NATURAL HAZARDS Observer

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Reducing America's Vulnerability to Natural Hazards

—an invited comment

Historically, Americans have regarded hurricanes, floods, tornadoes, earthquakes, droughts, wildfires, and other extreme natural events as unforeseeable and unavoidable. However, over time science and engineering have advanced the characterization and prediction of natural hazards and provided new tools for protecting people and property. Today, we possess unprecedented means to anticipate hazards, protect citizens and property, and reduce disruption from disasters. These analytical capabilities have shed new light on long-established public policies and suggest that our current way of doing business has in fact made society more vulnerable.

Often in the aftermath of disasters, public officials may be blamed for the destruction and devastation that occurs. Yet, many times the blame is placed with no understanding of the incentives and disincentives that have developed over time that shape—for better or worse—our approach to natural hazards. This lack of understanding impairs our national ability to effectively mitigate and reduce risks.

U.S. disaster costs are increasing in part due to population growth and rising wealth. Losses are further aggravated by growing populations living in harm's way, often tragically unaware of their vulnerability. Each decade, property damage has doubled or tripled in terms of constant dollars, and individual events can inflict staggering human suffering and dollar losses in the tens of billions. Property destruction and business disruptions due to disasters now rival warfare in terms of financial costs.

Recently, the Natural Hazards Caucus delivered a report to Congress called ***A National Priority: Building Resilience*** (see the ***Observer***, Vol. XXV, No. 4, p. 11). The report focuses on how Congress can help reduce our vulnerability to hazardous events, and outlines specific areas that need the attention of legislators. These include:

- Developing a continually updated database of losses from natural disasters;
- Obtaining data on the cost-effectiveness of mitigation;
- Improving early warning and emergency response;
- Fostering long-term recovery by improving coordination across government and other agencies;
- Focusing on disaster prevention as well as response; and
- Increasing the reliability of critical infrastructure.

Natural hazards do not respect political parties nor are they constrained by political boundaries. However, we can limit their damaging impacts by implementing appropriate policies, sound land-use practices, and proper engineering and construction standards, as well as increase public awareness about these events and the appropriate responses to them.

Disaster reduction can and should be a national priority. The current administration can enhance U.S. resilience by:

- Conducting, in coordination with Congress and others, a national assessment of community vulnerability that could be used by local and state jurisdictions to mitigate hazards and by federal agencies to identify vulnerabilities. Efforts should also be made to encourage families and individuals to assess personal vulnerability.
- Developing greater incentives for communities and states to implement pre-disaster mitigation measures that will save lives and protect local and regional economies. In addition to sound land use practices, communities should be encouraged to implement disaster-resistant construction regulations, requirements for building retrofitting, and the protection of critical infrastructure. The federal government should do the same with its own buildings and structures. The nation must also invest in the research and development required to make such measures more widely available, affordable, and cost-effective.
- Improving the timeliness and reliability of hazards detection and warning by improving prediction of catastrophic events, understanding their impacts on society, and reducing their threat. Our warning infrastructure should be strengthened by expanding observation networks, improving communications, and increasing support.
- Creating effective partnerships. True hazard mitigation will not take place until the combined efforts of all levels of government, private enterprise, nongovernmental organizations, the academic community, and the general public work together. Insurance providers, the financial community, utility providers, commercial weather service providers, and others also have a special role to play. The federal government must take the lead in establishing frameworks to enable and foster these much-needed collaborations.
- Measuring progress. Nationally, we have only just begun to adequately identify and assess risk and vulnerability. We do not have loss estimates that are consistent across all hazards and provide useful comparisons (e.g., losses from similar events or from one year to the next). This capability needs to be created and established within an appropriate federal agency.
- Developing a national culture of learning from our mistakes. All too often after a disaster there is a push to rebuild a community as it was before, condemning it to recurring losses that could be minimized or eliminated if rebuilding was approached more holistically. Our national methods for responding to aviation accidents could be a model for natural disaster response: following an incident, an analysis should be immediately undertaken and recommendations quickly implemented. The administration should establish a body similar to the National Transportation Safety Board to evaluate the causes of federally declared disasters and provide states and communities the information they need to safely rebuild.
- Working cooperatively with other nations to reduce vulnerability on a global scale. Hazards are a common enemy of humankind, and international events affect U.S. strategic and commercial interests. The shortage of computer chips caused by the recent great earthquake in Taiwan provides such an example.

Ultimately, however, the federal government cannot reduce losses from natural disasters alone. As members of the hazards community, we must use our individual organizations, personal knowledge, and professional experience to provide the necessary leadership to reduce America's vulnerability to natural hazards.

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[Adapted from the ***BICEPP Bulletin***, published by the Business and Industry Council for Emergency Planning and Preparedness.]

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A National Priority: Building Resilience, was produced by the American Meteorological Society and the University Corporation for Atmospheric Research and can be downloaded from *http://www.ucar.edu/communications/awareness/2001/hazards*.

New Stuff from the Natural Hazards Center

2002 Session Summaries Now Available

In many ways, September 11 changed the way researchers, practitioners, and others interested in hazards and disasters view the world. In many ways it did not. As hazards professionals from around the world gathered in Boulder, Colorado, in July, to participate in the 27th Annual Hazards Research and Applications Workshop, many of the discussions focused on how the lessons of the past help inform our future and whether terrorism should usurp our long-standing concern with hazard mitigation. Participants at the Workshop focused on cutting-edge hazards issues, ranging from the shifting concerns and cross-cutting lessons of September 11 to the impacts of Hurricane Andrew 10 years later. Other topics included wildfire mitigation, coordinating research, higher education, El Niño, tsunami hazards, mapping risk, and land use.

To ensure that the ideas and discussions generated are shared with those who did not attend the workshop, the Natural Hazards Center publishes brief summaries of each session, abstracts of the hazards research presented, and descriptions of the projects and programs discussed at the

meeting. A set of all workshop materials, including the agenda, participant list, and workshop notebook, is available for $25.00, plus $5.00 shipping. (For more detailed ordering information, contact the *Publications Administrator* at the address below).

Currently, the list of all session summaries is available on-line at *http://www.colorado.edu/hazards/ss/ss.html*. In the near future, the complete text of all session summaries and abstracts will also be available at that site.

To order these materials, send your payment (written to the University of Colorado) to the *Publications Administrator, Natural Hazards Research and Applications Information Center, 482 UCB, University of Colorado, Boulder, CO 80309-0482; (303) 492-6819; fax: (303) 492-2151; e-mail: janet.kroeckel@colorado.edu*; *http://www.colorado.edu/hazards*. Checks should be in U.S. dollars and written on a U.S. bank. Visa, Mastercard, American Express, and Diner's Club cards are also accepted.

Our Latest Quick Response Report

Although much of the information regarding September 11 deals with the events in New York City and Washington, D.C., the small town of Shanksville, Pennsylvania, also suffered a terrible blow with the crash of United Flight 93. Our latest Quick Response report, ***Terrorism in Shanksville: A Study in Preparedness and Response***, by Nancy K. Grant, David H. Hoover, Annemarie Scarisbrick-Hauser, and Stacy L. Muffet of the University of Akron, examines the extent to which response to a disaster in a small town/rural area involving multiple emergency response jurisdictional entities is enhanced by:

- serious attention to exercising existing emergency response plans, and
- personal knowledge of and trust in fellow emergency responders, especially those in charge.

Further, because the tragedy was created by a terrorist act, the researchers wanted to know if control of the site by an outside organization (the FBI) impacted the effectiveness of disaster response and mutual trust among local responders. The team also wanted to examine the extent to which the phenomenon of convergence, where substantial assistance from outside the local jurisdiction arrives, conformed to prior research and theory.

The researchers concluded that previous multi-jurisdictional exercises and responses to other emergencies did indeed enhance the response to the crash. They also noted that, although the FBI was relatively unfamiliar with the concerns of local responders and local response agencies were not fully aware of FBI objectives, the two groups were able to work together to complete their missions. The influx of donations and volunteers matched previous experiences.

Copies of Quick Response Report #157 are free from the Natural Hazards Center's web site: *http://www.colorado.edu/hazards/qr/qr157/qr157.html*. Printed copies are available for purchase for $5.00 each from the *Publications Administrator* at the address above. A complete list of all Quick Response Reports can be found at *http://www.colorado.edu/hazards/qr/qr.html*.

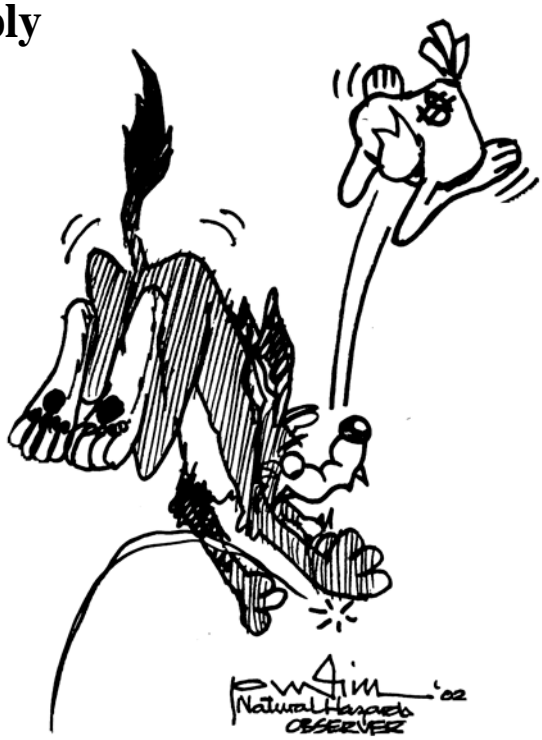
Hazards Researchers Wanted

Please Apply

If you are a researcher interested in studying a disaster within hours or days of the event, here is an opportunity for you. The Natural Hazards Center is now soliciting proposals for its FY 2003 Quick Response (QR) Research Program, which enables social scientists from the U.S. to conduct short-term studies immediately after a disaster in order to collect data that would otherwise be lost.

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

Details about proposal submission can be obtained from the center's web site: *http://www.colorado.edu/hazards/qr2003.html*, or by requesting a "2003 QR Program Announcement" from *Dennis Mileti, Director, Natural Hazards Center, 482 UCB, University of Colorado, Boulder, CO 80309-0482; (303) 492-6818; fax: (303) 492-2151; e-mail: dennis.mileti@colorado.edu*. The deadline for proposal submission is October 16, 2002.



Delaware Does It Again

Every year, the Natural Hazards Center receives a stack of the latest article reprints, preliminary reports, and other publications produced by the Disaster Research Center (DRC), the first social science research center in the world devoted to the study of disasters. Located at the University of Delaware, researchers at the center conduct field and survey research on a broad range of disasters, including hurricanes, floods, earthquakes, tornadoes, hazardous chemical incidents, and plane crashes.

Over the past year, DRC has published articles on statistical and conceptual problems in the study of disasters, modeling earthquake impacts on lifeline systems, community resilience following the World Trade Center attack, the convergence of volunteers and donations at Ground Zero, disaster resistant communities, the implications for disaster planning following September 11, business vulnerability to disasters, sustainable development, and the sociology of panic.

Many of the DRC's papers and articles are available free on its web site. The center also publishes books, reports, historical and comparative studies, dissertations, and other documents, many of which are also available on-line. To obtain a catalog, contact the *DRC, Publications, University of Delaware, Newark, DE 19716; (302) 831-6618; http://www.udel.edu/DRC/publications.html*.

NEMA Issues Report on State Structures for Addressing Terrorism

The National Emergency Management Association (NEMA) represents the emergency management directors in all 50 states, territories, and the District of Columbia who are responsible to their governors for disaster preparedness. In October of last year, NEMA undertook a survey of states to identify trends and commonalities in terrorism preparedness at the state level, both before and after September 11, 2001. The results of the survey are now available in the report, ***State Organizational Structures for Homeland Security***. Thirty-nine states responded to the survey, and partial data for the others was collected through public information sources.

Questions that were posed to states included:

- Does your current state structure continuously identify threats and vulnerabilities?
- Does your state take corrective action to reduce identified threats and vulnerabilities?
- Does your current organizational structure promote interagency cooperation and information sharing?
- Does your state have the capability to respond to and fight a terrorist incident?

Many state-based emergency management systems in the country have been preparing for a terrorist attack since the 1995 bombing of the Alfred P. Murrah building in Oklahoma. Since then, a number of states have developed and tested local response plans and conducted needs assessments. Overall, the report found that on a state-by-state basis, disaster response structures have not changed much since September 11. However, since then, many states have created new entities or diversified functions within existing entities to better respond to terrorist threats.

As of January 2002, 18 states had established new entities such as homeland security offices, and 27 states had created terrorism task forces, committees, or working groups. The creation of new functions is in part due to the White House Office of Homeland Security's request for a point of contact in each state. The location of this point of contact varies from state to state. State individuals may be housed in the governor's office, the military department, the emergency management structure, or the public safety department. Point-of-contact positions also vary greatly in how they were created (e.g., by legislative changes, gubernatorial orders, etc.), but all share a key emphasis on integrated coordination among many state organizations.

The report, ***State Organizational Structures for Homeland Security***, is available on-line in PDF format on NEMA's web site: *http://www.nemaweb.org/News/NEMA_Homeland_Security_Report.pdf*. For information about the report, contact: *Chad S. Foster, Council of State Governments, 2760 Research Park Drive, PO Box 11910, Lexington KY 40578; (859) 244-8032*.

NOAA Creates Citizen Heat Wave Warning System

In May 2002, the National Oceanic and Atmospheric Administration (NOAA) announced that a new method to warn people of advancing heat waves up to seven days before their onset has become operational.

The Mean Heat Index is a measure of how hot the temperature actually feels to people over the course of a day. The index combines factors such as surface and ambient heat along with humidity and other environmental factors. The index averages the more traditional Heat Index from the hottest and coldest times of the day to provide a more dynamic understanding of the effects of a heat wave. For example, it can incorporate the increased impact of a heat wave during periods when the nighttime temperature does not drop very much from daytime highs, an important distinction that is not reflected in the Heat Index.

A Mean Heat Index above 85 degrees is considered dangerous. Alerts and Mean Heat Indices are issued to the general public through daily, graphical representations of the contiguous U.S. as well as a more localized text forecast that is sent out by NOAA for over 90 cities across the country. Mean Heat Indices are also sent out in NOAA's National Weather Service suite of extended range forecasts. The Mean Heat Index gives local emergency officials advanced warning of prolonged periods of dangerously high heat.

For more information, contact: *NOAA/National Weather Service, National Centers for Environmental Protection, Hydrometeorological Prediction Center, 5200 Auth Road, Camp Springs, MD 20746; http://www.hpc.ncep.noaa.gov/heat_index.shtml*.

WASHINGTON UPDATE

NAP Committee Says Science and Technology Can Counter Terrorism

The nation needs well-organized and disciplined scientific and technological capabilities to respond to terrorist incidents, according to a committee appointed by the National Academy of Sciences to examine how to reduce the impacts of terrorism. ***Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*** (2002, 427 pp.) reflects the commitment of the United States' scientific, engineering, and health communities to help the country respond to the challenges of September 11, 2001. The authors, a diverse group of 164 individuals from an array of fields, recognize that the science and technology response to terrorism is but one element in an interdisciplinary response strategy that spans, for example, diplomacy, military actions, intelligence, and understanding of terrorism.

Written primarily for the federal government, with an acknowledgment of the crucial importance of intergovernmental communication, the report identifies actions that can be undertaken now, based on current knowledge and use of technologies in hand. It outlines and prioritizes key opportunities for reducing current risk and suggests avenues to reduce future risks through long-term research and development. Chapters cover nuclear and radiological threats, human and agricultural health systems, toxic chemicals and explosive materials, information technology, energy systems, transportation systems, cities and fixed infrastructure, the response of people to terrorism, and complex and interdependent systems.

Contributors recommend that the application of existing technologies to improve emergency communications, production of vaccines and antibodies, and strengthened security around power grids, should be taken without delay. Future activities should include research into new emergency equipment, such as better protective gear for rescue workers and sensors to alert them to radiological or chemical contamination and other hazards when they enter a disaster area. Buildings should be made more blast and fire resistant with improved design standards, and new methods for air filtration and decontamination should be implemented to lessen casualties from certain types of attacks and greatly speed recovery. In addition, government should ensure that trusted spokespersons are prepared to inform the public promptly and with technical authority in the event of an emergency.

Information about this project can be obtained from the *National Academy of Sciences, 2101 Constitution Avenue N.W., Washington, DC 20418; (202) 443-2000.* A prepublication version is available in PDF format on the *National Academy Press web site: http://books.nap.edu/html/stct/index.html*. A printed version of the report is forthcoming and will be available from the *National Academy Press, 500 Fifth Street, N.W., Lockbox 285, Washington, DC 20055; (888) 624-8373 or (202) 334-3313; fax: (202) 334-2451; http://www.nap.edu.*

Interior Announces Final Rule for Coastal Wetlands Grant Program

Coastal wetlands support a high percentage of threatened and endangered species as well as provide substantial flood control. They reduce the need for expensive flood control structures, enhance water quality, and provide biodiverse areas important for recreational and ecological purposes. The concentration of the U.S. population in coastal areas is a continuing source of development pressure on wetlands. Under its National Coastal Wetlands Conservation Grant Program, the Department of the Interior (DOI) recently announced the final rule for making matching grants available to states for acquisition, restoration, enhancement, management, and preservation of coastal wetlands.

Although the program has been in existence since 1992, it has been administered under interim internal guidance and standard federal grant policies. In the July 30 issue of the ***Federal Register***, DOI outlines new regulations tailored to provide funds to coastal states for wetlands protection (Vol. 67, No. 146, pp. 49264-48275). Grant awards are limited to $1 million.

Proposals will be ranked according to 13 criteria: wetlands conservation; wetlands located in a maritime forest on a coastal barrier; long-term conservation; coastal watershed management; conservation of threatened and endangered species; benefits to fish; benefits to migratory birds;

prevention or reduction of contamination; potential for future conservation enhancements; quantity of in-kind financial support a project receives; benefits greater than the required matching funds; education and outreach programs; and miscellaneous benefits, such as cost-effectiveness, invasive species control, or cultural or historical benefits.

The ***Federal Register*** can be found in *any federal repository library*. It can also be found on-line at *http://www.access.gpo.gov*.

GAO Reviews Multiple Studies of the Economic Impacts of the Terrorist Attacks on New York City

Calculating the costs of extreme events can be an intricate and contentious process. The General Accounting Office (GAO) recently issued a review of eight studies from seven different organizations looking into the direct and indirect costs of the terrorist attacks to the city of New York. The study found direct losses such as the destruction of lives and property and cleanup costs will be covered by payment from a variety of charities and insurance funds. Other, more indirect losses, may never be recovered because individuals or businesses may have been uninsured or unable to qualify for federal relief or charity.

GAO noted that the organizations varied in their geographic scope, study time horizons, and the criteria used to analyze the economic impacts of the attacks. GAO found that the study by the New York City Partnership, although not without limitations, provided the most comprehensive estimates. The Partnership estimates the attacks on the two World Trade Center buildings cost about $83 billion (in 2001 dollars) in total losses (including both direct and indirect costs). Approximately $67 billion of the losses would most likely be covered by insurance, federal payments, or increased economic activity.

The report, ***Review of Studies of the Economic Impact of the September 11, 2001, Terrorist Attacks on the World Trade Center*** (GAO-02-700R, 2002, 40 pp.), is free and can be obtained from the *GAO, P.O. Box 37050, Washington, DC, 20013; (202) 512-6000; fax: (202) 512-6061; TDD: (202) 512-2537; e-mail: info@www.gao.gov*. The complete text of the report can also be found on the GAO web site: *http://www.gao.gov*.

ICC and NSSA Will Create Storm Shelter Standard for Design, Construction, and Performance

The design and performance of storm shelters for in-residence and community shelters for hurricanes and tornadoes will soon be standardized under a regulation agreement between the International Code Council (ICC) and the National Storm Shelter Association (NSSA). Using a consensus-based process, the organizations will solicit input from an array of stakeholders, and will also consolidate existing provisions currently published by NSSA, the Federal Emergency Management Agency, and the American Red Cross. The standard will ensure consistency and provide measurable and enforceable provisions for storm shelter design. It is estimated that over 100,000 shelters have been built in the U.S. during the last three years.

For complete information, contact the *International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041 (703) 931-4533; (703) 379-1546; http://www.intlcode.org*.

CRS Evaluates Post-September 11 Federal Legislation and Consequence Management Strategies

Many pieces of legislation have been enacted or considered by Congress since September 11, 2001. A 2002 Congressional Research Service (CRS) report, ***Federal Disaster Policies After Terrorists Strike: Issues and Options for Congress***, examines the debate that has sprung up in and beyond the halls of Congress about the amount and effectiveness of this legislation. Prepared at the request of Congress, the report focuses on related issues as well—such as the role of the federal government in responding to both the short- and long-term needs of communities impacted by catastrophic events. Disaster policies, targeted at the gamut of federal action under disaster circumstances, guide consequence management strategies for the nation.

The report provides an historical background of consequence management at the federal level, as well as collecting and examining information about the many federal policies that would be implemented in the event of future terrorist attacks. Going one step further, CRS then poses the question: Based on experiences gained thus far, should Congress consider changes in these federal consequence management

policies to better address the impacts of possible future attacks?

There are 12 sections within the report that focus on administrative and policy issues as well examine the actual assistance that has been provided since September 11. The report is not intended as a critique of current policies or recent actions, but rather has been prepared to help members of Congress consider the relative merits of policy and legislative options.

The report was coordinated by Keith Bea, Specialist, American National Government, of the Congressional Research Service. CRS reports are available only through the web, and are not directly accessible to the public. To obtain a copy, see *Congresswoman Carolyn Maloney's web site* to download the report in PDF format: *http://www.house.gov/maloney/crsreport.pdf*.

HHS Creates New Office to Deal with Public Health Emergency Preparedness

The Department of Health and Human Services (HHS) recently announced that it has reorganized several functions and placed them under the newly created Office of the Assistant Secretary for Public Health Emergency Preparedness (OASPHEP), as authorized under the Bioterrorism Preparedness and Response Act of 2002 (see the ***Observer***, Vol. XXVI, No. 6, p. 9).

This office will direct and coordinate department-wide efforts related to preparedness for and response to bioterrorism and other public health emergencies. OASPHEP will direct the National Disaster Medical System (NDMS) and all other emergency response activities within HHS. It will provide a "one-department" approach to developing preparedness and response capabilities and direct relevant activities.

In addition to acting as principal advisor to the Secretary for Health and Human Services regarding emergencies and bioterrorism, the office will serve as the coordinating agency for public health emergencies among federal agencies, states, and local governments. OASPHEP will also act as the lead federal agency for health-related issues under the Federal Response Plan. Among its functions, it will oversee the:

- Office of Biodefense—the director of this office will be the principal advisor on matters relating to bioterrorism and public health emergencies, act as the department's liaison to the Office of Homeland Security, and develop national plans and programs and execute actions to ensure that HHS performs essential functions during major disasters.
- Office of Emergency Response—the director of this office serves as the principal advisor to OASPHEP regarding emergency actions. It will maintain operational readiness for response to federal, state, and local requests for social services, health, and medical assistance following major disasters or terrorist attacks.

  This office will oversee the Division of Program Development, which is responsible for planning and implementing processes to improve local response capabilities as well as the integration of national and local resources.

  The Division of Emergency Readiness Operations, also under the Office of Emergency Response, will oversee the NDMS Medical Assistance Teams (DMATs), develop national DMATs for response to weapons of mass destruction, and improve communications to support DMAT deployment.
- Secretary's Emergency Operations Center. The center is the focal point of a secure command, control, and communications system during major national security mobilizations, such as bioterrorism incidents and disasters. It will ensure that all HHS emergency operations centers, response teams, and other critical personnel are linked.

The "HHS Statement of Organization, Function, and Delegation of Authority" can be found in the July 26, 2002, ***Federal Register*** (Vol. 67, No. 144, pp. 48903-48905), which is available at *any federal repository library* or on-line at *http://www.access.gpo.gov*.

Brookings Institute Says Homeland Security Falling Short

The Office of Homeland Security (OHS) is leaving the country open to terrorist attacks on nuclear and chemical plants, according to a study by the Brookings Institute in Washington, D.C. ***Protecting the American Homeland: A Preliminary Analysis*** (2002, 16 pp.), concluded the OHS focuses too much on airline hijackings and anthrax letters, and brushes over other threats. The study added that OHS lacks the authority and organization to coordinate various branches of government in the event of a terrorist attack.

In their lengthy study, the Brookings scholars identify a number of key shortfalls in the administration's approach. Their recommendations range from more effective prevention through increased law enforcement and improved information sharing among government agencies and between jurisdictions and the private sector, to ways to stop bioterrorism attacks and more effective monitoring of cargo entering the United States on container ships.

They also note that the OHS focuses too much on preventing recurrences of last year's terrorist attacks; thus, "concentrating on the last war rather than the possible next one." The administration's plans emphasize protecting targets in the U.S. from terrorist attack rather than "taking domestic steps to prevent those attacks in the first place."

Information about this study can be obtained from the *Brookings Institution, 1775 Massachusetts, Avenue, N.W., Washington, DC 20036-2188; (202) 797-6105; fax: (202) 797-2495; e-mail: communications@brookings.edu*. The report can be found on-line at *http://www.brook.edu/dybdocroot/comm/transcripts/20020715homeland.pdf*.

The Western Governors' Association is on Fire! New Strategies and Perspectives

In 2001, increasing ecosystem health problems, high levels of growth in the wildland urban interface, and recognition that many of the country's traditional approaches to land and resource management resulted in high risk from wildland fires, formed the impetus for the creation of a 10-year collaborative approach for reducing wildland fire risks for both communities and the environment (see the ***Observer***, Vol. XXV, No. 5, p.10).

Endorsed by the president and in fulfillment of two congressional directives, this approach was formalized and released in May 2002 as a ***Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-year Comprehensive Strategy Implementation Plan.*** The plan to reduce wildfire risks and protect firefighters, citizens, communities, forests, and rangelands was also approved by the Western Governors' Association (WGA), the National Association of Counties, the National Association of State Foresters, and the Intertribal Timber Council.

The guiding principles for the strategy include protecting communities and watersheds at risk, fostering collaboration among governments and representative stakeholders, and creating accountability through performance measures and monitoring. Prior to promulgating this 10-year strategy, WGA administered state surveys and collaborated with stakeholder groups, the U.S. Forest Service, and the Department of Interior.

The plan provides a framework for the long-term planning and inter-organizational collaboration that will be necessary to restore ecosystems, reduce fire risk, and promote community assistance programs. It does not alter or expand existing jurisdictions or responsibilities of participating federal, state, or tribal agencies.

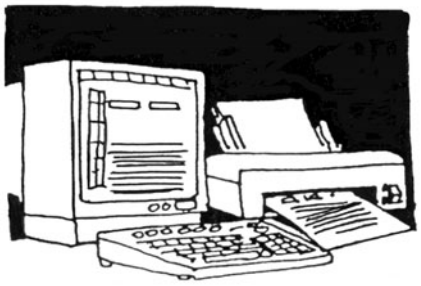
The implementation plan may be found at: *http://www.westgov.org*. For more information, contact: *WGA, 1515 Cleveland Place, Suite 200, Denver, CO 80202-5114; (303) 623-9378; fax: (303) 534-7309.*

Arlington County Releases After-Action Report on Response to Terrorist Attack on the Pentagon

A recent investigation into the Arlington County response to the events of September 11 provides a valuable blueprint for disaster response. Both the Pentagon and Washington's Reagan National Airport are within the jurisdiction of the Arlington Fire Department, and because emergency plans were already in place, the county's emergency personnel were extremely well-prepared for this unprecedented situation. However, a section on "lessons learned" notes that there were some problems with the response. The report recommends establishing a clear command chain to coordinate emergency response agencies; investing in reliable communications equipment and testing it in regularized exercises; collaborating with neighboring jurisdictions for support and mutual aid; and including public health officials in emergency response planning.

The report is divided into four principle sections, each examining the initial response, operations, and specific command issues for the fire department; law enforcement (Arlington Police Department, Federal Bureau of Investigation, and the Defense Protective Service, among others); hospitals and clinics; and emergency management and operations. Detailed organizational and command charts are included within each section, and the report includes a discussion about compiling data from a wide variety of sources.

The 215-page document was developed for Arlington County, Virginia, by Titan Systems Corporation through a grant from the Office of Justice Programs, Office of Domestic Preparedness, and the Department of Justice. See: *http://www.co.arlington.va.us/fire/edu/about/pdf/after_report.pdf*.



INTERNET PAGES

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

All Hazards

http://www.westlakesoftware.com/whsproject.htm.

Westlake Software, Inc., is exploring technologies to improve wireless communications among departments and across departments and agencies in a national crisis or disaster. The company is seeking local, county, regional, and state government agencies, as well as private-sector companies to participate in a project to enhance wireless communication technology in emergency situations. The project is called the "Wireless Homeland Security Project." Qualification information is available on their web site.

http://meted.ucar.edu/modules.htm

The COMET Program (which we have mentioned several times before) produces highly interactive, self-paced multimedia modules that are made available to the entire meteorological hazards community either in web-based or CD-ROM formats. These modules are provided in several topic areas, including human and social aspects on weather hazards. This page also provides links to many related web-based learning modules available from other sources.

http://earthobservatory.nasa.gov/naturalhazards
http://earthobservatory.nasa.gov/newsroom

The National Aeronautics and Space Administration (NASA) maintains an "Earth Observatory" web site on its "Natural Hazards" page that provides a map of the world with icons that indicate where natural disasters have occurred. Simply click on an icon to view the latest information about that particular calamity. The site provides information regarding dust and smoke, fires, floods, severe storms, and volcanoes. The "Newsroom" page offers breaking news, recent stories, and images about current hazards and other terrestrial phenomena studied by NASA.

http://muweb.millersville.edu/~isarcdue

Unscheduled Events, the quarterly newsletter of the International Research Committee on Disasters of the International Sociological Association, is now available on-line. Besides news regarding what is going on in disaster sociology, the newsletter contains interesting editorials, articles, abstracts, and links to other recent sociological studies and resources available on the web.

http://atlas.geo.cornell.edu/education

This site, from the Institute for the Study of the Continents (INSTOC) at Cornell University, provides access to a wide range of earth science information, including earthquakes, volcanoes, plate tectonics, topology, and sea level change. It provides graphs; maps; movies; and interactive programs that allow on-line data analysis, experimentation, and mapping.

http://www.gadr.giees.uncc.edu

Although under construction, the web site for the Global Alliance for Disaster Reduction (GADR) is up and running. GADR is headquartered at the University of North Carolina–Charlotte, under the institutional leadership of the Global Institute for Energy and Environmental Systems (GIEES). It has evolved as an "epistemic community" of more than 1,000 experts on disaster reduction and related aspects of sustainable development, representing regional, national, and international organizations and institutions.

Hurricanes

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

The Historical Hurricane Tracks tool is a cooperative effort of the NOAA Coastal Services Center and the NOAA Tropical Prediction Center/National Hurricane Center. This new mapping application allows users to query, plot, and display 150 years of data from the National Hurricane Center's Tropical Cyclone Best Track data set. The web site includes text documents detailing particular storm events as well as graphs depicting historical population data compared to hurricane strikes for coastal counties from Texas to Maine. For more information, contact: *Ethan Gibney, Hazards Group, GIS Integration and Development, NOAA Coastal Services Center, 2234 South Hobson Avenue, Charleston, SC 29405-2413; (843) 740-1200; (843) 740-1224; e-mail ethan.gibney@noaa.gov*.

Climate Change

http://www.ucsusa.org/gulf

The Union of Concerned Scientists (UCS) announces an interactive web feature entitled "Confronting Climate Change in the Gulf Coast Region: Prospects for Sustaining our Ecological Heritage." This web site section contains a wealth of information on climate change, as well as an in-depth look at the potential impacts of climate change on Alabama, Florida, Louisiana, Mississippi, and Texas. For more information about this effort, contact *Jason Mathers, Global Environment Program, UCS; e-mail: jmathers@ucsusa.org*.

http://www.epa.gov/globalwarming/publications/car/index.html

The U.S. Environmental Protection Agency (EPA) has released the report, ***United States of America's Third National Communication under the United Nations Framework Convention on Climate Change*** (2002, 264 pp.). The document contains the results of a cabinet-level review of U.S. climate change policy. Working groups developed innovative approaches to: 1) be consistent with the goal of stabilizing greenhouse gas concentrations in the atmosphere, 2) be sufficiently flexible to allow for new findings, 3) support continued economic growth and prosperity, 4) provide market-based incentives, 5) incorporate technological advances, and 6) promote global participation.

Terrorism

http://www.redcross.org/services/disaster/beprepared/forchildren.html

The American Red Cross Homeland Security Advisory System web site is geared toward family-level terrorism preparedness. The site helps answer questions about the national threat condition levels, such as "What does condition yellow mean for me and my family?" The Red Cross also provides detailed information about family disaster planning, children in disaster, financial preparation, and guidelines and recommendations for business and industry. The site also confronts sociological issues, such as the effects of emotional trauma on children.

http://odp.ncjrs.org

The Department of Justice's Office for Domestic Preparedness Information Clearinghouse is a virtual library of information and resources on domestic preparedness, counterterrorism, and weapons of mass destruction. Its goal is to enhance the capacity and preparedness of state and local jurisdictions to respond to such incidents by providing abstracts, publications, videos, articles, templates, models, samples, and links to other sites. The ODP Clearinghouse also publishes a free, on-line periodical, ***ODP Resource Newsletter***, that lists training courses, funding information, on-line publications, and other information sources. To subscribe, go to *http://www.puborder.ncjrs.org/listservs/subscribe_ODP.asp* and type in your name and e-mail address.

http://www.whitehouse.gov/homeland

This is the web site of the White House Office of Homeland Security. It includes an overview of the Bush Administration's proposal for creating a federal Department of Homeland Security, as well as relevant legislation, speeches, and background information about homeland security in general. The four divisions of the proposed department—border and transportation security; emergency preparedness and response; chemical biological, radiological and nuclear countermeasures; and information analysis and infrastructure protection—are described.

http://www.adrc.or.jp/wtc/WTC_eng.htm

The Asian Disaster Reduction Center (ADRC) in Kobe, Japan, has produced a report entitled, ***Preliminary Immediate Study on the Expanding Damage and Response to the Victims in the Event of the September 11th Attack*** (2002). The study assesses the economic losses and impacts of the terrorist disaster and will be used to inform reconstruction proposals and plans. An executive summary is available from the ADRC web site.

http://www.odl.state.ok.us/usinfo/terrorism/911.htm

Compiled by Kevin D. Motes of the U.S. Government Information Division, Oklahoma Department of Libraries, this on-line bibliography focuses on U.S. federal documents on terrorism that specifically relate to the events of September 11. All documents are concisely annotated, and many are available on the web. Select categories of interest include congressional hearings, reports, and resolutions; presidential proclamations, addresses, and important press releases; medical information from the Department of Health and Human Services and the Centers for Disease Control and Prevention; and information provided by the Federal Emergency Management Agency, the U.S. Geological Survey, the U.S. Institute of Peace, the General Accounting Office, and the National Committee on Terrorism.

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5101a1.htm

This report, "Rapid Assessment of Injuries Among Survivors of the Terrorist Attack on the World Trade Center," from the U.S. Centers for Disease Control and Prevention's "***Morbidity and Mortality Weekly Report***" (MMWR) (Vol. 51, No. 1, pp. 1-5), details the type and severity of injuries among a sample of survivors who received emergency care in the 48 hours following the World Trade Center attack. For complete information about subscriptions to the on-line MMWR, see: *http://www.cdc.gov/mmwr/index.html*.

http://www.nap.edu/shelves/first

The National Academies have established a web site entitled "Responding First to Bioterrorism: Expert-Selected Web Resources for 'First Responders' on Bioterrorism and Public Safety," that includes a search engine of approximately 3,000 related web sites. Information is broken down by content categories ranging from emergency response, funding, training programs, and procedures, to equipment, audience types, authoring sources, and presentation format.

http://www.firstgov.gov
http://www.emergencyemail.org

This federal agency web site has added a link to the emergency e-mail network, which can be accessed through its "America Responds to Terrorism" section. The link gives participating state and local government agency members greater access to the citizens they serve and makes critical information more accessible to millions of U.S. citizens. The service enables member agencies to reach citizens and first responders via wireless devices and e-mail.

Earthquakes

http://mae.cee.uiuc.edu/education/teachers/resource.htm

The Mid-America Earthquake Center has introduced a number of on-line, earthquake-related resource links for teachers. The site provides a compilation of links to earthquake lesson plans, earthquake information, and school-related activities. It also includes a section on the New Madrid Seismic Zone that contains curricula focusing on the Mississippi Valley and earthquake hazards in mid-America.

Wildfire

http://www.nhc.rtp.nc.us/tserve/nattrans/ntuseland/essays/fire.htm

History with Fire in Its Eye: An Introduction to Fire in America, by Stephen J. Pyne, noted fire historian from Arizona State University, has been posted at this site. The essay, which includes primary resources, fire reports, photos, links, and more, is part of the web guide ***Nature Transformed: The Environment in American History***, which provides essays by scholars to provide updated content, discussion guidance, and teaching resources for high school teachers.

Floods and Drought

http://www.flooddamagedata.org

Flood damage has increased in the United States despite local, state, and federal efforts to mitigate flood hazards and regulate development in flood-prone areas. This site contains the report, ***Flood Damage in the United States, 1926-2000: A Reanalysis of National Weather Service Estimates,*** by Roger A. Pielke, Jr., Mary W. Downton, and J. Zoe Barnard Miller. It is a reanalysis of flood damage estimates collected by the National Weather Service (NWS) between 1925 and 2000. The authors state that to help researchers and policy makers assess national progress in reducing vulnerability to flood hazards, reasonably accurate assessments of flood damage are needed; yet, accurate measures of loss have historically received little attention. A primary objective of this study was to examine the scope, accuracy, and consistency of the NWS damage estimates to improve the data sets and offer recommendations on how they can be appropriately used and interpreted. They provide flood damage data in a national data set, a state-level data set, and a drainage basin data set. The authors also provide links related to flood damage data and offer recommendations for further reading.

Conferences and Training

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

Dealing with Disasters: Impacts on Human Health. Host: Institute for Catastrophic Loss Reduction. London, Ontario, Canada: September 27-28, 2002. There has been an alarming increase in the impacts on people, property, and the environment due to extreme events associated with natural disasters. This workshop will address mental health, injuries, preparedness, population displacement, damaged public health infrastructure, and occupational health hazards that are affected by extreme weather events. This workshop is an important step in the formation of the Institute's Disaster Health Network. For more information about this meeting, contact: *Sandra Doyle, Institute for Catastrophic Loss Reduction, University of Western Ontario, 1389 Western Road, London, ON, Canada N6A 5B9; (519) 661-3234; e-mail: ssdoyle@uwo.ca*.

Mountains: Sources of Water, Sources of Knowledge. Organized by the Alps, Environment and Society Group at the University Institute Kurt Bosch. Sion, Switzerland: October 8-10, 2002. This gathering includes sessions covering water-related natural disasters in mountain regions, prediction, mitigation, adaptation, and the link between climate change and mountain hydrology. For more information, contact: *Kurt Bosch, Conference on Mountains: Sources of Water; Sources of Knowledge, case postale 4176, CH 1950 Sion 4, Switzerland; tel: (+41) 027-205.73.00; fax: (+41) 027-205-73-01; e-mail: mery.bornet@iukb.ch.*

Hydrologic Extremes: Challenges for Science and Management. Host: American Institute of Hydrology. Portland, Oregon: October 13-17, 2002. The meeting will cover the varied areas of hydrologic science. Themes include droughts and floods, climate change, stream temperature modeling, forest and watershed conditions, ground water variability, and stream channel morphology. For more information, contact *Helen Klose, 2499 Rice Street, Suite 135, St. Paul, MN 55113; (651) 484-8169; e-mail: aihydro@aol.com; http://www.aihydro.org*.

Critical Stress Management Conference. Sponsor: International Critical Incident Stress Foundation (ICISF) and the Kern Critical Incident Stress Team. Bakersfield, California: October 17-20, 2002. This conference is designed for anyone working in professions that deal with crisis intervention, mental health, and emergency services or traumatic stress. For more information, contact: *ICISF, 10176 Baltimore National Pike, Unit 201, Ellicott City, MD 21042; e-mail: kmich@icisf.org; http://www.icisf.org*.

74th Annual Meeting, Eastern Section, Seismological Society of America (SSA). Chestnut Hill, Massachusetts: October 20-22, 2002. This meeting will include all aspects of earthquakes, tectonics, seismic hazards, public education regarding earthquakes, and earthquake engineering. The conference has a focus on applications to eastern North America and there will be a special session on the April 20, 2002, Au Sable Forks, New York, earthquake. For general conference information, contact: *Weston Observatory and Department of Geology and Geophysics, Boston College, Chestnut Hill, MA 02467; (617) 552-8300; fax: (617) 552-8388; e-mail: Alan Kafka: kafka@bc.edu; or John Ebel: ebel@bc.edu; http://www.bc.edu/esssa*.

First Annual TISP (The Infrastructure Security Partnership) Congress on Infrastructure Security in the Built Environment. Washington, D.C.: November 5-7, 2002. TISP was created to bring together experts from all industry sectors to help map out a comprehensive, multi-hazard force protection approach for the built environment (see the ***Observer***, Vol. XXVI, No. 6, p. 11). This first annual congress will facilitate the sharing of threat intelligence, information, and best practices among infrastructure professionals. For registration information, contact *ASCE Conferences & Expositions, Washington, DC 20002 or P.O. Box 79668, Baltimore, MD 21279-0668; (800) 548-2723; http://www.tisp.org*.

Emergency Response 2002 Conference and Exhibition. Jacksonville, Florida: December 11-13, 2002. ***Rotor and Wing Magazine's*** annual conference encompasses the complementary sectors of airborne rescue, law enforcement, emergency medical services, and firefighting. In recognition of expanded response needs, the conference has been renamed from the Search and Rescue Conference. The meeting and exhibition is designed to keep emergency response professionals up-to-date with the latest advancements, training, methods, and equipment for saving lives. For complete information, contact: *Susan Cuevas, 1201 Seven Locks Road, Suite 300, Potomac, MD 20854; (301) 354-1667; scuevas@pbimedia.com; http://www.emergencyresponse2002.com.*

12th Symposium on Earthquake Engineering. Sponsor: Indian Society of Earthquake Technology (ISET). Roorkee, India, December 16-18, 2002. This symposium will provide a platform for earthquake engineering researchers, professionals, planners, and policy makers to share knowledge and techniques for mitigating the impacts of earthquakes on both the natural and built environments. For more information, contact *Ashok Kumar, Department of Earthquake Engineering, University of Roorkee, Roorkee 247 667, India; e-mail: 12see@iitr.ernet.in*; *http://members.tripod.com/~rurkiu/uor.html.*

Coastal GeoTools: 2003. Host: National Oceanic and Atmospheric Administration (NOAA), Coastal Services Center (CSC). Charleston, South Carolina: January 6-9, 2003. Possible focus areas of this meeting include hazard mitigation, land use and community development, remote

sensing, watershed planning, and other hazards-related topics. For more information, contact *Mark Jansen, NOAA Coastal Services Center, 2234 South Hobson Avenue, Charleston, SC 29405-2413; (843) 740-1200; e-mail: geo.tools@noaa.gov; http://www.csc.noaa.gov/GeoTools.*

International Conference on Advances in Flood Forescasting in Europe. Host: WL/Delft Hydraulics and the Joint Research Center of the European Commission. Rotterdam, The Netherlands: March 3-6, 2003. The themes for this meeting include weather forecasting; ensemble prediction and use of radar, continental-scale and large-river flood forecasting, flash-flood forecasting, flood-inundation forecasting and modeling, dissemination of medium-range flood forecasts, model uncertainties, the future of flood forecasting, data exchange, and institutional issues. For more information, contact *Bob van Kappel; WL/Delft Hydraulics, P.O. Box 177, 2600 MH Delft, The Netherlands; (31) 15-285-85-85; e-mail: bob.vankappel@wldelft.nl; http://www.wldelft.nl.*

2003 National Disaster Medical System (NDMS) Conference. Sponsor: U.S. Department of Health and Human Services. Reno, Nevada: March 8-12, 2003. The NDMS conference is designed to promote interaction between local, state, and federal public health practitioners and policy makers. The 2003 program is currently under development. For more information, contact: *USPHS Office of Emergency Preparedness, National Disaster Medical System, 12300 Twinbrook Parkway, Suite 360, Rockville, MD 20857; (800) 872-6378 (press the "star" key); e-mail: ndms@usa.net; http://www.oep-ndms.dhhs.gov.*

Disaster Resistant California Conference. Host: Governor's Office of Emergency Services and the Collaborative for Disaster Mitigation. San Jose, California: April 21-23, 2003. This statewide conference will promote partnerships among public and private sectors to reduce state vulnerability to natural disasters. For more information, view the California OES web site: *http://www.oes.ca.gov*; or call the *Disaster Resistant California information line: (916) 845-8263.*

Fourth International STESSA Conference on the Behavior of Steel Structures in Seismic Areas. Sponsor: University of Naples and Others. Naples, Italy: June 9-12, 2003. The focus of this conference is the behavior of steel structures during seismic events, cyclically moving through the earthquake-prone areas of the world. Past seismic events have called into question the image of steel as the perfect seismic-resistant building material. This conference will analyze data from the past to move into the future. For more information, contact: *Bruno Calderoni, Department of Structural Analysis and Design, Faculty of Engineering, University of Naples "Federico II" P.le V. Tecchio, 80 80125 Napoli, Italy; tel: (39) 81-768-2440; fax: (39) 81-593-4792; http://www.stessa2003.unina.it.*

International Congress on Large Dams (ICOLD) 21st Congress. Host: Canadian Dam Association. Montreal, Quebec, Canada: June 16-20, 2003. Dams are major feats of engineering as well as monuments to human endeavor, and they have been built on rivers and waterways throughout the world. They have also given rise to global concerns about environmental protection and water and energy management, and these issues will be explored. For more information, contact, *Lise Pinsonneault, Communications*

Committee, CIGB-ICOLD Montreal 2003, 75 West Renee-Levesque Boulevard, 21st Floor, Montreal, Quebec, H27 1A4, Canada; (514) 289-4628; fax: (514) 289-4546; e-mail: pinsonneault.lise@hydro.qc.ca; http://www.cigb-icold.org.

Coastal Zone Management Through Time. Host: National Oceanic and Atmospheric Administration (NOAA), Coastal Services Center (CSC). Baltimore, Maryland: July 13-17, 2003. The overarching themes for this conference are management responses to coastal hazards, port and harbor management, regional land management, and management of aquatic resources. For more information, contact: *Jan Kucklick, NOAA Coastal Services Center, 2234 South Hobson Avenue, Charleston, SC 29405-2413; (843) 740-1279; e-mail: Jan.Kucklick@noaa.gov; http://www.csc.noaa.gov/cz2003.*

International Workshop on Wind Effect on Trees. Host: Institut für Hydromechanik. Karlsruhe University, Germany: September 16-18, 2003. In response to an increasing number of extreme wind/severe storm situations and associated wind damages to trees in Europe, this workshop will provide an excellent opportunity for physicists, foresters, engineers, physiologists, and ecologists to present and discuss new developments, approaches, and methods in the field of wind and tree interaction. For more information, contact: *C. Frank, Institut für Hydromechanik, Universität Karlsruhe, Kaiserstrasse 12, 76128 Karlsruhe, Germany; e-mail: wind2003@uka.de; http://www.ifh.uni-karlsruhe.de/ifh/science/aerodyn/windconf.htm.*

ERES 2003 Fourth International Conference on Earthquake Resistant Engineering Structures. Host: Earthquake Resistant Engineering Structures. Ancona, Italy: September 22-24, 2003. The meeting will provide a forum for discussion of both basic and applied research in various fields of engineering that are relevant to earthquake-resistant analysis and structural system design. Upgrading and rehabilitating existing structures, infrastructures, and other facilities will be discussed, along with optimal design for future construction. The deadline for submission of papers is March 28, 2003. For more information, contact: *Conference Secretariat, ERES 2003, Wessex Institute of Technology, Ashurst Lodge, Ashurst Southampton, SO40 7AA, U.K.; tel: 44 (0) 238 029 3223; fax: 44 (0) 238 029 2853; e-mail: gcossutta@wessex.ac.uk; http://www.wessex.ac.uk/conferences/2003/eres03/index.html.*

13th World Conference on Earthquake Engineering (13WCEE). Host: Canadian Association for Earthquake Engineering. Vancouver, British Columbia, Canada: August 1-6, 2004. This conference will bring together researchers and practitioners from a broad range of disciplines working to reduce the devastating effects of earthquakes on our society and environment. Topics include earthquake engineering in practice, social and economic issues, engineering seismology, geotechnical and structural engineering, dams, design criteria, and nonstructural elements. For more information, contact: *13th WCEE Secretariat, 645-375 Water Street, Vancouver, British Columbia V6B 5C6, Canada; (604) 681-5226; fax: (604) 681-2503; e-mail: congress@venuewest.com; http://www.venuewest.com/13wcee.*

Postgraduate Training Program in Emergency Management and Public Health

George Washington University (GWU) recently announced a postgraduate training program in emergency management and public health for beginning and mid-career professionals interested in combining emergency services, disaster relief, and the rapid assessment of public health concerns and services. To obtain more information about this program, contact: *Jane M. Smith, GWU School of Public Health and Health Services, Ross Hall, Suite 202, 2300 I Street, N.W., Washington, DC 20037; (202) 994-0248; (202) 994-1850; e-mail: sphjms@gwumc.edu; http://www.homelandsecurity.org/hls/gwu071202.htm.*

PERI to Host Internet Symposium on Evaluating Community Emergency Services

How adequate are the fire suppression and emergency services in your community? Can your services handle today's risks and hazards effectively? What guidelines or benchmarks do you follow for evaluating these services? These questions, along with many others, will be discussed during an upcoming Internet symposium sponsored by the Public Entity Risk Institute (PERI) from September 23 to 27, 2002. The program is free and on-line. To enroll in the symposium, see the PERI web site: *http://www.riskinstitute.org/symposium_signup.asp.*

Contracts and Grants

Automated System for Improving Post-Disaster Emergency Response. Funding: U.S. Air Force Office of Scientific Research, $2.5 million, 60 months. Principal Investigator: *James Llinas, Center for Multisource Information Fusion, State University of New York–Buffalo, Buffalo, NY, 14260; e-mail: llinas@eng.buffalo.edu.*

In the immediate aftermath of a disaster, communication overload often occurs because information arrives quickly from myriad sources. Often, the information may be unclear or conflicting, substantially affecting responders' ability to make rapid decisions that enable an effective response. Investigators in this project will develop software tools to fuse the many channels of information that flow following major disasters. As part of the team, the Multidisciplinary Center for Earthquake Engineering Research (MCEER), also located at SUNY–Buffalo, will provide data collected from the 1994 Northridge, California, earthquake and augment that information with expert opinion delineated by the minutes, hours, days, and weeks following the event. This data will then be used to test an urban emergency and crisis management information system.

Data, Information, and Recommendations Regarding Emergency Worker Safety and Health During Disaster Responses—CDC/NIOSH. Funding: National Science Foundation, $342,720, 12 months. Principal Investigator: *Helga Rippen, Rand Corporation, 1700 Main Street, Santa Monica, CA 90407; (310) 393-0411; e-mail: helga_rippen@rand.org*

The investigators in this project hope to improve the health and safety of disaster rescue and recovery workers based on lessons from the World Trade Center (WTC) and other major disasters. The researchers will focus on the management issues and training elements of an effective local management disaster response program that deals with both natural disasters and large-scale terrorist attacks. They are particularly interested in response systems that will assist emergency workers and support personnel most likely to be exposed to the health and safety consequences of large-scale disasters, such as firefighters, emergency medical services, law enforcement, federal emergency assistance workers, and construction personnel directly involved in on-site activities.

Exploratory Research to Define Streamlining Opportunities for Construction Permitting in Disaster Recovery. Funding: National Science Foundation, $26,549, 12 months. Principal Investigator: *Daniel Berg, Decision Sciences and Engineering Systems, Rensselaer Polytechnic Institute, 118 8th Street, Troy, NY 12180; e-mail: bergd@rpi.edu.*

This Small Grant for Exploratory Research project will undertake preliminary background research of the building code enforcement process when it is challenged by the need to rebuild rapidly in the face of natural- or human-caused disaster. The goal is to improve the quality and efficiency of code enforcement services in emergency situations through greater understanding of building enforcement systems interactions. The investigator will also identify opportunities to streamline the permitting and code enforcement processes while protecting the interests of a locality. Case studies of local communities will be used to explore the challenges that arise during rebuilding following a catastrophic event.

Coordination of Heterogeneous Teams (Humans, Agents, Robots) for Emergency Response. Funding: National Science Foundation, $1,400,000, 48 months. Principal Investigators: *Katia P. Sycara, Michael Lewis, and Illah Reza Nourbakhsh, Robotics Institute, School of Computer Science, Carnegie Mellon University, Newell-Simon Hall 1602D, Pittsburgh, PA 15213; e-mail: sycara@cs.cmu.edu.*

Large-scale coordination tasks are becoming increasingly important in hazardous and time-stressed environments such as rescue operations and disaster response. In such cases, human rescuers under stress must make rapid decisions with incomplete information. Poor decisions may put lives at risk. This research will examine the implementation of teams that consist of cyber agents, robots, and people (CARPs). The investigators hope to establish a "cooperative control paradigm" that facilitates sharing of common goals, initiates communication and appropriate action, assigns responsibilities for coherent group activities, and provides situational information. They hope to enhance ad hoc interoperability across different agents, teams, and organizations. In addition, they hope to provide benefits to the emergency responders from this technology because robots can enter places that are dangerous to humans.

Sensor-Based Seismic Performance and Safety Enhancement of Elevators in Buildings. Funding: National Science Foundation, $298,696, 60 months. Principal Investigator:

Mahendra P. Singh, Virginia Polytechnic Institute, 301 Burruss Hall, Blacksburg, VA 24061; (540) 231-6000; e-mail: mpsingh@vt.edu.

This project will study the use of fiber optic sensors for health monitoring, for continuous data collection, and for sensor-based operational control of elevator movements to ensure safety and improved performance during earthquakes and abnormal events such as terrorist-induced emergencies. Both analytical and experimental studies will be conducted.

An Integrated Transportation Network Reliability Analysis Framework. Funding: National Science Foundation, $375,000, 36 months. Principal Investigator: *Anthony Chen, Department of Civil and Environmental Engineering, Utah State University, Logan, UT 84322; e-mail: achen@cc.usu.edu.*

Experience with earthquakes has provided compelling evidence of transportation infrastructure's critical role in restoring normalcy, as well as the need for reliable transportation systems during and after catastrophic events. Moreover, in everyday life, increased economic activity and improved quality of life have placed higher value on reducing traffic congestion. The project will develop an integrated transportation network reliability analysis framework that includes estimating maximum capacities, developing route choice models for reducing traffic congestion, and assessing transportation reliability. It will also include a design component that addresses roadway reliability design and travel decisions.

Restoring Assumptions of Safety and Control Following the 2001 Terrorist Attacks. Funding: National Science Foundation, $33,872, 12 months. Principal Investigator: *Suzanne Thompson, Pomona College, Alexander Hall, Claremont, CA 91711; e-mail: sthompson@pomona.edu.*

The terrorist attacks in New York and Washington, D.C., were a blow to the sense of security of millions of Americans because of the extensive media coverage, the choice of Americans as targets, and the likelihood of further attacks. Thus, it seems likely that the majority of Americans who were not victims themselves suffered significant effects from the attacks, including anxiety and reduced personal control; a challenge to their sense of meaningfulness in life; and a sense of vulnerability regarding airline travel, the water supply, and biological weapons. Although some of these impacts have abated as most found ways to restore their adaptive assumptions of control, invulnerability, and meaning, many individuals remain in a heightened state of anxiety and have not found useful ways to regain a sense of security. The long-term consequences for those who remain anxious are a lowered quality of life, including increased stress and restrictions in lifestyle. The goal of this research is to explore how many people in the general public have restored their adaptive assumptions and lowered anxiety.

Surface Blast Effects on Embankments and Dikes. Funding: National Science Foundation, $59,901, 24 months. Principal Investigators: *Thomas F. Zimmie and Tarek H. Abdoun, Civil Engineering Department, Rennselaer Polytechnic Institute, Troy, NY 12180; e-mail: zimmit@rpi.edu.*

Hundreds of miles of embankments and levees exist in the U.S. for flood protection and control. This research will examine damage assessments of such structures from surface blasts (a typical terrorism scenario) as well as the utilization and improvement of such structures for security purposes. The breaching of a levee during a flood could cause large amounts of property damage and loss of life, especially near large metropolitan areas. Unfortunately, it is also easiest to breach such a structure with explosives during flooding. Through the use of small-scale modeling using explosives, the researchers hope to develop knowledge that will reduce risk caused by damage to these structures.

Forces of Nature: A Large-Format Film. Funding: National Science Foundation, $2,158,846, 33 months. Principal Investigator: *Lisa Truitt, National Geographic Television, 1145 17th Street, N.W., Washington, DC 20036; (202) 857-7000; e-mail: ltruitt@ngs.org.*

National Geographic Television, in collaboration with Graphic Films, is producing a 40-minute documentary film about the scientific quest to understand some of the most dramatic geological and meteorological events—volcanoes, earthquakes, and violent storms. The goals of the film are to inform audiences about geological and meteorological forces that greatly impact our planet, present scientific research, portray scientific role models, and stimulate a greater appreciation and interest in the earth sciences.

Predicting the Future: The Science and Technology of Weather Forecasting. Funding: National Science Foundation, $2,048,027, 48 months. Principal Investigator: *Cary I. Sneider, Museum of Science, Science Park, Boston, MA 02114; (614) 723-2500; e-mail: csneider@mos.org.*

Building on an institution-wide strategic initiative to interpret the process of science for informal learners of all ages, the Museum of Science (MOS) will work to develop, implement, and evaluate a project to communicate the processes of science through weather forecasting. The project is based on the idea that processes involved in short-term weather forecasting are basic to the process of science. MOS proposes to create an 1,800-square-foot exhibit, programs for students and teachers, an interactive web site, and television spots aimed at helping people understand weather forecasting. The major component of the project is an exhibition of weather in which visitors will learn how to forecast the weather over the next few hours using different levels of technology.

National High School Space Weather Network. Funding: National Science Foundation, $20,730, 12 months. Principal Investigator: *Mark B. Moldwin, University of California, Los Angeles, 10920 Wilshire Boulevard, Los Angeles, CA 90024; (310) 794-0102; e-mail: mmoldwin@igpp.ucla.edu.*

The University of California will offer schools across the country the opportunity to measure and experiment with earth's natural environment, to contribute data to the nation's space weather program, and to create teaching tools to educate young scientists about the space environment. The university has developed a relatively inexpensive, robust, sensitive magnetometer in kit form that can be assembled by students, then set up and used to take research-quality data.

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 to the present can be found on our web site: *http://www.colorado.edu/hazards/bib/bib.html*.

All Hazards

***Task Force on Protecting Democracy: National Conference of State Legislatures**. 2002. 51 pp. Free. The complete report is available on-line from the National Conference of State Legislatures web site: http://www.ncsl.org/programs/press/2001/freedom/pd-execsum.htm.*

The National Conference of State Legislatures recently created a task force to provide guidelines for coordinating and facilitating the exchange of information among states, local governments, and the federal government in order to strengthen homeland security. The task force report presents recommendations for state legislatures regarding, among other topics, coordination of state activities and exchanges of information, agriculture and food safety, continuity of government, cybersecurity, energy security, first responders, mapping and geographic information systems, insurance against terrorist acts, interoperability of response agencies, public health, interstate compacts, and infrastructure security.

***Catastrophe and Culture: The Anthropology of Disaster.** Susanna M. Hoffman and Anthony Oliver-Smith, editors. 2002. 312 pp. $60.00, clothbound; $24.95, paperback. Copies can be obtained from the School of American Research Press, P.O. Box 2188, Santa Fe, NM 87504-2188; (888) 390-6070; fax:(505) 954-7241; http://www.sarweb.org/press/books/seminars/catastrophe.htm.*

Examining a variety of technological disasters—including earthquakes in Mexico, drought in the Andes and Africa, the nuclear meltdown at Chernobyl, the Exxon Valdez oil spill, the Oakland firestorm, and the Bhopal gas disaster—the authors of this volume explore various aspects of disaster. They approach the events from ecological, political-economic, and cultural perspectives through the disciplines of anthropology, archeology, and history. They also discuss the connection between theory and practice, as well as the insights anthropology can provide for effective disaster management.

***Disaster and Traumatic Stress Research and Intervention**. Tulane Studies in Social Welfare, Volumes XXI-XXII. Michael J. Zakour, editor. 2000. 322 pp. $25.00. Available from Tulane University, School of Social Work, New Orleans, LA 70118-5672.*

Volume XXI of ***Disasater and Traumatic Stress*** presents papers on stress and natural disasters. Topics include public hysteria and apathy, sustainability of rural communities, disaster planning, service delivery, social work and disaster mental health, post-traumatic stress, and campus response to disaster. Volume XXII addresses human-caused trauma and contains chapters on the mental health aspects of the Los Angeles riot, recurring community violence, environmental justice, psychological difficulties of war veterans, and the trauma of unemployment.

***Living with Risk: A Global Review of Disaster Reduction Initiatives**. Inter-Agency Secretariat of the International Strategy for Disaster Reduction (ISDR), with special support from the Government of Japan, the World Meteorological Organization, and the Asian Disaster Reduction Center. 2002. 382 pp. The preliminary version of this book is available on-line in PDF format at: http://www.unisdr.org/unisdr/globalreport.htm. For more information about this effort, contact Helena Molin Valdes, ISDR Secretariat, Palais des Nations CH-1211, Geneva 10, Switzerland; (41.22) 917-9711; e-mail: molinvaldes@un.org or isdr@un.org; http://www.unisdr.org.*

This volume is a study of the lessons learned by experts and communities in response to natural hazards such as volcanoes, fires, hurricanes, tsunamis, landslides, and tornadoes, along with technological accidents and environmental degradation. It is a road map for a better world, looking at the past to help us learn to live with our environment, rather than at risk from its natural forces. Such a challenge, however, is daunting: in the last decade, 4,777 natural disasters have taken more than 880,000 lives; affected the homes, health, and livelihoods of almost 2 billion people around the world; and inflicted approximately $687 billion in global economic losses. The book builds upon the UN's International Decade for Natural Disaster Reduction, which ended in 1999, to

look at traditional solutions that have protected communities against flood, windstorm, or drought as well as the ways in which creative thinking and improved communication have actually begun to save lives and build hope for developing countries.

Engineering in Emergencies: A Practical Guide for Relief Workers. *Jan Davis and Robert Lambert. Second edition. 2002. 710 pp. $39.95, paperback, $115.00, hardbound. Copies can be obtained from Stylus Publishing, LLC, 22883 Quicksilver Drive, Sterling VA 20166-2012; (703) 996-1039; fax: (703) 661-1547; http://www.styluspub.com.*

World Disasters Report 2002. *International Federation of Red Cross and Red Crescent Societies. 2002. 240 pp. $25.00. Copies can be obtained on-line at http://www.kpbooks.com/details.asp?title=World+Disasters+Report+2002. Printed copies can be ordered from Kumarian Press, 1294 Blue Hills Avenue, Bloomfield, CT 06002; (800) 298-2664; fax: (860) 243-2867; e-mail: gbentham@kpbooks.com.*

The human and economic costs of disasters continue to rise. This annual report focuses on reducing disaster risk and examines the roles of mitigation and preparedness in reducing disaster losses. The 2002 version looks at the rationale for disaster preparedness, how to mitigate the effects of global warming on small island states, and how to reduce the risk from earthquakes in urban areas. Sections focus on communities in Mozambique, Nepal, and Latin America as well as the ways they have successfully reduced the toll of disasters through preparedness. In addition to the annual data, the report studies humanitarian accountability and presents a method for assessing vulnerability.

"Emergency Action Plans: A Legal and Practical Blueprint," ***University of Pittsburgh Law Review****. Denis Binder. 2002. Free. Preprints can be requested from the author: e-mail dbinder@chapman.edu; (714) 628-2505.*

Emergency action plans (EAPs) provide frameworks that are designed to minimize the extent and effects of failure during an emergency. Although not designed to prevent an accident, smooth execution of an agreed upon EAP will help responding institutions address a myriad of unforeseen events. EAPs have not been the subject of much litigation or comment in the legal literature. Despite their novelty, however, they fit easily into the established law of negligence. In this article, Binder explores the legal implications of emergency action plans for negligence law.

Countering Terrorism: Lessons Learned from Natural and Technological Disasters. *Natural Disasters Roundtable Summary (February 28-March 1, 2002). Julie L. Demuth. 2002. 36 pp. Free. To view this report, go to http://books.nap.edu/html/countering_terrorism/ndr_summary.pdf.*

This report is the synopsis of a meeting of the Natural Disasters Roundtable (NDR) and includes an overview of speakers and discussions on countering terrorism. The NDR's intent was to provide a structured forum for researchers on natural and technical disasters to share their experiences and research needs to enhance national understanding about how best to respond to terrorism. For this roundtable, participants included first responders from both New York and Virginia to the events of September 11, 2001.

A critical distinction was drawn between acts of terrorism (the deliberate causing of harm) and the more impersonal "act of nature" (such as earthquakes, storms, or floods). However, the impacts and secondary effects of both events share numerous common aspects. Commonalities include organizational response, incident command communications, information technology, special needs populations, feeding and sheltering, volunteers, mental health response, and stability of lifelines.

Virtual Library Looking To Stock Cyber-Shelves

The Public Entity Risk Institute (PERI) has created an on-line library to offer both timely and timeless material on risk management concerns of interest to local governments, nonprofits, and small businesses. The library, housing a growing collection of in-depth articles, is actively seeking contributions for its virtual shelves. In particular, PERI is seeking articles on disaster response and recovery, risk management, risk financing and insurance, human resources, and workers' compensation. Interested persons can visit the library at *http://www.riskinstitute.org/lib.asp*. To propose or submit an article, contact *Claire Reiss: (703) 352-1846; e-mail: creiss@riskinstitute.org*.

International Bibliography of Meteorology: From the Beginning of Printing to 1889: Temperature, Moisture, Winds, Storms*. James R. Fleming and Roy E. Goodman, editors. 1994. 800 pp. $195.00. Copies are available from Diane Publishing Company, P.O. Box 1428, 330 Pusey Avenue, Unit 3 (Rear), Collingdale, PA 19023; (800) 782-3833 or (610) 461-6200; fax: (610) 461-6130; e-mail: books@dianepublishingcentral.com; WWW: http://www.dianepublishingcentral.com.*

This volume contains over 16,000 citations regarding meteorological and environmental literature before 1889. Approximately two-thirds of the entries are in languages other than English, and 10% of the entries regard publications produced earlier than 1750. Citations contain the author and title of work; whether it has been reprinted or translated; its format; place and date of publication; and whether it contains maps, charts, and/or plates.

Security and Safety in Los Angeles High-Rise Buildings After 9/11*. Rae W. Archibald, Jamison Jo Medby, Brian Rosen, and Jonathan Schachter. 2002. 76 pp. $15.00, paperback; free, on-line. To purchase a printed copy, contact the Rand Corporation, P.O. Box 2138, Santa Monica, CA 90407-2138; (877) 584-8642; fax: (310) 451-6915; e-mail: order@rand.org. To view the document on-line, go to http://www.rand.org/publications/DB/DB381.*

Following September 11, the Building Owners and Managers Association of Greater Los Angeles commissioned Rand to evaluate high-rise building security in the region. This report contains the results of that effort. The authors conclude that the threat to high-rise buildings in the area is relatively low, but building owners and managers should ensure that sound emergency management procedures are in place. Although Los Angeles has excellent procedures in place for dealing with earthquakes and fires, the terrorist threat increases the need for building occupants to be prepared to respond to an emergency. The authors offer guidance on key elements of building security, describe three case studies, outline planning considerations for high-rise buildings, discuss potential roles for government, and list recommendations specific to Los Angeles. Other sections address identifying threats and vulnerabilities, creating a risk reduction matrix, establishing security objectives, and understanding existing security practices and technologies.

"A Comparison of Disaster Paradigms: The Search for a Holistic Policy Guide," ***Public Administration Review****, Vol. 62, No. 3. (May/June 2002). David A. McEntire, Christopher Fuller, Chad*

New From the GAO

Critical Infrastructure, National Preparedness, and Homeland Security

As always, the General Accounting Office (GAO) is right on top of things when it comes to emergency preparedness and homeland security. Recently, the Natural Hazards Center received several reports that may be of interest to ***Observer*** readers. All reports are free and can be obtained from the *U.S. General Accounting Office (GAO), P.O. Box 37050, Washington, DC 20013; (202) 512-6000; fax: (202) 512-6061; TDD (202) 512-2537; e-mail: info@www.gao.gov. The complete text of each report is also available on-line at: http://www.gao.gov.*

Critical Infrastructure Protection: Significant Challenges Need to Be Addressed*. Testimony Before the Subcommittee on Government Efficiency, Financial Management and Intergovernmental Relations, Committee on Government Reform, House of Representatives. GAO-02-961T. 2002. 62 pp.*

The continued expansion of computer interconnectivity, while providing great benefits, also poses enormous risks. Terrorists or hostile foreign states could launch computer-based attacks on critical systems— such as treatment facilities, energy infrastructure, and communications—to severely damage or disrupt critical operations. In this report, GAO identifies and discusses four challenges for infrastructure protection: developing a national protection strategy, improving analytical and warning capabilities, improving information sharing, and addressing pervasive weaknesses in federal information security.

Critical Infrastructure Protection: Federal Efforts Require a More Coordinated and Comprehensive Approach for Protecting Information Systems. *GAO-02-474. 2002. 84 pp.*

Congress is concerned with the increasing vulnerability of information systems. GAO identified at least 50 federal organizations that have various national or multiagency responsibilities related to cyber-critical infrastructure protection. However, current protection efforts do not address all critical infrastructures sectors or federal agencies. GAO found that, although most organizations could identify their relationships with other key entities, relationships among organizations performing similar activities (e.g., incident response or research and development) were not equally well know. GAO concluded that, without a strategy that identifies responsibilities and relationships for all entities involved, our nation risks not having the capabilities to deal with the growing threat of computer-based attacks on its critical infrastructure.

Chemical Safety: Emergency Response Community Views on the Adequacy of Federally Required Chemical Information*. GAO-02-799. 2002.*

National Preparedness: Technologies to Secure Federal Buildings*. Keith Rhodes. Report No. GAO-02-687T. 2002 72 pp.*

National Preparedness: Integrating New and Existing Technology and Information Into an Effective Homeland Security Strategy*. Testimony Before the Subcommittee on Technology and Procurement Policy, House Committee on Government Reform. Randall A. Yim. Report No. GAO-02-811T. 2002. 25 pp. Free.*

Homeland Security: Intergovernmental Coordination and Partnership Will Be Critical to Success*. Testimony Before the Subcommittee on Government Efficiency, Financial Management and Intergovernmental Relations, Committee on Government Reform, House of Representatives. JayEtta Hecker. Report No. GAO-02-900T. 2002. 20 pp.*

W. Johnston, Richard Weber. For subscription information, contact: PAR, 350 Main Street, Malden, MA 02148; (800) 835-6770; fax: (781) 388-8323; e-mail: subscrip@blackwellpub.com.

Human and Ecological Risk Assessment: Theory and Practice. *Dennis J. Paustenbach, editor. 1,556 pp. $150.00. Available from the Customer Care Center, 10475 Crosspoint Boulevard, Indianapolis, IN 46256; (877) 762-2974; fax: (800) 597-3299; e-mail: customer@wiley.com; http://www.wiley.com/cda.*

This multi-disciplinary guide to risk assessment includes numerous case studies that address a broad range of human and ecological hazards. Of special interest to ***Observer*** readers are chapters on hazard identification, characterization, and quantification, as well as an entire section on risk communication. Section chapters include: "Risk Assessment in its Social Context," by Jessica Glicken Turnley; "Trust, Emotion, Sex, Politics, and Science: Surveying the Risk-Assessment Battlefield," by Paul Slovic; and "Democratization of Risk Analysis," by Gail Charnley and E. Donald Elliott.

Historical Dictionary of Refugee and Disaster Relief Organizations*. Robert F. Gorman. 2000. 408 pp. $65.00. Scarecrow Press, 4720 Boston Way, Lanham, MD 20706; (301) 459-3366; fax: (301) 429-5747. Ordering information can be found at http://www.scarecrowpress.com.*

This timeline traces the history of refugee movements and disasters during the 20th century.

***Disaster Preparedness for Older Americans**. 2002. $45.00. Copies can be purchased from Business Publishers, Inc., 8636 Colesville Road, Suite 1100, Silver Spring, MD 20910-3928; (800) 274-6737 or (301) 589-5103; fax: (301) 589-8493; e-mail: custserv@bpinews.com. Checks should be payable to "Older Americans Report-JZ."*

This report includes tips from agencies in New York City on how they coped with the aftermath of the September 11 terrorist attacks. It also includes guidance on how older people should prepare for disaster.

***A Nation Prepared: Federal Emergency Management Strategic Plan, Fiscal Years 2003-2008.** Federal Emergency Management Agency. 2002. 67 pp. Free. The plan is available on-line at http://www.fema.gov/library/strategicplanfy03.shtm. To request a printed copy of the **FEMA Strategic Plan** or the **FEMA Strategic Plan in Brief**, call the FEMA Distribution Center: (800) 480-2520.*

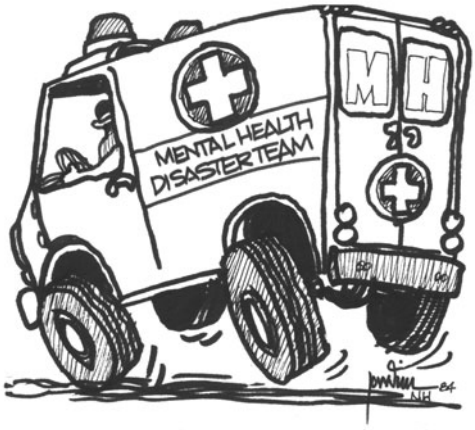
*"Crisis Communication and the Internet: Risk and Trust in a Global Media," **First Monday**, Vol. 7, No 4 (April, 2002). Hans-Juergen Bucher. Free. The on-line journal can be found at: http://www.firstmonday.org/issues/issue7_4/bucher/index.html.*

Risk is one of the main features of modern societies. With the rise of the Internet, the risk associated with information has increased to an extent: free accessibility, interactivity, and connectivity of personal, economic, political, and media communication have all led to myriad sources of information and a lessening of control over the information market. Using the Internet, the events of September 11 are profiled as an example of crisis communication on the global level.

***A Paranoid's Ultimate Survival Guide.** Patricia Barnes-Stvarney and Thomas Eugene Svarney. 2002. 280 pp. $18.00. Copies can be obtained at Prometheus Books, 59 John Glenn Dr., Amherst, NY 14228-2197; (800) 421-0351; fax: (716) 691-0137; http://www.prometheusbooks.com/site/catalog/book_1198.html.*

***Disaster Mental Health Services: A Guidebook for Clinicians and Administrators.** Bruce H. Young, Julian D. Ford, Josef I. Ruzek, Matthew J. Friedman, and Fred D. Gusman. 2002. 180 pp. Available on-line from the Walter Reed Army Medical Center: http://www.wramc.amedd.army.mil/departments/socialwork/provider/DMHS.htm.*

Though disastrous events may span a few seconds or days, their effects on individuals and communities can continue for months or years during the extended process of recovery and reconstruction. This introductory guidebook to the field of disaster mental health was produced by the Department of Veterans Affairs. Practical guidelines and background information assist individuals and organizations to develop disaster mental health response strategies, form disaster mental health teams, and create strategies to interface with the federal disaster response system. The success of long-term recovery may significantly vary due to the complex interaction of psychological, social, cultural, political, and economic factors. A timely and effective health care response is often critical to safety and recovery, and mental health care and services are an essential component in holistic response to disaster.



Terrorism

***High-Impact Terrorism: Proceedings of a Russian-American Workshop.** Committee on Confronting Terrorism in Russia, Office for Central Europe and Eurasia Development, Security, and Cooperation, National Research Council in Cooperation with the Russian Academy of Sciences. 2002. 279 pp. $47.00 (20% discount if purchased on-line). Copies can be obtained form the National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242; WWW: http://www.nap.edu/catalog/10301.html.*

***Chemical Facility Vulnerability Assessment Methodology**. Sarah V. Hart. 2002. 34 pp. Free. This special report from the U.S. Department of Justice, National Institute of Justice, is available in PDF format on-line at http://www.ojp.usdoj.gov/nij/pubs-sum/195171.htm. For a hard copy, contact: National Criminal Justice Reference Service, P.O. Box 6000, Rockville MD 20849-6000; (800) 851-3420; http://puborder.ncjrs.org.*

***Cataclysm and Challenge: Impact of September 11, 2001, on Our Nation's Cultural Heritage.** Heritage Preservation. 2002. 27 pp. Free. Copies can be obtained by calling (888) 388-6789; or on-line from http://www.heritagepreservation.org/PDFS/Cataclysm.pdf.*

***A Guide to Updating Highway Emergency Response Plans for Terrorist Incidents**. American Association of State Highway And Transportation Officials (AASHTO). 2002. 75 pp. For ordering information, contact Elaine Rubin, AASHTO, P.O. Box 96716, Washington, DC 20090; (202) 624-5800; http://www.transportation.org. Available free on-line at http://security.transportation.org/community/security/doc/guide-ResponsePlans.pdf.*

Although states' departments of transportation (DOTs) are prepared for disaster roles in "normal" disasters, recent events have demonstrated that preparing for terrorist and homeland security-related scenarios requires new considerations. This guide provides preliminary recommendations for preparing for enhanced DOT emergency response to terrorist incidents. It also provides an overview of potential modifications to current agency roles and responsibilities. These modifications build upon existing all-hazard responses. The guide was developed for the American Association of State Highway and Transportation Officials Security Task Force, in cooperation with the Federal Highway Administration.

Floods

***Duplication of Benefits: National Flood Insurance Program and the Disaster Housing Program's Minimal Repair Grants**. Report No. I-02-02. 2002. 40 pp. Free. To obtain a copy, contact Clifford Melby, Office of Inspector General, Federal Emergency Management Agency (FEMA), Inspections Division, Suite 505, 500 C Street, S.W., Washington, DC 20472, (202) 646-4166; fax:(202) 646-3901.*

***The Extent That Mitigation Funds are Used to Address Repetitive Flood Loss and Other Related Issues.** Federal Emergency Management Agency, Office of Inspector General, Inspections Division. 2002. 51 pp. Free. Copies can be obtained from the FEMA Office of Inspector General: (202) 646-4166; fax: (202) 646-3901.*

Proceedings of the 25th Annual Conference of the Association of State Floodplain Managers (ASFPM), "New Trends in Floodplain Management," *2001. Printed copies: $27.00, members; $32.00, non-members. CD-ROMs: $15.00, members; $20.00, non-members. To order, contact the ASFPM, 2809 Fish Hatchery Road, Madison, WI 53713; (608) 274-0123; fax: 608-274-0696; e-mail: asfpm@floods.org; http://www.floods.org.*

The Association of State Floodplain Managers celebrated its 25th anniversary in Charlotte last year and showcased its nationwide effort to ensure no adverse impacts to others when floodplain management projects are implemented (see the ***Observer***, Vol. XXVI, No. 1, p. 11). The conference theme was "Plan, Prepare, Protect: Every Aspect of Floodplain Management." The proceedings contains the technical papers presented at that conference. Sections cover protecting natural floodplain resources; special flood-related hazards; watershed management; stormwater management; structural flood hazards mitigation; hydrology and hydraulics; geographic information systems; flood hazard mapping; national programs, policies, and initiatives; state, local, and regional floodplain management efforts; and partnerships for mitigation, disaster resilience, and sustainability.

Benefits of Flood Mitigation in Australia*. The Australian Bureau of Transport and Regional Economics Report 106. Free. 2002. BTRE, GPO Box 501, Canberra ACT 2601, Australia; 6 (126) 274-7210; fax: 6 (126) 274-6816. The complete text of this report is on-line at: http://www.btre.gov.au/recent.htm#Top.*

The Australian Bureau of Transport and Regional Economics (BTRE) released the latest of its natural disaster reports in May 2002. The Australian government allocates financial resources to mitigate the impact of floods through the use of various tools and measures; however, little work has been done to assess the effectiveness of such mitigation. This report identifies the substantial costs savings to both communities and government in five case studies of flood mitigation. The case studies examine a wide variety of mitigation measures such as land use planning, voluntary purchase, building controls, levees, and road sealing. For more information about this project, contact: *Sharon Kierce: e-mail: sharyn.kierce@dotars.gov.au.*

Climate Change

El Niño: Unlocking the Secrets of the Master Weather-Maker. *J. Madelenine Nash. 2002. 340 pp. $25.95. A list of bookstores that carry* ***El Niño*** *can be obtained on-line at http://www.twbookmark.com/where_to_buy.html.*

This volume covers the events associated with El Niño as well as the stories of the people and places affected by those events. Nash, senior science correspondent for ***Time*** magazine for 15 years, describes El Niño events from colonial India to the late 20th century. This book also covers how scientists gathered extensive research over time to identify and understand this now-familiar weather phenomenon.

Abrupt Climate Change: Inevitable Surprises. *National Research Council. 2002. 230 pp. $39.95. Copies can be obtained from the National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242; fax: (202) 334-2793; http://www.nap.edu.*

This book looks at current scientific evidence and theory to describe what is currently known about climate change. It identifies critical knowledge gaps concerning the potential for abrupt climate changes, discusses what climate change means to society and economies, and outlines a strategy to improve understanding about the processes and impacts of sudden climate change.

Gender, Development and Climate Change. *Coroline Sweetman and Rachel Masika. 2002. 96 pp. $12.95. Copies can be obtained at Stylus Publishing, LLC, 22883 Quicksilver Dr., Sterling, VA 20166-2012; (703) 996-1039; Fax: (703) 661-1547; http://www.styluspub.com.*

Severe Weather

Weather Radar Technology Beyond NEXRAD. *National Research Council, Board on Atmospheric Sciences and Climate, Division on Earth and Life Sciences. 2002. 96 pp. $18.00, standard purchase; $14.40, on-line purchase. To order, contact the National Academy of Sciences (NAS), National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (888) 624-8373 or (202) 334-3313; fax: (202) 334-2451; e-mail: zjones@nas.org; http://books.nap.edu/books/0309084660/html/R1.html#pagetop.*

According to the Board on Atmospheric Sciences and Climate, the federal government should investigate radar technologies that could allow for more detailed coverage of the atmosphere. This report provides a first look at technologies that may be useful in coming decades for upgrading or replacing the National Weather Service's Doppler radar system.

Hurricanes

Hurricane Watch: Forecasting the Deadliest Storms on Earth. *Bob Sheets and Jack Williams. 2001. 331 pp. $15.00. Copies can be purchased from Random House, 299 Park Avenue,New York, NY 10171; (800) 733-3000; http//www.randomhouse.com/home.html.*

"Floyd Follies: What We've Learned." ***Coastal Heritage****, Vol. 17, No. 1 (Summer 2002). For subscription information, contact: South Carolina Sea Grant Consortium, 287 Meeting Street, Charleston, SC 29401; (843) 727-2078; e-mail: annette.dunmeyer@scseagrant.org.*

The theme of this 16-page issue of ***Coastal Heritage*** is coastal evacuation against the backdrop of an analysis of actions taken during Hurricane Floyd, which hit the southeast coast of the U.S. the fall of 1999. At least 3.5 million people from four states—Florida, Georgia, South Carolina, and North Carolina—evacuated during Hurricane Floyd, comprising the

largest evacuation in U.S. history. Articles cover lessons learned and improvements made in evacuation planning since the event, an overview of who decides to leave and who to stay once the evacuation message has been sent, and the decision of whether or not to abandon well-built structures during storm events. South Carolina emergency management and county contacts are listed, along with a number of web sites of interest.

Space Weather

Storms from the Sun: The Emerging Science of Space Weather. *Michael J. Carlowicz and Ramon E. Lopez. 2002. 233 pp. $27.95 or $22.36 if purchased on-line. To purchase, contact the National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242; fax: (202) 334-2793; http://www.nap.edu/catalog/10249.html.*

Storms from the Sun explores the emerging science of space weather and traces its impacts on a society that has become dependent on space-based technologies. The book explores scenarios ranging from villages losing power due to solar storms to what such storms may mean for space colonization.

Earthquakes

"2001 Bhuj, India, Earthquake Reconnaissance Report," ***Earthquake Spectra****, Supplement A to Volume 18, July 2002. Annual subscriptions: $120.00, individuals; $175.00, institutions. To subscribe, contact the Earthquake Engineering Research Institute (EERI), 499 14th Street, Suite 320, Oakland, CA 94612-1934; http://www.eeri.org.*

As part of its ongoing "Learning from Earthquakes" program, EERI, supported by the National Science Foundation, dispatched a 15-member reconnaissance team to document the effects of the magnitude 7.7 earthquake that struck India in January 2001. This report presents their findings regarding the geology and seismology of the area, and ground motion and ground failure effects. The scientists measured impacts on reinforced concrete structures, masonry structures, heritage structures, industrial facilities, hospitals, schools, and elevated tanks. They describe the ways officials dealt with damaged buildings after the quake; building codes, licensing, and education regarding safe building construction; the impacts on lifelines, roads, and bridges; government responses; and socioeconomic impacts.

Special Issue of *Seismological Research Letters* Planned on Education and Outreach

Submissions are invited for a special issue of ***Seismological Research Letters*** (SRL) devoted to the topic of education and outreach in seismology. The editors invite papers on a wide range of subjects, including both formal (K-12 to graduate) and informal efforts (such as museum displays, web pages, and other public outreach efforts). International submissions are encouraged. Submissions are due by September 30, 2002. Individuals are urged to contact the editors prior to submission: *Rob Mellors, Department of Geological Sciences, San Diego State University, 5500 Campanile Drive, San Diego, CA 92182; e-mail: rmellors@geology.sdsu.edu.*

Cities and Counties Collaborate on Disaster Mitigation

Eight studies, each detailing partnerships between cities and counties partnering on disaster mitigation, are profiled in a report issued by the Joint Center for Sustainable Communities, an advisory committee for the National Association of Counties (NACo). The report is titled, ***City/County Collaborations on Disaster Mitigation: Borderless Solutions to a Borderless Problem*** (2002, 31 pp.).

Communities are collaborating on activities such as fire, flooding, hurricane, and tornado protection and preparedness. Profiled municipalities range from rural counties to small cities from the following states: Wisconsin, Oregon, Ohio, Kansas, North Carolina, Idaho, Washington, and Florida. Copies are currently only available on-line in PDF format at *http://www.naco.org/programs/comm_dev/center/disasterbook.pdf*. Printed copies may be available in the coming months. For more information, contact *Martin Harris, NACo, Joint Center for Sustainable Communities, 440 First Street, N.W., Washington, DC 20001; (202) 661-8805; fax: (202) 737-0480; e-mail: mharris@naco.org.*

California Earthquake Loss Reduction Plan 2002-2006. *California Seismic Safety Commission. 2002. 45 pp. Free. To request a copy, contact the California Seismic Safety Commission, 1755 Creekside Oaks Drive, Suite 100, Sacramento, CA 95833; (916) 263-5506; (916) 263-0594; e-mail: scelli@quiknet.com. The report is also on-line at http://www.seismic.ca.gov/pub/SSC02-02.pdf.*

Earthshaking Science: What We Know (and Don't Know) About Earthquakes. *Susan Elizabeth Hough. 2002. 239 pp. $24.95. Princeton University Press, 41 William Street, Princeton, NJ, 08540-5237; (609) 258-4900; fax: (609) 258-6305; http://pup.princeton.edu/titles/7251.html.*

The science of earthquakes and seismic hazards has gone through some earth-shaking iterations in recent years. This book helps the non-science reader make sense of emerging theories and understanding of earthquakes. Some questions answered in this volume include: How do earthquakes start and stop? Are they predictable? How can we understand future seismic hazard?

Wildfires

Wildfire: A Reader. *Alianor True. 2002. 230 pp. $17.95. Copies can be obtained from Island Press, 1718 Connecticut Avenue, N.W., Suite 300, Washington, DC 20009-1148; (800) 828-1302; http://www.islandpress.org/books/detail.tpl?sku=1-55963-907-5.*

Welcome Aboard!

The Natural Hazards Center would like to welcome our new editor, Wendy Steinhacker. Wendy has worked with the Audubon Society, the National Wildlife Federation, and other organizations. Welcome, Wendy!

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 *Sept. 20, 2002*.

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