

# NATURAL HAZARDS Observer

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## Remote Sensing Technology—A Coming of Age

— an invited comment

*Author's Note: July 13, 2004. It's a balmy afternoon at the Natural Hazards Workshop in Boulder, Colorado. I have just presented at a plenary session on the Bam, Iran, earthquake (my contribution: building damage detection using satellite imagery) and am chatting afterwards to members of the disaster management community. As a remote sensing specialist, I am gratified to hear that "the eye in the sky" is now well and truly on their radar screen as a tool for disaster management. With the following invited comment, let me guide you through some of the momentous developments of the past few years that are bringing remote sensing technology to the fore.*

### The Millennium Heralds New Capabilities

The turn of the century marked a quantum leap forward for remote sensing. We said goodbye to the resolution-limited 1990s, where we could see the immense potential that this technology had to offer, but had yet to realize it, and where the best imagery of heavily damaged earthquake zones merely depicted a cluster of fuzzy bright

areas. Although satellites such as Landsat helped us pinpoint hard hit areas, we could only dream of ascertaining detailed information about the number of collapsed buildings and severity of damage. But today, remote sensing has "come of age;" the dream has become a reality. This coming of age is a function of two major factors: technology push and user pull.

## Technology Push

For disaster-related applications, resolution and accessibility are driving the technology push. Resolution refers to three domains crucial for this sort of analysis: spatial, temporal, and spectral. At this very moment, very high-resolution commercial satellites may be imaging your backyard. I am not promising that these satellites can read your vehicle license plate, but with a 60 centimeter resolution, the QuickBird imaging system can certainly pick vehicles out on the freeway. Analysts may even be able to discern automobiles from pickup trucks.

From a temporal perspective, areas are imaged more frequently as pointable systems are developed and new satellites are added to the global constellation. Although "real-time" imaging remains a push for the future, rapid download centers like the Center for Rapid Environmental Assessment and Terrain Evaluation offer twice-daily MODIS (moderate resolution imaging spectroradiometer) coverage for fire monitoring. For earthquake, tsunami, or hurricane damage assessment, QuickBird, Ikonos, or OrbView coverage is available within days. Delivery times for a disaster site will continue to fall as additional submeter resolution systems, such as Worldview and Pleiades, are launched. The Disaster Monitoring Constellation also promises rapid data acquisition for its member nations: the United Kingdom, China, Algeria, Nigeria, Vietnam, Turkey, and Thailand.

Spectrally, optical and radar systems are extremely complementary. Optical imagery captures the unfolding scene as it appears to the human eye while radar offers day and night coverage and can see through clouds. Over the next few years, radar will exhibit its own technology push. The COSMO-SkyMed (Constellation of Small Satellites for Mediterranean Basin Observation) four-satellite constellation promises 1-meter data, a significant improvement on today's 8.5-meter Radarsat data.

In regard to the role of data accessibility in this technology push, commercial satellite companies like DigitalGlobe recognize disaster response requirements and have worked hard to streamline the data acquisition and customer delivery processes. From personal experience, I have ordered imagery one day after a disaster and received it via rapid ftp download the following day. Although this timescale already supports postdisaster reconnaissance and response planning needs, new doors will be opened once the challenge of real-time user download is met.

From a policy perspective, several major international initiatives have also improved accessibility. In 2000, nations throughout the world committed to extend the use of space facilities for disaster response through the United Nations Charter on Space and Major Disasters. Members activate the charter after major events, and data providers collect and serve imagery from optical and radar systems including Ikonos, Spot, and Radarsat. To date, the charter has been activated more than 60 times, including in the aftermaths of the Southeast Asia tsunami, Hurricanes Frances and Ivan, floods in Argentina, and the Bam earthquake. The European Space Agency's online Earth Watching Service complements this initiative by providing coverage from Landsat, ERS (European Radar Satellite), and JERS (Japanese Earth Resources Satellite) sensors.

Closer to home, the Federal Emergency Management Agency Web site features remote sensing coverage of U.S. events.

## User Pull

In recent years, the disaster management community has seen an increase in the deployment of remote sensing technologies for both natural and human-caused events. The benefits are multifaceted and include detailed visualization, regionwide assessment, safe surveying of dangerous areas, timely information about inaccessible locations, and a permanent record of perishable damage. The following examples are some of my favorites.

For natural disasters, such as earthquakes, hurricanes, and tsunamis, satellite imagery is beneficial as a data source and is being deployed in conjunction with conventional ground-based activities. For the 2003 Bam earthquake, I was personally involved in situation assessment activities, using high-resolution before and after images to generate citywide damage maps for reconnaissance teams. These are particularly useful for overseas events, where the outflow of information is slow or inaccurate. The imagery has since been used to estimate the number of collapsed structures, a capability that in the future could provide rapid casualty estimates.

The Earthquake Engineering Research Institute (EERI) was one of the first international reconnaissance teams to deploy remote sensing technology operationally as a tool for prioritizing field survey activities. The remote sensing driven VIEWS (visualizing the impacts of earthquakes with satellite images) system was first deployed to Bam, Iran, after the earthquake, where it guided the team to hard-hit areas and enabled them to track the progress of recovery efforts. VIEWS is a notebook-based system, developed for multihazard reconnaissance through funding from the Multidisciplinary Center for Earthquake Engineering Research. It integrates before and after satellite imagery with real-time GPS (global positioning system) readings and map layers and operates in conjunction with a digital video recorder and digital camera. It has since been deployed by the EERI Niigata earthquake reconnaissance team and by a joint United States-Thailand-Japan team in Thailand after the 2004 tsunami.

Remote sensing technologies were applied following Hurricane Charley to accelerate and streamline postwindstorm damage assessment. The Wind Science Engineering and Research Center at Texas Tech University has responded to more than 120 windstorms since 1970. In the past, damage was assessed via walking tours, with key indicators and the overall damage state logged manually on a spreadsheet. In this case, VIEWS provided a permanent visual record of perishable damage data for approximately 2,500 buildings per day, instead of the usual 20-100, saving money as well as time.

Following the World Trade Center attack, remote sensing and GIS (geographic information systems) activities were centralized at the Emergency Mapping and Data Center. Optical, lidar, and thermal imagery provided ground teams with a detailed overview of ground zero and the evolving cleanup operations. They provided firefighters with valuable new information about the relationship

between fires and fuel sources beneath the debris pile and supported the strategic planning and evaluation of response activities. Overlaying a two-dimensional grid with optical imagery also created a reference system for tracking objects amongst the debris. A similar grid approach was employed in the regionwide search effort after the Columbia Space Shuttle disaster.

In addition to these response functions, remote sensing is also playing a role in preparedness activities. For example, the California Governor's Office of Emergency Services recognizes the value of satellite imagery as a data source and is currently supporting the development of methodologies for updating HAZUS (Hazards U.S. loss-estimation software) databases. The operational deployment of earth observation products within decision support tools will become increasingly widespread in the years to come with the National Aeronautics and Space Administration (NASA) serving as a driving force. NASA's "Disaster Management Program Element Plan: 2004-2008," states the following goal: "enable partners' beneficial use of Earth science research results, observations, models, and technologies to enhance decision support capabilities serving their disaster management and policy responsibilities." Accordingly, NASA is currently funding projects to develop integrated systems solutions that assimilate remote sensing products into nationally-important decision support tools, such as HAZUS-MH (multihazard), SLOSH (Sea, Lake, and Overland Surges from Hurricanes), and FARSITE (Fire Area Simulator), used by federal, state, and local governments as well as nongovernmental organizations.

### A Final Word

The coming of age that remote sensing is currently experiencing is being driven by a combination of technology push and user pull. The door is open for future technological pushes towards new constellations and real-time user download. I welcome stories about your deployment of satellite technology.

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### Internet Resources

<http://www.imagecatinc.com/>  
ImageCat Inc.

<http://www.mceer.buffalo.edu/>  
Multidisciplinary Center for Earthquake Engineering Research

[http://www.eeri.org/lfe/recent\\_recon.html](http://www.eeri.org/lfe/recent_recon.html)  
Earthquake Engineering Research Institute Learning from Earthquakes program

<http://www.digitalglobe.com/>  
DigitalGlobe (high-resolution satellite imagery provider)

<http://www.sstl.co.uk/>  
Surrey Satellite Technology Ltd. (developer of the international satellite Disaster Monitoring Constellation)

<http://www.spaceimaging.com/>  
Space Imaging (high-resolution satellite imagery provider)

[http://aiwg.gsfc.nasa.gov/esappdocs/progplans/DM\\_Program\\_Plan\\_2004\\_v7.doc](http://aiwg.gsfc.nasa.gov/esappdocs/progplans/DM_Program_Plan_2004_v7.doc)  
NASA's "Disaster Management Program Element Plan: 2004-2008"

[http://www.disasterscharter.org/main\\_e.html](http://www.disasterscharter.org/main_e.html)  
2000 Charter on Space and Major Disasters

<http://www.gismaps.fema.gov/rs.shtm>  
FEMA Mapping and Analysis Center—Remote Sensing

<http://earth.esa.int/ew/>  
European Space Agency Earth Watching service

## Lessons Learned Information Sharing—LLIS.gov

Protecting our nation against the threat of terrorism is an increasingly complex effort. Everyday, frontline responders at the local, state, and federal levels are creating new and innovative best practices while exercises and real-world incidents produce valuable lessons learned.

To share this information, the National Memorial Institute for the Prevention of Terrorism, in cooperation with the U.S. Department of Homeland Security Office of State and Local Government Coordination and Preparedness, has developed Lessons Learned Information Sharing (LLIS.gov). LLIS.gov is the national online network of lessons learned and best practices designed to help emergency responders and homeland security officials prevent, prepare for, respond to, and recover from acts of terrorism and other disasters. It is a free and secure system open only to vetted emergency response providers and homeland security officials.

The central component of LLIS.gov is a collection of peer-validated lessons learned and best practices developed in consultation with, and validated by, emergency responders. LLIS.gov also houses an extensive collection of homeland security-related materials, including hundreds of after-action reports from federally sponsored exercises and a comprehensive library of documents, reports, directories, and manuals. Users also have access to an updated list of homeland security exercises, events, and conferences. The system encourages online collaboration via information exchange tools, including secure e-mail, message boards, and a feedback tool that allows user submissions.

By providing a single, centralized location for the sharing and dissemination of information, LLIS.gov helps inform and prepare homeland security officials and emergency response providers by integrating them into a nationwide information-sharing network, a crucial step in the prevention, preparedness, response, and recovery from terrorism and disasters. For more information and to register, visit <http://www.llis.gov/>.

## 2004 PERISHIP Fellows Announced

The Natural Hazards Center and the Public Entity Risk Institute are pleased to announce the 2004 PERISHIP Fellows in Hazards, Risk, and Disasters. The PERISHIP program was designed to foster the advancement of knowledge in the interdisciplinary field of hazards, which relies on a continuous influx of young scholars committed simultaneously to their own disciplines and to the more practical, applied aspects of the field. The program recognizes this unusual combination and encourages pursuit of these interests by providing financial support that enables scholarly work that will ultimately serve to advance knowledge in the hazards field.

A rigorous review process resulted in 10 recipients across 10 disciplines and 8 universities. The 2004 PERISHIP Fellows in Hazards, Risk, and Disasters, along with their disciplines, affiliations, and dissertation titles, are:

- **Patricia Alvarado**, Geosciences, University of Arizona, "Crustal Seismicity in the Back-arc Region of the Southern Central Andes from Historic to Modern Times"
- **Aurélie Brunie**, City and Regional Planning, University of North Carolina at Chapel Hill, "Natural Disasters, Poverty and Sustainable Development"
- **Oyuntsetseg Chuluundorj**, Health and Behavioral Sciences, University of Colorado at Denver and Health Sciences Center, "Natural Hazards and Risk Management among Pastoral Herders in Mongolia"
- **Danny de Vries**, Anthropology, University of North Carolina at Chapel Hill, "The Influence of Culture Models in Mitigation Decision Making among Property Owners in Five Historical U.S. Floodplain Communities"
- **Li-ju Jang**, Social Work, University of Denver, "The 921 Earthquake: A Study of the Effects of Taiwanese Cultural Factors on Resilience"
- **Earl E. Lee II**, Decision Sciences and Engineering Systems, Rensselaer Polytechnic Institute, "Assessing Vulnerability and Managing Disruptions to Interdependent Infrastructure Systems: A Network Flows Approach"
- **Stephanie Mizrahi**, Political Science/Criminal Justice, Washington State University, "From Panic to Policy: The Relationship between Terrorist Incidents and Policy Change"
- **Lori Peek**, Sociology, University of Colorado at Boulder, "The Identity of Crisis: Muslim Americans After September 11"
- **Elizabeth Scoville**, Civil Engineering, Clemson University, "Investigation of the Cyclic Response of Roof-Wall Systems under Combined Shear and Uplift Loads for Low-Rise Wood-Frame Buildings"
- **Mohan Seetharam**, Geography, Clark University, "Modeling the Vulnerability of Social-Ecological Systems to Environmental and Economic Change in the Deccan Plateau, India"

Learn more about the fellows, the program, and future funding possibilities at <http://www.cudenver.edu/periship/>.

## Three New Quick Response Reports from the Natural Hazards Center

The following Quick Response reports have been posted on the Natural Hazards Center's Web site at <http://www.colorado.edu/hazards/qr/qrepts.html>.

- **QR169 *The April 2004 Tornado in North-Central Bangladesh: A Case for Introducing Tornado Forecasting and Warning Systems***, by Bimal Kanti Paul and Rejuan Hossain Bhuiyan. 2004. The objectives of this study were to explore the nature of formal and/or informal warnings that residents of the villages impacted by the April 2004 tornado received and how they responded when they learned about and/or personally observed the tornado. The researchers found that there were no tornado forecasting/warning systems in the area or in Bangladesh in general, despite an evident need as well as desire from the public, and made recommendations about how such systems could be implemented.
- **QR170 *Community Response to Hurricane Isabel: An Examination of Community Emergency Response Team (CERT) Organization in Virginia***, by Mary E. Franke and David M. Simpson. 2004. In their examination of the degree to which community emergency response teams affected community level preparedness and response as it related to Hurricane Isabel in Virginia, these researchers found that the programs were still in the early stages of development and have yet to create a clear role for themselves. Nevertheless, the programs were well regarded and their potential is recognized.
- **QR171 *Providing for Pets During Disasters: An Exploratory Study***, by Leslie Irvine. 2004. This research examined how pets were provided for in the wake of Hurricane Charley in Charlotte County, Florida. Findings indicate that the treatment of animals post-Charley was significantly better than the treatment animals received post-Andrew primarily because of the county's well-developed animal response plan and established interorganizational networks.



## New Homeland Security Center of Excellence

On January 10, the U.S. Department of Homeland Security (DHS) announced the selection of the University of Maryland (Maryland) to lead the new Homeland Security Center of Excellence for Behavioral and Social Research on Terrorism and Counter-Terrorism. DHS anticipates providing Maryland and its partners with a total of \$12 million over the course of the next three years to address these topics.

In responding to the DHS request for proposals, Maryland assembled a team of experts from across the country and around the world. The major partners include the University of California at Los Angeles, the University of Colorado at Boulder, Monterey Institute of International Studies, the University of Pennsylvania, and the University of South Carolina. Scholars and researchers from Israel, Italy, Kazakhstan, and other countries will also be involved in the research efforts.

The research and educational focus of this new center will span both international and domestic issues. Topics that will be addressed include the sources of and responses to terrorism, the dynamics of terrorist groups, psychological and psychosocial impacts of terrorism, and ways of increasing societal resilience in the face of terrorism-related threats. Research, education, and outreach activities will place a special emphasis on the information and preparedness needs of our socially and culturally diverse population. Investigators will employ a variety of methodological approaches to explore the behavioral and social dimensions of terrorism, including survey research, field research, focus groups, spatial social science methods, and modeling and simulation.

Activities will be organized around three major working groups focusing, respectively, on the societal origins of terrorism and recruitment into terrorist networks; the dynamics of groups employing terrorism tactics, including growth, decline, and cessation of terrorist actions; and issues related to risk communication and societal preparedness and response. The Natural Hazards Center will assume a coordinating role for the third working group, which will study risk perception and communication, public responses to the terrorism threat and actual events, community preparedness, and school preparedness. Members include scholars from the fields of hazards, disasters, and risk.

Other Homeland Security Centers of Excellence:

- The Homeland Security Center for Risk and Economic Analysis of Terrorism Events, led by the University of Southern California, aims to evaluate the risks, costs, and consequences of terrorism, and to guide economically viable investments in counter-measures that will make the nation safer and more secure.
- The Homeland Security National Center for Food Protection and Defense, led by the University of Minnesota, is focused on defending the safety of the food system through research and education, and works to establish best practices, develop new analytic tools, and attract new researchers to manage and respond to food contamination events.
- The Homeland Security National Center for Foreign Animal and Zoonotic Disease Defense (FAZD), led by Texas A&M University, emphasizes animal management protection against foreign animal and zoonotic diseases, including prevention, emergency management, and recovery.
- DHS has released a Broad Agency Announcement for a fifth Center of Excellence, the Center for the Study of High Consequence Event Preparedness and Response, which will research preparation for disasters with special emphasis on terrorism (see p. 10 of this *Observer*).

More information is available in the press release, <http://www.dhs.gov/dhspublic/display?content=4274>, and at <http://www.dhs.gov/centersofexcellence/>.



### Survey of the Natural Hazards Library at the Natural Hazards Center

To better serve your needs, the Natural Hazards Center is conducting an assessment of the Natural Hazards Library (<http://www.colorado.edu/hazards/library/>). As part of this assessment, the Center is surveying both producers and users of research and knowledge on extreme events. The survey is extremely important and will provide answers to questions regarding user needs, library usage, and how the existing resources and services can be augmented and improved. It consists of eight questions and should take approximately two minutes to complete.

To make this as simple as possible, the Center has posted the survey on the Web, where it will remain through June 30, 2005, at <http://www.colorado.edu/hazards/library/survey/>. Please note that you do not have to be familiar with the Natural Hazards Library to take the survey. If you have any questions about the survey or the library, please contact the Natural Hazards Library at [hazlib@colorado.edu](mailto:hazlib@colorado.edu) or (303) 492-5787.

## Comments on the World Conference on Disaster Reduction

The United Nations' (UN) World Conference on Disaster Reduction (WCDR), held in January in Kobe, Japan, could not have come at a better time. Only three weeks after the devastating 9.0 earthquake and resulting tsunami in the Indian Ocean, the world's attention was intensely focused on natural hazards and human vulnerability. Originally planned to coincide with the 10th anniversary of the 1995 Kobe earthquake, the Indian Ocean tsunami provided an opportunity to once again highlight the need for sensible, strategic policies and initiatives aimed at reducing vulnerability around the world. Set against the backdrop of ongoing recovery in the affected region, increasing pledges of aid from governments and lending institutions, and calls for more tsunami warning systems, delegates became concerned about how the tsunami would affect the conference. Would the WCDR be able to place recent events into the broader context of disaster risk reduction and management or would the original program be overshadowed by the tragedy?

Fortunately, the tsunami sessions and discussions were well integrated into the existing conference program. New sessions were formed to address specific tsunami issues, and presenters in many of the thematic sessions were able to incorporate tsunami-related concerns into their presentations and discussions.

The most noticeable impact of the Indian Ocean tsunami became clear in the discussions on warning systems. A general declaration seemed to emerge quickly from the intergovernmental segment that the development of a tsunami warning system in the Indian Ocean would prevent a similar catastrophe in the future. The agreement to deploy a tsunami warning system also provided a relatively easy way for governments and donor agencies grappling with the unfolding crisis to take seemingly substantive action. Some delegates and numerous nongovernmental organizations were quick to point out that a complete warning system was not simply a quick technological fix, but a lengthy and difficult public education effort as well. Nevertheless, commitments were made to rapidly organize a tsunami monitoring network in the Indian Ocean similar to the one in the Pacific Ocean (see p. 12 of this *Observer*).

Despite the prominence of the Indian Ocean tsunami in the news and its clear implications for the global hazards community, the issue that seemed to dominate the conference was global climate change. Already a highly contentious issue, the impact of climate change appeared to be the most significant obstacle in the official deliberations. The United States, primarily, along with Australia and Canada, argued strongly against the inclusion of climate change in the Kobe declaration. In sessions, in corridor conversations, and during receptions, the discussion often seemed to drift back towards whether climate change warranted attention at a disaster conference. The consensus seemed to be that the impacts of climate change, while not fully understood (or perhaps even understandable), would prove to be the single most important emerging issue in hazards management. It was the very unpredictable nature of the effects and impacts of climate change that caused some people and delegations to

reject its inclusion in discussions of disaster management while it also provided the rationale for others who felt that it provided the impetus for more immediate adaptive action and mitigation.

During the thematic session devoted specifically to climate change, panelists stressed the increasing conceptual and programmatic overlap between climate change analysis and disaster risk management. Although it was acknowledged that few tools exist to incorporate climate change analysis directly into the current disaster risk management framework, given the high probabilities that climate change will continue to modify risk patterns, a comprehensive strategy in the context of development should be supported. Barriers to adopting an integrated approach were also addressed. Funding structures and differing mandates were identified as problems that could be overcome by using the right incentives and creating an appropriate institutional framework. Towards the end of the session, audience member Pascal Peduzzi, head of the Early Warning Unit of the UN Environment Programme, was able to tie the issue of warnings and climate change together, "We have had our early warning on climate; the IPCC (Intergovernmental Panel on Climate Change) and others have been telling us about the potential impacts for years. We are choosing to ignore the warnings." Interestingly, what is missing from the climate warning system is similar to that of the proposed Indian Ocean tsunami warning system: effective and meaningful public education.

Like other conferences of this kind, the deliberations are predictable, long on talk, and short on action. By the end of the thematic segment, it was difficult for public participants to know exactly what had been achieved at the intergovernmental level. Nevertheless, the conversation and debates were worth having. They will help the international community chart a new course and begin to elevate difficult issues to the forefront of the public agenda. Only time will tell how the WCDR will impact disaster management in the coming decades, but it is encouraging that nations were willing to openly debate even the most controversial of issues.

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The WCDR secretariat is currently reviewing all conference documents. These documents, which include official documents as well as presentations made during the thematic segment and the high-level roundtables, are gradually being posted on the conference's Web site. Access these documents and more at <http://www.unisdr.org/wcdr/>.



# WASHINGTON UPDATE

## U.S. National Response Plan Complete

The U.S. Department of Homeland Security has announced completion of the National Response Plan (NRP). The NRP establishes a unified and standardized approach to help protect public health, safety, property, and the environment from terrorist attacks and other natural and human-induced hazards. It is a comprehensive, all-hazards tool for domestic incident management across the spectrum of prevention, preparedness, response, and recovery that incorporates best practices and procedures from incident management disciplines, such as homeland security, emergency management, law enforcement, fire-fighting, public works, public health, response and recovery worker health and safety, emergency medical services, and the private sector. All federal departments and agencies that may be involved in a national incident will use the NRP. When fully implemented, the NRP will supersede the Initial National Response Plan, the Federal Response Plan, the U.S. Government Interagency Domestic Terrorism Concept of Operations Plan, and the Federal Radiological Emergency Response Plan.

The NRP uses the National Incident Management System (NIMS) to establish standardized training, organization, and communications procedures for multijurisdictional interaction and identifies authority and leadership responsibilities. Together, the NRP and NIMS establish incident management processes to improve coordination and integration between federal, state, local, tribal, regional, private sector, and nongovernmental organization partners; integrate the federal response to catastrophic events; improve incident management communications and increase cross-jurisdictional coordination and situational awareness; improve federal to federal interaction and emergency support; maximize use and employment of incident management resources; and facilitate emergency mutual aid and federal emergency support to state, local, and tribal governments.

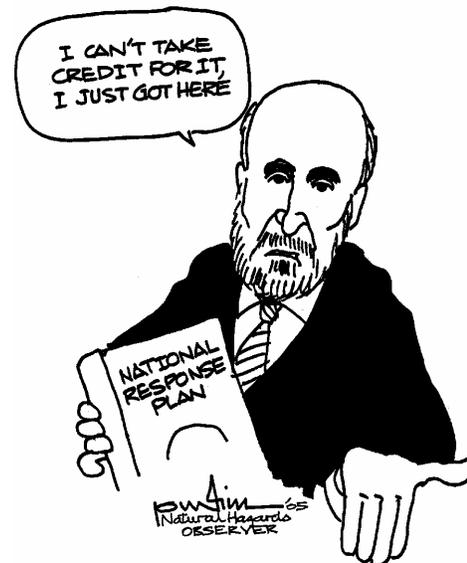
The plan is organized around five components:

- The Base Plan describes the structure and processes comprising a national approach to domestic incident management designed to integrate the efforts and resources of federal, state, local, tribal, private-sector, and nongovernmental organizations. It includes planning assumptions, roles and responsibilities, concept of

operations, incident management actions, and plan maintenance instructions.

- Appendixes provide other relevant, more detailed supporting information, including terms, definitions, acronyms, authorities, and a compendium of national inter-agency plans.
- The Emergency Support Function Annexes detail the missions, policies, structures, and responsibilities of federal agencies for coordinating resource and programmatic support to states, tribes, and other federal agencies or other jurisdictions and entities.
- The Support Annexes provide guidance and describe the functional processes and administrative requirements necessary to ensure efficient and effective implementation of the NRP's incident management objectives.
- The Incident Annexes address contingency or hazard situations requiring specialized application of the NRP. They describe the missions, policies, responsibilities, and coordination processes that govern the interaction of public and private entities engaged in incident management and emergency response operations across a spectrum of potential hazards.

Find out more and download a copy of the plan at <http://www.dhs.gov/nationalresponseplan/>. To get more information, first responders and incident management authorities may call (800) 368-6498.



## U.S. National Response Plan Online Training

The Federal Emergency Management Agency has released a new independent study course to introduce emergency management practitioners to the National Response Plan (NRP). The course, *The National Response Plan, an Introduction, IS-800*, is designed primarily for U.S. Department of Homeland Security and other federal department/agency staff responsible for implementing the NRP. State, local, and private sector emergency management professionals can also benefit from this course. Students who successfully complete this course will be able to describe the purpose of the NRP, locate information within the NRP, describe the roles and responsibilities of entities as specified in the NRP, identify the organizational structure used for NRP coordination, describe the field-level organizations and teams activated under the NRP, and identify the incident management activities addressed by the NRP. Access this course on the Web at <http://training.fema.gov/emiweb/is/is800.asp>.

## U.S. Plans to Improve Tsunami Detection and Warning System

Following the recent Indian Ocean tsunami, the United States announced plans to expand its tsunami detection and warning capabilities as part of the Global Earth Observation System of Systems, the international effort to develop a comprehensive, sustained, and integrated Earth observation system. The plan, which commits a total of \$37.5 million over the next two years, will enable enhanced monitoring, detection, warning, and communications that will protect lives and property in the United States and a significant part of the world.

With this new investment, the National Oceanic and Atmospheric Administration will deploy 32 new advanced technology DART (deep-ocean assessment and reporting of tsunami) buoys, expanding monitoring capabilities to the Atlantic and Caribbean basins and strengthening them in the Pacific. Also playing an important role, the U.S. Geological Survey will enhance its seismic monitoring and information delivery from the Global Seismic Network, a partnership with the National Science Foundation. The plan calls for a fully operational tsunami warning system with nearly 100 percent detection capability for U.S. coastal tsunami by mid-2007.

More information about NOAA's tsunami programs can be found at <http://www.noaa.gov/tsunamis.html>.

## NIMS Training Information Available Online

In late December, the National Incident Management System (NIMS) Integration Center (NIC) launched a new NIMS Training information Web page to serve as a NIMS-related training resource during the development of a national standard curriculum. This resource currently lists only NIMS-related courses that are available through the U.S. Department of Homeland Security training entities (i.e., Emergency Management Institute, National Fire Academy), but the final curriculum will be built around all available federal training opportunities and course offerings that support NIMS implementation. The purpose of the curriculum is to clarify needed NIMS compliance

training and streamline the training approval process for courses recognized by the curriculum. Visit the Web page at [http://www.fema.gov/nims/nims\\_training.shtm](http://www.fema.gov/nims/nims_training.shtm). Questions concerning NIMS and related training issues may be directed to the NIC at [NIMS-Integration-Center@dhs.gov](mailto:NIMS-Integration-Center@dhs.gov) or (202) 646-3850.

## NIMS Compliance Assessment Tool Released

The Federal Emergency Management Agency (FEMA) and the National Incident Management System (NIMS) Integration Center (NIC) have released a Web-based self-assessment system that will allow federal, state, tribal, and local departments and agencies to evaluate their incident preparedness and response capabilities. The voluntary system, the National Incident Management Compliance Assessment Support Tool (NIMCAST), is also designed to help users determine what they need to do to comply with National Incident Management System (NIMS) requirements.

Access NIMCAST at <http://www.fema.gov/nimcast/>. For more information about NIMS and NIMCAST, contact the NIC at [NIMS-Integration-Center@dhs.gov](mailto:NIMS-Integration-Center@dhs.gov) or (202) 646-3850.

## FEMA Releases Updated *Are You Ready?*

The Federal Emergency Management Agency (FEMA) has announced the release of the updated, in-depth guide to citizen preparedness, *Are You Ready?* The guide provides a step-by-step approach to disaster preparedness by walking the reader through how to get informed about local emergency plans and identify hazards that affect their area and instructing them on how to develop and maintain an emergency communications plan and build a disaster supplies kit. Other guide topics include evacuation, emergency public shelters, animals in disaster, and information specific to people with disabilities.

To broaden the usage of the *Are You Ready?* materials, a facilitator guide is available for those interested in delivering the disaster preparedness content in a classroom or small group setting. The facilitator guide includes training modules for adults and older and younger children and contains a CD-ROM toolkit that includes customizable slides and hazard specific fact sheets. *Are You Ready?* is also a study guide for the independent study course *Are You Ready? An In-Depth Guide to Citizen Preparedness, IS-22*. College credit for successful completion of the course is available through Frederick Community College in Frederick, Maryland.

The updated guide is available from the FEMA Web site in both English and Spanish. Download a copy at <http://www.fema.gov/areyouready/>. English-only copies are also available by mail from FEMA's *Publications Warehouse* at (800) 480-2520. Access the course at <http://training.fema.gov/EMIWeb/IS/is22.asp>.

## New Emergency Preparedness Guide for Homeowners

The result of a collaborative effort between the Homeownership Alliance, a coalition of more than fifteen organizations committed to ensuring support for the

American housing system, and the U.S. Department of Homeland Security (DHS), *Emergency Preparedness Guide: Protecting Your Family and Your Home* is a new resource designed to help homeowners prepare for potential terrorist attacks and other emergencies. Produced by the Homeownership Alliance based on components of DHS' Ready campaign, the guide outlines the simple steps homeowners can take to prepare for an emergency. It includes information on emergency supplies, effective emergency plans for families, various threats homeowners may face, and resources available to homeowners through DHS, the Homeownership Alliance, and local government and community officials. In addition to being available for download on the alliance's Web site, [http://www.homeownershipalliance.com/documents/emergency\\_final\\_000.pdf](http://www.homeownershipalliance.com/documents/emergency_final_000.pdf), the nine-page guide will also be distributed through the National Association of Realtors and Habitat for Humanity International.

### Hurricanes Set Record for FEMA in 2004

The Federal Emergency Management Agency (FEMA) has reported that in 2004 the president issued 68 major disaster declarations, surpassing the previous year's total by 12 and ranking second only to the 75 issued in 1996. According to FEMA data, a record-setting 27 of these declarations were for hurricane-related damage in 15 states, Puerto Rico, and the U.S. Virgin Islands, exceeding the previous high of 19 declarations set in 1999. FEMA figures also showed that \$4.85 billion of the more than \$5.53 billion expended for disaster aid in 2004 was provided for hurricane relief, which topped the previous record of \$2.25 billion obligated for hurricane damage in 1998.



Among other major events that FEMA responded to in 2004 were winter weather, floods, tornadoes, earthquakes, Pacific storms, and wildfires. Statistically, Florida and South Carolina led the nation in the need for federal aid, with each requiring four major disaster declarations, followed by three each for New York, Ohio, Pennsylvania, Virginia, and West Virginia, and two each for Arkansas, California, Georgia, Indiana, Kansas, Kentucky, Louisiana, New Jersey, and North Carolina. To find out more, visit the "Federally Declared Disasters Archive" on FEMA's Web site at <http://www.fema.gov/library/drcys.shm>.

### U.S. Billion-Dollar Weather and Climate Disasters

The National Oceanic and Atmospheric Administration National Climatic Data Center has updated its report that tracks U.S. billion dollar weather and climate disasters from 1980 to the present. The update includes revised figures for 2003 events and new data for 2004 events. Four events made the list in 2004: Hurricanes Charley, Frances, Ivan, and Jeanne. Combined, these four storms caused at least 152 deaths and more than \$42 billion in damage.

The report is available at <http://www.ncdc.noaa.gov/oa/reports/billionz.html> along with various graphics and links to more extensive reports about each event. For more information, contact the report's authors Tom Ross ([Tom.Ross@noaa.gov](mailto:Tom.Ross@noaa.gov)) and Neal Lott ([Neal.Lott@noaa.gov](mailto:Neal.Lott@noaa.gov)) or the National Climatic Data Center, Federal Building, 151 Patton Avenue, Asheville, NC 28801; (828) 271-4800.

### Notice on Cost Share Adjustments for Disasters

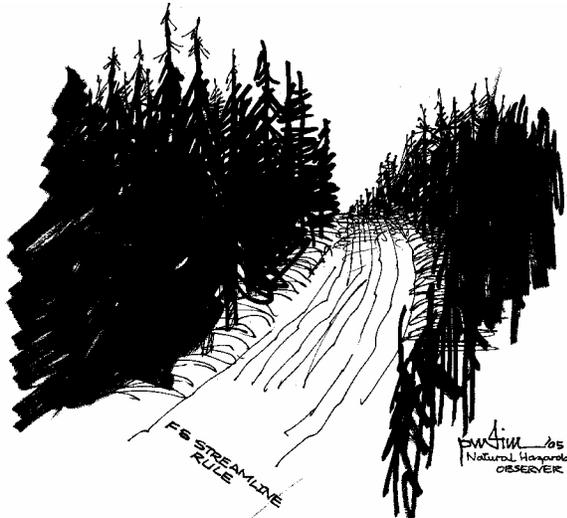
Pursuant to a final rule issued in 1999 (see the *Observer*, July 1999, p. 5), the Federal Emergency Management Agency (FEMA) annually adjusts the statewide per capita threshold used to recommend an increase of the federal cost share from 75 percent to not more than 90 percent of the eligible cost of permanent work under section 406 and emergency work under section 403 and section 407 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act). The adjustment to the threshold is based on the Consumer Price Index for All Urban Consumers published annually by the U.S. Department of Labor. For disasters declared on January 1, 2005, through December 31, 2005, the qualifying threshold is \$110 of state population. This means that if a disaster is so extraordinary that actual federal obligations under the Stafford Act, excluding FEMA administrative costs, meet or exceed \$110 per capita, FEMA may recommend a 90 percent federal/10 percent state cost-share arrangement, as opposed to the normal 75 percent/25 percent requirement.

The complete text of the notice is in the February 1, 2005, *Federal Register* (Vol. 70, No. 20, p. 5201), which can be found in any federal repository library or online at <http://www.access.gpo.gov/>. For more information, contact Magda Ruiz, Recovery Division, FEMA, 500 C Street SW, Washington, DC 20472; (202) 646-4066.

### New Planning Rule for Management of National Forests and Grasslands

To allow forest managers to adapt more quickly to changing forest conditions and emerging threats, the Forest Service has released a final rule that provides the framework for individual forest management plans governing national forests and grasslands. The rule establishes requirements for sustaining social, economic, and ecological systems and developing, amending, revising, and monitoring land management plans. The intended

effects of the rule are to streamline and improve the planning process by making plans more adaptable to changes in social, economic, and environmental conditions; to strengthen the role of science in planning; to strengthen collaborative relationships with the public and other governmental entities; and to reaffirm the principle of sustainable management consistent with the Multiple-Use Sustained-Yield Act and other authorities.



The Forest Service is developing planning directives to set forth the legal authorities, objectives, policy, responsibilities, direction, and overall guidance needed by Forest Service employees and others to use this planning rule. A request for public comment on the Forest Service directives will be published in the *Federal Register*.

The new rule can be found at <http://www.fs.fed.us/emc/nfma/> and in the January 5, 2005, *Federal Register* (Vol. 70, No. 3, pp. 1023-1061), which is available in any federal repository library or online at <http://www.access.gpo.gov/>. For additional information, contact Dave Barone, Ecosystem Management Coordination Staff, Forest Service, U.S. Department of Agriculture, Mail Stop 1104, 1400 Independence Avenue SW, Washington, DC 20250-1104; (202) 205-1019.

### Citizen Corps Partners with American Legion and American Legion Auxiliary

The U.S. Department of Homeland Security Citizen Corps has joined forces with the American Legion and the American Legion Auxiliary to help raise public awareness about the importance of emergency preparedness and volunteer service. Through these partnerships, American Legion Posts and American Legion Auxiliary Units across the nation will assist in developing local Citizen Corps Councils to involve citizens in preparedness efforts. This affiliation will also focus on engaging America's youth in hometown security, elevating Flag Day as a day of citizenship and emergency preparedness, and providing support to Veteran's Affairs Hospitals in emergency preparedness efforts. For more information about Citizen Corps, visit <http://www.citizencorps.gov/>. To learn more about the American Legion, visit <http://www.legion.org/>. And,

for more information about the American Legion Auxiliary, visit <http://www.legion-aux.org/>.

### New Alliance Aims to Enhance Public Safety

The National Oceanic and Atmospheric Administration (NOAA) is working with the National Law Enforcement Telecommunications System (NLETS) to establish a new communication link with NOAA's National Weather Service (NWS) to increase public safety through improved dissemination of weather forecasts and warnings. This relationship features a two-way link between NLETS, an interstate law enforcement network, and the NOAA Weather Wire Service, a satellite collection and dissemination system that provides timely delivery of NWS weather information products. An initial evaluation is underway. National implementation is slated for mid-2005. Visit the partners on the Web at <http://www.noaa.gov/> and <http://www.nlets.org/>.

### NOAA Introduces Web Mapping Portal

In a continuing effort to improve maritime safety and commerce and to monitor physical changes in weather, oceanographic, and river conditions, the National Oceanic and Atmospheric Administration (NOAA) has introduced nowCOAST. nowCOAST is a Web mapping portal that provides real-time coastal observations and NOAA forecasts for major U.S. estuaries and seaports, coastal regions, and the Great Lakes. The portal allows users to specify location, type of observation or forecast, variables (e.g., water level, air temperature, wave height), and time, providing rapid access to a wide range of observational and forecast information. Developed by the NOAA Ocean Service's Coast Survey Development Laboratory, nowCOAST's real-time observations include meteorological, oceanographic, hydrological, and water quality data from federal, state, and educational observing networks on land and water. For more information, visit nowCoast on the Web at <http://nowcoast.noaa.gov/> or e-mail [nowcoast.team@noaa.gov](mailto:nowcoast.team@noaa.gov).

### Call for Fifth Homeland Security Center of Excellence

The U.S. Department of Homeland Security has released a Broad Agency Announcement (BAA) calling for proposals to create a university-based Center of Excellence for the Study of High Consequence Event Preparedness and Response. This BAA invites eligible institutions and groups of investigators to form consortia capable of creating and sustaining innovative research and education in emergency preparedness, with special emphasis on acts of terrorism. The center will engage in mission-oriented research to significantly enhance the capabilities of first responders and others. The notice invites colleges and universities to submit full proposals by April 22, 2005. The BAA is accessible at <http://www1.epa.gov/spg/DON/ONR/ONR/BAA05-008/listing.html>. Read more about the Homeland Security Centers of Excellence at <http://www.dhs.gov/centersofexcellence/> (see p. 5 of this *Observer*).

## EERI Sends Teams to Indian Basin

Few natural disasters in historical times have had such far-flung, catastrophic consequences as the Sumatra earthquake of December 26, 2004, and the tsunamis generated across the Indian Ocean. The research community has been deeply affected by the devastation, the still-increasing loss of life, and the valiant response and recovery efforts undertaken by survivors and outside volunteers. On January 6, 2005, EERI's (Earthquake Engineering Research Institute) incoming president, Craig Comartin, announced an unprecedented reconnaissance effort to capture critical perishable technical data from these tsunamis.

Comartin conveyed the sadness and frustration of those throughout the earthquake community: "Our hearts are heavy for those who have suffered such profound losses. The only solace I can offer is a commitment to redouble our efforts to improve technical knowledge and raise public awareness. It is important to know that we are not completely powerless in the face of similar risks. There are measures we can take to reduce losses in future earthquakes and tsunamis."

### Initial Teams

EERI dispatched teams of tsunami and earthquake engineering experts to join other international teams throughout the affected region. These initial EERI teams included geotechnical, structural, and coastal engineers; geologists; geophysicists; and experts in fluid mechanics. One team, led by Harry Yeh of Oregon State University, surveyed the eastern coast of India. Yeh's team includes R.K. Chadha (National Geophysical Research Institute, India), Mathew Francis (URS Corporation, Hawaii), and Curt Peterson (Portland State University).

A second team traveled to Sri Lanka and then to the Maldives. It is headed by Philip Liu of Cornell University and includes Harindra Joseph Fernando (Arizona State University), Bretwood Higman (University of Washington), Bruce Jaffe (U.S. Geological Survey), Patrick Lynett (Texas A&M University), Robert Morton (U.S. Geological Survey), Costas Synolakis (University of Southern California), reporters William Hermann (*The Arizona Republic*) and Tom Paulson (*Seattle Post-Intelligencer*), and Jeff Topping (Topping Photography, Phoenix).

Both teams have gathered data on estimated wave heights, the extent of inundation, geological scouring, and other perishable information related to the physical aspects of tsunamis. They are coordinating their work with teams from Japan and Australia and with Jose Borrero (University of Southern California), who led a National Geographic team and was one of the first U.S. researchers to gain access to northern Sumatra.

A 13-member team of engineers led by EERI member Sudhir Jain, Indian Institute of Technology (IIT), Kanpur, has investigated structural damage and impacts on port facilities along the eastern coast of India as well as the Adaman and Nicobar Islands. Jain's team includes Suresh Ranjan Dash, Hermant Kaushik, Javed Malik, C.V. Murty,

Durgesh Rai, Snigdha Sanyal, Lieutenant Colonel Santosh, and Lieutenant Colonel J.S. Sodhi (all from IIT Kanpur), as well as Pratibha Gandhi (IIT Madras), Arvind Jaiswal (Hyderabad), Gautam Mondal (Tata Institute of Fundamental Research, Mumbai), and Alpa Sheth (government of Gujarat).

Jay Love of Degenkolb Engineers, chairman of EERI's Learning from Earthquakes (LFE) Committee, noted that this event poses unique challenges. "Usually we focus on a local or regional area. The geographic scope of the tsunami impact demands the best people and the best technology we can muster." Team members are traveling with the latest in digital cameras, GPS (global positioning system) units, and current satellite imagery to guide their field investigations and data gathering.

### Subsequent Teams

For 10 days beginning January 22, 2005, a joint EERI-DRC (Disaster Research Center, the University of Delaware) team focused on societal impacts in areas in India and Sri Lanka that were most severely impacted. The team has documented the impacts on communities and the region, including search and rescue operations, medical response, multinational relief, organizational response, effects on children and families, shelter and housing, and social and economic impacts. The goals were to collect perishable data, identify communities and organizations that were particularly hard-hit by these events, identify local and state agencies as well as local and international nongovernmental organizations that are taking part in the recovery and relief efforts, and make contacts with research centers in the affected nations. This effort will provide the first step in developing long-term collaborative relationships that will contribute to a better understanding of the disaster's social and physical impacts, the complexities of disaster response and relief across many nations that are coping with similar disaster problems at the same time, and issues that will affect the physical, social, and economic recovery of the region in general.

This team includes Havidán Rodríguez (DRC), James Kendra (University of North Texas), Joseph Trainor (DRC), and Tricia Wachtendorf (DRC). Primary concerns for this investigation are the absence of integrated warning systems in countries around the Indian Ocean, transnational coordination and collaboration in the provision of response assistance, the distribution of disaster relief aid and supplies, disaster vulnerability and the social and economic consequences of the tsunamis in different nations, differences in disaster response and protective action, and the impact of the disaster on children and other vulnerable groups.

DRC was the first social science research center in the world devoted to the study of disasters. For additional information on DRC, visit <http://www.udel.edu/DRC/>.

A joint EERI-TCLEE (American Society of Civil Engineers Technical Council on Lifeline Earthquake Engi-

neering) team of engineers will focus on damage to life-lines, including highways, bridges, ports and harbors, water delivery systems, wastewater treatment facilities, and other utilities. Subteam leaders in this effort will be Donald Ballantyne (ABS Consulting), Curt Edwards (Pountney Associates), and Anshel Schiff (Precision Measurement Instruments).

These reports will be compiled and published by EERI as part of the LFE Program (funded by the National Science Foundation). EERI member Bill Iwan will coordinate the investigation and report.

### Virtual Clearinghouse

EERI plans on using advanced techniques to coordinate and disseminate the data using a Web-based virtual clearinghouse. EERI member Hareesh Shah has taken the lead in putting together a "virtual" or "cyber" team composed of the following:

- Bangladesh: Jamilur Choudhury (BRAC University)
- East Africa: Badru Kiggundu (Uganda Seismic Safety Association)
- India: Sudhir Jain (IIT Kanpur) and Ravi Sinha (IIT Mumbai)
- Indonesia: Teddy Boen (World Seismic Safety Initiative)
- Malaysia: Judin Abdul Karim (government of Malaysia)
- Maldives: Abdullahi Majeed (government of the Republic of Maldives)
- Myanmar: U Thant Myint (Myanmar Engineering Society) and the director general of the Myanmar Department of Meteorology and Hydrology
- Singapore: Tso Chien Pan (Nanyang Technical University)
- Sri Lanka: Srikantha Herath (United Nations University)
- Thailand: N. Arambepola and Rajesh Sharma (Asian Disaster Preparedness Center)

In addition, Kerry Sieh of the California Institute of Technology will contribute a general write-up of the Sumatran fault, its past history, and the general seismic environment.

These individuals have been authorized to post reports on the new EERI Web site for this event. Their reports will cover one or all of the following topics:

- For tsunami-related impacts, accurate input on the time of arrival of the wave, number of waves, height of the waves, how far inland their effect was felt, data on the performance of engineered buildings to wave forces, and the main cause of failures
- Any previous historical information on tsunamis in the region
- Any past research or development on a tsunami warning system for the country of interest
- Social, economic, and political impacts of the disaster
- A GIS- (geographical information system) based map that can provide information on the location of affected sites, inundated regions, and any other geographic-based input

Mailboxes have been established on the EERI Web site for submission of additional information to these country contacts. Those who wish to contribute information or to

read reports from the field are encouraged to access the Tsunami Virtual Clearinghouse via the EERI Web site: <http://www.eeri.org/>.

The preceding article was reproduced with permission from the *Earthquake Engineering Research Institute Newsletter*, p. 1, February 2005.

*Editor's Note:* The intent of EERI's virtual clearinghouse is to facilitate information dissemination after major earthquakes. The clearinghouse is meant to be a centralized location for researchers of all disciplines to exchange event-particular data. It is a place to store data obtained directly after an earthquake as well as longer-term projects, such as presentations and papers on lessons learned. Access the virtual clearinghouse at <http://www.eeri.org/lfe/clearinghouse/>. The following reports are currently posted to the Tsunami Virtual Clearinghouse:

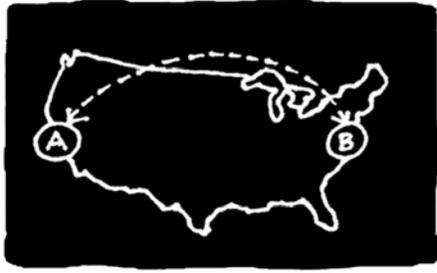
- *EERI Preliminary Reconnaissance Report on Sumatra, Indonesia.* Jose Borrero.
- *EERI Preliminary Reconnaissance Report on the South-East Indian Coast.* Harry Yeh, Curt Peterson, R.K. Chadha, G. Latha, and Toshitaka Katada.
- *EERI Preliminary Reconnaissance Report on Social Science Aspects in India.* Havidán Rodríguez, Tricia Wachtendorf, James Kendra, and Joseph Trainor.
- *EERI Preliminary Reconnaissance Report on Social Science Aspects in Sri Lanka.* Havidán Rodríguez, Tricia Wachtendorf, James Kendra, Joseph Trainor, and Ram Alagan.

## UN to Coordinate Indian Ocean Early Warning System

In response to the recent tsunami disaster in the Indian Ocean, international delegates at a special session at the United Nations' (UN) World Conference on Disaster Reduction pledged their support to create a regional tsunami early warning system in the Indian Ocean, emphasizing the importance of international and regional cooperation. The new warning system will draw from the experience of the Pacific Ocean tsunami early warning systems, making use of the existing coordination mechanism of the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific, and Cultural Organization.

The UN will be responsible for coordinating the implementation of the new system, which could be operational in a year's time. Countries from around the world have already committed national resources and technical assistance to establish the system, which is estimated to cost \$30 million.

Find out more about these efforts, their progress, and activities that support them, at the IOC's "IndoTsunami" Web site at <http://ioc.unesco.org/indotsunami/>.



# CONFERENCES AND TRAINING

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

**2005 Severe Storms and Doppler Radar Conference.** Sponsor: Central Iowa Chapter of the National Weather Association (NWA). **Des Moines, Iowa: March 31-April 2, 2005.** Sessions at this conference include a radar meteorology workshop, tornado video presentations, and discussions about tornado events and forecasting, severe thunderstorms, winter storms, and hurricanes and hurricane-spawned tornadoes. For more information, contact the *Central Iowa Chapter-NWA, PO Box 7512, Urbandale, IA 50323; e-mail: iowanwa@everythingweather.com; http://www.iowa-nwa.com/.*

**IDRA 15th Annual Conference and Trade Show.** Sponsor: International Disaster Recovery Association (IDRA). **Baltimore, Maryland: April 3-6, 2005.** This conference focuses on the telecommunication aspects of contingency planning, homeland security, infrastructure and network protection, emergency management, business continuation and disaster avoidance, and mitigation and recovery. For more information, contact the *IDRA; (508) 845-6000; http://www.idra.com/.*

**Water Law, Science, and Policy Conference.** Host: University of Nebraska-Lincoln School of Natural Resources. **Lincoln, Nebraska: April 7-8, 2005.** Sessions for this conference, "Water Management and Policy in the Great Plains: Implications of Drought and Climate Change," include "Climate Change and Drought in Western North America," "Decision Making Under Uncertainty: Water Management and Policy Instruments to Mitigate Drought and Climate Change," and "Translating Science into Policy and to the Public." For more information, contact *Steve Ress, University of Nebraska-Lincoln, Water Center/School of Natural Resources, 103 Natural Resources Hall, Lincoln, NE 68583; (402) 472-3305; e-mail: sress1@unl.edu; http://snr.unl.edu/waterconference/.*

**Development and Management of Exercises to Test Emergency Plans Seminar.** Sponsor: The Institute of Civil Defence and Disaster Studies. **Coventry, United Kingdom: April 14, 2005.** This seminar will focus on the themes of exercise development and design, use of computer generated scenarios, and managing the aftermath of

a regional exercise. For more information, contact *Mandy Tipple, Coventry Centre for Disaster Management, School of Science and the Environment, Coventry University, Coventry CV1 5FB, UK; +44 2476 887871; e-mail: A.Tipple@coventry.ac.uk; http://www.icdds.org/.*

**AIRMASS 2005.** Host: Wichita Chapter of the American Meteorological Society/National Weather Association. **Wichita, Kansas: April 14-15, 2005.** The aim of this conference is to foster the sharing of new tools, techniques, and technologies related to forecasting, warning, and response to hazardous weather conditions that affect the central United States. Such conditions include severe thunderstorms, tornadoes, floods, winter storms, and aviation hazards. For more information, contact *Brad Ketcham, National Weather Service, 2142 South Tyler Road, Wichita, KS 67209; e-mail: Brad.Ketcham@noaa.gov; http://www.wichita-amsnwa.org/index.php?display=conference.*

**First Regional Training Course on Skills for Effective Trainers.** Organizer: Asian Disaster Preparedness Center. **Bangkok, Thailand: April 18-29, 2005.** This course is designed to enable participants, specifically those working in research, teaching, management, development, and donor organizations, to effectively develop, present, and manage training programs. For more information, contact the *Training and Education Division, Asian Disaster Preparedness Center, Asian Institute of Technology, PO Box 4 Klong Luang, Pathumthani 12120, Thailand; e-mail: tedadpc@adpc.net; http://www.adpc.net/training/SET1-brochure.pdf.*

**2005 Partners in Emergency Preparedness Conference.** Organizers: Washington State Emergency Management Division, Seattle Chapter of the American Red Cross. **Bellevue, Washington: April 19-20, 2005.** This regional emergency preparedness conference in the Pacific Northwest is designed for emergency management and continuity professionals from business and industry, government, schools, and nonprofit volunteer organizations. Discussions will include crisis communications, the threat of terrorism, infrastructure resiliency, large-scale computer attacks, and virtual joint information centers. For more

information, contact *Washington State University Conferences and Professional Programs*, PO Box 645222, Pullman, WA 99164; (509) 335-3530, (800) 942-4978; e-mail: [wsuconf@wsu.edu](mailto:wsuconf@wsu.edu); <http://capps.wsu.edu/emergencyprep/>.

**Third Annual Medical Reserve Corps National Leadership Conference.** Sponsor: Medical Reserve Corps (MRC). **San Francisco, California: April 20-22, 2005.** All MRC community leaders are invited to participate in this networking and knowledge-sharing conference to share promising practices, ideas, and strategies. For more information, visit <http://www.medicalreservecorps.gov/index.cfm?MRCaction=Home.NationalConference2005>.

**Fire-Rescue Med 2005.** Organizer: International Association of Fire Chiefs (IAFC). **Las Vegas, Nevada: April 20-22, 2005.** Designed to address the essential issues facing the emergency medical services industry today, this conference aims to sharpen leadership skills, tackle system challenges, and provide networking opportunities. Attendees will include EMS chiefs/directors, EMS providers, fire chiefs/commissioners, paramedics, emergency medical technicians, firefighters, emergency managers, company-level officers, public health professionals, and EMS physicians. Preconference sessions are scheduled for April 18 and 19. For more information, contact the *IAFC*, 4025 Fair Ridge Drive, Fairfax, VA 22033; (703) 273-0911; <http://www.iafc.org/conferences/frm/>.

**Wildland Fire Safety Summit (2005): Human Factors Ten Years Later.** Sponsor: International Association of Wildland Fire (IAWF). **Missoula, Montana: April 25-28, 2005.** This summit will focus on the role of human factors in wildland firefighter safety. Attendees will review the impacts of the 1994 Human Factors Workshop and develop recommendations for the future. Presentations will cover the culture of wildland firefighting, the role of leadership in wildland firefighting, the physiological and sociological aspects of wildland firefighting, new tools and technology for wildland firefighting, and more. For more information, contact the *IAWF Safety Summit*, University of Montana, Continuing Education-EMP, 32 Campus Drive, Missoula, MT 59812; (406) 243-2979; <http://www.iawfonline.org/summit/>.

**Working Together: Research and Development Partnerships in Homeland Security.** Sponsor: U.S. Department of Homeland Security Science and Technology Directorate. **Boston, Massachusetts: April 27-28, 2005.** This conference will focus on state-of-the-art research and development to anticipate, prevent, respond to, and recover from high-consequence chemical, biological, radiological, nuclear, explosives, and cyberterrorism events. It aims to encourage research and development partnerships among scientists and engineers from government, national laboratories, universities and research institutes, and private sector firms. For more information, visit <http://www.homelandsecurityresearchconference.org/>.

**Seismological Society of America Annual Meeting.** Host: Nevada Seismological Laboratory. **Incline Village,**

**Nevada: April 27-29, 2005.** Among the topics to be explored at this conference are earthquake source physics, the seismic hazard of the Great Basin, predicting ground motions, promoting public earthquake safety, advances in signal processing methods for seismic data analysis, and the September 28, 2004, Parkfield earthquake. Field trips are planned for April 29 and 30. For more information, contact *John G. Anderson*, Nevada Seismological Laboratory, University of Nevada, Reno, NV 89557; (775) 784-4265; e-mail: [jga@seismo.unr.edu](mailto:jga@seismo.unr.edu); <http://quake.seismo.unr.edu/ssa2005/>.

**4th UCLA Conference on Public Health and Disasters.** Sponsor: University of California, Los Angeles (UCLA) Center for Public Health and Disasters. **Woodland Hills, California: May 1-4, 2005.** This multidisciplinary conference brings together academicians, researchers, practitioners, and policy makers from public health, mental health, community disaster preparedness and response, social sciences, government, media, and nongovernmental organizations in a forum that promotes a dialogue and exchange of ideas for improving public health emergency preparedness, mitigation, response, and recovery. For more information, contact *Andrea Core*, UCLA Center for Public Health and Disasters, 1145 Gayley Avenue, Suite 304, Los Angeles, CA 90024; (310) 794-0864; e-mail: [acore@ucla.edu](mailto:acore@ucla.edu); <http://www.cphd.ucla.edu/conf2005.html>.

**The Salvation Army North American Disaster Training Conference.** Organizer: The Salvation Army. **Orlando, Florida: May 8-12, 2005.** This conference, the largest Salvation Army event dedicated exclusively to emergency disaster services, offers delegates opportunities to participate in certified disaster training programs and discuss key issues in emergency preparedness and response. The 2005 conference will introduce The Salvation Army's new National Disaster Training Program and conference delegates will be among the first Salvation Army disaster workers to be certified under the new training standards. For more information, contact *The Salvation Army*, 2005 North American Disaster Training Conference, 1424 Northeast Expressway, Atlanta, GA 30329; <http://www.salvationarmyusa.org/>.

**14th World Congress on Disaster and Emergency Management.** Sponsor: World Association for Disaster and Emergency Medicine. **Edinburgh, Scotland: May 10-16, 2005.** More than 1,000 delegates from around the world are expected to attend this congress to exchange ideas and discuss advances in disaster and emergency medicine. Topics include civilian/military collaboration in disaster medicine and relief, children in disasters, politics and disaster, and rural emergency medical services. A mass-gathering emergency exercise will immediately precede the congress. For more information, contact *Concorde Services*, 4B 50 Speirs Wharf, Port Dundas, Glasgow G4 9TB Scotland, UK: +44 141 331 0123; e-mail: [info@wcdem2005.org](mailto:info@wcdem2005.org); <http://www.wcdem2005.org/>.

**Risk Communication Challenge: Proven Strategies for Effective Risk Communication.** Sponsor: Harvard School

of Public Health: Center for Continuing Professional Education, Center for Risk Analysis. **Boston, Massachusetts: May 11–13, 2005.** Using formal lectures and case-method teaching, this program will teach participants how to effectively communicate about risk. Subject matter will include risk perception, the news media and risk, mental models, and application of techniques. The course is designed for professionals in business, industry, law, advocacy or citizens' organizations that deal with risk issues, and government officials who make and/or communicate about risk management policy. For more information, contact the *Harvard School of Public Health Center for Continuing Professional Education, CCPE-Department A, 677 Huntington Avenue, Boston, MA 02115; (617) 384-8692; e-mail: contedu@hsph.harvard.edu; http://www.hsph.harvard.edu/ccpe/programs/RCC.shtml.*

**World Water and Environmental Resources Congress.** Organizer: The Environmental and Water Resources Institute of the American Society of Civil Engineers (ASCE). **Anchorage, Alaska: May 15-19, 2005.** One of the largest gatherings of environmental and water resource professionals, this congress will feature technical paper presentations, plenary sessions, panel discussions, local tours, and an exhibit hall. Discussions will include global climate change and its environmental and water impacts and a wide variety of other environmental and water resources issues. For more information, contact the *ASCE, 1801 Alexander Bell Drive, Reston, VA, 20191; (703) 295-6300, (800) 548-2723; e-mail: conferences@asce.org; http://www.asce.org/conferences/ewri2005/.*

**Continuity Insights Management Conference 2005.** Sponsor: *Continuity Insights Magazine.* **New Orleans, Louisiana: May 16-18, 2005.** In this conference the discussion of continuity strategies will take center stage. Plenary sessions will focus on leadership, enterprise-wide planning, security, and more and will be complemented by numerous breakout sessions, workshops, and special events. For more information, contact *Expo Trac, PO Box 1280, Woonsocket, RI 02895; (401) 766-4142; http://www.ContinuityInsights.com/.*

**SismoAdobe2005: International Seminar on Architecture, Construction, and Conservation of Earthen Buildings in Seismic Areas.** Organizers: Catholic University of Peru (PUCP), Proterra, Earthquake Engineering Research Institute, Getty Conservation Institute. **Lima, Peru: May 16-19, 2005.** This seminar for architects, civil engineers, restoration experts, researchers, educators, construction technicians, public administrators, and architecture and engineering students will bring together specialists from around the world to discuss the state of the art in architecture, construction, and conservation of earthen buildings and historical monuments in seismic areas. For more information, contact *Nicola Tarque, Pontificia Universidad Católica del Perú, Departamento de Ingeniería, Avenida Universitaria, Cuadra 18, San Miguel, Lima 32, Perú; (511 1) 626 2000 x4614; e-mail: tarque.sn@pucp.edu.pe; http://www.pucp.edu.pe/eventos/SismoAdobe2005/.*

**First Regional Training Course on Exercise Management.** Organizer: Asian Disaster Preparedness Center. **Bangkok, Thailand: May 16-20, 2005.** The purpose of this course is to provide emergency and disaster management organizations with tools and a process to evaluate the status and validity of their plans, organizational relationships, capabilities, and strategies in managing emergencies and disasters. For more information, contact the *Training and Education Division, Asian Disaster Preparedness Center, Asian Institute of Technology, PO Box 4 Klong Luang, Pathumthani 12120, Thailand; e-mail: tedadpc@adpc.net; http://www.adpc.net/training/SET1-brochure.pdf.*

**1st Alexander von Humboldt International Conference on the El Niño Phenomenon and Its Global Impact.** Sponsors: European Geosciences Union (EGU), International Research Center on El Niño. **Guayaquil, Ecuador: May 16-20, 2005.** El Niño-Southern Oscillation (ENSO) will be the focal point of this conference. Topics will include ENSO in history, recent major El Niño events and their impacts, ENSO prediction, El Niño and global warming, and socioeconomics. For more information, contact the *EGU Office, c/o Alexander von Humboldt, Max-Planck-Strasse 13, D-37191 Katlenburg-Lindau, Germany; +49 (5556) 1440; e-mail: egu@copernicus.org; http://www.copernicus.org/EGU/topconf/avh1/.*

**6th National Hydrologic Warning Council Conference and Exposition.** Sponsors: ALERT Users Group, Southwestern Association of ALERT Systems, ALERT-Flows East Coast Users Group. **Sacramento, California: May 17-20, 2005.** The largest conference in the United States devoted specifically to flood warning systems, technologies, and preparedness, this event will provide up-to-date information on preparing communities for flood events. Specifically, it will offer a wide range of technical sessions and workshops; provide information on the support provided by federal and state agencies and research institutions for local flood warning programs; provide an opportunity to see the latest flood warning equipment, products, and services; and provide a forum for networking. For more information, visit *http://www.udfcd.org/Nhwc/* or *http://www.alertsystems.org/.*

**Contingency Planning and Management (CPM) 2005 West.** Sponsor: CPM Group. **Las Vegas, Nevada: May 24-26, 2005.** This conference is an educational event dedicated to professionals charged with business continuity/continuity of operations planning, emergency management, and security. The program features over 70 technical sessions, special workshops, a disaster simulation, and preconference training certifications. For more information, contact *CPM 2005 West, 20 Commerce Street, Flemington, NJ 08822; (908) 788-0343 x132; e-mail: CPM2005@WitterPublishing.com; http://www.contingencyplanningExpo.com/.*

**2005 National Flood Conference: Tides of Change; Reforming the NFIP.** Host: Federal Emergency Management Agency. **Marco Island, Florida: May 31-June 3,**

**2005.** This conference is intended for anyone involved in the National Flood Insurance Program. For more information, contact *Catherine King*, 2005 National Flood Conference, 7700 Hubble Drive, Lanham, MD 20706; (301) 918-1439; e-mail: *CatherineR.King@associates.dhs.gov*; <http://www.fema.gov/nfip/2005conf.shtm>.

**NFPA World Safety Conference and Exposition.** Sponsor: National Fire Protection Association (NFPA). **Las Vegas, Nevada: June 6-10, 2005.** The feature presentation at this conference will be the National Institute of Standards and Technology's findings on the World Trade Center fire and collapse. In addition, more than 140 education sessions will be offered in areas such as building and life safety, business management, codes and standards, detection and suppression, disaster management/business continuity, fire and emergency response, public education, and research. For more information, contact *NFPA Registration, c/o Exgenex Inc., 437 Turnpike Street, Canton, MA 02021*; (888) 397-6209; <http://www.nfpa.org/>.

**ASFPF 2005 Annual Conference.** Organizer: Association of State Floodplain Managers (ASFPF). **Madison, Wisconsin: June 11-17, 2005.** Planners, engineers, consultants, watershed managers, educators, and others will gather with government officials at this annual floodplain management conference. Over 150 industry experts will conduct sessions, sharing state-of-the-art techniques, programs, resources, materials, equipment, accessories, and services related to flood mitigation, watershed management, and other community goals. For more information, contact the *ASFPF, 2809 Fish Hatchery Road, Madison, WI 53713*; (608) 274-0123; e-mail: *memberhelp@floods.org*; <http://www.floods.org/Conferences,%20Calendar/madison.asp>.

**AOGS 2005.** Host: Asia Oceania Geosciences Society (AOGS). **Singapore: June 20-24, 2005.** AOGS 2005 will provide a forum for sharing, debate, and professional networking. Just as the American Geophysical Union and European Geosciences Union conferences serve the North American and European geosciences communities, AOGS 2005 will serve the Asia/Oceania region. It aims to bring together scientists from around the world to develop partnerships and share accumulated knowledge and experience. For more information, contact *Cheng-Hoon Khoo, AOGS, Secretariat Office, Meeting Matters International, 5 Toh Tuck Link, Singapore 596224*; +65 6466 5775; e-mail: *kch@meetmatt.net*; <http://www.asiaoceania-conference.org/>.

**22nd International Tsunami Symposium.** Host: Institute of Geodynamics, National Observatory of Athens. **Chania, Greece: June 27-29, 2005.** The program of this symposium will include all aspects of tsunami science and technology, such as physics, statistics, engineering, hazards and risk assessment, numerical simulations, geological studies, instrumental warning systems, disaster prevention and mitigation, and public awareness and education. Three special sessions are also scheduled: "Tsunamis

in the Mediterranean and European Seas," "Tsunami Technology and Society," and "The Indian Ocean Big Earthquake and Tsunami of 26 December 2004." Papers and abstracts are due May 10, 2005. For more information, visit <http://www.gein.noa.gr/English/tsunamis.htm>.

**The 15th World Conference on Disaster Management (WCDM): The Changing Face of Disaster Management; Defining the New Normal.** Sponsor: The Canadian Centre for Emergency Preparedness. **Toronto, Canada: July 10-13, 2005.** The WCDM addresses issues common to all aspects of disaster/emergency management. The program includes speakers from many parts of the world and provides opportunities for training and networking for those in emergency planning/ management, emergency response, disaster management research, business continuity, risk management, security, information technology, human resources, and environmental services, as well as for the organizations that supply and service these professions. A major goal is to offer a program that challenges delegates by examining traditional concepts and methods and provides new ideas and approaches to problem solving and both leading-edge and topical presentations. For more information, contact *Adrian Gordon*; e-mail: *agordon@ccep.ca*; <http://www.wcdm.org/>.

**International Conference on Energy, Environment, and Disasters: Bridging the Gaps for Global Sustainable Development.** Sponsor: Global Institute for Energy and Environmental Systems (GIEES) at the University of North Carolina at Charlotte. **Charlotte, North Carolina: July 24-30, 2005.** This conference, organized by the International Society of Environmental Geotechnology, the Global Alliance for Disaster Reduction, and UNESCO, is expected to draw more than 800 researchers, corporate officials, policy makers, teachers, and students from around the world. Discussions will focus on advancing global sustainable development through efficient/effective programs, research, and policy in the areas of energy, environment, and disasters. Abstracts are due March 30, 2005. For more information, contact *Erin LaBarge, c/o GIEES, CARC-Room 238, University of North Carolina at Charlotte, 9201 University City Boulevard, Charlotte, NC 28223*; (704) 687-2182; e-mail: *giees@email.uncc.edu*; <http://www.iseg.giees.uncc.edu/inceed2005/>.

**Fire-Rescue International 2005.** Sponsor: International Association of Fire Chiefs. **Denver, Colorado: August 11-13, 2005.** This year's program is structured to meet the needs of every fire service leader, from the up and coming company officer to the seasoned chief. The workshops will cover some of the toughest challenges fire service leaders face, including firefighter health and safety, the fire chief's role in homeland security, violence at fire and emergency scenes, and evaluating visible smoke and fire conditions. For more information, contact the *IAFC, 4025 Fair Ridge Drive, Fairfax, VA 22033*; (703) 273-0911; <http://www.iafc.org/conferences/fril>.

**APCO International's 71st Annual Conference and Exposition.** Organizer: Association of Public-Safety Com-

munications Officials International (APCO). **Denver, Colorado: August 21-25, 2005.** This event is designed for decision makers in the area of public safety communications and will feature an educational forum, including the most current and cutting-edge presentations on homeland security and public safety communications technology. For more information, contact APCO, 351 North William-son Boulevard, Daytona Beach, FL 32114; (386) 322-2500, (888) 272-6911; e-mail: [apco@apco911.org](mailto:apco@apco911.org); <http://www.attendancemarketing.com/MS/MS11/page.php>.

**Third International Conference on River Basin Management, Including All Aspects of Hydrology, Ecology, Environmental Management, Flood Plains, and Wetlands.** Organizer: Wessex Institute of Technology. **Bologna, Italy: September 6-8, 2005.** The purpose of this conference is to bring together practicing engineers, environmental managers, and academics to discuss recent advances in the management of riverine systems, including advances in hydraulic and hydrologic modeling, environmental protection, and flood forecasting. For more information, contact Rachel Green, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton SO407AA, UK; +44 238 029 3223; e-mail: [rgreen@wessex.ac.uk](mailto:rgreen@wessex.ac.uk); <http://www.wessex.ac.uk/conferences/2005/rm05/>.

**The Sixth Asia-Pacific Conference on Wind Engineering (APCWE-VI).** Organizers: Wind Engineering Institute of Korea, Korea Advanced Institute of Science and Technology. **Seoul, Korea: September 12-14, 2005.** The APCWE conferences are held every four years as the regional conference of the International Association of Wind Engineering. The main objective of the conference is to exchange wind engineering information among scientists and engineers from around the world. This year the conference will focus on "Emerging Technologies in Wind Engineering." For more information, contact Secretariat, APCWE VI, c/o TP Conference Consultants, PO Box 33, Yuseong, Daejeon 305-600, Korea; +82 42 869 8451; e-mail: [apcwe@bomun.kaist.ac.kr](mailto:apcwe@bomun.kaist.ac.kr); <http://apcwe-vi.kaist.ac.kr/apcwemain.htm>.

**IABSE Symposium: Structures and Extreme Events.** Sponsor: International Association for Bridge and Structural Engineering (IABSE). **Lisbon, Portugal: September 14-16, 2005.** Notwithstanding the remarkable progress in the last decades regarding the development of structural codes and methods of analysis, it is still difficult to respond appropriately to extreme events, which today remain a last frontier in structural engineering. This conference will stimulate structural engineers to give more thought to such problems and provide information and guidance on how to deal with them. For more information, contact IABSE Lisbon 2005, Organizing Committee, c/o LNEC, Av. Brasil, 101, P-1700-066 Lisbon, Portugal; +351 21 844 3260; e-mail: [iabse.lisbon2005@lnec.pt](mailto:iabse.lisbon2005@lnec.pt); <http://www.iabse.ethz.ch/conferences/lisbon2005/>.

**The 15th Mexican National Conference on Earthquake Engineering.** Sponsor: The Mexican Society for Earthquake Engineering. **Mexico City, Mexico: September**

**16-19, 2005.** "Mexican Earthquake Engineering 20 years after the September 19, 1985 Earthquake: What Have We Accomplished?" is the theme of this conference, which is designed for anyone interested in earthquake engineering research, teaching, design, and construction. It will bring together professionals from multiple disciplines committed to reducing the impact of earthquakes on the built and natural environment, including geology, seismology, geophysics, geotechnical engineering, structural engineering, architecture, emergency response planning, and regulation. For more information, contact María Antonieta Rico-López, Sociedad Mexicana de Ingeniería Sísmica, A.C., Camino Sta. Teresa No 187, Local 9, Col. Parques del Pedregal, Delegación Tlalpan, 14020 México, D.F., México; +(52 55) 5606 1314; e-mail: [smis@data.net.mx](mailto:smis@data.net.mx); <http://www.smis.org.mx/>. To access information in English, click on "Eventos próximos," "XV Congreso Nacional de Ingeniería Sísmica."

**Kuwait First Remote Sensing Conference and Exhibition.** **Kuwait: September 26-28, 2005.** This conference is an opportunity for scientists, engineers, professionals, program managers, experts, and policy makers from the Middle East and North Africa to explore the trends and achievements in remote sensing, exchange ideas, and present and discuss recent developments and applications. The conference is designed to meet the scientific, technical, and business needs of the remote sensing community. Abstracts are due June 30, 2005. For more information, contact Promedia International; e-mail: [info@promedia-international](mailto:info@promedia-international.com); <http://www.kuwaitremotesensing.com/>.

## NFPA 1600 Workshops

The National Fire Protection Association (NFPA) is offering a series of two-day workshops on *NFPA 1600: Standard on Disaster/Emergency Management and Continuity Programs* throughout the United States to help employers in the private and public sectors prepare disaster plans. Sponsored in partnership with the U.S. Department of Homeland Security's Public Sector Office and New York University's International Center for Enterprise Preparedness, the workshops are designed for developing new emergency management and business continuity programs and assessing and enhancing existing ones for potential hazards like hurricanes, tornadoes, utility or technology emergencies, workplace violence, and terrorism. Sessions address evacuation, adequate communications capabilities, and continuity of operations.

For more information, including a list of dates and locations and a link to register online, visit <http://www.nfpa.org/> and click on "Learning/Professional Development/NFPA Seminars" or call (800) 344-3555.



# INTERNET PAGES

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

## Tsunami

<http://www.colorado.edu/hazards/tsunami2004.html>

Following the devastating Indian Ocean tsunami of December 26, 2004, the Natural Hazards Center posted this list of resources to provide the hazards and disasters community, as well as other interested individuals, with ready access to information about the event itself, relief efforts, and general background information.

[http://ioc.unesco.org/itsu/categories.php?category\\_no=63](http://ioc.unesco.org/itsu/categories.php?category_no=63)

The UNESCO Intergovernmental Oceanographic Commission's tsunami warning system in the Pacific has set up a public tsunami warning listserv. Subscribe here to receive Pacific tsunami warnings via e-mail.

<http://www.thoughtweb.com/relief/>

The Pacific Disaster Center and Thoughtweb Inc. have created this Web site to facilitate information sharing and collaboration regarding the ongoing relief efforts pertaining to the Indian Ocean tsunami disaster. The objective of the site is to provide personalized and highly relevant, up-to-date knowledge and situation awareness so users can be effective and efficient in doing what they can to support the tsunami relief and recovery effort.

[http://www.rms.com/Publications/SumatraInsuredLoss\\_RMSwhitepaper.pdf](http://www.rms.com/Publications/SumatraInsuredLoss_RMSwhitepaper.pdf)

This Risk Management Solutions report *Estimating Losses from the 2004 Southeast Asia Earthquake and Tsunami* sets out the main lines of business that will be affected by the 2004 South Asian tsunami, identifies the key drivers of insured losses, and estimates their magnitude.

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5403a1.htm>

A recent issue of the Centers for Disease Control and Prevention's *Morbidity and Mortality Weekly Report* features this article, "Rapid Health Response, Assessment, and Surveillance After a Tsunami: Thailand, 2004-2005."

<http://mceer.buffalo.edu/research/tsunami/page1.asp>

As part of a multilateral reconnaissance team (United States, Thailand, and Japan), the Multidisciplinary Center for Earthquake Engineering Research is investigating the effects of the tsunami disaster in Thailand. Their report, *Preliminary Field Report: Post-Tsunami Urban Damage Survey in Thailand, Using the VIEWS Reconnaissance System*, is available here.

<http://www.adpc.net/infores/dsituation/webtsunami/documents/LLinpics.pdf>

This report from the Asian Disaster Preparedness Center, *Lessons Learned from the Tsunami Event, December 26, 2004, Case of Sri Lanka*, uses photographs as well as text to illustrate lessons learned.

## All Hazards

<http://www.fema.gov/fima/bp.shtm>

The Federal Emergency Management Agency's Mitigation Best Practice Portfolio is now live. This portfolio is a collection of ideas, activities, projects, and funding sources that can help reduce or prevent the impacts of disasters. This Web page also invites users to submit their own mitigation best practices for review and possible inclusion in the portfolio.

<http://www.nosa.noaa.gov/>

The National Oceanic and Atmospheric Administration (NOAA) has developed a new Web site for its NOAA Observing System Architecture (NOSA) that offers a comprehensive description of all of NOAA's observing systems and their inter-

relationships. The geospatial information of more than 80 observing systems has been collected into a geospatial database that forms the basis for the geospatial capabilities of the Web site. Additional information on the new Web site includes details about the NOSA project and related documents.

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

The United Nation's World Food Programme has created this new Web site to monitor natural hazards around the world and help the international community anticipate humanitarian crises. HEWSweb (Humanitarian Early Warning Service) is updated daily with forecasts from a range of specialized institutions on droughts, floods, tropical storms, earthquakes, and more rare events, such as El Niño. It represents an interagency partnership project aimed at establishing a common platform for humanitarian early warnings and forecasts for natural hazards and sociopolitical developments worldwide.

<http://www.tallytown.com/redcross/educate.html>

The Capital Area Chapter of the American Red Cross in Tallahassee, Florida, has prepared this comprehensive library of disaster education, preparedness, planning, and mitigation articles, brochures, fact sheets, checklists, and publications from a wide variety of sources to support disaster preparedness and planning activities in the home, neighborhood, workplace, school, and community.

<http://www.riskinstitute.org/cgi-bin/ubb/ultimatebb.cgi>

The Public Entity Risk Institute has posted these "Issues and Ideas Papers" from their recent Benchmarking for Continuous Improvement in Risk Management symposium.

<http://www.ilankelman.org/disasterdeaths.html>

This Web site features a compilation of literature covering the causes and circumstances of disaster-related deaths. The current focus is on studies that examine individual fatalities from disasters involving environmental phenomena. Comments and additions are encouraged and should be sent to [ilan\\_kelman@hotmail.com](mailto:ilan_kelman@hotmail.com).

<http://159.121.112.22/hazards/hazards.html>

The goal of Oregon's Department of Land Conservation and Development's Natural Hazards Program is to provide for protection of people and property from natural hazards through sound land use planning. In addition to a special section on emergency preparedness, the main sections of the department's new Web site feature four natural hazards common to Oregon: floods, landslides, earthquakes, and wildfires.

[http://publications.paho.org/english/dead\\_bodies.pdf](http://publications.paho.org/english/dead_bodies.pdf)

This report from the Pan American Health Organization, *Infectious Disease Risks from Dead Bodies Following Natural Disasters*, is of particular interest in light of the recent tsunami disaster.

<http://www.nvoad.org/ManagingSpontaneousVol.pdf>

The National Voluntary Organizations Active in Disaster Volunteer Management Committee's *Managing Spontaneous Volunteers in Times of Disaster: The Synergy of Structure and Good Intentions* provides a basis for developing a national strategy for working with unaffiliated volunteers and is based on an analysis of effective practices and models.

<http://www.ssri.hawaii.edu/research/GDWwebsite/pages/proceeding.html>

The proceedings from last summer's Gender Equality and Disaster Risk Reduction Workshop in Honolulu, Hawaii, are now available online, including presentations, posters, background resource materials, participant profiles, regional commentaries, and the call to action.

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

Last-First Networks is a nonprofit resource center dedicated to advancing effective community renewal and grassroots development. Their Web site, Tools for Change, has a searchable catalog of over 11,000 resources for community renewal, social change, peace building, aid and development practice, microenterprise, advocacy, and more.

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

The GeoCommunity is a portal for geospatial technology professionals, a gathering place for geographic information systems, CAD, mapping, and location-based industry professionals, enthusiasts, and students. Visit the site for spatial news and up-to-date information about software, careers, events, and more.

<http://www.nfpa.org/categoryList.asp?categoryID=279>

As part of its commitment to enhancing public safety through the adoption and enforcement of key ANSI codes and standards, the National Fire Protection Agency is making several of its documents available for review online at no cost.

## Earthquakes

<http://www.asc-india.org/>

The Amateur Seismic Centre is an independent Web site that was created to provide information about earthquakes on the Indian subcontinent.

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

The World Seismic Safety Initiative (WSSI) is an undertaking of the International Association for Earthquake Engineering. WSSI is a nonprofit, nongovernmental venture designed to promote the spirit and goals of the International Decade for Natural Disaster Reduction and to act as a catalyst in helping nations improve their earthquake risk management strategies.

<http://1906centennial.org/>

The 1906 Earthquake Centennial Alliance was formed to commemorate San Francisco, California's legendary quake. The alliance unites policy makers, scientists, engineers, historians, teachers, and emergency responders in an exploration of lessons learned and risk reduction measures. More information about the alliance, the participants, and planned activities is available at this site.

<http://peer.berkeley.edu/Archive/News/parkfield04.htm>

This page on the Pacific Earthquake Engineering Research Center's Web site features a multitude of links to information about the 2004 Parkfield earthquake.

[http://www.eeri.org/lfe/pdf/japan\\_niigata\\_eeri\\_preliminary\\_report.pdf](http://www.eeri.org/lfe/pdf/japan_niigata_eeri_preliminary_report.pdf)

The report *Preliminary Observations on the Niigata Ken Chuetsu, Japan, Earthquake of October 23, 2004* is the latest installment in the Earthquake Engineering Research Institute's Learning from Earthquakes Program.

<http://www.rms.com/Publications/KobeRetro.pdf>

Risk Management Solutions has released *1995 Kobe Earthquake 10-Year Retrospective* (Kobe, Japan).

## Climate Change

[http://unfccc.int/meetings/cop\\_10/items/2944.php](http://unfccc.int/meetings/cop_10/items/2944.php)

The Tenth Session of the Conference of Parties (COP 10) was held in December 2004 in Buenos Aires, Argentina, marking the 10th anniversary of the entry into force of the Framework Convention on Climate Change. Discussions highlighted a range of climate-related issues, including the impacts of climate change and adaptation measures, mitigation policies and their impacts, and technology. The decisions adopted by COP 10 are available on this Web site.

## Severe Weather

<http://www.unep.or.jp/ietc/wcdr/unep-tokage-report.pdf>

The United Nations Environment Programme has released *Environmental Management and Disaster Preparedness: Lessons Learnt from the Tokage Typhoon (Typhoon 23 of 2004) in Japan*.

<http://www.nhc.noaa.gov/pastall.shtml>

This Web page on the National Hurricane Center's site features an archive of information related to past hurricane seasons and includes links to hurricane season tropical cyclone reports that contain comprehensive information on individual storms, including synoptic history, meteorological statistics, casualties and damage, and the postanalysis best track.

<http://www.ncdc.noaa.gov/oa/climate/research/2004/ann/ann04.html>

The National Oceanic and Atmospheric Administration National Climatic Data Center has released *Climate of 2004: 2004 in Historical Perspective*. Contents of the report include major highlights from 2004, global analysis, ENSO conditions, U.S. and global significant events, U.S. drought, and U.S. summary.

<http://www.rms.com/Publications/CycloneTracy30YrRetro.pdf>

Risk Management Solutions has released *Cyclone Tracy 30-Year Retrospective* (Darwin, Australia).

<http://www.westgov.org/wga/publicat/nidis.pdf>

This report, *Creating a Drought Early Warning System for the 21st Century: The National Integrated Drought Information System*, is the first product to result from a partnership between the Western Governors' Association and the National Oceanic and Atmospheric Administration, which was created to develop a vision and recommendations for establishing an improved drought monitoring and forecasting system.

## Floodplain Management

<http://www.fema.gov/pdf/fima/fema467-6-10-04.pdf>

Issued by the Federal Emergency Management Agency in May 2004, this floodplain management bulletin is written in a FAQ (frequently asked questions) format to clarify the elevation certification process as it pertains to new and substantially improved structures within the floodplain.

## Fire

<http://www.usfa.fema.gov/statistics/reports/pubs/seasonal.shtm>

The Federal Emergency Management Agency (FEMA) has issued a special report examining the causes and severity of seasonal fires attributed to changes in weather patterns and human activities. The report, *The Seasonal Nature of Fires*, was developed by the National Fire Data Center, part of FEMA's U.S. Fire Administration. It explores fire patterns by each season of the year, including changes in incidence and causes of all types of fires.

<http://www.westgov.org/wga/initiatives/fire/tempe-report04.pdf>

The Western Governors' Association (WGA) has sent to the secretaries of the U.S. Departments of the Interior and Agriculture this report from the WGA's Forest Health Advisory Committee on the progress made and improvements needed in the implementation plan of the 10-Year Comprehensive Wildfire Strategy.

<http://www.iafc.org/grants/documents/codes.pdf>

Early in 2004, the International Association of Fire Chiefs convened two emerging building codes issues roundtables to develop strategies for enacting code changes with an emphasis on life safety and fire threat reduction in nightclubs and other places of public assembly. This publication reports the outcomes of those roundtables.

## Homeland Security and World Trade Center

<http://hsdec.org/>

The Homeland Security/Defense Education Consortium is a network of teaching and research institutions focused on promoting education, research, and cooperation related to and supporting the homeland security/defense mission. The consortium is committed to building and maintaining a community of higher education institutions supporting this mission and the overall homeland security effort through the sharing and advancement of knowledge.

<http://www.nyc.gov/html/doh/pdf/wtc/wtc-report2004-1112.pdf>

The New York City Department of Health and Mental Hygiene released its fifth quarterly report on data collected as part of the World Trade Center Health Registry. Earlier reports are available at <http://www.nyc.gov/html/doh/html/pub/pub.html?t=wtc>.

[http://memory.loc.gov/ammem/collections/911\\_archive/](http://memory.loc.gov/ammem/collections/911_archive/)

Initiated by the American Folklife Center at the Library of Congress, the "September 11, 2001, Documentary Project" captures heartfelt reactions, eyewitness accounts, and diverse opinions shared in the months that followed the terrorist attacks. This online presentation features almost 200 audio and video interviews, 45 graphics, and 21 written narratives. The complete collection is available at the American Folklife Center Reading Room at the Library of Congress in Washington, DC.

## Public Health and Bioterrorism

<http://www.publichealthlaw.net/Resources/BTlaw.htm>

The Center for Law and the Public's Health has released three checklists for voluntary use by county, city, state, and federal public health agencies in assessing their legal preparedness for public health emergencies. The checklists are "Civil Legal Liability and Public Health Emergencies," "Interjurisdictional Legal Coordination for Public Health Emergency Preparedness," and "Local Government Public Health Emergency Legal Preparedness and Response."

<http://www.ahrq.gov/research/btpreplist.htm>

Subscribe to the Agency for Healthcare Research and Quality's (AHRQ) listserv to receive concise descriptions of findings from AHRQ's published research; announcements about new products and tools; and updates on initiatives, meetings, and other key developments in bioterrorism planning and response.





# 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/>.

**Older Adult Decision Making During Hurricane Hazard Preparation.** Funding: National Science Foundation, one year. Principal Investigator: *Christopher Mayhorn, North Carolina State University, 2701 Sullivan Drive, Suite 240, Raleigh, NC 27695; (919) 515-2444; e-mail: chris\_mayhorn@ncsu.edu.*

Recognizing a critical need for research that investigates the needs of older adults in preparing for natural hazards such as hurricanes (e.g., evacuate or shelter-in-place), this principal investigator seeks to answer three questions: How do older adults (aged 65+) differ from younger adults in how they make decisions regarding hurricane hazard preparation? Do age-related factors (i.e., cognitive, social, physical) interact to limit hazard preparation and potentially hinder warning compliance with protective action recommendations? And does frequent, repeated exposure to previous hurricanes influence risk perception, which in turn may determine how factors are weighted during subsequent decision making? This research promises to significantly increase understanding of age-related vulnerability during natural disasters and provide useful information for the updating of warning and communication systems that are not designed with older adults in mind and may pose a systematic risk to this traditionally underrepresented population.

**Morphological Impacts and Poststorm Recovery of Hurricanes Charley, Frances, and Ivan, Florida Gulf Coast.** Funding: National Science Foundation, one year. Principal Investigator: *Ping Wang, University of South Florida, 4202 Fowler Avenue, Tampa, FL 33620; (813) 974-5465; e-mail: pwang@chuma1.cas.usf.edu.*

This study aims to quantify the morphological and sedimentological impacts of the recent hurricanes along the barrier islands of Florida's Gulf Coast. It will be conducted at three areas that were significantly impacted by the hurricanes: Captiva Island, the west-central barrier-island chain, and the panhandle barrier-island chain from Fort Walton Beach to St. George Island. The following scientific questions will be addressed: How does a barrier island respond to, and thereafter recover from, single and multiple storm impacts with and without being washed over? How do human activities influence the storm impact and recovery? What are the characteristics of the storm

deposits and what are the factors controlling their spatial distribution? And, what are the key parameters that need to be quantified to improve our ability to predict storm impact and recovery?

**Medical Emergency Disaster Response Network.** Funding: National Library of Medicine, six months, \$100,000. Principal Investigator: *Daniel J. Reiningger, Semandex Networks Inc., 201 Washington Road, Princeton, NJ 08540; e-mail: dan@semandex.net.*

The purpose of this project is the development of a proof-of-concept prototype for a Medical Emergency Disaster Response Network (MEDRN) that will enable better resource planning and logistic coordination among organizations involved in medical emergency disaster services: emergency medical services, fire and police departments, hospitals, local authorities, etc. Semandex Networks has developed an XML based content-routing technology, which will be used to implement the MEDRN prototype, that reduces the number of "information breaks" within an organization and across organizations by allowing information to flow from providers to users without requiring the parties to know one another. Project components include system requirements analysis, network topology design, MEDRN prototype development, system testing under a simulated scenario, and system evaluation.

**Understanding the Origin of Low-Frequency Earthquakes: The Key to Forecasting Volcanic Hazard.** Funding: Natural Environment Research Council, three years, £180,359. Principal Investigator: *Jurgen Neuberg, Earth Sciences, School of Earth and Environment, The University of Leeds, Leeds LS2 9JT, UK; e-mail: J.Neuberg@earth.leeds.ac.uk.*

This project is aimed at the investigation of possible trigger mechanisms for low-frequency seismic events on volcanoes. The occurrence of these signals has been used as a forecasting tool on several volcanoes. Attempts in waveform modeling can explain the seismic wave propagation in and around the conduit, and a successful link has been made to derive magma properties such as pressure and gas content from seismic signals. However, the trigger mechanism, which kicks off the pressure perturbation in the first place, is unknown. This research will be based

on a database from the ongoing eruption on Montserrat. Numerical modeling will be employed to evaluate a variety of physical trigger mechanisms, which will be tested against seismic data and other observational constraints. The final goal is to develop a model that explains the generation of a single low-frequency event as well as a prolonged earthquake swarm.

**Effects of Social Identity on Responses to Emergency Mass Evacuation.** Funding: Economic and Social Research Council, three years, £185,130. Principal Investigator: *John Drury, Department of Psychology, University of Sussex, Pevensey Building, Falmer BN1 9QG, UK; e-mail: j.drury@sussex.ac.uk.*

Previous psychological theory has mostly suggested that emergency mass evacuations characteristically take the form of irrational panic. At the same time, there is much research evidence of coordination and mutual helping behavior among crowds of people even in life-threatening situations. This research proposes a theoretical framework explaining the conditions under which emergency mass evacuations might take the form of either individualized panic or collective cooperation. Research methods will include interviews and experiments. Findings will feed into the theory and practice of crowd safety and management and will be presented to crowd safety and management organizations and others involved in design and crowd flow in public spaces.

## EPA Calls for Proposals on Global Change and Human Health

The U.S. Environmental Protection Agency (EPA) Office of Research and Development, National Center for Environmental Research, and National Center for Environmental Assessment, in cooperation with the EPA Global Change Research Program, announce an extramural funding competition supporting assessment of the consequences for human health of global change, including climate, climate variability, land use, economic development, and technology. Under the Global Change Research Act of 1990, the U.S. Climate Change Science Program is required to undertake scientific assessments of the potential consequences of global change for the United States. The EPA is interested in research leading to the development of decision support systems that can incorporate information about the consequences of global change on human health in order to aid state and local public health agency efforts to ameliorate these impacts.

It is anticipated that six grants, totaling approximately \$2.7 million (depending on the availability of funds), will be funded under this announcement. The projected award per grant is up to \$150,000 per year, for up to three years. Requests for amounts in excess of a total of \$450,000, including direct and indirect costs, will not be considered. The total project period for an application submitted in response to this announcement may not exceed three years. Funding in subsequent years will be contingent upon satisfactory progress.

The deadline for applications is March 29, 2005. Find out more at [http://es.epa.gov/ncer/rfa/2005/2005\\_decision\\_support\\_sys.html](http://es.epa.gov/ncer/rfa/2005/2005_decision_support_sys.html), or contact *Darrell Winner* at (202) 343-9748 or [winner.darrell@epa.gov](mailto:winner.darrell@epa.gov).

## Summer Research Institute for Undergraduates

The National Science Foundation recently awarded funding to the Disaster Research Center at the University of Delaware to establish a Research Experience for Undergraduates (REU) site. The purpose of the REU program is to provide hands-on research training and mentoring to undergraduate students regarding the social science aspects of disasters. Each year, 10 students from a wide variety of social science disciplines will be selected to participate in a nine-week summer institute. All transportation and lodging expenses will be covered for the student participants, who will also receive a generous stipend for the summer. Students who have attained junior-level standing at their home institutions are invited to apply. Students who are underrepresented in graduate schools, such as minorities and women, in particular, are especially encouraged to apply. Applications for this summer's institute are due April 1, 2005. Notifications will be made by April 15. Program details, guidelines, and application materials can be found online at <http://www.udel.edu/DRC/>.

## Cooperating Technical Partners Program Grants

One of the key objectives of the Federal Emergency Management Agency's (FEMA) Map Modernization Plan is to increase local involvement in, and ownership of, the flood mapping process. To meet this objective, FEMA created the Cooperating Technical Partner (CTP) program to create partnerships between FEMA and state, local, and regional agencies that are interested in and capable of playing active roles in FEMA's Flood Hazard Mapping program (see the *Observer*, November 2004, p. 8).

A grants notice was published in January that estimated total program funding at \$50 million. The application deadline is April 29, 2005. Read the notice at <http://www.fedgrants.gov/Applicants/DHS/DHSWIDE/DHSLOC/97%26%23046%3B045/Grant.html>. For more information, contact *Daphne Thornton* at (202) 646-4019 or [daphne.thornton@dhs.gov](mailto:daphne.thornton@dhs.gov) or visit the CTP on the Web at [http://www.fema.gov/fhm/ctp\\_main.shtm](http://www.fema.gov/fhm/ctp_main.shtm).



# RECENT PUBLICATIONS

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

## All Hazards

**Know Risk.** ISBN 92-1-132024-0. 2005. 376 pp. \$125.00. Available from *Know Risk, Tudor Rose, Tudor House, 6 Friar Lane, Leicester LE1 5RA, UK; +44 116 222 9900; e-mail: subscribe@tudor-rose.co.uk; http://www.know-risk.org/.*

Published for and on behalf of the United Nations, this publication features 160 authors who describe their work in disaster reduction. Their commentaries draw upon experiences around the world to reflect how people are living with natural, environmental, and technological risks and the efforts they are taking to reduce their exposure to disasters. It reflects the progress in this field over the past 10 years, highlighting good practices and drawing on the International Strategy for Disaster Reduction coordinated review of the Yokohama Strategy and Plan of Action for a Safer World (1994). By focusing on the experiences and livelihoods of people in vulnerable human habitats, this book emphasizes the benefits of experience leading into future actions and institutional commitments to disaster reduction.

**Surviving Extreme Events: A Guide to Help Small Businesses and Not-for-Profit Organizations Prepare for and Recover from Extreme Events.** Daniel J. Alesch and James N. Holly. 2004. 80 pp. \$23.00. Available as a PDF on CD-ROM from the *Public Entity Risk Institute, 11350 Random Hills Road, Suite 210, Fairfax, VA 22030; (703) 352-1846; http://www.riskinstitute.org/.*

**Surviving Extreme Events** is a guide for business counselors and trainers. It focuses on how owners of small businesses and managers of not-for-profit organizations can increase the chances that they and their organizations will financially survive extreme events, such as natural hazards, willful acts of destruction, and large accidents. The CD-ROM also includes a PowerPoint training presentation (110 slides) and the report *Organizations at Risk: What Happens When Small Businesses and Not-for-Profits Encounter Natural Disasters* (2001, 108 pp.), which examines what sets apart those small businesses that recover from those that fail after a disaster.

**Jane's Citizen's Safety Guide.** Sonayia Shepherd, John B. Copenhaver, Robert Marston Fanney, Rennie Campbell, Adrian Dwyer, and Jessica Duda. ISBN 0-7106-2661-4. 2004. 213 pp. \$27.00. Available from *Jane's Information Group, 110 North Royal Street, Suite 200, Alexandria, VA 22314; (703) 683-3700, (800) 824-0768; e-mail: info.us@janes.com; http://www.janes.com/.*

Intended for citizen emergency response volunteers and emergency volunteer trainers as well as those involved in emergency management, fire and rescue, emergency medical services, law enforcement, public health, and local, state, and federal government, this all-hazards guide features emergency procedures and checklists for before, during, and after incidents such as natural disasters, mechanical accidents, and human-caused emergencies, including terrorism. It also focuses on critical needs, such as communicating with children, dealing with loss, handling the media, and providing volunteer assistance.

**Natural Disasters and Sustainable Development.** Riccardo Casale and Claudio Margottini, editors. ISBN 3-540-42199-8. 2004. 397 pp. \$169.00. Available from *Springer New York, 233 Spring Street, New York, NY 10013; (212) 460-1500; e-mail: service-ny@springer-sbm.com; http://www.springeronline.com/.*

This book reviews the lectures given at the European Commission's Advances Study Course on natural disasters and sustainable development in September 1998. Through an in-depth discussion of the complexity of natural disasters, it highlights the different aspects and problems related to an all-hazards approach, analyzes and compares practices, elaborates on future strategies, and identifies future needs.

**Disaster Readiness and Response.** 2004. 140 pp. \$40.00. Available from the *International City/County Management Association (ICMA), PO Box 931897, Atlanta, GA 31193; (770) 442-8631, x377, (800) 745-8780; http://bookstore.icma.org/.*

This publication is a compilation of articles from ICMA publications about how local government practitioners can work together to prepare and respond to emergencies, natural and human-induced disasters, and security threats. Topics include performing risk assessments, implementing homeland security measures, communicating with citizens during times of crises, leveraging resources, and coordinating with other agencies and jurisdictions.

**Disaster Resources Handbook.** 2004. \$6.00. Available on CD-ROM from *Eric Evans, University of Missouri-Columbia, Fire and Rescue Training Institute, 204 Heinkel Building, Columbia, MO 65211; (573) 884-8984, (800) 869-3476; e-mail: evanses@missouri.edu. http://www.muftri.org/.*

Paid for by a grant from the U.S. Department of Agriculture in collaboration with the Extension Disaster Education Network, this CD-ROM features a compilation of disaster information. It contains detailed documents, fact sheets, and Web links from across the United States.

**The Economics of Natural Hazards.** Howard Kunreuther and Adam Rose, editors. ISBN 1-84064-815-5. 2004. 1,040 pp. \$380.00. Available from *Edward Elgar Publishing, 136 West Street, Suite 202, Northampton, MA 01060; (413) 584-5551; e-mail: kwight@e-elgar.com; http://www.e-elgar.com/.*

Through previously published papers, this two-volume set investigates the impact of natural disasters on national and regional economies. Volume I considers the effects of the perception of risk and of direct losses and explores the costs of reducing the impact of disasters by, for example, forecasting, self-protection, and the building of physical structures. Volume II deals with mitigating the costs of disaster through insurance, including financial coverage for catastrophic loss, and investigates the development of private-public partnerships for managing disasters and the problems of reconstruction and recovery. A final section addresses the particular problems of disasters in developing countries.

**Disaster Dictionary: The Definitive Guide to Related Terms, Acronyms, and Concepts for Emergency Planning and Operations.** Daniel J. Biby. ISBN 0-9727134-4-1. 2004. 250 pp. \$42.95. Available from K&M Publishers, (918) 499-3959, (800) 831-4210; e-mail: sales@kmpub.com; <http://www.kmpub.com/>.

The purpose of this reference book is to establish a terminology foundation for all types of natural and human-induced emergencies, enabling public safety professionals to speak the same language, regardless of their agency affiliations and backgrounds. Appendices highlight weapons of mass destruction, the Incident Command System, and Web-based resources.

**Management of Dead Bodies in Disaster Situations.** ISBN 92-75-12529-5. 2004. 190 pp. \$28.00. Available from the Pan American Health Organization Sales and Distribution Center, PO Box 27, Annapolis Junction, MD 20701; (301) 617-7806, (800) 472-3046; e-mail: sales@paho.org; <http://publications.paho.org/>. Download a copy for free at <http://www.paho.org/English/DD/PED/DeadBodiesBook.pdf>.

A diverse group of experts contributed to this manual, which analyzes the role of national governments in coordinating and carrying out a series of processes for the effective management of disaster-related mass fatalities. This manual is directed towards specialists in disasters and in management of human remains, especially national and local authorities who are responsible for ensuring that bodies are treated in a dignified manner and that the human rights of those affected by disasters are respected.

**Accident Precursor Analysis and Management: Reducing Technological Risk Through Diligence.** James R. Phimister, Vicki M. Bier, and Howard C. Kunreuther, editors. ISBN 0-309-53220-5. 2004. 220 pp. \$38.00. A PDF version is \$24.00 (may be read online 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/>.

In the aftermath of catastrophes it is common to find prior indicators, missed signals, and dismissed alerts that, had they been recognized and appropriately managed before the event, could have resulted in the undesired event being averted. These indicators are typically called "precursors." This report documents various industrial and academic approaches to detecting, analyzing, and benefiting from accident precursors and examines public- and private-sector roles in the collection and use of precursor information. It includes the analysis, findings, and recommendations of the authoring committee as well as individually authored background papers on precursor analysis and management, risk assessment, risk management, and the linking of risk assessment and management.

## Earthquakes and Tsunami

**Earthquakes and Animals: From Folk Legends to Science.** Motoji Ikeya. ISBN 981-238-591-6. 2004. 316 pp. \$78.00. Available from World Scientific Publishing, 27 Warren Street, Suite 401-402, Hackensack, NJ 07601; (800) 227-7562; e-mail: sales@wspc.com; <http://www.worldscientific.com/>.

Those who survive major earthquakes often report the occurrence of mysterious phenomena beforehand: unusual animal and plant behavior, lightning, strange clouds, and malfunctioning electrical appliances. In fact, these stories are legendary the world over. But are they merely legends? Are the many people who report them just superstitious or suffering from over-active imaginations? Written for both the general public and scientists, this book brings objective science to bear on these old legends, adds to the science of earthquake prediction, and cautiously suggests a new field of study: electromagnetic seismology.

**An Assessment of the B.C. Tsunami Warning System and Related Risk Reduction Practices: Tsunamis and Coastal Communities in British Columbia.** Peter S. Anderson and Gordon A. Gow. ISBN 0-662-38748-1. 2004. 75 pp. Available free from Public Safety and Emergency Preparedness Canada, 340 Laurier Avenue West, 12th Floor, Ottawa, Ontario K1A 0P8, Canada; (613) 944-4875; e-mail: communications@psepc-sppcc.gc.ca; [http://www.ocipep.gc.ca/research/resactivities/CI/2003-D001\\_e.asp](http://www.ocipep.gc.ca/research/resactivities/CI/2003-D001_e.asp).

The threat of tsunamis along the west coast of Canada prompted the federal government and the province of British Columbia (BC) to participate with other members of the international community in the Pacific Tsunami Warning System (PTWS). The BC Tsunami Warning System is a regional component of the PTWS that consists of three functional subsystems for detection, emergency management, and public response. Together these critical links establish a three-stage detection and dissemination network to alert local populations along the BC coast to the threat of a potential or imminent tsunami. This report provides a baseline assessment of the tsunami warning system and related risk reduction practices in BC and offers a series of conclusions that could be used to strengthen them.

## Weather and Meteorological Services

**2004 Hurricane Response: Initial Impressions Report (IIR) from Hurricanes Charley, Frances, and Ivan.** 2004. 56 pp. Available free online from the Wildland Fire Lessons Learned Center, c/o NAFRI, 3265 East Universal Way, Tucson, AZ 85706; (520) 799-8760; e-mail: pnasiatka@fs.fed.us; [http://myfirecommunity.net/documents/Hurricane\\_Response\\_IIR\\_Final.pdf](http://myfirecommunity.net/documents/Hurricane_Response_IIR_Final.pdf).

This report is a collection of lessons learned and initial impressions from the deployed wildland fire resources that participated in the response effort for Hurricanes Charley, Frances, and Ivan. Conducted by the Wildland Fire Lessons Learned Center at the invitation of the U.S. Forest Service Southern Regional Office, the purpose of the report was to gather information for training, document agreed upon best practices, identify knowledge gaps, and illuminate issues of strategic or organizational significance to better prepare future all-risk response teams.

**The Federal Plan for Meteorological Services and Supporting Research Fiscal Year 2005.** Frank Estis and Blaine Tsugawa, editors. FCM-P1-2004. 2004. 248 pp. Available free online from the Office of the Federal Coordinator for Meteorology (OFCM), 8455 Colesville Road, Suite 1500, Silver Spring, MD 20910; (301) 427-2002; e-mail: ofcm.mail@noaa.gov; <http://www.ofcm.noaa.gov/fp-fy05/fedplan.htm>.

OFCM's 2005 federal plan provides a comprehensive compilation of proposed meteorological services and support for meteorological and related research by agencies of the federal government for fiscal year (FY) 2005 and a review of agency programs in FY 2004. Features include an executive summary that provides a high-level view of the federal resources dedicated to meteorological programs and the achievements of those programs; a discussion of meteorological risk management; a summary of the resources requested in the president's FY 2005 budget, compared with the resources appropriated by Congress for FY 2004; and departmental and agency narratives on programs for providing meteorological services and supporting research and development.

**Flash Flood Forecasting Over Complex Terrain: With an Assessment of the Sulphur Mountain NEXRAD in Southern California.** National Research Council of the National Academies. ISBN 0-309-09316-3. 2005. 206 pp. \$34.25. Available free online from the National Academies Press, 500 Fifth Street NW, Box 285, Washington, DC 20055; (202) 334-3313, (800) 624-6242; <http://www.nap.edu/>.

In early 2004, the Committee to Assess NEXRAD Flash Flood Forecasting Capabilities at Sulphur Mountain, California, was formed to assess the effectiveness of Next Generation Radars (NEXRAD) in complex terrain, which support the National Weather Service in its task of forecasting heavy precipitation events and issuing flash flood forecasts, watches, and warnings. The committee conducted a specific analysis of the Sulphur Mountain NEXRAD located in Ventura County, California, and considered how flash flood forecasting could be improved for other NEXRADs sited in complex terrain. This report contains the committee's findings that there is little basis for concern regarding the operational effectiveness of the radar and makes recommendations for improving flash flood forecasting and warnings throughout the country.

## Water Resources

In the Water Resources Development Act of 2000, Congress asked the National Academies to review the U.S. Army Corps of Engineers' (Corps) planning and project review practices. Five panels were convened by the National Research Council, four of which considered different dimensions of Corps planning: peer review, methods of planning and analysis, river basin and coastal systems planning, and adaptive management. The fifth panel served as a coordinating committee to follow the progress of the panels and write a report synthesizing their findings and recommendations. The five reports resulting from this study are listed below and 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/>. These reports may be read online for free.

**Review Procedures for Water Resources Project Planning.** ISBN 0-309-50559-3. 2002. 110 pp. \$13.00 (\$8.50 in PDF).

**Analytical Methods and Approaches for Water Resources Project Planning.** ISBN 0-309-53130-6. 2004. 165 pp. \$31.00 (\$19.50 in PDF).

**River Basins and Coastal Systems Planning Within the U.S. Army Corps of Engineers.** ISBN 0-309-53238-8. 2004. 184 pp. \$42.50 (\$26.50 in PDF).

**Adaptive Management for Water Resources Project Planning.** ISBN 0-309-53154-3. 2004. 138 pp. \$27.50 (\$17.00 in PDF).

**U.S. Army Corps of Engineers Water Resources Planning: A New Opportunity for Service.** ISBN 0-309-53244-2. 2004. 122 pp. \$19.50 (\$12.50 in PDF).

## Wildfire

**Tending Fire: Coping with America's Wildland Fires.** Stephen J. Pyne. ISBN 1-55963-565-7. 2004. 240 pp. \$25.00. Available from Island Press, University of Chicago Distribution Center, 11030 South Langley Avenue, Chicago, IL 60628; (800) 621-2736; e-mail: [custserv@press.uchicago.edu](mailto:custserv@press.uchicago.edu); <http://www.islandpress.org/>.

In order to better manage fires that we do not want and promote those that we do, this author argues the need to begin with context. He provides this context for understanding fire and humanity by recounting the history of ideas about fire during European expansion and the creation of fire-prone public lands, examining the effects wrought by policies such as "letting burn," suppressing, and prescribing burns, and providing an analysis of the current politics of fire. Once the context is in place, the author calls for wildfire management reform, including a more biological theory of fire, and suggests directions that may be taken to tend fires of the future.

## Global Change

**Global Change and the Earth System.** Will Steffen, Angelina Sanderson, Peter Tyson, Jill Jäger, Pamela Matson, Berrien Moore III, Frank Oldfield, Katherine Richardson, H. John Schellnhuber, B.L. Turner II, and Robert Wasson. ISBN 3-540-40800-2. 2004. 336 pp. \$129.00. Available from Springer New York, 233 Spring Street, New York, NY 10013; (212) 460-1500; e-mail: [service-ny@springer-sbm.com](mailto:service-ny@springer-sbm.com); <http://www.springeronline.com/>.

The interactions between environmental change and human societies have a long, complex history spanning many millennia, but they have changed fundamentally in the last century. Human activities are now so pervasive and profound that they are altering the Earth in ways that threaten the very life support system upon which humans depend. This book describes what is known about the Earth system and the impact of changes caused by humans. It considers the consequences of these changes with respect to the stability of the Earth system and the well-being of humankind and explores future paths towards Earth system science in support of sustainability.

**United Nations Framework Convention on Climate Change: The First Ten Years.** ISBN 92-9219-010-5. 2004. 99 pp. Available free online from the Climate Change Secretariat (UNFCCC), Martin-Luther-Ling-Strasse 8, 53175 Bonn, Germany; +49 228 815 1000; e-mail: [secretariat@unfccc.int](mailto:secretariat@unfccc.int); [http://unfccc.int/essential\\_background/background\\_publications\\_htmlpdf/items/2625.php](http://unfccc.int/essential_background/background_publications_htmlpdf/items/2625.php).

The United Nations Framework Convention on Climate Change came into force 10 years ago to address the issue of climate change. Since then, climate change and its potential threats have become more visible and the convention and the Kyoto Protocol have laid a foundation for a concerted response. This publication looks at recent emissions trends and prospects, sets the stage for future policies by considering how climate change concerns fit in with strategies for sustainable development, considers ways of both combating climate change and adapting to it, and explains the significance of the Kyoto Protocol and the implications for the next generation of climate change policies.

## Avalanches

**Snow, Weather, and Avalanches: Observational Guidelines for Avalanche Programs in the United States.** ISBN 0-9760118-0-8. 2004. 136 pp. \$20.00 (may be read online for free). Available from the American Avalanche Association, PO Box 2831, Pagosa Springs, CO 81147; (970) 946-0822; e-mail: [aaa@avalanche.org](mailto:aaa@avalanche.org); <http://www.americanavalancheassociation.org/>.

This document contains a set of guidelines for observing and recording snow, weather, and avalanche phenomena. It was prepared for programs that contain some type of avalanche forecasting operation and is intended to serve as a professional reference for individuals with professional avalanche experience and training. Printable forms and conversion tables used in the document are available for free on the Web site.

## Disaster Mental Health and Public Health

**Disaster Psychiatry: Intervening When Nightmares Come True.** Anand Pandya and Craig Katz, editors. ISBN 0-88163-418-2. 2004. 280 pp. \$29.95. Available from The Analytic Press, 101 West Street, Hillsdale, NJ 07642; (201) 358-9477; e-mail: [TAP@analyticpress.com](mailto:TAP@analyticpress.com); <http://www.analyticpress.com/>.

This book examines the state of disaster psychiatry in the aftermath of the terrorist attacks of September 11, 2001. Its editors have compiled first-person narratives from psychiatrists who have encountered disasters at various stages of their career and in widely varying social, political, and personal contexts to illustrate the challenge and promise of disaster psychiatry. The challenges addressed in these essays vary from the intense emotional responses that are part of the aftermath of any disaster to the need to legitimize a psychiatric presence within diverse cultural and medical contexts to the subtle task of providing therapeutic boundaries at a time when all rules seem to be suspended.

**Ready or Not? Protecting the Public's Health in the Age of Bioterrorism.** Shelley A. Hearne, Laura M. Segal, Michael J. Earls, and Patti J. Unruh. 2004. 66 pp. Available free online from the Trust for America's Health (TFAH), 1707 H Street NW, 7th Floor, Washington, DC 20006; (202) 223-9870; e-mail: [info@tfah.org](mailto:info@tfah.org); <http://healthyamericans.org/reports/bioterror04/>.

TFAH's second annual study of preparedness for public health emergencies found that, despite incremental progress, preparedness is still lagging behind goals and expectations and, three years after September 11, 2001, there is still a long way to go to protect the American people from a bioterrorism attack. The report examined 10 key indicators to gauge state preparedness and determine America's overall readiness to respond to bioterrorist attacks and other health emergencies. With most states still in the middle range of the scale, and no states meeting all of the indicators, there are still major areas of vulnerability that leave Americans at risk.

## GAO Reports

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

*Homeland Security: Further Actions Needed to Coordinate Federal Agencies' Facility Protection Efforts and Promote Key Practices.* GAO-05-49. 2004. 84 pp.

*Homeland Security: Agency Plans, Implementation, and Challenges Regarding the National Strategy for Homeland Security.* GAO-05-33. 2005. 189 pp.

*Wildland Fire Management: Important Progress Has Been Made, but Challenges Remain to Completing a Cohesive Strategy.* GAO-05-147. 2005. 32 pp.

## Ten Years of ASPEP Journals

The American Society for Professional Emergency Planners (ASPEP) was established in 1972 by the graduating class of the Career Development Program for Civil Defense Directors at the Federal Staff College in Battle Creek, Michigan. When the Federal Training Center moved to the Emergency Management Institute in Emmitsburg, Maryland, the annual meetings were conducted during the annual Conference of the U.S. Civil Defense Council, subsequently called the National Coordinating Council on Emergency Management (NCCEM) and now called the International Association of Emergency Managers (IAEM).

The primary goal of ASPEP was to foster professionalism and encourage continuing education in emergency management. In 1994, ASPEP initiated the publication of a professional journal, designed to publish practitioners in a professional publication. Over the past several years, the ASPEP leadership has recognized parallels and duplicative efforts between ASPEP and IAEM. The decision was made to gracefully dissolve ASPEP and transfer their activities into IAEM.

A CD-ROM containing all the journals from 1994 through 2004 is now available for \$20.00 through the IAEM merchandise Web site at <http://iaem.com/about/Merchandise/description.htm>. The funds will be used to establish a similar journal through the IAEM Communications Committee. Questions can be directed to Valerie Quigley at [vquigley@ibl.gov](mailto:vquigley@ibl.gov).

## Gender Broadsheet Released

The Gender and Disaster Network has developed a set of broad principles for promoting gender equality in disaster response and reconstruction. It comes with the knowledge that putting women and girls at the center is not divisive or secondary, but vital to the larger agenda of constructing more just, sustainable, and disaster-resilient communities. It also comes in hopes of sharing some of

the hard lessons learned from "small" disaster events, which occur just beyond the camera lens, and from decades of local organizing by women around the world for environmental and social justice. The gender broadsheet, "Gender Equality in Disasters: Six Principles for Engendered Relief and Reconstruction" is available online at [http://online.northumbria.ac.uk/geography\\_research/gdn/resources/genderbroadsheet.doc](http://online.northumbria.ac.uk/geography_research/gdn/resources/genderbroadsheet.doc). For more information about the Gender and Disaster Network and links to other gender and disaster-related resources, visit [http://online.northumbria.ac.uk/geography\\_research/gdn/](http://online.northumbria.ac.uk/geography_research/gdn/).

## Mary Fran Myers Award

The Gender and Disaster Network and the Natural Hazards Center invite nominations of individuals working in the hazards field who should be recognized for "efforts to advance women's careers in emergency management and the academy, and for promoting gendered disaster research." Established in 2002, the Mary Fran Myers Award recognizes that vulnerability to disasters and mass emergencies is influenced by social, cultural, and economic structures that marginalize women and girls. The award was so named to recognize Myers' sustained efforts to launch a worldwide network among disaster professionals for advancing women's careers and for promoting research on gender issues, disasters, emergency management, and higher education.

The intent of this award is to recognize people whose program-related activities, advocacy efforts, or research has had a lasting, positive impact on reducing hazards vulnerability for women and girls. The award committee is especially interested in soliciting nominations from countries outside the United States. People whose work adds to the body of knowledge on gender and disasters, is significant for the theory and/or practice of gender and disasters, or has furthered opportunities for women to succeed in the hazards fields are eligible to receive the award. To nominate someone:

- Submit the full name and contact information (mailing address, e-mail, telephone, and fax) of both nominee and nominator.
- Provide a maximum 500-word description of specific examples of how the nominee's work fits the award criteria mentioned above.
- Provide a resume/CV of the nominee that reflects his/her commitment to gendered research and the promotion of women's involvement in the field.
- Provide a personal statement from the nominee indicating willingness to be considered.
- Provide no more than one letter of support, not to exceed one page, from another person or organization that supports the nomination.

Direct questions and submit these materials (e-mail attachment preferred) by June 1, 2005, to Betty Hearn Morrow, 8215 SW 140 Avenue, Miami, FL 33183 USA; (305) 385-5953; e-mail: [morrowb@fiu.edu](mailto:morrowb@fiu.edu).

## The Natural Hazards Center

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER was founded to strengthen communication among researchers and the individuals and organizations concerned with mitigating natural disasters. The Hazards Center is funded by the National Science Foundation, the Federal Emergency Management Agency, the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Department of Transportation, the U.S. Bureau of Reclamation, the U.S. Forest Service, the National Aeronautics and Space Administration, the Centers for Disease Control and Prevention, the Institute for Business & Home Safety, and the Public Entity Risk Institute. Please send information of potential interest to the Hazards Center or the readers of this newsletter to the address below. The deadline for the next *Observer* is *March 23, 2005*.

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

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