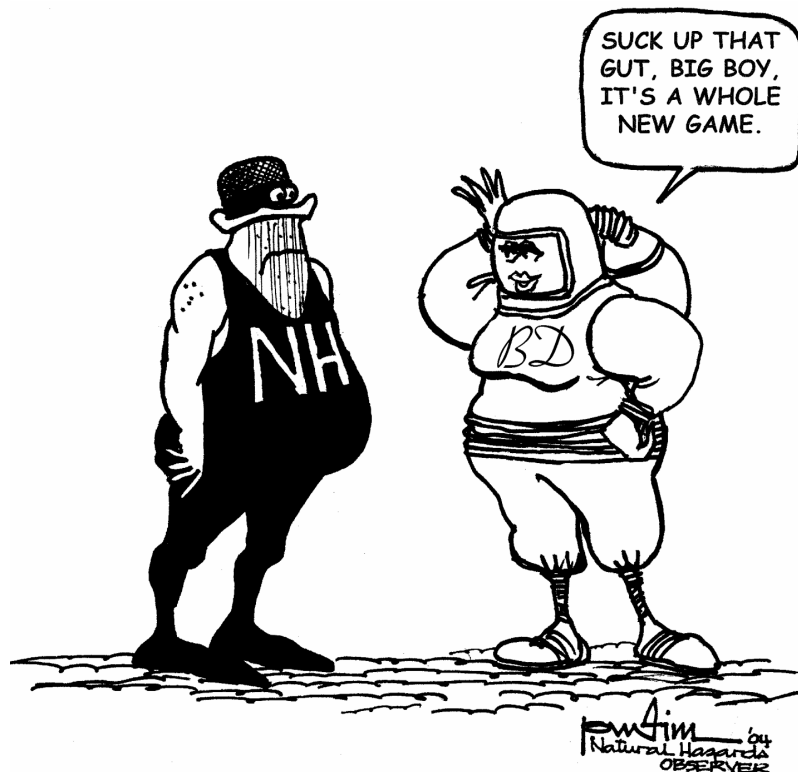


NATURAL HAZARDS Observer

Volume XXIX Number 1

September 2004



Biodefense If Risk Communication is the Answer, What is the Question?

— an invited comment

“How will the public react to a biological attack?” is a fundamental question underpinning U.S. policy and practice pertaining to terrorism preparedness and response. In recent years, widely divergent approaches to the issue of mass response to bioterrorism have emerged. When catastrophic terrorism was a serious but postulated danger, officials often considered public reactions to a biological event as part of the crisis to be contained (e.g., the “worried well” would pour into hospitals, hindering health care workers’ ability to treat real victims). The complex realities of September 11, 2001, and the anthrax letter attacks that same year, however, have helped refine the understanding of the public not simply as a problem to be managed, but as a constituency to be served—anxious

people in need of good information about the danger and what to do about it.

This essay advances a third approach, encouraging authorities to place the challenge of public communication within a broader understanding of the governance dilemmas that bioterrorism poses for the U.S.

From Crowd Management to Credible Communication

The attitudes of decision makers and responders toward the public in the context of bioterrorism have shifted from an emphasis on containing disorder to communicating information. In past hypothetical scenarios, members of the public usually surfaced as mass casualties or hys-

teria-driven mobs that self-evacuate affected areas or resort to violence to gain access to scarce, potentially life-saving antibiotics and vaccines. Prior to 2001, official response systems were often built around the notion of the public as a problem to be managed during a crisis. This bias, which remains to a certain extent today, precludes consideration of and planning for ways to solicit the cooperation of affected populations.

Communication failures during the serial tragedies of 2001 spurred recognition of the essential role of public outreach in managing the effects of a bioattack. Following the anthrax crisis, federal health authorities identified risk communication and health information dissemination as one of seven priority areas required to upgrade the ability of state and local health departments to respond to bioterrorism. Critical reflection on responses to the 2001 terrorist attacks prompted the release of many helpful analyses and guidebooks for officials regarding successful communication with the media and the larger public. Today, practitioner and policy-maker interest in public communication remains high.

Communication as the Means to an End, Not an End in Itself

As 2001 demonstrated, open and informative relationships among citizens, government, and public health and safety authorities are fundamental to the nation's ability to cope with unconventional terrorism. U.S. leaders and responders should be lauded for embracing effective crisis and risk communication as remedies for a potentially anxious, skeptical, or resistant public. However, authorities should be careful not to approach improved communication as a "quick fix" for the more complex underlying tensions that can precede or emerge during bioattacks or other health crises.

Public communication and risk communication have become code words with which to skirt the multifaceted realities associated with community response to terrorism, bioterrorism in particular. When authorities say they want better communication with the public, what they tend to mean is they want public buy-in, compliance, and understanding—possibly even absolution—when tough choices arise (e.g., how to distribute scarce resources in an emergency). When the public calls for better communication from officials, they are asking for inclusion, consideration, and mutual respect as peer decision makers; expert guidance on which they can act; and proof that their needs have been considered. As the U.S. gravitates toward communication as a key to improved bioterrorism readiness, we need to reflect more thoughtfully on what exactly we want that communication to accomplish.

Leadership, Public Engagement, and Governance Dilemmas

The aim of a bioattack is to create suffering and disruption by introducing an epidemic of infectious disease. Whether natural or deliberate, such an outbreak poses unique dilemmas. Leaders must tend to immediate life-and-death matters, such as caring for the sick; ward off socially corrosive effects, like ostracism of the afflicted; and curtail negative economic effects. Conflicts of inter-

est, priority, and purpose can emerge in pursuit of these goals. The Center for Biosecurity of the University of Pittsburgh Medical Center convened the Working Group on "Governance Dilemmas" in Bioterrorism Response to develop a set of analytic templates for decision makers faced with these difficult situations.

Goals of Bioterrorism Response

A larger focus on strategic goals helps stave off the temptation to focus on managerial and scientific aspects of response while neglecting civic, social, ethical, and economic dimensions.

- Limit death and suffering through preventive, curative, and supportive care; tend to the vulnerability of children, the elderly, and the physically compromised.
- Use the least restrictive interventions to defend civil liberties while containing infectious agents that cause communicable disease.
- Preserve the economic stability of victims as well as hard-hit industries, cities, and neighborhoods.
- Discourage scapegoating, hate crimes, and the stigmatization of people or places as contaminated or unhealthy.
- Bolster the ability of individuals and communities to rebound from unpredictable and traumatic events; provide mental health support to those who need it.

Novel Dangers Posed by Bioattacks

The premeditated use of bioweapons magnifies the already unfamiliar dangers posed by large disease outbreaks. Epidemics are complicated events due to their biology, but also because they provoke fear, contradictory impulses, and competing social aims.

- An epidemic's outcomes—suffering, death, lost livelihood, and commerce—are troubling. Leaders and the public may deny that a problem exists, or intervene too quickly without regard to the effects of their actions.
- People need to make sense of random and terrifying events, but epidemics elude quick and easy explanation. The nature of a disease, a population's vitality, and the responsiveness of health institutions affect how an epidemic will unfold.
- A mysterious disease can prompt an individual to isolate oneself and blame others for the tragedy or, in contrast, to care for victims while disregarding one's own safety.

Recurrent Governance Dilemmas during Epidemics

Once acknowledged, an epidemic exerts immense political and social pressure for decisive, visible action—especially when due to a bioattack. Apparent and sometimes genuine conflicts among strategic goals can arise, such as balancing disease control imperatives with those of civil liberty, economic stability, and stigma prevention.

The ability to stop disease that spreads person-to-person and uphold individual freedoms rests largely on leaders taking proactive measures.

- Make bioterrorism response plans public before a crisis occurs; a well-informed population is more likely to cooperate with advice for reducing the spread of disease.

- Sketch out the big picture; make it clear that personal actions can affect the safety of others (e.g., remind people that staying home from work or school when ill protects others from getting sick).
- Use disease controls that respect ideals of autonomy, self-determination, and equality.
- Provide goods and services that help people comply with health orders (e.g., set up vaccination clinics in locations accessible to people without cars).
- Restrict civil liberties, if necessary, *only* in a transparent and equitable way.

Social Trust and Coping with Crisis

Breaches of social trust are likely during a bioattack. Social and economic fault lines as well as preconceived notions about the government, the public, and the media can alienate leaders and the public from one another.

Officials' ability to earn the public's confidence regarding the allocation of scarce resources may hinge on the following steps:

- Account for income disparities in response plans; anticipate the need for free or low-cost prevention and treatment;
- Make planning transparent so that the public sees that access to lifesaving resources is based on medical need and not on wealth or favored status;
- Be open about eligibility criteria for goods and services, especially when tough choices arise unexpectedly; and
- Show thorough preparations to protect vulnerable populations, thus bolstering *everyone's* sense of security.

The collective purpose of the analytic templates highlighted above is to refine leadership skills. The goal is to

create realistic expectations on the part of leaders about the societal challenges posed by large disease outbreaks and bioattacks, so they are better prepared to protect and actively support cooperation and trust between a community and its leaders. Increasing emphasis upon enhanced public communication is a positive development within biodefense that must be supplemented with robust discussion among leaders, and between leaders and the public, as to what constitutes an optimal response.

Monica Schoch-Spana
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University of Pittsburgh Medical Center

Resources

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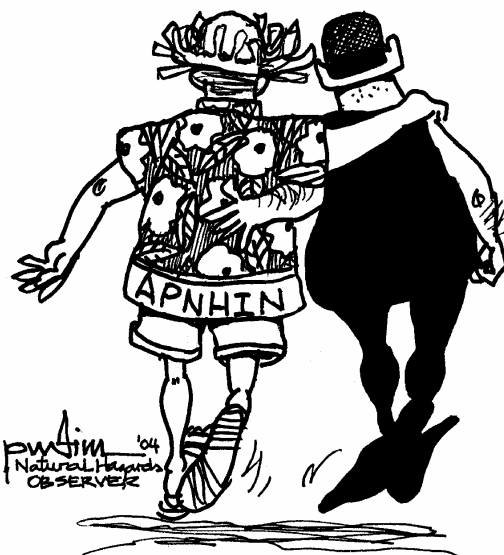
How to Lead during Bioattacks with the Public's Trust and Help: A Manual for Mayors, Governors, and Top Health Officials. Baltimore, MD: UPMC Center for Biosecurity, 2004. <http://www.upmc-biosecurity.org/>.

Asia Pacific Natural Hazards Information Network

The Pacific Disaster Center (PDC) in Kihei, Hawaii, is hosting the Asia Pacific Natural Hazards Information Network (APNHIN), a resource that enables disaster and resource managers, planners, governments, and nongovernmental organizations to tap into high-quality geospatial data for the purpose of reducing disaster risk and vulnerability for the three billion people who reside in the Asia-Pacific region. The network provides access to a wide variety of information, including remote sensing and other Geographic Information Systems (GIS) data. APNHIN comprises a community of organizations who create and share disaster and hazards-related information.

A unique feature of the network is the ability to access real-time information by constantly updating dynamic data, such as tropical storm tracks and forecasts as well as information on other natural hazards (e.g., earthquakes, volcanoes, and wildfires). Built upon the underlying specifications and technologies of ESRI's Geography Network (<http://www.geographynetwork.com>), APNHIN is customized to provide natural hazards information for the Asia-Pacific region.

The PDC provides applied information research and analysis to develop more effective policies, institutions, programs, and information products for disaster management and humanitarian assistance communities of the Asia-Pacific region and beyond. For more information about APNHIN, including how to become a network participant, contact *Chris Chiesa* at (808) 891-0525, x953, e-mail: apnhin@pdc.org, or visit <http://apnhin.pdc.org/>.



Becky Ault Receives Mary Fran Myers Scholarship

Becky Ault, emergency manager/9-1-1 coordinator for Pembina County, North Dakota, has won the first Mary Fran Myers (MFM) Scholarship. Through ten years and ten presidential disaster declarations, Ault has been very active with geographic information systems (GIS) and computer mapping, mitigation activities, and countywide implementation of the 9-1-1 system. During her tenure, Ault has created a multifunctional digitized mapping system, participated in a number of mitigation projects along the Red River, updated the countywide warning system, and played a role in Pembina County's National Oceanic and Atmospheric Administration StormReady designation.

Ault was nominated for the 2004 MFM Scholarship by colleagues from the Association of State Floodplain Managers in recognition of her ability, enthusiasm, and creativity. The Hazards Center is proud to inaugurate the MFM Scholarship by awarding the first scholarship to someone who so closely embodies the spirit of Mary Fran Myers' work. More information about the MFM Scholarship will be announced in a future *Observer* and posted on the Center's Web site at <http://www.colorado.edu/hazards/scholarship/> as it becomes available.

Quick Response Grants Available Now

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

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

In recent years, the Center has activated grants studying adaptation to flood impacts in Louisiana, wildfire evacuations in Colorado, and tornado sheltering in Oklahoma. Proposals for natural, technological, and human-induced events are considered for funding. Physical science- and engineering-based proposals are not eligible. For more information about this program, and to find out how to apply, visit <http://www.colorado.edu/hazards/qr/>, or request a "2005 QR Program Announcement" from Greg Guibert, Natural Hazards Center, University of Colorado, 482 UCB, Boulder, CO 80309-0482; (303) 492-2149; fax: (303) 492-2151; e-mail: greg.guibert@colorado.edu. The deadline for proposal submission is October 15, 2004.



Madhavi Malalгода Ariyabandu Wins Mary Fran Myers Award

The Mary Fran Myers Award was established in 2002 by the Gender and Disaster Network (GDN). The award recognizes that vulnerability to disasters and mass emergencies is influenced by social, cultural, and economic structures that marginalize women and girls. The award was so named to recognize Myers' sustained efforts to launch a worldwide network among disaster professionals for advancing women's careers and for promoting research on gender issues, disasters, emergency management, and higher education.

Madhavi Malalгода Ariyabandu, the 2004 winner of the Mary Fran Myers Award, is a disaster mitigation program manager and author at the Intermediate Technology Development Group (ITDG) in Sri Lanka. Ariyabandu's accomplishments include addressing gender in disasters throughout ITDG's Asia region with a focus on linking gender issues to sustainable development and taking a progressive, gender-sensitive approach to risk reduction, and acting as a role model for women in the disaster field through actions, publications, and a personal commitment.

For more information about the Mary Fran Myers Award and profiles of past winners, visit <http://www.colorado.edu/hazards/mfmaward/>.

Mount Rainier: A Threat Becomes a Reality

Listening, Watching, and Waiting

It was a clear day in March 2010 when Delia grabbed a NOAA weather radio off the store shelf with a sigh of relief. Delia's family lived on a farm on the Puyallup River floodplain seven miles south of Orting, Washington, and a trip into town meant a 15-minute drive. As she and her mother stood in line, Delia noticed that two people in front of them had weather radios and there was a man at customer service asking about them.

As she stepped outside into the spring afternoon, Mount Rainier towered above her, a plume of steam rising from its snow-covered summit. The small stream of vapor looked peaceful at the moment, but had been darker and more turbulent in previous days as steam explosions blasted fragments of old lava and ash hundreds of feet into the air. For three days, the constant plume had been a reminder of the volcano's increasing unrest. The thirteen-year-old worried about what might happen based on scientists' warnings that landslides or snowmelt during eruptions could produce destructive volcanic mudflows (lahars) in the river valleys with headwaters on Mount Rainier.

As days turned into weeks, Delia grew tired of hearing the same talk everywhere. The four million people of western and central Washington State could view continuous steam explosions rising from the summit and the news was filled with reports about the volcano. U.S. Geological Survey (USGS) scientists and their colleagues reported that the noticeably increasing amounts of carbon dioxide and sulfur dioxide were indicators of rising magma. They broadcast pictures of seismometers, tiltmeters, and global positioning satellite (GPS) devices. Volcanologists explained how the cubic mile of snowpack and glacier ice on Mount Rainier would be melted by eruptions and described how a debris avalanche could trigger a lahar. Based on monitoring data, scientists raised the volcano alert level to the highest level below an actual volcanic eruption and displayed maps showing areas likely to be affected by lahars, ashfall, lava, and pyroclastic flows.

Emergency managers issued repeated warnings that people should move to high ground, at least one hundred feet above the valley floor. Pierce County Department of Emergency Management (DEM) announced evacuation routes and instructed residents on what to do during an emergency. They also explained the acoustic flow monitors (AFMs) installed in the Carbon and Puyallup Valleys to detect approaching lahars and send signals to trigger sirens in communities downstream. Emergency managers advised residents, especially those who lived beyond the sirens' range, to purchase weather radios. It seemed like everywhere Delia went people were listening to their radios and waiting.

The Waiting is Over

Because it was so cloudy, no one witnessed the debris avalanche that broke away from the upper west flank of Mount Rainier on the afternoon of April 29, 2010. What began as an avalanche transformed into a lahar, and a muddy mass poured into the valley of the Puyallup River, eroding stream banks, incorporating trees, rocks, and human-made structures into its flow. The mixture rumbled down the river valley at about 30 miles an hour, triggering the AFMs.

It was 2:10 p.m. when the AFM alarm sounded. In school, Delia's teacher recited instructions: "Okay, students, line up. Over the footbridge and up the hill. No running, no pushing; we have plenty of time. Remember the drills." The classes flowed down the hall and through the exit doors.

Unlike during the drills, the students could hear a roar in the distance, like the rumble of a train. In front of Delia, students sprinted toward the Carbon River Lahar Evacuation Bridge, the result of an Orting community fundraising effort to get citizens across the river to high ground. The procession of students passed quickly over the bridge and along a trail 200 feet above the valley floor. Another half-mile of walking brought them to waiting buses that transported them to an emergency center.

The lahar, still 15 miles upriver and 60 feet thick, tore through commercial timberland. When it reached the Orting-Kapowsin highway bridge south of town, the lahar was briefly slowed by the bridge before lifting it from its foundation and continuing on to engulf 23 small farms along the Puyallup River. Seven miles south of town, the lahar spread into the widening valley and lost momentum. Three miles south of Orting, thirty-four minutes after the warning sirens started, the mudflow came to a stop.

The Aftermath

At the emergency center, Delia watched as parents picked up her schoolmates. Like most of those still at the center, Delia ate her dinner while watching the news and fighting the sinking feeling that her family's farm was gone. She knew that her mother's office in Tacoma was on high ground, but waiting alone only made her worry more.

On television, a USGS scientist described events of the day with a Washington State geologist and the director of DEM, explaining that water draining from the lahar would combine with rainfall runoff and lead to serious flooding during the coming weeks. Maps of predicted flood zones were displayed along with a video that showed the lahar raging down the valley, trees collapsing into it like a sequence of falling dominoes.

Finally, Delia's mother arrived and wrapped Delia in a warm hug. Their house and everything they owned was gone, but her family was safe.

The news continued to give every detail of the volcano's activity, with messages from the USGS, Washington State Emergency Management Division, the American Red Cross, and local fire and rescue agencies. The volcano continued to show signs of impending eruption and crews were sent to repair the damaged AFMs.

During the two days after the lahar, water that drained from the lahar upstream flooded homes built on the 100-year floodplain of the Puyallup River and made the highway between Orting and Kapowsin impassable and sections of the Port of Tacoma waterfront unusable. Port authorities began emergency dredging, and, as the floods receded, cleanup began under the shadow of the restless volcano.

Danger Returns

The number of earthquakes beneath the volcano soon accelerated, heralding the arrival of magma at the summit one afternoon. A column of ash—a cloud of tiny, sharp fragments of cooled magma—rose to an altitude of 24,000 feet, spreading eastward with the prevailing winds and forcing aircraft in the region to change routes to avoid exposure to the ash. Sea-Tac Airport and smaller airports in eastern Washington closed for 12 hours to reduce the likelihood of aircraft damage, and the backlog of flights was felt around the world. National Weather Service meteorologists tracked the threatening ash plume as far east as the Dakotas.

That evening, airborne volcanologists noted a red-hot lava pool rising in the volcano's crater, overtopping the rim and spilling down the steep mountain slopes. Lava flows fifty to one hundred feet thick cooled on the upper slopes. As the lava spilled onto the steep flanks of the volcano, the flanks collapsed, producing pyroclastic flows, avalanches of hot rock fragments and gases. The flows melted the snow and ice and again formed lahars in the Puyallup, Nisqually, and White River valleys. The sirens sounded once more in Orting.

All Is Quiet

A week later, the eruptions had halted. The slopes of the mountain, formerly white with snow, were dark and a scar was clearly visible on the northwest side. Darkened streaks showed where lahars had traveled down the slopes and into the valleys below. The news reports detailed the economic loss of structures, roadways, bridges, hydro-power generation, water supply systems, and productivity, but Delia knew that things were not so bad. Even after losing her home, she knew that what really mattered was that many lives had been saved by advance warnings and evacuations.

Thanks to the warnings, more than 200 people were saved during the initial debris avalanche and lahar in the Puyallup Valley. Had that lahar gone through Orting, more than 10,000 would have been saved. Intensive volcano monitoring during the subsequent eruptions and lahars, coupled with close cooperation among scientists, public officials, and the media, saved countless other lives.

This *Invited Scenario* was written by Tania Larson of the U.S. Geological Survey (USGS) in consultation with Carolyn L. Driedger, Willie Scott, and Cynthia Gardner of the USGS Cascades Volcano Observatory.

Internet Resources

<http://volcanoes.usgs.gov/>

The Mount Rainier Mudflow Warning System was installed as a joint project between the USGS Cascades Volcano Observatory and Pierce County Emergency Management. General information about the USGS Volcano Hazards Program can be found here as well.

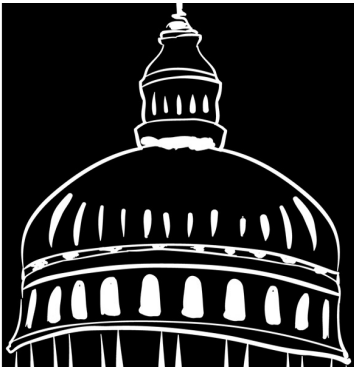
<http://vulcan.wr.usgs.gov/>

Information about Mount Rainier Hazards, including the Mount Rainier Hazards Assessment conducted by USGS is available here.

<http://emd.wa.gov/index.htm>

The Mount Rainier Response Plan written by the inter-agency Mount Rainier Volcano Hazards Work Group is found on this Web site.





WASHINGTON UPDATE

National Preparedness Month

September is National Preparedness Month, a month-long campaign to engage Americans in emergency preparedness and provide a variety of opportunities to learn how to prepare for an emergency and become better informed about relevant threats. Supported by a coalition of more than 50 national organizations, including the U.S. Department of Homeland Security (DHS), the America Prepared Campaign, and the American Red Cross, the effort features events hosted at the federal, state, and local levels and by individual communities, private businesses, and nonprofit organizations. For more information, contact *Kristen Gossel* or *Lara Shane* with DHS at (202) 282-8010. Useful Web sites include <http://www.americaprepared.org/> and <http://www.ready.gov/>.

National Flood Insurance Reauthorized through 2008

On June 30, the president signed the Bunning-Beruter-Blumenauer Flood Insurance Reform Act of 2004 (Public Law 108-264), reauthorizing the National Flood Insurance Program (NFIP) through September 30, 2008, and reforming the law to help states and communities mitigate repetitive loss properties. Established in 1968, the NFIP is a federal insurance program administered by the Federal Emergency Management Agency (FEMA) that provides flood insurance to over 4.4 million property owners across the U.S.

FEMA has found that repetitive loss properties incur \$200 million in losses annually (representing only one percent of insured properties, but 25 to 30 percent of all claims losses), and have become a significant monetary burden on the NFIP. The new law aims to address this and move the NFIP towards a more free-market insurance model by authorizing a five-year pilot program requiring owners of severe repetitive loss properties, as defined by the law, to either accept mitigation assistance, move, or face significantly higher premiums. Activities eligible for assistance in communities that choose to participate in the program include acquisition, elevation, relocation, demolition (with or without rebuilding), floodproofing, and minor physical flood control.

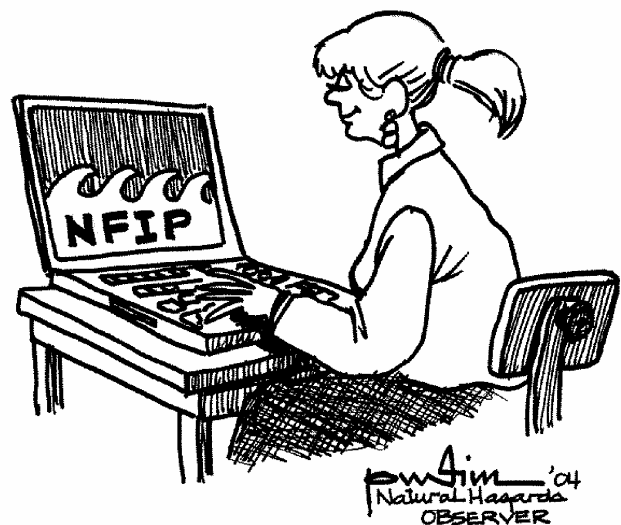
While authorizing the appropriation of \$40 million a year for the pilot program, the new law also increases the

amount authorized to be appropriated for the existing flood mitigation program by \$20 million each year and authorizes the appropriation of an additional \$10 million a year for mitigating potential flood damage to individual properties in states and communities that are not able to participate in the Flood Mitigation Assistance program or do not have the capacity to manage their own mitigation programs. Among the law's miscellaneous provisions are directives to FEMA to make information more accessible; simplify the claims process with new processes, forms and documents; and establish minimum training and education requirements for insurance agents.

For more detailed information, read the new law online at http://www.floods.org/PDF/FIRA2004_Act.pdf. Visit <http://www.fema.gov/fima/nfip.shtm> to learn more about the NFIP.

FloodSmart Campaign Targets Consumers

FEMA's NFIP has begun an advertising campaign promoting flood insurance to consumers for the purposes of keeping existing customers as well as attracting new ones. The campaign seeks to educate homeowners about what they need to prepare for floods, including flood in-



insurance. Traditional advertising methods such as television spots (http://www.floods.org/files/fema_homeowners.mpg), print advertising, strategically targeted direct mail, and public relations efforts direct the public to a consumer Web site and a toll-free telephone hotline. The Web site, <http://www.floodsmart.gov/>, provides information on preparing homes for flooding, tools for assessing flood risk and estimating flood insurance rates, listings of insurance agents, and links to other useful information. The toll-free number, (800) 427-2419, connects consumers with insurance agents and provides additional information about flood insurance.

An accompanying stakeholder relations program is designed to improve communications with the insurance industry, lenders, realtors, and emergency managers. Insurance agents can sign up for the Leads Program, which refers callers to the toll-free number to local flood insurance agents, by completing and submitting the application form available at <http://www.fema.gov/pdf/nfip/leads.pdf>.

Individuals with Disabilities Integrated into National Preparedness Effort

Compelled by the attacks of September 11, 2001, the National Organization on Disability formed a task force comprised of U.S. government officials, disability community leaders, and disaster relief groups to identify the special needs of people with disabilities during emergencies and to recommend action. The task force concluded that preparedness for people with disabilities, just like for the general population, needs to be continuous and ongoing. As a result of the task force's efforts, on July 22 the president signed an executive order, seeking to fully integrate people with disabilities into the national emergency preparedness effort.

The order directs the federal government to address the safety and security needs of agency employees and customers with disabilities in disaster situations and calls for the creation of an Interagency Coordinating Council on Emergency Preparedness and Individuals with Disabilities to coordinate and oversee the effort. The executive order, *Individuals with Disabilities in Emergency Preparedness* is available online at <http://www.nod.org/content.cfm?id=1546>.

NIMS Guidance Available Online

FEMA has created a centralized Internet portal to help emergency managers and first responders navigate, understand, and work with the National Incident Management System (NIMS). The NIMS Web page at <http://www.fema.gov/nims/> will offer emergency managers a complete listing of NIMS requirements, tools and resources, and general information about the incident management system. As NIMS implementation moves forward, issues such as the assessment process, compliance criteria, NIMS-related training, and implementation timelines will also be available. Questions or concerns about NIMS are welcome and should be sent to nims-integration-center@dhs.gov.

9/11 Commission Releases Final Report

On July 22, the National Commission on Terrorist Attacks Upon the United States released its final report regarding the terrorist attacks of September 11, 2001. *The 9/11 Commission Report* summarizes the commission's investigation into the circumstances surrounding the attacks, including preparedness and response, and provides recommendations designed to prevent or mitigate similar incidents in the future.

The aim of the independent, impartial, and bipartisan commission was not to assign blame, but to compile the fullest account possible of the events surrounding September 11 and to identify lessons learned. What the commissioners found was an underestimation of the gravity of the threat at the highest levels of government; failure to adjust policies, plans, and practices to deter or defeat it; and pervasive problems with the sharing and managing of information throughout the federal government.

The commission's recommendations represent a balanced strategy of preventing terrorism while preparing and protecting the nation and include a series of controversial reforms that would dramatically restructure the U.S. government. Proposed reforms include a global approach, which calls for integrating all elements of national power, such as diplomacy, intelligence, covert action, law enforcement, economic policy, foreign aid, homeland defense, and military strength, and reorganization of government, including the creation of a national counterterrorism center, unification of the intelligence community under a cabinet-level national intelligence director, strengthening of congressional oversight for intelligence and DHS, and implementation of a network-based information sharing system that transcends traditional governmental boundaries. On August 2, the president endorsed the creation of a national intelligence director position (outside of the cabinet) and announced that he will establish a national counterterrorism center.

The report (2004, 588 pp., \$8.50) can be purchased from the U.S. Government Online Bookstore at <http://bookstore.gpo.gov/index.html> and from bookstores nationwide. It is also available free online, along with an executive summary and a public statement by the chair and vice chair of the commission, at <http://www.9-11commission.gov/report/>.

Additional Preparedness Training for Emergency Responders Approved

DHS' Office of State and Local Government Coordination and Preparedness (SLGCP), in cooperation with the U.S. Fire Administration (USFA), announced in early July the approval of additional preparedness training courses for emergency responders. The approved courses, offered by USFA and the National Fire Academy with the intent of developing the foundation for incident management teams at the state and local level, include *Introduction to Unified Command for Multiagency and Catastrophic Incidents*, *All Hazards Incident Management*, and *Command and General Staff Functions in the Incident Command System*.

This approval allows states and urban areas to use allocated Homeland Security Grant Program and Urban Area Security Initiative funding to conduct these courses locally or send responders to attend them elsewhere. This funding can also be used to reimburse overtime and back-fill costs associated with attending these and other SLGCP approved courses. More information about USFA courses and schedules is available at <http://www.usfa.fema.gov/applications/nfacsd/>.

Information Sharing Easier with Homeland Security Operations Center

DHS' Homeland Security Operations Center (HSOC) was formally launched on July 8 as the nation's primary nerve center for threat monitoring, information sharing, and situational awareness for domestic incident management. The HSOC represents over 35 agencies, including state and local law enforcement as well as federal intelligence agencies, and serves as a clearinghouse for information to help deter, detect, and prevent terrorist activities. It has the ability to collect and integrate critical information both horizontally across departments and agencies and vertically between state and local governments as well as the private sector.

It is through the Homeland Security Information Network (see the *Observer*, May 2004, p. 8) that the HSOC shares threat information and provides real-time interactive connectivity with system participants, including mayors, governors, homeland security advisors, first responders, and critical infrastructure operators, in all 50 states and more than 50 major urban areas. A fact sheet further describing the HSOC is available at <http://www.dhs.gov/dhspublic/display?content=3814>.

Antiterrorism Technologies Receive Stamp of Approval

Four antiterrorism technologies have been granted designation and certification under the Support Antiterrorism by Fostering Effective Technologies Act of 2002 (the SAFETY Act). Designation and certification is granted to technologies that will prevent, detect, identify, or deter acts of terrorism, or mitigate the harm that such acts may cause. These four technologies represent the first such technologies to be recognized in an ongoing process conducted by DHS. These technologies are Lockheed Martin's Corporation Risk Assessment Platform, Michael Stapleton Associates' SmartTech System and Explosion Detection Services, Northrup Grumman's Biohazard Detection System, and Teledyne Brown Engineering's Water-Sabre. Read more information about these technologies and the SAFETY Act at <http://www.dhs.gov/dhspublic/display?content=3726>.

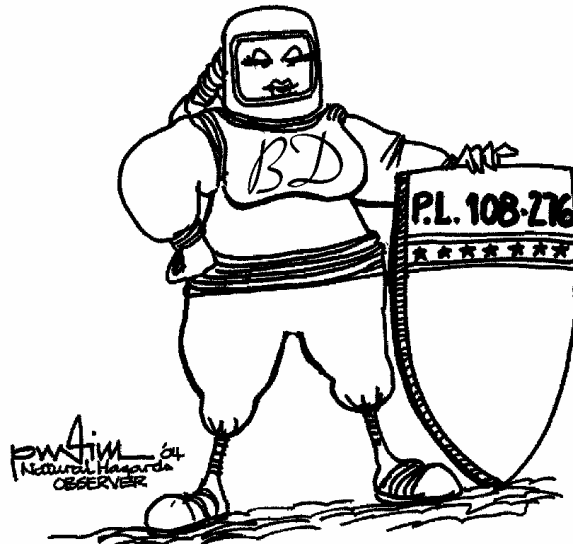
FEMA Does Not Endorse Disaster-Related Products or Services

While DHS is endorsing antiterrorism technologies, FEMA does not endorse specific products or services (i.e., brands). Falsely advertised endorsements should be reported to FEMA's Office of the Inspector General

(OIG). Alerts or complaints can be made to *OIG, FEMA, 500 C Street, SW, Washington, DC 20472; (800) 323-8603*.

Project BioShield Becomes Law

On July 21, the president signed Project BioShield (Public Law 108-276) into law, enabling the purchase and provision of tools to improve medical countermeasures to protect Americans in the event of a chemical, biological, radiological, or nuclear attack. The goals of the project, which is being overseen by the secretaries of health and human services and homeland security and involving other federal agencies as appropriate, are to develop and make available effective drugs and vaccines.



Specifically, Project BioShield will expedite research and development on medical countermeasures conducted by the National Institutes of Health, give the Food and Drug Administration the ability to make promising treatments quickly available in emergency situations, and ensure that resources are available to pay for "next-generation" medical countermeasures. The complete text of Project BioShield is available in any *federal repository library* and on the *Library of Congress Web site* at <http://thomas.loc.gov/>.

Guidance for Continuity of Operations for Federal Departments and Agencies

FEMA recently updated and rereleased its *Federal Preparedness Circular 65, Federal Executive Branch Continuity of Operations* (2004, 50 pp., free), FPC 65, to reflect continuity of operations (COOP) procedures implemented since September 11, 2001. The updated FPC 65 also replaces FPC 66, *Test, Training and Exercise Program and Continuity of Operations*, and FPC 67, *Acquisition of Alternate Facilities for Continuity of Operations*. The purpose of the circular is to provide guidance to federal and executive branch departments and agencies in developing contingency plans and COOP programs that facilitate the performance of essential functions during emergencies or other situations that may disrupt normal operations. Annexes to FPC 65 cover plans and

procedures; essential functions; delegations of authority; orders of succession; alternate facilities; interoperable communications; vital records and databases; human capital; test, training, and exercises; devolution of control and direction; and reconstitution. The revised circular is available on the FEMA Web site at http://www.fema.gov/pdf/library/fpc65_0604.pdf.

U.S. and Mexico Collaborate on Monsoon Research



The National Oceanic and Atmospheric Administration has teamed up with Mexico's Servicio Meteorológico Nacional to conduct the North American Monsoon Experiment (NAME). The primary goal of NAME is to improve long-range precipitation forecasts during the North American monsoon season of June through September. Improved forecasting is critical to advance planning efforts since severe weather events associated with monsoons, such as floods and droughts, can negatively impact economies and populations, and monsoons play a vital role in dryland farming, ranching, and wildfire control.

The NAME 2004 Field Campaign kicks off the eight-year program by gathering atmospheric, oceanic, and

land-surface observations in the core region of North American monsoons, which includes northwest Mexico, southwest U.S., and adjacent oceanic areas. Scientists from more than 30 universities, government laboratories, and federal agencies in the U.S., Mexico, and Central America are participating in the campaign, including the National Science Foundation, National Aeronautics and Space Administration, and the U.S. Departments of Agriculture and Defense. More information about NAME can be found on the University Corporation for Atmospheric Research Web site at <http://www.joss.ucar.edu/name/>.

Interoperability Moves Forward with RapidCom 9/30

By September 30, 2004, DHS' RapidCom 9/30, a crisis communications system enabling first responders to communicate with each other in a large-scale emergency, will be in place in ten high-threat urban areas: New York, New York; Chicago, Illinois; the District of Columbia; Los Angeles, California; San Francisco, California; Philadelphia, Pennsylvania; Houston, Texas; Jersey City, New Jersey; Miami, Florida; and Boston, Massachusetts. The local knowledge and active involvement of officials in these areas is critical to the project as RapidCom 9/30 is designed to fit the unique needs of each urban area. Lessons learned in these cities will serve as a foundation for similar efforts in other urban areas as well as for the long-term goal of full interoperability.

In addition to specifying equipment needs, RapidCom 9/30 will engage public safety officials to identify and incorporate the crucial human factors of interoperability: frequency use, standard operating procedures, regional governance, and training and exercises. RapidCom 9/30 will also provide training and technical assistance as well as assist with the development of standard operating procedures, the planning and conducting of test exercises, and the establishment of regional governance structures.

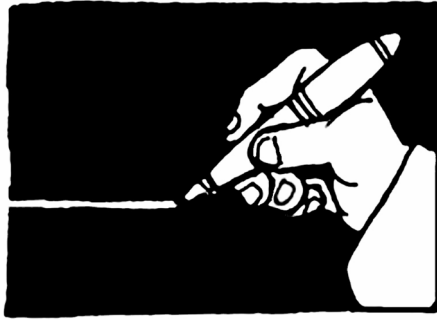
A RapidCom 9/30 fact sheet is available at <http://www.dhs.gov/dhspublic/display?content=3869>.

Designing Educational Opportunities for the Hazards Manager of the 21st Century

With support from the National Science Foundation, the Hazards Center, in collaboration with the University of Colorado at Denver and the FEMA's Higher Education Project, held a workshop in October 2003 to address educational needs for emergency/hazards managers. The workshop report has been released as Working Paper #109 *Designing Educational Opportunities for the Hazards Manager of the 21st Century*.

As emergency/hazards management continues to be professionalized, the need for higher education opportunities is ever increasing. Based largely upon the workshop, WP#109 focuses on identifying core competencies for skills and knowledge, laying the foundation for a sample interdisciplinary curriculum, and identifying possibilities and challenges for incorporating basic hazard management principles into a curriculum. In addition to offering perspectives on course and curricula development, WP#109 identifies the need to nurture the emerging discipline of emergency/hazards management and promote and support the profession.

WP#109 and other working papers are available free online at <http://www.colorado.edu/hazards/wp/>. They can also be purchased for \$9.00 plus shipping from the *Publications Administrator, Natural Hazards Center, University of Colorado, 482 UCB, Boulder, CO 80309-0482; (303) 492-6819; fax: (303) 492-2151; e-mail: janet.kroeckel@colorado.edu*.



ON THE LINE

The Southern California Fire Siege

The Southern California fire siege that began on October 21 and continued through November 7, 2003, was the most devastating fire event in our state's history. On reflection, the impact of the event seems unreal.

- 739,597 acres burned
- 24 deaths
- Five counties involved in the federal disaster declaration (Los Angeles, Riverside, San Diego, Ventura)
- 3,631 homes lost
- 15,631 total personnel assigned (not including the hundreds of individuals assigned to emergency operations centers and volunteers)
- Upwards of \$4 billion in damages

To those unfamiliar with California, this may seem surprising since popular images in the media are typically of our tourist areas. Those familiar with California are not so surprised. The Governor's Blue Ribbon Fire Commission Report released in April 2004 put it succinctly: "California is a fire-prone state." The report goes on to remind us that Southern California has the highest population in the U.S. residing in a fire-prone wildland/urban interface.

While past events such as the Oakland Hills Fire in 1991 and the 1993 Southern California fires have resulted in many positive changes to our emergency management and mutual aid systems, we still have much to do to decrease the vulnerability of those residing in our wildland/urban interface. Indeed, the Blue Ribbon Commission issued 33 findings and 51 recommendations in five areas of concern.

- Jurisdictional and operational barriers
- Training
- Interstate regional mutual aid systems
- Local building, planning, and land use regulations, brush clearance and fuel mitigation
- Communications, interoperability, information technology, and public outreach

Our work is cut out for us. The most challenging tasks will likely be enacting building codes, adjusting land use regulations, and ensuring that brush clearance and fuel mitigation activities are implemented and maintained.

The Past as Prelude

The response to the 2003 fire siege did not begin in October, but in the previous months and years. Following the Oakland Hills Fire of 1991 the California legislature enacted the Standardized Emergency Management System (SEMS) to manage response to multiagency and multi-jurisdictional emergencies. Based on the Incident Command System (ICS), SEMS has unified emergency response across the state and is often touted as a national model.

The 1993 Southern California fires resulted in changes to building codes throughout the region. As you drive around housing constructed or remodeled since 1993, you will see fire-resistant roofs, fire-resistant wall materials, and dual pane windows. In some areas you will also see fire-resistant materials used in patio covers and fencing as well as green belts that can serve as natural fire breaks. Where such practices were in place before the 2003 fires, their positive impact was quite noticeable. Enactment of the strictest codes is often not an easy decision, but most of our local communities have been moving in this direction. This is even truer following last fall's devastating fires.

Adaptability—MAST and MASG

MAST

The implementation of system, program, and policy changes are typical following any large-scale disaster. Agencies, organizations, and individuals demonstrate a great deal of creativity and adaptability before and during events as well. The long-term drought affecting the West spurred a bark beetle infestation in the San Bernardino and Cleveland National Forests. At present, over fifteen million trees are dead or dying due to this infestation. This prompted federal, state, and local response and emergency management agencies to come to terms with a potential conflagration impacting upwards of 100,000 people.

The creative solution to addressing this multijurisdictional and multifaceted problem was the creation of the Mountain Area Safety Taskforce (MAST, or FAST—Forest Area Safety Taskforce—in San Diego County). MAST is organized on an ICS model, but that merely represents the more formal aspect of the effort. By tying citizen groups like Fire Safe Councils together with the

collective efforts of federal, state, local, and private agencies to focus on the preparedness, response, recovery, and mitigation aspects of the problem, MAST has become a very effective response to a very complex problem.

Interestingly, MAST has no authority in and of itself. Participants come together either in one of the MAST sections (e.g., Planning and Intelligence) or the Multi-agency Coordination group to identify problems and to leverage individual program activities to solve them. A sample of the agencies involved indicates not only the complex nature of the problem, but also the high level of dedication to solving the problem in a unified manner.

- The U.S. Forest Service
- The Natural Resource Conservation Service
- County and local agencies, including fire, law enforcement, emergency management, and public works
- Fire Safe Councils
- State agencies, including the Office of Emergency Services (OES), Caltrans, and the California Department of Forestry and Fire Protection

Another positive aspect of MAST is the incorporation of private entities. Because dead trees can fall on transmission lines and initiate fires, power companies are potential contributors to the wildfire problem. Both Southern California Edison and San Diego Gas and Electric have joined with MAST to coordinate their extensive tree removal programs (well over \$50 million expended) and assist private homeowners with tree removal along service lines. MAST agencies focus tree removal efforts in hazardous areas identified in blocks to effectively leverage individual program responsibilities. The same is true along identified evacuation routes.

MAST stands as a great example of how, when faced with a potential problem, agencies, the community, and private industry can come together to create and implement unique solutions. Although it operates in a recognizable "system framework," MAST is essentially a creative problem solving body. By integrating preparedness, response, recovery, and mitigation—the disaster cycle—into a single effort, MAST demonstrates how effective creative collaboration can be.

MASG

Another great example of adaptability is the creation of the Multiagency Support Group (MASG). The MASG arose from the urging of the Forest Service and the OES to identify postfire hazards and rehabilitation and mitigation needs, as well as coordinate interagency program activities to maximize effectiveness. Simply put, the MASG was an attempt to extend interagency coordination from the response phase into the recovery period. By operating at an informal level outside of "normal" recovery operations, the MASG was able to identify the need for the U.S. Army Corps of Engineers to clear debris basins in the burn area, utilize the capabilities of the U.S. Geological Survey to identify debris flow probabilities and correlate them with Federal Emergency Management Agency flood maps, and assist the state of California with the identification of mitigation priorities.

When policy problems were identified as roadblocks, agency representatives were able to turn to their respective agencies for solutions. Even though the incorporation of local government concerns into the MASG could be improved, it is a unique and positive approach to interagency coordination as well as to response and recovery integration. Indeed, the Blue Ribbon Commission hails it as great example of interagency integration in the context of the National Incident Management System.

Conclusion

California's vulnerability to fires is well demonstrated. While past events have prompted us to lower risk and revise our emergency management systems, we still have improvements to make. This was clearly demonstrated in the 2003 Southern California firestorms. System changes alone are not enough to lower risk. Individual homeowners, communities, and agencies at all levels of government will be challenged to find new and creative ways to address the problem. Adaptability as demonstrated in the pre- and postfire environment is a testament to the creativity and sense of purpose of the individuals and agencies involved. When coupled with individual action and system changes, these efforts will help us break our devastating fire cycle.

Stephen Sellers
State of California, Governor's Office of
Emergency Services, Southern Region

Internet Resources

<http://www.oes.ca.gov/>

The Governor's *Blue Ribbon Fire Commission Report* is available here.

<http://www.calmast.org/mast/public/index.html>

More information about MAST is available here.





CONFERENCES AND TRAINING

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

Terrorism and Trauma: A Transatlantic Perspective. Sponsors: Royal Society of Medicine, Association of Academic Health Centers (RSM/AHC), University of Maryland, Baltimore. **Baltimore, Maryland: September 20-22, 2004.** Topics include bioterrorism, government response, preparedness, trauma, and education. For information, contact *Mary Leach, RSM/AHC Joint Bioterrorism Conference, Office of the President, University of Maryland, 520 West Lombard Street, Baltimore, MD 21201; (410) 706-7004; e-mail: mleach@umaryland.edu; http://www.umaryland.edu/terrorismandtrauma/.*

HAZDENT Conference. Sponsors: Institution of Fire Engineers, New Zealand Institute of Hazardous Substances Management. **Christchurch, New Zealand: September 21-22, 2004.** This event to foster community awareness and preparedness for chemical and biological incidents will include speakers in the fields of response, planning, risk management, triage and health, building design, and interagency cooperation. For information, contact *Bruce Irvine, HAZDENT 2004, P.O. Box 13-747 Armagh, Christchurch NZ; +64 03 371 3600; e-mail: Bruce.Irvine@fire.org.nz; http://hazdent.fire.org.nz/.*

Conference on Emergency Preparedness for People with Disabilities. Sponsors: National Capital Region, U.S. Department of Homeland Security (DHS), National Organization on Disability. **Arlington, Virginia: September 22-24, 2004.** This conference will facilitate an exchange of information between emergency response agencies and special needs populations regarding emergency preparedness for people with disabilities. For information, contact *Sarah Campbell, Conference on Emergency Preparedness for People with Disabilities, c/o Natalie P. Shear Associates, Suite 801, 1730 M Street, NW, Washington DC, 20036; (202) 833-4456; e-mail: Sarah@nataliepshear.com; http://www.nataliepshear.com/events/nod/.*

HAZMAT Today: Responding to the New Reality. Sponsors: Virginia Association of Emergency Management, Virginia Association of Hazardous Materials Response Specialists. **Virginia Beach, Virginia: September 23-25, 2004.** Sessions include engine company response, a hazardous materials technology forum, a variety of

breakout sessions, and panels on terrorism. For information, contact *Conventions Plus, 6107 Windsor Boulevard, Zuni, VA 23898; (757) 242-3652; e-mail: conventionsplus@charter.net; http://www.convplus.com/Haz04home.htm.*

Technologies for Public Safety in Critical Incident Response Conference and Exposition 2004. Sponsors: DHS Science and Technology Directorate and Department of Justice National Institute of Justice. **New Orleans, Louisiana: September 27-29, 2004.** This event highlights technology and training tools for responders to deal with major threats to lives and property. For information, contact *Jen Telander, Center for Technology Commercialization, 576 Welsh Drive, Ruther Glen, VA 22546; (888) 475-1919; e-mail: jtelande@ctc.org; http://www.regonline.com/eventinfo.asp?EventId=13297.*

First Responders Explosions and Mass Trauma Conference. Sponsor: National Institute for Urban Search and Rescue. **Albuquerque, New Mexico: September 29-October 2, 2004.** This conference aims to increase the training level, coordination, and synchronization with national standards for first responders and administrators working to strengthen public health infrastructure and emergency response capabilities. For information, contact *Gilbert Baca, Jr., (505) 844-5964; e-mail: gcbaca@sandia.gov; http://www.niusr.org/.*

Innovations in Disaster Psychology 2004: Developing Public Health Models of Disaster Mental Health. Sponsor: Disaster Mental Health Institute (DMHI). **Vermillion, South Dakota: September 30-October 2, 2004.** This conference will focus on the integration of disaster mental health and public health. For information, contact *DMHI, University of South Dakota, 414 East Clark Street, SDU114, Vermillion, SD 57069; (605) 677-6575; e-mail: dmhi@usd.edu; http://www.usd.edu/dmhi/conf04/.*

Woodframe Housing Durability and Disaster Issues. Sponsor: Forest Products Society. **Las Vegas, Nevada: October 4-6, 2004.** The primary objective of this event is to provide the latest information on problems and solutions related to woodframe housing durability and disaster issues. For information, contact *Forest Products Society,*

2801 Marshall Court, Madison, WI 53705; (608) 231-1361 x208; e-mail: conferences@forestprod.org; <http://www.forestprod.org/confdura.html>.

Cartographic Cutting-Edge Technology for Natural Hazard Management. Sponsors: German Cartographic Society, International Cartographic Association, Dresden University. **Dresden, Germany: October 6-8, 2004.** Tentative topics include disaster monitoring, mobile mapping, real-time relief mapping, and vulnerability mapping. For information, contact *Steffi Sharma, University of Dresden, e-mail: Steffi.Sharma@mailbox.tu-dresden.de; <http://web.tu-dresden.de/kartographie/aspweb/>.*

6th Plinius Conference on Mediterranean Storms: Catching Storms in the Mediterranean Sea. Sponsor: European Geosciences Union (EGU). **The Mediterranean Sea (Vessel "Opera"): October 17-24, 2004.** This interdisciplinary forum will cover windstorms, floods, flash floods, landslides, coastal erosion, and sedimentation. For information, contact the *EGU Office, c/o Plinius, Max-Planck-Straße 13, D-37191 Katlenburg-Lindau, Germany; +49-5556-1440; e-mail: egu@copernicus.org; <http://www.copernicus.org/EGU/topconf/plc6/index.htm>.*

9th Annual New Mexico Environmental Health Conference. Sponsor: New Mexico Environmental Health Association. **Albuquerque, New Mexico: October 18-20, 2004.** Topics include community health, waste issues, and disaster preparedness and response. For information, contact *Lorie Stoller, P.O. Box 1371, Sandia Park, NM 87047; (505) 827-1400 x1003; e-mail: nmehc@swcp.com; <http://www.nmehc.org/>.*

The Third International Conference on Earthquake Engineering: New Frontier and Research Transformation. Sponsor: Nanjing University of Technology. **Nanjing, China: October 18-20, 2004.** The Asian-Pacific Network of Centers for Earthquake Engineering Research (ANCER) aims to broaden earthquake research, development impacts, and mitigation practices through cooperative activities conducted by earthquake engineering centers. This conference will cover all aspects of earthquake engineering. For information, e-mail: 3ICEE@NJUT.edu.cn; <http://3icee.njut.edu.cn/>.

5th Asian Seismological Commission General Assembly: Symposium on Seismic Hazard Evaluation and Risk Reduction. Sponsor: Armenian Association of Seismology and Physics of the Earth (AASPE). **Yerevan, Armenia: October 18-21, 2004.** This symposium will promote an understanding of earthquake disaster reduction as an essential element of government policy and a major priority in regional development; establish partnerships between the scientific community, government, and public; exchange and transfer knowledge and technology; and strengthen multidisciplinary cooperation. For information, contact *Serguei Balassanian, AASPE, 41 Orbeli Street, 375028 Yerevan, Armenia; +374 1 26 92 82; e-mail: sbal@aspe.am; http://www.aspe.am/ASC_2004/.*

Rural Homeland Security Technology Exposition. Sponsor: St. Francis University. **Johnstown, Pennsylvania: October 21-22, 2004.** This conference highlights technologies to improve rural America's ability to prepare for and manage mass casualties following a terrorist attack. Issues for discussion include topics associated with rural and underserved populations, general homeland security, advances in technology, and the provision of emergency medicine in a rural context. For information, contact *Bernadette Yeager, P.O. Box 600, Loretto, PA 15940; (814) 472-3389; e-mail: byeager@cermusa.francis.edu; <http://www.cermusa.francis.edu/expo/>.*

76th Annual Meeting of the Eastern Section of the Seismological Society of America. Sponsors: Seismological Association of America (SSA), Eastern Section of SSA, Virginia Polytechnic University. **Blacksburg, Virginia: November 1-2, 2004.** For information, contact *SSA, 201 Plaza Professional Building, El Cerrito, California 94530; (510) 525-5474; e-mail: mcc@vt.edu; <http://www.geol.vt.edu/outreach/vtso/esssa2004/>.*

International Technical Rescue Symposium. Sponsors: American Alpine Club, Mountain Rescue Association, *Fire Rescue* Magazine, Society for Professional Rope Access Technicians. **Albuquerque, New Mexico: November 5-7, 2004.** Representatives from multiple rescue disciplines will share information on advances in equipment and techniques, technical problems, and issues of mutual concern. For information, contact *Sherry Cox, Pigeon Mountain Industries, Inc., P.O. Box 803, Lafayette, GA 30728; (706) 746-1437; e-mail: scox@pmirope.com; http://www.nasar.org/nasar/downloads/NEW_2004_ITRS_FLYER_BROCHURE.pdf.*

IAEM 52nd Annual Conference. Sponsor: International Association of Emergency Managers (IAEM). **Dallas, Texas: November 5-11, 2004.** This forum on trends, topics, and the latest tools for emergency management and homeland security will encourage stakeholders to exchange ideas on collaborating to protect lives and property from disaster. For information, contact *IAEM, 201 Park Washington Court, Falls Church, VA 22046; (703) 538-1795 x2; e-mail: info@iaem.com; <http://www.iaem.com/>.*

International Conference on Grounding and Earthing. Sponsor: Brazilian Society for Electrical Protection. **Belo Horizonte, Brazil: November 7-11, 2004.** Researchers, engineers, designers, and members from industry and academia will discuss the latest scientific results and practical experience about lightning physics and practical applications to protect against lightning. For information, contact *Silvério Visacro F.; (055.31) 34994872; e-mail: LRC@cpdee.ufmg.br; <http://www.ground2004.com/>.*

Fire Rescue Expo. Sponsor: *Fire Rescue* Magazine. **Las Vegas, Nevada: November 12-14, 2004.** Topics include fire operations and tactics; rescue/extrication; training development; homeland first response; wildland fire; and emergency medical services. For information, contact *Fire Rescue Expo, c/o Diana Press, Reed Exhibitions, 383*

Main Avenue, Norwalk, CT 06851; (203) 840-5533; <http://www.firerescueexpo.com/>.

NFPA Fall Education Conference: Preparedness and Protection in a Hazardous World. Sponsor: National Fire Protection Association (NFPA). **Miami Beach, Florida: November 14-17, 2004.** This conference's special focus is disaster and emergency management along with business continuity and security. For information, contact *NFPA, 1 Batterymarch Park, Quincy, MA 02169; (617) 770-3000; e-mail: nfpa@nfpa.org; <http://www.nfpa.org/ProfessionalDev/EventsCalendar/FallEducation/FallEducation.asp>.*

Emergency Response Conference and Exposition. Sponsors: Rotor and Wing, Access Intelligence. **San Diego, California: November 17-20, 2004.** Focus is on how emergency responders and organizations can integrate their response to major incidents and manage new activities. For information, contact *Stephen Schuldenfrei, Access Intelligence, 1201 Seven Locks Road, Potomac, MD 20854; (301) 354-1813; e-mail: sschuldenfrei@accessintel.com; <http://www.emergencyresponseshow.com/>.*

1st Annual Canadian Risk and Hazard Network (CRHNet) Symposium. Sponsor: Canadian Risk and Hazards (Knowledge and Practice) Network. **Winnipeg, Manitoba: November 18-20, 2004.** This symposium will bring together an international group of scholars, researchers, and practitioners to share knowledge and exchange information to address risk through partnerships. It will also introduce CRHNet, a knowledge- and practice-based network to develop, promote, and help implement emergency management prevention and mitigation strategies in Canada. For information, contact *Donna Parkhurst, First Canadian Risk and Hazards Symposium,*

Natural Resources Institute, University of Manitoba, 304 Sinnott Building, 70 Dysart Road, Winnipeg, MB R3T 2N2 Canada; (204) 474-8954; e-mail: info@crhnet.ca; <http://www.crhnet.ca/index.php?pid=005>.

Annual Conference on Fire-Related Research and Developments. Sponsor: Fire Service College. **Moreton-in-Marsh, England: November 24-25, 2004.** This event brings together participants with a range of backgrounds who share an interest in fire-related research and best practices. For information, contact *Anne Eyre, Trauma Training, P.O. Box 2590, Leamington Spa, Warks CV31 1GQ England; +44 (0)19 2642 7939; e-mail: anne.eyre@traumatraining.com; <http://www.fireservicecollege.ac.uk/research/re04/re04.htm>.*

Hazards 2004: The Tenth International Symposium on Natural and Human-Induced Hazards and Third Workshop of the IUGG Commission on Geophysical Risk and Sustainability. Sponsor: National Geophysical Research Institute. **Hyderabad, India: December 2-4, 2004.** Topics covered will encompass the spectrum of natural and human-induced hazards, their causes, risks, and management. For information, contact *Hazards 2004, National Geophysical Research Institute, Hyderabad—00007 India; 0091-40-23434700; e-mail: sec-loc@hazards2004.org; <http://www.hazards2004.org/>.*

4th International Conference on Dam Engineering. Sponsor: Hohai University. **Nanjing, China: December 8-20, 2004.** This conference is a forum for information exchange among dam designers, constructors, and operators on dam behavior. For information, contact *Qingwen Ren, College of Civil and Engineering, Hohai University, Xi Kang Road 1, Nanjing 210098 P.R. China; e-mail: qingwenren@yeah.net; <http://www.dam04.com/>.*

Call for Papers

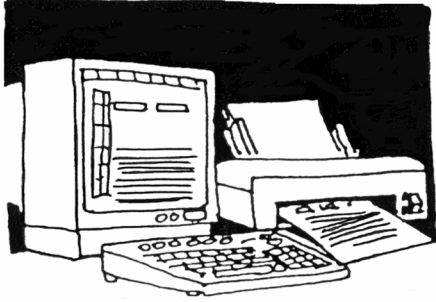
Stress, Trauma, and Crisis, an international, peer-reviewed multidisciplinary journal is planning a special issue on stress and the family. It is expected that manuscripts of all types, including program and clinical innovations, basic and applied qualitative and quantitative research, literature reviews, meta-analysis articles, and essays on theory construction and research methodologies, will be submitted for consideration. All manuscripts with a family focus will be considered.

The submission deadline is October 1, 2004. To submit a manuscript, send an original and two copies to *Betsy Garrison, Louisiana State University, School of Human Ecology, Baton Rouge, LA 70803; (225) 578-1724; e-mail: hcgarr@lsu.edu; <http://www.tandf.co.uk/journals/authors/gcिताuth.asp>.*

Nominations Sought for Shamsheer Prakash Prize

The Shamsheer Prakash Foundation is seeking nominations for the 2004 Shamsheer Prakash Annual Prize for Excellence in the Practice of Geotechnical Engineering. The award is given to a young engineer, scientist, or researcher chosen from eligible nominees from around the world. Successful candidates will have a background in geotechnical earthquake engineering and have made significant independent contributions to the field.

Nominations are due on or before October 31, 2004, and will be reviewed by an international panel. The award recipient will be announced on December 31, 2004. Complete information is available from *Sally Prakash, e-mail: sallyp@umr.edu; <http://www.rollanet.org/~prakash1/yoga10/geotechengg.htm>.*



INTERNET PAGES

Below are new or updated Internet resources that Hazards Center staff have found to be informative and useful. For a more complete list, visit <http://www.colorado.edu/hazards/resources/sites.html>.

All Hazards

<http://www.geodata.gov/>

This “one-stop” federal Web site features access to federal, state, and local geographic data. It also includes information and resources on geospatial data and related issues.

http://mtjune.uoregon.edu/website/hazardmaps/webapp/hazardsViewer_content.html

Oregon Partners for Disaster Resistance and Resilience has produced a regional hazard viewer to provide information about hazard risk throughout the state as part of Oregon’s natural hazard mitigation plan.

<http://www.dol.gov/odep/pubs/ep/index.htm>

This U.S. Department of Labor Office of Disability Employment Policy report is from a 2003 conference on emergency preparedness titled “Emergency Preparedness for People with Disabilities: An Interagency Seminar of Exchange for Federal Managers.”

<http://www.house.gov/rohrbacher/homesevent.htm>

Representative Dana Rohrabacher (CA-46) sponsors a variety of disaster mitigation and hazard-related events and training opportunities. A complete schedule is available on the congressman’s Web site.

http://www.worldbank.org/hazards/news/conferences/gender_agenda.htm

Notes, presentations, and session videos from the April 2004 World Bank International Workshop on Integrating Community, Gender, and Women’s Empowerment Issues into Disaster Recovery and Risk Management Operations are available online at this World Bank Web site.

<http://nedies.jrc.it/index.asp?ID=67>

The Natural and Environmental Disaster Information Exchange System (NEDIES) is a European Commission project to support European Union policies in the area of prevention, mitigation, and management of natural risks and technological accidents. This site features news about NEDIES activities, access to publications, and links to glossaries and other resources. Authorized users can access a lessons learned disaster database and can share their own related information.

<http://www.preparingforemergencies.gov.uk/>

An information booklet titled *Preparing for Emergencies—What You Need to Know* is being sent to every home in the United Kingdom. The booklet, which will be available in multiple formats and languages, contains practical common sense advice on what to do in an emergency and can be downloaded at this site.

<http://www.hari.org/EmergencyPreparedness.shtml>

The Hospital Association of Rhode Island has released an after-action report on the 2003 Station nightclub fire.

http://www.nist.gov/public_affairs/releases/wtc_victims_location.htm

Since 2002 the National Institute of Standards and Technology (NIST) has been conducting a comprehensive investigation into the World Trade Center disaster. An interim analysis of the location of the victims, one aspect of the study, is available on this Web page. General information about the NIST project is available at <http://wtc.nist.gov/>.

Earthquakes

<http://qfaults.cr.usgs.gov/>

This site, maintained by the U.S. Geological Survey (USGS), contains maps and information on faults and associated folds in the U.S. believed to be sources of M > 6 earthquakes during the Quaternary (the past 1,600,000 years).

<http://www.ceri.memphis.edu/perc/>

The University of Memphis, the USGS, and the Mid-America Earthquake Center recently opened an earthquake learning center, with a strong online component, to help visitors understand earthquakes and the New Madrid seismic zone.

Wildfire

http://www.usfa.fema.gov/fire-service/wildfire/update_2004.shtm

The Federal Emergency Management Agency's Special 2004 Wildland Update Web page directs firefighters and community leaders to the latest safety and situational information related to wildland fire. The site includes resource links, weather predictions, current aviation strategy, community programs, and a daily "Six Minute Safety Briefing."

<http://www.fs.fed.us/news/2004/releases/07/university-wisconsin.shtml>

The Forest Service and the University of Wisconsin have released maps depicting the wildland urban interface (WUI) in the lower 48 states. This consistent nationwide representation of the WUI makes mapping and analysis possible at national, state, and local levels.

Climate/Environmental Change

<http://www.pewclimate.org/pewbrookings.cfm>

This site contains webcasts and transcripts from a Pew Center on Global Climate Change/Brookings Institution conference at which government officials and other leaders debated the future of U.S. policy on climate change.

http://dels.nas.edu/abr_clim/

This National Academies Web site addresses abrupt climate change, defining it as a large shift in climate (such as marked changes in average temperature, altered storm patterns, floods, or droughts) that persists for years over widespread areas.

<http://www.chiex.net/>

The Collaborative Research Network sponsors the Climate and Health Information Exchange Web site, which features articles, training opportunities, and ongoing projects that deal with climate variability and human health impacts.

<http://www.ecohealth101.org/>

This new educational Web site from the Johns Hopkins Bloomberg School of Public Health focuses on global warming and other environmental threats and their links to human health. "EcoHealth" is intended for students and teachers as well as other interested individuals.

Hurricanes

<http://www.hurrevac.com/>

Information about and support for the latest version of HURREVAC (HURRICANE EVACUATION program), software designed to track hurricanes and assist with decision making, is available here.

<http://hurricane.csc.noaa.gov/hurricanes/index.htm>

Meteorologists, emergency planners, and coastal residents can find out how tropical storms could affect their communities with the National Oceanic and Atmospheric Administration's recently updated database of tropical cyclones.

Health

<http://www.bt.cdc.gov/masstrauma/index.asp>

The Centers for Disease Control and Prevention has recently updated its Mass Trauma and Preparedness Web pages to include a variety of new information.

<http://www.ruralhealth.hrsa.gov/ruralems/>

The U.S. Department of Health and Human Services has unveiled this new Web site for rural emergency medical services and technical trauma assistance.



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 <http://www.colorado.edu/hazards/resources/grants/>.

Global Warnings: The Effect of Scientific Elite Conflict on Public Opinion. Funding: National Science Foundation. One year. Principal Investigator: *Nicholas Valentino, University of Michigan, 3003 South State Street, Room 1062, Ann Arbor, MI 48109; (734) 764-1817; e-mail: nvalenti@umich.edu.*

Public perception of issues with relatively large scientific components hinges on the way problems and solutions are presented by the media. Based on this reality, this doctoral research will use global climate change as the test issue to investigate the influence that scientists, via the media, may have in shaping public attitudes and how the framing of scientific consensus or disagreement in the news affects opinions.

Climate Change, Vicarious Experience, and the Social Amplification of Risk. Funding: National Science Foundation. One year. Principal Investigators: *Anthony A. Leiserowitz and Paul Slovic, Decision Science Research Institute, 1201 Oak Street, Eugene, OR 97401; (541) 485-2400; e-mail: ecotone@uoregon.edu.*

To date, there has been no empirical investigation of the influence of motion pictures on public risk perceptions and behavior. This study will explore the impact of vicarious experience and the social amplification of risk as they relate to motion pictures. Results will contribute to emerging theory on the roles of experiential processing and the social amplification of risk in risk perception and decision making as well as to the understanding of the influence of mass media on society.

Storm Preparedness and Recovery for the Electric Power System. Funding: National Science Foundation. Three years. Principal Investigators: *Rachel A. Davidson, David V. Rosowsky, and Arthur T. DeGaetano, Cornell University, Office of Sponsored Programs, Ithaca, NY 14853; (607) 255-5014.*

This project aims to improve ice storm and hurricane preparedness and recovery for electric power distribution systems by building interrelated mathematical models to better estimate future storm-related damages and to support decisions to reduce the frequency and duration of power outages, specifically tree trimming policies and poststorm restoration procedures. Investigators expect that

lessons learned and methods developed will advance the study of natural hazard risk analysis for infrastructure systems and may extend to other lifelines in the future.

Disaster Preparedness and Response in Central Mexico: Towards an Adaptation Baseline. Funding: National Science Foundation. Two years. Principal Investigator: *Hallie C. Eakin, 2404 Headley Road, Bloomington, IN 47408; (812) 339-8515; e-mail: eakin_h@yahoo.com.*

Adaptation is a relatively new topic in climate change research and few nations have taken concrete steps to mitigate future vulnerability through adaptive activities. This International Research Fellowship will allow the investigator to work with Victor Magana at Universidad Nacional Autónoma de Mexico in Mexico City, Mexico, and Diana Liverman at the University of Oxford in the United Kingdom to explore how citizens and public institutions currently perceive and plan for climate risks and to assess both private and public responses to the crisis. The project will be carried out within the framework of a United Nations initiative, using a case study of the impact of widespread flooding in west Central Mexico in September 2003.

Institutional Effects on Decision Making and Performance in Public Land Agencies: The Case of Wildfire in the Interior West of the U.S. Funding: National Science Foundation. One year. Principal Investigator: *Elinor Ostrom, Indiana University, P.O. Box 1847, Bloomington, IN 47402; (812) 855-0516; e-mail: ostrom@indiana.edu.*

This research will examine the reasons for the recent increase in catastrophic wildfires on public lands in the American West and identify key factors disabling the nationwide effort to reduce the magnitude and cost of these fires. By doing archival research and interviewing stakeholders and public officials, this project will examine the methods of decision making used by the Forest Service, the National Park Service, and two state land agencies (Arizona and Colorado). The research will develop measures of the relative costs of wildfire management; the time and number of procedural steps required to treat high-risk areas; the impact of federal regulations, compliance requirements, lawsuits and legal complications; and the relationship of agencies with communities and interest groups.

Development of Historical and Future Land Cover and Land Use Change Datasets for the Community Climate System Model. Funding: National Science Foundation. Two years. Principal Investigator: *Johannes J. Feddema, University of Kansas Center for Research, 2385 Irving Hill Drive, Lawrence, KS 66045; (785) 864-3441; e-mail: feddema@ku.edu.*

The desired result of this project is a comprehensive dataset representing multiple time series of specific human activities known to impact climate. These activities will be evaluated for the time period 1750-2100, both individually and in combination, to understand individual and integrated impacts. The dataset will allow for the creation of standardized climate model simulations and for intermodel comparison projects.

Seasonal and Geographical Impact of Land Use on Climate Change. Funding: National Science Foundation. One year. Principal Investigators: *Ming Cai, Florida State University, Tallahassee, FL 32306; (850) 644-5260; e-mail: cai@met.fsu.edu; and Eugenia Kalnay, University of Maryland at College Park, 3112 Lee Building, College Park, MD 20742; (301) 405-6269; e-mail: ekalnay@atmos.umd.edu.*

The purpose of this project is to further investigate the impact of land use on climate change noting that changes in land use due to urbanization, industry, and agriculture constitute one of the primary ways in which society plays a role in climate change.

WTC Impact, Familial Transmission and Child PTSD. Funding: National Institute of Mental Health. \$480,000, one year. Principal Investigator: *Christina W. Hoven, New York State Psychiatric Institute, 1051 Riverside Drive, New York, NY 10032; e-mail: hoven@childpsych.columbia.edu.*

A large epidemiological study of New York City public school children six months after September 11 identified higher than expected rates of probable psychiatric disorders in children, most especially among children of World Trade Center (WTC) evacuees. As a result of these findings, the investigator recognized an opportunity to help resolve the issue of how the effects of parental trauma may be transmitted to children. This pilot study is designed to finalize instrument selection and identify the best field methodologies to sample, contact, recruit, and assess a representative sample of WTC evacuees and their children. A WTC evacuee population-based study is expected to follow.

Handheld Triage Assistant for Disaster Management. Funding: National Library of Medicine. \$100,000, six months. Principal Investigator: *Joy Bell, Medical Decisions Software, Inc., P.O. Box 518, Earleton, FL 32631.*

This project will study the feasibility of using real-time handheld software for triage in a simulated disaster environment. The investigator seeks to answer questions regarding whether or not documentation using a handheld triage assistant can save time, synthesize data for use on scene, and positively impact outcomes.

The Making of Terrorists and Their Networks. Funding: National Science Foundation and the U.S. Department of Homeland Security. Two years. Principal Investigators: *Carol V. Petrie, Michael J. Feuer, and Faith Mitchell, National Academy of Sciences, 500 Fifth Street, NW, Washington, DC 20001; (202) 334-2254; e-mail: cpetrie@nas.edu.*

This project is a metaevaluation of the state of the knowledge about the making of terrorists. A series of workshops will bring experts together to discuss terrorism-related topics. An interdisciplinary panel will review and evaluate relevant data, distill essential findings, and make recommendations to policy makers, researchers, and other audiences. The goal is to determine what is known about terrorist groups generally, what is known about terrorist networks specifically, and how this information can be used to identify vulnerabilities.

NSF Update

The Division of Civil and Mechanical Systems (CMS) within the Engineering Directorate at the National Science Foundation (NSF) has reestablished the schedule of setting two deadlines per year for unsolicited proposals.

Upcoming deadlines are December 1, 2004; March 1, 2005; October 1, 2005; and March 1, 2006. Proposals may be submitted beginning 30 days prior to the deadline.

CMS encourages cross-disciplinary partnerships and funds research that contributes to the knowledge base and intellectual growth in a variety of areas including risk reduction, earthquakes, and natural and technological hazards. For more information, visit <http://www.eng.nsf.gov/cms/>.

Talking About Disaster

The National Disaster Education Coalition (NDEC) has released the second edition of *Talking About Disaster: Guide for Standard Messages*. Developed to help organizations and agencies provide the American public with accurate, consistent, and appropriate messages regarding disaster preparedness and safety, the guide is the result of an extensive collaborative effort by more than 450 professionals, scientists, and researchers. It features standardized safety messages for 20 natural, technological, and human-induced hazards; includes statistics and explanations reinforcing the credibility of each message; and distinguishes disaster facts from disaster fiction.

The guide is a valuable resource for anyone involved in disaster education and communication, including emergency managers, homeland security professionals, meteorologists, educators, and the media. The information in the guide is in the public domain and may be freely distributed and tailored to fit specific needs. Download the guide for free at <http://www.disastereducation.org/guide.html>.



RECENT PUBLICATIONS

Below are brief descriptions of a sampling of recent publications on hazards and disasters received by the Hazards Center. Information on how to obtain copies is included.

All Hazards

Early Warning Systems for Natural Disasters. Jochen Zschau and Andreas N. Küppers, editors. ISBN 3-540-67962-6. 2003. 467 pp. \$197.00. Available from Springer, 175 Fifth Avenue, New York, NY 10010; (800) 777-4643; e-mail: service@springer-ny.com; <http://www.springeronline.com/>.

Intended for decision makers in the political arena, scientists, engineers, and those responsible for public communication and dissemination of warnings, this book is a comprehensive account of early warning systems related to natural disasters. Disasters covered include tropical storms, floods, drought, El Niño, earthquakes, volcanoes, tsunamis, avalanche, and fire. Additional sections address technological hazards, the role of satellite techniques in early warning systems, special problems for developing countries and small island states, and future technology needs.

Living With Risk: A Global Review of Disaster Reduction Initiatives. ISBN 92-1-101050-0. 2004. Vol. I: 454 pp., Vol. II (Annexes): 130 pp. \$95.00 for both volumes. Available from the UN Inter-Agency Secretariat for the International Strategy for Disaster Reduction, Palais des Nations CH 1211, Geneva 10, Switzerland; +41 22 917 2762/2759; e-mail: isdr@un.org; <http://www.unisdr.org/>.

Written for practitioners and anyone interested in disaster risk reduction, humanitarian action, and sustainable development, this 2004 edition features examples of action taken by individuals, communities, and governments around the world to avoid and reduce the risks and impacts of natural and technological hazards. It provides an overview of the evolution of the understanding of risk and disaster management; explores the concepts of risk and vulnerability; offers lessons on how to reduce risk and vulnerability to hazards; and discusses the importance of knowledge exchange and information management. Free online extracts are available at http://www.unisdr.org/eng/about_isdr/bd-lwr-2004-eng.htm.

Protecting Emergency Responders Volume 3: Safety Disaster and Terrorism Response. Brian A. Jackson, John C. Baker, M. Susan Ridgely, James T. Bartis, Herbert I. Linn. 2004. 154 pp. Free. Available from the National Institute of Occupational Safety and Health, Publications Dissemination, 4676 Columbia Parkway, Cincinnati, OH 45226; (800) 356-4674; e-mail: pubstaf@cdc.gov; <http://www.cdc.gov/niosh/docs/2004-144/>.

This report focuses on strategies and tactics for enhancing the safety of emergency responders with the goal of fostering effective planning, preparedness, and incidentwide safety management for large-scale emergencies. Prepared by the RAND Corporation, this peer-reviewed publication is based on an extensive literature review and interviews with members of the response community. Recommendations include improving the effectiveness of safety management; ways to better obtain and share information, analyze options, make decisions, and manage risk; how to implement decisions and manage resources; suggestions for mutual aid and interagency communication; and ways to take action.

Introduction to Natural and Man-Made Disasters and Their Effects on Buildings. Roxanna McDonald. ISBN 0-7506-5670-0. 2003. 256 pp. \$39.95. Available from Architectural Press, Elsevier Science/Harcourt, 200 Wheeler Road, 6th floor, Burlington, MA 01803; (781) 221-2212, (800) 545-2522; e-mail: usbkinfo@elsevier.com; <http://www.architecturalpress.com/>.

This is a comprehensive guide to natural and human-induced disasters and the effects they have on buildings. Written for anyone involved in building design and construction, it provides overall guidance and a basic technical understanding of disaster types and prevention, mitigation, and management of disaster.

Incident Management Team All-Risk Operations and Management Study. Amy K. Donahue. 2003. 94 pp. Available free online from the Wildland Fire Lessons Learned Center, c/o NAFRI, 3265 East Universal Way, Tucson, AZ 85706; (520) 799-8760; e-mail: pnasiatka@fs.fed.us; http://www.myfirecommunity.net/documents/IMT_Shuttle_Response_FINAL.pdf.

The recovery operation that followed the space shuttle Columbia accident in May 2003 in east Texas and Louisiana was one of the largest such operations in U.S. history. Capitalizing on the broad experiences of members from the 21 participating incident management teams (from the wildland fire service), the author of this report draws conclusions about the capacity of current incident management teams for all-risk response and makes recommendations for interagency and intergovernmental all-risk incident management. Major findings include support for the Incident Command System and improved interoperability. Concerns about an all-risk incident management approach include resource conflict; lack of specialized expertise, training, and equipment; and jurisdictional protectiveness.

NFPA 1600: Standard on Disaster/Emergency Management and Business Continuity Program. 2004. 46 pp. \$28.75. Available free online from the National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169; (617) 770-3000, (800) 344-3555; e-mail: custserv@nfpa.org; <http://www.nfpa.org/pdf/nfpa1600.pdf>.

This recently updated standard merits special attention as it has recently been endorsed by the National Commission on Terrorist Attacks Upon the United States (the 9/11 commission) as the proposed national preparedness standard for private sector emergency preparedness. NFPA 1600 establishes a common set of criteria for disaster/emergency management and business continuity programs, identifies methodologies for implementing such programs, and includes a list of resources useful in disaster recovery, emergency management, and business continuity planning.

Today's 10 Greatest Risks. 2004. 23 pp. Available free online from Risk Management Solutions, 7015 Gateway Boulevard, Newark, CA 94560; (510) 505-2500, (800) 767-4846; e-mail: info@rms.com; http://www.rms.com/Publications/10GreatestUSCats_R&I_041504.pdf.

Through fictional disaster scenarios, this publication illustrates the 10 greatest risks faced by the U.S. today. These risks are hurricane, flood, oil spill, terrorism, blackout, wildfire, industrial accident, cyber attack, pandemic, and earthquake.

Hazards Watch: Reducing the Impacts of Disasters through Improved Earth Observations. Summary of a Workshop, October 22, 2003, Washington, DC. Richard Sylves and Helen Wood. 2004. 24 pp. Available free online from the National Academies Press, 500 Fifth Street, NW, Box 285, Washington, DC 20055; (202) 334-3313, (800) 624-6242; http://books.nap.edu/html/ndr/hazards_watch.pdf.

Participants at the 9th Disasters Roundtable were tasked with exploring how we can use our ability to observe the Earth's natural systems to create a disaster-resilient society and the challenges and limits that remain in earth observation efforts. This report summarizes the workshop, stresses the value of Earth observing technologies in guiding policy and emergency management decisions regarding disaster prevention and mitigation, and discusses the importance of internationalizing the effort to better serve the planet as a whole.

Mapping Vulnerability: Disasters, Development and People. Greg Bankoff, Gerog Frerks, and Dorteia Hilhorst, editors. ISBN 1-85383-964-7. 2004. 236 pp. \$29.95. Available from Earthscan, 8-12 Camden High Street, London NW1 0JH, UK; +44 (0)20 7387 8558; e-mail: earthinfo@earthscan.co.uk; <http://www.earthscan.co.uk/>.

Hazards are natural, disasters are not. Social processes generally result in unequal exposure to risk by making some people more disaster-prone than others. This book explores aspects of vulnerability as key to understanding risk and the human response to hazards. Critical to this understanding is an appreciation of how human systems place people at risk in relation to each other and the environment—a relationship that can be best understood in terms of an individual, household, community, or societal vulnerability. These issues are examined through scholarly and case-study perspectives.

The United States Conference of Mayors Interoperability Survey. 2004. 23 pp. Available free online from The United States Conference of Mayors, 1620 Eye Street, NW, Washington, DC 20006; (202) 293-7330; e-mail: info@usmayors.org; http://www.usmayors.org/72ndannualmeeting/interoperabilityreport_062804.pdf.

The purpose of this survey was to measure the reliability and effectiveness of communication between city agencies and federal, regional, state, and other local entities in responding to disasters. Issues addressed include the level of interoperability, obstacles to interoperability and whether the distribution of funds from the U.S. Department of Homeland Security by states delayed interoperable investment, and the investment required to become fully interoperable and whether and how much federal funding is expected or has been made available to aid interoperable implementation. While the survey results do include encouraging data, they also reveal several challenges to communication, most importantly, the lack of funding.

Severe Weather

Heads above Water: Gender, Class, and Family in the Grand Forks Flood. Alice Fothergill. ISBN 0-7914-6158-0. 2004. 270 pp. \$19.95. Available from the State University of New York Press, c/o CUP Services, Box 6525, Ithaca, NY 14851; (800) 666-2211; e-mail: info@sunypress.edu; <http://www.sunypress.edu/>.

Stories of how women and their families survived the Grand Forks, North Dakota, flood of 1997 are central to this book about women's experiences following a natural disaster. Through these tales, the book describes the challenges women faced and explores the importance of class, race, gender, sexual orientation, and disability in disaster recovery. Issues raised include women's changing roles, the stigma of charity, threats to mind and body, family relationships under stress, views about religion, domestic violence, and the importance of "home" to one's identity and sense of self.

Record Tornado Outbreaks of May 4-10, 2003. Service Assessment. 2003. 58 pp. Free. Available from the National Weather Service, 1325 East-West Highway, W/OS52, Silver Spring, MD 20910; (301)

713-0090; e-mail: wayne.presnell@noaa.gov; <http://weather.gov/os/assessments/record-may.pdf>.

In May 2003, 393 tornadoes and 39 resultant deaths were recorded in portions of the Great Plains, Midwest, and mid-South of the U.S. This report is the result of performance assessments of the National Weather Service (NWS) National Centers for Environmental Prediction's Storm Prediction Center, which is responsible for issuing severe weather outlooks and watches, and the five weather forecast offices responsible for issuing outlooks and warnings in the affected counties. The report indicates that the NWS' customers and partners were satisfied with services before and during the outbreak and identifies recommendations for improvements within the NWS severe weather warning process.

Learning Lessons from Disaster Recovery: The Case of Honduras. John Telford, Margaret Arnold, and Alberto Harth. Working Paper Series No. 8. 2004. 81 pp. Available free online from the World Bank, Hazard Management Unit, 1818 H Street, NW, Washington, DC 20433; e-mail: hazardmanagement@worldbank.org; http://www.worldbank.org/hazards/files/honduras_wps.pdf.

As part of an initiative to identify lessons learned from recovery efforts following major natural disasters, this report summarizes the findings of a case study conducted in Honduras following Hurricane Mitch in October 2002. The study examined four main areas: policies related to disaster recovery/management, systems for disaster recovery, resources for disaster recovery, and impacts of recovery efforts. Additional case studies on Bangladesh, India, Mozambique, and Turkey are in development, as is a synthesis report summarizing the different experiences of recovery in these countries.

The Blizzard of '78. Michael Tougias. ISBN 0-9719547-5-5. 2003. 128 pp. \$14.95. Available from On Cape Publications, P.O. Box 218, Yarmouth Port, MA 02675; (877) 662-5839; e-mail: info@oncapepublications.com; <http://www.oncapepublications.com/>.

In February 1978, a powerful storm tore through New England, stranding commuters and leaving a path of devastation in its wake. This chronicle of what the locals refer to as "the worst storm of the century" uses photographs and text to profile the progression of the storm, the damage it left behind, and the communities that survived it.

Lightning Protection for Engineers: An Illustrated Guide in Accord with Recognized Codes and Standards. 2004. 216 pp. \$79.95. Available from the National Lightning Safety Institute, 891 North Hoover Avenue, Louisville, CO 80027; (303) 666-8817; e-mail: media@lightningsafety.com; <http://www.lightningsafety.com/>.

Lightning is a destructive force that goes largely unrecognized by commerce and industry as well as the general public. But, with lightning losses approximating \$4-5 million annually, it is a hazard that should be taken seriously. This workbook was developed, in accordance with recognized codes and standards, for architects; engineers; educators; and local, state, and federal officials in an effort to raise the understanding of lightning safety issues. It discusses the fundamental concepts of lightning protection, risk assessment, and how exterior and interior defenses can be combined to mitigate lightning damage in a variety of situations.

Earthquakes

Putting Down Roots in Earthquake Country. 2004. 32 pp. Available free online from the Southern California Earthquake Center, University of Southern California, 3651 Trousdale Parkway, Suite 169, Los Angeles, CA 90089; (213) 740-5843; e-mail: scec@usc.edu; <http://www.earthquakecountry.info/roots/roots.html>.

This handbook provides basic information for the general public about earthquakes in general, earthquakes in Southern California, and "The Seven Steps on the Road to Earthquake Safety." It was developed by the Southern California Earthquake Center, the U.S. Geological Survey, the Federal Emergency Management Agency (FEMA), and the California Earthquake Center and distributed by radio station KNBC, Home Depot stores, the American Red Cross, and others.

The Big One: The Earthquake that Rocked Early America and Helped Create a Science. Jake Page and Charles Officer. ISBN 0-618-34150-1. 2004. 256 pp. \$24.00. Published by Houghton Mifflin Company; <http://www.houghtonmifflinbooks.com/>. Available from local and online booksellers (not from the publisher).

In the early 1800s, one of the most powerful earthquakes in recorded history struck the Missouri-Tennessee border. This book tells the story of this earthquake and two others that followed, collectively referred to as the New Madrid earthquakes, and how they contributed to the creation of seismology. The authors also discuss the difficulties of earthquake prediction, the likelihood of another similar earthquake striking the region, and the devastation that would result should such an event occur.

A Dangerous Place: California's Unsettling Fate. Marc Reisner. ISBN 0-679-42011-8. 2003. 181 pp. \$22.00. Published by Pantheon Books; <http://www.randomhouse.com/pantheon/>. Available from local and online booksellers (not from the publisher).

The Los Angeles and San Francisco Bay areas of California lie on two of the most violently seismic zones on earth. The author traces the state's history and development from a desert to one of the most populous states in the country, and he posits the results of living along a fault line without a true consideration of what that means. The book concludes with a "what if" scenario that addresses the inevitable earthquake of the future.

Finding Fault in California: An Earthquake Tourist's Guide. Susan Elizabeth Hough. ISBN 0-87842-495-4. 2004. 368 pp. \$18.00. Available from Mountain Press Publishing Company, P.O. Box 2399, Missoula, MT 59806; (406) 728-1900, (800) 234-5308; <http://www.mtnpress.com/>.

This earthquake tourist's guide leads readers to California's most accessible, active, and earth-shaping faults and tells the stories behind the region's major earth-shaking events. It begins with a discussion about faults—what they are and how to recognize them. Tours explore the seismic hazards of the Los Angeles Basin, the San Francisco Bay Area, central California, the Mojave Desert, and Owens Valley. Photos, maps, and diagrams, most with precise GPS coordinates, illustrate the text, and sidebars highlight the work of modern faultfinding researchers.

Terrorism

Terrorism Time Line: Major Focusing Events and U.S. Outcomes (1993-2003). Version 3. Claire B. Rubin, William R. Cumming, and Irmak Renda-Tanali. \$5.00. Available free online from *The Time Line Series*, Claire B. Rubin & Associates, P.O. Box 2208, Arlington, VA 22202; (703) 920-7176; e-mail: cbrubin@comcast.net; <http://www.disaster-timeline.com/>.

This latest version of the *Terrorism Time Line*, a 15" x 38" chart, features terrorism-related milestone incidents/events and outcomes that occurred between 1993 and 2003. Outcomes include major reports and documents, statutes, presidential directives, major response plans, federal actions, and effects on state and local governments.

Information, Technology, and Coordination: Lessons from the World Trade Center Response. Sharon S. Dawes, Thomas Birkland, Giri Kumar Tayi, and Carrie A. Schneider. 2004. 40 pp. Available free online from the Center for Technology in Government, University at Albany, SUNY, 187 Wolf Road, Suite 301, Albany, NY 12205; (518) 442-3892; e-mail: info@ctg.albany.edu; http://www.ctg.albany.edu/publications/reports/wtc_lessons/wtc_lessons.pdf.

The response and recovery efforts following the attack on the World Trade Center in 2001 were rife with surprising problems and challenges that demanded new solutions. This study examined what organizations did in response to the attack and distilled that information into lessons for improving crisis response and emergency management and planning. This report addresses seven topics: information needs associated with the event and the response and recovery efforts; the availability, quality, use, and management of information resources; the nature, strengths, and weaknesses of information technology; the role and effectiveness of existing plans, programs,

and relationships; information policy issues; methods and effectiveness of communicating with the public; and recommendations and prospects for long-term improvements in government and community resilience and performance.

How to Lead during Bioattacks with the Public's Trust and Help: A Manual for Mayors, Governors, and Top Health Officials. 2004. 15 pp. Available free online from the UPMC Center for Biosecurity, The Pier IV Building, 621 East Pratt Street, Suite 210, Baltimore, MD 21202; (443) 573-3304; <http://www.upmc-biosecurity.org/pages/resources/leadership.html>.

This manual is the result of a working group on governance dilemmas in bioterrorism response made up of representatives from the political, public health, medical, and disaster communities; special population advocates; and news media, public affairs, and risk communication experts. It sets forth strategic goals that distinguish effective, compassionate leadership in epidemics; illustrates circumstances posed by bioattacks that further complicate response to the health crisis; identifies dilemmas of governance that commonly arise during naturally occurring or intentionally caused epidemics; and recommends principles and actions for averting and/or remedying such predicaments. Supporting materials include an interactive executive summary, a PowerPoint presentation, the proceedings of the 2003 national summit on Leadership during Terrorism, and select planning and response resources.

A Journalist's Guide to Covering Bioterrorism. Second Edition. David Chandler and India Landrigan. 2004. 51 pp. \$15.00 members/\$25.00 nonmembers. Available free online from the Radio and Television News Directors Foundation, 1600 K Street, NW, Suite 700, Washington, DC 20006; (202) 659-6510; e-mail: rndf@rndf.org; <http://www.rtnda.org/resources/bioguide.pdf>.

This handbook was written to help journalists prepare for covering bioterrorism. Its goal is to ensure that in the event of a bioterrorism incident, the media is properly equipped to disseminate helpful information quickly, accurately, and effectively. Topics include an introduction to bioterrorism, a history of the use of biological weapons, how an attack might unfold, possible weapons, laws and treaties governing biological weapons, who has biological weapons, what can be done for defense, and where to go for more information. A glossary defines scientific terms, jargon, and acronyms.

Terrorism and Disaster Management: Preparing Healthcare Leaders for the New Reality. K. Joanne McGlown, editor. ISBN 1-56793-218-5. 2004. 343 pp. \$72.00. Available from the Health Administration Press, P.O. Box 75145, Baltimore, MD 21275; (301) 362-6905; e-mail: HAP1@ache.org; <http://www.ache.org/hap.cfm>.

Written to address questions shared by health care leaders, this book focuses on planning, preparedness, and the integration of health care and emergency management, specifically as they relate to terrorism. Leaders in the fields of emergency medicine, law, and terrorism response provide guidance in understanding the legal and ethical issues surrounding disaster planning and preparedness; obtaining disaster assistance from FEMA; navigating governmental direction, control, and oversight; achieving and maintaining local interagency cooperation; integrating civilian and military response; and meeting the preparedness needs of special populations. Appendices feature a glossary of acronyms, Web resources, action forms, and a recommended reading list.

Climate Change

Climate Change 2004. Bill McGuire. Technical Paper 02. 2004. 29 pp. Available free online from the Benfield Hazard Research Centre, Department of Earth Sciences, University College London, 136 Gower Street (Lewis Building), London, WC1E 6BT, UK; +44 (0)20 7679 3637; e-mail: info@benfieldhrc.org; http://www.benfieldhrc.org/SiteRoot/activities/tech_papers/climate_change.pdf.

The review of recent climate change research and observations documented in this technical paper illustrates that much has happened in the climate change arena over the past few years and that evidence supporting an anthropogenic cause of modern day climate change is overwhelming. This report provides an overview of re-

search undertaken and observations made since 2000. Specific areas of discussion include atmospheric greenhouse gas concentrations; global temperature trends, observations, and impacts; the hazard implications of climate change; concerns about changes in the circulation of the North Atlantic and potential Gulf Stream weakening; and the political and economic aspects of climate change.

Insights to Key Questions about Climate Change. Derek Winstanley and Stanley A. Changnon. 2004. 98 pp. Available free online from the Illinois State Water Survey, 2204 Griffith Drive, Champaign, IL 61820; (217) 333-8888; e-mail: gloria@sws.uiuc.edu. <http://www.sws.uiuc.edu/pubdoc/IEM/ISWSIEM2004-01.pdf>.

What will the future climate be like? What will the effects of climate change be, both good and bad? The authors of this report present extensive information from recently published findings to address these critical questions about climate change. The report, written to better inform decision makers and the public, focuses on the scientific unpredictability of future climate conditions and the economic impacts of weather and climate.

Wildfire

South Canyon Fire: Ten Year Review of the Effectiveness of Planned Actions. 2004. 28 pp. Available free online from the Wildland Fire Lessons Learned Center, c/o NAFRI, 3265 East Universal Way, Tucson, AZ 85706; (520) 799-8760; e-mail: pnasiatka@fs.fed.us; http://www.myfirecommunity.net/documents/South_Canyon_10Year_Review.pdf.

The primary objective of this review was to determine whether the solutions, plans, initiatives, and policies that resulted from the deadly South Canyon Fire have been implemented, are consistently practiced, and are useful to all levels of firefighting personnel. According to the report, the wildland fire community has made significant progress in implementing corrective actions, but concerns still exist. These concerns include a lack of clear, consistent interagency policies, wildland urban interface strategies and definitions, general fireline policy guides, and training requirements. A comparison of the South Canyon, Thirtymile and Cramer fires also reveals areas of concern common to all three fires, specifically a lack of focus and attention on human factors, negative synergy, operation priorities, and lack of management oversight.

Southern California Firestorm 2003: Report for the Wildland Fire Lessons Learned Center. 2003. 69 pp. Available free online from the Wildland Fire Lessons Learned Center, c/o NAFRI, 3265 East Universal Way, Tucson, AZ 85706; (520) 799-8760; e-mail: pnasiatka@fs.fed.us; http://www.wildfirelessons.net/ICTs/LLCICT_SoCa_Final_Report_121903.pdf.

The California wildfires of 2003 were unprecedented in scope and impact. This study used 107 focused interviews to capture the experiences of those who fought the fires and present recommendations on how to respond to the many firefighting, incident command, evacuation, environmental, resources, interagency cooperation, and recovery issues involved with the response to the fires. Report sections include fire behavior and scope, interagency cooperation, command and control, evacuations and homeowners, resource management, incident and personal safety, strategy and tactics, documentation, recovery, and issues for organizational leaders.

Coastal Hazards

Greenwich Bay: An Ecological History. Sue Kennedy and Virginia Lee. 2003. 32 pp. \$3.00. Available free online from the Rhode Island Sea Grant Communications Office, University of Rhode Island Bay Campus, Narragansett, RI 02882; (401) 874-6842; e-mail: jgallo@gso.uri.edu; <http://seagrant.gso.uri.edu/bookstore/>.

The first step in the creation of a special area management plan for Greenwich Bay in Rhode Island, this booklet examines critical bay issues, such as water quality, flood and storm hazards, geologic processes, and land use and economy. Anecdotes from individuals with close ties to the bay are used to provide an intimate glimpse into the history and culture of the bay and the issues it faces today.

Avalanche

Powder Guide: Managing Avalanche Risk. Tobias Kurzeder and Holger Feist. ISBN 0-9724827-3-3. 2003. 180 pp. \$18.95. Published by Mountain Sports Press; <http://www.mountainsportsmedia.com/>. Available from local and online booksellers (not from the publisher).

Written by two freeriders, with the assistance of the Swiss Avalanche Research Center, this book provides general, useful, and easy-to-understand information about mountain areas and avalanches. Providing detailed discussion about snow type, slope, weather conditions, and avalanche safety, this highly illustrated guide also covers risk evaluation, avalanche hazards, rescue strategies, first aid, and smart freeriding/avalanche safety. This guidebook is valuable for those whose activities make them vulnerable to avalanche hazards.

Health

Disaster Medicine. David E. Hogan and Jonathan L. Burstein, editors. ISBN 0-7817-2625-5. 2004. 435 pp. \$89.00. Available from Lippincott Williams & Wilkins, P.O. Box 1600, Hagerstown, MD 21741; (301) 223-2300, (800) 638-3030; <http://www.lww.com/>.

This text focuses on the role of medicine in disasters. Beginning with a basic overview of disasters, sections include disaster response planning and coordination; natural disasters; industrial, technological, and transportation disasters; and education, training, and research. Each section includes guidelines for assessing the health care needs for affected populations, establishing priorities, allocating resources, and providing treatment. The comprehensive content is valuable for medical professionals as well as emergency managers and other responders who must confront the medical aspects of disaster response.

GAO Reports

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

Alaska Native Villages: Villages Affected by Flooding and Erosion Have Difficulty Qualifying for Federal Assistance. GAO-04-895T. 2004. 21 pp.

Federal Land Management: Additional Guidance on Community Involvement Could Enhance Effectiveness of Stewardship Contracting. GAO-04-652. 2004. 73 pp.

Wildland Fires: Forest Service and BLM Need Better Information and a Systematic Approach for Assessing the Risks of Environmental Effects. GAO-04-705. 2004. 88 pp.

Homeland Security: Communication Protocols and Risk Communication Principles Can Assist in Refining the Advisory System. GAO-04-682. 2004. 128 pp.

Homeland Security: Federal Leadership and Intergovernmental Cooperation Required to Achieve First Responder Interoperable Communications. GAO-04-740. 2004. 100 pp., GAO-04-963T. 2004. 26 pp.

Critical Infrastructure Protection: Improving Information Sharing with Infrastructure Sectors. GAO-04-780. 2004. 69 pp.

9/11 Commission Report: Reorganization, Transformation, and Information Sharing. GAO-04-1033T. 2004. 28 pp.

The Hazards Center

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER was founded to strengthen communication among researchers and the individuals and organizations concerned with mitigating natural disasters. The Hazards Center is funded by the National Science Foundation, the Federal Emergency Management Agency, the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Department of Transportation, the U.S. Bureau of Reclamation, the U.S. Forest Service, the National Aeronautics and Space Administration, the Centers for Disease Control and Prevention, the Institute for Business & Home Safety, and the Public Entity Risk Institute. Please send information of potential interest to the Hazards Center or the readers of this newsletter to the address below. The deadline for the next *Observer* is *September 22, 2004*.

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

NATURAL HAZARDS OBSERVER

ISSN 0737-5425

Printed in the USA.

Published bimonthly. Reproduction with acknowledgment is permitted and encouraged.

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

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<http://www.colorado.edu/hazards/>

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