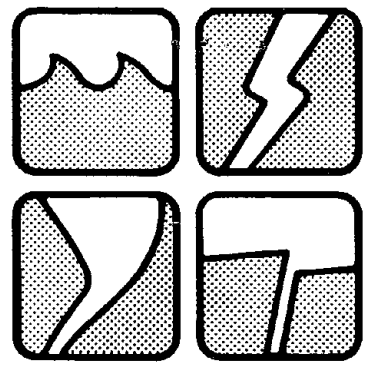
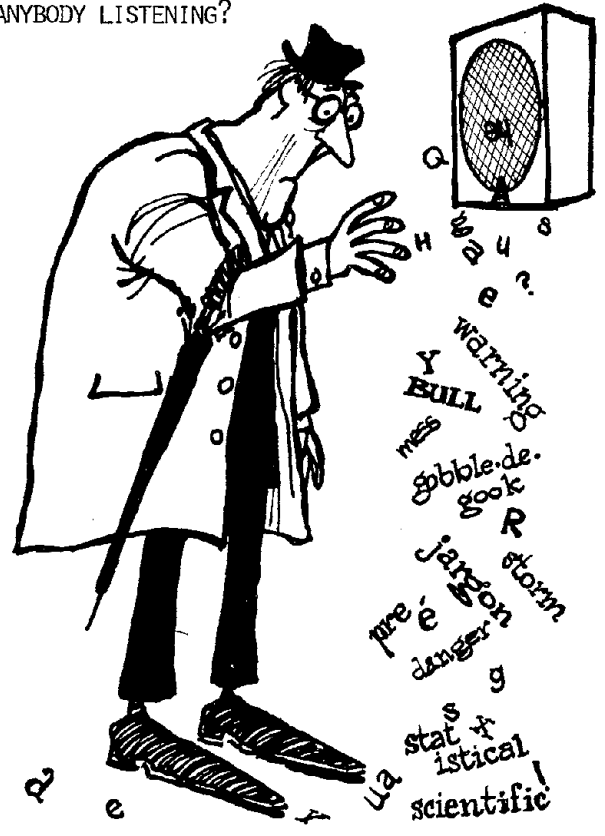


Natural Hazards OBSERVER



Volume I Number 3 March, 1977

IS ANYBODY LISTENING?



The prospect of being able to predict the time, magnitude and place of an earthquake, or to designate a tornado path 30 minutes in advance, or to forecast a flash flood as much as an hour ahead of its peak underlines two troublesome questions for government scientists. They have statutory obligations to issue warnings of what they can predict, but their responsibility cannot stop there. The issuance of a warning cannot be dismissed as a strictly seismological, hydrological or meteorological exercise. Either by default or by design they are involved in the content of the warning and its means of communi-

cation. Proper public response often is assumed rather than assured. Unless the message is intelligible and helpful and reaches the right persons at the right time it falls short of serving its purpose. Scientists should know 1) whether anybody is listening and 2) what people in fact do when they get the message.

So long as severe earthquakes, hurricanes or tornadoes could not be predicted and were regarded as Acts of God, the scientist who observed them could be content with recording their characteristics. With the advance of knowledge and technology it became practicable to forecast flood peaks on larger streams with considerable accuracy; predictions of velocity and landfall of a tropical cyclone have been made with moderate confidence, and a tsunami warning service is in operation. The populations of relatively small areas can be alerted to possible tornadoes. Avalanche alerts are common.

A new and fruitful linkage is being forged between the operating forecaster, the disaster preparedness expert, the communications manager, and the social scientist. Those who generate the forecast need to be supplemented by more than curbstome judgment as to how people respond. In turn, investigators of human response need to understand the limitations of the forecaster, and find ways to protect his credibility and scientific objectivity.

Warning systems for many natural events are becoming more sophisticated. The likely social response to the infant art of earthquake prediction attracts the most public attention, but capabilities to predict volcanic activity and landslides are increasing. In terms of lives and property affected flood, hurricane, and tornado warning networks have largest immediate significance. In all cases the challenge is to speed up communication between the physical and social scientist so that advances in prediction technology can be translated into reduced human suffering and property losses. --GFW

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TULSA HAS DECIDED IT WON'T HAPPEN AGAIN



A long history of flooding and a destructive flood in Tulsa on Memorial Day, 1976, have produced a heightened community awareness of the problems of flooding and a real commitment to take action to mitigate future losses.

The City is conducting a six-month study to develop new flood management policies. The first step, collection of all existing data, has been completed by the consulting firm, Team One, Inc., and a report has been issued which provides the City with clear information of the problem, including economic impact, residents' perceptions, coordinated mapping, etc. Findings include:

- a) 51% of floodplain residents received no help following the 1976 flood,
- b) Tulsa will realize a loss of \$750,000 in anticipated taxes because of devaluation of property,
- c) most (82%) floodplain residents want the government to purchase their homes for open space, and
- d) 93% of floodplain residents believe disclosure of flood hazards should be mandatory before home purchase.

The City is now in the 2nd phase of their study, analysis and selection of alternatives, which will be followed by development of implementation tools and procedures. For information on this project: *Stanley Williams, Planner, Tulsa Metropolitan Area Planning Commission, 200 Civic Center, Tulsa, OK 74108, (918) 581-5531.*

In October of 1976, the University of Tulsa sponsored a Floodplain Management Symposium to encourage the development of a coordinated and effective approach to Tulsa's floodplain management policies. The Symposium consisted of general and technical sessions conducted by local, regional and national experts from the fields of engineering, architecture, law, planning, hydrology and public administration. For a copy of the proceedings: *Urban Studies Program, University of Tulsa, 600 S. College, Tulsa, OK 74104.*

In connection with this Symposium, a slide presentation on the history of flood problems in Tulsa was prepared with an \$80.00 grant from the Corps of Engineers and the overwhelming cooperation of local organizations and agencies. The presentation is now being made available for public use. This seemingly impossible feat was possible only through the dedication of several local media people. To learn their secret "how to do the impossible on \$80.00", please contact: *Ann Patton, Tulsa Daily World, P.O. Box 1770, Tulsa OK 74102.*

SELF-HELP--FLOOD FORECAST AND WARNING

A pilot self-help flood forecasting and warning system on Swatara Creek watershed in Pennsylvania is installed and operating, and has already had one flood experience.

The widespread flooding and resultant devastation in the wake of Tropical Storm Agnes in 1972 made apparent the need for improved basin-wide flood forecasting and warning systems. The Susquehanna River Basin Commission has developed this self-help system in watersheds of several hundred square miles, drained by relatively large streams, with sizable populations along them, and for which specific flood warning and forecasts are not routinely generated by the National Weather Service. A *Planning Guide: Self-Help Flood Forecast and Warning System, Swatara Creek Watershed, Penna., Susquehanna River Basin Commission, November, 1976, (58p.)*, outlines the detailed plan for a volunteer system with one full-time paid staff member, preferably from Civil Defense staff, to process information, make decisions, and coordinate the volunteers. The system includes trained volunteer streamgauge and rainfall observers, and stream and road patrols. It requires cooperation in the development and execution of the plans from municipal, state and federal organizations.

As the self-help program on larger watersheds was developed, it revealed the need for a localized flash-flood warning plan. The result was a *Neighborhood Flashflood Warning Manual, Susquehanna River Basin Commission, October 14, 1976, (23p.)*. This program, for rural and suburban, scattered industry or farm neighborhoods along small waterways is intended to complement, entirely through volunteer help, the existing forecasting and warning system of the National Weather Service.

For further information, or to request the manuals, contact *Robert J. Bielo, Executive Director, Susquehanna River Basin Commission, 5012 Lenher St., Mechanicsburg, PA 17055, (717) 737-0501.*

BASINWIDE FLOOD PLAIN STANDARDS

The Delaware River Basin Commission has adopted flood plain regulations and standards for flood plain use. The standards will be applied in reviewing proposed water resources projects and large real estate developments in areas where state or local regulations are not established. The regulations also require approval by the commission of local flood plain ordinances to insure compliance with minimum basinwide standards.

Information: *W. Brinton Whitall, Secretary, Delaware River Basin Commission, P.O. Box 7360, West Trenton, NJ 08628, (609) 883-9500.*

The New England River Basins Commission has just completed *The River's Reach: A Unified Program for Flood Plain Management in the Connecticut River Basin*. This sets forth a basinwide strategy to reduce catastrophic flood potential from dike-overtopping in 6 lower main stem cities, to reduce existing damage potential in developed flood hazard areas outside lower main stem diked areas, and to prevent damages from increasing in undeveloped flood plains. For further information, contact the *New England River Basins Commission, P.O. Box 651, 9 S. Main St., Hanover, NH 03755. (603) 643-5831.*

DEMOLITION DERBY WINNERS

Thirteen winners have been selected in a state competition for urban renewal funds to be used in clearing flood-prone areas, according to Commonwealth of Pennsylvania Community Affairs Secretary William H. Wilcox. Twenty-three communities applied for shares of \$3.6 million left over from a \$140 million bond issue passed for recovery operations following Tropical Storm Agnes. While the majority of the approved projects will use conventional demolition methods, one project will use a novel approach--a number of homes will be lifted from their foundations and moved to lots in an area that is not flood-prone.

For information about this clearance project: *The Honorable William H. Wilcox, Commonwealth of Pennsylvania, Department of Community Affairs, Harrisburg, PA 17120.*

EARTHQUAKE PREDICTION

"Technology Assessment of Earthquake Prediction", a project under the direction of Leo W. Weisbecker and funded by NSF/RANN, has been completed and the final report, Earthquake Prediction: Uncertainty and Policies for the Future, is due back from the printer early in March. A limited number of copies of the comprehensive executive summary, Earthquake Prediction and Society, will be available at a modest charge from *Leo Weisbecker, Senior Policy Analyst, Stanford Research Institute, Menlo Park, CA 94025, (415) 328-6200.*

ARCHITECTS AND EARTHQUAKES

The AIA Research Corporation has recently completed a report entitled *Architects and Earthquakes: Research Needs*. The project was funded under a grant from the NSF/RANN program, Division of Advanced Environmental Research and Technology. This report, second in the *Architects and Earthquakes* series developed by the AIA Research Corporation, provides a review of the knowledge and resources that are available and needed to improve the architectural profession's responses to seismic safety issues in the built environment. Much of the information in this report was developed during the Seismic Safety Research Workshop held in February 1976 and attended by various architects, engineers, planners and seismologists. A limited number of free copies of the report are available from: *Earle Kennett, AIA Research Corporation, 1735 New York Avenue, NW, Washington, DC 20006, (202) 785-7883.*

DON'T BLAME ME



California Governor Brown signed a bill in Sept. of 1976 which absolves public officials from liability for damage resulting from actions taken or not taken in response to a scientifically valid earthquake prediction. The bill declared the intent to "insure that appropriate actions are taken in the public interest by government agencies without fear of consequent financial liabilities when acting in a responsible manner under such circumstances to assure public safety."

HURRICANE AWARENESS

--BIG IN TEXAS



A cooperative Hurricane Awareness Program in Texas is seeking to reach all coastal residents with unified information--in advance of disaster--as to what to do to survive in an emergency caused by a hurricane. Much of the current effort centers on the distribution of a hurricane survival checklist. This brochure includes a tracking chart, and a map depicting previous hurricane flooding for each of 7 areas on the coast. In 1976 there were about 4,700 individual requests for 37,500 copies of the kit. This demand was generated by radio and TV messages, some in Spanish, and public service advertisements in newspapers. The latter proved to be the most effective channel. An additional 650,000 were distributed in bulk through local Civil Defense officials, including some household distribution using Boy Scout troops.

Several years ago, a number of organizations were all trying to do the job, with inevitable duplication of effort. In 1975, two statutory bodies, the Texas Coastal and Marine Council and the Texas Catastrophe Property Insurance Association (TCPIA), which is made up of private insurance companies and is responsible for wind and hail insurance for crops, combined with a special office of the Insurance Information Institute, representing property and liability insurance companies, to use public and private funds to provide the public outreach for a Hurricane Awareness Program. In 1976 they were joined by the Governor's Division of Disaster Emergency Services, which handles work with the State Civil Defense Agency.

For further information contact *Clint Dare, Insurance Information Institute, 1011 Congress Avenue, Suite 501, Austin, TX 78701, (512) 476-7025, or Joe C. Moseley II, Texas Coastal and Marine Council, P.O. Box 13407, Austin, TX 78711, (512) 475-5849.*

HURRICANES: SAFETY IN A HIGH-RISE?

A report on the damages from Hurricane Eloise in the Panama City area, Florida, on September 23, 1975, prepared for the Texas Coastal and Marine Council, estimates the property damage at about 150 million dollars. The author was particularly concerned to find structural damage in pilings, spread footings and roof areas of high-rise buildings, as these might have been used as shelters if vertical evacuation became necessary in a severe hurricane. *Herbert S. Saffir, Consulting Engineers, 123 Madeira Avenue, Coral Gables, FL 33134, (305) 444-2611.*

Cartoons for the Observer are drawn by Rob Pudim.



COURT CHALLENGE PLANNED AGAINST FIA

The Flood Insurance Litigation Coalition plans to file suit in late March against portions of the federal flood insurance program, according to Terry Keeling.

Keeling, a Houston real estate man, is head of the Texas Landowners Rights Association, which put together the Coalition. Some \$153,000 has been raised for the suit, Kelly reports, much of it from communities such as Cape Girardeau, MO, or Williamsport, PA, or other local government entities, counties, cities or special districts, which are concerned that their tax base is eroding from the effects of the flood insurance law. The largest contributors to date are Brazoria and Fort Bend Counties, which contain respectively 70 and 40 percent flood-prone areas.

The Washington DC law firm of Rhyne and Rhyne will undertake the suit. It will be constitutionally based, contending that there is confiscation of property without compensation, and directed against the mandatory provisions of the 1973 Act, not against the whole flood insurance program per se, Keeling said. Another issue, he added, will be to contest the use of the banking function as a control measure.

The group seeks injunctive relief to prohibit the federal government from imposing any of the economic sanctions during the duration of litigation. This relief, however, would be selective, going only to those entities, organizations and individuals who have actively participated in the coalition.

The TLRA has long contended that the program is a "federal land use control" measure, and sought at the time of the passage of the Act to allow communities not to participate in the program if they agreed to forfeit any rights to disaster relief funds in case of a disaster.

For further information contact: Terry Keeling, Texas Landowners Rights Association, 9219 Katy Freeway, Suite 112, Houston, TX 77024, (713) 464-2611.

WRC--AN END OR A FRESH START?

President Ford recommended the abolishment of the Water Resources Council, with a zero budget for FY1978. This move provoked considerable response, and the Carter administration is recommending continuation. The Secretary of the Interior will seek funding at about the FY1977 level, without prejudice to any reorganization plans. A "strengths and weaknesses" report, prepared for the new administration on the basis of comments from outgoing Council members, stresses the importance of the coordination function of the Council. For further information contact: The Water Resources Council, 2121 L Street, NW, Suite 800, Washington, DC 20037, (203) 254-6352.

FIA-NFIA AGREEMENT SOUGHT

Two recent moves represent an effort to reach agreement between the Federal Insurance Administration and the National Flood Insurers Association in the administration of the National Flood Insurance Program. On January 18, 1977, the two groups signed an agreement temporarily extending the existing one, with some changes in the method of reimbursement.

On January 28, a draft tentative agreement between the two groups was published in the Federal Register for public comment. This provides for competitive bidding practices, one of the points at issue, and a few minor changes. Still unresolved is the issue of whether the Administrator of HUD can issue regulations which are binding on the NFIA, or whether, as the NFIA claims, the relationship is contractual in nature and therefore cannot be regulated unilaterally. Another point at issue is whether the computer system should be under the management of NFIA, or, as contended by FIA, under contract to a separate organization in order to ensure its compatibility for transfer to the HUD system, if ever required. Public comment is invited on this point.

For further information contact the FIA at 451 7th St., Washington, DC 20401, or the NFIA at 1755 S. Jefferson Davis Highway, Arlington, VA 22202.

THE RISK MANAGER

"The risk manager should recognize that the design of buildings and other damage-reducing measures will not only help for earthquakes, but will also help substantially where hurricanes, tornadoes and winter storms pose the most serious problems. Thus, many buildings that will withstand the shaking of an earthquake will also resist the winds of a hurricane or tornado. The organization and risk manager should look collectively at natural disasters when designing preparedness measures, recovery policies, and ultimately, when deciding how to finance the potential risk."

Risk Management Reports 3, No. 2 (1976), p.50, editor, H. Felix Klopman, published by Business Insurance, 740 Rush St., Chicago, IL 60611, (312) 649-5200.

A NEW USE FOR THE EMERGENCY BROADCAST SYSTEM

A new emphasis on the use of the EBS at the local level has been met with enthusiastic cooperation from local broadcasters. Following the signing of a joint agreement by the Federal Communications Commission, the National Industry Advisory Committee, The National Oceanic and Atmospheric Administration, and the Defense Civil Preparedness Agency in June of 1976 there has been a unified effort to increase the utility of the new two-tone EBS by making it more responsive and useful for state and local disaster warnings. Meetings will be conducted under these joint auspices in every state within the next two years to provide guidance for the development of a plan for each operational area.

A Committee on International Disaster Assistance, chaired by Russell R. Dynes, has been set up by the National Research Council under a contract from the U.S. Agency for International Development. It is to provide: 1) guidance concerning the U.S. role in international disaster assistance, 2) the identification of major problem areas in the AID/FDA international disaster assistance program, 3) an assessment of the state of the art in scientific and technical fields relating to disaster assistance, and 4) a definition of areas in which scientific and technical knowledge of disasters is lacking. The AID administrator has been designated as the President's Special Coordinator for International Disaster Assistance, and so the Committee's work will also focus on AID objectives to develop better coordination between U.S. disaster relief programs and those of international donor agencies and to integrate short-term AID disaster assistance efforts with longer-term AID development programs.

For further information contact: *Russell R. Dynes, Chairman, Department of Sociology, The Ohio State University, 127-129 West 10th Avenue, Columbus, OH 43201, (614) 422-8432.*

A policy panel study on international disaster relief initiated by the United Nations Association of the USA is currently examining the problems of coordination of international disaster relief operations, international assistance to national disaster preparedness and prevention programs in developing countries, the political problems of international disaster relief, and the application of modern technology to international relief operations.

The final report, containing policy recommendations for the U.S. government, the U.N., and private agencies in the field will be issued in May. Contact: *Stephen J. Green, Project Director, United Nations Association of the USA, 345 E. 48th St., New York, NY 10017, (212) 697-3232.*

As of October 31, 1976, 844,082 flood insurance policies with a total value of \$25 billion have been sold under the National Flood Insurance Program. As of January 12, 1977, there are 15,114 participating communities, of which 854 are in the regular program.

TORNADO DETECTION



National Oceanic and Atmospheric Administration scientists report that after several years of research with Doppler radar, they have developed a technique for identifying characteristics that seem to be indicators of developing tornadoes. While cautioning that there are still several problems to be solved before the technique can be used confidently, NOAA states that the average lead time for tornado warnings could be increased by as much as 30 minutes. Information: *National Severe Storms Laboratory, 1313 Halley Circle, Norman, OK 73069.*

A project entitled "Community Response to Earthquake Threat in Southern California" was awarded \$299,100 by NSF/RANN for a 12 months study, beginning November, 1976, with Ralph Turner as principal investigator. It will focus on community response to media and other information regarding the Palmdale/Mojave uplift and related events in an effort to determine the nature of popular understanding of scientific predictions and scientifically-based warnings, and the dynamics of grass-roots response in disaster preparation. It will seek to provide a basis for policy decisions in dealing with future earthquake predictions.

For further information contact: *Ralph H. Turner, Department of Sociology, University of California, 405 Hilgard Ave., Los Angeles, CA 90024, (213) 825-4385.*

The Conservation Foundation was awarded a \$320,000 contract by a group of federal agencies on December 1, 1976 to prepare a Guidebook for Physical Management in the Coastal Flood Plain. Federal programs, state programs, and interesting experiences of local government in managing the physical resources of the coastal flood plain will be discussed in an integrated framework.

Comment is invited from any individual who knows of a location where unusual or interesting approaches to managing coastal hazards may have been attempted. Both positive and negative experiences would be useful.

Write: *The Conservation Foundation, 1717 Massachusetts Ave., NW, Washington, DC 20036, (202) 797-4300.*

HAZARDS BIBLIOGRAPHY AVAILABLE

A Selected, Partially Annotated Bibliography of Recent Natural Hazards Publications--1977 by *Kathleen Torres and Anita Cochran* of the Natural Hazards Research and Applications Information Center library staff is available for \$2.00. The bibliography contains approximately 200 entries of 1975-76 publications which have come to the attention of the Information Center, and which are concerned in some way with the reduction of losses from natural hazards.

The bibliography is arranged according to hazard and has subject and author indexes. Most entries are annotated. Addresses for ordering and prices are included wherever possible.

Although the bibliography is necessarily incomplete, it is a unique means of informing professionals in the natural hazards field of recent publications, many not indexed elsewhere.

Write to *Natural Hazards Research and Applications Information Center, Institute of Behavioral Science, University of Colorado, Boulder, CO 80309. (\$2.00 prepaid).*

S. B. 526, The Federal Civil Defense Act of 1977 has been introduced by Sen. Huddleston (D.Ky). The Act will broaden the DCPA of 1950 to include relief for natural disasters and will reorganize the disaster agencies, placing OEP's functions in DCPA and FDAA. FDAA will leave HUD and join DCPA in the Department of Defense.

CONFERENCES

★ The Natural Hazards Research and Applications Information Center will sponsor its second annual Invitational Workshop in Boulder, CO, May 16-18, 1977, in a continuing effort to facilitate communications between natural hazards researchers and those who must make policy decisions at all levels of government. There will be no proceedings published, but the June issue of the Observer will present the main issues discussed and will print a list of speakers' summaries that will be available from the Center upon request.

★ A "National Wetlands Conference" funded by the U.S. Fish and Wildlife Service, Office of Biological Services, is being held in Reston, VA, June 6-8, 1977, to explore local, state, and national wetlands policy and to make recommendations for strengthened cooperation of wetlands programs at all levels of government. Inquiries: *Environmental Law Institute, Suite 620, 1346 Connecticut Ave., NW, Washington, DC 20036.*

★ The American Society of Civil Engineers' Technical Council on Lifeline Earthquake Engineering announces its first specialty conference on "The Current State of Knowledge of Lifeline Earthquake Engineering" to be held at the University of California, Los Angeles, Aug. 30-31, 1977. Papers are solicited on many aspects of earthquake engineering applied to public utilities and transportation systems, including the areas of emergency services and research needs. Inquiries: *Professor C. Martin Duke, 3173 Engineering I, University of California, Los Angeles, CA 90024.*

★ March 20-25, 1977, Asilomar Conference Grounds, Pacific Grove, CA. The Engineering Foundation and the American Society of Civil Engineers are sponsoring a conference on "Floodproofing and Flood Plain Management". The participants will include not only architects and engineers but also the users of floodproofing information--municipal officials, builders, and all those involved in regulation, insurance and investment aspects of flood plain occupancy. The product will be a handbook in which comprehensive floodproofing, including both wet and dry, will be explored. For information about the conference or the handbook: *D. Earl Jones, Jr., 6321 N. 23rd St., Arlington, VA 22205, (202) 755-6590.*

★ "Second International Conference on Disaster Medicine," September 30 to October 3, 1977. The Conference will deal with disaster types and events, the organization of medical first aid in different conditions, resuscitation and analgesia. Contact: *The International Civil Defense Organization, 10-12 Chemin de Surville, 1213 Petitt-Lancy/Geneva, Switzerland.*

PEOPLE

□ Charles C. Thiel, Jr. has been appointed as Director, Division of Advanced Environmental Research and Technology of the National Science Foundation. He has served as Acting Director since April, 1976, and previously was Deputy Director of the Division. When the Directorate for Research Applications was initiated in FY 1971, he entered as Program Manager, Earthquake Engineering.

□ The Pan American Health Organization has recently created a Unit of Emergency Preparedness and Disaster Relief Coordination. Dr. Claude de Ville de Goyet, recently of the Centre de Recherche sur 'Epidemiologie des Desastres, Universite Catholique de Louvain, Belgium, has been appointed as Regional Advisor for the Unit. For further information contact *Karl A. Western, M.D., Chief, Communicable Diseases, Pan American Health Organization, 525 23rd Street, Washington DC 20037, (202) 223-4700.*

DISASTER: BEFORE IT HITS HOME



A new Red Cross film poses some tough questions about true disaster preparedness: should housing tracts be developed along flood plains?, should tornado drills be required in schools?, should zoning laws be written with disaster risks in mind?

The film is 23 minutes long and cleared for television. Available for free loan on 16mm color film or U-Matic videocassette from many Red Cross chapters, or write the *American Red Cross Film Loan Library, 18th and E St., NW, Washington, DC 20006.* Also available for purchase.

AUSTRALIA: NATURAL DISASTER INSURANCE

The government of Australia has decided in principle to introduce a natural disaster insurance scheme. A working party of officials has formulated a detailed scheme in consultation with the insurance industry, and the resultant discussion paper is now available for comment from the State Governments, the insurance industry and the general public. Initially, coverage would be restricted to earthquake, flood, hurricane, landslide and storm surge. Copies are available from: *The First Assistant Secretary, Financial Institutions Division, The Treasury, Canberra, ACT 2600, Australia.* Copies of a press release are available from the *Natural Hazards Research and Applications Information Center.*

Caribbean-Gulf International

HURRICANE CONFERENCE

May 23-25 Biloxi, Mississippi

Camille, the most devastating hurricane of the century, came ashore at Biloxi, Mississippi, in 1969. Since rebuilt, Biloxi will be the site of the Caribbean-Gulf International Hurricane Conference May 22-25, 1977.

MAIL TO: WADE GUICE, CHAIRMAN
HURRICANE CONFERENCE
POST OFFICE BOX 66
GULFPORT, MISSISSIPPI 39501

RECENT PUBLICATIONS



Cognitive Processes and Societal Risk Taking. Paul Slovic et al. ORI Research Monograph Vol. 15, #2. 1976. 35p. Available from: Oregon Research Institute, 1009 Patterson St., P.O. Box 3196, Eugene, OR 97403. (To be published in J. S. Carroll and J. W. Payne. Cognition and Social Behavior. Potomac, MD: Lawrence Erlbaum Associates. 1976.)

Reduction of risk can mean reduction of benefits. Purpose of this paper is to explore the role that the psychological study of decision processes can play in improving societal risk taking. Summarizes state of psychological knowledge regarding decision making under risk and suggests possible areas for further research. Emphasizes need for "statistical thinking" in decision making.

A Longitudinal Study of Public Attitudes Toward Hazard Zone Land Use Controls. Earl J. Baker. Florida State University, Florida Resources and Environmental Analysis Center, Tallahassee, FL. Technical Paper #76-3. 1976. 32p.

A group of citizens in two communities that had been hit by Hurricane Eloise were interviewed at intervals of two weeks, six months, and one year after impact, concerning their attitudes toward four land use control legislative measures. Over three quarters indicated support for these flood zone restrictions, contrary to the hypotheses of the investigators. The respondents also expressed a preference for state level regulation over local or federal. There was little shift over the year period.

Potential Role of Remote Sensing in Disaster Relief Management. Marjorie Rush, Alfonso Holguin, and Sally Vernon. Houston: School of Public Health, University of Texas. 1976. 91p. Available from: Marjorie Rush, Ph.D., The University of Texas, Health Science Center, School of Public Health, P.O. Box 20186, Houston, TX 77025.

Discusses the need for remote sensing as a rapid source of information for disaster damage assessment, focusing on public health relief. Presents a framework for local decision makers to use pre-disaster data, including pre-disaster photographs, in planning, organizing, and delivering public health relief.

Elevated Residential Structures. Reducing Flood Damage Through Building Design: A Guide Manual. U.S. Department of Housing and Urban Development, National Flood Insurance Program, Federal Insurance Administration. Washington, DC 20410. 1976. 112p.

Provides background information on the flood problem and the National Flood Insurance Program, a review of existing alternative approaches for elevated housing, recommended performance criteria, cost analysis of elevated foundations, and some indications of design solutions. It is intended for use by designers, homeowners, and planning and building officials.

A Comparison of Lifeline System Vulnerability in Two Large Regional Disasters: The Wyoming Valley Flood and the Projected Puget Sound Earthquake. Janet M. Cullen, 1976. 57p. Available from: U.S. Department of Housing and Urban Development, Federal Disaster Assistance Administration, Region Ten, 1321 2nd Avenue, Seattle, WA 98101.

Objective of this study was to apply information and conclusions from a study of Tropical Storm Agnes to preparation for an earthquake in the Puget Sound area. Information on the Agnes experience was largely drawn from interviews. Presents a list of questions to be answered in determining the level of earthquake preparedness of an area for each of five categories.

Flood Damage Reduction Potential of River Forecast Services in the Connecticut River Basin. Harold J. Day and Kwang K. Lee. Silver Spring, MD: Office of Hydrology, National Oceanic and Atmospheric Administration, National Weather Service. Technical Memorandum NWS HYDRO-28. Feb., 1976. 52p.

Four communities were chosen for evaluation of the effects of improved river forecast services on possible flood damage reduction. The alternatives are: no warning, limited warning time, maximum practical evacuation, and flood-proofing of one-story houses. Basinwide, an estimated \$750,000 damages to residential and commercial property could be avoided if the forecast and warning system were implemented and full community response obtained, at an estimated cost of \$200,000 per year for forecast services, not including the development of effective local preparedness plans.



The Ocean's Reach. Digest of a Workshop on Identifying the Extent of Coastal Flood Hazard Areas and Associated Risk Zones, February 10, 1976. Jointly sponsored by the New England River Basins Commission's Task Force on Flood Plain Management and the Task Force on the Coastal Zone. 1976. 91p. Available from: New England River Basins Commission, 55 Court St., Boston, MA 02108.

Discusses problems, methodologies, and programs of coastal zone management. A central issue is the negative effect of the National Flood Insurance Program upon coastal zone management attempts. Flood insurance, in many cases, increases the real estate value of coastal zone land and encourages its development, while coastal zone management programs seek to limit growth.

WEATHER NEWS

The Disaster Preparedness Staff of the National Weather Service is producing (on an irregular basis) a newsletter that includes a broad range of hazard information as well as NWS internal announcements. To be placed on the mailing list contact: Herbert Lieb, Chief, Disaster Preparedness Staff, U.S. Department of Commerce, NOAA--National Weather Service Wx5, Silver Springs, MD 20910.

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER is intended to disseminate recent information on natural hazards and its application to urgent problems relating to national, state and local policy on natural hazards. Please let us know of any research or research needs or other information which should be brought to the attention of the Center. The Center is funded by grant No. ENV 76-05682 from the National Science Foundation/Research Applied to National Needs Directorate. Any opinions, findings, conclusions or recommendations expressed in this newsletter are those of the authors and do not necessarily reflect the views of NSF.

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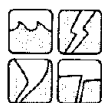
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