



# NATURAL HAZARDS Observer

VOLUME XXVI NUMBER 4

MARCH 2002



## Insurance and Disasters Andrew's Lessons Served Responders Well in New York

—an invited comment

Ten years ago, public, private, and nonprofit organizations that dealt with disasters entered a new era that forever changed their response to catastrophes. When Hurricane Andrew slammed into south Florida in August 1992, the storm moved more than roofs, trees, and assorted debris. It ultimately compelled our institutions to find innovative ways to work as full-fledged partners in both responding to disasters and rebuilding our communities and economies afterward.

After the attacks of September 11, those painful lessons proved invaluable in improving the subsequent response by government agencies. Another important responder to most disasters, the insurance industry, plays a vital role in providing funds quickly for victims who need to rebuild their homes and restore their lives. The lessons from Hurricane Andrew were just as valuable for these private sector responders.

Andrew's intensity flattened entire communities and placed severe stress on households, all levels of government, and many private sector institutions. As organizations rushed to respond, it soon became apparent that coordination, cooperation, and communications among these groups were lacking. The initial response to Andrew—in which insurance adjusters were denied prompt access to the disaster scene and victims encountered obstacles in obtaining required permits to begin repair—impeded the rebuilding process. By contrast, coordination between the insurance industry, emergency management, and other government agencies in New York helped expedite recovery. How did this change come about?

Disasters, devastating as they can be, provide invaluable experiences that can be used to lessen the impacts of future events. Engineers and other building professionals study struc-

tural failures to learn how to make buildings stronger. It follows that groups involved in disaster response and recovery can learn from problematic response efforts to improve the way they do things in the next catastrophe.

Many insurance providers, whose claim checks usually represent one of the first vital steps in a community's rebuilding efforts, work to help coordinate the critical role that public and private entities play in disaster preparedness, response, and recovery. Every responding organization—public, private, or nonprofit—benefits from understanding the roles of other responders and what they bring to the process. Following Andrew, insurers and other groups developed a "Partners in Recovery" program in Florida, which assembled insurance company leaders, state regulatory officials, and the emergency management community, to identify better ways to preserve life and mitigate damage through greater cooperation, planning, and response.

Using this effort in Florida as a model, the Institute for Business and Home Safety (IBHS) developed a national program, State Disaster Coalitions, with the purpose of forming long-term partnerships at the state level among public- and private-sector leaders to enhance cooperation, communication, and the leveraging of resources following a major event. In March of 2000, the first of many meetings with New York state officials took place to establish that state's Disaster Coalition. New York became the first state to develop and utilize the IBHS State Disaster Coalition model. The following entities worked together to create the coalition:

- the New York Department of Insurance,
- the New York Department of Emergency Management,
- the Institute for Business and Home Safety and its Response and Recovery Committee,
- the New York Insurance Association,
- several insurance companies, and
- the Federal Emergency Management Agency.

Two months after the first meeting, New York Governor George Pataki issued a public announcement supporting the Disaster Coalition. During the summer of 2001, using the scenario of a major hurricane striking Long Island, coalition participants conducted two "tabletop" exercises and technology tests under the leadership of the New York Emergency Management Agency to evaluate the plan's readiness and the soundness of its strategy. Participants considered both exercises to be successful and the framework in place for a unified and aggressive public/private response for a major event in the state. The Disaster Coalition was ready to deal with disaster, come hell or high water. Unfortunately, hell came first.

Just a few weeks later, terrorists attacked the World Trade Center and the Pentagon. As the country reeled from the horrific images of the damaged buildings, coalition representatives moved into the Albany-based Insurance Emergency Operations Center to solve problems quickly and efficiently while working as part of a team on behalf of the victims.

By 8:00 a.m. on September 12, the state of New York's Insurance Department had activated its Albany-based

Insurance Emergency Operations Center (IEOC). (The department's Manhattan office had been damaged and evacuated). Fourteen insurance company catastrophe representatives and two trade association members of the coalition—the Insurance Disaster Liaisons—began work that morning. Industry-wide emergency communications were distributed from a remote location—Waco, Texas—via an IBHS representative (an executive from Allstate Insurance) who had been designated in the coalition plan as New York Insurance Industry Disaster Coordinator.

During these first critical hours, as America realized the full magnitude of the attacks, the insurance industry and its regulators already knew they faced a daunting challenge that cut across virtually all lines of insurance. Yet, the financial needs of most victims who filed insurance claims were met. Two months later, only 20 complaints had been filed with the New York Department of Insurance out of nearly 19,000 total claims, by all accounts an unprecedented ratio following a catastrophe of this magnitude.

The New York Disaster Coalition members and insurance catastrophe team leaders met two months following the attacks to assess how well the plan functioned under such daunting conditions. During the gathering, numerous issues were discussed relating to disaster response problems, such as access to impacted areas for claims adjusters. In addition, a coalition representative from an insurance company said that people in his home office knew this disaster would dwarf all others, "but New York could handle it" because New York had a Disaster Coalition capable of responding in the best way possible under catastrophic conditions.

And respond they did. As they had in the aftermath of Andrew and subsequent major disasters, insurance representatives created the Disaster Insurance Information Office to provide on-the-spot information on the industry's response, supplying claim filing tips and maintaining a dialogue with the public through an active consumer outreach program. Staffed by the Insurance Information Institute, the office was supported by 20 property/casualty, life, and health insurance associations, including IBHS. In addition to carrying out the plan that was in place for a natural disaster, members of the IBHS Response and Recovery Committee and the Commercial Lines Committee rapidly printed a guide for businesses affected by disaster. *Getting Back to Business* was published and distributed immediately. The Federal Emergency Management Agency, the U.S. Small Business Administration, and the New York Department of Insurance requested thousands of copies to distribute as well. They understood the essential concept of the disaster responders' mission—breaking down barriers to serve victims.

It's hard to think that things could have been worse on September 11, but the lessons learned from Andrew led the way so that victims could be helped faster and recovery could take place more quickly through public and private partnership.

Harvey Ryland  
President and CEO  
Institute for Business & Home Safety

Copies of *Getting Back to Business* are available from the IBHS web site: <http://www.ibhs.org>.

## Seven New Quick Response Reports Now On-Line

Seven new quick response reports are now available on the Natural Hazards Center's web site. The reports analyze diverse disaster aspects, including recent tornadoes, the events of September 11, Hurricane Floyd, and earthquakes in El Salvador. Each report presents a distinct perspective of disaster recovery. The Natural Hazards Center sponsors "Quick Response" investigations that allow researchers to visit the site of a disaster immediately after impact in order to assess response and recovery. In turn, the researchers publish summaries of their findings on the Hazards Center web site. The newest reports are:

<http://www.colorado.edu/hazards/qr/qr137/qr137.html>

- **Quick Response Report #137: Examining a "Near-Miss" Experience: Awareness, Behavior, and Post-Disaster Response Among Residents on the Periphery of a Tornado-Damage Path** (20 pp.), by John P. Tiefenbacher, William Monfredo, Michelle Shuey, and Reno J. Cecora, James and Marilyn Lovell Center for Environmental Geography and Hazards Research, Department of Geography, Southwest Texas State University.

This study was conducted one week after a damaging tornado in Wisconsin to understand the nature of local warnings and the responses people had to being on the periphery of the tornado damage path. It also evaluates the effect a nearby disaster has on pledges to improve disaster preparation, awareness, and mitigation.

<http://www.colorado.edu/hazards/qr/qr138/qr138.html>

- **Quick Response Report #138: Effects of Written Disclosure on Post-Disaster Psychological Adjustment and Symptomatology** (11 pp.), by H. Katherine O'Neill, Department of Psychology, North Dakota State University, and Joshua Smyth, Department of Psychology, Syracuse University.

Stress management intervention applied immediately after a traumatic experience may be effective in facilitating adjustment and in preventing the development of significant post-traumatic stress disorder. This report describes an evaluation of the psychological effectiveness of a brief structured writing task in helping victims cope with disaster trauma.

<http://www.colorado.edu/hazards/qr/qr139/qr139.html>

- **Quick Response Report #139: Field Observations of Lower Manhattan in the Aftermath of the World Trade Center Disaster: September 30, 2001** (10 pp.), by James K. Mitchell, Peter Kabachnik, Robert Donovan, Junko Noguchi, and Tom Mitchell, Department of Geography, Rutgers University.

This report examines the types of posters that were created and displayed in Lower Manhattan following the attacks on the World Trade Center. The report discusses the main types of displays, including those that express grief, describe missing persons, contain religious displays, present political commentaries, provide community announcements such as recovery meetings, and distribute government safety information.



<http://www.colorado.edu/hazards/qr/qr140/qr140.html>

- **Quick Response Report #140: The Terrorist Attacks on September 11, 2001: Immediate Impacts and Their Ramifications for Federal Emergency Management** (17 pp.), by Claire B. Rubin and Irmak Renda-Tanali, Institute for Crisis, Disaster, and Risk Management, George Washington University.

No past terrorist disaster in the U.S. has required both civilian recovery and military responses. This report discusses the defining characteristics of the attacks, the role of the media, the role of the U.S. Environmental Protection Agency, the initial response of the U.S. Coast Guard in New York City, economic and financial impacts, damage to infrastructure, equipment losses, business interruption, human productivity, airline losses, insurance payouts, decreases in tourism, revenue losses, impacts on the stock exchanges, and donations and charities. The authors also evaluate the effects on public attitudes toward government, the new national public awareness of terrorism, public awareness of emergency management, and changes in public sector focus and workload. The authors describe anticipated changes in federal policy to better deal with such events in the future.

<http://www.colorado.edu/hazards/qr/qr141/qr141.html>

- **Quick Response Report #141: Digital Disaster Assistance: How and Why Selected Information Technology Firms Contributed to Recovery Immediately After the September 11, 2001, Terrorist Attacks** (13 pp.), by Sarah Michaels, School of Planning, University of Waterloo.

This report examines how the information technology sector combined previous disaster experience, disaster response, plans, and post-event ingenuity to deliver previously contracted services, to provide new services, and to donate humanitarian aid.

<http://www.colorado.edu/hazards/qr/qr142/qr142.html>

- **Quick Response Report #142: Disaster and Development: El Salvador 2001** (16 pp.), by Ben Wisner, Development Studies Institute, London School of Economics and Political Science.

The author of this report visited El Salvador, a country plagued with earthquakes, hurricanes, flooding, and volcanic eruptions, to study the degree of citizen involvement in the planning of recovery and the degree to which recovery was incorporating mitigation of future impacts.

<http://www.colorado.edu/hazards/qr/qr143/qr143.html>

- **Quick Response Report #143: Multi-Organizational Coordination During the Response to the March 28, 2000, Fort Worth Tornado: An Assessment of Constraining and Contributing Factors** (14 pp.), by David A. McEntire, Emergency Administration and Planning, Department of Public Administration, University of North Texas.

This report examines the factors that inhibit and facilitate coordination among disaster response organizations. The author used the tornado that struck Fort Worth, Texas, in March 2000, to evaluate various aspects of response, including warning and evacuation, medical response, search and rescue, damage assessment, debris removal, sheltering, utility provision,

public information, and business resumption. He also outlines factors that both constrain and contribute to effective response.

<http://www.colorado.edu/hazards/qr/qr144/qr144.html>

- **Quick Response Report #144: Community Response in a Terrorist Disaster** (5 pp.), by Seana Lowe, Department of Sociology, University of Colorado.

This exploratory research focuses on the motivations, observations, behaviors, and exchanges experienced by spontaneous volunteers responding to the World Trade Center attacks.

<http://www.colorado.edu/hazards/qr/qr145/qr145.html>

- **Quick Response Report #145: Risk Factors for Death in the 8 April 1998 Alabama Tornadoes** (13 pp.), by Yuichi Ono, Department of Geography, Kent State University.

Noting that tornado deaths do not occur randomly, the author sought to understand factors that increase vulnerability to these storms by conducting a field survey of the deadly tornadoes that killed 34 people in Alabama. In this report, he presents information on the persons who died, their housing structure, their location during the tornado, the F-scale determined from the damage caused by the cyclone, and a discussion of potential survival strategies.

## Center's 2001 Annual Report Available

The Natural Hazards Center's 2001 Annual Report is now on the Center's web site. The report details the Center's activities, publications, information programs, research initiatives, and more during fiscal year 2000 to 2001. The document is available in hypertext format at <http://www.colorado.edu/hazards/annrpt/01annrpt.html> and PDF format at <http://www.colorado.edu/hazards/annrpt/01annrpt.pdf>.



## Disaster as Opportunity

The period after a disaster can be a chaotic and discouraging one, especially for small- and medium-sized communities who are faced with innumerable difficult decisions, public pressure to act quickly, a confusing array of federal and state assistance programs, and a good deal of uncertainty. But it can also be an opportunity to improve the community for the long run, simply by adopting a broader perspective on the situation and by carrying out post-disaster decisionmaking and activities in a slightly different way.

Two publications recently released by the Natural Hazards Center explain just such a new approach, termed “holistic disaster recovery,” which integrates what is known about the process of recovering and reconstruction after a disaster with the principles of sustainability. *Holistic Disaster Recovery: Ideas for Building Local Sustainability after a Natural Disaster* is an all-purpose handbook that contains background information, practical descriptions, and ideas about what sustainability is, why it is good for a community, and how it can be applied during disaster recovery. The book is intended for local officials and staff, activists, and the disaster recovery experts who help the community during disaster recovery—including state planners, emergency management professionals, mitigation specialists, and others.

The handbook presents a recovery framework in which the six principles of sustainability (economic vitality, social equity, environmental quality, livability, disaster resilience, and public participation) become criteria to be applied to every recovery decision. Separate chapters on each of the sustainability principles provide background discussion, examples from the real world, hypothetical recovery problems and strategies for solving them, and places to get additional information. The handbook is intended to complement other documents already available on recovery, reconstruction, planning, mitigation, and related local concerns.

*Holistic Disaster Recovery* was produced under a 20-month project funded by the Public Entity Risk Institute (see

the *Observer*, Vol. XXIV, No. 4, p. 17). The handbook is the product of a team of contributing authors: Charles Eadie, University of California, Santa Cruz; Rod E. Emmer, R.E. Emmer & Associates; Ann-Margaret Esnard, Cornell University; Sarah Michaels, University of Waterloo; Jacquelyn Monday, University of Colorado–Boulder; Clancy Phillipsborn, The Mitigation Assistance Corporation; Brenda Phillips, Jacksonville State University; and David Salvesen, University of North Carolina–Chapel Hill.

Another product of that project is a synthesis of the holistic recovery concept, just released as Issue #3 of the *Natural Hazards Informer*. “Building Back Better: Creating a Sustainable Community after Disaster,” by Jacquelyn L. Monday, summarizes the importance of sustainability in the context of disaster recovery, presents the holistic recovery decisionmaking framework, and suggests how communities can incorporate sustainability ideals into each step of their recovery process. This issue of the *Informer* is intended for the same audience as the longer handbook, but is also appropriate for distribution to citizens, elected officials, and others who would benefit from a synopsis of the concept.

Printed copies of *Holistic Disaster Recovery* (2001, 234 pp.) can be obtained free from the *Public Entity Risk Institute*, 11350 Random Hills Road., Fairfax, Virginia 22030; (703) 352-1846; fax: (703) 352-6339; e-mail: [dkouba@riskinstitute.org](mailto:dkouba@riskinstitute.org);

WWW: [www.riskinstitute.org](http://www.riskinstitute.org). “Building Back Better” was distributed to all subscribers to the *Natural Hazards Observer*.

Both documents can be downloaded from the Center’s website. The handbook is at [http://www.colorado.edu/hazards/holistic\\_recovery](http://www.colorado.edu/hazards/holistic_recovery) and the *Informer* is at <http://www.colorado.edu/hazards/informer> in both PDF and HTML. It is especially appropriate for the *Informer* to be printed, copied, and distributed widely in a community; we encourage our readers to do so.





# WASHINGTON UPDATE

## President Bush Creates Citizen Corps

Grassroots efforts that are supported by several federal agencies to ensure community safety and security will soon operate under the guidance of the Federal Emergency Management Agency (FEMA) as a new program called Citizen Corps. President Bush recently created the program to coordinate new and existing volunteer activities that rely on citizen involvement and focus on crime control and natural disaster damage prevention. FEMA will coordinate the effort and add additional programs as appropriate. Current programs that fall under the Citizen Corps are Neighborhood Watch and Volunteers in Police Service, both overseen by the Department of Justice; Terrorism Information and Prevention System,



overseen by the Department of Justice and the Federal Bureau of Investigation (FBI); the Community Emergency Response Teams (CERT), overseen by FEMA; and the Medical Reserve Corps, overseen by the Department of Health and Human Services.

Under Citizen Corps, existing volunteer programs will be expanded to address terrorist-related issues. Training for corps members may include life-saving skills, safety information and precautions, law enforcement principles, and information on how to react to dangerous situations. The program will bring together local government, law enforcement, educational institutions, the private sector, faith-based groups, and volunteers. The federal role is to provide general information, provide training standards and materials, and identify volunteer programs and initiatives that support the goals of Citizen Corps.

Citizen Corps Councils will help drive local citizen participation by coordinating Citizen Corps programs, developing community action plans, assessing possible threats, and identifying local resources. An expanded Neighborhood Watch Program will incorporate terrorism prevention and education into its existing crime prevention mission. Volunteers in Police Service will provide support for resource-constrained police departments by utilizing civilian volunteers in order to free up more law enforcement professionals for frontline duty. The Medical Reserve Corps will coordinate volunteer health professionals during large-scale emergencies to assist emergency response teams, provide care to victims with less serious injuries, and remove other burdens that inhibit the effectiveness of physicians and nurses in a major crisis. Operation TIPS, the Terrorism Information and Prevention System, will be a nationwide program providing millions of workers who, by the nature of their jobs, are well-positioned to recognize unusual events, with training, materials, and a formalized way to report suspicious activity to the nearest FBI field office.

Information about the new organization can be found online at <http://www.citizencorps.gov>. A 30-page booklet, *United for a Stronger America: Citizens' Preparedness Guide*, can be downloaded from the Department of Justice web site: <http://www.ojp.usdoj.gov/ojpcorp/cpg.pdf>.

## HHS Provides \$1.1 Billion to States for Bioterrorism Preparedness

Money to help states begin planning and building the public health systems necessary to respond to bioterrorism and other widespread public health emergencies was recently made available by the Department of Health and Human Services (HHS). The funds will be used to develop comprehensive bioterrorism preparedness plans, upgrade infectious diseases surveillance and investigation, enhance the readiness of hospitals to deal with large numbers of casualties, expand public laboratory and communications capacities, and improve the



connection between hospitals and local and state governments. The funds come from the \$2.9 billion bioterrorism bill signed into law by President Bush on January 10.

Funding is divided into three parts. The first portion will be provided by the Centers for Disease Control and Prevention (CDC) to support public health emergency preparedness activities statewide. Each state is allocated a base award of \$5 million, plus an additional amount based on its share of the total U.S. population. The Health Resources and Services Administration will distribute the second round of funding, which is to be used by states to create regional hospital plans to respond to a bioterrorism attack. The third portion is allocated by the HHS Office of Emergency Preparedness and will support the Metropolitan Medical Response System, which covers 80% of the U.S. population. It will particularly aim to improve local jurisdictions' ability to respond to the release of a chemical or biological agent, but also to improve local response to any event involving mass casualties.

In return, states must designate a senior public health official to serve as executive director of the state Bioterrorism Preparedness and Response Program and as a coordinator for hospital preparedness planning. States must also establish an

advisory committee made up of representatives from state and local governments, the health sector, and other institutions. Among other activities, states must prepare a state-wide plan, a regional plan, and an assessment of emergency preparedness and response capabilities related to public health emergencies; and establish a hospital biopreparedness planning committee.

Additional information is available from the U.S. Department of Health and Human Services, 200 Independence Avenue, S.W., Washington, DC 20201; (202) 619-0257 or (877) 696-6775; e-mail: [HHSMail@hhs.gov](mailto:HHSMail@hhs.gov); WWW: <http://www.hhs.gov>.

## DOJ Rules on Victim Compensation Fund

The events of September 11, like many catastrophes, prompted an outpouring of donations and other assistance to victims, in addition to funds from existing programs that provide disaster assistance. On September 22, President Bush signed into law the "September 11 Victim Compensation Fund of 2001" (Public Law 107-42), part of legislation that also included appropriations to airlines to assist them in recovery from the loss of revenues caused by the attacks. The act authorizes additional compensation to any individual (or the personal representative of a deceased individual) who was injured or killed in the attacks, offering payment in exchange for an agreement not to sue airlines involved in the attacks for liability. Recently, the Department of Justice (DOJ), the agency designated to oversee the Victim Compensation Fund, enacted an interim final rule to disburse payments. The DOJ may expand or adjust aspects of the rule in the future.

Under these regulations, claimants can receive an immediate advance payment of \$50,000 in cases involving death, and \$25,000 in some cases involving physical injury. These payments are "downpayments only, advanced to provide immediate financial assistance to those in need." Although the Justice Department is required by law to offset awards by other sources of compensation, such as insurance and other governmental disaster assistance, the DOJ determined that there was ambiguity in the new statute regarding gifts donated to victims and their families from private charities. Awards made under these regulations are not required to be offset by charitable assistance. However, the Department of Justice notes that, absent extraordinary circumstances, awards from the fund in excess of \$3 million, which are tax-free, "will rarely be appropriate in light of individual needs and resources."

Nevertheless, DOJ decided that families of deceased victims could receive a combined total of at least \$500,000 from this program, other state and federal programs, life insurance policies, and other sources of compensation. Charitable donations made to victims will not reduce the amount of compensation they receive under this law.

The Interim Final Rule appeared on December 21, 2001, in the *Federal Register* (Vol. 66, No. 246, pp. 66274-66291). Copies can be obtained from any *federal repository library* or from the U.S. Government Printing Office web site: <http://www.access.gpo.gov>. The full text of Public Law 107-42 can also be found at *federal libraries* or on-line at the *Library of Congress web site*: <http://thomas.loc.gov>.

## DOJ Issues Final Guidelines for Emergency Assistance for Victims of Terrorism

Although not related to natural hazards, given the events of September 11, many of our readers who work in disaster management and assistance might be interested in final guidelines issued by the Office for Victims of Crime in the Department of Justice (DOJ) regarding emergency assistance for terrorism and mass violence crimes. In the January 31 issue of the *Federal Register* (Vol. 67, No. 21, pp. 4822-4833), the DOJ outlines its recently developed final guidelines to implement the victim assistance provisions enacted by several pieces of legislation.

It describes the authority of the Office for Victims of Crime to provide compensation and assistance to victims of acts of terrorism or mass violence both within the U.S. and abroad. Funding provided by the Antiterrorism Emergency Reserve is intended to provide timely relief and to assist in the responses to mass violence.

Detailed information about this program can be obtained from the *Terrorism and International Victims Unit, Office for Victims of Crime, 810 Seventh Street, N.W., Washington, DC 20531; (202) 307-5983*. The final guidelines from the *Federal Register* can be found at any federal repository library or on-line at <http://www.access.gpo.gov>.

## National Flood Insurance Program: 2001 in Review

The National Flood Insurance Program (NFIP) is one of the central ongoing initiatives administered by the Federal Emergency Management Agency (FEMA) to reduce disaster impacts. It combines pre-disaster mitigation and insurance to protect against financial losses due to floods. According to FEMA, the past calendar year saw some significant changes and milestones in the NFIP's progress and development. Most notably, the NFIP will now be the responsibility of the new Federal Insurance and Mitigation Administration (FIMA), formed by merging the Federal Insurance Administration and FEMA's Mitigation Directorate. FEMA believes that bringing together the insurance, floodplain management, and flood mapping components of the NFIP will ensure fuller coordination of program initiatives and messages.

In addition to improving its organizational capacity to manage the NFIP, FEMA made progress on several other fronts over the past year.

- Federally backed flood insurance is now available in more than 19,700 communities that have adopted floodplain management ordinances to regulate new construction and thereby reduce future flood losses. The number of policies in force increased to more than 4.3 million, representing nearly \$589 billion worth of coverage.
- Last year also brought Tropical Storm Allison, the costliest single flood event in NFIP history. Flood damage mostly in Texas and Louisiana resulted in over 30,000 claims; the final payout will exceed \$1 billion.



- FEMA estimates it would need \$800 million over seven years to update maps that need it, in addition to the \$50 million it now obtains from map fees each year. Nearly 20 national, state, and local organizations with a stake in emergency response, mitigation, land-use planning, and environmental protection formed a coalition last year to support additional funding for map modernization (see the *Observer*, Vol. XXVI, No. 2, p. 7).
- Customers now can order flood mapping products online at the new FEMA Flood Map Store, <http://web1.msc.fema.gov>.
- During 2001 FEMA published a number of proposed or final rules in the *Federal Register* that include revising NFIP regulations to include definitions for future-conditions hydrology and for the floodplains that may be shown on Flood Insurance Rate Maps for informational purposes at the request of a community (see the article on page 9 of this *Observer*); an anticipated increase in rates charged for older buildings constructed in high-hazard coastal areas that now are eligible for lower, so-called "subsidized" rates, bringing their premiums more in line with the actual risk; and a three-year pilot project that would permit governmental risk pools to sell flood insurance to public entities to cover their public buildings—the same mechanism local governments typically use for other, non-flood coverages.

For more information on the NFIP, contact *FEMA, 500 C Street, S.W., Washington, DC 20472; (888) 356-6329; e-mail: [eipa@fema.gov](mailto:eipa@fema.gov); WWW: <http://www.fema.gov>*.



## Future Conditions to be Shown on Flood Maps

One of Congress' intentions in passing the National Flood Insurance Act of 1968 was to encourage state and local governments to make adjustments in land use that would both constrict the development of land exposed to flood damage and guide future construction away from those areas. An important tool in this effort is the flood hazard mapping program of FEMA's National Flood Insurance Program (NFIP), which provides community information about areas at risk due to floods on Flood Insurance Rate Maps (FIRMs) so that they can make appropriate decisions about land use and construction practices. The maps also provide information for setting premium rates for flood insurance provided through the NFIP to participating communities. Under the NFIP, the 100-year floodplain (the area expected to be inundated during a flood with a 1% probability of occurring in any given year) is subject to regulation as a requirement of participating in the NFIP, and is depicted as the special flood hazard area on the FIRMs used by communities throughout the country.

Over the years, however, some communities realized that the conditions upon which the FIRMs had been based were changing, sometimes quite rapidly and dramatically, as a result of development and urbanization. Thus, to effectively manage development, they undertook their own hydrologic and engineering studies and created new maps based on the situations they expected to exist in the future. Although these efforts resulted in better flood hazard management in those communities, it also created two sets of maps: future-conditions maps for local floodplain management and existing-conditions FIRMs for flood insurance determinations under the NFIP.

To resolve this dichotomy and to help officials in progressive communities that have enacted and enforced land use reg-

ulations stricter than those required by the NFIP, FEMA has issued a final rule revising NFIP regulations to allow a floodplain delineation based on future conditions hydrology to be depicted on FIRMs at the request of a community. If a community asks FEMA to place the delineation on its FIRM, it will be shown as a shaded Zone X. One-hundred year flood elevations based on future-conditions hydrology will not be shown, although they will be included in the Flood Insurance Study report that accompanies it.

FEMA does not plan to establish risk premium rates or impose mandatory flood insurance purchase requirements for buildings located in the future-conditions floodplains, primarily because it is not practicable to do so given the relative uncertainty inherent in calculating future conditions (for establishing actuarial rates) and the relatively small number of communities that have opted to use future-conditions hydrology. Nor is it anticipated that the use of such data will be established as a requirement for participating in the NFIP.

By agreeing to show future-conditions floodplains on FIRMs when communities have such data and wish it incorporated into their maps, FEMA supports the floodplain management practices of those progressive communities. In addition, having the future-conditions floodplain delineation displayed on the maps illustrates to the public and other users of the maps that flood risks can change over time.

The new rule was published in the November 27, 2001 *Federal Register* (Vol. 66, No. 228, pp. 59166-59171). Copies can be obtained from any *federal repository library* or on-line at <http://www.access.gpo.gov>. FEMA's evaluation of the practicability of placing future-conditions floodplains on the maps is summarized in a report entitled *Modernizing FEMA's Flood Hazard Mapping Program: Recommendations for Using Future Conditions Hydrology for the National Flood Insurance Program*, which is posted on FEMA's web site at [http://www.fema.gov/mit/tsd/FT\\_hydro.htm](http://www.fema.gov/mit/tsd/FT_hydro.htm).

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## Announcing the Partnership for Public Warning

Effective public warnings of emergency situations require coordinated operations between public officials and privately owned mass communications technologies. Not only must technology function properly, but information must be effective in telling the public how to respond to threats and potential disasters. In November, experts in disaster warning and disaster information met in McLean, Virginia, to form a public/private partnership aimed at improving the coordination, operation, and effectiveness of disaster warning systems. The new organization was dubbed Partnership for Public Warning (PPW).

The organization believes that disaster warnings, responses, and losses have primarily local impacts, but a properly functioning national infrastructure to enable the generation and delivery of timely warnings and critical information is a national responsibility. To be effective, a public warning system must combine the efforts of federal, state, and local governments; businesses, including equipment manufacturers and service providers; and the media. The PPW seeks to foster better coordi-

nation and cooperation through consensus on how to approach warnings, how existing warning systems can be used more effectively, and which standards should apply to a national warning system.

The group has identified several basic issues that must be addressed, including the need for an all-hazards integrated warning system, current difficulties in warning systems, issues of special interest to emergency managers, effective warnings, information needs, message properties, hardware properties, potential services, sociological concerns, and a range of economic, legislative, legal, business, and international issues.

Membership in the PPW is open to all organizations and individuals interested in improving public warning. For more information about the organization, including how to become a member, contact the *Partnership for Public Warning, Mail Stop NO22, 7515 Colshire Drive, McLean, VA 22102-7508; (703) 883-2745; email: [cpage@partnershipforpublicwarning.org](mailto:cpage@partnershipforpublicwarning.org); WWW: <http://www.partnershipforpublicwarning.org>.*



# ON THE LINE

## Sea-Level Rise and Coastal Disasters Lessons from the East Coast and New Orleans

### An Undetected Danger

At first glance, there is seemingly no connection between sea-level rise and coastal disasters. After all, how can a rise of a fraction of an inch per year contribute to or even be responsible for a major disaster? Yet, the truth is, as beaches and dunes diminish and recede over time, the vulnerability of beachfront property to coastal storms increases disproportionately. Slowly rising water levels are insidious because they are often ignored or unnoticed for a considerable period of time until a coastal storm overwhelms natural or engineered sea defenses, causing substantial flooding and destruction.

Rising sea level plays a major role in the vulnerability of oceanfront property. Beaches erode much faster than sea level rises—erosion rates are about two orders of magnitude greater than the rate of sea-level rise, thus small rises result in significant coastal land loss. Further, cities built on river deltas, such as New Orleans and Venice, are particularly vulnerable to shoreline damage.

### Shorelines in the U.S.

Over 100 years of data on historical shoreline positions for the east coast of the United States have documented the rapid rates of beach erosion. Through the Laboratory for Coastal Research, which moved from the University of Maryland in 1997 to become part of the International Hurricane Center at Florida International University, researchers discovered that nearly 90% of eastern beaches are eroding, and the average beach has lost two to three feet per year during the past century. Data was painstakingly compiled from historical charts, aerial photographs, Global Positioning System surveys, and airborne lasers to map shoreline positions. Major, long-term funding from the Andrew W. Mellon Foundation has allowed the coastal researchers at the Hurricane Center to compile an enormous data set of shoreline positions for the east coast of the United States.

Research conducted by the U.S. Geological Survey determined that New Orleans particularly suffers from the effects of local subsidence and a worldwide rise in sea level, making it especially vulnerable to a coastal storm. Today most of the city is below sea level, and some areas are as much as 10 feet lower than sea level. Levees along the Lake Pontchartrain shoreline that protect New Orleans from flooding are designed to withstand only a category 3 hurricane storm surge. It would cost approximately \$100 million to raise the levees surrounding the



city an additional foot, but there is currently no funding for protecting against accelerated sea-level rise. Hurricane Andrew in August 1992 skirted New Orleans on three sides, fortunately looping around the community and thus not putting its levees and other protective structures to a test. However, if the levees and dikes had broken during that storm, as many as 100,000 people could have drowned.

Louisiana, like other sites around the world, has lost many of its natural defenses against coastal storms. About one-third of its barrier islands have disappeared since 1880, while its coastal wetlands are slipping away at the rate of several acres per hour. Relative sea-level rise, that is, land subsidence combined with the worldwide rise in sea level, is the primary cause of these losses. While there are other contributors to beach erosion—demonstrably groins and jetties—rising sea level is the reason that coastal erosion is so pervasive worldwide.

Of course, New Orleans' formula for disaster is not limited just to the effects of sea-level rise and erosion. Like that of other cities built on deltas, it combines many factors:

- Most of the city is below sea level and has an at-risk population of roughly one million people.
- It experiences land subsidence at a rate of 5 mm per year.
- The global sea-level rise is currently 2 mm per year, but is expected to accelerate two- to four-fold in response to global warming.
- There is limited evacuation potential in the area.
- The area is protected by deteriorating coastal defenses that are presently only effective against category 3 hurricanes.
- The city is located in a coastal area that is frequently subjected to large hurricane storm surges. One example is Hurricane Camille in 1969, which made landfall in nearby Mississippi with a 22.4-foot storm tide.
- The area frequently experiences locally heavy rainfall (especially during hurricane landfall) that contributes to flooding.

The following adaptation strategies would reduce, but not eliminate, the vulnerability of the New Orleans metropolitan area to flood disaster. Officials should:

- Protect and restore natural coastal defenses.
- Upgrade levees and drainage systems to withstand category 4 and 5 hurricanes.
- Develop maps of potential flood areas that integrate local elevations, subsidence rates, and drainage capabilities (for use in the design of ordinances, greenbelts, and other flood damage reduction measures).
- Design and maintain flood protection based on historical and projected rates of local subsidence, rainfall, and sea-level rise.
- Minimize drain and fill activities, shallow subsurface fluid withdrawals, and other human developments that increase subsidence.
- Improve evacuation routes to increase the ability of residents to escape an approaching hurricane.

- Encourage flood-proofing of buildings and infrastructure.
- Foster the purchase of more National Flood Insurance Program policies by homeowners and businesses.

## A National Concern

At a forum on Sea Level Rise and Coastal Disasters held by the Natural Disasters Roundtable of the National Academies of Science in Washington, D.C., last October, experts stated that beach erosion is a national problem—80 to 90 percent of the nation's sandy beaches are eroding. Global warming and accelerated sea-level rise have the potential to increase erosion rates two to four times during the next century. And, a recent Heinz Center report for the Federal Emergency Management Agency, *Evaluation of Erosion Hazards* (see the *Observer*, Vol. XXV, No. 1, p. 10), estimated that, over the next 60 years, 25% of the houses within 500 feet of the shore would fall into the water (without mitigating action such as beach nourishment or hard stabilization). The Heinz Center study assumed no accelerated rate of rising sea level and present development levels; therefore, the findings should be considered conservative.

Most coastal communities view beach nourishment as the panacea to erosion problems, but the cost is already quite high and will become prohibitively expensive for most areas in the coming decades because of accelerated sea-level rise. How we handle the problems associated with sea-level rise now will greatly affect the extent of coastal disasters in the future.

Stephen P. Leatherman  
International Hurricane Center  
Florida International University

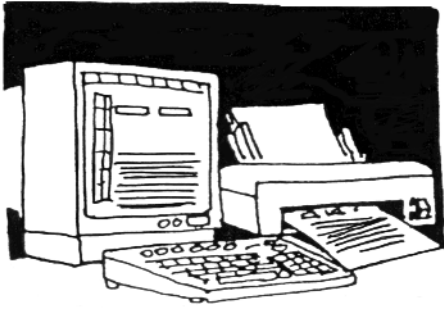
Virginia R. Burkett  
USGS National Wetlands Research  
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*Stephen Leatherman can be contacted at the International Hurricane Center, Florida International University, University Park Campus, Miami, FL 33199; (305) 348-1607; fax:(305) 348-1605; e-mail: leatherm@fiu.edu; WWW: <http://www.ihc.fiu.edu>.*

*Virginia R. Burkett can be contacted at the Forest Ecology Branch, U.S. Geological Survey, National Wetlands Research Center, 700 Cajundome Boulevard, Lafayette, LA .70506; (337) 266 8636; fax: (337) 266 8592; e-mail: [virginia\\_burkett@usgs.gov](mailto:virginia_burkett@usgs.gov).*

The complete report, *Evaluation of Erosion Hazards*, as well as a 20-page summary, are available on-line at *both the FEMA and Heinz Center Web sites: <http://www.fema.gov/nwz00/erosion.htm> or <http://www.heinzctr.org>.*





# INTERNET PAGES

Below are new or updated Internet resources the Hazards Center staff has found useful. For a more complete list of some of the better sites dealing with hazards and disasters, see <http://www.colorado.edu/hazards/sites/sites.html>.

## Terrorism

[http://www.fema.gov/emi/edu/aem\\_courses.htm](http://www.fema.gov/emi/edu/aem_courses.htm)

The **Terrorism Bibliography-wp.doc** continues to be updated each Monday (or shortly thereafter) on the site listed above. It includes reports, congressional testimony, articles, fact sheets, resources, and more. The link is located at the bottom of the page below the list of the "Terrorism and Emergency Management" Higher Education Project course.

## All Hazards

<http://earthobservatory.nasa.gov/NaturalHazards>

The National Aeronautics and Space Administration's (NASA) newest addition to its Earth Observatory section features satellite images in near real time of five types of hazards: wildfires, severe storms, floods, volcanic eruptions, and major air pollution events (dust storms, smog, and smoke). Future categories may include earthquakes, coastal erosion, and landslides. An icon highlights each current hazard on a world map. Selecting the icon brings up a fast-loading image and a brief explanation of the event. The web site is managed by the Earth Observing System (EOS) Project Science Office and funded by NASA's Earth Science Enterprise, a long-term research program investigating how human-induced and natural changes affect the global environment. NASA hopes sharing these images will increase understanding of natural events that could be dangerous to human populations, will help visualize when and where natural hazards occur, and will assist mitigation efforts.

<http://www.ibhs.org>

The folks at the Institute for Business and Home Safety (IBHS) have updated and improved their web site by expanding the information it contains and incorporating a database-driven server, which makes it possible to search more quickly and easily. The upgrades are the result of a several-months-long project to find ways to provide more information, more readily, to more users in the natural disaster community and beyond.

<http://www.bghrc.com>

At this site the Benfield Greig Hazard Research Centre at the University College London has posted two more in its series of Disaster Management Working Papers, intended to make new evidence, analysis, and ideas available to disaster researchers and practitioners worldwide. Click on "Disaster Studies."

- **Working Paper No. 3, *Rapid Environmental Impact Assessment: A Framework for Best Practice in Emergency Response***, by Charles Kelly (2001, 16 pp.), starts with the premise that ignoring environmental issues during pre-disaster planning or during response and recovery clearly conflicts with comprehensive disaster management goals of "doing no harm" and "using best practices." The author suggests a way of incorporating a quick assessment of environmental damage and risks in the immediate aftermath of a disaster.
- **Working Paper No. 4, *'Vulnerability': A Matter of Perception***, by Annelies Heijmans (2001, 17 pp.), analyzes the role that local and individual perception of risk plays in how disaster-prone communities interpret their circumstances. She argues that relief efforts often ignore local capacity to assess and cope with threats, and that giving the community a voice and role in exploring strategies for long-term, secure livelihoods is crucial to successful disaster response.

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

At this site the Centers for Disease Control and Prevention (CDC) posts its weekly series, *Morbidity and Mortality Weekly Report (MMWR)*. It publishes data on specific diseases as reported by state and territorial health departments and reports on infectious and chronic diseases, environmental hazards, natural or human-generated disasters, occupational diseases and injuries, and intentional and unintentional injuries. Also included are reports on topics of international interest and events of interest to the public health community in general. The January 11 issue, for example, included one article on how survivors' injuries were assessed in the immediate aftermath of the World Trade Center attack and another discussing how last year's severe winter weather in Mongolia affected the nutritional status of children. *MMWR* is free in electronic format and sent weekly on Friday. To subscribe, send an e-mail to: [listserv@listserv.cdc.gov](mailto:listserv@listserv.cdc.gov) with the body of the message reading "SUBscribe mmwr-toc."

<http://www.unisdr.org>

This site has added two new features. The first is a special section on the upcoming World Summit for Sustainable Development, to be held in Johannesburg, South Africa, in September 2002. Posted there are a variety of background papers prepared for the summit, information about and discussions of issues relating to disaster reduction, and links to numerous sources of information about sustainability and disaster reduction efforts around the world. Also available are descriptions of and reports from the major global conferences of the past upon which the Johannesburg summit's agenda will be built.

The second new feature is a directory of internet-based resources on disaster reduction, including contacts, institutions, projects, and documentation. The information and links will be added gradually to this website, but a thorough sampling is already in place. Information is organized by topic, geographic location, hazard, and organization name. Information and/or links can be found, for example, for all types of natural hazards; the various sub-entities of the United Nations and other national and international organizations; academic institutions doing work in disaster reduction; a range of issues in sustainable development; educational information for children; and discussions on women in disaster reduction.

## Climatological and Meteorological Hazards

<http://sciencepolicy.colorado.edu/zine>

<http://sciencepolicy.colorado.edu>

The first URL is the new home page for *WeatherZine*, the bimonthly newsletter containing news, opinions, and ideas about the societal aspects of weather (see the *Observer*, Vol. XXI, No. 4, p. 6). The page provides the most recent edition of *WeatherZine*, along with past editions, forms for subscribing and submitting information, contact information for the editors, and links to the related web sites.

The second URL is the address of *WeatherZine's* new home, the Center for Science and Technology Policy Research at the Cooperative Institute for Research in Environmental Sciences, University of Colorado–Boulder. The newly established Center will focus on research, outreach, and teaching in areas related to prediction and decisionmaking, science and technology policy, and integrative earth sciences. These activities, the center believes, will help the research community better focus its efforts on issues of importance to society, and also help decision makers incorporate scientific and technological advances into their decision processes. The site contains descriptions of the new group's mission, staff, activities, programs, and publications as well as links to other sources of science policy information.

## Earthquakes

<http://www.eeri.org/earthquakes/recent.html>

A preliminary report on the earthquake that occurred on the Sultandag Fault near Afyon, Turkey, on February 3, 2002, is now posted at the Earthquake Engineering Research Institute's web site. It was prepared by colleagues at the Department of Earthquake Engineering, Kandilli Observatory, and the Earthquake Research Institute, Bogazici University. The report contains maps of the mainshock, aftershocks, and damage distribution; photos; and some damage information. As of the week after the quake, there were reported to be 54 dead, 172 injured, and 107 collapsed buildings in 11 villages. Because the investigative team still has members in the field, the report will be updated on-line as information becomes available.

<http://www.booth-seismic.co.uk/Gujarat/>

After the Bhuj earthquake of January 26, 2001, the Indian National Trust for Arts and Cultural Heritage sponsored a study of the many centuries-old buildings in the stricken area that are of historical or cultural importance. At this web site is a report that describes the findings of that tour, including 40 photographs and recommendations for future restoration and protection of the structures. *Effect of the Bhuj, India Earthquake of 26 January 2001 on Heritage Buildings*, by Edmund Booth and Rabindra Vasavada, makes some observations on how the seismic response of massive masonry structures differs from that of engineered structures in reinforced concrete or steel.

## Landslides

<http://www.wrds.uwyo.edu/wrds/wsgs/hazards/landslides/lshome.html>

This site features digital maps of landslide sites throughout Wyoming. The digitized topographic maps show exact locations of landslides, can be enlarged for detail, and are compatible with various geographic information system (GIS) applications. The web site is a cooperative effort between the Wyoming State Geological Survey and the Wyoming Water Resources Data System (WRDS).

## Tsunami

<http://omzg.ssc.ru/tsulab/>

This is the site of the Historical Tsunami Database (HTDB) for the Pacific, Atlantic, and Mediterranean and is maintained by the Novosibirsk Tsunami Laboratory of the Siberian Division of the Russian Academy of Sciences. The database is made up, in part, of historical data on tsunamis collected over the last decade by various scientific bodies acting under the auspices of the Tsunami Commission of the International Union of Geodesy and Geophysics. The site contains data on tsunamis occurring any time from the present back to the first century B.C. (and, for the Mediterranean, back to 1628 B.C.). Information includes date, time, and source of a tsunami event; depth of source; intensity; magnitude; damage; fatalities; cause; coastal run-up observations; and wave heights as recorded by tide gauges. The site also includes summaries of Tsunami Commission activities and projects.



## CONTRACTS AND GRANTS

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

**Relocation and Decision Making Processes of Natural Disaster Victims.** Funding: National Science Foundation, \$95,000, 8 months. Principal Investigators: *James C. Fraser, William M. Rohe, and David R. Godschalk, Department of Urban Studies, University of North Carolina-Chapel Hill, Chapel Hill, NC 27599; e-mail: fraser18@email.unc.edu.*

The purpose of this study is to test two theoretical perspectives on decision-making—rational choice theory and symbolic interactionism—by examining the decision-making of flood victims to either remain in or relocate outside of the floodplain. Federal agencies have shifted their approach to managing floodplain property from a sole focus on recovery efforts to developing proactive programs to protect people and property from being harmed. One way these agencies have attempted to break the cycle of development-destruction-redevelopment is through public acquisition of floodplain property. While many of the buyout programs have been moderately successful, the programs hinge on individual homeowners' deciding to participate. Yet, a study of decision-making considerations of this population has not been conducted. This project seeks to fill that gap while advancing understanding of the relative merits of rational choice theory and symbolic interaction.

**The Geographical Dimensions of Terrorism: A Research Agenda for the Discipline.** Funding: National Science Foundation, \$69,962, 18 months. Principal Investigators: *Douglas B. Richardson, Susan L. Cutter, and Thomas J. Wilbanks, Association of American Geographers, 1710 Sixteenth Street N.W., Washington, DC 20009-3198; (202) 234-1450; fax: (202) 234-2744; e-mail: drichard@aag.org; WWW: <http://www.aag.org>.*

The September 11 terrorist attacks on the World Trade Center and the Pentagon prompted concerns about the nature of vulnerabilities to terrorism, mass emergencies, and disasters. This Small Grant for Exploratory Research will examine the geographic dimensions of such events through two activi-

ties. First, faculty and students from the City University of New York, the University of Colorado-Denver, and the University of South Carolina will conduct a pilot project to assess the role and utility of geographic information in emergency management and response to the World Trade Center attack. The study will briefly summarize the knowledge base on the use of geographic technology in hazards response and what has been learned to date. It will evaluate local experiences in providing spatial data in support of rescue, relief, and recovery efforts and will include a broader survey on the use of geographic technologies during the immediate response phase for the three weeks following the disaster. Project participants will also conduct a workshop to formulate a more substantive research agenda and other geographic dimensions of terrorism.

**Improved Security and Management of Underground Infrastructure Systems: Lessons Learned from September 11.** Funding: National Science Foundation, \$36,336, 8 months. Principal Investigators: *Thomas D. O'Rourke and Arthur J. Lembo, Department of Civil and Environmental Engineering, 273 Hollister Hall, Cornell University, Ithaca, NY 14853-2801; e-mail: tdo1@cornell.edu.*

The collapse of the World Trade Center towers and destruction of surrounding buildings were accompanied by damage to underground water distribution, electric power, natural gas, steam, wastewater, conveyance, telecommunication, and transportation systems. This research aims to investigate and model complex system response involving underground facilities that are often taken for granted or overlooked in comprehensive emergency planning. Understanding and documenting how underground infrastructure performs during extreme events is a necessary step for increasing the resilience of urban utility and transportation networks. The project will compare the effects of intense localized damage in New York with infrastructure system performance affected by distributed damage during major California earthquakes. It will recom-

mend methods to evaluate the damage, identify areas of greatest vulnerability, and estimate potential for cascading damage.

**Urban Infrastructure Services in a Time of Crisis: Lessons from September 11th.** Funding: National Science Foundation, \$89,497, 22 months. Principal Investigator: *Rae Zimmerman, Robert F. Wagner Graduate School of Public Service, 4 Washington Square North, New York University, New York, NY 10003; e-mail: rae.zimmerman@nyu.edu.*

The quality of existing infrastructure appears to have played an important role in restoring the quality of life after September 11, including the safety and security of the general population. This exploratory research focuses on time-sensitive data and field research on urban infrastructure services provided before, during, and after the terrorist attacks in New York. Its objective is to better understand urban infrastructure systems behavior, resilience, and recovery under critical conditions with the aim of generalizing design and management characteristics that lead to resilient infrastructure. The research will examine a constellation of facilities and services, the impact of the attacks on them, the conditions of these services prior to the event, and their ability to rebound.

**A Social Cognitive Model for Processing Health Risk Information About Anthrax Fears.** Funding: National Science Foundation, \$15,150, 11 months. Principal Investigators: *Len Lecci and Dale J. Cohen, College of Arts and Sciences, Department of Psychology, S&BS Building 110E, University of North Carolina-Wilmington, Wilmington, NC 28403-3297; e-mail: leccil@uncwil.edu.*

This Small Grant for Exploratory Research examines how individuals respond to a salient and pervasive health threat. The public's temporary elevated concern over the recent anthrax threat represents a unique context within which to study a low probability, but potentially high consequence health threat. Individual differences in health vulnerability beliefs and perceived control over the threat will be evaluated. Because most people believe they will not get ill, even when health threats are significant, this research will explore some of the mechanisms that may cause this belief. It will also help us understand why individuals undertake or fail to undertake protective actions.

**The Costs and Benefits of Self-Enhancement: Coping with the Terrorist Attack on the World Trade Center.** Funding: National Science Foundation, \$45,280, 11 months. Principal Investigator: *George Bonnano, Teachers College, TC Box 218; Columbia University, New York, NY 10027; (212) 678-3468; e-mail: gab38@columbia.edu.*

The September 11 terrorist attack on New York City was a traumatic event of unparalleled magnitude. Yet, based on past research, many of the individuals directly exposed to the attack will recover their equilibrium and return to normal functioning within a month or two after the event. The goal of this Small Grant for Exploratory Research is to understand this remarkable resilience. In two previous studies, the principal investigator and his colleagues found that individuals disposed toward self-enhancement were better able to cope with extremely adverse conditions. This study will explore whether

self-enhancement types who were directly exposed to the attack might cope better than other individuals. The relationship between self-enhancement and long-term adjustment will be examined using multiple measures, including a biological marker of stress reactions and ratings of participants' adjustment provided by close friends and family members. Further, this study will explore the social cost of self-enhancement and how it relates to overall adjustment and well-being by including a wider range of measures of social relations than had been used in previous research. Finally, the project will examine how survivors of the attack express emotions when they talk about their experiences.

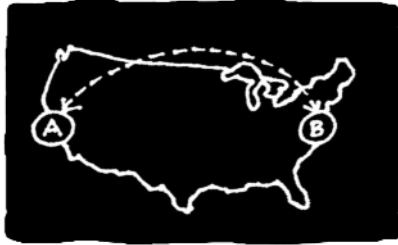
## Academies Appoint Committee on Science and Technology for Countering Terrorism

Recently, the National Academies announced the creation of the Committee on Science and Technology for Countering Terrorism, to use the nation's and the world's scientific and technical communities in a timely response to the threat of catastrophic terrorism. The National Academies (which includes the National Academy of Science, the National Academy of Engineering, the Institute of Medicine, and the National Research Council) established the committee of distinguished scientists and engineers to help develop a science and technology program plan and research strategy for combating terrorism.

The first phase of the project will entail:

- preparing a framework for the application of science and technology for countering terrorism.
- preparing research agendas in seven key areas: biological; chemical; nuclear and radiological; information technology; transportation; electric facilities, cities, and fixed infrastructure; and behavioral, social, and institutional issues.
- identifying multidisciplinary research topics that cut across these seven areas and developing a program plan and research strategy for combatting terrorism. The final report is expected to be issued at the end of May.

To learn more about this project, contact *Susan Campbell, National Academy of Science, Division on Engineering and Physical Sciences, 2001 Wisconsin Avenue, N.W., Washington, DC 20007; (202) 334-3523; fax: (202) 334-3695; e-mail: scampbel@nas.edu.* A project description can also be found on-line at <http://www4.nationalacademies.org/webcr.nsf/5c50571a75df494485256a95007a091e/71efe67d400cfcb085256b170065b20e?OpenDocument>.



# CONFERENCES AND TRAINING

Below are the most recent conference announcements received by the Natural Hazards Center. A comprehensive list of hazard/disaster meetings is posted on our World Wide Web site: <http://www.colorado.edu/hazards/conf.html>.

*The Tenth Annual Voluntary Organizations Active in Disaster (VOAD) Conference: "A Collaborative Odyssey."* Oklahoma City, Oklahoma. March 17-20, 2002. This is the premier national conference for disaster workers from a range of voluntary agencies and for the growing number of government emergency managers who work closely with voluntary agencies. It is co-hosted by the Oklahoma Voluntary Organizations Active in Disaster. For program and registration information contact Linda Soos-Davis, Oklahoma Department of Emergency Management, P.O. Box 53365, Oklahoma City, OK 73152-3365; (405) 521-2481; fax: (405) 522-0851; e-mail: [mail@okvoad.org](mailto:mail@okvoad.org); WWW: <http://www.okvoad.org>.

*Floodplain Management Planning Conference.* Host: Floodplain Management Association. San Diego, California. April 7-10, 2002. Flood hazard specialists from all over California and elsewhere attend this semi-annual event, which this spring focuses on planning initiatives and tools that affect floodplain management. Participants will be able to examine successful local floodplain plans. Papers are solicited dealing with other floodplain management topics as well. For details contact Laura Hromadka, Executive Director, Floodplain Management Association, P.O. Box 2972, Mission Viejo, CA 92690-0972; (949) 766-8112; fax: (949) 459-8364; e-mail: [fmalaura@home.com](mailto:fmalaura@home.com); WWW: <http://www.floodplain.org>.

*Mitigating Severe Weather Impacts in Urban Areas.* Sponsors: International Center for Natural Hazards and Disaster Research, University of Oklahoma; Texas Medical Center, Houston, Texas; Energy and Environmental Systems Institute, Rice University; and Department of Civil and Environmental Engineering, Rice University. Houston, Texas. April 15-17, 2002. This meeting follows up on last year's gathering in Tulsa, Oklahoma, and organizers intend to enhance understanding of infrastructure design, technology, and alert systems to create disaster-resilient communities. Contact Anthony

Holder, Rice University, Houston, Texas; (713) 348-4977; e-mail: [anthony@rice.edu](mailto:anthony@rice.edu); or Philip B. Bedient, e-mail: [bedient@rice.edu](mailto:bedient@rice.edu); WWW: <http://www.rice.edu/flood>.

*Seismological Society of America Annual Meeting.* Hosts: Pacific Geoscience Centre of the Geological Survey of Canada and the University of Victoria School of Earth and Ocean Sciences. Victoria, British Columbia, Canada. April 17-20, 2002. Among the technical topics to be explored through panels and seminars at this conference are the use of urban seismograph networks for disaster preparedness and response; recent advances in seismic event location and calibration; seismic processes of active volcanoes; assessing seismic hazard in "stable" continental areas; archiving and digitizing historical seismograms; and defining the hazard associated with warm slab earthquakes. For details contact the Seismological Society of America, 201 Plaza Professional Building, El Cerrito, CA 94530; (510) 525-5474; fax: (510) 525-7204; e-mail: [info@seismosoc.org](mailto:info@seismosoc.org); WWW: <http://www.seismosoc.org/index.html>.

*Coastal Zone Asia-Pacific: Improving the State of the Coastal Areas.* Sponsors: Virginia Institute of Marine Science, Kasetsart University, Chulalongkorn University, and others. Bangkok, Thailand. May 12-16, 2002. Along with coverage of issues pertaining to coastal fisheries, aquaculture, tourism, and other coastal resources, this conference will have sessions on ways to protect coastal areas from climate change and geological processes like erosion; methods for integrating different goals and concerns into an effective comprehensive coastal management scheme; and exploring the roles of educators, nongovernmental organizations, the media, and local governments in coastal management. For more information contact Ratana Chuenpagdee, Conference Coordinator, Virginia Institute of Marine Science, P.O. Box 1346, Gloucester Point, VA, 23062; (804) 684-7335; fax: (804) 684-7843; e-mail: [ratana@vims.edu](mailto:ratana@vims.edu); WWW: <http://www.vims.edu/czap>.



*“Disaster Management, Planning for Emergencies and Crisis: Facing the Realities of the Third Millennium.” Ninth World Conference on Emergency Management. Sponsor: The International Emergency Management Society (TIEMS). Waterloo, Toronto, Canada. May 14-17, 2002.* Emergency managers, social scientists, business people, educators, government officials, researchers, and planners are all encouraged to attend and learn from the many sessions at this meeting. Separate tracks are planned for (among other topics) wildfires, urban emergency response, business continuity, floods, terrorism, and community-based disaster mitigation. *For more information, e-mail TIEMS at [info@tiems.org](mailto:info@tiems.org) or see the web site at <http://www.tiems.org>.*

*World Safety Conference and Exposition. Sponsor: National Fire Protection Association (NFPA). Minneapolis, Minnesota. May 19-23, 2002.* This event will feature nearly 100 educational sessions, workshops, and training covering all aspects of fire, electrical, building, and life safety. Some of the topics will be a comparison of the 1993 and 2001 evacuations of the World Trade Center, safety precautions taken for the 2002 Winter Olympics, emergency evacuation planning, advanced emergency management, and disaster recovery planning. One conference track will explore the development of the new NFPA 5000 Building Code, the first building code developed using an open consensus process accredited by the American National Standards Institute. For more information contact NFPA, 1 Batterymarch Park, Quincy, MA 02269-9101; (617) 770-3000; fax: (617) 770-0700; WWW: <http://www.nfpa.org>.

*16th Annual Governor’s Hurricane Conference. Sponsors: Florida Department of Community Affairs, Florida Emergency Preparedness Association, and the American Red Cross. Tampa, Florida. May 20-24, 2002.* What could be more energizing than two full days of training and three days of concurrent workshops relating to hurricane preparedness, response, recovery, and mitigation? The conference takes place one decade after Hurricane Andrew’s arrival in south Florida, so a focus throughout the sessions will be on lessons learned and progress made since then. To request a printed brochure, e-mail [flghc1@verizon.net](mailto:flghc1@verizon.net); otherwise, contact the Governor’s Hurricane Conference, P.O. Box 279, Tarpon Springs, FL 34588; (727) 944-2724; e-mail: [flghc1@verizon.net](mailto:flghc1@verizon.net); WWW: <http://www.flghc.org>.

*Improving Post-Disaster Reconstruction in Developing Countries. Sponsor: the IF Research Group, University of Montreal, Montreal, Quebec, Canada. May 23-25, 2002 (note that incorrect dates for this meeting were given in the Observer, Vol. XXVI, No. 2, p. 23).* For details contact Colin H. Davidson, Faculte de l’amenagement, Universite de Montreal, B.P./P.O. Box 6128, Succ. Centre-Ville/Main Post Office, Montreal, QC H3C 3J, Canada; (514) 343 7420; fax: (514) 343-2455; e-mail: [dav0528@attglobal.net](mailto:dav0528@attglobal.net); WWW: <http://www.GRIF.umontreal.ca/pages/ireconference.html>.

*Emergency Management Higher Education Project Conference. Miami, Florida: May 30-31, 2002.* This annual gathering, which considers initiatives in the furtherance of college-level education in the field of emergency management,

will be held this year in conjunction with the Hurricane Andrew 10-Year Anniversary Conference (see the *Observer*, Vol. XXV, No. 6, p. 22). Planned activities include a “model emergency manager” breakout session and a panel discussion on the implications of terrorism for emergency management. Recommendations of topics are also welcome. Send comments to B. Wayne Blanchard, Higher Education Project Manager, Federal Emergency Management Agency, National Emergency Training Center, Emergency Management Institute, (301) 447-1262; e-mail: [wayne.blanchard@fema.gov](mailto:wayne.blanchard@fema.gov). For general conference information and registration, contact Ricardo Alvarez, Deputy Director, International Hurricane Center, Florida International University, University Park Campus, EAS 2710, Miami, FL 33199; (305) 348-1607; fax: (305) 348-1605; e-mail: [alvarez@fiu.edu](mailto:alvarez@fiu.edu); WWW: <http://www.ihc.fiu.edu>.

*International Association for Impact Assessment (IAIA) Annual Conference. The Hague, The Netherlands. June 15-22, 2002.* This gathering will include a special workshop on natural disaster recovery, with the object of answering these three questions: How can environmental impact assessment contribute to the reduction of human suffering and recovery after disasters? How has impact assessment affected disaster recovery and reduced negative environmental impacts during and after disasters? If impact assessment can contribute to effective disaster recovery, how can it best be strengthened? For information about the disaster recovery workshop, e-mail Charles Kelly at [72734.2412@compuserve.com](mailto:72734.2412@compuserve.com). For other conference information, contact Jennifer Howell, IAIA Headquarters, 1330 23rd Street South, Suite C, Fargo, ND 58103; (701) 297-7908; fax: (701) 297-7917; e-mail: [jen@iaia.org](mailto:jen@iaia.org); WWW: <http://www.iaia.org>.

*Global Disaster Information Network (GDIN) Conference. Host: Italian National Institute of Health. Rome, Italy. June 18-22, 2002.* In keeping with the theme, “Taking Off: GDIN’s Contribution to Human Health, Survival, and Well-Being,” this conference will provide opportunities for learning about and discussing such diverse topics as modeling large-scale disaster management; information problems of nongovernmental organizations in disasters; political and legal issues in sharing geographic information system data; disaster web sites; information problems in complex humanitarian emergencies; and networks for monitoring volcanic activity, landslides, and seismic activity. For information, contact GDIN Secretariat, c/o AmTech, 497 Seaport Court, Suite 102A, Redwood City, CA 94063; WWW: <http://www.gdin.org>.

*Engineering Symposium to honor Alan G. Davenport. London, Ontario, Canada. June 20-22, 2002.* To receive program mailings, contact AGD Symposium, Alan G. Davenport Wind Engineering Group, Boundary Layer Wind Tunnel Laboratory, University of Western Ontario, London, Ontario, Canada N6A 5B9; (519) 661-3338; fax: (519) 661-3339; e-mail: [agd-conf@blwtl.uwo.ca](mailto:agd-conf@blwtl.uwo.ca); WWW: <http://www.blwtl.uwo.ca/agd2002/callagd.htm>.

*5th New Zealand Natural Hazards Management Conference. Hosted by numerous New Zealand entities. Wellington, New Zealand. August 14-15, 2002.* The integration of hazard infor-

mation into effective risk management will be the focus of this meeting, expected to attract planners, risk assessors, emergency managers, and natural hazards researchers and scientists. Among the specific issues considered will be natural hazard mitigation for business and industry, creation of resilient communities by integrating science and practice, and the application of new technologies. Contact *Diane Tilyard, Wairakei Research Centre, Institute of Geological & Nuclear Sciences, Private Bag 2000, Taupo, New Zealand; tel: +64 (07) 374 8211; fax: +64 (07) 374 8199; e-mail: d.tilyard@gns.cri.nz; WWW: <http://www.gns.cri.nz/news/conferences/hazconf2002.htm>.*

*Xth International Conference and Field Trip on Landslides (ICFL). Sponsors: the International Landslide Research Group and Japanese Friends of the ICFL. September 7-16, 2002. The combined conference/field trip begins in Krakow, Poland and concludes in Gdansk. The focus of this tenth ICFL will be on the prediction, detection, surveying, prevention, mitigation, and triggering mechanisms of landslides. Participants will visit sites of several landslides and subsidence from the Carpathian Mountains to the Baltic Sea. Contact Stanislaw Ostaficzuk, University of Silesia, Bedzinska 60, 41-200 Sosnowiec, Poland; tel: +48-22-6915915; fax: +48-32-2915875; e-mail: so@igf.edu.pl or ostaficz@us.edu.pl; WWW: <http://www.cottonshires.com/temp/volumes/v15dn3.htm>.*

*Dam Safety 2002. Sponsor: Association of State Dam Safety Officials. Tampa, Florida. September 8-11, 2002. At this year's event, participants will explore issues relating to dam design and rehabilitation; inspection; removal of dams; dam safety regulatory programs; emergency preparedness; hydrology and hydraulics; and construction. The meeting is intended for geologists; engineers; dam owners; state, local, and federal officials; industry representatives; and others in the field of dam safety. Contact the Association of State Dam Safety Officials, 450 Old Vine Street, 2nd Floor, Lexington, KY 40507; (859) 257-5140; fax: (859) 323-1958; e-mail: info@damsafety.org; WWW: <http://www.damsafety.org/conferences.cfm?content=annual>.*

*Dealing with Disasters. Sponsor: Institute for Catastrophic Loss Reduction (ICLR). London, Ontario, Canada. September 27-28, 2002. This "workshop in extreme events and the assessment of risk," will examine how risk from natural disasters is evaluated as well as the steps that can be taken to reduce the losses that result from them. Attention will be given to the tools that mitigate the risk, including land use planning, warnings, insurance, construction standards, build ing codes, and new technologies. Contact Sandra Doyle, ICLR, University of Western Ontario, 1389 Western Road, London, Ontario, Canada N6A 5B9; (519) 661-3234; fax: (519) 661-4273; e-mail: ssdoyle@uwo.ca; WWW: <http://www.iclr.org>.*

*Ninth International Symposium on Natural and Human-Made Hazards: Disaster Mitigation in the Perspective of the New Millennium. Sponsor: The International Society for the Prevention and Mitigation of Natural Hazards. Antalya, Turkey. October 3-6, 2002. Just about every aspect of hazards will be examined during this symposium, to wit: prevention,*

*mitigation, and management; economic, social and political issues; public education; lessons learned; risk assessment; insurance; psychological aspects of disasters; specific hazards, including tsunamis and avalanches; the role of volunteer groups; and follow-ups to the International Decade for Natural Disaster Reduction. Abstracts are due May 30, 2002 and should be submitted to [haz2002@metu.edu.tr](mailto:haz2002@metu.edu.tr) along with a request to receive conference announcements. For the preliminary program and registration details, see <http://www.hazards2002.metu.edu.tr>.*

*Fifth International LACDE Conference. Sponsor: Local Authorities Confronting Disasters and Emergencies (LACDE). Shanghai, China. October 15-18, 2002. The mission of LACDE is to increase the effectiveness of local authorities to prepare for and confront natural and technological disasters and emergencies, and mitigate damage from them. It does this by promoting the study of disaster management and prevention, organizing international conferences and training, and fostering international relations among local emergency practitioners and officials. This conference will focus on systems to reduce urban disasters (fire, earthquake, coastal storms, and others), preparedness, regulation, and management; safer buildings; and emergency rescue technology and equipment. For more information about this meeting, contact Zhang Qi, Shanghai Municipal Civil Defense Office, 593 Middle FuXing Road, Shanghai 200020, China; tel: 00-86-21-628-33910; fax: 00-86-21-647-26679; e-mail: mfbmsc@stn.sh.cn; WWW: <http://www.ulai.org.il/lacde.htm#5th>.*

*Pacific Conference on Earthquake Engineering. Host: New Zealand Society for Earthquake Engineering. Christchurch, New Zealand. February 13-15, 2003. Papers are invited as a stimulus to discussion on all aspects of earthquake engineering, including seismology and microzonation, lifelines systems, emergency management planning, learning from earthquakes, social and economic issues, and earthquake insurance. Abstracts are due by April 2002. Contact Conference Secretariat, Conference Office, Centre for Continuing Education, University of Canterbury, Private Bag 4800, Christchurch, New Zealand; tel: 64-3-364-2534; fax: 64-3-364-2057; e-mail: pcee@cont.canterbury.ac.nz; WWW: <http://www.nzsee.org.nz/pcee>.*

*Third International Conference on Debris-Flow Hazards Mitigation, Mechanics, Prediction, and Assessment. Davos, Switzerland. September 10-12, 2003. This will be an opportunity for debris-flow researchers and practicing engineers to exchange ideas on how to cope with these hazards using state-of-the-art methods in mechanics, hazard prediction, and risk assessment. Some issues of special note are the vulnerability of the constructed environment to debris-flow hazards, structural and nonstructural debris-flow counter-measures; and real-time debris-flow hazard alert systems. For information on the technical program, contact Dieter Rickenmann, Swiss Federal Research Institute WSL, Zurcherstrasse 111, CH-8903 Birmensdorf, Switzerland; tel: +41-17-39-24-42; fax +41-17-39-24-88; e-mail: rickenmann@wsl.ch. For other conference information, e-mail [DFC3\\_Inf@wsl.ch](mailto:DFC3_Inf@wsl.ch) or see <http://www.wsl.ch/3rdDFHM>.*

## NFPA to Hold Wildfire Workshops

Wildfire is becoming an increasingly important issue in the United States. Proper planning for fire has become more important than ever for new housing areas as well as existing ones. Local fire codes, preferred roofing materials, recommended landscaping practices, and road placement can be factored into a plan to mitigate a crisis before one occurs. The National Fire Protection Association (NFPA) cordially invites you to attend any of the Firewise Communities Workshops scheduled for 2002:

- April 29–May 1 in Snowbird, Utah
- May 29–31 in Spearfish, South Dakota
- September 10–12 in Santa Ana Pueblo, New Mexico
- September 24–26 in Bolton Landing, New York
- October 23–25 in Norman, Oklahoma



The workshops are limited to 100 attendees and will feature a state-of-the-art community planning program and the opportunity to network with planners, developers, insurance representatives, and fire staff from throughout the area. To obtain more information or to register, contact *Linda Coyle, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269-9101; (617) 984-7468; fax: (617) 984-7956; e-mail: lcoyle@nfpa.org; WWW: <http://www.firewise.org/communities>.*

## NEMA Survey Says States Have Prepared for Terrorism for Years

The nation's emergency management system has been preparing for terrorist attacks since the 1995 bombing of the Alfred P. Murrah federal building in Oklahoma City, according to a survey of the emergency management directors in all 50 states, territories, and the District of Columbia.

The National Emergency Management Association (NEMA) conducted a survey in October 2001 to identify trends in state terrorism preparedness. The results are contained in the recently released report, *Trends in State Terrorism Preparedness* (2002).

NEMA found that, prior to September 11, state and local terrorism response plans had been developed and tested; threat, risk, and needs assessments were completed; and federal grants were used to purchase emergency response equipment.

All states had state emergency preparedness coordinating bodies in place before September 11. Disaster response structures have not changed since

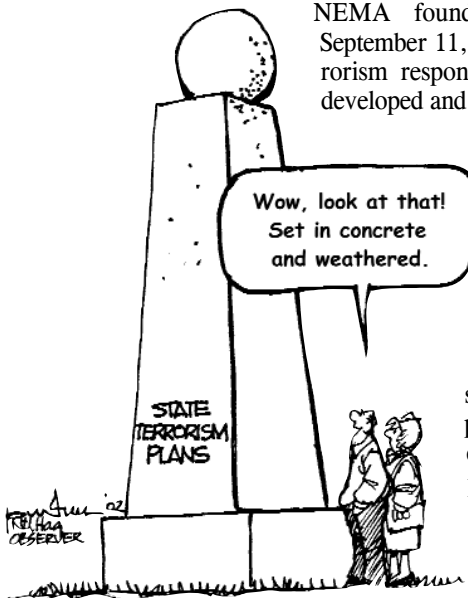
the attacks, but in many cases have been augmented by new entities or functions within existing organizations to better prepare for terrorism and to interact with the White House Office of Homeland Security. At the time of the survey, at least 14 states had established a new office for homeland security, and several of these were designated as cabinet-level offices appointed by the state's governor.

While most states had terrorism task forces or working groups in place prior to the attack, many created additional task forces and commissions to review existing emergency operations plans, public health capabilities, critical infrastructure security, cyber terrorism issues, preparedness funding, resource needs, and state authorities to deal with terrorism.

Two key issues mentioned most frequently by states responding to NEMA's survey were:

- the financial strains placed on state and local governments by unbudgeted expenses related to response to the terrorist events and exacerbated by the economic downturn, and
- the critical need for a single point of contact for all federal anti-terrorism programs and activities.

The report provides data broken down by region in the U.S. and details terrorism preparedness, planning initiatives, incident command structures, protection of critical infrastructures, legislative activity, and other issues. It is available on-line: [http://www.nemaweb.org/Trends\\_in\\_Terrorism\\_Preparedness/index.htm](http://www.nemaweb.org/Trends_in_Terrorism_Preparedness/index.htm). For further information about this study, contact NEMA, P.O. Box 11910, Lexington, KY 40578; (859) 244-8000; fax: (859) 244-8239; WWW: <http://www.nemaweb.org>.



# New Partnership Formed for Medical First Responders

Organizations representing medical emergency responders recently announced the formation of a new coalition to strengthen community readiness for biological, chemical, and nuclear terrorism and other disasters. The Partnership for Community Safety: Strengthening America's Readiness was formed by several organizations, including the American Ambulance Association, the American College of Emergency Physicians, the American Hospital Association, the American Organization of Nurse Executives, the American Public Health Association, the Association of American Medical Colleges, the National Association of County and City Health Officials, the International Association of Fire Chiefs, and the National Association of State EMS Directors.

The new alliance will promote collaboration among its members to improve disaster plans and increase the ability of emergency responders to prepare for the new challenges of terrorism. In addition, members will work to reduce duplication of effort, exchange ideas, and highlight model programs. The new organization will also educate the public about local readiness issues.

The coalition believes that there is a need to:

- Improve communications infrastructure to avoid disruption to public safety communications from cellular and wireless systems during disaster.
- Increase community capacity to address the health care needs of large numbers of casualties.
- Improve disease surveillance, disease reporting, and field laboratory identification systems.
- Provide responders with equipment to protect them from the effects of weapons of mass destruction.
- Enhance training, education, and exercises for mass casualty incidents.

For more information about this new organization, contact the *American Health Association*, (312) 422-3000; WWW: <http://www.aha.org/Emergency/Resources/PartnershipForSafety.asp>.

## Announcing the Warn and Recovery Network (WARN)

The Warn and Recovery Network (WARN) is a global project created to develop new and better ways to provide warning and recovery in disaster areas through the use of the most advanced satellite, wireless, and information technology. This program will be carried out in cooperation with a variety of organizations, including non-governmental relief and recovery organizations such as CARE, Oxfam, Volunteers in Technical Assistance (VITA), and the Red Cross and Red Crescent Societies; agencies of the United Nations; development organizations; mobile satellite communications providers; search and rescue organizations; and others.

Members believe Project Warn should address all types of disasters (natural, medical, and human-caused) and that it should cover warning as well as recovery. Two challenges will be to facilitate coordination among non-governmental agencies and to remain current with rapidly emerging technology. Project Warn initiatives will include a variety of research and prototype development activities that address:

- Warning mechanisms for natural and human-made disasters and dangerous and hazardous conditions and large-scale threats.
- Communications and networking during recovery operations.
- Information needed for emergencies and disaster recovery, particularly that provided through high resolution earth observation images, geographic information systems, and related technologies.

The project's web page can be found at <http://www.clarkeinstitute.com/warn.html>.

## Disaster Reduction and the High Country

Mountains dominate this year's international disaster reduction campaign. First, the United Nations (UN) declared 2002 the "International Year of Mountains." Then, the UN's International Strategy for Disaster Reduction (ISDR) announced the 2002 World Disaster Reduction Campaign theme as "Disaster Reduction and Sustainable Mountain Development." The focus on mountains will raise awareness of this often over-looked hazard-prone region and promote disaster management and reduction.

Promotional materials and more information about the mountain campaign will be available soon on ISDR's web site: <http://www.unisdr.org/unisdr/indexpage2.htm>. For more information or to share expertise, contact *Nicole Appel, ISDR Secretariat*, tel: 41-22-917-97-06; fax: 41-22-917 90 98; e-mail: [appeln@un.org](mailto:appeln@un.org).





# 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 provided descriptions of only a few key publications or those with a title that may not indicate content. All items contain information on how to obtain a copy. A complete bibliography of publications received from 1995 through 2001 is posted on our web site: <http://www.colorado.edu/hazards/bib/bib.html>.

## All Hazards

***Living with Earth's Extremes—Lessons from PPP2000.*** Timothy A. Cohn, Kathleen K. Gohn, and William H. Hooke, editors. Report from the PPP2000 Working Group to the Office of Science and Technology Policy, Subcommittee on Natural Disaster Reduction. 2001. 119 pp. Available free from the Institute for Business and Home Safety, 1408 North Westshore Boulevard, Suite 208, Tampa, FL 33607; (813) 286-9960; fax: (813) 286-9960. Also available online at <http://www.usgs.gov/ppp2000> and at <http://www.ibhs.org>.

In the spring of 1997, the Public Private Partnership 2000 (PPP2000) was established to seek opportunities for government and private-sector organizations to work together to develop new strategies to reduce vulnerability to natural hazards (see the *Observer*, Vol. XXII, No. 1, p. 12). Over the next three years, 14 one-day “forums” were held that brought together technical experts and high-level policy officials to discuss a particular aspect of natural disaster reduction. This report summarizes what was learned through the forums, lists the speakers and participants at each, describes partnerships and other action that resulted, and makes six recommendations for creating a safer world: 1) make natural disaster reduction a public value; 2) emphasize pre-event mitigation; 3) improve real-time warning systems; 4) identify means for financing mitigation; 5) improve information dissemination and access; and 6) recognize that natural disaster reduction is a global issue.

***Handbook of Environmental Sociology.*** Riley E. Dunlop and William Michelson, editors. 2002. 616 pp. \$100.00. Available from Greenwood Press, 88 Post Road West, Westport, CT 06881; (800) 225-5800; WWW: <http://www.greenwood.com/>.

Designed as an overview of the first quarter-century of American environmental sociology, this volume introduces the research and theoretical perspectives in the field, with a focus on the United States. Both the built and natural environments are within the scope of this sub-field of sociology. Among the chapters of particular interest are “Natural Hazards and Disasters,” by Joanne M. Nigg and Dennis Mileti; “Technological Hazards and Disasters,” by Steve Kroll-Smith, Stephen R. Couch, and Adeline G. Levine; “Risk, Technology and Society,” by Thomas Dietz, R. Scott Frey, and Eugene A. Rosa; and “Human Dimensions of Global Environmental Change,” by Thomas Dietz and Eugene A. Rosa.

***Facing the Unexpected: Disaster Preparedness and Response in the United States.*** Kathleen J. Tierney, Michael K. Lindell, and Ronald W. Perry. 2001. 300 pp. \$47.95 (significant discounts are available for orders placed via the web), plus shipping and handling. To order, contact the National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (888) 624-7645 or (202) 334-3313; fax: (202) 334-2451; WWW: <http://www.nap.edu>. The volume can be read in its entirety on-line at <http://www.nap.edu/catalog/9834.html>.

This is one of the last volumes resulting from the National Science Foundation-sponsored Second U.S. Assessment of Research and Applications for Natural Hazards (see the *Observer*, Vol. XXVI, No. 1, p. 4). It presents knowledge garnered from disasters around the world over the past 25 years and explores how disaster programs can be improved via these findings, identifies remaining research needs, and discusses disasters in the context of sustainable development. Combining theory, research, and practical guidance, the authors explain what makes communities and societies vulnerable to disasters and how that vulnerability can be minimized.

***Characteristics of Effective Emergency Management Organizational Structures.*** Public Entity Risk Institute. 2001. 111 pp. Free copies are available from the Public Entity Risk Institute, 11350 Random Hills Rd., Suite 210, Fairfax, VA 22020; (703) 352-1846; fax: (703) 352-6339; WWW: <http://www.riskinstitute.org>.

The events of September 11 and the increasing severity of disasters over the past several years have revived interest in the effectiveness of local organizations—and in their leaders—at planning for and maintaining an effective emergency management organizational structure as well as providing leadership during a crisis. During the 1970s, the International City/County Management Association (ICMA) conducted research that identified 20 key characteristics that contribute to an effective local government emergency management organizational structure. Examples of the characteristics include: strong and definitive lines of command, emergency procedures that are as close to routine operations as possible, strong coordination among participating agencies, the ability to maintain records during a disaster, and emergency planning as an ongoing activity. ICMA developed a self-assessment exercise especially for use by the chief administrator (elected or appointed) of a local government in determining whether and in what ways her or his community organization possessed those favorable characteristics. The self-assessment was used in over 60 workshops

hosted by the Federal Emergency Management Agency and ICMA during the 1980s. Believing that these key characteristics for effective emergency management are as relevant today as they were 25 years ago, the Public Entity Risk Institute staff has dusted them off, reviewed them, and republished the self-assessment in this manual. Leaders of communities can work through the exercises in the manual, examine the checklists, answer the questions, compare their own communities' situation to the standards set out for the various organizational characteristics and functions, and learn from the nuggets of experience included throughout the book.

***Natural Disasters and Sustainable Development: Understanding the Links between Development, Environment and Natural Disasters.*** Secretariat for the United Nation's International Strategy for Disaster Reduction (ISDR). Background Paper No. 5. 2001. 10 pp. Free. Available on the ISDR web site at <http://www.unisdr.org/unisdr/wssdisdrdoc.pdf>.

This paper explains the link between natural hazards and sustainable development and outlines the strategy the Secretariat will promote during the upcoming World Summit on Sustainable Development to be held in Johannesburg, South Africa, in September 2002. ISDR's position is that disaster reduction is an underlying component in such global problems as poverty, climate change, desertification, drought, and gender-based inequity. A better understanding of these connections—and public, official acknowledgment of them—is needed on a global scale if nations hope to arrest the rising toll of disaster losses or move toward the social, economic, and environmental stability that characterizes true sustainability.

***Disaster Field Manual for Environmental Health Specialists.*** Disaster Preparedness Technical Advisory Committee, California Conference of Directors of Environmental Health. 1998. 164 pp. \$30.00. Available from California Association of Environmental Health Administrators, 3700 Chaney Court, Carmichael, CA 95608; (916) 944-8477; fax: (916) 944-2256; WWW: <http://www.cdeh.com>.

***Control of Communicable Diseases Manual.*** James Chin, Editor. 2000. 624 pp. \$30.00. Available from the American Public Health Association, 9 Jay Gould Court, Waldorf, MD 20602; (301) 893-1894; WWW: <http://apha.org>.

## Avalanche

***Learning from Past Experiences: The 1995 Avalanches in Iceland.*** Asthildur Elva Bernhardsdottir. 2001. 69 pp. Volume 16 of the Crisis Management Europe Research Program, Swedish National Defence College (CRISMART), Box 27 805, SE-115 93 Stockholm, Sweden. Ordering information is available by e-mailing CRISMART at [crismart@jhs.mil.se](mailto:crismart@jhs.mil.se). Indicate the publication number, the number of copies you want, and the address to which you want them sent; CRISMART will reply with the details for ordering.

## Floods

***The Missouri River Ecosystem: Exploring the Prospects for Recovery.*** Committee on Missouri River Ecosystem Science, Water Science and Technology Board, National Research Council. 2002. 250 pp. \$35.00 (\$28.00 if purchased on-line). Copies will soon be available from the National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313; WWW: <http://www.nap.edu>. A full-text pre-publication version is available for on-line reading at <http://www.nap.edu/books/0309083141/html>.

Over the last 200 years activities geared toward expanding human settlement and enhancing social and economic benefits to the people of

the United States have caused substantial ecological changes to the Missouri River ecosystem. Among the changes that jeopardize its fundamental natural processes are the loss of natural flood pulses, loss of natural low flows, straightening of stream meanders, losses of riparian vegetation, reductions in water temperature variation, and extensive bank stabilization and stream channelization. These alterations have been the result of navigation enhancement; damming; flow regulation; urbanization; the construction of bridges, levees, and other infrastructure for transportation, agriculture, and other uses; and the introduction of non-native fish. Whether the Missouri River ecosystem is past the point of irreparable environmental change and, if not, what approaches and management measures might be capable of restoring it to a more nearly natural function, were the subjects of this study. The final report describes the process of degradation of the Missouri River system and reviews the extent of scientific knowledge about the hydrology, natural vegetation, fish, water quality, and other characteristics of the river. It recommends using an adaptive management approach couched in a comprehensive, well-coordinated strategy that places the restoration of natural ecological conditions on a par with other management goals throughout the entire Missouri River basin.

## Terrorism

***Protecting People and Buildings from Terrorism: Technology Transfer for Blast-effects Mitigation.*** Committee for Oversight and Assessment of Blast-effects and Related Research, Board on Infrastructure and the Constructed Environment, National Research Council. 2001. 100 pp. \$28.00. Available from National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, D.C. 20055; (800) 624-6242; WWW: <http://www.nap.edu>. Full text is available for on-line reading at [http://www.nap.edu/catalog/10230.html?do\\_se53](http://www.nap.edu/catalog/10230.html?do_se53).

***Combating Terrorism: Considerations for Investing Resources in Chemical and Biological Preparedness.*** Report No. GAO-02-162T. Testimony Before the Committee on Governmental Affairs, U.S. Senate. 2001. Free.

***Bioterrorism: The Centers for Disease Control and Prevention's Role in Public Health Protection.*** Report No. GAO-02-235T. Testimony Before the Committee on Energy and Commerce, House of Representatives. 2001. 17 pp. Free.

Copies of both reports can be obtained from the General Accounting Office, P.O. Box 37050, Washington, DC 20013; (202) 512-6000; fax: (202) 512-6061; TDD (202) 512-2537; e-mail: [info@www.gao.gov](mailto:info@www.gao.gov). The complete text of each report is also available on-line at <http://www.gao.gov>.

***"Bioterrorism and the People: How to Vaccinate a City against Panic."*** Thomas A. Glass and Monica Schoch-Spana. *Journal of Clinical Infectious Diseases* 2002 (34):217-223. Available on-line at <http://www.journals.uchicago.edu/CID/journal/issues/v34n2/011333/011333.html>.

Fears of mass panic and social disorder underlie an assumption by some policymakers that local populations would impede an effective response to an act of bioterrorism. Experience with natural and technological disasters and disease outbreaks, however, indicates a contrary pattern—that of generally effective and adaptive collective action. The authors suggest integrating the public into planning for bioterrorism response by treating citizens as capable allies, enlisting the aid of civic organizations, anticipating special needs such as home-based patient care, and investing in public outreach and communication strategies.



## Climate Change

*Under the Weather: Climate, Ecosystems, and Infectious Disease.* Committee on Climate, Ecosystems, Infectious Disease, and Human Health, Board on Atmospheric Sciences and Climate, National Research Council. 2001. 160 pp. \$37.95. Available from National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, D.C. 20055; (800) 624-6242; WWW: <http://www.nap.edu>.

People have long recognized connections between a change in the weather and the appearance of epidemic disease. With the advantages provided by modern medical science and the technology that enables weather and climate forecasting, some hope that it will become possible to build models for predicting the emergence and spread of many infectious diseases. This report evaluates current knowledge about the links among climate, ecosystems, and infectious disease and outlines the research needed to improve that understanding. It reviews the lessons learned from the use of climate forecasts for other purposes, and identifies the components that would be needed for an epidemic early warning system.

*The Coldest March: Scott's Fatal Antarctic Expedition.* Susan Solomon. 2001. 383 pp. \$29.95. Copies can be purchased from Yale University Press, P.O. Box 209040, New Haven, CT 06520-9040; (800) 987-7323; fax: (203) 432-0948; WWW: <http://www.yale.edu/yup/books/089678.htm>.

In November 1911 a British expedition, led by Captain Robert F. Scott, started across Antarctica in an attempt to be the first explorers to reach the South Pole. They succeeded in reaching the pole in January 1912 but found that a party of Norwegian trekkers had beaten them there. On the return march, Scott and all his companions died. Although the travelers were at first hailed as heroes, over the decades many of those who analyzed the event criticized them for poor planning, deficient leadership, and faulty decisionmaking. This author, a senior scientist at the National Oceanic and Atmospheric Administration, tells the story again in detail, emphasizing the role played by each of the members of the party, with the goal of determining whether modern science could help solve the mystery of what went wrong. Drawing on extensive meteorological records and other scientific and historical data, she concludes that the Scott party did plan and prepare themselves well, but that their demise was the result of unusually frigid weather (10–20 degrees Fahrenheit colder than typical) that gripped portions of the Antarctic for a crucial three weeks during Scott's attempted return from the pole. The abnormally low temperatures not only affected the men's bodies directly, but also altered the ice surface so that their progress back to base camp was much slower and required far more human energy than anticipated.

*Changing by Degrees: The Potential Impacts of Climate Change in the East Midlands.* Simon Shackley, Jim Kersey, Rob Wilby, and Paul Fleming. 2001. 306 pp. \$79.95. To order a copy, contact Ashgate Publishing Company, 2252 Ridge Road, Brookfield, VT 05036-9704; (802) 276-3162; fax: (802) 276-3837; WWW: <http://www.ashgate.com>.

Recognizing that the climate of the East Midlands region of the United Kingdom has changed over the last century and is expected to change in the 21st century because of global warming, the East Midlands Sustainable Development Round Table commissioned a study of what that change could bring and how further change could be minimized. In this book, the task force that carried out the study presents its findings, among them that temperature increases may well result in less water available for all uses; more flooding is to be expected in both coastal and riverine areas, with consequent damage; more

hot summers could mean droughts and associated stresses upon wetlands and water resources; buildings could be damaged as a result of subsidence as soils dry out; and the types of plants and animals found in the region may well change. On the up side, because of warmer weather more tourism is anticipated. Among the recommendations for action are reducing carbon dioxide emissions and otherwise planning to make the best of the situation by making shifts in agriculture, energy production, and other activities, and by planning ahead.

## Earthquakes

*WSSPC Awards in Excellence 2001.* Western States Seismic Policy Council. 2001. 42 pp. Available for \$15.00 (domestic shipping included) from the Western States Seismic Policy Council, 125 California Avenue, Suite D201, Palo Alto, CA 94306; (650) 330-1101; (650) 326-1769; e-mail: [wsspc@wsspc.org](mailto:wsspc@wsspc.org); WWW: <http://www.wsspc.org>.

Each year the Western States Seismic Policy Council recognizes achievement in different aspects of earthquake mitigation, preparedness, and response with its Awards in Excellence. The awards program has proven an effective method of sharing model programs throughout the western region of North America. The projects and programs that received awards in 2001 are summarized in this publication. They included a range of state- and locally based initiatives to improve awareness of earthquake risk, foster preparedness at the household level, educate school children about tsunamis, upgrade building codes to include seismic resistance, expand radio warning systems, and publicize the existence of seismic hazards in areas where residents are not aware of them.

*The PEER Review.* Quarterly publication of the Pacific Earthquake Engineering Research Center. Domestic subscriptions to the printed version are available free by contacting the Editor, *The PEER Review*, Pacific Earthquake Engineering Research Center, 1301 South 46th Street, Richmond, CA 94804-4698; (510) 231-9554; fax: (510) 231-9471; e-mail: [peer\\_ctr@peer.berkeley.edu](mailto:peer_ctr@peer.berkeley.edu); WWW: <http://peer.berkeley.edu>.

The *PEER Review* is a new incarnation of the former newsletter of the Pacific Earthquake Engineering Research Center at the University of California, Berkeley. It uses a new format featuring shorter articles on the PEER Center's aim—translating research findings into usable results for earthquake practitioners and researchers. The newsletter also incorporates news items of interest to the seismic engineering and safety community and notices of newly developed information and where to find it.

## Electronic Fare

*Mitigation Resources for Success.* 372 CD. 2002. Free. Copies can be obtained from the Federal Emergency Management Agency, Publications Distribution; (800) 480-2520.

This CD was developed by FEMA's Federal Insurance and Mitigation Administration to assist anyone concerned with building a safer future. The CD contains a wealth of mitigation information, publications, technical fact sheets, photographs, case studies, and federal and state mitigation program information and contacts. Case studies have been written and designed to be used as part of a presentation. It also describes federal mitigation programs and provides points of contact for each. It contains complete documents from the Mitigation Success publication series, the publications from FEMA's "How To" series on protecting homes and businesses, and other FEMA mitigation publications.

## 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 readers of this newsletter to the address below. The deadline for the next *Observer* is March 15, 2002.

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

### NATURAL HAZARDS OBSERVER

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

The *Observer* is free to subscribers within the U.S. Subscriptions beyond the U.S. cost \$24.00 per year. Back issues of the *Observer* are available for \$4.00 each, plus shipping and handling. Orders must be prepaid. Checks should be payable to the University of Colorado. Copies of the *Observer* and the Hazards Center's e-mail newsletter, *Disaster Research*, are also available from the Natural Hazards Center's World Wide Web site:

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