



# Mid-America Earthquake Center

Headquartered at the University of Illinois at Urbana-Champaign

## NEWSLETTER

October 2001 Vol. 4 No. 5

### The Advanced National Seismic System (ANSS)

The Advanced National Seismic System (ANSS) is a National Earthquake Hazards Reduction Program (NEHRP) effort, coordinated by the U.S. Geological Survey, to modernize and expand the infrastructure for monitoring earthquakes and volcanoes in the U.S in order to employ modern technology and methods to improve the understanding of earthquake hazards, better plan disaster resistant communities, and improve the knowledge base needed to design building codes intelligently, deploy emergency services strategically, and inform the public rapidly. Eight regions have been formed to provide a mechanism for national management integrated with



Figure 1. Eight ANSS regions have been defined: Pacific Northwest, California, Inter-Mountain West, Mid-America, Northeast, Alaska, Hawaii, and National Programs (e.g., NSMP, USNSN).

regional implementation. The Mid-America region (ANSS-MA) was geographically defined based on existing institutions (e.g. Central U.S. Earthquake Consortium and the Mid-America Earthquake Center), existing regional networks linked in real-time (University of Memphis, Saint Louis University, University of South Carolina, Virginia Tech, and University of Tennessee Knoxville) and tectonic similarities.

At least sixteen organizations operate seismic monitoring systems within the region. Each will be incorporated into the system as appropriate. Representation on the regional advisory committee includes emergency management, geology, network seismology, theoretical seismology, global seismology, structural engineering, strong motion engineering, geotechnical engineering, structural instrumentation, education and outreach, seismic safety commissions, and industry risk management. The goal of the plan is to provide an overall

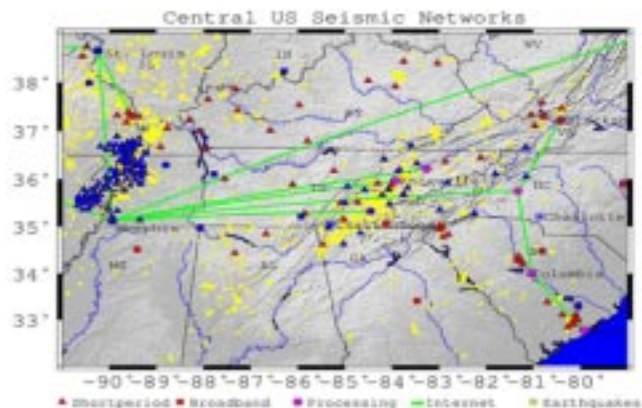


Figure 2: Mid-America Seismic Networks linked in near-real time. Seven regional seismic networks within Mid-America currently exchange seismic data: CERI (University of Memphis), Saint Louis University, University of Tennessee at Knoxville, University of South Carolina, Virginia Tech, the Delaware Geological Survey and the U.S. National Seismic Network. Networks to be linked in the near future may include the University of Kentucky, University of Texas at El Paso and the Ohioseis, Michseis and Indiseis programs.

framework under which detailed implementation goals may be achieved, consistent with plans made at the national level. The region must operate in such a way as to maximize resources, minimize duplication, standardize products, procedures, and end user interfaces, conform with national directives and systems, and allow local missions. Strong inter-regional and national integration along with local experts to provide media, business, and government contacts and other collaborations at the state level is envisioned.

While full ANSS funding was authorized by Congress in 1999, appropriated levels have been less than ten percent of authorized levels. If fully funded, ANSS will have several components including dense urban strong motion monitoring, regional broadband monitoring, structural strong motion networks, national broadband and strong motion networks, national and regional processing centers, a national data archive, and two portable arrays. The MAE Center has funded a year 4 project, SG-11, to provide seed money for ANSS-MA planning and implementation. To date twelve stations

(continued on p. 4)

## FROM THE DIRECTOR

### *Engineering Against Consequences*

The terrorist attack on America is indeed one more example of how we must prepare for high-consequence disasters, though they may occur on an infrequent basis. We have been reminded of the possibility of such terrorist actions with the car bombing of the World Trade Center in



1993, but we often do not prepare ourselves for such a radical and extreme event as the total collapse of the twin towers simultaneously with an attack on the Pentagon. These events are so extreme that few people, if any, would imagine that they would occur, nonetheless take action to minimize their consequences. Moreover, even if

such foresight were to exist to predict these events, the cost of mitigating them would be so expensive that only in rare circumstances would a stakeholder make such an investment to guard against such a low-probability event. The same rationale can be applied to earthquake-resistant design in areas of moderate seismic risk: zones where the infrequent earthquake hazard can cause significant consequences, such as the central United States.

With its pending renewal, the MAE Center is targeting its research efforts toward the development of a new paradigm for earthquake loss reduction termed Consequence-Based Engineering, or CBE. Unlike performance-based engineering, CBE is used to assess and minimize consequences across a socio-economic system of interest to a particular stakeholder group. Some people have termed CBE performance-based engineering applied to systems, which is a definition that captures a portion of the concept. This new approach organizes past and future technologies in hazard identification, structural response, site effects and ground failures, economic loss, retrofit, and societal response to provide engineers with the tools to assess stakeholder risk and prescribe interventions that will minimize consequences across a region, network or other system of interest.

Whereas the Center is developing the new CBE paradigm for seismic risk reduction in the eastern and central United States, the basic approach will be applicable to assess and minimize consequences due to seismic events in other regions as well as other hazards than earthquakes, including man-made disasters such as the recent terrorist actions.

New core research thrust areas on damage synthesis, hazard definition and consequence minimization provide the bases for development of the new paradigm and complement stakeholder interests in areas including transportation departments, insurance firms, construction industries and owners of large building stocks. The key

element of the new paradigm development will be the creation of advanced information-technology modules that will provide an earthquake engineer with the visualization tools needed to communicate potential consequences to a stakeholder client. These IT modules, developed through the partnership of the Center and the UIUC National Center for Supercomputing Applications, will condense the large arrays of data on seismic hazard, resulting structural and societal response, and show in easy-to-grasp, probable consequence scenarios. A significant element in the presentation of such information will be the communication to stakeholders of what the possible levels of uncertainty will be in assessing the hazard and the resulting consequence.

These new tools will allow an earthquake engineering practitioner to easily assess with his or her stakeholder client what consequences are likely relative to their level of acceptability. Through an iterative process, these tools can be used to refine consequence estimates with better estimates of hazard, inventory, vulnerability and economic loss, and/or as a result of various engineering processes to minimize the consequence. Such actions might include rehabilitation of critically vulnerable construction, or even demolition and reconstruction with new construction if necessary.

With the CBE approach, overall consequences can be minimized across a particular infrastructure system of interest. Ensuring that vital components will not encumber emergency operations can minimize consequences of inoperable response and recovery systems across a community. Risk management solutions for insurance stakeholders can be evaluated using CBE across wide insured coverage regions. Interruptions in economic flows across transportation networks can be assessed with the CBE approach to identify retrofit priorities for critical transportation structures. Owners of large building stocks, including the federal government under the current Executive Orders, can also assess probable consequences and how they might reduce with various retrofit schemes. Construction industries can estimate likely losses for their particular forms of construction and thus assess relative market share for their construction types.

The recent terrorist attack will make an impact on future hazard research in America. Already, I have been part of discussions regarding the broadening of our mission to include other than natural hazards. Though we need to be careful to not let the present situation dilute our efforts in earthquake research, we should place greater emphasis on development of engineering approaches that will expand on how we deal with earthquake hazards to multiple hazards. The Center's new direction toward the development of Consequence-Based Engineering is quite timely and will provide new, significant tools toward this future development.

*D. P. Abrams*

## **Announcements**

### **Consortium of Organizations for Strong-Motion Observations**

The Consortium of Organizations for Strong-Motion Observations (COSMOS) is a public-interest corporation for earthquake safety. The mission statement of COSMOS is to expand and modernize significantly the acquisition and application of strong-motion data in order to increase public safety from earthquakes. The core charter members of COSMOS include the California Division of Mines & Geology, U.S. Army Corps of Engineers, U.S. Bureau of Reclamation and U.S. Geological Survey.

The main objectives of COSMOS are to:

- Develop national policies and foster innovative ideas for the urgent improvement of strong-motion earthquake measurements and their applications
- Promote the advancement of strong-motion measurement on the ground and in structures and lifelines in densely urbanized areas and other locations of special significance to society likely to be struck by future earthquakes
- Encourage and assist the rapid, convenient and responsive distribution of strong ground-motion data according to standards of the Consortium
- Serve as a consortium through which programs, institutions and engineers can work to solve mutual problems with recording instruments of all appropriate types, data formatting and dissemination and data utilization
- Improve user influence on data acquisition and multipurpose data dissemination processes

Key to the success of COSMOS is its Virtual Data Center (VDC) where users can access strong-motion records through the internet (<<http://www.cosmos-eq.org/>><http://www.cosmos-eq.org/>). This website links electronically four major strong-motion data sources (California Division of Mines and Geology, U.S. Geological Survey, U.S. Bureau of Reclamation and U.S. Army Corps of Engineers) using the World Wide Web. Although the strong-motion records are stored at the source networks, the VDC accesses each site to provide the requested search capability so that a user can request records with criteria specific to their needs. For example, a user could ask for all available records obtained at soil sites within 20km of the fault, for events between magnitudes 6 and 7. This service is free to all.

Membership is open to all agencies, organizations, private companies, consultants, professional societies and

universities interested in pursuing the mission and objectives of COSMOS. Additional information regarding COSMOS, its charter and dues are available at (<<http://www.cosmos-eq.org/>><http://www.cosmos-eq.org/>). All interested institutions and individuals may apply for membership by fax (510-231-9471), email ([cosmos@peer.berkeley.edu](mailto:cosmos@peer.berkeley.edu)) or the Internet.

### **Robert Olshansky Receives FEMA Award**

Robert Olshansky, Department of Urban and Regional Planning, University of Illinois at Urbana-Champaign, has received a grant from the Federal Emergency Management Agency. A collaborative project of the Mid-America Earthquake Center, the Pacific Earthquake Engineering Research Center and the Multidisciplinary Center for Earthquake Engineering Research, the project, Evaluation of Research Findings and Preparation of Guidance for Local, State, and Regional Earthquake Risk Reduction Advocates, will use National Earthquake Hazards Reduction Program-sponsored research as a basis for development of guidelines and guidance for seismic safety advocates nationwide.

### **Conference Proceedings Now Available**

Proceedings from the Fourth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, held March 26-31, 2001, in San Diego, are now available.

Produced on CD-ROM, the cost is \$300 plus \$5 for domestic shipping or \$20 for international air mail. Proceedings may be ordered from Continuing Education, 1870 Miner Circle, 103 ME Annex, Rolla, MO 65409-1560; 573-341-4200 (voice); 573-341-4992 (fax); [suep@umr.edu](mailto:suep@umr.edu) (e-mail).

### **Geotechnical Engineering Nominations Sought**

The Shamsheer Prakash Foundation is seeking nominations for the 2001 Shamsheer Prakash Bi-Annual Prize for Excellence in the Practice of Geotechnical Engineering.

Designed to honor young engineers and scientists who are under 45 years of age, the Prakash Bi-Annual Prize seeks nominees who are specialists in geotechnical engineering and/or geotechnical earthquake engineering, who have made significant independent contributions in their fields, and who show promise of excellence. A cash prize of \$1100 and a plaque will be awarded the winner at a ceremony in the winner's country of residence.

The deadline for receipt of nominations is October 31, 2001. For further information, contact [prakash@umr.edu](mailto:prakash@umr.edu). The winner will be announced by December 31, 2001.

## Advanced National Seismic System (cont. from p. 1)

have been installed (including two upgrades to National Strong Motion Program stations) primarily focused on Memphis and the New Madrid Seismic Zone. Proposed



Figure 3: ANSS-MA station map. While other regional and national network stations will be designated as ANSS sites, current ANSS-funded stations include 12 installed in FY01 (4 free field, 8 urban reference) and 15 proposed for installation in FY02.

FY02 stations include fifteen additional urban strong motion stations and two regional broadbands. Additional information on the ANSS is available at <http://www.anss.org> and ANSS-MA information is available at [www.anss-ma.org](http://www.anss-ma.org), or contact Mitch Withers at [witthers@ceri.memphis.edu](mailto:witthers@ceri.memphis.edu).

## MAE Center Sponsors Geotechnical Earthquake Engineering Seminar

Geotechnical Earthquake Engineering in Mid-America is the title of a seminar being sponsored by the MAE Center, November 15-16, 2001, at the Mills House Hotel, Charleston, S.C. The program covers subjects in the developing field of soil structure interaction with a focus on the central and eastern United States.

Speakers and topics for the seminar include:

- Glenn J. Rix, Georgia Institute of Technology, Site Response and Ground Motions in the Charleston, SC, area
- Paul W. Mayne, Georgia Institute of Technology, Geotechnical Site Characterization in Mid-America
- James H. Long, University of Illinois at Urbana-Champaign, Retrofitting Foundations
- Thomas Cooling, URS Corporation, Geotechnical Earthquake Engineering: Recent Mid-America Experience

- James R. Martin, Virginia Polytechnic Institute and State University, Ground Motion Estimation for Engineering Design in the Central and Eastern U.S. (dinner speaker)

Co-sponsors of the event are S&ME, Inc., Carolina Geological Society, ASCE (South Carolina Section), ASCE (South Carolina Eastern Branch), ASCE (South Carolina Midlands Branch), Lindbergh & Associates, South Carolina Volunteer Technical Assistance Group, The Citadel, WrightPadgettChristopher, and the South Carolina Department of Transportation.

Further information is available on the MAE Center's web site at <http://mae.ce.uiuc.edu>. Register on-line at <http://www.engr.uiuc.edu/ocee/ncredprog/registration.html> or contact the UIUC noncredit registrar at 217-244-2037 (voice); 217-333-0015 (fax).

## W. Eugene Corley Heads World Trade Center Investigation

W. Eugene Corley, Vice President, Construction Technology Laboratories, Inc., Skokie, Ill., and member of the Mid-America Earthquake Center's Executive Advisory Board, has been named head of the forensic engineering team investigating the collapse of the World Trade Center towers following the terrorist attack of September 11. Dr. Corley has experience in such matters; he also headed the team that analyzed the collapse of the Murrah Federal Office Building in Oklahoma City in 1995.

In an article in the *Chicago Tribune* on September 15, Corley comments "I'll be trying to see if anything different could have been done" during construction to prevent the collapse of the Trade Center buildings. The issue is one of growing concern as engineers strive to design buildings that are both safe and affordable. The article also states that while "most engineers, including Corley, think the Trade Center buildings performed reasonably well in standing up to the initial impact of the plane crashes, they are less sure about the structure's resistance to fire. It is generally thought that heat from burning jet fuel reached temperatures higher than normal fires, eventually weakening the steel that provided the essential support for the Trade Center structures." Among Corley's responsibilities will be to examine high-rise building practices and to make recommendations about potential changes to building codes.

A graduate of the University of Illinois at Urbana-Champaign, Dr. Corley received an Alumni Award for Distinguished Service from the College of Engineering earlier this year and is a member of the National Academy of Engineers.

---

To update mailing address information, please contact Birgit Fry at 217-244-6302, or by e-mail at: [bfry@uiuc.edu](mailto:bfry@uiuc.edu).

## MAE Center News

### MAE Center Forms Industry Advisory Board

The first meeting of the Mid-America Earthquake Center's Industry Advisory Board (IAB) was held in Chicago on Sept. 7. The meeting was organized by Dr. James Beavers, Deputy Director of the MAE Center and Industrial Collaboration, Outreach and Technology Transfer Program Coordinator. Formed to help the Center develop and guide a strategy for industrial partnership participation in the core programs, the IAB will meet regularly in conjunction with other MAE Center meetings, including the annual meeting and annual NSF site review, to promote interaction with researchers, students, and earthquake engineering professionals while advising the Center about the program's growth and assessing its relevance to industry.

The goals of the newly-formed IAB are to:

- Explain Consequence-Based Engineering in a manner meaningful to partners and stakeholders
  - Facilitate their effective participation in planning, research and education
  - Provide for strong in-kind and direct support for partners for the core programs of MAE
- MAE Center Executive Advisory Board (EAB) chair Carl Stepp is interim chair of the IAB.

### KEERC-MAE Joint Seminar

On August 5-8, the MAE Center hosted participants from the Korean Earthquake Engineering Research Center in a KEERC-MAE Joint Seminar. The seminar's topic was Risk Mitigation for Regions of Moderate Seismicity. MAE



KEERC Director Sung Pil Chang and MAE Center Director Dan Abrams

Center Director Dan Abrams and KEERC Director Sung Pil Chang presented welcoming remarks and three full days of presentations followed as researchers from MAE and KEERC participated in the seminar. A special student session was held on August 8. The topics of the sessions were:

Ground Motions, Building Design and Assessment for Moderate Seismicity, Building Components and Response Modification, Bridge Components, Assessment of Bridge Systems, Lifeline Structures, Geotechnical Issues and Response of Dams, Bridge Structures, and Building Structures. The papers from the seminar are now available on CD. To order MAE Center CD 01-07, Proceedings of the Joint KEERC-MAE Seminar, contact Birgit Fry at 217-244-6302 or by e-mail at [bfry@uiuc.edu](mailto:bfry@uiuc.edu).

### Girls' Adventures in Mathematics, Engineering and Science Camp



Participants in the Girls' Adventures in Mathematics, Engineering and Science Camp set up their water tower for testing on the MAE Center's mini-shaking table

The MAE Center participated in the Girls' Adventures in Mathematics, Engineering and Science Camp held annually at the University of Illinois at Urbana-Champaign. Sponsored by the Women in Engineering program, the camp is aimed at middle school girls and is designed to attract women to study the sciences. The girls are introduced to math, physics, chemistry and engineering concepts, divided into teams and then given a project to design and build.

This year's project had the girls design and build water towers that were then tested on the MAE Center's mini-shaking table, operated by UIUC faculty member Doug Foutch and Research Assistant Can Simsir. If the towers successfully withstood the shaking table, they were then placed on a load simulator that weighted the towers to breaking point. The winning tower, which withstood a 214 pound load before cracking, was designed and built by Cordelia Loots-Gollin, 12, Jessica Grove, 12, Kerry Philbeck, 12, and Megan Scott, 13. More than 70 girls from Illinois, Indiana, Michigan and Ohio participated in this year's camp.

### MAE Center Releases New CDs

The MAE Center has released three new CDs. CD 01-05, *USEE 2001, Utility Software for Earthquake Engineering Program, Report, and User's Manual*, by Mehmet Inel, Erich M. Bretz, Edgar F. Black, Mark A. Aschheim, and Daniel P. Abrams, CD 01-06, *Seismic Fragility Analysis of Highway Bridges*, by Howard Hwang, Jing Bo Liu, and Yi-Huei Chiu, and CD 01-07, *Proceedings of the Joint KEERC-MAE Seminar*, are now available.

To acquire these CDs, or those previously released, contact Birgit Fry at 217-244-6302, or by e-mail at [bfry@uiuc.edu](mailto:bfry@uiuc.edu). For a complete listing of MAE Center CDs, visit our web site: <http://mae.ce.uiuc.edu>.

## **Outreach and Education**

### **Research Experience for Undergraduates 2001 Symposium**



REU 2001 Symposium Participants, Salt Lake City

The Earthquake Engineering Symposium for Young Researchers was the final activity for the ten-week summer Research Experience for Undergraduates (REU) program. The symposium was held at the Wyndham Hotel in Salt Lake City, Utah, on August 10-12, 2001, and supplied a forum for the REU students to introduce the results of their research. Education program coordinators from each of the three centers welcomed the students. This year's host and organizer of the symposium, Andrea Dargush from MCEER, presented a conference overview.

Seven students from the MAE Center Research Experience for Undergraduates (REU) and Undergraduate Research Assistants (URA) programs joined eight students from PEER and seven students from MCEER to give their presentations. Each student provided an abstract of his or her paper. MAE Center student participants were Matthew Dryden and Peggy Ho, University of Illinois at Urbana-Champaign, Ryan McDaniel and Stephen Priddy, University of Tennessee at Martin, Malcolm Foss, Georgia Institute of Technology, Cathleen Kennedy, Southern Illinois University at Edwardsville, and Vickie Watson, University of Memphis.

Professor Ed Harris from the Department of Philosophy and Humanities at Texas A&M University offered the ethics component of the REU experience with concurrent breakout sessions to discuss ethical dilemma problems. A. Parry Brown, Vice President of Reaveley Engineers and Associates, Inc., Salt Lake City, Utah was the keynote speaker introducing Buckling Restrained Braces Provide the Key to the Seismic Retrofit of the Wallace F. Bennett Federal Building.

Professor T. Leslie Youd from Brigham Young University presented a pre-field trip overview and escorted the group to the County Building. Students had an opportunity to observe the base isolation system beneath, and the mote around, the County Building. Students walked through the building, noting work that was done to restore the interior to its original 1890 condition and climbed the clock tower to view the bracing and anchoring that was completed to increase earthquake safety. Students were allowed to walk out onto the roof structure to observe bracing of chimneys and statues that was done to prevent toppling of these structures.

The day continued with an engineering tour of the LDS Church Conference Center, completed in April 2000. The Center has a 21,000 seating capacity and has roof trusses that span the 270 ft. radius of the building and bear on a 150 ft. long transfer beam that weighs about 4 tons per foot of length. The roof structure is landscaped, which adds considerable dead load to the structure. The building was designed for Seismic Zone 4, even though Salt Lake City is in UBC Zone 3. Students continued the walking tour across Temple Square, observing and discussing engineering aspects of the historic buildings on the square. At the Salt Palace Convention Center students viewed areas of the building that were underlain by the controversial lateral spreads or faults that lie beneath the foundation of the new addition, most likely beneath the old part of the structure, and possibly beneath other structures in the vicinity.

### **SLC Begins Seminar Series for 2001-2002 Academic Year**

The MAE Center's Student Leadership Council (SLC) has begun a very active semester of its ongoing seminar series. Building on last year's success, the SLC has begun the new academic year with four presentations.

On August 13, Neil R. Britton, EqTAP Chief Coordinator and Team Leader (International Disaster Reduction Strategies Research Team) of the Earthquake Disaster Mitigation Research Center (EDM), spoke on "Risk Management Down Under—What's Up?" On August 28, Nebojsa Mojsilovic, Research Associate and Associate Lecturer, Department of Civil, Environmental and Geomechanics Engineering, Swiss Federal Institute of Technology ETH, Zurich, spoke about his ongoing research in a presentation titled "Masonry Subjected to Combined Actions." Toko Hitaka, Research Fellow of Japan Society for Promoting Science, the Graduate School of Human-Environment Studies, Kyushu University, currently Visiting Scholar, John A. Blume Earthquake Engineering Research Center, Stanford University, spoke on September 4 on "Cyclic Response of Steel Shear Wall with Slits." On September 18, Hyeuk Ryu, Ph.D. student, School of Civil, Urban and Geosystem Engineering, Seoul National University and Korea Earthquake Engineering Research Center, currently Visiting Scholar, Mid-America Earthquake Center, spoke on "Shaking Table Test of a Full Scale Model of a Five-Story Stone Pagoda."

## 2001

**October 21-24:** Western States Seismic Policy Council Annual Meeting, Sacramento, Cal. Contact: WSSPC, 650-330-1101 (voice); [www.wsspc.org/events/ac2001.htm](http://www.wsspc.org/events/ac2001.htm).

**October 27-28:** Nonstructural Seismic Hazards Workshop, Portland, Ore. Contact: [tpetersen@do.usbr.gov](mailto:tpetersen@do.usbr.gov).

**November 13-15:** 8th Annual Congress of the Institute for Business and Home Safety (IBHS), San Antonio, Tex. Contact: [jcollins@ibhs.org](mailto:jcollins@ibhs.org).

**December 3-7:** 10th International Conference of Fracture, Honolulu, Hawaii. Contact: Amy Hill, 44(0) 1865 843643 (voice); e-mail: [a.richardson@elsevier.co.uk](mailto:a.richardson@elsevier.co.uk); web: [www.elsevier.com/locate/icf10](http://www.elsevier.com/locate/icf10).

## 2002

**February 6-9:** 2002 EERI Annual Meeting, Westin Hotel, Long Beach, California. Contact: [www.eeri.org](http://www.eeri.org).

**March 11-13:** International Conference on High Performance Structures and Composites, Seville, Spain. Contact: [shaney@wessex.ac.uk](mailto:shaney@wessex.ac.uk); <http://www.wessex.ac.uk/conferences/2002/hps02/>.

**March 17-21:** Smart Structures and Materials, San Diego, Cal. Contact: [www.spie.org/info/ss](http://www.spie.org/info/ss).

**April 7-12:** World Conference on Structural Control, Como, Italy. Contact: [congress@icil64.cilea.it](mailto:congress@icil64.cilea.it).

**April 28-May 1:** Seismic Conference on Highways and Bridges, Portland, Ore. Contact: [mceer@acsu.buffalo.edu](mailto:mceer@acsu.buffalo.edu).

**May 27-29:** Seventh International Conference on Shock and Impact (SUSI 2002), Montreal, Canada. Contact: [gcossutta@wessex.ac.uk](mailto:gcossutta@wessex.ac.uk); <http://www.wessex.ac.uk/conferences/2002/hps02/>.

**June 10-12:** 3rd International Conference on Composites in Infrastructure, San Francisco, Cal. Contact: [www.azicci.org](http://www.azicci.org).

**July 21-25:** 7th National Conference on Earthquake Engineering, Boston. Contact: [www.eeri.org](http://www.eeri.org).

**July 29-August 3:** United Engineering Foundation International Conference on High Performance Materials in Bridges, Kona, Hawaii. Contact: Dr. Atorod Azizinamini, 410-472-5106; UEF website: <http://www.engfnd.org>.

**September 9-13:** Twelfth European Conference on Earthquake Engineering, Barbican Center, London, UK. Contact: Rachel Coninx, 12ECEE Secretariat, Institution of Civil Engineers, London SW1P 3AA, UK; e-mail: [12ECEE@ice.org.uk](mailto:12ECEE@ice.org.uk).

**October 9-12:** Second Structural Engineers World Congress (SEWC 2002), Yokohama, Japan. Contact: e-mail: [sewc2002@gp.knt.co.jp](mailto:sewc2002@gp.knt.co.jp); web site: [sewc2002.gr.jp](http://sewc2002.gr.jp).

## MEETINGS & ANNOUNCEMENTS

Become a partner with the MAE Center and make an impact on results of investigations directed at evaluating seismic hazards and developing retrofit strategies for the built environment in Mid-America. As a partner of the MAE Center through this preferred access program, you will have a voice in how research programs are planned and executed, and how their results are implemented to practice. Business, industry and government partners are invited to become an integral part of the Center's activities by interfacing directly with coordinated research programs as well as with individual research, outreach and education projects.

**access<sup>2</sup>**

Members are the first to be informed of the most recent earthquake information, and have access to the latest research results via published reports, technical papers, software and data. To become a member, obtain an application form from the MAE Center website or by calling 217-244-0857.

Members are the first to be informed of the most recent earthquake information, and have access to the latest research results via published reports, technical papers, software and data. To become a member, obtain an application form from the MAE Center website or by calling 217-244-0857.

---

### MAE Center Annual Meeting and RA Symposium Scheduled for November 16-19, 2001

The Mid-America Earthquake Center's Annual Meeting and RA Symposium will be held November 16-19, 2001, at the Mills House Hotel, Charleston, S.C. The meeting begins Friday, November 16, with an Early Bird Reception at 6:30 p.m. The RA Symposium is Saturday, November 17, 8:00 a.m.-5:00 p.m. and features student presentations and poster sessions. Running concurrently with the RA Symposium on November 17 will be a meeting of the MAE Center's Industry Advisory Board, from 10:00 a.m.-3:00 p.m. The Annual Meeting begins Sunday, November 18, 8:30 a.m.-5:00 p.m. and resumes Monday, November 19, 8:00 a.m., adjourning at 2:00 p.m. Keynote speakers for the Annual Meeting and RA Symposium include Charles Lindbergh, Lindbergh and Associates, Charleston, and Doug Smits, Chief Code Inspector, City of Charleston. A complete agenda is on the MAE Center web site at: <http://mae.ce.uiuc.edu>.

Please make your hotel reservations under the Mid-America Earthquake Center's block of rooms at the Mills House Hotel, 803-577-2400 or 800-874-9600. Deadline for making reservations is October 16. Accommodations for all RAs **must** be made through the MAE Center's website. Call Vicki Jarboe, Outreach Program Assistant, 217-244-0857, with any questions.



## **Mid-America Earthquake Center**

1241 Newmark Lab MC-250  
205 N. Mathews  
Urbana, IL 61801  
Ph. 217-244-6302  
Fax 217-333-3821

NON PROFIT ORG  
U.S. POSTAGE  
PAID  
Permit No. 75  
Champaign, IL 61820

**Address Service Requested**

### **MAE Center Personnel**

Daniel P. Abrams, Director  
James E. Beavers, Deputy Director  
Amr S. Elnashai, Associate Director  
Sue E. Dotson, Administrative Manager  
Sandra Menke, Education Program Assistant  
Vicki Jarboe, Outreach Program Assistant  
Birgit Fry, Information Program Coordinator  
Sam Bages, Web and Data Base Developer

### **Executive Advisory Board**

Carl Stepp, Chair, Earthquake Hazards Solutions  
David Boore, United States Geological Survey  
Gene Corley, Construction Technology Laboratories  
William Marcuson, U.S. Army Engineers  
Dennis Mileti, Natural Hazards Research Center  
Harvey Ryland, Institute for Business & Home Safety  
Jim Harris, J.R. Harris & Co.  
Maury Power, Geomatrix Consultants, Inc.  
Jim Cooper, Federal Highway Administration  
Susan Tubbesing, Earthquake Engineering Research Institute

***For further detail on news items  
see the MAE Center web site at <http://mae.ce.uiuc.edu>.***