Natural Hazards Observer

NATURAL HAZARDS CENTER

Volume XXXI • Number 1 September 2006

Hazards and Disasters Research
How Would the Past 40 Years Rate?

— an invited comment

How does one assess the significance of more than 40 years of social science research on hazards and disasters? Anyone who has recently submitted a research proposal to the National Science Foundation (NSF) knows that the proposal will be evaluated according to two criteria. The first criterion, "intellectual merit," refers to the quality of a proposal's theoretical foundation, research design, data collection and analysis, creativity, and scientific significance. The second criterion, "broader impacts," refers to the positive impacts the proposed project will have on education, underrepresented groups, the field of inquiry, and, perhaps most importantly, society. This led me to wonder, what type of rating—excellent, very good, good, fair, or poor—would the past 40 years of social science research receive based on these same two criteria?

Intellectual Merit: Very Good

The field of hazards and disasters research has matured, expanded, and become more sophisticated. In 1966, the entire body of social science research could be placed on a few shelves of a modest bookcase. Today, tens of thousands of studies have been conducted.

The field has become multidisciplinary. Forty years ago, the vast majority of work was produced by geographers and sociologists. Today, these individuals have been joined by anthropologists, economists, decision scientists, psychologists, political scientists, urban and regional planners, public health researchers, and others. In the past decade, truly collaborative, interdisciplinary research, in which social scientists are working alongside engineers and physical scientists, has blossomed.

The field has shifted in the past 20 years from an initial focus on emergency preparedness and response toward one that also values and incorporates studies of mitigation and recovery. And, it has become methodologically more sophisticated, utilizing tools such as geographic information systems (GIS) to conduct social vulnerability analyses and evacuation research.

Finally, although the field has improved its theoretical base, it still lacks theoretical integration. A stronger theoretical foundation might raise the evaluation from very good to excellent.

Broader Impacts: Good/Fair

The assessment of broader impacts is less positive. Before we examine the crux of the issue, I will note some areas of positive development over time. Educational impacts have been impressive, with more than one hundred degree and certificate programs now offered at both the undergraduate and graduate levels. These efforts and the NSF Enabling Projects have brought a new generation of researchers into the field. Also, the recent evolution of social vulnerability analysis holds great potential for increasing our understanding not only of the impact of disasters on various social groups and categories, but also of the role humans play in increasing our vulnerability to natural phenomena.

Despite these advances, the impacts of hazards and disasters research on society are the essence of our problem. Specifically, I am referring to issues associated with technology transfer and the utilization of research by practitioners. Researchers can have an impact in three areas: 1) the practice of hazards and emergency management, 2) the adoption of policies by decision makers, and 3) the conceptual frame or context within which hazards and disasters mitigation, preparedness, response, and recovery issues are examined.

Once again, there have been significant improvements in the diffusion of information over the decades. The Natural Hazards Center at the University of Colorado is doing an extraordinary job of linking the national research and practitioner communities through its publications, workshops, and networks. The Earthquake Engineering Research Institute integrates social scientists into its varied activities, including the Learning from Earthquakes program, and has worked for decades to influence policy and construction practices. A number of university centers work with state emergency officials on such issues as evacuation planning. Various federal efforts, such as the Federal Emergency Management Agency's Emergency Management Institute, Higher Education Program, and planning and mitigation guides work to educate and train professionals in science-based practice. The National Oceanic and Atmospheric Administration is working with social scientists to improve all hazards warning systems.

Indicative of these activities, improvements can be noted in such areas as warning, evacuation, emergency planning, structural and nonstructural mitigation, community recovery, and citizen training. Improved codes and construction practices have been adopted. Concepts such as an "all hazards approach" and "sustainable disaster mitigation and recovery" have become part of the thinking of policy makers and emergency managers.

However, much remains to be done. Shirley Laska's extraordinary vulnerability assessment of the impact of a major hurricane on New Orleans is one dramatic example of sound science receiving practitioner silence. Continuing failures in emergency response resulting from inadequate planning, the downgrading of mitigation on the hazards agenda, the determined march toward command and control models of emergency management, and the reemergence of old notions of social fragility and social chaos in the emergency period are just a few indicators that the adoption and impact of 40 years of research could be stronger.

Numerous barriers continue to exist for the diffusion of social science disaster research. Among them are 1) a failure to use key windows of opportunity to keep hazards on the political agenda, 2) limited resources in research budgets for information diffusion, 3) a lack of tangible incentives for users to adopt new practices, 4) opposition by those with a vested interest in the current practices, and 5) turnover among both researchers and practitioners.

However, two important barriers deserve special attention. First, we have known for about 20 years that a social interaction model for diffusing research and innovations is far superior to alternative approaches. The pioneering studies of Robert Yin and his colleagues found that the adoption and utilization of research findings by practitioners was significantly improved when researchers and potential users seriously engaged in interaction and collaboration on all phases of the research process. This approach goes beyond having an advisory panel associated with a research project. It involves researchers and practitioners collaborating on the definition of the problem, design of the study, development of data collection instruments, analysis of the data, and generation of policy and practice recommendations.

Unfortunately, with the notable exception of Thomas Drabek and a handful of other investigators, this approach is rarely utilized within the social science research communities. Drabek has had a significant impact on the emergency management profession through his interaction with practitioners in the field and his work with them on research projects.

Furthermore, some might suggest that social scientists might benefit from closely observing earthquake engineers, who seem to have greater success with technology transfer. Engineers, building officials, and construction firms work closely together, which may facilitate the adoption of new innovations. In addition, the engineering benefits of adoption are based on what appear to be factual, "concrete" results.

However, social scientists working with emergency management officials and land use planners face a different challenge. As noted by William Anderson of the National Academies, the product of social science investigations is less likely to be concrete and more likely to be of a conceptual, organizational, or "insight" nature. The benefits that may accrue from adoption are less easy

to document. Additionally, the adoption of social science findings is likely to become involved in the often rancorous political process.

The second barrier is that researchers and practitioners live in two different worlds that are incompatible with knowledge transfer. They are influenced by different cultures, reward systems, and expectations. Universities engage in outreach; however, they do not support and reward technology transfer in the social sciences as highly as theoretical knowledge generation. Within the practitioner community, often it is possible to observe the "dead hand of the past" on the throttle of organizational change. It is doubtful that significant change in these two competing cultures will occur. What is needed is a social infrastructure to link the two.

Moving Forward: Possible Linking Mechanisms

I propose three mechanisms for facilitating the adoption of research findings. First, as noted, it is critical that researchers design their research based on the social interaction model of diffusion and build adequate funds into their projects to support these efforts.

Second, there is a serious need for basic research into the process of knowledge dissemination in this field. Most of the research was done in the 1980s. Although the general topic of knowledge transfer has generated thousands of studies and competing models, research specifically focused on the transfer of knowledge regarding hazards and disasters is lacking.

Third, we need to construct a better system to span the research and practitioner communities. Although some institutions and consultants are working in this area, imagine a future in which the U.S. Department of Homeland Security adopts the U.S. Department of Agriculture's extension program. Each county would have a Hazards and Disasters Extension Office with agents charged with transferring research results and innovations to local emergency officials. Is this scenario likely? Probably not, but steps such as these must be made to ensure that our research results get to those who can best put them to use.

Conclusion

Improving the ratings for intellectual merit and broader impacts present different challenges. Intellectual merit can be improved by strengthening the theoretical bases of future research. This task falls to the research community. Improving broader impacts must be a collaborative endeavor involving researchers and practitioners in undertaking research modeled on the social interaction framework and in developing established linking mechanisms to bridge the chasm of technology transfer. Researchers and practitioners share the common goal of lessening the toll of hazards and disasters on society. It is now time for this shared value to drive collaborative efforts.

Dennis Wenger (wenger@archone.tamu.edu)
Hazard Reduction and Recovery Center
Texas A&M University

Center Products Get Makeovers

This September, longtime readers of the *Natural Hazards Observer* and frequent visitors to the Natural Hazards Center's Web site will notice some profound changes in how these products look and feel. Both of the Center's principal avenues of information dissemination have undergone a facelift and minor reorganization.

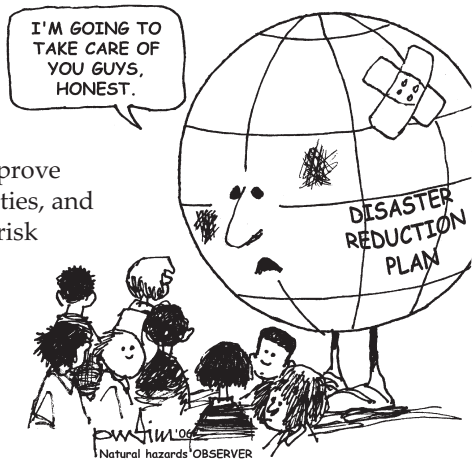
Traditional features in the *Observer* such as the Invited Comment, On the Line, and most of the other major sections will remain the same, while a few resource sections will be slightly reorganized. Additionally, a splash of color and some new design elements have been incorporated to modernize the publication and make it easier to use.

A complete redesign of the Web site is expected to achieve two mutually supporting goals: improve user navigation and searchability of the site and reorganize the resources to better reflect recent changes in the hazards and disasters community. The redesign is expected to go live in late summer 2006. Watch for the upcoming transformation on a computer near you at www.colorado.edu/hazards/.

Disaster Risk Reduction Begins at School

On June 15, the United Nations International Strategy for Disaster Reduction (ISDR) and its partners launched its 2006-2007 World Disaster Reduction Campaign: "Disaster Risk Reduction Begins at School." With the premise that more needs to be done to protect children from disasters, the campaign has two main objectives: promote disaster reduction education in school curricula and improve school safety. The campaign aims to inform and mobilize governments, communities, and individuals to fully integrate disaster risk reduction into school curricula in high risk countries and to build or retrofit school buildings to withstand natural hazards.

Key partners include the United Nations Educational, Scientific and Cultural Organization (UNESCO); United Nations Children's Fund (UNICEF); ActionAid International, the International Federation of Red Cross and Red Crescent Societies; and the ISDR's thematic cluster on knowledge and education. For more information, including a press kit, case studies, a list of events, and online resources, visit www.unisdr.org/wdrc-2006-2007/.



Closing Comments: 2006 Annual Hazards Research and Applications Workshop

Editor's Note: *The following text represents the speech given by Kathleen Tierney, director of the Natural Hazards Center, at the conclusion of the Center's annual workshop in July 2006.*

In my opening remarks, I said that this is a workshop that not only permits but actually encourages controversy, disagreement, and argument. We certainly did get what we asked for this time around. Throughout the workshop sessions, there was a sense of passion, deep concern, and deep commitment to improving the way our society and the world manage complex problems associated with hazards, disasters, and risk. Perhaps this was because 2005 was marked by so much human suffering and physical destruction both here in the U.S. and around the world. But whatever the source, passion and concern literally radiated from many of our sessions. I was not able to be in all the sessions at the same time, but I do know that vigorous discussions took place and passionate views were expressed in some sessions I did attend, including those on urban evacuation, the media and disasters, and poverty and vulnerability. I also saw throughout these last two and a half days the manifestation of a healthy skepticism toward institutions that make overblown claims and struggle mightily to put a positive spin on what is essentially a steady stream of bad news concerning how this nation approaches the challenges associated with hazards and disasters.

Controversy, argument, passion, and skepticism are positive forces. We need them now more than ever. We need members of our community to be passionate about their research and practice activities, and we need them to be outspoken with their concerns and criticisms. In the session on disasters and the media, Lee Wilkins observed that with respect to making institutions accountable, the media have lately given up their watchdog role in favor of a more comfortable and lucrative lapdog role. Katrina may have begun to reverse that dangerous trend. As with the press, so too with each and every one of us. As comfortable as it may be to sit on the fence and to stay in the ivory tower, and as comfortable as it is to say, "Let others do it," it's time to take a stand.

I think that as outraged and appalled as we were following the 2005 hurricane season, when Katrina devastated the Gulf Region, many of us were at least able to hope that those terrible times constituted a teachable moment. As Dennis Mileti said in the Tuesday morning plenary, "If not now, when? How many more people have to die before basic lessons about disaster loss reduction are learned and institutionalized?" Yet here we stand, nearly one year after Katrina, numerous investigations and studies later, numerous recommendations later—and where is the genuine political will to protect lives and property from future extreme events? As one Washington sage once said, "Watch what we do, not what we say." And as we watch, what are we learning? That the nation is less safe than it was prior to the terrorist attacks of 2001, less safe than it was prior to Hurricane Katrina, and that the institutions responsible for ensuring our safety are in disarray. We face escalating threats from natural disasters as well as escalating threats from those wishing to commit willful acts of terrorism against our society; complex terrorist plots continue to succeed around the world—as we saw yesterday, tragically, in Mumbai—and in our highly mobile world, a flu pandemic may be impossible to contain. And how many people in this room believe the nation is ready to manage even one of these perils?

There are, of course, rays of hope. We learned, for example, that the president's budget in future years will make the reduction of disaster losses a budget priority, and we heard from our panel on grand challenges for disaster reduction that there is a framework in place for implementing the grand challenges plan, both through stepped-up research efforts and through outreach and education. But again, we must watch what develops and judge those efforts accordingly.

I want to end by going back to my closing remarks from the 2005 workshop. At the end of those remarks, I said the following:

> "What we as human societies have yet to understand—despite what Gilbert White has been telling us so consistently and for so long—is that nature doesn't care. It has no memory, it feels no sense of obligation to be patient with us. It operates according to its own laws, on its own time frame. Despite our tendency to anthropomorphize natural phenomena, nature does not care! And for that reason, *we* must care, and we must recognize that it is we who have to comply with nature's timetables, not the other way around…The bill has long since come due, and we will pay—not when it is convenient for us, but when nature's timetable exacts that toll."

Just weeks later, Katrina, Rita, and Wilma showed definitively that human societies are and always will be subject to nature's extremes. As Dennis Mileti taught us, over time, we have designed the disasters of the future. I would add that our nation is also busy helping to fashion the deadly terrorist attacks of the future. And ladies and gentlemen, the future is now.

Each summer, hazards researchers, professionals (federal, state, and local government officials and representatives from nonprofit organizations and private industry), and other interested individuals convene for the Natural Hazards Center's Annual Hazards Research and Applications Workshop. Participants debate, explore, and share information on a wide variety of issues. This year, sessions included discussions about recovery after Hurricane Katrina, grand challenges for disaster reduction, and the state of federal emergency management (among others).

Brief session summaries, abstracts of research presented, and descriptions of current participant projects and programs are available online at **www.colorado.edu/hazards/**.

2006 Mary Fran Myers Award Winner

The Gender and Disaster Network and the Natural Hazards Center are pleased to present the 2006 Mary Fran Myers Award to Maureen Fordham. Fordham, who is a senior lecturer in disaster management at the University of Northumbria in the United Kingdom, has a background in sociology of science and technology with a focus on ecology and environmental management. Her work has a special focus on women in disasters and disaster management, emphasizing their capacities and not just their vulnerabilities. Recently she has been focusing her work on children, females in particular, as active agents in disaster.

It was shortly after she began researching disasters in 1988 that she noticed a gap in the literature dealing with gender issues, especially in the context of the developed world. Since the early 90s, Fordham has been an advocate for gender and disaster research and was one of the founding members of the Gender and Disaster Network in 1997. Committed to the free exchange of knowledge and information, she has been involved with the design and management of a number of disaster-related Web sites, including the Gender and Disaster Network and Radix (Radical Interpretations of Disaster), and has served as the editor of the *International Journal of Mass Emergencies and Disasters*. Additionally, she is often invited to act as an advisor or participant in activities conducted by various divisions of the United Nations and other national, regional, and local governmental and nongovernmental organizations.

The Mary Fran Myers Award was established in 2002 to recognize individuals whose program-related activities, advocacy efforts, or research has had a lasting, positive impact on reducing hazards vulnerability for women and girls. Individuals whose work adds to the body of knowledge on gender and disasters, is significant for the theory and/or practice of gender and disasters, or has furthered opportunities for women to succeed in the hazards field are eligible to receive the award. Learn more about the Mary Fran Myers Award and previous award winners at www.colorado.edu/hazards/awards/myers-award.html.

Call for Quick Response Proposals

Each September, the Natural Hazards Center solicits proposals for the next round of Quick Response (QR) grants. These small grants are intended to enable social and behavioral science researchers from the United States to conduct short-term studies immediately following a disaster. Grants average between $1,000 and $3,500 and are intended to cover food, travel, and lodging expenses.

If, during the course of the next year, a disaster matching an applicant's preapproved proposal occurs, the grant is activated and the researcher is able to immediately travel to the site. Grantees are required to submit a report of their findings to be shared with the hazards community. Reports are published by the Natural Hazards Center and are available free online.

Proposals for natural, technological, and human-induced events are considered for funding. Physical science- and engineering-based proposals are not eligible. To learn more about the program and to find out how to apply, visit www.colorado.edu/hazards/research/qr/, or request a program announcement from Greg Guibert at (303) 492-2149 or greg.guibert@colorado.edu. The deadline for proposal submission is October 20, 2006. Only complete proposals that meet all of the criteria outlined in the 2007 announcement will be considered.

The Natural Hazards Center Goes to Washington

In June, the Center partnered with the Congressional Hazards Caucus and the American Sociological Association to host a congressional seminar on critical social issues in hazards facing the United States. For a standing room only audience of Capitol Hill staffers, federal agency representatives, and others, a panel of experts spoke about pressing post-Katrina hazards issues and answered questions on a variety of topics. Following an introduction from Dennis Wenger of the Hazards Reduction and Recovery Center at Texas A&M University, Center director Kathleen Tierney discussed the social issues that arose in the storm's response. The other featured speakers were Howard Kunreuther from the Risk Management and Decision Processes Center at the Wharton School of Business, who presented the pros and cons of comprehensive disaster insurance, and William Anderson of the National Academies of Science Natural Hazards Roundtable, who spoke about a forthcoming report by the National Research Council: *Facing Hazards and Disasters: Understanding Human Dimensions*.

The seminar is the latest effort by the Center to expand its educational and outreach efforts to new constituencies. Members of Congress and their staff are important partners in hazards mitigation efforts both within their own districts and for the entire nation. Through efforts such as this, the Center introduces more people to hazards and disasters research and literature and provides solid scientific information to important decision makers.

Call for Session Topics: 2007 Annual Hazards Research and Applications Workshop

The Center invites proposals for session topics for the 2007 Annual Hazards Research and Applications Workshop. Proposed topics will provide guidance to the Center as we plan and prepare the workshop's program. Session ideas may be modified, combined, or otherwise altered by the Center and submission of a topic does not guarantee inclusion on the program. Guidelines on how to submit suggestions and the submission form are available online at www.colorado.edu/hazards/. Please submit ideas by October 20, 2006, for consideration.

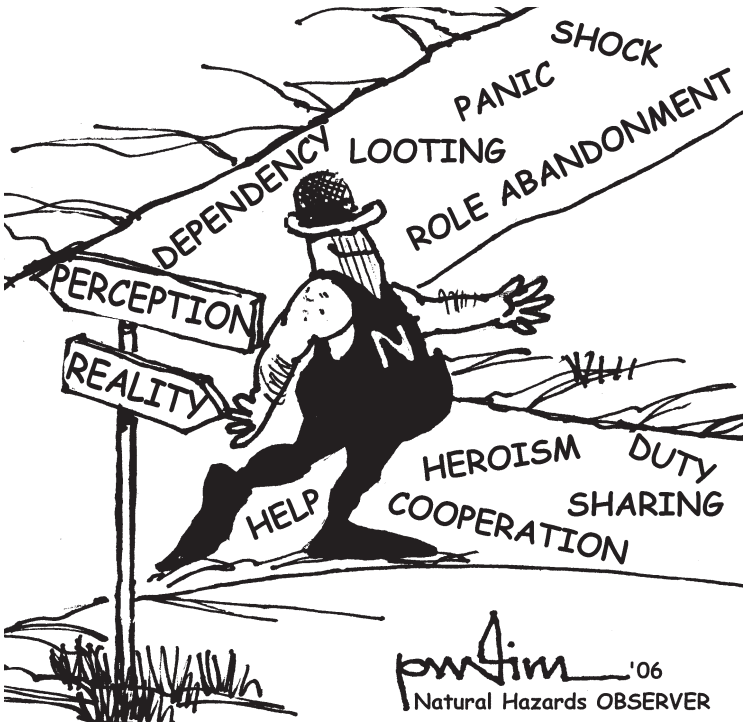
Editor's Note: *As recent events have demonstrated, the perpetuation of myths following a disaster is yet another by-product of ineffective planning, education, response, and reporting. To foster awareness and further discussion and action on the issue of disaster myths, the next six* Observers *will each feature an article related to disaster mythology.*

The article below represents the first in the series. It serves as a general introduction to the topic, explaining what disaster myths are and the implications for the acceptance of these myths as truth. The next four articles will address specific myths: panic, dead bodies and disease, looting, and role abandonment. A concluding article will focus on how disaster myths are perpetuated and what can be done to counteract them or avoid perpetuation altogether.

Disaster Myths and Their Implications for Disaster Planning and Response

Our perception determines reality for each of us. This perception of reality then forms the basis of our determined appropriate response. If, for example, we meet and you perceive that my extended hand is a friendly gesture, you may respond by grasping my hand and moving it up and down. If you perceive that my extended hand is a threat against your person, you may decide to respond with a fist, an expletive, or turn and run away. In other words, you take action based on what you believe to be real.

What I am describing is a basic sociological tenet that forms the basis of human interaction and social structure. For approximately half a century, disaster researchers have observed a persistent disconnect between the *perception* of certain disaster-related events and the *actual* events. The perceived reality for many citizens, mass media reporters, elected officials, and public policy makers, including many emergency management workers, has been that civil disorder and disease are among the most challenging and important issues they will confront and must prepare to mitigate in every disaster.



The reality for disaster researchers differs dramatically. They stress the importance of a much different set of issues related to disaster mitigation, planning, and response. A tale of two such divergent realities leads us to two paths. The first is the one most traveled: continue to base much of disaster preparation plans and response on the perception that civil unrest and disease are the primary issues to be mitigated. The second and least traveled: move away from the disaster mythology and mitigate demonstrable problems. I argue for the road less traveled.

Disaster Mythology and the Problem with Myth-Generated Planning

A disaster myth is a misperception that often directs the focus of government officials and responders away from the needs of victims and toward the combating of false realities. In the United States, in particular, belief in disaster mythology is very strong. The most prevalent myths are behavioral and organizational. Panic, evacuation misbehavior, disaster shock, emotional dependency, looting, price-gouging, and role abandonment are among the common perceptions of what constitutes reality in a disaster.

Often during disaster, death and injury rates are inflated, rumors of martial law spread like wildfire, and spontaneous volunteers and unwanted donations of goods flow to the scene based on the myth that anyone and anything can provide welcome relief. Another widely accepted myth is that dead bodies pose health risks for the living.

More specifically, fear of panic delays evacuation orders until evacuation is absolutely necessary, at which point a full and successful evacuation is no longer feasible. Rumors of looting hamper evacuation efforts and direct law enforcement personnel to protect property rather than save lives. Long-held beliefs about dead bodies and disease lead to mishandling of and disrespect for the dead and yet another shift in focus away from saving lives. And, unwelcome volunteers and donations result in resources that cannot be effectively managed or utilized and that often further complicate response efforts by introducing needs of their own.

Myths are perpetuated through the media, community leaders (governmental and nongovernmental), as well as through members of the general populace. The fear generated by these myths often trumps the fear of potential disaster impact realities, such as storm surge, flooding, chemical spills, and lack of electricity, food, and water. This perception leads to a very different disaster response than most researchers would recommend.

Katrina proved the power of hearsay. In the storm's aftermath, a great deal of media attention was given to describing rapes, murders, and other wild behavior in the New Orleans Superdome. Most of these atrocities did not occur. Those that did may be directly related to the herding of people into what they believed to be a shelter and then not providing them with adequate food, water, and other necessities. Media reports of the deviant behavior affected the response by shifting the focus of the response to responder safety and ultimately slowing the flow of help that was so desperately needed.

When myths are accepted as truth, precious time and resources are misdirected, populations become problems when they can really be assets, and the real problems of mitigation, planning, and response go unrecognized. Even when a myth is not accepted as truth, emergency workers may often hesitate to publicly refute it for fear of looking foolish or further hindering appropriate protective behavior. A city manager once told me that he knows looting is rare in a disaster. Nevertheless, to encourage his citizens to evacuate, he has to convince them that looting will be prevented.

Another challenge to myth busting is that when one myth becomes reality, e.g., looting in Hurricane Katrina, the perception is reinforced as a problem to be reckoned with in every disaster. Implications for this type of reaction are policies that reinforce the dangers mentioned above (e.g., militarization of disaster response). Ultimately, myth perpetuation means that unnecessary damage, injuries, and loss of life may be incurred.

Observations versus Perceptions

The perception that disasters automatically result in human depravity and disease is not supported by the evidence. Do some of the myths ever become reality? Yes. However, there are more important mitigation, planning, and response issues encountered in any disaster. Looting did occur in Katrina. While it was portrayed as deviant, much of it was found to be for food and water and other life supporting materials. A better organizational response would have eliminated the suffering that led to this behavior and its characterization. Also, thefts occur everyday and everywhere in nondisaster time. Perspective is needed. Life is more important than property.

In disaster time, the community of human beings does not normally break down. In sharp contrast with the image commonly perceived, survivors are not apathetic or panic-stricken. Looting behavior and price-gouging are exceedingly rare. Also, police and fire personnel usually stay on the job, putting the needs of victims and the duty they have sworn to uphold before their own personal needs, concerns, and safety.

In reality, an emergent norm process occurs that results in the adoption of those behavioral guides that subscribe to the belief, or value, that humans in trouble must be helped. Survivors share their tools, food, equipment, and, especially, their time. Groups of survivors tend to emerge to respond to each others' needs. They search for the injured and the dead, they provide support, and they begin clean-up activities. We need to incorporate the survivors, the would-be victims, as resources who participate in the response before and after impact: they are part of the solution, not the problem. Treating the public as the problem only makes things worse.

Conclusion

So we find that reality and popular perception usually diverge—so what? Emergency personnel, elected officials, the mass media, and citizens tend to plan for and respond to those events they anticipate encountering before, during, and after a disaster. If, as is commonly found, they plan to respond to myth, they will not be prepared to respond to reality. If we plan to focus on controlling deviant behavior, we are unprepared to effect a successful evacuation. Time, energy, and resources are then misdirected away from a focus on the timely transport of potable water, food, medical personnel, and other necessities. The result? Unnecessary suffering will likely be added to that already experienced by the victims and the responders.

Final Observation

If you perceive that I know what I am talking about on the subject at hand, you will probably embrace the message and seek to spread the word accordingly. On the other hand, if you perceive that I am yet another in a long line of eggheads who are detached from real world experience, then you are likely to ignore the word and reinforce what I claim to be myth. Doubters should ask themselves, how did the response to Hurricane Katrina work for us?

Henry W. Fischer III (Hank.Fischer@millersville.edu)
Center for Disaster Research & Education
Millersville University of Pennsylvania

Learn More

If you would like more information about disaster myths and behavioral and organizational mitigation, planning, and recovery challenges, search HazLit, the Natural Hazards Center's online library database, at www.colorado.edu/hazards/library/. Recommended authors to search include, but are not limited to, Claude de Ville de Goyet, Erik Auf der Heide, Thomas E. Drabek, Russell R. Dynes, Henry W. Fischer III, Dennis S. Mileti, David M. Neal, Brenda D. Phillips, E.L. Quarantelli, Kathleen J. Tierney, Tricia Wactendorf, and Dennis E. Wenger.

Washington Update

September Is National Preparedness Month

September 2006 marks the third annual National Preparedness Month, the nationwide effort to encourage Americans to prepare for emergencies in their homes, businesses, and schools. Throughout the month, the U.S. Department of Homeland Security will work with a wide variety of organizations, including local, state, and federal government agencies and the private sector, to highlight the importance of family emergency preparedness and promote individual involvement through events and activities across the nation.

These organizations will provide information, host events, and sponsor activities that disseminate emergency preparedness messages to, and encourage action in, their customers, members, employees, stakeholders, and communities across the country. Specifically, these activities will urge Americans to get emergency kits, make emergency plans, educate themselves about the threats to their communities, and get involved with their communities' preparedness efforts.

For more information about National Preparedness Month, including a calendar of events, visit www.ready.gov/america/npm/.

Executive Order: Public Alert and Warning System

In an Executive Order issued in late June, the president called for a strengthening of the nation's public alert and warning system to ensure that under all conditions the president can communicate with the American people. Specifically, the order charges the secretary of the U.S. Department of Homeland Security (DHS) with implementing an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people in situations of war, terrorist attack, natural disaster, or other hazards to public safety and well-being. This includes inventorying and evaluating current systems; establishing or adopting common alerting and warning protocols, standards, terminology, and operating procedures; ensuring the capability to adapt the distribution and content of communications; including the capability to alert and warn all Americans, including those with disabilities and non-English speakers; requiring training, tests, and exercises as well as public education efforts; working with the private sector and governmental authorities, including emergency response providers; and administering the Emergency Alert System (EAS). Heads of other departments and agencies are instructed to provide assistance and information to the secretary of DHS as pertains to the implementation of the order.

The secretary of DHS is required to submit to the president a plan for the implementation of this order, together with any recommendations he finds appropriate, by the end of September 2006. Executive Order 13407 is in the June 26, 2006, *Federal Register*, Vol. 71, No. 124, pp. 36975-36977, which can be found in any federal depository library and online at www.gpoaccess.gov/fr/, and at www.whitehouse.gov/news/releases/2006/06/20060626.html.

DHS Weighs In on Catastrophe Plans

The U.S. Department of Homeland Security (DHS) has issued results from its national assessment of the country's catastrophic planning capabilities. Responding to directives from the president and Congress following Hurricane Katrina, the *Nationwide Plan Review: Phase 2 Report* (174 pp.) examines whether existing emergency operations plans for states and urban areas are sufficient for managing a catastrophic event and presents conclusions on actions needed for improvement. These findings and conclusions will be addressed by a new National Preparedness Task Force.

Conducted in all 56 states and territories and 75 urban areas over six months, the review is the most comprehensive assessment of emergency operations plans to date relative to planning for a catastrophic event. The two-phase review began with self-assessments of key planning components (see the May 2006 *Observer*, p. 5) followed by peer reviews conducted by teams of former state and local homeland security and emergency man-

agement officials. Assessed as sufficient, partially sufficient, or not sufficient to manage a catastrophic event, the majority of components fell into the partially sufficient category.

While the review found that most areas of the country are prepared to handle standard disaster situations, all levels of government need to improve emergency operations plans for catastrophic events such as a major terrorist attack or category 5 hurricane. Several areas, including evacuation, attention to populations with special needs, command structure, and resource management, were noted as needing significant attention.

Download a copy of the report at www.dhs.gov/interweb/assetlibrary/Prep_NationwidePlanReview.pdf. The press release and two fact sheets, "Nationwide Plan Review" and "Nationwide Plan Review Initial Conclusions," are available at www.dhs.gov/dhspublic/display?content=5695.

NOAA Continues to Predict Above-Normal Hurricane Season

The peak of the 2006 Atlantic hurricane season has arrived and the National Oceanic and Atmospheric Administration (NOAA) is reiterating its prediction for an above-normal number of storms. Despite the slow start, NOAA's experts have projected a total of 12 to 15 named storms for the entire season, including 7 to 9 hurricanes, 3 to 4 of which may become major hurricanes (category 3 or higher). This forecast is slightly lower than the outlook issued in May (see the July 2006 *Observer*, p. 7), but remains above the seasonal average of 11 named storms, 6 hurricanes, and 2 major hurricanes. For the complete August update to the hurricane outlook, visit the National Weather Service Climate Prediction Center Web site at www.cpc.ncep.noaa.gov/products/outlooks/hurricane.shtml.

DHS Completes National Infrastructure Protection Plan

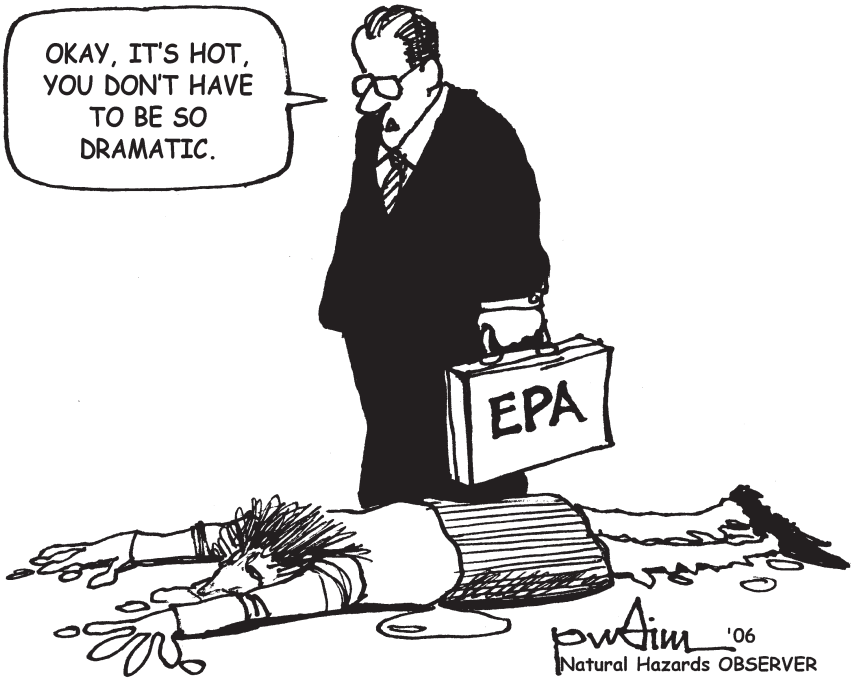
In June, the U.S. Department of Homeland Security (DHS) released the National Infrastructure Protection Plan (NIPP), a comprehensive risk management framework that clearly defines critical infrastructure protection roles and responsibilities for all levels of government, private industry, nongovernmental organizations, and tribal partners. The NIPP builds on the principles of the National Strategy for Homeland Security and its companion strategies for the physical protection of critical infrastructure and key assets and the securing of cyberspace. It also fulfills requirements in Homeland Security Presidential Directive 7 (HSPD-7) and the Homeland Security Act of 2002.

HSPD-7 identified 17 critical infrastructure and key resource sectors that require protection from a terrorist attack or other hazard event. Those sectors are agriculture and food; energy; public health and health care; banking and finance; drinking water and water treatment systems; information technology; telecommunications; postal and shipping; transportation systems, including mass transit, aviation, maritime, ground or surface, and rail and pipeline systems; chemical; commercial facilities; government facilities; emergency services; dams; nuclear reactors, materials, and waste; the defense industrial base; and national monuments and icons. Sector-specific plans that complement the NIPP and detail the risk management framework are in the works.

For more information about the plan or to get a copy (196 pp.), visit www.dhs.gov/nipp/ or e-mail NIPP@dhs.gov.

EPA Wants Americans to Beat the Heat

Excessive Heat Events Guidebook (60 pp.), released in June from the U.S. Environmental Protection Agency (EPA), is designed to help community officials, emergency managers, meteorologists, and others plan for and respond to excessive heat events. Developed with the National Oceanic and Atmospheric Administration, the Centers for Disease Control and Prevention, and the U.S. Department of Homeland Security, it highlights best practices that have been employed to save lives during excessive heat events in different urban areas and provides a menu of options that officials can use to respond to these events in their communities.



Download a copy at http://epa.gov/heatisland/about/heatguidebook.html. To request a free printed copy, call the National Service Center for Environmental Publications at (800) 490-9198. A two-page "guidebook in brief" offers summary information and useful tips for both the public and public officials that can be used when preparing for and responding to excessive heat and is available at http://epa.gov/heatisland/about/pdf/EHEguide-brief_final.pdf. Additional information from the EPA about extreme heat can be found at www.epa.gov/naturalevents/extremeheat.html.

NIST Reports on Performance of Structures in Hurricanes Katrina and Rita

A recent report from the National Institute of Standards and Technology (NIST) documents the findings of a multiorganizational team—coordinated by NIST and made up of experts from private-sector, academic, and federal entities—that deployed technical experts to areas impacted by Hurricanes Katrina and Rita to conduct a reconnaissance on the performance of a variety of physical structures during the storms. The reconnaissance was intended to identify new technical issues that need to be addressed in the rebuilding effort, in the improvement of building standards and model codes, and in future research studies and to build on knowledge gained from previous post-hurricane damage assessments. It found that stricter adherence to existing building standards, model building codes, and good building practices (and a greater recognition of the risks posed by storm surge) could minimize the kind of structural damage experienced in the Gulf Coast states last year.

Performance of Physical Structures in Hurricane Katrina and Hurricane Rita: A Reconnaissance Report (270 pp.) makes 23 recommendations for specific improvements in the way that buildings, physical infrastructure (such as bridges and utilities), and residential structures are designed, constructed, maintained, and operated in hurricane-prone regions. The recommendations make clear what actions can be taken immediately to lessen or prevent hurricane damage to structures and defines actions that will require more time and effort.

Find out more about the reconnaissance and access the report at www.nist.gov/public_affairs/releases/hurricane_report060906.htm.

FEMA Issues Two New Recovery Strategies

To improve the quality, speed, and accountability of federal disaster support to state and local partners, the Federal Emergency Management Agency (FEMA) has issued recovery strategies for mass-sheltering and housing assistance and debris removal operations. These new strategies reflect important lessons learned from Hurricane Katrina and outline a framework for guiding federal and state operational responses to presidentially declared emergencies and disasters.

The mass-sheltering and housing assistance strategy includes a protocol to dispatch field registration personnel and mobile registration intake centers to shelters to proactively seek out and register evacuees for FEMA assistance. It also addresses temporary housing in states outside the disaster area, evacuee return transportation options, transitional sheltering, and changes to how certain forms of financial assistance may be implemented and expedited. Access the strategy at www.fema.gov/pdf/media/2006/rs-2006-1.pdf.

The debris removal operations strategy summarizes key actions of the federal government and defines eligible private and public debris as it pertains to reimbursable removal; describes the circumstances under which the federal government will initially manage debris removal operations; reflects recent changes to equalize cost-share application; and establishes the roles, responsibilities, and expectations of federal, state, and local governments. A key component of the this strategy is the Debris Removal Contractor Registry (https://ci.hsin.gov/usp3_nerr/default.aspx), a nationwide registry that allows debris removal companies to list their capabilities and availability to help emergency managers establish debris removal contracts and agreements in advance of a disaster. Access the strategy at www.fema.gov/pdf/media/2006/rs-2006-2.pdf.

FEMA Addresses Reports of Fraud

In June, the Government Accountability Office (GAO) presented testimony to the U.S. House of Representatives Committee on Homeland Security Subcommittee on Investigations that approximately $1 billion in disaster relief payments made by the Federal Emergency Management Agency (FEMA) following Hurricanes Katrina and Rita through February 2006 were improper and potentially fraudulent. The testimony focused on payments to registrants who used invalid information to apply for disaster assistance and did not address other types of impropriety or potential fraud, such as insurance fraud and false damage claims.

In response, FEMA released a statement that acknowledged the problem and indicated that the agency has been aggressively overhauling its processes to eliminate processing errors and fraudulent abuse. New, more stringent controls and safeguards are in place for the 2006 hurricane season, including an upgraded Internet registration system that rejects duplicate registrations and identity proofing software that subjects all Individual and Households Program registrations to the same criteria (including verification of Social Security numbers).

A fact sheet, "Improving Safeguards in the Delivery of FEMA Assistance Programs," is available at www.fema.gov/pdf/media/2006/safeguards_fact_sheet.pdf, and a statement by FEMA's acting deputy director of recovery to the U.S. House of Representatives Committee on Homeland Security Subcommittee on Investigations can be accessed at www.fema.gov/pdf/media/2006/dannels_statement.pdf. To learn more about the findings of the GAO, read the report, *Hurricanes Katrina and Rita Disaster Relief: Improper and Individual Assistance Estimated to $1.4 Billion* (33 pp.), at www.gao.gov/new.items/d06844t.pdf.

Interim Rule Expands Boundaries for Sheltering and Evacuation Assistance

Hurricanes Katrina and Rita created a significant need for evacuation and sheltering outside of the counties and states that were initially designated eligible for assistance under presidential emergency or major disaster declarations. At the time, the federal government did not have a mechanism to provide assistance to those entities that provided evacuation and sheltering services outside the designated areas. As a result, the Federal Emergency Management Agency (FEMA) issued an interim rule that allows for reimbursement of sheltering and evacuation costs incurred outside of areas designated under presidential emergency or major disaster declarations if the costs are otherwise eligible for Public Assistance funding.

Effective July 14, 2006, the interim rule can be found in the July 14, 2006, *Federal Register*, Vol. 71, No. 135, pp. 40025-40027, which is available in any federal depository library and online at www.gpoaccess.gov/fr/. For more information, contact James A. Walke, FEMA; (202) 646-2751; james.walke@dhs.gov.

FTA Requests Comments on Emergency Procedures for Public Transportation Systems

The Federal Transit Administration (FTA) has issued a notice of proposed rulemaking to establish procedures for granting relief from federal transit administrative requirements (the FTA does not have the authority to waive statutory requirements) in times of emergencies. In the aftermath of Hurricanes Katrina and Rita, the FTA received numerous requests for relief from these requirements. The process to address requests was time consuming and delayed responses. The FTA now seeks to create a process to quickly and efficiently handle requests for relief by establishing an emergency relief docket within two business days of an emergency or disaster declaration that affects transit agencies.

To find out more about the proposed rulemaking and how to make comments, read the notice in the August 8, 2006, *Federal Register*, Vol. 71, No. 152, pp. 44957-44960, which is available in any federal depository library and online at www.gpoaccess.gov/fr/, and at www.fta.dot.gov/. Comments are due by October 10, 2006. For more information, contact Bonnie L. Graves, Legislation and Regulations Division, Office of Chief Counsel, FTA; (202) 366-4011; Bonnie.Graves@dot.gov.

NOAA Launches Online All Hazards Monitor

NOAAWatch, a Web site from the National Oceanic and Atmospheric Administration (NOAA), is a Web portal offering information about ongoing environmental events and explains NOAA's role in prediction, monitoring, and recovery. It integrates NOAA data, products, observations, satellite images, and more to provide public access to current information on a number of environmental threats, such as oil spills, hurricanes, tsunamis, and space weather, all on one site. Permanent features include the present weather outlook and warnings, satellite image of the day, and educational pages. NOAAWatch went live on June 1, the first day of the 2006 hurricane season. Visit the new site at www.noaawatch.gov/.

FCC Report Reviews Katrina's Impact on Communications

In June, the Federal Communications Commission (FCC) released the report *Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks: Report and Recommendations to the Federal Communications Commission* (53 pp.). The report is a study of the storm's impact on the telecommunications and media infrastructure in the affected areas and offers recommendations for improving disaster preparedness, network reliability, and communications among first responders.

The panel found three main problems that caused the majority of communications network interruptions: flooding; lack of power and/or fuel; and failure of redundant pathways for communications traffic. Significant impediments to the recovery effort were also noted.

Based on its observations, the panel made recommendations in four basic areas: Prepositioning the communications industry and the government to achieve greater network reliability and resiliency, improving recovery coordination to address existing shortcomings and to maximize the use of existing resources, improving the operability and interoperability of public safety and 911 communications in times of crisis, and improving communication of emergency information to the public.

Read the report at www.fcc.gov/eb/hkip/karrp.pdf.

New FEMA Course Targets PIOs

National Incident Management Systems (NIMS) Public Information Systems, IS-702, is a new independent study course offered by the Federal Emergency Management Agency (FEMA). The public information systems described in NIMS are designed to effectively manage public information at an incident, regardless of the size and complexity of the situation or the number of entities involved in the response. The goal of this course is to facilitate NIMS compliance by providing local and state public information officers (PIOs) with the basic information and tools they need to apply the NIMS public information systems and protocols during incident management. Find out more and take the class at www.training.fema.gov/EMIWeb/IS/IS702.asp.

Prepare for Recovery Now: Lessons from Katrina

In addition to the tragic loss of life, Hurricane Katrina will have staggering long-term economic, environmental, and social impacts on the Gulf Coast and surrounding communities. Already, these consequences are emerging, including a dissolution of the tax base, conflicts over the reconstruction of housing and cultural landmarks, and strained racial and socioeconomic relations.

The effects of this disaster have clearly demonstrated that mitigation and preparedness are vitally important for disaster recovery. As other disasters have done in the past, Katrina confirmed that practical investments in risk reduction, mitigation, and emergency planning are important tools for reducing the enormous burden disasters place on individuals, business owners, and all levels of government.

In the immediate aftermath of Katrina, I traveled to Louisiana, at the request of the governor, to assist with the state's response and recovery operations. The severity and magnitude of the storm and the formidable recovery process ahead are indisputable. I am impressed with the dedication and commitment shown in the past year by state and local officials in meeting citizens' immediate needs as well as in improving the emergency management system.

Before Katrina, very few states had programs in place that planned for long-term community recovery. This meant that after a disaster, important decisions with lasting effects were made with good intentions, but on an ad hoc basis. Unused trailers, expensive blue tarp contracts, and abandoned school buses serve as illustrations of the need for improved planning before an event. The experience of Louisiana communities has taught jurisdictions everywhere that the scope of emergency plans and exercises must be expanded to include a comprehensive system of preparedness, response, recovery, and mitigation for catastrophic disasters.

Hurricane Katrina revealed to Americans the vulnerabilities facing many of our largest and most vibrant communities. Perhaps most importantly, this revelation stimulated a national effort to mitigate damage from future disasters and prepare for events of similar magnitude. Already, cities and states across the country have begun to improve their preparedness efforts. As a result of Katrina, Philadelphia conducted a review of its planning and resources, New York City enhanced its hurricane plan so it will be more self-sufficient in a disaster, and California's Little Hoover Commission released a report on preparing the state for a catastrophic event. Now, one year after the devastating storm, we must consider what steps the nation must take to protect communities from a similar misfortune.

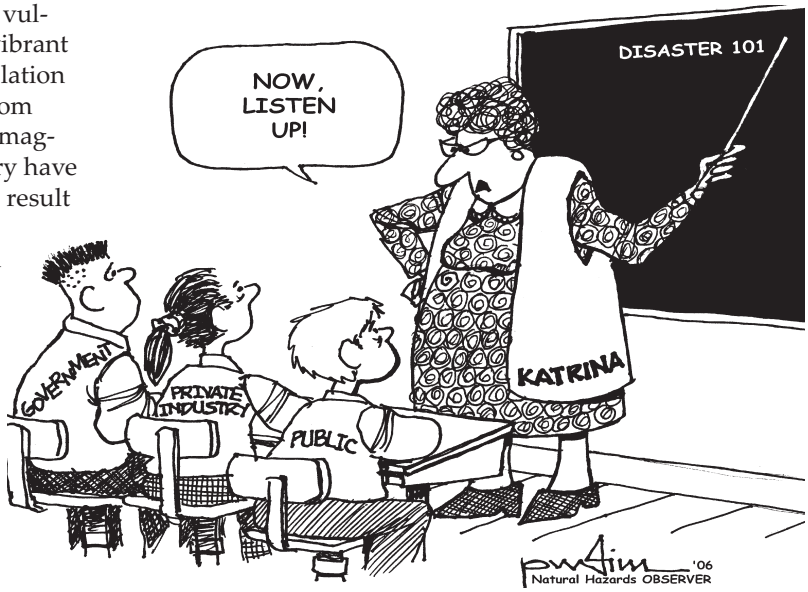
Discussion

Surge Capacity Planning—Effective disaster preparedness relies on the ability to anticipate the needs of displaced communities following a disaster. As we saw in Louisiana, a lack of planning for the mass care and sheltering of people and animals intensifies the impact caused by a disaster and creates new issues. Plans to shelter thousands of refugees in New Orleans' Superdome were inadequate, and, consequently, conditions there deteriorated quickly. In a mass casualty or catastrophic event in any city, we must seriously consider how to manage large numbers of displaced and injured people who will need medical care, shelter, and other assistance once evacuated.

As such, surge capacity plans should involve hospitals, schools, and other community organizations, especially when an emergency plan relies on the use of their facilities and equipment. Contingency plans should address what to do in the event a facility is not available, as was the case with Charity Hospital in New Orleans. Surge capacity plans should also be established for mutual aid: to shelter and care for victims from neighboring communities.

Mutual aid agreements, such as the Emergency Management Assistance Compact (EMAC), allow assets and resources to be shared between jurisdictions. During Hurricane Katrina, jurisdictions across the nation contributed invaluable assistance through EMAC by providing a variety of resources, including U.S. National Guard troops, engineering support, and meals and water. EMAC is an invaluable tool for meeting immediate disaster response needs that extend beyond local resources.

Developing Capability for Interoperable Communications—Following the storm, utility lines were down and government officials sent "runners" to deliver communications.



Cell phone signals, if available, were weak. St. Bernard Parish, Louisiana, had one functioning radio. Katrina reiterated one of the chief lessons of 9/11: interoperable and reliable communications equipment is vitally important. In the short term, emergency personnel need inexpensive workaround technology that fosters interoperability in the field. In the long term, Congress must pass national standards to ensure that responders and other critical workers can communicate. Communications are the foundation for public safety, and we will not have an effective response and recovery until these needs are addressed.

Creating Public Private Partnerships—Katrina demonstrated that after a catastrophic event, the federal government's response to the local community's needs will likely be delayed. States, local communities, businesses, and citizens need to plan to be self-reliant. Before disaster strikes, local employers, their employees, and emergency managers should discuss emergency preparedness and planning priorities. Cities and states need to know what resources businesses can contribute in a crisis and what businesses will require from them to maintain critical operations.

The private sector can make its resources available through standby contracts with governments to provide critical postdisaster services (e.g., debris removal, water, ice, response coordination). Such contracts allow states and local governments the flexibility to negotiate on costs and to select the most qualified providers. Immediately following Katrina, the federal government worked to secure mobile home manufacturers with 24-hour bid deadlines that companies struggled to meet and that prohibited the cost-competitiveness afforded by standby contracts. In the event of a disaster, effective response will rely on the coordination and cooperation of all available assets—both public and private.

Incorporating Hazards Mitigation and Building Codes—To date, many postdisaster activities designed to improve disaster management have focused on strengthening weather predictions and providing postevent relief. However, risk mitigation is more than warnings and relief. Hazards mitigation protects communities' critical infrastructure, reduces exposure to liability, and minimizes disruptions to lives and businesses. When compared with the cost of responding to and recovering from an unmitigated disaster, successful mitigation requires a significantly reduced financial investment.

Gulf Coast communities have an excellent opportunity to incorporate mitigation techniques into their rebuilding efforts. Louisiana's governor recognized this and called for a special session of the Louisiana State Legislature to adopt statewide building codes. Instituting, strengthening, and enforcing building codes, e.g., discouraging new housing developments in risk-prone areas, are some of the most effective ways to minimize disaster impacts. Louisiana emergency management personnel are working to ensure that rebuilding efforts increase structural stability to better withstand future hurricanes. Those communities that take steps to reduce their risks will realize significant returns on their investments.

Ensuring for Continuity of Government—States and local governments were crippled by Hurricanes Katrina and Rita and, in many cases, unable to designate lines of succession and sustain orderly continuation of critical government functions. In Cameron Parish, Louisiana, Rita devastated the countryside. Immediately after the storm, the parish's director of the Office of Emergency Preparedness resigned. Because the parish did not have a plan to designate a successor or share resources with other jurisdictions, the local government was quickly overwhelmed.

Katrina reemphasized that emergency preparedness is not solely for first responders—it requires the cooperation and integration of all levels of government and calls for the institutionalization of continuity of government plans in all state and local agencies, divisions, and departments. From the governor's cabinet to social services, every entity must review, update, and practice its emergency operations plans. Departmental and executive leadership should promote and participate in the planning and training process.

Updating the Stafford Act—The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) was designed by Congress to bring an orderly and systematic means of federal disaster assistance to state and local governments. However, Hurricane Katrina proved that the act does not adequately provide for disasters of such catastrophic proportions.

The Stafford Act sets the federal share for the Public Assistance Program at no less than 75 percent and no more than 90 percent (with possible exceptions) of eligible costs of a disaster. After 9/11, the Federal Emergency Management Agency, at the request of the president, adjusted the federal/state cost share to allow for 100 percent reimbursement to New York for all categories of Public Assistance. Currently, for Katrina, the federal government is reimbursing Louisiana 100 percent for debris removal and emergency protective measures and 90 percent for all other Public Assistance categories.

Congress should enact legislation that allows for an automatic upward adjustment of the federal cost share of all Public Assistance from 75 to 100 percent in the event of a catastrophe. They should also amend the Stafford Act to allow for a 100 percent federal cost share for other critical needs, such as medical, dental, funeral, transportation, and personal property expenses, in the event of an extensive disaster.

In addition, the cap for Community Disaster Loans funding, which is currently limited to 25 percent of a local community's annual operating budget with a $5,000,000 ceiling (which was lifted by the Community Disaster Loan Act of 2005 in regard to Katrina), should be eliminated in the event the devastation incapacitates the delivery of essential services or continuity of government in impacted communities.

While the establishment of specific funding guidelines and regulations are important, officials must have the flexibility to use common sense and sound judgment in the allocation of funding during the recovery process. The bottom line is that the federal government should

work with states and victims to enhance the recovery process and relieve the financial burden following events such as Hurricane Katrina.

Educating and Communicating with Citizens—The public must be educated about mitigation, evacuation, and preparedness to avoid the types of loss and human suffering that occurred along the Gulf Coast. They rely on authorities to help them understand the proper course of action before, during, and after a crisis event. More must be done at all levels of government to ensure that individual community members learn how to prepare themselves and their loved ones for disasters. Numerous local jurisdictions, such as San Francisco, New York, and the National Capital Region, have taken advantage of National Preparedness Month (September) to launch disaster preparedness public awareness campaigns. Governments that have not implemented awareness campaigns should consider following these examples.

Coordinating Long-Term Recovery—A central coordinating body is needed in the wake of catastrophic events to oversee disaster recovery policy and establish priorities for funding. In Louisiana, the Louisiana Recovery Authority (LRA) was established by an executive order of the governor and has proven invaluable to the state's ability to address crosscutting policy and recovery issues. Individual state agencies are often overwhelmed by having to deal with both disaster and daily missions, and an entity like the LRA builds consensus and provides the necessary focus needed to approach disaster situations.

Conclusion

In the aftermath of the devastating 2005 hurricane season, all levels of government and the private sector have an incredible opportunity to learn from this and other past experiences to enhance disaster response and long-term recovery practices. Undoubtedly, a renewed focus on mitigation and comprehensive planning will improve future actions and reduce the impact on our vulnerable communities.

National preparedness requires the coordination of the public, private industry, and all levels of government. By gaining the support and efforts of local community leaders and businesses, we can be assured a more coordinated and efficient disaster response. As we continue to plan and organize our efforts, recognizing opportunities for improvement, we will be better prepared as a nation for the next disaster event.

James Lee Witt (info@wittassociates.com)
James Lee Witt Associates

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/**.

Agency within Disaster Preparedness and Response: The Role of Poverty and Disability. Funding Organization: National Science Foundation, one year, $29,943. Principal Investigator(s): Nicole Dash (Doug Henry and Linda Holloway), University of North Texas, Department of Sociology; (940) 565-2230; dash@unt.edu.

This project aims to help understand how people make disaster preparedness and evacuation choices when their choices are constrained by poverty. If some groups are unable to protect themselves or evacuate because of poverty, disability, mental illness, or circumstance, how can and should emergency management respond? Investigators expect the project to have major implications for disaster evacuation modeling, particularly where those models assume choices that people may not have.

The Dynamics of Collaboration in Emergency Planning for America's Schools. Funding Organization: National Science Foundation, 15 months, $95,217. Principal Investigator: Scott Robinson, University of Texas at Dallas, School of Social Sciences; (972) 883-4043; scottr@utdallas.edu.

The chaos following Hurricane Katrina made it clear that effective emergency response requires the collaboration of many different types of organizations. A central question in emergency response after Katrina is how to achieve successful collaboration. This study will provide insight into the factors promoting high quality emergency planning in schools (with special attention to the role of collaboration in the emergency planning process) and the dynamics of collaboration in planning in public agencies.

Investment Planning for Regional Natural Disaster Mitigation. Funding Organization: National Science Foundation, three years, $250,000. Principal Investigator(s): Rachel A. Davidson (Linda K. Nozick), Cornell University, School of Civil and Environmental Engineering; (607) 255-7155; RAD24@cornell.edu.

This project will develop a set of models to help guide an optimal expenditure of regional natural disaster mitigation funds and provide insight into the factors that interact to determine the best mix of mitigation strategies for a given region. By merging optimization and loss-estimation modeling, investigators hope to provide new insights into resource allocation decisions for mitigation.

Science and Technology Center for Coastal Margin Observation and Prediction. Funding Organization: National Science Foundation, five years, $18,960,000. Principal Investigator(s): António M. Baptista (John A. Barth, Bruce A. Menge, Peter Zuber, and David L. Martin), Oregon

Health and Science University, Department of Environmental and Biomolecular Systems; (503) 748-1147; baptista@ccalmr.ogi.edu.

This cooperative agreement will establish a center to study coastal margins using integrated observation and prediction technologies as critical infrastructure for research, education, and knowledge transfer. The rationale for the center is that coastal margins are among the most densely populated and developed regions in the United States and there is a critical need for improved understanding of coastal margins and the stresses placed on them by natural events and human activities.

Protecting Interdependent Critical Infrastructures from Multi-Mode Attacks and Failures: Vulnerability, Consequences, and Mitigation for Linked Urban Water and Fire Response Systems. Funding Organization: National Science Foundation, two years, $109,000. Principal Investigator: James K. Brumbelow, Texas A&M University, Zachry Department of Civil Engineering; (979) 458-2678; kbrumbelow@civil.tamu.edu.

This project addresses the risk, consequences, and protective strategies related to a multimode attack or failure (MMAF) that simultaneously disables the water system and ignites an urban fire. The project will proceed in three phases. First, techniques for vulnerability analysis of urban areas to potential MMAF water-fire events will be developed. Second, a dual-system simulation tool for consequence analysis of MMAF water-fire events will be developed and tested using a "virtual city." And third, mitigation strategies will be developed in response to the damage scores determined in the second phase.

Cyberinfrastructure Preparedness for Emergency Response and Relief: Learning the Lessons from Hurricane Katrina. Funding Organization: National Science Foundation, one year, $200,000. Principal Investigator: Chaitanya K. Baru, University of California San Diego, San Diego Super Computer Center; (858) 534-5035; baru@sdsc.edu.

During Hurricane Katrina, this team helped with the creation of an application that tracked missing persons (as well as those who were safe). They developed the systems and processes as the disaster unfolded. This project will leverage this experience to analyze the needs and requirements of such an emergency response application and to design and develop an even more effective tool for use in future emergencies.

Vulnerability Beliefs and Actions following a Tornado Disaster. Funding Organization: National Science Foundation, one year, $98,216. Principal Investigator(s): Jerry Suls (Paul D. Windschitl), University of Iowa, Department of Psychology; (319) 335-0569; jerry-suls@uiowa.edu.

On April 13, 2006, at least five F-2 tornadoes struck downtown Iowa City, inflicting serious injuries and extensive damage to several businesses, over 1,000 homes and apartments, and hundreds of automobiles. This research team will use this disaster to examine questions about perceptions of vulnerability. The research will determine whether people return to unrealistic optimism after a disaster and will address theoretical and practical questions about whether the degree of personal exposure and consequences of a disaster influence beliefs of nonvulnerability and emergency preparedness behaviors.

Social Networks and Mitigation in Areas of Chronic Disasters. Funding Organization: National Science Foundation, one year. Principal Investigators: Linda M. Whiteford (Graham A. Tobin), University of South Florida, Department of Anthropology; (813) 974-0818; lindaw@chuma1.cas.usf.edu and Arthur D. Murphy, University of North Carolina at Greensboro, Anthropology Department; (336) 256-1189; admurphy@uncg.edu.

These researchers will investigate network structures as potential strategies for decreasing the harmful effects of continual exposure to a hazard. In the context of communities in southern Mexico exposed to a volcano that regularly deposits ash across the landscape, they will look at exposure, impact, risk-perception, well-being, and personal relationships to ascertain how differently structured networks constrain individual outcomes.

Correctly Interpreting Near-Miss Events for Hurricanes. Funding Organization: National Science Foundation, one year. Principal Investigator (s): Robin L. Dillon-Merrill (Catherine H. Tinsley), Georgetown University, McDonough School of Business; (202) 687-5398; rld9@georgetown.edu.

This research will examine how near-miss events influence future decisions. It theorizes that rather than heeding precursors as warnings, decision makers often make decisions that reflect more, not less, risky behavior. Moreover, they often do not seek additional information that might improve future decision making. The research will document specifically where and why near-miss information influences decision making, as well as how the near-miss bias may be exaggerated or attenuated by characteristics of the decision context.

Dynamic Programming-Based Health Monitoring and Prognostics for Levee and Communication Infrastructures. Funding Organization: National Science Foundation, one year, $55,699. Principal Investigator(s): Jagannathan Sarangapani (Can Saygin), University of Missouri-Rolla, Department of Electrical and Computer Engineering; (573) 341-6775; sarangap@umr.edu.

This project will employ novel methods, based on computational intelligence and learning, to develop a system to couple health monitoring sensors and wireless communications to provide real-time assessment of the levee system in New Orleans and other similar areas.

Social Vulnerability Assessment: The Case Study of the Tsunami Disaster in Thailand. Funding Organization: National Science Foundation, 18 months, $11,700. Principal Investigator: David Pijawka, Arizona State University; David.Pijawka@asu.edu.

This doctoral dissertation research award will support development of new methods for creating social vulnerability indices in the context of Thailand's recovery from the 2004 Indian Ocean tsunami. The researcher will look at how social vulnerability can be analyzed more contextually and deeply, especially in postdisaster events and in developing countries.

Resources

Below are brief descriptions of some of the resources on hazards and disasters that have recently come to the attention of the Natural Hazards Center. Direct Web links are provided for items that are available free online. Other materials can be purchased through the publisher and/or local and online booksellers.

Publications, Reports, and More

All Hazards

Facing Hazards and Disasters: Understanding Human Dimensions. ISBN 0-309-10178-6. 2006. 408 pp. $67.00. National Academies Press; (202) 334-3313; (800) 624-6242; www.nap.edu/.

Social science research conducted since the late 1970s has contributed greatly to society's ability to mitigate and adapt to natural, technological, and willful disasters. However, as evidenced by recent events, hazards and disasters research and its application could be greatly improved. This report includes over thirty recommendations for the hazards and disasters community. Notably, comparative research should be conducted to refine and measure core components of societal vulnerability and resilience to hazards of all types, address the special requirements of confronting disasters caused by terrorist acts, and advance knowledge about mitigation, preparedness, response, and recovery related to disasters having catastrophic physical and social impacts. Moreover, strategic planning and institution building are needed to address issues related to the management and sharing of data on hazards and disasters, sustain the momentum of interdisciplinary research, advance the utilization of social science findings, and sustain the hazards and disasters research workforce.

Regional Disaster Resilience: A Guide for Developing an Action Plan. The Infrastructure Security Partnership (TISP). ISBN 0-7844-0880-7. 2006. 44 pp. Free. American Society of Civil Engineers (TISP); tisp@tisp.org; www.tisp.org/rdr_guide.

This guide was developed by the TISP Regional Disaster Resilience Committee, which is made up of practitioners, policy makers, and technical and scientific experts from across the nation. It provides a strategy to develop the necessary level of preparedness for communities to manage major disasters. It provides key definitions and a set of common assumptions that underpin regional disaster resilience with the goal of providing users with the ability to examine and leverage existing approaches, tools, and technologies and to foster standardization across interdependent infrastructures and regions.

Worst Cases: Terror and Catastrophe in the Popular Imagination. Lee Clarke. ISBN 0-226-10859-7. 2005. 200 pp. $22.50. The University of Chicago Press; www.press.uchicago.edu.

In this book, the author surveys possible catastrophes that animate and dominate the popular imagination, from toxic spills and terrorism to plane crashes and pandemics. Along the way, he explores how the ubiquity of worst cases in everyday life has rendered them ordinary and mundane and argues that only when the public has more substantial information and more credible warnings will it take worst cases as seriously as it should.

Surviving Armageddon: Solutions for a Threatened Planet. Bill McGuire. ISBN 0-19-280571-1. 2005. 248 pp. $24.99. Oxford University Press; (919) 677-0977, (800) 451-7556; www.oup.com/.

This book looks at the major threats to our planet, assesses the solutions that have been proposed, both bizarre and realistic, and concludes that there really are ways to at least limit, if not prevent, the damage caused by future disasters.

Five Years Post 9/11, One Year Post Katrina: The State of America's Readiness. U.S. Mayors Homeland Security Monitoring Center. 2006. 16 pp. Free. U.S. Conference of Mayors; (202) 293-7330; www.mayors.org/uscm/news/press_releases/documents/disasterpreparednesssurvey_2006.pdf.

As part of the effort to strengthen emergency preparedness and homeland security, the U.S. Conference of Mayors conducted a survey to gauge the readiness of America's cities. This report is a compilation of the survey responses received from 183 cities representing 38 states. Questions focused on issues such as federal resources for interoperable communications, improvement in levels of disaster preparedness, city evacuation plans, and confidence in the Federal Emergency Management Agency.

National Survey of State Homeland Security Officials. 2006. 40 pp. Free online. Institute for the Economy and the Future, Western Carolina University; http://ief.wcu.edu/pdf/HSReport.pdf.

In this survey report, state homeland security and emergency management officials from across the United States express serious concerns about key aspects of domestic security, including communications, immigration, critical infrastructure, safety of schools, and funding allocations.

Beyond Initial Response: Using the National Incident Management System's Incident Command System. Tim Deal, Michael de Bettencourt, Vickie Huyck, Gary Merrick, and Chuck Mills. ISBN 1-4259-1891-3. 2006. 320 pp. $38.00. AuthorHouse; (888) 280-7715; www.authorhouse.com/.

This book was written to fill a gap in Incident Command System (ICS) training and is designed to be used as both a reference and a response tool. Major focus areas include the ICS planning process, ICS positions, and Unified Command. Job aids, checklists, illustrations, and sample documents are also provided.

Simplified Guide to the Incident Command System for Transportation Professionals. 2006. 64 pp. Free online. Federal Highway Administration; Laurel.Radow@fhwa.dot.gov; www.ops.fhwa.dot.gov/publications/ics_guide/.

The purpose of this guide is to introduce the Incident Command System (ICS) to stakeholders who may need to provide specific expertise, assistance, or material during highway incidents, but who may be largely unfamiliar with ICS organization and operations. These stakeholders include transportation agencies and companies involved in towing and recovery as well as elected officials and government agency managers. This document may also be beneficial to public safety professionals who are familiar with ICS but may not fully understand how ICS concepts are applicable to transportation agencies.

Communicating with the Public Using ATIS during Disasters: Concept of Operations. 2006. 35 pp. Free online. U.S. Department of Transportation (DOT) Intelligent Transportation Systems (ITS) Joint Program Office; www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/14262.htm.

This document is part of a study being conducted for the Federal Highway Administration Office of Operations and the DOT ITS Joint Program Office. The purpose of the study is to examine what information needs to be communicated to evacuees and other travelers under disaster conditions and how the advanced traveler information system assets of a state's department of transportation or other transportation agency can be effectively used to deliver such information. This document details a concept of operations for dissemination of information to the traveling public during a disaster, illustrating how agencies need to interface with each other and what information needs to be shared.

Mega-Shelter: A Best Practices for Planning, Activation, Operations. 2006. 218 pp. Free online. International Association of Assembly Managers (IAAM); (972) 906-7441; www.iaam.org/members/Sec_pages/Mega-ShelterPlanning&Activation.pdf.

In 2005, arenas, stadiums, convention centers, and performing arts theaters became temporary homes and medical facilities for extended periods. This document is the result of an industry task force led by IAAM to establish nationally recognized guidelines for major facilities that are converted to megashelters following a disaster. Part one addresses planning and activation; part two provides guidelines for operating a megashelter. This is a living document. Updates will be released as revisions are made.

The Disasters of the 21st Century: A Mixture of New, Old, and Mixed Types. E.L. Quarantelli. Preliminary Paper 353. 2006. 15 pp. Free online. Disaster Research Center, University of Delaware; http://dspace.udel.edu:8080/dspace/bitstream/19716/2374/1/PP+353+REVISED.pdf.

This paper examines the appearance of a new category of disasters that jump to or cut across different social systems: trans-system social ruptures (TSSR). It describes the major social characteristics of TSSR using Severe Acute Respiratory Syndrome (SARS) and the spread of the SoBig computer F virus as examples, suggests where future TSSR might occur, and concludes with a discussion about how in this century we will concurrently see these newer types of disasters along with the older ones (e.g., natural and technological), as well as a mixed form that has characteristics of both the old and the new.

The Human Impact on the Natural Environment. Andrew Goudie. Sixth edition. ISBN 1-4051-2704-X. 2006. 376 pp. $39.95. Blackwell Publishing; (800) 216-2522; orders@aidcvt.com; www.blackwellpublishing.com/.

The new edition of this student text provides an up-to-date and comprehensive view of the major environmental issues facing the world today and serves as an introduction to the past, present, and future impact of humans on Earth. Specifically, it explores the impact of humans on vegetation, animals, soils, water, landforms, and the atmosphere. Four completely new chapters explore how global climate change may impact Earth in the future.

Linking Poverty Reduction and Disaster Risk Management. Annette Schmidt, Lena Bloemertz, and Elisio Macamo, editors. 2006. 90 pp. Free online. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH; ++49 (0)61 96 79-0 (Germany); www.gtz.de/de/dokumente/en-linking-povred-drm.pdf.

This baseline study, which was carried out as a reaction to the increasing numbers of disasters triggered by natural hazards in developing countries that put development at risk, looks at the connection between poverty reduction and disaster risk management and sees their interlinkage as essential for sustainable development. The purpose of the study was to show how disaster risk management and poverty reduction can be made to complement each other and suggests ways of linking the two themes.

Natural Disaster and Disaster Risk Reduction Measures: A Desk Review of Costs and Benefits. Environmental Resources Management. Draft Final Report. 2005. 45 pp. Free online. Department for International Development (United Kingdom); www.dfid.gov.uk/pubs/files/disaster-risk-reduction-study.pdf.

This document reports the results of a study commissioned to provide an understanding of the economic impacts of disasters, at both macro and local level, and to assess the associated costs and benefits of disaster risk reduction measures. It features a literature review; a discussion of disaster risk reduction measures, including benefits of implementation and ways to estimate benefits; and case studies that illustrate the benefits of implementing comprehensive disaster risk reduction programs.

The Evolving UN Cluster Approach in the Aftermath of the Pakistan Earthquake: An NGO Perspective. 2006. 36 pp. Free online. Action Aid International; +44 (0)20 7561 7561 (United Kingdom); www.actionaid.org.uk/doc_lib/234_1_un_cluster_approach.pdf.

This report draws from the experiences of United Nations' (UN) agencies and international, national, and local nongovernmental organizations and donors in responding to the 2005 earthquake in Pakistan to provide an analysis of the cluster approach (a new approach to humanitarian aid) and make recommendations for the future.

Operational Framework for Integrating Risk Reduction for Aid Organisations Working in Human Settlement Development. Christine Wamsler. Working Paper 14. 2006. 46 pp. Free online. Benfield Hazard Research Centre; www.benfieldhrc.org/disaster_studies/working_papers/workingpaper14.pdf.

This working paper provides general guidance for development aid organizations working in human settlements for the integration of risk reduction within their regular duties. It is intended for use within a variety of cultural and geographical contexts and is relevant to all types of natural hazards and disasters.

From Challenge to Action: American Red Cross Actions to Improve and Enhance Its Disaster Response and Related Capabilities for the 2006 Hurricane Season and Beyond. 2006. 24 pp. Free online. American Red Cross; www.redcross.org/hurricanes2006/actionplan/.

Based on a self-assessment of their response to the hurricanes of 2005, the American Red Cross released this report, which describes five challenges facing the organization (relief operations, finances, technology limitations, internal controls, and fundraising) and provides three strategies for resolving these challenges.

Not If, But When: Adapting to Natural Hazards in the Pacific Islands Region. Sofia Bettencourt, Richard Croad, Paul Freeman, John Hay, Roger Jones, Peter King, Padma Lal, Alan Mearns, Geoff Miller, Idah Pswarayi-Riddihough, Alf Simpson, Nakibae Teuatabo, Ulric Trotz, Maarten Van Aalst. 2006. 60 pp. Free online. The World Bank, East Asia and Pacific Region, Pacific Islands Country Management Unit; http://siteresources.worldbank.org/INTPACIFICISLANDS/Resources/Natural-Hazards-report.pdf.

The goal of this policy note is to influence policy makers and development partners in the Pacific Islands region to undertake risk management of natural hazards and minimize the future impacts of natural disasters, climate change, and sea level rise. It advocates practical measures that countries can take to influence development policies and strengthen programs and addresses factors that may constrain or limit collaborative action between communities, island leaders, experts, and development partners.

Hurricanes and Floods

Hurricane Katrina: August 23-31, 2005. Service Assessment. 2006. 50 pp. Free. National Weather Service (NWS), Office of Climate, Water, and Weather Services; www.weather.gov/om/assessments/pdfs/Katrina.pdf.

With every weather-related disaster comes an NWS service assessment. This one found that the NWS performed exceptionally well in forecasting, warning, communication, preparedness, and poststorm recovery efforts. Nevertheless, room for improvement was noted. In this report, the assessment team highlighted 13 best practices and made 16 recommendations, most of which concern the infrastructure of the NWS, such as electrical power, communications, computing systems, and data gathering systems.

Second Report of the National Academy of Engineering/National Research Council Committee on New Orleans Regional Hurricane Protection Projects National Academies Report on Hurricane Protection Projects. 2006. 22 pp. Free online. National Academies Press; (202) 334-3313, (800) 624-6242; www.nap.edu/catalog/11668.html.

In November 2005, the assistant secretary of the Army for civil works asked the National Academies to convene a committee of experts to provide an independent review of the U.S. Army Corps of Engineer's Interagency Performance Evaluation Task Force (IPET) studies. This letter report from the committee, the second in a series, evaluates the information presented in IPET's March 10, 2006, report and identifies issues related to progress toward the IPET study objectives.

Hurricanes and the U.S. Gulf Coast: Science and Sustainable Rebuilding. 2006. 29 pp. Free online. American Geophysical Union (AGU); www.agu.org/report/hurricanes/.

This white paper summarizes the discussions and recommendations of a conference of 20 experts convened in January 2006 to discuss what Earth and space scientists know about the present and projected environment in New Orleans and Gulf Coast areas affected by hurricanes in 2005, determine what data are presently available for use by decision makers, and state what the future needs are in research, development, and monitoring. Seven subject areas were examined: hurricanes, storm surge and flooding, subsidence, climate change, hydrology, infrastructure, and disaster preparedness and response. The intent of the paper is to help demonstrate how important science is in its supporting role of aiding decision makers in the rebuilding of New Orleans and the Gulf Coast.

We Can Do Better: Lessons Learned for Protecting Older Persons in Disasters. Mary Jo Gibson and Michele Hayunga. 2006. 88 pp. Free online. American Association of Retired Persons (AARP); www.aarp.org/research/assistance/lowincome/better.html.

Last December, AARP convened a group of government officials, emergency preparedness and response experts, representatives from relief organizations, and aging and disability advocates to identify lessons learned from Hurricanes Katrina and Rita and to explore workable strategies for the future to better protect older persons in the community and in nursing homes. This conference report addresses three major topics as they relate to older

persons: planning and communications, identifying who will need help and what kind of help, and evacuation (i.e., transportation and special needs shelters).

Weathering the Storm: The Role of Local Nonprofits in the Hurricane Katrina Relief Effort. Tony Pipa. 2006. 48 pp. Free online. The Aspen Institute, Nonprofit Sector Research Fund; (410) 820-5338; www.nonprofitresearch.org/usr_doc/Nonprofits_and_Katrina.pdf.

This working paper highlights the role of grassroots nonprofit organizations in disaster relief and emphasizes the need for the Federal Emergency Management Agency and the American Red Cross to coordinate more effectively with local faith-based organizations.

Katrina and Rita Impacts on Gulf Coast Populations: First Census Findings. William H. Frey and Audrey Singer. 2006. 22 pp. Free online. Brookings Institution; (202) 797-6139; metro@brookings.edu; www.brookings.edu/metro/pubs/20060607_hurricanes.pdf.

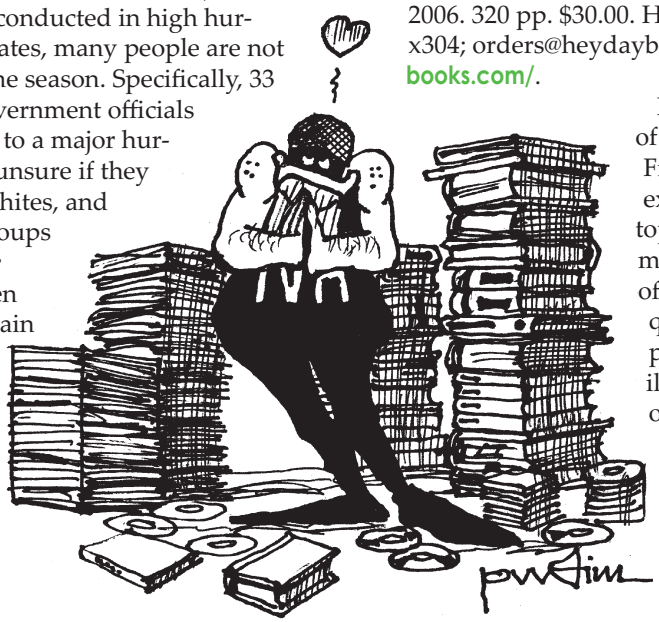
This analysis provides a baseline portrait of the impact of Hurricanes Katrina and Rita on population shifts and changing characteristics in the Gulf Region in the immediate months after the storms hit.

South Louisiana Recovery Survey: Citizen and Civic Leader Research Summary of Findings Project. 2006. 36 pp. Free online. Louisiana Speaks; http://lra.louisiana.gov/assets/junemeeting/2006RecoveryResearchFinal061506.pdf.

The Louisiana Recovery Authority funded this study to identify key themes, concerns, values, and priorities of Louisiana citizens in the aftermath of Hurricanes Katrina and Rita to ensure that citizen values and priorities form the basis for the recovery plan and the investment decisions that will ultimately flow from it. This report summarizes the study's key findings.

High Risk Area Hurricane Survey. Harvard School of Public Health Project on the Public and Biological Security. 2006. 11 pp. Free online. Harvard School of Public Health; www.hsph.harvard.edu/hurricane/topline.doc (see also www.hsph.harvard.edu/press/releases/press07202006.html).

According to this survey conducted in high hurricane risk counties in eight states, many people are not prepared for the 2006 hurricane season. Specifically, 33 percent of residents said if government officials said they had to evacuate due to a major hurricane, they would not or are unsure if they would leave. Homeowners, whites, and long-term residents are the groups most likely to ride out a major hurricane. People with children under 18 are less likely to remain in their homes. Mobile home owners are no more likely to evacuate than the general public.



Summary of Significant Floods in the United States and Puerto Rico, 1994 through 1998 Water Years. C.A. Perry. Scientific Investigations Report 2005-5194. 2005. 327 pp. Free online. U.S. Geological Survey; (888) 275-8747; http://pubs.usgs.gov/sir/2005/5194/.

This volume is a compilation of significant floods that occurred at streamgages throughout the United States and Puerto Rico from October 1, 1993, through September 30, 1998. A summary of the most devastating floods according to number of lives lost and amount of damage is provided for each water year. Significant floods are also broken down by state/territory.

Earthquakes, Landslides, and Volcanoes

Earthquake Safety Checklist. FEMA 526. 2005. 16 pp. Free. Federal Emergency Management Agency Publication Distribution Center; (800) 480-2520; www.fema.gov/plan/prevent/earthquake/pdf/fema-526.pdf.

This quick reference guide helps individuals and families prepare for an earthquake and prevent earthquake-related damage to their homes. It features instructions on conducting earthquake drills and "hazard hunts" as well as a checklist of disaster supplies, tips on what to do during and after an earthquake, and additional resources.

San Francisco Is Burning: The Untold Story of the 1906 Earthquake and Fires. Dennis Smith. ISBN 0-670-03442-8. 2006. 288 pp. $25.95. Penguin Group; http://us.penguingroup.com/.

In this tale of the 1906 San Francisco earthquake, the author recounts the tragedy through the experiences of a number of people who experienced it: a naval officer who helped save the city's piers and wharves, the corrupt mayor, a firefighter, a woman who ran a shelter, and others. The book is an account of how a city copes with catastrophe—how it prepares for such contingencies, and how effectively it deals with them when they occur.

Bracing for Disaster: Earthquake-Resistant Architecture and Engineering in San Francisco, 1838-1933. Stephen Tobriner. 2006. 320 pp. $30.00. Heyday Books; (510) 549-3564 x304; orders@heydaybooks.com; www.heydaybooks.com/.

In this book on the history of seismic engineering in San Francisco, California, the author examines the city's complex topography and built environment relative to the performance of specific buildings in earthquakes. More than two hundred photographs, diagrams, and illustrations help tell the history of the efforts of San Francisco's building professionals to build safely in earthquake country.

Report on the Yogyakarta-Central Java Earthquake Disaster.

2006. 9 pp. Free online. Asian Development Bank; www.adb.org/Documents/RAs/INO/yogyakarta-central-java.pdf.

This report documents the impacts of the May 27, 2006, earthquake in Java, Indonesia, and the responses by the government, the international community, and the Asian Development Bank.

100 Years of Seismic Safety in California. Claire B. Rubin and Irmak Renda-Tanali. 2006. $10.00. Viewable free online. Claire B. Rubin & Associates; (703) 920-7176; cbrubin@comcast.net; www.disaster-timeline.com/.

This time line was produced as part of the commemoration of the 100th anniversary of the 1906 San Francisco earthquake. It charts historic earthquakes that affected California; state organizations; state laws, regulations, directives, and programs; improvements in building and safety standards; and associated federal actions.

Landslides: Processes, Prediction, and Land Use. Roy C. Sidle and Hirotaka Ochiai. ISBN 0-87590-322-3. 2006. 350 pp. $40.00. American Geophysical Union; www.agu.org/.

This book explores the understanding of landslide processes, prediction methods, and related land use issues. It provides synopses of how various land uses and management activities influence landslide behavior, analyses of earth surface processes that affect landslide frequency and extent, examples of prediction techniques and methods of landslide hazard assessment, and discussion of landslide types and related costs and damages.

Vesuvius: Education, Security and Prosperity. Flavio Dobran, editor. ISBN 0-444-52104-6. 2006. 432 pp. $121.00. Elsevier; (800) 545-2522; usbkinfo@elsevier.com; www.elsevier.com/.

The impetus for this book was VESUVIUS 2000, an interdisciplinary project designed to produce a safe and prosperous habitat for the people living around Vesuvius and preparing the Vesuvius area to confront future eruptions with minimal socioeconomic and cultural consequences. The book is divided into seven chapters, which include discussions on VESUVIUS 2000, education, social and economic realities, geophysical precursors, global volcanic simulation, and more.

Tsunamis

Tsunami Glossary. International Oceanographic Commission and International Tsunami Information Centre. 2006. 40 pp. Free online. United Nations Educational, Scientific and Cultural Organization; +33 1 45 68 39 83 (France); http://ioc3.unesco.org/itic/contents.php?id=328.

This glossary has been updated to include information on the recent establishment of global intergovernmental coordination groups for tsunami warning and mitigation and to include and improve the definition of terms. Available in English, Spanish, and French, it consists of six sections: tsunami classification; general tsunami terms; surveys and measurements; tide, mareograph, sea level; acronyms and organizations; and bibliography.

GIS and Emergency Management in Indian Ocean Earthquake/Tsunami Disaster. 2006. 40 pp. Free online. ESRI; (909) 793-2853; info@esri.com; www.esri.com/library/whitepapers/pdfs/gis-and-emergency-mgmt.pdf.

The objectives of this ESRI white paper include addressing how, after the 2004 Indian Ocean earthquake and tsunami, geographic information systems (GIS) supported rescue and recovery efforts and continue to support rehabilitation efforts, identifying and reporting on implementations of technology and the associated issues and barriers, describing the GIS data and products that were important to the efforts and those that would have been useful if available, and describing how technology can help prevent catastrophes in this region of the world.

Wildfire

Wildfire: A Century of Failed Forest Policy. George Wuerthner, editor. ISBN 1-59726-070-3. 2006. 350 pp. $45.00. Island Press (University of Chicago Distribution Center); (800) 621-2736; custserv@press.uchicago.edu; www.islandpress.com/.

With over 150 photographs and contributions from more than 25 fire ecologists, this book explores wildfire from ecological, economic, and social/political perspectives while also documenting how past forest policies have hindered natural processes and created the problems we face today. Overall, the book aims to promote the restoration of fire to the landscape and to encourage its natural behavior so it can resume its role as a major ecological process.

Climate Change

Avoiding Dangerous Climate Change. Hans Joachim Schellnhuber, editor. ISBN 0-521-86471-2. 2006. 406 pp. $130.00. Cambridge University Press; (845) 353-7500; orders@cup.org; www.cambridge.org/.

In 2005, the government of the United Kingdom held a conference to look at scientific issues associated with climate change. This book presents the most recent findings from the international scientists that attended. Topics include critical thresholds and key vulnerabilities of the climate system, impacts on human and natural systems, socioeconomic costs and benefits of emissions pathways, and technological options for meeting different stabilization levels of greenhouse gases in the atmosphere. The target audience includes researchers in environmental science, climatology, and atmospheric chemistry; policy makers; and industry scientists and engineers.

Heating Up the Planet: Climate Change and Security. Alan Dupont and Graeme Pearman. Lowy Institute Paper 12. 2006. 82 pp. Au$25.00. Free online. Lowy Institute for International Policy; www.lowyinstitute.org/Publication.asp?pid=391.

According to these authors, there is no doubt the world is facing a prolonged period of planetary warming. They argue that climate change poses fundamental questions about human security and survival that require consideration of political and strategic risk as well as economic costs. In this paper, they examine the implications of temperature increases and sea level rise for food,

water, energy, infectious diseases, natural disasters, and environmental refugees and ask whether scientists may have underestimated climate change risks. They conclude with recommendations for identifying and ameliorating security consequences of climate change.

Health

Essentials of Public Health Management. L. Fleming Fallon Jr. and Eric J. Zgodzinski. ISBN 0-7637-3153-6. 2006. 524 pp. $66.95. Jones and Bartlett Publishers; (978) 443-5000; info@jbpub.com; www.jbpub.com/.

Written by practitioners for practitioners and students of public health, this reference text aims to provide a practical, nontheoretical approach to the hands-on management of public health departments and their daily operations. A full section dedicated to emergency preparedness also looks at integrated crisis preparedness, crisis management, and bioterrorism.

Flood Hazards and Health: Responding to Present and Future Risks. Roger Few and Franziska Matthies, editors. ISBN 1-84407-215-0. 2006. 240 pp. £49.50. Earthscan; +44 (0)20 7387 8558 (United Kingdom); earthinfo@earthscan.co.uk; www.earthscan.co.uk/.

This book is an assessment and discussion of the global health implications of flooding and future flood risk. It combines an analysis of the human health impacts of flooding with analysis of individual and societal response to those risks, discussing the findings in the context of potential future increases in flood hazards as a result of climate change. The analysis emphasizes the developmental as well as environmental causes of flood risk and the socially differentiated nature of vulnerability and coping capacity.

Disasters: Selected Readings. ISBN 92-751263-3X. Electronic document. 2006. $30.00. Pan American Health Organization (PAHO), Regional Office of the World Health Organization for the Americas and the Caribbean; http://publications.paho.org/.

This publication highlights various aspects of disaster planning and response. It touches on topics such as the handling of supplies, dealing with mass casualties, protecting various elements of the health sector, and coping with mental health issues among survivors. PAHO is offering *Observer* readers a discount on a package that includes this book as well as *Mental Health Services in Disaster: Manual for Humanitarian Workers*; *Mental Health Services in Disasters: Instructor's Guide*; and the *Management of Dead Bodies after Disasters: A Field Manual for First Responders*. The total cost of the package is $72.00 (regularly $96.00) without shipping. To receive this discount, contact Mylena Pinzon at pinzonmi@gmail.com.

Updates, Revisions, and New Editions

The purpose of this new section is to alert *Observer* readers when publications and products previously mentioned in the *Observer* have been updated or revised or released as a new edition.

2006 National Hurricane Operations Plan. 2006. 181 pp. Free online. National Oceanic and Atmospheric Administration, Office of the Federal Coordinator for Meteorological Services and Supporting Research; (301) 427-2002; ofcm.mail@noaa.gov; www.ofcm.gov/nhop/06/nhop06.htm.

Introduction to Emergency Management. George D. Haddow and Jane A. Bullock. Second edition. ISBN 0-7506-7961-1. 2006. 424 pp. $59.95. Elsevier Butterworth-Heinemann; (800) 545-2522; usbkinfo@elsevier.com; www.elsevier.com/.

Introduction to Homeland Security. Jane A. Bullock, George D. Haddow, Damon Coppola, Erdem Ergin, Lissa Westerman, and Sarp Yeletaysi. Second edition. ISBN 0-7506-7992-1. 2006. 672 pp. $69.95. Elsevier Butterworth-Heinemann; (800) 545-2522; usbkinfo@elsevier.com; www.elsevier.com/.

The following time lines have been updated and are available for purchase and free online viewing from Claire B. Rubin & Associates; (703) 920-7176; cbrubin@comcast.net; www.disaster-timeline.com/.

Terrorism Time Line: Major Focusing Events and U.S. Outcomes (2001-2005). Claire B. Rubin, Irmak Renda-Tanali, and William R. Cumming. Version 5.00. 2006. $10.00.

Disaster Time Line: Major Focusing Events and U.S. Outcomes (1979-2005). Claire B. Rubin, Irmak Renda-Tanali, and William R. Cumming. Version 3.00. 2006. $10.00.

Government Accountability Office Reports

The following Government Accountability Office (GAO) reports are available free online at www.gao.gov/. Printed copies are also available (first copy is free, additional are $2.00 each). To order, contact the GAO; (202) 512-6000, TDD (202) 512-2537; www.gao.gov/cgi-bin/ordtab.pl.

Wildland Fire Suppression: Lack of Clear Guidance Raises Concerns about Cost Sharing between Federal and Nonfederal Entities. 2006. GAO-06-570. 49 pp.

Wildland Fire Suppression: Better Guidance Needed to Clarify Sharing of Costs between Federal and Nonfederal Entities. 2006. GAO-06-896T. 19 pp.

Hurricanes Katrina and Rita: Coordination between FEMA and the Red Cross Should Be Improved for the 2006 Hurricane Season. 2006. GAO-06-712. 39 pp.

Hurricanes Katrina and Rita Disaster Relief: Improper and Potentially Fraudulent Individual Assistance Payments Estimated to Be Between $600 Million and $1.4 Billion. 2006. GAO-06-844T. 30 pp.

Expedited Assistance for Victims of Hurricanes Katrina and Rita: FEMA's Control Weaknesses Exposed the Government to Significant Fraud and Abuse. 2006. GAO-06-655. 53 pp.

Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina. 2006. GAO-06-903. 49 pp.

Homeland Security: DHS Is Addressing Security at Chemical Facilities, but Additional Authority Is Needed. 2006. GAO-06-899T. 25 pp.

Homeland Security: Guidance and Standards Are Needed for Measuring the Effectiveness of Agencies' Facility Protection Efforts. 2006. GAO-06-612. 74 pp.

Individual Disaster Assistance Programs: Framework for Fraud Prevention, Detection, and Prosecution. 2006. GAO-06-954T. 17 pp.

Disaster Preparedness: Limitations in Federal Evacuation Assistance for Health Facilities Should Be Addressed. 2006. GAO-06-826. 57 pp.

Congressional Research Service Reports

Emergency Supplemental Appropriations Legislation for Disaster Assistance: Summary Data FY1989 to FY2005. Justin Murray. January 9, 2006. RL33226. 9 pp. www.opencrs.com/document/RL33226/.

Disaster Evacuation and Displacement Policy: Issues for Congress. Keith Bea. April 26, 2006. RS22235. 6 pp. www.opencrs.com/document/RS22235/.

Homeland Security Department: FY2007 Appropriations. Jennifer E. Lake and Blas Nuñez-Neto. May 10, 2006. RL33428. 72 pp. www.opencrs.com/document/RL33428/.

Project Bioshield. Frank Gottron. June 5, 2006. RS21507. 6 pp. www.opencrs.com/document/RS21507/.

Disaster Debris Removal After Hurricane Katrina. Linda Luther. June 16, 2006. RL33477. 22 pp. www.opencrs.com/document/RL33477/.

FEMA Reorganization Legislation in the 109th Congress. Keith Bea and Henry Hogue. July 7, 2006. RL33522. 39 pp. www.opencrs.com/document/RL33522/.

Homeland Security Grants: Evolution of Program Guidance and Grant Allocation Methods. Shawn Reese. August 1, 2006. RL33583. 26 pp. www.hlswatch.com/sitedocs/RL33583.pdf.

Web Sites of Interest

All Hazards

United Nations International Strategy for Disaster Reduction Library
www.unisdr.org/eng/library/lib-index.htm

National Oceanic and Atmospheric Administration: Economics and Social Sciences Web Site
www.economics.noaa.gov/

U.S. Department of the Interior: Emergency Management
www.doi.gov/emergency/

Federal Emergency Management Agency: Incident Command System Resource Center
www.training.fema.gov/EMIWeb/IS/ICSResource/

HelpinDisaster.org: Disaster Volunteer Registry
www.helpindisaster.org/

National Science Foundation Special Report on Disasters (Updated): Immediate Response *and* NSF and 9/11
www.nsf.gov/news/special_reports/disasters/

American Red Cross: Disaster Victim Safe and Well Registry
https://disastersafe.redcross.org/

Disability Resources in an Emergency from the Northeast Center for Special Care
www.northeastcenter.com/links_disability_resources_in_a_disaster.htm

MileHi NewOrleans: Helping Hurricane Katrina Evacuees in Colorado
www.milehineworleans.org/

Extension Disaster Education Network: Children and Disasters
http://eden.lsu.edu/Issues_View.aspx?IssueID=9DC4F45E-D715-4577-8AFF-BCC29D5BEEC5

ReallyReady.org: A Federation of American Scientists Project
www.reallyready.org/

Disaster Watch: Initiative Supporting Growth and Development of Women-Centered, Community-Based Postdisaster Response
www.disasterwatch.net/

Severe Weather, Climate Change, and Floods

U.S. Environmental Protection Agency: Hurricanes (English and Spanish)
www.epa.gov/hurricanes/

Hurricane Animations: How the Storms Destroy and 150 Years of Ruin
http://hurricane.emeraldcoast.com/interactive/hurricane_categories.php

Ready New York: Hurricanes and New York City—Hurricane Guide in 11 Languages
www.nyc.gov/html/oem/html/ready/hurricane_guide.shtml

National Aeronautics and Space Administration Data Visualization: 27 Storms: Arlene to Zeta
http://learners.gsfc.nasa.gov/mediaviewer/27Storms/

U.S. Census Bureau: Hurricane Data and Emergency Preparedness
www.census.gov/Press-Release/www/emergencies/

Times-Picayune Interactive Graphics: Flash Flood—Hurricane Katrina's Inundation of New Orleans, August 29, 2005
www.nola.com/katrina/graphics/flashflood.swf

Urban Institute Policy Briefs: After Katrina
www.urban.org/afterkatrina/

Web Sites of Interest
(continued)

The Long Island Express: The Great Hurricane of 1938
www2.sunysuffolk.edu/mandias/38hurricane/

Struckbylightning.org: Lightning/Electrical Safety Education
http://struckbylightning.org/

National Center for Atmospheric Research Center for Capacity Building
www.ccb.ucar.edu/

Institute of Business & Home Safety: Water Damage Recovery Guide
www.ibhs.org/newsroom/view.asp?id=489

Wildfire

National Wildfire Coordination Group's Training Information
http://training.nwcg.gov/

Firewise Online Learning Center
www.firewise.org/fw_youcanuse/learningcenter/

Western Wildfire Impact Reduction Center
www.westernwildfire.org/

Proceedings of the 2006 Wildland Fire Safety Summit
www.iawfonline.org/summit/

Earthquakes and Tsunamis

National Earthquake Hazards Reduction Program
www.nehrp.gov/

EQNET Earthquake Information: Java, Indonesia, May 27, 2006 and July 17, 2006
http://128.205.131.100:591/archives/java_052706.htm
http://128.205.131.100:591/archives/java_071706.html

United Nations International Strategy for Disaster Reduction Library: ISDR–BIBLIO 1: Tsunami
www.unisdr.org/eng/library/biblio/isdr-%20biblio-1-tsunami-2006.pdf

Health

Centers for Disease Control and Prevention's Support for the Emergency Management Assistance Compact
www.bt.cdc.gov/planning/emac/

Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule: Disclosures for Emergency Preparedness—A Decision Tool
www.hhs.gov/ocr/hipaa/decisiontool/

U.S. Government Avian and Pandemic Flu Information
www.pandemicflu.gov/

Trust for America's Health: Pandemic Flu and You—Get Prepared!
www.pandemicfluandyou.org/

World Health Organization Global Influenza Programme
www.who.int/csr/disease/influenza/en/

Nominations Sought for UN Sasakawa Award for Disaster Reduction

The 2007 nomination process for the United Nations (UN) Sasakawa Award for Disaster Reduction is now open and seeks nominees from around the world and all sectors of society involved in issues related to disaster risk reduction. The purpose of the award is to reward individuals and institutions who contributed through innovative practices and outstanding initiatives to reducing the risk and vulnerabilities of communities to natural hazards.

The closing date for nominations is June 29, 2007. Candidates may be nominated by former Sasakawa Award laureates, representatives of institutions specializing in disaster reduction, UN specialized agencies, resident coordinators of the UN System, and permanent missions to the UN office in Geneva. To learn more about the award and the nomination process, visit www.unisdr.org/eng/sasakawa/2007/Sasakwa-Award-2007-English.pdf.

Hurricane Katrina Research Resource Web Page

The Natural Hazards Center has developed a Web page of useful resources that examine the Hurricane Katrina disaster. To limit the scope of the page and for the purposes of quality control, the resources focus on the event itself rather than what it means for the future of the hazards and disasters field and are limited to government reports, books, a few pertinent Web sites, and peer-reviewed journal articles. The page will be updated regularly and is accessible at www.colorado.edu/hazards/library/katrina.html.

Center Staffing Notes: Julie Baxter, the Natural Hazards Center's communications specialist, has resigned her position in order to put her planning degree to good use at AMEC Earth and Environmental. At AMEC, Julie will be working on projects in the areas of hazards mitigation and emergency management planning, floodplain map modernization, water resources, and other environmental services. Julie's hard work on *Disaster Research*, the Web site, Quick Response reports, the *Holistic Disaster Recovery* update, and more will not be soon forgotten. She will be missed as an integral part of the Center's staff, but we are excited that she will still be a part of the hazards and disasters community. We wish her well and look forward to working with her in the future.

Conferences and Training

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

8th Annual Technologies for Critical Incident Preparedness—Atlanta, Georgia: September 6-8, 2006. Presenters: U.S. Department of Justice, National Institute of Justice, and Public Safety Technology Center. Focusing on prevention, preparedness, response, and recovery, this event will highlight technology and training tools for the emergency responder community to deal with major threats to lives and property, such as natural disasters and terrorist attacks. Speakers will include state and local public safety professionals as well as federal experts from the U.S. Departments of Justice, Homeland Security, and Defense.

Lisa Hecker, Center for Technology Commercialization
(505) 670-6153; lhecker@ctc.org
www.regonline.com/eventinfo.asp?EventId=88623

CHES 2006 National Trade Show and Education Forum: Disaster! Are You Ready?—Halifax, Nova Scotia: September 17-19, 2006. Organizer: Canadian Healthcare Engineering Society (CHES). Topics at this conference will cover a variety of emergencies that health care engineers, emergency response teams, and emergency preparedness groups must face. Speakers will include individuals who have first-hand experience with large disasters.

Elizabeth Hooper, CHES
(613) 531-2661; ches@eventsmgt.com
www.eventsmgt.com/CHES2006/

Hospital Emergency Preparedness and Response Course—Bangkok, Thailand: September 18-22, 2006. Presenter: Asian Disaster Preparedness Center (ADPC). This international course is designed to help health personnel, both administrative and medical, prepare health care facilities to respond effectively to emergencies that involve large numbers of casualties.

Public Health in Emergencies Team, ADPC
adpc@adpc.net
www.adpc.net/phe/phe_data/PHE_HEPRBr.pdf

Dealing with Disasters Conference: Planning, Response and Investigation—Middlesbrough, United Kingdom: September 20-21, 2006. Organizers: University of Teesside Centre for Forensic Investigation and Northumbria University Disaster and Development Centre. This joint conference seeks to bring the expertise of both centers together with regional and government agencies and emergency services personnel to explore and highlight the planning, response, and investigation requirements for dealing with both natural and human-caused disasters.

Graham Thompson, University of Teesside
+44 (0)1642 342427 (United Kingdom); disasters@tees.ac.uk
www.tees.ac.uk/disasters/

DRIE West 21st Annual Symposium: New Norms of Continuity and Disaster Management—Calgary, Canada: September 21, 2006. DRIE is a source of information and education for contingency planners and risk managers across western Canada. Business continuity, emergency response, and risk management professionals representing industry, nongovernmental organizations, government agencies, and institutions are expected to attend.

DRIE West
info@drie-west.org
www.drie-west.org/Symposium.htm

Third TIEMS Workshop Croatia 2006—Trogir, Croatia: September 26-27, 2006. Sponsor: The International Emergency Management Society (TIEMS). The theme of this workshop is "Improvement of Disaster Management Systems—Local and Global Trends." It is organized by the Regional Center for Assistance and Disaster Relief (RCADR)—Divulje in cooperation with the faculty of Maritime Studies at the University of Split under the auspices of the Republic of Croatia's Ministry of Science and Technology. Topics will include science and research, emergency medicine, psychological assistance, infrastructure, the importance of the media, and more.

RCADR
info@rcadr.org
www.tiems.org/

Using ICT for Effective Disaster Management: Caribbean Forum 2006—Jamaica: September 26-28, 2006. Organizers: Commonwealth Telecommunications Organisation and International Telecommunications Union. This free forum is designed to promote, facilitate, and enhance understanding of how stakeholders can effectively use information and communications technology (ICT) to mitigate the effects of natural disasters.

Bhavna Kerai, Commonwealth Telecommunications Organisation
+44 (0)20 7024 7605 (United Kingdom); b.kerai@cto.int
www.cto.int/dmcaribbean/index.php

National States Geographic Information Council 2006 Annual Conference—Little Rock, Arkansas: October 1-5, 2006. This conference is committed to efficient and effective government through the prudent adoption of geospatial information technologies. It will include sessions on homeland security and transportation as well as a Federal Emergency Management Agency map modernization update.

National States Geographic Information Council
(443) 640-1075 x108; diane@ksgroup.org
www.nsgic.org/events/2006_conference.cfm

Fourth Annual Homeland Defense Symposium "Putting It All Together: Policy, Products, People"—Colorado Springs, Colorado: October 2-5, 2006. Organizer: National Homeland Defense Foundation. This symposium is designed for those with a professional interest in homeland defense, homeland security, civil support, emergency response, and the mission areas of the North American Aerospace Defense Command and U.S. Northern Command. It will feature keynote speakers, panels on key issues, and an opportunity to meet and exchange views with colleagues.

National Homeland Defense Foundation
(719) 577-9016
http://nhdf.org/HDSymposium/HomelandDefenseSymposium.php

Disaster Recovery and Redevelopment: Interdisciplinary Student Research Symposium—College Station, Texas: October 6-7, 2006. Organizer: Texas A&M University Urban and Regional Science Student Organization. This symposium is specially designed for students and researchers involved in disaster recovery and redevelopment efforts. Undergraduate and graduate (master's and PhD) students who wish to share their research and ideas pertaining to disaster management as it relates to urban and regional planning are encouraged to attend.

Praveen Maghelal, Texas A&M University
(979) 575-9156; ursso@stuorg.tamu.edu
http://archone.tamu.edu/conted/Disaster%20Symposium/description_disaster.htm

2006 Mid-Atlantic All Hazards Forum (AHF) Conference and Exhibition—Baltimore, Maryland: October 10-12, 2006. The AHF is a public-private partnership of Mid-Atlantic states and private corporations founded to improve regional homeland security and emergency management by facilitating dialog among state directors and increasing interaction between state and local governments and industry. Participants will discuss best practices, procurement, technology, strategic planning and implementation, training and education, and readiness, response, and recovery.

Addy Kennedy, E.J. Krause and Associates
(301) 493-5500 x3324; kennedy@ejkrause.com
www.allhazardsforum.com/

Joint ITU-T and OASIS Workshop and Demonstration of Advances in ICT Standards for Public Warning—Geneva, Switzerland: October 19-20, 2006. Organizers: International Telecommunications Union Telecommunication Standardization Bureau (ITU-T) and OASIS. This program is designed to build on the earlier Workshop on Telecommunications for Disaster Relief that emphasized the practical application of standards for public warnings and will identify standardization gaps and provide collaboration opportunities for key players from the public and private sectors. In addition, the workshop will feature an emergency management interoperability demonstration of OASIS Common Alerting Protocol as well as presentations and exhibitions by others active in public warning.

ITU-T
tsbworkshops@itu.int
www.itu.int/ITU-T/worksem/ictspw/
www.oasis-open.org/events/ITU-T-OASISWorkshop2006/

Southern Regional Conference 2006 Disaster Relief: How Do You Prepare for the Unknown?—Atlanta, Georgia: October 22-24, 2006. Presenter: Society for College and University Planning. During this conference on higher education, participants will consider preparation for natural disasters, gaping holes in campus security and information systems, shifting structures and funding of higher education, droughts in capital project funding, overflow of deferred maintenance issues, and more.

Watson Hannah, Middle Tennessee State University
whannah@mtsu.edu
www.scup.org/regions/so/2006/

2006 Emergency Preparedness Conference—Vancouver, British Columbia: October 24-26, 2006. Organizer: Pacific Northwest Preparedness Society. This annual conference is attended by delegates from across western Canada that work or volunteer in emergency health and social services, search and rescue, firefighting, or emergency preparedness planning. Themes of the conference will include the impact and aftermath of Hurricane Katrina, avian influenza, pandemic preparedness, animals in disasters, neighborhood preparedness, and the Fraser River flood hazard. Two preconference workshops will help communities with recovery planning for local governments and volunteer management.

Vancouver Fire and Rescue Services
(604) 665-6097; info@epconference.ca
http://epc2006.epconference.ca/

CPM 2005 East Conference and Exhibition—Orlando, Florida: October 30-November 1, 2006. Sponsor: Contingency Planning and Management (CPM). This business continuity, emergency management, and security event provides a risk management curriculum for business and government professionals. The objective of the event is to provide a better understanding of how to unite continuity, emergency management, and security in continuity plans.

WPC Expositions
(908) 788-0343 x135; CPM2005@witterpublishing.com
www.contingencyplanning.com/events/

Extension Disaster Education Network (EDEN) 2006 Annual Meeting—Nashville, Tennessee: October 31-November 2, 2006. The theme of this conference is "Preparing for Disasters" and will focus on sharing disaster education tools. Presentations will cover curriculum/programs, network/capacity building, training, resources/materials, and EDEN programming.

Abigail Borron, Purdue University
(765) 494-4390; aborron@purdue.edu
http://eden.lsu.edu/2006AM/

Gender and Disaster in Canada: New Thinking, New Directions—Sydney, Nova Scotia: October 31-November 2, 2006. Organizer: International Centre for Emergency Management Studies at Cape Breton University. Participants at

this multidisciplinary workshop will examine gender issues that affect disaster preparedness, response, and recovery in Canada. Participants will explore the roles, contributions, and challenges experienced by Canadian women throughout the emergency management cycle; share practical tools for incorporating gender equality into policies, services, and programs at all levels; and assess prospects for continued networking on issues of gender and disaster in Canada and internationally.

David Griffiths, Pendragon Applied Research
(902) 435-6533; griff@istar.ca
www.capebretonu.ca/ICEMS/Events_Gender_06.asp

GWEA2006 Symposium on Impact Evaluation of Global Warming and Approach to Risk Analysis in East Asia—Taipei, Taiwan: October 31-November 4, 2006. Organizers: Fisheries Research Institute, Council of Agriculture, Executive Yuan, and Global Change Research Center, National Taiwan University. This symposium will focus on features and connotations of climate change in East Asia; its impacts on ecosystem and adaptation, food production and adaptation, and human health and society; and risk assessment of global warming.

Don-Chung Liu, Fisheries Research Institute
+886-2-2462-0053 (Taiwan); GWEA2006@mail.tfrin.gov.tw
www.gcc.ntu.edu.tw/GWEA2006/english.htm

American Public Health Association (APHA) 134th Annual Meeting—Boston Massachusetts: November 4-8, 2006. Participants at this meeting will learn from experts in the field of public health, hear about cutting-edge research and exceptional best practices, discover the latest public health products and services, and share experiences with peers. It will feature scientific sessions, networking opportunities and events, and a public health exposition.

www.apha.org/meetings/

FireRescue Conference and Exposition—Las Vegas, Nevada: November 7-11, 2006. Producers: Elsevier's *FireRescue Magazine* and Reed Exhibitions. This conference and expo for firefighters, fire marshals, and other fire professionals will include hands-on training, an exhibit hall showcasing the latest tools and equipment, preconference workshops, and educational sessions on topics such as leadership principles, quality control, mayday drills, mass casualty for mass transit, and managing flood rescue operations.

FireRescue Magazine
(203) 840-5944, (800) 246-8371; info@firerescueexpo.com
www.firerescueexpo.com/

Symposium in the Sun 2006—Orlando, Florida: November 9-12, 2006. Sponsor: International Association of Fire Chiefs (IAFC). This national symposium is for leaders of volunteer/combination fire departments and will address the unique needs of these departments through a series of workshops, seminars, and general sessions.

IAFC
(703) 273-0911
www.iafc.org/vcos/

HazMat Explo 10—Las Vegas, Nevada: November 13-16, 2006. This conference will feature classes related to first responders, emergency planners, medical personnel, environmental workers, industry personnel, and radiological workers. Tracks will include first responder, environmental, emergency planning, homeland security, radiological, medical, industry, and special training.

(702) 455-5710; kinetix@hazmatexplo.org
www.hazmatexplo.org/

8th Asia Pacific Conference on Disaster Medicine—Tokyo, Japan: November 20-22, 2006. The theme of this conference is "Global Collaboration for Disaster Response." Topics will include governmental and nongovernmental collaboration in major disasters, new disasters due to global environmental and climate changes, new technologies in disaster relief and management, responding to pandemic emergencies, drug management in international disasters, and more.

Secretariat, c/o JCS Communications Inc.
+81-3-5259-9050 (Japan); 8apcdm@covention.co.jp
www2.convention.co.jp/8apcdm/

Society for Risk Analysis 2006 Annual Meeting—Baltimore, Maryland: December 3-6, 2006. This annual meeting brings together nearly 1,000 international scientists and practitioners from a wide range of disciplines who share an interest in risk analysis. This year's meeting will include several plenary sessions focused on the theme of making a difference and the role of risk analysis in a dynamic world. It will also include technical sessions in the form of oral presentations, posters, and poster platforms.

Society for Risk Analysis
(703) 790-1745; sra@burkinc.com
www.sra.org/events_2006_meeting.php

The Ravage of the Planet 2006: First International Conference on the Management of Natural Resources, Sustainable Development, and Ecological Hazards—Bariloche, Argentina: December 12-14, 2006. Organizers: Wessex Institute of Technology and University of Siena. This conference aims to attract researchers and professionals involved in ecosystems and environmental problems as well as technology experts, policy makers, and social and political scientists with the purpose of initiating interdisciplinary discussion. Conference subthemes include safety, political and social issues, learning from nature, planning and development, and water resources.

Zoey Bluff, Wessex Institute of Technology
+44 (0)238 029 3223 (United Kingdom);
zbluff@wessex.ac.uk
www.wessex.ac.uk/conferences/2006/planet06/

Emergency Preparedness and Response Conference—Washington, DC: December 13-14, 2006. Presenters: *Homeland Defense Journal* and National Organization on Disability's Emergency Preparedness Initiative. This conference will address emergency management planning and response for people with disabilities, the elderly, and pediatric populations. It will bring together national experts to

discuss federal sector updates, evacuation, early warning and communication, workplace safety, service animals, and more. Attendees will include federal, state, and local government officials; emergency managers and planners; first responders; and representatives from nongovernmental organizations and the private sector.

Pamela Greenstein
(703) 807-2758; pgreenstein@marketaccess.org
www.homelanddefensejournal.com/hdl/conf_emergencypreparedness.htm

9th World Conference on Stress, Trauma, and Coping—Baltimore, Maryland: February 14-18, 2007. International Critical Incident Stress Foundation (ICISF). This event is a forum for the multidisciplinary exchange of ideas and information among those who provide crisis intervention services. Over 150 presenters will explore concepts, practical applications, and results in sessions designed for professionals in all practice settings covering areas of crisis intervention, such as emergency services, the faith-based community, disasters and terrorism applications, schools, children, the military, public health, and business.

Shelley Cohen, ICISF
(410) 750-9600; scohen@icisf.org
www.icisf.org/9WC/

Geo-Denver 2007: New Peaks in Geotechnics—Denver, Colorado: February 18-21, 2007. Organizer: Geo-Institute of the American Society of Civil Engineers. This conference will provide professionals and students of geotechnical engineering with information about innovative and emerging technologies needed to advance the field and related disciplines. Topics will include risk assessment and management, earthquake engineering and soil dynamics, engineering geology, and many others.

http://content.asce.org/conferences/geodenver07/

Coastal GeoTools—Myrtle Beach, South Carolina: March 5-8, 2007. Organizer: National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center. Coastal GeoTools will focus on the technical information needs of the nation's coastal programs. The goal of the conference is to help the constituents of the Coastal Services Center address coastal resource management issues through the effective use of geospatial data and tools.

Hamilton Smillie, NOAA Coastal Services Center
(843) 740-1192; Geo.Tools@noaa.gov
www.csc.noaa.gov/geotools/

International Emergency Management Conference and Exhibition—Adelaide, Australia: March 13-16, 2007. Convener: 2007 World Police and Fire Games Corporation. "Reaching beyond Catastrophe—The Return Journey" is the theme of this conference designed for specialists in emergency management. It will have broad interagency appeal and a varied program featuring a range of keynote speakers from Australia and overseas. There will be significant involvement from the business, technology, social justice, and academic communities.

2007 World Police and Fire Games Conference Secretariat
+61 8 8375 9723 (Australia); conference@2007wpfg.com
www.2007wpfg.com/files/WPFG_RegoBook_pt5.pdf

5th Climate Prediction Applications Science Workshop—Seattle, Washington: March 20-23, 2007. Organizers: National Weather Service (NWS) Climate Services Division and the University of Washington Climate Impacts Group. This workshop will bring together a diverse group of climate science producers and users to share developments in research and applications related to the use of climate predictions in societal decision making. The workshop will not address technical challenges of making climate predictions, climate modeling, or other technical topics related to the science of climate predictions.

Diana Perfect, NWS Climate Services Division
(301) 713-1970 x132; diana.perfect@noaa.gov
www.cses.washington.edu/cig/outreach/workshopfiles/cpasw07/

Natural Hazards Observer
ISSN 0737-5425
Printed in the USA.
Published bimonthly.

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

Copies of the *Observer* and the Natural Hazard Center's electronic newsletter, *Disaster Research*, can be downloaded free from the Center's Web site:

www.colorado.edu/hazards/

Please:

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

*Return this original form (with address label on reverse)

Name: _____

Mailing Address: _____

_____

Phone: _____

Fax: _____

E-mail: _____

Affiliation: _____

Support the Natural Hazards Center

The success of the Natural Hazards Center relies on the ongoing support and engagement of the entire hazards and disasters community. The Center welcomes and greatly appreciates all financial contributions. There are several ways you can help:

- **Support Center Operations**—Provide support for core Center activities such as the *Disaster Research* e-newsletter, annual workshop, library, and the *Natural Hazards Observer*
- **Build the Center Endowment**—Leave a charitable legacy for future generations
- **Help the Gilbert F. White Endowed Chair in Hazards Mitigation**—Ensure that mitigation remains a central concern of academic scholarship
- **Boost the Mary Fran Myers Scholarship Fund**—Enable representatives from all sectors of the hazards community to attend the Center's annual workshop

To find out more about these and other opportunities for giving, visit:

www.colorado.edu/hazards/about/contribute.html

Contact Greg Guibert at greg.guibert@colorado.edu or (303) 492-2149 to discuss making a gift. Or, send your contribution directly to the Natural Hazards Center, University of Colorado at Boulder, 482 UCB, Boulder, CO 80309-0482.

A U.S.-based organization, the Natural Hazards Center is a nonprofit, tax-exempt corporation under Section 501(c)(3) of the Internal Revenue Code.

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 hazards 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.

Staff

Christa Rabenold ..... Editor
Julie Baxter ..... Communications Specialist
Christine Bevc ..... Research Assistant
Greg Guibert ..... Program Manager
Wanda Headley ..... Library Manager
Erica Kuligowski ..... Research Assistant
Sophia Liu ..... Research Assistant
Dennis S. Mileti ..... Senior Research Scientist
Lori Peek ..... Research Affiliate
Diane Smith ..... Office Manager
Sarah Stapleton ..... Research Assistant
Jeannette Sutton ..... Research Associate
Kathleen Tierney ..... Director

Observer cartoons are drawn by Rob Pudim.

Send information of potential interest to the Center or the readers of this newsletter to the Natural Hazards Center, University of Colorado at Boulder, 482 UCB, Boulder, CO 80309-0482; (303) 492-6818, (303) 492-2151 (fax); hazctr@colorado.edu. The deadline for the next *Observer* is **September 20, 2006**.

NATURAL HAZARDS CENTER

Natural Hazards Center
University of Colorado at Boulder
482 UCB
Boulder, Colorado 80309-0482

Change Service Requested

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

Printed on recycled paper