

# Natural Hazards Observer

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# The International Hurricane Center

*--an invited comment*

## **Improving Hurricane Preparedness**

In 1996 the International Hurricane Center (IHC) was created at Florida International University (FIU) to carry out interdisciplinary research and training regarding hurricane hazards and to assist communities, government, and the private sector in improving mitigation and preparedness. Our geographic focus is the state of Florida, other Atlantic and Gulf Coast states, and Caribbean and Central American nations, including Mexico.

The IHC is a system-wide research center of the State University System of Florida, allowing the IHC to draw on faculty expertise in all 10 of the constituent universities. The center is located on the FIU campus in Miami near the National Oceanic and Atmospheric Administration's (NOAA's) National Weather Service Tropical Prediction Center/National Hurricane Center, also located on the FIU campus. Indeed, the IHC is currently establishing a mirror site on the Internet for the National Hurricane Center, whose site is often overloaded during active periods of the hurricane season.

## **Predicting Storm Impacts**

When I took over as the first director of the IHC in August 1997, one of my initial tasks was to establish a series of activity dimensions that the IHC should develop, some of which were fortunately already underway. With funding from FIU, we are currently developing a Comprehensive Hurricane Forecast Capability. Using such technology as TAOS (The Arbiter of Storms), which is able to model hurricane effects, including wind, rainfall, storm surge, and wave action at extremely high resolution, we will be able to rapidly assess the social, economic, and infrastructural consequences of storms and provide increasingly comprehensive forecasts of potential hurricane impacts. This capability promises to become a major tool for mitigation and preparedness planning by all levels of government and the private sector.

## **Applying Research to Practice**

A major preoccupation in all hurricane areas is the adequacy and enforcement of building codes, and a second IHC activity focuses on this often sensitive issue. The goal of the IHC is to contribute the kind of objective research (and eventually a testing capability) that will allow appropriate groups and associations to improve building codes and make new construction more hurricane resistant. The problems of dealing with existing vulnerable structures and ensuring adequate code enforcement are addressed in our public policy research.

As a university entity, the IHC conducts both basic and applied research, although I believe this distinction is often overdrawn. Basically, IHC research tries to answer fundamental questions in order to

reduce the threat from hurricanes. The center is currently engaged in research in the following areas: household mitigation and evacuation; storm hazard and vulnerability mapping, especially vulnerable populations; long-term community recovery; and insurance mitigation incentive programs. In the past, these research efforts have been supported by the National Science Foundation (NSF). Currently, they are also partially funded by the Florida Department of Community Affairs.

In cooperation with NOAA's National Hurricane Center and Hurricane Research Division, we are also revising the historical hurricane database (Hurdat). One of my particular research interests, which we will continue at the IHC, involves beach erosion and storm impacts along the east coast of the U.S. Another project, funded by NSF, is examining social movement organizations that grew out of the great Mexico City disaster of 1985. Finally, we are also initiating a project that tests a model of the relationship between natural disasters and political unrest worldwide over a 40-year period.

As already suggested, active involvement with practitioners and the world outside the university is part of the IHC mandate. To help meet this goal, we have developed a seven-module certificate program, offered through FIU's Division of Continuing Education, on Emergency Management and Hazard Mitigation.

Finally, because the hurricane threat is linked to the larger problem of climate change, at the behest of the White House Office of Science, Technology, and Policy and NOAA's Office of Global Programs, the IHC is hosting a Workshop on Climate Change and Extreme Events, July 21-23, 1998. This particular workshop will focus on south Florida and the U.S. Caribbean islands and explore the implications of global warming for hurricane frequency, severity, and tracking. South Florida and low-lying Caribbean islands are especially vulnerable to global warming-induced sea-level rise, which greatly exacerbates storm surge flooding.

## **A National Hurricane Program**

Hurricane research and mitigation cannot advance rapidly without advocacy and funding. Hence, with IHC staff and other interested parties, I am initiating an effort to develop a National Hurricane Hazard Reduction Act, modeled on the successful 1977 National Earthquake Hazard Reduction Act. Although such an effort will require long-term dedication, it is time--past time really--for the hurricane community to organize itself as an advocacy coalition and pursue the kind of master legislation at the national level that has so enhanced basic and applied research in the earthquake area.

## **Cast of Players**

The International Hurricane Center was made possible by an initial endowment from the We Will Rebuild Foundation (WWR), a private, nonprofit organization that was a key player in Miami's and Dade County's recovery efforts following Hurricane Andrew. Along with the endowment, the WWR Foundation also funded an Eminent Scholar Chair, to be housed within the IHC. In January 1998, the IHC brought in Richard Olson as the first WWR Foundation Eminent Scholar.

At the same time, the IHC involves a large number of additional researchers from a broad spectrum of interests, including sociologists, anthropologists, construction management researchers, statisticians, geographers, economists, political scientists, and engineers. I am fortunate to have a set of fine individuals with whom to develop the IHC.

For further information on the IHC, I invite you to visit our Web site: <http://www.fiu.edu/orgs/IHC>.

**Stephen P. Leatherman, Director, International Hurricane Center**

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## **For Further Information . . .**

<http://www.fiu.edu/~hurricane>

<http://www.fiu.edu/~longoria/geohazards>

The IHC Web site offers information about the center and staff, the center's ongoing research, IHC events, education and training provided by the center, and publications. It also provides links to the National Hurricane Center and other related institutions, as well as the proceedings and the declaration resulting from the Hemispheric Congress on Disaster Reduction and Sustainable Development. The related geohazards site furnishes information about geohazards and remote sensing studies conducted at the center. The staff is currently doing work in Mexico related to geohazard mitigation.

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*Not to be Confused with the Natural Hazards Center . . .*

## **The Natural Hazards Research Centre**

The Natural Hazards Research Centre was established in 1994 at Macquarie University in Australia, north of sunny Sydney's magnificent harbour and less than half a marathon run from the 2000 Olympic site. Our vision is to generate applied and strategic research and training in hazard management for the global insurance industry and other collaborators and partners. We call Australia home, but regard Asia and the Pacific as part of our territory, with recent projects in Jakarta, Rabaul, Guam, and Fiji. Core funding for the centre, guaranteed until mid-2000, comes from four companies associated with the insurance industry, and, inevitably, much of the centre's research has an industry flavor.

The centre has eight staff and five postgraduate students. Most staff and students have degrees in geography, but invaluable additions include geology, computing, engineering, meteorology, environmental economics, and agronomy. We are interested in all natural perils, focusing on loss estimation and risk assessment.

Most of our loss estimation research has been on potential earthquake damage to houses in Australian capital cities, building on detailed studies of losses in the 1989 Newcastle earthquake--Australia's most expensive insurance loss. As a result of the 1990 Sydney hailstorm--the third most expensive loss in Australian insurance history--we have developed a good understanding of house damage in hail storms and have begun modeling losses to motor vehicles. Other projects have tackled hailstorms and winter wheat and cotton losses, and examined links between hail frequency and the Southern Oscillation Index. Recently, NHRC has purchased the rights to ANUFLOOD flood damage estimation software, which will be expanded, upgraded, and modified for insurance purposes during the next few years.

NHRC has always had a thing about databases, reasoning that reasonably long records of perils and consequences are required in order to understand magnitude-frequency relationships and future consequences. Most of our databases have been pieced together from scientific reports, newspaper accounts, local histories, government archives, and even mission histories. Databases cover tropical cyclones and tsunamis in the South Pacific, landslides in Australia, multiple perils in the Solomon Islands, hailstorms in Sydney, lifeline vulnerability, and deaths in Australia in landslides, lightning strikes, heatwaves, tropical cyclones, floods, and bushfires. We are optimistic that one day soon we will have all of these data in a single format. These databases will prove invaluable in a three-year project NHRC has just begun--to provide a damage index for each natural hazard event since 1900 and a risk rating for each peril in each of the 2,381 postal code areas in Australia.

Please bookmark the NHRC Web site at <http://www.es.mq.edu.au/NHRC/> to learn more about us, or to browse our newsletter, *NHQ--The Natural Hazards Quarterly*. E-mail NHRC at [NHRC@ocsl.ocs.mq.edu.au](mailto:NHRC@ocsl.ocs.mq.edu.au) if you would like to join the hard-copy mailing list. Finally, check our Web site to obtain information on the Natural Hazards Society ([see the related article](#) in this *Observer*) and to interrogate the Australian Hazards Research Directory, which can tell you who is doing what in our hemisphere as far as disaster research.

**Russell Blong, Director, Natural Hazards Research Centre, Macquarie University, Australia**

(**Author's note:** This article is presented in the original Strine spelling, which differs from Merkan spelling [Strine is a strine word meaning Australian--it helps if you read it out loud without moving your lips. Merkan is a language spoken by people who live in a big country near Canada].)

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## **Napa County Voters Support Environmentally Friendly Flood Control**

On March 3, 1998, residents of Napa County, California, approved a flood control measure that would restore wildlife habitat, remove homes and businesses from repeatedly flooded areas, and create meander belts where the river can wander during floods without causing property damage. The plan also authorizes a bypass to divert floodwaters away from downtown Napa and creates more than 500 acres of

restored marshland, tidal terraces, and riverine forest, further enhancing wildlife and fish habitat in the region. Concrete will only be used in a short channel within the city of Napa to protect historic buildings.

The measure, which drew enough votes for the two-thirds margin required for enactment, authorizes collection of a special half-cent sales tax and is projected to raise \$6 million annually for 20 years. The funds will be used for a variety of projects along 30 miles of the Napa River. Under an existing agreement, the federal government will contribute \$78 million toward the project to match funds from the city of Napa.

The measure grew out of extensive discussions among federal, state, and local authorities searching for ways to deal with chronic flooding along the Napa River caused by population growth, encroachment on the floodplain, and widespread farming practices in the upper valley that have contributed to increased runoff. Advocates say the environmentally benign project appears to be the first of its kind. In addition to expanding marshland, the plan calls for cleaning up several riverside sites contaminated by toxins.

In a related measure, on May 8, Vice President Gore announced that FEMA had awarded \$1.1 million to Napa County to elevate 30 homes above flood levels, lessening erosion and undercutting by the river, and thus decreasing the amount of silt and other debris washing down the river in future floods. FEMA is funding 75% of the cost of the project, with the balance coming from local sources.

These funds were made available as a result of a presidential disaster declaration for Napa County in the wake of last February's floods. In such cases, a portion of FEMA recovery funds is allocated for approved projects that reduce future disaster risks.

For more information on this program, contact the *FEMA Office of Emergency Information and Public Affairs*, 500 C Street, S.W., Washington, DC 20472; (202) 646-4600; e-mail: [eipa@fema.gov](mailto:eipa@fema.gov); WWW: <http://www.fema.gov>.

[Portions of this article were adapted from information that appeared in the *San Francisco Chronicle*.]

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## Help Wanted--FEMA Seeks Outstanding Scholars

A recent Federal Emergency Management Agency (FEMA) job announcement (#98-084-OSP2) outlines FEMA's Outstanding Scholar program. In summary, it states:

The Outstanding Scholar positions are offered at the GS-07 level and pay \$26,532 per year. They have a promotion potential to GS-12 (\$47,066 - \$61,190 per year). (This salary range is based on the pay schedule for the Washington, D.C. area. Pay rates for other localities vary.) The positions are located in Washington, D.C., with limited positions nationwide. Applicants will be considered from anywhere in the U.S.; however no relocation expenses will be paid.

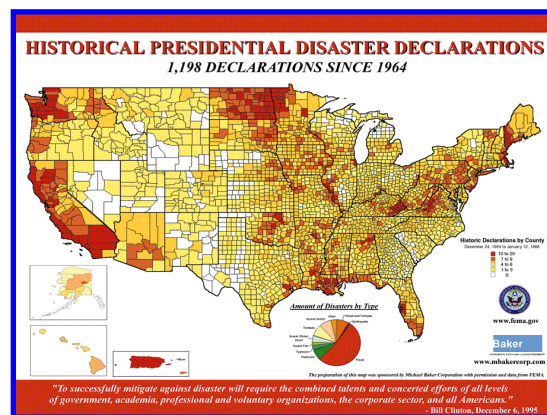
All majors will be considered. FEMA's Outstanding Scholar recruitment program maintains an active employment referral file for the following job areas: computer science, information systems, contract specialist, human resources management, accounting, and emergency management. By applying through the Outstanding Scholar program, candidates become eligible for noncompetitive employment referral to offices throughout FEMA.

Individuals hired under this program will perform trainee-level professional work involving planning for, responding to, and recovering from natural and technological disasters. The positions allow the employee to take on progressively higher-level duties. Responsibilities may involve working closely with other federal, state, and local governments and the private sector.

Details on applying are available from *Cheri S. Allen, OHRM, FEMA, 500 C Street, S.W., Room 816, Washington, DC 20472; (202) 646-3072.*

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## Presidential Disaster Declarations Map



**Click on image for larger view.**

**Just about every county, city, and town across the United States is subject to one or more natural hazards. When such events occur, and especially when people and property are severely impacted, the President may be asked to declare a natural disaster. Starting in late 1964, federal records identify counties that were included in each declaration and indicate the hazard that prompted the declaration.**

**In support of the Federal Emergency Management Agency's Eastern U.S. Mitigation Summit held in December 1997, and using data**



provided by FEMA, the Michael Baker Corporation prepared this map as a reminder that hazards happen everywhere, and few of us should be caught unaware. The map can be viewed at <http://www.bakerprojects.com/fema>.

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## Washington Update

### Govs and Feds Sign Agreement to Reduce Flood Risks

On February 24, 1998, governors of western states and top federal officials signed a Memorandum of Understanding, agreeing to develop new partnerships to reduce flood risks in the West and improve the management of floodplains. The agreement follows significant flooding in recent months in California, Colorado, North and South Dakota, Idaho, Montana, Nevada, Oregon, and Washington. It was signed by representatives from the Departments of Agriculture, Interior, and Commerce; the Federal Emergency Management Agency; the Assistant Secretary of the Army for Civil Works; and the Western Governors' Association.

Under the agreement, states and federal agencies agree to:

- Develop new partnerships among all levels of government to improve floodplain mapping;
- Collaborate on improving flood risk and warning systems;
- Improve data sharing among states, tribes, and local governments; and
- Continue to improve disaster recovery program delivery through better coordination among federal agencies and state and local governments.

The *Memorandum of Understanding Among the Parties and the Western Governors' Association Regarding Future Management of Floodplains in the West* can be found on the WGA Web site: <http://www.westgov.org/wga/publicat/press/floodmou.htm>. Further information about this effort can be obtained from *Bruce Flinn, Western Governors' Association, 600 17th Street, Suite 1705 South Tower, Denver, CO 80202; (303) 623-9378; fax: (303) 534-7309; WWW: <http://www.westgov.org>*.

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### Emergency Supplemental Bill Becomes Law

On May 1, 1998, President Clinton signed into law the 1998 Emergency Supplemental Appropriations Act (Public Law 105-174), which provides funding for several agencies to cope with the impacts of recent natural disasters. Among other appropriations, the bill provides funding for the following:

#### Department of Defense

- Continued support for the Department of Defense's Pacific Disaster Center to manage disaster information supporting mitigation, preparedness, response, and recovery; assure critical

- infrastructure availability; provide humanitarian assistance at the federal, state, and local levels; and support the Global Disaster Information Network ([see the \*Observer\*, Vol. XXII, No. 4, p. 3](#));
- \$25.2 million for costs related to storm damage, Typhoon Paka-related damage, and El Niño-related damage to military housing facilities.

## **Department of Agriculture**

- \$87.4 million to cover the costs of emergency insured loans authorized by the Agricultural Credit Insurance Fund for losses in 1998 from natural disasters;
- \$30 million to the USDA's Emergency Conservation Program for losses from natural disasters; \$4 million to maple producers to replace taps and tubing damaged by the January ice storms in the Northeast; and \$14 million to the Tree Assistance Program to replace disaster-damaged trees that are not used for pulp, timber, or vineyards;
- \$4 million to compensate producers for losses of livestock due to natural disasters that receive a presidential disaster declaration; and \$6.8 million to the Dairy Production Disaster Assistance Program to compensate producers for loss of milk due to presidentially declared natural disasters;
- \$80 million to the Natural Resources Conservation Service for watershed and flood prevention operations.

## **Department of the Interior**

- For repairing damage caused by floods and other natural disasters--\$4.5 million to the Bureau of Reclamation; \$1.8 million to the Bureau of Land Management; \$33 million to U.S. Fish and Wildlife Service; and \$9.5 million to the National Park Service;
- \$1.2 million to the U.S. Geological Survey for emergency expenses resulting from floods and other natural disasters;
- \$48 million for State and Private Forestry for emergency expenses resulting from damage due to ice storms, tornadoes, and other natural disasters, \$10.5 million to the National Forest System;
- An additional \$2 million for wildland fire management for emergency expenses for forest fire presuppression activities on National Forest System lands, for emergency fire suppression on or adjacent to such lands or other lands under fire protection agreement, and for emergency rehabilitation of burned-over National Forest System lands, in response to damages cause by windstorms in Texas.

## **Department of Transportation**

- \$259 million to the Emergency Relief Program for expenses resulting from floods and natural disasters to be derived from the Highway Trust Fund;
- \$9.8 million to states to repair and rebuild freight rail lines of regional and shortline railroads or a state entity damaged by floods.

## FEMA and other agencies

- \$130 million to the Department of Housing and Urban Development in community development block grants for use only for disaster relief, long-term recovery, and mitigation in communities affected by presidentially declared natural disasters during 1998. This appropriation requires a 25% cost-share from recipients and excludes any activities funded by FEMA, the Small Business Administration, or the Army Corps of Engineers;
- An additional \$1.6 billion to FEMA to provide disaster relief.

The complete text of the legislation can be viewed on the World Wide Web at the Library of Congress site: <http://thomas.loc.gov>.

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## FEMA Issues Final Rule on Public Assistance Appeals

Recently, FEMA issued a final rule that changes the procedure for the review and disposition of appeals related to Public Assistance grants or the Hazard Mitigation Grant Program. Essentially, the rule reduces the number of appeals allowed from three to two to allow faster final determination of decisions on appeal. It took effect May 8, 1998.

Under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, any decision regarding eligibility or amount of assistance may be appealed. Under the old rule, FEMA allowed a three-stage appeals process that involved the FEMA regional director, the associate director, and the director. Under the new regulation, the FEMA regional director will review the appeal first, then a second appeal may be made to the associate director/executive associate director for response and recovery.

The final rule, including an in-depth description of the appeals process, appears in the April 8, 1998, *Federal Register* (Vol. 63, No. 67, pp. 17108-17111). A correction of the final rule appears in the May 6 *Federal Register* (Vol. 63, No. 87, pp. 24969-24970). Both can be found at any *federal depository library* or on-line at: <http://www.access.gpo.gov>. For more information on this new regulation as it relates to Hazard Mitigation Grant Program appeals, contact *Robert F. Shea, Mitigation Directorate, FEMA, 500 C Street, S.W., Washington, DC 20472; (202) 646-3619; fax: (202) 646-3104*. For information on the regulation's impact on Public Assistance grant appeals, contact *Melissa M. Howard, Response and Recovery Directorate, FEMA, 500 C Street, S.W., Washington, DC 20472; (202) 646-3053; fax: (202) 646-3304*.

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## An Update on the Natural Hazard Loss Estimation Methodology--HAZUS

In an effort to help local governments reduce losses from natural hazards through better loss estimation, FEMA funded the National Institute of Building Sciences to develop HAZUS, a standardized earthquake

loss estimation tool that uses geographic information system software ([see the \*Observer\*, Vol. XXI, No. 2, p. 11](#)). HAZUS is one component of FEMA's National Mitigation Strategy, which promotes reduction of long-term risk to people and property from earthquakes. The system can also be used by local governments to enhance short-term recovery by improving emergency preparedness for earthquakes.

HAZUS is being expanded to cover other hazards, with models being developed to estimate potential losses from wind (hurricanes, thunderstorms, tornadoes, extra-tropical cyclones, and hail) and floods (riverine and coastal).

HAZUS comes in two versions, each compatible with one of the two major geographical information systems commonly used in the U.S., MapInfo™ and ArcView.™ The program is available on CD for either the eastern or western U.S. Other HAZUS products include individual CDs providing specific local data for multihazard exposure analysis by state; a user's manual; a three-volume technical manual; a computer based tutorial; and InCAST, an inventory survey and collection tool also on CD.

HAZUS products are available from the National Institute of Building Sciences at the address below at no charge (for the 1997 versions). Please note that private organizations will be charged for the costs of production, shipping, and handling for the 1998 version (expected later this year). Federal, state, and local agencies will continue to receive HAZUS products at no cost. For further information on HAZUS, visit the temporary HAZUS Web site at <http://www.fema.gov/hazus>. A permanent HAZUS Web site will be on-line shortly. For further information on the Multihazard Loss Estimation Program or HAZUS, contact *Phil Schneider, Multihazard Loss Estimation Program, National Institute of Building Sciences, 1090 Vermont Avenue, N.W., Suite 700, Washington, DC 20005-4905; (202) 289-7800; fax: (202) 289-1092; e-mail: [pschneider@nibs.org](mailto:pschneider@nibs.org)*.

For information on ordering HAZUS products, contact *John Boyer at the above address; (202) 289-7800; fax: (202) 289-1092; e-mail: [jboyer@nibs.org](mailto:jboyer@nibs.org)*.

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## **FEMA Recreates Public Assistance Program**

Recently, FEMA's Response and Recovery Directorate announced a major revision of its Public Assistance Program to improve the way it provides disaster assistance to communities receiving presidential disaster declarations. This new program has four components.

First, the agency is simplifying the process of providing technical and financial assistance to applicants. In particular, due to the diverse range of applicants, the program is being reorganized to meet varying needs and situations.

Second, the new process will forge stronger, more effective alliances with state governments. To achieve this, the agency is working to define more clearly the roles, responsibilities, expectations, and

procedures that will be used when a disaster strikes.

Third, the new process encourages proactive education programs and multiple means of distributing information, including the Internet.

Fourth, FEMA will provide a point of coordination to ensure consistent customer service. The point of coordination will act as the direct liaison between FEMA and state and local governments.

***The New Public Assistance Program Read Ahead Module*** (1998, 74 pp., free) provides detailed information about how the program will operate when fully implemented. It describes the new program, pre-identification of applicants, pre-education of applicants, preliminary damage assessment, immediate needs funding, requests for public assistance, emergency work, small project development and management, large project development and management, cost estimation, case management, special considerations, and public assistance program administrative information. The module is posted in Microsoft Word 97 format on the FEMA Web site: [http://www.fema.gov/r-n-r/pa\\_read.htm](http://www.fema.gov/r-n-r/pa_read.htm). For more information regarding the program, contact the *FEMA Office of Emergency Information and Public Affairs*, 500 C Street, S.W., Washington, DC 20472; e-mail: [eipa@fema.gov](mailto:eipa@fema.gov); WWW: <http://www.fema.gov/r-n-r>.

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## **GAO Testifies about Federal Disaster Assistance Costs**

Concerned about the increasing costs of paying for disaster assistance, the Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure of the House of Representatives held a hearing in March to examine ways to reduce these expenses. Judy England-Joseph, Director of the General Accounting Office's (GAO's) Housing and Community Development Issues, Resources, Community, and Economic Development Division discussed several approaches for lowering federal disaster costs. Her testimony is contained in the GAO report, ***Disaster Assistance: Information on Federal Costs and Approaches for Reducing Them*** (Report #GAO/T-RCED-98-139, 1998, 14 pp., free).

England-Joseph notes that disaster assistance costs have increased in the 1990s due to a series of unusually large and costly disasters, a general increase per year in the number of presidential disaster declarations, and a gradual expansion of eligibility for assistance through legislation and administrative decisions. She also notes that the scope of disaster assistance is now broader than aiding communities after a disaster has struck; it involves aid both before and after disasters from several federal agencies under a number of different statutory authorities. Almost three-quarters of federal disaster dollars were spent on postdisaster recovery, 22% on mitigation, and the remainder on immediate re-sponse to disasters and preparedness activities.

England-Joseph says that approaches for lowering federal costs include:



- Establishing more explicit and/or stringent criteria for providing federal disaster assistance;
- Emphasizing hazard mitigation through various incentives; and
- Relying more on insurance.

She notes, however, that the extent to which implementation of these approaches would lower costs is unknown.

The report can be obtained from the *U.S. General Accounting Office, P.O. Box 37050, Washington, DC, 20013; (202) 512-6000; fax: (202) 512-6061; TDD: (202) 512-2537; e-mail: [info@www.gao.gov](mailto:info@www.gao.gov); WWW: <http://www.gao.gov/reports.htm>.*

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## **EIIP and FEMA Team Up to Issue ACT NOW Preparedness Updates**

Are you starting a disaster education program in your community? Looking for tips on reaching young people or senior citizens with the preparedness message? Searching for ideas for working with other organizations that have similar goals? The FEMA Community and Family Preparedness (CFP) Program offers an on-line notice with the latest ideas and information on how to organize a disaster education program--the *Act Now Preparedness Update*. The *Update* is now available from the Emergency Infrastructure Information Partnership (EIIP) Virtual Library Archive: <http://www.emforum.org/vlibrary/actnow.htm>. Readers may also subscribe for quarterly e-mail text versions from <http://mail.speccomm.com:81/guest/RemoteListSummary/actnow>.

FEMA's CFP program works to help state and local emergency managers, voluntary organizations, businesses, neighborhood groups, and other organizations plan and run programs that educate the public about disasters. The goal is for all Americans to have the necessary information, education, and skills to protect themselves, their families, their neighbors (especially people with special needs), and their homes and businesses from the devastating consequences of disaster. To learn more about the CFP Program, see the FEMA Web site: <http://www.fema.gov/pte/protect.htm>.

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## **FEMA Issues Call for Case Studies on Disaster Education**

To meet the growing needs of disaster educators nationwide, FEMA's Community and Family Preparedness (CFP) Program (see the above article) is expanding its *Good Ideas Book* ([see the \*Observer\*, Vol. XX, No. 6, p. 11](#)) to include additional information and case studies on the most effective approaches to disaster education. By drawing upon the experiences of disaster educators in the field, the CFP Program seeks information on how to organize and run an effective disaster education program.

The CFP program is looking for additional good ideas that make a real difference in disaster education. The program seeks experiences on such topics as:

- How to organize community, neighborhood, workplace, and school-based programs;
- How to build effective partnerships and leverage financial resources; and
- How to reach persons with disabilities, children, and other special audiences.

Once the ideas and case studies are collected, FEMA plans to expand its *Good Ideas Book* and distribute the information to disaster educators as quickly as possible. Anyone with knowledge of unique partnerships, volunteer projects, or innovative approaches to disaster education is asked to send a short summary to *Ralph Swisher, CFP Program Manager, FEMA, 500 C Street, S.W., Washington, DC 20472; (202) 646-3561; e-mail: [Ralph.Swisher@fema.gov](mailto:Ralph.Swisher@fema.gov)*.

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## On the Line

### Government and Community Based Organizations: Models for Working Together

#### CBOs in Disaster

Successful disaster management requires the skillful blending of both public and private resources. In particular, community based organizations (CBOs)<sup>(1)</sup> can provide immediate, ongoing, and environmentally appropriate services during times of disaster that can complement government efforts. In the November 1996 issue of the *Natural Hazards Observer* ([Vol. XXI, No. 2, p. 12](#)), Burt Wallrich described the recent evolution of CBOs in California and argued for greater recognition of these groups by government.

Since that time, there has been progress in CBO/government cooperative efforts. During the February El Niño floods in California, 7,200 requests for assistance were made to the Federal Emergency Management Agency (FEMA). Of those, FEMA referred 1,200 requests for assistance to volunteer organizations.

In 1997, the city of Los Angeles granted nearly \$5 million to CBOs for disaster preparedness activities, including the training of other organizations. In addition, the U.S. Department of Commerce has sponsored the International Alliance of Information and Referral Systems in developing a national database of human service agencies that provide assistance after a disaster. Further, the National Voluntary Organizations Active in Disaster (NVOAD) adopted a policy urging its local units to include local CBOs in their planning and training activities, greatly expanding the number of organizations considered part of local VOADs. Also, the California Office of Emergency Services, through its regional offices and its Specialized Training Institute, has actively incorporated CBOs in local disaster work and researched successful models for the integration of these efforts. And finally, FEMA is developing a new distance-learning course on CBOs in disasters.



In California following the Loma Prieta earthquake, county-level alliances were developed with grants that promoted both disaster preparedness and coordinated response. However, although the work is not complete, the grants have been exhausted, leaving the future of many of these alliances uncertain. Presently, a few local United Way offices coordinate the CBOs in their communities. In other locations, the Red Cross is both a direct provider and coordinator of disaster-related services.

## **NGOs and CBOs in Bangladesh**

The study of CBOs in disasters recently took me to Bangladesh, where the efforts of nongovernmental organizations (NGOs) and their local CBOs are essential for the daily survival of local citizens. Bangladesh provides relevant lessons for the U.S.; for example, disaster victims can help themselves, public and private response efforts can be combined successfully, and ongoing coordination among CBOs and government is possible.

In Bangladesh, I met members of a community federation who braved flood waters in a federation-owned boat to rescue neighbors and their animals and take them to shelter. This is remarkable because only a few years ago, a fatalistic attitude toward disasters was pervasive in this region, and deaths from disasters were considered the will of Allah. Now the poorest of the poor in Bangladesh are banding together to help each other.

The Bangladesh federations are a project of the Rangpur-Dinajpur Rural Service, an NGO in the northern part of the country, that has been active since Bangladesh gained independence 25 years ago. The federations operate similarly to credit unions--members deposit savings and receive loans--but they are also organizations that stimulate social change, addressing problems such as early marriage, the collection of dowry, and family violence. Some have taken on disaster preparedness and response, including initial efforts to map floodplains, to develop family disaster plans, and to create shelter areas that provide safe drinking water and sanitary latrines.

## **CBOs and Cyclone Shelters**

In 1991, a cyclone killed over 500,000 people in southern Bangladesh; as a result, community based organizations have since been built and organized around cyclone shelters. I arrived the morning following a recent cyclone to meet with volunteers from the Christian Collaborative for Development, Bangladesh (CCDB), which has built 44 shelters and organized Calamity Preparedness and Management (CPM) teams consisting of groups of 10 males and 10 females for each shelter. Each team has been instructed in the elaborate cyclone warning system and home preparedness activities.

These teams developed a system for notification and evacuation to the shelters. Although this is a conservative section of a Muslim country, where the practice of purdah (sheltering women from contact outside the family) is common, female members of the CPM teams enthusiastically travel the villages, informing local citizens of cyclone status and encouraging villagers to go to shelters when necessary. At the shelter, the volunteers organize the queuing of up to 5,000 people in the two-story, open-walled

structures.

### Coordinating NGOs and CBOs

In Bangladesh, groups such as the Association of Development Agencies, Bangladesh (ADAB) coordinate over 1,300 NGOs with disaster missions. Additionally, the Disaster Forum, a voluntary association of some of the larger NGOs, also coordinates activities. Through monthly meetings, these organizations plan and network to reduce duplication and ensure effective distribution of relief supplies.

Because Bangladesh relies so heavily on nongovernmental resources daily, not only for disaster response, liaison with these organizations is a high priority for the national government. Not only are CBOs addressed by the cabinet-level Ministry of Disaster Management, but the NGO Affairs Bureau reports directly to the prime minister.

### Conclusions

Regardless of the setting, for CBOs and government to work effectively together, each must appreciate the other and recognize their different strengths and needs. I have summarized some of these differences in the table below.

In both developed and developing nations, community based organizations are often on the ground with needed resources when disasters approach or strike. Thus, a challenge to government is to support and sustain these groups between disasters and to assist them during disaster recovery.

### Janet Bradford Benini, Senior Emergency Management Coordinator, California Governor's Office of Emergency Services

The author's research in Bangladesh was sponsored by the Lutheran World Federation's Rangpur-Dinajpur Rural Service.

1. . As used here, Community Based Organization refers to a local organization (which may or may not be an affiliate of a national organization) whose primary mission is not disaster-related. Many are small, all-volunteer organizations, while others can be multimillion dollar operations. Nongovernmental organizations, or NGOs, tend to be larger organizations with a national or multi-national orientation.

<b>Government vs. Community Based Organizations</b>			
	<b>Government</b>	<b>Community Based Organizations</b>	<b>Implications/Problems</b>
Organization	Hierarchical system	Board of directors, staff	Can be hard to establish a single point of contact with CBOs, but their diversity is a strength

Decision Making	Chain of command	Consensus building	Government wonders who's in charge and CBOs don't respond to commands
Motivators	Statutes and regulations	Perceived needs	Government needs reports, statistics, accountability; CBOs concentrate on providing service
Funding	More stable	Contributions	Government usually has a stronger base, while CBOs can raise funds more rapidly in a crisis
Assets	More predictable	More flexible	Governments can plan more easily, while CBOs can respond more quickly to unforeseen conditions



## The Internet Page(s)

Below are a few Internet resources we've recently discovered. For a list of selected Internet/Web sites dealing with hazards and disasters, see <http://www.colorado.edu/hazards/sites/sites.html>.

### New Working Papers from the Hazards Center

Hazards researcher Elliott Mittler is undertaking a series of case studies as part of an assessment of state roles in disaster mitigation and management. The goal of the research is to understand why states initiate in-state programs, to determine how other states can be encouraged to follow suit, and to define an appropriate role for the federal government in supporting state initiatives. When the case studies are completed, a theoretical model of the initiation process will be tested. The first two case studies are now available from the Natural Hazards Center as Working Papers on the center Web site:

[\*\*WP96: A Case Study of Florida's Homeowners' Insurance Since Hurricane Andrew\*\*](#), by Elliott Mittler

[WP97: A Case Study of the Enactment of a State Building Code in South Carolina](#), by Elliott Mittler

Both papers are available from <http://www.colorado.edu/hazards/wp/wp.html>.

Persons without access to the World Wide Web can order printed copies for \$9.00, plus \$3.00 domestic shipping and handling, from the *Publications Clerk, Natural Hazards Research and Applications Information Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; (303) 492-6819; fax: (303) 492-2151; e-mail: [jclark@spot.colorado.edu](mailto:jclark@spot.colorado.edu)*. For overseas costs, contact the *Publications Clerk* at the address above or consult the Hazards Center on-line publication order form: <http://www.colorado.edu/hazards/puborder.html>.

## All Hazards

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

The California Environmental Resources Evaluation System (CERES) is a Web-based information repository developed by the California Resources Agency "to facilitate access to a variety of electronic data describing the region's rich and diverse environments." The goal of CERES is to improve environmental analysis and planning by integrating natural and cultural resource information from multiple contributors and making it available to a wide variety of users. The site provides much information that is useful beyond California, including sections on earthquakes (<http://www.ceres.ca.gov/theme/earthquakes.html>), El Niño (<http://www.ceres.ca.gov/elnino>), wildfire (<http://www.ceres.ca.gov/theme/fire.html>), and floods (<http://www.ceres.ca.gov/flood>).

<http://www.tor.ec.gc.ca/earg/pubs/ndha/ndha.htm>

This site contains *Natural Disasters and Human Activity--A Contribution to the North American Commission on Environmental Cooperation State of the Environment Report*, a paper by David Etkin, Maria Vazquez, and Ilan Kelman. It examines natural disasters in North America and includes sections entitled, "What is a Natural Disaster?"; "Types of Natural Hazards and Disasters," including an overview of natural disasters and case studies; "Natural Disasters That Might Have Been"; "How Human Activity Mitigates Natural Disasters"; "How Human Activity Contributes Towards Natural Disasters"; "Global Change and Sustainability"; and "Summary and Concluding Statement."

<http://cotf.edu/ETE>

<http://cotf.edu/ete/modules/modules.html>

The NASA-sponsored on-line "Classroom of the Future" includes a section on "Exploring the Environment," which, in turn, offers several units on natural hazards such as volcanoes, hurricanes, El Niño, and climate change. The modules provide extensive material for both students and teachers.

<http://www.es.mq.edu.au/NHRC/NHS/>

The International Society for the Prevention and Mitigation of Natural Hazards (the Natural Hazards

Society--NHS) was established in August 1988 with several major objectives:

- To promote research in all aspects of natural hazards,
- To assist in the distribution of preparedness and emergency response plans for countries around the world, and
- To assist in the formation and implementation of education programs on hazards prevention and mitigation.

The society hosts a global conference, supports other meetings, and publishes a journal and newsletter. This Web site includes details about the organization and the world conference, as well as an on-line edition of the society newsletter.

[http://members.tripod.com/~Richmond\\_ESM/index.html](http://members.tripod.com/~Richmond_ESM/index.html)

The University of Richmond School of Continuing Studies now offers professional certification for emergency managers and business continuity professionals who focus on managing emergency operations during the response phase of a disaster. Certification is based on a four-part, day-long examination that tests critical knowledge, the ability to analyze scenarios, decision making processes, work prioritization skills, and teamwork in problem solving in the emergency operations center or command post. Details on the Certified Crisis Operations Manager program are available from the Web site above.

In addition, as mentioned [in this \*Observer\*](#), Richmond's Emergency Services Management degree program now offers an electronic journal via the Web--*The Richmond Journal of the Emergency Services*. The front material for the journal can also be viewed at the Web site above. Additional information about the journal and program can be obtained from *Walter G. Green, Academic Program Director of Emergency Services Management, P.O. Box 799, Glen Allen, VA 23060-0799; (804) 371-3500; e-mail: [n0psb@aol.com](mailto:n0psb@aol.com)*.

<http://www.pswn.gov>

The opening page of the Public Safety Wireless Network (PSWN) Home Page states:

To be effective before, during, and after their [emergency] response, public safety officials, throughout all levels of government, must be able to communicate with each other. Currently, federal, state, and local public safety entities compete for limited radio spectrum, have limited public safety budgets, and face challenges in keeping pace with advances in technology.

The PSWN was established by the White House to address these issues. Its vision is "seamless, coordinated, and integrated public safety communications for the safe, effective, and efficient protection of life and property," and thus the PSWN mission is "to plan for and foster interoperability among wireless networks that meets the requirements of local, state, and federal public safety organizations." The network's Web site provides additional information about this effort, sections on recent developments and upcoming symposia, as well as a library with much background information about

disaster communications issues.

<http://www.southcom.com.au/~tasesn/tases.htm>

The official Web site of the Tasmania State Emergency Service, Tasmania, Australia, provides an overview of the State Emergency Service, its roles and functions, recent emergency management initiatives, details of recent operations, and links to other emergency management sites within Australia. Among the links is one to the Charles Sturt University, New South Wales, Australia, which offers a distance learning Bachelor of Social Science (Emergency Management) degree that has been jointly developed by the university and the Tasmania State Emergency Service.

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

The *Rothstein Catalog On Disaster Recovery*, a resource for several hundred books, software tools, research reports, and videos, is now available free on CD-ROM as well as at the URL above. Readers of the *Observer* may request a free CD-ROM by forwarding their complete mailing address to *Rothstein Associates Inc., 4 Arapaho Road, Brookfield, CT 06804-3104; fax: (203) 740-7401; e-mail: [info@rothstein.com](mailto:info@rothstein.com)*.

## Floods

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

The *Boulder Creek Flood Notebook* is a unique Web project--a plan for documenting and disseminating information about the causes and effects of a specific disaster that has not yet happened: the next great flood of Boulder, Colorado. The introduction to the notebook states:

The consequences of a major flood on Boulder Creek to human life, property, and to the natural environment can be devastating. Urban development within the floodplain of Boulder Creek has placed thousands of residents at risk to the devastating impacts of flash floods. The *Boulder Creek Flood Notebook* was designed to report, in a timely fashion, the extent of loss of life, property damage, social disruption, and environmental destruction associated with flooding on Boulder Creek. The purpose of this notebook is to provide an agenda for field workers to collect data which will be included in the future publication of *The Boulder Creek Flood of [year]: A Community Choice*. Following a major flood, [that] report . . . will be distributed to emergency management agencies at the federal, state, and local levels as well as to other interested parties. This research is being undertaken in the hope that lessons from the next flood on Boulder Creek may be learned by residents of other communities susceptible to flood hazards and, in the words of Dr. Gilbert White, that "the citizens of Boulder may be helped to understand how their community came to be vulnerable to the flood, and the kinds of decisions that may either reduce or enlarge the human consequences of the next large flood."

This extensive outline and plan could easily serve as a model for similar research on disasters elsewhere.

<http://www.fema.gov/nfip>

The Federal Insurance Administration has launched a National Flood Insurance Program (NFIP) Web



site as a subsection of the Federal Emergency Management Agency (FEMA) site. The NFIP information is intended for both the general public and the many organizations and agencies participating in the program. It includes much information about the NFIP and other flood disaster assistance available from the federal government as well as access to the newly revised NFIP booklet, *Answers to Questions about the National Flood Insurance Program*.

## Earthquakes

<http://www.urban.uiuc.edu/seismiccode>

This Web site provides background information, an introduction, and table of contents for a new FEMA earthquake safety manual, *Promoting the Adoption and Enforcement of Seismic Building Codes* (FEMA 313)--part of FEMA's larger effort to attract and support a group of advocates interested in promoting seismic building codes and their enforcement. Working with FEMA, the University of Illinois Department of Urban and Regional Planning is seeking to promote dissemination and active use of this new resource document by providing advocates with a free copy along with guidance on how to best use the material for outreach.

The new guidebook brings together much information about seismic risks and what various communities have done to incorporate seismic provisions into their building codes. Individuals who are interested in volunteering as "delivery agents" to help promote code enforcement activities can obtain a free copy of the manual along with guidance on its use by contacting *David O'Dowd/Marie McGuinness/Rajeev Thakur, University of Illinois, Department of Urban and Regional Planning, 111 Temple Buell Hall, 611 Lorado Taft Drive, Champaign, IL 61820; (217) 244-5374; fax: (217) 244-1717; e-mail: [seismiccode@uiuc.edu](mailto:seismiccode@uiuc.edu)*.

Copies of the manual are also available free from the *FEMA Publications Distribution Facility, 8231 Stayton Drive, Jessup, MD 20794; (800) 480-2520 or (800) 646-3484; fax: (301) 497-6378*.

<http://www.cusec.org>

The Central United States Earthquake Consortium (CUSEC) has redesigned and greatly expanded its Web site. It now includes sections entitled, "CUSEC in Perspective," "CUSEC News," "CUSEC Events and Programs," "Association of CUSEC Geologists," "CUSEC Products and Services," "CUSEC Bulletin Board," "New Madrid Seismic Zone," "Safety Information," and (of course) "Related Links." The site contains a wealth of information--particularly for persons concerned about earthquakes east of Amarillo and west of Weehawken.

<http://www-socal.wr.usgs.gov/north>

Now on-line is a new Web page summarizing the work of the U.S. Geological Survey following the 1994 Northridge earthquake. Users can download maps showing many aspects of the earthquake, such as the mainshock rupture, damage patterns, local site response effects, and landslide effects. Other supporting data sets are also available, including a fault database, digital geologic maps, topographic data, and reference lists to Northridge publications. The site includes photos from the earthquake and

animations of the earthquake rupture and aftershock sequence.

## Hurricanes

<http://www.fema.gov/fema/trop.htm>

When the 1998 hurricane season began on June 1, the Federal Emergency Management Agency (FEMA) launched this Tropical Storm Watch page on the World Wide Web. This is the fourth year for this on-line service, which offers hurricane preparedness information, fact sheets, maps, and links to other key sites with weather satellite images and forecasts. The site is updated daily--sometimes hourly--with news releases, situation reports, tracking maps, and graphics. As a hurricane approaches landfall, users can see the projected path of destruction and learn how FEMA is coordinating the federal government's efforts to help state and local governments cope with the impending disaster.

[http://coastal.er.usgs.gov/hurricane\\_forecast/](http://coastal.er.usgs.gov/hurricane_forecast/)

This portion of the U.S. Geological Survey's Center for Coastal Geology Web site provides *Natural Disasters--Forecasting Hurricane Occurrence, Economic and Life Losses*, a USGS report on fractal scaling methods used by the Survey to forecast the size and number of natural disasters and their attendant losses.

## Severe Weather and Drought

<http://www.tor.ec.gc.ca/events/icestorm98>

While freezing rain is not an uncommon Canadian experience, the ice storm that hit eastern Ontario, Quebec, and New Brunswick in January was exceptional. At this Web site, Environment Canada senior climatologist and resident climate expert, David Phillips, provides his analysis of Ice Storm '98, along with much background information.

<http://www.ncdc.noaa.gov/ol/ncdc.html>

<http://www.ncdc.noaa.gov/ol/climate/climateextremes.html>

The National Climatic Data Center provides volumes of information about the impacts of climate change, including the "Climate Change and Weather Extremes" section cited above. That site includes lists of events, reports, publications, data, images, and links to sites that deal with weather extremes.

<http://enso.unl.edu/ndmc/>

<http://enso.unl.edu/ndmc/enigma/enigma.htm>

<http://enso.unl.edu/wdcc/>

The Web site of the National Drought Information Center (NDMC) now includes current and back issues of the center's informative newsletter, *Drought Network News*, as well as a lot of other information about drought and the center's work on drought mitigation. For anyone concerned about this hazard, the NDMC site deserves serious scrutiny; see, for example, *The Enigma of Drought: Science and Impacts* at the second URL above.



From the same location, the Western Drought Coordination Council provides information about its ongoing work as well as a quarterly report, *Western Climate and Water Status*, which synthesizes 75 different data sources regarding the western U.S. water/drought outlook. Interested persons can receive the executive summary of this report quarterly via e-mail by contacting *Kelly Smith*, [khsmith@enso.unl.edu](mailto:khsmith@enso.unl.edu).

<http://www.thedj.com>

El Niño--the soundtrack?! The Internet music service TheDJ.com has compiled the first "All-Weather-Disaster Playlist." The service's El Niño channel includes such tunes as "Good Day Sunshine," "Rainy Day Women," "Stormy Weather," "Walking On Sunshine" and "Summer Wind," to provide some comic relief to grey El Niño days.

## Emergency Medicine

<http://www.lib.uiowa.edu/hardin/md>

<http://www.lib.uiowa.edu/hardin/md/emerg.html>

An updated version of the *Hardin Meta Directory Page for Emergency Medicine*, and also a new version of the *Hardin Meta Directory (MD) of Internet Health Sources* are now available from the URLs above. The new versions include a streamlined design, new features, and new Internet links.

## Wildfire

<http://www.denendeh.com/flycolor/wildfire/>

The Canadian Wildfire Network Web site is "designed by, for and about those people directly or indirectly involved in forest fire fighting in Canada. It is aimed at bringing together these resources in the hope of building a strong national firefighting reputation in the spirit of cooperation and communication." The site includes sections covering What's New?, Hot Spots (Web sites of the week), People, Fire News, Cool Sites, Agencies, Fire Reports, Weather, Behavior, Research, Education, Aviation, and Resources.

## New Discussion Lists

*DisasterInfo@paho.org*

The Pan American Health Organization has established a new listserv, DisasterInfo, through which PAHO will disseminate disaster information relevant to the Americas--of both general and immediate interest--and share advance notice of selected English-language news and information of interest to the international disaster community. This is a moderated listserv, not a discussion group; recipients will not receive messages or comments from other members of the list. Persons interested in receiving DisasterInfo news should e-mail their name, postal address, and e-mail address to *DisasterInfo@paho.org*.

### *Animals-in-Disasters List*

### *Public Information Officers List*

Anyone that has had to deal with residents who will not evacuate without their beloved cats or dogs, or has managed a shelter where evacuees brought their iguanas and boa constrictors, or has witnessed the carcasses of hundreds of cattle caught in flooding, will understand the need for an animal component in plans for community emergency management. Now there is a discussion list dedicated to the subject of animals before, during, and after disasters. To subscribe, send an e-mail message to [listserv@listserv.aol.com](mailto:listserv@listserv.aol.com) with no subject header and the single message: "subscribe animals-in-disasters <your name>." This list is open to everyone in the public safety and emergency management field at no charge. You do not need to be a member of America Online to participate.

An Internet mail list for public information officers (PIOs) of public safety agencies and organizations is available from the same address. PIOs of law enforcement, fire service, emergency medical, emergency management, search and rescue, and 911 agencies, and related organizations are welcome to participate in this new list. To subscribe, send an e-mail message to the address above with the message: "subscribe PIO <your name>." The PIO list is an information service of Public Safety America and is provided free of charge.



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## *Confronting Climate Change and El Niño . . .*

### **The U.K. Climate Impacts Program**

In April 1997, the British government launched a new program to assess comprehensively climate change impacts in the U.K. The U.K. Climate Impacts Programme (UKCIP) brings together public and private organizations with responsibilities for either studying or accommodating the effects of climate change, in order to undertake integrated sectoral and regional impact assessments.

After conducting an initial review of how climate change might affect the U.K., the group concluded that, based on one scenario of climate change, the impacts would be mixed, but that adverse effects would outweigh positive ones.

The UKCIP recently launched a newsletter to distribute information among stakeholders, researchers, and the program office. Copies are free; to obtain a subscription, or for more information, contact the *Program Coordinator, UKCIP, Environmental Change Unit, 1a Mansfield Road, Oxford, OX1 3TB, U. K.*; tel: 44-1865-281-192; fax: 44-1865-281-188; e-mail: [ukcip@ecu.ox.ac.uk](mailto:ukcip@ecu.ox.ac.uk); WWW: <http://www.ecu.ox.ac.uk/ukcip.html>.

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### **The UNU El Niño Impacts Program**

The United Nations University (UNU-Tokyo) is launching a multinational, multidisciplinary study of "El Niño Impacts and Response Strategies in Pacific Rim Countries." As a first step, the university is developing a plan of action, focusing on an assessment of the interest in and concern about forecasts, impacts, responses, and policies related to El Niño. This phase will involve forecasters, impact assessors, and, when possible, decision makers from various sectors of society. Researchers and institutes in countries that surround the Pacific will be included in the network. The project will seek to improve understanding of this regional-scale natural hazard that has spawned droughts, floods, frosts, fires, famines, and changes in typhoon tracks. For more information, contact project developer *Michael Glantz, National Center for Atmospheric Research, P.O. Box 3000, Boulder, CO 80307; (303) 497-8119; fax: (303) 497-8125; e-mail: [glantz@ucar.edu](mailto:glantz@ucar.edu)*.

[Adapted from the *Networks Newsletter*--a publication of the Environmental and Societal Impacts Group, National Center for Atmospheric Research]

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## The IAI Global Change Program

The Inter-American Institute for Global Change (IAI) is an international nonprofit organization established to promote regional collaboration in the Americas. It seeks to increase understanding of global change phenomena and their socioeconomic implications and to augment the region's overall scientific capacity.

The IAI, the U.S. National Oceanic and Atmospheric Administration's Office of Global Programs, the World Meteorological Organization (WMO), and the International Research Institute (IRI) for Climate Prediction, along with regional institutions, recently held a climate outlook forum, a workshop to design regional pilot applications projects, and a conference on the 1997-98 El Niño event. The meetings examined the following regions: Pacific South America (Lima, Peru); southeast South America (Montevideo, Uruguay); and northeast South America (Fortaleza, Brazil).

During these meetings, climate scientists formulated a consensus regional precipitation forecast. These same participants then joined potential users of this information to develop regional pilot application projects tailored for climate-sensitive sectors (e.g., health, agriculture, fisheries, disaster management, and water resources). Finally, participants shared this information with representatives of government, industry, media, and the general public.

For each climate outlook meeting, the participants issued a statement explaining the methodology used to formulate the forecast and then provided the forecast itself. The statements, forecasts, and maps for Pacific South America, southeast South America, and northeast South America are now available on the World Wide Web at: <http://iri.ucsd.edu/forecast/sup/>.

More activities are planned, including an evaluation of the success these forecasts and the process leading to them. For more information on the IAI and its programs, please contact the *IAI Directorate, c/o INPE, Avenida dos Astronautas, 1758, Sao Jose dos Campos, Sao Paulo, Brazil; tel: 55-12-345-6855/56; fax: 55-12-341-4410; e-mail: [iaibr@dir.iai.int](mailto:iaibr@dir.iai.int); WWW: <http://www.geo.nsf.gov/iai>.*

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## A Rose by Any Other Name

## Organizations Adopt New Identities

### NCCEM Becomes IAEM

On March 14, the National Coordinating Council on Emergency Management (NCCEM) formally changed its name to the International Association of Emergency Managers (IAEM). The change was undertaken to better reflect the growing international interests of the organization. For more information,

contact the IAEM, 111 Park Place, Falls Church, VA 22046-4513; (703) 538-1795; fax: (703) 241-5803; e-mail: [iaem@aol.com](mailto:iaem@aol.com); WWW: <http://www.emassociation.org>.

## **NCEER Becomes MCEER**

Not to be outdone, the National Center for Earthquake Engineering Research (NCEER) at the University of Buffalo has changed its moniker to the Multidisciplinary Center for Earthquake Engineering Research (MCEER). For more information on the center, contact MCEER, State University of New York at Buffalo, Red Jacket Quadrangle, Buffalo, New York, 14261-0025; (716) 645-3391; fax: (716) 645-3399; e-mail: [nceer@acsu.buffalo.edu](mailto:nceer@acsu.buffalo.edu); WWW: <http://mceer.buffalo.edu>.

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## **PEER Launches Two New Efforts**

The Pacific Earthquake Engineering Research Center (PEER) recently launched a Business and Industry Partners effort to inform these groups about the research PEER will conduct as well as the benefits of this research to business and industry. PEER's Business and Industry Partners will help define the direction of the center's research program and will have the opportunity to participate in research projects, attend workshops and seminars, receive PEER reports, receive access to experimental facilities, and obtain electronic information.

At the same time, PEER is also implementing a comprehensive education program that will include mentor programs for K-12 students, undergraduate summer internships, a senior year earthquake engineering course, graduate fellowships, and workshops or short courses for practicing professionals.

For more information on the Business and Industry Partners, contact *Gregory Fenves*, Department of Civil and Environmental Engineering, MC 1710, University of California, Berkeley, CA 94720-1710; (510) 643-8543, fax: (510) 643-8928; e-mail: [fenves@ce.berkeley.edu](mailto:fenves@ce.berkeley.edu). For more information on the education programs, contact *Gerard Pardo*, Department of Civil and Environmental Engineering, EG E4167, University of California-Irvine, Irvine, CA 92697; (949) 824-7094; fax: (949) 824-2117; e-mail: [gpardo@uci.edu](mailto:gpardo@uci.edu).

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## **So Long, Farewell, Auf Wiedersehen, Adieu**

Nearly everyone who has visited, phoned, e-mailed, or faxed the Natural Hazards Center over the last 20 years has come into contact with Fay Tracy, our Staff Assistant Extraordinaire. Sadly, Fay has decided to retire and will leave the center at the end of July. Can the center survive without the glue that held it together for these score years? Stay tuned. . . . In the meantime, we will miss her winning smile, devotion to detail, and commitment to quality, not to mention her wonderful sense of humor. Good luck,

Fay!



## Conferences And Training

Below are the most recent conference announcements received by the Hazards Center. A comprehensive list of hazard/disaster meetings is posted on our World Wide Web site:

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

*Fire-Rescue International '98. Sponsor: International Association of Fire Chiefs (IAFC). Louisville, Kentucky: September 12-15, 1998.* Fire-Rescue International includes a "disaster night" focusing on how fire officers and emergency managers can minimize disaster effects to their communities. For a conference flier, contact IAFC, 4025 Fair Ridge Drive, Fairfax, VA 22033-2868; (703) 273-0911; fax: (703) 273-9363; e-mail: [prodevelopment@iafc.org](mailto:prodevelopment@iafc.org); WWW: <http://www.iafc.org>.

*National States Geographic Information Council (NSGIC) Annual Meeting. Annapolis, Maryland: September 12-17, 1998.* The NSGIC conference will include sessions on natural hazards. For details, contact NSGIC, Executive Office, 45 Lyme Road, Suite 304, Hanover, NH 03755-1223; (603) 643-1600; fax: (603) 643-1444; e-mail: [nsgic@aol.com](mailto:nsgic@aol.com); WWW: <http://www.geo.drake.edu/nsgic>.

*Tsunami 1998 Hazard Mitigation Symposium (in conjunction with the Western States Seismic Policy Council [WSSPC] Annual Conference). Pasadena, California: September 14-15, 1998.* For the second successive year, WSSPC will host a Tsunami Hazard Mitigation Symposium--an "effort to coordinate and implement tsunami hazard mitigation plans in a systematic and comprehensive manner." The symposium will focus on the best policies to effect mitigation along populated coastal areas and will attempt to identify emergency management needs to inform future research. For details, contact WSSPC, 121 Second Street, Fourth Floor, San Francisco, CA 94105; (415) 974-6435; fax: (415) 974-1747; e-mail: [wsspc@wsspc.org](mailto:wsspc@wsspc.org); WWW: <http://www.wsspc.org>.

*Second International Conference on Earthquake Hazard and Seismic Risk Reduction. Sponsors: Government of the Republic of Armenia and the United Nations International Decade for Natural Disaster Reduction (IDNDR) Secretariat. Yerevan, Armenia: September 14-21, 1998.* Commemorating



the 10th anniversary of the devastating Spitak, Armenia, earthquake, this conference will examine lessons learned from that event and recent advances in hazards reduction in other countries. The conference will also serve as an IDNDR Regional Conference for the countries of the Commonwealth of Independent States (CIS) and Central and Eastern Europe. For details, contact the *National Survey for Seismic Protection of the Republic of Armenia*, Davidashen Massiv 4, 375054 Yerevan, Republic of Armenia; tel: 374 (2) 28-28-11, or 374 (2) 28-68-13; fax: 374 (2) 15-11-08 (AT&T), or 374 (2) 28-68-13; e-mail: [presidnt@nssp.yerphi.am](mailto:presidnt@nssp.yerphi.am) or [office@nssp.yerphy.am](mailto:office@nssp.yerphy.am).

*Floodplain Management Association (FMA) Fall Conference. Sacramento, California: September 16-18, 1998.* The title of this year's FMA conference is "After the Storm," and it will address the consequences of and recovery from the recent winter storms in California, as well as a wide range of other flood management issues. Additional information can be obtained from FMA, 4145 Maybell Way, Palo Alto, CA 94306; (650) 493-7198 [Northern California]; FMA, P.O. Box 2972, Mission Viejo, CA 92692; (714) 766-8112; fax: (714) 459-8364 [Southern California]; WWW: <http://floodplain.org>.

*Flood '97: International Workshop on Disaster Planning, Relief and Protection of Cultural Heritage. Organized by the Ministry of Culture and the State Service for the Protection of Cultural Heritage, Poland, and the Post War Reconstruction and Development Unit, York University; sponsored by the United Nations IDNDR Secretariat. Warsaw and Wroclaw, Poland: September 18-22, 1998.* Planning for the conservation of cultural property is an important element of disaster preparedness. Widespread floods in the summer of 1997 in central Europe provided a stark lesson in this regard, and this conference has been organized so that the mistakes and successes uncovered during that massive disaster can be shared and used to improve future conservation of cultural property. Participation is limited; more information is available from Marek Baranski, State Service for the Protection of Cultural Heritage, Ksawerow 13, 02-656 Warsaw, Poland; tel: 4822 48 10 48; fax: 4822 48 53 53.

*Wetlands '98: The Annual Conference of the Association of State Wetland Managers. St. Louis, Missouri: September 20-24, 1998.* This year's focus is "Integrating Wetland/Floodplain Ecosystems in Water Projects/Watershed Management." A conference brochure is available from the Association of State Wetland Managers, P.O. Box 269, Berne, NY 12023-9746; (518) 872-1804; fax: (518) 872-2171; e-mail: [aswmi@aol.com](mailto:aswmi@aol.com).

*The Management of Emergencies and Disasters--A British Council International Seminar. Stoke-on-Trent, U.K.: October 18-23, 1998.* The aim of this seminar is to improve understanding of emergencies and medical management systems and to demonstrate the continuum between individual patient emergencies and larger-scale emergencies. Main themes will include: disaster planning, systems of trauma care, emergency medical service, sudden onset of natural disasters, and complex emergencies. Additional information is available from Paul Viggers, Marketing and Recruitment Manager, International Seminars, The British Council, 1 Beaumont Place, Oxford OX1 2PJ, U.K.; tel: +44 (0) 1865 316636 or +44(0)1865 302709; fax: +44 (0)1865 557368; e-mail: [international.seminars@britcoun.org](mailto:international.seminars@britcoun.org); WWW: <http://www.britcoun.org/seminars/health/isem8032.htm>.

*Climate Change and Human Health: A One-Day Discussion Meeting in the U.K. Royal Society's Science in Society Series. London, England: October 20, 1998. There is growing concern and debate over the likely impact of climate change on a range of health problems. For example, how will the range of vector-borne diseases, such as malaria, change? How many more people will die from extremes of temperature, floods, or drought? This one-day meeting will attempt to explore the social and economic context of climate change, bringing together natural and social scientists, the business community, policy makers, and the general public to discuss the issues. For more information, contact Claire Sanford, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG, U.K.; tel: 0171 451 2576; e-mail: [claire.sanford@royalsoc.ac.uk](mailto:claire.sanford@royalsoc.ac.uk).*

*Eleventh World Conference on Civil Protection. Sponsor: International Civil Defence Organization (ICDO). Beijing, People's Republic of China: October 25-28, 1998. The main focus of this conference is the creation of a "World Action Plan for the Development of Civil Protection at the Dawn of the XXIst Century." Hence, its primary objective is to define the trends that should guide the future safeguarding of life, property, and the environment in the face of natural and human-caused disasters. For a conference brochure, contact ICDO, Chemin de Surville 10-12, P.O. Box 172, CH-1213 Petit-Lancy 2, Geneva, Switzerland: tel: (44 22) 793 44 33; fax: (44 22) 793 44 28.*

*Wildfire Prevention Education Institute: "Rethinking Prevention--Tools for Change." Sponsor: Great Lakes Forest Fire Compact. Sault Ste. Marie, Ontario, Canada: October 25-29, 1998. The institute will provide an opportunity for wildfire management personnel and others to acquire new skills for managing all aspects of fire and natural resource education programs. Participants can focus on one of three areas: marketing, program evaluation, or the business of prevention. For more information, contact Angie Coe, Wildfire Prevention Education Institute, c/o Lake Superior State University, BRIDGE, 650 West Easterday Avenue, Sault Ste. Marie, MI 49783; (888) 800-5778, ext. 6230 or (906) 635-6230; fax: (906) 635-6232; e-mail: [bridge@lakers.lssu.edu](mailto:bridge@lakers.lssu.edu); WWW: <http://www.dnr.state.mi.us/www/fmd/fire/conf.htm>.*

*The Role of Information Technology in Fire Management. Sponsor: University of California at Davis in cooperation with several federal and state agencies. San Diego, California: November 16-19, 1998. Last year, the University of California at Davis, in cooperation with several federal and state agencies, hosted a symposium entitled "Fire in California Ecosystems: Integrating Ecology, Prevention, and Management." The same organizations are now sponsoring this second symposium focusing on the role of information technology in fire management. The program will examine the technology available to support fire management, planning, suppression, ecology, research, fuel management, and community safety planning and education. There will be no geographic focus to this symposium; presentations will cover all regions of the country. For more information, contact Mike McCoy, Information Center on the Environment, Department of Environmental Studies and Policy, University of California-Davis, Davis, CA 95616; (530) 754-9171; e-mail: [mccoy@ucdavis.edu](mailto:mccoy@ucdavis.edu).*

*Disaster Exercises: Planning and Running an Effective Drill. Offered by: Major Industrial Accidents Council of Canada (MIACC). Edmonton, Alberta, Canada: November 19, 1998. Participation in this*



*training course is limited; for a conference flier or registration materials, contact Linda Huskins, Manager of Events, MIACC, 265 Carling Avenue, Suite 600, Ottawa, ON, Canada K1S 2E1; (613) 232-4435; fax: (613) 232-4915; e-mail: [lhuskins@miacc.ca](mailto:lhuskins@miacc.ca); WWW: <http://www.miacc.ca>.*

*Society for Risk Analysis (SRA) 1998 Annual Meeting. Phoenix, Arizona: December 6-9, 1998. The theme of this year's SRA conference is "Assessing and Managing Risks in a Democratic Society." More information can be obtained from SRA, 1313 Dolley Madison Boulevard, Suite 402, McLean, VA 22101; (703) 790-1745; fax: (703) 790-2672; e-mail: [sra@burkinc.com](mailto:sra@burkinc.com); WWW: <http://www.sra.org>.*

*Eleventh Symposium on Earthquake Engineering. Roorkee, India: December 17-19, 1998. This symposium will allow researchers, professionals, planners, and policy makers from around the world to share the latest knowledge and techniques for mitigating earthquake hazards. The event is designed to provide direction for research into the 21st century, and a wide range of themes will be addressed. For details, contact Ashwani Kumar, Organizing Secretary, 11 SEEE, Department of Earthquake Engineering, University of Roorkee, Roorkee-247 667, India; tel: +91 1332 72349, ext. 5228, or +91 1332 72130, ext. 5529; fax: +91 1332 76899; e-mail: [see11@rurkiu.ernet.in](mailto:see11@rurkiu.ernet.in).*

*Symposium on Fire Economics, Planning, and Policy: Bottom Lines. Sponsors: U.S. Forest Service and Western Forest Fire Research Center (WESTFIRE). San Diego, California: April 5-9, 1999. Wildfire management costs have escalated greatly in the past decade, largely due to increased expenditures for suppressing large fires. While there is growing recognition of the futility of fighting fires in ecosystems where prior fire exclusion policies have led to dangerous fuel accumulations, political and social pressures encountered in the urban/rural interface have made it difficult to adopt some fire management options. In addition, the actual cost effectiveness of various policies is poorly understood. This meeting will examine the whole range of issues regarding fire economics, and particularly address ways to optimize fire management costs. Details are available from Philip N. Omi, WESTFIRE, Colorado State University, Ft. Collins, CO 80523; (970) 491-2626; fax: (970) 491-6754; e-mail: [westfire@lamar.colostate.edu](mailto:westfire@lamar.colostate.edu).*

*National Fire Protection Association (NFPA) 1999 Annual Meeting. Baltimore, Maryland: May 17-20, 1999. The NFPA conference covers virtually all aspects of fire prevention and management, including the control and mitigation of wildfire. A call for presentations has been issued, and abstracts are due September 1, 1998. Details are available from Casey C. Grant, Codes and Standards Administration, NFPA, One Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101; (617) 770-3000; fax: (617) 770-0700; WWW: <http://www.nfpa.org>.*

*International Association of Hydrological Sciences (IAHS) at the XXII General Assembly of the International Union of Geodesy and Geophysics (IUGG). Birmingham, U.K.: July 19-30, 1999. The IAHS meeting includes a symposium on "Hydrological Extremes: Understanding, Predicting, Mitigating." For details, contact Lars Gottschalk, Department of Geophysics, University of Oslo, P.O. Box 1022 Blindern, N-0315, Oslo, Norway; tel: +47 22855809; fax: +47 22855269; e-mail: [Lars.Gottschalk@geofysikk.uio.no](mailto:Lars.Gottschalk@geofysikk.uio.no). For more information about the entire meeting, see WWW: <http://www>.*

[wlu.ca:80/~wwwiahs](http://wlu.ca:80/~wwwiahs); e-mail: [44iahs@mach1.wlu.ca](mailto:44iahs@mach1.wlu.ca).

*Coastal Zone 99. Sponsors: Urban Harbors Institute and others. San Diego, California: July 24-30, 1999. The biennial Coastal Zone conferences examine all aspects of human/coastal interaction, including coastal hazards. This, the eleventh conference in the series, will focus on the demands on coastal zones posed by rapidly increasing human population and will attempt to formulate a vision for the year 2020 and a plan for addressing relevant coastal issues. A call for papers has been announced, with abstracts due August 1, 1998. For more information, contact the CZ99 Secretariat, Urban Harbors Institute, University of Massachusetts-Boston, 100 Morrissey Boulevard, Boston, MA 02125-3393; (617) 287-5577; fax: (617) 287-5575; e-mail: [cz99@umbsky.cc.umb.edu](mailto:cz99@umbsky.cc.umb.edu); WWW: <http://omega.cc.umb.edu/~cz99>.*

*Sixth International Conference on Seismic Zonation. Sponsor: Earthquake Engineering Research Institute (EERI). Palm Springs, California: November 12-15, 2000. Seismic zonation--the division of a geographical region into areas having a similar response to a particular earthquake hazard--is key to developing plans for dealing with seismic risk. Details about this meeting are available from EERI, 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: [eeeri@eeri.org](mailto:eeeri@eeri.org); WWW: <http://www.eeri.org>.*

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## **Upcoming PPP 2000 Forums**

*The PPP 2000 project is a joint effort of several federal agencies, the Institute for Business and Home Safety, and other nongovernmental organizations ([see the Observer, Vol. XXII, No. 1, p. 12](#)). The goal of PPP 2000 is to create new and innovative opportunities for government and nongovernment partners to work together to reduce losses from and vulnerability to natural hazards. One of the group's principal ways of doing this is through a series of forums, held in Washington, D.C., on public policy issues affecting natural disaster reduction. A tentative list of upcoming forums includes:*

- *Forum 8: Coastal Hazards--Year of the Ocean, September 22, 1998*
- *Forum 9: Reducing Losses from Floods, October 5, 1998*
- *Forum 10: Infrastructure/Toward a National Risk Assessment, November 1998*
- *Forum 11: Grass Roots Mitigation Awareness and Education: How to Mobilize Public and Private Partnerships to Protect People and Communities from the Ravages of Natural Disasters, December 15 or 16, 1998*
- *Forum 12: Second Assessment, January 1999*

*For details about any of these forums, contact Olga Marinenko, Futures Group, Inc., 1050 17th Street, N.W., Suite 1000, Washington, DC 20036; (202) 775-9680; e-mail: [omarinenko@ibhs.org](mailto:omarinenko@ibhs.org); or [olgam@erols.com](mailto:olgam@erols.com).*

## ***Cal Emergency Preparedness Certificate Program Now Offered by GWU***

*In addition to providing its Emergency Planning and Management Certificate Program at the University of California-Berkeley (UCB) San Francisco Center, the UCB Extension is now offering courses through The George Washington University (GWU) Virginia Campus in Ashburn, Virginia. The program consists of one optional two-day introductory course and eight four-day required courses. Nine courses will be offered at GWU between September 1998 and May 1999; they will be repeated in the 1999-2000 academic year. Upcoming courses at the GWU Virginia campus include:*

- *Introduction to Emergency Management, September 18-19, 1998*
- *Strategic Planning and Implementation in Emergency Management, September 21-24, 1998*
- *Business Recovery for Your Organization, October 12-15, 1998*
- *Integrating Emergency Management Structures into Your Organization, November 16-19, 1998*
- *Corporate/Public Agency Coordination and Interdependence, January 18-21, 1999*

*For information concerning the program or courses held at UCB, contact the Certificate Program in Emergency Preparedness Planning, UC-Berkeley Extension, Environmental Management, 1995 University Avenue, Berkeley, CA 94720; (510) 643-7143; fax: (510) 643-8290; e-mail: [envmgmt@unx.berkeley.edu](mailto:envmgmt@unx.berkeley.edu); WWW: <http://amber.berkeley.edu:4243/em>.*

*For information concerning courses held at the GWU Virginia campus, contact Greg Shaw, Director, Training and Education, Institute for Crisis, Disaster, and Risk Management, The George Washington University Virginia Campus, 20101 Academic Way, Suite 220B, Ashburn, VA 20147-2604; (703) 729-8271; fax: (703) 729-8272; e-mail: [glshaw@gwu.edu](mailto:glshaw@gwu.edu); WWW: <http://www.seas.gwu.edu/seas/institutes/icdm>.*

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## ***The WHO Mediterranean Centre for Vulnerability Reduction and the International Diploma Course in Health Risk Management***

*Inaugurated in November 1997, the World Health Organization (WHO) Mediterranean Centre for Vulnerability Reduction was created to serve as a regional technical institution and reference center, focusing on the development of means and programs to help communities reduce vulnerability and manage risk. The center also supports and coordinates the work of other organizations concerned with risk management and works to ensure that efforts to reduce vulnerability are consonant with the aim of long-term, sustainable human development.*

*The center has recently initiated an international diploma course in health risk management intended for health emergency/risk managers at national and local levels, health professionals from NGOs,*

*bilateral agencies, and international organizations. The course is based on a risk management approach applied to emergency and disaster situations and draws on international "best practice" in managing communities' risk exposure. Participants will acquire knowledge and skills to design and implement a range of emergency management options, such as community-based prevention, preparedness, and recovery programs. Health coping and recovery mechanisms are a key element of the course.*

*The course will be held in Hammamet, Tunisia, over a four-week period, commencing October 25, 1998. An inter-university Diploma in Health Risk Management will be awarded jointly by Coventry University, U.K., and Linköping University, Sweden, upon successful completion of assessments.*

*For detailed information or an application form, contact the Training and Education Unit, WHO Mediterranean Centre for Vulnerability Reduction (WMC), 10 Rue Hannibal, Gammarth Superieur, 2070 Tunis, Tunisia; tel: +216 1 774564; fax: + 2161 741170; e-mail: [OMS.tunisie@rns.tn](mailto:OMS.tunisie@rns.tn).*

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## ***Introducing the Canadian Emergency Preparedness Association***

*Following a national survey in 1997, which indicated strong support for the creation of a national emergency preparedness association, Emergency Preparedness Canada consulted with provincial/territorial emergency organizations and other stakeholders about establishing such an association. Subsequently, an organizing committee, comprised of representatives from each region of the country, was formed to prepare a charter for the organization.*

*The creation of the Canadian Emergency Preparedness Association (CEPA) was officially announced by the federal minister responsible for emergency preparedness, Art Eggleton, during Emergency Preparedness Week 98 (May 4-10). To learn more about this association and how one might get involved, contact Andre Lamalice, Director of Communications, Emergency Preparedness Canada, 122 Bank Street, Ottawa, ON, Canada K1A 0W6; (613) 991-7034; fax: (613) 998-9589; e-mail: [lamala@x400.gc.ca](mailto:lamala@x400.gc.ca).*

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## ***Tennessee Announces Emergency Management Higher Education Initiative***

*Earlier this year, Governor Don Sundquist announced that the University of Tennessee of Chattanooga (UTC) and the Tennessee Emergency Management Agency (TEMA) are developing a Higher Education Initiative in Emergency Management. The program will be implemented in phases, with a Bachelor of Science degree in Human Services Management with a concentration in Emergency Systems Management to begin in August 1998. The program will offer Continuing Education Units (CEUs) for courses offered by TEMA. The joint initiative will seek university approval for a bachelor's degree*



program in Emergency Systems Management by the year 2000. For more information, contact Marvin Ernst, School of Social and Community Services, UTC, 615 McCallie Avenue, Chattanooga, TN 37403; (423) 785-2150; fax: (423) 785-2228; e-mail: [Marvin-Ernst@utc.edu](mailto:Marvin-Ernst@utc.edu).

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## ***Calling For Articles . . .***

*There appears to be no shortage of venues where an aspiring catastrophe scribe can publish her or his latest insights into the why's and wherefore's of disasters. Witness the many calls for papers below that the Hazards Center has received in recent months from various disaster journals.*

***Applied Behavioral Science Review***, an applied interdisciplinary journal published by JAI Press, has announced a call for papers for a special issue on the 1997 Red River Valley flooding in the upper Midwest. Special issue editors, Clifford Staples and Kathleen Tiemann, University of North Dakota, are looking for theoretically informed, empirically grounded social science research on any aspect of this disaster, including applied and policy-oriented papers.

*This special issue will be published in the fall of 1999. Deadline for submission is December 31, 1998. For information on submission, contact Clifford Staples, Department of Sociology, Box 7136, University of North Dakota, Grand Forks, ND 58202: (701) 777-4417; fax (701) 777-2468; e-mail: [staples@badlands.nodak.edu](mailto:staples@badlands.nodak.edu).*

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*The Division of Environmental Geoscientists is the fastest growing division of the American Association of Petroleum Geologists (AAPG). The division grew from recognition of a need to educate the membership of AAPG and the general public about important environmental issues, and thus to better communicate the association's commitment to protect the environment while developing the world's natural resources in a responsible manner.*

***Environmental Geosciences***, the quarterly journal of the division, was created to help accomplish these goals. Recognizing that coastal erosion, storm impacts, and coastal property damage are receiving increasing attention and that more and more state and federal agencies and researchers are working to assess these hazards, predict damage, and devise methods to mitigate future losses, the division is issuing a "call for ideas" for a special issue dedicated to examining various geological methods of coastal hazard mapping and mitigation. Articles can be scientific, policy oriented, or case studies.

*Please send a short abstract or outline to the addresses below by August 1, 1998. The publications committee will review submittals and send notification of acceptance in the fall of 1998. Electronic submittal via e-mail is encouraged. Please contact either: Robert S. Young, Department of Geosciences, Western Carolina University, Cullowhee NC 28723-9047; (704) 227-7503; e-mail: [ryoung@wcu.edu](mailto:ryoung@wcu.edu);*

or David M. Bush, Department of Geology, State University of West Georgia, Carrollton GA 30118; (770) 836-4597; e-mail: [dbush@westga.edu](mailto:dbush@westga.edu).

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*The Journal of the American Society of Professional Emergency Planners* has issued a call for papers for the 1998 edition. Papers are due July 31, and the journal will be released in November at the annual conference of the International Association of Emergency Managers in Norfolk, Virginia. For details, see <http://www.globalserve.net/~tmheath/>; or contact Thomas M. Heath, Gamewell Emergency Management Services, 1235 Lambeth Road, Oakville, Ontario, Canada L6H 2E2; (905) 844-6597; fax: (905) 849-9715; e-mail: [tmheath@globalserve.net](mailto:tmheath@globalserve.net).

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**Response**, the peer-reviewed academic journal published by the National Association for Search and Rescue (NASAR) is seeking timely, academically sound, commercially unbiased articles for publication. Published authors will receive a minimum of \$200 payment. Manuscripts should be sent to Larry Jacobson, NASAR, 4500 Southgate Place, Suite 100, Chantilly, VA 20151.

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*The Red Feather Journal of Graduate Sociology* is a new electronic journal that publishes work by graduate students in the areas of feminism, Marxism, critical theory, and affirmative postmodern scholarship. The winter 1998 issue will look at disasters using these perspectives. Graduate students who would like to submit their work should e-mail an abstract to Phyllis Flott, University of North Texas; e-mail: [pfl661@airmail.net](mailto:pfl661@airmail.net). Complete papers should be submitted by September 1. Details about submission are available from the above address; interested persons can also consult the journal's Web site: <http://www.tryoung.com/journals/journalindex/journalIndex.html> (note: no "i" in "journalIndex.html").

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Faculty and students of the Emergency Services Management degree program at the University of Richmond have put a new academic electronic journal on line--**The Richmond Journal of the Emergency Services**. Persons conducting research in emergency management, disaster response, business continuity, fire, law enforcement, or emergency medical services, are invited to submit papers to the journal. The editors are especially interested in integrative, multidisciplinary work and lessons that are clearly transferable. They prefer clear, concise articles that address issues of interest to practitioners not covered in existing academic publications. The journal is peer reviewed; however, it is not an official publication of the University of Richmond and represents only its authors, contributors, and volunteer editorial and peer review staff. The front material for the Journal can be viewed at [http://members.tripod.com/~Richmond\\_ESM/index.html](http://members.tripod.com/~Richmond_ESM/index.html). For further information, contact Walter G. Green,

*Academic Program Director of Emergency Services Management, P.O. Box 799, Glen Allen, VA 23060-0799; (804) 371-3500; e-mail: [Richmond\\_ESM@tripod.net](mailto:Richmond_ESM@tripod.net).*

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## Recent Publications

### All Hazards

***A Governor's Guide to Emergency Management.*** 1998. 63 pp. \$18.00. Copies can be ordered from the National Governors' Association, Publications, Hall of States, 444 North Capitol Street, Washington, DC 20001-1512; (301) 498-3738; WWW: <http://www.nga.org>.

The National Governors' Association's Center for Best Practices recently released this report to help states navigate federal disaster assistance applications, implement effective communication strategies, and plan and prepare for many different kinds of disasters. The guide offers advice to governors, particularly those who are newly elected, on how to prepare for emergencies. It described the actions a governor should take before requesting a presidential disaster declaration, the process for requesting one, the types of federal assistance available to individuals and businesses, and the types of federal assistance available without a presidential declaration. The guide urges governors to ensure that their states develop and implement a mitigation plan and take advantage of federal mitigation programs.

***Emergency Management Proposed Legislation: A Framework for Action.*** L. Cheryl Runyon. 1998. 30 pp. \$15.00. Available from the National Conference of State Legislatures, 1650 Broadway, Suite 700, Denver, CO 80202; (303) 830-2200; fax: (303) 863-8003; e-mail: [books@ncsl.org](mailto:books@ncsl.org); WWW: <http://www.ncsl.org>.

Local and state governments capably handle the vast majority of disasters and emergencies. Yet, as the costs of these disasters continue to rise for all levels of government, several state legislatures have established or proposed emergency management trust funds to supplement existing state and local government emergency management budgets. These funds may be used to reduce or prevent future losses through mitigation, to help communities prepare better to respond to disasters, to establish state programs of disaster assistance when federal funds are not available, and to provide matching funds to federal disaster aid programs. ***Emergency Management Proposed Legislation*** was written to assist the development of disaster state trust fund legislation to meet the unique needs of each state. The examples and options given are based upon enacted and proposed legislation from several states, and they cover proposed legislative language, trust fund creation, disbursement of trust funds, emergency management personnel, and promulgation of rules.

***Handbook on Standard Mitigation Protocols for Interstate Mutual Aid.*** 1998. \$20.00. To order, contact the National Emergency Management Association (NEMA), Council of State Governments, 2760 Research Park Drive, P.O. Box 11910; Lexington, KY 40578-1910; (800) 800-1910 or (606) 244-8000; fax: (606) 244-8239.

This handbook was created by NEMA to enhance the capabilities of states to reduce the threats from disasters and improve understanding of the importance and authority of state hazard mitigation



programs. It defines the roles of state hazard mitigation officers in requesting and delivering mutual aid as the result of a disaster; provides an overview of the escalating costs of disasters; explores the function and potential of state mitigation programs; and explains the major programs, policies, and organizational issues that exist following a disaster.

***America's Disastrous Disaster System.*** J. Robert Hunter. 1998. 20 pp. \$10.00. To order a copy, contact the Consumer Federation of America, 1424 16th Street, N.W., Suite 604, Washington, DC 20036; (202) 387-6121. Prepayment by check is required.

This paper asserts that the U.S. has allowed its system of preparing for and responding to natural disasters to grow in a haphazard way that inconsistently deals with these events and inadequately acts to save lives and property from loss. It examines the risks due to flood, wind, and earthquake; how we cover the costs of these risks; current problems in covering these costs; and why the current system needs to be changed. It also suggests a system that ends taxpayer subsidy of anticipated levels of damage, moves the cost of high risk to those who live in high risk areas, and minimizes death and damage due to unwise construction.

***GIS for Disaster Management. Proceedings of the Ninth International Research and Training Seminar on Regional Development Planning for Disaster Prevention, 12 December 1996, Nagoya, Japan.*** 1997. 72 pp. \$20.00, plus \$3.25 shipping.

***Flood Disaster Management and Environmental Impact Studies for Urban and Rural Areas. Improved System for Disaster Mitigation and Environmental Management in Bangladesh: Volume 1.*** 1997. 102 pp.

***Towards an Improved System for Cyclone Disaster Management in Bangladesh. Improved System for Disaster Mitigation and Environmental Management in Bangladesh: Volume 2.*** 1997. 191 pp. Volumes 1 and 2 are available for purchase as a set for \$20.00, plus \$3.25 shipping.

All three items are available from the United Nations Centre for Regional Development, Nagano 1-47-1, Nakamura-ku, Nagoya, Japan; tel: (+81-52) 561-9377; fax: (+81-52) 561-9375; e-mail: [info@uncrd.or.jp](mailto:info@uncrd.or.jp).

The first volume contains the records of a meeting held in 1996 to examine the use of geographic information systems (GISs) in disaster prevention. In particular, the aims of the workshop were to provide scientific and technical information on satellite, strong motion record, and geological data applications in urban seismic risk assessment and management; to discuss ways to integrate GIS with various types of data and sustainable disaster management systems; and to provide hands-on training.

For several years, the United Nations Centre for Regional Development and the Bangladesh University of Engineering and Technology have conducted joint research to find ways to reduce the impacts of cyclones and floods in Bangladesh, particularly after the cataclysmic disasters that occurred in 1988 and 1991. The second and third volumes contain papers presented in seminars under this effort, the Improved System for Disaster Mitigation and Environmental Management in Bangladesh. Volume 1 contains six papers that examine the environmental impacts of flood protection, the impacts of the Greater Dhaka Flood Protection Embankment on surface water quality, the overall impacts of flood protection, changes in settlement patterns and land use in fringe areas of the flood protection

embankment, the creation and effectiveness of sheltering and evacuation sites, and local flood disaster management. Volume 2 contains research on cyclone shelter planning, coastal protection against storm surge, institutional frameworks for cyclone disaster management, coastal zoning, coastal embankments and their effectiveness against storm surge, post-cyclone impacts on water supply and sanitation, planning and land-use policies for disaster management in Bangladesh, information systems, flooding in metropolitan areas, and risk-based zoning in the Ganges tidal plain.

***A Perspective on El Niño for the Property Insurance Industry: Causes, Characteristics, Economic Impacts, and Implications.*** Brian D. Skinner, Peter J. Lamb, Michael B. Richman, and John T. Snow. 1997. 21 pp. Free, single copies only.

***Summary of State Land Use Planning Laws.*** 1998. 9 pp. Free.

To obtain a copy of either document, contact the Institute for Business and Home Safety, Information Service, 73 Tremont Street, Suite 510, Boston, MA 02108-3910; (617) 722-0200; fax: (617) 722-0202; WWW: <http://www.iiplr.org/ibhs1197/html/puborderform.htm>.

Many experts believe the El Niño of 1997 and 1998 may be one of the most intense weather events of the 20th century. To examine its impacts on the insurance industry, the Institute for Business and Home Safety (IBHS) commissioned ***A Perspective on El Niño*** from the Cooperative Institute for Mesoscale Meteorological Studies at the University of Oklahoma, a booklet describing the phenomenon and its implications. The authors note that likely outcomes include decreased hurricane activity in the Atlantic, increased flooding in the southwestern and southeastern U.S., and above-normal winter and spring precipitation for the Southwest along with a consequent decrease in wildfire danger. They note that the effects of El Niño on winter storms, nor'easters, severe weather, tornadoes, and hail in the U.S. have not yet been studied enough to yield scientific predictions. At the same time, vastly improved El Niño prediction allows for the development of mitigation strategies to reduce the psychological and financial impacts of these events.

Decisions on where to build and how to manage development within a community are critical for mitigating natural disasters. Without thoughtful land-use planning, efforts to contain losses will be ineffective. The ***Summary of State Land Use Planning Laws*** observes that land-use planning falls under the jurisdiction of local and regional governments and that in states that require planning and specify the elements that must be contained in a local land-use plan, local governments do a much more thorough job of making wise land-use decisions. This report compares the importance individual states place on land-use planning and the requirements each state places on local jurisdictions. Unfortunately, it indicates that most states do not require, or even suggest, that local governments consider natural hazards in making land-use and development decisions.

***Natural Hazards: Explanation and Integration.*** Graham A. Tobin and Burrell A. Montz. 1998. 388 pp. \$44.95, hardcover; \$24.95, paperback; plus \$4.00 shipping. Copies can be purchased from Guilford Publications, 72 Spring Street, New York, NY 10012; (800) 365-7006 or (212) 431-9800; fax: (212) 966-6708; e-mail: [info@guilford.com](mailto:info@guilford.com); WWW: <http://www.guilford.com>.

***Natural Hazards*** surveys existing knowledge about the geophysical and human aspects of natural hazards. It integrates perspectives from the physical and social sciences to identify general principles

that enhance our understanding of the physical, social, technical, and economic forces inherent in extreme physical events. The authors examine individual and community perceptions of natural hazards and explore the effects of different attitudes on behavior and response. They also address the larger picture of hazards policy, examining political and economic factors influencing policy, and provide examples of land-use planning approaches to hazards management. Finally, they discuss the applicability of risk assessment to policy and offer an interdisciplinary approach to natural hazards.

***The Economics of Climate Change.*** Stephen J. DeCanio. 1997. 46 pp. \$8.95, plus \$3.00 shipping. Copies can be purchased from Redefining Progress, One Kearney Street, Fourth Floor, San Francisco, CA 94108; (800) 896-2100 or (415) 781-1191; fax: (415) 781-1198; e-mail: [info@rprogress.org](mailto:info@rprogress.org); WWW: <http://www.rprogress.org>.

This document focuses on the economic ramifications of climate change, delving into the deeper questions of economic growth, sustainability, intergenerational equity, and national security. DeCanio reviews the risk factors associated with unchecked greenhouse gas emissions, including health problems, biodiversity loss, changes in weather patterns, and sea level rise. He includes an introduction to the technical literature that compares the implementation costs of various policies designed to avert global climate change. He also explores the use of market-based policies coupled with international cooperation as a viable mechanism to achieve climate policy objectives.

***PERIScope, Vol. 1, No. 1 (March 1998).*** To subscribe, contact the Public Entity Risk Institute (PERI), 11350 Random Hills Road, Suite 800, Fairfax, VA 22030; (703) 934-6046; fax: (703) 352-7085; WWW: <http://www.riskinstitute.org>.

This is the newsletter of the recently created Public Entity Risk Institute ([see the \*Observer\*, Vol. XXII](#)), a center for the enhancement of risk management in public-sector organizations as well as small nonprofit organizations and businesses. The inaugural issue contains articles on the future of the organization, the PERI Small Entity Scholarship Program, the PERI Strategic Plan, the PERI Board of Directors, resources of risk management information, related information on the Internet, and the PERI Disaster Recovery Project.

***United Animal Nations Journal.*** Published quarterly. Subscription and membership: \$25.00/year; \$15.00/year, students and seniors. To join, contact United Animal Nations (UAN), 5892 A South Land Park Drive, Sacramento, CA 95822; (916) 429-2457; fax: (916) 429-2456; e-mail: [uan@gvn.net](mailto:uan@gvn.net); WWW: <http://www.uan.org> or <http://www.ears.org>. For information on the UAN Emergency Animal Rescue Services (EARS), call (800) 440-EARS (3277).

United Animal Nations is a national organization that works to protect animals in danger or need. One of their primary missions is to provide rescue, shelter, and other services for animals in disasters. They host disaster preparedness workshops for animal owners and animal shelters, and have trained over 1,500 volunteers nationwide. EARS emergency rescue teams are sent to disaster sites throughout the U.S. to set up animal relief centers to feed, provide medical care to, bathe, exercise, and play with rescued animals. The ***Journal*** copy we received contains articles on EARS teams responding to floods in Ohio and California and a tornado in Arkansas, and the rescue of a cat from an Alaskan wildfire. A schedule of upcoming UAN workshops can be viewed via the World Wide Web at <http://www.uan.org/programs/>

[ears/workshops.htm.](#)

## Severe Weather

***Lightning Fatalities, Injuries, and Damage Report in the United States: 1959-1994.*** E. Brian Curran, Ronald L. Holle, and Raúl E. López. NOAA Technical Memorandum NWS SR-193. 1997. 74 pp. \$21.50, paper; \$10.00, microfiche. Available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; (800) 553-6847 or (703) 605-6000; fax: (703) 321-8547; e-mail: [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov); WWW: <http://www.ntis.gov>.

Lightning is the most constant and widespread threat to people and property during the thunderstorm season in the U.S. This report summarizes lightning data for 36 years, based on the NOAA publication ***Storm Data***. During this period, there were 3,239 deaths, 9,181 injuries, and 19,814 property damage reports due to lightning. Florida led the nation in deaths and injuries, while Pennsylvania suffered the greatest damage. The authors explain the lightning report data and how it is obtained; present data by state; detail data by state according to population; discuss year-to-year, monthly, and other time-scale variations; present demographic data on victims; examine damage costs; and present conclusions and recommendations for future research.

***Economic Value of Weather and Climate Forecasts.*** Richard W. Katz and Allan H. Murphy, Editors. 1998. 238 pp. \$49.95. To order, contact Cambridge University Press, 110 Midland Avenue, Port Chester, NY 10573; (800) 872-7423 or (212) 924-3900; fax: (212) 691-3239; e-mail: [information@cup.org](mailto:information@cup.org); WWW: <http://www.cup.org>.

Weather and climate extremes can significantly affect the economy of the regions in which they occur. This book examines the ways weather and climate forecasts can be used to mitigate these impacts, exploring the meteorological, economic, psychological, and statistical aspects of weather prediction. Adopting the viewpoint that information about the weather has value only insofar as it affects human behavior, contributors examine the economic benefits of existing weather forecast systems, as well as the incremental benefits of improving such systems. Chapters address the scientific basis of modern weather forecasting, the evaluation of forecast quality and reliability, economic issues related to decision making with imperfect weather information, and numerous case studies.

***Toward a New National Weather Service: An Assessment of the Advanced Weather Interactive Processing System.*** 1997. 52 pp. \$15.00. Copies can be ordered from Marin Stern, National Academy Press, 2101 Constitution Avenue, N.W., Washington, DC 20418; (202) 334-3180.

Since 1991, the National Weather Service Modernization Committee of the National Research Council has been reviewing the development of the Advanced Weather Interactive Processing System (AWIPS). This publication contains a report by a panel of that committee to the full committee on the status of AWIPS, the last major technical system required to complete the decade-long modernization of the National Weather Service. AWIPS will deliver state-of-the-art forecasts and warnings through a nationwide communications network. The document contains chapters on the modernization effort, the operational test and evaluation of AWIPS, systems engineering, operational risk management, and conclusions and recommendations.



## Drought

***Improving Drought Management in the West: The Role of Mitigation and Preparedness.*** Donald Wilhite. 1997. 52 pp. \$21.50, paper; \$10.00, microfiche. Copies can be ordered from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; (800) 553-6847 or (703) 605-6000; fax: (703) 321-8547; e-mail: [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov); WWW: <http://www.ntis.gov>.

This report to the Western Water Policy Review Advisory Commission provides an overview and analysis of drought and drought management issues in the west. It discusses the concept of drought; explains the climatology of drought in the region, particularly since 1986; reviews the status of drought planning efforts; analyzes the range of options available and the mitigative actions employed by states; and reviews the results and recommendations of several recent drought studies. The author then presents his conclusions and recommendations, including the need for government agencies to be more proactive in dealing with this threat.

***Water Supply Handbook: A Handbook on Water Supply Planning and Resource Management.*** Theodore F. Hillyer and Germaine A. Hofbauer. 1996. 240 pp. \$44.00, paper; \$19.50, microfiche. Copies can be ordered from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; (800) 553-6847 or (703) 605-6000; fax: (703) 321-8547; e-mail: [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov); WWW: <http://www.ntis.gov>.

This handbook is a comprehensive reference to water supply information contained throughout the voluminous body of U.S. Army Corps of Engineers regulations, manuals, technical letters, and memoranda, as well as literature from the private sector. It outlines the authorities, policies, and procedures that guide water resource management; describes numerous water supply data bases; discusses storage allocation; includes a water supply partnership kit; examines modeling and water supply planning; describes water conservation and planning for drought; characterizes water supply needs analysis; and presents guidance on management of water control systems.

## Hurricanes

***Building Performance Assessment: Hurricane Fran in North Carolina--Observations, Recommendations, and Technical Guidance.*** FEMA 290. 1997. 69 pp. Free. To order a copy, contact the FEMA Publications Distribution Facility, 8231 Stayton Drive, Jessup, MD 20794; (800) 480-2520 or (202) 646-3484; fax: (301) 497-6378.

On September 5, 1996, Hurricane Fran made landfall near Cape Fear, North Carolina, with 115 mph winds and a storm surge that approached or exceeded National Flood Insurance Program base flood elevations along 50 miles of shoreline. The Federal Emergency Management Agency (FEMA) sent a multidisciplinary Building Performance Assessment Team to the area to examine damage and to make recommendations for improving building performance in the future. This report contains the results of that effort and includes the team's assessment of the performance of primary structural systems; building extensions, such as decks, porches, and roof overhangs; nonstructural components, such as breakaway walls and concrete slabs; and support utilities, such as electrical, water, and sewage systems.

***Hurricane Fran, South Carolina, September 5, 1996: Reconnaissance Report.*** ATC-44. 1998. 36 pp. \$20.00. Available from the Applied Technology Council, 555 Twin Dolphin Drive, Suite 550, Redwood City, CA 94065; (650) 595-1542; fax: (650) 593-2320; e-mail: [atc@atcouncil.org](mailto:atc@atcouncil.org); WWW: <http://www.atcouncil.org>. California residents add applicable sales tax.

This report surveys the effects of Hurricane Fran, the category 3 hurricane mentioned above. The primary objectives of the investigation were to examine the types and extent of damage, collect data, interpret damage causes, and identify potential means of future hurricane damage reduction. The report includes information on the hurricane; its coastal impacts, including storm surge and waves; building code requirements; damage and building performance; lifeline performance; and conclusions.

## Floods

***Restoring Streams in Cities: A Guide for Planners, Policymakers, and Citizens.*** Ann L. Riley. 1998. 443 pp. \$55.00, hardbound; \$35.00, paperback. Purchase from Island Press, Box 7, Department 2NET, Covelo, CA 95428; (800) 828-1302; fax: (707) 983-6414; WWW: <http://www.islandpress.org/books/order/regorder.html>.

This book was written to explain local stream restoration to citizens, mayors, county commissioners, flood-control engineers, and others interested in improving local waterways. Noting that engineering solutions to flood control, such as installing culverts, channelizing, and clearing vegetation from streams and rivers, is in direct conflict with environmental preservation and the natural environment, Riley suggests that the 1990s offer a willing political climate in which to change these engineering traditions. She wrote this book to inform the average citizen about the use of restoration methods for repairing ecological damage created by conventional engineering. She begins by explaining the basics of watersheds and the hydrologic cycle, the value of streams, and concepts of restoration. She follows with a discussion of the four professionals most likely involved: urban river planners, environmental professionals, river scientists, and hydraulic engineers. Riley then discusses the history of river restoration, presents a history of floodplain management in the U.S., examines trends and new ideas in managing the flooding problem, and surveys floodplain restoration and management measures. Finally, she outlines several citizen-supported restoration activities, as well as urban watershed and stream restoration methods.

***Hazards in a Fickle Environment: Bangladesh.*** C. Emdad Haque. *Advances in Natural and Technological Hazards Research* 10. 1997. 396 pp. \$183.00. Purchase from Kluwer Academic Publishers, Order Department, P.O. Box 322, 3300 AH Dordrecht, The Netherlands; tel: +31-78-6392392; fax: +31-78-6546474; e-mail: [services@wkap.nj](mailto:services@wkap.nj).

***Hazards in a Fickle Environment*** presents longitudinal research on the riverine hazards of Bangladesh, particularly addressing their societal aspects. The author examines both impacts of and responses to floods and riverbank erosion. Noting that massive structural intervention could become ineffective if human dimensions are not considered, the author offers a new approach that bears in mind the ecological sensitivity and dynamics of the Ganges-Brahmaputra deltaic system and the related adaptations of people to hazardous events in this region. The volume is divided into four parts: Hazards in Nature and People Perspectives, Riverine Hazards and Human Ecology: Bangladesh, Riverbank Erosion Hazard in



Serajganj District: Impacts and Responses, and Emerging Policy Issues: Towards Sustainable Reduction of Disasters and Floodplain Development.

***Destructive Water: Water-Caused Natural Disasters, their Abatement and Control.*** George H. Leavesley, Harry F. Lins, Franz Nobilis, Randolph S. Parker, Verne R. Schenider, and Frans H.M. van de Ven, Editors. IAHS Publication No. 239. 1997. 398 pp. £53.00. To order, contact Jill Gash, International Association of Hydrological Sciences (IAHS) Press, Institute of Hydrology, Wallingford, Oxfordshire OX10 8BB, U.K.; tel: +44 1491 692442; fax: +44 1491 692448/692424; e-mail: [jilly@iahs.demon.co.uk](mailto:jilly@iahs.demon.co.uk); WWW: <http://www.wlu.ca/~wwwiahs/index.html>.

This proceedings volume provides an overview of methods, approaches, and techniques used for flood forecasting, operational disaster management, and flood abatement policy development. Its 48 papers, presented at a meeting in Anaheim, California, in June 1996, examine large floods, including the Great Flood of 1993 along the Mississippi and Missouri Rivers; risk assessment and management; flood forecasting; ecological and pollution problems; and disaster preparedness.

## Tsunamis

***Tsunamis on the Pacific Coast of Washington State and Adjacent Areas--A Selected, Annotated Bibliography and Directory.*** Connie J. Manson and Lee Walkling, Compilers. Open-File Report 98-4. 1998. 42 pp. Free. Copies can be requested from Publications, Washington Division of Geology and Earth Resources, P.O. Box 57007, Olympia, WA 98504-7007; (360) 902-1450; fax: (360) 902-1785; e-mail: [geology@wadnr.gov](mailto:geology@wadnr.gov).

This bibliography was created to help local planners and emergency managers understand and mitigate earthquake and tsunami risks on the Pacific coast. These destructive waves can be caused by coastal or submarine landslides, volcanism, or earthquakes. In fact, offshore tsunamis can strike an adjacent shoreline within minutes, and can travel at speeds as great as 600 mph. ***Tsunamis on the Pacific Coast of Washington State and Adjacent Areas*** begins with a brief explanation of the phenomenon, discusses our ability to issue warnings, and points out the need to mitigate tsunami impacts. It follows with an annotated bibliography that lists the most significant reports; general works about geologic hazards in Washington; general works about geologic hazards, earthquakes, and tsunamis; works on earthquake and tsunami hazards on the Pacific coast of Washington; works about tsunami hazards in Puget Sound, the Strait of Juan de Fuca, the Cascadia subduction zone, and outside the Cascadia subduction zone; and tsunami modeling. It concludes with a directory of organizations and agencies that deal with the tsunami hazard, as well as Web pages that provide further information.

## Earthquakes

***A Strategic Plan for Earthquake Safety in Missouri.*** 1997. 77 pp. Free. Available from Ed Gray, Missouri State Emergency Management Agency, P.O. Box 116, Jefferson City, MO 65102; (573) 526-9131; (573) 634-7966; e-mail: [nbranch@services.state.mo.us](mailto:nbranch@services.state.mo.us).

Past earthquakes along the New Madrid fault in the central U.S. have caused great damage in Missouri and nearby states. This publication, produced by the Missouri Seismic Safety Commission, outlines

procedures to prepare Missouri for future quakes. It describes the commission, key issues identified by the commission, and key objectives for increasing earthquake preparedness along with the government agencies that should implement these measures. The report covers Missouri's earthquake risk, steps for increasing earthquake awareness and education, mitigation activities, ways to improve emergency response, methods for enhancing recovery, and procedures for assessing the hazard. It also includes a list of state statutes related to earthquakes, as well as a list of sources for further information.

***Handbook for the Seismic Evaluation of Buildings--A Prestandard.*** FEMA 310. 1998. 362 pp. Free. To obtain a copy, contact the Federal Emergency Management Agency (FEMA) Publications Distribution Facility, 8231 Stayton Drive, Jessup, MD 20794; (800) 480-2520 or (202) 646-3484; fax: (301) 497-6378.

This document was created for FEMA by the American Society of Civil Engineers (ASCE) Seismic Rehabilitation Standards Committee. It builds on past research regarding seismic evaluation methods that spotlighted weak links in buildings discovered following earthquakes. It advances this knowledge by introducing multiple building performance levels, improved guidance for areas of moderate and low seismicity, and newly understood areas of structure weakness. It includes information on the general purpose of the project and the process of screening buildings for risk due to earthquakes, preparing for the screening process, screening buildings, evaluating structural and nonstructural components, and undertaking further investigation when warranted.

***Seismic Safety of Existing Buildings.*** Robert B. Olshansky and Christopher Glick. 1998. 71 pp. Free. ***Local Earthquake Hazard Reduction Plans.*** Robert B. Olshansky and Christopher Glick. 1998. 38 pp. Free.

Copies can be requested from the Central United States Earthquake Consortium, 2630 East Holmes Road, Memphis, TN 38118-8001; (800) 824-5817 or (901) 544-3570; WWW: <http://www.cusec.org>.

***Seismic Safety of Existing Buildings*** and ***Local Earthquake Hazard Reduction Plans*** were prepared for the U.S. Geological Survey as part of its series on Reducing Earthquake Hazards in the Central United States--booklets written for state and local officials to help them identify specific actions that reduce earthquake hazards. The first volume explains why existing buildings are a seismic safety problem, what steps can be taken to reduce the risk, how to identify buildings most in need of rehabilitation, how to identify direct and indirect costs associated with building rehabilitation, how to choose from several types of seismic rehabilitation programs, how to pay for these programs, and where to get more information. The second volume discusses how communities can reduce earthquake hazards, what to include in a hazard reduction plan, which communities need a plan, how to prioritize and undertake steps to develop a plan, and how to put the plan all together.

***Recommendations of the Lifelines Policymakers Workshop.*** Bijan Mohraz and Riley M. Chung. Report No. NISTIR 6085. 1997. 42 pp. \$27.00, plus \$5.00 shipping. Copies can be obtained from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; (800) 553-6847 or (703) 605-6000; fax: (703) 321-8547; e-mail: [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov); WWW: <http://www.ntis.gov>.

In 1995, the Federal Emergency Management Agency (FEMA) and the National Institute for Standards and Technology (NIST) prepared the ***Plan for Developing and Adopting Seismic Design Guidelines***

**and Standards for Lifelines** (FEMA Publication 271) in response to the National Earthquake Hazard Reduction Program Reauthorization Act of 1990. FEMA 271 recommends the development and implementation of design guidelines and standards to reduce the vulnerability of lifelines to earthquakes. Lifelines include electric power and distribution facilities; gas or liquid fuel production and distribution facilities; highway, air, port/harbor/waterway, and rail transportation systems; telecommunications networks; and water and sewer services. In response to a recommendation from the Interagency Committee on Seismic Safety in Construction, NIST organized the Lifeline Policymakers Workshop, the results of which are contained in this report. Participants strongly endorsed the need for developing and adopting seismic design guidelines for lifelines as soon as possible and recommended they focus equally on new and existing lifelines and incorporate the latest research. Participants also recommended the use of demonstration projects to test the guidelines.

***Reliability and Restoration of Water Supply Systems for Fire Suppression and Drinking Following Earthquakes.*** Donald B. Ballantyne and C.B. Crouse. NIST GCR 97-730. 1997. 206 pp. \$41.00, paper; \$19.50, microfiche. Copies can be purchased from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; (800) 553-6847 or (703) 605-6000; fax: (703) 321-8547; e-mail: [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov); WWW: <http://www.ntis.gov>.

***Reliability and Restoration of Water Supply Systems*** provides recommendations to enhance the operability of domestic water systems and alternate water supply systems, as well as enable quick restoration of these systems, following earthquakes. It discusses experiences in previous earthquakes, explains overall system operation, and details performance of individual system components. It also recommends specific steps for mitigation of earthquake impacts and considers various alternatives for enhancing restoration after an earthquake, including hardware improvements, system operation optimization, development of alternative water supplies, and use of geographic information systems.

***George W. Housner: The EERI Oral History Series.*** Stanley Scott, Interviewer. 1998. \$15.00, plus \$5.00 shipping. Copies can be purchased from the Earthquake Engineering Research Institute (EERI), 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: [eeeri@eeri.org](mailto:eeeri@eeri.org); WWW: <http://www.eeri.org>. California residents add applicable sales tax.

This oral history, the result of many interviews with George Housner over an eight-year period, describes the career of this distinguished scholar, statesman, and activist in earthquake engineering research and seismic safety. It outlines the infancy of earthquake engineering research prior to World War II, Housner's participation in the Caltech earthquake engineering group, his interest in historic reporting of earthquakes, the development and use of strong motion records, the development of seismic building codes, the evolution of earthquake engineering and seismic design, the differences between seismologists and earthquake engineers, the creation of the Structural Engineers Association of California and of the Earthquake Engineering Research Institute, the emergence of organizations involving academic researchers, major subjects of investigation, California water projects, the Loma Prieta earthquake, the Northridge and Kobe quakes, and a discussion of selected publications.

## **Wildfires**

***Wildland/Urban Interface Fire Hazard Assessment Methodology.*** 1998. 16 pp. Free. Copies can be requested from the National Fire Protection Association, P.O. Box 9101, Quincy, MA 02269-9101; (617) 770-3000; fax: (617) 984-7056; e-mail: [publicfire@nfpa.org](mailto:publicfire@nfpa.org); WWW: <http://www.firewise.org>.

This booklet was produced by the Wildland/Urban Interface Fire Protection Advisory Group of the National Wildfire Coordinating Group, an organization created in 1987 to address the needs of fire protection officials and others in reducing the losses caused by wildfires. It explains structure ignition sources, particularly radiation, convection, and firebrands, and then outlines a hazard assessment process, including selection of the areas to be evaluated, selection of hazard components to be considered in the assessment, ranking of the hazard components, compiling the rankings in a usable format, and developing future actions. It also contains a list of 16 hazard assessment systems that were used in compiling this methodology. Further information about this project can be obtained at the Internet site above.

## Search and Rescue

***Oklahoma City Rescue Operations.*** Edward Comeau. 178 pp. \$30.00. Copies can be ordered from the National Fire Protection Association (NFPA), P.O. Box 9101, Quincy, MA 02269-9101; (617) 770-3000; fax: (617) 984-7056; e-mail: [publicfire@nfpa.org](mailto:publicfire@nfpa.org); WWW: <http://www.firewise.org>.

On April 19, 1995, the bomb that exploded outside the Alfred P. Murrah Federal Building, killing 169 people and injuring 475 others, set off a massive response of public safety agencies, health care providers, and the general public. Buildings were damaged over a 48-square-block area of the city. This report describes the subsequent rescue operations in detail and presents lessons regarding the incident command system, communications, infection control, federal response, logistics, donations, volunteers, information control, transportation, documentation, facilities, criminal investigation, and the news media.

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## Electronic Media

***Wildland Essentials II: Fireline Safety.*** VHS. 1997. 42 minutes. \$49.95, plus \$2.25 shipping. California residents, add 7¼% sales tax.

***Firefighter's Fast Check (Wildland/Urban Interface Fire Situations).*** 16" x 11" laminated pocket guide. 1997. \$3.25, plus \$2.25 shipping. California residents, add 7¼% sales tax.

Both items can be purchased from Deer Valley Press, 5125 Deer Valley Road, Rescue, CA 95672; (800) 455-1950 or (530) 676-7401; fax: (530) 676-7418; e-mail: [firebook@el-dorado.ca.us](mailto:firebook@el-dorado.ca.us).

The ***Fireline Safety*** video includes discussion and demonstrations of protective clothing, shelters, entrapment procedures, fire behavior watchouts, snag safety, and other safety issues. Its extensive graphics and fire footage are intended to increase awareness of the dangers inherent in wildland firefighting.

The ***Firefighter's Fast Check*** summarizes some of the primary concerns that should be considered when fighting a wildland fire. It contains sections on evaluating the fire and developing operational plans, 10 tips for maintaining safety, a survival checklist that describes 18 dangerous situations, structure triage, preparing structures, engine positioning and setup, prioritizing action plans, fire behavior, rate of spread,



fire weather, stability, smoke columns, flame length, and situations to avoid.

***Tornado Video Classics III***. VHS. 1996. 120 minutes. Film notes, 6 pp. \$29.00. To order, contact the Tornado Project, Box 302, St. Johnsbury, VT 05819; (802) 748-2505; WWW: <http://www.tornadoproject.com>.

This video is the third in a series of videos that depict major tornadic storms of recent years. It includes an introduction to Project VORTEX (Verification of the Origin of Rotation in Tornadoes Experiment) and scenes from numerous tornado chases. Part One presents 16 tornadoes that represent a sampling of the variety of forms, situations, and personal reactions tornadoes can effect. Part Two contains lightning images and time lapse photography of supercell formation. Part Three presents highlights of historic footage. ***Tornado Video Classics I*** and ***II*** are also available from the Tornado Project at the address above.

***BIBLIODES No. 25. Water: Too Much . . . Or Too Little . . . The Leading Cause of Natural Disasters.*** 3½-inch diskette. Windows 95 format. 1998. Free. To request a copy, contact the Regional Disaster Information Center (CRID), P.O. Box 3745-1000, San José, Costa Rica; tel: (506) 296-3952; fax: (506) 239-5973; e-mail: [crid@netsalud.sa.cr](mailto:crid@netsalud.sa.cr); WWW: <http://www.netsalud.sa.cr/crid>.

CRID is a multiorganizational center that collects, pro-cesses, and disseminates disaster information in Latin America and the Caribbean. This bibliography addresses the theme of the 1997 International Decade for Natural Disaster Reduction (IDNDR) Day and contains sections on El Niño, water supply, floods, and drought.

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## Who We Are

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, Federal Emergency Management Agency, National Oceanic and Atmospheric Administration, U.S. Geological Survey, U.S. Army Corps of Engineers, U.S. Forest Service, Environmental Protection Agency, U.S. Department of Transportation, National Aeronautics and Space Administration, and the Institute for Business and Home Safety. 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 22, 1998*.

Center phone number: (303) 492-6818

Fax: (303) 492-2151

E-mail: [hazctr@spot.colorado.edu](mailto:hazctr@spot.colorado.edu)

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