

ARIZONA Civil View

Vol. 14

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Summer 2007

Researching Rillito River Sediment Transport

The monsoon season of 2006 swelled the Rillito Creek and caused significant changes in the creek bed. Dr. Guohong “Jennifer” Duan is using field measurements taken in the Rillito in order to test the applicability of existing models that predict sediment transport in rivers. The study will address an important research concern in many current and future flood control projects in ephemeral streams throughout the state of Arizona. Dr. Duan’s work will directly benefit the on-going flood control project managed by the Pima County Flood Control Department. In addition it provides an excellent opportunity for her graduate students to learn more practical applications of hydrology and hydraulic engineering.



Rillito River at I-10 Bridge



What’s Inside

- 2 2007 Highlights and Homecoming
- 3 Professor Desai Wins Terzaghi Award
- 4 Newsworthy
- 5 Then & Now
- 6 News From ITE and Engineers Without Borders
- 7 News From SCE
- 8 In Memoriam



Highlights from Spring 2007

By Juan B. Valdés, CEEM Head



I am pleased to announce that the Class of 2007 was one of our largest graduating classes to date with 46 undergraduate and 6 graduate students taking part in our spring pre-commencement ceremony. See page 5 for the names and photos of our illustrious graduates. On Saturday, November 3rd we will be hosting our 2nd Annual Homecoming BBQ in the CE Courtyard. It will be a great opportunity to get together with old friends, see our newly remodeled flume, and meet our newest faculty members. See below for more info. I hope to see you all there!

During the last year the department underwent its Academic Program Review (APR). The APR is a process

that all academic units undergo once every seven years and involves a period of self-study followed by a thorough review by civil engineering faculty from other universities, practicing civil engineers and UA faculty from outside the department. The committee found the department's strengths to lie with its high-quality faculty, the undergraduate and graduate programs, student diversity, leadership, and the dedicated work of its staff and alumni-industry partners. We were very pleased with the outcome and wish to thank everyone in the CEEM community who help to make this department an outstanding place for scholarship and research.

It gives me great pleasure to let you know that Lianyang Zhang, Ph.D., P.E. has accepted a position as Geo-environmental/Geotechnical Assistant Professor in our department starting this fall. Dr. Zhang received his Ph.D. in Geotechnical Engineering from the Massachusetts Institute of Technology in 1999. Since then he has been a Technical specialist with ICF Consulting in Cambridge, Massachusetts.

And finally, this is the last paper issue of Civil View that we will be publishing. From now on our newsletter will be available on our website at <http://civil.web.arizona.edu>. Hopefully this will mean less clutter for you and budget savings for us.

First Annual Homecoming BBQ Successful!

Our First Annual Homecoming BBQ in the CE Courtyard on November 11, 2006 was a huge success! We had Bubb's Grub from Catalina, AZ cater our event with beer brats and burgers and had Professional Bartender's Unlimited serving beer, wine and soda for alumni and their families, faculty and staff. We are hoping to make this a yearly event at Homecoming and would like to thank the following sponsors for their contributions:

David Areghini
Jack Buchanan
Castro Engineering
James Davey & Associates
Mo Ehsani
Mathieu Engineering
Tom McGovern
Edward Nowatzki
Pima County
Robert Preble
RBF Consulting

Shepard-Wesnitzer, Inc.
Alice Stilwell
Structural Grace, Inc.
RS Engineering
Juan Valdes
Jay Van Echo
Robin West
Woodson Engineering
Dave Zaleski

The Fall 2007 Homecoming BBQ is set for Saturday, November 3rd at 9:30am. Kickoff against UCLA is at 12:30pm. This hosted event will again feature food and drinks from Bubb's Grub and Professional Bartender's Unlimited. To RSVP for this year's festivities please contact David Langan at (520) 621-6564 or dklangen@email.arizona.edu. If you are interested in sponsoring the CEEM 2007 Homecoming BBQ please contact Therese Lane at (520) 621-6563 or theresel@email.arizona.edu.



2006 Homecoming BBQ

CEEM Mission Statement:

"We are committed to work together to provide a quality educational experience for our students, to pursue excellence in research, and to serve the profession, state, and nation."

Chandra Desai Wins ASCE's 2007 Karl Terzaghi Award

Chandra S. Desai, Regent's Professor in Civil Engineering and Engineering Mechanics, has received the 2007 Karl Terzaghi Award from ASCE's Geo-



Institute Board of Governors. ASCE is the American Society of Civil Engineers, and this is one of the most prestigious awards given by the Geo-Institute.

The award recognizes Desai "for his outstanding, seminal and sustained contributions in Geotechnical Engineering and Geomechanics for the development of constitutive models, testing devices and computer methods, and their use for solutions of a wide range of practical problems." The committee particularly noted his pioneering and lifelong contributions to the application of numerical methods and constitutive modeling to geomechanics.

Desai's research and work on practical applications spans many areas including:

- Seepage and stability
- Consolidation
- Foundations (shallow and deep)
- Reinforced earth laboratory testing
- Static and dynamic soil-structure interaction
- Liquefaction
- Pavement and track support structures
- Lunar materials
- Constitutive modeling and computer (finite element) methods

He has authored and co-authored approximately 300 papers for refereed journals and conferences, about 20 text books and edited volumes, and about 20 chapters in books. These are predominantly in the area of geotechnical engineering and geomechanics.

Since 1970, he has published more than 33 papers in the ASCE's Geotechnical/Geo-Institute journals. Some of the papers on geomechanics have also been published in other journals.

Desai's research in constitutive modeling for geomaterials has found applications in other fields, ranging from electronic packaging to the movement of ice sheets on glacial tills.

During his career, he has supervised approximately 50 doctoral and 50 master's students.

Desai's honors and awards include:

- Regents' Professor at The University of Arizona
- The Alexander von Humboldt-Stiftung U.S. Scientist Prize
- Outstanding Contribution Medal by the Czech Society of Mechanics of Czech Academy of Sciences
- Distinguished Contributions Medal by the International Association for Computer Methods and Advances in Geomechanics (IACMAG).
- The Clock Award for Outstanding Contributions to mechanics and thermal sciences by the Electrical and Electronic Packaging Division of the American Society of Mechanical Engineers
- The El Paso Natural Gas Foundation Faculty Achievement Award for teaching and scholarship at UA.

Desai is the founding President of the IACMAG and founding editor-in-chief of the International Journal of Geomechanics, which is published by ASCE's Geo-Institute.

Attention Alumni



We would love to have framed pictures of your projects since you have graduated, so we can add them to the walls of our CEEM building to inspire current students. If you would like to contribute, please include a brief description of where and what the project is and how you contributed. For more information, please contact: Therese Lane, Business Mgr., Sr. (520) 621-6563 or theresel@email.arizona.edu

The ARIZONA Civil View

Summer 2007 Issue

The *Civil View* discusses research, student activities and news of the Civil Engineering and Engineering Mechanics Department of The University of Arizona.

Editor/Writer:
David Langen

The *Civil View* newsletter is published twice each year.

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Achintya Haldar Receives Hind Ratan Award

Congratulations to Dr. Achintya Haldar, who received the Hind Ratan (“Jewel of India”) award on January 25, 2007 in New Delhi, India.

The Hind Ratan is given yearly to about 30 members of the worldwide Indian diaspora (comprising the categories of both Non-resident Indian and Person of Indian Origin) by the NRI Welfare Society of India, at a ceremony in connection with the yearly “International Congress of Non-Resident Indians” (held since 1982) on and around the Indian Republic Day (January 26).

The Hind Ratan is a very prestigious award, and to quote Dr. Haldar, “This type of recognition may be very rare for a civil engineering professor.”

Local Engineer Continues Service on National Board of Directors of American Society of Civil Engineers

Flagstaff, AZ. – Mark Woodson, President of Woodson Engineering in Flagstaff, AZ., was recently appointed to serve on the National Board of Directors of the American Society of Civil Engineers (ASCE). Mark will begin serving a second year on the board as the Assistant Treasurer. Mark was sworn in at the national convention in Chicago in October. Mark has just completed serving a three-year term on the board as the District 11 Director representing Arizona, Utah, Nevada and Hawaii.

Founded in 1852, ASCE represents more than 140,000 civil engineers worldwide and is America’s oldest national engineering society with a \$48 million operating budget.

Mark started Woodson Engineering and Surveying, Inc., in 1994, providing surveying, planning and engineering services to public and private clients throughout Arizona. Prior to that, he was the Flagstaff City Engineer for 8 years. Mark received his engineering and business degrees from The University of Arizona. He is the past chairman of GFEC, past board member of the Northern Arizona Building Association and is active in many other community and professional organizations.



Mark Hickman Travels to Hong Kong

Dr. Mark Hickman has been on sabbatical for the spring of 2007; he and his family have spent the spring semester in Hong Kong. Dr. Hickman was invited by faculty at the Hong Kong Polytechnic University to conduct research with them in the general area of public transit planning. In this area, the city of Hong Kong offers a unique environment for research. Public transit in Hong Kong is managed by several private companies (in contrast to public agencies in most of the developed world), who compete for passengers on a daily basis. These companies together carry close to 80% of the total trips in Hong Kong, with the automobile and taxi services carrying the remainder of the trips (about 20%). In this environment, the practice of transit service planning, pricing (setting fares), and market competition for transit service is very unique. To expand his knowledge and expertise in this area, Dr. Hickman’s research activities on sabbatical have explored the current public transit planning and market competition in Hong Kong. He also taught a course in public transit planning at the Hong Kong Polytechnic University.

Dr. Hickman will also be spending the months of June and July 2007 doing research with colleagues at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt, or DLR). The University of Arizona has been a member of the National Consortium on Remote Sensing in Transportation - Flows (NCRST-F) since the consortium began in 2000. The consortium has gained an international reputation for cutting-edge research, and has jointly sponsored workshops with the DLR. Dr. Hickman will visit with researchers at the DLR in Berlin, Germany, exploring areas of mutual interest, including: airborne surveillance of traffic flows and vehicles, image processing, and traffic and driver behavior modeling.

Spring Class of 2007



Did You Know...

That 'A' Mountain was a Civil Engineering student's idea?

A Mountain, 1916. It was a sensational 7-6 Arizona football victory over Pomona College on Thanksgiving Day, November 6, 1914, that led to the building of the "A" on Sentinel Peak, west of Tucson.

In what was doubtless a burst of enthusiastic pride for his alma mater, Albert H. Condron, a member of the 1914 team and a civil engineering student, suggested to one of his professors that a class assignment be made to survey Sentinel Peak for the location of an "A".

The site was cleared of shrubbery and cactus, trenches dug to outline the letter's foundations, rock at hand was mixed with mortar and water hauled up the mountain by six-horse teams. The total cost of materials, equipment, and transportation was \$397. The back-breaking work was done by the students themselves, Saturday after Saturday, with many dif-



iculties and discouragements, but the "A" was finally whitewashed on March 4, 1916. No one called it Sentinel Peak anymore. It was known thereafter as "A" Mountain. The "A" is 70 feet wide and 160 feet long (or "tall").

The basalt rock quarried from the construction site was used to build the Rock Wall surrounding most of the University's historic district.



M.S./Ph.D. Graduates

Not Pictured: Ali Sumer, Ph.D., Derya Sumer, Ph.D.



Dustin Agnew,
M.S.



Juan Pedrego,
M.S.



Shantanu Sane,
Ph.D.



Melissa Cox,
Ph.D.



Cac Dao,
Ph.D.

B.S. Graduates

**Bashar Al-Arbash
Nathan Baker
Wade Baker
Gregory Bennett
Daniel Bowerman
Joseph Caprio
Carl Chaifetz
Brian Chan
Jonathan Cherry
Breanna Connolly
Samuel Credio
Hailey Crosswell
Craig Davis
Brian Gall
Samuel Garcia
William Grass
Joseph Hamman
John Harris
Nathan Hartke
John Hohman
Holly Kast
Ian Kloac
Joshua Lee
Adrian Leon**

**Stefanie Levine
Stanislas Matthia
Jonathan Milligan
Dustin Murphy
Stefanie Myers
James Oberg
Gregory Orsini
Girina Pandit
Adam Raczynski
William Richards
James Rozzoni
Walter Schumacher
Gregory Shaw
Erin Silvester
Louis Sloyan
Ted Smithwick
Leah Strickman
Vahab Toufigh
Steven Townsend
Alejandro Warner
Sean Wesnitzer
Nicholas Wierschem
Marlene Yafuso**

The University of Arizona Institute of Transportation Engineers:

The UA chapter of the Institute of Transportation Engineers has been holding regular meetings this semester, learning about topics like safety evacuation planning, light rail, and the Tucson Streetcar. The club has been exploring its options in working as a subconsultant to a local firm on a design project influencing the University. The club has been coordinating with the professional branch of ITE in the region, the Southern Arizona Institute of Transportation Engineers (SAITE), and will be having a joint meeting with them later in the semester.

Greg Orsini, President

Department News

The CEEM Department has a new “Civil” Pride Program; **the last Friday of every month**, we display our pride and wear our CEEM gear! Please join us, whether you are on campus or not, and wear your “Civil” Pride.



Centennial Donations are still being accepted! For more information, please contact **Therese Lane (520-621-6563 or theresel@email.arizona.edu)**

If you would like to find out about this year’s Homecoming festivities and how you can help, please contact **Therese Lane (520-621-6563 or theresel@email.arizona.edu)**.

Engineers Without Borders:

This is a busy time for The University of Arizona chapter of Engineers Without Borders (EWB@UA). Having completed the design of a new pretreatment filter, the Mafi Zongo Water Project team is currently in the planning and fundraising stages for their next trip, tentatively scheduled for this August.

During the visit, EWB@UA student and professional members will work with the community to build a new gravel filter prior to the slow sand filter. The construction effort will include everything from the hand-excavation of the site to the form-building and casting of the concrete structure.

At approximately \$3,000 per traveling member, fundraising efforts are paramount to ensure that EWB@UA is able to help the community interpret the design and build the filter. At present, EWB@UA has raised enough to send two individuals. Approximately \$9,000 still remains as a fundraising target. Individuals interested in supporting the Mafi Zongo Water Project should contact the Project Manager (see information below).

On the club administration side, EWB@UA held their annual elections in early March. The new Executive Team is anchored by President Chase Parker (CE 2009) with another civil engineering student serving as the External Vice President, Dane Whitmer (CE 2008).

There is also an effort by a local engineer (Alex Dely) to start a Tucson Professionals chapter of EWB. More information about the new Professional Chapter is available from the individuals listed below.

CONTACT INFORMATION

EWB@UA President: Chase Parker (cparker@email.arizona.edu)
Mafi Zongo Project Manager: Dave Newman (drnewman@email.arizona.edu)
Websites: www.ewb.engr.arizona.edu, www.ewb-usa.org



The University of Arizona Association of Society of Civil Engineers:

The Society of Civil Engineers University of Arizona Chapter sent 45 students to this year's Pacific Southwest Regional Conference at the University of California, San Diego. The students earned first place in the seismic design competition. The UA chapter of SCE has won this event every year that they have competed. They also won 4th place in the women's concrete canoe and 6th place in the men's concrete canoe. This year also saw the first use of the new UA SCE trailer used to transport all of the projects to the competition. For information on sponsoring the SCE trailer contact Kara Monsen, SCE President at kmonsen@email.arizona.edu or (520) 621-6588.



SCE UA Chapter

Merchandise Still Available!

Show your "Civil" Pride...

We still have Polo Shirts, Hats & T-Shirts available \$35, \$25, & \$15

Also available: "One Hundred Years of Civil Engineering at The University of Arizona" (CD & DVD included) \$20

For More Information, Please Contact:

Therese Lane: Business Manager, Sr.
(520) 621-6563
theresel@email.arizona.edu

Karen Van Winkle: Program Coordinator
(520) 621-2266
vanwinkk@email.arizona.edu

David Langen: Admin. Assistant
(520) 621-6564
dklangen@email.arizona.edu



SCE Students prepare their Seismic Design Project for the shake table



SCE Trailer

In Memoriam

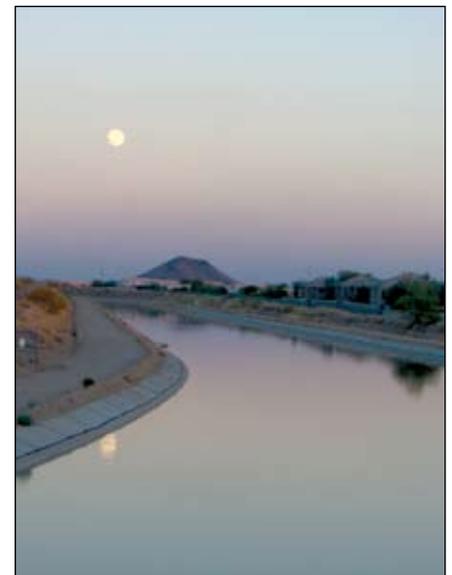
David E. Creighton, Jr. died September 23, 2006 at age 82. He was a long time Arizona resident, member of a pioneer family and a grandson of James Miller Creighton, architect and builder in territorial Arizona (The University of Arizona's Old Main included). David graduated from Phoenix Union High School in 1941. His studies in engineering at The University of Arizona were interrupted by service in the army during WWII. After a year in the Army Specialized Training Corps (continuing engineering studies at Washington University in St. Louis), he served in the 44th Infantry Division in France, and was wounded there in 1944. After discharge in December 1945, he completed his UA degree in 1948.

He married Judith Matlock (UA '47, '85) in 1947. He is survived by his wife, four children, six grandchildren and 14 great-grandchildren. He worked as an engineer for 50 years. An early assign-

ment with the U.S. Bureau of Reclamation was as construction engineer on Cachuma Dam near Solvang, CA. Returning to Arizona in 1961, he was involved in planning for the Central Arizona Project and environmental reports writing for the Department of Energy.

After 30 years in Federal employment, he worked for the Arizona Department of Water Resources for over 20 years, where he used to be a wealth of information about water issues in Arizona.

A beautiful evening view of the Central Arizona Project from the bridge on Via Linda in Scottsdale, Arizona.



Write to Us!

If you have an interesting event that you want to share with former classmates and friends, please send a letter with an update on your activities to:

Attn: Editor
"Arizona Civil View"
The University of Arizona
P.O. Box 210072
Tucson, AZ 85721-0072

Or e-mail: ceem@enr.arizona.edu
Please include your name, degree (B.S., M.S., Ph.D.), year of graduation, address, home and/or business phone number, e-mail, and your current employment information. Thanks!