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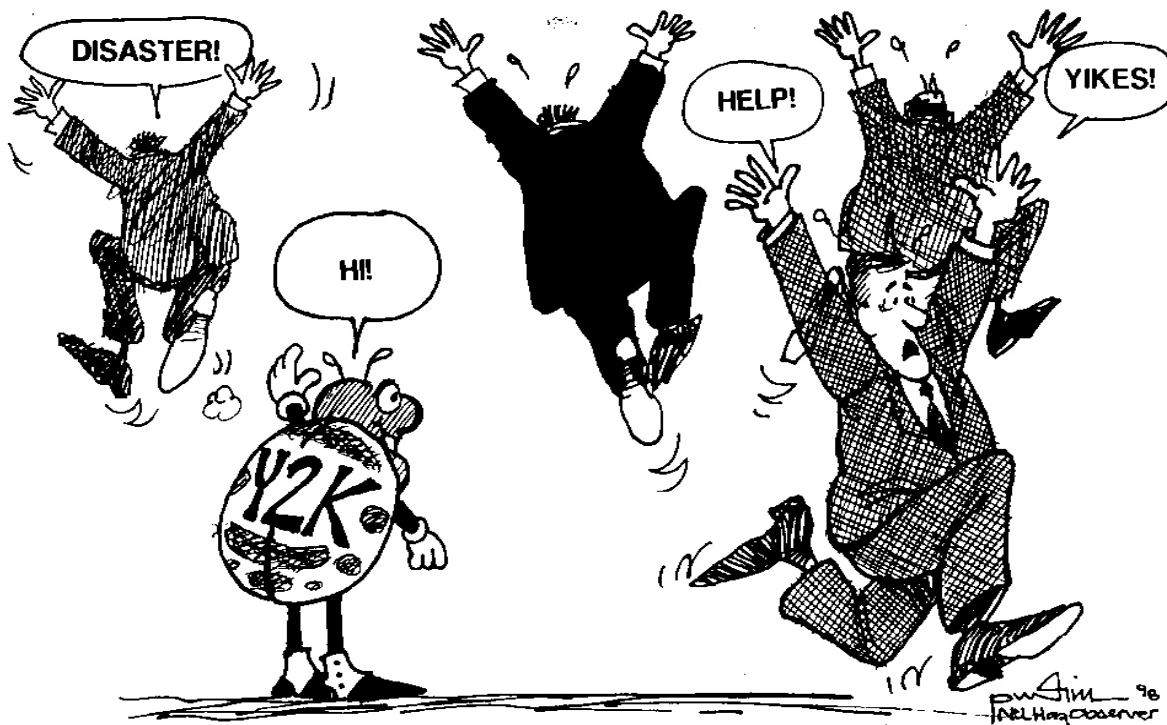
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The Year 2000 Hazard

A Hazards Research and Applications Bonanza

--an invited comment

The Year 2000 problem is unprecedented in its character and simultaneous world-wide impact. This technological pandemic has the potential to induce extensive disruptions in advanced cultures and affect you, your family, and your work. But this new hazard also promises to be a research bonanza for the hazards community, and the application of past research can help mitigate the problems and guide response.

Year 2000 Hazard

The Year 2000 problem, or Y2K, is an apparently simple matter that may impact billions of systems all over the world, each of which must be individually examined and correctly repaired before January 1, 2000. Unfortunately, it is logistically impossible to fix every system in the time remaining. Further, many systems exchange data across organizational boundaries and disruptions in one system can cascade problems into previously repaired ones. Systems at risk range from mundane to exotic: VCRs, microwave ovens, telephone exchanges, grocery stores, railroads, hospitals, banks, oilwell platforms, and satellites.

The Y2K problem results from a shortcut used in many computers and microchips. Years ago, to conserve memory space, programmers developed the custom of using two numbers to record the year--for example, 72 would mean 1972. Computers and microchips that still use a two-digit year may, on January 1, 2000, recognize 00 not as 2000 but as 1900. This could cause them to either shut down or generate incorrect data, potentially impacting billions of systems worldwide.

This hazard is unparalleled, and no one knows for certain what will happen. We have dealt with floods, hazardous materials, disease, and warfare, but we have never faced anything like this pervasive bug that lurks in electronic tools

throughout the world. The intensity of disruption is unknown. Some believe it will be a series of glitches and minor annoyances, while others predict worldwide disruptions to electricity, food, transportation, and financial networks.

Our collective, evolving understanding of Y2K parallels an individual organization's stages of awareness and response to this hazard. The major elements are:

- **Information Technology/Information Systems.** Initially perceived as the only aspect of the Y2K problem, this element includes computer hardware, software applications, and stored data. With our evolving understanding, systems once believed to be compliant may have to be retested based on new knowledge. Data exchanged with a noncompliant system may contaminate and corrupt a previously clean database. Organizations dealing with these systems in the initial phase of addressing Y2K problems have mobilized programmers, analysts, and their chief information officers.
- **Embedded Systems.** Many common machines and devices have computer chips embedded in them that are known only to the manufacturer and located in places that are difficult to access. When found, they are often difficult to assess or repair correctly. Anything that is electronically powered (even a battery) is suspect. About 15% of these systems fail compliance testing. Each microprocessor in critical equipment must be tested first individually, then again as part of a device, and yet again as part of a system of devices. Vulnerable systems range from electric utilities to door locks, manufacturing systems to emergency vehicles, ATMs to aircraft, fire alarms to telephone systems and medical equipment. As organizations progress in understanding the immense impact of embedded systems, they are mobilizing teams of specialists for a meticulous, wall-to-wall, floor-to-ceiling inventory, triage, and repair of these elusive elements. This is accompanied by broadening management involvement, such as the chief operating officer.
- **Business Partner/Supplier.** As difficult as it is to know how compliant one's internal systems are, it is nearly impossible to know a key suppliers' condition. Also, weak links in the web of supplier dependencies can disrupt even a compliant organization's operations. This chain of uncertain relationships dramatically increases the complexity of Y2K. As organizations come to realize this threat, top management often becomes directly involved, with frequent monitoring and strong internal commitment to the critical priorities of both remediation and contingency planning. Redundant suppliers are identified and contingency plans are ironed out with current business partners.
- **Litigation.** Litigation regarding both direct Y2K failures and remediation problems is projected to cost double the estimated \$700 billion Y2K repair costs and to go on for 10 years. Of course, while the threat of litigation reduces candor and limits effective mitigation and contingency plans, it does help to focus them and motivate action as the officers and directors gradually understand the organization's risks and their own liability for due diligence.

Other major issues will likely surface as we gain more experience. For example, it will become increasingly apparent to domestic and foreign criminals that January 2000 is an opportune time to commit criminal or terrorist acts.

Application of Past Research

Past hazards research and experience can be applied to the Year 2000 problem. For example, knowledge about communicating hazards information to the public can be used to speed acceptance of Y2K risks. There should be multiple confirmations of the hazard from credible sources, and officials should strive toward a balance between providing enough information to induce adaptive response and too much, which could overwhelm or raise concern needlessly.

Based on both research and experience, business continuity and public emergency management institutions have been designed to address generalized threats as well as specific hazards. They provide an excellent framework to address

Y2K, even though none have faced an event with global impact, when no resources outside their impact area will be able to assist.

Opportunities

The scope of the Year 2000 problem provides a tremendous opportunity for both hazards research institutions and researchers. Some of the areas of inquiry for the Federal Emergency Management Agency (FEMA) and other civilian and military organizations, as well as individual hazards researchers, include:

- **Strategic Planning.** Responses to this unprecedented hazard need to be explored through the modeling of organizational systems. The focus should be on developing policy alternatives to mitigate impacts of system failures from rippling across networks and limiting contagion within and across economic sectors. Model contingency plans need to be developed and extensively tested and exercised against realistic, complex Y2K scenarios. The results and training should be made widely available.
- **Community-Based Y2K Preparedness.** The effectiveness of local community-based Y2K preparedness among different support groups (e.g., economic development organizations, religious groups, survivalists, and community service clubs) could be compared.
- **Business Case Studies.** Y2K will provide an abrupt survival of the fittest experience for business, and this would be ideal for developing case studies of the utility of various strategies as well as adaptability to the post-Y2K environment.
- **Y2K Predictions.** Researchers should review past Y2K periodicals and literature for reliable predictors of current and future impacts (see the list of related Web sites below).

Y2K presents an unprecedented opportunity for the hazards field. Research funding institutions should hasten to prioritize the most promising avenues relevant to their missions and solicit proposals to allow adequate lead time before Y2K impact. Researchers need to prepare themselves with background research on the problem and frame quality projects. This is one deadline that cannot be delayed.

Rich Huggins, Rich Huggins and Associates, Palo Alto, California

Suggested Y2K Web sites

<http://www.y2k.gov>

The federal government provides hundreds of links to federal agencies and sites by economic sector.

<http://www.year2000.com>

Y2K pioneer Peter de Jager emphasizes ingenuity in overcoming the inevitable disruptions.

<http://www.fluor-systemintegrate.com/y2kinfhttp://www.colorado.edu/hazards/o/>

Engineering giant Fluor Daniel is one of the leaders in broadening management involvement.

http://www.ljextra.com/practice/computer/ct_y2k.html

The *Law Journal Extra!* provides numerous references, discussions, and alerts regarding Y2K.

<http://www.gao.gov/y2kr.htm>

The General Accounting Office offers a model y2K continuity and contingency plan.

<http://www.yardeni.com/cyber.html>

Ed Yardeni maintains a well-documented and constantly updated strategic analysis Y2K Web site.

<http://www.millennia-bcs.com>

The Cassandra Project provides information on household and neighborhood preparedness.

<http://www.corp.hp.com/publish/brma/>

The Business Recovery Manager's Association site focuses on Y2K planning for business risk managers.

<http://www.sba.gov/y2k/>

The Small Business Administration site is full of advice and checklists.

<http://www.cio.com/forums/y2k/>

This site contains discussions on Y2K by chief information officers of large organizations.

<http://www.yourdon.com/index.htm>

Ed Yourdon, author of *Time Bomb 2000*, offers this Web site that provides links to his and other's forecasts.

<http://y2k.policyworks.gov>

This site provides information on the Y2K status of commercially available products.

<http://www.leonardsloan.com/about/y2k/index.htm>

For a less-than-serious look at the problem, view this site.

<http://www.fema.gov/library/y2k1002.htm>

This site contains the testimony of FEMA's executive associate director of Response and Recovery, Lacy Suiter, before the Senate Special Committee on the Y2K Technology Problem.

<http://www.disastercenter.com/year2000.htm>

<http://www.disastercenter.com>

The Disaster Center Year 2000 site is an ever-growing nexus of Web links, bulletin boards, forums, and pages of all kinds dealing with disasters.

Reducing the Impacts of Tsunamis

Tsunamis are large ocean waves generated by both local and distant earthquakes. The U.S. Pacific coastline is at risk to both local and distant tsunamis, and many communities are unprepared to meet this risk. In an effort to lessen the potential for damage, destruction, and loss of life, the National Tsunami Hazard Mitigation Program (NTHMP) was established to foster partnerships among the National Oceanic and Atmospheric Administration (NOAA); the Federal

Emergency Management Agency (FEMA); the U.S. Geological Survey (USGS); and coastal communities in Alaska, northern California, southeastern Hawaii, Oregon, and Washington,.

The program addresses three main areas:

- hazard assessment--establishing the nature and level of risk for each community through the development of maps of likely tsunami flooding;
- warning guidance--providing measurement, monitoring, and warning dissemination; and
- mitigation--ensuring appropriate responses to the potential danger by providing information about inundation areas and appropriate responses to warnings.

To assist Pacific states in developing maps of potential tsunami flooding, the Center for Tsunami Inundation Mapping Efforts (TIME) was established in Newport, Oregon, and is currently preparing inundation maps for Alaska and California.

In 1997, each participating state established a tsunami mitigation resource center, and meteorologists from each state attended a two-day workshop on understanding tsunami warning procedures. In addition, participants have inventoried state tsunami education materials, identified gaps, and formed working groups to address public education needs.

For more information on this program, contact the *Tsunami Hazard Mitigation Program, NOAA/Pacific Marine Environmental Laboratory (PMEL), Bin C-15700, 7600 Sand Point Way, N.E., Seattle, WA 98115-0070; (206) 526-6800; fax: (206) 526-6815; e-mail: ann@pmel.noaa.gov; WWW: <http://www.pmel.noaa.gov/tsunami-hazard>. For more information on the Center for Tsunami Inundation Mapping Efforts, contact NOAA/PMEL/OERD, 2115 S.E. OSU Drive, Newport, OR 97365-5258; (541) 867-0372; fax: (541) 867-3907; e-mail: kamphaus@pmel.noaa.gov; <http://newport.pmel.noaa.gov/time/home.html>.*

From the Hazards Center Web site at <http://www.colorado.edu/hazards/>

1998 Hazards Workshop Session Summaries Now Available on the Web

As we mentioned in the last *Observer* ([Vol. XXIII, No. 1, p. 4](#)), this summer the Natural Hazards Center hosted the 23rd Annual Hazards Research and Applications Workshop, and we have compiled summaries of the many discussions and presentations that took place there. Those summaries, abstracts of the hazards research presented, and descriptions of the projects and programs discussed at the meeting are available in hard copy for \$20.00, plus \$5.00 shipping, from the *Publications Clerk, Natural Hazards Research and Applications Information Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; (303) 492-6818; fax: (303) 492-2151; e-mail: jclark@spot.colorado.edu; WWW: <http://www.colorado.edu/hazards>. Checks should be payable to the University of Colorado; Visa, Mastercard, American Express, and Diner's Club cards are also accepted. (Orders beyond North America require additional shipping charges; contact the Publications Clerk at the address above for details or consult the Hazards Center on-line publication order form: <http://www.colorado.edu/hazards/puborder.html>.)*

But hold on there, Newton!

Those same session summaries (but not the research abstracts and project descriptions) are now available free on the Hazards Center Web site at <http://www.colorado.edu/hazards/ss/ss.html>. So, if you missed the workshop (or want to

know what was going on in the Millennium Room while you were enthralled by the discussion of Typhoon Paka in the Sunshine Room) take a look.

Another New Working Paper . . .

The latest on-line working paper from the Natural Hazards Center examines how the network of response agencies and organizations functioned following the February 4, 1998, Afghanistan earthquake. In *Network Without Center? A Case Study of an Organizational Network Responding to an Earthquake*, author Aldo A. Benini uses data from that event, as well as insights from theories of disaster management and organizational networks, to examine the efficacy and deficiencies of networks in disaster management. The case study suggests that in networks without a strong center the initial response may be hampered, but organizational learning for later phases may be promoted.

Working Paper #100 is available free from the Hazards Center Web site at <http://www.colorado.edu/hazards/wp/wp100/wp100.html>. Persons without access to the World Wide Web can obtain printed copies for \$9.00, plus \$3.00 domestic shipping and handling. To order a copy, or to determine overseas costs, contact the *Publications Clerk* or consult the Hazards Center on-line publication order form at the addresses above.

And Updated Links

The "Internet Resources" section of the Hazards Center Web site--<http://www.colorado.edu/hazards/sites/sites.html>--has been completely revised and updated. This annotated list of Internet assets that we've found particularly useful now includes sections on: All Hazards; Earthquakes and Tsunamis; Landslides; Volcanoes; Climate Change, Drought, and El Niño; Hurricanes and Coastal Hazards; Tornadoes, Thunderstorms, High Wind, Lightning, and Other Severe Weather; Floods; Wildfire; Snow Avalanche; Satellites, Remote Sensing, and GIS; Disaster Mental Health and Emergency Medicine; and, E-Mail Lists/Newsletters/Discussion Groups.



The Internet Page(s)

For an extensive, annotated list of useful hazard Internet sites, see:

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

All Hazards

http://156.106.192.130/dha_ol/

This site--"The Office for the Coordination of Humanitarian Affairs (OCHA) Online"--is the principle source of information on the activities of this United Nations agency with regard to disasters and complex emergencies. It includes information about the office; its latest emergency reports; emergency information by country/region; sections on coordination, emergency response, and disaster reduction; a list of OCHA publications; news about and from IRIN--OCHA's Integrated Regional Information Networks; and information on training, conferences, and workshops.

<http://archnt2.tamu.edu/dbilbo/Taex%20Emergency/TAEXtop.htm>

For several years, David L. Bilbo of Texas A&M University has worked to ensure that disaster mitigation, preparedness, and response are integrally included in the information that agricultural extension agents provide to their clients, and he has developed this Texas Agricultural Extension Service Emergency Information Web site to support that goal. It includes the complete text of the guide *Extension Agent's Handbook for Emergency Preparation and Response*, as well as separate sections on tornadoes, floods, hurricanes, and winter weather--each of which provides extensive background information and safety guidelines.

<http://stargate.ornl.gov/stargate/empp/empp.html>

The Oak Ridge National Laboratory (ORNL) hosts an Emergency Management and Preparedness Program (EMPP), which conducts applied research and assists in the development of emergency planning capabilities for a variety of agencies and organizations. For example, the EMPP has developed the training plan for the Chemical Stockpile Emergency Preparedness Program, as well as other courses, job aids, computer-based training, and training videos (including several for the Federal Emergency Management Agency). It has also helped create emergency exercise plans and assessment tools as well as computer systems to support emergency management. Finally, the program has extensive experience in preparing public education materials for emergency management. The EMPP Web site provides an introduction to the program and describes previous and ongoing research, capabilities and expertise, products, publications, and training resources. Additional information is available from *John Sorensen, Emergency Management and Preparedness Program, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6206; (423) 576-2716; fax: (423) 574-5938; e-mail: jhs@ornl.gov*.

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

Not surprisingly, the Federal Emergency Management Agency (FEMA) Web site is one of the best sources on the World Wide Web for information about how home and business owners can protect their property from natural hazards. The FEMA mitigation section, at the URL above, not only covers various programs available to reduce losses, but also includes numerous on-line publications that individuals can peruse and/or download.

Two of the latest additions are, *Homeowner's Guide to Retrofitting: Six Ways of Protecting Your Home from Flood Damage*, and *Taking Shelter from the Storm: Building a Safe Room Inside Your Home*. The first publication was written with special attention to the needs of actual flood victims; it will be the primary resource distributed by FEMA following floods. It covers the National Flood Insurance Program substantial damage requirements, preliminary cost estimates, retrofitting in areas subject to multihazards, and obtaining technical and financial assistance. The second booklet, developed with the Wind Engineering Research Center at Texas Tech University, provides information on how to assess risks due to extreme winds and includes detailed plans and specifications for constructing in-residence shelters. These publications, FEMA #312 and #320 respectively, can also be ordered free from the *FEMA Publications Distribution Facility, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520*.

<http://www.ngdc.noaa.gov/cgi-bin/wt/hqp/hqStart>

Think you're pretty knowledgeable about natural hazards? Test drive this natural hazards quiz from the National Geophysical Data Center and see if you really do know the difference between a tsunami and a seiche . . .

<http://www.ifrc.org>

<http://www.ifrc.org/issues>

The International Federation of Red Cross and Red Crescent Societies (IFRC) Web site not only provides information about the society but also includes an "Issues" section that provides several papers and presentations on human advocacy, a **Code of Conduct** for nongovernmental organizations involved in disaster relief, presentations from the Humanitarian Agencies Forum (a monthly meeting hosted by the IFRC), and information about the Sphere Project--an effort to develop standards in humanitarian assistance.

<http://www.disaster.info.desastres.net/PED-Ecuador/desastre/mitigacion>

This new Web page on "Disaster Mitigation in Hospitals" was created by the Pan American Health Organization (PAHO) Emergency Preparedness Program in South America. It contains a wide variety of information on hospital disaster mitigation, including guidelines, training materials, and a selected bibliography, as well as publications available through PAHO. The developers welcome suggestions for expanding or improving this site.

http://www.paho.org/english/ags/eng_indx.htm

At the recent 1998 Pan American Sanitary Conference hosted by PAHO (see the previous Web site), participants considered a report summarizing existing knowledge regarding the effects of El Niño on health and outlining the need to develop a scientific agenda to examine the impacts of extreme events such as El Niño on human health and health infrastructure and services. Interested persons can download a copy of the report from the URL above; it is a PDF file and requires an Adobe Acrobat reader to view. The text in MS-Word format can be requested by e-mail from disaster@paho.org.

<http://www.caribredcross.org>

The Caribbean Red Cross Society has launched this new Web site to inform the Caribbean community and interested persons outside the area of the aims, programs, and ongoing work of the Red Cross in that region. The site also provides practical information for families on preventing, preparing for, and coping with emergencies, as well as the latest disaster news of the region and ongoing advisories about emerging situations.

<http://www.emergplansoc.org.uk>

The U.K. Emergency Planning Society is "the U.K.'s foremost professional body for all those with an involvement with any form of crisis, emergency or disaster planning and management." Its approximately 850 members are drawn from many fields, including local government, industry, utilities, education, emergency services, volunteer organizations, the legal profession, and private consultants. The society produces independent advice and guidance for its members and others through a series of subgroups whose areas of interest include business continuity, oil pollution, evacuation and welfare, Year 2000 issues, nuclear and other hazardous sites, and civil protection in Europe. Information about each of these concerns is now available from the society's Web site.

<http://www.homeoffice.gov.uk/epd/>

The U.K. Home Office, Emergency Planning Division (roughly, the U.K. version of FEMA), now offers this Web site with information about emergency planning in England and Wales and about the U.K. contribution to civil protection in Europe and throughout the globe. The division's responsibilities involve planning for peacetime emergencies and civil defense, and the site includes sections on publications, organizational structure, and available bulletin boards.



Wildfire

<http://www.wildfiremagazine.com>

The *Wildfire Magazine* Web site includes individual articles and a complete downloadable issue of the magazine, as well as the Wildfire On-Line Bookstore with nearly 900 books, videos, and software on wildland fire.

Floods

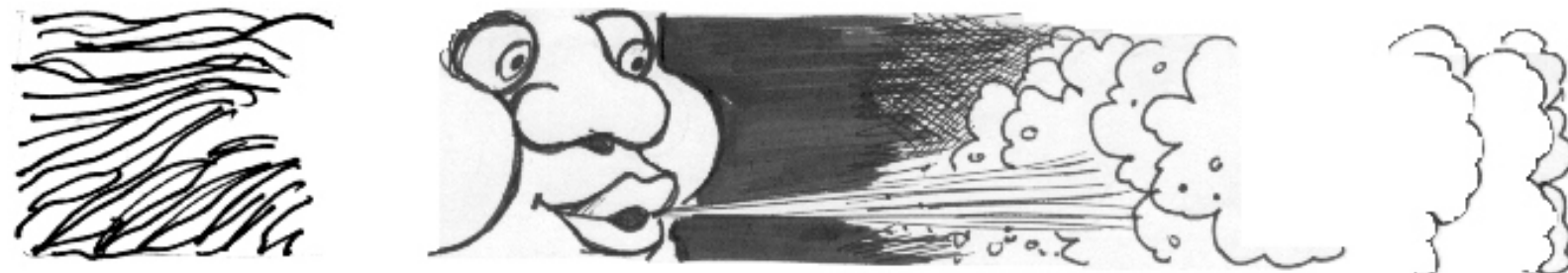
<http://www.dwdwcm.wr.usgs.gov/reports/floodgis/>

This Web report, entitled *Updating Flood Inundation Maps Efficiently* (USGS Open-File Report 98-200), details a new geographical information system (GIS)-based mapping method, developed by the U.S. Geological Survey, that can be used to produce updated flood inundation maps with greater detail at a much lower cost than traditional hand-drawn flood maps.

<http://www.whitehouse.gov/WH/New/html/flood.pdf>

<http://www.fema.gov/library/ombflood.pdf>

The inundation wrought by Hurricane Georges is but another example of the severe flooding that has affected many parts of the country in recent years. In response to this problem, the federal government has been working to improve its approach to floodplain management--both to reduce the loss of life and property caused by floods and to restore the natural resources and functions of floodplains. These changes have involved, in part, a shift in focus from structural controls of the natural environment (dams, levees, altered channels, etc.) toward nonstructural alternatives that modify susceptibility to flooding (restricted use of floodplains, for example). To support this effort, the Executive Office of the President has issued a federal interagency document, *Federal Programs Offering Non-Structural Flood Recovery and Floodplain Management Alternatives*. The booklet lists programs in three categories: 1) acquisition, relocation, elevation, and floodproofing; 2) rural land easements and acquisition; and 3) restoration of wetlands. It discusses these three strategies and then provides comprehensive summaries of the relevant programs along with useful indices. The publication is available from both the White House and FEMA at the URLs above.



Hurricanes, Coastal Hazards, and Other Severe Weather

<http://www.haznet.org>

In a year when El Niño has spawned violent weather around the globe, and when many scientists anticipate continuing

weather extremes, the national Sea Grant network has created HazNet, a Web site devoted to coastal hazards awareness and mitigation. The HazNet site gathers information and resources from Sea Grant programs, the National Oceanographic and Atmospheric Administration, and other public- and private-sector sources to help people meet the challenges presented by such natural hazards as riverine flooding, storm surge, coastal erosion, seismic events, and hurricanes. The site includes consumer fact sheets; an example of a community hazard mitigation plan from Rhode Island; a report on changes in building codes and practices in south Florida since Hurricane Andrew; a bibliography of Sea Grant coastal hazards research; and an on-line hazards bulletin board and discussion group.

<http://www.storm98.com>

Lowe's Home Improvement Stores, in cooperation with the Federal Emergency Management Agency, maintains this site with information about storms of the current hurricane season and other severe weather. It includes the latest weather reports, satellite and radar information, warnings, marine reports, preparedness information, background information about hurricanes and El Niño, an on-line bookstore, a chat room, and other resources. From this site, one can also sign up for an e-mail list that sends out updated information about developing and existing storms.

<http://cnn.com/WEATHER>

Similarly, CNN hosts this Web site and another e-mail service with breaking news about extreme weather events (storm.watch@cnn.com). To subscribe, see <http://cnn.com/EMAIL>.

<http://www.aoml.noaa.gov/hrd/tcfaq/tcfaqHED.html>

This "Frequently Asked Questions" (FAQs) page, assembled and maintained by Chris Landsea of NOAA's Hurricane Research Division, has been cited by a knowledgeable source as "Without a doubt, the best resource for general questions on hurricanes."

Climate and Drought

<http://www.dir.ucar.edu/esig/lanina/>

http://www.dir.ucar.edu/esig/la_nina_home/

If it's not one thing, it's another. . . . With the waning of El Niño comes the onset of La Niña--the cooling of eastern Pacific waters off the coast of South America--and with it, global meteorological consequences of many kinds. In July, the National Center for Atmospheric Research (NCAR) in Boulder, Colorado, held an international seminar to examine the many dimensions of the La Niña phenomena; information from that meeting is provided at the first URL above.

In addition, the Environmental and Societal Impacts group at NCAR has launched a La Niña Web page at the second address. This is, by no means, the only La Niña site, but one of its advantages is that it consolidates and serves as an entry point to many others.

<http://nic.fb4.noaa.gov>

<http://nic.fb4.noaa.gov/products/predictions/threats/index.html>

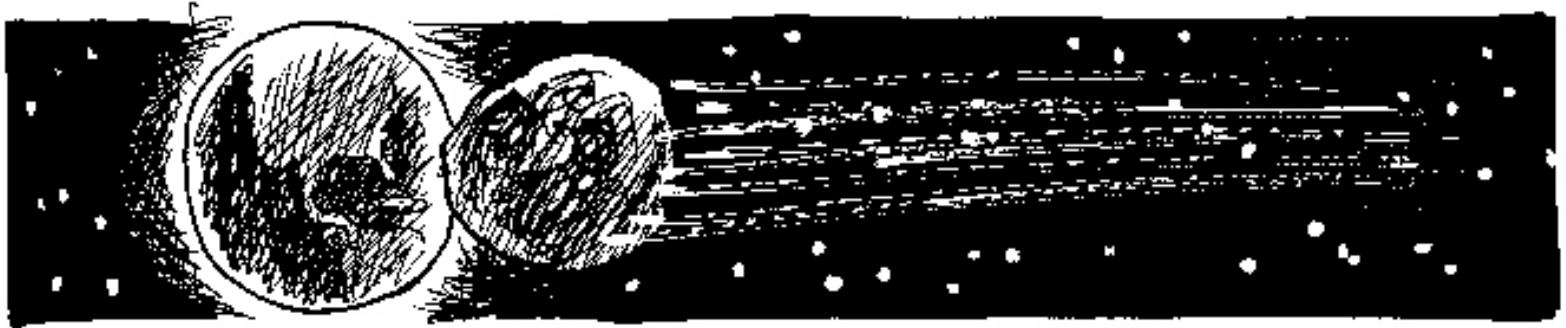
The mission of the National Oceanic and Atmospheric Administration's Climate Prediction Center is to maintain a continuous watch on short-term climate fluctuations and to diagnose and predict them. These efforts are designed to assist agencies both inside and outside the federal government in coping with such climate-related problems as food supply, energy allocation, and water resources.

The center's Web site, at the URL above, includes much information and many products in support of this mission, including an "Experimental U.S. Threats Assessment" page at the second URL. That information "is intended to

provide emergency managers, planners, forecasters and the public advance notice of potential threats related to climate, weather and hydrologic events. It integrates existing NWS [National Weather Service] official medium- (3-5) day, extended- (6-10 day) and long- (monthly and seasonal) range forecasts, and hydrologic analyses and forecasts, which use state-of-the-art science and technology in their formulation." Please note, however, that this product is *experimental* and not yet fully operational.

<http://www.brunel.ac.uk/depts/geo/sahelrep.html>

It is now 25 years since the major droughts of the 1970s struck the Sahel region of West Africa. Their impacts were not uniform, for the region has a great diversity of soils, climates, livelihood systems, and ethnic groups. For many, these droughts are an especially grim historical marker, given their disturbing effects on food supply and human welfare in this region so dependent on rainfall. They also marked the beginning of profound post-colonial economic and political reforms, as well as widespread international development assistance to the Sahelian nations. This site contains a summary of the presentations, discussion, and findings of a conference held by the Royal Geographical Society in London, May 13-14, 1998, entitled "The African Sahel: 25 Years After the Great Drought--Assessing Progress, Setting a New Agenda." The proceedings offer realistic assessments of the challenges facing Sahelian peoples in the 21st century.



Things Celestial

<http://k2.space.swri.edu/clark/hr.html>

This site contains a statement on "The Threat of Impact by Near-Earth Asteroids" by astronomer Clark Chapman of the Southwest Research Institute to the Subcommittee on Space and Aeronautics of the Committee on Science of the U. S. House of Representatives at its hearings on "Asteroids: Perils and Opportunities" held May 21, 1998. The statement contains much information about the asteroid hazard, as well as some fascinating statistics concerning the relative severity of various risks--from automobiles to tornadoes to botulism to asteroids.

Talk

*PRIMA*talk - majordomo@atlantech.net

The Public Risk Management Association (PRIMA) has initiated an unmoderated e-mail discussion list to promote discussion of risk management in the public sector. To subscribe, send an e-mail message to majordomo@atlantech.net, and in the body of the message type, "subscribe prima-talk." The server will send a confirmation of your subscription and information about list usage.

ListDPRA - Discussion/News of Disaster Prevention/Recovery

"ListDPRA" has been established by the Disaster Prevention and Recovery Alliance for the discussion of business interruption and disaster prevention, planning, and recovery generally. Interested persons are welcome to start a conversational thread, respond to a previous post, or ask a specific question on any subject concerning human-caused

or natural disasters, protection of business assets, management and employee training, hazards safety, or similar subjects that might be of interest to other group members. This list is for the sharing of information and the announcement of new products and services of DPRA and its members. To subscribe to ListDPRA, send a blank e-mail to: listdpra-subscribe@egroups.com. For more information see: <http://www.DPRA.net/index.htm>.

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Introducing the Research Center for Natural Disasters: Gadjah Mada University

Indonesia is highly susceptible to natural disasters. It sits on an active volcano belt near tectonic plate boundaries and is also subject to tropical rains, typhoons, and the influences of El Niño. Thus, Indonesia is threatened by volcanic eruptions, earthquakes, landslides, floods, droughts, tsunamis, and tropical rainstorms.



To better understand and prepare for these risks, in July of this year Gadjah Mada University, Yogyakarta, established the Research Center for Natural Disasters--the only center for natural disaster studies in Indonesia.

The center consists of three divisions: Research and Development, Education and Training, and Community Services. The main objectives of the center are:

- to carry out integrated scientific research concerning all types of natural disasters in the region as well as disasters triggered by human activities;
- to develop concepts and models of natural disaster management before, during, and after hazard events, as well as to develop a disaster management information

system and monitoring networks; and

- to establish the center as a reliable source of data and information concerning natural disasters in Indonesia.

In order to achieve these objectives, the center carries out a number of activities, including training programs and research.

Training

The center is developing, or has developed in concert with several local and international agencies,

training regarding: strategic disaster management; the geomorphology of disasters; the basics of mapping; the basics of remote sensing; mapping instruments and GPS; regional disaster planning; strategies for disaster mitigation; development of agroforestry in disaster-prone areas; hazards zonation; analysis and mitigation of disaster risks; surveying and mapping of areas susceptible to landslides, floods, and tsunamis; droughts and fire-outbreak; volcanicity, earthquakes, and disaster management; and the disaster information system for Indonesia.

The main objective of these training programs is to equip participants with knowledge and skills that will enable them to understand basic theories regarding both disaster prevention and the mapping of regions susceptible to disasters. To date, approximately 360 local government personnel have participated in this training.

Research

The center is conducting numerous studies; a few recent examples include: determining strategies for the relocation of inhabitants of areas vulnerable to Merapi volcanic activity; studying the management of evacuees following the Merapi eruption in January 1997; evaluating the "Perception and Aspirations of the People Residing in Disaster-Prone Areas of Merapi Volcano"--a case study of affected villagers following the July 13, 1998, eruption; examining landslides in two separate subdistricts of Indonesia; developing the disaster management information system for Indonesia; evaluating the success of "re-greening" a watershed in central Java; and evaluating a reforestation program also in central Java.

The center is also conducting seminars on the Indonesian disaster management information system for regions around Merapi volcano, as well as numerous other hazards-related seminars and colloquia.

For additional information about this new hazards center, contact *Bambang Agus, Research Center for Natural Disasters, Gadjah Mada University, Kantor Pusat UGM, Lantai III Sayap Selatan, Bulaksumur, Yogyakarta 55281, Indonesia; tel: (0274) 901978, 901709; fax: (0274) 520669, 589595; e-mail: info@psba.ugm.ac.id; WWW: <http://psba.ugm.ac.id>.*



Asian Disaster Reduction Center Opens in Kobe

On July 30, dignitaries from Japan and other Asian countries officially opened the Asian Disaster Reduction Center (ADRC) in Kobe. This center, dedicated to international cooperation in disaster reduction, will promote collaboration between Japan and other Asian centers in research, training, information exchange, and other disaster prevention activities. The center is headed by Shigeru Itoh, who is also chairperson of the Urban Disaster Research Institute in Kobe. For more information, contact the ADRC, 3F, IHD Centre Building, 1-5-1, Wakahama-kaigan-dori, Chuo-ku, Kobe City, Hyogo Prefecture 651-0073, Japan; tel: 81-78-230-0346; fax: 81-78-230-0347; e-mail: rep@adrc.or.jp;

WWW: <http://www.adrc.or.jp>.



Washington Update

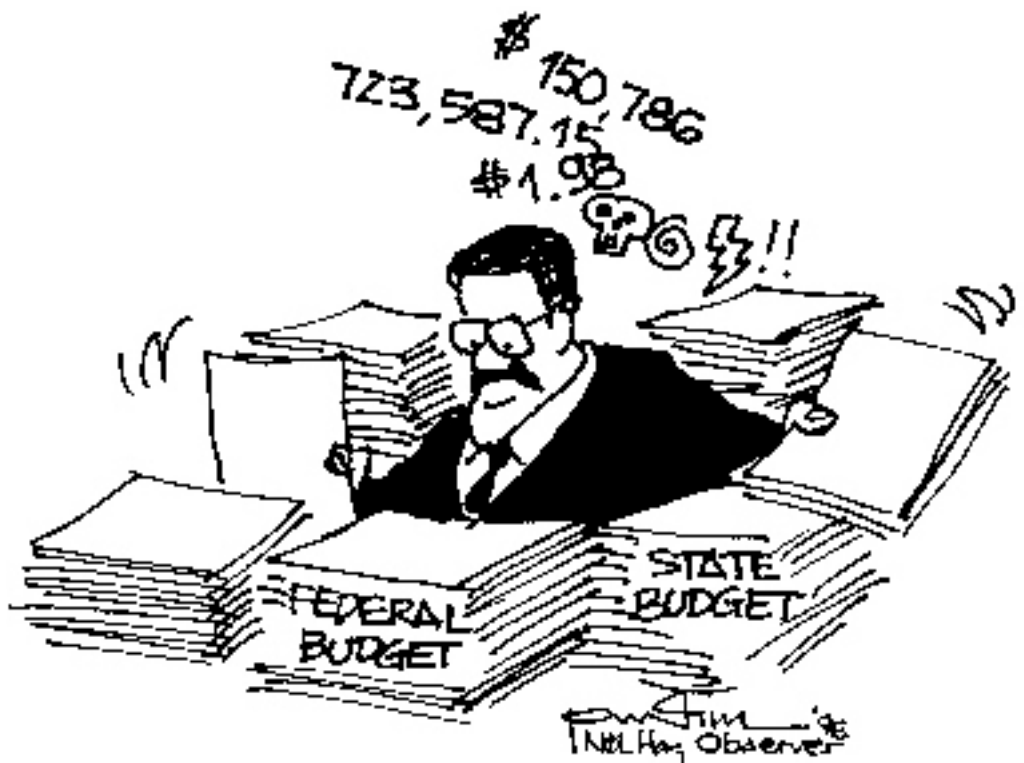
CBO Testifies on How Feds and States Budget for Emergencies

In its pursuit of ways to reduce the increasing costs of disasters and to find better ways of handling their impacts on the federal budget, Congress recently held hearings on budgeting and planning for emergencies. Among those testifying were two staff members of the Congressional Budget Office (CBO), which provides background research and financial analyses to assist Congress in making budgeting decisions. The text of their testimony is now available via the Internet.

How Congress Budgets

The first testimony was provided by James L. Blum, deputy director of the CBO, on congressional budgeting for emergency spending. He states that, for the past decade or more, policy makers have acknowledged the value of a budgetary safety valve for emergency spending. Blum notes that most funding is provided in supplemental appropriations as emergencies arise. To further complicate matters, since the Budget Enforcement Act of 1990, Congress has generally offset all nonemergency supplemental appropriations with rescissions (budget cuts), and has even cut emergency supplementals since 1994. Blum notes that various options for changing the budgetary treatment of emergencies, such as creating a reserve fund, may improve planning for such events, but, at the same time, may make it more difficult to respond to emergencies and diminish congressional control.

Blum's testimony includes an explanation of the budgetary treatment of emergency spending, an historical perspective on disaster- and emergency-related spending, and consideration of various options, including eliminating the emergency exemption; requiring a super majority vote, such as a three-fifths majority, to approve emergency spending; establishing criteria for emergency spending; or creating a reserve fund for emergencies.



How States Budget

Teresa A. Gullo, Chief of the State and Local Government Cost Estimates Unit, testified before Congress regarding a CBO survey of states that examined how they budget and plan for emergencies. CBO concluded that the majority of states have procedures for funding disaster assistance programs that parallel current federal practices. Like the federal government, states typically appropriate small sums to emergency response accounts annually. Then, when a disaster occurs, governors declare an emergency and request supplemental appropriations from state legislatures. Gullo noted that few states have a dedicated amount or trust fund for emergencies that bypasses the legislative appropriations process, and even fewer provide funding in advance sufficient to cover large-scale emergencies. Further, most states count on the federal government to step in with assistance when major events occur, and this assumption affects how states budget and plan for emergency response activities.

The remainder of Gullo's testimony examines:

- what tools states generally use to plan for uncertainty, such as budget stabilization funds and other emergency accounts;
- how emergency accounts are financed and operated;
- who has the authority to allocate money from emergency accounts; and
- what criteria are used to decide what projects qualify for assistance.

The complete text of the testimony of both Blum and Gullo can be found on the CBO Web site at <http://www.cbo.gov/test.html>.

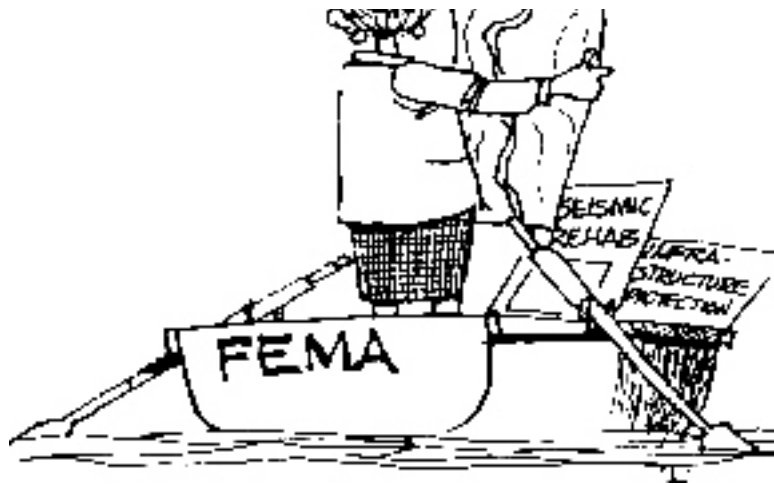
FEMA Panel Looks at National Pre-Disaster Mitigation Plan

In 1997, Congress provided \$30 million for pre-disaster mitigation, but at the same time, also called for a formal needs-based analysis and cost/benefit study of the various mitigation alternatives, with the results being incorporated into a comprehensive, long-term National Pre-disaster Mitigation Plan. Congress wanted this analysis to be independently reviewed and submitted to the Committee on Appropriations, and that report has recently been made available by the Federal Emergency Management Agency (FEMA).



The Report and Commentary on Pre-Disaster Mitigation (1998, 40 pp., free), prepared by the Ad Hoc Panel on a National Pre-Disaster Mitigation Plan, recommends that any mitigation agenda must:

- concentrate on directly reducing potential losses from natural hazards through implementation;



mitigation techniques.

- overcome obstacles to mitigation by developing effective incentives for decision makers, a market for natural hazard risk reduction based on awareness and knowledge, technically sound choices for action, and supportive public/private partnerships; and
- improve the performance of buildings, facilities, and structures in natural hazard events through more effective codes and standards, research, growth management, and improved implementation of

In addition, the panel stressed two recommendations members believe are essential to the plan's success:

- The National Pre-Disaster Mitigation Plan must be adequately funded, and Congress should increase this funding to \$500 million.
- The president and Congress must provide federal leadership by endorsing the plan, following its principles, and working toward coordination of all federal efforts that contribute to loss reduction.

Copies of the report can be obtained from the *FEMA Publications Distribution Facility, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520.*

President Creates New Agency to Oversee Critical Infrastructure Protection

The U.S. is completely dependent on infrastructure systems to provide such things as fresh drinking water, electricity, communications, transportation, medical and emergency services, and government and financial services. Because these systems have become increasingly automated and interlinked, there are new vulnerabilities due to potential equipment failures, sabotage, and natural disasters.

In May 1998, President Clinton established the Critical Infrastructure Assurance Office (CIAO) with the mandate to create a national plan to protect these services through partnership between the public and private sectors, specifically in the areas of policy formation and information sharing. At the same time, he issued Presidential Decision Directive 63 (PDD 63), based on the recommendations of the President's Commission on Critical Infrastructure Protection, which issued a report in October 1997 that called for a national effort to ensure infrastructure security. Specifically, PDD 63

- sets a goal of significantly increased security to government systems by 2000 and secure, reliable information systems by 2003;
- immediately establishes a national center to warn of and respond to attacks to critical systems;

- sets the goal of enhanced ability to protect these systems from attack by 2003;
- requires federal agencies to reduce exposure to threats; and
- seeks voluntary participation of private industry in protecting critical systems.

PDD 63 also establishes:

- a national coordinator;
- the National Infrastructure Protection Center at the FBI;
- a National Infrastructure Assurance Council drawn from the private sector and state and local government to guide formation of a national plan; and
- the above-mentioned Critical Information Assurance Office to support the national coordinator's work, coordinate a national education and awareness program, and provide support for legislative and public affairs.

PDD 63 also encourages the establishment of an Information Sharing and Analysis Center by the private sector to cooperate with the federal government.

To obtain a copy of the *White Paper: The Clinton Administration's Policy on Critical Infrastructure Protection: Presidential Decision Directive 63* (1998, 15 pp., free), contact the *Critical Infrastructure Assurance Office, P.O. Box 46258, Washington, DC 20050-6258; (703) 696-9395*, or view it on the office's Web site at <http://www.ciao.gov/resources.html>.

FEMA Issues Guidance on the Social Dimensions of Seismic Rehabilitation

To help people and institutions deal with the complexities and potential disruptions caused by seismic rehabilitation, FEMA has issued a new volume, *Planning for Seismic Rehabilitation: Societal Issues* (FEMA 275, 1998, 102 pp., free), which is intended to provide users of the *NEHRP Guidelines for the Seismic Rehabilitation of Buildings* and its *Commentary* (see the *Observer*, [Vol. XXII, No. 3, p. 12](#)) with an understanding of the social and public policy issues that accompany such efforts. The volume calls attention to two important themes:

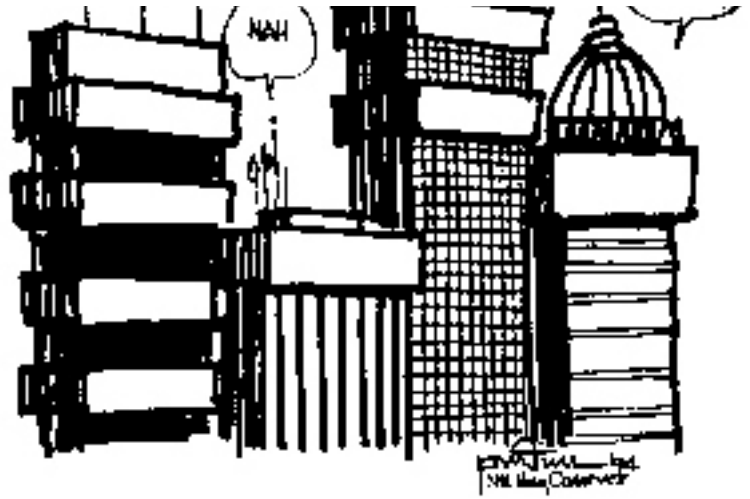
- careful planning can minimize difficult social problems, and
- a wide range of social issues may be more significant in rehabilitation projects than in new construction.

This volume identifies typical problems unrelated to design and construction that might arise during seismic rehabilitation, such as demographic, social,



and economic impacts; historic property restrictions; resident dislocations; and business interruptions. Further, it alerts readers to the difficulties inherent in implementing seismic rehabilitation recommendations.

Planning for Seismic Rehabilitation presents a four-step decision process to determine if rehabilitation efforts are needed. It also includes an escalation ladder to help users understand the degree of conflict inherent in and the implications of choosing specific strategies. Because the most likely users of this document are local officials, private owners, and design professionals, the guide contains three scenarios with lists of considerations that would have to be addressed by each group.



Copies of the report are free and can be obtained from the *FEMA Publications Distribution Facility, P. O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520.*

FEMA Issues Updates on the Flood Hazard Mapping Program

As most flood professionals know, floodplain mapping is an essential tool for making land-use, insurance, and other decisions regarding flood risk. The Technical Mapping Advisory Council (TMAC) was created by Congress in the 1994 National Flood Insurance Reform Act to evaluate Flood Insurance Rate Maps (FIRMs) and other mapping products prepared by FEMA for the National Flood Insurance Program (NFIP), recommend improvements, and set standards and guidelines for preparing and revising these maps and other products (see the *Observer*, [Vol. XXII, No. 4, p. 7](#)).

The TMAC recommended several important changes to FEMA's Flood Hazard Mapping Program in its second annual report to the FEMA director, including streamlining the flood study process, improving base maps and establishing adequate mapping standards, and producing all future maps digitally. As a result, the Flood Hazard Mapping Program is busily implementing the Map Modernization Plan and other activities to improve communities' ability to identify flood-prone areas.

In an effort to inform interested parties of the numerous changes being implemented in this program, the FEMA Mitigation Directorate has created a new newsletter, *Work In Progress*. The inaugural issue contains articles on the goals of the program, postflood disaster hazard verification, a list of FEMA's map modernization objectives, a description of the upcoming National Flood Insurance Program Mapping Web pages, a summary of the five-year map review/update process, a description of the Telephone Response Center Hotline at the Map Services Center, and flood study updates.

To obtain a free subscription to *Work in Progress*, submit a request by fax or e-mail to *Anne Flowers*, Mapping Support Branch of the Technical Services Division, Mitigation Directorate, FEMA, 500 C Street, S.W., Washington, DC 20472; fax:(202) 646-4596; e-mail: mapmod@fema.gov.

FEMA Testifies About Its Role in Dealing with the Millennium Bug

On October 2, 1998, Lacy Suiter, FEMA's Executive Associate Director of Response and Recovery, testified before the U.S. Senate's Special Committee on the Y2K Technology Problem about FEMA's efforts to address the threat posed by this ghost in the machine to fire services and emergency management in the U.S ([see page 1](#) of this *Observer*).

As a member of the President's Council on Y2K Conversion, FEMA coordinates efforts of the Emergency Services Sector (ESS) working group, which consists of FEMA and the Departments of Agriculture, Commerce, Defense, Health and Human Services, Interior, and Transportation. The American Red Cross also participates as an honorary member. These agencies are responsible for increasing the awareness of emergency service providers about the problem and encouraging them to assess the readiness of their systems.

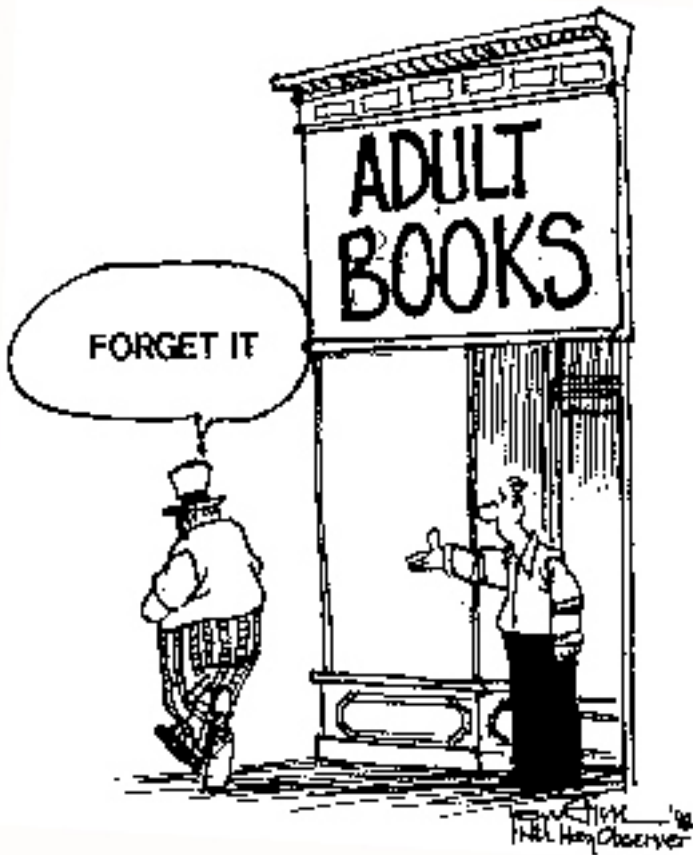
The objectives of the ESS are to develop outreach to state, local, and private-sector responders; monitor the progress of these groups; and prepare for inevitable disruptions. The group will provide reports to the president's council in the coming months on the readiness of the sector as a whole. FEMA plans to post information about these activities on its Web site, <http://www.fema.gov>.

Suiter noted that, in order to determine the most appropriate responses to Y2K problems, the President's Council on Y2K Conversion will require credible assessments from authoritative sources that describe specific vulnerabilities, areas at highest risk, and potential consequences. The council will release a report later this year that describes a plausible worst-case scenario. He described a conversation with the chair of the president's council in which the chair stated that he is most concerned about small- and medium-sized organizations as well as public over-reaction. He believes that public infrastructure will function without catastrophic disruptions, but federal response may be called for in some service sectors and geographic regions. Suiter added that FEMA will respond according to its mandate under the Robert T. Stafford Disaster Relief and Emergency Assistance Act and emphasized that FEMA does not have a role in prevention of or response to computer disruptions, nor does the agency have the authority or expertise to perform those types of missions.

Finally, Suiter added that the efforts of emergency management and fire services organizations cannot be viewed as a substitute for personal responsibility and personal preparedness. Every organization and every individual, in public and private life, has an obligation to learn more about this problem and their vulnerability, so that they may take appropriate action to prevent a problem before it occurs.

The complete text of Suiter's testimony can be found on the FEMA Web site, <http://www.fema.gov/library/y2k1002.htm>

SBA Says No to Illegal, Religious, Government, Gambling, "Prurient Sexual," and Lobbying Activities for Disaster Loans



On September 2, 1998, the Small Business Administration amended its regulations to ensure that its criteria for disaster loans conform to those of its business loan program. Thus, under the final rule that appears in the *Federal Register*, a business can not obtain a physical disaster loan if it is engaged in any illegal activity; if it is a government owned entity (other than one owned or controlled by a Native American tribe); or if it engages in products or services of a prurient sexual nature. The rule further states that a business is not eligible for an economic injury disaster loan if more than one third of its revenues are from legal gambling operations or from packaging SBA loans; if it is principally engaged in teaching or indoctrinating religion; or is primarily engaged in political or lobbying activities.

The final rule appears in the September 2, 1998, *Federal Register* (Vol. 63, No. 170, pp. 46643-46644). Copies can be obtained at your local

federal depository library or on-line at <http://www.access.gpo.gov>.



On the Line

The Case for a Natural Hazards Caucus

A recent *New York Times Magazine* profile of Interior Secretary Bruce Babbitt commented that his geologic training would appear to be at odds with a career in politics --the former focusing on the longest view imaginable and the latter on the immediacy of the here and now. Although it is true that the slow uniformitarian processes of erosion and the centimeter-per-year pace of tectonic plates take place in deep time, to use essayist John McPhee's apt phrase, geology is also about catastrophes.

Thundering floods carved the Grand Canyon and the badlands of eastern Washington. And each year, new floods wreak havoc on communities across this country. Coastal California's southward movement toward Mexico is made manifest in the spasmodic jolts of earthquakes that cause tremendous devastation to urban infrastructure and jeopardize human lives. These sudden events are forceful reminders that the earth can operate on time scales that even politics cannot match for swiftness--that most feared of political phenomena, an electoral defeat, is a tortuously slow ordeal compared to a volcano's explosion.

Indeed, natural hazard events--those above, plus hurricanes, tornadoes, severe storms, and landslides to name a few--may take place *too* fast, failing to stay on the political radar long enough for scientists, engineers, and emergency managers to use them effectively to underscore the relevance of their work to society. And yet it is important that we find ways to do just that. Garnering support for mitigation measures and research, in particular, requires that policy makers think about natural hazards before they strike.

Creating a Congressional Caucus

One way to improve our ability to maintain greater continuity of interest about hazards in Congress would be to establish a congressional natural hazards caucus. Such an entity could provide a ready infrastructure for providing information to members of Congress when a disaster strikes as well as a forum to garner attention at other times when disasters merely loom. Caucuses are informal organizations consisting of like-minded senators and/or representatives who seek to increase awareness of a particular issue among their colleagues and to provide forums for discussion. They have been formed to discuss everything from Irish-American relations to hog farming to minor-league baseball.

Successful caucuses often rely on outside interests that can provide logistical and financial support for briefings and other events. A natural hazards caucus could be supported by scientific and engineering societies, the insurance industry, emergency management groups, and other entities committed to reducing losses from natural hazards. These groups could also work closely with federal and state agencies to coordinate activities. For specific issues, the caucus could leverage its influence by joining forces with existing caucuses such as the coastal caucus, the aviation and space caucus, the science and technology caucus, the upper Mississippi River task force, the National Guard caucus, and the insurance caucus.

Natural disasters strike every state and congressional district, creating a strong potential for broad interest. A number of prominent lawmakers have taken leadership roles on natural hazards issues and could be potential leaders of such a caucus. Senator Ted Stevens (Republican-Alaska), the chairman of the Senate Appropriations Committee, has secured funds to monitor volcanic ash hazards along the commercial



airline polar routes that pass over the Aleutian Islands. Senator Bill Frist (Republican-Tennessee) oversaw passage of reauthorization of the National Earthquake Hazards Reduction Program (NEHRP). In the House, George Brown (California), ranking Democrat on the Science Committee, has been a long-time leader on NEHRP and other hazards issues, and Representative Curt Weldon (Republican-Pennsylvania) has taken an active interest in hazards and fire issues. Bills to amend the Stafford Disaster Relief and Emergency Assistance Act were introduced in this Congress by Senators James Inhofe (Republican-Oklahoma), Kent Conrad (Democrat-North Dakota.), Rod Grams (Republican-Minnesota), and Daniel Akaka (Democrat-Hawaii), and by Representatives Sherwood Boehlert (Republican-New York), Ted Strickland (Democrat-Ohio), and Bruce Vento (Democrat-Minnesota).



The idea of a natural hazards caucus is not new, but I believe it is one whose time has come. My own interest and that of many others was ignited by a talk given by a House committee staffer at one of the recent Public Private Partnership (PPP) 2000 Forums [see page 19 of this *Observer* for future PPP 2000 forums]. The staffer emphasized that there is interest and enthusiasm for natural hazards issues in Congress, but also noted that there is no mechanism in place on Capitol Hill to discuss these issues. The PPP 2000 Forum series, organized by the White House Subcommittee on Natural Disaster Reduction and the Institute for Business and Home Safety, has already brought together a wide variety of organizations that could back a natural hazards caucus and create such a mechanism.

Broader Benefits

In making the case for a natural hazards caucus to the geoscience community, I have emphasized that greater congressional awareness of geoscience contributions in the natural hazards arena can go a long way toward improving the general awareness and positive perception of geoscience among policy makers and the public at large. The same holds true for the atmospheric science, engineering, insurance, and social science communities, where natural hazards is just one of many issue areas.

Because there is first-order agreement that saving lives and reducing property losses from natural disasters is a public good, most programs to reduce losses from natural hazards do not engender the partisan strife that complicates issues such as resource use and the environment. For example, a discussion on the contributions of geology to resource development cannot take place without first engaging in a debate over whether the resources should be developed in the first place. Likewise for most environmental issues. This is not to say that hazards lack contention. When one gets to the specifics of land-use restrictions and

insurance premiums, the issues may be just as intractable. But simply being able to get down to the specifics at all is an accomplishment in the political arena.

The geoscience community is a diverse one, and geoscientists involved in environmental or resource activities or in fundamental research may feel that a natural hazards caucus in Congress seems unrelated to their interests. Scientists in general are good at splitting themselves up into subdisciplines and even smaller niches until the activities of one area seem distant from those of another. When it comes to perception by policy makers and the public, however, geoscientists will sink or swim as a group. The same holds true across the coalition of disciplines and sectors working on natural hazards issues. If this broad community can communicate to Congress the importance and the value of reducing losses from natural hazards, the benefits will accrue to all our professions and to society as a whole. Goodwill goes a long way in a town like Washington, and we must seize every chance we get to win it.

David Applegate, Director of Government Affairs, American Geological Institute

This article was adapted from a column targeted at the geoscience community that appeared in the August 1998 issue of *Geotimes* magazine and is reprinted here with permission. The author can be reached at govt@agiweb.org. The AGI web site is <http://www.agiweb.org>.



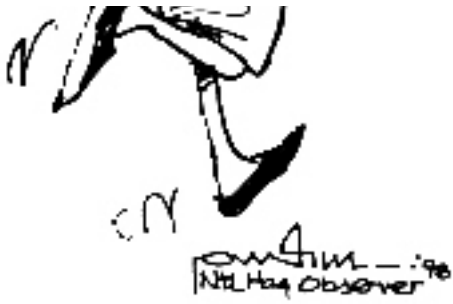
Making Homes Safer on the Florida Peninsula



The insurance industry, government, and several nonprofit organizations recently formed an alliance to help Florida residents and out-of-state property owners make their homes safe from hurricanes and tornadoes. The Florida Alliance for Safe Homes (FLASH) was created by the Institute for Business and Home Safety (IBHS), the Florida Insurance Council, the American Red Cross, the Federal Emergency Management Agency, the Florida Department of Community Affairs (DCA), and the Florida Department of Insurance, with initial funding provided by IBHS and DCA that will run through November 30, 1999.

FLASH raises awareness about home safety from high winds in two ways:

- by providing a toll-free number (accessible nationwide), (877) 221-SAFE (221-7233), which callers can contact to receive copies of the IBHS hurricane retrofit guide *Is Your Home Protected from Hurricane Disaster?*; a brochure from the DCA on its Breaking the Cycle program; and the American Red Cross booklet, *Preparing*



Your Home for a Hurricane; and

- by establishing a FLASH Web site, which can be accessed at <http://flsafehomes.org>.

Other activities include public service announcements for TV and radio, media events to educate the public about hurricane preparedness, billboard messages, and an educational program. For more information on this effort, contact *Maggie Sheehan, IBHS, 175 Federal Street, Suite 500, Boston, MA 02110-2222; (617) 292-2003, ext. 214; fax: (617) 292-2022; e-mail: msheehan@ibhs.org; WWW: <http://www.ibhs.org>.*

Readers outside the state of Florida can also obtain a free single copy of *Is Your Home Protected from Hurricane Disaster? A Homeowner's Guide to Hurricane Retrofit* from IBHS at the above address. Copies of the DCA's bimonthly newsletter, *Breaking the Cycle*, can be found at the Web site, http://www.state.fl.us/comaff/hcd/programs/ltr/Breaking_Cycle/index.htm. *Preparing Your Home for a Hurricane* (1995, 44 pp., free) can be requested from your local American Red Cross office by specifying publication number ARC 5040.



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Introducing CEPA

The Canadian Emergency Preparedness Association (CEPA) is a new national forum for Canadian practitioners involved in emergency prevention, planning, response, recovery, and mitigation. CEPA is dedicated to the promotion of knowledge, understanding, and cooperation in emergency preparedness. The association will encourage the development of national standards and model practices in this field and will support the development of a national certification process for emergency managers. CEPA is composed of eight regional chapters and one national chapter made up of emergency practitioners from country-wide organizations. More information on this new Canadian association is available from the temporary CEPA Web site: <http://142.58.200.38>. In the near future, the permanent Web address will be: <http://www.cepa-acpc.ca>. Interested individuals can also contact *André Lamalice, Emergency Preparedness Canada, Ottawa, Ontario, Canada K1A 0W6; (613) 991-7034; fax: (613) 998-9589; e-mail: lamala@x400.gc.ca* for more information.



Is Anyone Interested in the Popular Culture of Disasters?

Recently a group of researchers decided to see if there was any current interest in a topic they first discussed two decades ago: the jokes and humor that circulate during disasters. This focus has now broadened to, for want of a better term, the "Popular Culture of Disasters." Tentatively, this includes disaster jokes and humor, board games and puzzles with disaster themes, folk legends and beliefs about disasters (including Great Flood myths), disaster calendars, songs and poems created at times of disaster, nontraditional predictions (such as the Browning earthquake prediction in 1990), disaster novels and films as well as spoofs of them (e.g. the "Airplane" series), anniversary newspaper issues, on-site graffiti and survivor buttons, certain common photos and video tapes, memorial services, cartoons and comic strips with disaster themes, World Wide Web chat rooms developed around disaster occasions, etc. This is only a partial list, but it conveys what might be considered under the general rubric of the popular culture of disaster. As an intellectual rationale for this project, it can be argued that humor is a powerful

coping mechanism, and that popular culture may be the major way most people learn about disasters.

The group focusing on the topic has concluded that disaster popular culture is a worthwhile topic for more systematic exploration (given the limited publications and information on the phenomena mentioned above), and they are seeking others who might be interested in, or knowledgeable about, this topic. The group is currently considering next steps in furthering their interests--including establishing an Internet discussion group and Web site, developing a special issue for a disaster journal, and hosting relevant sessions at professional meetings.

Anyone having an interest, suggestions, contributions, and/or writings on this topic, or who simply wants to be informed of developments, is encouraged to contact *E.L. (Henry) Quarantelli, Disaster Research Center, University of Delaware, Newark, DE 19716; (302) 831-6618; fax: (302) 831-2091; e-mail: elqdr@udel.edu*.

Say this 10 times . . .

CSSC Seeking Seismic Retrofit Case Studies

The California Seismic Safety Commission (CSSC) is seeking case studies of building seismic retrofitting to support development of "Seismic Risk Management Tools for Decision Makers." These case studies should illustrate practical aspects of risk management decision-making that could provide valuable lessons to others in similar situations. Selected case studies may be included in a CSSC publication and will be broadly distributed. Prior to publication, owners of project buildings will be requested to sign a publications release and waiver of liability.

Examples of desired case studies include:

- buildings for which owners considered the benefits and costs of seismic retrofitting in a detailed fashion, and which were seismically retrofitted and subsequently experienced strong ground motion;
- buildings that were seismically retrofitted and have not yet experienced strong ground motion, but whose technical or project aspects are of major interest, or whose owners considered cost benefit issues to be of prime importance;
- buildings considered for, but not seismically retrofitted for economic reasons, but which nonetheless offer valuable lessons.

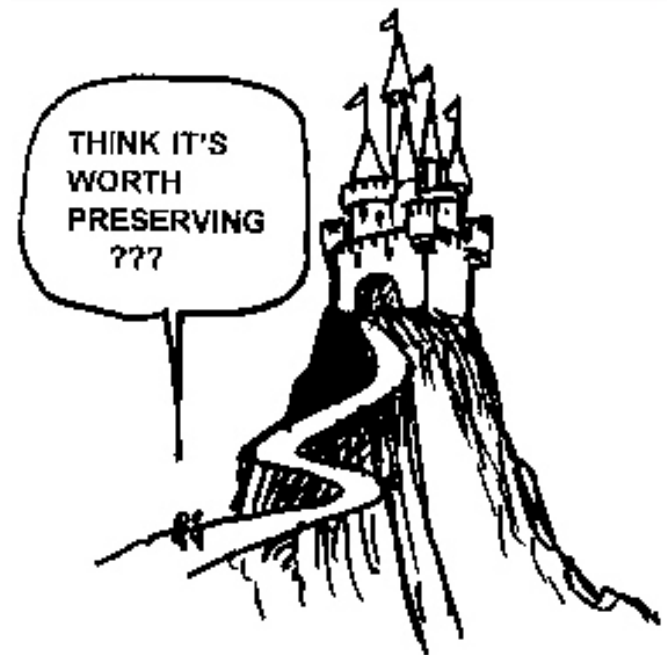
Projects that include both retrofit of structural and nonstructural systems, or of either, are of interest.

Persons or firms interested in submitting one or more candidate case studies should provide a description of the project, including location, owner, relevant dates (start, construction), a summary of the technical

project, unique and interesting aspects, and a photograph or sketch.

The project contractor for CSSC is the risk engineering firm EQE International, Inc., and project descriptions should be forwarded by November 15, 1998, to *Charles Scawthorn* or *William Bruin*, CSSC Case Studies, EQE International, Inc., 44 Montgomery Street, Suite 3200, San Francisco, CA 94104-4805; (415) 989-2000; fax: (415) 397-5209; e-mail: crs@eqe.com or wmb@eqe.com.

FEMA Seeking Conservation Expertise



The Federal Emergency Management Agency (FEMA) and the National Task Force on Emergency Response are recruiting conservation and preservation professionals for postdisaster assistance teams and mitigation research.

In the event of a major disaster, FEMA can assign employees from other federal agencies or contract with private organizations and individuals to assist in damage assessment, technical assistance, mitigation planning, and other disaster evaluation projects. The agency is seeking persons from both government and the private sector with expertise in various conservation and historic preservation specialties. Candidates must be available for temporary field assignments on short notice.

The Federal Cultural Heritage Roster will be managed for FEMA by Greenhorne & O'Mara, Inc., a firm based in Greenbelt, Maryland. Persons interested in becoming a member of the Federal Cultural Heritage Roster should request an application packet from *Eric Letvin*, Greenhorne & O'Mara, Inc., 9001 Edmonston Road, Greenbelt, MD 20770; (301) 982-2800, ext. 611; fax: (301) 220-2606; e-mail: eletvin@G-and-O.com.

[Adapted from *Heritage Preservation Update*, the newsletter of *Heritage Preservation*, 1730 K Street, N.W., Suite 466, Washington, DC 20006; (202) 634-1422; fax: (202) 634-1435.]



Conferences and Training

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

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

Training Seminars to Introduce the NEHRP Guidelines for the Seismic Rehabilitation of Buildings and Commentary. Hosted by: Building Seismic Safety Council (BSSC) and Applied Technology Council (ATC). These two-day regional seminars will be conducted in as many as 19 cities throughout the U.S. between October 1998 and April 1999. The first nine seminars will be held in Charleston, Los Angeles, New York, Portland, St. Louis, Salt Lake City, San Diego, San Francisco/Oakland, and Seattle. They are intended to educate all professionals involved in the design and construction process regarding the recently issued National Earthquake Hazards Reduction Program (NEHRP) *Guidelines* (see the *Observer*, Vol. XXII, No. 3, p. 12). For exact dates, contact ATC-33-1 Project, Applied Technology Council, 555 Twin Dolphin Drive, Suite 550, Redwood City, CA 94065; fax: (650) 593-2320; e-mail: atc@atcouncil.org; WWW: <http://www.atcouncil.org>.

Corporate and Risk Communication in Organisations. Sponsor: The Centre for Risk and Crisis Management, Durham University Business School. Durham City, U.K.: January 20-21, 1999. The processes by which risk issues are effectively communicated and understood both within organizations and among the public have become a matter of major concern--particularly in light of increasing skepticism among the public toward "experts." This meeting will examine communication of risk within organizations and from organizations to the public and try to identify the most effective means. For further information, contact Eve Coles, The Centre for Risk and Crisis Management, Durham University Business School, Mill Hill Lane, Durham City, U.K. DH1 3LB; tel: +44(0)191 374 1220/3381/7326; fax: +44(0)191 374 3386; e-mail: evecoles@aol.com or e.l.coles@durham.ac.uk.

Retrofitting Flood-Prone Residential Buildings Course (E-279). Offered by: Federal Emergency

Management Agency Mitigation Directorate and Emergency Management Institute (EMI). Emmitsburg, Maryland: January 25-29, 1999. As Americans recover from Hurricane Georges and other recent flood disasters, design professionals and government officials are increasingly being called upon to provide technical assistance to reduce or eliminate future flood damage. This course will present current engineering principles and practices for retrofitting flood-prone residential buildings; it will cover floodproofing, the regulatory framework, design parameters and practices, and benefit/cost/feasibility analysis. Participants will complete a design exercise and take a written examination. Interested persons must complete an EMI independent study course (IS-279) as a prerequisite; it can be ordered from the *EMI Independent Study Program, (301) 447-1076*. More information is available from *EMI, National Emergency Training Center Admissions Office, 16825 South Seton Avenue, Emmitsburg, MD 21727; (301) 447-1525; fax: (301) 447-1441*.

Engineering for Extreme Winds: "Buildings Versus Extreme Winds." Offered by: Wind Engineering Research Center, Texas Tech University. Lubbock, Texas: February 3-5, 1999. This short course is intended for architects, engineers, building officials, persons interpreting or enforcing wind load codes and standards, and other professionals involved in the design of structures that must resist extreme winds. To register or receive additional information, contact *Birgit Rahman, Division of Continuing Education, Texas Tech University, Box 41006, Lubbock, TX 79409-1006; (806) 742-2352, ext. 237; fax: (806) 742-2318*.

Earthquake Engineering Research Institute (EERI) 51st Annual Meeting. San Diego, California: February 3-6, 1999. The EERI Annual Meeting is one of the principal conferences nationally and internationally for assessing the latest trends, developments, and innovations in earthquake engineering, based on both research and findings from the most recent seismic events. Poster abstracts are due December 1, 1998. Several scholarships are available to encourage students and younger EERI members to attend. For more information, contact *EERI, 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eeri@eeri.org; WWW: <http://www.eeri.org>*.

Disaster Asia '99: Asia-Pacific Conference and Exhibition on Disaster Management. Hosted by: Philippine Futuristics Society, in cooperation with the United Nations International Decade for Natural Disaster Reduction (IDNDR) Secretariat. Manila, Philippines: February 8-10, 1999. Disaster Asia '99 will provide participants an opportunity to consult with international experts on effective methods of disaster prevention, management, and rehabilitation. Participants will help determine priorities for future disaster planning throughout Asia and will formulate an "Asia-Pacific Disaster Plan" for the next century that will be reviewed every four years and coordinated with the final recommendations of the IDNDR. They will also develop model national legislation to further disaster reduction. For a conference brochure, contact *Disaster Asia '99, c/o Infinity Plus, Inc., Penthouse B, Windsor Tower, 163 Legaspi Street, Legaspi Village, Makati Central Post Office, 1200 Makati City, Philippines; tel: (632) 8106751; fax: (632) 8127739; e-mail: infinity@snap.portalinc.com*.

Fourteenth Annual State and Local Emergency Management Data Users Group (SALEMDUG) Conference. New Orleans, Louisiana: February 8-10, 1999. Since 1984, SALEMDUG has served as a

focus for emergency management professionals from all levels of government and the private sector who are interested in the use of advanced information and communication technology. The group's annual conference provides a means both to share knowledge about new technologies and to consider the many benefits (and problems) they present to disaster managers. For details, contact *Steve Burr, Program Chair, SALEMDUG Annual Conference, Louisiana Office of Emergency Preparedness, P.O. Box 44217, Baton Rouge, LA 70804*; or *Sue Krogman, President, SALEMDUG, Nebraska Emergency Management Agency, 1300 Military Road, Lincoln, NE 68508-1090*; WWW: <http://www.salemdug.dis.anl.gov/>.

Asian Regional Meeting to Assess the Accomplishments of the International Decade for Natural Disaster Reduction (IDNDR). Bangkok, Thailand: February 23-26, 1999. Besides surveying accomplishments of the last 10 years, participants at this meeting will develop priorities for disaster reduction in Asia and the Pacific region in the 21st century. More information is available from the *IDNDR Secretariat, United Nations, Palais des Nations, CH-1211 Geneva, Switzerland*; tel: (41-22) 740-0377 or 798-6894; fax: (41-22) 733 8695; e-mail: scott.weber@dha.unicc.org.

EMS Today '99. Sponsor: JEMS Magazine. Denver, Colorado: March 24-27, 1999. The 1999 Emergency Medical Services (EMS) conference includes numerous educational sessions, networking opportunities, and a large exhibition of the latest EMS products. For details, contact *Ms. Kevin Flanagan, JEMS Communications, P.O. Box 2789, Carlsbad, CA 92018-2789*; (800) 266-5367 or (760) 431-9797; fax: (760) 431-8135; WWW: <http://www.jems.com>.

Fifth World Congress on Stress, Trauma, and Coping in the Emergency Services Professions. Sponsor: International Critical Incident Stress Foundation (ICISF). Baltimore, Maryland: April 21-25, 1999. This event will examine a wide range of topics concerning traumatic stress in the emergency services professions--including mass disasters, violence in schools and the work place, critical incident stress management team development, and recent research on psychological trauma. More information is available from *ICISF, 10176 Baltimore National Pike, Unit 201, Ellicott City, MD 21042*; (410) 750-9600; fax: (410) 750-9601; e-mail: wcong5@icisf.org; WWW: <http://www.icisf.org>.

Seismological Society of America (SSA) Annual Conference. Seattle, Washington: May 3-5, 1999. The SSA conference includes both oral and poster sessions on general topics in seismology. Special sessions will cover Pacific Northwest tectonics and seismic hazards, volcanic earthquakes and landslides, seismology in education, initiatives in network seismology, and other aspects of seismic hazards. Abstracts are due February 5, 1999. For details, contact *S. Malone, Geophysics Program, Box 351650, University of Washington, Seattle, WA 98195-1650*; (206) 685-3811; fax: (206) 543-0489; e-mail: ssa99@geophys.washington.edu; WWW: <http://www.geophys.washington.edu/SEIS/SSA99/>.

Sixth National Watershed Conference. Sponsors: National Watershed Coalition and others. Austin, Texas: May 16-19, 1999. The theme of this conference is "Getting the Job Done at the Ground Level," and it will explore innovative ways that watershed managers can accomplish project objectives as traditional sources of assistance become more difficult to acquire. Such projects include flood damage

reduction, erosion control, drainage, irrigation, recreation, fish and wildlife habitat development, water quality improvement, and all other possible uses of watersheds. For more information, contact *John W. Peterson, Executive Director, National Watershed Coalition, 9304 Lundy Court, Burke, VA 22015-3431; (703) 455-6886/4387; fax: (703) 455-6888; e-mail: jwpeterson@erols.com.*

Association of State Floodplain Managers (ASFPM) 23rd Annual Conference: "Planning Ahead: Flood Loss Reduction in the 21st Century." Portland, Oregon: May 24-28, 1999. The annual ASFPM meeting is the primary national conference for learning about the latest policies, developments, and innovations in flood and floodplain management. The organizers are currently soliciting abstracts and proposals for sessions--particularly those that examine watershed planning, land-use planning as it relates to flooding, mitigation, coastal flooding, mapping, warning, programs with multiple benefits, and other special flood-related hazards. Abstracts are due November 20. A submittal form and instructions are available from the ASFPM Web site: <http://www.floods.org> in the "Conferences" section. For more information about the conference, contact ASFPM, 4233 West Beltline Highway, Madison, WI 53711; (608) 274-0123; fax: (608) 274-0696; e-mail: asfpm@floods.org.

International Conference on Integrated Drought Management: Lessons for Sub-Saharan Africa. Sponsor: United Nations Educational, Scientific and Cultural Organization (UNESCO) International Hydrological Programme and others. Pretoria, South Africa: September 20-22, 1999. The main objectives of this conference are to help participants better understand factors predisposing people and landscapes to drought and to determine strategies and actions that can reduce drought vulnerability and promote sustainable development. Sessions will address measuring and forecasting drought, the inter-relatedness of factors affecting drought, comparative drought management policies, vulnerability reduction, capacity building, sustainable development, research and information needs, and lessons for sub-Saharan Africa. There will be a major emphasis on issues involving drought and social equity, and participants will address relationships such as those between drought mitigation and gender, poverty and drought relief, economic reform and sustainability in drought-prone areas, land tenure and drought risks, and urban water needs and rural development. For more information, see the conference Web site: <http://www.wrc.org.za/events/drought/>, or contact Conference Planners, P.O. Box 82, Irene 0062, South Africa; tel: +27 12 667 3681; fax: +27 12 667 3680; e-mail: confplan@iafrica.com.

Australian Disaster Conference 1999: "Disaster Prevention for the 21st Century." Canberra, Australia: November 1-3, 1999. Planning is currently under way for this conference, which will serve as one of the final summary conferences of the International Decade for Natural Disaster Reduction. For further details, contact Conference Logistics, P.O. Box 505, Curtin, ACT 2605, Australia; tel: 02 6281 6624; fax: 02 6285 1336; e-mail: conference@conlog.com.au.

Upcoming PPP 2000 Seminars

The Public Private Partnership (PPP) 2000 is a cooperative endeavor of several federal agencies,

national and international nongovernmental organizations, and major businesses. The goal of PPP 2000 is to seek new and innovative opportunities for government and nongovernment partners to work together to reduce losses from and vulnerability to natural hazards. To accomplish this, the group is hosting a series of forums on public policy issues affecting natural disaster reduction. The tentative list of upcoming seminars includes:

Seminar Title and Date

Infrastructure--November 17, 1998

Mobilizing the Public Against Natural Disasters--December 15, 1998

Second Assessment of Natural Hazards--January 27, 1999

Partnership for Advancing Technology in Housing--February 1999

Public Health Following Natural Disasters--March 1999

Mobilizing Hazard Reduction Forces--April 1999

Wrap-Up--May 1999

All seminars are held in Washington, D.C. For more information, contact *Olga Marinenko, Futures Group, Inc., 1050 17th Street, N.W., Washington, DC 20036; (202) 775-9680; e-mail: olgam@erols.com*; or *Institute for Business and Home Safety, 175 Federal Street, Suite 500, Boston, MA 02110-2222; (617) 292-2003; fax: (617) 292-2022; WWW: <http://www.ibhs.org>*.

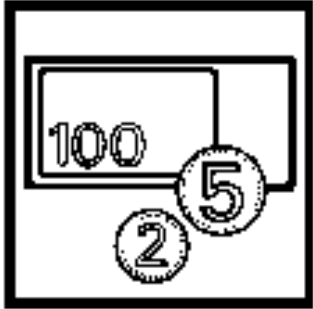
FEMA Offers Independent Study Course on Pets and Disasters



Pet owners, farmers, veterinarians, and others who care for animals can learn how to safeguard their animals during disasters through two new independent study courses developed by the Federal Emergency Management Agency (FEMA). The first course, IS-010, addresses how disasters affect people and their animals, while the second, IS-011, focuses on incorporating animals into community disaster planning and is aimed primarily at emergency management officials and animal-care industries. The courses, offered through FEMA's Emergency Management Institute, were developed with assistance from a number of organizations including the American Veterinary Medical Association, the Humane Society of the United States, the American Academy on Disaster Veterinary Medicine, as well as local emergency management and animal control agencies.

As with all FEMA independent study courses, there are no prerequisites or enrollment fees. The average

course completion time is 10 to 12 hours. Course materials can be downloaded from FEMA's Web site: <http://www.fema.gov/EMI/Ishome.htm>. Materials can also be ordered by writing to the *Independent Study Office, Emergency Management Institute, National Emergency Training Center, 16825 South Seton Avenue, Emmitsburg, MD 21727*.



Contracts and Grants

Post-Disaster Redevelopment: Lessons from Kobe and Northridge, National Science Foundation, \$225,201, 24 months. Principal Investigators: *Robert B. Olshansky, Department of Urban and Regional Planning, University of Illinois, 111 Temple Hoyne Buell Hall, 611 East Lorado Taft Drive, Champaign, IL 61820; (217) 333-8703; fax: (217) 244-1717; e-mail: robo@uiuc.edu; Laurie Johnson, Risk Management Solutions, Inc., 149 Commonwealth Drive, Menlo Park, C A 94025-1133; (650) 617-6487; fax: (650) 617-6602; Ken Topping, Cambria Institute for Sustainability Studies, 504 Warwick Street, Cambria, CA 93428; (805) 927-7773; kentopping_ccsd@cambriacsd.org.*

This project will investigate factors that facilitated or impeded postearthquake redevelopment following the Northridge, California, earthquake of January 17, 1994, and the Great Hanshin (Kobe, Japan) quake of January 17, 1995. Data will be collected from study sites in Los Angeles and Kobe, and the team will assemble planning documents, publications, and land parcel maps that show the economic, physical, institutional, and planning characteristics of each city before and after the earthquakes. The researchers will also investigate the influence of such factors as financing and institutional arrangements on redevelopment.

Disaster Research for Civil Defense, 1951-1962, National Science Foundation, \$4,730, 12 months. Principal Investigator: *Sharon Ghamari-Tabrizi, Center for Humanities, Wesleyan University, High Street, Middletown, CT 06457; (860) 685-3057; e-mail: sghamari-tabrizi@wesleyan.edu.*

Ghamari-Tabrizi will collect archival material and oral histories from five scientists who were central to the creation of disaster research for the Civil Defense Administration. Research during this era viewed disasters as an opportunity to study social process in extreme circumstances. Its rise and development offer insight into the state of U.S. behavioral science during the Cold War years.

The Contribution of Economic Information to Environmental Decision Making, National Science Foundation, \$149,666, 24 months. Principal Investigators: *Leonard A. Shabman and Kurt Stephenson,*

Department of Economics, Virginia Polytechnic and State University, Blacksburg, VA 24061-0401; (703) 231-6301; fax: (703) 231-7417.

In public debate, economic arguments are often made to support or oppose a particular environmental decision. However, using money estimates to quantify environmental values remains controversial among decision makers and economists. This study will use a pattern model approach to understand environmental policy decisions. This pattern will then be refined and expanded through interviews with analysts, lawyers, and public officials and used to identify how specific economic information affects final decisions.

Millennial Tsunami Catalog and International Web Site, National Science Foundation, \$104,764. Principal Investigators: *James F. Lander, Lowell S. Whiteside, and Karen Fay O'Laughlin, Cooperative Institute for Research in Environmental Sciences, Campus Box 216, University of Colorado, Boulder, CO 80309-0261; (303) 497-6446.*

This project will result in the provision, via the World Wide Web, of information on the availability and effectiveness of tsunami warnings, data on the awareness of vulnerable populations to the possibility of a tsunami following a strong earthquake, a listing of historical tsunamis and a summary of effects observed at each affected locality, and a geographical index so that events and potential impacts for various regions can be quickly located. The project is also collecting tsunami histories, both regional and global, to support effective research and mitigation activities.

User Costs in Seismic Risk Management for Urban Infrastructure Systems, National Science Foundation, \$199,372, 24 months. Principal Investigators: *Stephanie E. Chang, Donald Ballantyne, and Adam Rose, EQE International, Inc., 1411 4th Avenue, Suite 500, Seattle, WA 98101; (206) 623-7232 or 442-0674; fax: (206) 470-4145; e-mail: sec@eqe.com or dbballan@eqe.mhs.com.*

EQE will explore how user costs can be incorporated into assessments of the cost effectiveness of seismic risk management measures in infrastructure systems. The research will use life-cycle cost analysis to evaluate maintenance and other long-term costs of a project, in addition to the initial costs of construction, in order to provide an overall economic picture of routine infrastructure management. Such analysis is particularly important in infrastructure systems, where some types of seismic upgrading may actually reduce maintenance costs.

Is It a Real Risk or a False Alarm? National Science Foundation, \$44,732, 12 months. Principal Investigator: *Allan C. Mazur, Maxwell Graduate School of Citizenship and Public Affairs, Social Science Program, 113 Maxwell Hall, Syracuse University, Syracuse, NY 13244-1090; (315) 443-2275.* Cries of alarm arise so often over new risks that policy makers are frustrated by their inability to distinguish real hazards from false alarms. Which warnings deserve costly governmental solutions? Which should be ignored? Mazur will examine over 40 case studies of public warnings about alleged hazards that occurred from 1947 to 1973, evaluating in retrospect whether these warnings were valid.

U.S.-Japan Cooperative Science: The 1700 Cascadia Earthquake and its Probable Tsunami in Japan, National Science Foundation, \$43,000, 24 months. Principal Investigator: *Brian F. Atwater, Department of Geological Sciences, AJ-20, University of Washington, Seattle, WA 98195; (206) 553-*

2927 or (206) 543-1912; e-mail: atwater@u.washington.edu.

This project, a collaborative effort between the principal investigator and Kenji Satake of the Geological Survey of Japan, will investigate the 1700 earthquake in the American Cascadia Subduction Zone that probably caused a major tsunami in Japan. The two investigators will produce a book about these events and the series of discoveries linked to them. In addition, the investigators hope to clarify earthquake and tsunami hazards in the U.S. by accurately determining the size of the 1700 tsunami in Japan.

Flood Exhibition Program, John S. and James L. Knight Foundation, \$122,000, 12 months. For information, contact the *North Dakota Museum of Art, P.O. Box 7305, Grand Forks, ND 58202-7305; (701) 777-4195; fax: (701) 777-4425.*

This grant will commission major art works and fund a virtual flood museum in which members of the general public will enter flood pictures and stories into a computer bank. Printouts and CD-ROMs will be available to museum visitors to commemorate the 1998 floods of the Red River of the North.

Higher Education for Emergency Managers

Learning About the Fine Art of Politics

The Federal Emergency Management Agency's Emergency Management Institute (EMI) recently announced the availability of its third Higher Education Project college-level emergency management course. The Political and Policy Basis of Emergency Management Course consists of a 528-page instructor guide that covers the American political system and disasters; executive and legislative political issues and disasters; federal, state and local political and organizational issues; and intergovernmental relations. Like all Higher Education Project courses, it is an upper division four-year college level course aimed at students who will become emergency managers.

This course is available via the Internet at <http://www.fema.gov/EMI/edu/higher.htm>. Paper or microfiche copies are available from the *National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161; (800) 553-6847 or (703) 605-6000; fax: (703) 321-8547; e-mail: orders@ntis.fedworld.gov; WWW: <http://chaos.fedworld.gov>.* Call for cost and ordering information and reference NTIS publication #PB98-169154.

The primary purpose of the Higher Education Project is to encourage the development of Bachelor degrees in emergency management. A prototype emergency management college-level curriculum of over 20 courses has been designed and is being developed. Two other courses are also available:



- **The Sociology of Disaster** (278 pp., NTIS publication #PB97-115380). Topics include: major theoretical approaches to disaster research, theory of disaster response, and the sociological impact of disaster on various communities
- **The Social Dimensions of Disaster** (619 pp., NTIS publication #PB97-115372). Topics include: disaster mythology patterns, public response to disaster warnings, victim and non-victim responses to disaster, disaster stress and denial, crisis decision making, disaster recovery and community change, and community and organizational response to disaster.

Both courses are available electronically at the URL noted above. Questions concerning the Higher Education Project can be addressed to *Wayne Blanchard, FEMA, NETC/EMI, Building N, Room 430, 16825 South Seton Avenue, Emmitsburg, MD 21727; (301) 447-1262; email: wayne.blanchard@fema.gov.*

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Recent Publications

All Hazards

What is a Disaster? Perspectives on the Question. E.L. Quarantelli, Editor. 1998. 326 pp. \$27.99, plus \$4.00 shipping. To purchase a copy, contact Routledge, 7625 Empire Drive, Florence, KY 41042; (800) 634-7064; fax: (800) 248-4724; e-mail: cserve@routledge-ny.com; WWW: <http://www.routledge-ny.com>.

Are events that create significant casualties or social, economic, and psychological disruptions--such as ethnic clashes or the AIDS epidemic--the same kind of social crises as those generated by natural or technological disasters? What practical or theoretical problems arise if the same label is applied (or not) in different situations? In ***What is a Disaster?*** researchers from six social science disciplines provide their views, discussing reasons for taking different perspectives and describing the significant conceptual differences that exist. Some argue for a continuation of the traditional approach to disasters, in which knowledge about social behavior is sought through an objective scientific framework, while others use a postmodernist framework to contend that behavioral aspects of disasters can only be understood by looking at them subjectively, particularly from the viewpoint of victims.

Disaster Management Guide. 1998. 118 pp. \$7.00. Copies can be obtained from Valerie Loh, International Civil Defence Organisation (ICDO), Chemin de Surville 10-12, P.O. Box 172 B, CH-1213, Petit-Lancy 2/Geneva, Switzerland; +41 22 793 44 33; fax: +41 22 793 44 28; e-mail: icdo@icdo.org; WWW: <http://www.icdo.org>.

This guide outlines the principles of disaster management and discusses the preventive and organizational measures that must be established at different political levels in order to implement effective response to disasters. It also discusses techniques for conducting and managing relief operations. Inspired by the Swiss system and principles in the field of security policies and written with support from the Swiss Disaster Relief Corps of the Federal Department of Foreign Affairs of the Swiss Confederation, this guide includes chapters on preparing for a disaster, management of emergency situations, assistance measures and human behavior in disasters, and management of international emergency assistance.

Disaster Planning. Publication #PB98-8541691INF. 1998. \$65.00. Copies are 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; WWW: <http://chaos.fedworld.gov>.

This bibliography contains NTIS citations on disaster planning, particularly those that pertain to civil preparedness, emergency medical services, evacuation behavior, temporary sheltering, transportation in natural disasters, and needs of specific groups. Citations cover hurricanes, floods, civil unrest, volcanic eruption, burn disasters, radiation accidents, fires, blizzards, cyclones, and droughts. The volume also

contains sections on procedures and funding for disaster relief.

National Emergency Management Association State Director Handbook. 1997. 114 pp. \$40.00. Copies can be purchased from the 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) 244-8001; e-mail: info@csg.gov; WWW: <http://www.statesnews.org>.

This handbook was created to provide emergency management information to state policy executives. It includes sections on the history of emergency management; the role and responsibilities of a state director; state emergency management budgets; cultivating executive and legislative support; emergency operations; hazard mitigation and postdisaster redevelopment; program management and evaluation; and professional emergency management organizations.

Project Impact Hazard Mitigation Guidebook for Northwest Communities: Alaska, Idaho, Oregon, Washington. 1998. 58 pp. Free. Copies can be requested from Gail Bury, Federal Emergency Management Agency (FEMA), Federal Regional Center, Region 10, 130 228th Street, S.W., Bothell, WA 98021-9796; (425) 487-4678.

Project Impact, FEMA's nationwide effort to create disaster-resistant communities, encourages cooperation among businesses, government officials, and citizens to reduce community vulnerability. This guidebook was created to assist Project Impact communities in forming hazard mitigation strategies. The first half of the document outlines mitigation options for floods, landslides, earthquakes, tsunamis, wildfires, windstorms, heavy snows, and volcanoes, including property protection, land-use activities, community outreach, landscaping techniques, and regulation. The second half presents case studies of various community mitigation projects, including water main relocation due to landslide hazard, wind mitigation, creek restoration, wildfire mitigation, property acquisition, and seismic retrofitting.

Posttraumatic Stress Disorder: Acute and Long-Term Responses to Trauma and Disaster. Carol S. Fullerton and Robert J. Ursano, Editors. 1997. 344 pp. \$39.50, plus \$7.50 shipping. To order a copy, contact American Psychiatric Press, Inc., 1400 K Street, N.W., Washington, DC 20005; (800) 368-5777; fax: (202) 789-2648; e-mail: csdept@appi.org; WWW: <http://www.appi.org>.

Trauma and disaster not only throw people's lives into chaos, they also instill fears of loss, injury, and death. Although most people experience only transitory post-traumatic symptoms, others feel the effects of disasters long afterward when new experiences remind them of the past. This book provides clinicians, researchers, and policy makers with an understanding of current research and treatment regarding these problems, including a discussion of the new diagnostic category acute stress disorder, which emphasizes the importance of distinguishing between acute and long-term responses to traumatic events.

Fatigue: Sleep Management During Disasters and Sustained Operations. Robert J. Koester. 1997. 64 pp. \$10.00. Available from Fire Protection Publications, Oklahoma State University, 930 North Willis, Stillwater, OK 74078-8045; (800) 654-4055 or (405) 744-5723; fax: (405) 744-8204.

Professionals who must respond to large-scale emergency situations are trained in many skills, but

management of their own fatigue is often neglected. This booklet was written to provide emergency responders a better understanding of sleep and circadian rhythms, the importance of obtaining core sleep every 24 hours, and different methods that can be used to obtain this type of sleep. The author also explores the relationship between sleep and accidents, provides tips for accident prevention, discusses the usefulness of napping, and presents different strategies for shift management.

Hospitals and Community Emergency Response: What You Need to Know. Publication #PB98-130321INF. 1997. 32 pp. \$12.00, microfiche; \$25.50, paper. 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; WWW: <http://chaos.fedworld.gov>.

Hospitals must be prepared to protect health care workers who respond to emergencies involving hazardous substances. Of special concern are situations where contaminated patients arrive for triage or treatment following a major disaster. In many localities, hospitals have not been firmly integrated into the community disaster response system and may not be prepared to safely treat multiple casualties that include victims who may be exposed to toxic substances. This document discusses emergency response planning principles that hospitals can adopt to help reduce the risk to health care workers.

Consensus Conference on the Role of Psychiatrists in Disaster. R.J. Ursano and A.E. Norwood. Publication #AD-A332 982/8INF. 1997. 164 pp. \$17.00, microfiche; \$41.00, paper.

Role of Psychiatrists in Disaster. R.J. Ursano, A.E. Norwood, M.H Gillerist, M. Hilliard, and C. Levinson. Publication #AD-A332 908/3INF. 1997. 49 pp. \$12.00, microfiche; \$25.50 paper.

To order either item, contact 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; WWW: <http://chaos.fedworld.gov>.

The first document contains the proceedings of a conference held in September 1995 to identify unique contributions psychiatrists can bring to disaster-affected communities and victims. It represents a consolidation of perspectives from psychiatrists, other physicians, and nonmedical experts on ways in which these professionals can aid communities in preparing for and recovering from disasters. Topics include community relations, technology, medical services, health care management, mental health and trauma, and psychiatry. The second volume contains a distillation of key points developed during that meeting.

Saving Our Architectural Heritage: The Conservation of Historic Stone Structures. N.S. Baer and R. Snethlage, Editors. 1997. 444 pp. \$125.00, plus \$12.00 shipping. Copies can be purchased from John Wiley & Sons, Inc., Department 713, 1 Wiley Drive, Somerset, NJ 08875-1272; (800) 225-5945 or (732) 469-4400; fax: (732) 302-2300; WWW: <http://www.wiley.com/ordering/border.html>.

Public policy will play a critical role in determining what portion of our architectural heritage will be passed on to future generations and what portion will be lost to deterioration, development, and natural hazards. In order to introduce the tools and methods of economic analysis to the public debate on the preservation of cultural property, a multidisciplinary team of physical scientists worked with social scientists to explore how societal, economic, and ethical considerations might be integrated with technological options to provide informed policy decisions. This volume contains the results of that

effort, including chapters on risk, structural behavior and durability of stone masonries, monitoring degradation, new materials and approaches to conservation, ethical considerations, establishing international standards, preservation and urban development policies, economic valuation, and planning.

Understanding Risk Analysis: A Short Guide for Health, Safety, and Environmental Policy Making. Internet Edition. 1998. 40 pp. Free. Available via the Internet at http://www.rff.org/misc_docs/risk_book.htm.

To many, risk analysis is a highly technical discipline, full of arcane numbers and statistics that are meaningful only to a few. This booklet was created by the American Chemical Society and Resources for the Future to provide a brief, readable guide that anyone can understand, especially those who are interested in health, safety, and environmental policy making. It contains chapters that describe why risk analysis is important; risk assessment, management, and communication; risk analysis in regulatory decision making; health risk assessment; engineering systems assessment; ecological risk assessment; engaging the public in risk decisions; and evolving efforts to compare and rank risks.

Risk Communication: A Handbook for Communicating Environmental, Safety, and Health Risks. Regina Lundgren and Andrea McMakin. 1998. 366 pp. \$29.95. To purchase, contact Battelle Press, 505 King Avenue, Columbus, OH 43201-2693; (800) 451-3543 or (614) 424-3819; fax: (614) 424-3819; e-mail: press@battelle.org; WWW: <http://www.battelle.org>.

Communicating risk-related information can be a daunting challenge, as many who try to educate the public about the risks of natural hazards already know. Communication must be targeted, understandable, and effective without inadvertently provoking hostility and mistrust. The authors of ***Risk Communication*** outline the basic concepts and principles of risk information; discuss laws that mandate risk communication; analyze constraints to effectiveness; examine ethical issues; provide detailed steps for planning a risk communication process; and describe how to create materials, use pictorial representations of risk, implement face-to-face communication, work with the media, ensure stakeholder participation, work with Web-based tools, and evaluate the effectiveness of these efforts.

Information Technology and Emergency Response. A.B. Calvo, A.V. Fullerton, and M.F. Vetter. Publication #PB98-116015INF. 1997. 136 pp. \$17.00, microfiche; \$36.00, paper. This document 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; WWW: <http://chaos.fedworld.gov>.

This report contains the findings of a study on the application of information technology to emergency response for hazardous materials incidents, focusing on the information needs of first responders. It summarizes information requirements of first responders, relevant technologies, projects of potential importance, and test scenarios. It also discusses key issues identified in the study, stakeholder concerns, related projects, and evolving technology applications.

Hurricanes

Coastal Hazards Mitigation: Public Notification, Expenditure Limitations, and Hazard Areas

Acquisition. *David R. Godschalk, Richard Norton, Craig Richardson, David Salveson, and Junko Peterson. 1998. 438 pp. \$20.00. To order, contact the Center for Urban and Regional Studies, 108 Battle Lane, Campus Box 3419, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3410; (919) 962-3074; e-mail: carolyn_jones@unc.edu.*

Following extensive damage caused by hurricanes Bertha and Fran in 1996, the North Carolina Disaster Recovery Task Force recommended assessing hazard mitigation programs in the state. This report assembles information on mitigation programs in other states and identifies alternatives for a North Carolina mitigation program. It covers how to define coastal high hazard areas, how to notify potential purchasers of property within hazardous areas, how to limit public subsidies to development in hazardous areas, and how to acquire threatened property for public purposes. An important theme running through the report is that all of the policy options mentioned should be integrated into one unified coastal hazard mitigation program.

Floods

Natural Approach for Flood Damage Reduction and Environmental Enhancement. C.E. Hunt. Publication #PB98-107139INF. 1997. 34 pp. \$12.00, microfiche; \$25.50, paper. 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; WWW: <http://chaos.fedworld.gov>.

The frequency and severity of flooding in the Upper Mississippi River Basin is influenced by three factors: the amount and timing of precipitation, the condition of the basin's stream channels and floodplains, and the timing and rate of stormwater conveyance off the watershed. An emerging approach to flood damage reduction, described in this document, is to retain water on the upland landscape and allow historical floodplains again to provide both storage and conveyance. Under this approach, floodplains also function as water filters and habitat for fish and wildlife.

Drought

Catalog of Federal Assistance Programs. 1998. 33 pp. Free. Copies are available from the Western Drought Coordination Council via the Internet at <http://enso.unl.edu/wdcc/products/programs.pdf>. For more information about the catalog, contact Leona C. Dittus, Farm Service Agency, U.S. Department of Agriculture, STOP 0526, 1400 Independence Avenue, S.W., Washington, DC 20250-0526; (202) 720-3168; e-mail: ldittus@wdc.fsa.usda.gov.

This catalog was compiled by the Western Drought Coordination Council to assist individuals and governments in determining programs available to help reduce the impacts of drought. Many of these programs are also available for assistance in coping with other natural hazards. Each entry provides information on what types of assistance are available as well as a brief description of each program--including the name of the agency, a national and local contact person, type of assistance, and eligibility rules.

Earthquakes

Engineering and Socioeconomic Impacts of Earthquakes: An Analysis of Electricity Lifeline Disruptions in the New Madrid Area. M. Shinozuka, A. Rose, and R.T. Eguchi, Editors. 1998. 190 pp. \$25.00. Available from the Multidisciplinary Center for Earthquake Engineering Research, University of Buffalo, Red Jacket Quadrangle, Buffalo, NY 14261; (716) 645-3391; fax: (716) 645-3399; e-mail: mceer@acsu.buffalo.edu.

In 1811 and 1812, a series of great earthquakes struck the New Madrid Seismic Zone, north of Memphis, Tennessee, rerouting rivers, popping trees out of the ground, and creating ground waves that traveled as far as Boston, Massachusetts. Today, the region is highly populated and the center of an interdependent regional economy. In the first study of its kind, ***Engineering and Socioeconomic Impacts of Earthquakes*** looks at the potential impacts if such quakes occurred again, particularly at how a disruption to the region's electric power system would affect the area. It discusses lifelines and earthquakes, modeling the Memphis economy, the seismic performance of electric power systems, linking physical damage to economic function, earthquake vulnerability and emergency preparedness among businesses, direct economic impacts, regional economic impacts, decision support, and implications for lifeline risk reduction.

Incentives and Impediments to Improving the Seismic Performance of Buildings. 1998. 92 pp. \$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: eeri@eeri.org; WWW: <http://www.eeri.org/Publications/OrderingInf><http://www.colorado.edu/hazards/o/>.

This EERI Special Report grew out of interest by the Structural Engineers Association of California and EERI in understanding both incentives for owners to improve the seismic performance of their buildings and impediments to doing so. It argues that the decision to improve buildings is a complex process, and no two buildings or building owners go through the same process. Nevertheless, it outlines key considerations involved in this decision, such as type of building ownership, structural characteristics of buildings, the level of risk, legal liability, market and economic conditions, and costs and benefits. The report then discusses new and better ways to promote seismic improvements, such as public- and private-sector initiatives, programs that encourage investment in seismic performance, and techniques that encourage better stakeholder participation.

Guidelines for Evaluating and Mitigating Seismic Hazards in California. Special Publication 117. 1997. 74 pp. \$15.00. To obtain copies, contact the Publications and Information Office, California Division of Mines and Geology, 801 K Street, MS 14-33, Sacramento, CA 95814-3532; (916) 445-5716. The complete report is also available on-line at <http://www.consrv.ca.gov/dmg/pubs/sp/117/index.htm>.

In 1990, the California legislature passed the Seismic Hazards Mapping Act to identify areas subject to strong ground shaking, liquefaction, landslides, ground failures, and other hazards caused by earthquakes. This document constitutes the guidelines for evaluating seismic hazards according to that act, particularly hazards other than surface fault rupture, and for recommending mitigation measures. It contains chapters on definitions of terms and general considerations, assessing seismic hazards, estimating ground-motion parameters, analysis and mitigation of earthquake-induced landslides, analysis

and mitigation of liquefaction hazards, and guidelines for reviewing site-investigation reports.

NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures: Part 1--Provisions. FEMA 302. 1998. 355 pp. 16 maps, 48" x 36", depicting earthquake risks for the entire U.S. and for seismically active regions. Free.

NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures: Part 2--Commentary. FEMA 303. 1998. 370 pp. Free.

Both documents can be requested from the FEMA Publications Distribution Facility, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520.

One of the primary goals of the Federal Emergency Management Agency (FEMA) and the National Earthquake Hazards Reduction Program (NEHRP) is to encourage design and building practices that address the earthquake hazard and minimize resulting damage. These volumes present the most recent version of the recommended provisions. One of the most significant changes is the adoption of new spectral response seismic design maps that were recently completed by the U.S. Geological Survey. The first document contains chapters on the general provisions; definitions of terms; quality assurance; ground motion; structural design criteria; requirements for architectural, mechanical, and electrical components; foundations; steel structures; concrete structures; steel and concrete structures; masonry structures; wood structures; seismically isolated structures; and nonstructural elements. It also contains a section on the differences between the 1994 and 1997 editions of the ***NEHRP Recommended Provisions***. The second document contains commentary on all the requirements specified in the first.

The Apartment Owner's Guide to Earthquake Safety: A Handbook for Owners to Identify Seismic Hazards in Low Rise Apartment Buildings. Steven M. Vukazich. 1998. 24 pp. Free, San Jose residents and public agencies; \$5.00, all others. Single copies can be requested by writing Frances Winslow, City of San Jose Department of Emergency Services, 855 North San Pedro Street, San Jose, CA 95110.

The Apartment Owner's Guide was created to encourage building owners to retrofit their multiple-family housing structures. It is intended to help owners understand how buildings resist earthquake forces, determine how safe their buildings are, fix seismic weaknesses, and determine the cost of retrofitting. It contains sections on the earthquake behavior of multi-unit residential buildings, rapid screening to evaluate seismic performance, retrofit strategies and costs, and resources for additional information.

Earthquake Hazards Program Five-Year Plan: 1998-2002. Robert A. Page, Jim Mori, Evelyn A. Roeloffs, and Eugene S. Schweig. Open File Report No. 98-143. 1998. 36 pp. \$9.25, plus \$3.50 shipping. Available from the U.S. Geological Survey Information Services, P.O. Box 25286, MS 517, Federal Center, Denver, CO 80225; (800) 435-7627 or (303) 202-4700; fax: (303) 202-4188; e-mail: infoservices@usgs.gov.

This report outlines the program activities the U.S. Geological Survey (USGS) will undertake in its Earthquake Hazards Program to the year 2002. The agency will continue to contribute to the National Earthquake Hazards Reduction Program and the National Earthquake Program by building on research and data accumulated over the past 20 years. It will focus on producing usable seismic hazard applications, maintaining comprehensive earthquake monitoring, and conducting basic research. This report specifies the steps the USGS Earthquake Hazards Program will take to ensure success.

Fire-Related Aspects of the Northridge Earthquake. Charles Scawthorn, Andrew D. Cowell, and Frank Borden. Publication #NIST-GCR-98-743. 1996. 166 pp. Free. A limited supply of printed copies can be obtained from Nora Jason, Fire Safety Engineering Division, Polymers Building 224, Room B246, Building and Fire Research Laboratory, National Institute of Standards and Technology, Gaithersburg, MD 20899-0001; (301) 975-6862; email: nora.jason@nist.gov. The complete text of the report is also available on-line at <http://flame.cfr.nist.gov/fire/firedocs>, click on author, then Scawthorn.

Fires following earthquakes are a potentially serious problem due to multiple, simultaneous ignitions at a time when emergency response is seriously impaired. The January 17, 1994, Northridge earthquake was the largest to occur in a U.S. city in more than 20 years, sparking about 110 earthquake-related fires. This report provides the results of research performed with the support of the National Institute of Standards and Technology; it contains information on the Northridge quake and its impacts, including seismology, building damage, the effects on water and gas supplies, and fire department response. It also includes sections on data on fires following the quake, a comprehensive analysis of distribution and ignition characteristics, information on operations at selected fires, and lessons and observations.

Wildfires

Fire in America: A Cultural History of Wildland and Rural Fire. Stephen J. Pyne. 1997. 678 pp. \$24.95.

Vestal Fire: An Environmental History Told Through Fire, of Europe and Europe's Encounter with the World. Stephen J. Pyne. 1997. 677 pp. \$34.95.

Both books are available from the University of Washington Press, P.O. Box 50096, Seattle, WA 98145-5096; (800) 441-4115; fax: (800) 669-7993; WWW: <http://www.public.asu.edu/~spyne/books.html>.

Originally published in 1982, ***Fire in America*** was recently released in paperback. Considered a classic on the history of wildland fire in America, the book looks at the humans that brought fire to our continent and how they reshaped the landscape through their use of fire as a tool. It then explores the way diverse ecosystems have adjusted to the presence of fire. Finally, it traces the evolution of U.S. fire policy during the 20th century, particularly the notion that fire must be controlled and suppressed because it wastes valuable resources.

Vestal Fire presents an environmental history of the role fire has played in European civilization. Pyne argues that fire was pivotal throughout the evolution of Europe, describing the interactions among climate, topography, and vegetation and the differences among regions and their relationship to fire. Following an in-depth history of fire and culture, Pyne examines the spread of European fire practices and relationships across the planet, including new historical and environmental perspectives regarding forestry practices, fire suppression, fire science, and cultural views of fire.

Remembering the Grand Forks Flood

It has been a year and a half since Grand Forks, North Dakota, was inundated by flood waters from the

Red River of the North, and recovery is proceeding amid difficult community decisions about flood protection, safety, and public expenditures. In an effort to document the flood and to transform the mud into higher reflection and art, the North Dakota Museum of Art in Grand Forks has recently made available two items that may be of interest to *Observer* readers.

Under the Whelming Tide: The 1997 Flood of the Red River of the North (1998; 170 pp.; \$32.00, plus \$3.00 shipping), edited by Eric Hylden and Laurel Reuter, contains 160 photos, selected for an exhibition at the museum, of the blizzards, floods, and recovery activities that occurred in the Red River Valley. It also contains written contributions by a reporter describing his return to his hometown and a poet who uses her art to describe the experience.

The Official Radio Chronicle of the Flood of '97 (1998; CD--40 minutes; \$13.00, plus \$2.00 shipping) was produced for the museum by radio station KCNN, which provided one of the few means of communication during the flood by running flood updates, broadcasting on-scene reports, providing information to assist those in search of loved ones, issuing cleaning instructions, and giving air time to Federal Emergency Management Agency and Small Business Administration specialists to inform the public about flood recovery assistance. The CD contains excerpts from their broadcasts that occurred before, during, and after the flood.

Both items can be purchased from the *North Dakota Museum of Art, P.O. Box 7305, Grand Forks, ND 58202-7305; (701) 777-4195; fax: (701) 777-4425; WWW: <http://ndmoa.com/wonderful.cfm>.*

New Journal Seeks Contributors

Environmental Hazards is a new international journal that addresses the human and policy dimensions of threats to human safety and sustainability, such as geological, hydrological, atmospheric, and biological events. The journal will emphasize innovative thinking and interdisciplinary approaches to dealing with the effects of hazards on people, property, and society. For further information or to submit manuscripts, contact *James K. Mitchell or Susan L. Cutter, Environmental Hazards, Department of Geography, University of South Carolina, Columbia, SC 29208*. Authors should submit three copies of articles of between 4,000 and 6,000 words, although shorter pieces will be considered. Volume 1 will be issued in the summer of 1999.

ASCE Does Hazards . . .

The Natural Hazards Center recently received copies of three volumes from the American Society of Civil Engineers (ASCE) that address structural issues related to natural hazards:

- ***Guidelines for Seismic Evaluation and Design of Petrochemical Facilities*** (1997, 288 pp., \$40.00) provides recommendations on several areas that affect the safety of such facilities. The guidelines emphasize engineering methods that address seismic vulnerabilities and provide background information and recommendations in several areas in which civil engineers may with other professionals and plant operations, including seismic hazards, contingency planning, and postearthquake damage assessment.
- ***Methods of Achieving Improved Seismic Performance of Communications Systems*** (1997, 184 pp., \$21.00), edited by Alex Tong and Anshel J. Schiff, contains information on seismic exposure, design, and installation practices that can be used to mitigate the impacts of earthquakes on communications systems. It reviews methods for determining seismic hazards in different parts of the country, discusses central office facilities and equipment, outside plants, and wireless equipment; identifies major elements that make up these facilities; and provides recommended practices. It can be used by either engineers who want to better understand seismic risk or facility managers who want to assess the earthquake readiness of an installation.
- ***Building on Sinkholes*** (1996, 208 pp., \$34.00), by George F. Sowers, summarizes the mechanisms of sinkhole formation in limestone (or karst) terrain. Sowers provides methods for overcoming sinkhole failures and avoiding or minimizing future collapses. He also discusses site investigations and appropriate designs and construction methods.

All three volumes can be purchased from ASCE, *Book Orders, P.O. Box 79404, Baltimore, MD 21279-0404; (800) 548-2723; fax: (703) 295-6211; WWW: <http://www.secure.asce.org/orderform.html>.*

... and EERI Does Earthquakes

The Earthquake Engineering Research Institute (EERI) recently released four items for temblorophiles. They are:

- ***The Proceedings of the Sixth U.S. National Conference on Earthquake Engineering. 1998. CD-ROM. \$200.00, plus \$5.00 shipping.*** This CD contains the text of over 300 papers presented at the conference, held in Seattle, Washington, May 31 to June 4, 1998. The papers are complete, full-text searchable documents and can be printed. The CD also includes an authors' index, an alphabetical title index, a list of papers by topic area, and Web site links.
- ***The EERI Golden Anniversary Volume, 1948-1998: Past, Present, and Future Issues in Earthquake Engineering. 1998. \$40.00, plus \$5.00 shipping.*** This book, commemorating EERI's 50th anniversary, contains presentations made at EERI's 50th annual meeting, held in February 1998, and presents a veritable who's who of earthquake engineering professionals, who convey memories and visions of earthquake loss reduction.

- ***Reducing Earthquake Damage Through Quality Construction***. 1998. 47 slides and 8-page script. \$70.00, EERI members; \$80.00, nonmembers; plus \$5.00 shipping. This slide set emphasizes that a successful construction project is a team effort and focuses on how each team member plays a vital part in ensuring good performance of buildings in earthquakes.
- ***Slides from Umbria-March, Italy, Earthquakes***. 1998. 60 slides. \$88.00, EERI members; \$100.00, nonmembers; plus \$5.00 shipping. These slides document the damage caused by the Italian quakes that occurred in September and October 1997. Hundreds of medieval buildings as well as palaces, towers, churches, convents, monasteries, and city gates were damaged. The slides should be of particular interest to those concerned about historic preservation and seismic impacts.

All four items can be purchased from EERI, 499 14th Street, Suite 320, Oakland, CA 94612-1934; fax: (510) 451-5411; e-mail: eeeri@eeri.org; WWW: <http://www.eeri.org>. California residents, add 8¼% sales tax.

On-Line Subscription Available to AEMI's Publications and Information

The Australia Emergency Management Institute (AEMI) Information Centre recently announced an e-mail listserve facility for four of its publications and services: the ***Australian Journal of Emergency Management***, ***INFOrecent***, ***Journal Abstracts***, and AEMI's seminars and conferences updates. At present all services are available on the Emergency Management Australia World Wide Web home page: <http://www.ema.gov.au>.

Instead of sending an e-mail message to initiate these services, subscribers should go to <http://www.ema.gov.au/seminarsframe.htm>, where they will find a subscription form that they should use to indicate their full name, location, and e-mail address.

The ***Journal*** and ***INFOrecent*** are distributed quarterly, while the other material is issued on a monthly basis. The ***Journal*** will be distributed in PDF format, requiring subscribers to have computer software (available free on the Internet) to read it. It provides an information-sharing forum for all persons involved in emergency management and has a large and steadily growing national and international audience.

INFOrecent is a bulletin produced quarterly by the centre to provide clients with current information about some of the new information materials received at AEMI. It includes a subject listing with a short description of each item.

Journal Abstracts is an annotated list of a selection of journals received and abstracted by the centre. It is produced monthly and assists researchers and practitioners in keeping up-to-date with the most current literature. These abstracts are not included in **INFOrecent**. The **Journal** and **INFOrecent** will continue to be distributed in hard copy.

The updates of emergency management seminars and conferences are produced monthly and incorporated into the larger database located on the AEMI home page, which includes a search engine.

Who We Are

The Hazards Center

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER was founded to strengthen communication among researchers and the individuals and organizations concerned with mitigating natural disasters. The center is funded by the National Science Foundation, 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, the Institute for Business and Home Safety, and the Public Entity Risk Institute. Please send information of potential interest to the center or the readers of this newsletter to the address below. The deadline for the next **Observer** is *November 20, 1998*.

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

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

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October 21, 1998



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