

## Reducing Vulnerability to Disasters through Education and School Safety

— an invited comment

Just over a year ago, more than 16,000 Pakistani children were crushed to death in schools that were unable to withstand the force of the South Asian earthquake. The loss of these children accounted for nearly one-sixth of the 97,000 deaths caused by disasters in 2005. Across all societies, children represent hope as well as an investment in the future, but they are also the most vulnerable population when a disaster strikes. The good news is that scientific and technical knowledge has advanced enormously, and there are enough resources now available to ensure that children will not become victims of natural hazards. The bad news is that—as these tragic deaths attest—vulnerability to disasters is increasing because awareness of key risk reduction and safety measures is not reaching the youngest members of society.

To reverse the trend of increasing worldwide vulnerability to natural hazards, access to knowledge, education, and technology is essential. Vulnerable communities

must protect themselves, their families, habitats, livelihoods, and cultural heritages from the impacts of natural hazards. Yet the important role that children can have in implementing safety and risk reduction measures at the local level remains largely undeveloped.

### Disaster Education Pays

Making disaster risk education part of primary and secondary school curricula fosters awareness and better understanding of the immediate environment in which students and their families live. This awareness empowers children to take actions that reduce their vulnerability and turn them from disaster victims into agents of behavioral change.

Experience shows that children who know how to react during an emergency make an important difference in protecting people. When the Indian Ocean

tsunami struck, the British schoolgirl Tilly Smith saved many lives by urging people to flee the shores of Phuket Island in Thailand because her geography class in Britain had taught her to recognize the first signs of a tsunami. Elsewhere in the region, a community on Simileue Island, Indonesia, fled to higher ground because grandparents had passed on traditional knowledge about earthquakes and tsunamis to their grandchildren. Almost all of the population was saved from the tsunami.

The International Strategy for Disaster Reduction (ISDR), which serves as the centerpiece of the United Nations efforts to reduce the growing impact of natural hazards, brings together governments, civil society groups, academics, regional institutions, and the private sector to ensure a coherent approach to disaster risk reduction. In June 2006, the ISDR and some of its key partners launched a biennial campaign to promote disaster risk education and school safety at the primary and secondary school level in order to provide children with the knowledge and security they need to protect themselves and their families. The "Disaster Risk Reduction Begins at School" campaign runs to the end of 2007 but will continue thereafter under the auspices of the UNESCO Decade of Education for Sustainable Development.

As part of this campaign, the ISDR Secretariat, based at the United Nations in Geneva, has been collecting and promoting good practices in disaster risk education and school safety from around the world to help motivate partnerships and to guide others to existing resources. The overarching goal of the current campaign is to mobilize governments, communities, businesses, and individuals to ensure that disaster risk reduction is fully integrated into school curricula in high-risk countries and that school buildings are built or retrofitted to withstand natural hazards. Since its launch, over 3000 copies of the campaign's information kit have been distributed worldwide in English, French, and Spanish to ISDR partners, international organizations, governments, and national institutions. A Web page about the campaign on the ISDR Web site is regularly updated and features new best practices and initiatives, relevant Web links, and a calendar of events.

Algeria, Bangladesh, Cameroon, France, and Peru are some of the countries that have taken steps to intro-

duce the campaign at local levels. These initiatives range from teacher training, "youth ambassador" networks that facilitate pedagogical exchanges, school and community workshops, and the development of learning tools about disaster risk education and school safety.

Currently, only 33 of 82 nations that have reported to the ISDR include disaster-related subjects in their national school curricula. However, schools in Mexico, Romania, and New Zealand are mandated by law to teach disaster-related subjects, while other countries, such as Brazil and Venezuela, report significant primary and secondary teaching at some municipal or state levels.

Furthermore, in Cuba disaster prevention and preparedness have been made part of school curricula, and the payoff has been a sizeable reduction in the loss of lives in recent hurricanes. School programs in China ensure that a textbook on disaster risk reduction is provided to every middle school student in the country. In Turkey, a continuous, countrywide disaster awareness training program for instructors has the potential to ensure the safety of five million children in the event of an earthquake.

### Safety for Schools

Investing in formal education to reduce disaster risks also requires an investment in children's security while they attend school. In most countries, schools serve as a central community site not only for the education of children but also for other meetings and group activities. During a disaster, schools often are converted into emergency health facilities, vaccination centers, or places of refuge and shelter. Schools that are destroyed during a disaster not only result in immediate injury and loss of life, but, in the long-term, halt access to education and are costly to rebuild. A recent ISDR study "Let our Children Teach Us! – A Review of the Role of Education and Knowledge in Disaster Risk Reduction," estimated that roughly one billion children under the age of 14 live in countries with high seismic risk. Thus, several hundred million children are in jeopardy while they attend school. Resilient construction techniques, building codes, land-use planning, and zoning are specific measures that can significantly minimize this threat. The ISDR study also lists many educational materials developed by a range of

## 2006 Hazards Workshop Abstracts and Summaries Available Online

In July 2006, hazards researchers and professionals, including federal, state, and local government officials; representatives from nonprofit organizations and private industry; scholars; and other interested individuals, convened in Boulder, Colorado, for the Natural Hazards Center's 31st Annual Hazards Research and Applications Workshop. Participants debated, explored, and shared information on a wide range of issues.


To share some of the ideas and discussions presented during the workshop, the Center publishes brief summaries of all sessions, abstracts of the research presented, and descriptions of the projects and programs discussed. Intended as a resource for those who were unable to attend, as well as for those who were, these session summaries, abstracts, and other workshop materials are available online at [www.colorado.edu/hazards/workshop/archives/2006/](http://www.colorado.edu/hazards/workshop/archives/2006/).

stakeholders including local nongovernmental organizations (NGOs), engineers, masons, and contractors, that provide low-cost, accessible technology and design using community-based approaches to build safer schools.

## Sharing Lessons on Risk Reduction and Education

The ISDR Secretariat coordinates a thematic platform on knowledge and education that brings together members of the United Nations, regional and national organizations, NGOs, and the scientific community to share good practices and lessons regarding the issue of education and disaster risk reduction. The platform supports national efforts to reduce disaster risks through knowledge and education by examining current “gaps” in global policies, priorities, and programs. Its main functions are to strengthen education and knowledge networks, create new partnerships, identify focus areas, and develop indices that can guide the implementation of disaster risk reduction strategies.

Education can mean the difference between despair and hope, but during a disaster it also can mean the difference between life and death. Ultimately, reducing vulnerability and risk to disasters requires the collective engagement of all sectors of society and, not least, of our children. Protecting and, at the same time, providing

sound knowledge to our youngest generation is an investment that will safeguard the future, the environment, and our livelihoods. 

Sálvano Briceño  
Director  
United Nations International Strategy for  
Disaster Reduction Secretariat

## Resources

For more information about the Thematic Platform on Knowledge and Education, see [www.unisdr.org/knowledge-education](http://www.unisdr.org/knowledge-education).

For information about the Disaster Risk Reduction Begins at School Campaign, see [www.unisdr.org/wdrc-2006-2007](http://www.unisdr.org/wdrc-2006-2007).

“Let our Children Teach Us! – A Review of the Role of Education and Knowledge in Disaster Risk Reduction” is available at [www.unisdr.org/knowledge-education](http://www.unisdr.org/knowledge-education).

## Scientists Creating Coastal Relief Models to Aid Tsunami Forecasting

**A** team of scientists from the National Oceanic and Atmospheric Administration (NOAA) National Geophysical Data Center and the Cooperative Institute for Research in Environmental Sciences (CIRES) is creating high-resolution digital elevation models (DEMs) to support tsunami warning systems and improve coastal flood forecasting. Considered a key step in NOAA's effort to prepare U.S. coastal communities for tsunami and storm-driven flooding, the DEMs are constructed from near-shore seafloor depth and land elevation data to create detailed models of coastal relief.

The NOAA/CIRES research team has already created DEMs for several key coastal communities on the east and west coasts, as well as in Alaska and Puerto Rico. They expect to complete more than 100 DEMs for other communities in the coming years. Once a DEM is finished, it is delivered to the NOAA Pacific Marine Environmental Laboratory in Seattle, Washington, where it is incorporated into tsunami model scenarios that simulate offshore earthquakes, the resulting tsunami movement across the ocean, and the location and magnitude of resultant coastal flooding. Ultimately, NOAA's Tsunami Warning Centers will use these simulations to issue flood forecasts resulting from an earthquake-generated tsunami. The coastal DEMs will also be useful for predicting storm surge damage from hurricanes and other natural events.

Completed DEMs, accompanying graphics, and more information about their development and use are available from the NOAA Web site, [www.ngdc.noaa.gov/mgg/inundation/](http://www.ngdc.noaa.gov/mgg/inundation/).



## Epidemics after Natural Disasters: A Highly Contagious Myth

**M**ost “average, common-sense people-on-the-street” would probably agree that massive epidemics pose a major risk after earthquakes, tidal waves, hurricanes, and other major disasters. And many would consider the presence of dead bodies to be the main cause. To the consternation of seasoned experts, many health responders in the humanitarian community share these mistaken beliefs and perpetuate these misconceptions. Indeed these are among the most persistent and contagious disaster myths that the World Health Organization (WHO) and Pan American Health Organization (PAHO) have tried to eradicate. Sadly, they have had only limited success.

Most myths are based on some degree of truth. Indeed, dead bodies were the reservoir and source of the “Black Death” in Europe in the mid-fourteenth century, and it is also true that longstanding conflicts in failed states that resulted in war-induced famine and the destruction of health services have led to epidemics. Moreover, without doubt, major natural hazards wreak havoc on the environment, often potentially increasing the transmission of water- and vector-borne diseases. However, the likelihood of massive postdisaster epidemics is generally grossly exaggerated. In particular, unburied bodies are incorrectly perceived as a public health threat.

### The Risk of Epidemics is Overstated

Unfortunately, some unfounded predictions concerning the threat of epidemics after disasters have originated from “authoritative sources.” For example, after 2004’s Hurricane Jeanne in Haiti (in which 3000 died), a warning of a possible cholera epidemic was issued, although cholera had not been present in Haiti for decades. Other statements from supposed authorities have included: “Over 10,000 may die from shigellosis outbreaks following the Nicaragua earthquake,”<sup>1</sup> and “We could have as many dying from communicable diseases as from the tsunami.”<sup>2</sup> In fact, almost every disaster—whether in a developed or developing country—has resulted in similarly alarming statements from health “experts.” Of course, these statements immediately found their way into the mass media.

However, in each case increased disease surveillance failed to identify any unusual outbreak, a fact the media often overlooked in favor of more sensational headlines. Paradoxically, random surveys that followed large-scale disasters such as the 1970 tidal wave in Bangladesh (in which 250,000 to 400,000 deaths occurred) suggested that the public health status of the surviving population was “better than that of the non-affected population.” This may be explained by another survey finding that “those too young, too old, and too weak to hold on to the trees” were lost in the storm.<sup>3</sup> The same mortality pattern

was observed in the 2004 Indian Ocean tsunami, but no comparative health survey was carried out in spite of the abundance of resources mobilized for epidemiological study and control.

Such findings should not be construed to show that there is no risk of increased disease transmission after a disaster. Overcrowding, poor sanitation, or contaminated water definitely can contribute to public health problems. What must be determined is the degree to which public health deterioration is attributable to the disaster. In poor countries where unsanitary conditions often are the norm, disaster-induced deterioration of public health may be minimal and quickly reversed or even improved by humanitarian assistance. Somewhat ironically, developed countries have much more to lose, given their initially higher health standards, but greater awareness and resources in those countries usually compensates, or even overcompensates, for any adverse changes in public health.

### Dead Bodies are not a Public Health Hazard

Associating epidemics with the presence of human remains after an accident, conflict, or disaster is a deeply ingrained myth in Western culture. Cholera, typhoid fever, typhus, smallpox, and other diseases are caused by specific pathogens for which a decaying body is not a particularly favorable environment. If the causal agent was ever present—a rare occurrence in a normally healthy population—the micro-organisms quickly cease to proliferate and progressively die off in cadavers. In other words, a human carrier of any disease is less of a hazard dead than alive. Except for the risk of directly contaminating water, dead bodies pose no credible public health risk for the general population. It is even less rational to alarm an already traumatized population when bodies have been buried by landslides or earthquakes.

### When Disaster Myths Get in the Way of Planning and Response

Using scaremonger tactics to promote public health is counterproductive. Such an approach damages the credibility of relief agencies and diverts resources away from real priorities. Adopting proper public health measures requires cooperation from the public and the support of funding agencies. Such cooperation is based on trust and credibility, and ultimately, exaggerated warnings can only undermine that trust. Such warnings can prompt authorities to overact and employ extraordinary measures to control the “risk.” For example, massive spraying to control disease vectors can become a substitute for proper solid waste disposal. Improvised, unneeded mass vaccination campaigns against diseases that are not locally present can become a political necessity, as occurred with cholera immunization in Aceh Province, Indonesia, after



the 2004 tsunami. Besides being an unnecessary expenditure of time, money, and human resources, these immunization campaigns can be a significant inconvenience for a population already under considerable stress.

The more visible and expensive the response measures employed, the greater the false sense of security they induce. The resources mistakenly allocated for these measures could be better used to strengthen routine public health programs, improve water and sanitation, or support the recovery process. Indeed, as with consequence management in terrorism events, the most effective use of resources is to strengthen the capacity of the local health services before any emergency.

Treating dead bodies as a public health threat affects the population more directly. Mass burials or cremations unnecessarily heighten the drama of a disaster and have potentially serious mental, social, and legal consequences. In all cultures, the process of identifying the dead and conducting a ritual burial is an essential part of the grieving process (witness, for example, the effort and money spent by the United States to identify human remains decades after the Vietnam War). Proper handling of cadavers reflects the real need of affected families to respect and honor their lost relatives. Summarily disposing of bodies in mass graves violates the human rights of the survivors.

Further, the legal and financial complications related to a missing person also have considerable implications for the welfare and subsistence of family members. Since the 2004 tsunami, national authorities in Sri Lanka and Thailand have become much more aware of the impor-

ance of proper identification and handling of human remains. Unfortunately, the mass media and knowledgeable responders help to keep alive the myth of the need for speedy burial.

## Current Research

The overwhelming magnitude of the problem of human remains after the 2004 tsunami and the unusual sight of dead bodies in the streets of New Orleans has resulted in several studies and publications—from PAHO guidelines<sup>4</sup> to editorials in disaster journals<sup>5</sup> to systematic reviews of past disasters.

Lacking thorough research, little is actually known about the survival of human pathogens in the deceased. Even if active multiplication stops rapidly, how long the pathogens can survive is still matter of scientific guesswork. Sample-based surveys with control groups (unaffected populations) could be used to assess the risk of epidemics according each type of disaster. It is regrettable that WHO did not see the need for such studies after recent disasters (even though other follow-up studies were well funded). Such studies should be planned now in advance of the next major disaster.

## Why so Little Progress, and Where Do We Go from Here?

In the last several years a number of publications and articles have been issued regarding this problem. Yet the issue is not so much one of research but of adoption of the conclusions and recommendations of existing research, the timely subject of the first entry in this Disaster Myths series, which appeared in the September issue of the *Observer*. Disagreement, when there is any, tends to be not scientific but emotional – accepting the realities rather than the myth goes against what we have believed for centuries.

There are, however, some troubling outcomes that can reinforce these myths.

- Doomsday predictions, when disseminated by the mass media, do pay off in the short term. It's a win-win situation. When an outbreak does not materialize, credit goes to the effectiveness of health agencies and the extreme measures taken. When the number of reported cases of a disease does increase (whether or not the increase is attributable to the disaster or to better surveillance), the need for more resources is confirmed.
- Repudiating this disaster myth may ruin the reputation of an expert or decision maker brave enough to try to calm the public and dispel a longstanding misconception. Hence, many national or international experts privately disagreed with the alarmist predictions made in the wake of Hurricane Katrina, the 2004 tsunami, or the recent earthquakes in Asia, but publicly remained silent. At the same



time, there does seem to be an encouraging increase in responsible reporting by the media in more recent disasters—for example after the recent Philippines mudslide and Indonesian earthquake.

How can we move ahead? The debate about these issues must be broadened in the scientific and disaster communities. More editorials, research, and publications are needed. But above all, the public must be increasingly involved and made aware through the mass media. The launching of a public education campaign associated with the proactive release of scientifically sound statements in the immediate aftermath of disasters may force the issue onto the front page of responsible publications and prevent the spread of alarmist statements. Educating the public is costly but indispensable. 📺

Claude de Ville de Goyet (cdevill@attglobal.net)  
Consultant on Risk Management and  
Former Director, Emergency Preparedness Program,  
Pan American Health Organization

## Resources

1. Vijil, C. 1973. Letter to the Editor. *Lancet* 1: 146.
2. Dr. David Nabarro, head of crisis operations for the World Health Organization, quoted in "Anticipating Wave of Disease." CBS News and Associated Press, December 29, 2004. [www.cbsnews.com/stories/2004/12/28/world/main663462.shtml](http://www.cbsnews.com/stories/2004/12/28/world/main663462.shtml).
3. A. Sommer and W.H. Mosley. 1973. "The Cyclone: Medical Assessment and Determination of Relief and Rehabilitation Needs." p.125 in Lincoln C. Chen, editor, *Disaster in Bangladesh – Health Crises in a Developing Nation*. London: Oxford University Press.
4. Pan American Health Organization. 2004. *Management of Dead Bodies after Disasters: A Field Manual for First Responders*. Washington, D.C.: PAHO and World Health Organization. 194 pp. [www.paho.org/english/dd/ped/ManejoCadaveres.htm](http://www.paho.org/english/dd/ped/ManejoCadaveres.htm)
5. See, for example, the forthcoming editorial in the *Journal of Prehospital and Disaster Medicine*, January-February 2007 issue.

## DRC Offers Summer Research Institute for Undergraduates

The Disaster Research Center (DRC) at the University of Delaware is again offering its Summer Research Institute to provide undergraduate students hands-on training in social science disaster research. The DRC selects ten students from various social science disciplines to participate in the nine-week program. Participants are awarded all transportation and lodging expenses as well as a stipend for the summer.

Students who will be entering their junior or senior year in the fall of 2007 are invited to apply, and applications from students who are under-represented in graduate schools (minority students, women, students from poorer regions of the country, and students from institutions with limited graduate programs) are especially encouraged. The application deadline is February 1, 2007, and students will be notified of acceptance by March 1, 2007. Program details, guidelines, and application materials can be found online at [www.udel.edu/DRC/REU/](http://www.udel.edu/DRC/REU/). The program is sponsored by the National Science Foundation's Research Experience for Undergraduates (REU) program and the U.S. Department of Defense.



## Call for Papers: Annual Hazards and Disasters Student Paper Competition

The Natural Hazards Center is pleased to announce its fourth annual Hazards and Disasters Student Paper Competition. Papers may present current research, literature reviews, theoretical arguments, or case studies. Paper topics may include, but are not limited to, floods/floodplain management, Hurricane Katrina, earthquakes, climate change, warning systems, hazard mitigation, emergency management, vulnerability, or other topics relevant to the social/behavioral aspects of hazards and disasters. Papers will be judged on their originality, organization, and demonstrated knowledge of the topic. One undergraduate and one graduate winner each will receive \$100; mention in the *Natural Hazards Observer*; publication on the Natural Hazards Center Web site; and an invitation to the Annual Hazards Workshop in Boulder, Colorado, registration fees included. The deadline for submissions is March 16, 2007. Additional information is available online at [www.colorado.edu/hazards/awards/paper-competition.html](http://www.colorado.edu/hazards/awards/paper-competition.html).

## Flood Insurance Claims Appeals Process Finalized

In October, the Federal Emergency Management Agency (FEMA) published a final rule that amends the National Flood Insurance Program's (NFIP's) regulations to include an appeals process for flood insurance policyholders. The final rule fulfills a provision of the Flood Insurance Reform Act of 2004 (P.L. 108-264) and formalizes the process by which holders of NFIP insurance policies can appeal, after the issuance of the insurer's final claim determination, any action taken by the insurer, FEMA employee, FEMA contractor, insurance agent, or insurance adjuster. The appeal must be filed within 60 days of receiving the determination and does not preclude the policy holder's right to enter into litigation subsequently. In the past, FEMA had used an informal process for hearing and reviewing appeals to claims decisions. The new rule is intended to make the appeal process clearer and simpler for policyholders, while assuring that claims are handled quickly and equitably.

The rule was published in the October 13, 2006, *Federal Register*, Vol. 71, No. 198, pp. 60435-60438, which can be found in any federal depository library and online at <http://a257.g.akamai.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/E6-17028.htm>.



## NIMS Compliance Package Now Available

The National Incident Management System (NIMS) was developed so that responders from different jurisdictions and disciplines could work together to deal with natural disasters and other emergencies. NIMS benefits include a unified approach to incident management; standard command and management structures; and support for preparedness, mutual aid, and resource management. The NIMS Integration Center (NIC), within the Department of Homeland Security's Federal Emergency Management Agency, oversees all aspects of NIMS including the development of compliance criteria and implementa-

tion activities at federal, state, and local levels. Fundamentally, the center provides guidance and support to jurisdictions and incident management and response organizations as they adopt the system.

Homeland Security Presidential Directive 5, "Management of Domestic Incidents," requires that states, territories, local jurisdictions, and tribal entities adopt NIMS. During fiscal years (FY) 2005 and 2006, states were asked to "self certify" their NIMS compliance. However, by September 30, 2007, jurisdictions will be required to comply more formally with the FY07 NIMS requirements to receive FY08 emergency preparedness grants. In FY07, all jurisdictions must meet specific performance-based metrics that will be used to:

- Gather information on the current state of NIMS compliance,
- Identify best practices and areas that may require further technical assistance,
- Provide continued guidance and feedback, and
- Assist with the refinement of metrics and/or data-gathering tools.

An FY07 NIMS Compliance Package has been delivered to the nation's governors to aid this process. Additionally, a redesigned NIMS Capability Assessment Support Tool (NIMCAST) will be available in early 2007. NIMCAST is a Web-based self-assessment designed to aid state, local, and tribal organizations and jurisdictions in determining their capabilities and compliance with requirements established in NIMS.

More information is available from the NIMS Integration Center Web site, [www.fema.gov/emergency/nims/](http://www.fema.gov/emergency/nims/). The new compliance package is available online at [www.fema.gov/emergency/nims/whats\\_new.shtml](http://www.fema.gov/emergency/nims/whats_new.shtml). Questions about NIMS and the new compliance procedures can be directed to the NIMS Integration Center: NIMS-Integration-Center@dhs.gov or (202) 646-3850.

## DHS Awards Scholarships and Fellowships

The Department of Homeland Security (DHS) Science and Technology Directorate recently announced the award of 103 new scholarships and fellowships to undergraduate and graduate students in the fields of science, technology, engineering, and mathematics that are critical to the DHS mission. The DHS Scholars and Fellows Program is designed to nurture the next generation of public-service-oriented scientists and engineers, while encouraging their long-term commitment to homeland security issues.

In November, the recipients gathered in Washington, D.C., for an orientation, during which they met DHS researchers and research managers and learned about the DHS missions, scientific initiatives, and challenges. The students also participated in a research internship fair in preparation for their hands-on research experience in the



summer, during which they will be trained in DHS laboratories, national laboratories, or university-based DHS centers of excellence.

Undergraduate scholarships and graduate fellowships are awarded to students pursuing degrees in such areas as computer and information science, social sciences, engineering, mathematical sciences, life sciences, and physical sciences. DHS provides tuition, fees, and some stipends to scholars and fellows, in addition to access to career-enhancing research opportunities with highly qualified professionals.

More information about DHS scholarship and fellowship opportunities is available from the DHS Student and Alumni Network at [www.dhsnetwork.org](http://www.dhsnetwork.org), or from the Oak Ridge Institute for Science and Education, which coordinates the scholarships and fellowships for the Science and Technology Directorate, at [www.ornl.gov/dhsed](http://www.ornl.gov/dhsed).

## NOAA Announces New Cooperative Institute Serving Northern Gulf of Mexico

On November 13, NOAA, along with a consortium of universities and institutions, announced the creation of the Northern Gulf Institute, which will collaborate with NOAA scientists to study regional issues associated with coastal hazards, climate change, water quality, ecosystem management, coastal wetlands, and pollution.

The consortium includes Mississippi State University, the University of Southern Mississippi, Louisiana State University, Florida State University, and Alabama's Dauphin Island Sea Lab. The new institute will conduct research under four themes: climate change and climate variability effects on regional ecosystems; coastal hazards; ecosystem management; and geospatial data integration and visualization in environmental science.

The Northern Gulf Institute joins 20 other NOAA cooperative institutes across the country. These institutes are NOAA-supported, nonfederal organizations that engage in long-term research programs in one or more areas relevant to NOAA's mission. Additional information about the new Northern Gulf Institute is available on the Web at [www.noaanews.noaa.gov/stories2006/s2739.htm](http://www.noaanews.noaa.gov/stories2006/s2739.htm).

## NOAA Undertaking Largest-Ever Barrier Island Project

Despite delays caused by Hurricane Katrina, NOAA is on schedule to complete the first phase of an 800-acre barrier island project in Louisiana's Plaquemines Parish. In one of the largest island restoration projects ever undertaken by NOAA, workers are dredging and performing major earth-moving activities on Chaland Island to create beach and marsh habitat that will help protect Louisiana's coastal communities and infrastructure from the devastating effects of wind, waves, and flooding.

Over the years, the shoreline along the project area had been severely eroded as a result of human and natural factors. Also, recent storms breached the shoreline and segmented the 2.6-mile island into three smaller fragments. Left unaddressed, these breaches threaten the

integrity of several major natural gas pipelines. Recognizing that wetlands and barrier islands are a first defense against storms, NOAA has initiated this project to help the landscape absorb surging water and wind during storms. The project will increase the width and height of Chaland Island, creating fish habitat and protecting the gas pipelines.

During the 20th century, coastal Louisiana has lost more than 1.2 million acres of land—an area more than 25 times larger than Washington, D.C. If left unchecked, scientists estimate that the state will lose an additional 431,000 acres by 2050. This and other restoration projects are intended to help reverse this trend and provide vital habitat for the Gulf's fisheries. At \$60 million, this NOAA Fisheries Service-led project is the largest funded Coastal Wetlands Protection, Planning and Restoration Act project to date. More information about NOAA's efforts in coastal conservation and restoration are available from [www.noaanews.noaa.gov/stories2006/s2738.htm](http://www.noaanews.noaa.gov/stories2006/s2738.htm).



## Posting Tributes to Gilbert F. White

Before his passing, the renowned geographer and Natural Hazards Center founder Gilbert White requested that any memorial service on his behalf be conducted in the manner of a Quaker meeting—that it begin with quiet contemplation and continue with reflections from anyone moved to speak. In that spirit, the University of Colorado has established a page as part of the Gilbert F. White Web site ([www.colorado.edu/hazards/gfw/tributes.html](http://www.colorado.edu/hazards/gfw/tributes.html)) on which friends and colleagues can post tributes, anecdotes, and memories of Gilbert. Anyone wanting to add a comment or story should send an e-mail to [gfwmem@colorado.edu](mailto:gfwmem@colorado.edu).



**P**rofessionals and experts in the field of emergency management agree that there is a positive correlation between public awareness and positive disaster outcomes. They also recognize their limitations as responders, especially compared to a well-informed citizenry that prepares and provides for the safety of its own families and neighbors.

Despite the importance of preparedness, because of its many challenges, education is often of secondary importance among state and local officials. Measuring public education results, for example, can be difficult and costly, but necessary to justify sustained or increased financial support from elected officials. Similarly, governments may not have the time or resources to develop the educational tools to influence public action.

Nevertheless, data collected from recent disasters such as the 2004 tsunami in Southeast Asia and the 2005 hurricane season indicate that public education should be a higher priority, and that opportunities exist to better educate the public, coordinate messages, and initiate social change. A survey conducted in September 2005, by the *Washington Post*, Kaiser Family Foundation, and Harvard University highlighted the need for better public education before disaster. Among other results, the survey of 680 adults who were evacuated from the Gulf Coast to Houston after Hurricane Katrina found:

- 73% said they heard that an evacuation order had been given before Katrina hit;
- 66% of those who heard an evacuation message/order said it gave clear information about how to evacuate, yet 61% did not evacuate before the storm hit.

Of those who did not evacuate before the storm:

- 64% said they did not think the storm and its aftermath would be as bad as it was;
- 42% said they waited too long;
- 55% said they did not have a car or a way to leave;
- 22% said they were physically unable to leave; about the same number said they had to care for someone who was physically unable to evacuate;
- 37% said they just did not want to leave.

One might think that hurricanes Katrina and Rita would have served as a wake-up call for residents everywhere to begin disaster preparations. A study by the Council for Excellence in Government and the American Red Cross suggests otherwise: surprisingly, people are not making additional preparations or familiarizing themselves with local or state emergency plans. Approximately 38% of people surveyed across the country said the hurricanes did not motivate them to prepare for an emergency, while 24% said the hurricanes provided some motivation. Although the results of the survey vary by region, the overall findings are disheartening and sug-

gest that important work is needed to change prevailing attitudes and behaviors.

Somewhat paradoxically, there is a wealth of research on effective crisis communication, and public educational materials exist on most government Web sites. In fact, an Emergency Management Accreditation Program (EMAP) working group of experts recently identified at least 40 Web sites and publications as “best practices.” Missing, however, is a comprehensive review of practices and resources and identification of components that make up an effective disaster public education program. In other words, there are no benchmarks that state and local emergency management programs can use to assess the adequacy of their public awareness efforts.

In partnership with the Alfred P. Sloan Foundation, EMAP has conducted research, convened experts, and developed a framework for public education standards. This yearlong effort brought together a broad group of stakeholders to identify content that should be included in national standards for any disaster public education program.

### Components of an Effective Public Education Program

In developing its standard for “Crisis Communication, Public Education and Information,” EMAP identified five specific steps that would constitute an effective public education program:

#### Step 1: Develop a public education strategic plan based on outcomes from the hazard identification and risk assessment process.

The first step in the public education process is to figure out what hazards pose significant risk. Analysis of historical data is one method of identifying who is at risk for what hazard, but new hazards mapping and geographic information systems are also significantly improving risk assessment and the identification of vulnerable populations. For example, in 2002 the University of South Carolina’s Hazards Research Lab conducted a vulnerability analysis across that state by combining data about the frequency of hazards with social vulnerability metrics such as age, population, income, and other indicators. The overlap of this data with historical information about the occurrences of hurricanes, tornados, floods, and other hazards resulted in a total hazard probability of occurrence for counties across the state. Similar mapping tools could help identify vulnerable populations that would benefit from public education efforts.

Of course, any hazards identification and risk assessment process should be reviewed and updated regularly to address emerging threats. In 2001 and 2002, for

example, public officials hurried to warn citizens about the threat of mailed anthrax spores. Public education was needed not only to respond to this new threat but also to fears and misinformation generated among the public.

**Step 2: Identify the audience and appropriate communications media to maximize the reach, frequency, and consistency of the message.**

The next step in public education is determining who needs to get the message and how to deliver it. The target audience for a given message may be all citizens in a state, county, or community, or a small segment of that population. For example, instructions for responding to warnings and incidents may vary between the general public and people with special considerations, such as disabled persons, the elderly, non-English speakers, and those with vision, hearing, and cognitive impairments.

Public education officials must also take into account differences between residents of urban and rural areas when identifying target audiences. Although city residents benefit from robust media coverage, they face some unique risks. For example, dense critical infrastructure and population make urban areas likely targets for terrorists. On the other hand, response in rural areas presents many challenges, including search and rescue and the provision of emergency medical care to victims of disasters distributed across wide areas. Therefore, rural residents may need to be prepared to care for themselves well beyond 72 hours—the time span generally recommended by emergency management experts. As a result, the messages and special instructions for residents in

rural areas will almost certainly be different than those for city dwellers.

Determining how to deliver messages is important once the target audience is identified. For common messages, television, radio, and print are conventional methods of delivery. However, material should also be made available in alternative formats, such as in Braille and on cassette, for people with disabilities.

The use of the Internet to share disaster information with residents is becoming more commonplace. For example, to help prepare citizens in the San Francisco Bay area for a devastating earthquake, power outages, acts of terrorism, and other hazards, the San Francisco Office of Emergency Services recently launched an innovative Web site—[www.72hours.org](http://www.72hours.org)—that provides specific guidance for preparing children, the elderly and disabled, and pets for the first 72 hours after a disaster.

Although computer media are being used more and more, both the fragility of such media and their limited use in rural areas and by some segments of the population make it essential that a mix of new and traditional media be used to ensure that all people are aware of their risks.

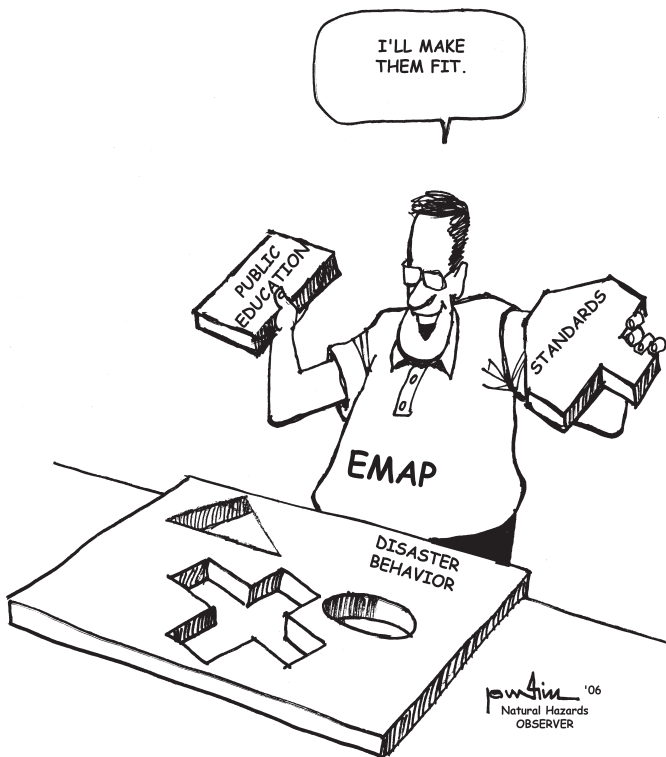
**Step 3: Identify and engage public education stakeholders.**

Educating the public about hazards involves more than posting information on the Internet and working with the news media. EMAP's working group suggests that programs identify and engage many different groups of stakeholders when developing and disseminating messages. Businesses and industries, for example, can serve as effective conduits for sharing disaster information with their employees. School systems can help educate children and young adults about hazards in their areas and appropriate preparation and response (see the Invited Comment in this *Observer*). Other government agencies and community organizations can also be important partners in public education.

Additionally, it is critically important that the creators and disseminators of disaster education materials get to know media contacts before disasters occur. Involving the media in training sessions and exercises is one way to build such relationships. Making members of the media part of a jurisdiction's advisory committee or Local Emergency Planning Committee could also provide benefits; with their knowledge and expertise, these individuals could help strengthen emergency operations plans and provide valuable feedback during exercises. A process should be in place to engage these and other key stakeholders in the development and implementation of a public education program.

**Step 4: Develop clear and concise messages that are based on the jurisdiction's hazards and risks.**

Once hazards are identified and the means of communication selected, public officials must develop the message in coordination with key stakeholders. The EMAP working group suggests the following when crafting message programs:



- Engage stakeholders and technical expertise in message development;
- Identify and articulate objectives and guidance;
- Keep the message simple;
- State the message as a call to action;
- Tailor and personalize the message to the audience;
- Provide sufficient explanation (“Why should I care?”);
- Make the message as positive and empowering as possible; and
- Test the message.

Messages to be delivered during a crisis can be planned as well. Although there may be circumstances when officials will need to develop messages from scratch, there are many examples of existing communications regarding various types of hazards. In August 2004, the National Disaster Education Coalition released *Talking about Disasters: Guide for Standard Messages*. This guide presents facts about common hazards and risk information in a simple, comprehensible manner for the public. This reference also contains example messages tailored for each type of hazard that could be used by public officials, the media, and other stakeholders.

### Step 5: Ensure the sustainability of the plan.

Public education needs to be a long-term, permanent part of state and local emergency management programs. Resources for public education should be included in yearly emergency management budgets to sustain a base level of public outreach. These funds can be supplemented with external grants and donations.

Once developed and implemented, it is important to evaluate the impact of the plan on citizen awareness and preparedness through polls, post-disaster surveys, and other quantitative and qualitative methods. This data should help identify areas for improvement and justify continued and increased financial support with elected officials. Like the budgetary process, the public education planning and implementation process is cyclical, and requires constant assessment and enhancements. The EMAP working group recommends that the entire process take place at least every two or three years to stay current with changing hazards and populations and to incorporate new methods of delivery. Moreover, this frequency allows programs to make changes based on real-world incidents and evaluations.

## Conclusion

It appears that the public may be more informed about hazards today than in the past. Through the Internet and other media, people have access to much disaster information, while global media now bring disasters from around the world into American living rooms every day. Research indicates, however, that citizen preparedness for all types of hazards remains a low priority and inadequate—even after one of the nation’s worst natural disasters, Hurricane Katrina.

Government officials responsible for public safety and security know the challenge well: In order to get citi-

zens to prepare, you first must get them to care. Increasing citizen awareness and concern about how disasters might affect them and their loved ones, neighbors, and friends requires renewed thinking about how public education is conducted across the country at all levels of government. There may be better ways, for example, to use the Internet and global events to stimulate preparedness actions at the state and local levels.

The EMAP working group identified three opportunities that should be considered by state, local, and federal officials responsible for public education:

- Establishing a national framework for public education that includes a single national vision and clear connection among local, state, and federal responsibilities. A national vision that recognizes the importance of public education and individual understanding of disaster preparedness should be developed. Making it clear in Urban Areas Security Initiative (UASI) and other grant guidance that public education activities are allowable expenses will help establish disaster public education as a priority.
- Bridging the gap between sociological and psychological research on disaster public education and policy and implementation in the field. There is a significant disconnect between emergency management practice and social science research. Informative studies often become lost in academia; more systems are needed to communicate findings to practitioners. Likewise, public officials may not know how or have the time to translate academic resources and findings into practice.
- Developing standards for and hosting workshops on disaster public education. The components of the public education program outlined above should be added to the EMAP standard as supplemental guidance and further reviewed for inclusion in that document. Furthermore, the content should form the basis for regional or state-level workshops on developing disaster public education programs.

With information on citizen preparedness collected after Hurricanes Katrina and Rita and given the current salience of disaster preparedness, it is a propitious time to seek support for and make improvements in public disaster awareness. The guidance outlined above provides state and local officials with benchmarks for assessing the adequacy of such public education efforts. ▣

Chad Foster  
Special Projects Coordinator  
Emergency Management Accreditation Program

## Resources

For more information about EMAP and the disaster public education and information project, visit: [www.emaponline.org](http://www.emaponline.org), or e-mail Nicole Ishmael, EMAP, [Nishmael@csg.org](mailto:Nishmael@csg.org).



# 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/](http://www.colorado.edu/hazards/resources/grants/).

**Improving the Trauma System Response to Disaster.** Funding Organization: National Library of Medicine, two years, \$246,534. Principal Investigator: Charles C. Branas, University of Pennsylvania, Department of Biostatistics and Epidemiology; (215) 573-5381; cbranas@cceb.med.upenn.edu.

Although trauma center hospitals play a major role in responding to disasters, there has been little attention paid to preparing multiple trauma centers to work together in a network in anticipation of an overwhelming catastrophe. This research will answer the following questions for the 25 most urbanized cities in the United States: 1) Are medical capabilities available to respond to injury-generating disasters and at what point will those abilities be overwhelmed? 2) What will be the optimal order of execution of mutual aid agreements among neighboring trauma centers so that casualties are addressed as quickly as possible? What will be the health impacts when, during and after a disaster, one center is unable to address its day-to-day injuries? 3) How can different national databases best be used to improve disaster management via the trauma care system?

**Homeland Security and Medical Response.** Funding Organization: National Library of Medicine, \$150,000. Principal Investigator: Louise Dembry, Yale New Haven Health System; (203) 688-3224; louise-marie.dembry@ynhh.org.

This project will cooperate with federal agencies and various medical schools and universities to develop a secure electronic repository of homeland security and medical response information and best practices. When completed, the database will be accessible via a secure Web site to target audiences such as first responders, healthcare professionals, urgent care centers, government agencies, and academics.

**Social Complexity and the Management of the Commons.** Funding Organization: National Science Foundation, three years. Principal Investigator: David Bennett, University of Iowa, \$198,355; (319) 335-2123; david-bennett@uiowa.edu. Principal Investigator: Paul Robbins, University of Arizona, \$143,607; (520) 626-6000; robbins@email.arizona.edu. Principal Investigator: Catherine L. Kling, Iowa State University; \$251,380; (515) 294-5225; ckling@iastate.edu. Principal Investigator: David L. McGinnis, Montana State University at Billings; \$81,658; (406) 657-2046; dmcginnis@msubillings.edu.

This series of collaborative projects will study the mechanisms by which place-based decision making leads to changes in the management of shared resources and ecosystem services, such as clean water, wildlife, recreational opportunities, and scenic beauty. Through surveys

and interviews, the researchers will explore differences in the way social and economic groups value economic and non-economic services of the landscape; endogenous and exogenous agents of change that affect these values; and power relationships among individuals, coalitions, and public decision makers. Statistical and agent-based models will be developed to evaluate the efficacy with which the will of the people is transformed into changes in land use practices and thus the production of the ecosystem services. The research will focus on the greater Yellowstone ecosystem but will be transferable to other regions. The questions are particularly important to the western United States and to hazardous coastal areas, where population influx and greater mobility have led to a profound transition in valuation and management of the land as new stakeholders make claims on resources traditionally managed by differing communities and constituencies.

**Coping with the Threat of Terror.** Funding Organization: National Institute of Mental Health, two years, \$138,852. Principal Investigator: Brett T. Litz, Boston University Medical Campus, (617) 232-9500; brett.litz@va.gov.

Little is known about the extent to which people's mental health and function are impaired by the threat of terrorism. This research will assess how Israelis cope with terrorist threats and will produce measures of coping and related functional impairment that can be used in the United States to help advise citizens how they should address terrorism-related anxiety. Specifically, the project will generate a psychometrically sound measure that indexes the specific attributes of Israelis' coping mechanisms; construct a checklist that measures the functional impact of the terrorist threat; and test a causal model that posits a number of mediators and moderators of functional impairment.

**Terrorism and Traumatic Responding: Exposure and Resiliency Factors.** Funding Organization: National Institute of Mental Health, four years, \$571,245. Principal Investigator: Stevan E. Hobfoll; (330) 672-2137; shobfoll@kent.edu.

There is increased interest in terrorism's psychological impact and its relationship to post-traumatic stress disorder, depression, generalized psychological distress, and unhealthy behaviors. However, there have been few studies of how multiple terrorist threats or strikes affect people's resiliency, vulnerability, and psychological distress. Under this grant, three studies will be conducted in Israel to examine how terrorism affects the population over time, whether resiliency dampens traumatic responses, whether vulnerability to psychological distress increases with ongoing terrorism threats, and how exposure to terrorism and subsequent psychological distress



are related to a defensive coping style (characterized by support for political violence, authoritarianism, or ethnocentrism).

**Patient Triage in the Aftermath of a Mass Casualty Event—A Dynamic Programming Approach.** Funding Organization: National Science Foundation, three years, \$350,000. Principal Investigators: Nilay Argon, University of Wisconsin—Madison, Industrial and Systems Engineering Department; nilay@engr.wisc.edu; Serhan Ziya, University of North Carolina at Chapel Hill, Statistics and Operations Research; (919) 843-6022; ziya@unc.edu; and James Winslow, Wake Forest University School of Medicine; jwinslow@wfubmc.edu.

The objective of this research project is to use operations research tools to develop a better understanding of patient triage and prioritization decisions in the aftermath of mass casualty incidents. One basic question is how medical resources should be allocated to patients in need of treatment so as to do the greatest good for the greatest number. These researchers will build mathematical models to help develop better policies that can be used in the field.

## Farewell Christa!

Christa Rabenold, the *Natural Hazards Observer* editor, left the Center in early November to pursue work with AMEC Earth and Environmental assisting local governments to develop hazard mitigation plans. During her time at the Center, Christa published 16 *Observers*, endless *Disaster Research* e-newsletters, and oversaw the first major overhaul of the *Observer's* look and organization in nearly a decade. Her dedication and attention to detail brought a new standard of excellence to the Center's publications and projects that we will strive to uphold in her absence.

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 her new role in the future.

### Learning from Catastrophe: Quick Response Research in the Wake of Hurricane Katrina Center Special Publication #40 Now Available

Now available from the Natural Hazards Center is Special Publication #40, *Learning from Catastrophe: Quick Response Research in the Wake of Hurricane Katrina*. A peer-reviewed edited volume, *Learning from Catastrophe* is a collection of 18 chapters from 39 researchers who conducted social science research during or immediately after Hurricanes Katrina and Rita made landfall on the U.S. Gulf Coast in September 2005. At that time research teams were deployed under the Center's own Quick Response program, the National Science Foundation's Small Grants for Exploratory Research (SGER) effort, or through support of other various academic institutions.

Much of disaster research must by necessity be carried out in the aftermath of major events and it is therefore essential that each opportunity to be seized so that the appropriate lessons can be learned. The devastation and social and institutional failures wrought by Hurricanes Katrina and Rita, unfortunately, provided ample fodder for quick response research. Quick response studies are also important because they frequently identify research questions for future, longer-term research. Disasters inevitably bring surprises, and quite often those surprises turn into researchable topics.

Because of the multiple severe impacts and the utter devastation caused by Hurricane Katrina, rapid response field work was especially challenging—perhaps more so than in any recent U.S. disaster. Field workers

witnessed catastrophe and its depredations first hand and are now bringing the human story of Katrina and its research and policy implications to a wider audience through the publication of this edited volume.

Special Publication #40 is available from the Natural Hazards Center for \$25, plus shipping. There is a 10% discount for purchases of 10 or more copies. To order a copy, contact Diane Smith, (303) 492-6818; diane.smith@colorado.edu. Visit [www.colorado.edu/hazards/publications/katrina.html](http://www.colorado.edu/hazards/publications/katrina.html) for more information.



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

As mentioned in the November *Observer* (Vol. XXXI, No. 2, p. 19), Wiley Higher Education has introduced a new series of monographs on emergency management intended to present core concepts and principles in the discipline. Each book is supported by instructor manuals, “self check” tests and other assessment tools, PowerPoint presentations, and companion Web sites. John Wiley & Sons; (877) 762-2974; [www.wiley.com/go/pathways/](http://www.wiley.com/go/pathways/).

**Introduction to Emergency Management.** Michael K. Lindell, Carla Prater, and Ronald W. Perry. ISBN 0-471-77260-7. 2007. 616 pp. \$51.95. Recent devastation caused by tsunamis, hurricanes, and wildfires has highlighted the need for well-trained professionals who can develop effective strategies in response to such disasters. This text provides readers with the tools needed to address all phases of emergency management. It covers everything from the social and environmental processes that generate hazards to vulnerability analysis, hazard mitigation, emergency response, and disaster recovery.

**Hazard Mitigation and Preparedness.** Anna K. Schwab, Katherine Eschelbach, and David J. Brower. ISBN 0-471-79019-2. 2007. 600 pp. \$51.95. This book will help readers apply their knowledge and skills to create communities that are resilient to the impacts of all types of hazards. The text clearly presents the major principles involved in preparing for and mitigating disasters, as well as real-world examples of the different tools and techniques that emergency managers have used to minimize disaster impacts.

**Technology in Emergency Management.** John C. Pine. ISBN 0-471-78973-9. 2007. 283 pp. \$51.95. Today, technology plays a vital role in ensuring the effective implementation of a management plan during an emergency. This volume not only provides a detailed overview of the technology now used, it also clearly explains how the technology is applied in the field. Thus, readers not only learn how to use modern technology in emergency planning, response, recovery, and mitigation, they also learn the key organizational and programmatic elements that must be in place to ensure that technology is used most efficiently to support the emergency management process.

**Introduction to International Disaster Management.** Damon P. Coppola. ISBN 0-7506-7982-4. 2007. 570 pp. \$69.95. Elsevier/Butterworth-Heinemann; <http://books.elsevier.com/security/>.

This volume is intended to be a comprehensive resource on the players, processes, and special issues involved in the management of large-scale natural and technological disasters at the international level. It contains numerous case studies, exploring such timely topics as the responses to Hurricane Katrina, the 2004 Asian tsunami, SARS, examples of best practices, and a contact list of the governmental and nongovernmental agencies that assist in mitigation of, preparedness for, response to, and recovery from national and international events. It provides a global perspective on risk, hazards, and disasters and is intended both for students of disaster management and working professionals.

**Handbook of Disaster Research.** Havidán Rodríguez, Enrico I. Quarantelli, and Russell R. Dynes, editors. ISBN 0-387-3233107. 2006. 611 pp. \$249. Springer; (800) 777-4643; [www.springer.com](http://www.springer.com).

Written for researchers and graduate students in varied disciplines, the contributions in this book present an interdisciplinary and international approach to disasters, based on the principle that disasters are social constructions. The book focuses on social science disaster research and its theoretical, methodological, and practical applications. Attention is given to the concept of “disaster”; methodological issues relating to disaster research; and how disaster research is being used in emergency management curricula and in emergency operations. Authors discuss community processes that are evoked by disasters, including warnings, search and rescue, coordination, organizational adaptation, dealing with death and injury, recovery, and media coverage in disasters. Some contributions focus on the relationship between disaster and development, the popular culture of disasters, new dimensions of disaster research, and the number and type of disasters expected in the future.

**Disasters and the Law: Katrina and Beyond.** Daniel A. Farber and Jim Chen. ISBN 0-7355-6228-8. 2006. 370 pp. \$35.00. Aspen Publishers; <http://lawschool.aspenpublishers.com>.

The authors of *Disasters and the Law* argue that recent hurricanes and other natural disasters demonstrate serious problems in the legal system’s ability to respond to catastrophic events. Innovative policies are needed if society is to deal effectively with the aftermath of these

disasters and the risk of future ones. *Disasters and the Law* integrates knowledge and experience from fields as diverse as urban planning, bankruptcy law, and wetlands law in order to address legal issues in disaster response, reconstruction, prevention, and mitigation. Examples are drawn from Hurricane Andrew, the terrorist attacks of September 11, 2001, and the Loma Prieta earthquake.

Specifically, the book examines such topics as:

- The goals and limits of federal and military involvement in disaster response;
- Medicaid issues raised by Hurricane Katrina and other disasters;
- Environmental concerns about the Army Corps of Engineers' levee construction and other reconstruction in floodplains;
- Health care, communications, law enforcement, and evacuation during and after disasters.

Katrina alone, the authors point out, will involve at least a hundred billion dollars in compensation, insurance, and rebuilding efforts, and lawyers will be heavily involved for at least the remainder of the decade in disputes over these funds. They argue that, because of its salience and the body of applicable law, disaster law deserves serious law school attention.

**Disaster Response and Recovery Resource for Transit Agencies.** Federal Transit Administration (FTA). 2006. 43 pp. Free online. FTA; <http://transit-safety.volpe.dot.gov/publications/safety/DisasterResponse/PDF/DisasterResponse.pdf>.

Based on lessons learned from Hurricane Katrina and other events, this guide provides local transit agencies and transportation providers with information, practices, and procedures that can improve their emergency preparedness, response, and recovery. The resource provides general background information as well as links to more specific resources. It includes sections on "Frequently Asked Questions," "The Role of Federal Agencies and States in Disaster Response," and "Local Disaster Response Resources and Recommended Practices." The FTA intends this resource to be a dynamic document and plans to regularly update information, best practices, and other information.

**Tsunami and Disaster Management: Law and Governance.** C. Raj Kumar and D.K. Srivastava, editors. ISBN 962-661-306-8. 2006. 291 pp. \$52.00. Sweet & Maxwell Asia; [www.sweetandmaxwellasia.com](http://www.sweetandmaxwellasia.com).

A collaborative effort by 15 internationally respected academicians, practitioners, and disaster management experts, this work deals with issues in disaster management highlighted by the 2004 Southeast Asia earthquake and tsunami and their implications for government reform in Asia and beyond. Among the topics addressed are legal and governance questions; disaster management and victims' rights; and disaster management and humanitarian relief and rehabilitation. The book also looks at the level of preparedness in the countries affected by the tsunami and ways to improve the responsiveness and availability of aid and relief.

**A Networked Approach to Improvements in Emergency Management.** International City/County Managers Association (ICMA). 2006. 16 pp. Free online. ICMA; <http://icma.org/main/ld.asp?ldid=20120&hsid=1&tpid=23&stid=31>.

After Hurricanes Katrina and Rita, all levels of government recognized that the "command and control" approach to emergency management had significant shortcomings. State and local governments have stepped up their efforts to develop better solutions, all of which rely on more sophisticated, organized networks and partnerships. This ICMA paper describes why such changes are needed and offers specific recommendations for improving the nation's intergovernmental emergency management system. Building on lessons learned from recent disasters, it presents an ambitious new approach based on a network of partnerships among cities and counties and supported by state governments and a sophisticated database.

**Emergency Evacuation Report Card 2006: 25 Urban Areas Could Face Greater Challenges than New Orleans Experienced after Hurricane Katrina.** 2006. 34 pp. Free online. American Highways Alliance; [www.highways.org/pdfs/evacuation\\_report\\_card2006.pdf](http://www.highways.org/pdfs/evacuation_report_card2006.pdf).

The 37 largest urban areas in the nation are evaluated in this report to identify the evacuation challenges faced by planners and residents. An "evaluation index" grades urban areas by reviewing internal traffic flow, the capacity of major highway exit routes, and automobile accessibility.

**If Disaster Strikes Will You Be Covered? A Homeowner's Insurance Guide to Natural Disasters.** 2006. 38 pp. Free online. Federal Alliance for Safe Homes; [http://flash.org/pdf/7-13-06FLASH\\_Insurance\\_Guide.pdf](http://flash.org/pdf/7-13-06FLASH_Insurance_Guide.pdf).

This guide from the Federal Alliance for Safe Homes and the Actuarial Foundation provides homeowners with information about the major perils that threaten property, the applicable insurance products and forms, and steps to take to mitigate potential losses from natural disasters.

**How Schools Can Help Students Recover from Traumatic Experiences: A Tool Kit for Supporting Long-Term Recovery.** Lisa H. Jaycox, Lindsey K. Morse, Terri Tanielian, and Bradley D. Stein. ISBN 978-0-8330-4037-4. 75 pp. 2006. Free online. The RAND Gulf States Policy Initiative; [www.rand.org/pubs/technical\\_reports/TR413/](http://www.rand.org/pubs/technical_reports/TR413/).

Developed after Hurricanes Katrina and Rita struck the United States in 2005, this tool kit was part of a project to help students displaced by these disasters. It was subsequently revised to reflect lessons learned about the kind of information needed by schools and to include additional programs. The tool kit provides a compendium of programs for trauma recovery classified by type (such as natural disaster or exposure to violence). Within each trauma category information is provided that facilitates program comparisons across several dimensions, such as goals, target population, mechanics of program delivery, implementation requirements, and evidence of effectiveness. The availability of each program's manuals and



other aids is listed, as are sources of funding for school-based programs.

**Rescued: Saving Animals from Disaster—Life-changing Stories and Practical Suggestions.** Allen and Linda Anderson. ISBN 1-57731-544-8. 2006. 366 pp. \$16.95. New World Library; [www.newworldlibrary.com](http://www.newworldlibrary.com).

A major study found that 44% of those who stayed behind when Hurricane Katrina hit did so because they would not abandon their pets. Clearly, animal rescue and disaster preparedness for pets has become vital for saving both human and animal lives. *Rescued* tells the stories of the dedicated organizations and volunteers who saved animals and reunited them with loved ones after Katrina—including animal shelters, sanctuaries, and the charities that emerged nationwide and became a significant social movement. The book also provides practical instructions that will aid pet owners and organizations that must prepare to manage animals in a disaster or evacuation.

## Floods

**From Flood Control to Integrated Water Resource Management: Lessons for the Gulf Coast from Flooding in Other Places in the Last Sixty Years.** James P. Kahan, Mengjie Wu, Sara Hajiamiri, and Debra Knopman. Occasional Paper of the RAND Gulf States Policy Initiative. ISBN 13-978-0-8330-3984-2. 2006. 68 pp. Free online. [www.rand.org/pubs/occasional\\_papers/OP164/](http://www.rand.org/pubs/occasional_papers/OP164/).

For each of four major floods, the authors examine the steps taken before and after the events for detection, preparation, first-line response, reconstruction, and compensation. The four floods are the 1948 flood and levee break on the Columbia River in the United States, the 1953 tide and storm surge flooding in The Netherlands, the 1993 flood on the upper Mississippi River in the United States, and the 1998 floods on the Yangtze River in China. Four broad conclusions are offered: disruption of the status quo can create political conditions for social and economic change; clear delineation of roles and responsibilities in advance results in improved outcomes, ignoring history leads to even larger disasters, and an excess of cure (flood control) can be worse than the disease (flood damage).

**What the Rapanos-Carabell Wetlands Decisions Mean to Floodplain and Stormwater Managers.** Edward A. Thomas. 2006. Free online. pp. 4-5 in *News & Views*, Vol. 18, No. 4; [www.floods.org/PDF/Rapanos\\_Carabell\\_10-9-06.pdf](http://www.floods.org/PDF/Rapanos_Carabell_10-9-06.pdf).

In June, the U.S. Supreme Court handed down its decision in a case known as Rapanos-Carabell, which involves the geographic extent of the area that the federal government may regulate as “wetlands” under the Clean Water Act of 1972. This paper from the Association of State Floodplain Managers explores the decision and what it means for floodplain and stormwater management.

**The Water's Edge: Profits and Policy Behind the Rising Catastrophe of Floods.** DVD. 2006. 57 min. \$17.00. Available from the Public Entity Risk Institute: [www.riskinstitute.org](http://www.riskinstitute.org).

Who makes money from floods? Who benefits from building in harm's way? And why are flood disasters growing with no end in sight? *The Water's Edge* offers a well-researched critique of the cultural denial, financial incentives, and policy failures behind the natural disaster that causes the most death and damage in the United States and worldwide. Both flood victims and renowned scientists, along with remarkable footage from recent events such as Hurricane Katrina, reveal how government and business interests perpetuate flood catastrophes through misunderstandings about the actual hazard, unsound policies, and economic interests that make mitigation irrational and unprofitable. A description and clip from this video are available at [www.thewatersedge.tv/](http://www.thewatersedge.tv/).

## Hurricanes

**2005 Hurricane Season Response: After Action Report.** Emergency Management Assistance Compact. 2006. 175 pp. Free online. EMAC and the National Emergency Management Association; [www.emacweb.org/](http://www.emacweb.org/).

The Emergency Management Assistance Compact (EMAC) is a mutual aid agreement and partnership among states through which emergency response and recovery assistance are provided across state lines when disasters occur. This report concludes that, despite demands put on the system by Hurricanes Katrina and Rita, the EMAC and its leadership effectively delivered unprecedented levels of personnel and resources to the affected areas. The 2005 civilian EMAC response was 23 times larger than the deployment of the previous year. Besides describing the accomplishments of the EMAC during 2005, this evaluation recommends such improvements as 1) a major educational and public awareness campaign to ensure that all relevant parties understand EMAC's purpose, restrictions, and operational parameters; 2) improved accountability of personnel deployed under EMAC; and 3) increased funding to maintain EMAC and facilitate its growth.

**Third Report of the NAE/NRC Committee on New Orleans Regional Hurricane Protection Projects.** Committee on New Orleans Regional Hurricane Protection Projects, National Research Council (NRC). 2006. 38 pp. National Academies Press; [www.nap.edu/catalog/11772.html](http://www.nap.edu/catalog/11772.html).

In November 2005, the Assistant Secretary of the Army for Civil Works asked the National Academy of Engineering (NAE) 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 of New Orleans hurricane protection projects. This report from the committee, the third in a series, reviews the IPET's June 2006 final draft report.

**After the Storm: Black Intellectuals Explore the Meaning of Hurricane Katrina.** David Dante Troutt, editor. ISBN 1-59558-116-2. 2006. 191 pp. \$22.95. New Press; [www.thenewpress.com](http://www.thenewpress.com).

These ten original essays explore the political and social response to Hurricane Katrina and address such difficult issues as poverty, housing, government decision



making, legal accountability, crime, community development, and political participation. The two opening pieces look back at the historical development of ghetto neighborhoods. Another complementary pair addresses the centrality of race in Louisiana society and politics. Others explore the “close link between natural disaster and black migrations in American history,” the ways in which race filters the perception of facts, the treatment of victims, the dispersal of population, and media response. All are bound by the common question of whether there will be a new New Orleans, how it will be reconstructed, and how much of the old New Orleans can be revived.

**DHS/FEMA Initial Response Hotwash: Hurricane Katrina in Louisiana, DR-1603-LA.** 2006. 99 pp. Free online. Federal Emergency Management Agency (FEMA), Department of Homeland Security (DHS); [www.disasterthebook.com/docs/Katrina\\_initial\\_response\\_hotwash.pdf](http://www.disasterthebook.com/docs/Katrina_initial_response_hotwash.pdf).

In December 2005—only a few months after Hurricane Katrina struck the Gulf Coast—managers of the various federal response teams met to discuss their performance and capture recommendations that would improve future disaster operations. This report summarizes their discussions and conclusions, which focused on six areas: initial response, medical response, mortuary affairs, continuity of government, evacuation, and coordination with local governments. They concluded that 1) a “strike team” concept should be standardized to ensure smooth liaison among governmental units and levels; 2) teams should be constituted, have leaders named, and be in place before hurricane landfall if at all possible; 3) team members should be selected for physical and mental ability to handle the on-the-ground conditions during the immediate response period; and 4) firefighters proved to be invaluable team members, and FEMA should continue employing them to augment the response teams.

**Katrina: Stories of Rescue, Recovery and Rebuilding in the Eye of the Storm.** Susan M. Moyer, editor. ISBN 1-59670-030-0. 2005. 158 pp. \$19.95 (a portion of the proceeds from the sale of this book will go to the American Red Cross Disaster Relief Fund). Spotlight Press; (217) 363-2072; [www.SpotlightPress.com](http://www.SpotlightPress.com).

The devastation wrought by Hurricane Katrina on the Gulf Coast was certainly beyond most people’s expectations and perhaps even beyond their comprehension. Survivors were left with no power, no drinking water, dwindling food supplies, steadily rising waters due to major levee breaches, fires, and, in some cases, major breakdowns in civil order. While the disaster and resultant desperation brought out the worst in some, it also inspired courage and hope in others. Using stories from the Associated Press and other wire services along with scores of color photographs, this volume recounts many of the more compelling stories of personal and community survival.

**Katrina: The Ruin and Recovery of New Orleans.** ISBN 1-59670-184-6. 2006. 192 pp. \$39.95. Spotlight Press; (217) 363-2072; [www.SpotlightPress.com](http://www.SpotlightPress.com).

Of course, Katrina, one of the worst urban disasters in American history, did not end when the hurricane’s eye passed New Orleans on September 29, 2005. This copiously illustrated book, published by New Orleans’ *Times Picayune* newspaper, examines both the resultant devastation and the resilience of that city in the days and months that followed.

## Coastal Issues

**2006 Louisiana Coastal Protection and Restoration: Preliminary Technical Report to Congress.** 2006. 78 pp. Free online. U.S. Army Corps of Engineers, New Orleans District; <http://lacpr.usace.army.mil/>.

After Hurricane Katrina, Congress directed the U.S. Army Corps of Engineers to cooperate with the state of Louisiana in designing a comprehensive protection strategy for a category 5 hurricane that would include a full range of flood control, coastal restoration, and other protective measures. This preliminary report captures the work performed to date and presents a framework for informing future decisions about hurricane risk reduction options for coastal Louisiana. It provides background information on the hurricane risk to the area; describes existing programs for coastal restoration; discusses the communities, infrastructure, and resources that are at risk; and evaluates the applicability to Louisiana of a range of options for flood control, mitigation, and restoration. The work that remains to be done to produce a final technical report is also described.

**Assessing Coastal Vulnerability: Developing a Global Index for Measuring Risk.** United Nations Environment Programme (UNEP). 2006. 64 pp. Free online. UNEP; [www.unep.org/Dewa/products/publications/2006/CVI\\_PM65\\_Final\\_05.pdf](http://www.unep.org/Dewa/products/publications/2006/CVI_PM65_Final_05.pdf).

About 41% of the world’s population lives in the coastal zone (within 100 km of shore), which accounts for only about 7% of the earth’s habitable land area. The average population density in the global coastal zone increased about 12% from 1990 to 2000, and nine of the world’s ten most densely populated cities are located in coastal areas. Coastal inhabitants are exposed to windstorms, waves, tidal surges, and rising sea levels, and their vulnerability increases as coastal and marine ecosystems are degraded and natural defenses lost. This assessment gives an overview of current global coastal monitoring; analyzes the relationship between socioeconomic and environmental indicators in coastal zones; and reviews the relationships among human activities, environmental threats, and coastal environments in terms of population pressure, land cover, geographic exposure, the probability of natural hazards, and the coping capacities of coastal communities. The study developed a preliminary Coastal Vulnerability Index, which assigns a rough measure of each country’s relative vulnerability based on its exposure to natural hazards and its individual coping capacity.

**Mitigating Shore Erosion along Sheltered Coasts.** Ocean Studies Board, National Research Council. 2006. 138 pp. National Academies Press; [http://fermat.nap.edu/openbook.php?record\\_id=11764&page=R1](http://fermat.nap.edu/openbook.php?record_id=11764&page=R1).

Sheltered coastal areas, such as bays and estuaries, suffer land loss from erosion and high water but have not been the subject of much research. At the request of the Environmental Protection Agency, the Army Corps of Engineers, and the Cooperative Institute for Coastal and Estuarine Environmental Technology, the National Research Council examined the impacts of shoreline management (typically, the use of bulkheads, revetments, and other structures) on coastal environments. The committee suggests developing a new shoreline erosion management framework that would help decision makers evaluate the spectrum of available approaches to erosion problems in the context of the coastal environmental setting, the potential for cumulative impacts of armoring techniques, and the significance of the ecological services that sheltered coasts provide.

## Earthquakes

**Yokohama Burning: The Deadly 1923 Earthquake and Fire that Helped Forge the Path to World War II.** Joshua Hammer. ISBN 0-7432-6465-7. 2006. 330 pp. \$26.00. Simon & Schuster; [www.simonsays.com](http://www.simonsays.com).

*Yokohama Burning* is the story of one of the worst natural disasters of the twentieth century: the earthquakes, fires, and tsunamis of September 1923 that destroyed Yokohama and most of Tokyo and killed 140,000 people. Author Joshua Hammer not only recreates these tumultuous events, he also places them in the context of history and demonstrates how they set Japan on a path to even greater tragedy—the Second World War. To piece together a minute-by-minute account of the catastrophe, Hammer searched diaries, letters, and newspaper accounts and conducted interviews with numerous nonagenarian survivors.

## Climate Change and Drought

**Climate Change 101: Understanding and Responding to Global Climate Change.** 2006. Free online. [www.pewclimate.org/global-warming-basics/climate\\_change\\_101/index.cfm](http://www.pewclimate.org/global-warming-basics/climate_change_101/index.cfm).

The Pew Center on Global Climate Change and the Pew Center on the States have established a new series of publications to facilitate discussion about potential problems posed by changes in climate. The first three reports provide a clear introduction to climate science and impacts, technological solutions, and recent action by individual states. Another three, plus an overview, were expected to be released in late 2006; they are to cover international solutions, local government action, and business engagement in climate issues.

**Drought Public Fact Sheet.** National Weather Service (NWS). 2006. 3 pp. Free online. NWS; [www.weather.gov/os/brochures/climate/Drought.pdf](http://www.weather.gov/os/brochures/climate/Drought.pdf).

In this new handout, NWS defines drought (differentiating meteorological, agricultural, and hydrological drought), discusses how it is monitored and assessed, and lists additional Web resources that provide information on this hazard.

**Climate Change and Its Effects on Small Businesses in the UK.** David Crichton. 2006. 46 pp. Free online. The AXA Group; [www.axa.co.uk/aboutus/corporate\\_publications/climate\\_change.html](http://www.axa.co.uk/aboutus/corporate_publications/climate_change.html).

The already high costs of climate change (most clearly manifested in flooding) borne by small- and medium-size enterprises in Britain are set to rise dramatically. Projected scenarios detailed in this report show that the cost is likely to rise on the order of 30 or 40 times by 2080. A guide for small businesses, *Preparing for Climate Change*, is also available at this site.

**El Niño, La Niña, and ENSO Public Fact Sheet.** National Weather Service (NWS). 2006. 4 pp. Free online. NWS; [www.weather.gov/os/brochures/climate/El\\_Nino.pdf](http://www.weather.gov/os/brochures/climate/El_Nino.pdf).

This handout explains the meteorological phenomena of El Niño, La Niña, and El Niño Southern Oscillation (ENSO), describes their physical consequences—particularly for North America, and details the monitoring and modeling systems used to track their evolution.

**When the Rivers Run Dry: Water—The Defining Crisis of the Twenty-first Century.** Fred Pearce. ISBN 0-8070-8572-3. 2006. 334 pp. \$26.95. Beacon Press; [www.beacon.org/](http://www.beacon.org/).

Across societies and landscapes, rivers have always been a primary source of fresh water for both agriculture and individual consumption. But now economists say that by 2025 water scarcity will cut global food production by more than the current U.S. grain harvest. Fred Pearce examines this growing world water crisis and its ramifications. While researching *When the Rivers Run Dry*, Pearce traveled to more than 30 countries examining the current state of such crucial water sources as the Indus River in Pakistan, the Colorado River in the United States, and the Yellow and Yangtze rivers in China. Pearce describes the complex issues surrounding river water supply—from waste to wrong-headed engineering projects to high-yield crop varieties—approaches that have saved developing countries from starvation but are now depleting their water reserves. He presents today's most daunting water issues, among them the threat of flooding along China's Yellow River, where rising silt levels will prevent dikes from containing floodwaters; the impoverishment of Pakistan's Sindh, a once-fertile farming valley now destroyed by the 14 million tons of salt that the much-depleted Indus annually deposits on the land but cannot remove; the disappearing Colorado River, whose reservoirs were once the lifeblood of seven states but which could dry up as soon as 2007; and the poisoned springs of Palestine and the Jordan River, where Israeli control of the water supply has fed conflict between Israelis and Palestinians.

## Avalanche

**Snowstruck: In the Grip of Avalanches.** Jill Fredston. ISBN 0-15-101249-0. 2005. 342 pp. \$24.00/hardcover; \$14.00/paperback. Harcourt Trade Publishers; (212) 592-1000; trade.sales@harcourt.com; [www.harcourtbooks.com/](http://www.harcourtbooks.com/).

In the United States alone, avalanches claim about 30 lives per year. In this book, avalanche expert Jill Fredston recounts many of her own personal experiences with avalanches in the mountains of Alaska as well as those of avalanche victims, rescuers, and forecasters. The many stories are peppered with information about hazard reduction through deliberate triggering with explosives, mitigation through education, avalanche forecasting, and avalanche rescue.

## Risk

**Journal of Risk Research.** Ragnar E. Löfstedt, editor. Print ISSN 1366-9877, Online ISSN 1466-4461. \$1,188.00 for institutions, \$132.00 for individuals. Eight issues per year. Taylor & Francis, Customer Services T&F Informa UK Ltd; +44 (0)207 017 5544 (United Kingdom); [www.tandf.co.uk/journals/titles/13669877.asp](http://www.tandf.co.uk/journals/titles/13669877.asp).

This international journal publishes peer-reviewed theoretical and empirical research articles within the risk field from the areas of social, physical, and health sciences and engineering as well as articles related to decision making, regulation, and policy in all disciplines. It aims to stimulate intellectual debate, to promote better risk management practices, and to contribute to the development of risk management methodologies. It is the official journal of the Society for Risk Analysis Europe and the Society for Risk Analysis Japan.

**Precautionary Risk Management: Dealing with Catastrophic Loss Potentials in Business, the Community and Society.** Mark Jablonowski. ISBN 0-230-01352-X. 2006. 184 pp. \$80.00. Palgrave Macmillan; (888) 330-8477; [www.palgrave.com/](http://www.palgrave.com/).

Dealing with high-stakes risks depends on the ability to come to grips with some easy-to-understand, yet difficult-to-apply, criteria for decision making. Jablonowski argues that to be truly effective, risk managers must go beyond the façade of pseudo-scientific assessments that cater to special interests and take a fresh look at the only two sensible decision criteria relevant to extreme risks: precautionary avoidance and fatalism. The author shows why scientific assessments of catastrophic risk based on “averages” do not work and sets the stage for making the tough choice between precaution and fatalism by exploring the implications of both options.

## Forecasts and Warnings

**Completing the Forecast: Characterizing and Communicating Uncertainty for Better Decisions Using Weather and Climate Forecasts.** Committee on Estimating and Communicating Uncertainty in Weather and Climate Forecasts, National Research Council. ISBN 0-309-66261-3. 2006. 124 pp. Free online. National Academies Press; [www.nap.edu/catalog/11699.html](http://www.nap.edu/catalog/11699.html).

The National Weather Service (NWS) and others involved in weather, climate, and hydrological prediction and forecasting recognize that uncertainty is a fundamental characteristic of such forecasts and, as such, must be included in any forecast that is issued. This study was requested by the NWS to help improve the generation, communication, and potential use of uncertainty information in hydrometeorological forecasts. It provides a template for a process through which the producers and users of forecasts can interact to generate forecasting products that include information about uncertainty and that convey that uncertainty in a way that fosters effective decision making. Among other items, the committee recommends a broad initiative for educating both producers

## Web Sites of Interest

**Web Clearinghouse: The Societal Aspects of Weather**  
[www.sjp.ucar.edu/socasp/](http://www.sjp.ucar.edu/socasp/)

**Just In Case Arizona**  
[www.justincasearizona.com/](http://www.justincasearizona.com/)

**Planning and Managing for Isolation and Quarantine—Advanced Practice Toolkit**  
[www.isolationandquarantine.com/](http://www.isolationandquarantine.com/)

**Hawaii Earthquake: October 15, 2006**  
<http://earthquake.usgs.gov/eqcenter/eqinthenews/2006/ustwbh/>

**Forum for Public Safety Communication Europe**  
[www.publicsafetycommunication.eu/](http://www.publicsafetycommunication.eu/)

**Webinar: Ensuring Business Continuity**  
[www.drj.com/drj-express/August29-06-Update/drj-express-8-29-06update.html](http://www.drj.com/drj-express/August29-06-Update/drj-express-8-29-06update.html)

**APHA's Get Ready (for flu) Campaign**  
[www.getreadyforflu.org/](http://www.getreadyforflu.org/)

**Shoreline Management Technical Assistance Toolbox**  
[www.coastalmanagement.noaa.gov/shoreline.html](http://www.coastalmanagement.noaa.gov/shoreline.html)

**Emergency Preparedness and Responses: Tsunamis**  
[www.bt.cdc.gov/disasters/tsunamis/](http://www.bt.cdc.gov/disasters/tsunamis/)

**U.S. Environmental Protection Agency: Climate Change**  
[www.epa.gov/climatechange](http://www.epa.gov/climatechange)





and users about forecast uncertainty; wide accessibility of model output and statistical information on uncertainty; and an independent advisory committee to assist the NWS in moving toward widespread estimation and communication of uncertainty.

**Early Warning—From Concept to Action: The Conclusions of the Third International Conference on Early Warning.** 2006. 19 pp. Free online. Secretariat of the International Strategy for Disaster Reduction; [www.ewc3.org/upload/downloads/Early\\_warning\\_complete2.pdf](http://www.ewc3.org/upload/downloads/Early_warning_complete2.pdf).

This document is one product of the Third International Conference on Early Warning, which was hosted by the government of Germany under the auspices of the United Nations in March 2006. The conference showcased innovative early warning projects for potential financial support and implementation, identified unused potential in early warning, and facilitated multidisciplinary scientific debate on latest practices and research. Other outcomes include *A Compendium of Early Warning Projects* (47 pp.), which consists of project proposals from all parts of the world, and a tool for practitioners, *Developing Early Warning Systems: A Checklist* (13 pp.). Both are available at [www.ewc3.org/](http://www.ewc3.org/).

**Global Survey of Early Warning Systems: An Assessment of Capacities, Gaps and Opportunities toward Building a Comprehensive Global Early Warning System for All Natural Hazards.** 2006. 60 pp. Free online. Secretariat of the International Strategy for Disaster Reduction; [www.ewc3.org/upload/downloads/Global\\_Survey.pdf](http://www.ewc3.org/upload/downloads/Global_Survey.pdf).

In early 2005, the United Nations initiated a global survey of capacities and gaps in early warning systems, with a view to establishing a worldwide system for all natural hazards, building on existing national and regional capacity. This report synthesizes the findings of the survey, which found that early warning system technologies are now available for almost all types of hazards and are in operation in at least some parts of the world. Further, considerable progress has been made in developing the knowledge and technical tools required to assess risks and to generate and communicate predictions and warnings. However, there are many gaps and shortcomings, and the world is far from having a global system for all hazards and all communities.

## Vulnerability, Development, and Resilience

**Vulnerability: A Conceptual and Methodological Review.** Juan Carlos Villagrán De León. No. 4/2006 in Studies of the University: Research, Counsel, Education Publication Series. ISBN 3-9810582-5-9. 2006. 68 pp. Free online. United Nations University Institute for Environment and Human Security; [www.ehs.unu.edu/file.php?id=191](http://www.ehs.unu.edu/file.php?id=191).

Disasters highlight pre-existing conditions within the social, economic, physical, and environmental fabrics of the society in which they occur and are not, as commonly perceived, simply external events caused by external conditions such as natural hazards, independent of context. Based on this premise, this report is a comparative and systematic introduction to the complex notion of vulner-

ability, intended for graduate students and professionals from different disciplines. It offers several methods to assess vulnerability at different scales—from the household to the nation. It concludes with a discussion on the dynamic aspects of vulnerability and its connection to coping capacity and resilience.

**Community Disaster Resilience: A Summary of the March 20, 2006 Workshop of the Disasters Roundtable.** Byron Mason, editor. 2006. 15 pp. Free online. National Academies Press; [www.nap.edu/catalog/11769.html](http://www.nap.edu/catalog/11769.html).

This 15-page report summarizes a workshop that brought together researchers, policy makers, and practitioners to focus on community resilience in the face of disaster. Participants discussed such issues as the nature of local resilience to disaster, what can further or inhibit it, and how progress can be measured.

**Disaster Risk Reduction: A Development Concern.** ISBN 1-86192-676-6. 65 pp. Free online. Department for International Development (DFID), Overseas Development Group; [www.dfid.gov.uk/pubs/files/drr-scoping-study.pdf](http://www.dfid.gov.uk/pubs/files/drr-scoping-study.pdf).

There is convincing evidence that the number and seriousness of disasters is increasing worldwide and that poor countries and poor communities are disproportionately affected. This study by DFID uses existing information and interviews with disaster and development professionals to outline and describe the links between disasters, disaster vulnerability, poverty, and development issues. The aim is to further sharpen disaster reduction strategies by illuminating the ways in which poverty and certain development patterns can exacerbate vulnerability and by determining ways to disrupt those patterns.

## Health

**Moving Beyond the Tsunami: The WHO Story.** ISBN 92-9022-242-5. 2006. 79 pp. Free online. World Health Organization; [www.searo.who.int/en/Section23/Section1108/Section1835/section2053.htm](http://www.searo.who.int/en/Section23/Section1108/Section1835/section2053.htm).

With anecdotes, photographs, statistics, and a chronological narrative, the World Health Organization (WHO) pieces together in this report a summary of the public health impacts of the tsunami that struck Southeast Asia in December 2004, along with the lessons that can be learned from the disaster and the world's response to it. Among the observations are that countries that had a better health infrastructure in place were able to respond more effectively to the health needs generated by the disaster and that protecting the environment is key to mitigating the impact of natural hazards. WHO offers these recommendations for improved health care after future disasters: 1) invest in public information professionals at the country and regional levels, continuously building good relations with the media; 2) establish a ready database of experts who could be mobilized in times of emergency; and 3) coordinate with NGOs and other partners to establish mechanisms for dealing with the supplies and assistance that will be received.



**Public Health Emergency Exercise Toolkit.** 2006. 76 pp. Free online. Center for Health Policy, Columbia University School of Nursing; [www.nursing.hs.columbia.edu/pdf/PublicHealthBooklet\\_060803.pdf](http://www.nursing.hs.columbia.edu/pdf/PublicHealthBooklet_060803.pdf).

This toolkit is intended to guide local public health agency staff in developing, implementing, and evaluating emergency drills and exercises, and facilitating the public health aspects of larger, multiagency emergency exercises. It supplies guidance consistent with approaches recommended by the Department of Homeland Security and includes templates, checklists, and forms supporting every stage of the exercise process. The toolkit emphasizes identification of objectives during the planning phase to ensure that, once the exercise is completed, meaningful evaluation will result in improved performance.

**A Legal Analysis of Emergency Powers Granted in Mississippi Law Regarding Pandemics and Bioterrorism.** Mississippi Legislature Joint Legislative Committee on Performance-Evaluation and Expenditure Review (PEER). 2006. 36 pp. Free online. PEER; [www.peer.state.ms.us/reports/rpt491.pdf](http://www.peer.state.ms.us/reports/rpt491.pdf).

PEER prepared this report in response to legislative concerns over Mississippi's authority and ability to respond to flu pandemics or acts of bioterrorism. In reviewing Mississippi law on emergency response to such occurrences, PEER used the Model State Emergency Health Powers Act as a criterion for evaluating the adequacy of Mississippi's emergency response laws.

## Homeland Security

**Major Terrorism Events and Their U.S. Outcomes (1988-2005).** CD-ROM or 65 pp. hardcopy report. 2006. \$25.00. Available from the Public Entity Risk Institute; [www.riskinstitute.org](http://www.riskinstitute.org).

*Major Terrorism Events and Their U.S. Outcomes* presents a detailed chronology of terrorist acts since 1988 and documents their political, regulatory, and organizational consequences. The report complements the facts and dates presented in the *Terrorism Time Line* chart, both created by Claire Rubin and Associates. More information about the report and chart are available from [www.disaster-timeline.com](http://www.disaster-timeline.com).

**Terrorism and the Chemical Infrastructure: Protecting People and Reducing Vulnerabilities.** Committee on Assessing Vulnerabilities Related to the Nation's Chemical Infrastructure, National Research Council. ISBN 0-3090-09721-5. 2006. 151 pp. \$29.70. National Academies Press; [www.nap.edu](http://www.nap.edu).

The chemical industry is key to the national economy and has been designated by the Department of Homeland Security (DHS) as one of 17 sectors that compose the nation's critical infrastructure. To assist DHS in understanding and mitigating the vulnerabilities faced by the chemical industry, this study examines classes of chemicals and chemical processes that are essential to the nation's security, economy, and health. It identifies vulnerabilities and points of weakness in the supply chain for these chemicals and chemical processes; assesses the likely impact

of a significant disruption in that supply chain; identifies actions to help prevent disruption and mitigate loss and injury should disruption occur; identifies incentives and disincentives to preventative and mitigating actions; and recommends areas of potential scientific, engineering, and economic research and development.

### Considering the Effects of a Catastrophic Terrorist Attack.

Charles Meade and Roger C. Molander. 2006. 52 pp. Free online. RAND Center for Terrorism Risk Management Policy; [www.rand.org/pubs/technical\\_reports/TR391/](http://www.rand.org/pubs/technical_reports/TR391/).

This RAND technical paper analyzes a strategic gaming exercise involving a catastrophic terrorist attack on the port of Long Beach, California. The authors describe the results from the investigation and provide many of the primary results from the analysis in the appendixes. The analytical tools developed for the study lay the groundwork for research exploring both the short- and long-term effects of catastrophic events, with an eye toward understanding decisions in the months that would follow attacks of this magnitude, identifying where existing systems are likely to fail, and evaluating the benefits of a range of potential economic policies.

## Updates

**Earthquakes, Fifth Edition.** Bruce A. Bolt. ISBN 0-7167-7548-4. 2006. 413 pp. \$43.95. W.H. Freeman and Company; [www.whfreeman.com](http://www.whfreeman.com).

**Hurricanes: Unleashing Nature's Fury: A Preparedness Guide.** 2006. 24 pp. Free online. National Weather Service; [www.weather.gov/os/hurricane/pdfs/Hurricane\\_unleashing06.pdf](http://www.weather.gov/os/hurricane/pdfs/Hurricane_unleashing06.pdf).

**Critical Infrastructure: The National Asset Database.** John Moteff. 2006. RL33648. 17 pp. [www.opencrs.com/document/RL33648](http://www.opencrs.com/document/RL33648).

## Government Accountability Office Reports

The following Government Accountability Office (GAO) reports are available free online at [www.gao.gov/](http://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](http://www.gao.gov/cgi-bin/ordtab.pl).

**Homeland Security: Opportunities Exist to Enhance Collaboration at 24/7 Operations Centers Staffed by Multiple DHS Agencies.** 2006. GAO-07-89. 54 pp.

**Small Business Administration: Actions Needed to Provide More Timely Disaster Assistance.** 2006. GAO-06-860. 56 pp.

**Purchase Cards: Control Weaknesses Leave DHS Highly Vulnerable to Fraudulent, Improper, and Abusive Activity.** 2006. GAO-06-957T. 43 pp.



# 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](http://www.colorado.edu/hazards/resources/conferences.html).

**7th National Conference on Science, Policy, and the Environment: Integrating Environment and Human Health—Washington, DC: February 1-2, 2007.** Organizer: National Council for Science and the Environment (NCSE). This conference will bring together scientists, policy makers, educators, and others to explore and develop science-based solutions to protect people and the earth. Specifically, the meeting will address the relationship between the health of the planet and the health of people.

National Council for Science and the Environment  
conference2007@ncseonline.org  
[www.ncseonline.org/2007conference/](http://www.ncseonline.org/2007conference/)

**EERI Annual Meeting—Los Angeles, California: February 7-10, 2007.** Host: Earthquake Engineering Research Institute (EERI). The purpose of EERI is to reduce earthquake risk by advancing the science and practice of earthquake engineering; improving understanding of the impact of earthquakes on the physical, social, economic, political, and cultural environment; and advocating comprehensive and realistic measures for reducing the harmful effects of earthquakes. EERI fulfills this role by fostering a sense of shared commitment among the diverse communities dedicated to earthquake risk management; promoting research; facilitating the exchange of information among members and others; and forging a consensus and speaking with a common voice to public forums and legislative bodies on behalf of the diverse risk management community. The EERI annual meeting addresses all of these goals.

Earthquake Engineering Research Institute  
(510) 451-0905; eeri@eeri.org  
[www.eeri.org/news/meetings.html](http://www.eeri.org/news/meetings.html)

**6th Annual New Partners for Smart Growth Conference: Building Safe, Healthy and Livable Communities—Los Angeles, California: February 8-10, 2007.** Organizer: Local Government Commission. This meeting will include plenary and interactive breakout sessions, hands-on workshops, specialized training programs, and optional tours of local model projects. It will also cover current issues in "smart growth," implementation tools and strategies, best practices, interactive learning, and new partners, projects, and policies. It is intended for a multidisciplinary audience of local elected officials, city and county staff, landscape architects, developers and builders, planners, transportation professionals and traffic engineers, public health professionals, architects, and others committed to building safer, healthier, and more livable communities.

[www.newpartners.org/](http://www.newpartners.org/)

**28th Annual International Disaster Management Conference—Orlando, Florida: February 8-11, 2007.** Presenter: Emergency Medicine Learning and Resource Center (EMLRC). Over the years, this conference has tried to meet the educational needs of individuals and agencies involved with emergency preparedness, response, and recovery. Principle topics will include lessons learned from recent disasters, natural disaster response strategies, medical/public health disaster management, and terrorism response strategies and tactics.

Emergency Medicine Learning and Resource Center  
(800) 766-6335  
[www.emlrc.org/disaster2007.htm](http://www.emlrc.org/disaster2007.htm)

**National Emergency Management Association (NEMA) Mid-Year Conference—Washington, DC: February 10-15, 2007.**

This conference will provide an opportunity for NEMA members to discuss their most urgent issues and challenges, to share solutions, and network with peers. Participants will also hear from key officials at the national level involved in homeland security and emergency management and be able to share their views and concerns with the leadership in Washington.

[www.nemaweb.org/?1508](http://www.nemaweb.org/?1508).

**Environmental Connection '07—Reno, Nevada: February 12-16, 2007.** Organizer: International Erosion Control Association. This conference will give contractors, engineers, builders, and regulators an opportunity to share information on the best solutions available for stormwater management and erosion control. The program will include 20 full-day training courses and over 50 presentations of case studies and technical papers.

[www.ieca.org/conference/annual/aboutec.asp](http://www.ieca.org/conference/annual/aboutec.asp)

**2007 PARMA Conference—Monterey, California: February 13-16, 2007.** Organizer: Public Agency Risk Managers Association (PARMA). PARMA is a professional association that promotes and develops education and leadership in public agency risk management. Thus, the primary goal of its annual conference is to facilitate the exchange of ideas and innovative solutions toward risk management in government.

<http://parma.com/index.cfm?pageid=545>

**Cat Modeling 2007—New Orleans, Louisiana: February 13-16, 2007.** Organizer: Reinsurance Association of America (RAA). This seminar will explore how catastrophe models can be used and how they affect decision processes. It will also explore how recent events could affect both the primary and reinsurance markets in the years to come. The seminar will explore all catastrophe modeling

applications, and thus is an open forum on model-based decision development for insurance and reinsurance decision makers.

RAA  
(800) 259-0199; meetings@reinsurance.org  
<http://community.reinsurance.org/StaticContent/Meetings/recat.htm>

**EPICC Forum 2007—Vancouver, Canada: February 19-21, 2007.** Organizer: Emergency Preparedness for Industry and Commerce Council (EPICC). EPICC is a nonprofit society whose mission is “to lead businesses in preparing to survive a disaster.” The purpose of this forum is to inform businesses about business continuity and emergency preparedness and to assist them in planning and implementing disaster mitigation measures.

Emergency Preparedness for Industry and Commerce Council  
(604) 222-9122; epiccforum@telus.net  
[www.epiccforum.org/](http://www.epiccforum.org/)

**The National Emergency Management Summit—New Orleans, Louisiana: March 4-6, 2007.** Sponsors: *Health Affairs*, *Harvard Health Policy Review*, and the Louisiana Hospital Association. Environmental and geopolitical events have coalesced to create a heightened risk of natural disasters, epidemics, and terrorism in the United States. Participants at the National Emergency Management Summit will assess these risks and articulate practical approaches for planning, response, and recovery focusing on the special challenges that health care organizations face in emergency situations.

[www.emergencymanagementsummit.com/](http://www.emergencymanagementsummit.com/)

**Higher Education All-Hazards Planning and Emergency Management Institute—Boston, Massachusetts: March 5-7, 2007.** Organizer: Academic Impressions, Inc. This conference will help emergency managers, as well as professionals in campus police/security, environmental health and safety, and facilities management, to plan more thoroughly for all-hazards emergency management. The conference will identify the resources, tactics, and stakeholders needed to develop, test, and refine a campus-wide emergency management plan that addresses all issues, including communications and partnering with external agencies. Participants will leave the institute with a work plan that details how to develop a plan for their institution of higher education.

Academic Impressions  
(720) 488-6800  
[www.academicimpressions.com/conferences/0307-emergency-planning.php](http://www.academicimpressions.com/conferences/0307-emergency-planning.php)

**ASBPA 2007 Coastal Summit: America's Coasts, America's Treasures: National Perspectives and Policy—Washington, DC: March 21-23, 2007.** Organizer: American Shore and Beach Preservation Association (ASBPA). The objectives of this conference are to provide an in-depth look at critical issues affecting beach preservation and management; to help coastal advocates enhance media relations

and lobbying skills; to aid participants in understanding federal budgeting and appropriations; and to provide networking opportunities for members of Congress, federal officials, and beach lovers.

[www.asbpa.org/conferences/conferences.htm](http://www.asbpa.org/conferences/conferences.htm)

**68th ASPA National Conference—Monumental Possibilities: Capitalizing on Collaboration—Washington, DC: March 23-27, 2007.** Organizer: American Society for Public Administration (ASPA). This annual conference will focus on collaboration across sectoral and governmental lines regarding such topics as budgeting, finance, accountability, and performance. It will also examine intergovernmental and international relations; human resource management and social equity; response to threats and disasters; public safety, law, and the courts; ethical issues and administrative courage; environmental justice, public works management, and policy; housing, social services, health policy, and management; environment, science, and technology; education for public service; the political context of public service; issues in local government; and issues in federal service.

[www.aspanet.org/scriptcontent/index\\_aspaconference.cfm](http://www.aspanet.org/scriptcontent/index_aspaconference.cfm)

**DRJ's Spring World 2007—Orlando, Florida: March 25-28, 2007.** Organizer: *Disaster Recovery Journal* (DRJ). DRJ conferences focus on all aspects of disaster recovery, contingency planning, and business continuity through plenary and breakout sessions, workshops, exercises, and networking opportunities. An exhibit hall will showcase the latest products and services in the industry.

[www.drj.com/conferences/orl2007/](http://www.drj.com/conferences/orl2007/)

**Risk & Rationalities—Cambridge, United Kingdom: March 29-31, 2007.** Organizer: Economic and Social Research Council, Social Contexts and Responses to Risk Network. This conference will examine the dynamics of risk, approaches to risk in different disciplines, government responses to risk, varying rationalities in the management and regulation of risk, the advantages and limitations of heuristics, affect, and emotion in explaining risk responses, trust and risk, and more.

[www.kent.ac.uk/scarr/events/events.htm](http://www.kent.ac.uk/scarr/events/events.htm)

**SAR (Search and Rescue) 2007—Washington, DC: April 2-3, 2007.** Saving lives in today's extremely diverse and demanding environments requires the very best in search, rescue, and recovery technology. At the same time, a key factor in the success of any SAR mission is the personal dedication, ingenuity, and commitment of the men and women whose goal is to save lives in peril. SAR 2007 will bring together world leaders in search and rescue to help fulfill both these needs. The conference will provide delegates the opportunity to learn new techniques for saving lives and ensuring rescue mission success. It will also address the problems of joint and multinational operations and showcase actual successes in search and rescue.

[www.shephard.co.uk/Events.aspx?Action=318025241&ID=c4fa9869-df3b-4519-82f1-46b2a683f523](http://www.shephard.co.uk/Events.aspx?Action=318025241&ID=c4fa9869-df3b-4519-82f1-46b2a683f523)



**2007 National Hurricane Conference—New Orleans, Louisiana: April 2-6, 2007.** The primary goal of this conference is to improve hurricane preparedness, response, recovery, and mitigation to save lives and property in the United States and the tropical islands of the Caribbean and Pacific. In addition, the conference serves as a national forum for federal, state, and local officials to exchange ideas and recommend new policies to improve emergency management.

(850) 906-9224; mail@HurricaneMeeting.com  
[www.hurricanemeeting.com/](http://www.hurricanemeeting.com/)

**Partners in Emergency Preparedness—Tacoma, Washington: April 10-11, 2007.** Offered by: Center for Distance and Professional Education, Washington State University, in partnership with the Washington State Emergency Management Division and the American Red Cross Serving King and Kitsap Counties. The Partners in Emergency Preparedness Conference is the largest and most successful regional emergency preparedness conference in the Pacific Northwest and is intended for representatives of businesses, schools, government, nonprofit agencies, emergency management, and volunteer organizations. Conference registration begins February 1, 2007.

Washington State University Center for Distance and Professional Education  
(800) 942-4978  
<http://capps.wsu.edu/emergencyprep>

**Analyzing Risk: Science, Assessment, and Management—Boston, Massachusetts: April 10-13, 2007.**

Offered by: Harvard School of Public Health, Division of Continuing Professional Education and Center for Risk

Analysis. Risk analysis plays an important role in environmental and public health decision making, and recent executive orders and regulatory guidelines ensure that it will have increasing prominence in upcoming years. This program provides education about current risk analysis methods, how risk analysis is interpreted, and how it influences regulatory decision making. It is designed for industrial, regulatory, and public health professionals responsible for managing, conducting, or evaluating risk assessments associated with occupational, food-borne, or environmental hazards.

Harvard School of Public Health  
(617) 384-8692

[www.hsph.harvard.edu/ccpe/programs/RISK.shtml](http://www.hsph.harvard.edu/ccpe/programs/RISK.shtml)

**Seismological Society of America (SSA) Annual Meeting—Waikoloa, Hawaii: April 11-13, 2007.** 1907 marks the hundredth anniversary of the founding of the SSA, which was formed due to the increased concern and need for scientific understanding of seismology following the Great 1906 San Francisco Earthquake. Last year, the SSA commemorated that event by holding its annual meeting in San Francisco and hosting several sessions and presentations on the 1906 disaster. This year, to celebrate its founding, the society invites members and others concerned about earthquakes and their consequences to travel to Hawaii, scene of a major quake last October.

Seismological Society of America  
(510) 525.5474; info@seismosoc.org  
[www.seismosoc.org/htdocs/meetings/](http://www.seismosoc.org/htdocs/meetings/)

## START Launches Research Brief Series

**S**TART—the National Consortium for the Study of Terrorism and Responses to Terrorism—is a U.S. Department of Homeland Security Center of Excellence based at the University of Maryland. It is dedicated to using state-of-the-art theories, methods, and data from the social and behavioral sciences to improve understanding of the origins, dynamics, and social and psychological impacts of terrorism. The consortium announced in November the launch of a new online publication series, “START Research Briefs,” which present interim findings from ongoing START research projects. New entries in this series will be added on a regular basis. The first publications address the following topics:

- Efficacy of counterterrorism approaches
- Public school preparedness for disasters
- Public risk communication
- Predictors of support for anti-Western terrorism

The fulltext of each brief can be downloaded from the publications section of the START Web site: [www.start.umd.edu/publications/research\\_briefs/](http://www.start.umd.edu/publications/research_briefs/).

## Call for Abstracts

**T**he Institute for Business & Home Safety (IBHS), together with the Association of Collegiate Schools of Planning (ACSP), is requesting submissions for the annual scholarship award in planning and natural hazards. Papers can address topics such as:

- Land use or other types of planning that incorporate natural hazards
- Strategies for minimizing hazards impacts through community, regional, or state planning and related mandates/laws
- Hazard mitigation planning and implementation
- Disaster resilient communities
- Economic recovery/business continuity

Resources and materials are available from IBHS at [www.ibhs.org/land\\_use\\_planning/](http://www.ibhs.org/land_use_planning/) to help stimulate thinking about these topics. Undergraduate and graduate student papers are eligible. Please see [www.acsp.org/awards/awards.html](http://www.acsp.org/awards/awards.html) for abstract submission procedures and deadlines. Abstracts must be submitted to ACSP between January 10 and February 21, 2007. Interested individuals should contact Diana McClure at IBHS, [dmcclure@ibhs.org](mailto:dmcclure@ibhs.org) for more information.



**Conference on Disaster and Migration—New Orleans, Louisiana: April 12-14, 2007.** Organizer: Sociology Department, Tulane University. The conference will bring together scholars whose work contributes to understanding disaster and migration through theoretical analyses or empirical research. Using the migrations that resulted from Hurricane Katrina as a basis for discussion, participants will offer theoretical perspectives on migration and disaster, discuss research on the social process of evacuation, and examine the migration of both the returnees and the displaced.

[www.tulane.edu/~sociol/DisasterandMigration.html](http://www.tulane.edu/~sociol/DisasterandMigration.html)

**The Second Geospatial Integration for Public Safety Conference—New Orleans, Louisiana: April 15-17, 2007.** Sponsored by: National Emergency Number Association (NENA) and the Urban and Regional Information Systems Association (URISA). This conference is designed to bring together GIS professionals, addressing coordinators, and 9-1-1 and emergency response specialists for a networking and learning opportunity. Conference program topics include addressing basics, coordination, and standards; emergency response and 9-1-1; case studies of GIS integration with public safety; and other subjects.

[www.urisa.org/gipsc](http://www.urisa.org/gipsc)

**European Geosciences Union General Assembly 2007—Vienna, Austria: April 15–20, 2007.** The 2007 assembly includes separate program tracks on natural hazards, seismology, hydrology, and other hazard-related topics. The deadline for abstract submission is January 15.

<http://meetings.copernicus.org/egu2007/>

**15th Annual VOAD Conference—Albuquerque, New Mexico: April 17-20, 2007.** Organizer: National Voluntary Organizations Active in Disaster (NVOAD). NVOAD is committed to the precept that the best time for agencies and organizations to train, prepare, and become acquainted with each other is before a disaster takes place. This annual meeting is a forum for NVOAD members (and others) to do just that and to begin to coordinate their efforts for more effective disaster response.

[www.nvoad.org/annualconf1.php](http://www.nvoad.org/annualconf1.php)

**18th Global Warming International Conference and Expo—Miami, Florida: April 19-20, 2007.** Organizer: Global Warming International Center (GWIC). This conference is dedicated to furthering scientific research, technology, and education for global warming mitigation. This year, in addition to the scientific program and the technology expo, the organizers are developing a public program and an education program based on the feedback of concerned citizens, educators and school teachers, and technology innovators.

Global Warming International Center

(630) 910-1551

<http://gw18.globalwarming.net/>

**12th International Conference of Fire Service Women—Oakland, California: April 25-29, 2007.** Organizer: Women in the

Fire Service (WFS). This meeting is intended to provide concrete, useful information and training to women in (or seeking to enter) the structural or wildland fire service.

[www.wfsi.org/news\\_and\\_events/events.php?event\\_id=12](http://www.wfsi.org/news_and_events/events.php?event_id=12)

**2007 National Flood Conference—Denver, Colorado: April 29-May 2, 2007.** Organizer: National Flood Insurance Program (NFIP). Intended for insurance adjusters, agents, lenders, planners, government officials, and others involved in the NFIP, this conference will address the evolving NFIP and current issues, both local and national.

[www.fema.gov/business/nfip/natl\\_fldconf.shtm](http://www.fema.gov/business/nfip/natl_fldconf.shtm)

**RIMS 2007—New Orleans, Louisiana: April 29-May 3, 2007.** Organizer: Risk and Insurance Management Society, Inc. RIMS 2007 will offer an opportunity for participants to gain valuable knowledge and insights regarding hazards and risk management; discover innovative ideas for maximizing risk management strategies; identify the next generation of challenges for the industry; develop plans for coping with those problems; and strengthen relationships with others in the profession. The conference program includes several sessions that address natural hazards and disasters.

[www.rims.org/Template.cfm?section=AnnualConference1](http://www.rims.org/Template.cfm?section=AnnualConference1)

**6th UCLA Conference on Public Health and Disasters—Torrance, California: May 6-9, 2007.** Host: UCLA Center for Public Health and Disasters (CPHD). The public health consequences of natural and intentional disasters cut across many areas. This unique multidisciplinary conference will bring together academicians, researchers, practitioners, and policy makers from public health, mental health, community disaster preparedness and response, social sciences, government, media, and nongovernmental organizations. The meeting provides an annual forum that promotes a dialogue and exchange of ideas among local health departments and others involved in improving public health preparedness, mitigation, response to, and recovery from emergencies. The diverse topics will be relevant to public health and medical practitioners, emergency medical services professionals, researchers, and managers involved in the wide range of emergency public health issues resulting from natural and human-generated disasters.

Center for Public Health and Disasters

(310) 794-0864; [cphdr@ucla.edu](mailto:cphdr@ucla.edu)

[www.cphd.ucla.edu/](http://www.cphd.ucla.edu/)

**4th International Conference on Information Systems for Crisis Response and Management (ISCRAM 2007)—Delft, The Netherlands: May 13-16, 2007.** Organizer: International Community on Information Systems for Crisis Response and Management. Among the topics to be pursued at this meeting are disaster management and internationalization, geographic information systems in crisis management, advanced information technologies for disaster management, and modeling and simulation of communication technology for disaster mitigation and recovery.

[www.iscram.org/](http://www.iscram.org/)

**Wildfire 2007—Seville, Spain: May 13-17, 2007.** Organizer: Ministry of Environment of Spain. Building on the objectives and outputs of the previous International Wildland Fire Conferences, this conference will provide a forum for forest fire management leaders, politicians, professionals, researchers, and practitioners from around the world to discuss and work on critical fire issues affecting people, communities, resources, and ecosystems in all regions; to strengthen the effectiveness of the regional wildland fire networks and support their links with the United Nations International Strategy for Disaster Reduction Global Wildland Fire Network; and provide a forum for the fire management industry, research organizations, and fire specialists to display innovations, new technologies, products, and methods for wildland fire management and interact with conference participants.

[www.wildfire07.es/](http://www.wildfire07.es/)

**GIS in Public Health Conference—New Orleans, Louisiana: May 20-23, 2007.** Organizer: Urban and Regional Information Systems Association. This is an inaugural conference on the use of geographic information systems and spatial analysis for hazard preparedness, emergency response, disease surveillance, outbreak epidemiology, public health advocacy, and other related issues.

[www.urisa.org/conferences/health](http://www.urisa.org/conferences/health)

**Second National Forum on Socioeconomic Research in Coastal Systems—New Orleans, Louisiana: May 20-23, 2007.** Organizer: Center for Natural Resources Economics and Policy (CNREP), Louisiana State University. The catastrophic damage associated with the 2005 hurricane season has focused national attention on the environmental challenges faced by the Gulf Coast region. This multidisciplinary conference will highlight the status and challenges of socioeconomic research on and policy for coastal systems with a focus on restoration, resiliency of communities and resources, and the economics of extreme events. The deadline for abstract submission is February 15, 2007.

CNREP, Louisiana State University  
[www.cnrep.lsu.edu/](http://www.cnrep.lsu.edu/)

**CPM 2007 WEST—Las Vegas, Nevada: May 23-25, 2007.** Offered by: The CPM Group. This conference brings together business leaders and practitioners to explore best practices and latest developments in business continuity, contingency planning, disaster simulation, emergency management, and security.

[www.contingencyplanning.com/events/west/](http://www.contingencyplanning.com/events/west/)

**3rd International Symposium on Geospatial Information for Disaster Management (Gi4DM 2007)—Toronto, Ontario, Canada: May 23-25, 2007.** Organizer: International Society for Photogrammetry and Remote Sensing. Spatial information plays a key role in response to disaster by ensuring the interoperability of various emergency services, providing appropriate information to the appropriate entities, and enabling managers to make effective decisions. This conference will explore new technologies, user

requirements, research, development, and the intelligent use of spatial information for emergency disaster operations.

Jonathan Li  
junli@ryerson.ca  
[www.ryerson.ca/~isprs/events.htm](http://www.ryerson.ca/~isprs/events.htm)

**First North American Landslide Conference—Vail, Colorado: June 3-8, 2007.** Sponsors: Association of Environmental and Engineering Geologists (AEG) and others. This gathering will emphasize the latest developments and practical experiences across the entire spectrum of landslide management and mitigation, including scientific, technological, engineering design, and socioeconomic aspects. Technical field trips will be conducted.

[www.mines.edu/academic/geology/landslidevail2007/](http://www.mines.edu/academic/geology/landslidevail2007/)

**30th Annual Conference of the Association of State Floodplain Managers—Norfolk, Virginia: June 3-8, 2007.** This annual meeting brings together professionals in all aspects of floodplain management from the United States and beyond. Paper presentations, roundtable discussions, workshops, training, technical field trips, and exhibits foster interaction among diverse practitioners and academics.

ASFP  
info@floods.org  
[www.floods.org](http://www.floods.org)

**10th Annual Emergency Management Higher Education Conference—Emmitsburg, Maryland: June 4-7, 2007.** Organizer: Federal Emergency Management Agency, Emergency Management Institute. This annual conference encourages and supports dialogue on a variety of issues and problems related to hazard, disaster, and emergency management higher education. It brings together academics representing colleges and universities that have a hazard, disaster, emergency management, or homeland security program in place or are considering establishing one.

Wayne Blanchard, FEMA  
wayne.blanchard@dhs.gov  
<http://training.fema.gov/EMIWeb/edu/>

**PRIMA Annual Conference and Expo—Boston, Massachusetts: June 10-13, 2007.** Organizer: Public Risk Management Association (PRIMA). This conference will bring together more than 2,000 employees and local officials, vendors, and suppliers with the overriding goal of improving risk management in the public sector. More than 80 concurrent educational sessions will address a variety of public risk management issues, including natural hazards. The Public Entity Risk Institute (PERI) will award \$1,000 scholarships to up to 40 individuals to attend this meeting. The scholarships are open to employees and elected officials of local governments and schools, and staff and board members of small community nonprofit organizations. Applications are due March 1, 2007.

Audre Hoffman, PERI  
ahoffman@riskinstitute.org  
[www.riskinstitute.org/peri/](http://www.riskinstitute.org/peri/)

**7th Hydrologic Warning Conference—Savannah, Georgia: June 11-14, 2007.** Organizer: The National Hydrologic Warning Council. This conference is the largest in the United States devoted specifically to real-time hydrologic warning systems and how this technology assists local officials with storm readiness, emergency response, and disaster recovery.

Mariana Leckner  
(609) 538-6006; Leckner.Mariana@gw.njsp.org  
<http://nhwc.udfcd.org/>

**5th Annual Meeting of the George E. Brown Jr. Network for Earthquake Engineering Simulation (NEES)—Snowbird, Utah: June 19-21, 2007.** The National Science Foundation created NEES to improve understanding of earthquakes and their effects. NEES is a shared national network of 15 experimental facilities, collaborative tools, a centralized data repository, and earthquake simulation software, all linked by ultra-high-speed Internet2 connections. Together, these resources provide a means for collaborative research and discovery across institutions. The NEES annual conference will provide participants with the opportunity to learn about the latest contributions to earthquake engineering from both national and international researchers.

Network Earthquake Engineering Simulation  
(530) 757- 6337; email: [info@nees.org](mailto:info@nees.org)  
[www.nees.org/About\\_NEES/Calendar/calendar.php?cal\\_id=30](http://www.nees.org/About_NEES/Calendar/calendar.php?cal_id=30)

**32nd International Symposium on Remote Sensing of Environment—San José, Costa Rica: June 25-29, 2007.** Sponsored by: International Center for Remote Sensing of the Environment and others. The symposium will address the nine societal benefits defined by the Group on Earth Observation (GEO) as well as related topics dealing with remote sensing technologies and education. The first identified area is “reducing loss of life and property from natural and human-induced disasters.” The symposium will also focus on understanding environmental factors

affecting human health and well-being; understanding, assessing, predicting, mitigating, and adapting to climate variability and change; improving water resource management through better understanding of the water cycle; improving weather information, forecasting, and warning; improving the management and protection of terrestrial, coastal, and marine ecosystems; supporting sustainable agriculture and combating desertification, and; understanding, monitoring, and conserving biodiversity.

isrse\_32@conare.ac.cr  
(506) 232-3605  
[www.cenat.ac.cr/simposio/](http://www.cenat.ac.cr/simposio/)

**Coastal Zone 2007—Portland, Oregon: July 22-26, 2007.** Sponsors: National Oceanic and Atmospheric Administration (NOAA) and others. This biennial coastal zone conference (of which this is the fifteenth) is the largest international gathering of ocean and coastal management professionals in the world. Participants represent federal, state, and local governments, academia, nonprofit organizations, and private industry. The conference gives these attendees a platform to discuss the issues facing the world’s coasts and oceans—including coastal hazards—and a forum for discovering new strategies and solutions.

Jan Kucklick, NOAA  
(843) 740-1279; [Jan.Kucklick@noaa.gov](mailto:Jan.Kucklick@noaa.gov)  
[www.csc.noaa.gov/cz/](http://www.csc.noaa.gov/cz/)

## Special Thanks

The Center would like to extend a special thank you to David Butler and Jacki Monday for their assistance with this issues of the *Observer*. Both long-time Center veterans, Jacki and Dave took time out of their busy schedules to lend their expertise and ensure that the newsletter would be published without interruption.

### *Natural Hazards Observer*

ISSN 0737-5425

Printed in the USA.

Published bimonthly. Reproduction with acknowledgment is permitted and encouraged.

The *Observer* is free to subscribers within the 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/](http://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 depends 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:

- 1. Support Center Operations**—Provide support for core Center activities such as the *Disaster Research* e-newsletter, annual workshop, library, and the *Natural Hazards Observer*.
- 2. Build the Center Endowment**—Leave a charitable legacy for future generations.
- 3. Help the Gilbert F. White Endowed Graduate Research Fellowship in Hazards Mitigation**—Ensure that mitigation remains a central concern of academic scholarship.
- 4. 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](http://www.colorado.edu/hazards/about/contribute.html)

Contact Greg Guibert at [greg.guibert@colorado.edu](mailto:greg.guibert@colorado.edu) or (303) 492-2149 to discuss making a gift.

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

David Butler ..... *Observer* Guest Editor  
Jacki Monday ..... *Observer* Guest Editor  
Christine Bevc ..... Research Assistant  
Greg Guibert ..... Program Manager, *Observer* Editor  
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  
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](mailto:hazctr@colorado.edu). The deadline for the next *Observer* is **January 24, 2007**.



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