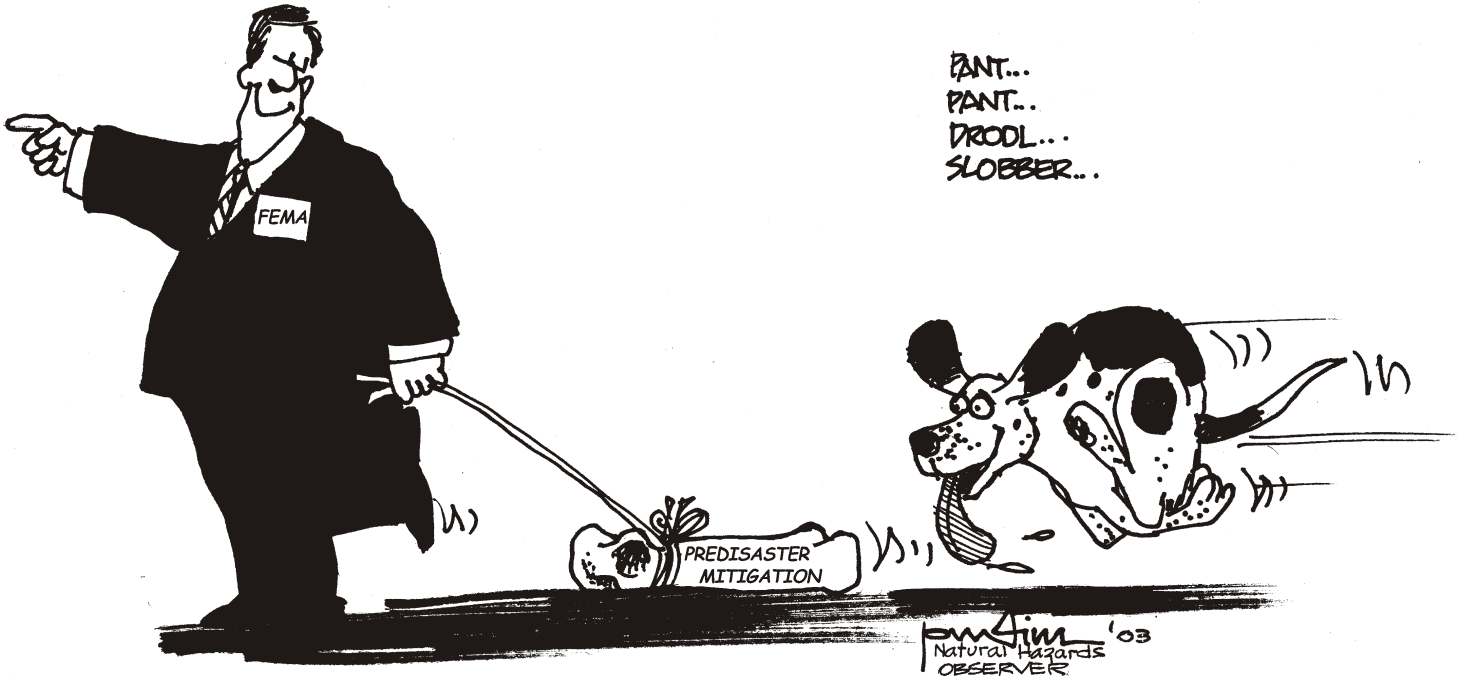
NATURAL HAZARDS Observer

Volume XXVIIII Number 2 November 2003



FEMA Update

The View from the Top

— an invited comment

FEMA and Homeland Security

The Federal Emergency Management Agency (FEMA) has had, and continues to have, a cornerstone role in better securing the homeland from all threats: natural or human-made. It has been a mere seven months since FEMA became a part of the Department of Homeland Security (DHS), but DHS and FEMA have made good progress in securing the homeland. With strong bipartisan support in Congress, we provided more than $4 billion in equipment and training to the first preventer and first responder communities, all within the last six months. Thanks to ongoing coordination between federal, state, and local officials, our nation reaches a new level of readiness and response capabilities every day. For example, the response of our cities and states during the recent blackout in the Northeast and Midwest demonstrates the progress we have made and the effectiveness of our emergency management efforts.

An initial test of our coordination efforts was Top Officials (TOPOFF) 2, a simulated terror attack held in May of this year. TOPOFF 2, which tested federal, state, and local preparedness and responses, was the largest homeland security exercise in the history of the U.S. It was successful and instructive because it helped us to confirm what was working and take a second look at areas needing improvement.

FEMA and Natural Disasters

Our response activity has not been limited to the terrorist threat. In September, Hurricane Isabel struck parts of the country that had not seen such a storm in more than 50 years. Part of the reason Hurricane Isabel's impact was less severe than expected was the preparedness work done ahead of time. As hurricane veterans, many along the East Coast already had their emergency food and water and a family communications plan. They had also already gotten more information about what to do during a hurricane. However, thousands of new residents also needed to know what to do to prepare. So, I spent the week before Isabel made landfall doing interview after interview telling people in potentially impacted areas how to prepare themselves.

In preparation for the federal response to Isabel, FEMA pre-deployed federal health, communications, food, water, ice, and shelter assets in more than two dozen cities up and down the coast. Had Isabel's impact been more severe, federal resources were on hand to immediately assist affected states. Further, within the last two years, FEMA had also spent more than $300 million in training grants and mitigation projects to help prepare these communities. If you add in the money Homeland Security has distributed this year, the figure jumps to approximately $1 billion.

Of course, Isabel being a category 2 hurricane rather than a category 5 reduced its potential impact. But the last category 2 to hit the same area, Hurricane Floyd in 1999, claimed more lives and initially appears to have caused more damage than Isabel.

This year FEMA has led the response and recovery effort in 49 presidentially declared disasters as diverse as flooding, tornadoes, and the explosion of the space shuttle Columbia. Also, we have assisted states and localities through 19 emergency declarations and more than 30 Fire Management Assistance Grants to battle wildfires.

FEMA and Preparedness

The effect of our preparedness work in limiting hurricane damage shows that in order to be as effective as possible, our response capabilities must be directly linked to our preparedness efforts. Even the best first responders are more effective when the communities they serve (from the people to the infrastructure) are adequately prepared for any type of incident. FEMA accomplishes that by:

- Promoting individual preparedness;
- Providing emergency training to volunteers and professionals;
- Strengthening communities to limit the impact of disasters; and
- Developing and coordinating federal response capabilities.

Through the Assistance to Firefighters grant program, we are putting critical resources directly into fire departments and the communities they serve. It is imperative that we elevate the level of preparedness of first responders and citizens alike and provide the proper equipment and knowledge to help them do so. Recognizing this, Congress appropriated and President Bush approved $750 million for fire grants. This is the largest direct aid package in the history of the program.

FEMA also continues to educate the public with the Ready campaign and promotes preparedness and volunteerism through President Bush's Citizen Corps initiative. Citizen Corps channels volunteerism and community spirit into programs that support our homeland defense. These programs range from Neighborhood Watch to Community Emergency Response Teams (CERTs). Through the CERT program, FEMA trains volunteers in basic emergency response skills to assist and support a community's first responders in the event of an incident. These teams were actively involved in the response to Hurricane Isabel. Recruiting and training volunteers is a preparedness measure, but it contributes to our response capabilities by supplementing the dedicated corps of emergency professionals who serve our communities.

FEMA and Mitigation

Though we are proud of FEMA's efforts in helping communities recover from disasters, we are equally committed to an ongoing effort to prevent or lessen the impact of disasters on people's lives and property.

I went to Oklahoma in May to tour damaged areas after tornadoes tore through the state in a path similar to the devastating tornadoes in 1999. After the 1999 tornadoes, many residents built tornado shelters, which proved lifesaving during this year's storms. Many of those shelters were built with FEMA Hazard Mitigation Grant Program (HMGP) funds, and the state will use HMGP funds from this year's disaster to provide rebates to families who choose to rebuild safer and stronger by building storm shelters.

Another new effort that is aiding our mitigation efforts is our Pre-Disaster Mitigation program. Thanks to the leadership of President Bush and the program's supporters in Congress, FEMA can now provide funds to assist states and communities reach a higher level of risk management and reduction through hazard mitigation planning and mitigation prior to a specific disaster event. This is a tremendous opportunity because, for the first time, we have the ability to reduce disaster losses through the implementation of pre-identified, cost-effective measures before disasters occur.

Our work during the last six months has shown that FEMA can help prepare the nation and respond to both natural and human-made threats. We have made a lot of progress in this area, but there is more to do. Under the leadership of President Bush and Secretary Tom Ridge, FEMA will continue to help the Department of Homeland Security meet its mission by preparing citizens and communities, sharpening our response capabilities,and mitigating the effects of disasters before they occur.

Michael D. Brown
Under Secretary of Homeland Security
for Emergency Preparedness and Response

Our biggest book yet!

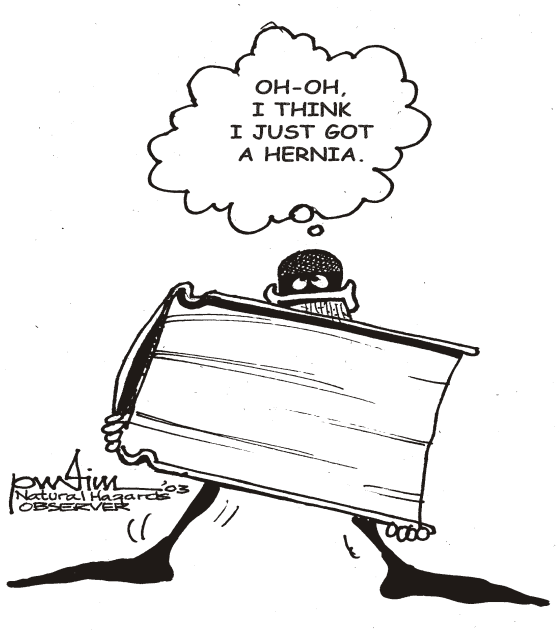
Research After September 11
Hazards Center Special Publication #39

The terrorist attack on September 11, 2001, resulted in an American disaster that was unusual in a number of ways: the densely developed and populated disaster site, the type of buildings and infrastructure that were damaged, the cause of the disaster (an intentional act), and the sheer scope of the emergency response. As tragic as it was, the catastrophe provided an unprecedented opportunity for the natural hazards research community to help understand the short- and long-term impacts of response to, and recovery from this unique event. Programs such as the University of Colorado at Boulder's Natural Hazards Research and Applications Information Center's Quick Response research program and the National Science Foundation's Small Grants for Exploratory Research enabled scholars to travel to the disaster sites and collect perishable data in the days and weeks after September 11.

Our newest special publication, ***Beyond September 11th: An Account of Post-disaster Research*** (SP #39, 2003. 600 pp.), collects the findings, lessons, and recommendations of this post-September 11 disaster research. The book consists of 20 selections by researchers who investigated questions that arose in the wake of the disaster. Each piece takes a distinct view on topics ranging from engineering to behavioral science. Also included are a summary of what these studies tell us, a discussion of "quick response" as a research method, and a report of the preliminary observations made by researchers and first responders at a workshop held only a few months after the disaster.

Based on findings from these studies, the book includes numerous conclusions and recommendations for the improvement of public policy and disaster response. Some of the recommendations on ways to better cope with terrorist attacks include:

- Law enforcement and investigative personnel need to be integrated into disaster planning, training, and exercises because they will have a central role in terrorist disasters.
- More media attention to the broader political, social, religious, and other aspects of September 11 and similar disasters could help Americans better understand the terrorism risk and the consequences of preventative actions the country might take.
- Researchers and practitioners need to communicate information on the best protective actions that people can take in response to terrorism so that proper warnings and instructions can be formulated.
- A consistent policy is needed that balances the public's and the research community's need to know versus the need to keep information and databases about critical infrastructure systems secure.



Beyond September 11th is a cooperative production of the Public Entity Risk Institute of Fairfax, Virginia; the Institute for Civil Infrastructure Systems at New York University's Robert F. Wagner Graduate School of Public Service (a partnership of New York University, Cornell University, Polytechnic University, and the University of Southern California); and the Natural Hazards Research and Applications Information Center at the University of Colorado at Boulder.

Special Publication #39 will be available in PDF format on the Hazards Center's web site early next year: *http://www.colorado.ed/hazards*. Printed copies are available now for $25.00, plus shipping. To order a copy, contact the *Publications Administrator, Natural Hazards Center, University of Colorado, 482 UCB, Boulder, CO, 80309-0482;(303) 492-6819; e-mail: janet.kroeckel@colorado.edu.*

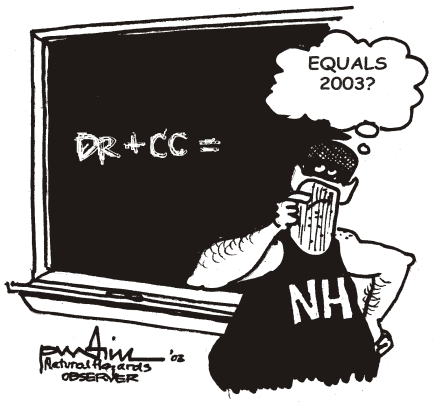
Two New Quick Response Reports from the Hazards Center

Ann Patton, from Tulsa Partners, a grassroots organization in Oklahoma, explores the impacts of a 2003 tornado on the town of Moore, Oklahoma, in a recent Natural Hazards Center Quick Response (QR) report, ***QR 163: Surviving the Storm: Sheltering in the May 2003 Tornadoes, Moore, Oklahoma*** (2003, 34 pp.). Moore has repeatedly sustained tornado damage, most recently in October 1998, May 1999, and May 2003. Despite widespread damage from the 2003 F3 tornado, no one was killed and injuries were scattered. Patton's research focuses on how residents took shelter from the storm, how their sheltering behavior has changed in recent years, and the lessons that they are learning and sharing.

QR 164: Flood Damage Assessment and Survey of Mitigation Efforts at Stump Lake, North Dakota: A Study of a Closed-basin Lake Flood (2003, 28 pp.), by Paul E. Todhunter and Bradley C. Rundquist, documents the flood history of Stump Lake and rural Nelson County, assesses the flood damage that resulted from the rise of Stump Lake and the growth of rural wetlands in the county, and surveys flood mitigation efforts associated with this closed-basin flood hazard. Remote sensing image interpretation; field work; personal interview; and compilation of data from private, county, state, and federal agencies are used to quantify the direct, indirect, and secondary damage associated with terminal lake and rural wetland flooding in Nelson County. The study provides a case history of a pervasive, chronic flood hazard not routinely addressed by federal flood mitigation programs.

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. These QR reports (and many others), 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*.

Introducing *DR+CC infolink*: Linking Disaster Reduction and Climate Change



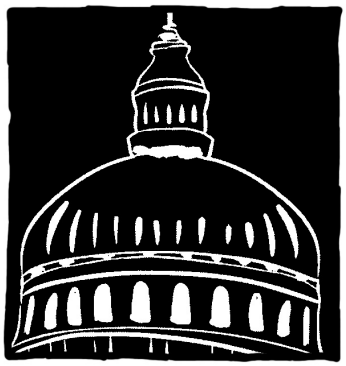
DR+CC infolink, the first edition of which was distributed in late August, is "an initiative to stimulate linkages and information exchange between the disaster reduction and climate change communities." Coordinated by the International Red Cross/Red Crescent Centre on Climate Change and Disaster Preparedness, the United Nations Development Programme (UNDP), and the Inter-Agency Secretariat of the International Strategy for Disaster Reduction (UN/ISDR), ***DR+CC infolink*** provides timely information via e-mail from both communities in order to promote adaptation, risk reduction, and preparedness, particularly among vulnerable populations.

As the first issue points out, two thirds of all disasters are climate or weather related, and projections indicate that lower-income countries are likely to experience the more negative and severe impacts of climate change, with the poor often the most vulnerable. Hence, disaster reduction and climate change adaptation are inherently linked to one another and to efforts toward sustainable development; and each requires a multidisciplinary and multisectoral perspective, with the consequent sharing of information and knowledge. While there has been significant scientific progress in delineating the potential impacts of climate change, the vulnerability of individual locations and populations remains to be determined, as do practical adaptation and response measures.

DR+CC infolink provides information on key issues, upcoming events, publications, programs, organizations, and individuals dealing with this problem. The first issue particularly examines assessments recently conducted by the Intergovernmental Panel on Climate Change (IPCC) and the incorporation (or lack of incorporation) of disaster issues in those assessments. It also surveys other recent initiatives in this area.

The sponsoring organizations intend to publish this newsletter every three to four months and are soliciting contributions and comments regarding the content as well as suggestions for new readers who are not yet included in the mailing list.

To subscribe, receive more information, or provide comments, contact *Mary Otto-Chang, UN/ISDR, Palais des Nations, CH 1211 Geneva 10, Switzerland; tel: 41 22 91 72103; e-mail: DRCCinfolink@un.org*.



Washington Update

DHS Appropriation Signed into Law

On October 1, President Bush signed the first ever homeland security appropriations bill. Overall, the Department of Homeland Security (DHS) FY 2004 budget totals $37.6 billion comprised of $30.4 billion provided by Congress plus an additional $7.2 billion in fees. Below are some highlights that might be of interest to ***Observer*** readers:

Emergency Preparedness
$9.1 billion is provided for Emergency Preparedness and Response, including:

- $1.8 billion for the Disaster Relief Fund, which provides federal assistance to supplement state and local government disaster response, recovery, preparedness, and mitigation efforts. This funding provides a significant portion of the total federal response to victims in presidentially declared disasters and emergencies.
- $484 million for public health programs related to emergencies and disasters
- $200 million for flood map modernization to better identify high-risk areas susceptible to flood damage
- $180 million for Emergency Management Performance grants to help reduce the risk of future damage in hazard areas and ultimately reduce the need for disaster assistance
- $153 million for the Emergency Food and Shelter Program, which addresses the problems of hunger and homelessness associated with disasters
- $60 million in support of urban search and rescue teams
- $5.6 billion in advance appropriations for Project Bioshield, of which $890 million is available in FY 2004. Under this program, DHS will work with the Department of Health and Human Services to accelerate the development and procurement of advanced vaccines and treatments to protect Americans against biological, chemical, and radiological threats.

State and Local Funding
Over $4 billion is allocated to the Office for Domestic Preparedness for assistance to our nation's first responders, including:

- $1.7 billion for grants for states and, primarily, individual communities
- $750 million for Firefighters Assistance Grants
- $725 million for discretionary grants for high-threat, high-density urban areas
- $500 million for law enforcement terrorism prevention grants (this is a new appropriation not funded in FY 2003)
- $40 million for Citizen Corps grants

Science and Technology
The appropriation allocates $918.2 million for science and technology programs, including:

- $88 million for a National Biodefense Analysis and Countermeasures facility
- $75 million for the Rapid Prototyping Program, including counterterrorism projects identified previously this year and funding to support the rapid adaptation of commercial technologies through the Homeland Security Advanced Research Projects Agency (HSARPA) for use by DHS and state and local first responders
- $70 million for the Homeland Security University Programs, including the Scholars and Fellows program (see the ***Observer***, Vol. XXVIII, No. 1, p. 10) and the Homeland Security Centers of Excellence (HS-Centers) program, which will establish a coordinated, university-based system to enhance the nation's homeland security
- $66.5 million for critical infrastructure protection, of which $60 million is provided for the research,

development, testing, and evaluation of an anti-missile device for commercial aircraft

- $39 million for developing a database of homeland-security-related standards
- $38 million to continue the deployment of the Urban Monitoring Program, also known as Bio-Watch, to enabled early detection of biological threats
- $127 million to develop sensors and other countermeasures to prevent the illicit transport and use of radiological and nuclear materials within the U.S.

Information Analysis and Infrastructure Protection

A total of $839.3 million is provided for information analysis and infrastructure protection, including:

- $20 million for the DHS command center
- $28 million for threat determination and assessment
- $52.3 million for information warnings and advisories, including the development of a comprehensive process to guide intelligence collection, assessment, evaluation, and prioritization, while ensuring individual privacy
- $84.2 million for infrastructure vulnerability and risk assessment
- $345 million for remediation and protective actions
- $141 million for the National Communications System, which includes the emergency notification system, back-up dial-tone, government emergency telecommunications network, and wireless priority service

The appropriation also includes significant money for transportation security, border security and immigration, modernization of the U.S. Coast Guard, federal agent training, and Secret Service operations. The complete text is available at the Library of Congress web site: *http://thomas.loc.gov*. A ***FY 2004 Budget Fact Sheet*** is available from the *DHS Press Office, Washington, DC 20528; (202) 282-8010; e-mail: pressoffice@dhs.gov*.

FEMA Redesigning CHER-CAP Process to Meet All Hazards

The Federal Emergency Management Agency (FEMA) has initiated a redesign of the Comprehensive HAZMAT Emergency Response–Capability Assessment Program (CHER-CAP) to expand the scope of this successful, community-based initiative. The new CHER-CAP will allow communities to apply the program's processes to all hazards, including tornadoes, floods, earthquakes, chemical spills, terrorist incidents, and all other types of emergencies and disasters.

CHER-CAP is a community-based planning, training, assessment, and exercise program. Since the program was developed by FEMA Region VI in 1989, it has expanded to all FEMA regions and helped scores of local communities and tribal governments identify emergency planning deficiencies, update plans, train first responders, and test their hazardous materials response systems for strengths and needed improvements.

In recognition of its new all-hazards, community-based orientation, the program is being renamed the Community Hazards Emergency Response–Capability Assurance Process. The process includes risk assessment, review of emergency operations planning and standard operating procedures, determination of needed training resources, both tabletop and peer-evaluated full-scale exercises, as well as review of processes for reporting, documentation, and sustaining ongoing improvements.

A full-scale CHER-CAP field exercise is typically a mass casualty scenario that involves local first responders, including law enforcement, fire services, search and rescue, hospitals and emergency medical systems, HAM radio operators, and volunteers, along with state and federal responders. The program has been acclaimed for its success in improving a community's ability to prepare for and respond to HAZMAT and mass casualty events.

For additional information, see the FEMA web site: *http://www.fema.gov/*, particularly *http://www.fema.gov/rrr/cher_cap_info.shtm* and *http://www.fema.gov/news/newsrelease.fema?id=408;* or contact the *Office of Public Affairs, FEMA 500 C Street, SW, Washington, DC 20472; (202) 646-4600; e-mail: opa@fema.gov*.

DHS Establishes One Point Access for State and Local Grants

On September 2, Secretary of Homeland Security Tom Ridge announced plans to "reorganize to better mobilize" the people and resources of DHS to make the country more secure. Among the many initiatives outlined by the secretary was a plan to establish a more streamlined process for obtaining grants from DHS.

The department feels that in order for state and local governments to be effective partners with the federal government, they need quick and easy access to terrorism and emergency preparedness grant programs designed to support their work. Prior to the formation of DHS, information about terrorism and emergency preparedness grant programs was scattered throughout the federal government. However, many of these programs are now centered within the agency, though they are still divided among various components. To make them more accessible, Secretary Ridge announced that he will submit a plan to Congress to centralize these programs within a single office, enabling state and local partners to easily identify and tap into the resources and information they need, from funds to protect critical infrastructure to guidance and expertise for first responders. As part of this

package DHS will launch a new web portal to further streamline the application process.

Additional information about this and other DHS reorganization initiatives is available from the DHS web site: *http://www.dhs.gov/dhspublic/* (click on "Press Room" and see the press release for September 2); or by contacting the *DHS, Public Affairs Office, Washington, DC 20528; (202) 282-8000.*

DHS Awards $74 Million for Emergency Operations Centers . . .

On September 25, DHS announced that it was awarding almost $74 million to 19 states and territories in grants for improvements to and construction of emergency operations centers (EOCs). The grants, being distributed by the Federal Emergency Management Agency (FEMA), are designed to help improve emergency preparedness and management by ensuring that EOCs are flexible, sustainable, and secure, with "the interoperability necessary to respond to emergencies."

The grants were awarded through a competitive application process and were part of $81 million made available by FEMA for the EOC grant program. An initial $2.8 million was provided to all states in December 2002, enabling each state to conduct an initial assessment of the hazards, vulnerabilities, and risks to existing state and local EOCs. In addition to funding the initial assessments, $4.3 million was awarded to states to establish secure communications systems.

Again, additional information is available from the DHS web site: *http://www.dhs.gov/dhspublic/* (click on "Press Room" and the see the press release from September 25); or contact the DHS Public Affairs Office at the address above.

. . . And Even More Bucks for Interoperable Communications

In September, DHS awarded grants totaling $79.6 million to help communities develop interoperable communications systems. The grant program, run by FEMA and the Department of Justice's Office of Community Oriented Policing Services (COPS), provides funding through a competitive process to selected jurisdictions for demonstration projects that explore uses of equipment and technologies to increase interoperability among the fire service, law enforcement, and emergency medical service communities. These projects are intended to illustrate and encourage the acceptance of new technologies and operating methods in emergency communications.

The pool of nominees invited to submit grant proposals was derived from three primary sources. The 50 largest Metropolitan Statistical Areas (MSAs) in the country, as well as the largest MSAs from each respective state were invited to apply for the COPS portion of the funding. In addition, governors from each state were asked to nominate a local jurisdiction to submit an application for FEMA's portion. Applicants were encouraged to submit innovative proposals that encourage multijurisdictional and/or multidisciplinary approaches.

For more information and a list of recipients of the FY 2003 Interoperability Communication Grants, see the DHS web site: *http://www.dhs.gov/dhspublic/* (click on "Press Room" and the see the press release from September 25), or contact the DHS Public Affairs Office at the address above.

DHS Establishing New Computer Emergency Response Center for Cyber Security

On September 15, the Department of Homeland Security Information Analysis and Infrastructure Protection Directorate, in conjunction with Carnegie Mellon University, announced the creation of the U.S. Computer Emergency Response Team (US-CERT). Initially the US-CERT will be a partnership between the National Cyber Security Division (NCSD) within DHS and Carnegie Mellon's CERT/Coordination Center (CERT/CC), part of the university's Cyber Security Laboratory, Software Engineering Institute.

The US-CERT will grow to include other partnerships with private-sector security companies and other domestic and international CERT organizations. These groups will work together to coordinate national and international efforts to prevent, protect, and respond to the effects of cyber attacks across the Internet. This is just the first in a series of anticipated new partnerships and initiatives to be launched by the NCSD.

The US-CERT, in collaboration with the private sector and leading response organizations, will improve warning and response time to security incidents by fostering the development of tools and protocols for detecting and responding to vulnerabilities and breaches of security. The US-CERT will establish a coordination center that, for the first time, will link public and private response technologies and capabilities to facilitate communication across all infrastructure sectors. The center anticipates reducing the response time to a security event to an average of 30 minutes by the end of 2004. The US-CERT will endeavor to increase cyber security at all levels across the nation, ranging from citizens in their homes and at work, to major private-sector companies, to large government agencies and organizations.

More information on the formation of the US-CERT is available from the *DHS, Public Affairs Office, Washington, DC 20528; (202) 282-8000; http://www.dhs.gov or http://www.nipc.gov.*

Treasury Department Issues Final Rule on Terrorism Risk Insurance

In July, the Department of the Treasury issued a final rule as part of its implementation of Title I of the

Terrorism Risk Insurance Act of 2002 (see the ***Observer***, Vol. XXVII, No. 6, p. 6). That act established a temporary Terrorism Risk Insurance Program under which the federal government will share the risk of insured loss from certified acts of terrorism with commercial property and casualty insurers until the program sunsets on December 31, 2005. The goal is to address market disruptions, to ensure the continued widespread availability and affordability of commercial property and casualty insurance for terrorism risk, and to allow for a transition period for the private markets to stabilize and build capacity while preserving state insurance regulation and consumer protections. The act gives the Treasury Department the authority to recoup federal payments made under the program through policyholder surcharges, up to a maximum annual limit.

According to the new rule, each entity that meets the definition of "insurer" (well over 2,000 firms) must participate in the program and must make available terrorism risk insurance in their commercial property and casualty insurance policies. The coverage must not differ materially from similar insurance for losses arising from non-terrorism events. An insurer's deductible increases each year of the program, thereby reducing the federal government's involvement. Once an insurer has met its deductible, the federal payments cover 90% of insured losses above the deductible, subject to an aggregate annual cap of $100 billion. In turn, insurers must provide clear and conspicuous disclosure to the policyholders of the premium charged for insured losses covered by the program and must submit a claim and certain certifications to the Department of the Treasury.

The act also contains specific provisions designed to manage litigation arising from or relating to a certified act of terrorism

In sum, this final rule provides the provisions and definitions that form the foundation for participation by insurers under the federal reinsurance program created by the act.

The full text of this final rule was published in the July 11, 2003 ***Federal Register*** (Vol. 68, No. 133, pp. 41250-41266) and is available on the web at *http://www.gpoaccess.gov/fr/index.html*. Further information is also available from *Mario Ugoletti, Deputy Director, Office of Financial Institutions Policy, Department of the Treasury, (202) 622-2730;* or *Martha Ellett or Cynthia Reese, Attorney-Advisors, Office of the Assistant General Counsel (Banking & Finance), Department of the Treasury, (202) 622-0480*.

FEMA Promotes Mutual Aid

FEMA came one step closer to establishing a national mutual aid system after six states (Alabama, Colorado, Iowa, Massachusetts, Montana, and New Hampshire) and the District of Columbia recently completed a pilot test of a new resource inventory system. The new system of cataloging resources into a single repository will make it easier for states to review and order the resources they need when responding to a disaster since everyone will be using standard terminology. FEMA staff members are analyzing results of the pilot test, will make any necessary changes, and then make the system available to all 50 states. Eventually, the inventory will be automated, making it easy for emergency managers to determine the location of resources they may need.

Mutual aid agreements are a way to leverage the nation's resources to respond quickly and effectively to

disasters of all types. To encourage such cooperation FEMA has made development of a national mutual aid system a top priority, and FEMA's Preparedness Division recently awarded a $2 million grant to the National Emergency Managers Association (NEMA) to help develop a model intrastate mutual aid agreement that could be used by any state.

In the National Strategy for Homeland Security, the president called for "a comprehensive national system to bring together and coordinate all necessary response assets quickly and effectively." As part of this effort and in addition to the work NEMA is doing, FEMA established a working group of federal, state, and local agencies and organizations to develop categories of emergency response assets commonly exchanged in disasters via mutual aid. NEMA is an active participant in this process.

More information is available from the FEMA web site: *http://www.fema.gov*, particularly *http://www.fema.gov/news/newsrelease.fema?id=49467*; or contact the *Office of Public Affairs, FEMA 500 C Street, SW, Washington, DC 20472; (202) 646-4600; e-mail: opa@fema.gov*.

Millersville Opens Disaster Center

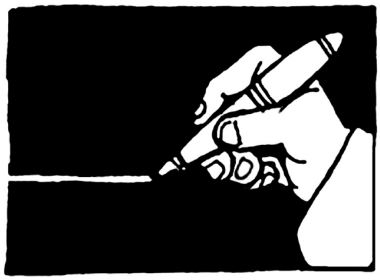
On September 12, Millersville University of Pennsylvania announced the establishment of a Center for Disaster Research and Education (CDRE). The center's mission includes conducting research into the behavioral and organizational response to disasters and terrorism as well as risk and hazards assessment; disseminating research findings to the public, mass media, and emergency management personnel; contributing to the education of disaster researchers, public policy makers, emergency managers, and other concerned community members; and contributing to public policy development and the creation of disaster-resilient communities.

The center currently coordinates the university's new multidisciplinary minor in environmental hazards and emergency management and plans to develop a distance learning certificate program in that discipline. It is also considering establishing a master's program in emergency management. In the recent past, center staff have worked on a consulting basis for several federal agencies, providing expertise regarding natural and technological disasters as well as terrorist threats. As part of the Federal Emergency Management Agency's effort to expand emergency management education in the U.S., the center is currently conducting a project to identify the various relevant educational activities provided by U.S. colleges and universities.

The center anticipates undertaking several future grant-supported projects, including the development of training and educational materials for use in schools in the member nations of the Organization of American States, collaborative research with the Technion-Israel Institute of Technology in Haifa, and collaborative research with the Canadian Institute for Catastrophic Loss Reduction. Partnerships are also being developed with the Disaster Research Center at the University of Delaware, the Pennsylvania Emergency Management Agency, the Pennsylvania Office of Homeland Security, and the Lancaster County, Pennsylvania, Emergency Management Agency.

In addition, the center is publishes the newsletter ***UnScheduled Events*** and the new on-line journal ***Contemporary Disaster Review,*** both of which are official publications of the International Research Committee on Disasters of the International Sociological Association. In the near future, the CDRE will host an on-line version of the research journal, ***International Journal of Mass Emergencies and Disasters***.

Persons interested in learning more about the CDRE are invited to visit the center's web site: *http://www.millersville.edu/~CDRE,* or contact the center director, *Henry W. Fischer, Department of Sociology, Millersville University of Pennsylvania, P.O. Box 1002, Millersville, PA 17551-0302; (717) 872-3568; fax: (717) 871-2429; e-mail: hfischer@millersville.edu.*



On The Line

Wildfire and Rural Poverty:
Disastrous Connections

"Poverty, in the context of wildfires, means people and communities unable, because of inadequate financial or nonfinancial resources, to take the steps necessary to protect themselves, their families, their homes, and other assets from the risks of wildfire." (***Wildfire and Poverty Report***, 2001)

The financial and social costs of wildfires are rising annually. Between 2000 and 2002, wildfires destroyed almost 4,000 structures nationwide and cost the federal government over $3.4 billion in fire suppression. Grants through the National Fire Plan, the Federal Emergency Management Agency (FEMA) Assistance to Firefighters Grant Program, and other local, state, and federal fire-related programs have been established to bolster community abilities to prepare for and reduce the risk of wildfires. However, while these grants and programs are available nationwide, the nation's wildfire policies and programs do not provide the consistent, meaningful, and long-term assistance needed by the rural poor and by economically distressed communities to mitigate or recover from wildfires.

Wildfires intensify rural poverty because they hit hardest those communities least able to protect themselves. A 2001 report by the University of Oregon's Program for Watershed and Community Health (PWCH) found that approximately 3-5 million of the 10-15 million residents in the wildland-urban interface throughout the West lack incomes sufficient to meet basic economic needs, much less the cost of adequate wildfire protection (see the ***Observer***, Vol. XXVII, No. 5, p. 9, for a discussion of the wildland-urban interface). The rural poor often live in the most fire-prone areas, live on properties that are most susceptible to wildfires, and have the fewest available resources to create defensible space around their homes and properties. Thus, they are more susceptible to wildfires than middle- and high-income rural residents, who often have greater access to the programs and resources needed to create defensible space.

To reverse this cycle of rural impoverishment and hazard vulnerability, public agencies, decision makers, and local communities must begin to understand these realities and take steps to assist the rural poor to secure the funds and resources needed for fire protection. By helping public and private organizations increase the access that poor and isolated communities have to fire-related programs and resources, PWCH is working to build capacity among these groups with the specific goal of reducing wildfire risk.

PWCH intends to develop broad public awareness about the relationship between wildfire policies and programs and rural poverty. Such awareness can lead to changes in the way policies are developed and funding allocated so that increasingly scarce resources can equitably address the needs of all those in fire-prone areas. PWCH also hopes to demonstrate how redirecting resources will result in increased capacity among poorer communities to develop and implement wildfire prevention strategies. Expanding public awareness about the relationship between wildfire policies and programs and rural poverty is necessary if federal and state funds are to be more accessible to poor communities.

Determining Who Needs Assistance

Often, grants and programs rely on local financial matches to guarantee "community participation." While it is important to have the understanding and involvement of the public, such programs may exclude people or communities without the financial resources, time, or skills to meet program requirements. Elderly and disabled citizens may not have the physical capacity to contribute labor, minorities may feel uncomfortable about engaging in traditional public participation processes, and impoverished citizens may not be able to take time away from their jobs and families to become involved.

Despite these broad categories of need, it can be difficult to know exactly who is in need of help. Given that public money supports most fire protection programs, that public resources are involved in providing emergency

support services to those who are dislocated and harmed by wildfires, and that severe dislocations can significantly impact the socioeconomic well-being of a community, it is essential to ensure that all people have equal access to programs and resources. The federal poverty line is one way to identify poverty and those without the capacity to protect themselves from wildfires, though there are people who are above the federal poverty line who also may not have the resources necessary to protect their homes. In light of this, federal agencies and social service organizations use various

indicators of poverty to determine eligibility for assistance programs, including a percentage of the poverty level or per capita income, or the Department of Housing and Urban Development (HUD) income limits.

There is no consistent method to measure poverty and community capacity in the context of wildfire. PWCH is attempting to address this by developing a more dynamic and reality-based framework to assess poverty indicators, community capacity, and the ways they work together to meet fire protection goals in communities and neighborhoods, and at the individual level. The capacity of a community can be defined as the ability of residents in a community to respond to external and internal stresses, to create and take advantage of opportunities, and to meet local needs. Low capacity communities have more difficulty accessing resources, implementing strategies, and meeting local objectives for fire protection.

Possible solutions to ensure that under-represented communities and populations have equal access to fire protection programs include utilizing existing structures employed by social service agencies to determine eligibility assistance for state and federal programs and then providing extra fire protection assistance to those who qualify for these programs. Coordinating with local community organizations (such as watershed councils, community response teams, social service agencies, etc.) can facilitate in-kind matches from community groups and assist poor, elderly, and disabled community members to participate in fire-related programs.

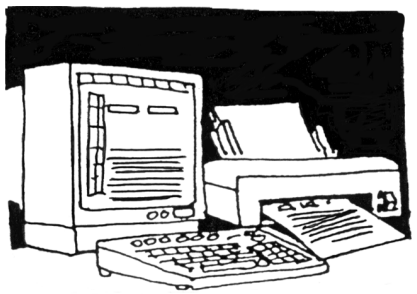
Community Outreach and Capacity Building

PWCH is also working to develop and foster strategies that can empower poor and isolated communities and increase their capacity to implement fire protection programs. PWCH is currently working with Josephine County, Oregon, on a countywide effort to reduce the wildfire risk that threatens citizens, the environment, and quality of life within the county. Josephine County has some of the highest poverty rates in Oregon, with over half of the county's population living in rural, forested areas. Furthermore, a fire in 2002 had lasting impacts on county citizens. The fire burned close to 500,000 acres, cost over $150 million, and threatened many citizens in the county.

PWCH is leading a process with the county to develop an integrated fire plan. The process is designed to assist those with the least capacity to reduce the risk of catastrophic wildfires. Additionally, the plan can help the county become more competitive for federal funding programs such as the National Fire Plan and FEMA's Pre-Disaster Mitigation Program. To assist the county to meet these requirements, and adhere to state and local guidelines for fire protection, PWCH is working closely with local, state, and federal land management, fire protection, and emergency management agencies. The project also includes an assessment of risk to communities in the wildland-urban interface, outreach to increase public awareness about wildfire risk, identification of wildfire mitigation strategies, tracking of information on activities related to fuels reduction, and a review of county response and evacuation methodologies.

The PWCH approach involves the county's rural fire protection districts as a way to reach citizens throughout the county. In addition, we are building relationships with diverse stakeholders, including social services agencies, faith-based and volunteer organizations, groups dedicated to promoting economic and community development, and others with programs designed to provide services to the rural poor and isolated communities. Creating these networks will increase the provision of services to all citizens and help ensure that poor and under-represented citizens are equal participants in creating safer, stronger communities.

Kathy Lynn
Program for Watershed and Community Health
Institute for a Sustainable Environment
University of Oregon
Eugene, Oregon



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.eud/sites/sites.html*.

All Hazards

http://dels.nas.edu/dr

The National Academies' Disasters Roundtable has launched a new web site highlighting past and future Roundtable workshops, which take place three times a year in Washington, D.C. The Roundtable's mission is to facilitate and enhance communication and the exchange of ideas among scientists, practitioners, and policy makers in order to identify urgent and important issues related to the understanding and mitigation of natural, technological, and other disasters. Each workshop focuses on a specific topic or issue; the most recent, held October 22, was entitled *Hazards Watch: Reducing Disasters Losses Through Improved Earth Observations*. Summaries of the nine previous workshops are available from the site, as is a link to the interim report from the Subcommittee on Disaster Reduction entitled ***Reducing Disaster Vulnerability Through Science and Technology*** (see page 23 of this ***Observer***).

http://dccps.nci.nih.gov/brp/conceptual.html

Early in 2003, the Behavioral Research Program (BRP) of the National Cancer Institute sponsored a workshop entitled *Conceptualizing and Measuring Risk Perceptions*. Research developments in a number of domains suggest that the reduction of risk perceptions to probability and severity estimates is probably inadequate. For example, recent research on emotional reactions to threat, experience-based and implicit attitudes, the accuracy and variability of risk judgments, and cognitive representation of probability all provide insights that could enrich our understanding of the nature of perceived risk and the processes by which risk perceptions affect precautionary behaviors. The goal of the workshop was to bring together scholars from a range of theoretical perspectives to talk about these issues. Seven papers from the workshop are now available on the BRP web site along with a detailed summary of the discussions that followed each paper.

http://www.waterstewards.org/

The Water Stewards Network has launched a new web site with the aim of becoming a planet-wide "central nervous system" for water literacy and stewardship. Network organizers hope to galvanize support for the movement for water sovereignty and promote a paradigm shift in the global approach to water management. The web site includes project and country profiles, links to water-related resources, and a section on upcoming events.

http://www.mmm.ucar.edu/uswrp/programs/thorpex.html

General information about THORPEX: A Global Atmospheric Research Program, created to accelerate improvements in the accuracy of 1-to-14-day weather forecasts for the benefit of society and the economy, is presented on this web site. THORPEX research is often related to natural hazards, and the program periodically issues requests for proposals.

http://thesaurus.nbii.gov

Cambridge Scientific Abstracts, the National Biological Information Infrastructure, the U.S. Geological Survey, and the U.S. Department of the Interior have launched a collaborative on-line "biocomplexity thesaurus," which combines five existing thesauri: the aquatic sciences and fisheries thesaurus, the life sciences thesaurus, the pollution thesaurus, the sociological thesaurus, and the national biological information infrastructure thesaurus. The web site includes teacher resources, and geographical perspectives, and should prove useful for those interested in hazards, natural resources, and sustainability.

http://atlas.pdc.org

The Asia Pacific region is home to 53% of the world's population and 20% of its land area, but nearly 70% of all lives lost due to natural disasters occur within the Asia Pacific region. The Pacific Disaster Center (PDC) has released an on-line *Asia-Pacific Natural Hazards and Vulnerabilities Atlas* to provide a dynamic geospatial framework through which information may be accessed and viewed by the disaster management and humanitarian assistance communities. An objective of the atlas is to engender greater awareness among emergency managers regarding the risks of natural hazards in their area.

http://www.tallytown.com/redcross/cbo-mitigation.html

The capital area chapter of Red Cross Florida is creating a national resource library of disaster mitigation initiatives undertaken by community-based organizations. Visit this section of their web site to tell your story and see what others are doing.

http://www.tallytown.com/redcross/cacc-01.html

During July 2003, the Capital Area Citizen Corps in Washington D.C., conducted a week-long training of young people called the "Capital Area Youth Disaster College." The training included disaster education and mitigation activities, field trips, and disaster training opportunities, all of which are profiled on this web site.

http://www.osha-slc.gov/SLTC/emergencypreparedness/index.html

The U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) offers this emergency preparedness web site, focusing on emergency preparedness and response materials, resources, and links for workplace safety.

http://training.fema.gov/emiweb/EENET/

The current schedule of programs and satellite information for the Federal Emergency Management Agency's Emergency Education Network (EENET) is available on this web site.

Homeland Security

http://www.SafeTampaBay.org

Critical Intervention Services (CIS) has launched a new web site intended to be a comprehensive source for information and advice on critical issues of domestic security. The web site emphasizes that every citizen plays an important role in protecting the community.

http://www.cshs-us.org/

The Center for State Homeland Security is a unique national resource dedicated to help state and local governments carry out their role in homeland security while supporting the evolution of a national strategy across all levels of government and the private sector. The web site is sponsored by the National Emergency Management Association, the Adjutants General Association of the United States, and Mitretek Systems.

http://www.ifma.org/about/prdetail.cfm?id=216&actionbig=3&actionlil=153

This web page, from the International Facility Management Association web site, presents an overview of the results of a survey that was distributed to facility managers in the northeast after the recent blackout.

http://www.newyorker.com/archive/previous/?030908frprsp_previous

The ***New Yorker*** magazine has archived the series of articles that it ran in the aftermath of September 11, 2001. The collection includes articles, extensive commentary, and a series of "fact papers" from the magazine.

Earthquakes

http://www.earthquakes.bgs.ac.uk/

This site houses on-line information from a network of seismometers throughout Britain that monitors seismic activity and provides a database for both research and seismic hazard assessment.

http://quake.usgs.gov/research/seismology/wg02/

Using newly collected data and evolving theories of earthquake occurrence, the U.S. Geological Survey and cooperating scientists now conclude that there is a 62% probability of at least one magnitude 6.7 or greater quake, capable of causing widespread damage, striking somewhere in the San Francisco Bay region before 2032. This web site presents a variety of resources, fact sheets, and interactive activities about this subject.

http://earthquake.usgs.gov/

The U.S. Geological Survey has recently updated its Global Earthquakes page on the Earthquake Hazards Program web site. Maps of both global and U.S. earthquakes include new hemisphere views and regional maps to supplement standard web-based maps.

Floods and Weather

http://www.csc.noaa.gov/ncflood/

This web site profiles examples of future National Weather Service (NWS) forecast products that will enable communities to better prepare for floods. They are the result of a NWS project to develop effective ways to display flood forecast information disseminated by the service in a graphical, easy-to-read format that will enable emergency managers and disaster planners to prepare better.

http://www.weatherclassroom.com

The Weather Channel has recently unveiled a web site, Weatherclassroom.com, to serve as a resource for educators, students, and parents. The site offers a comprehensive collection of interactive weather-related content and educational tools, including lesson plans for educators, an interactive weather forecast for students, and a weather word glossary and storm encyclopedia for parents.

http://www.hwn.org/

"Hurricane Watch Net" is an organization of amateur radio and weather enthusiasts who disseminate hurricane advisory information, as promulgated by the National Hurricane Center in Miami, Florida, to marine interests, Caribbean Island nations, emergency operations centers, and others in the Atlantic and eastern Pacific.

http:// www.benfieldhrc.org

The Benfield Greig Hazard Research Centre has changed its name to the Benfield Hazard Research Centre and established its web site at the address above. The center comprises three groups (geological hazards, meteorological hazards and seasonal forecasting, and disaster studies and management) all of which contribute much information to the site. Via this URL, the center now offers weather forecasts, access to its many publications, entry into the center's extensive library database, announcements of upcoming events and training, and information on its work regarding a host of hazards: windstorms, climate change, earthquakes, floods, landslides, tsunamis, and multiple impact events. For more information from or about the Benfield Hazard Research Centre, see the web site or contact the center at the *Department of Earth Sciences, University College London, 136 Gower Street, London WC1E 6BT, UK: tel: +44 (0)20 7679 3449/3637; fax: +44 (0)20 7679 2390; e-mail: anna.mcguire@ucl.ac.uk*.

Besides the latest issue of the Benfield Centre's excellent ***Alert*** newsletter, found at *http://www.benfieldhrc.org/Centre News/Newsletters/Alert10_email.pdf*, there are several other new publications available from the Benfield web site:

- ***Indigenous Early Warning Indicators of Cyclones: Potential Application in Coastal Bangladesh***, by Philippa Howell (Disaster Studies Working Paper No. 6, 2003, 10 pp.): *http://www.benfieldhrc.org/DMV/workingpapers/workingpaper6.pdf*.
- ***Social Vulnerability, Sustainable Livelihoods and Disasters***, by Terry Cannon, John Twigg, and Jennifer Rowel (Report to the [U.K.] Department for International Development, 2003, 63 pp.): *http://www.benfieldhrc.org/DMU/OtherPublications/DFIDVulandLiveRepFin0303.pdf*.

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*.

Civil Engineering Conference and Exposition. Sponsor: American Society of Civil Engineers (ASCE). Nashville, Tennessee: November 12-15, 2003. This annual meeting of ASCE will feature four different tracks: professional qualifications, leadership and management, application of new technology, and infrastructure. Of special interest to ***Observer*** readers are sessions on the Pentagon Building Performance Study and the impact of modern technology on natural hazard mitigation and management. Conference information is available from *ASCE Conferences and Expositions, P.O. Box 79668, Baltimore, MD 21279; (800) 548-2723; http://www.asce.org/conferences/annual03/.*

51st Annual Conference and EMIX 2003 Exhibit. Sponsors: International Association of Emergency Managers (IAEM) and National Association of Manufacturers. Orlando, Florida: November 14-20, 2003. The theme of this meeting is "communities and connecting: comprehensive emergency management." Featured sessions include the use of robots in disaster response, perspectives on management of information during emergencies, continuity operations, public health and emergency management, and much more. The EMIX exhibit will bring together homeland security and disaster preparedness suppliers. There are also a number of preconference training opportunities. Conference details can be obtained from *IAEM, 201 Park Washington Court, Falls Church, VA 22046; (703) 538-1795; http://www.iaem.com.*

NFPA Fall Education Conference. Sponsor: National Fire Protection Association (NFPA). Reno, Nevada: November 16-19, 2003. With a focus on education, this conference will present sessions on national fire codes, emergency response planning, hospital emergency incident command systems, diverse facets of homeland security, and other topics relevant to fire service professionals, engineers, contractors, building inspectors, and others. Conference details are available from *NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471; (617) 770-3000; http://www.nfpa.org/ProfessionalDev/EventsCalendar/FallEducation/FallEducation.asp.*

Emergency Preparedness and Prevention Conference: Stay the Course. Sponsor: U.S. Environmental Protection Agency (EPA) Region III. Norfolk, Virginia: November 16-19, 2003. This conference will focus on training, networking, and continuing education in several areas. Conference information is available from *Katrina Harris, 2003 Conference, c/o General Physics Corporation, 500 Edgewood Road, Suite 110, Edgewood, MD 21040; (800) 364-7974; http://www.2003conference.org/.*

AGU Fall Meeting. Sponsor: American Geophysical Union (AGU). San Francisco, California: December 8-12, 2003. This meeting provides the opportunity for researchers, teachers, students, and consultants to review the latest issues affecting the earth, planets, and environments in space. This meeting will cover topics in all areas of the geophysical sciences. Of interest to hazards specialists are sessions on risk assessment and management, human interaction with ecosystems, earthquake cycles, global warming, and more. Conference details may be obtained by contacting the *AGU Meetings Department 2000 Florida Avenue, NW, Washington, DC 20009; (800) 966-2481, ext. 333; e-mail: meetinginfo@agu.org (subject: 2003 Fall Meeting); http://www.agu.org/meetings/fm03/.*

4th National Seismic Conference on Bridges and Highways. Sponsor: Federal Highway Administration and Tennessee Department of Transportation. Memphis, Tennessee: February 9-11, 2004. This conference is a forum for information exchange about current national and regional practices and research for seismic-resistant design and retrofit of new and existing bridges and highway systems in all seismic zones. It will focus on advances in engineering and technology that result in increased seismic safety of highway bridges, other highway structures, and highway

systems generally in the new millennium. For registration information and conference details, contact *Wendy Pickering, (217) 333-2880; e-mail: wpickeri@uiuc.edu*; *http://www.conferences.uiuc.edu/conferences/conference.asp?ID=281*.

Asia Conference on Earthquake Engineering. Sponsor: Association of Structural Engineers of the Philippines, Inc. (ASEP). Manila, Philippines: March 5-6, 2004. This conference will provide a venue for dialogue among scientists, engineers, researchers, and planners addressing the issues of earthquake engineering practice, research, and seismic hazard mitigation in the "earthquake countries," of both highly and moderately seismic regions in Asia. Conference information can be obtained from *ACEE 2004 Secretariat, ASEP, Unit 713 Future Point Plaza Condominium, Panay Avenue, Quezon City, Philippines; tel: +632 4118603; e-mail: acee_2004@yahoo.com.*

Association of American Geographers (AAG) Annual Meeting. Philadelphia, Pennsylvania: March 14-19, 2004. This annual meeting always includes a variety of disasters- and hazards-related sessions. Meeting information is available from the *AAG, 1710 Sixteenth Street, NW, Washington, DC 20009-3198; (202) 234-1450; http://www.aag.org/AnnualMeetings/Intro.html*.

Midwest Sociological Society Annual Meeting. Kansas City, Missouri: April 15-18, 2004. The theme for this meeting is "the discipline of sociology in a post-disciplinary age: developing strategies for dialogue with fields near and far." The meeting will include a special session on the sociology of disasters. Details are available from the *Department of Sociology, Drake University, 2507 University, Des Moines, IA 50311; (515) 271-4108; e-mail: mss@drake.edu; http://www.themss.org/*.

Lighting the Way to Floodplain Management. Sponsor: Association of State Floodplain Managers (ASFPM). Biloxi, Mississippi: May 16-21, 2004. The ASFPM annual conference showcases state-of-the-art techniques, programs, resources, materials, equipment, and services for flood mitigation and related community goals. Nonprofit, government, business, and academic representatives will share how they successfully integrate engineering, planning, open space, and environmental protection. General conference information is available from *ASFPM, 2809 Fish Hatchery Road, Madison, WI 53713; (608) 274-0123; e-mail: asfpm@floods.org; http://www.floods.org*.

ASCE Issues Progress Report for America's Infrastructure

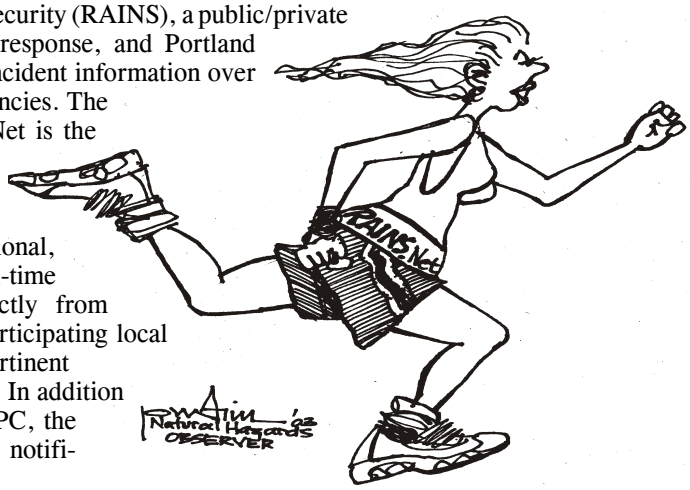
In March 2001, the American Society of Civil Engineers (ASCE) released a ***Report Card for America's Infrastructure,*** grading 12 infrastructure categories (roads, bridges, transit, aviation, schools, drinking water, wastewater, dams, solid waste, hazardous waste, navigable waterways, and energy) at a discouraging D+ overall. ASCE estimated that $1.3 trillion was needed to repair this failing framework.

In September, the society released a ***2003 Progress Report for America's Infrastructure,*** indicating that the condition of our nation's public works has shown little improvement since the original report, with some areas sliding toward failing grades. The number of unsafe dams, for example, has significantly increased, and other infrastructure remains markedly endangered by natural hazards from earthquakes to hurricanes.

Among the trends working against efforts to improve conditions are state and local budget crises and federal programs that either fall short of meeting the demands for infrastructure maintenance or will soon expire. Other problems that contribute to the overburdened infrastructure remain, including population growth, voter opposition to improvement projects, and the continuing deterioration of the aging system. Further, the threat of possible terrorist attacks has diverted maintenance and growth funding to the implementation of infrastructure security measures.

The ASCE report examines current possibilities for addressing the nation's deteriorating infrastructure and discusses actions the federal government should take to bring conditions up to acceptable levels. For more information, including details about local infrastructure conditions, state infrastructure statistics, and policy recommendations, see the ASCE web site: *http://www.asce.org/reportcard*. Interested persons can also contact *ASCE World Headquarters, 1801 Alexander Bell Drive, Reston, VA 201914400; (800) 548-2723 or (703) 295-6300; fax: (703) 295-6222*.

Nation's First Automated Alert System Up and Running



The Regional Alliances for Infrastructure and Network Security (RAINS), a public/private partnership promoting homeland security and emergency response, and Portland (Oregon) 9-1-1 have teamed to deliver official emergency incident information over the Internet to local schools, businesses, and government agencies. The result of 16 months of development and testing, RAINS-Net is the nation's first automated alert notification system serving key local public safety stakeholders, such as schools, hospitals, building managers, and others.

RAINS-Net enables information sharing across traditional, jurisdictional, and technical boundaries, and delivers near real-time emergency incident alerts and related information directly from Portland 9-1-1 to cell phones and personal computers of participating local organizations. End users only receive information that is pertinent to them and that they have the security clearance to receive. In addition to automatic pop-up alert windows that appear on a user's PC, the network automatically alerts users via cell phone, sending notification that they have an emergency message waiting.

For example, RAINS-Net can immediately provide school principals with up-to-the-minute details about emergencies taking place in their neighborhoods or citywide emergencies that might affect all schools. Typically schools receive emergency incident information only via phone calls that often occur well after an incident is underway. With the RAINS-Net system, schools will receive fire information as soon as fire trucks are dispatched. RAINS-Net provides similarly targeted emergency information to other participating organizations. Information sent via RAINS-Net is highly secure and cannot be copied, forwarded, edited, or printed by recipients (unless so authorized by the sender of the information).

RAINS-Net, funded with $60,000 in state grants and private company sponsorships, has been a grassroots effort and a public/private collaboration using the donated technology, services, talent, and time of private companies, individuals, and public officials. RAINS-Net is nonetheless the first official program to capture real-time data in a 9-1-1 center's local information system and redistribute it broadly to those responsible for public safety in a community.

The developers of RAINS-Net anticipate that their approach will serve as a model that can be adopted by cities throughout the nation, and they see the system as only one step toward a much needed new national emergency information infrastructure. They intend to contribute to the building of this infrastructure by continuing to work closely with federal officials.

For more RAINS information contact *RAINS, 326 SW Broadway, Third Floor, Portland, OR 97205; (503) 701-7683; e-mail: ck@oregonrains.org;* or see the RAINS web site*: http://www.oregonrains.org*.

Western Governors and Premiers Agree to Cooperate When Fighting Wildfires

At a joint meeting in Montana in mid-September, the premiers of the western Canadian provinces and the governors of western states and territories signed a new cooperative agreement on wildfires. The agreement enhances cross-border cooperation to fight wildland fires throughout western North America.

The governors and premiers agreed that the challenging forest conditions of recent years and recent extreme fire seasons highlight the need for efficient sharing and coordination of fire fighting resources, joint training, and prompt initial response.

Copies of this memorandum of understanding are available on the Internet at *http://www.westgov.org/wga/initiatives/fire/mou-fire.pdf*. Interested persons can also contact the *Western Governors' Association, 1515 Cleveland Place, Suite 200, Denver, CO 80202-5114; (303) 623-9378; fax: (303) 534-7309; http://www.westgov.org*.

Contracts and Grants

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

Information Technology Research (ITR): Linked Environments for Atmospheric Discovery (LEAD). Funding: National Science Foundation, $11 million+, five years. Principle Investigator: *Robert B. Wilhelmson, University of Illinois Urbana-Champaign, 105 South Gregory Street, MC 223, Urbana, IL 61801; (217) 333-8651; e-mail: bw@ncsa.uiuc.edu*. (This is a multi-university effort with principle investigators at seven other schools. Names and additional contact information can be found at *http://www.nsf.gov/verity/srchawdf.htm*; awards #0331480, 0331574, 0331578, 0331579, 0331586, 0331-587, 0331591, and 0331594.)

Each year across the U.S., floods, tornadoes, hail, strong winds, lightning, and winter storms cause hundreds of deaths and result in economic losses of more than $13 billion. Their mitigation is stifled by rigid information technology that cannot accommodate unique real-time, on-demand, dynamic needs of weather research. Linked Environments for Atmospheric Discovery (LEAD), the foundation of which is a series of interconnected virtual "grid environments," will allow scientists and students to access, prepare, predict, manage, analyze, and visualize a broad array of meteorological information independent of format and physical location. The flexible system will adapt and respond immediately to user decisions based on the problem at hand. LEAD will allow users to run atmospheric models and other tools in more realistic, real-time settings than is now possible and thus hasten the transition of research results to operations.

George E. Brown, Jr. Network for Earthquake Engineering Simulation "NEES" Consortium Development Project. Funding: National Science Foundation, $2 million, three years. Principal Investigator: *Robert K. Reitherman, Consortium of Universities for Research in Earthquake Engineering (CUREE), 1301 South 46th Street, Richmond, CA 94804-4698; (510) 231-9557; e-mail: reitherman@curee.org*.

The George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) is funded under the National Science Foundation (NSF) Major Research Equipment appropriation. The goal of NEES is to provide a national, networked resource of 20 or more geographically distributed, shared use, next-generation experimental research equipment sites, to host collaborative and integrated experimentation and knowledge development to improve the seismic design and performance of U.S. civil and mechanical infrastructure (see page 25 of this ***Observer*** for more information about the NEES research agenda). NEES will be constructed by September 30, 2004, and operational through September 2014, during which time it will be operated by the NEES Consortium funded under this award.

The project team will work extensively with the earthquake engineering community and other NEES grantees to accomplish three major tasks. First, CUREE has already organized activities to gain earthquake community input and broad consensus regarding the organizational structure and governance of the NEES consortium. Other activities will enable start-up operation of NEES by the NEES Consortium. Second, the project team will organize activities to gain the community-generated input and consensus needed for detailed network design. Third, they will coordinate outreach and training activities for the NEES equipment sites as they become operational before September 30, 2004. The project will maintain an interactive web site to inform that community of activities and progress.

Note: Persons interested in the development of NEES should consult the NSF web site at *http://www.nsf.gov/verity/srchawdf.htm*. Conduct a search on "NEES" to see announcements for other awards regarding NEES development. For a complete overview of NEES, including the

ten-year operations plan, see the network's web site: *http://www.nees.org/*.

Study of Warning and Response to Tornadoes. Funding: National Science Foundation, $10,000, six months. Principal Investigator: *Benigno E. Aguirre, Disaster Research Center, University of Delaware, 77 East Main Street, Newark, DE 19716-2581; (302) 831-6618; fax: (302) 831-2091; e-mail: aguirre@udel.edu*.

The Disaster Research Center will conduct a preliminary study of the emergency response to the May 5, 2003, series of tornadoes in Missouri and Oklahoma. The study will focus on the warning system, the response of emergency management and hospital systems to the storms, and the effects of the Federal Emergency Management Agency's Project Impact on the ability of cities to mitigate the effects of the storms.

FEMA's USAR Task Force Deployments: Implications for the Management of Emergency Response. Funding: National Science Foundation, $298,000, three years. Principal Investigator: *Benigno E. Aguirre, Disaster Research Center, University of Delaware, 77 East Main Street, Newark, DE 19716-2581; (302) 831-6618; fax: (302) 831-2091; e-mail: aguirre@udel.edu*.

The Urban Search and Rescue (USAR) taskforces sponsored by the Federal Emergency Management Agency are a key component of the federal emergency response system. This study examines the extent to which these taskforces are affected by known problems in search and rescue (SAR) operations, as well as the solutions they have developed to deal with such problems. It will examine the taskforces' interaction with other responding agencies and personnel, a critical factor affecting the efficacy of present-day SAR operations. It will also look at the operation of the emergency medical system (EMS) during USAR deployments, particularly the management and transportation of injured persons. The study will identify areas of cooperation and conflict among all these participants and resultant impacts on SAR operations The intent is to improve the effectiveness of disaster response and contribute to social science understanding of the emergent multiorganizational SAR system.

Robust Event Services for Emergency Response in Sensor Networks. Funding: National Science Foundation, $400,000, three years. Principal Investigator: *John A. Stankovic, P.O. Box 400740, Olsson Hall, 206, University of Virginia, Charlottesville, VA 22904; (434) 982-2275; e-mail: jas9f@cs.virginia.edu*.

Wireless sensor networks, composed of thousands of inexpensive devices, have the potential to significantly improve emergency response systems for earthquakes, floods, and other natural disasters, as well as for chemical and biological attacks. While each node must be very inexpensive and will therefore likely have limited capacity, the aggregate behavior of the nodes should collectively delineate the situation, detect possible survivors, send necessary information to the nearest rescue teams, identify a safe exit path for them, and monitor any subsequent events of interest in the area. Since emergencies may last a long time and can be highly dynamic, the system must be able to adapt to the changing environment and employ limited resources efficiently. This research will develop software to support such systems.

Collaborative Research: Framework for Optimal Merging of Multi-sensor Spatial Data and Multi-model, Multi-analysis Ensemble Forecasts of Heavy Precipitation and Floods. Funding: National Science Foundation, $295,000 and $205,000, three years. Principal Investigators: *Ana Barros, Harvard University, 1350 Massachusetts Avenue, Cambridge, MA 02138; (617) 495-2858; fax: (617) 496-1457; e-mail: barros @deas.harvard.edu*; and *T.N. Krishnamurti, Department of Meteorology, 423 Love Building, Florida State University, Tallahassee, FL 32306-4520, (850) 644-2210; fax: (850) 644-9642; e-mail: tnk@met.fsu.edu*.

The aim of this project is to integrate satellite and ground-based data with numerical weather prediction models, hydrological models, and neural network models of precipitation and flooding in order to develop techniques for forecasting heavy precipitation and flooding tailored to local regions. The focus regions will be river basins in Appalachia, Nepal, Mozambique, and Brazil where there are significant orographic influences on precipitation. The forecasting of heavy floods in areas adjacent to mountainous regions is an important problem in many places around the world. If successful, the research would develop an approach that could be adapted for such forecasting.

Spatial-temporal Analysis of Earthquake Catalogs Using Point Processes. Funding: National Science Foundation, $146,000, three years. Principal Investigator: *Frederic R. Schoenberg, Statistics Department, University of California–Los Angeles, Box 951554, 6167 MSB, Los Angeles, CA 90095-1554; (310) 794-5193; fax: (310) 206-5658; e-mail: frederic@stat.ucla.edu*.

This project will develop and apply advanced statistical techniques to describe and analyze earthquake information. Seismic hazard estimation, defined as the quantification of the likelihood of an earthquake of at least a given size occurring in a certain region within a given time interval, is crucial to civil engineering, earthquake preparedness and response systems, and the determination of earthquake insurance premiums, which in turn influence government policy and property valuation. The refinement of spatial-temporal models for earthquake patterns is necessary for more precise estimation of seismic hazard. Further, the analysis of errors in earthquake catalogs and their impact on seismic hazard estimates is critical information needed to ensure proper awareness of uncertainties in earthquake forecasts among the public and scientific community. The statistical tools developed in this project will be useful for analyzing occurrences of other natural phenomena such as wildfires, disease epidemics, and hurricanes.

Information Infrastructures for Crisis Management. Funding: National Science Foundation, $259,000, two years. Principal Investigator: *K. Mani Chandy, Computer*

Science 256-80, California Institute of Technology, Pasadena, CA 91125; (626) 395-6842; fax: (626) 792-4257; e-mail: mani@cs.caltech.edu.

Chandy will conduct research on fundamental computer science problems that arise in the development of information infrastructures for preventing or managing crises such as terrorist attacks, pandemics, chemical spills, hurricanes, and earthquakes. Despite the planning that goes into preparing for them, crises inevitably have elements of the unexpected. That element of surprise implies that crisis management platforms are on-demand systems created when the crisis strikes and modified as requirements change. Consequently, response taskforce members, other than information technology specialists, must be able to specify and deploy software to manage the crisis. Since the membership of a taskforce dealing with an emergency is often not known until the crisis strikes, the necessary computing and communication systems may also not be known. This project will develop means for implementing crisis management infrastructures on top of heterogeneous systems used by different institutions in an evolving response taskforce. It will help to deal with the uncertainty in the response environment and integrate research from many fields.

Advancing Hurricane Landfall Science through Numerical Modeling, Observational Networking, and Greater Public Awareness. Funding: National Science Foundation, $412,000, five years. Principal Investigator: *Sytske K. Kimball, Department of Earth Sciences and Meteorology, University of South Alabama, Mobile, AL 36688-0002; e-mail: skimball@jaguar1.usouthal.edu*.

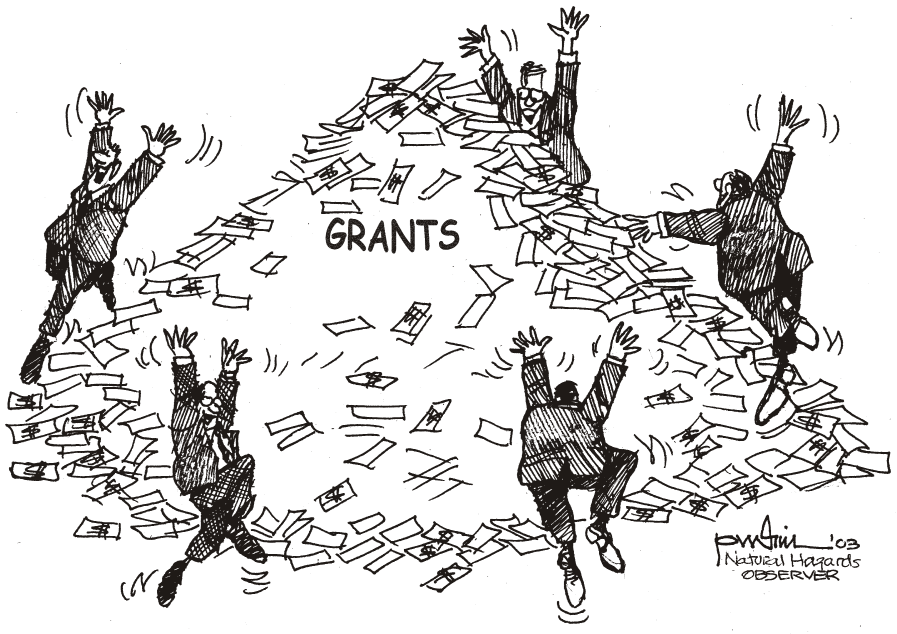
The characteristics of hurricanes at landfall have been identified by NOAA's Weather Research Program as an area deserving increased research attention. The focus is on landfall because hurricane evolution at landfall is a highly complex and destructive process that is poorly understood and difficult to predict, and coastal populations are continuing to grow rapidly.

In order to improve hurricane forecasts, the processes of landfalls first need to be better understood. This project aims to develop realistic landfall simulations for the north-central U.S. Gulf Coast. As this work progresses, research results will be shared with the University of South Alabama's Coastal Weather Research Center, the National Weather Service, and the Mobile County Emergency Management Agency. Local public schools, and retirement communities, will be invited to attend Hurricane Information Days at the university to learn about hurricanes and hurricane preparedness.

A surface observational network, Mobile Bay Mesonet, will also be established based on new and existing observation stations, including some in public schools where students will be involved in collecting and using meteorological data.

A Feasibility Study of Estimation of Structural Systems Reliability Under Hurricane Hazard. Funding: National Science Foundation, $40,000, one year. Principal Investigator: *Rajagopalan Balaji, Department of Civil, Environmental, and Architectural Engineering, University of Colorado, 428 UCB, Boulder, CO 80309-0428; (303) 492-5968; e-mail: balajir@colorado.edu*.

The assessment and prediction of structural system reliability in the face of hurricanes are of great interest to the nation. Public and private agencies need such information for development planning, disaster management organizations need it to develop disaster mitigation strategies, and insurance agencies need it to evaluate and set premium levels. Models for structural risk and reliability exist in the private sector, but are not available publicly. Furthermore, these models evaluate structural reliability without regard for realistic likelihood estimates of hurricane frequencies, magnitudes, and associated characteristics (such as winds, precipitation, and floods). Thus, there is a real need for an integrative framework that includes a realistic hurricane track simulation model coupled with a structural risk/reliability model to generate static (long-term) and dynamic structural risk estimates, as well as the need for a system to classify structures based on their reliability. This study will demonstrate the feasibility of such an integrative framework. The results will significantly contribute to the creation of a framework for estimating structural systems reliability for the entire U.S. coast and will supplement the Federal Emergency Management Agency's HAZUS initiative to assess natural hazard risk across the nation.



Collaborative Research: Center for Safety, Security, and Rescue Robotics. Funding: National Science Foundation, $10,000 and $10,000, one year. Principal Investigators: *Richard M. Voyles, Department of Computer Science and Engineering, 200 Union Street, SE, Minneapolis, MN 55455; (612) 624-8306; fax: (612) 625-0572; e-mail: voyles@cs.umn.edu*; and *Robin R. Murphy, Computer Science and Engineering, University of South Florida, 4202 East Fowler Avenue, ENB342, Tampa, FL 33620-5399; (813) 974-3652; fax: (813) 974-5456; e-mail: murphy@csee.usf.edu*.

These awards support planning for a multiuniversity, multidisciplinary Industry/University Cooperative Research Center (I/UCRC) for Safety, Security and Rescue Robots (C-SSRR). C-SSRR will bring together industry, academia, and public-sector users to develop robotics and artificial intelligence solutions for activities conducted by the police, FBI, FEMA, firefighters, transportation safety officials, and emergency responders during mass casualty events. The center will build upon the knowledge and expertise of researchers in computer science, engineering, industrial organization, psychology, public health, and marine sciences.

Collaborative Research: Multi-Robot Emergency Response. Funding: National Science Foundation, $550,000, $1.6 million, and $450,000, five years. Principal Investigators: *Kostas Daniilidis, Department of Computer and Information Science, University of Pennsylvania, 3330 Walnut Street, Philadelphia, PA 19104; (215) 898-8549; e-mail: kostas@cis.upenn.edu; Nikolaos Papanikolopoulos, Department of Computer Science and Engineering, University of Minnesota, 200 Union Street, SE, Minneapolis, MN 55455; (612) 625-0163; fax: (612) 625-0572; e-mail: npapas@cs.umn.edu*; and *Joel W. Burdick, Mechanical Engineering, California Institute of Technology, Mail Code 104-44, Pasadena, CA 91125; (626) 395-4139; fax: (626) 583-4963; e-mail: jwb@robotics.caltech.edu*.

This collaborative project, involving the University of Pennsylvania, the University of Minnesota, and Cal Tech, addresses the application of robot teams and information technology to emergency response in hazardous environments for various tasks. The research sets six goals: development of new algorithms that enable collaborative sensing; development of distributed localization/mapping methods; in-depth study of communication issues; development of methods for team coordination and dynamic distribution of tasks to robots; creation of algorithms for the presentation of sensory information to users; and experimental validation of the scalability of the aforementioned algorithms and techniques.

Self-configuring In Situ Wireless Sensor Networks for Prescribed Fire Management. Funding: National Science Foundation, $93,000, three years. Principal Investigator: *Lloyd P. Queen, SC 428B, School of Forestry, University of Montana, Missoula, MT 59812; (406) 243-2709; e-mail: lpqueen@ntsg.umt.edu*.

Wireless sensor networks offer exciting new technology with the potential to revolutionize the critical process of fire management in forests and public lands. At present, wildland fire management is limited by the coarseness and scarcity of the weather data received by firefighters. Weather is the most critical factor affecting fire behavior and firefighter safety, and the deployment of fire weather sensor networks offers the prospect of generating better weather data that can vastly improve decision making and safety.

This project focuses on solving the challenges in designing, deploying, and testing a self-configuring wireless fire weather sensor network to support fire management in prescribed fire burns. The broader goals include the improvement of decision making and safety in the management of prescribed wildland fires, the development of tools to enable real-time fire monitoring in rugged terrain, the generation of scientific datasets to improve forecasting of wildland fire behavior, the integration of research results into educational curricula, and increased public understanding of fire behavior in wildlands through the release of research results via the Internet.

An Adaptive and Scalable Architecture for Dynamic Sensor Networks. Funding: National Science Foundation, $600,000, three years. Principal Investigator: *Vasiliki Kalogeraki, Department of Computer Science, 317 Surge Building, University of California–Riverside, Riverside, CA, 92521; (909) 787-2556; fax: (909) 787-4643; e-mail: vana@cs.ucr.edu*.

There are many applications (earthquakes, detection of chemical spills, battlefield management) that require urgent evaluation of a situation, distributed effort coordination, and timely response. Distributed sensor networks have been proposed for managing such environments. For example, in disaster recovery, a response team could deploy a large number of small sensors in the area and then mobile agents could move into the field of the sensors collecting information. The sensors and the mobile agents would have to organize themselves quickly to form a wireless network. Distributed algorithms are needed to coordinate the movements of the agents so that the exploration of the area can be done as quickly and as efficiently as possible. This has to be achieved despite possible failures and given the constraints of the sensors and the established network. Finally, the overall system should enable the response team to collect and analyze the data in a fast and dependable way.

This research will address the key requirements of such a dynamic sensor network and develop a robust, adaptive, and scalable infrastructure for a self-organizing and highly dynamic network.

Some Continuing Grants of Note

Mitigation of Extreme Event Risks: The Case of Electric Power. Funding: National Science Foundation, $428,000, three years. Principal Investigator: *Stephanie E. Chang, Department of Geography, University of Washington, Box 353550, Seattle, WA 98195-3550; (206) 616-9018, fax: (206) 543-5843; e-mail: sec@u.washington.edu*.

Electric power failures in a disaster have the potential to generate regional catastrophes through cascading effects on other critical infrastructure systems such as telecommunications, water, transportation, and hospitals. This study will investigate the potential for these cascading impacts and identify promising mitigation strategies to contain them.

Collaborative Research: DDDAS: Data Dynamic Simulation for Disaster Management. Funding: National Science Foundation; a series of grants totaling approximately $2 millilon, four years. Principal Investigators: *Jan Mandel* (and others), *Center for Computational Mathematics, Department of Mathematics, University of Colorado at Denver, Campus Box 170, Denver, CO 80217-3364; (303) 556-4475, fax: (303) 556-8550; e-mail: jmandel@math.cudenver.edu*.

This project, involving researchers from five different institutions across the nation, will develop advanced information technology tools, mathematical models, and a prototype infrastructure for disaster modeling and management.

Emergency Preparedness Planning and On-Line Evacuation of Large Buildings. Funding: National Science Foundation, $223,000, one year. Principal Investigator: *Elise D. Miller-Hooks, 212 Sackett Building, Pennsylvania State University, University Park, PA 16802; (814) 863-2634; fax: (814) 863-7304; e-mail: edm3@psu.edu*.

This research addresses both emergency preparedness planning and real-time execution of building evacuations, taking into account the inherent uncertainty of developing crises. Evacuation plans resulting from the proposed research will enable faster and more efficient evacuation of buildings, aid the evaluation of existing plans, and help identify potentially high-risk circumstances.

Behavioral Model of Pedestrian Dynamics Under Emergency and Non-Emergency Scenarios Using Cellular Automata. Funding: National Science Foundation, $469,000, three years. Principal Investigator: *Natacha E. Thomas, Civil and Environmental Engineering, University of Rhode Island, Kingston, RI 02881; (401) 874-9353; e-mail: thomas@egr.uri.edu*.

From a social science perspective, it is useful to think of evacuation behavior during emergencies as having three distinct dimensions: the physical environment from which to evacuate, the managerial policies and controls deployed at evacuation, and the psychological and social organizational characteristics affecting the people that participate in the movement. It is much more common in the physics and engineering literature to find direct consideration of the first two dimensions than of the third. However, social science knowledge can be put to great use by architects, engineers, and computer scientists alike in determining the outcomes of evacuation processes. This study explores the application of cellular-automata to the micro-simulation of environmentally constrained and managed pedestrian motions during routine operations and emergency evacuations. It addresses all three dimensions of pedestrian evacuation cited above. Study results will be interpreted in light of accumulated knowledge regarding the sociology of disasters, with the goal of providing local and federal government agencies as well as private organizations with a useful blueprint to follow during crisis evacuations.

Collaborative Research: Enhancing Education through a Seamless Access to Seismological Data. Funding: National Science Foundation, $174,000 and $325,000. three years. Principal Investigators: *Marianne Weingroff, University Corporation for Atmospheric Research, P.O. Box 3000, Boulder, CO 80307; (303) 497-2658; e-mail: marianne@ucar.edu*; and *Thomas J. Owens, Department of Geological Sciences, University of South Carolina, 701 Sumter Street, Room EWSC 617, Columbia, SC 29201; (803) 777-4530; e-mail: owens@sc.edu*.

The Global Earthquake Exploration Project (Project GEE) will tap into an archive of seismological data for K-16 and general public education. The project will deliver near real-time earthquake data in a variety of useful, easily understood formats to these groups. Its primary products will be Rapid Earthquake Viewers (REV) web browser access, a Global Earthquake Explorer (GEE) stand-alone application for exploring earthquake data, and the Module Creation Kit (MCK), which will allow individual educators to easily create and share structured learning modules.

Complex Controls on the Distribution of Lightning Characteristics and Property Damage in an Urbanized Region. Funding: National Science Foundation, $96,000 and $84,000, three years. Principal Investigators: *J. Anthony Stallins, Department of Geography, Florida State University, Room 323 Bellamy Building, Tallahassee, FL 32306-2190; (850) 644-8385; fax: (850) 644-5913; e-mail: jstallin@mailer.fsu.edu*; and *Mace L. Bentley, Department of Geography, Davis Hall, Northern Illinois University, DeKalb, IL 60115; e-mail: bentley@geog.niu.edu*.

Lightning property damage is often less spectacular and more dispersed in time than the consequences of other weather phenomena such as hurricanes or tornadoes. Hence, the potential for lightning to generate large economic losses has not been well recognized. Recent studies have found that heat generated from large urban areas may alter the local distribution of lightning strikes. However, little is known about the characteristics of this lightning and how surface properties and land-use trends influence its distribution and damage potential. This research will simultaneously consider the physical environment and societal determinants as interacting causal agents in lightning damage distribution. The study will focus on Atlanta, Georgia, in part because recent studies have found that heat from downtown Atlanta can trigger thunderstorms in outlying counties. The investigators intend to help illuminate how insurance risks can be redistributed and how emergency services can be better allocated in urban areas. Further, given predicted increases in lightning frequency under global warming, their baseline assessment of urban lightning hazards will provide information for future investigations.

NSF Funds Major Project to Improve Information Technology in Disaster Response

On September 16, the National Science Foundation (NSF) announced multiple grant awards totaling $12.5 million to fund a five-year project entitled "Responding to the Unexpected," a major multi-university study to examine how information technology can revolutionize response to crises, including natural disasters. The project will develop new tools and strategies for first responders. The work involves researchers from the University of California at Irvine (UCI); University of California at San Diego (UCSD); University of Colorado at Boulder (UCB); and several other universities and private companies.

Led by Sharad Mehrotra, UCI, and Ramesh Rao, UCSD, the overall project will include trials involving first responders from southern California and the California Governor's Office of Emergency Services. The goal is to transform the ability of early responders to act as "human sensors" to gather, manage, use, and disseminate information and help reduce casualties, economic loss, and social disruption.

The project incorporates two interrelated research approaches: scalable and robust information technology solutions to facilitate access to appropriate and timely information by individuals and organizations, and social science research to clarify the distinctive nature of dynamic virtual organizations and the social and cultural aspects of information sharing across organizations and individuals.

Kathleen Tierney, UCB, will be coordinating social science research with the many other disciplines involved in this project. The project will blend knowledge about organizational and human behavior in disasters with the design and application of information technology with the goal of helping emergency management officials, police, firefighters, and other decision makers make better-informed decisions, prioritize their responses, and focus on activities that have the highest potential for saving lives and property.

The complete "Responding to the Unexpected" grant announcements are available from the NSF web site: *http://www.nsf.gov/verity/srchawdf.htm* (awards #0331690 and 0331707). Interested persons can also contact *Sharad Mehrotra, 424 Computer Science Building, University of California at Irvine, Irvine, CA 92697-3425; (949) 824-5975; fax: (949) 824-4056; e-mail: sharad@ics.uci.edu; http://www-db.ics.uci.edu; Ramesh R. Rao, 9500 Gilman Drive, University of California at San Diego, La Jolla, CA 92093-0436; (858) 822 4470; fax: (858) 822-5197; e-mail: rrao@ucsd.edu;* or *Kathleen Tierney, Natural Hazards Center, University of Colorado, 482 UCB, Boulder, CO 80309-0482; e-mail: tierneyk@colorado.edu*.

NSTC/SDR Issues
Reducing Disaster Vulnerability

A report identifying critical opportunities to reduce future loss of life and property as a result of disaster was released in August by the Subcommittee on Disaster Reduction (SDR) of the Committee on Environment and Natural Resources of the National Science and Technology Council (NSTC). The interim report, ***Reducing Disaster Vulnerability Through Science and Technology***, reviews current government efforts and identifies six actions that require attention:

- Leverage existing knowledge of natural and technological hazards to address terrorism events.
- Improve hazard information data collection and prediction capabilities.
- Ensure the development of widespread use of improved hazard and risk assessment models and their incorporation into decision support tools and systems.
- Speed the transition from hazard research to hazard management application.
- Increase mitigation activities and incentives.
- Expand risk communication capabilities, especially public warning systems and techniques.

The report discusses an upcoming SDR effort to establish a coordinated, strategic national framework for science and technology research and application development for disaster risk reduction and looks at both the successes and needs regarding disaster reduction throughout the nation.

Reducing Disaster Vulnerability Through Science and Technology is available from the SDR web site: *http://www.sdr.gov/SDR_Report_ReducingDisasterVulnerability2003.pdf*. Interested persons can also contact *Dori Akerman, SDR Secretariat; (703) 560-7448; e-mail: dori.akerman@noaa.gov*.

Recent Publications

Below are summaries of some of the recent, most useful publications on hazards and disasters received by the Natural Hazards Center. Due to space limitations, we have not provided descriptions of all the publications. However, all items contain information on how to obtain a copy.

All Hazards

Environmental Health in Emergencies and Disasters. *Ben Wisner and John Adams, editors. ISBN 92-4-154541-0. 2003. 252 pp. $54.00. Available from the World Health Organization, Publications Center USA; (518) 436-9686; http://bookorders.who.int/newaccess/ anglais/ detart1.jsp?sesslan=1&codlan=1&codcol=15&codcch=487.*

This guide distills what is known about environmental health during emergencies and disasters. Intended for practitioners, policy makers, and researchers, it covers both general and technical areas of environmental health. Focusing on disaster management, the volume looks at the links between humanitarian action and sustainable development and their impacts on planning, prevention, mitigation, and recovery from disasters. Chapters explore predisaster readiness, emergency response, and reconstruction, with a focus on local capacity building and environmental health issues in the context of disaster management.

The Emergency Manager of the Future: Summary of a June 13, 2003, Workshop in Washington, D.C. *Monique C. Hite. 2003. 31 pp. Free. Only available on-line from the National Academies Press, 500 Fifth Street, NW, Lockbox 285, Washington, DC 20055; (202) 334-2451; http://books.nap.edu/books/NI000431/html/index.html.*

Emergency managers of the future will need to contend with a broad array of disasters exacerbated by global changes in demographics, climate, and geography, in their quest for useful mitigation, preparedness, response, and recovery strategies. In this, the eighth public workshop sponsored by the National Academies Disasters Roundtable, participants identified and discussed the role and responsibilities of emergency managers of the future and the resources needed to meet future challenges. These challenges include the need to maintain an all-hazards approach and the need to enhance interoperability.

World Development Report 2004: Making Services Work for Poor People. *A Co-publication of the World Bank and Oxford University Press. ISBN 0-8213-5468-X. 2003. 271 pp. $26.00. Available from The International Bank for Reconstruction and Development/The World Bank, 1818 H Street, NW, Washington, DC 20433; (800) 645-7247; http://publications.worldbank.org/ecommerce/catalog/product?item_id=1764996.*

Too often, public and government services fail to meet the need of poor people. But there are striking examples where basic services such as water, sanitation, health, education, and electricity do work for poor people, which means that governments and citizens can do a better job. This publication argues that services can be improved by putting poor people at the center of service provision by enabling them to monitor and discipline service providers, by amplifying their voice in policymaking, and by strengthening the incentives for providers to serve the poor. This perspective is important for emergency managers and hazards professionals.

Protecting Emergency Responders: Community Views of Safety and Health Risks and Personal Protection Needs. Volume 2. *MR-1646-NIOSH. Tom LaTourrette, D.J. Peterson, James T. Bartis, Brian A. Jackson, and Ari Houser. 2003. 142 pp. $28, plus shipping; see http://www.rand.org/Abstracts/placeorder.html for shipping costs, applicable sales tax, and an on-line ordering form. Orders can be directed to RAND Distribution Services, P.O. Box 2138, Santa Monica, CA 90407-2138; (877) 584-8642 (toll free within the U.S.); (310) 451-7002 (from other destinations); fax: (310) 451-6915; e-mail: order@rand.org.*

The authors examine the hazards that emergency responders face and the personal protective technology and equipment needed to contend with these hazards. The findings in the report are culled from in-depth discussions with 190 members of the nationwide emergency response community from 83 organizations. The study was requested by the National Personal Protective Technology Laboratory (NPPTL) within the National Institute for Occupational Safety and Health (NIOSH) to help guide the development of a research agenda to reduce and prevent occupational disease, injury, and death.

Catastrophe Insurance: Consumer Demand, Markets and Regulation. *Martin F. Grace, Robert W. Klein, Paul R. Kleindorfer, and Michael R. Murray. ISBN 1-4020-7469-7. 2003. 147 pp. $115.00. Available from Kluwer Academic Publishers, 233 Spring Street, Floor 7, New York, NY 10013-1522; http://www.wkap.nl/.*

The risk of large losses from natural disasters in the U.S. has significantly increased in recent years, straining private insurance markets and creating troublesome problems for disaster-prone areas. This book explores the impacts of these changes on the insurance industry and provides an overview of catastrophe insurance markets, regulatory institutions and policies, supply, demand and regulation, demand estimation for homeowner insurance policies, and an introduction to modeling.

The Social Amplification of Risk. *Nick Pidgeon, Roger E. Kasperson, and Paul Slovic, editors. ISBN 0-521-81728-5. 2003. 448 pp. $75.00. Available from Cambridge University Press, 100 Brook Hill Drive, West Nyack, NY 10994; (845) 872-7423; http://uk.cambridge.org/.*

This volume examines the history of the way our society assesses, responds to, and communicates risks. With a focus on the social

sciences, chapter authors from various disciplines present their approaches to dealing with risk (cultural theories, psychometrics, post modernist analysis, empowerment strategies, and more), and suggest that a more comprehensive and systematic understanding of the social experience of risk is necessary. Sections address conceptual foundations, risk signals and mass media, public perceptions and social controversy, risk ripples and stigma effects, and policy and management.

Assessing Federal Research and Development for Hazard Loss Reduction. *Charles Meade and Megan Abbott. ISBN 0-8330-3442-1. Rand document #MR-1734-OSTP. 2003. 83 pp. A free on-line version is available from http://www.rand.org/publications/MR/MR1734/. Printed copies cost $20.00, plus shipping; see http://www.rand.org/Abstracts/placeorder.html for shipping costs, applicable sales tax, and an on-line ordering form. Orders can also be directed to RAND Distribution Services, P.O. Box 2138, Santa Monica, CA 90407-2138; (877) 584-8642 (toll free within the U.S.); (310) 451-7002 (from other destinations); fax: (310) 451-6915; e-mail: order@rand.org.*

Losses resulting from natural hazards such as floods, hurricanes, earthquakes, tornadoes, and wildfire, cost the U.S. economy billions of dollars each year. These costs are escalating due, in part, to the growing population in coastal and other high-risk areas, and to the increasing complexity of the nation's infrastructure. As part of the strategy to address this problem, the federal government supports research and development to improve understanding of, preparation for, and response to all hazards.

This analysis of current federal funding for research on hazards losses found that programs solely dedicated to hazard loss reduction receive the least funding, while work on weather hazards and broadly related research on climatology, atmospheric science, and oceanography receive the most. While prediction can generally move more individuals out of harm's way, long-term loss reduction strategies could improve the resilience of communities and infrastructure, resulting in less property damage and reduced rebuilding costs. The study concludes that a comprehensive national loss database and greater use of loss modeling would assist in identifying essential research areas and that research and development activities should focus on longer-term efforts, with an emphasis on technologies that can reduce infrastructure losses and better protect individuals and property. Finally, the study offers recommendations regarding the role of research in hazards loss reduction.

Earthquakes

Preventing Earthquake Disasters: The Grand Challenge in Earthquake Engineering: A Research Agenda for the Network for Earthquake Engineering Simulation*. Committee to Develop a Long-Term Research Agenda for the Network for Earthquake Engineering Simulation (NEES), National Research Council. 2003. Approximately 154 pp. $32.00. Order from the National Academies Press, 2102 Constitution Avenue, NW, Washington, DC 20055; (800) 624-6242; http://www.nap.edu/catalog/10799.html (on-line orders receive a 20% discount).*

Note: A prepublication version of this volume is available for on-line reading from the web page indicated above. The final printed version, and an on-line PDF version are being published by the National Academies Press but were not available at press time.

The National Science Foundation has awarded over $80 million in grants to establish the George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) to foster improved seismic design and improved performance of the nation's buildings and infrastructure (see the ***Observer***, Vol. XXV, No. 2, p. 18; Vol. XXIII, No. 5, p. 2; and the Grants section of this issue). NEES was conceived as a network of 20 or more geographically distributed, shared use, next-generation research sites, which will host integrated experimentation, computation, database development, and model-based simulation in earthquake engineering research. This report is the result of an 18-month effort to establish a long-term research agenda for NEES. The committee identified research challenges in seven areas: seismology, tsunamis, geotechnical engineering, buildings, lifelines, risk assessment, and public policy. From these, the committee distilled the following research challenges for NEES:

- Economical methods for retrofit of existing structures
- Cost effective solutions to mitigate seismically induced ground failures within communities
- A full suite of standards for affordable performance-based seismic design
- Loss prediction models to guide zoning and land-use decisions
- Continuous operation of critical infrastructure after earthquakes and mitigation strategies for coastal areas subject to tsunamis

The report offers ten broad recommendations for maximizing the effectiveness of NEES in addressing these issues.

The Missing Piece: Improving Seismic Design and Construction Practices*. Charles C. Thiel, Jr., editor. ATC 57. 2003. 108 pp. $40.00 plus shipping (see web site for shipping costs and applicable sales tax for purchases within California). Copies can be ordered from the Applied Technology Council (ATC), 201 Redwood Shores Parkway, Suite 240, Redwood City, CA 94065; (650) 595-1542; fax: (650) 593-2320; e-mail: atc@atcouncil.org; or purchased on the web at http://www.atcouncil.org.*

Funded by the National Institute of Standards and Technology and the result of an industry collaborative effort, this report defines a broad program to improve seismic design and construction with the specific aim of improving the transfer of basic research knowledge into practice. The problem-focused research and development program defined in ATC-57 emphasizes two subject areas, each containing five specific proposed program elements. The areas are: systematic support of the seismic code development process and improved seismic design and construction productivity. Program elements include the provision of technical support, development of a technical basis for performance-based seismic engineering, support of the development of technical resources (guidelines and manuals) to improve practice, and the development of tools to enhance the productivity, economy, and effectiveness of the earthquake-resistant design and construction process.

The report also contains six issue papers commissioned to develop initial recommendations and needed background information, including a discussion of technology transfer and a history of the decline in engineering and construction productivity in the U.S.

Also recently published by ATC is the council's report ***ATC-51-1: Recommended U.S.-Italy Collaborative Procedures for Earthquake Emergency Response Planning for Hospitals in Italy***. 2003. 120 pp. $55.00. Ordering information is as above.

Living on an Active Earth: Perspectives on Earthquake Science. *Committee on the Science of Earthquakes, National Research Council. ISBN 0-309-06562-3. 2003. 432 pp. $59.95. Order from the National Academies Press, 2102 Constitution Avenue, NW, Washington, DC 20055; (800) 624-6242; http://www.nap.edu/catalog/10493.html (on-line orders receive a 20% discount). An on-line PDF version is also available for $36.00 from the same web page.*

The destructive force of earthquakes has stimulated human inquiry since ancient times, yet the scientific study of earthquakes is a surprisingly recent endeavor. Instrumental recordings of earthquakes were not made until the second half of the 19th century, and the primary mechanism for generating seismic waves was not identified until the beginning of the 20th century. Since then, a range of laboratory, field, and theoretical investigations has developed into the science of earthquakes. As a basic science, the discipline provides a comprehensive understanding of earthquake behavior and related phenomena in the Earth and other terrestrial planets. As an applied science, it provides knowledge of great practical value for a global society whose infrastructure is built on the Earth's active crust. This book describes the growth and origins of earthquake science and identifies research and data collection efforts that will strengthen the scientific and social contributions of the discipline.

International Handbook of Earthquake & Engineering Seismology, Parts A and B. *William H.K. Lee, et al., editors. ISBN 0-12-440652-1 and 0-12-440658-0. 2002 and 2003. 932 and 1040 pp. $150.00 each. Available from Elsevier Science, Order Fulfillment, 11830 Westline Industrial Drive, St. Louis, MO 63146; (800) 545-2522; e-mail: usbkinfo@elsevier.com; http://books.elsevier.com/quake.*

The two-volume *International Handbook of Earthquake and Engineering Seismology* is the International Association of Seismology and Physics of the Earth's Interior (IASPEI) comprehensive overview of current knowledge regarding earthquakes and seismology. IASPEI calls this state-of-the-art work "the only reference to cover all aspects of seismology."

Wildfire

International Urban-Wildland Interface Code. *International Code Council. 2003. 48 pp. $33.00 general public; $26.00 members. Available from the International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478; (800) 786-4452; http://www.iccsafe.org.*

Electronic Fare

Disaster-Resistant California 2003 Proceedings. *2003. CD-ROM. $75.00. Copies can be purchased by contacting the Collaborative for Disaster Mitigation, San Jose State University College of Engineering, One Washington Square, San Jose, CA 95192-0082; e-mail: jessica.tran@sjsu.edu; http://www2.sjsu.edu/cdm/main.html.*

Proceedings from this conference, held April 21-23, 2003, include papers and presentations from a wide variety of public- and private-sector professionals addressing hazard mitigation, preparedness, and recovery.

Long-term Data Sets about Freezing Rain and Ice Storms in the United States*. 2003. CD-ROM. $25.00. For a copy, contact the Midwestern Regional Climate Center, 2204 Griffith Drive, Champaign, IL 61820; (217) 244-8226; e-mail: mcc@sws.uiuc.edu.*

Climatologist Stanley Changnon and colleagues recently completed a study for the National Oceanic and Atmospheric Administration's Office of Global Programs titled "Developing Data Sets for Assessing Long-Term Fluctuations in Freezing Rain and Ice Storms in the United States." The study compiled historical information on the incidence of freezing rain and ice storms across the nation and analyzed that data. The researchers found that ice storms cause an average of $321 million in property losses annually and qualify as one of the nation's major weather hazards.

Changon has published two articles summarizing some of the results of this research: *"Characteristics of Ice Storms in the United States,"* ***Journal of Applied Meteorology*** *42: 630-639;* and, with colleague *T.R. Karl, "Temporal and Spatial Variations of Freezing Rain in the Contiguous U.S.,"* ***Journal of Applied Meteorology*** *42, 1302-1315. Information about journal subscriptions and reprints is available from the American Meteorological Society, 45 Beacon Street, Boston, MA 02108-3693; (617) 227-2426; e-mail: amspubs@ametsoc.org; http:// www.ametsoc.org/.*

The Latest from the GAO

Among the recent reports on national policy issued by the ever-prolific General Accounting Office (GAO) are those listed below.

Copies of GAO reports are available on the web 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.

Wildland Fire Management: Additional Actions Required to Better Identify and Prioritize Lands Needing Fuels Reduction. *GAO-03-805. 2003. 67 pp.*

In recent years the density of the nation's forests, along with drought and other weather conditions, has fueled wildland fires that have required billions of dollars to suppress and forced thousands of people to evacuate their homes. The Forest Service of the Department of Agriculture and the Department of the Interior are collaborating on a long-term effort to reduce the risk these fires pose and have identified three categories of land for fuel reduction: 1) lands with excess fuel buildup, 2) lands in the wildland-urban interface, and 3) lands where vegetation grows rapidly and requires regular maintenance to prevent excess fuel buildup. However, the agencies have not yet reliably estimated the amount or location of these lands, and, as such there is no baseline against which to assess progress under the fuel reduction program. Further, no systematic method has been developed for prioritizing lands needing fuel reduction, and it is therefore difficult for the Forest Service and Interior to ensure that the highest priority projects are being implemented. While agency officials are addressing some of these factors, others, such as weather, are beyond human control. As a result, agency officials are uncertain whether increased funding would necessarily result in a proportional increase in acres treated. The Forest Service and Interior are developing results-oriented performance measures to assess the effectiveness of treatments in reducing the risk of catastrophic wildfires. However, again, there is no baseline from which to assess program performance. In addition, annual performance reports provide misleading information on the overall progress being achieved under the fuels reduction program because the agencies are reporting all acres treated annually without separately reporting acres that are treated to maintain a low level of wildfire risk and other acres that require several years of treatment to reduce risk.

Homeland Security: Efforts to Improve Information Sharing Need to Be Strengthened. *GAO-03-760. 2003. 59 pp.*

The sharing of information by federal authorities with state and city governments is critical to effective homeland security, and since September 11, 2001, all levels of government have established initiatives to improve the sharing of information to prevent terrorism. However, many of these initiatives are not well coordinated. At the federal level, the Department of Homeland Security (DHS) has initiatives underway to enhance information sharing, including the development of a homeland security blueprint, known as an "enterprise architecture," to integrate sharing among federal, state, and city authorities.

GAO surveyed government officials at all levels regarding their perceptions of the effectiveness of the current information sharing process. Numerous studies, testimonies, reports, and congressional commissions substantiate the survey results. Overall, no level of government perceived the process as effective, particularly when sharing information with federal agencies. Information on threats, methods, and techniques of terrorists is not routinely shared, and the information that is shared is not perceived as timely, accurate, or relevant. Moreover, federal officials have not yet established comprehensive processes and procedures to promote sharing. Federal respondents cited the inability of state and city officials to secure and protect classified information, the lack of federal security clearances, and a lack of integrated databases as restricting their ability to share information. The GAO concludes that DHS needs to strengthen efforts to improve the information sharing process so that the nation's ability to detect or prepare for attacks is strengthened.

Freshwater Supply: States View of How Federal Agencies Could Help Them Meet the Challenges of Expected Shortages*. GAO-03-514. 2003. 118 pp.*

The widespread drought conditions of 2002 focused attention on a critical national challenge: ensuring a sufficient freshwater supply to sustain quality of life and economic growth. States have the primary responsibility for managing water resources, but multiple federal agencies also play a role. For example, the Department of Interior's Bureau of Reclamation operates numerous water storage facilities, and the U.S. Geological Survey collects important surface and groundwater information. GAO was asked to determine the current conditions and future trends for U.S. water availability and use, the likelihood of shortages and their potential consequences, and states' views on how federal activities could better support state water management efforts

to meet future demands.

National water availability and use has not been comprehensively assessed in 25 years, but current trends indicate that demands on the nation's supplies are growing. State water managers expect freshwater shortages in the near future, and the consequences may be severe. Drought conditions will exacerbate shortages, and economic impacts to sectors such as agriculture may be in the billions of dollars, with social and environmental consequences as well. State water managers ranked federal actions that could best help states meet their water resource needs. They preferred financial assistance to increase storage and distribution capacity, water data from more locations, more flexibility in complying with or administering federal environmental laws, better coordinated federal participation in water-management agreements, and more consultation with states on federal or tribal use of water rights.

***Disaster Assistance: Information on FEMA's Post 9/11 Public Assistance to the New York City Area**. GAO-03-926. 2003. 46 pp.*

The terrorist attacks on New York City created the most costly disaster in U.S. history. In response, the president pledged at least $20 billion in aid. Approximately $7.4 billion of this aid is being provided through the Federal Emergency Management Agency's (FEMA's) public assistance program, which provides grants to state and local governments to respond to and recover from disasters. The Senate Committee on the Environment and Public Works requested that GAO determine what activities FEMA supported in the New York City area through its public assistance program after the terrorist attacks, how the federal government's response to this terrorist event differed from FEMA's traditional approach to providing public assistance, and what implications FEMA's public assistance approach in the New York City area may have on the delivery of public assistance should other major terrorist attacks occur in the future.

FEMA has supported many activities with the $7.4 billion. The major uses were: $1.7 billion for debris removal operations and insurance; $2.8 billion to repair and upgrade the transportation infrastructure of lower Manhattan; $0.6 billion to the New York City police and fire departments for such purposes as emergency efforts and replacing destroyed vehicles; $0.3 billion to miscellaneous city agencies for a wide range of activities; $0.7 billion for non-New York City agencies for many purposes; and $1.2 billion for public assistance-related reimbursements to New York City and New York State for work to be decided. The provision of public assistance to the New York City area differed in three significant ways from FEMA's traditional approach. FEMA and New York City officials agreed that FEMA's public assistance approach in the New York City area created uncertainties regarding the delivery of public assistance in the event of another major terrorist event. They differed on the effectiveness of using the public assistance program as currently authorized as the vehicle for federal disaster response to a future major terrorist event. Key New York City officials said that the program needed major revisions, while FEMA officials said it worked well. Nevertheless, FEMA has begun to consider ways to redesign the program to make it better able to address all types and sizes of disasters, including terrorist attacks.

Persons interested in these issues might also consult ***Disaster Assistance: Federal Aid to the New York City Area Following the Attacks of September 11th and Challenges Confronting FEMA**, GAO Report GAO-03-1174T, 2003, 5 pp.*, testimony by JayEtta Z. Hecker, GAO Director of Physical and Infrastructure Issues.

Other recent testimony by GAO officials includes:

- ***Homeland Security: Reforming Federal Grants to Better Meet Outstanding Needs.** GAO-03-1146T. 2003. 20 pp.*
- ***Geospatial Information: Technologies Hold Promise for Wildland Fire Management, but Challenges Remain.** GAO-03-1114T. 2003. 34 pp.*

IJSSP Seeking Articles on Disaster

In 2004, the ***International Journal of Sociology and Social Policy (IJSSP)*** will publish a special issue on disasters. The editors are currently soliciting a diverse set of papers, focusing on issues regarding natural or technological hazards, gender and disasters, race/ethnicity and disasters, public health and disasters, vulnerability, mitigation, preparedness, response, emergency management, social policy, and other social dimensions of disaster. Papers with an interdisciplinary and/or international focus are particularly encouraged. The deadline for submissions is December 15, 2003. Hard copies should be submitted to *Havidán Rodríguez, Disaster Research Center, University of Delaware, 77 East Main Street, Newark, DE 19713. Electronic copies should be e-mailed to: havidan@udel.edu.*

Time (and Sylvia) Marches On . . .

Change seems to be the order of the day/month/year at the Hazards Center of late, with unprecedented staff turnover (compare the names on the back page of this issue with those of a couple of years ago). The latest mutation will be particularly difficult for the center to absorb: Sylvia Dane, the long-time center bon vivant, raconteur, and ***Natural Hazards Observer*** editor, has moved on to become the University of Colorado's emergency manager.

Our loss, their gain.

We calculate that over the years, Sylvia has contributed to some 92 issues of the ***Natural Hazards Observer***, and, if our recent ***Observer*** questionnaire is valid, that means she has reached out and informed at least 50,000 people (probably a lot more) regarding disaster matters. In many ways, she has been central to the national and international community of professionals, scholars, and otherwise interested citizens concerned about natural hazards, and her leaving will create a significant void in that community's (and, of particular personal concern, the Hazard Center's) collective knowledge and wisdom.

Still, we wish her well.

And can rest somewhat more easily knowing that she's just across the campus and only a phone call away should we need to know who those people were who did the Hurricane Andrew study in 1993, or whether or not to put a comma after "1993."

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 *November 19, 2003*.

Center phone number . . . . . (303) 492-6818
Fax . . . . . (303) 492-2151
E-mail . . . . . hazctr@colorado.edu
Publications Administrator . . . . . (303) 492-6819
E-mail . . . . . janet.kroeckel@colorado.edu

STAFF

Wendy Steinhacker . . . . . Editor
David Butler . . . . . The Farewell Tour
Kathleen Tierney . . . . . Director
Mary Fran Myers . . . . . Co-Director
Dennis S. Mileti . . . . . Senior Research Scientist
Wanda Headley . . . . . Library Manager
Diane Smith . . . . . Office Manager
Meghan Wilson . . . . . Publications Administrator
Lori Peek . . . . . Research Assistant
Julie Gailus . . . . . Research Assistant
Jeannette Sutton . . . . . Research Assistant

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

NATURAL HAZARDS OBSERVER

ISSN 0737-5425
Printed in the USA.
Published bimonthly. Reproduction with acknowledgment is permitted and encouraged.

The ***Observer*** is free to subscribers within the U.S. Subscriptions outside the U.S. cost $24.00 per year. Back issues of the ***Observer*** are available for $4.00 each, plus shipping and handling. Orders must be prepaid. Checks should be payable to the University of Colorado. Visa, Mastercard, American Express, and Diner's Club cards are also accepted.

Copies of the ***Observer*** and the Hazards Center's electronic newsletter, ***Disaster Research***, are also available from the Natural Hazards Center's web site:

http://www.colorado.edu/hazards

Please:
- ☐ Add my name to the ***Observer*** mailing list
- ☐ Delete my name
- ☐ Change my address

(Return this page with your current address label)

Name: _____

Mailing Address: _____

_____

_____

Phone: _____ Fax: _____

Affiliation: _____

E-mail address: _____

Natural Hazards Research and Applications
Information Center
University of Colorado at Boulder
482 UCB
Boulder, Colorado 80309-0482

Change Service Requested

Non-Profit Org.
U.S. Postage
PAID
Boulder, CO 80309
Permit No. 257

Printed on Recycled Paper