

for domestic incident management; and to de-conflict and integrate existing federal plans.

The NRP creates a new national approach to domestic incident management by merging and integrating key concepts from existing “major” federal response plans, such as the Federal Response Plan (FRP), the Federal Radiological Emergency Response Plan (FRERP), the National Contingency Plan (NCP), and the U.S. Government Domestic Terrorism Concept of Operations Plan (CONPLAN). In addition, through the implementation of NIMS, NRP embodies an all-hazards perspective that provides the structure and mechanisms for national-level policy and operational direction for domestic incident management. The NRP is intended to be a truly national, comprehensive preparedness and response system that will govern federal response to a wide range of “incidents of national significance” and provide a policy framework for coordination of federal, state, and local governments; non-governmental organizations; and private sector resources.

Stakeholder Involvement

Both NRP and NIMS have been developed in a top down manner, centrally coordinated by DHS. Views differ on the scope and intent of stakeholder involvement in developing NRP and NIMS, and the authors of this article represent diverging perspectives.

Charlie Hess, DHS, states that the development process included extensive review and participation by a broad range of partners and stakeholders. It involved all of the federal departments and agencies; state, local, and tribal government stakeholders; and the private sector.

While acknowledging this, Jack Harrald, The George Washington University, notes that development of NRP, like all policy development, was not a pretty process. When President Bush signed HSPD-5, DHS faced impossible deadlines driven by a perceived immediate terrorism threat. An Interim NRP was to be issued by April 1, 2003; NIMS by June 1, 2003; and a fully implemented NRP by September 2003. These deadlines proved to be counterproductive, and the initial documents released for review were woefully inadequate. They ignored or eliminated critical elements of the current system, most notably disaster mitigation, FRP emergency support function structure, and the process and structure of the NCP as it pertained to oil and hazardous substance releases.

Harrald notes that the academic hazards community was largely absent and uninvolved during the development of this critical national policy framework. Social scientists have examined organizational responses to large, complex events and know that open, adaptive, organizational systems work best; that emergent organizations always occur; and that the most effective immediate responses are taken by those affected by the disaster. The NRP and NIMS, however, set up a much more formal and structured system for dealing with extreme events. A dangerous sign is the volume of acronyms for organizations (e.g., HSOC, NRCC, JFO, IIMG, JDCC, LEOC) and roles (e.g., PFO, SAC, FOC, FRC, FOCS). The NRP

has a six-page listing of acronyms that enables readers to decode these terms and specifies detailed, complex, organizational relationships. The NRP recognizes and specifies that extensive training is necessary for those who will operate within the system. This training represents an implicit system boundary. Among the open questions that could concern the hazards research community are:

- Will a centralized, highly structured, closed system entrusted solely to trained professionals work effectively for managing complex events?
- Will the hazards research community be able to evaluate and assist in the evolution of this system?
- Was such a sweeping change necessary to achieve immediate policy goals?
- What will be the unintended consequences of this policy initiative?

The authors agree that the final product was much improved after state and local review, extensive comment from within the federal government, and a restructuring of the drafting process. However, the resulting patchwork of plans and changes is dauntingly complex. The NRP, for example, will maintain and expand the Emergency Support Function (ESF) structure (to include an economic stabilization, community recovery, and mitigation ESF) and retain NCP as a supporting plan. The FRP, CONPLAN, the Interim NRP, and FRERP will be superseded by the final NRP. The NRP provides additional incident annexes that address cyber, nuclear, biological, and other terrorism incidents. Its structure preserves the separate roles and responsibilities of the U.S. Department of Justice’s Federal Bureau of Investigation (FBI) and the Department of Health and Human Services’ Centers for Disease Control and Prevention, while defining relationships and coordinating mechanisms.

Next Steps: Challenges and Opportunities

Developing standards and a new approach to incident management presents numerous challenges, such as:

- *Creating a New Way of Doing Business While Keeping What Works:* Early feedback on NRP stressed the need to preserve and reinforce what works well in the creation of a new approach to incident management. The challenge is to build on the multitude of existing authorities and processes, span the gaps between them, and establish a new, comprehensive system.
- *Combining Multiple Approaches into a Single System:* Creating a single framework flexible enough to encompass the role of the federal government and adequately support state and local incident managers, while also accounting for situations where the federal government exercises direct incident management authorities and responsibilities (such as the FBI’s role in countering terrorists and the federal on-scene coordinator’s role under NCP in responding to pollution incidents) will require significant communication and relationship building.

- *Shifting the Traditional Focus on Response and Recovery:* The majority of existing incident management plans focus on response and recovery. As NRP expands beyond this traditional function to focus on prevention and preparedness, these efforts become major considerations in the domestic terrorism arena. Expanding into areas with limited legislative authority and funding for pre-incident actions is a challenge.
- *Encouraging Federal-to-Federal Support without Legislation:* HSPD-5 envisions activating and using NRP to guide interagency mutual aid absent a disaster or emergency declaration. The Stafford Act authorizes the DHS secretary and the emergency preparedness and response undersecretary (FEMA director) to “task” (mission assign) departments and agencies after an emergency or disaster declaration. This tasking authority does not exist for events of national significance that do not result in a presidential declaration. Without the Stafford Act authorities, interagency mutual aid is essentially voluntary in nature. Agencies will need to commit to some type of interagency mutual aid or assistance agreement to execute those interagency activities that do not rise to the level of a presidentially declared disaster.
- *Working within Time Constraints:* Developing a national plan is a collaborative process. Meeting ambitious timelines without hindering collaboration may be difficult.

These are just a few of the challenges associated with the creation of a comprehensive and user-friendly all-hazards National Response Plan. Other considerations include developing supporting annexes, identifying the correct emergency support structure and mechanisms, synchronizing terminology and organizational element descriptors so that everyone understands the plan, and deciding who pays and under what circumstances. Compliance with NRP will be mandatory for all federal agencies and, in order to remain eligible for federal funding, state governments must modify existing incident management and emergency operations plans within a year of policy implementation. Local governments and nongovernmental and private organizations will also have to adjust plans and procedures to operate within the NRP/NIMS context.

Looking Ahead

Even with the challenges noted above, the new NRP represents a significant step forward in achieving a holistic approach to domestic incident prevention, preparedness, response, and recovery—a plan that will be tested, exercised, used, and fine-tuned to retain and enhance its relevance in this increasingly uncertain world. For it to be truly successful, it is crucial that those outside of government remain actively involved in monitoring the implementation process and helping improve its products.

Charlie Hess
U.S. Department of Homeland Security

Jack Harrald
Institute for Crisis, Disaster, and Risk Management,
The George Washington University

USGS Studies Shifting Sands

In the midst of what is predicted to be an above-normal Atlantic hurricane season, word that 61 percent of the Gulf Coast shoreline is eroding does not come as welcome news. This finding is part of a recent assessment of shoreline change along the Gulf of Mexico conducted by the U.S. Geological Survey's (USGS) Coastal and Marine Geology Program.

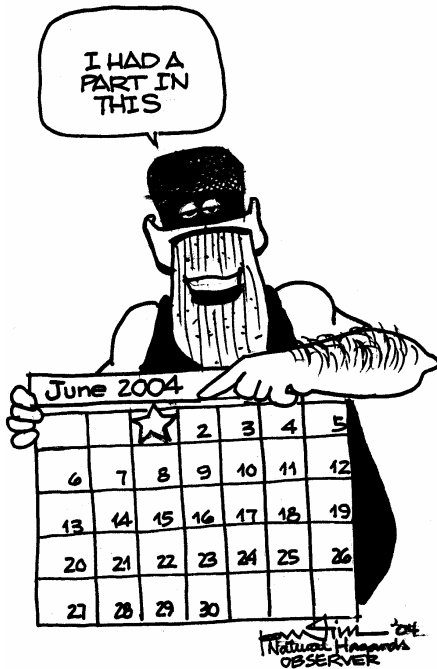
The National Assessment of Shoreline Change Project, which will ultimately include open-ocean sandy shores of the Atlantic and Pacific Coasts and parts of Alaska and Hawaii, was initiated to address the need for accurate shoreline change data, including rates and trends that are consistent among regions. As more and more people move to the coast and erosion becomes a greater threat to lives, coastal property, and critical infrastructure, access to this historical data becomes increasingly valuable to coastal managers in their ongoing efforts to protect communities.

The USGS program is the sole program dedicated to tracking coastal change with standard repeatable methods for mapping and analyzing shoreline movement so that periodic updates regarding coastal erosion and land loss can be made nationally in a manner that is systematic and internally consistent. More information about the project, a copy of the initial report *National Assessment of Shoreline Change: Part 1, Historical Shoreline Changes and Associated Coastal Land Loss along the U.S. Gulf of Mexico* (2004, 44 pp., free), and a data catalog and Internet Map Server that complement the report can be found at <http://coastal.er.usgs.gov/shoreline-change/>. Information about the USGS Coastal and Marine Geology Program can be found at <http://marine.usgs.gov/>.



Mary Fran Myers Scholarship Fund: Request for Contributions

Mary Fran Myers was the codirector of the Natural Hazards Research and Applications Information Center at the University of Colorado at Boulder from 1988 through her retirement in the fall of 2003. By the time of her death in April of 2004, her numerous contributions to the field were recognized by individuals and organizations throughout the world. The idea for the Mary Fran Myers Scholarship was introduced in the summer of 2003 at the annual Hazards Research and Applications Workshop in Boulder, Colorado.



One of Mary Fran's primary concerns was ensuring that individuals from all sectors of the hazards community would be represented at the Center's annual workshop. She was particularly concerned that certain members of the hazards community who have a lot to contribute and who can truly benefit from participation—in particular local practitioners, students, and international participants—are among the least likely to be able to afford to attend. Based on Mary Fran's explicit request, funds will be distributed as travel scholarships, enabling individuals to attend the annual workshop, or disbursed at the discretion of the director of the Center. Recipients will be recognized annually at the workshop.

A gift account has been established with the University of Colorado Foundation, which will also administer the funds. Checks should be written to the *University of Colorado Foundation* and sent to: *Mary Fran Myers Scholarship, Natural Hazards Center, University of Colorado, 482 UCB, Boulder, CO 80309*. Please contact *Lori Peek*; (303) 492-1028; e-mail: lori.peek@colorado.edu for more information.

With the approval of the Boulder City Council, Boulder Mayor Will Toor declared June 1, 2004, to be "Mary Fran Myers Day." The proclamation was made in recognition of Mary Fran's internationally recognized work with natural hazards as well as her love for her adopted home town of Boulder and her extensive and sustained volunteer efforts toward alleviating numerous floodplain management issues in and around Boulder.

... And New From the Hazards Center

The Hazards Center has released a new Working Paper (WP). *WP #108: Emergency Management in the 21st Century: Dealing with Al Qaeda, Tom Ridge, and Julie Gerberding* explores the policy implications of recent events for the emergency management community. The author, Claire Rubin, builds on an earlier paper in which she identified and developed three main themes of the new century: (1) the emergence and use of telecommunications in all domains of life, (2) the threat of terrorism throughout the globe, and (3) megadisasters resulting from natural hazards (see *WP #104*, 2000). Although the earlier paper was written fewer than four years ago, the world now seems to be a very different place. *WP #108* describes the implications of the recent events, issues, and bureaucratic realities that have been added to our collective agendas. For the emergency management community, the events of September 11, 2001, and their many outcomes have led to changes so extensive they are difficult to comprehensively document.

WP #108 is available free on-line at <http://www.colorado.edu/hazards/wp/wp108/wp108.html>. Information about this and other Center publications can be found at <http://www.colorado.edu/hazards/pubs/>. Hard copies of Working papers can be purchased for \$9.00 plus shipping from the *Publications Administrator, Natural Hazards Center, University of Colorado, 482 UCB, Boulder, CO 80309*; (303) 492-6819; e-mail: janet.kroeckel@colorado.edu.

Hazards Center September 11 Publication Now Free On-Line

The Hazards Center publication *Beyond September 11th: An Account of Post-disaster Research* is now available free on-line. This collection of findings, lessons, and recommendations based on post-September 11 disaster research features 20 selections, each addressing questions that arose in the wake of the disaster on topics ranging from engineering to behavioral science. The book, or individual chapters, can be downloaded at <http://www.colorado.edu/hazards/sp39/>.

2008 Colorado Drought Impact Report

A Report to the Governor

September 1, 2008

Background

This is the tenth year of our ongoing drought. After so many years of below average conditions, many reservoirs across the state are empty, soil moisture for crops is nonexistent, municipalities are scrambling to provide usable water to their residents, and our natural environment is reeling.

Droughts are sneaky. Most, like this one, begin with a series of apparently harmless beautiful days and generally end just as stealthily with a gradual return to more typical conditions. We have already been fooled twice into thinking that the end of our drought was near, once in 2003 with the 100-year March blizzard, and again in 2005.

No one knows when this drought will end. Experts have warned for years that the twentieth century was anomalously wet relative to the 400-year tree-ring record. Several severe sustained droughts appear in this record that dwarf the Dust Bowl in intensity and duration.

While it is difficult to quantify the total economic impact of this drought, this is a disaster of the first order. It is costing Colorado billions of dollars, and its impact is being felt by every sector. Nationally, when compared to other billion-dollar weather disasters over the last 30 years, droughts account for the largest share of total losses. Of 58 billion-dollar weather disasters since 1980, the most costly was the estimated \$62 billion drought of 1988. By the time this drought ends, however, losses nationwide will significantly exceed that amount.

Current Conditions

The following reports are issued pursuant to your request for activation of the task forces under Colorado's Drought Mitigation and Response Plan.

Agricultural Impact Task Force: Dry land wheat, irrigated corn, and dry land corn are almost complete losses again this year. The estimated direct cost to crop producers is in excess of \$2 billion. Many ranchers liquidated their herds in 2006 and their long-term losses are approaching \$1 billion. Increasingly, farmers are selling their water rights to cities and their land to developers. Farming communities are experiencing high levels of unemployment, and suicides have spiked in the past few months.

Tourism Impact Task Force: Revenues for boating and whitewater rafting, as well as visits to parks, have declined by 75 percent. After the drought of 1981, most ski areas installed snowmaking machinery to buffer the impacts of low snow years. The system worked until this year when winter stream flows were at record lows and empty reservoirs prevented any additional stream diver-

sions for snowmaking. Many ski areas were open for only two months this past winter, and several have gone out of business. National news broadcasts showing ravaged forests, dried up streams, and dead fish have resulted in the cancellation of thousands of hotel reservations. Mountain resort communities, like their farming counterparts, are experiencing high levels of unemployment and business failures.

Municipal Water Impact Task Force: Denver Water and other municipal water providers in the Front Range have been limiting outdoor watering, which consumes over half of municipal water supplies, to two days per week for the past several years. This year, most have banned all outdoor water use except to keep trees and shrubs alive. Athletic fields across the state have closed because there is no water for turf. Most cities have imposed stiff surcharges for water usage. In some communities with especially vulnerable water supplies, households have been rationed the minimum amount of water deemed necessary for health and safety.

Wildfire Impact Task Force: Massive forest dieback caused by the combined impact of drought and beetle infestation is now common. Numerous wildfires are burning across the state, affecting millions of acres of weakened or dead trees. Two hundred people have lost their lives so far, and hundreds of homes have been destroyed. Fire suppression costs are nearing half a billion. Air quality in cities east of the fires has deteriorated so badly that several advisories have been issued for at-risk populations to remain indoors.

Wildlife Impact Task Force: Thousands of fish have died so far this year as reservoirs have been drained and rivers have become highly polluted due to low flows. The state has lost \$5 million in revenues because of declines in fishing license sales. In the last few years the state issued drought mitigation hunting licenses in order to intentionally cull the elk herds, which, already weakened and threatened by disease, were further at risk as a result of declining winter forage. As a result we now have lower target harvests and lower license revenues.

Health Impacts Task Force: Numerous communities have issued bottled water advisories or have had to import potable water due to declining water quality. In many cities, residents have been banned from using nearby creeks because of harmful bacterial levels.

While these task force reports describe the most direct drought impacts, we should not overlook the indirect, long-term effects that this drought could have on the general economy and society as a whole. These impacts in-

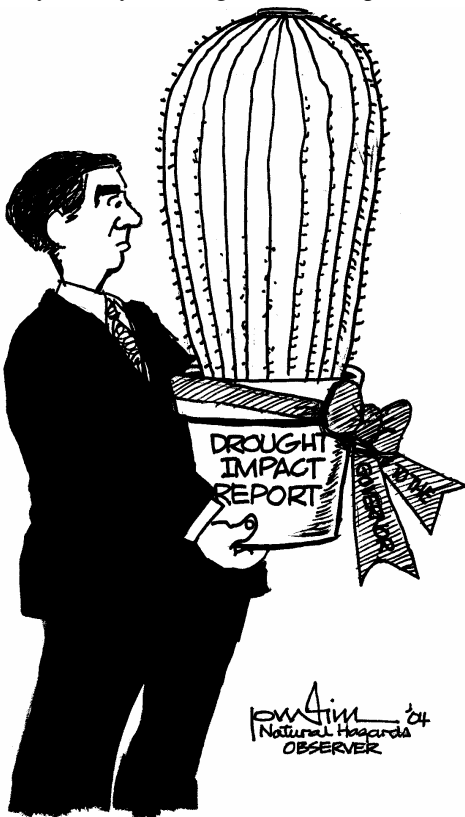
clude greater unemployment, reduced income, poor housing sales, residential and business relocations, and, ultimately, a severely weakened tax base, diminished quality of life, and increased crime rates.

Future Considerations: Colorado River Compact

Under the 1922 Colorado River Compact, California, Arizona, and Nevada receive priority over Colorado, Utah, Wyoming, and New Mexico for Colorado River water during extreme droughts. With Lake Powell nearly empty, provisions in this compact may soon force a first-ever “compact call.” This action would prevent Colorado from accessing approximately half of its normal Colorado River water. To give you an idea of the seriousness of a compact call, for starters, the following would occur:

- All Front Range municipalities that divert water from across the Continental Divide would lose 25 to 50 percent of their normal water supply. Denver Water, for example, supplier for 1.2 million Front Range residents, would immediately lose 30 percent of its normal supply.
- The Colorado-Big Thompson Project would not be able to supply water to 30 cities and 600,000 acres of irrigated land in the Northern Front Range.
- All large reservoirs on Colorado’s Western Slope, including Wolcott, Ruedi, Taylor, and Blue Mesa would be prevented from filling.

Should a compact call become reality, plan on spending many of your days dealing with this unprecedented issue.



Where Do We Go from Here?

The excess capacity in our system provided by water used in agriculture for low-value crops, such as hay, and by water used for lawn watering in cities is an important first line of defense in our ability to deal with drought. These uses can be curtailed during drought with few long-term effects. Because water is a finite resource, accommodating new growth in Colorado generally means that these less valuable water uses are the first to be converted to more valuable—and less flexible—uses, such as indoor municipal use. The end result, paradoxically, is that in future droughts we will have fewer low-valued uses to curtail. We will be faced with cutting back on critical demands. Simply put, growth increases vulnerability to drought.

Analysis of tree ring records shows natural climate variability is much greater than the weather of the twentieth century indicated. Changes in Colorado’s climate could mean an even more active hydrological cycle with more extreme drought events in our future. Severe recurring drought may be an ongoing reality for Colorado for many years to come.

New, limited water storage may be appropriate in some areas, but the state engineer concedes that offsetting a drought of this magnitude with storage is “virtually impossible.” Weather modification techniques such as cloud seeding have not been proven to be highly effective. And although, when not “mined,” our underground aquifers can provide us with another critical source of water when surface supplies are low, the costs associated with tapping this source are becoming almost prohibitively expensive. In the long run, drought preparation and mitigation will have to increasingly focus on curtailing demand rather than increasing supply.

This *Invited Scenario* was written by Bobbie Klein, Center for Science and Technology Policy Research, Cooperative Institute for Research in Environmental Sciences, and Brad Udall, Western Water Assessment, both at the University of Colorado at Boulder.

Suggested Internet Resources

<http://www.ncdc.noaa.gov/oa/reports/billionz.html>
Billion Dollar U.S. Weather Disasters, 1980-2003

<http://www.dola.state.co.us/oem/Publications/droughtplan.402.pdf>
Colorado Drought Mitigation and Response Plan

<http://www.drought.unl.edu/>
National Drought Mitigation Center

http://cwcb.state.co.us/owc/Drought_Planning/2003_Drought_Impact_and_Mitigation_Report_Final.pdf
2003 Drought Impact and Mitigation Report

http://www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html
U.S. Seasonal Drought Outlook

http://www.colorado.edu/Law/centers/nrlc/publications/water_and_growth_summary_report.pdf
Water and Growth in Colorado



WASHINGTON UPDATE

FEMA Releases Recommendations for Major Incident Response

Drawing on reviews of the responses to the terrorist events of September 11, 2001, the anthrax incident in Boca Raton, Florida, in fall 2001, the bombing in Oklahoma City, Oklahoma, and the preparations for the Salt Lake City Winter Olympics, the U.S. Department of Homeland Security's (DHS) Federal Emergency Management Agency (FEMA) has released *Responding to Incidents of National Consequence: Recommendations for America's Fire and Emergency Services Based on the Events of September 11, 2001, and Other Similar Incidents*. The report includes recommendations for emergency response leaders involved in the coordination or support of major multijurisdictional incident management at the local level, which have national consequences and may involve national resources, and is written to guide such leaders within the context of the National Incident Management System (NIMS) (see the *Observer*, May 2004, p. 6 and this issue, p. 1). The issues and recommendations were identified in after-action reports and interviews with involved parties and have been prioritized in an Issues-Recommendations Checklist containing four categories: Awareness/Prevention/Preparedness, Initial Response, Stabilized Event/Ongoing Recovery, and Post-event/Long-Term Recovery. Download a copy of the report at <http://www.usfa.fema.gov/downloads/pdf/publications/fa-282.pdf>.

DMA2K Deadline Looms

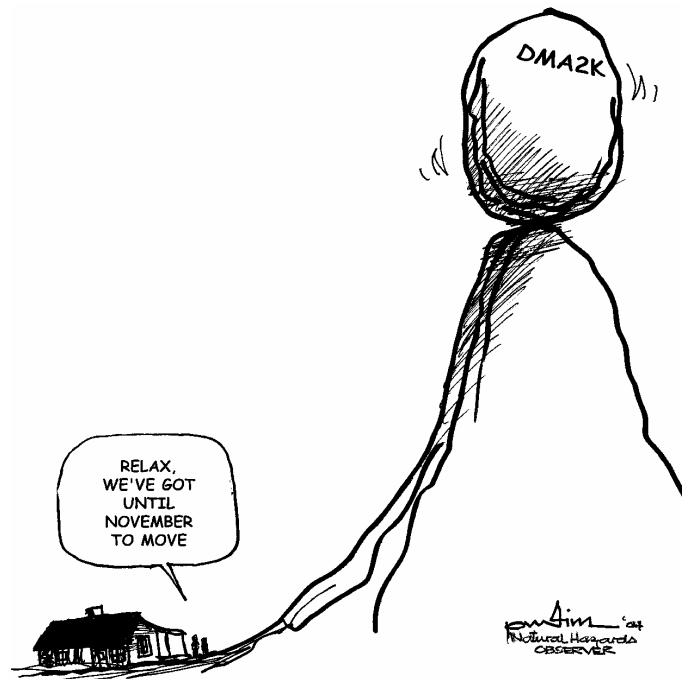
As a precondition of postdisaster assistance, states and local governments must have FEMA-approved hazard mitigation plans in place by November 1, 2004. For disasters declared on or after this date, state mitigation plans will be required in order to receive nonemergency Stafford Act assistance, and local mitigation plans will be required in order to receive Hazard Mitigation Grant Program project grants. The requirements for both state and local mitigation plans are detailed in an Interim Final Rule dated February 26, 2002 (see the *Observer*, May 2002, p. 7), which implemented the mitigation planning section of the Disaster Mitigation Act of 2000 (DMA2K).

Useful resources for the planning process include FEMA's mitigation planning "How-To" guides, which

were designed to enhance hazard mitigation planning capabilities at the state and local levels.

- *Getting Started: Building Support for Mitigation Planning* (FEMA 386-1)
- *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA 386-2)
- *Developing the Mitigation Plan: Identifying Mitigation Actions and Implementation Strategies* (FEMA 386-3)
- *Bringing the Plan to Life: Implementing the Hazard Mitigation Plan* (FEMA 386-4)
- *Integrating Manmade Hazards into Mitigation Planning* (FEMA 386-7)

These free guides are available on-line at <http://www.fema.gov/fima/planhowto.shtm>. Printed copies are available through the *FEMA Publication Distribution Center* at (800) 480-2520. FEMA's *Multi-Hazard Mitigation Planning Guidance*, updated in March 2004, is available at http://www.fema.gov/fima/planning_toc4.shtm.



A draft of Alaska's new state mitigation plan; Nome, Alaska's FEMA-approved local mitigation plan; and a host of other resources have been made available by Alaska's Division of Emergency Services on their web site at <http://www.ak-prepared.com/plans/mitigation/mitigationplan.htm> to assist other governments in their planning efforts. A Draft Disaster Mitigation Plan for the City of Berkeley is also available on-line at <http://www.ci.berkeley.ca.us/Manager/disastermitigation.html>.

The Interim Final Rule is available in the February 26, 2002 *Federal Register* (Vol. 67, No. 38, pp. 8843-8854), which can be found in any *federal repository library* or on-line at <http://www.access.gpo.gov/>. The complete text of DMA2K (Public Law 106-390) is available in any *federal repository library* and on the *Library of Congress web site* at <http://thomas.loc.gov/>.

DHS Announces TOPOFF 3

DHS has announced that the next Top Officials (TOPOFF) exercise will take place in April 2005. TOPOFF 3 will use a series of exercise activities of increasing complexity to simulate weapons of mass destruction (WMD) terrorist attacks in Connecticut and New Jersey. Additional TOPOFF activities will be conducted in the United Kingdom as part of a partnership to strengthen security in both nations.

TOPOFF 3 will be the third congressionally mandated WMD national exercise. The first was conducted in May 2000 and TOPOFF 2 was conducted in May 2003 (see the *Observer*, March 2004, p. 5). The objectives of TOPOFF 3 are to:

- Improve the nation's capacity to prevent, respond to, and recover from terrorist attacks in accordance with DHS protocols, the Interim National Response Plan and NIMS;
- Identify baseline capabilities and establish performance standards for a range of probable threats;
- Synchronize the goals and objectives of TOPOFF with those of the nation;
- Improve international coordination and cooperation in response to a terrorist event; and
- Assess and strengthen government, nongovernment, and private sector partnerships to prevent, respond to, and recover from WMD incidents.

Visit <http://www.dhs.gov/> for further information.

New FEMA Courses

FEMA recently unveiled four new courses. Two new on-line Independent Study (IS) courses are *Multi-Hazard Emergency Planning for Schools*, IS 362, which helps educators and first responders develop effective emergency operations plans, and *National Incident Management System (NIMS), An Introduction*, IS 700, which introduces NIMS and explains its purpose, principles, key components, and benefits. These IS courses can be accessed at <http://training.fema.gov/EMIWeb/IS/crslist.asp>.

Wildland/Urban Interface Fire Operations for the Structural Firefighter Self Study, Q618, enables urban firefighters with expertise in responding to structure fires to safely participate in a wildland/urban interface event. This on-line course is a joint effort of the National Wild-fire Coordinating Group and FEMA's U.S. Fire Administration's National Fire Academy and is available at <http://www.usfa.fema.gov/applications/nfacsd/display.jsp?c=Q618>.

The final course, *Partnering for Fire Defense and Emergency Services Planning*, P507, is a two-week pilot course held at the National Emergency Training Center in Emmitsburg, Maryland, which provides partnership opportunities for senior fire executives and their community planning partners, developing a systems approach for the fire defense and emergency services strategic planning process. For more information about this course, including dates, student selection criteria, and application details, visit http://www.usfa.fema.gov/fire-service/nfa/courses/oncampus/nfa_pilot_off_P-507.shtm.

Federal Agreement Expedites Review Process for Forest Health Projects

The U.S. Departments of Agriculture (USDA), Interior (DOI), and Commerce have signed agreements that will expedite fuels reduction and other forest projects as required by the Healthy Forests Restoration Act of 2003 (see the *Observer*, January 2004, p. 5) while ensuring protection of threatened and endangered species. Under the Endangered Species Act (ESA), DOI Fish and Wildlife Service or Commerce's National Oceanic Atmospheric Association (NOAA) must be consulted before any action is taken that would affect a listed species. The agreements reduce the complexity of environmental analyses required under ESA by allowing trained biologists in USDA, DOI, and Commerce to make initial determinations regarding the likelihood of adverse effects. Despite changes in the process, standards for determining whether an action threatens a listed species remain the same. For more information about the Healthy Forests initiative, visit <http://www.healthyforests.gov/>. A *Healthy Forests Restoration Act Interim Field Guide* (2004, 58 pp., free) is available at <http://www.fs.fed.us/projects/hfi/field-guide/web/>.

DHS Defines First Responder Interoperability Requirements

In recognition of the need to improve communications between public safety organizations, the DHS Science and Technology Directorate has released a Statement of Requirements (SoR) for public safety wireless communications and interoperability. The main purpose of the SoR is to provide guidelines for effective communication and sharing of information (e.g., voice, data, image, video, multimedia) among public safety agencies, other organizations and agencies that they work with, and the public. It also encourages a greater consideration of public safety needs in discussions pertaining to communications research and development as well as laws and regulations.

The SoR is a product of the SAFECOM Program, a public safety practitioner-driven program established by the Office of Management and Budget to improve public safety response across disciplines and jurisdictions through more effective and efficient interoperable wireless communications. It was developed in conjunction with the National Public Safety Telecommunications Council, the National Institute of Standards and Technology, and the U.S. Department of Justice's Advanced Generation of Interoperability for Law Enforcement Program.

The SoR, *Public Safety Communications and Interoperability Statement of Requirements (v1.0)* (2004, 173 pp., free), and more information about SAFECOM is available at <http://www.safecomprogram.gov/>.

Presidential Directive Targets Biodefense

On April 28, the president signed a presidential directive, *Biodefense for the 21st Century*, which provides a comprehensive framework for the management of biodefense. This new framework integrates the programs and efforts of the national security, medical, public health, intelligence, diplomatic, agricultural, and law enforcement communities into a dedicated national effort against the threat posed by biological weapons. The directive emphasizes threat awareness, prevention and protection, surveillance and detection, and response and recovery as the pillars of the new defense program. The full text of the presidential directive is available on-line at <http://www.dhs.gov/interweb/assetlibrary/HSPD10Biodefensefor21stCentury042804.pdf>.

Emergency Management Assessment Milestone Achieved

FEMA recently completed its 25th state-level assessment as part of the National Emergency Management Baseline Capability Assessment Program (NEMB-CAP). NEMB-CAP is part of a national effort to establish a baseline measurement of the nation's emergency management capabilities and to target assistance to those areas that need it most. The program consists of a review and evaluation of 56 state and state-level emergency management systems and programs based on assessment criteria developed by the Emergency Management Accreditation Program (EMAP). EMAP is a voluntary accreditation process for emergency management programs, designed to provide a framework for accountability and continuous improvement (see the *Observer*, May 2003, p. 12). Partners in EMAP include FEMA, the National Emergency Management Association, the International Association of Emergency Managers, the National Governors Association, the National League of Cities, and the Council of State Governments. For more information, visit <http://www.fema.gov/preparedness/baseline.shtm> or <http://www.emaponline.org/>.



Agencies Devise New Strategies for Wildland Firefighting Aerial Support

Based on recent findings and recommendations issued by the National Transportation and Safety Board (NTSB) following investigations into three airtanker accidents, the USDA Forest Service and DOI cancelled the contracts of 33 large airtankers used in support of wildland firefighting. The findings indicated that there is no method in place to adequately ensure the safety and airworthiness of these older aircraft, posing an unacceptable risk to aviators, firefighters, and the public. Since neither the Forest Service nor DOI has the inspection and maintenance capabilities outlined by NTSB, the contracts were terminated to avoid using aircraft that cannot be documented as airworthy.



To continue providing safe and effective fire management and suppression, the agencies have developed a new strategy for the 2004 firefighting season. This plan, based on an evaluation of existing resources, fire danger, efficiency, cost effectiveness, and NTSB findings, includes contracting with private companies and working with the military to acquire, or ensure access to, more than 100 additional aircraft to supplement the existing fleet of more than 700 firefighting aircraft equipped to drop fire suppressants. While some of the 33 tankers may be back in the air later this summer, if their private operators can prove that they are safe to fly, agencies are examining their alternatives and moving forward. With an eye on the future, they are developing long-term aviation asset management and acquisition programs and are exploring technologies to create a large fixed-wing airtanker specifically designed for firefighting and able to meet airworthiness requirements.

To read the recommendation letters issued by NTSB, visit http://www.nts.gov/recs/letters/2004/a04_29_33.pdf. More information about the Forest Service Fire and Aviation Management program is available at <http://www.fs.fed.us/fire/>.

NFPA Seeks Input

The National Fire Protection Association (NFPA) is seeking input on a variety of issues related to fire safety codes and standards.

The notice "National Fire Codes: Request for Comments on NFPA Technical Committee Reports" (see the *Federal Register*, Vol. 69, No. 104, pp. 30622-30624) requests comments on the technical reports that will be presented at NFPA's May 2005 meeting. Forty-three reports are published in the *2005 May Meeting Report on Proposals* and will be available on July 30, 2004. For a copy of the report, visit <http://www.nfpa.org/> or request a copy from the *NFPA Fulfillment Center, 11 Tracy Drive, Avon, MA 02322*. Comments are due by October 8, 2004.

A second notice, "National Fire Codes: Request for Proposals for Revision of Codes and Standards" (see the *Federal Register*, Vol. 69, No. 104, pp. 30621-30622), requests proposals from the public to amend existing fire safety codes and standards or develop new ones. The purpose of this request is to increase public participation in the system used by NFPA to develop its codes and standards. Proposal deadline dates vary.

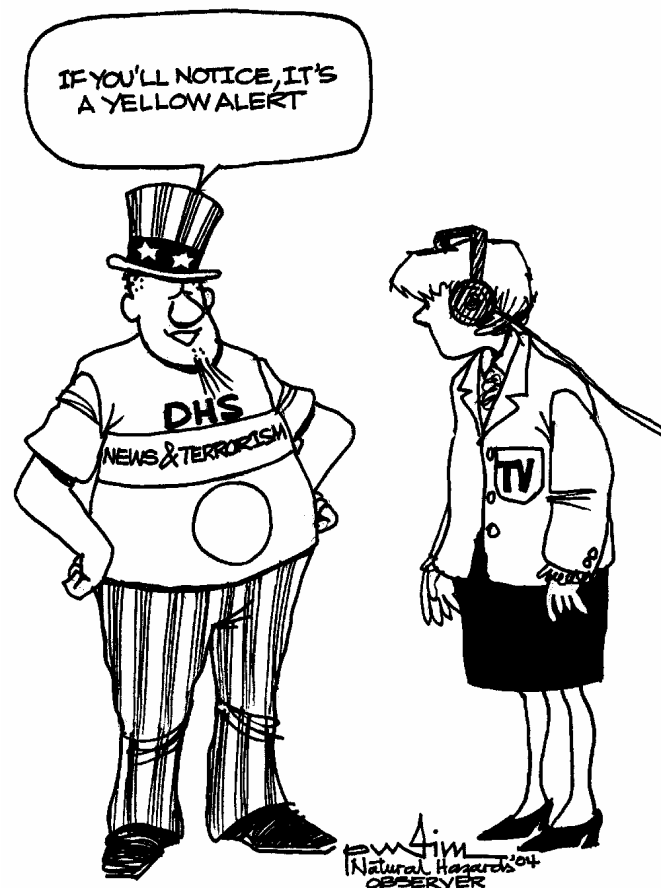
For more information about the codes, proposal deadlines, or how to submit comments and proposals, visit <http://www.nfpa.org/Codes/> or read the notices in the May 28, 2004, *Federal Register*, which can be found in any federal repository library or on-line at <http://www.access.gpo.gov/>.

DHS Uses NOAA All-Hazards Network for Alerts and Warnings

The DHS Information Analysis and Infrastructure Protection Directorate and NOAA have signed an agreement allowing DHS to send critical all-hazards alerts and warnings directly through the NOAA All-Hazards Network. The network supplements existing alert and warning resources and serves as an additional delivery mechanism for disseminating emergency information nationally, regionally, or locally, protecting citizens from both natural and human-caused disasters.

The NOAA system, which is capable of reaching over 97 percent of the U.S. and its territories, will continue to broadcast weather forecasts and warnings, including news about severe storms, hurricanes, tornadoes, earthquakes, volcanic activity, chemical spills, bio-hazardous releases, and, in some states, Amber Alerts. Radios and televisions equipped with Specific Area Message Encoding allow listeners to preselect the categories of alerts they wish to receive in the listening area(s) of their choice. Special populations, such as the disabled or the elderly, can connect NOAA all-hazards radios via plug-ins to attention-getting devices, such as strobe lights, pagers, bed shakers, personal computers, and text printers.

More information about NOAA's All-Hazards Network and NOAA Weather Radio is available at <http://www.nws.noaa.gov/nwr/allhazard.htm>.

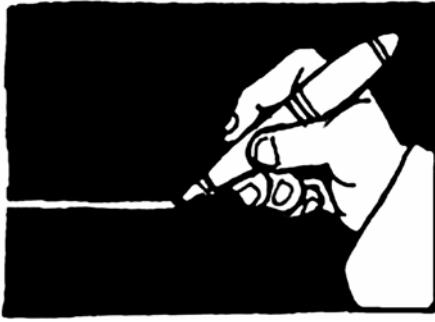


Role of Media Crucial in Terrorism Response

DHS is collaborating with the National Academies to host a series of interactive workshops on the crucial role of the media in terrorism response. Titled "News and Terrorism: Communicating in a Crisis," workshops will be held in ten locations across the country.

Each workshop will feature an interactive table-top terrorist scenario involving government officials, members of the media, and technical experts, with the goal of focusing on the challenges faced by these groups during a crisis so that they are equipped to provide accurate and timely information to the public. In addition, the National Academies will provide information on weapons of mass destruction, including fact sheets on specific terrorist threats and a list of experts who are able to provide reliable information quickly in a time of crisis.

The first workshop is scheduled to take place in July 2004 in Chicago, Illinois. Additional workshops are scheduled in locations across the country through July 2005. A tentative schedule is available at <http://www.dhs.gov/dhspublic/display?content=3549>. For more information, contact *Kristin Gossel* at DHS; (202) 282-8010; e-mail: kristin.gossel@dhs.gov or *Randy Atkins* at the National Academies; (202) 334-1508; e-mail: akins@nae.edu.



ON THE LINE

No Adverse Impact: Focus on Education and Outreach

The Association of State Floodplain Managers (ASFPM) has been encouraging local governments to adopt a “No Adverse Impact” (NAI) approach to floodplain management and new development to help control the spiral of flood and erosion losses. The ASFPM also encourages state and federal agencies to adopt and provide incentives for NAI approaches to the programs that they administer.

The Problem

Flood damage in the U.S. continues to escalate. From the early 1900s to the year 2000, they have increased fourfold, approaching \$6 billion annually. This increase has occurred despite the spending of billions of dollars on floodplain management. Why is this happening? Nationally, development within floodplains and watersheds continues to intensify. Often, buildings, streets, utilities, and other components of the built environment thought to be protected are flooded because of the poorly planned, unrelated activities of others. These actions raise flood heights and flood velocities and increase the potential for erosion and sedimentation.

Current federal floodplain management approaches allow floodwaters to be diverted onto other properties; channel and overbank conveyance areas to be reduced; essential valley storage to be filled; and velocities increased with little or no regard for how these changes impact others in the floodplain and watershed. Most local governments assume that federal rules and regulations imply a satisfactory standard of care, when, in fact, many federal approaches induce additional flooding and damage. Some traditional floodplain management activities are inequitable, place undue burden on those adversely impacted, and are economically unsustainable. The net result is that the nation’s flood damage potential is escalating.

The NAI approach recognizes that most floodplain management practices deal with how communities build in flood hazard areas, but generally ignore the creation and transfer of flood impacts onto other properties. Unfortunately, this traditional approach is what most communities have incorporated into their floodplain management ordinances to ensure National Flood Insurance Program com-

pliance. Yet, this approach increases liability for community officials and design professionals despite their compliance with “the standards.” Some officials are concerned that denial of a permit may lead to property rights lawsuits. In truth, these officials run a greater risk of having to pay for damage to property adversely impacted by development for which they have previously issued a permit. The NAI approach has officials evaluating whether current minimum standards sufficiently mitigate flood hazards and promotes planning consistent with the management of natural hazards and the natural and beneficial functions of floodplains.

No Adverse Impact

NAI floodplain management offers communities an opportunity to promote *responsible, equitable, and legally sound development* through community-based decision making. It ensures that the action of one property owner does not adversely impact the property and rights of another. Adverse impacts can be measured by an increase in flood peaks, flood stage, flood velocity, and erosion and sedimentation. NAI is not intended as a rigid rule of conduct or regulatory standard. Rather, it is a suggested general management approach for landowners and communities planning and regulating development in watersheds and floodplains to avoid adversely impacting other properties and communities.

NAI communities are better prepared to enhance proactive management initiatives through the use of federal and state programs, foster stakeholder participation at the local level, and increase citizen and community accountability by avoiding increased flood damages on other properties and in other communities. This “good neighbor” approach does not preclude development; it identifies the impact of development and mitigates its adverse effects.

NAI floodplain management can be the default approach for community planning. It can also serve as an overall goal for a community developing a comprehensive watershed and floodplain management program that identifies acceptable levels of impact, specifies appropriate measures to mitigate adverse impacts, and sets forth a plan of action for implementation.

The seven basic building blocks of NAI floodplain management, activities that communities normally undertake year in and year out, are:

- Hazard identification and mapping
- Education and outreach
- Planning
- Regulations and development standards
- Mitigation
- Infrastructure
- Emergency services

Education and Outreach

Education and outreach help foster support for the adoption and implementation of programs, such as NAI, that exceed federal minimums and are important in all communities. By working with advisory groups and beginning the educational efforts in school systems, communities build public support for common sense approaches to development that will lead to a reduction in flood damage.

Many communities have been active in this area for years. Orange County, Florida, for example, has been utilizing education and outreach initiatives for the past 20 years. The county recognized early on that to be effective in meeting the challenges of a rapidly urbanizing community, county government had to use the resources of its citizens. Only through the public support gained through education and outreach could county goals for stormwater and floodplain management be achieved.

A sampling of the activities utilized by Orange County to distribute information about its programs for stormwater and floodplain management includes:

- Meet the county days at a local mall;
- Community conference days featuring one-hour seminars;
- Earth Day celebrations at elementary and middle schools;
- Engineers Day, to target high school students;
- Seminars for the engineering community conducted by the Stormwater Management Division;
- Major projects undertaken in cooperation with the local Water Management District; and
- Outreach activities targeted at special interest groups.

Education and outreach are recognized as very important activities by other governing bodies, too. For example, the Milwaukee Metropolitan Sewerage District (MMSD) is responsible not only for the collection and treatment of wastewater, but also for flood control for 28 municipalities encompassing six major watersheds in

and around Milwaukee, Wisconsin. MMSD outreach activities include:

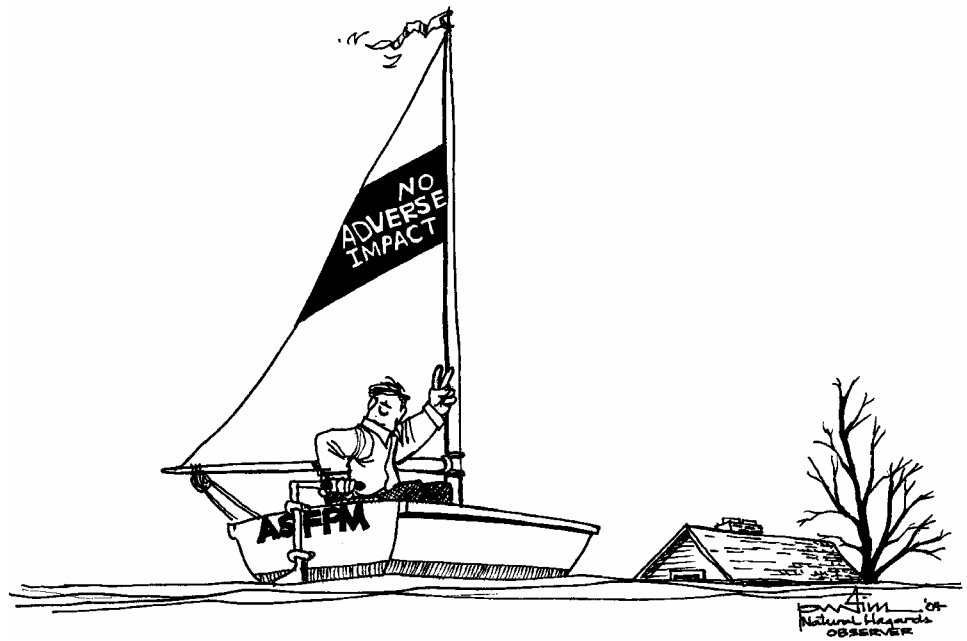
- Creation of stakeholder groups to provide input into the planning, design, and construction of projects;
- Stakeholder participation in meetings with community representatives;
- Creation of a Citizens Advisory Council to provide goals and objectives for the 2020 planning process;
- Collaboration with Milwaukee Public Schools to develop an environmental education curriculum focusing on water quality and floodplain management; and
- Development of educational videos and CDs on flooding and flood prevention for homeowners.

Each of these activities helps build citizen support that enables the MMSD to undertake innovative solutions to flooding—solutions they might otherwise be unable to initiate.

ASFPM is preparing a publication comprising a series of case studies that demonstrate how the seven building blocks are being employed by large and small communities across the nation. Each of the featured communities advocates a vibrant education and outreach program as essential to the development and maintenance of strong public support for NAI floodplain management activities.

Larry Larson
Mark Riebau
Association of State Floodplain Managers

Additional information on No Adverse Impact, as well as an NAI toolkit, are available on the Association of State Floodplain Managers web site at <http://www.floods.org>.





CONFERENCES AND TRAINING

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

2004 ESRI International User Conference. Sponsor: Environmental Systems Research Institute, Inc. (ESRI). **San Diego, California: August 9-13, 2004.** This conference includes sessions on designing and managing a Geographic Information System (GIS) database, system architecture design, introductions to spatial modeling and GIS, and special sessions on public safety, law enforcement, and homeland security, as well as applications related to natural resources, planning, and hazards. Student internships are available. Information is available from *James Cox, ESRI, 380 New York Street, Redlands, CA 92373; (909) 793-2853 ext. 1-1363; e-mail: ucregis@esri.com; http://www.esri.com/events/uc/*.

Western Pacific Geophysics Meeting. Sponsor: American Geophysical Union (AGU). **Honolulu, Hawaii: August 16-20, 2004.** Along with many of the various conference sessions at this meeting, of special interest to hazards researchers is a session on "Natural Hazards and the Public," which posits that an understanding of natural hazards in the Pacific and elsewhere must be balanced with effective warning systems and prepared communities. This session will explore hazards mapping, warning systems, risk, mitigation, and the social science of hazards. General information is available from the *AGU Meetings Department, 2000 Florida Avenue, NW, Washington, DC 20009; http://www.agu.org/meetings/wp04/*; specific information about the hazards session can be obtained by contacting session co-conveners *Gerard Fryer, e-mail: gerard@hawaii.edu, or Chris Gregg, e-mail: cgregg@soest.hawaii.edu*.

Floodplain Management Association 2004 Annual Conference. Sponsor: Floodplain Management Association (FMA). **Monterey, California: September 7-10, 2004.** The theme of this conference is "You Can Pay Me Now, or You Can Pay Me Later—The Benefits of Disaster Planning." It will explore ways to make protecting the public from natural and human-caused disasters the highest priority for engineers, floodplain managers, educators, and policy managers. Information is available from *FMA, P.O. Box 712080, Santee, CA 92072; (619) 204-4380; e-mail: haveblue@ix.netcom.com; http://www.floodplain.org/calendar.htm*.

2004 NEMA Annual Conference. Sponsor: National Emergency Management Association (NEMA). **New York, New York: September 11-15, 2004.** The agenda includes a World Trade Center memorial, public and private sector meetings, and more. Information is available from *NEMA, P.O. Box 11910, Lexington, KY 40578; (859) 244-8000; e-mail: nemaadmin@csg.org; http://www.nemaweb.org/?526*.

2004 APWA International Public Works Congress and Exposition. Sponsor: American Public Works Association (APWA). **Atlanta, Georgia: September 12-15, 2004.** This annual meeting on public works includes sessions on emergency management, stormwater and flood control, traffic operations, best practices in public works, technology, and networking opportunities. Information is available from *APWA, c/o Custom Registration, Inc., 2020 Randal Mills Road, Suite 307, Arlington, TX; (817) 277-7187; http://www.apwa.net/Meetings/Congress/2004/*.

XXIX Assembly of the European Seismic Commission (ESC). **Potsdam, Germany: September 12-17, 2004.** This meeting's program will focus on the seismicity of the European-Mediterranean area, data acquisition, theory and interpretation, earthquake source physics, earthquake prediction research, engineering seismology, and rapid intervention field investigation teams. Information is available from *B.-G. Luehr, LOC XXIX General Assembly ESC, GFZ Potsdam Telegrafenberg E456, D-14473 Potsdam, Germany; e-mail: ESC2004@gfz-potsdam.de; http://www.gfz-potsdam.de/pb2/ESC2004/*.

Fall World 2004. Sponsor: Disaster Recovery Journal (DRJ). **San Diego, California: September 19-22, 2004.** This event is designed to meet the needs of all levels of contingency planners. Information is available from *DRJ, Registrar, P.O. Box 510110, St. Louis, MO 63151; (314) 894-0276; e-mail: mercedes@drj.com; http://www.drj.com/conferences/sd2004/24pg/*.

Pacific Homeland Security and Natural Disaster Conference. Sponsors: Bay Area Economic Forum and Association of Bay Area Governments (ABAG). **Oakland, California: October 4-5, 2004.** Conference topics and

exhibits will address bioterrorism and the health care system, shipping and transportation security, infrastructure vulnerability, corporate programs and business recovery, the role of local governments and special districts, the tools of technology, legislation, funding and insurance, natural hazard mitigation, effective disaster response, and preparation and coordination of the players. Information is available from *ABAG, P.O. Box 2050, Oakland, CA 94604; (510) 464-7900; <http://www.pacificsecurityexpo.com/>*.

Council on Tall Buildings and Urban Habitat (CTBUH) 2004. Sponsor: CTBUH. **Seoul, Korea: October 11-14, 2004.** This conference will examine the conceptual, historical, and technological conditions of today's tall buildings, review the advancements in related theories and practices, and suggest an outline of future developments with an emphasis on culture and technology for sustainable cities. Scholars, professionals, and stakeholders are invited to participate. Information is available from *CTBUH, Convention Team, Hanjin Travel Service Co. Ltd. Haniln Building, #132-4, Bongrae-dong 1ga, Jung-gu, Seoul, Korea; <http://www.ctbuh2004.org/>*.

17th Annual Emergency Preparedness Conference. Sponsors: Insurance Bureau of Canada, Public Safety and Emergency Preparedness Canada, University of British Columbia, City of Vancouver, and others. **Vancouver, British Columbia: October 25-27, 2004.** The theme of this conference is an "Action Plan for the Future." Sessions will cover disaster resilient communities, climate change, the use of maps in emergency management, how insurance fits into the recovery process, and more. Information is available from the *Emergency Preparedness Conference, 900 Heatley Avenue, Vancouver, BC, V6A 3S7 Canada; (604) 665-6097; e-mail: info@epconference.ca; <http://www.epconference.ca/>*.

International All-Risk Symposium. Sponsor: Oklahoma State University. **Baltimore, Maryland: October 26-28, 2004.** The focus of this symposium is on bringing together the resources and experiences of all of the agencies that would be involved in a national disaster. Sessions include integrated risk management, inter-agency communication, credentialing, public education, organizational effectiveness, leadership, diversity issues, and more. Information is available from *OSU/FPP, 930 North Willis, Stillwater, OK 47078; (405) 744-2919; e-mail: coordinator@osu-iars.org; <http://www.osu-iars.org/>*.

2004 Annual IBHS Congress. Sponsor: Institute of Business and Home Safety (IBHS). **Orlando, Florida: November 4-5, 2004.** IBHS' annual congress on property loss reduction brings together insurance professionals, emergency managers, government officials, and academics to discuss the latest developments in natural hazard mitigation. Information is available from *IBHS, 4775 East Fowler Avenue, Tampa, FL 33617; (813) 286-3400; e-mail: info@ibhs.org; <http://www.ibhs.org/congress/>*.

Backyards and Beyond: 2004 Wildland/Urban Interface Fire Education Conference. Sponsor: National Wildfire Coordinating Group (NWCG), Wildland/Urban Interface Working Team. **Denver, Colorado: November 4-6, 2004.** This conference offers a forum for discussion and education in wildland/urban interface assessment, planning, safety, fire suppression, mitigation, resources, and best practices for bringing together diverse interests to develop and implement local solutions. Information is available from *Conference Management Solutions, 310 West College Avenue, Tallahassee, FL 32301 (attention: W/UI Education Conference); (850) 222-2383; <http://www.firewise.org/2004conference/index.htm>*.

Symposium in the Sun 2004: National Symposium for Leaders of Volunteer/Combination Departments. Sponsor: International Association of Fire Chiefs (IAFC). **Orlando, Florida: November 11-14, 2004.** Information is available from the *IAFC Registration Center c/o J. Spargo & Associates, Inc., 11212 Waples Mill Road, Suite 104, Fairfax, VA 22030; e-mail: iafcregistration@jspargo.com; <http://www.iafc.org/conferences/vcos/index.asp>*.

Coping with Risks Due to Natural Hazards in the 21st Century. Sponsor: CENAT Natural Hazards Competence Centre. **Ascona, Switzerland: November 28-December 3, 2004.** This workshop will address increasing risks associated with natural disasters and the prioritized need for integrated risk management strategies, including prevention, intervention, recovery, and insurance measures. It will also focus on aspects of risk management related to understanding risk perception, risk aversion, acceptable levels of risk, and risk dialog. Information is available from *Centro Stefano Franscini, Monte Verità, Via Collina, CH-6612 Ascona, Switzerland; <http://www.cenat.ch/index.php?userhash=1300501&nav=672,814,814,814&l=e>*.

Partners in Preserving Liberty: U.S. EPA Region III Emergency Preparedness and Prevention Conference. Sponsor: U.S. Environmental Protection Agency (EPA). **Philadelphia, Pennsylvania: December 5-8, 2004.** This conference is geared toward emergency responders, environmental health and safety workers, individuals who deal with hazardous materials, maritime security, transportation and shipping, emergency medicine, and others. Information is available from *EPA Region III, 1650 Arch Street (3PM52), Philadelphia, PA 19103; (800) 364-7974; e-mail: ConferenceAdministrator@2004conference.org; <http://www.2004conference.org/>*.

International Workshop on Water and Disasters. Sponsors: Institute for Catastrophic Loss Reduction (ICLR), Environment Canada, United Nations University, and International Strategy for Disaster Reduction. **London, Ontario: December 13-14, 2004.** This workshop will provide an interdisciplinary environment to discuss a variety of international, regional, and local initiatives aimed at minimizing the negative impacts of water-related disasters. Information is available from *ICLR, 1389 Western Road, London, ON, Canada N6A 5B9; (519) 661-3234;*

e-mail: sdoyle@uwo.ca; http://www.iclr.org/pdf/First_Announcement_2004.pdf.

World Conference on Disaster Reduction: A Safer World for All. Sponsor: United Nations International Strategy for Disaster Reduction (UN/ISDR). **Kobe, Japan: January 18-22, 2005.** This conference will provide extensive discussion, sessions, and networking opportuni-

ties while assessing progress on the "Yokohama Strategy and Plan of Action" from 1994 with the goal of raising international awareness of vulnerability, disasters, policy development, and action. Information is available from *UN/ISDR, Palais des Nations, CH 1211 Geneva, Switzerland*; +41-22-917-2103; e-mail: isdr@un.org; <http://www.unisdr.org/eng/wcdr/wcdr-index.htm>.

2006 World Congress of Sociology: Papers and Ideas Invited

Planning is now underway for the International Research Committee on Disasters (IRCD) meetings that will take place as part of the World Congress of Sociology in Durban, South Africa, July 23-29, 2006. Although the World Congress is still two years away, IRCD must settle its session topics by this fall.

Sessions featuring invited senior disaster scholars, the research of young scholars, an open panel, and a discussion of "Disaster Research: Guiding Light or Lost in the Shadows of the 9/11 World?" are already on the schedule. Other suggested topics include disasters and the environment, famine, and historical and contemporary research.

For more information about the congress, or to suggest a session or inquire about presenting a paper, contact Joseph Scanlon, Carleton University, 1125 Colonel By Drive, Ottawa, Ontario, K1S 5B6 Canada; (613) 520-7400; e-mail: jscanlon@ccs.carleton.ca.

New Centers for DHS Science and Technology Directorate

As part of its ongoing fight against terrorism, the U.S. Department of Homeland Security (DHS) Science and Technology Directorate recently announced four new centers: the National Center for Foreign Animal and Zoonotic Disease Defense, the University Center for Post-Harvest Food Protection and Defense, the Homeland Security Institute, and the National Visual Analytics Center. The two new agro-security centers join the Homeland Security Center for Risk and Economic Analysis of Terrorism Events led by the University of Southern California as Homeland Security Centers of Excellence (HS-Centers). These HS-Centers are the first participants in what will be an integrated network of university-based centers conducting multidisciplinary research and developing innovative educational programs to address terrorism and its behavioral aspects. (See the *Observer*, September 2003, p. 10 and January 2004, p. 9.)

The National Center for Foreign Animal and Zoonotic Disease Defense, led by Texas A&M University, will receive \$18 million over the next three years to study threats to animal agriculture, such as foot and mouth disease, Rift Valley fever, and Avian influenza. Partner institutions include the University of Texas Medical Branch, University of California at Davis, University of Southern California, and University of Maryland.

The University of Minnesota, in partnership with major food companies, Michigan State University, University of Wisconsin at Madison, North Dakota State University, Georgia Institute of Technology, Rutgers University, Harvard University, University of Tennessee, Cornell University, Purdue University, and North Carolina State University, will establish the new University Center for Post-Harvest Food Protection and Defense. The center will receive \$15 million over

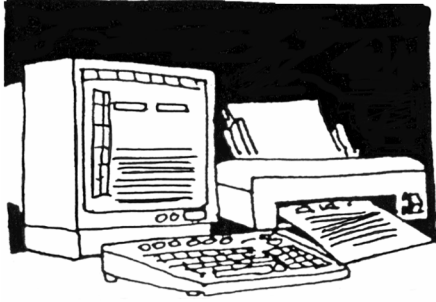
the next three years to address agro-security issues related to post-harvest food production, establish best practices, and attract new researchers to manage and respond to food contamination events.

Analytic Services Incorporated (ANSER) has been selected to operate the third new center, the Homeland Security Institute, fulfilling a mandate issued by the Homeland Security Act of 2002. With nearly \$130 million to work with over the next four and one-half years, the institute will serve as a "think tank," providing critical analysis and support in the assessment and mitigation of homeland security threats, vulnerabilities, and risks. Specific attention will be focused on policy and security matters that require scientific, technical, and analytical expertise.

Finally, the Department of Energy Pacific Northwest National Laboratory will receive \$2.5 million this year to fund the National Visual Analytics Center (NVAC), which will provide scientific guidance and coordination for the research and development of new tools and methods to manage, visually represent, and analyze enormous amounts of diverse and complex data and information. While promoting visual analytics technology, NVAC's interdisciplinary team of experts will focus on four core responsibilities: research and development, education, technology evaluation and implementation, and integration and coordination of research programs across government agencies.

For more information about the activities of the Science and Technology Directorate, visit <http://www.dhs.gov/dhspublic/display?theme=53>.





INTERNET PAGES

Below are new or updated Internet resources that Center staff members 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.duryognivaran.org/>

The Duryog Nivaran network was established to fill a void in cross border dialog and experience sharing among organizations, governmental or otherwise, working throughout South Asia, the world's most disaster-prone region.

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

This new web site was designed to promote the fields of business continuity and risk management throughout Canada.

<http://www.un.org/esa/sustdev/partnerships/partnerships.htm>

The Commission on Sustainable Development (CSD) has launched an on-line searchable database of CSD-registered partnerships for sustainable development. The database, which contains information based on self-reports from partnerships initiated in the context of the 2002 World Summit on Sustainable Development, will facilitate the sharing of experience and knowledge on the implementation of sustainable development projects.

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

Collaborating Agencies Responding to Disaster (CARD) was created after the Loma Prieta earthquake and the Oakland Hills firestorm to provide disaster preparedness/response support to the vulnerable, underserved, and special-needs communities in Alameda County, California.

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

Communications for Coordinated Communications and Response in Emergencies (ComCARE) is a public/private partnership of a variety of groups working to encourage the development and deployment of technologies to enhance emergency response capabilities and facilitate cooperation across professional, jurisdictional, and geographic lines.

<http://www.csc.noaa.gov/rvat/>

A risk and vulnerability assessment helps to identify people, property, and resources that are at risk of injury, damage, or loss from hazardous incidents or natural hazards. This information helps prioritize the precautionary measures that can make a community more disaster resistant. Tools and methods for this work are available at this site.

http://respondersafety.com/news/2003/3/28_video.html

The Emergency Responder Safety Institute is offering a free highway safety awareness video, covering the dangers of incident response on North American highways, to fire, police, and emergency services chiefs and training officers.

<http://www.9-11commission.gov/>

The National Commission on Terrorist Attacks upon the U.S. (the September 11 Commission) has posted statements and testimony from its recent public hearings in New York. This site will be updated with additional statements and testimonies as they become available.

Earthquakes

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

The U.S. Geological Survey (USGS) has updated and enhanced its global earthquakes page with the addition of hemispheric views and maps.

http://www.iiees.ac.ir/English/Bam_report_english.html

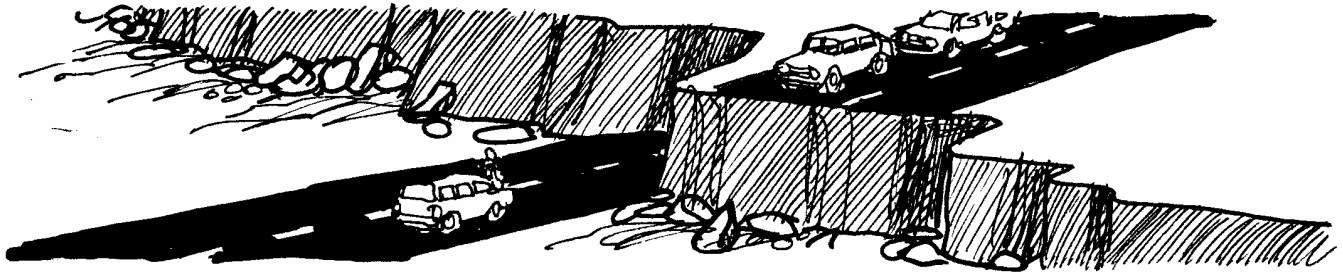
The International Institute of Earthquake Engineering and Seismology web site contains a number of new documents about the 2003 Bam earthquake.

<http://www.earthquakecountry.info/10.5/>

To separate fact from movie fiction, the Southern California Earthquake Center and USGS have created a series of web pages addressing the recent NBC miniseries *10.5*.

<http://earthquake.usgs.gov/bytopic/megaquakes.html>

Another web site to debunk earthquake myths and fantasies is sponsored directly by USGS and includes fact sheets and links to other organizational resources.



Bioterrorism

<http://www.ahrq.gov/news/press/pr2004/hospdrpr.htm>

Hospitals must be prepared to respond to sudden demands on services brought on by natural and human-caused mass casualty incidents. The Agency for Healthcare Research and Quality has released an evidence-based tool to help hospitals identify strengths and weaknesses in their disaster response.

<http://www.bt.cdc.gov/training/historyofbt/>

The Emergency Preparedness and Response program at the Centers for Disease Control and Prevention has produced a series of videos titled *The History of Bioterrorism*. These videos can either be purchased or viewed free on-line.

Wildfires

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

This web site provides information for users about the National Wildfire Coordinating Group's wildland fire leadership development program.

<http://www.geog.utah.edu/~cova/evac64.swf>

<http://www.geog.utah.edu/~cova/evac50sd.swf>

The University of Utah has posted animations depicting the spatial and temporal relationships of the wildfires and evacuation orders in California's Old, Grand Prix, Cedar, and Paradise Fires.

<http://www.usfa.fema.gov/applications/fdonline/>

The National Fire Department Census Database is an on-line searchable database of U.S. fire departments, which features address listings as well as basic information about each participating fire department. The purpose of the census is to guide program decision making and improve direct communication with individual fire departments.

Drought

<http://www.iwmi.cgiar.org/droughtassessment/>

The International Water Management Institute (IWMI) is a nonprofit scientific research organization that specializes in agricultural water use and integrated management of water and land resources. IWMI has launched a large-scale regional assessment across India, Pakistan, and Afghanistan in an effort to mitigate the effects of recurrent droughts.

http://science.nasa.gov/headlines/y2004/21may_drought.htm?list1172936

A recent issue of *Science at NASA*, an on-line newsletter, focused on drought and included a variety of drought-related Internet resources.



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/>.

Exploring Flood Mitigation Policy: A System Dynamics Approach. Funding: National Science Foundation, two years. Principal Investigator: *Thomas A. Birkland, University at Albany, State University of New York, Office for Sponsored Programs, Albany, NY 12222; (518) 437-4550; e-mail: birkland@csc.albany.edu.*

This project marks the beginning of a long-term research program dedicated to the use of system dynamics tools to better understand the opportunities for and challenges to improved hazard mitigation policies. While the initial study will focus on flood mitigation, the resultant models will be applicable to other hazards and will enable researchers to study the intended and unintended consequences of existing and proposed mitigation and prevention policies.

Two Tests to Investigate Causes of Aftershocks. Funding: National Science Foundation, two years. Principal Investigator: *Emily E. Brodsky, University of California at Los Angeles, 10920 Wilshire Boulevard, Los Angeles, CA 90024; (310) 794-0102; e-mail: brodsky@ess.ucla.edu.*

Through investigation of the earthquake aftershock triggering process, researchers hope to determine whether static or dynamic stresses play a greater role in triggering near- to mid-field aftershocks and gain insight into how earthquakes nucleate. In regards to earthquake hazard estimation issues, determining the triggering mechanism is important for the approximation of the distances to which earthquakes of different magnitudes might be expected to trigger aftershocks, determination of whether mainshocks could possibly depress regional seismic activity, and determination of whether the directionality of an aftershock pattern can always be expected to follow the directionality of the mainshock rupture.

A New Temporal-Spatial Dislocation Source Model. Funding: National Science Foundation, \$50,000, one year. Principal Investigator: *Ruichong Zhang, Colorado School of Mines, 1500 Illinois, Golden, CO 80401; (303) 273-3200; e-mail: rzhang@mines.edu.*

This study proposes to develop and validate a new concept of temporal-spatial pulse representation for nine couples for seismic moment tensor, which can be used to

model various dislocation sources such as seismic source rupture and material crack mechanism. While improving understanding of the temporal-spatial mechanism of the dislocation sources, this research will also have broader impacts, such as diagnosing crack damage in structural health monitoring, simulating earthquake motion for structural design/retrofitting, conducting seismic survey for oil/gas exploration, and assessing influences of explosions in structures.

Combination Treatment for PTSD after the WTC Attack. Funding: National Institute of Mental Health, \$450,000, five years. Principal Investigator: *Randall D. Marshall, New York State Psychiatric Institute, 1051 Riverside Drive, New York, NY 10032; e-mail: randall@nyspi.cpmc.columbia.edu.*

The purpose of this project is to study maximization of treatment response for adults with chronic Post-traumatic Stress Disorder (PTSD), specifically adults with World Trade Center attack-related PTSD. The combination of serotonin reuptake inhibitor treatment and behavior therapy, (cost-effective, validated, and complementary treatments) will be examined in this new population of chronic PTSD sufferers.

Child and Family Disaster Research Training and Education. Funding: National Institute of Mental Health, \$260,000, five years. Principal Investigator: *Betty Pfefferbaum, Department of Psychiatry and Behavioral Sciences, University of Oklahoma Health Sciences Center, Oklahoma City, OK 73126; e-mail: betty-pfefferbaum@ouhsc.edu.*

The goal of this program is to enhance the nation's capacity for conducting rapid postevent disaster mental health research related to children and families. The Terrorism and Disaster Branch of the National Center for Child Traumatic Stress will train researchers and responders in needs assessment, data collection for triage and tracking, clinical evaluation, surveillance treatment and intervention, and evaluation. Program benefits will include improved effectiveness of mitigation (resilience building) and long-term recovery activities.

Disaster Research Education and Mentoring Center. Funding: National Institute of Mental Health, \$260,000, five years. Principal Investigator: *Dean G. Kilpatrick, Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina, 171 Ashley Avenue, Charleston, SC 29425; e-mail: kilpatdg@musc.edu.*

In order to improve collaboration among disaster researchers and practitioners, mental and public health practitioners, policy makers, and relief agencies, researchers from the National Crime Victims Research and Treatment Center at the Medical University of South Carolina and the New York Academy of Medicine, propose the establishment of a Disaster Research Education and Mentoring Center. Recognizing that disasters often impact the general population, not just the direct victims, the center will focus primarily on epidemiological approaches to research assessment and intervention evaluation.

Performance-Based Probabilistic Multi-Model Climate Change Scenarios. Funding: National Science Foundation, six months. Principal Investigator: *Lisa Goddard, Columbia University, 1210 Amsterdam Avenue; MC 2205, New York, NY 10027; (212) 854-6851; e-mail: Goddard@iri.columbia.edu.*

This research will address how anthropogenic forcing is likely to affect regional climate, with what certainty, and to what degree. It will focus on verifying the performance of twentieth century temporal characteristics and constructing probabilistic multimodel scenarios for twenty-first century climate and its variability.

Sharing the Message of Global Change through Multimedia, Vertically Integrated Outreach Curriculum. Funding: National Science Foundation, four years. Principal Investigator: *Walter C. Oechel, San Diego State University Foundation, 5250 Campanile Drive, San Diego, CA 92182; (619) 594-5731.*

This project expands upon existing graduate, undergraduate, and K-12 educational programs to develop a new web-based curriculum highlighting the importance of climate change, the real-world application of scientific data and concepts, and the effects that climatic events in one region can have on the climates in others. The curriculum, which will be developed based on near-real-time

ecophysiological data from three diverse research sites: arctic Alaska; San Diego, California (Mediterranean-type ecosystem); and the La Paz desert in Mexico, will be disseminated via a multitude of outreach activities.



Measuring Cross-Community Disaster Preparedness and Resiliency: Theoretical and Practical Application Development. Funding: National Science Foundation, three years. Principal Investigator: *David M. Simpson, University of Louisville Research Foundation, 2301 South Third Street, Louisville, KY 40292; (502) 852-8367; e-mail: dave.simpson@louisville.edu.*

The primary goal of this project is to broaden the conceptualization of predisaster community preparedness and resiliency. The project will explore the manner in which “preparedness” and “resilience” are measured on a community scale and will seek to develop a set of characteristics and criteria that can be standardized, measured, and utilized to make meaningful cross-comparisons among communities.

Crisis Nursing Resource (CNR) Information System. Funding: National Library of Medicine, \$160,000, three years. Principal Investigator: *Douglas A. Troy, Miami University, 500 East High Street, Oxford, OH 45056; e-mail: troyda@muohio.edu.*

With the ultimate goal of providing the Disaster Health Services team of the Red Cross with instantaneous access to high quality community health resource information in the midst of a disaster, this project aims to develop, deploy, and evaluate a Crisis Nursing Resource information system. This system will feature a user-friendly database to maintain national and community health resource information and will be accessible via personal digital assistants, which are likely to be used in the field. The Resource Data Center for Community Disaster Intervention will be established at Miami University in order to manage the system and foster research.

New Modeling Grants Target Epidemics and Bioterrorism

The National Institutes of Health National Institute of General Medical Sciences recently launched a new initiative to develop computer-modeling techniques to better diagnose, treat, and prevent infectious disease outbreaks, regardless of whether they occur naturally or are the result of bioterrorism. More than \$28 million will be distributed over five years to create mathematical models and an accompanying central database to organize the information collected in the modeling process. The program, dubbed MIDAS (Models of Infectious Disease Agent Study), also supports development of user-friendly computer-modeling tools for the broader scientific community, policy makers, and public health officials to utilize in simulating infectious disease events and response strategies.

Awards have been made to a collaboration of scientists led by the Johns Hopkins Bloomberg School of Public Health and including the Brookings Institution, the National Aeronautics and Space Administration, the University of Maryland, and Imperial College (London); a group of scientists at Los Alamos National Laboratory; a research team at Emory University; and an informatics group spearheaded by Research Triangle Institute International, which includes members from SAS Institute, Inc., IBM, and Duke and Emory Universities. For more information about the program and each group's specific role in MIDAS, visit <http://www.nigms.nih.gov/research/midas.html>.



RECENT PUBLICATIONS

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

All Hazards

Preventing a Disaster within the Disaster: The Effective Use and Management of Unaffiliated Volunteers. 2004. 20 pp. Available free on-line from the Points of Light Foundation, 1400 I Street, NW, Suite 800, Washington, DC 20005; (202) 729-8161; e-mail: disastervolunteering@pointsoflight.org; <http://www.pointsoflight.org/programs/disaster/>.

When spontaneous, unaffiliated volunteers arrive at a disaster site eager to lend a hand they present the challenge of reconciling their needs as volunteers with the needs of the responders trying to do their jobs. This report addresses this challenge and the opportunities it presents and recommends ways to effectively utilize volunteers in disaster situations.

Disaster Risk Reduction: Mitigation and Preparedness in Development and Emergency Programming. John Twigg. *Good Practice Review 9.* ISBN 0-85003-694-1. 2004. 365 pp. Available free on-line from the Humanitarian Practice Network, Overseas Development Institute, 111 Westminster Bridge Road, London, SE17JD, UK; +44 (0)20 7922 0331/74; e-mail: hpn@odi.org.uk; <http://www.odihpn.org/publistResults.asp>.

The purpose of this practical, evidence-based publication is to help project planners and managers in developing and middle-income countries build up community resilience to hazards by emphasizing the role that risk reduction plays in project planning and implementation. It is intended for anyone working on long-term development or emergency management programs pertaining to vulnerable populations and those affiliated with local governments and community organizations.

Usable Science 8: Early Warning Systems: Do's and Don'ts. Workshop Summary. Michael H. Glantz. 2004. 76 pp. Available free on-line from the National Center for Atmospheric Research, 3450 Mitchell Lane, Boulder, CO 80301; (303) 497-8119; e-mail: glantz@ucar.edu; <http://www.esig.ucar.edu/warning/report.pdf>.

The objective of the Usable Science Workshop on early warning systems was to identify lessons learned by those who have experience working with or developing early warning systems. Its ultimate goal was to identify ways to make early warnings more useful, usable, credible, and reliable. It is hoped that the lessons and experiences reported in this workshop summary will be used by governmental and nongovernmental decision makers in their efforts to warn and educate the media and the general public.

Understanding the Economic and Financial Impacts of Natural Disasters. Charlotte Benson and Edward J. Clay. *Disaster Risk Management Series No. 5.* ISBN 0-8213-5685-2. 2004. 119 pp. \$20.00. Available free on-line from the International Bank for Reconstruction and Development/The World Bank, 1818 H Street, NW, Washington, DC 20433; (202) 458-4500; e-mail: infoshop@worldbank.org; <http://www-wds.worldbank.org/>.

Vulnerability to natural hazards is determined by a complex and dynamic set of influences that includes economic structure, stage of development, and prevailing economic and policy conditions. This publication examines the short- and long-term effects of natural disasters to increase understanding of their economic and financial impact, the vulnerability of hazards-prone economies, ways to improve risk management, and why mitigation strategies are not more widely adopted.

Final Report on the August 14th Blackout in the United States and Canada: Causes and Recommendations. U.S.-Canada Power System Outage Task Force. 2004. 228 pp. Available free on-line from the Office of Electric Transmission and Distribution, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 50285; (202) 586-5575, (800) 342-5363; <https://reports.energy.gov/>.

The final report of the binational taskforce convened to investigate the causes of the 2003 Northeast blackout has been released (see the *Observer*, January 2004, p. 23).

Grant Application Handbook: A Guide to the Application Process for Competitive and Non-Competitive Grants. 2004. 111 pp. Available free on-line from the Nuclear Energy Institute, 1776 I Street, NW, Suite 400, Washington, DC 20006; (202) 739-8000; e-mail: webmasterp@nei.org; http://www.nei.org/documents/Emergency_Plan_ning_Grant_Handbook.pdf.

This guidebook provides an overview of the grant application process as it pertains to hazards and disasters. It provides resources and information for local jurisdictions seeking funding to improve or facilitate their emergency response capabilities. The book's appendices contain valuable information and links to other grant-related programs, agencies, and organizations.

A Practical Guide for University Crisis Response. Mark D. Lerner. Joseph S. Volpe, and Brad Lindell. ISBN 0-9674762-5-9. 2004. 102 pp. \$24.95. Available from the American Academy of Experts in Traumatic Stress, 368 Veterans Memorial Highway, Commack, NY 11725; (631) 543-2217; <http://www.universitycrisisresponse.com/> or <http://www.aets.org/>.

This volume is a practical overview of the structure and process of effective management of university-based crises, ranging from natural disasters and fire to school-specific issues, such as hazing, bomb threats, and suicidal or violent students. Chapters cover age-appropriate response, crisis planning, acute trauma stress management for students and personnel, the need for outside assistance, and the incorporation of staff into preparedness activities. Checklists and step-by-step resources for responding to crisis events are included.

Emergency Relief Operations. Kevin M. Cahill, editor. *International Humanitarian Affairs No. 2.* ISBN 0-8232-2240-3. 2003. 386 pp. \$20.00. Available from Fordham Press, University Box L, Bronx, NY 10458; (718) 817-4795, (800) 247-6553; e-mail: philpotts@fordham.edu; <http://www.fordhampress.com/>.

Emergency relief operations are often the starting point for international humanitarian assistance programs. The authors of this volume explore organizational and political response capacities, effective multidisciplinary responses, the interface of response with vulnerability assessment, and ways to identify disaster prone areas and utilize rapid assessment methodologies to help meet needs that arise following humanitarian crises and natural disasters. Topics include early warning systems, initial response, natural resources, displacement, power and gender, issues of security, and the transition from conflict to peace.

Earthquakes

Bam Earthquake of 26 December 2003—ICG Reconnaissance Mission. Farrokh Nadim, Conrad Lindholm, Svien Remseth, Arild Andresen, and Masoud Moghtaderi-Zadeh. 2004. 79 pp. Available free on-line from the International Centre for Geohazards (ICG), c/o Norwegian Geotechnical Institute (NGI), P.O. Box 3930 Ullevaal Stadion, N-0806 Oslo, Norway; +47 22 02 30 00; http://www.geohazards.no/pdf/Bam_earthquake_report-ICG.pdf.

When an unfortunate mix of geological and sociological circumstances came together on December 26, 2003, in Bam, Iran, many lives were lost and the majority of the city's population was left homeless. This study reviews the science behind the event itself and the consequent damage incurred by residential, commercial, educational, religious, governmental, industrial, and lifeline facilities in the city of Bam. Recommendations made based on the findings include rebuilding Bam through application of proven anti-seismic construction methods, mapping faults countrywide, and using Bam as an example to encourage other cities and villages throughout Iran to take action in order to avoid a similar tragedy.

Earthquakes. Fifth Edition. Bruce A. Bolt. ISBN 0-7167-5618-8. 2003. 320 pp. \$45.95. Published by W.H. Freeman and Company, 41 Madison Avenue, New York, NY 10010; (800) 446-8923; <http://www.whfreeman.com/>.

The fifth edition of the textbook *Earthquakes* introduces readers to the history and science of earthquakes. Illustrated with a plethora of diagrams, maps, photographs, and charts, topics include where and why earthquakes happen, how they are measured, the hazards they present, and what is being done in the areas of prediction and risk reduction. New features include discussion of recent earthquakes deemed critical based on their level of social and scientific interest and an expanded and updated list of relevant web sites.

Preventing Earthquake Disasters: The Grand Challenge in Earthquake Engineering. National Research Council of the National Academies. ISBN 0-309-09064-4. 2004. 192 pp. \$42.00. A PDF version is \$28.50. This publication may be read on-line for free. Available from the National Academies Press, 500 Fifth Street, NW, Box 285, Washington, DC 20055; (202) 334-3313, (800) 624-6242; <http://www.nap.edu/catalog/10799.html>.

At the request of the National Science Foundation (NSF), an independent panel was assembled to develop a long-term earthquake engineering research agenda utilizing the unique capabilities of the Network for Earthquake Engineering Simulation (NEES). The panel concluded that preventing earthquake disasters, if not earthquakes themselves, is feasible. This report provides an overview of the earthquake hazard, earthquake engineering research, and NEES; identifies research challenges and issues in key areas; discusses the potential impact and use of new information and communications technologies; and puts forth a research plan and specific recommendations regarding the role of NSF and NEES in the prevention of earthquake disasters.

Lessons Learned Over Time: Adobe Housing Reconstruction after the 2001 El Salvador Earthquakes. Dominic Dowling. Learning from Earthquakes Series Volume V. ISBN 0-943198-00-3. 2004. 70 pp. \$15.00. Available from the Earthquake Engineering Research Institute, 499 14th Street, Suite 320, Oakland, CA 94612; (510) 451-0905; e-mail: eeri@eeri.org; http://www.eeri.org/cds_publications/catalog/.

Printed in both Spanish and English in one volume, this report documents the rebuilding of adobe structures following earthquakes in El Salvador in 2001. The author discusses low-cost solutions for improving the earthquake resistance of adobe housing and initiatives that have proven successful in encouraging the use of improved adobe in housing construction. He concludes that improved adobe training and construction preserves lives, minimizes injuries, reduces earthquake vulnerability, lowers the housing deficit, and promotes sustainable development.

The Boumerdes, Algeria, Earthquake (May 21, 2003): An EERI Learning from Earthquakes Reconnaissance Report. 2003-04. 57 pp. \$15.00. Available from the Earthquake Engineering Research Institute, 499 14th Street, Suite 320, Oakland, CA 94612; (510) 451-0905; e-mail: eeri@eeri.org; http://www.eeri.org/cds_publications/catalog/.

This reconnaissance report features satellite images of the area affected by the Boumerdes earthquake taken a year prior to the event, immediately afterwards, and one month later. The report focuses on the political and social context that impacted construction practices and response and recovery mechanisms and concludes with recommendations to reduce urban vulnerability to earthquakes.

Tsunamis

Caribbean Tsunamis: A 500-Year History from 1498-1998. Karen Fay O'Loughlin and James F. Lander. *Advances in Natural and Technological Hazards Research* 20. ISBN 1-4020-1717-0. 2003. 280 pp. \$99.00. Available from Kluwer Academic Publishers, 101 Philip Drive, Norwell, MA 02061; (781) 871-6600; e-mail: kluwer@wkap.com; <http://www.wkap.nl/>.

While not the chief natural hazard in the Caribbean region, tsunamis have the potential to produce catastrophic regional disasters. This potential is demonstrated by the extensive devastation caused by a significant number of events documented in this examination of 500 years of Caribbean tsunamis. This book supports the scientific research community in its efforts to establish tsunami warning and mitigation systems and to educate governments and affected populations in this seismically active region by providing information about tsunamis and the risks they pose.

Wildfires

At Home in the Woods: Lessons Learned in the Wildland/Urban Interface. 2004. 136 pp. Available free on-line from the Federal Emergency Management Agency (FEMA) Region VIII, Building 710, Box 25267, Denver, CO 80225; (303) 235-4800; http://www.fema.gov/regions/viii/athome_woods.shtm.

Facing the threat of wildfire, individuals and communities are taking creative measures to protect themselves. Using a case study format, this report documents some of the best and most innovative fire mitigation practices currently used in the wildland/urban interface at the federal, state, and local levels. It focuses on challenges faced, obstacles overcome, and lessons learned and includes information on firewise communities and an extensive wildfire resource guide.

Science Basis for Changing Forest Structure to Modify Wildfire Behavior and Severity. Russell T. Graham, Sarah McCaffrey, and Theresa B. Jain. 2004. 43 pp. Free. Available from the U.S. Forest Service, Rocky Mountain Research Station, 240 Prospect Road, Fort Collins, CO 80526; (970) 498-1392; e-mail: rschneider@fs.fed.us; http://www.fs.fed.us/rm/pubs/rmrs_gtr120.pdf.

This report describes the current scientific knowledge available for making informed decisions on fuel treatments to modify wildfire behavior and effects in dry forests of the interior western U.S. A review of scientific principles and applications relevant to fuel treatment primarily for dry forests is provided for the following topics: fuels, fire hazard, fire behavior, fire effects, forest structure, treatment effects and longevity, landscape fuel patterns, and scientific tools useful for management and planning.

Floods and Extreme Weather

Red River Rising: The Anatomy of a Flood and the Survival of an American City. Ashley Shelby. ISBN 0-87351-500-5. 2004. 265 pp. \$24.95. Available from Borealis Books, c/o Chicago Distribution Center, 11030 South Langley Avenue, Chicago, IL 60628; (800) 621-2736; e-mail: custserv@press.uchicago.edu; <http://www.borealbooks.org/>.

This book tells the story of the 1997 Grand Forks, North Dakota, flood from the perspectives of those who experienced it. Through interviews, documents, newspapers, and other personal accounts, the author illustrates the flood's impact on the land, the people, and the town.

Heat-Waves: Risks and Responses. Christina Koppe, Sari Kovats, Gerd Jendritzky, and Bettina Menne. *Health and Global Environmental Change Series No. 2.* ISBN 92-890-1094-0. 2004. 124 pp. Available free on-line from the World Health Organization (WHO) Regional Office for Europe, Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark; +45 39 17 17 17; e-mail: publicationrequests@euro.who.int; <http://www.euro.who.int/document/E82629.pdf>.

Heat waves in Europe are associated with significant morbidity and mortality. A preliminary analysis of Europe's 2003 heat wave estimated that it caused 14,802 excess deaths in France, 2,045 in the United Kingdom, and 2,099 in Portugal. This report reviews the history of heat waves, the impact of heat on human health, and measures of prevention and adaptation such as heat-health warning systems and appropriate urban planning and building design.

Faces from the Flood: Hurricane Floyd Remembered. Richard Moore and Jay Barnes. ISBN 0-8078-5533-2. 2004. 248 pp. \$19.95. Available from the University of North Carolina Press, P.O. Box 2288, Chapel Hill, NC 27515; (919) 966-3561, (800) 848-6224; e-mail: uncpress_orders@unc.edu; <http://uncpress.unc.edu/>.

Hurricane Floyd swept through the eastern seaboard in 1999, flooding homes, businesses, and communities along the Mid-Atlantic coast. This book focuses on Floyd's devastating impact on North Carolina, where it was the most widespread and destructive disaster in the state's history. Through firsthand accounts, the authors put a personal face on the hurricane, its impact, community response, and efforts to rebuild. The book closes with a section on "the next disaster" that includes recommendations to emergency responders, elected officials, planners, and citizens.

National Hurricane Operations Plan. 2004. 164 pp. Available free on-line from the National Oceanic and Atmospheric Administration, Office of the Federal Coordinator for Meteorological Services and Supporting Research, 8455 Colesville Road, Suite 1500, Silver Spring, MD 20910; (301) 427-2002; e-mail: ofcm.mail@noaa.gov; <http://www.ofcm.gov/nhop/04/nhop04.htm>.

Each year, the Interdepartmental Hurricane Conference brings together responsible federal agencies and other involved parties to review the nation's hurricane forecast and warning program and discuss how it can be improved in preparation for the upcoming hurricane season. This updated plan incorporates new procedures, procedural changes, and agreements.

Fair Weather: Effective Partnerships in Weather and Climate Services. National Research Council of the National Academies. ISBN 0-309-08746-5. 2003. 238 pp. \$35.00. A PDF version is \$24.00. This publication may be read on-line for free. Available from the National Academies Press, 500 Fifth Street, NW, Box 285, Washington, DC 20055; (202) 334-3313, (800) 624-6242; <http://books.nap.edu/catalog/10610.html>.

The phrase "fair weather" in the title of this book refers to a desired state in the partnership of the three sectors of the weather and climate enterprise—public, private, and academic. The authors' premise is that a new policy for the provision of weather services is needed to reduce the frictions, inefficiencies, and ineffectiveness of the three-sector system. An examination of the three sectors, the roles they play in relation to the enterprise as a whole as well as to each other, and the manner in which they are affected by advances in science and technology leads to the conclusion that strengthening

partnerships, enhancing the contributions of each of the sectors, and improving the weather system infrastructure will result in a more effective weather enterprise.

Our Affair with El Niño: How We Transformed an Enchanting Peruvian Current into a Global Climate Hazard. S. George Philander. ISBN 0-691-11335-1. 2004. 275 pp. \$26.95. Available from Princeton University Press, 41 William Street, Princeton, NJ 08540; (609) 883-1759, (800) 777-4726; email: orders@cpfsinc.com; <http://pup.princeton.edu/>.

This book explores the phenomenon of El Niño, including the perceptions of its importance and impact since it caught the public's attention in 1997. Book sections include social construction of the El Niño phenomenon, scientific conception of and response to El Niño, an overview of atmospheric and geologic science, and coping with resultant hazards.

Coastal Hazards

Living with Florida's Beaches: Coastal Hazards from Amelia Island to Key West. David M. Bush, William J. Neal, Norma J. Longo, Kenyon C. Lindenman, Deborah F. Pilkey, Luciana Slomp Esteves, John D. Congleton, and Orrin H. Pilkey. ISBN 0-8223-3289-2. 2004. 360 pp. \$22.95. Available from Duke University Press, Box 90660, Durham, NC 27708; (919) 687-3600, (888) 651-0122; e-mail: orders@dukeupress.edu; <http://www.dukeupress.edu/>.

The eastern coast of Florida has experienced huge property loss and damage due to hurricanes and lesser storms. At the same time, development is increasing dramatically and humans are living in areas formerly considered to be off limits. This puts more people and property at risk. This book provides a comprehensive overview of coastal realities, including ecological and hydrological dynamics; assessment and evaluation of risk; related socio-cultural events and perspectives; coastal engineering; and managing the built environment. The authors advocate living with the shoreline and coastal processes in Florida, rather than struggling against them.

Climate Change

The following reports on climate change and the potential impacts on the U.S. were prepared for the Pew Center on Global Climate Change:

A Synthesis of Potential Climate Change Impacts on the U.S. Joel B. Smith. 2004. 44 pp. Free.

Coping with Climate Change: The Role of Adaptation in the United States. William Easterling, Brian H. Hurd, and Joel B. Smith. 2004. 40 pp. Free.

U.S. Market Consequences of Global Climate Change. Dale W. Jorgenson, Richard J. Goettle, Brian H. Hurd, Joel B. Smith. 2004. 67 pp. Free.

All three of these reports are available from the Pew Center on Global Climate Change, 2101 Wilson Boulevard, Suite 550, Arlington, VA 22201; (703) 516-4146; http://www.pewclimate.org/global-warming-in-depth/all_reports/.

Methods of Assessing Human Health Vulnerability and Public Health Adaptation to Climate Change. Sari Kovats, Kristie L. Ebi, and Bettina Menne. *Health and Global Environmental Change Series No. 1.* ISBN 92-890-1090-8. 2003. 112 pp. Available free on-line from the World Health Organization (WHO) Regional Office for Europe, Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark; +45 39 17 17 17; e-mail: publicationrequests@euro.who.int; <http://www.euro.who.int/document/E81923.pdf>.

Identifying vulnerable populations and developing timely and effective interventions are critical steps in the effort to reduce the current and future burden of disease attributable to climate change. Written for governments, health agencies, and environmental and meteorological institutions, this report provides quantitative and qualitative methods of assessing human health vulnerability and public health adaptation to climate change. It describes the objec-

tives and the steps for assessing vulnerability and adaptation; presents evidence that climate change could affect mortality and morbidity; and discusses methods of projecting future effects and identifying adaptation strategies, policies, and measures.

What's in a Word? Conflicting Interpretations of Vulnerability in Climate Change Research. Karen O'Brien, Siri Eriksen, Ane Schjolden, and Lynn Nygaard. 2004. 16 pp. Available free on-line from the Center for International Climate and Environmental Research, P.O. Box 1129 Blindern, N-0318 Oslo, Norway; +47 22 85 87 50; e-mail: admin@cicero.uio.no; <http://www.cicero.uio.no/publications/detail.asp?2682>.

This paper discusses two competing interpretations of vulnerability in the climate change literature and makes the case that the interpretation of vulnerability has consequences for how climate research is conducted across disciplines and how policy makers address climate change. The authors contend that the two definitions, "end point" and "starting point," offer two different diagnoses of the climate change problem and two different solutions as well.

Health

CDC Terrorism Preparedness and Response Strategy 2003-2008. 2004. 54 pp. Available free on-line from the Centers for Disease Control and Prevention (CDC), Bioterrorism Preparedness and Response Planning, Mailstop C-18, 1600 Clifton Road, Atlanta, GA, 30333; (888) 246-2675; cdcresponse@ashastd.org; <http://www.bt.cdc.gov/planning/tpstrategy/>.

The CDC and the Agency for Toxic Substances and Disease Registry (ATSDR) recently released this national public health strategy for terrorism preparedness and response to provide a comprehensive framework of the CDC/ATSDR's vision, mission, strategic imperatives, critical objectives, and key actions specific to terrorism preparedness and response. Developed to guide CDC/ATSDR and the greater public health community, the strategy utilizes an all hazards approach and stresses timely detection and investigation of outbreaks, long-term emergency response planning, and increased coordination and communication during emergencies.

Quarantine and Isolation: Lessons Learned from SARS. M. Gabriela Alcalde, Nanette R. Elster, Mary Anderlik Majumder, Larry I. Palmer, and T. Howard Stone. 2003. 160 pp. Available free on-line from the Institute of Bioethics, Health Policy and Law, University of Louisville School of Medicine, 501 East Broadway, Suite 310, Louisville, KY 40292; (502) 852-4980; <http://www.louisville.edu/medschool/ibhpl/publications/SARS%20REPORT.pdf>.

During the Severe Acute Respiratory Syndrome (SARS) outbreak in the spring of 2003, quarantine and isolation were used to limit disease transmission on an unprecedented scale. This report, undertaken for CDC, explores the SARS experience in Canada, China, Singapore, Hong Kong, Taiwan, and Vietnam, highlighting the legal and policy challenges in preparing for an outbreak of infectious disease or other similar public health emergency. Twelve key issues under three broad categories (legal and public health systems, public health and health care infrastructure, and law enforcement and ancillary services) are identified for public health officials and policy makers.

Learning from SARS: Preparing for the Next Disease Outbreak. Workshop Summary. Stacey Knobler, Adel Mahmoud, Stanley Lemon, Alison Mack, Laura Sivitz, and Katherine Oberholtzer, editors. ISBN 0-309-09154-3. 2004. 359 pp. \$42.00. Available free on-line from the National Academies Press, 500 Fifth Street, NW, Box 285, Washington, DC 20055; (202) 334-3313, (800) 624-6242; <http://www.nap.edu/catalog/10915.html>.

The global response to the recent SARS epidemic demonstrated both the strengths and weaknesses of national and international capacities to respond to the challenges of infectious disease outbreaks. The emergence, spread, and control of SARS illustrates the considerable economic, political, public health, and psychological effects of an unanticipated epidemic in an interdependent world. These issues were explored during a 2003 workshop on microbial threats. Participants present their perspectives in this volume. Sections in-

clude emergence, detection, and response; political influences and economic impacts of the disease; the natural history of corona viruses; diagnostics and therapeutics; and preparing for the next disease outbreak.

Health and Wellness Guide for the Volunteer Fire Service. 2004. 98 pp. Free. Available on-line from the U.S. Fire Administration (USFA), Publications, 16825 South Seaton Avenue, Emmitsburg, MD 21727; (301) 447-1189, (800) 561-3356; <http://www.usfa.fema.gov/downloads/pdf/publications/fa-267.pdf>.

The prevalence of cardiovascular illness and work-inhibiting strains and sprains among firefighters illustrates the need for a comprehensive health and wellness program in every fire department. FEMA and the National Volunteer Fire Council have collaborated to produce this guidebook to provide information on fitness and wellness for volunteer firefighters and fire departments. It aims to reduce loss of life from heart attack and stress and includes examples of effective health and wellness programs. It complements existing USFA firefighter wellness and fitness partnerships with the International Association of Fire Chiefs and the International Association of Fire Fighters.

GAO Reports

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

Status of FEMA's FY03 Pre-Disaster Mitigation Program. GAO-04-727R. 2004. 23 pp.

Emergency Preparedness: Federal Funds for First Responders. GAO-04-788T. 2004. 9 pp.

Project SAFECOM: Key Cross-Agency Emergency Communications Effort Requires Stronger Collaboration. GAO-04-494. 2004. 22 pp.

Human Capital: Opportunities to Improve Federal Continuity Planning Guidance. GAO-04-384. 2004. 53 pp.

Continuity of Operations: Improved Planning Needed to Ensure Delivery of Essential Services. GAO-04-638T. 2004. 17 pp.

Critical Infrastructure Protection: Establishing Effective Information Sharing with Infrastructure Sectors. GAO-04-699T. 2004. 39 pp.

Wildfire Suppression: Funding Transfers Cause Project Cancellations and Delays, Strained Relationships, and Management Disruptions. GAO-04-612. 2004. 62 pp.

Biscuit Fire: Analysis of Fire and Response, Resource Availability, and Personnel Certification Standards. GAO-04-426. 2004. 35 pp.

Emerging Infectious Diseases: Asian SARS Outbreak Challenged International and National Responses. GAO-04-564. 2004. 67 pp.

Terrorism Insurance: Implementation of the Terrorism Risk Insurance Act of 2002. GAO-04-307. 2004. 33 pp.

Terrorism Insurance: Effects of the Terrorism Risk Insurance Act of 2002. GAO-04-720T. 2004. 20 pp., GAO-04-806T. 2004. 19 pp.



The Center

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER was founded to strengthen communication among researchers and the individuals and organizations concerned with mitigating natural disasters. The Center is funded by the National Science Foundation, the Federal Emergency Management Agency, the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Department of Transportation, the U.S. Bureau of Reclamation, the U.S. Forest Service, the National Aeronautics and Space Administration, the Centers for Disease Control and Prevention, the Institute for Business and Home Safety, and the Public Entity Risk Institute. Please send information of potential interest to the Center or the readers of this newsletter to the address below. The deadline for the next *Observer* is July 21, 2004.

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