all of the national nonfederal dams would exceed \$36 billion. Over half of the country's dams are privately owned, and in many cases, the owners of dams that present the greatest safety hazards are the least able to finance the maintenance, repair, or rehabilitation of the structure. To deal with this problem, the task force recommends the creation of a national dam rehabilitation loan program and provides guidelines for establishing state revolving funds for dam rehabilitation, repair, and removal.

**Water Resources Systems - Hydrological Risk, Management and Development.** Günter Blöschl, Stewart Franks, Michio Kumagai, Katumi Musiaka, and Dan Rosbjerg, editors. International Association of Hydrological Sciences (IAHS) Publication No. 281. ISBN 1-901502-32-5. 2003. 376 pp. £60.30.

**Water Resources Systems - Water Availability and Global Change.** Stewart Franks, Günter Blöschl, Michio Kumagai, Katumi Musiaka,



and Dan Rosbjerg, editors. IAHS Publication No. 280. ISBN 1-901502-27-9. 2003. 336 pp. £54.90.

Available from IAHS Press, Centre for Ecology and Hydrology, Wallingford, Oxfordshire OX10 8BB, U.K.; tel: +44 1491 692442; fax: +44 1491 692448; e-mail: jilly@iahs.demon.co.uk. Tables of contents and abstracts of all papers are also available from the IAHS web site: <http://www.iahs.info>.

These two volumes resulted from a 2002 symposium held in Japan. The call for contributions was so successful that the meeting was expanded and the papers divided between these two books.

As a result of contamination, land-use changes, and global climate fluctuations, water availability appears to be decreasing in many regions. At the same time, dealing with the risk associated with extreme events has become an integral part of the management and development of any water resources system. **Hydrological Risk, Management and Development** addresses flood and drought risk trends and processes, flood runoff modeling, management of reservoir systems, water resources management policies, methods and case studies in water resources management, and integration of water resources management.

As greater demands are placed upon limited water resources, it is increasingly important to safeguard water resources systems from encroaching pollution, over-exploitation, the vagaries of natural climate variability, and the threat of anthropogenic climate change. **Water Availability and Global Change** cites a range of activities currently being undertaken by the international hydrological science community to deal with these problems.

## Hurricanes

**In the Eye of Hurricane Andrew.** Eugene F. Provenzo, Jr., and A. Baker Provenzo. ISBN 0-8130-2566-4. 2002. 204 pp. \$24.95. Available from the University Press of Florida, 15 Northwest 15th Street, Gainesville, FL 32611-2079; (800) 226-3822; <http://www.upf.com>.

Although Florida has been struck by more hurricanes than any other region of the continental U.S., most people living in south Florida in 1992 had never experienced such a storm. Then, on August 24, Hurricane Andrew ravaged several communities on the south Florida coast, leaving 250,000 people homeless and close to \$30 billion in damage. Based on interviews with survivors and rescue workers in the weeks and months that followed, this book provides the story of one of the most destructive natural disasters in modern American history.

From a psychological and social point of view, Andrew was unprecedented. In this volume, nearly 100 diverse individuals share their experiences, from a mother who weathered the storm in a tiny bathroom shared with another adult, four children, and a dog, to a roofer who traveled from Tennessee to help rebuild, to the TV weatherman whose voice guided many through the storm. To provide a context for these oral histories, the book also draws upon a wide range of published sources such as newspaper and documentary accounts. A comprehensive bibliography is included, covering government reports, conference proceedings, maps, video recordings, and other materials.

## Fire

**A Review of the Assistance to Firefighters Grant Program.** U.S. Department of Homeland Security, Office of Inspections, Evaluations and Special Reviews. Report No. OIG-ISP-01-03. September 2003. 72 pp. Available free on-line from the Office of Inspector General, Department of Homeland Security, Washington, DC 20528; (202) 254-4100; [http://www.dhs.gov/interweb/asselibrary/OIG\\_Review\\_Fire\\_Assist.pdf](http://www.dhs.gov/interweb/asselibrary/OIG_Review_Fire_Assist.pdf).

The Assistance to Firefighters Grant (AFG) program identifies fire departments that lack the tools and resources to protect the health and safety of firefighters and the public they serve. AFG is managed by the U.S. Fire Administration (USFA) under the Department of Homeland Security. This report finds that the USFA has taken appropriate steps to determine basic needs to enhance fire service capabilities, establish program priorities, and develop specific eligibility and rating criteria, and that it has used many methods to inform, solicit, and educate applicants about the program to achieve a balanced distribution of

funds. However, there are opportunities to enhance the program's effectiveness including requiring greater detail to determine need; requiring applicants to fully disclose other federal funding sources to avoid duplication; promoting regional approaches to enhancing interoperability; improving program monitoring; developing measures to assess the program's long-term effects; and clarifying the distinctions between the AFG program and other similar programs.

**Living with Wildfires: Prevention, Preparation, and Recovery.** Janet C. Arrowood. ISBN 1-883726-90-5. 2003. 275 pp. \$19.95. Available from Bradford Publishing, 1743 Wazee Street, Denver, CO 80202; (303) 292-2590; <http://www.bradfordpublishing.com>.

In recent years, more and more homes have been built in and near areas affected by wildfires. This book, designed for those living in the wildland-urban interface, provides a comprehensive overview of how to prepare for a potentially devastating wildfire. Chapters discuss how to landscape effectively, create and follow an evacuation plan, design effective recovery strategies, and deal with insurance companies.

**The Changing Role and Needs of Local, Rural, and Volunteer Fire Departments in the Wildland-Urban Interface: Recommended Actions for Implementing the 10-year Comprehensive Strategy.** 32 pp. 2003. Available free on-line from the International Association of Fire Chiefs, 4025 Fair Ridge Drive, Suite 300, Fairfax, VA 22033-2868; (703) 273-0911; <http://www.iafc.org/downloads/Final%20Rural%20Fire%20Report.pdf>.

This report to Congress was prepared as part of the **Ten Year Comprehensive Strategy for Reducing Wildland Fire Risks to Communities and the Environment**, which was developed by local, state, federal, private, and nonprofit stakeholders and approved in 2001 by the Secretaries of Agriculture and Interior, the Western Governors' Association, and other state, county and tribal leaders. The report highlights the importance of community-based first responders in quickly and effectively containing wildland fires before they become damaging, catastrophic wildfires like those that recently burned in California. Rural, volunteer, and other local fire departments are the nation's first line of defense in the urban-wildland interface, and their abilities to provide a quick and effective first response can dramatically impact the effects of wildfires. The report provides an overview of current response capabilities and offers suggestions for improvement.

## Climate Change

**Communicating Uncertainties in Weather and Climate Information.** Elbert W. Friday, Jr., rapporteur. Board on Atmospheric Sciences and Climate, National Research Council. ISBN 0-309-08540-3. 2003. 68 pp. \$18.00 (\$16.20, if purchased on-line). Available from National Academies Press, 500 Fifth Street, NW, Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313; <http://www.nap.edu>.

This report explores how best to communicate weather and climate information by presenting five case studies, selected to illustrate a range of time scales and issues, from the forecasting of weather events, to providing seasonal outlooks, to projecting climate change.

## The Latest from the GAO

U.S. General Accounting Office (GAO) reports provide background information and insight into key issues and concerns of the U.S. Congress. The office frequently publishes studies regarding hazards and disaster policy. Some recent GAO reports that might interest *Observer* readers are listed below. Summaries and complete texts are available on-line at <http://www.gao.gov>. In addition, printed copies can be obtained from the U.S. General Accounting Office, 441 G Street, NW, Room LM, Washington, DC 20548; (202) 512-6000; fax: (202) 512-6061; TDD: (202) 512-2537. Individual copies are free; multiple copies cost \$2.00 each.

**September 11: Overview of Federal Disaster Assistance to the New York City Area.** GAO-04-72. 2003. 111 pp.

The federal government has provided considerable financial aid to

help the New York City area respond to and recover from the September 11, 2001, terrorist attacks. About \$20 billion in aid has been provided primarily through four sources: the Federal Emergency Management Agency (FEMA) (for a GAO analysis of this aid, see the *Observer*, Vol. XXVIII, No. 2, p. 27), the Department of Housing and Urban Development (HUD), the Department of Transportation (DOT), and tax benefits targeted at lower Manhattan. GAO was asked to analyze this federal assistance and determine how the response differed from previous disasters.

The designation of \$20 billion to assist the New York City area was the first time that the amount of federal disaster assistance was set early in the recovery effort; normally, the level of assistance is determined as needs are assessed against established eligibility criteria. FEMA, in response to the designation of a specific level of funding and enhanced authority from Congress, changed its traditional approach for administering disaster funds by expanding eligibility guidelines, initiating an early close-out process, and reimbursing New York City and the state for nontraditional costs. A complete breakdown of funding allocations and priorities is included in this report.

**Homeland Security: Challenges in Achieving Interoperable Communications for First Responders.** GAO-04-231T. 2003. 21 pp.

Interoperability problems have existed for many years, and Congress has taken several actions over the past two decades to address the availability and use of a public safety wireless spectrum. Further, the events of September 11, 2001, refocused public and government attention on first responders and their capacity to react to emergencies. In this report, the GAO examines barriers to improved interoperability and the roles that federal, state, and local governments can play in improving wireless communications. There are several major challenges: clearly identifying the problem; establishing national interoperability performance goals and standards and balancing them with the flexibility needed to accommodate differences in state, regional, and local needs and conditions; defining the roles of federal, state, and local governments and other entities in dealing with this problem; implementing national goals and standards; and assessing alternative means of achieving those goals and standards. The fundamental barrier to success has been a lack of effective interdisciplinary and intergovernmental planning.

**Bioterrorism: Public Health Response to Anthrax Incidents of 2001.** GAO-04-152. 2003. 46 pp.

In the fall of 2001, the U.S. experienced its first intentional anthrax infection incident. This GAO report examines the public health response with the intent of aiding local, state, and federal agencies in applying the lessons learned to ongoing bioterrorism preparedness, planning, and mitigation. Local and state public health officials at the epicenters of the incident identified both the strengths in their responses as well as areas for improvement. These officials said that, although their pre-existing planning efforts, exercises, and experience had helped promote a rapid, coordinated response, problems arose because they had not fully anticipated the coordination needed among responders, and they did not have all the necessary agreements in place to put the plans into operation rapidly. Officials identified three general lessons for public health preparedness: the benefits of planning and experience; the importance of effective communication, both among responders and with the general public; and the importance of a strong public health infrastructure to serve as the foundation for response to bioterrorism or other public health emergencies.

The Centers for Disease Control and Prevention (CDC) was challenged to both meet heavy resource demands from local and state officials and coordinate the federal public health response in the face of the rapidly unfolding incidents. CDC has said that it was effective in its more traditional capacity of supporting local response efforts but was not fully prepared to manage the federal public health response and experienced difficulty in communicating with public health officials, the media, and the public. The incident also highlighted shortcomings in the clinical tools available for responding to anthrax, such as vaccines and drugs, and a lack of training for clinicians in how to recognize and respond to anthrax.

**Catastrophe Insurance Risks: Status of Efforts to Securitize Natural Catastrophe and Terrorism Risk.** GAO-03-1033. 2003. 75 pp.

In addition to potentially costing hundreds or thousands of lives, a major natural or terrorist catastrophe in the U.S. could place enormous financial demands on the insurance industry, businesses, and taxpayers. There is, therefore, increasing interest in marketing bonds in the capital markets to diversify catastrophe funding sources. GAO was asked to update a 2002 report and assess 1) progress in transferring natural catastrophe risks to the capital markets, 2) factors that may affect the issuance of catastrophe bonds by insurance companies, 3) factors that may affect investment in catastrophe bonds, and 4) the potential for and challenges associated with securitizing terrorism-related financial risks.

**As discussed in an earlier report (Catastrophe Insurance Risks: The Role of Risk-Linked Securities and Factors Affecting Their Use.** GAO-02-941, 2002, 63 pp.), catastrophe bonds have transferred a

portion of natural catastrophe risk to the capital markets. A private firm has estimated that, from 1997 through 2002, a total of 46 catastrophe bonds were issued. Another firm estimated that the nearly \$3 billion in catastrophe bonds outstanding for 2002 represented 2.5-3.0% of the worldwide catastrophe reinsurance market. Some insurance and reinsurance companies issue catastrophe bonds because such securities allow for risk transfer and may lower the costs of insuring against the most severe catastrophes. Other insurers do not issue catastrophe bonds because their costs are higher than transferring risks to other insurers. To date, no catastrophe bonds related to terrorism have been issued covering potential targets in the U.S., and the consensus of most of the experts GAO contacted is that issuing such securities would not be practical at this time due in part to the challenges of predicting the frequency and severity of terrorist attacks.

## Electronic Fare

In December, the Federal Emergency Management Agency (FEMA) announced a new training course designed to ensure that the needs of the nation's most vulnerable residents are addressed during disasters. The course, *G197 Emergency Planning and Special Needs Populations*, is available on CD-ROM to assist local and state emergency planners and organizations serving seniors and people with disabilities. Specialists at FEMA's Emergency Management Institute (EMI) developed the course, which is part of EMI's Advanced Professional Series. The CD-ROM contains an instructor guide, student manual, visual aids, additional resources, related articles, and manuals on evacuating people with disabilities and emergency procedures for people with disabilities in office jobs. The CD-ROM will be distributed to all state training officers and regional training managers. Social service organizations and special needs advocacy groups can also obtain the materials by calling (301) 447-1585.

## IJWRD Seeks Submissions

The *International Journal of Water Resources Development* (IJWRD) is seeking submissions for a special issue on water and disasters. Contributions could be empirical studies, case histories, theoretical investigations, policy perspectives, institutional or risk analyses, or other discussions of hydrologic disasters. The peer-reviewed issue will be released in June 2005.

The deadline for submission of papers is June 1, 2004. Complete information is available from *Chennat Gopalakrishnan, University of Hawaii, 1910 East-West Road, Sherman Lab 118, Honolulu, HI 96822; (808) 956-7497; e-mail: chennat@hawaii.edu; http://www.tandf.co.uk/journals/authors/cijwauth.asp.*

## And Yet Another Quick Response Report from the Natural Hazards Center!

Bimal Kanti Paul, Vicki Tinnon Brock, Shane Csiki, and Lori Emerson of the Kansas State University Department of Geography examine the adequacy of tornado warning systems in both rural and urban communities in a recent Quick Response (QR) research report, *QR 165: Public Response to Tornado Warnings: A Comparative Study of the May 4, 2003, Tornadoes in Kansas, Missouri, and Tennessee*. The authors conducted surveys in 18 communities impacted by the tornadoes in an effort to determine whether residents received sufficient warning and were able to seek shelter. QR 165 is available on-line at <http://www.colorado.edu/hazards/qr/qr165/qr165.html>.

QR reports are the result of the Natural Hazards Center's Quick Response research program, which allows researchers to examine the effects of disasters immediately after they happen. QR 165, and many other reports, can be downloaded for free from the Natural Hazards Center web site: <http://www.colorado.edu/hazards/qr/qr.html>. Reports can also be purchased for \$5.00, plus \$4.50 shipping, from the *Publications Administrator, Natural Hazards Center, University of Colorado, 482 UCB, Boulder, CO 80309-0482; (303) 492-6819; fax: (303) 492-2151; e-mail: janet.kroeckel@colorado.edu*.

### MFM Farewell

Aficionados know that some of the great moments in sports were not game-winning home runs, 30-foot jump shots at the buzzer, or 60-yard hail-Mary passes; some were quieter moments, like that spring day in 1963 when Bob Cousy retired from the Boston Celtics. "If I had it to do all over again," Cousy said, "I wouldn't play anywhere else but Boston," and the crowd erupted in cheers that seemed to last forever. But then, as the famous guard fought back tears, an awkward silence settled over the old, smokey Boston Garden, until a lone voice cried out from the rafters, "We love ya, Cooz! . . ."

In November, Mary Fran Myers retired after over 15 years as the Natural Hazards Center's Project Manager and Co-director. As much as Cousy was the glue that held together the Celtic dynasty, Mary Fran is the glue that held together not just the Hazards Center, but also a broad community of hazards researchers, practitioners, and just plain dedicated people working to free the world from the pain and loss inflicted by disasters. During those years, Mary Fran dedicated her life to bringing together everyone from top-level federal bureaucrats to small-town emergency managers so that they could share their knowledge and fears regarding the perils that threaten our society. She was a mentor to government officials, college professors, and unseasoned students alike, gently (and sometimes not so gently) pointing them toward the fundamental questions that lie at the core of all-hazards management. Indeed, throughout her tenure, Mary Fran was the organizer and host of the world's most important annual meeting on hazards, the Natural Hazards Workshop; administrator of the nation's only all-hazards quick response research program for social scientists; and overseer of the center's vast publications and library services programs.

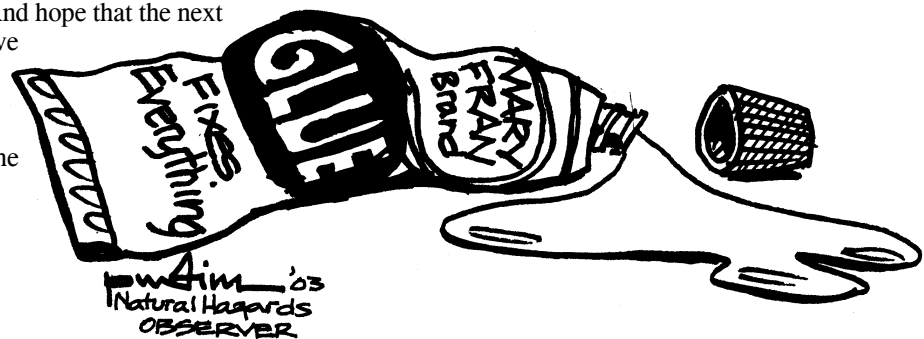
But besides the big picture, Mary Fran kept her eye on the small things (the cost of mailings, the condition of the library database) so that the Hazards Center could keep running. Indeed, there *were* lean times when the center survived only because Mary Fran had minded the books and squirreled away emergency funds.

What will we do without her?

Keep working, we suppose. And hope that the next Project Manager can somehow live up to the remarkable legacy and high standards established by her or his predecessor.

But no matter who takes the job, it just won't be the same.

We love ya, Mary Fran! . . .



## 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 *January 19, 2004*.

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