NATURAL HAZARDS Observer

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The Great American Weather War

—an invited comment

For decades, the weather community has debated whether government should provide weather products and services for the broader public good or those in the private sector should be allowed to sell them in the marketplace. When should government provide a service and when should it share the job?

When conflicts arise between government and the private sector, one tried-and-true response is to convene a committee. In the case of disagreement over roles and responsibilities between government weather forecasters and their private sector counterparts, one such committee concluded:

> The organic act under which the Weather Bureau still functions was written at a time long before the present developments and applications of the science to business and industry could have been envisioned. It is necessary that a redefinition of functions be made to recognize the changes since that time. . . The Weather Bureau sometimes loses sight of the point where government should stop in providing specialized service.

The year? 1953. The report? ***Weather is the Nation's Business***, written by an advisory committee to the U.S. Department of Commerce.

Fifty years later, in 2003, the National Research Council (NRC) released a report, also sponsored by the Department of Commerce, titled ***Fair Weather: Effective Partnerships in Weather and Climate Services*** and written to evaluate public-private policies established in 1991. The report concludes that the current policy governing the roles and responsibilities of government and the private sector is "untenable." It observes that although the "policy does not work as intended, . . . a [new] policy is necessary—one that emphasizes processes for interactions among the sectors and takes account of newer federal government laws and policies." Two primary recommendations are that the National Weather Service (NWS) should:

- replace its 1991 public-private partnership policy with one that defines *processes* for making decisions on products, technologies, and services, rather than one that rigidly defines the roles of the NWS and the private sector; and
- establish an independent advisory committee to provide ongoing advice on weather and climate matters.

In addition, the report recommends that relevant academic, state, and private organizations seek a neutral host, such as the American Meteorological Society (AMS), to provide a venue to discuss issues related to public-private partnerships.

Differing Perspectives

Despite a separation of 50 years, the recommendations of the two reports are quite similar, and each document marks a significant event in the "great American weather war" that has been waged between government and industry over the past half century. Reactions to the NRC report suggest a possible rapprochement. The Commercial Weather Services Association (CWSA) and the University Corporation for Atmospheric Research (UCAR)—a consortium of universities—announced support for the report. The AMS responded positively to the recommendation that it take a more active role, announcing the establishment of a committee "to study the possible responses, seeking input from all of the various constituencies that make up the Society." These responses suggest cause for optimism.

At the same time, responses to the NRC report also indicate that conflict continues. One of the issues that remains unresolved is who should have the authority to perform specific functions within the weather and climate enterprise.

The CWSA notes in its response:

- The elimination of some NWS products and services will allow the agency to better focus on its core mission. There is concern over the agency's liberal use and lack of policies concerning dissemination over the Internet.
- The NRC Committee found a lack of control over the actions of NWS offices and their provision of products and services
- Extensive observation networks have been established by the private sector, partially in response to growing discontent with the NWS operated networks.

Contrast this with the following from the UCAR statement:

- A level playing field can be defined as a system in which all government-supported data, information and products, including forecasts and warnings, are made available to everyone at no cost or minimal cost. The development of the Internet has made this far more feasible than it was in the past.
- Universities and research laboratories such as [UCAR] and NOAA's Forecast Systems Laboratory are developing spinoff companies or commercial endeavors from their intellectual property that compete with the private sector.
- It is an open question whether developing a complete and independent observing and forecasting system and thereby competing fully with the NWS would be the optimal use of private or academic resources.

These statements underscore obvious differences regarding questions such as: Should there be limits to what NWS can share over the Internet? Are stronger controls needed over NWS activities, academia, or the national labs? What is the significance of the proliferation of observational networks, products, and services?

The Market and Weather Policy

The NRC report offers no answers to these questions, but instead suggests a new process toward finding workable solutions. Some argue that a new process is unnecessary because economics theory of "public goods" provides a venue for resolving disputes, and thus frees the community from the difficult task of achieving consensus. Public goods are those products that benefit an entire population, such as public schools or national defense, and that are offered to everyone, not just those who can pay for them.

Unfortunately, economic theory cannot resolve the conflict for two reasons. First, the government not only issues raw weather data, but also adds value to data by transforming it into information, knowledge, and services, thus creating considerable potential for conflict. For example, the provision of basic data for one sector (e.g., forecasts for general aviation), plausibly *within the domain* of governmental provision according to economic theory, might simultaneously be in conflict with the value-added output of a private company (e.g., one that turns government weather observations into proprietary forecasts for sale to the general aviation industry), and hence plausibly *outside the domain* of governmental provision.

In such a complex setting, so long as government adds any

value to basic data, determination of appropriate activities becomes a political and policy question. Such judgments cannot be resolved through economic theory, even though opposing parties often invoke it to justify their competing perspectives.

The NRC report concluded that no formal process exists to make decisions about roles and responsibilities in particular cases. This lack of a process results in ad hoc or politically motivated decision making. For instance, when one NWS office recently began issuing products and services using wireless technology, some in the private sector complained, prompting a NWS review. All three actions were done in an ad hoc manner.

A second reason why economic theory provides few answers lies in the dual mandate of the NWS, to protect life and property and to support the nation's economic infrastructure. These twin mandates often conflict. For example, there is no reason in principle why the private sector could not issue public warnings for hazardous weather. However, U.S. policy has always defined protection of life and property as a public function, irrespective of any economic benefits that might be gained from privatization. This complicates a situation in which the NWS is also expected to support economic activity through the provision of general forecasts.

A New Approach

There is no magic bullet solution to issues arising over the provision of weather and climate services. Instead, progress will necessarily come from the exercise of leadership and community consensus. The NRC and AMS have taken important steps in this direction.

This essay focuses exclusively on the NWS and does not engage other government or academic institutions providing services that may conflict with those produced in the private sector. The NWS relationship with its partners may be in much better shape than other institutions because the 1991 NWS partnership policy—however imperfect—provides an evolving framework. In other important areas, such as non-NWS government weather services, academia, and the emerging area of climate services, no such framework exists. Therefore, the AMS should consider roles and responsibilities across the weather and climate enterprise.

Development of the institutions of the atmospheric sciences has not kept pace with scientific and technological advances. In contrast, in fields such as information technology and biotechnology, debate and discussion about roles and responsibilities among various sectors has a long history that arguably has contributed to the creation of more effective interconnections among all relevant partners. The atmospheric sciences are a last frontier of U.S. technology policy.

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- ***Fair Weather: Effective Partnerships in Weather and Climate Services*** (2003, 128 pp., $25.00, plus $4.00 shipping) is available from the *National Academies Press, 500 Fifth Street, N.W., Lockbox 285, Washington, DC 20055; (888) 624-8373 or (202) 334-3313; fax: (202) 334-2451; e-mail: zjones@nas.edu*. The complete text can also be viewed and ordered online at: *http://www.nap.edu/catalog/10610.html*
- The 1953 report, ***Weather is the Nation's Business*** (63 pp., free) can be found at *http://sciencepolicy.colorado.edu/ams/weater_is_the_nations_business.pdf*
- The CWSA response is at: *http://www.weatherbank.com/CWSA/news/CWSA-Press-Release-020603.doc*
- The UCAR response is at: *http://www.ucar.edu/communications/quarterly/spring03/president.html*

An Enthusiastic Thank You!

The staff at the Natural Hazards Center would like to thank all the wonderful people who took the time to respond to our survey on the usefulness of the ***Natural Hazards Observer***. Responses were thoughtful, enlightening, and very helpful.

We hope to finish analyzing the data soon and will make the results available to our readers in the near future. We appreciate your help in making the ***Observer*** a better publication!

Strategies for Coordinating Disaster Responses

When disaster strikes, people respond. Initial response involves the rapid mobilization of a local core of trained individuals such as fire, police, and emergency medical services personnel, who are collectively known as "first responders." Upon arrival at the scene, first responders often confront a variety of unofficial helpers–people who are trying to help their neighbors and friends, or who are there simply to offer assistance. In addition, the flow of communication between personnel, agencies, and the public quickly becomes complex.

The Hazard Center's newest monograph, ***Strategies for Coordinating Disaster Responses*** (Monograph No. 61, Program on Environment and Behavior, 2003, 242 pp.) by Thomas E. Drabek, explores how the presence and effectiveness of emergency managers can help shape overall emergency response and recovery to a given event. Emergency managers are called upon to facilitate the smooth functioning of all responders, activities, and jurisdictions, and to create a seamless atmosphere of swift and effective response. This task is not easy, nor is it well understood.

The author uses extensive interviews with over 150 emergency managers, agency executives, and emergency management team members, all of whom have participated in a large disaster response, to shed some light on the structures and strategies used to initiate and maintain multi-agency coordination during disaster. The goal of the study was to document the strategies used by local emergency managers to enhance coordination among the core agencies with which they worked during disaster response. The key lesson from the data is that many emergency managers must learn to operate under the auspices of a new paradigm and a different perspective. They must learn to think strategically.

Monograph No. 61 may be purchased for $20.00 plus $4.50 shipping from the *Publications Administrator, Natural Hazards Center, University of Colorado, 482 UCB Boulder, CO 80309-0482; (303) 492-6819; fax: (303) 792-2151; e-mail: janet.kroeckel@colorado.edu.*

The Hazard Center Announces Two New Quick Response Reports

Tropical Storm Allison (TSA) caused severe flooding and damage in several Louisiana communities in June 2001. Quick Response (QR) researcher Francis O. Adeola explores both the storm's impact and the factors that are associated with increased vulnerability of people to flood hazards. He also looks at the modes of adaptation and coping among flood victims. Shortly after the storm, 149 afflicted households participated in a survey designed to assess the impacts of TSA, and the vulnerability and coping and adaptation modes of the impacted population. The results are presented in ***QR Report 162: Flood Hazard Vulnerability: A Study of Tropical Storm Allison (TSA) Flood Impacts and Adaptation Modes in Louisiana*** (2003, 58 pp.).

In ***QR 161: An Analysis of the September 20, 2002, Indianapolis Tornado: Public Response to a Tornado Warning and Damage Assessment Difficulties*** (2003, 55 pp.), Jaimie D. Mitchem explores the effects of one of the three tornados that occurred in Indiana in September 2002. The tornado hit the southern and eastern portions of Indianapolis in Marion County. It had a remarkable 112 mile track, the second longest in Indiana's history. However, despite being in an urbanized area and causing millions of dollars of damage, no fatalities occurred. Early warnings, rapid dissemination, and an overall prepared citizenry seem to have saved lives. This QR Report provides a comprehensive analysis of the tornado.

These two reports (and many others), may be downloaded from the *Natural Hazards Center web site at http://www.colorado.edu/hazards/qr/qr.html*. Along with being available free on the web, each report may be purchased for $5.00 plus, $4.50 shipping, from the *Publications Administrator, Natural Hazards Center, University of Colorado, 482 UCB Boulder, CO 80309-0482; (303) 492-6819; fax: (303) 792-2151; e-mail: janet.kroeckel@colorado.edu.*

Washington Update

Corps of Engineers Makes Changes to Disaster Preparedness, Response, and Recovery Procedures

The U.S. Army Corps of Engineers recently released new guidelines for helping the country deal with too much, or too little, water. At the end of May, the Corps implemented new regulations regarding how the agency deals with disaster preparedness, response, and recovery. In its authorizing legislation (Public Law 84-99), the Corps maintains an emergency fund for:

- preparation for natural disasters;
- flood fighting and rescue operations;
- repair or restoration of flood control works threatened, damaged, or destroyed by floods, or use of nonstructural alternatives;
- emergency protection of federally authorized hurricane or shore protection projects which are threatened by imminent or substantial loss to life and property; and
- repair and restoration of federally authorized hurricane or shore protection projects damaged or destroyed by extraordinary wind, wave, or water phenomena.

The law also authorizes the Corps to construct wells and transport water to areas that are drought-distressed. In addition, assistance may be provided to state and local governments to protect against imminent threat of predicted or unusual floods.

The new regulations outline the responsibilities of state and local governments regarding these areas as well. For example, the Corps states that disaster preparedness is a basic tenet of state and local governments, and that these levels of government hold responsibility for operation and maintenance of flood control works; procurement and stockpiling of sandbags, pumps, or other equipment that might be needed during a flood; training personnel; and undertaking responsible regulation, management, and use of floodplain areas.

Corps emergency response activities include flood response and post-flood response that supplement state and local activities. Corps assistance is limited to the preservation of life and property. Further, all Corps activities must be coordinated with state offices of emergency management. If local resources are exhausted, the Corps may also lend or issue supplies, such as sandbags, to nonfederal interests. Items must either be returned or paid for by the recipient.

Rehabilitation assistance is provided by the Corps to assist with inspection of flood control works, rehabilitation of structures, rehabilitation of hurricane and shore protection projects, and nonstructural alternatives to rehabilitation of damaged flood control works. Also, the Corps will provide a levee owner's manual to any nonfederal sponsor of an active flood control project.

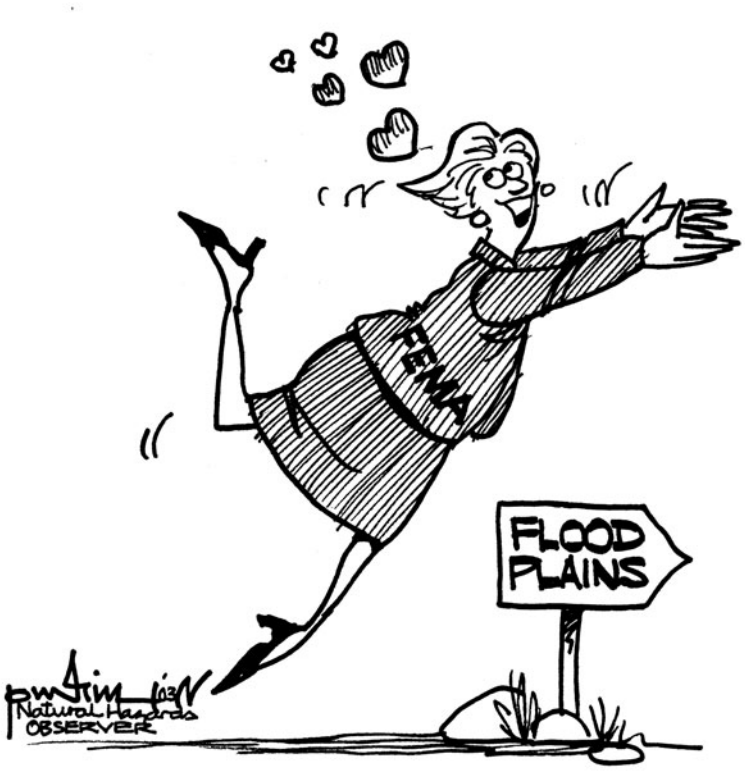
The rule outlines in detail the natural disaster procedures and regulations in the April 21, 2003, ***Federal Register*** (pp. 19357-19371). Copies of the federal register can be found in any *federal repository library* or on-line at *http://www.gpoaccess.gov/fr/index.html*.

FEMA Releases Report on Benefits of Floodplains

The Natural and Beneficial Functions of Floodplains: Reducing Flood Losses by Protecting and Restoring the Floodplain Environment (2003) is now available as the final report of the Task Force on the Natural and Beneficial Functions of the Floodplain, established by the National Flood Insurance Reform Act of 1994. The Act required the task force to identify the functions of floodplains that reduce flood damage, make recommendations on how to protect those functions, and prepare a report on its findings. The group, chaired by the Federal Emergency Management Agency (FEMA), included representatives from the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, the National Oceanic and Atmospheric Administration, the National Park Service, the Natural Resource Conservation Service, and the U.S. Fish and Wildlife Service.

The report examines the relationship between the natural functions of floodplains and flood loss reduction. It includes summaries of the current state of floodplain management in the United States, the challenges facing the nation in reducing losses caused by floods, and the opportunities for intergovernmental partnerships in managing floodplains to reduce losses by protecting and restoring natural functions. The report concludes the nation's approach to flood loss reduction must be changed to fully reflect multi-objective floodplain management goals that focus on sustainability as well as the protection of natural and beneficial floodplain functions. Such actions will reduce flood losses, preserve wildlife habitat, improve the quality of waterways, and enhance quality of life.

Printed copies of the report are free and can be requested from *FEMA Publications, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520*. FEMA also plans to make the report available on its web site.



Treasury Works to Implement Terrorism Insurance Act

Terrorist attacks, hurricanes, earthquakes, and other phenomena can cause substantial damage across widespread areas. Consequently, there is a continual dance among insurance providers, policy holders, and the government to find the perfect balance between providing adequate insurance coverage and affordable premiums. Providers are concerned about sustaining greater losses than they can cover, policy holders are concerned with payment of their claims, and the government is concerned with ensuring fair market practices for everyone. In November 2002, Congress enacted and the president signed the Terrorism Risk Insurance Act to provide coverage for terrorism events to property owners (see the ***Observer***, Vol. XXVII, No. 3, p. 9).

Under the law, which will sunset on December 31, 2005, the federal government will act as a reinsurer of insurance providers, covering 90% of insured losses above the policy deductible for terrorism loss, subject to an annual federal budget of $100 billion. However, insurers required to offer the coverage under the federal legislation will have to increase their deductibles each year until the program ends to reduce the federal government's involvement.

Recently, the U.S. Department of the Treasury, which administers the program, issued an interim final rule, quoting the enabling legislation that requires insurance providers to provide "clear and conspicuous disclosure to the policyholder of the premium charged for terrorism coverage and the Federal share of compensation," intending to "enhance the competitiveness of the marketplace by better enabling consumers to comparison shop

for terrorism insurance coverage, and to make policyholders better aware that the Federal government will be sharing the costs of such coverage with the insurers, thereby reducing the insurer's exposure."

In addition, the act requires each insurer to make available, in all of its property and casualty insurance policies, coverage for insured losses that does not differ materially from the terms, amounts, and other coverage limitations applicable to losses arising from events other than acts of terrorism.

For complete information on the program, including an overview and other interim final rules (issued on February 26 and April 18), see the U.S. Department of the Treasury web site: *http://www.treasury.gov/trip*.

National Child Traumatic Stress Network Receives Funding for Terrorism and Disaster Branch

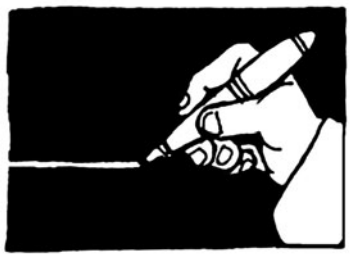
The National Child Traumatic Stress Network (NCSTN) recently formed the Terrorism and Disaster Branch, thanks to a $1.8 million grant from the Department of Health and Human Services. The NCTSN's purpose is to improve the quality, effectiveness, provision, and availability of therapeutic services delivered to all children and adolescents experiencing traumatic events. The network currently comprises 37 centers and is being funded by the Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services, through a congressional mandate, the Donald J. Cohen National Child Traumatic Stress Initiative, which took effect October 3, 2001.

The new Terrorism and Disaster Branch will work to enhance national capacity to provide mental health care for traumatized and bereaved children and families following mass casualty events. It will partner with governmental and local systems to promote comprehensive, coordinated mental health preparedness and care as well as ensure the availability of effective mental health intervention and treatment. The branch will provide guidance, assistance, and technical support; contribute to efforts to train a wide range of caregivers and service providers; and disseminate up-to-date information for families and policy makers.

The work of network members ranges across settings, disciplines, age groups, and trauma types, and delivers services to large numbers of children and their families. The network is made up of three components:

- National Center for Child Traumatic Stress. Designated to lead the NCTSN, the UCLA David Geffen School of Medicine and the Duke University School of Medicine are running the center jointly.
- Intervention Development and Evaluation Centers. Charged with identifying, supporting, and improving treatment and service approaches for different types of child and adolescent traumatic events.
- Community Treatment and Services Centers. Will implement and evaluate effective treatment and services in community settings; collect clinical data on traumatized children receiving treatment; develop expertise related to effective practices, financing, and other service issues; and provide leadership and training on child trauma for service providers in the community and staff in a range of child service sectors.

Further information about this effort can be obtained from *NCTSN, University of California–Los Angeles, 11150 West Olympic Boulevard, Suite 770, Los Angeles, CA 90064; (310) 235-2633; fax: (310) 235-2612;* or *NCCTS Duke University, 905 West Main Street, Suite 22, Durham, NC 27701; (919) 687-4686; fax: (919) 687-4737*. Program and funding questions should be directed to the *Program Office of the National Child Traumatic Stress Initiative, Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, Department of Health and Human Services, 5600 Fishers Lane, Parklawn Building, Room 17C-26, Rockville, MD 20857; (301) 443-2940*. On-line information about the network can be found at *http://www.nctsnet.org*.



On The Line

Evacuating Special Needs Individuals
Multi-Hazard Benefits

In partnership with Iowa's only nuclear power plant—the Duane Arnold Energy Center (DAEC)—the Linn County Emergency Management Agency in Cedar Rapids, Iowa, has developed a voluntary program to register those in the community who are not living in group facilities and may need special assistance during emergency situations. The program began in 1993, with the goal of reaching out to a segment of the community that could easily become lost in the shuffle during an emergency. Originally designed to assist with special needs evacuation transportation requirements in the unlikely event of an accident at DAEC, the program has proved useful to people who are able to manage day-to-day activities but may need assistance during a dangerous or stressful situation like an evacuation. Program participants may not have regular contact with anyone outside their home, may have family or friends in the area who are unable to respond quickly enough to be of assistance, or who may not have personal access to emergency assistance through social service agencies or other avenues.

Although started in response to a specific preparedness need, the information gathered for this program is useful in almost every emergency situation. Linn County emergency managers realized the importance of using this information as part of its overall emergency response, regardless of the type of event. The county has prepared pre-plans for a variety of industrial, agricultural, or natural risks that could require the evacuation of a large portion of the county's more than 195,000 residents.

This special needs registration system addresses several problems, but perhaps the most significant is that this program reaches out to a special population whose voice is often absent from emergency planning.

Community Outreach and Program Registration

Currently, there are nearly 1,600 participants in the program, and registration is expected to double in the next few years as the program is increasingly publicized. Participation is free and confidential, and the application process is straightforward and user-friendly. Applicants are asked to fill out and return a postage-paid card with basic information such as name, address, phone number, and a brief description of their circumstance. Knowing the kind of assistance required by each resident (transportation help, lift assistance, oxygen requirements, visual or hearing guidance, etc.) allows emergency management staff to determine the best use of available resources.

Registration cards are mailed directly to county residents living closest to DAEC, and cards are also distributed in telephone books to residents within the 10 miles that surround the DAEC (the area that comprises the emergency planning zone). In Linn County, Alliant Energy Customer Service operators, along with the emergency management agency, accepted and logged phone-in registration information. Staff from the county maintain the database.

Community service groups, such as the Visiting Nurses Association, Meals on Wheels, and Hospice, which work with the elderly and special needs clients, also help to publicize the program. They identify potential registrants, present the program, and distribute cards. All residents who believe they or a family member or friend may need assistance during an evacuation are encouraged to register. Unlike a handicapped parking sticker, no doctor's statement is needed to qualify.

Data Management

Once the registration cards are returned, the information is entered into a system that is compatible with the county's geographic information system (GIS) database. This aspect of the program started in 1998, and enabled the county to link program registrants with its county-wide evacuation pre-planning system as well as the ability to locate each participant's house on a computer-generated map. During an emergency situation, mapping participant locations gives emergency responders a quick snapshot of the situation that helps evaluate the need for additional resources or increased staff. Since

GIS maps are used county-wide, if there is an event requiring an evacuation, maps easily locate special needs registrants in the affected area. At the same time that the general population is being alerted, the Human Resources Department contacts the special needs registrants individually to alert them and determine their specific needs prior to dispatching the necessary emergency response.

Effective Use of Response Resources

Having information about residents' location, type of needs, and potential evacuation challenges helps the Linn County emergency management staff ensure that available resources remain at adequate levels of readiness. Evacuations are time consuming under the best conditions, and having critical information in advance saves valuable time and permits more efficient use of limited resources. Pre-planning and community outreach means that the county can be proactive in its emergency response by both identifying those with special needs and providing responders with specific requests for resources that will need to be dispatched. Due to the program database and mapping capability, effective and targeted response can be activated before a 911 call is made by a citizen. The program also ensures a situationally appropriate response as well—responders know if the person is confined to bed, needs a wheelchair lift device, or requires other assistance.

Although the program has never been fully implemented, recent flooding events have put the plan to the test on a limited basis. During the flooding, the special needs list successfully identified registrants living in low lying areas that had been targeted for potential evacuation. Program participants received as much notice as possible about the situation, and the Department of Human Resource Management used the list to coordinate their safety and welfare checks, ensuring that these community members were properly notified.

To Get Started . . .

This type of program is easy to replicate. Some issues that need to be resolved include:

- Designating emergency management staff to coordinate the distribution and receipt of registration cards;
- Agreeing on the type of information to ask for and an appropriate form design;
- Working with appropriate community organizations and in-home service providers to assist with identifying potential participants and distribute blank cards and program information;
- Determining a location that can accept phone-in registrations;
- Ensuring adequate computer systems and software to support the database;
- Determining whether to only notify individuals or to notify and transport those with special needs.
- Allocating sufficient volunteer or paid staff time to keep the information updated.

There are a few obstacles with the potential to impact the program's effectiveness:

- This is a voluntary registration program and there needs to be a dedicated outreach and publicity campaign to make citizens aware of the program;
- Participants may have concerns that their registration information may be sold, when in truth the information is confidential;
- Privacy laws prevent social service agencies from sharing their client lists, and clients of a given social service agency may automatically assume that they are enrolled in the emergency notification program;
- Interagency coordination may be difficult. It is important to work with representatives from all agencies (public and private) that will be involved with the program;
- There is an ongoing challenge to keep the list up-to-date; consider asking participants to re-register each year, tell the emergency management agency about changes to their situation, or allocate staff to contact participants individually;
- To decrease misuse of first responder resources, it is important to track when a participant leaves for an extended period of time, moves to a care facility, or passes away.

Program Beneficiaries

The special needs population is constantly growing, and therefore, the need for this program will increase. Linn County officials encourage program registration for persons with any kind of special need because timely notification for those who require special evacuation assistance benefits both citizens and local government.

The beneficiaries of this program are the nearly 1,600 registrants who have chosen to participate. Families gain peace of mind from knowing that, if their loved one is part of this registration process, emergency management officials will be checking on the health and welfare of their family member.

The emergency management agency benefits as well because of the relative ease of efficiently allocating scarce resources in disaster situations and the ability to provide targeted assistance where it is most needed. First responders also reap the program's benefits, as it provides them with detailed information to quickly assist people with special needs.

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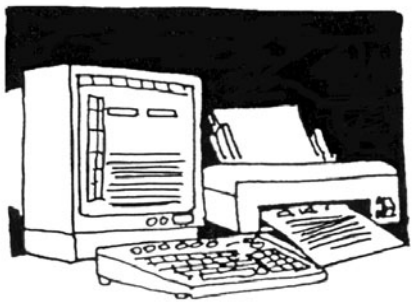
Further information about this program is available from *Lisa Gibney, DAEC Emergency Planning Department, (319) 851-7010; e-mail: lisa.gibney@nmcco.com.* Ned Wright may be reached at *(319) 363-2671; e-mail: Ned.Wright@linnema.com.*



INTERNET PAGES

Below are new or updated Internet resources that Natural Hazards Center staff have found informative and useful. For a more complete list of some of the better sites dealing with hazards and disasters, see *http://www.colorado.edu/hazards/sites/sites.html*.

All Hazards

http://www.family.crisissupport.com

FAMCom is an on-line kit that includes fact sheets, discussion topics, and contingency planning suggestions, designed to help families plan how to get in touch quickly during a crisis and prepare for potential crisis situations.

http://web.mit.edu/bcmt

The Massachusetts Institute of Technology's Business Continuity Management Team (BCMT) represents many of the organizations that help with continuity issues in the event of a campus emergency, and coordinates with MIT's Emergency Response Group. This web site provides an overview of the group's plans and activities, as well as disaster recovery and business continuity efforts on the MIT campus.

http://www.arct.cam.ac.uk/curbe/infosheets.html

The Cambridge University Center for Risk in the Built Environment (CURBE) has posted several fact sheets and idea sheets on their web site. Topics include mitigation, the U.N. role in risk and disaster management, deaths from the 1953 storm surge, the European Union's role in risk and disaster management, reverse insurance, disaster ecology, and safety day.

http://www.bepreparedtc.com/

Teton County's Project Impact program in Wyoming has launched a new interactive natural hazards web site. Along with general information and hazard resources, the site contains an interactive natural hazards map that allows users to pinpoint hazards at specific locations.

http://nauticalcharts.noaa.gov/csdl/op/nowcoast.htm

The National Oceanic and Atmospheric Administrations's National Ocean Service (NOS) recently launched a web site that provides real-time coastal observations and forecasts for major U.S. estuaries and seaports, the Great Lakes, and the Atlantic and Pacific coasts. The map-based web portal called "nowCOAST" provides spatially-referenced links to real-time information from meteorological, oceanographic, and river observing networks.

http://www.hhs.gov/disasters/index.shtml

The Department of Health and Human Services Disasters and Emergencies web site provides categorized information relating to terrorism and other disasters.

http://www.flash.org

The Federal Alliance For Safe Homes (FLASH, Inc.) announces a new and improved web site that offers disaster safety tips, property protection information, and resource links for flood, hail, hurricane, lightning, severe wind, tornadoes, wind, and wildfire protection.

http://www.meted.ucar.edu/topics_emt.php

The COMET Program (mentioned many times previously in Hazard Center publications) has remodeled its education and training web site, "MetEd." The new site also contains free self-paced distance learning materials for emergency managers and community decision makers.

Earthquakes

http://www.scec.org/education/030310longbeach.html
These web pages from the Southern California Earthquake Center commemorate the 70th anniversary of the Long Beach Earthquake on March 10, 1933.

Climate Change

http://www.pacinst.org/resources/
The Pacific Institute announces an on-line, searchable, water and climate change bibliography that is a comprehensive database of scientific literature pertaining to climate change and freshwater resources worldwide. The bibliography currently contains more than 3,000 entries.

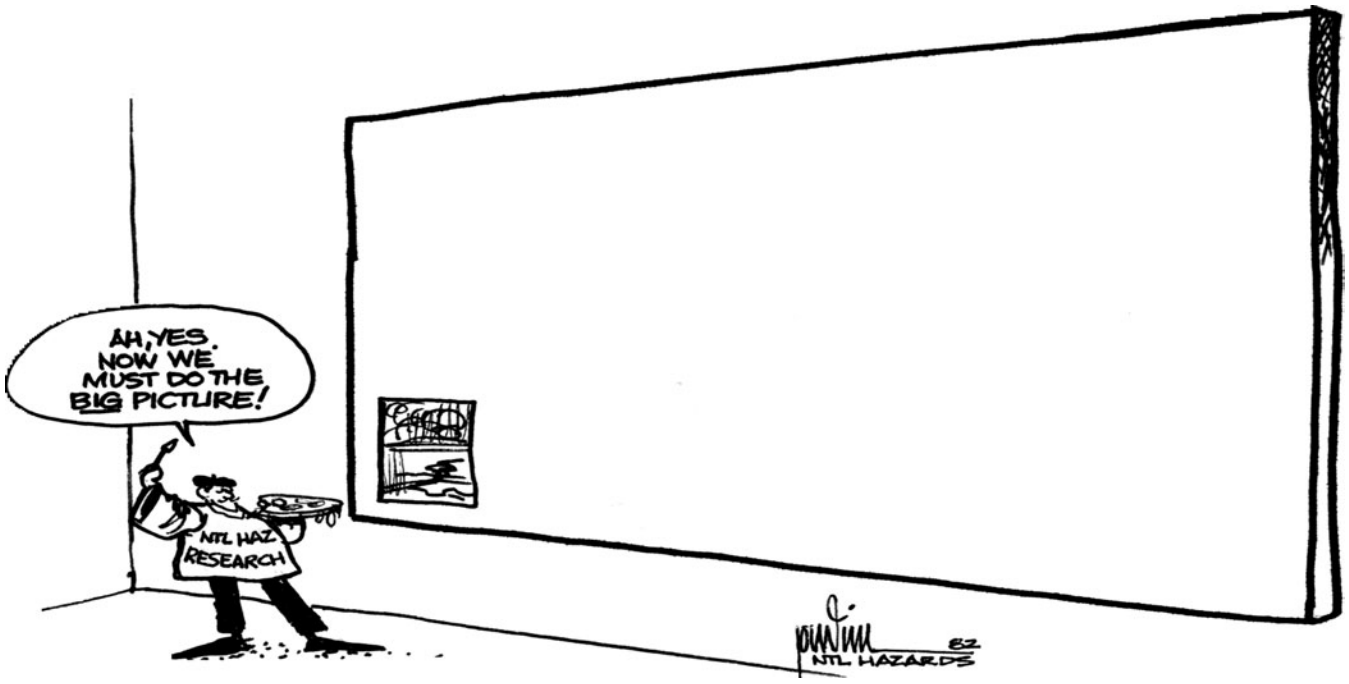
http://showcase.netins.net/web/trhalvorson/g-stuff/gs_elnino.shtml
This comprehensive web site includes a large variety of links to other web sites and information about El Niño and La Niña.

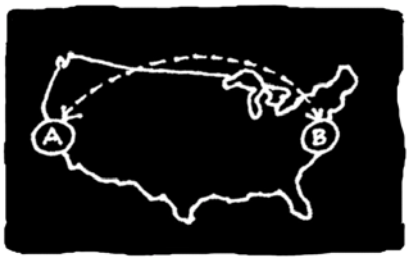
http://ingrid.ldeo.columbia.edu
This web site from the International Research Institute for Climate Protection at Columbia University includes a broad collection of earth science data on atmospheric and oceanic conditions.

Floods and Drought

http://www.tu.org/small_dams
http://www.americanrivers.org/damremovaltoolkit
These companion web sites, from Trout Unlimited and American Rivers, provide a variety of information for communities that are looking for help with dam-removal decisions. The sites provide an overview of fundamental issues and perspectives that should be considered, along with case studies.

http://www.floodsafety.com
Sponsored by Disaster Ready Austin and the Texas Environmental Center, this web site is a clearinghouse for a variety of information regarding flood safety and the reduction of flood-related fatalities and property damage.





Conferences and Training

Below are the most recent conference announcements received by the Natural Hazards Center. A comprehensive list of hazard/disaster meetings is posted on our web site: *http://www.colorado.edu/hazards/conf.html*.

21st Century Threats and Conflicts: Annual Meeting of Doctors for Disaster Preparedness (DDP). Sponsors: DDP, Oregon Institute of Science and Medicine, and Physicians for Civil Defense. Phoenix, Arizona: July 12-13, 2003. DDP's annual meeting brings together authorities on strategic and civil defense as well as scientists speaking on real threats and manufactured scares. Complete information is available from *DDP, 1601 North Tucson Boulevard, Tucson, AZ 85716; (520) 325-2680; http://www.oism.org/ddp*.

Local Response to Terrorism: Lessons Learned from the 9/11 Attack on the Pentagon. Sponsors: Arlington County, Virginia, Department of Homeland Security, and the International City/County Management Association. Arlington, Virginia: July 28-30, 2003. The conference goal is to bring together teams of policymakers from local jurisdictions to learn from Arlington County's experiences in responding to the terrorist attack on the Pentagon and to work as a team to analyze the response capacities within their own jurisdictions. To register, or for more information, contact *Melinda Watters, 3877 Fairfax Ridge Road, Suite 200, North Fairfax, VA 22030; (703) 383-4580; e-mail: mwatters@titian.com.*

The Sixth U.S. Conference and Workshop on Lifeline Earthquake Engineering. Sponsor: Technical Council on Lifeline Earthquake Engineering (TCLEE). Long Beach, California: August 10-13, 2003. This year's theme is "advancing mitigation technologies and disaster response," and the conference will focus on these issues in the context of lifeline systems. Participants from around the globe will discuss new knowledge, trends, and developments in lifeline engineering. For more information contact the *American Society of Civil Engineers (ASCE), 1801 Alexander Bell Drive, Reston, VA 20191-4400; (800) 548-2723; http://www.asce.org/conferences/TCLEE2003.*

International Public Works Congress and Exposition. Sponsor: American Public Works Association (APWA). San Diego, California: August 24-27, 2003. Of special interest to ***Observer*** readers are sessions on earthquake recovery, risk management, terrorism, and crisis response, among others. Registration and other information is available from *APWA, 2345 Grand Boulevard, Suite 500, Kansas City, MO 64108; (816) 472-6100; e-mail: congress@apwa.net; http://www.apwa.net/Meetings/Congress/2003/.*

Ecoflood Conference: Toward Natural Flood Protection Strategies. Sponsor: Institute for Land Reclamation and Grasslands Farming (ILRGF). Warsaw, Poland: September 6-13, 2003. A key objective of this conference is to bring together specialists from various disciplines who work with flooding to gain a comprehensive understanding of the issues surrounding floods, including the effectiveness of using wetlands for flood mitigation, the costs and benefits involved, and interdisciplinary recommendations for natural flood defenses. Conference information is available from *ECOFLOOD, Department of Nature Protection in Rural Areas, Institute for Land Reclamation and Grassland Farming (IMUZ), Falenty, 05-090, Raszyn, Poland; tel: 48.22.7200531; e-mail ecoflood@levis.sggw.waw.pl; http://www.imuz.edu.pl/imuz.htm.*

International Workshop on Natural and Technological Hazards in the Danube-Black Sea Region. Sponsor: Romanian Academy and U.S. National Research Council. Bucharest, Romania: September 19-23, 2003. This conference is focused on the interdisciplinary hazards issues emerging in the Black Sea basin and on developing a dialog among the practitioners and policymakers involved in natural and technological hazards management. Topics include seismic hazards and their mitigation, landslides, climate change, and technological hazards. Complete information is available from the *Romanian Academy,*

Institute of Geography, 12 Dimitrie Racovita Str., Sector 2, RO-70307, Bucharest, Romania; tel: 40 21 313-5990; e-mail: geoinst@rnc.ro.

Fall World 2003. Sponsor: ***Disaster Recovery Journal (DRJ)****. San Diego, California: September 21-24, 2003.* This conference is geared toward business continuity planners and other emergency mangers. Conference details are available from ***DRJ****, P.O. Box 510110, St. Louis, MO 63151; (314) 894-7474; e-mail: mercedes@drj.com; http://www.drj.com.*

Conference on Flood Warning Systems, Technologies, and Preparedness. Sponsor: Southwest Association of ALERT Systems. Dallas, Texas: October 21-24, 2003. This conference is devoted to the issue of flood warning systems and focuses on helping to prepare communities for flood events. Topics include systems operations and maintenance, storm forecasting tools, flood warning system design, maintaining preparedness, research and development, and more. Details are available from the *National Hydrological Warning Council, c/o Dan Miller, City of Overland Park, 8500 Santa Fe Drive, Overland Park, KS 66213, (913) 895-6032; e-mail: dmiller@opkansas.org.*

Emergency Preparedness: Improving the Odds. Sponsor: Pacific Northwest Preparedness Society. Vancouver, British Columbia: October 27-29, 2003. Conference goals are to raise the global level of emergency preparedness through promoting awareness, providing information and solutions to problems, sharing experiences, showcasing technologies, and creating networking opportunities. For more information contact the *Center for Policy Research on Science and Technology, Simon Fraser University, Burnaby, B.C., Canada V5A 1S6; 604-665-6097; e-mail: info@epconference.ca; http://www.epconference.ca/.*

Building Alliances Through Resonant Leadership. Sponsor: Women Chief Fire Officers Association. Sunrise, Florida: November 6-9, 2003. This conference will focus on leadership skills and other issues with the goal of providing a proactive network that supports, mentors, and educates current and future women chief officers. For more information, contact *Terri Wallace; e-mail: terri.wallace@ci.greensboro.nc.us; http://www.womenfireofficers.org/events.htm.*

Contingency Planning and Management Conference East. Sponsor: ***Contingency Planning and Management (CPM)****. Washington D.C.: November 11-13, 2003.* This conference is geared toward those who work to develop, maintain, and implement business continuity plans. Educational sessions, disaster simulation exercises, and networking opportunities are included. Complete details are available from ***CPM****, 84 Park Avenue, Flemington, NJ 08822; (908) 788-0343; http://www.contingencyplanningexpo.com.*

First International Conference on Structural Health Monitoring and Intelligent Infrastructure (SHMII-1). Sponsor: Ibaraki University. Tokyo, Japan: November 13-14, 2003. Structural health monitoring involves the measurement and assessment of in-service structures to carry out real time inspection and damage detection through the implementation and use of "smart" devices. The conference will address progress in the development of building, transportation, marine, underground, energy generating, and other civilian infrastructures that are periodically or actively monitored. Conference information is available from the *SHMII-1 2003 Secretariat, c/o the Department of Urban and Civil Engineering, Faculty of Engineering, Ibaraki University, Nakanarusawa-cho, 4-12-1, Hitachi, Ibaraki 316-8511, Japan; tel: +81-294-38-5172; e-mail: shmii-1@mx.ibaraki.ac.jp; http://www.civil.ibaraki.ac.jp/shmii/.*

Stay the Course. Sponsor: US Environmental Protection Agency (EPA) Region III. Norfolk, Virginia: November 16-19, 2003. This conference will have training, workshops, and networking opportunities to assist practitioners with emergency preparedness and safety issues. Information is available from the *Virginia Department of Emergency Management, 10501 Trade Court, Richmond, VA 23236; (804) 897-6500; http://www.2003conference.org.*

14th Mexican National Conference on Earthquake Engineering. Sponsors: Mexican Society for Earthquake Engineering (SMIS), College of Civil Engineers of Leon, and the Society of Structural Engineers of Guanajuato. Leon-Guanajuato, Mexico; November 19-22, 2003. The theme for the congress is "challenges for earthquake engineering in the twenty-first century." The conference is directed toward professors, researchers, students, practitioners, building officials, institutions from the private and public sectors, and all others working with topics directly related to earthquake engineering research, teaching, design, and construction. Complete information is available from *Angelica Mendoza-Reyes, Camino Sta. Teresa No. 187, Local 9, Col. Parques del Pedregal, Delegacion Tlalpan, 14 020 Mexico; tel: (52-55) 5606-1314; e-mail: smis@mx.inter.net; http://www.smis.org.mx.*

Contracts and Grants

Below are descriptions of recently awarded contracts and grants for the study of hazards and disasters. An inventory of contracts and grants awarded from 1995 to the present (primarily those funded by the National Science Foundation) is available from the Natural Hazards Center's web site: *http://www.colorado.edu/hazards/grants.html*.

Action Plan to Help Vulnerable Groups in the Caribbean Prepare For and Respond to Natural Disasters. Funding: European Commission Humanitarian Office (ECHO), €2.5 million. For information, contact ECHO via their web site: *http://europa.eu.int/comm/echo/contact_en.htm*.

This award will support disaster preparedness initiatives and response mechanisms for international agencies operating in the Caribbean. The principal objective is to reduce the impact of natural disasters by strengthening local physical and human resources in high-risk areas. The Caribbean is particularly vulnerable to a wide range of natural disasters, including hurricanes, volcanic activity, and earthquakes. Haiti, Cuba, the Dominican Republic, Jamaica, St. Kitts and Nevis, Saint Lucia, St. Vincent, and the Grenadines are recipients of funds for early warning equipment, disaster preparedness training, small scale mitigation efforts, and emergency response mechanisms.

Organizational Knowledge Creation for Watershed Management. Funding: Social Science Humanities Council, $114,840, 35 months. Principal Investigator: *Sarah Michaels, School of Planning, Faculty of Environmental Studies, University of Waterloo, 200 University Avenue West, Waterloo, ON, Canada N2L 3G1; (510) 888-4567, ext. 6863; e-mail: michaels@fes.uwaterloo.ca.*

The practical need to develop effective organizational knowledge at the watershed scale was brought to the fore by the 2002 Walkerton tragedy, when seven people died and over 2,300 became ill after the drinking water system for the town in southern Ontario, Canada, became contaminated with deadly bacteria. This investigation will facilitate exchange of knowledge that can lead to effective safeguarding of water resources. In addition, it will help natural resources managers identify the conditions and requirements to create new organizational knowledge to address multifaceted problems.

Agent-Based Approach to Smart Sensing for Health Monitoring in Civil Infrastructure. Funding: National Science Foundation, $350,000, 36 months. Principal Investigator: *B.F. Spencer, Department of Civil and Environmental Engineering, 2213 Newmark Civil Engineering Laboratory, 205 North Matthews Avenue, University of Illinois–Urbana-Champaign, Champaign, IL 61801; (217) 333-8630; e-mail: bfs@uiuc.edu.*

This investigation seeks to develop a foundation for smart sensing and health monitoring concepts using advanced sensing, micro-processing, digital signal technology, wireless communication, and damage diagnostic methods to provide near real-time assessment of structures following extreme events, such as earthquakes, as well as long-term deterioration. The goal is to develop a computational framework that can reliably detect possible damage locations or deteriorated regions within a structure. This effort includes a significant U.S.-China collaboration among three institutions. Successful completion of this research is expected to accelerate economic and practical implementation of strategies for protecting our respective nations' infrastructure.

Development and Implementation of Monitoring and Damage Detection Methods for Large Civil Structures. Funding: National Science Foundation, $215,299, 36 months. Principal Investigator: *Shirley J. Dyke, Department*

of Civil Engineering, Campus Box 1130, Washington University, St. Louis, MO 63130; (314) 935-6350; fax: (314) 719-4753; e-mail: sdyke@seas.wustl.edu.

This project will develop, verify, and implement structural health monitoring strategies to detect, locate, and quantify structural damage in large civil structures. The methods will be appropriate for assessing damage from significant natural events, such as earthquakes and winds, as well as from blasts, age, and environmental deterioration. The research, which will be conducted on bridge performance, will be undertaken in cooperation with Tokyo University and the Universidad del Valle in Colombia.

The Interaction of Affect and Deliberation in Decision Making. Funding: National Science Foundation, $243,115, 24 months. Principal Investigators: *Paul Slovic and Ellen Peters, Department of Psychology, Decision Science Research Institute, 1201 Oak Street, Eugene, OR 97401; (541) 485-2800; e-mail: pslovic@oregon.uoregon.edu.*

Long before there was probability theory, risk assessment, and decision analysis, we used intuition, instinct, and gut feelings to tell us whether a situation was dangerous or not. As life became more complex and humans gained more control over their environment, analytic tools were invented to boost the rationality of our decisions. Researchers in this project will conduct experiments to better understand affect (e.g., feelings) in decision making and its interaction with more analytic and deliberative processes. They will test the way individual and environmental factors such as time pressure, cognitive load, age, mood, and instruction to think or give reasons influence judgments and decisions. They will offer insights into ways to improve a wide-range of practical decisions about matters involving finance, medical treatments, cigarette smoking, health insurance, and risk perception.

Research Experience for Undergraduates: Interdisciplinary Approach to Coastal Processes and Hazard Mitigation. Funding: National Science Foundation, $287,722, 36 months. Principal Investigators: *Daniel T. Cox, Cherri M. Pancake, and Merrick C. Haller, Department of Civil, Construction, and Environmental Engineering, 202 Apperson Hall, Oregon State University, Corvallis, OR 97331-2302; e-mail: dtc@engr.orst.edu.*

This award funds a three-year project for 10 undergraduate students a year to undertake research in coastal processes and hazard mitigation. The 10-week summer program will draw from the academic disciplines of coastal engineering, physical oceanography, and computer science, and will focus on coastal processes and the mitigation of natural hazards, particularly those caused by tsunamis and coastal storms. To foster academic growth, the program will implement team research and promote critical thinking through seminars on topics such as ethics and sustainable development.

Small Grants for Exploratory Research (SGER): Development of a North American Drought Atlas. Funding: National Science Foundation, $80,045, 12 months. Principal Investigator: *Edward R. Cook, Tree Ring Laboratory, Lamont-Doherty Earth Observatory, Palisades, NY 10964; (845) 365-8618; fax: (845) 365-8152; e-mail: drdendro@ldeo.columbia.edu.*

This award provides funds to develop a CD-ROM drought atlas based on tree-ring reconstructions of the Palmer Drought Severity Index (PDSI) for the past 600 years. The atlas will provide yearly PDSI reconstructions overlain on a map of North America dating from 1400 (or earlier where possible) through 1990. The CD will allow individual reconstructions to be displayed as time series for any given grid point on the continent, so that users may examine the detailed history of drought and wetness for a location. The atlas will also eventually be available on-line.

Doctoral Dissertation Research: Tree-Rings, Climate, and History in Central Mexico. Funding: National Science Foundation, $8,000, 18 months. Principal Investigator: *David W. Stahle, Department of Geosciences, OZAR 113 University of Arkansas, Fayetteville, AR 72701; (479) 575-3703; e-mail: dstahle@comp.uark.edu.*

This researcher will use new tree-ring chronologies from Mexico in conjunction with historical records to reconstruct the history of extreme drought/wetness events and examine their impacts on the environment and society in central Mexico for the last 300 to 500 years. Central Mexico is one of the most populous regions on earth. Reconstructions of past climate using tree-rings and other environmental data indicate that northern Mexico and the southwestern United States have experienced extreme climate fluctuations over the past 500 to 1,000 years. There is an extensive body of historical documentation regarding the impact of climate on agriculture and society in central Mexico, but long-term tree-ring climate records have not been available for this region.

RECENT PUBLICATIONS

Below are summaries of some of the recent, most useful publications on hazards and disasters received by the Natural Hazards Center. Due to space limitations, we have provided descriptions of only a few key publications or those with a title that may not indicate content. All items contain information on how to obtain a copy. A complete bibliography of publications received from 1995 to the present can be found on our web site: *http://www.colorado.edu/hazards/bib/bib.html*.

All Hazards

An Assessment of Natural Hazards and Disasters in Canada*. David Etkin, C. Emdad Haque, and Gregory R. Brooks, editors. 2003. 386 pp. $113.00. Copies can be purchased from Kluwer Academic Publishers, 101 Philip Drive, Norwell, MA 02061; (781) 871-6600; fax: (781) 871-6528; http://www.wkap.nl.*

This volume contains articles printed in the ***Journal of the International Society for the Prevention and Mitigation of Natural Hazards*** (Vol. 28, Nos. 2-3, 2003; see the ***Observer***, Vol. XXVII, No. 4, p. 16) for a special issue devoted to an assessment of natural hazards and disasters in Canada. Articles address disaster management, community planning, and public participation; achieving sustainable hazard mitigation; the contribution of philosophy to hazards assessment and decision making; a general framework for mitigation-oriented assessments of mobile telecommunications lifelines; seismic hazard mitigation for buildings; and other topics

Inventory of Disaster Management Education in Major Canadian Universities. *L. Falkiner. 2003. 30 pp. Free. Available from the Office of Critical Infrastructure and Emergency Preparedness, 2nd Floor, Jackson Building, 122 Bank Street, Ottawa, ON K1A 0W6, Canada; (800) 830-3118; http://www.ocipep.gc.ca/research/scie_tech/emerMan/DisManCanUniv/2002D013_e.pdf.*

Over the coming decades, changing perceptions and understanding of risk from natural and human-made hazards and shifting employment demographics will combine to create increased demand for professionals in the field of emergency management and disasters throughout Canada. The provision of comprehensive university-level education is key to meeting this demand. This study contains an audit of course descriptions within six social science disciplines at 38 Canadian universities undertaken to assess the state of disaster management education in Canada. The author concludes that a greater emphasis on hazards and disaster management is needed; targeted disaster education modules should be created and integrated into existing curricula; and there needs to be further research about the availability of disaster-related courses in the natural and social sciences.

National Construction Safety Team Advisory Committee, National Institutes of Standards and Technology, Minutes of April 29, 2003 Meeting: Gaithersburg, Maryland. *2003. 11 pp. Free. Copies are available on-line from the National Institute for Standards and Technology: http://www.nist.gov/public_affairs/ncstmin_apr29.htm.*

The minutes from the first meeting of the National Construction Safety Team Advisory Committee contain an overview of the National Institute for Standards and Technology (NIST) and its expectations for the committee, a presentation on the World Trade Center (WTC) response plan, the WTC investigation plan and its progress, and a discussion of the Rhode Island Nightclub Fire investigation.

The Essential Role of Public Works in Emergency Management*. 2003. 2 pp. Free. The fact sheet can be downloaded from the American Public Works Association (APWA) web site: http://www.apwa.net/Documents/About/PET/Emergency/EM_Fact_Sheet/pdf.*

This brochure describes the many roles local public works departments play in emergency management, including ensuring safe building practices; building, operating, and protecting lifelines; and responding to disasters.

If Disaster Strikes, Are You Ready to Lead? A Governor's Primer on All-Hazards Emergency Management*. 2003. 24 pp. Free. Copies are available from the National Emergency Management Association, P.O. Box 11910, Lexington, KY 40578-1910; http://www.nemaweb.org/docs/Gov_Primer.pdf.*

This booklet was published to assist new governors and their transition teams in understanding the critical issues of emergency preparedness and disaster response. The ***Governor's Primer*** includes information on critical action items, potential threats to

states, the role of the state emergency management agency, crisis communications, homeland security, interagency coordination, and many other issues of critical importance that could impact the safety and security of citizens should disaster strike. The primer also includes important lessons learned from governors in states that have experienced recent catastrophic disasters, such as New York, Iowa, Louisiana, and Montana.

***Uncertain Power: The Changing Role of Official Donors in Humanitarian Action**. HPG Report #12. Joanna Macrae, Sarah Collinson, Margie Buchanan-Smith, Nicola Reindorp, Anna Schmidt, Tasneem Mowjee, and Adele Harmer. 2002. 85 pp. Free. The document is available on-line at http://www.odi.org.uk/hpg/papers/hpgreport12_screen.pdf. To obtain information about the availability of printed copies, e-mail j.bygraves@odi.org.uk.*

***Disaster Management in the Hills**. D. Satendra. 2003. 284 pp. Rupees 450. Available from Concept Publishing Company, A/15-16, Commercial Block, Mohan Garden, New Delhi - 110 059, India; tel: 5351460.*

This book provides an overview of the topographic, geologic, and climate conditions of the hilly terrain of India and the impacts of these forces on natural disasters. It focuses on the Indian state of Uttranchal, an especially vulnerable region. Chapters include descriptions of terrain and geomorphology along with discussions of present approaches to disaster management, a case study in Uttranchal, a situational analysis, and emerging approaches to disaster management. The book concludes with a model for linking disaster management with sustainable rural development and working with a variety of stakeholders and policy makers.

***Protecting Value Study 2003: Managing Business Risks**. 2003. 24 pp. Free. The report can be found on-line from the Protecting Value web site, offered by the Financial Executives Research Foundation, FM Global, and the National Association of Corporate Treasurers, at http://www.protectingvalue.com.*

The value a company creates on behalf of its customers and shareholders is its greatest asset. As a result of new threats, such as terrorism and corporate financial mismanagement, resources have been reallocated. Yet, are companies better prepared for disruptions than they were a year ago? This report contains the results of a study that asked nearly 400 chief financial officers, treasurers, and risk managers at the world's largest corporations to identify their company's top earnings drivers; the top hazards to those earnings; the impact of major disruptions to each; how well prepared the company is to recover from such disruptions; and how well the organization understands these hazards, their potential impacts, and their company's level or preparation. Among the findings, 50% of companies participating in the study reported the greatest impact on revenue would derive from property-related hazards, including fire or explosion, natural disaster, terrorism, theft, or other major losses.

***Real People Real Crises: An Inside Look at Corporate Crisis Communication.** Steve Wilson. 2002. 165 pp. $12.95. To order a copy, contact Oakhill Press, 1647 Cedar Grove Road, Suite 102, Winchester, VA 22603; (540) 535-0744; http://www.oakhillpress.com/catalog.cfm?bookid=45.*

This book, written for people who may be on the front line during crisis situations, uses real-life examples to demonstrate preparedness activities, crisis recognition frameworks, and management and planning strategies. The author, a former reporter, focuses on the public face of crisis and disaster management along with providing tips and suggestions of how to deal with the press. The book includes chapters on designating crisis management teams, how to handle the media, community relations and communication, damage control, and lessons learned. The emergency events included in the book range from product tampering to violence in the workplace.

*"Bad Weather? Then Sue the Weatherman! Part 1: Legal Liability for Public Sector Forecasts." "Part II: Legal Liability for Private Sector Forecasts." Roberta Klein and Roger A. Pielke, Jr. **Bulletin of the American Meteorological Society**, Vol. 83, No. 12, pp. 1791-1807. Interested persons can download free copies of the article at http://ams.allenpress.com/amsonline. For subscription and membership information, contact the AMS, 45 Beacon Street, Boston, MA 02108-3693; (617) 227-2425; fax: (617) 742-8718; e-mail: amsinfo@ametsoc.org.*

Weather forecasts have become demonstrably more accurate in recent decades due to increasingly sophisticated computer technology and models. Yet scientists cannot predict the future with 100% certainty. However, relying on inaccurate or inadequate forecasts can result in great financial or even bodily harm. In such situations, what liability, if any, arises under the U.S. legal system? ***Part I*** discusses several court decisions resolving lawsuits against the federal or state government based on inaccurate or inadequate weather-related forecasts or failure to issue weather warnings that led to injury or loss. In general, most claims against the federal government based on weather forecasting or failure to warn about weather conditions have been (and likely will continue to be) resolved in favor of the government on the basis of immunity under the Federal Tort Claims Act (FTCA). State government immunity will depend on the provisions of a state's immunity statute and how the state interprets its immunity statute. ***Part II*** of the review addresses claims against private sector weather forecasters. Both articles aim to familiarize the reader with some of the legal issues involved when forecasts are the subject of a lawsuit, rather than provide a comprehensive, law-review-style legal analysis.

***The Mathematics of Natural Catastrophes**. Gordon Woo. 1999. 292 pp. $58.00. Available from World Scientific Publishing Co., Inc., 1060 Main Street, River Edge, NJ 07661; (201) 487-9655; http://www.wspc.com/books/engineering/p156.html.*

This book explores the mathematical aspects of natural disasters and catastrophes, ranging from hazard warning and forecasting to engineering design criteria to insurance loss estimation. Chapters include a taxonomy of natural hazards, uncertainty, forecasting, warning, damage estimation, financial issues, and a discussion of catastrophe management using computer technology.

***On The Practice of Safety**. Third Edition. 2003. 504 pp. $94.95. To purchase a copy, contact Wiley Publishers, Customer Care Center, Consumer Accounts, 10475 Crosspoint Boulevard, Indianapolis, IN 46256; (877) 762-2974; fax: (800) 597-3299; e-mail: customer@wiley.com; http://www.wiley.com.*

This volume was created to provide a solid foundation for students of the practice of safety. It addresses such topics as safety performance as a reflection of an organization's culture; defining the practice of safety; academic and skill requirements; addressing severe injury potential; modeling hazardous incidents; incident investigation; hazard analysis and risk assessment; acceptable risk; designing for safety; applied ergonomics; quality management; safety, health, and environmental audits; behavior-based safety; and measurement of safety performance.

Homeland Security

***Homeland Security at the Community Level: Issues and Opportunities—A Report on the First Annual Conference on "The Community and Homeland Security."** 2003. 20 pp. $8.00. Printed copies of the report can be obtained from Susan Marchionna, National Council on Crime and Delinquency (NCCD), 1970 Broadway, Suite 500, Oakland, CA 94612; (510) 208-0500, ext.*

346; fax: (510) 208-0511; e-mail: susan@sf.nccd-crc.org; http://www.nccd-crc.org. To obtain an electronic copy of the report, e-mail George Haddow of the SAFE (Securing America's Future for Everyone) Project: george_haddow@hotmail.com.

***Annotated Organizational Chart for the Department of Homeland Security**. 2003. 11" x 17". Free. To request a printed copy, e-mail george_haddow@hotmail.com.*

***Information Technology for Counterterrorism: Immediate Actions and Future Possibilities**. 2003. 144 pp. $32.00, mail order; $25.60, on-line orders. To purchase a copy, contact the National Academies Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (800) 62406242; fax: (202) 334-2793; e-mail: jhenig@nas.edu; http://www.nap.edu. The complete document can also be viewed on-line at http://www.nap.edu/catalog/10640.html.*

Information technology (IT) is essential to almost all of the nation's critical functions, including transporation, power, financial and banking systems, communications, and the Internet. This reliance on IT makes infrastructures vulnerable to terrorist attacks (or other disruptions) on computers or telecommunications systems. IT is both a potential target and a potential weapon. This book provides both short- and long-term suggestions for using IT systems to thwart attack or improve emergency response while simultaneously securing the nation's infrastructure against an IT-based offensive.

***The Pentagon Building Performance Report**. 2003. 88 pp. $29.25, American Society of Civil Engineers (ASCE) members; $39.00, nonmembers. To purchase a copy, contact the ASCE, 1801 Alexander Bell Drive, Reston, VA 20191; (800) 548-2723; http://www.pubs.asce.org.*

On the afternoon of September 11, 2001, ASCE's Structural Engineering Institute established a Building Performance Study (BPS) team to examine the structural damage inflicted on the Pentagon. Team members reviewed available information on the structure, crash loading, and eyewitness accounts, and drew on focused assessments by others. After performing impact, static and thermal analyses, the BPS team made recommendations for future building design and construction and suggestions on areas where research and development is needed. Their findings are disclosed in this report. The report provides a thorough assessment of the structural system that prevented extensive collapse of the Pentagon. From the redundant and alternative load paths of the unique beam and girder framing system, to the ability of the structure to absorb excess energy, the Pentagon withstood both structural and thermal trauma better than would have been expected.

***State and Local Homeland Security Funding Report**. No. 03-08. Published twice monthly. Annual subscriptions, $377/year; individual copies, $18.00. To subscribe, contact CD Publications, 8204 Fenton Street, Silver Spring, MD 20910; (800) 666-6380; fax: (301) 588-6385; e-mail: hsf@cdpublications.com; http://www.cdpubications.com. Copies are available in both print form and on-line with a subscription.*

This new periodical addresses the ins and outs of obtaining funding for homeland security efforts. In this issue, topics include the availability of applications for homeland security grants, the release of guidance for grant applications by the Department of Homeland Security, state-level funding efforts, preparedness, police, fire, emergency services, biopreparedness, funding awarded by state, medical issues, education, transportation, infrastructure, and communications. The "Federal Grant Monitor" section describes grant programs and where to locate further information on the Internet.

***Modular Emergency Medical System: Expanding Local Healthcare Structure in a Mass Casualty Terrorism Incident**. 2002. 54 pp. Free. Copies of the report can be downloaded from the U.S. Army Soldier and Biological Chemical Command's (SBCCOM's) Homeland Defense Business Unit web site: http://hld.sbccom.army.mil/ip/mems_copper_book_download.htm.*

In order to manage the potentially overwhelming casualty load that would result from a covert bioterrorist attack, SBCCOM developed the Modular Emergency Medical System (MEMS) to address the effective management of casualty care resources in the event a large number of victims seek treatment. This report describes MEMS and provides tips for planning for neighborhood emergency help centers, acute care centers, medical command and control, casualty transportation, community outreach, mass prophylaxis, and public information.

Floods

***Flood Problem and Management in South Asia**. M. Monirul Qader Mirza, Ajaya Dixit, and Ainun Nishat, editors. 2002. 215 pp. $83.00. Copies are available from Kluwer Academic Publishers, 101 Philip Drive, Norwell, MA 02061; (781) 871-6600; fax: (781) 871-6528; http://www.wkap.nl.*

This volume focuses on both the hazard and the vulnerability aspects of floods in South Asia using a multidisciplinary approach. It examines the characteristics of the flood problem as well as its management aspects. Contributors suggest that effective solutions go beyond structural measures and require major restructuring of both the legal systems and institutions responsible for floodplain management. Topics include the hydrometeorological aspects of floods in India, recent flooding in Bangladesh, long-term mitigation strategies, floodplain residents' preferences for water level management in flood control projects in Bangladesh, flood management in India, glacial lake outbursts, vulnerability, regional cooperation, and the economics of flood protection in India.

Earthquakes

***Redevelopment After Earthquakes**. 2003. 240 pp. $18.00. To purchase a copy, contact Spangle Associates, Urban Planning and Research, 3240 Alpine Road, Portola Valley, CA 94028-7592; (650) 854-6001; fax: (650) 854-6070; http://www.spangleassociates.com.*

Redevelopment After Earthquakes is based on case studies of 11 cities that were damaged by major disasters, including Anchorage, Alaska; Los Angeles, California; Homestead, Florida; and Grand Forks, North Dakota. The study finds that redevelopment and reconstruction can be mutually beneficial, particularly that redevelopment can be a powerful part of reconstruction after disasters, in part because agencies are able to focus on damaged areas for a long period of time. In addition, reconstruction provides an opportunity to implement existing plans for redevelopment project areas. The report includes recommendations for local governments as well as state and federal agencies. Local governments are advised to be prepared to establish a redevelopment agency or project area. State and federal governments are urged to help make redevelopment more straightforward and easier to use after a disaster. An appendix to the report contains information on the redevelopment laws from 10 states.

***Planning and Engineering Guidelines for the Seismic Retrofit of Historic Adobe Structures**. 2003. 160 pp. $35.00. Copies can be purchased from the Getty Conservation Institute, Getty Publications, Book Distribution Center, P.O. Box 49659, Los Angeles CA 90049-0659; (800) 223-3431; http://www.getty.edu/bookstore.*

This volume is a companion to ***Seismic Stabilization of Historic Adobe Structures: Final Report of the Getty Seismic Adobe Project*** (see the ***Observer***, Vol. XXV, No. 4, p. 27). It offers

guidance for planners, architects, and engineers in the retrofitting of historic and culturally significant adobe structures. It describes the types of earthquake damage typically encountered in historic adobe buildings and presents detailed technical procedures for applying the appropriate retrofit measures.

Tsunamis

Evaluation of Tsunami Risk to Southern California Coastal Cities: The 2002 NEHRP Professional Fellowship Report*. Mark R. Legg, Jose C. Borrero, and Costas E. Synolakis. 2003. 43 pp. Free. Available from the Earthquake Engineering Research Institute (EERI), 499 14th Street Suite 320, Oakland, CA 94612-1934; (510) 451-0905; http://www.eeri.org/tsunami_risk/FinlRept.pdf.*

This report focuses on the potential occurrence and damage effects of tsunamis generated by major offshore earthquake sources along the California coast. Topics covered include estimating tsunami amplitude, run-up, inundation, and overall occurrence probability. The authors model the Santa Catalina Island platform along two major fault sections and create a simulated 7.6 magnitude earthquake to explore the potential impacts of wave propagation effects. Because of high human population and the value of coastal property, ports, and urban infrastructure, there is potential for great loss from these infrequent offshore events.

The Latest GAO Reports

Since our last issue, the U.S. General Accounting Office (GAO) has released reports that run the gamut from assessing infrastructure vulnerability to providing grants to firefighters, to providing earthquake recovery assistance to El Salvador. Titles include:

Transportation Security Research: Coordination Needed in Selecting and Implementing Infrastructure Vulnerability Assessments*. GAO-03-502. 2003. 23 pp.*

Homeland Security: Information Sharing Responsibilities, Challenges, and Key Management Issues*. Testimony Before the Committee on Government Reform, House of Representatives. GAO-03-715T. 2003. 50 pp.*

Nuclear Regulation: Emergency Preparedness Issues at the Indian Point 2 Nuclear Power Plant*. Testimony Before the Subcommittee on National Security, Emerging Threats and International Relations, Committee on Government Reform, House of Representatives. GAO-03-528T. 2003. 12 pp.*

Department of Homeland Security, Federal Emergency Management Agency: Assistance to Firefighters Grant Program*. GAO-03-655R. 2003. 4 pp.*

Foreign Assistance: USAID's Earthquake Recovery Program in El Salvador Has Made Progress, but Key Activities Are Behind Schedule*. GAO-03-656. 2003. 38 pp.*

Single copies of printed GAO reports are free. Additional copies are $2.00 each. To order, contact the *U.S. General Accounting Office, 441 G Street, N.W., Room LM, Washington, DC 20548; (202) 512-6000; fax: (202) 512-6061; TDD (202) 512-2537.* Copies are also free on-line from *http://www.gao.gov*.

Electronic Fare

Emergency Management Plan for Public and Private Schools (K-12) on CD-ROM*. Douglas Henderson. 2002. $15.00, plus $7.00 shipping. For ordering information, contact Rothstein Associates Inc., 4 Arapaho Road, Brookfield, CT 06804-3104; (203)740-7444; http://www.rothstein.com/data/dr700.htm.*

School systems and other academic institutions conduct emergency response operations differently than corporations or other for-profit organizations. School-based factors include the presence of large numbers of children, as well as the educational purpose of the institution. This CD-ROM is aimed at helping administrators, teachers, and others design emergency management plans using templates for use in a K-12 school environment. Planning templates help users create plans at the school system level, and include suggestions for developing emergency plans targeted to a wide range of school-specific situations, including emergency lockdown procedures. Sections include information on how to organize district-wide emergency management teams, design and activate effective plans, and collect and use information.

America's Conference on Wind Engineering—2001*. 2003. CD-ROM. $25.00, AAWE members; $35.00, nonmembers. To order a copy, contact the American Association for Wind Engineering, P.O. Box 161, Fort Collins, CO 80522-0161; (970) 491-2545; fax: (970) 491-8232; e-mail: aawe@aawe.org; http://www.aawe.org.*

This CD contains every paper presented at the wind engineering conference hosted by Clemson University in 2001.

CD-ROM Version of The Disaster Recovery Yellow Pages. *2003. $98.00, plus $3.00 shipping. Available from the Systems Audit Group Inc., 25 Ellison Road, Newton, MA 02459; (617) 332-3496; http://www.disaster-help.com/order.html.*

The publishers of the hard copy ***Disaster Recovery Yellow Pages*** have issued a PC-based CD-ROM version of their disaster source book designed to help users locate recovery services information and resources throughout North America. Categories covered include drying and dehumidification of paper and microfilm records, trauma counselors, emergency computer network rental information, restoration services, training, business continuity, and more. Yearly CD-ROM updates will be available.

A Call for Papers

The Bulletin of the Seismological Society of America (BSSA) is publishing an upcoming special edition about the October 2002 earthquakes in Alaska. The issue will focus on research and investigation results on all seismological, geodetic, and other geophysical, and earthquake engineering aspects of the Nenana Mountain and Denali fault earthquakes and aftershocks.

Paper submissions from those working in these areas are encouraged. The deadline for manuscript submission is December 31, 2003, and it is anticipated that the issue will be published in December 2004. Prior to submission, interested authors are encouraged to contact one of the guest editors, *Charlotte Rowe, e-mail: charl@land.gov, or Doug Christensen, e-mail: doug@giseis.alaska.edu.* General information about the Seismological Society of America is available at *http://www.seismosoc.org*.

THE HAZARDS CENTER

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER was founded to strengthen communication among researchers and the individuals and organizations concerned with mitigating natural disasters. The center is funded by the National Science Foundation, the Federal Emergency Management Agency, the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Department of Transportation, the U.S. Bureau of Reclamation, the U.S. Forest Service, the National Aeronautics and Space Administration, the Centers for Disease Control and Prevention, the Institute for Business and Home Safety, and the Public Entity Risk Institute. Please send information of potential interest to the center or the readers of this newsletter to the address below. The deadline for the next ***Observer*** is *July 25, 2003*.

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Copies of the ***Observer*** and the Hazards Center's electronic newsletter, ***Disaster Research***, are also available from the Natural Hazards Center's web site:

http://www.colorado.edu/hazards

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