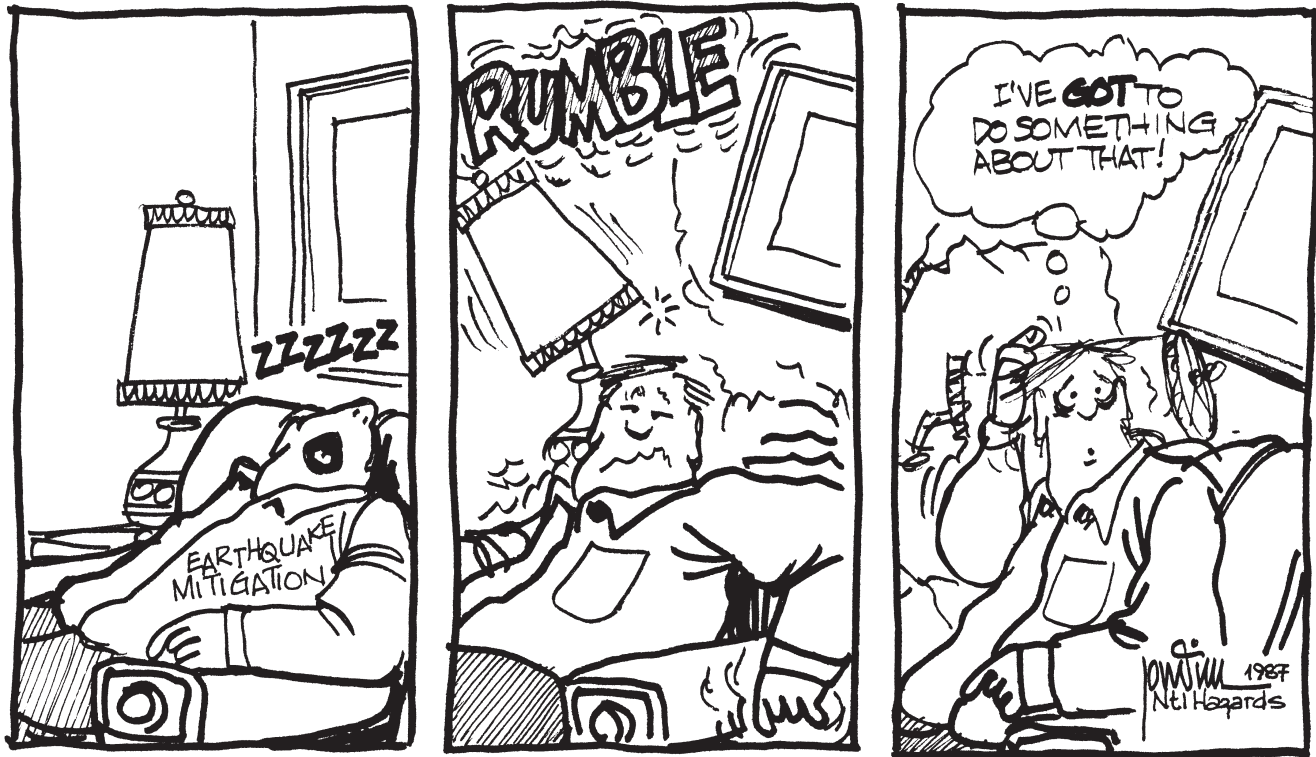


NATURAL HAZARDS Observer

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Windows of Opportunity

The 1906 Earthquake and Public Policy

— an invited comment

Megadisasters change the social and political landscape as effectively as they change the physical landscape. Such changes were evident after the 1906 San Francisco earthquake, and they are taking place now as we observe the slow recovery of New Orleans. The 1906 earthquake and, in fact, earthquakes in general, are both a blessing and a curse when viewed through a public policy perspective. While they bring public and media attention to the hazard, they are also accompanied by a desire to rebuild as quickly as possible and the shared common belief that if a community survived one earthquake, it will survive the next.

Not Beyond Our Control

The 1906 San Francisco earthquake was the first of several earthquakes in the past 100 years that acted as a catalyst to public policy change in California. While small and large earthquakes outside of the state proved to be learning opportunities for scientists and engineers, no single event has been nearly as great a force in public policy change as the massive 1906 jolt. Because of the 1906 earthquake, California state and local governments no longer consider earthquakes and their effects to be beyond human control. They now recognize that while these events may be inevi-

table, their impacts can be better understood and managed through targeted scientific investigations.

This perspective was supported by a small group of Bay Area political Progressives who were dedicated to changing public policy by using science-based decision making to address issues related to environmental resources and hazards. One of the first products to embrace this idea was *The California Earthquake of April 18, 1906: Report of the State Earthquake Investigation Commission*.¹ One-hundred years later, this report, unmatched in completeness and detail, is still being cited in new earthquake safety policy proposals. It was this report and efforts by early leaders of the California environmental and seismology movements that enabled the scientific community to evoke policy change when windows of opportunity opened after subsequent earthquakes.

Reframing the Disaster

Devastation caused by disasters evokes a very human desire to normalize situations. In 1906, politicians and the press saw that minimizing the disaster impacts by calling them “fire-related” (a more familiar type of disaster that could happen in any city) was a way of doing this most effectively. Additionally, local business and political leaders used this campaign of disinformation, downplaying the severity of the disaster, to avoid attributing the damage to an earthquake for fear of harm to the region’s good reputation. Earthquakes were bad for business.

This reframing of the disaster also aided the region’s recovery, which depended on the availability of money to rebuild. The treatment of the earthquake by the insurance community as a fire disaster, rather than as an earthquake with a resulting fire, provided the money and illustrated the relative lack of understanding of the earthquake problem by those in the financial and public policy centers of the eastern United States.

Change Can Be a Challenge

The San Francisco Bay Area has experienced few damaging earthquakes in the past 100 years, due in part to the stress released by the 1906 earthquake. However, it is the opinion of many Bay Area residents that the relative lack of damage from recent earthquakes is evidence that the Bay Area’s built environment is earthquake-resistant. They do not take into account the fact that these more recent earthquakes were much smaller than the one that struck in 1906. Legislative efforts to adopt new seismic mitigation strategies or policies are met with skepticism. Thanks to the 1906 event, advocates can respond with scientific and historical information about the hazard and its associated risk.

The idea of acting to reduce deaths in future earthquakes was not widely discussed following the 1906 earthquake. Instead, the death toll was played down: “The direct loss of life from the earthquake last Wednesday [April 18, 1906] was less than the loss of life caused every summer in any large Eastern city by sunstroke,” quipped Fremont Older, editor of the *San Francisco Bulletin*.² While research by Gladys Hansen and others documented over

3,000 deaths, the official U.S. Army relief operations staff noted only 664 deaths in the region.³ San Francisco public officials simply denied that most of the disaster fatalities happened in the first place.

In the past 100 years, it has become common practice for scientists and engineers to work with public policy officials to reduce deaths and injuries. In addition, they are working to reduce property damage and time needed for community recovery. The idea that taking action after one incident that would speed regional recovery after another should have resonated even in the early 1900s. But, at the time, the response was simply to speed rebuilding without any thought to long-term earthquake hazard mitigation. The 1906 earthquake and subsequent earthquakes show that speedy restoration of the region’s economy is the driving force behind rebuilding, not increased safety. The politics of policy change for safety’s sake remain a challenge, and new safety regulations can only be instituted if they do not delay rebuilding or add significantly to costs.

Windows of Opportunity

Local, state, and federal elected officials and their constituents make policy decisions in an environment of competing demands for limited resources. Earthquake mitigation priorities compete with other public health and safety programs, such as reducing homicides and traffic fatalities, and fighting both infectious and other diseases. These health and safety programs, in turn, compete with the need for better education, more roads and public transit to reduce traffic congestion, affordable housing, jobs, and environmental quality. But, priorities do suddenly change in the immediate aftermath of disasters. The future careers of politicians and business leaders often depend on how well they respond to these events.

As is typical with most difficult policy challenges, California has largely dealt with earthquake risk reduction measures during the brief windows of opportunity that open after damaging earthquakes. These windows allow policy initiatives to rise on a political agenda that is not clouded by competing priorities and rival interest groups. For example, the 1925 Santa Barbara earthquake helped frame earthquakes as a California problem, not just a San Francisco problem. Shortly thereafter, the 1933 Long Beach earthquake led to the Field Act for school safety and the Riley Act that required the establishment of city and county building departments to issue permits for new construction—major changes in the depth of the Depression.

It could be argued that the Santa Barbara earthquake focused the attention of the scientific and engineering communities on the organizational and political changes that were necessary. When the earthquake struck Long Beach in 1933, policy options were available. Similar windows of opportunity were capitalized on following the 1971 San Fernando earthquake, the 1989 Loma Prieta earthquake, and the 1994 Northridge earthquake.⁴ Between disasters such as these, policy makers settle into an equilibrium where competing interests are relatively balanced, resulting in only minor changes to earthquake safety policies.

Lessons from 1906

While Californians may not have initially embraced lessons learned from 1906, the abundance of evidence from the disaster has created opportunities for California to prepare for and mitigate the effects of earthquakes. Advanced preparations and commitments by disaster managers, earthquake engineers, and scientists have gradually improved the ability of those who live and work in the state to be safer and recover more quickly from future earthquakes.

The current emphasis of local and state governments on transportation, water supply, and continuity of government services is a direct reflection of the 1906 San Francisco experience—a massive failure of the water supply system and government services. Caltrans, the Bay Area Rapid Transit, East Bay Municipal Utilities District, the San Francisco Public Utility Commission's Hetch-Hetchy system, and many other local government infrastructure providers are leading the way with ambitious efforts to reduce risk. Several of these projects have been funded by bonds passed by an increasingly educated populace—an educational effort based on photographs and vignettes from 1906.

The lessons of 1906 can be applied to disasters of different types and geographic regions. Hurricane Katrina will likely have equally long-term impacts on public policy in the Gulf Coast region and the nation as a whole. Similarly, California is learning from Katrina: the recent disaster has ignited an interest in the safety of levees in the San Francisco Bay-Delta system, the need to rebuild California's infrastructure, the importance of retrofitting older housing and buildings in historic downtown areas, and the disproportionate exposure of vulnerable populations to hazards. Disasters are key tests of our collective ability to respond decisively, recover quickly, assess the effectiveness of policies, and make necessary course corrections.

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of Bay Area Governments
Arrietta Chakos, City Manager's Office, City of
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Robert A. Olson, Robert Olson Associates Inc.
L. Thomas Tobin, Tobin and Associates
Fred Turner, California Seismic Safety Commission

¹Lawson, Andrew C. 1969. *The California earthquake of April 18, 1906. Report of the State Earthquake Investigation Commission*. Washington, DC: Carnegie Institution of Washington. (Orig. pub. 1908.)

²Fradkin, Philip L. 2005. *The great earthquake and firestorms of 1906: How San Francisco nearly destroyed itself*. Berkeley: University of California Press. p. 267.

³Hansen, Gladys, and Emmet Condon. 1989. *Denial of disaster: The untold story and photographs of the San Francisco earthquake and fire of 1906*. San Francisco: Cameron and Company.

⁴Olson, Robert A. 2003. Legislative politics and seismic safety: California's early years and the "Field Act" 1925-1933. *Earthquake Spectra* 19 (1): 111-31.

Pacific Disaster Center and Earthquakes and Megacities Initiative Launch New Disaster Risk Management Communication Tool

The Pacific Disaster Center (PDC) and the Earthquakes and Megacities Initiative (EMI) have developed and launched Megacities Disaster Risk Management Knowledge Base, an Internet-accessible risk communication tool. The purpose of the knowledge base is to share and understand sound practices for disaster risk reduction and management that have been implemented in some of the world's most disaster-prone urban environments. The PDC, EMI, and partners from the Disaster Risk Management Research Center in Kobe, Japan, are working with contributors from 20 major cities and megacities that actively participate in EMI programs. Disaster risk management profiles are currently available for Istanbul, Turkey; Tehran, Iran; Kathmandu, Nepal; Mumbai, India; Manila, Philippines; Quito, Ecuador; and Bogota, Columbia.

The knowledge base is part of the EMI's Cross-Cutting Capacity Development (3cd) Program, a collaborative effort between researchers, policy makers, and practitioners to assist megacities in reducing their vulnerability to disasters. Under the partnership, 3cd program experts worked closely with the PDC to take the knowledge base from a concept to reality.

The partners encourage local officials, practitioners, researchers, students, and the community in general to visit the knowledge base at www.pdc.org/emi/ to learn more about disaster risk reduction and to contribute their own megacity disaster management practice. To learn more about the knowledge base and 3cd, visit www.pdc.org/emi/ or contact Jeannette Fernández of the Pacific Disaster Center at jfernandez@pdc.org.



New Quick Response Reports from the Natural Hazards Center

The following Quick Response reports are now available from the Natural Hazards Center. They can be accessed online at www.colorado.edu/hazards/qr/qrrepts.html.

QR182 *Hurricane Stan Response in Guatemala*, by Robert E. Hinshaw. 2006. This research was conducted one month after Hurricane Stan caused major flooding and mudslides in western Guatemala in October 2005. The levels of interclass and interethnic cooperation and the role of the military in the response and recovery for Hurricane Stan were compared with the aftermath of the 1976 earthquake in the same region. Losses due to Stan were spread much more universally across divisions of wealth and ethnicity, and greater cooperation in evacuation and relief efforts was observed. The political ramifications of the military's role in the relief effort was found to require additional time for further analysis.

QR183 *Analyzing Tribal Drought Management: A Case Study of the Hualapai Tribe*, by Cody Knutson, Mark Svoboda, and Michael Hayes. 2006. This research provides a specific case study of drought impacts and management on the Hualapai reservation in Arizona. The research team conducted interviews on the reservation to assess drought planning measures implemented, including the development of a drought plan; to identify the barriers to implementing drought planning and response; and to develop lessons learned that could be used to improve drought management in the future.

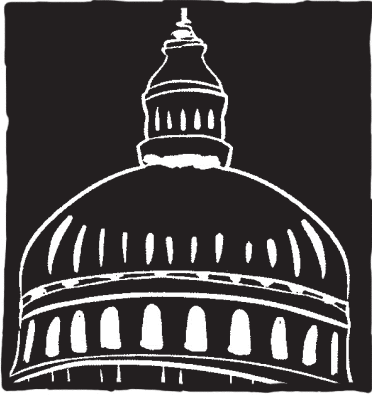
QR 184 *Disaster Realities in the Aftermath of Hurricane Katrina: Revisiting the Looting Myth*, by Lauren Barsky, Joseph Trainor, and Manuel Torres. 2006. Reports of looting were widespread in the days after Katrina swept through the Gulf Coast, conflicting with the sociological literature on disasters that portray looting as a disaster myth. These researchers conducted interviews to examine the scope of the looting and to differentiate criminal behavior from appropriating behavior (taking items necessary for survival). Findings indicate that there is no clear distinction between looting and appropriating behavior, media reports affected operations and citizen responses and were not always accurate, and prosocial behavior was also exhibited.



QR185 *Strengthening Resilience of Rural Communities to Wildfire in the Pacific Northwest*, by Kathy Lynn and Arleen Hill. 2006. To explore the ways that mitigation programs can integrate place, poverty, and social needs into efforts to address access to information and resources in a rural community, the researchers conducted a survey of residents affected by the 2005 Deer Creek fire in southern Oregon. The survey assessed if response and recovery efforts during and after the wildfire considered the perspectives and needs of the community, whether mitigation programs influenced successes or challenges during the wildfire, and if losses to life, property, natural, or cultural resources resulting from the wildfire event were influenced by poverty or geographic isolation.

QR186 *Reconstructing Childhood: An Exploratory Study of Children in Hurricane Katrina*, by Lori Peek and Alice Fothergill. 2006. In this study, the researchers examined children's experiences in the aftermath of Hurricane Katrina. Data was gathered through participant observation, focus groups, informal interviews, and in-depth formal interviews with parents, grandparents, day care service providers, school administrators, elementary school teachers, mental health service providers, religious leaders, and evacuee shelter coordinators in Louisiana. This report describes the experiences of children and their families in the days and weeks following the storm, discusses what was done on behalf of children to reduce their vulnerability, and illustrates various things that children did for themselves and for others to lessen the impacts of the disaster.

Editor's Note: Unfortunately, Rob Pudim, our fabulous cartoonist, was not able to provide new illustrations for this issue. This gave us the fun opportunity to take a stroll down memory lane and revisit *Observers* past. It was startling to find so many cartoons that still hold relevance today. Sadly, the same stories are being told. Enjoy the old art, be sure to note the dates; it is our past, our present, but hopefully not our future.



WASHINGTON UPDATE

House and White House Release Katrina Findings

In response to a tragedy such as Hurricane Katrina there are likely to be a number of reports that examine what went wrong and what went right and recommend how things can be done better next time. Two of the most anticipated of these reports were released in February:

A Failure of Initiative: The Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina—Following Hurricane Katrina, the U.S. House of Representatives created a committee charged with conducting a full and complete investigation and study regarding 1) the development, coordination, and execution by local, state, and federal authorities of emergency response plans and other activities in preparation for Hurricane Katrina and 2) the local, state, and federal government response to Hurricane Katrina. This document presents the committee's findings. The full report (H. Rpt. 109-377, 569 pp., \$32.00) and a supplementary report and document annex (H. Rpt. 109-396, 496 pp., \$40.00) are available free online at www.access.gpo.gov/congress/house/house07cr109.html. Transcripts of the committee's hearings are available at www.katrina.house.gov/.

The Federal Response to Hurricane Katrina: Lessons Learned—This report from the White House is the result of a presidential order for a comprehensive review of the federal response to Hurricane Katrina. The report identifies deficiencies in the federal government's response and lays the groundwork for transforming how the United States—from every level of government to the private sector to individual citizens and communities—handles emergency preparedness and response. Specifically, it identifies 17 lessons learned; makes 125 recommendations for policy makers and emergency managers, which have been reviewed by relevant federal departments and agencies; and includes 11 critical actions to be completed before June 1, 2006, the first day of the 2006 hurricane season. The full report (228 pp., \$27.00) is available free online at www.whitehouse.gov/reports/katrina-lessons-learned.pdf.

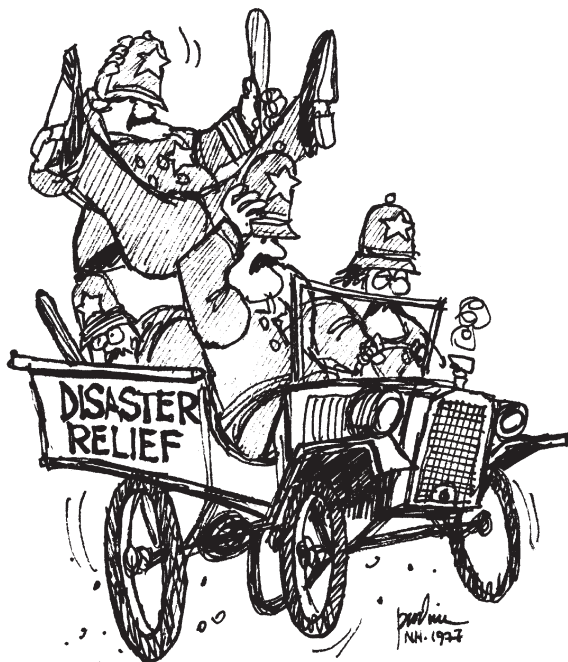
Copies of all three documents are available in any federal depository library and can be purchased from the U.S. Government Bookstore, Superintendent of Documents, PO Box 371954, Pittsburgh, PA 15250-7954; (202) 512-1800, (866) 512-1800; <http://bookstore.gpo.gov/>.

Catastrophic Planning Likely Inadequate

Released in early February, the U.S. Department of Homeland Security's (DHS) ***Nationwide Plan Review: Phase I Report*** (36 pp.) provides the status of catastrophic planning in every state and 75 of the nation's largest urban areas.

The Phase I report to Congress, which was required by the Fiscal Year 2006 Homeland Security Appropriations Act, presents the initial findings based on the self assessments of emergency operations plans conducted by states, territories, and urban areas. It indicates that while current plans are generally consistent with existing federal planning guidance and voluntary standards, many states, territories, and urban areas are concerned about the adequacy and feasibility of their plans to deal with catastrophic events. The report is currently available at www.iaem.com/documents/PhaseIReport-SubmittedtoCongress.pdf.

DHS will conduct a second phase of the Nationwide Plan Review to validate submissions and determine requirements for on-site planning assistance. The results of the peer-reviewed visits and specific recommendations to strengthen catastrophic planning are to be provided in a report to the president and Congress before June 1, 2006.



Improving FEMA's Response Capabilities

In February, the U.S. Department of Homeland Security (DHS) announced several new measures intended to strengthen the Federal Emergency Management Agency's (FEMA) essential functions for more effective response to disasters. Areas specifically targeted for improvement include logistics, customer service and intake procedures, the debris removal process, and communications. The new measures are designed to improve DHS' ability to build integrated homeland security capabilities, eliminate unnecessary bureaucracy, serve disaster victims more effectively, and empower FEMA to act with efficiency and urgency when fulfilling its response and recovery responsibilities.

To begin strengthening FEMA, DHS' fiscal year 2007 budget request asks for increased funding—specifically, a 10 percent increase in FEMA's budget over the budget for fiscal year 2006. The request also includes resources to upgrade FEMA's Emergency Alert System, increase procurement staff and overall capabilities, improve capital infrastructure and information technology, and strengthen overall mitigation, response, and recovery capabilities. For more information, read the fact sheet at www.dhs.gov/dhs-public/display?content=5413.



FEMA and IAFC Launch Intrastate Mutual Aid Project

The Federal Emergency Management Agency (FEMA) and the International Association of Fire Chiefs (IAFC) are developing a National Fire Service Intrastate Mutual Aid System that will tie local fire districts and departments into statewide mutual aid networks and support implementation of the National Incident Management System (NIMS). The new system will help the fire service be better prepared to respond to large-scale or concurrent events and help bring the skills, knowledge, and tactical resources of the local fire service to the table to support NIMS and state-to-state

mutual aid efforts such as the Emergency Management Assistance Compact.

The IAFC has asked the State Fire Chiefs Associations to spearhead the effort in 10 pilot states: Alabama, Georgia, Louisiana, Mississippi, Texas, Colorado, Idaho, Montana, New Mexico, and Wyoming. A team of technical experts with active fire service backgrounds and experience and success in mutual aid will support the pilot effort. The pilot states will work with fire service and emergency management stakeholders in their states in a collaborative effort to produce a formal written plan. Based on the experiences of the 10 states, the IAFC will recommend possible next steps to further enhance NIMS principles in the fire service and establish the system nationwide. For more information, contact Hyatt Simpson at hsimpson@iafc.org.

NIMS Basic: New Guides from FEMA

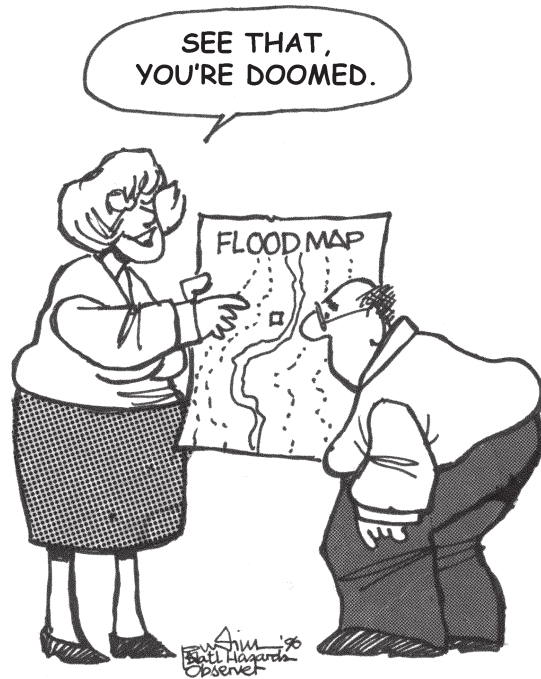
The Federal Emergency Management Agency (FEMA) has developed a new series of documents to help guide users through the National Incident Management System (NIMS). The "NIMS Basic" series describes the concepts and principles, systems and processes, responsibilities, and required capabilities associated with NIMS' major components. The series consists of nine guides: *NIMS Introduction and Overview*, *Command and Management*, *Preparedness*, *Resource Management*, *Communications and Information Management*, *Supporting Technologies*, *Ongoing Management and Maintenance*, *Incident Command System*, and *Resource Typing*. Download copies of the guides from www.fema.gov/emergency/nims/.

New Policy Links Reconstruction Dollars to Advisory Flood Elevations

The Federal Emergency Management Agency (FEMA) is encouraging building back stronger and safer after major disasters in communities nationwide. FEMA announced in February that FEMA-funded mitigation and public infrastructure recovery projects—including those in heavily impacted areas of the Gulf Coast region—are to be tied to new, higher floodplain elevations updated by FEMA using the most accurate flood risk data available.

Communities recovering from disasters in Louisiana, Mississippi, and elsewhere will be required to use the new elevations when available. Called Advisory Base Flood Elevations (ABFEs), the height at which there is a 1 percent or greater chance of flooding in a given year, the rebuilding standards will be required for all FEMA-funded mitigation and public infrastructure grant-based recovery program projects. This includes the Public Assistance program, Hazard Mitigation Grant Program, Pre-Disaster Mitigation Grant program, Flood Mitigation Assistance program, and through the implementation of Executive Order 11988 Floodplain Management.

The FEMA grants tied to ABFEs are those for the repair and rebuilding of public infrastructure projects, such as schools, public safety stations, libraries, and other shared community infrastructure. Individual homeowners rebuilding with FEMA's Individual and Households Assistance grants, while encouraged to build back to ABFEs,



are not impacted by this policy. Homeowners are advised to consult their community ordinances for rebuilding guidance.

For more information, read the press releases at www.fema.gov/news/newsrelease.fema?id=23283 and www.fema.gov/news/newsrelease.fema?id=23285. Access the recovery maps and more for Louisiana and Mississippi at www.fema.gov/hazard/flood/recoverydata/.

FY 2004 and 2005 HSGP Funds Okayed for Hurricane Preparedness Exercises

This spring, the U.S. Department of Homeland Security (DHS) Preparedness Directorate's Office of Grants and Training (G&T) is sponsoring five hurricane preparedness exercises. These exercises are designed to increase the preparedness of Eastern Seaboard and Gulf Coast states for the 2006 hurricane season that begins June 1.

G&T is updating the fiscal year (FY) 2004 and 2005 Homeland Security Grant Program (HSGP) guidance to provide the flexibility needed for full state and urban area involvement in these important and time-sensitive exercises. While FY 2006 HSGP funds can be used to support catastrophic natural disaster activities, FY 2006 funds are not currently available, and prior fiscal year HSGP grants cannot be used for natural disaster activities. This updated FY 2004 and 2005 guidance does not extend the flexibility to other activities. It only applies to hurricane preparedness exercises. As a reminder, funds from Emergency Management Performance Grants may also be used to support hurricane preparedness exercises.

To learn more, read the Office of Grants and Training Information Bulletin (No. 203, March 17, 2006) at www.ojp.usdoj.gov/odp/docs/info203.pdf. Direct questions to G&T preparedness officers or the Centralized Scheduling and Information Desk at (800) 368-6498 or askcsid@dhs.gov.

NIMS: 10-Codes and Plain English

In response to confusion over the National Incident Management System's (NIMS) plain English requirements, the NIMS Integration Center (NIC) issued a clarifying NIMS Alert. The alert points out that 10-codes used in one jurisdiction are not the same as those used in another and stressed the importance of common terminology among responders and incident managers in an emergency situation. It is critical that all local responders, as well as those coming into an impacted area from other jurisdictions, states, and federal agencies, know and utilize commonly established operational structures, terminology, policies, and procedures.

NIMS requires that plain English be used for multi-agency, multijurisdiction, and multidiscipline events, such as major disasters and exercises. Beginning in fiscal year 2007, federal preparedness grant funding is contingent on the use of plain English in major incidents requiring assistance from responders from other agencies, jurisdictions, and functional disciplines. While the NIC does not require plain English for internal operations, they strongly encourage it, emphasizing how important it is to practice terminology and procedures that will be needed in large emergencies.

Read the alert at www.fema.gov/pdf/nims/More10Codes02-08-06.pdf. Direct questions to the NIC at NIMS-Integration-Center@dhs.gov or (202) 646-3850. (A position statement from the Association of Public-Safety Communications Officials supports the requirement: www.apcointl.org/government/positions/PlainSpeechPosition021306.pdf.)

Executive Order Establishes Center for Faith-Based and Community Initiatives

On March 7, the president signed Executive Order 13397 directing the U.S. Department of Homeland Security (DHS) to establish a Center for Faith-Based and Community Initiatives. According to the order, the purpose of the center is to "coordinate agency efforts to eliminate regulatory, contracting, and other programmatic obstacles to the participation of faith-based and other community organizations in the provision of social and community services." The new center will be part of DHS' Preparedness Directorate. The order is in the March 9, 2006, *Federal Register* (Vol. 71, No. 46, pp. 12273-12276), which can be found in any federal depository library or online at www.access.gpo.gov/ and at www.whitehouse.gov/news/releases/2006/03/20060307-5.html.

Funding for Firebreaks in Hurricane-Stricken States

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) is making Emergency Watershed Protection program funds available so that communities in hurricane-stricken states can build firebreaks to reduce the threat of fires from downed timber, creating safer environments for residents.

A firebreak is a strip of bare land or vegetation that slows down or buffers a fire. USDA Service Centers will work very closely with state forestry departments to ensure

proper procedures are being followed as they help communities and landowners construct the breaks. The NRCS will pay landowners and landusers up to 75 percent of the cost, or up to \$150 per acre, to remove dead or dying timber adjacent to important community structures, such as schools and homes.

Communities or landowners interested in this assistance should contact their local USDA Service Center. Visit <http://offices.sc.egov.usda.gov/locator/app?agency=nrcs> for contact information. Additional information about the Emergency Watershed Protection program is available at www.nrcs.usda.gov/programs/ewp/.

Search Past Weather Data through NOAA Weather Portal

NOWData (NOAA (National Oceanic and Atmospheric Administration) Online Weather Data), a tool from the National Weather Service (NWS), provides climate information, such as past weather conditions and temperature and precipitation averages and extremes. Visitors to the NWS' national climate Web portal at www.weather.gov/climate/ can click on a desired location on a national map and be taken directly to the local climate page of the appropriate NWS forecast office. Then, by clicking on the NOWData tab, users can access a wide range of climate products for nearly 3,900 locations. Daily weather is available for the last two years with climate averages for the standard 30-year period of 1971-2000 and extremes for as long as a station has been taking observations.

Past weather data offered by the NWS forecast offices and linked from the NOWData Web site are considered preliminary and, therefore, unofficial. Certified weather data, for uses such as litigation, are available only through the NOAA National Climatic Data Center; www.ncdc.noaa.gov/oa/ncdc.html.

Federal Earthquake Program Seeks Comments

The National Earthquake Hazards Reduction Program (NEHRP) is the federal program to reduce risks to life and property from earthquakes. The four agencies that make up NEHRP—the Federal Emergency Management Agency, the U.S. Geological Survey, the National Science Foundation, and the National Institute of Standards and Technology (NEHRP's lead agency)—are updating the program's strategic plan for 2006-2010. To do so, the NEHRP agencies will update *Expanding and Using Knowledge to Reduce Earthquake Losses: The National Earthquake Hazards Reduction Program Strategic Plan, 2001-2005*. To help with the updating process, the agencies seek public comments from the earthquake hazards reduction community on any aspect of the 2001-2005 strategic plan and how it might be improved.

Comments are due by 5:00 p.m. EDT, **May 26, 2006**. Access the 2001-2005 plan and the comment submittal form at www.nehrp.gov/public_comments.html. Questions about comments submittal may be addressed to info@nehrp.gov.

FEMA.gov Gets Makeover

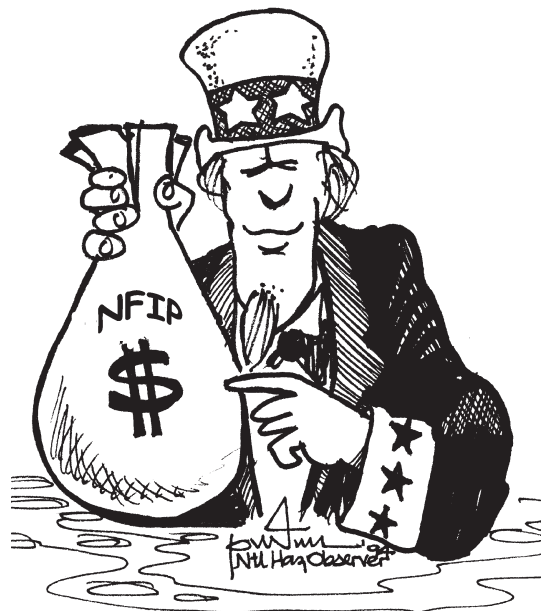
On April 6, the Federal Emergency Management Agency (FEMA) launched a redesign of its Web site FEMA.gov to better serve those who look to the site for timely and accurate emergency and disaster information. The new site has been restructured to make it easier for citizens, emergency personnel, businesses, and federal, state, and local government agencies to quickly find the information they need on the agency's disaster training, preparation, mitigation, response, and recovery efforts and services.

In developing the new site, FEMA conducted a year-long usability study of their Web site and implemented recommendations from victims of disasters and those involved in disaster response and recovery efforts. FEMA will conduct ongoing usability testing of the site and analysis of Web metrics (including user research, customer comments, Web traffic reports, and the American Customer Satisfaction Index, an industry standard for measuring Web site performance over time) to continually improve the site. FEMA will listen to and work with users to ensure that the site continues to be an effective tool for disseminating information about the agency's national and regional emergency management efforts and services.

To learn more about the redevelopment of FEMA.gov, visit www.fema.gov/media/newhomepage.shtm.

More Borrowing Authority for the NFIP

Following two previous borrowing authority increases (see the January 2006 *Observer*, p. 10), yet another law has been passed to increase the amount of funds available to the National Flood Insurance Program (NFIP) to settle flood insurance claims. Public Law 109-208 temporarily increases the borrowing authority of the Federal Emergency Management Agency for carrying out the NFIP to nearly \$20.8 billion through fiscal year 2008. The law can be found in any federal depository library and on the Library of Congress Web site at <http://thomas.loc.gov/>.



NOAA Collaborates with Australian Counterparts

The National Oceanic and Atmospheric Administration (NOAA) has signed an agreement with Australia's Bureau of Meteorology to formalize their commitment to improving meteorological and hydrological forecasting. The five-year agreement is accompanied by an implementation strategy for Australia to adopt the digital forecast process developed by NOAA's National Weather Service. A second component to the agreement is the enhancement of international tsunami warning systems. The technology exchange will help Australia and the United States support the Intergovernmental Oceanographic Commission's Indian Ocean Tsunami Warning System and accelerate Australia's capacity for planning, deploying, applying, and operationally supporting deep-ocean tsunami detection platforms, such as the U.S. Deep-Ocean Assessment and Reporting Tsunamis (DART) buoy stations. Additional cooperation will occur in the areas of warning system design and exchange of sea-level data related to these warning systems. Read the press release at www.publicaffairs.noaa.gov/releases2006/mar06/noaa06-031.html.

Hurricane Season 2005 Revised

The National Oceanic and Atmospheric Administration has updated its storm stats for the 2005 hurricane season (see the January 2006 *Observer*, p. 14). The new records include 27 named storms (up from 26), 15 hurricanes (up from 13), and 4 category 5 hurricanes (up from 3 with the addition of Emily, the earliest-forming category 5 hurricane on record in the Atlantic basin and the only known hurricane of that strength to occur during the month of July). For the most recent information, view the revised fact sheet at www.noaanews.noaa.gov/stories2005/s2540.htm.

Fun Facts: Storm Names Retired

The names Dennis, Katrina, Rita, Stan, and Wilma, all players in the historic 2005 Atlantic hurricane season, were "retired" by an international hurricane committee of the World Meteorological Organization. Now retired, these five storms will not reappear on the list of potential storm names that is otherwise recycled every six years.

Retirement is saved for storms that cause particularly large losses of life and property. Retired names are not used again for sensitivity reasons and to establish distinction within the scientific and legal communities.

For 2011, Dennis, Katrina, Rita, Stan, and Wilma have been replaced with Don, Katia, Rina, Sean, and Whitney, respectively. Find out more about retired storm names at www.nhc.noaa.gov/retirednames.shtml. Names for tropical cyclones through 2010 are available at www.nhc.noaa.gov/aboutnames.shtml.

LSU Takes On Herculean Hurricane Task

Originally established in the aftermath of Hurricane Katrina as a central repository of geospatial data related to the disaster for affected areas of Louisiana, the Hurricane Katrina and Rita Information Clearinghouse has since been expanded to maintain and provide a variety of perishable data and information pertaining to Hurricanes Katrina, Rita, and Wilma. Initiated as a collaboration between Louisiana State University (LSU) and the Federal Emergency Management Agency (FEMA), the clearinghouse facilitates many of the data access and distribution needs of FEMA, state, and local efforts.

Information available on the site includes map products, reports, links, and data. Additional data that is not for public release is stored and available via secure access by authorized agencies. A research section is dedicated to providing information on research related to Katrina and Rita and the impact of these disasters on the affected people and regions. Visit the clearinghouse at www.katrina.lsu.edu/. E-mail questions about the project to clearinghouse@lsu.edu.



Mark Your Calendars

Hurricane Preparedness Week
May 21-27, 2006
www.nhc.noaa.gov/HAW2/english/intro.shtml

Lightning Safety Awareness Week
June 18-24, 2006
www.lightningsafety.noaa.gov/week.htm

Dealing with Foreign Dead: An Evolution of Mass-Casualty Identification

An estimated 250-300,000 people were killed by the 2004 Indian Ocean tsunami, but only 5-6,000 of the bodies have been formally identified, most of which were foreigners. The remaining bodies were buried in mass graves. This was especially true in Indonesia, where neither the resources nor the facilities were available to formally identify the overwhelming number of victims. Using the tsunami tragedy as a backdrop, this article briefly examines how countries deal with mass casualties among which there are significant numbers of foreigners.

Existing Guidelines and Beliefs

Guidelines for handling mass-death situations developed by the International Police Criminal Organization (Interpol) state that sites must be tightly controlled, bodies should not be moved until marked and photographed, and all bodies should be identified. These guidelines may be suitable following an air crash or a terrorist attack on a building, but they have little relevance to a widespread destructive incident like the tsunami.¹ After the tsunami, the bodies were taken to public buildings, such as temples and hospital emergency wards, where there were no records identifying the dead or where they came from.

Despite this general approach, there were massive efforts in Thailand and Sri Lanka to identify the many foreign dead, showing respect for the Western belief that the dead have a right to be identified: "The State has a duty to protect those fundamental human rights . . . such as the rights to physical and moral integrity of individuals, religious freedom, and respect for the customs of indigenous peoples. These rights can be violated if the authorities . . . refuse to recover the corpses; remove it improperly; if they are careless when identifying them; or if they disregard religious rituals and cultural beliefs when burying the remains."²

A History of Mass-Casualty Identification

In the past, countries that have suffered disaster-related mass fatalities have normally dealt with the dead themselves. They may have asked for help with next of kin and collection of predeath data, such as medical records, but they retained control. Examples include Canada's response to the 1998 crash of Swissair 111, the United States' response to 9/11, and the United Kingdom's response to the recent terrorist attacks on London transport.

Exceptions to this norm have included incidents that involved Israelis, where exceptional efforts were made to satisfy the strict requirements of a rabbinic court: after an air crash in Sudan, an Israeli police forensic anthropologist hired human trackers to find the bones of the Israeli pilot. Also, there have been disasters in which a large number of the fatalities were not nationals of the country of incident. In some of these instances, removal of the bodies to their home countries was allowed. In 1985, after an air crash involving U.S. soldiers in Gander, Newfoundland, Canada relinquished the bodies to the United States. Following the

1990 fire aboard the *Scandinavian Star*, the ferry was towed into the Swedish port of Lysekil; the bodies were removed and taken to Oslo, Norway, the point of origin for the ill-fated voyage. Similarly, the bodies of the victims in the 1977 KLM-Pan Am collision in Tenerife (Canary Islands) were flown to the originating countries, the Netherlands and the United States, respectively.

Despite these exceptions, the first major change to the handling of mass casualties is considered to be the 2002 nightclub bombings in Bali. So many of the dead were Australian that Indonesia agreed to let the Australian Federal Police serve as the lead agency in support of the Indonesian police. The two countries worked together to identify the dead and investigate the bombings. The formal agreement between the two countries and the informal assistance received from other countries marked the beginning of truly multinational mass-casualty efforts.

Efforts in Sri Lanka and Thailand

The response to the tsunami demonstrated similar efforts. In Thailand and Sri Lanka, an unprecedented agreement allowed hundreds of foreign police and forensic scientists from dozens of countries to work cooperatively to identify the bodies. It was agreed that everyone would follow strict Interpol Disaster Victim Identification (DVI) procedures and only fingerprints, dental records, or DNA would suffice as proof of identify. Final procedural approval rested with the host government: the Thai police in Thailand and the chief coroner in Sri Lanka.

In Thailand, bodies were laid on the ground in temple courtyards. Only those who had been visually identified were buried or cremated. But in Sri Lanka, many of the dead had been buried, forcing Austrian, German, and British police to locate foreign graves and request exhumation orders. DVI was performed on all of the dead in Thailand, including the Thais, which was initially less successful because of the lack of predeath data, such as fingerprints and dental records. In Sri Lanka, most of those identified were foreigners because the government had ordered foreign bodies to be shipped to the morgue in Colombo. They placed no restraints on the burial of indigenous dead. Sri Lankans were only formally identified if they were buried with foreigners and their bodies were among those exhumed.

As recently as the 2002 Bali bombings, matching up predeath and postdeath Interpol forms involved sorting through paper. The tsunami response was much more sophisticated. Data was entered into two computer systems, DVI System International (everything but fingerprints), which is based on Interpol's standards, and SAGEM, the French version of the Federal Bureau of Investigation's (FBI) Automated Fingerprint Identification System. Both generated possible matches.

Despite the cooperative efforts and the technological advances, not everything worked. Some European investigators used methods others objected to. Errors were made in entering data, sometimes because of illegible handwrit-

ing. And initial DNA samples were often inadequate and contaminated, which ultimately led to a change in the way samples were taken.

Contributions to Mass-Casualty Identification

Among the tsunami's many legacies are the establishment of DVI System International as the international software standard for victim identification and the familiarity of Interpol's pre- and postdeath forms to police everywhere. Another development is the acceptance of an FBI technique for obtaining fingerprints from the second layer of skin by boiling hands. And because of the problems with DNA, it is no longer seen as the solution to all problems of identification. Most important, however, is the fact that there is increased solidarity among the international mass-death network of police and forensic scientists. Despite these advances, it seems unlikely that the full extent of these improvements and relationships will be called on in the near future for it is hard to imagine an event similar to the tsunami, one that kills people from every continent but Antarctica and is as welcoming to foreign assistance and involvement as Thailand and Sri Lanka.

The tsunami response raises questions:

- Is it appropriate to spend so much money identifying victims of a mass-death incident?
- Is it appropriate that individuals from some countries are identified while others are buried in mass graves?
- Would wealthy countries (e.g., those in Europe or North America) commit sufficient resources to identify all the dead if thousands or tens of thousands died in an incident within their boundaries?

Cultural, religious, and legal matters affect the emphasis on recovery and identification of the dead. Some view bodies as empty husks. Westerners believe a body should be identified for emotional reasons—closure—and to eliminate legal complications. Yet the question remains: How many dead is too many to justify processing all who died?

Past disaster research about handling of the dead comes from developed countries—the United States, Canada, Italy, and Japan.^{3,4,5,6} The tsunami findings, part of a study funded

by the National Science Foundation and headed by Henry Fischer of Millersville University of Pennsylvania, come from a cross-cultural study involving scores of countries. The results, which could have relevance for future mass-death situations, whether caused by a natural hazard, a terrorist attack, or, perhaps, even a pandemic, were shared with Interpol, discussed at the 2005 Hazards Research and Applications Workshop in Boulder, Colorado, and will be the subject of a full session at the World Congress on Sociology's International Research Committee on Disasters meeting in Durban, South Africa, in July. For years, E.L. Quarantelli and others have been calling for cross-cultural research.⁷ Perhaps the study of the handling of the tsunami dead will be the start of a long-desired trend.

Joseph Scanlon
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¹Scanlon, Joseph. 1998. Dealing with mass death after a community catastrophe: Handling bodies after the 1917 Halifax explosion. *Disaster Prevention and Management* 7 (4): 288-304.

²Pan American Health Organization (PAHO). 2004. *Management of dead bodies in disaster situations*. Washington, DC: PAHO.

³Blanshan, Sue. 1977. Disaster body handling. *Mass Emergencies* 2:249-58.

⁴Pine, Vanderlyn. 1974. Grief work and dirty work: The aftermath of an air crash. *OMEGA* 5 (4): 281-86.

⁵Quarantelli, E.L. 1979. The Vaiont Dam overflow: A case study of extra-community responses in massive disasters. *Disasters* 3 (2): 199-212.

⁶Nishimura, Akiyoshi. 1997. Medical examination report on the Great Hanshai earthquake. In *Proceedings of the Third International Symposium of the International Advances in Legal Medicine*, ed. Choei Wakasugi, 234-38.

⁷Quarantelli, E.L., and Verta Taylor. 1976. Some needed cross-cultural studies of disaster behavior. Paper presented at the Natural Hazards Symposium, Canberra, Australia.

Seismopolis: New Center Educates Public about Earthquakes and Earthquake Safety

The Seismopolis center is the result of a collaboration between academia, industry, and government to inform and educate the public about earthquakes and earthquake safety. Partially funded by the General Secretariat of Research and Technology of Greece, the new center uses state-of-the-art technologies, including a shake table and a virtual reality unit, to provide visitors with a variety of educational experiences. Visitors (both children and adults) can learn about earthquakes and their impact on the ground, buildings, people, and society; develop skills to protect themselves and others before, during, and after an earthquake as well as during restoration and reconstruction; experience a simulated earthquake and test self-protection skills; learn how to make the right decisions in recovering from earthquake losses; and develop an interest in setting up and participating in information networks and volunteer groups that inform others about protection from earthquakes and other natural disasters.

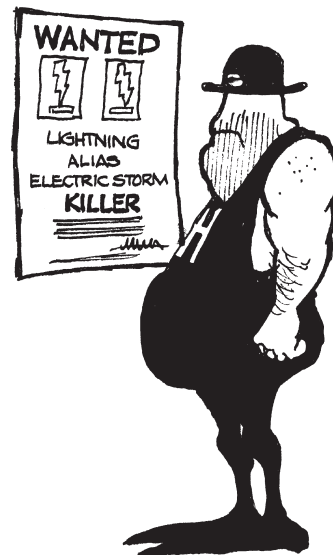
The center is located in Rentis, Greece, a municipality of Athens. For more information about the center, including how to make an appointment to visit, contact *Issaak Parcharidis*, *Harokopio University of Athens, Department of Geography* at parchar@hua.gr; www.seismopolis.org/.

Lightning Safety: An Issue with International Significance

Each year, lightning is responsible for an estimated 24,000 deaths and 240,000 injuries worldwide. Protecting people and facilities from lightning is a global issue that requires more attention and education, especially in lesser-developed nations where villagers, farmers, and rural school children lack a sufficient understanding of the threat posed by lightning. Teaching lightning safety should be fundamental to every community's public safety education efforts. How to react when one hears thunder or sees lightning should be common knowledge: e.g., avoid isolated trees, water, proximity to metal objects, and elevated or open spaces and structures; seek low ground or shelter in an enclosed building. Such public knowledge can reduce deaths and injuries.

For several years, the National Lightning Safety Institute (NLSI) in Louisville, Colorado, has exported its methodologies and practices overseas. Lightning research centers and lightning awareness centers have been established in several countries to mitigate the hazard. Groups in Sri Lanka, Bangladesh, and Bhutan are communicating lightning safety messages to their communities through targeted meetings, public speaking engagements, media cooperation, printed materials, and more. The South Asian Lightning Awareness Program, a joint effort by institutions in these three countries, was developed to provide the general public and the engineering community in the region with much needed awareness and expertise on lightning safety to protect individuals and limit damage to property, both public and private, and minimize potential economic disruption.

Similar work is being conducted in East Africa through the Pan-African Lightning Protection Agency. While the importance of lightning safety does seem to be slowly gaining international recognition, there is much still to be done. Areas of urgent need include India, China, the Middle East, and West Africa. For more information about the NLSI's International Lightning Safety Initiative, contact *Richard Kithil Jr., National Lightning Safety Institute, 891 North Hoover Avenue, Louisville, CO 80027; (303) 666-8817; e-mail: rkithil@lightningsafety.com; www.lightningsafety.com/nlsi_history/intl_safety_initiative.html.*



New Presidential Disaster Declaration Web Site

Created by the University of Delaware with funding from the Public Entity Risk Institute (PERI), the PERI Presidential Disaster Declaration Site is a free online resource that provides information about presidential disaster declarations made between 1981 and 2003 to help communities better understand their exposure to various types of natural and human-caused disasters. The site will be continuously updated and by this time next year should incorporate all declarations made between 1953 and 2006.

The site allows users to search and access information about presidential declarations of major disasters and emergencies in any state, county, or territory within the United States. Searches can be refined to focus on specific time periods or types of disaster declarations. Features also include the ability to examine disaster requests that were turned down, a utility for users to create their own summary tables, links to summary data, and links to useful sites for disaster information and emergency management.

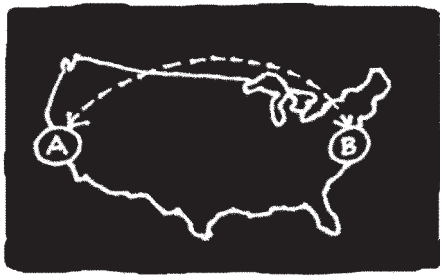
Although the data compiled and used on the site comes from the Federal Emergency Management Agency (FEMA), much of the information is not currently available on FEMA Web sites. Take a tour of U.S. disaster history by visiting the PERI Presidential Disaster Declaration Web site at www.peripresdecusa.org/. Direct questions about the site's content to *Richard Sylves, Department of Political Science and International Relations, University of Delaware, Newark, DE 19716; (302) 831-1943; e-mail: sylves@udel.edu.*

Certification in Disaster Medicine Responds to Growing Need

Recent events have exposed a nationwide shortage of physicians appropriately trained to respond to disasters. To address this issue, the American Board of Physician Specialists established the American Board of Disaster Medicine to foster, coordinate, build, and facilitate partnerships between disaster medicine specialists and all levels of government and the private sector.

Physicians from a range of backgrounds are needed to enable comprehensive response when disaster strikes. The board will begin accepting applications on May 1, 2006, and plans to administer the first examination in the fall of 2006. For more information, visit www.abpsga.org/certification/disaster_medicine/index.html or contact *William Carbone, American Association of Physician Specialists; e-mail: wcarbone@aapsga.org.*





CONFERENCES AND TRAINING

Below are the most recent conference announcements received by the Natural Hazards Center. A comprehensive list of hazards/disaster meetings is available at www.colorado.edu/hazards/conf.html.

National Community Emergency Response Team (CERT) Conference. Hosts: California Citizen Corps, California Service Corps Office of the Governor, California Office of Homeland Security, and California Governor's Office of Emergency Services. **Los Angeles, California: May 15-17, 2006.** This conference will offer a general CERT track in addition to tracks in program management and train-the-trainer. It is open to all CERT program managers, coordinators, volunteer managers, volunteers, and other first responders from across the country. To learn more, contact the *National CERT Conference Committee, c/o LASD-CLEPP Room 144, 4700 Ramona Boulevard, Monterey Park, CA 91754; (323) 526-5015; e-mail: info@certconference2006.com; www.certconference2006.com/.*

9th Annual By Invitation Emergency Management and Homeland Security/Defense Higher Education Conference. Host: Federal Emergency Management Agency (FEMA) Emergency Management Institute. **Emmitsburg, Maryland: June 6-8, 2006.** This conference provides a forum for academics to discuss problems and issues surrounding hazards, disaster, emergency management, and homeland security/defense educational programs. It is designed for representatives of colleges and universities that have such programs in place or are attempting to develop and implement them. This year's theme is "Catastrophe Readiness and Response." To learn more, contact *Wayne Blanchard, FEMA; (301) 447-1262; e-mail: wayne.blanchard@dhs.gov* or *Barbara Johnson, FEMA; (301) 447-1452; e-mail: Barbara.L.Johnson@dhs.gov; http://training.fema.gov/emweb/edu/educonference06.asp.*

International Conference on Emergency Telecommunications (ICEC-2006). Conveners: Finland's Ministry of Foreign Affairs, Finland's Ministry of the Interior, and the Finnish Telecommunications Regulatory Authority. **Tampere, Finland: June 19-20, 2006.** The subject of ICEC-2006 is the Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations, the international treaty facilitating the use of telecommunications in international response to disasters. To learn more, contact *Tampere Congress and Export Service TAVI Ltd., Congress Secretariat, TAVI Congress Bureau, Sari Kamula, Papinkatu 21, FI-33200 Tampere,*

Finland; +358 3 233 0430; e-mail: icec2006@tavicon.fi; www.icec2006.com/.

Global Amateur Radio Emergency Communications Conference (GAREC-2006). Organizer: International Amateur Radio Union. **Tampere, Finland: June 19-20, 2006.** This conference will review the latest technological and operational developments in the application of the amateur radio service to emergency communications and the cooperation with institutional partners in emergency response and disaster relief. This is a parallel event to ICEC-2006 (see previous). To learn more, e-mail *hans.zimmermann@ties.itu.int; www.rientola.fi/oh3ag/garec/.*

Advances in Threat Assessment and Their Application to Forest and Rangeland Management. Organizers: Eastern and Western Threat Assessment Centers of the U.S. Department of Agriculture Forest Service. **Boulder, Colorado: July 18-20, 2006.** This conference will explore the latest information on environmental threat assessment and management. It is designed to encourage meaningful exchange among those developing new knowledge and tools for threat assessment and those responsible for managing forests and rangelands. Scientists, educators, policy makers, property owners, land managers, and students are among those invited to attend. To learn more, contact *John Pye; (919) 549-4013; e-mail: jpye@fs.fed.us; www.forestencyclopedia.net/Encyclopedia/Threats/.*

Western Pacific Geophysics Meeting. Organizer: American Geophysical Union (AGU). **Beijing, China: July 24-27, 2006.** This meeting is for AGU members and members of the sponsoring societies in the Western Pacific to discuss the needs of geophysicists interested in studies in the Western Pacific region. The conference will include sessions on volcanology, seismology, climate variability, hydrology, sustainable urban development, and geophysics. To learn more, contact the *AGU Meetings Department, 2000 Florida Avenue NW, Washington, DC 20009; (800) 966-2481 x330; e-mail: wp-help@agu.org; www.agu.org/meetings/wp06/.*

Association of Public-Safety Communications Officials (APCO) Annual Conference and Exposition. **Orlando, Florida: August 6-10, 2006.** This conference will feature

presentations on homeland security and public safety communications technology, including development tracks on management and planning, interoperability, legislative and regulatory issues, and more. To learn more, contact *APCO*, 351 North Williamson Boulevard, Daytona Beach, FL 32114; e-mail: apco@apcointl.org; www.apco2006.org/.

Second Latin-American Congress of Seismology/III Columbian Congress of Seismology. Organizer: Latin-American and Caribbean Geosciences Association. **Bogota, Columbia: August 8-12, 2006.** This meeting is concerned with the seismotectonic and volcanic behavior in the Latin American and Caribbean region, including issues related to exploration by nonconventional geophysical methods and the social impacts of seismic and volcanic hazards and how they contribute to the sustainable development of the region. To learn more, e-mail congresosismologia@geoslac.org; www.geoslac.org/congreso/english/.

Joint Australasian Fire Authorities Council/International Fire Chiefs' Association of Asia Bushfire Cooperative Research Centre Conference. **Melbourne, Australia: August 10-13, 2006.** Participants at this conference will share research and information on community safety, fire suppression, land management, weather, and firefighter health and safety. Emergency management professionals from emergency services organizations; local, state, and federal governments; nongovernmental organizations; community groups; and industry from around the world are invited to attend. To learn more, e-mail *Simon Monk* at sm@asnevents.net.au or *Steve Robin* at sr@asnevents.net.au; +61 (0)3 5983 2400; www.afac2006.org/.

7th Natural Hazards Management Conference 2006. Organizer: Institute of Geological and Nuclear Sciences Limited (GNS). **Christchurch, New Zealand: August 23-24, 2006.** This conference will provide a forum to discuss the integration of hazards information into effective risk management, including best practice planning, new technologies and advances in science applications, natural hazards mitigation for industry, and creating resilient communities by integrating science into practice. The target audience is emergency managers, planners, risk assessors, asset and utility managers, and natural hazards researchers and scientists. To learn more, contact *Daryl Barton*, *GNS Science*, 1 Fairway Drive, Avalon, PO Box 30-368, Lower Hutt, New Zealand; +(04) 570 1444; e-mail: d.barton@gns.cri.nz; www.gns.cri.nz/news/conferences/.

RGS-IBG Annual International Conference 2006: Global Social Justice and Environmental Sustainability. Host: Royal Geographic Society with the Institute of British Geographers (RGS-IBG). **London, United Kingdom: August 30-September 1, 2006.** This conference will serve as a forum to engage practitioners and policy makers with research agendas related to social justice and environmental sustainability. Proposed sessions include Coastal Partnerships Delivering Integrated Coastal Zone Management; Climate Change and Variability; and Disasters, Development, and Generosity, among many others. To learn more,

call +020 7591 3020 or e-mail AC2006@rgs.org; www.rgs.org/category.php?Page=ac2006.

First European Conference on Earthquake Engineering and Seismology. Organizers: Swiss Society for Earthquake Engineering and Structural Dynamics, Swiss Seismological Service, Swiss Federal Institute of Technology Zurich, and Swiss Federal Office for the Environment. **Geneva, Switzerland: September 3-8, 2006.** This joint event of the 13th European Conference on Earthquake Engineering and the 30th General Assembly of the European Seismological Commission will facilitate discussions between the earthquake and seismology communities. Common sessions include Historical Investigations of Earthquake Effects, Damage, and Vulnerability; Early Warning, Shaking, and Loss Scenarios; Strategies in Earthquake Mitigation; and Secondary Earthquake Hazards: Tsunami, Landslide, Rock Fall, Liquefaction. To learn more, contact *Symporg*, 7, avenue Krieg, CH-1208 Geneva, Switzerland; +41 22 839 84 84; e-mail: ECEES2006@symporg.ch; www.ecees.org/.

III International Conference on Avalanches and Related Subjects. Sponsors: International Glaciological Society and Institute of Geography of Russian Academy of Sciences Glaciological Society. **Kirovsk, Murbansk, Russia: September 4-8, 2006.** The objective of this conference is to sum up the results of avalanche research completed since the international avalanche conferences in 1996 and 2001 and to communicate ideas and information between Russian avalanche researchers and members of the world avalanche community. To learn more, contact *Pavel Chernouss*; 00 7 81531 96230; e-mail: Pchernous@apatit.com; www.cas.kirovsk.ru/conference.htm.

8th Annual Technologies for Critical Incident Preparedness Conference and Exposition. Sponsors: U.S. Department of Homeland Security Science and Technology Directorate, U.S. Department of Justice National Institute of Justice, and U.S. Department of Defense Office of the Assistant Secretary of Defense for Homeland Defense. **Atlanta, Georgia: September 6-8, 2006.** This conference will highlight the technologies and tools currently available and being developed for the emergency responder community. It will offer opportunities for emergency responders, business and industry representatives, academics, and elected federal, state, and local stakeholders to network, exchange ideas, and address common critical incident technology and preparedness needs and solutions. To learn more, e-mail *Lisa Hecker* at lhecker@ctc.org; www.regonline.com/eventinfo.asp?EventId=88623.

National Association of Flood and Stormwater Management Agencies (NAFSMA) 2006 Annual Meeting and Workshop. **San Antonio, Texas: September 6-8, 2006.** Participants in this meeting will include local, state, and federal flood and stormwater management officials from throughout the United States. The meeting will provide opportunities to share information with colleagues and to discuss critical issues. To learn more, contact the *NAFSMA*, 1301 K Street NW, Eighth Floor East Tower, Washington,

DC 20005; (202) 478-1734; www.nafsmo.org/Meetings/meetings_upcoming.htm.

International City/County Management Association (ICMA) 92nd Annual Conference. San Antonio, Texas: September 10-13, 2006. The educational program of this conference is organized into six tracks, including one on Emergency and Disaster Management, under the theme of "Sustaining Our Communities in an Uncertain World." Public and private sector experts will share knowledge and address new and recurring challenges facing local government managers. To learn more, contact the ICMA, 777 North Capitol Street, Suite 500, Washington, DC 20002; (202) 289-4262; e-mail: ICMAConference@icma.org; www.icma.org/.

Dam Safety '06. Organizer: Association of State Dam Safety Officials. **Boston, Massachusetts: September 10-14, 2006.** This conference is dedicated to dam safety engineering and technology transfer. Engineers; geologists; hydrologists; dam owners; state, local, and federal officials; industry representatives; and others working in the field of dam safety are invited to share their experiences in all aspects of dam safety. Presentations will be designed to heighten awareness, share experiences and case studies, advance technology transfer, improve communication, and demonstrate state-of-the-art practices. To learn more, contact Susan Sorrell at (859) 257-5146 or sasorrell@damsafety.org; www.damsafety.org/.

Fall World 2006. Organizer: *Disaster Recovery Journal*. **San Diego, California: September 17-20, 2006.** This conference will focus on all aspects of disaster recovery, contingency planning, and business continuity. Attendees will gain knowledge and information through sessions, workshops, exercises, and networking opportunities. An exhibit hall will showcase the latest industry trends, products, and services. Among other things, attendees can participate in a real-time disaster simulation (limited to 200 participants). For more information, call (314) 894-0276 or e-mail drj@drj.com; www.drj.com/conferences/sd2006/.

Fifth National Seismic Conference on Bridges and Highways. Organizer: Multidisciplinary Center for Earthquake Engineering Research (MCEER). **San Francisco, California: September 18-20, 2006.** The theme of this conference is "Innovations in Earthquake Engineering for Highway Structures." Its purpose is to increase awareness of seismic and geological hazards and to enhance the technical expertise of engineering professionals to mitigate the risk of failure or damage to bridges and highways. The conference will be tailored to the needs of engineers, design consultants, researchers, and others responsible for transportation facilities who are interested in learning about advances in earthquake-resistant design and retrofitting, highway system performance, and the latest in research results. To learn more, contact Jerome O'Connor, MCEER, Red Jacket Quadrangle, University at Buffalo, Buffalo, NY 14261; (716) 645-3391 x107; e-mail: jso7@buffalo.edu; <http://mceer.buffalo.edu/meetings/5nsc/>.

Managing Drought and Water Scarcity in Vulnerable Environments: Creating a Roadmap for Change in the United States. Organizer: Geological Society of America. **Boulder, Colorado: September 18-20, 2006.** The goals of this meeting are to create an integrated, interactive, future-oriented forum for understanding and improving the management of drought and water scarcity in the United States and to stimulate national debate through the publication and wide distribution of a science- and policy-based discussion document. The focus of the meeting will be on identifying successful strategies for drought and water scarcity management and on developing a decisive action plan. To learn more, contact Deborah Nelson, Geological Society of America; (303) 357-1014; e-mail: dnelson@geosociety.org; www.geosociety.org/meetings/06drought/.

3rd International Symposium on Integrated Water Resources Management: Reducing the Vulnerability of Societies against Water Related Risks at the Basin Scale. Sponsors: International Association of Hydrological Sciences and International Commission on Water Resources Systems. **Bochum, Germany: September 26-28, 2006.** This symposium will address how to cope with the water-related vulnerability of societies, including environmental risks, floods, droughts, pollution, water logging, and the opportunities for creating resilience against these risks. To learn more, contact Conventus, Congressmanagement & Marketing GmbH, Markt 8, 07743 Jena, Germany; +49 3641 35 33 221; e-mail: water@conventus.de; <http://conventus.de/water/>.

Fourth International Conference on Earthquake Engineering. Organizer: National Center for Research on Earthquake Engineering (Taiwan). **Taipei, Taiwan: October 12-13, 2006.** The purpose of this event is to promote international collaboration and facilitate the exchange of research findings in earthquake preparedness, response, and recovery. The conference will cover earthquake engineering, structural control, smart structures, and structural health monitoring to integrate enabling technologies and improve the hazards resilience of civil infrastructure systems. To learn more, contact Chiun-lin Wu, National Center for Research on Earthquake Engineering, 200, Sec. 3, Xinhai Road, Taipei, Taiwan; +886 2 6630 0891; e-mail: icee@ncree.org.tw; http://conf.ncree.org.tw/index_eng.aspx?conf_id=i0951012.

Eighth Regional Training Course on Flood Disaster Risk Management. Organizer: Asian Disaster Preparedness Center (ADPC). **Bangkok, Thailand: October 16-27, 2006.** This course offers an integrated approach to the development of flood risk reduction strategies that involves engineering, settlement, development, public administration, community-based strategies, and land use planning (with environmental considerations). To learn more, contact the Training and Education Division, ADPC, Asian Institute of Technology, PO Box 4 Klong Luang, Pathumthani 12120, Thailand; e-mail: tedadpc@adpc.net; www.adpc.net/trg/trg_files/brochureFDRM-8.pdf.

National Wildland/Urban Interface Fire Education Conference: Backyards and Beyond. Sponsors: National Wildland/Urban Interface Fire Working Team and Firewise Communities. **Denver, Colorado: November 2-4, 2006.** This conference will provide an opportunity to network with other like-minded professionals and to share best practices. Participants will be able to customize their educational experience by choosing from more than 70 educational sessions over six conference tracks: Using Technology, Research, Firewise Communities/USA, Planning and Mitigation, Firewise and Emergency Operations, and Communicating the Firewise Message. To learn more, visit www.firewise.org/conference06/.

34th Regional Training Course on Disaster Management. Organizer: Asian Disaster Preparedness Center (ADPC). **Bangkok, Thailand: November 6-24, 2006.** The purpose of this course is to provide comprehensive disaster management knowledge and skills to enhance the capabilities of professionals working in disaster management, development, and donor agencies to effectively integrate disaster management into development programs and policies. To learn more, contact the *Training and Education Division, ADPC, Asian Institute of Technology, PO Box 4, Klong Luang, Pathumthani 12120, Thailand; e-mail: tedadpc@adpc.net; www.adpc.net/training/brochure/DMC-34brochure.pdf.*

American Water Resources Association (AWRA) 2006 Annual Water Resources Conference. **Baltimore, Maryland: November 6-9, 2006.** This conference will provide an opportunity for water resource practitioners from diverse disciplines to discuss cutting-edge water resource research and project case studies from all over the country and the world. In addition to offering a broad range of technical, social, and legal topics, a number of sessions will focus on current topics, including infrastructure asset management, water (homeland) security, watershed management, dam rehabilitation or removal, drought and flood management, and ecological restoration of wetlands and stream corridors. To learn more, contact *Patricia Reid, AWRA, PO Box 1626, Middleburg, VA 20118; (540) 687-8390; e-mail: pat@awra.org; www.awra.org/meetings/Baltimore2006/.*

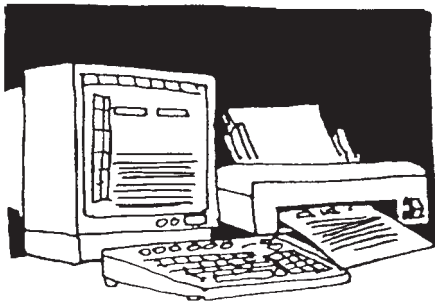
6th Asian Seismological Commission General Assembly/Symposium on Earthquake and Tsunami Disaster Preparedness and Mitigation. **Bangkok, Thailand: November 7-10, 2006.** This event will focus on increasing understanding of the physical processes of the 2004 Indian Ocean earthquake/tsunami, sharing scientific knowledge and technology, strengthening multidisciplinary cooperation in the field of earthquake/tsunami preparedness and mitigation policy, and enhancing the observation networks and data exchanges in the Asia Pacific and Indian Ocean regions. To learn more, contact the *Local Organizing Committee, Thai Meteorological Department, 4353 Sukhumvit Road, Bang Na, Bangkok 10260, Thailand; e-mail: asc2006_loc@tmd.go.th; http://asc1996.net/firms.com/asc2006/.*

International Association of Emergency Managers (IAEM) 2006 Annual Conference and Emergency Management and Homeland Security Expo. **Orlando, Florida: November 12-15, 2006.** The theme of this year's conference is "Going All the Way . . . Putting Plans into Action." Its purpose is to provide a forum for sharing current trends, topics, and the latest tools and technology in emergency management and homeland security and to advance IAEM's committee work. Sessions encourage stakeholders at all levels of government, the private sector, public health, and related professions to exchange ideas on collaborating to protect lives and property from disaster. To learn more, contact *IAEM, 201 Park Washington Court, Falls Church, VA, 22046; (703) 538-1795; e-mail: info@iaem.com; www.iaem.com/events/annual/intro.htm.*

3rd International Fire Ecology and Management Congress. Host: Association for Fire Ecology. **San Diego, California: November 13-17, 2006.** This meeting will provide an opportunity for fire and land managers, scientists, resource professionals, agency administrators, local government representatives, consultants, university staff, students, and the concerned public to learn from specialists and each other about the science and technology related to wildland fire management. Topics will include fire effects on vegetation and wildlife, fire in a landscape context, fuels management, postfire rehabilitation, and the latest technology for predicting and monitoring fire. An exhibit will showcase new products, technology, and tools. To learn more, contact *Detlef Decker, Washington State University Extension, 305 Hulbert Hall, PO Box 646230, Pullman, WA 99164-6230; (509) 335-2811; e-mail: ddecker@wsu.edu; http://emmps.wsu.edu/firecongress/.*

Fire Related Research and Developments: Annual Conference at the Fire Service College. **Moreton-in-Marsh, United Kingdom: November 15-16, 2006.** This conference will include participants from across the emergency services, the fire industry, research communities, and other private and/or public organizations interested in the latest fire-related issues, developments, and concerns. A broad range of backgrounds and professional approaches, including technical, engineering, legal, social, psychological, economic, operational, as well as national and international perspectives, will be represented. To learn more, contact *Anne Eyre, Trauma Training, PO Box 2590, Leamington Spa, Warks CV31 1GQ, UK; +01926 427939; e-mail: anne.eyre@traumatraining.com; www.fireservicecollege.ac.uk/Conferences+and+Events/Research+Event/.*

2006 IBHS Annual Conference on Property Loss Reduction. Organizer: Institute of Business & Home Safety (IBHS). **Lake Buena Vista, Florida: November 16-17, 2006.** This annual congress on property loss reduction brings together professionals in the insurance industry, emergency management, government agencies, and academic institutions to discuss the latest developments in natural hazards mitigation. To learn more, contact the *IBHS, 4775 East Fowler Avenue, Tampa, FL 33617; (813) 286-3400; e-mail: info@ibhs.org; www.ibhs.org/congress/.*



INTERNET PAGES

Below are new or updated Internet resources that Natural Hazards Center staff members have found to be informative and useful. Other valuable resources can be found throughout this newsletter. For a more complete list, visit www.colorado.edu/hazards/resources/sites.html.

All Hazards

<http://gdacs.org/>

The Global Disaster Alert and Coordination System (GDACS), a joint initiative of the United Nations and the European Commission, provides near real-time disaster alerts and tools to facilitate response coordination. The purpose of GDACS is to provide the international response community with a platform to ensure that alerts and information relevant to a disaster's response is exchanged interactively in a structured and predictable manner. GDACS will be activated when major natural, technological, or environmental disasters overwhelm a country's response capacity and international assistance is required.

<http://water.usgs.gov/wid/index-hazards.html>

The U.S. Geological Survey added the following fact sheets to their series on hazards: Volcano Hazards—A National Threat, Wildfire Hazards—A National Threat, Hurricane Hazards—A National Threat, Tsunami Hazards—A National Threat, Flood Hazards—A National Threat, and Landslide Hazards—A National Threat. Other fact sheets are also available.

www.worldwatch.org/features/disasters/overview/

The Worldwatch Institute has launched a two-year project addressing the intersections between natural disasters, environmental degradation, conflict, and peacemaking. The project will examine a variety of cases, including the situation in Indonesia and Sri Lanka after the 2004 Indian Ocean tsunami, Indo-Pakistani relations following the 2005 South Asia earthquake, and earthquake diplomacy between Turkey and Greece.

www.nap.edu/catalog/11593.html

This workshop summary distills the proceedings of the October 18, 2005, National Academies Disasters Roundtable: Law, Science, and Disaster. The workshop examined recent developments and trends in hazards and disaster law and its implementation and drew on the September 11 experience to discuss the related issue of victim compensation.

www.opencrs.com/rpts/RS22393_20060303.pdf

This Congressional Research Service (CRS) report *State and Urban Area Homeland Security Plans and Exercises: Issues for the 109th Congress* addresses possible policy questions associated with homeland security plans and exercises, including how states and urban areas use federal funding to prepare for terrorist attacks and natural disasters.

www.christian-aid.org/indepth/512_dispreparedness/disaster%20preparedness.pdf

This briefing paper, "Don't Be Scared, Be Prepared: How Disaster Preparedness Can Save Lives and Money," from Christian Aid argues that there are inexpensive and effective ways for poor communities to reduce the impacts of disasters and that local community involvement in disaster risk reduction is necessary for success.

www.brookings.edu/comm/policybriefs/pb150.htm

Preparing for Future "Katrinas" is the title of this policy brief from the Brookings Institute that proposes the establishment of an independent federal office to operate a catastrophic reinsurance program, calling for the federal government to formally acknowledge and implement what it already has become: an insurer of last resort for catastrophes.

www.disasterreductiongateway.org/

An initiative of the Benfield Hazard Research Centre, Disaster Reduction Gateway promotes information sharing and cooperation among individuals with interests in natural disaster reduction. It includes links to Web sites of UK- and European-based organizations and individuals involved in disaster reduction as well as links to courses, conferences, publications, funders, and more.

www.heritage.org/Research/HomelandDefense/bg1923.cfm

The report *Learning from Disaster: The Role of Federalism and the Importance of Grassroots Response* from The Heritage Foundation discusses the role of the federal government and the role that nongovernmental organizations, private sector initiatives, and individual civic deeds play during extreme emergencies.

www.carma.com/research/CARMA%20Media%20Analysis%20-%20Western%20Media%20Coverage%20of%20Humanitarian%20Disasters.pdf

A new study by U.S.-based media analysts CARMA International surveyed media coverage from a sample of western countries of the 2004 Indian Ocean tsunami; Hurricane Katrina; the earthquake in Bam, Iran; Hurricane Stan; the ongoing conflict in Darfur, Africa; and the recent South Asia earthquake. It found that it is not human suffering but western self-interest that dictates how disasters are covered in the press.

www.isoifr.com/

This new Web site is the online home of the International Society of First Responders (ISOFR). The ISOFR is a trade association and professional resource center dedicated to the issues of training, education, best practices, and shared experiences facing first responders in their support of homeland security. The site features a training center, resource library, and more.

<http://viz.rsoe.hu/alertmap/woalert.php?lang=eng>

The National Association of Radio-Distress Signaling and Infocommunications, Havaría Emergency and Disaster Information Services in Budapest, Hungary, collects data on current natural and human-caused disasters around the world and provides the information on their Web site. A subscription-based e-mail alert and RSS feeds are also available.

http://trb.org/news/blurb_detail.asp?id=5206

“Evacuation Planning, Human Factors, and Traffic Engineering: Developing Systems for Training and Effective Response” is featured in the May-June 2005 issue of the Transportation Research Board’s *TR News*. The authors suggest that a real-time emergency planning system could generate evacuation routing and traffic management plans in response to accidents, terrorist attacks, or other catastrophic events that change the capacity or the topology of the road network and could serve as a training simulator for emergency planning.

www.protectingamerica.org/pdf/06pre301f.pdf

ProtectingAmerica.org released these findings from a national survey that found that nearly half of all Americans feel personally vulnerable to a major natural catastrophe. The survey also found that 70 percent of respondents say the country is still not prepared to deal with catastrophe and that they support congressional action to reduce the financial and economic consequences of catastrophe.

Hurricanes, Floods, and Severe Weather

www.lra.louisiana.gov/

The Louisiana Recovery Authority (LRA) is the state planning and coordinating body that is implementing the governor’s vision for the recovery of Louisiana following Hurricane Katrina. This Web site provides information on the task forces and recovery teams established by the LRA and the priorities for short- and long-term recovery needs.

www.governorscommission.com/

The Mississippi Governor’s Commission on Recovery, Rebuilding, and Renewal was formed shortly after Hurricane Katrina to develop a broad vision for a better Gulf Coast and South Mississippi. The commission focuses on giving local leaders access to ideas and information that will help them decide what their region will look like in the future. The Web site also features the commission’s report *After Katrina: Building Back Better* and *A Pattern Book for Gulf Coast Neighborhoods*.

www.governor.state.tx.us/divisions/press/files/EvacuationTaskForceReport.pdf

“Task Force on Evacuation, Transportation and Logistics: Final Report to the Governor” describes the work of a task force appointed by the Texas governor to document lessons learned from the Hurricane Rita evacuation and to make recommendations on how to improve evacuation plans and execution in future emergencies.

www.nap.edu/catalog/11591.html

“Structural Performance of the New Orleans Hurricane Protection System During Hurricane Katrina: Letter Report” is the first report from the Committee on New Orleans Regional Hurricane Protection Projects, which was formed by the National Academy of Engineering and the National Research Council. It represents the committee’s observations of the efforts of the Interagency Performance Evaluation Task Force to provide credible and objective scientific and engineering answers regarding the performance of the New Orleans metropolitan hurricane protection system during and after Hurricane Katrina.

www.opencrs.com/rpts/RL33264_20060203.pdf

FEMA's Flood Hazard Map Modernization Initiative, a Congressional Research Service report, provides background information on the Federal Emergency Management Agency's (FEMA) flood map modernization initiative and discusses recent related concerns, such as the recognition of flood hazard studies needed after Hurricane Katrina, the completion of timely regular updates of digital flood insurance rate maps, and the fate of the initiative under the U.S. Department of Homeland Security.

www.nws.noaa.gov/om/severeweather/severewxcal.shtml

This calendar from the National Weather Service Office of Climate, Water, and Weather Services lists severe weather awareness events by state for 2006.

<http://et.mssl.ucl.ac.uk/>

Created by experts on (re)insurance, loss modeling, and extreme weather forecasting and tracking, EuroTempest is an interactive Web-based warning service for European windstorms that offers clear, real-time, advanced forecasts on the timing, route, and localized potential wind damage for windstorms out to five days ahead.

Wildfire

www.landfire.gov/

LANDFIRE is a five-year, multipartner wildland fire, ecosystem, and fuel mapping project designed to generate consistent, comprehensive maps and data describing vegetation, fire, and fuel characteristics across the United States. The primary partners in the project are the Nature Conservancy, U.S. Geological Survey, and U.S. Department of Agriculture Forest Service Fire Lab.

<http://fpc.state.gov/documents/organization/60721.pdf>

Forest Fire/Wildfire Protection from the Congressional Research Service discusses the factors contributing to wildfire risk, methods for fuel treatment, fire control funding and policies, and the roles and responsibilities of homeowners and local, state, and federal governments in reducing wildfire risk.

www.cafirealliance.org/

The California Fire Alliance provides an interagency forum for coordinating member agencies' efforts to implement wildland fire protection planning. Their Web site features grant resources, communications plans and tools, fire planning and mapping tools, and information on community wildfire protection plans.

Earthquakes

<http://pubs.usgs.gov/gip/2006/21/>

Earthquake Science Explained is a series of 10 short articles for students, teachers, and parents that were originally published as weekly features in the *San Francisco Chronicle*. The U.S. Geological Survey created the series to present new understandings gained and scientific advances made in the century since the 1906 San Francisco earthquake.

www.celebratingeqsafety.com/

The Structural Engineers Association of Northern California developed this site to commemorate the 100th anniversary of the 1906 San Francisco earthquake. The site contains information on why earthquakes happen, why some buildings fail during an earthquake while others do not, how structural engineers study earthquakes and develop new building codes and standards, and what individuals can do to protect themselves and their environment before, during, and after an earthquake.

<http://bancroft.berkeley.edu/collections/earthquakeandfire/>

This site is the portal for the 1906 San Francisco Earthquake and Fire Project organized by the Bancroft Library at the University of California, Berkeley. In preparation for the disaster's 100th anniversary, various California libraries and archives collaborated to digitize thousands of images and documents related to the event. Major features of the Web site include an online exhibit, an interactive map of San Francisco, and a 360-degree panoramic view of the devastated city.

Tsunamis

www.alnap.org/tec/

The Tsunami Evaluation Coalition (TEC) is an effort by aid agencies to improve humanitarian systems by learning from the response to the 2004 Indian Ocean tsunami. The TEC is working on five thematic evaluations: coordination; needs assessment; impact on local and national capacities; linking relief, rehabilitation, and development; and the international community's funding response, including an assessment of the role of the media. An initial report is available here.

www.undp.org/tsunami/UNDP-Tsunami-report-final.pdf

Survivors of the Tsunami: One Year Later provides a snapshot of the United Nations Development Programme's (UNDP) assistance to the 2004 Indian Ocean tsunami recovery and reconstruction efforts during the past year and provides examples of how the UNDP is helping survivors of the tsunami rebuild their lives.

www.cityofseaside.us/tsunamiinfo/

The City of Seaside, Oregon, has developed this tsunami education and information Web site to educate community members about the city's tsunami preparedness activities and to provide educational information, community and business resources, and other useful tools.

Climate Change and Drought

<http://drought.mssl.ucl.ac.uk/drought.html>

The Global Drought Monitor, an interactive site from the Benfield Hazard Research Centre, monitors drought intensity worldwide. It can be used to forewarn potential food, water, and health problems and improve awareness of droughts and their impacts.

www.pewclimate.org/global-warming-in-depth/all_reports/agenda_for_climate_action/

Agenda for Climate Action is the culmination of a two-year effort by the Pew Center on Global Climate Change to articulate a pragmatic course of action across all areas of the economy to reduce greenhouse gas emissions in the United States. It identifies broad and specific policies that combine recommendations on economy-wide mandatory emissions cuts, technology development, scientific research, energy supply, and adaptation with critical steps to be taken in key sectors.

www.linkingclimateadaptation.org/

The goal of the Linking Climate Adaptation Network is to provide an accessible, useful, and vibrant forum for the exchange of research, policy, and experiences related to climate adaptation. This Web site includes a climate adaptation topic guide, news and events, and moderated online discussions.

Health

www.nlm.nih.gov/medlineplus/naturaldisasters.html

www.nlm.nih.gov/medlineplus/copingwithdisasters.html

www.nlm.nih.gov/medlineplus/disasterpreparationandrecovery.html

These Web pages from MedlinePlus, a service of the U.S. National Library of Medicine and the National Institutes of Health, provide links to information on health-related issues pertaining to natural disasters, coping with disasters, and disaster preparation and recovery.

www.cdc.gov/phlp/

The Centers for Disease Control and Prevention Public Health Law Program has redesigned their Web site to improve its organization and make it easier to use. Some older materials have been deleted and many new ones, especially ones related to emergency legal preparedness, will continue to be added over the next few months.

www.bt.cdc.gov/disasters/hurricanes/satellitebroadcast.asp

Public Health Grand Rounds, a partnership project sponsored by the Centers for Disease Control and Prevention in collaboration with the University of North Carolina School of Public Health, aired "Learning from Katrina: Tough Lessons in Preparedness and Emergency Response," a program focused on the public health implications and vulnerabilities of disaster preparedness. The archived webcast is available here.

www.cdc.gov/mmwr/preview/mmwrhtml/mm5504a1.htm

The February 3, 2006, issue of the Centers for Disease Control and Prevention's **Morbidity and Mortality Weekly Report** featured "Assessment of Health-Related Needs After Tsunami and Earthquake—Three Districts, Aceh Province, Indonesia, July–August 2005." The report summarizes survey results of the health and nutrition status of tsunami-affected populations and evaluates the effectiveness of relief interventions seven months after the 2004 Indian Ocean tsunami.

www.cdc.gov/mmwr/PDF/wk/mm5509.pdf

The Centers for Disease Control and Prevention's **Morbidity and Mortality Weekly Report** highlighted the public health response to Hurricanes Katrina and Rita with two special issues. While the first issue focused on public health activities in Louisiana, the March 10, 2006, issue focuses on activities in other states, including Mississippi, Alabama, Texas, Florida, and Colorado, directly or indirectly affected by the two hurricanes.



CONTRACTS AND GRANTS

Below are descriptions of recently awarded contracts and grants related to hazards and disasters. An inventory of awards from 1995 to the present is available at www.colorado.edu/hazards/resources/grants/.

Disaster Vulnerability in Relation to Poverty in the Katrina Event: Reconnaissance Survey and Preliminary Analysis. Funding Institution: National Science Foundation, \$110,000, one year. Principal Investigators: *Andrew W. Smyth (Upmanu Lall and George Deodatis), Columbia University, Department of Civil Engineering and Engineering Mechanics, 610 SW Mudd Building, New York, NY 10027; (212) 854-3369; e-mail: smyth@civil.columbia.edu* and *Catherine Taylor, Tulane University, Department of Community Health Sciences, 1440 Canal Street, Suite 2301, New Orleans, LA 70112; (504) 988-5391; e-mail: ctaylor5@tulane.edu.*

This research will determine the vulnerability of the poorest sectors of New Orleans to Hurricane Katrina to identify interventions that might help or hinder the recovery process and suggest policies that will reduce risk exposure to future disasters. The researchers will analyze four systems and their interactions: the poor of New Orleans, the infrastructure in the parishes where they live, the financial and risk transfer tools available to them, and the natural resources that they use for their livelihoods.

Mapping and Analyzing Emergent Multiorganizational Networks in the Hurricane Katrina Response. Funding Institution: National Science Foundation, \$141,257, one year. Principal Investigators: *Carter T. Butts, University of California, Irvine, Department of Sociology, 2145 Social Science Plaza A, Irvine, CA 92697-5100; (949) 824-8591; e-mail: buttsc@uci.edu* and *Noshir S. Contractor (Feniosky Peña-Mora), University of Illinois at Urbana-Champaign, Department of Speech Communication, 244 Lincoln Hall, 702 South Wright Street, Urbana, IL 61801; (217) 333-7780; e-mail: nosh@uiuc.edu.*

As is typical in a disaster, the response to Hurricane Katrina involved multiple organizations with different roles and responsibilities. This project seeks to advance the understanding of interorganizational coordination in disaster response by analyzing the emergent multiorganization networks involved in the response to Katrina and by exploring the potential for real-time intervention in such networks. Using novel computational and statistical methods, the research will capture, validate, and integrate data from news reports, official documents, and other information sources (such as blogs) to produce estimates of interorganizational interaction over time. The data produced by this research will be useful for individuals studying the problems related

to the Katrina response, and the findings, tools, and methodologies derived from the research will be generalizable to future disaster response situations.

Adapting to Evacuation: Using Information Technology for Social Support. Funding Institution: National Science Foundation, \$99,684, one year. Principal Investigator(s): *Robert E. Kraut (Sara B. Kiesler), Carnegie Mellon University, School of Computer Science, NSH 3515, 5000 Forbes Avenue, Pittsburgh, PA 15213; (412) 268-7694; e-mail: robert.kraut@cmu.edu.*

This research will focus on how technology may have affected the exchange of help and support after involuntary relocation following Hurricane Katrina and in the search for family and friends lost in the evacuation. It will examine the coping mechanisms that displaced individuals employed to deal with the hurricane's aftermath and the technologies they found most useful. It will also look at how volunteers used technology and their ability to help those hurricane victims who did not have direct access to the Internet or cellular phones. The results should be useful to computer scientists interested in innovative uses of technology that worked and did not work in this disaster and to social scientists concerned with the processes underlying social support and disaster coping. It should also be of interest to policy makers who need information about the role played by information and communication technology in the disaster and where investments need to be made to alleviate the effects of future disasters.

Social Communication Networks for Early Warning in Disasters. Funding Institution: National Science Foundation, \$70,789, one year. Principal Investigator(s): *Malik Magdon-Ismael (Mark K. Goldberg and William A. Wallace), Rensselaer Polytechnic Institute, Computer Science Department, Lally 2nd Floor, 110 8th Street, Troy, NY 12180; (518) 276-4857; e-mail: magdon@rpi.edu.*

Technology alone cannot ensure that information is delivered to all users in a timely and meaningful fashion. How information flows through a society is intertwined with the social network dynamics of the society. The purpose of this project is to gather data on how the global communication network functioned during Hurricane Katrina in terms of its use by various social groups. The research aims to provide insights into how emergency warning messages can be propagated through the social network. It will start by

building an understanding of the nature of the communication network in New Orleans and the Gulf Coast and the nature of the social group structure that overlays this network.

Survey and Analysis of Decision Making in the Displaced Populations from Hurricane Katrina. Funding Institution: National Science Foundation, \$197,396, one year. Principal Investigator: *Kavita Patel, RAND Corporation, 1776 Main Street, Santa Monica, CA 90401; (310) 393-0411; e-mail: kavita_patel@rand.org.*

Funding for this project will allow for a follow-up survey of populations displaced by Hurricane Katrina. Survey questions will focus on decision making pertaining to repatriating or relocating to other communities. Information will be collected about safety and health, socioeconomic backgrounds, factors that influenced decisions during evacuation, and plans for employment and housing. The data will permit a descriptive and analytic examination of how decisions were influenced by factors such as income, religion, and education.

Perceived Risks and Willingness to Pay for Hurricane Protection. Funding Institution: National Science Foundation, \$96,638, one year. Principal Investigator(s): *W. Douglass Shaw (William Neilson, Richard Woodward, Mary Riddel, and Samuel Brody), Texas A&M University, Department of Agricultural Economics, TAMU 2124, College Station, TX 77843-2124; (979) 845-6322; e-mail: wdshaw@tamu.edu.*

A common problem for policy makers that want to support programs that mitigate risk is that people do not generally wish to pay for programs to reduce risks when the consequences of an event are not foremost in their thoughts. Although strong support for such programs is evident immediately after an event like a hurricane, support generally fades over time. This study will examine the nature of this eroding support by focusing on society's perception of risks.

Tracking Migratory Behavior of Hurricane Katrina Evacuees, Phase I: Sample Identification, Data Collection, and Analysis. Funding Institution: National Science Foundation, \$93,080, one year. Principal Investigator: *James Johnson Jr., University of North Carolina at Chapel Hill, Kenan-Flagler Business School, CB #3440, Chapel Hill, NC 27599-3440; (919) 962-2214; e-mail: JohnsonJ@Kenan-Flagler.unc.edu.*

Hurricane Katrina led to one of the largest urban evacuations in U.S. history, triggering a major, unplanned social experiment in the dynamics of contemporary urbanization and migration. To improve understanding of these dynamics, this project will survey a sample of evacuees from New Orleans to test hypotheses regarding migration networks and links between spatial and economic mobility. Results will provide new information on postdisaster migratory dynamics and assess how and to what extent these dynamics differ from existing understanding of migratory behavior in more routine times.

The Social Fabric under Stress. Baton Rouge's Explosive Growth after Hurricane Katrina. Funding Institution: National Science Foundation, \$59,942, one year. Principal Investigator(s): *Frederick Weil (Edward Shihadeh and Matthew Lee), Louisiana State University, Sociology Department, 17C Stubbs Hall, Baton Rouge, LA 70803; (225) 578-1140; e-mail: fweil@lsu.edu.*

Hurricanes Katrina and Rita displaced hundreds of thousands of people, many who evacuated to nearby cities and communities. Baton Rouge, Louisiana, received perhaps the largest share of evacuees relative to its population size (as many as a quarter of a million added to a population base of about 400,000). This study will investigate the strains on Baton Rouge's social fabric posed by this influx. Addressing central concerns of sociology, political science, and criminology, it will focus on the impact that social capital, community involvement, connections, and trust has on a range of outcomes, including trust or blame of authorities, public policy preferences, fear of crime, feelings of stress and/or optimism, attitudes toward the evacuees, and intergroup relations, especially race relations.

Psychological Functioning of Children in the Aftermath of Hurricane Katrina. Funding Institution: National Institute of Mental Health, \$175,375, two years. Principal Investigator: *Mary L. Kelley, Louisiana State University, Department of Psychology, 227 Audubon Hall, Louisiana State University, Baton Rouge, LA 70803; (225) 578-4113; e-mail: mkelley@lsu.edu.*

This study will examine the impact of Hurricane Katrina and the resulting displacement on youth mental health, social behavior, school adjustment, and family functioning. Potential protective and risk factors associated with the relation between displacement (as well as other hurricane exposure variables) and child adjustment will be investigated. The researcher anticipates that findings will be used to develop public education resources and materials that may be useful to families in the aftermath of disaster.

The Parent-Child Relationship and Children's Adjustment Post-Hurricane Katrina. Funding Institution: National Institute of Mental Health, \$74,346, two years. Principal Investigator: *Virginia Gil-Rivas, University of North Carolina at Charlotte, Department of Psychology, 9201 University City Boulevard, Charlotte, NC 28223-0001; (704) 687-4747; e-mail: vgilriva@email.uncc.edu.*

The long-range objectives of this study are to identify mechanisms by which children adjust in the aftermath of disaster and strategies for intervention to foster successful adaptation. A primary goal will be to further understanding of the role of the caregiver-child relationship in postdisaster adjustment.

A Planning Initiative for a Gulf Region Technology Education Project for Disaster Preparedness and Recovery. Funding Institution: National Science Foundation, \$61,842, one year. Principal Investigator(s): *Anna Faye Kelley-Winders (Jodi L. Harris and William Murray), Mississippi Gulf Coast Community College, Applied Technology and Development Center, 10298 Express Drive,*

Gulfport, MS 39503; (228) 897-4360; e-mail: annafaye.kelley@mgccc.edu.

This project is a cooperative planning initiative involving Mississippi Gulf Coast Community College, Jones County Junior College, Pearl River Community College, and Mississippi State University and their industrial partners to develop a model for an educational system to produce a technological workforce for disaster protection and response.

Disaster, Religion, and Mental Health in New York City. Funding Institution, National Institute of Mental Health, \$40,173. Principal Investigator: *Joshua Moses, The City University of New York*; e-mail: moses18@hotmail.com.

This ethnographic research will investigate reactions of religious leaders and mental health professionals to the attacks of September 11, 2001, and the ways in which novel organizations and professional hybrids have attempted to deal with perceived gaps in mental health services. By focusing on collaborations between clergy and mental health professionals, it will increase knowledge in two interconnected areas: theoretical issues concerning the consequences of extreme events on the relationship between mental health theories and religion and changing relationships be-

tween clergy and mental health professionals in New York City resulting from the attacks of September 11 and their relevance to the role of clergy in disaster mental health preparedness.

Search for an Indian Ocean Paleotsunami Record along the Andaman Coast, Thailand. Funding Institution: National Science Foundation, \$19,475, one year. Principal Investigator(s): *Brady Rhodes (Matthew Kirby), California State University, Fullerton, Department of Geological Sciences, 800 North State College, MH-341A, Fullerton, CA 92834-9480; (714) 278-2942; e-mail: brhodes@fullerton.edu*.

Prior to the 2004 Indian Ocean tsunami, there was no impetus for a tsunami warning system in the Indian Ocean partly because there are very few known records of previous tsunamis in the region. Efforts to understand the future tsunami hazard depend on knowledge of the prehistoric tsunami chronology. This project aims to verify the existence of paleotsunami deposits in coastal marshes of Phuket, Thailand, and provide a preliminary Holocene depositional chronology for the Andaman region to help dispel the myth that this was a one-time event and lend momentum to tsunami hazard preparation along the densely populated and rapidly developing Andaman coast.

NIH Announces Rapid Assessment Post-Impact of Disaster Grants

The U.S. Department of Health and Human Services National Institutes of Health (NIH) has issued a program announcement for Rapid Assessment Post-Impact of Disaster (RAPID) grants. The purpose of this program is to provide a rapid funding mechanism for research on the postimpact of disasters to permit access to a disaster area in the immediate aftermath of the event. Prompt assessment may be crucial to many kinds of mental health disaster studies, including those that focus on service seeking, on efficacy of outreach or prevention efforts, and on identifying high-risk victims on the basis of early response. The RAPID grants are designed to provide a limited sum of money for early assessment to investigators who intend to use the preliminary data from this initial effort as a basis for a subsequent full research application. Applications should be submitted within approximately six weeks of the identified disaster event. For the full announcement and information on application procedures, visit <http://grants.nih.gov/grants/guide/pa-files/PAR-06-253.html>.

FEMA's FY 2006 Repetitive Flood Claims Program

The Federal Emergency Management Agency's (FEMA) Repetitive Flood Claims (RFC) grant program provides funding to reduce or eliminate the long-term risk of flood damage to structures insured under the National Flood Insurance Program (NFIP) that have had one or more claim payments for flood damages. RFC funds may only be used to mitigate structures that are located within a state or community that cannot meet the requirements of the Flood Mitigation Assistance program because of reasons related to cost sharing or capacity to manage the activities. The long-term goal of the RFC is to reduce or eliminate claims under the NFIP through mitigation activities that are in the best interest of the National Flood Insurance Fund.

RFC grants are awarded nationally without reference to state allocations, quotas, or other formula-based allocation of funds. Congress has appropriated \$10 million for RFC grants for fiscal year (FY) 2006. Eligible mitigation activities are demolition or relocation of flood-prone structures where the property is deed restricted for open space uses in perpetuity and acquisition of properties.

Applications are due **June 30, 2006**. For more information, including how to apply, see the full announcement, which is available at www.fema.gov/government/grant/rfc_srl/. For questions about accessing the announcement, contact *Cecelia Rosenberg* at (202) 646-3321 or Cecelia.Rosenberg@dhs.gov.





RECENT PUBLICATIONS

Below are brief descriptions of some recent publications on hazards and disasters received by the Natural Hazards Center. Many of these publications are available through local and online booksellers, but information on how to obtain copies directly is also provided.

All Hazards

Munich Re and Swiss Re have released their annual catastrophe reviews for 2005:

Topics Geo—Annual Review: Natural Catastrophes 2005. 2006. 56 pp. Free. Available from Münchener Rückversicherungs-Gesellschaft, Königstrasse 107, 80802 München, Germany; +49 (0) 89/3891 5291; www.munichre.com/publications/302-04772_en.pdf. (Supplements, maps, and a list of 2005's significant natural events are available online at www.munichre.com/.)

Natural Catastrophes and Man-Made Disasters in 2005: High Earthquake Casualties, New Dimension in Windstorm Losses. Aurelia Zanetti and Susanna Schwarz. *Sigma* No. 2/2006. 2006. 40 pp. Free. Available from Swiss Reinsurance Company, Economic Research and Consulting, Mythenquai 50/60, PO Box, 8022 Zurich, Switzerland; +41 43 285 2551; e-mail: sigma@swissre.com; www.swissre.com/sigma.

Natural Hazards: Earth's Processes as Hazards, Disasters, and Catastrophes. Edward A. Keller and Robert H. Blodgett. ISBN 0-13-030957-5. 2006. 432 pp. \$52.00. Available from Pearson Education, One Lake Street, Upper Saddle River, NJ 07458; (800) 922-0579; e-mail: he-csweb@pearsoned.com; www.prenhall.com/.

This college-level, nontechnical survey of Earth's surface processes that have direct impacts on humanity is designed to help instructors guide nonscience majors through these processes and their societal repercussions. Instructional resources include **Hazard City: Assignments in Applied Geology**, a CD-ROM that comes free with every text.

United States: Disaster Information Needs of Ethnic Minorities. OECD Studies in Risk Management. Reza Lahidji and Stephine Poston. 2006. 35 pp. Available free online from the Organisation for Economic Cooperation and Development (OECD); www.oecd.org/dataoecd/35/61/36099573.pdf.

This questionnaire is the result of a request by the U.S. Department of State to the OECD Secretariat to develop a self-assessment tool for the "disaster information needs of Native American tribes in the state of New Mexico and the Four-Corners region of the United States." The objective was to build a tool that the tribes could use to assess their exposure and vulnerability to hazards as well as their capabilities and needs for preventing, mitigating, and responding to disaster risks.

Telling the Tale of Disaster Resistance: A Guide to Capturing and Communicating the Story. 2001. 65 pp. Available free online from the Federal Emergency Management Agency at www.fema.gov/pdf/fima/telling_the_tale.pdf.

Across the United States, individuals, businesses, and communities are taking action to reduce or prevent future disaster damage. In many cases, these actions already have proven to be successful. In others, the test is yet to come. Either way, there is a story to tell. The challenge is to capture and promote these efforts in an interesting and effective way to motivate others to similarly protect themselves and their communities. This guide features examples of best practices and provides key considerations for successfully telling the tale of disaster

resistance—developing story leads, researching and documenting projects, creating a finished product, and promoting those projects.

Promoting Community Resilience in Disasters: The Role for Schools, Youth, and Families. Kevin R. Ronan and David M. Johnston. ISBN 0-387-23820-4. 2005. 210 pp. \$59.95. Available from Springer New York, 233 Spring Street, New York, NY 10013; (212) 460-1500; e-mail: service-ny@springer-sbm.com; www.springer.com/.

The premise of this book is that two of the groups most vulnerable to disaster are children and their family members. As such, this book is designed to assist those charged with helping these groups respond to and rebound from major traumas (e.g., school psychologists and counselors, emergency managers and planners, and mental health professionals). This book offers both clinicians and researchers guidance on hazards preparedness as well as early response and intervention practices. It emphasizes an evidence- and prevention-based approach that is geared toward readiness, response, and recovery phases of natural and human-caused disasters.

2005 Cost of Risk Survey. 2005. 27 pp. \$45.00. Available from the Public Entity Risk Institute (PERI), 11350 Random Hills Road, #210, Fairfax, VA 22030; (703) 352-1846; www.riskinstitute.org/.

Sponsored by PERI and the Public Risk Management Association, this survey was created to gather information about the property and casualty trends and practices of public entities during fiscal year 2004. The comprehensive survey report presents findings such as how the risk management budgets were spent, what cost-cutting measures were used most often, and liability, workers' compensation, and property costs as a percentage of total operating budget.

Hurricanes and Wind Storms

Hurricanes—More Intense, More Frequent, More Expensive: Insurance in a Time of Changing Risks. 2006. 44 pp. Free. Available from Münchener Rückversicherungs-Gesellschaft, Königstrasse 107, 80802 München, Germany; +49 (0) 89/3891 5291; www.munichre.com/publications/302-04891_en.pdf.

Munich Re and American Re released this publication in response to the many exceptional meteorological events and losses for the insurance industry in recent years. It calls for adjustments in the models that simulate hurricane risk in the North Atlantic and more consideration for secondary hazards associated with tropical cyclones, such as storm surge and inland flooding. It examines climate change, the 2004 and 2005 hurricane seasons, losses and underwriting aspects, and consequences for the insurance industry.

Divine Wind: The History and Science of Hurricanes. Kerry Emanuel. ISBN 0-19-514941-6. 2005. 296 pp. \$45.00. Available from Oxford University Press; (919) 677-0977, (800) 451-7556; www.oup.com/.

In this blend of history, science, and art, the author reveals how hurricanes and typhoons have literally altered human history. Interwoven with the scientific account are descriptions of some of the most important hurricanes in history and works of art and literature that relate to them, for example, the early seventeenth-century hurricane that likely inspired Shakespeare's *The Tempest* and led to the British colonization of Bermuda.

"Shelter from the Storm: Repairing the National Emergency Management System after Hurricane Katrina." The Annals of the American Academy of Political and Social Science. William L. Waugh, editor. ISSN 0002-7162. Vol. 604, No. 1, March 2006. 332 pp. \$34.00. Available from Sage Publications, 2455 Teller Road, Thousand Oaks, CA 91320; (805) 499-9774, (800) 818-7243; e-mail: journals@sagepub.com; http://ann.sagepub.com/.

The articles in this volume address some of the more serious issues raised by Hurricane Katrina. These include the responsibility of public officials to ensure that the system works, the president's role in disasters, disaster myths and erroneous assumptions that underlie current programs, emergent and prosocial behavior in disasters, individual and community vulnerabilities, sheltering and housing very large numbers of evacuees, physical and mental health impacts of disaster, the need to promote disaster resiliency to facilitate recovery, the need to mitigate hazards and ensure against losses, the need to develop national partnerships for recovery, and the need to work effectively within the federal system with its shared responsibility for homeland security and emergency management. A 45-page quick read synopsis is available free at www.aapss.org/uploads/Annals_v604_QRS.pdf.

Hurricane Katrina Task Force Subcommittee Report. 2006. 55 pp. Available free online from the American Bar Association (ABA) Standing Committee on Law and National Security, 740 15th Street NW, Washington, DC 20005; (202) 662-1035; www.abanet.org/natsec/security/scolns_hurricane_katrina_report_feb_2006_2.pdf.

In the wake of Hurricane Katrina, the ABA formed a task force to examine the legal authorities available to guide the preparation and response to a catastrophic incident, whether from terrorism, accidental, or natural causes. Chapter headings include Federalism and Constitutional Challenges; State, Local, and First Responder Issues; Posse Comitatus and Military Involvement; and Private Sector Integration. Conclusions and recommendations are offered to help guide legislators, regulators, and responders as they prepare for future catastrophes and emergencies.

The Repopulation of New Orleans After Hurricane Katrina. Kevin McCarthy, D.J. Peterson, Narayan Sastry, and Michael Pollard. ISBN 0-8330-3940-7. 2006. 60 pp. \$18.00. Available free online from the RAND Corporation, Customer Service, PO Box 2138, Santa Monica, CA 90407-2138; (310) 451-7002, (877) 584-8642; e-mail: order@rand.org; www.rand.org/pubs/technical_reports/TR369/.

In November 2005, New Orleans city leaders asked RAND to estimate the repopulation of the city in the aftermath of Hurricane Katrina. The Bring New Orleans Back Commission needed estimates of the city's population in the immediate and near-term future to guide the redevelopment planning process. A conceptual framework based on the costs and benefits of migration and on the role of social networks and physical constraints guided the estimates. With housing habitability as the key driver of the future population of New Orleans, the researchers concluded that the population of New Orleans will likely reach about 272,000 in September 2008—56 percent of the pre-Katrina population.

Come Hell or High Water: Hurricane Katrina and the Color of Disaster. Michael Eric Dyson. ISBN 0-465-01761-4. 2006. 258 pp. \$23.00. Available from Perseus Books Group, Customer Service Department, 2300 Chestnut Street, Suite 200, Philadelphia, PA 19103; (800) 371-1669; e-mail: perseus.orders@perseusbooks.com; www.perseusbooks.com/.

Combining interviews with survivors of Hurricane Katrina with his knowledge of black migrations and government policy, the author puts forth what he believes to be the disaster's true lesson: to be poor or black in today's ownership society is to be left behind. In calling for a change in the way the United States relates to the black and the poor, he explores the legacy of black suffering in America since slavery, ties its psychic scars to today's crisis, and critiques the way black people are framed in the national consciousness.

Lessons Learned: Hurricanes Katrina and Rita. 2006. 77 pp. Published by the Louisiana Office of Homeland Security and Emergency Preparedness (LOHSEP). Available free online from the Hurricane Katrina and Rita Clearinghouse; <http://katrina.lsu.edu/downloads/LOHSEP%20LESSONS%20LEARNED.pdf>.

This report concentrates on lessons learned in functional areas of LOHSEP tasked to provide support and aid to Louisiana citizens. Specifically, these lessons learned look at the emergency support

functions of command and control; emergency communications; procedures, planning, staffing, training, facility; logistics; and public information. In each area, accomplishments, concerns, and challenges are noted. This analysis also identifies strengths to be maintained and sustained, potential areas for further improvement, and recommendations for follow-up actions.

After Katrina: Building Back Better Than Ever. 2005. 190 pp. Available free online from the Governor's Commission on Recovery, Rebuilding, and Renewal (Mississippi); www.governorscommission.com/.

The product of three months of intensive research and public discussions, this report presents the Governor's Commission on Recovery, Rebuilding, and Renewal assessment of damage from Hurricane Katrina in Mississippi and their recommendations for restoring what was lost in a way that responds to the governor's charge to build back "better than ever."

Hurricane Katrina: Through the Eyes of Storm Chasers. Jim Reed and Mike Theiss. ISBN 1-56037-377-6. 2005. 96 pp. \$19.95. Available from Farcountry Press, PO Box 5630, Helena, MT 59604; (406) 444-5100, (800) 821-3874; www.farcountrypress.com/.

This photo book offers a glimpse into Hurricane Katrina and its devastating aftermath. The authors, an extreme-weather photographer and a storm-chaser/videographer, document the disaster at every stage, from preparation to evacuation to landfall and beyond. The compilation includes photographs of Louisiana, Mississippi, Alabama, and Florida. Before and after images demonstrate the power of the hurricane. Captions detailing personal stories and weather facts accompany the photographs.

Hurricane Charley, August 9-15, 2004. Service Assessment. 2006. 29 pp. Free. Available from the National Weather Service (NWS), Office of Climate, Water, and Weather Services, 1325 East-West Highway, Silver Spring, MD 20910; www.weather.gov/os/assessments/pdfs/Charley06.pdf.

Hurricane Charley was a small but powerful hurricane that caused 10 direct fatalities in the United States and an estimated \$14 billion in economic losses. This assessment evaluates the service of the NWS before and during Charley's landfall and provides recommendations, particularly in the areas of education and communications, to improve services in the future. It takes into consideration the affected audiences in the media and emergency management communities as well as the public.

Taking Shelter from the Storm: Building a Safe Room Inside Your House. FEMA 320. 2004. 34 pp. Free. Available from the Federal Emergency Management Agency (FEMA); (888) 565-3896; www.fema.gov/plan/prevent/saferoom/FEMA_320.shtm.

FEMA, in cooperation with the Wind Engineering Research Center of Texas Tech University, has developed designs for wind shelters that homeowners can build inside their houses. This booklet includes an introduction to wind hazards, a homeowner risk assessment worksheet, guidance for selecting a shelter location and design, and cost estimates. Detailed construction plans for builders and contractors are also available.

Tsunamis

West Coast Tsunami Warning, June 14, 2005. Service Assessment. 2005. 29 pp. Free. Available from the National Weather Service (NWS), Office of Climate, Water, and Weather Services, 1325 East-West Highway, Silver Spring, MD 20910; www.weather.gov/os/assessments/pdfs/WestCoastTsunamiFinal.pdf.

As the result of a June 2005 earthquake off the coast of California, a tsunami warning was issued by the West Coast and Alaska Tsunami Warning Center. Although a small tsunami was generated, it was determined to be nondestructive and the warning was cancelled. The warning prompted the successful evacuation of numerous coastal communities and beaches, created a large amount of public interest, and generated national media coverage; however, not all aspects of the warning system functioned properly. This assessment examines NWS operations and services and provides 19 recommendations for possible improvements in areas such as the systems used to disseminate information, the content of the messages, and the public response to the warning.

The Orphan Tsunami of 1700: Japanese Clues to a Parent Earthquake in North America. Brian F. Atwater, Musumi-Rokkaku Satoko, Satake Kenji, Tsuji Yoshinobu, Ueda Kazue, David K. Yamaguchi. ISBN 0-295-98535-6. 2005. 144 pp. \$24.95. Available from the University of Washington Press, PO Box 50096, Seattle, WA 98145-5096; (206) 543-8870, (800) 441-4115; e-mail: uwpond@u.washington.edu; www.washington.edu/uwpress/.

In 1700, a mysterious tsunami flooded fields and washed away houses in Japan. It arrived without the warning that a nearby earthquake usually provides. Samurai, merchants, and villagers recorded the event, but nearly three centuries would pass before discoveries in North America revealed the tsunami's source. This book, published with the U.S. Geological Society, tells the story of a historical catastrophe that now guides preparations for future earthquakes and tsunamis in the North Pacific through primary sources: Japanese documents and North American sediments and tree rings.

Wave of Destruction: The Stories of Four Families and History's Deadliest Tsunami. Erich Krauss. ISBN 1-59486-378-4. 2006. 256 pp. \$24.95. Published by Rodale, 33 East Minor Street, Emmaus, PA 18098; (610) 967-5171, (800) 914-9363; e-mail: info@rodale.com; www.rodalestore.com/.

This book tells the stories of four Thai families who escaped the 2004 Indian Ocean tsunami but not the horror that followed. It begins with a history of the village and the families and then depicts their experiences with the tsunami, from the arrival of the water to the hunt for the missing and the road to recovery.

Assessment of Capacity Building: Requirements for an Effective and Durable Tsunami Warning and Mitigation System in the Indian Ocean—Consolidated Report for 16 Countries Affected by the 26 December 2004 Tsunami. IOC/INF-1219. 2005. 195 pp. Available free online from the United Nations Educational, Scientific, and Cultural Organization (UNESCO); <http://ioc3.unesco.org/indotsunami/nationalassessments.htm>.

Between May and September 2005, national assessments of 16 countries in the Indian Ocean were conducted to identify capacity-building needs and support requirements for developing an Indian Ocean Tsunami Warning System. This report summarizes the results of the assessments conducted by UNESCO's Intergovernmental Oceanographic Commission, the United Nations International Strategy for Disaster Reduction, the World Meteorological Organization, and others.

Other Coastal Issues and Floods

Solutions to Coastal Disasters 2005. Louise Wallendorf, Lesley Ewing, Spencer Rogers, and Chris Jones, editors. ISBN 0-7844-0774-6. 2005. 832 pp. \$175. Available from the American Society of Civil Engineers, Book Orders, PO Box 79404, Baltimore, MD 21279-0404; (703) 295-2723, (800) 548-2723; e-mail: marketing@asce.org; www.asce.org/.

Eighty papers presented at the Solutions to Coastal Disasters 2005 conference make up this conference proceedings. They focus on the science and research tools, management procedures, and solutions that are explored and used during coastal disasters, primarily along the U.S. coastlines of the Atlantic Ocean and the Gulf of Mexico.

National Assessment of Shoreline Change: Part 2, Historical Shoreline Changes and Associated Coastal Land Loss along the U.S. Southeast Atlantic Coast. Robert A. Morton and Tara L. Miller. Open-File Report 2005-1401. 2005. 40 pp. Available free online from the U.S. Geological Survey (USGS); <http://coastal.er.usgs.gov/shoreline-change/>.

A principal purpose of this USGS shoreline change research is to develop a repeatable surveying methodology so that shorelines for the continental United States and portions of Hawaii and Alaska can be periodically and systematically updated in an internally consistent manner. This report summarizes historical changes in the U.S. Southeast Atlantic shoreline, both accretion and erosion, but emphasizes the erosion hazard because it impacts natural resources and the economy. A data catalog and Internet Map Server that complement the report are also available.

The National Flood Insurance Program's Market Penetration Rate: Estimates and Policy Implications. Lloyd Dixon, Noreen Clancy, Seth A. Seabury, and Adrian Overton. ISBN 0-8330-3908-3. 2006.

138 pp. Available free online from the RAND Corporation; www.rand.org/pubs/technical_reports/TR300/ and the Federal Emergency Management Agency (FEMA); www.fema.gov/pdf/nfip/market_pen.pdf.

FEMA is conducting a major evaluation of the goals and performance of the National Flood Insurance Program. This report contributes to the evaluation by developing more reliable estimates of the proportion of households that have flood insurance (the market penetration rate); identifying factors that determine the market penetration rate; and examining opportunities for, and the potential benefits of, increasing the market penetration rate. Among the findings: only about half of homeowners living in some of the most flood-prone areas of the United States buy federal flood insurance, leaving millions of families at risk for severe financial losses when floods strike.

Earthquakes and Volcanoes

Field Manual: Postearthquake Safety Evaluation of Buildings. Second Edition. ATC 20-1. 2005. 143 pp. \$24.00. Available from the Applied Technology Council, 201 Redwood Shores Parkway, Suite 240, Redwood City, CA 94065; (650) 595-1542; e-mail: atc@atcouncil.org; www.atcouncil.org/.

The procedures and guidelines provided in this manual are written specifically for volunteer structural engineers as well as building inspectors and structural engineers from city building departments and other regulatory agencies who would be required to make on-the-spot evaluations and decisions regarding the continued use and occupancy of damaged buildings. This edition includes updated rapid evaluation and detailed evaluation forms, new examples, a chapter on mobile homes and manufactured housing, guidance on aftershocks and entering damaged buildings, and resources available on the Internet pertaining to postearthquake safety evaluation.

After the Ruins, 1906 and 2006: Rephotographing the San Francisco Earthquake and Fire. Mark Klett. ISBN 0-520-24556-3. 2006. 134 pp. \$24.95. Available from the University of California Press, 2120 Berkeley Way, Berkeley, CA 94704; (510) 642-4247; e-mail: askucp@ucpress.edu; www.ucpress.edu/.

For this rephotography project, the photographer visited locations captured in 45 historic pictures taken in the days following the 1906 earthquake and fires and duplicated each image's vantage point. Accompanying the photographs are essays by Philip Fradkin and Rebecca Solnit.

The Man Who Predicts Earthquakes: Jim Berkland, Maverick Geologist; How His Quake Warnings Can Save Lives. Cal Orey. ISBN 1-59181-036-1. 2005. 270 pp. \$16.95. Available from Sentient Publications, Order Department, PO Box 6071, Boulder, CO 80306; (303) 443-2188, (866) 588-9846; www.sentientpublications.com/.

Jim Berkland is a California geologist who predicted the Loma Prieta earthquake as well as at least six other significant earthquakes around the world. This book looks at his theories on earthquake prediction, theories which are based on tides, moons, geyser activity, magnetic-field changes, and strange animal behavior. Additionally, it includes stories of earthquake survivors, details about seismic activity in earthquake prone regions, tales of earthquake cover-ups, and future weather and earthquake predictions.

Living Mountains: How and Why Volcanoes Erupt. Jacques Kornprobst and Christine Laverne. ISBN 0-87842-513-6. 2006. 112 pp. \$18.00. Available from Mountain Press Publishing Company, PO Box 2399, Missoula, MT 59806; (406) 728-1900, (800) 234-5308; www.mountain-press.com/.

All aspects of vulcanology are explored in this general audience book. The authors use text and watercolor renderings to explain the workings of subduction zones and seafloor spreading, how different lavas form through the partial melting of the earth's rocks, and why some volcanoes react differently than others. They also describe recent progress in the methods of volcanic surveillance and prediction.

Climate Change

Surviving Climate Change in Small Islands: A Guidebook. Emma L. Tompkins, Sophie A. Nicholson-Cole, Lisa-Ann Hurlston, Emily Boyd, Gina Brooks Hodge, Judi Clarke, Gerard Gray, Neville Trotz, and Lynda Varlack. 2005. 132 pp. Free. Available from the Publica-

tions Secretary, Tyndall Centre for Climate Change Research, School of Environmental Sciences, University of East Anglia, Norwich NR4 7TJ, UK; +44 (0) 1603 593900; www.tyndall.ac.uk/publications/surviving.pdf.

This guidebook was inspired by a collaborative project between the Tyndall Centre for Climate Change Research and the Cayman Islands' Government Department of Environment, which later developed into a UK Overseas Territories capacity-building project. The first section examines the reasons for concern about climate change. The following sections explore understanding climate change risks, assessing vulnerability, and structuring, developing, and implementing a climate change adaptation strategy.

Availability and Affordability of Insurance under Climate Change: A Growing Challenge for the U.S. Evan Mills, Richard J. Roth Jr., and Eugene Lecomte. 2005. 50 pp. Available free online from Ceres, 99 Chauncy Street, Boston, MA 02111; (617) 247-0700; www.ceres.org/pub/docs/Ceres_insure_climatechange_120105.pdf.

This paper was authored by a scientist, an insurance actuary and former regulator, and an insurance veteran. It explores the insurability of risks related to extreme weather events and climate change and ways in which insurance affordability and availability could be adversely impacted in the United States in the coming years. It includes examples where affordability and availability of insurance are already at risk from rising weather-related losses and how future financial exposure for insurers, governments, businesses, and consumers could worsen if current climate and business trends continue.

Field Notes from a Catastrophe: Man, Nature, and Climate Change. Elizabeth Kolbert. ISBN 1-5969-1-125-5. 2006. 192 pp. \$22.95. Published by Bloomsbury Publishing; www.bloomsburyusa.com/. Available from local and online booksellers.

In this look at global warming, an experienced journalist aims to convey the reality of the problem as vividly as possible. She does so by reporting on her interviews with researchers and environmentalists, explaining climate science and studies, drawing parallels to lost ancient civilizations, unraveling the politics, and presenting the personal tales of people who make their homes near the poles and are watching their worlds disappear. This book grew out of three articles written for the *New Yorker* magazine in spring 2005.

Technological Disasters

Engineering Catastrophes: Causes and Effects of Major Accidents. John Lancaster. Third Edition. ISBN 1-84569-016-8. 2005. 288 pp. \$199.95. Available from CRC Press, 6000 Broken Sound Parkway NW, Suite 300, Boca Raton, FL 33487; (561) 994-0555, (800) 272-7737; e-mail: orders@crcpress.com; www.crcpress.com/.

The records of accidents in industry and transport are of great importance. They indicate trends in the incidence of loss or casualties and provide a measure of human behavior. The third edition of this book places emphasis on the human factor. The first two chapters provide a method of analyzing the records of accident and all-cause mortality rates to show their relationship with levels of economic development and growth rates and to make suggestions as to how such processes may be linked. Case histories are included to show how human frailty, the unexpected weakness of materials, or a combination of both can lead to dire and tragic consequences.

Homeland Security

The McGraw-Hill Homeland Security Handbook. David G. Kamien, editor. ISBN 0-07-144665-6. 2006. 972 pp. \$99.95. Available from McGraw-Hill, Order Services, PO Box 182604, Columbus, OH 43272-3031; (609) 426-5793; (877) 833-5524; e-mail: pbg.ecommerce_custserv@mcgraw-hill.com; www.books.mcgraw-hill.com/.

This handbook provides government officials, corporate risk and security executives, first responders, university students, and homeland security and emergency preparedness professionals with an overview of critical homeland security issues for the United States. It features analyses, insights, and practical recommendations from frontline security experts on topics such as terrorist tactics; intra-government coordination of information; risk management, perception, and communication; emergency management, public health, and medical preparedness; securing critical infrastructure; and the role of the private sector.

New Resource on Gender and Disaster

What is the link between gender equality and disaster risk? What lessons have been learned in the field and through scientific study? How can this knowledge be applied in practice to reduce risk and respond equitably to disaster events? The *Gender and Disaster Sourcebook* is an electronic compilation of international resources on policy, practice, and research designed to help answer these questions and address gender concerns in disaster risk reduction. Developed by an international writing team, the sourcebook was supported by the Public Entity Risk Institute and the Pacific Disaster Center of the East-West Center. The sourcebook is available on the Gender and Disaster Network Web site at www.gdnonline.org/. Readers are invited to submit additional resources from their region and sector as they become available.

Civil Care and Security Studies. Rod Gerber and John Salter, editors. ISBN 0-90824-62-2. 2005. 434 pp. Au\$60.00. Available from Kardoorair Press, PO Box 478, Armidale NSW 2350, Australia; e-mail: orders@kardoorair.com.au; www.kardoorair.com.au/.

Key themes in the study of civil care and security are the focus of this publication. Since many of the current themes do not restrict themselves to national boundaries, and many lessons, models, and proposed approaches have significant transfer potential, this book uses a global perspective. Presented in five sections, it offers an overview of civil care and security followed by discussions on assessment and analysis, planning, response and operations management, and recovery and postimpact.

GAO Reports

The Government Accountability Office (GAO) reports provide background information and insight into key issues and concerns of the U.S. Congress. The office frequently publishes studies regarding hazards and disaster policy. Some recent GAO reports and testimonies that might interest *Observer* readers are listed below and are available at www.gao.gov/. Printed copies are also available. The first copy is free. Additional copies are \$2.00 each. To order, contact the GAO, 441 G Street NW, Room LM, Washington, DC 20548; (202) 512-6000; TDD: (202) 512-2537; www.gao.gov/cgi-bin/oratab.pl.

Expedited Assistance for Victims of Hurricanes Katrina and Rita: FEMA's Control Weaknesses Exposed the Government to Significant Fraud and Abuse. GAO-06-403T. 2006. 30 pp.

Agency Management of Contractors Responding to Hurricanes Katrina and Rita. GAO-06-461R. 2006. 8 pp.

Hurricane Katrina: Status of the Health Care System in New Orleans and Difficult Decisions Related to Efforts to Rebuild It Approximately 6 Months After Hurricane Katrina. GAO-06-576R. 2006. 15 pp.

Disaster Preparedness: Preliminary Observations on the Evacuation of Hospitals and Nursing Homes Due to Hurricanes. GAO-06-443R. 2006. 24 pp.

Emergency Preparedness and Response: Some Issues and Challenges Associated with Major Emergency Incidents. GAO-06-467T. 2006. 22 pp.

Homeland Security: DHS Is Taking Steps to Enhance Security at Chemical Facilities, but Additional Authority Is Needed. GAO-06-150. 2006. 86 pp.

September 11: Monitoring of World Trade Center Health Effects Has Progressed, but Program for Federal Responders Lags Behind. GAO-06-481T. 2006. 34 pp.

The Natural Hazards Center

The mission of the Natural Hazards Center at the University of Colorado at Boulder is to advance and communicate knowledge on hazard mitigation and disaster preparedness, response, and recovery. Using an all-hazards and interdisciplinary framework, the Center fosters information sharing and integration of activities among researchers, practitioners, and policy makers from around the world; supports and conducts research; and provides educational opportunities for the next generation of hazards scholars and professionals. The Natural Hazards Center is funded through a National Science Foundation grant and supplemented by contributions from a consortium of federal agencies and nonprofit organizations dedicated to reducing vulnerability to disasters. Please send information of potential interest to the Natural Hazards Center or the readers of this newsletter to the address below. The deadline for the next *Observer* is *May 24, 2006*.

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www.colorado.edu/hazards/

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- Change my address

(Return this page with your current address label)

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