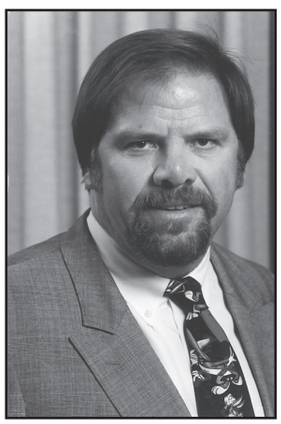
School of Civil Engineering & Environmental Science
College of Engineering

Communiqué
Summer 2011

A newsletter for alumni and friends of the School of Civil Engineering and Environmental Science at the University of Oklahoma

Director's Chair
Robert C. Knox



Dear Friends:

It is my pleasure to provide this annual report for the School of Civil Engineering and Environmental Science. Once again, the talented CEES faculty led the College of Engineering in almost every category of productivity. Our external research expenditures exceeded $4.35 million last year, which equates to more than $229,000 per faculty member. In CY2010, CEES faculty published 74 refereed journal articles or book chapters. This equates to an average of 3.89 refereed journal publications per faculty. Also in CY2010, CEES faculty publications were cited 768 times in the refereed literature, which equates to an average of 40.4 citations per faculty. Almost all of these productivity metrics equal or exceed our peer institutions in the Big 12.

The new rankings from *U.S. News and World Report* came out this spring and our Civil Engineering program was ranked 53rd in the nation. There are a total of 264 EAC ABET-accredited civil engineering programs in the country. A little simple mathematics tells me that the Civil Engineering program at the University of Oklahoma now ranks in the top 21 percent of all programs in the country. The dramatic increase in our rankings is no doubt due to the numerous nationwide awards of our faculty (e.g., Amy Cerato's PECASE Award, David Sabatini's AEESP Award), but also to the visibility of our high-profile earthquake engineering group and the success of the Water Technologies for Emerging Regions Center.

As in every issue of the *Communiqué*, I take great pride in listing this year's award recipients. Assistant professor Amy Cerato garnered another national award, as did associate professor Robert W. Nairn and professor David A. Sabatini. Please refer to the faculty awards section to read more about these honors.

I am also pleased to announce Gina Hodges as yet another NSF Graduate Fellowship recipient. Gina is part of the Atmospheric Research Team at the National Weather Center. The WaTER Center research team continues to stay very busy. In February, we hosted Sister Rosemary Nyirumbe (2007 CNN Hero) who talked about her girls' school for rape victims in Uganda. The WaTER Center has also been working with a local NGO Pros for Africa (www.prosforafrica.com). This past spring, we sent Damon Webster along with the Pros for Africa group to do work in Uganda. When they returned, the WaTER Center and the College of Engineering hosted the Sam Wilson Lectureship. The guest speaker was Roy Williams (Cincinnati Bengals) who has been working for Pros for Africa for the past three years when not playing professional football. The WaTER Center is also preparing to host the second OU International WaTER Conference (pg. 3). Also, we have established a campus-wide organization called Sooners Without Borders to engage students from all across campus in our work on water and sanitation in developing countries.

CEES associate professor Yang "Eric" Hong is one of the more prolific researchers on the OU Norman campus. He does a lot of work using remotely sensed data, especially satellite data, to study water resources and climate variability around the world. I think you will find the article describing his research to be both fascinating and very timely.

Once again, I invite you to stay in touch with CEES. We would love to hear from our devoted alumni and friends.

Robert C. Knox, Ph.D., P.E.
Ted A. Kritikos Chair, Presidential Professor, Director
School of Civil Engineering and Environmental Science

School News

Concrete Canoe Team Competes in Nationals

After a two-year hiatus from national competition, the OU – ASCE Concrete Canoe Competition team attended the 2011 National Concrete Canoe Competition in Evansville, Ind. in June. This year, more than 160 teams competed in 18 conference competitions to qualify for one of the 24 berths at the national level. Earlier this spring, the OU-ASCE team won the south-central regional competition to advance to nationals.

2011 Steel Bridge Team

The OU-ASCE team performed very well against the other 24 teams at the national competition. The team acted professionally and truly focused on the events. The oral presentation was crisp and well-delivered. The presentation team answered the judges' questions calmly and with authority. Team members maintained their decorum and represented our department, college and university extremely well. Each member was important to the final result, each helping to make the overall team stronger. The OU-ASCE team's results were:

Oral presentation – **6th**
Design paper – 18th
Final product – 17th
Men's slalom/endurance race – 12th
Women's slalom/endurance race – 17th

2011 Concrete Canoe Team

Overall, the OU team finished **12th** in the nation.

The team that we sent to nationals consisted of the following students: Jenny Bergen, Cassie Gonzales, Nick Ibarguen, J.D. Christianson, Jacquie Baker, Collen Shappe, Stephen McCollam, Cody Burch, Travis Poole, Alyse Burgess, Jason Kilpatrick, Steven Aeschbach, Traci Kohl, Corey Wirkman, Richard Day, Sadie Kiser, Jesse Berdis, Cate Lynn, Stephen Collins and Patrick Baker.

We are extremely proud of our OU – ASCE Concrete Canoe Competition team. The NCCC is the culmination of a lot of hard work. The team is already planning for next year's competition and intends to improve its performance while maintaining the attributes that make this team special.

The 2011 OU Canoe and Steel Bridge teams would like to thank their generous sponsors.

Cabbiness Engineering
John E. Fagan
Flintco Constructive Solutions
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Robert Knox
Thomas L. Landers
M&M Geotechnical Engineering
Mi-Sher Fleet Specialist NE
Oklahoma Structural Engineer's Association
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SAIC – Alan Soltani
Structural Engineering Council of Oklahoma
Todd Engineering, Inc.
Terracon Consultants, Inc.
Wallace Engineering Structural Consultants, Inc.
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The University of Oklahoma International WaTER Conference and International Water Prize Award Ceremony Oct. 24-25, 2011 Norman, Okla.

The conference theme *"Synergy at the Interface: Integrating Technology, Social Entrepreneurship and Behavior Change"* is designed to bring together water and sanitation experts from academia, industry, NGOs, government and foundations. The two-day conference will include poster and concurrent paper sessions.

The highlight of the conference will be a plenary lecture by, and presentation of the second OU International Water Prize to, Ben Fawcett.

Ben Fawcett
2011 University of Oklahoma International Water Prize Winner

Fawcett is an environmental health engineer, development practitioner, lecturer, mentor, researcher, and book author with three decades of extensive international experience. His impact has been felt in countries throughout Africa, Asia and Latin America. During his tenure at Southampton University from 1996-2006, he mentored 130 MSc and Ph.D. students who have continued through their work to impact more than 60 countries. He has focused much of his writing on gender and sanitation, two issues often forgotten and yet critical if the world is to meet the Millennium Development Goals. Perhaps his greatest accomplishment is his leadership and vision in coauthoring with Maggie Black the milestone book, *The Last Taboo: Opening the Door on the Global Sanitation Crisis*, the release of which and "call to arms" was timed with the 2008 International Year of Sanitation.

In addition to the plenary lecture by Fawcett, the conference will include keynote speakers from the fields of social entrepreneurship, behavior change, water technologies, climate variability and hydro-philanthropy in the developing world.

- Ned Breslin, Water for People – *Hydrophilanthropy*
- Annette Johnson, Swiss Federal Institute of Aquatic Science and Technology – *Water Technologies*
- Dennis Lettenmaier, University of Washington – *Water Resources/Climate Variability*
- John Oldfield, WASH Advocacy Initiative – *Legislative Update*
- Kurt Soderlund, Safe Water Network – *Social Entrepreneurship*
- Peter Winch, Director, Social and Behavioral Interventions Program, Johns Hopkins Bloomberg School of Public Health – *Behavior Change*

Registration Information
Conference and workshop registration information can be found at http://WaTER.ou.edu

Post-conference workshop
A post-conference workshop covering three topics will be held on Wednesday morning, Oct. 26.

- Topic No. 1 focuses on hands-on instruction of water well drilling and sustainable pump technologies
- Topic No. 2 focuses on eco-latrine design, construction and operation
- Topic No. 3 focuses on bio-sand filter construction

Sponsorship Opportunities
The University of Oklahoma International WaTER Conference
Oct. 24-25, 2011
Norman, Okla.

The conference is expected to draw up to 250 professionals from around the globe and will receive significant media coverage due to the high-profile individuals participating. A strong student turnout is expected from not only OU, but also regionally and nationally. Organizations interested in sponsoring portions of the conference should inquire as soon as possible. Contact Jill Quintana Hughes, WaTER Center development officer, at (405) 325-5217 or jillq@ou.edu.

Conference Sponsors
($10,000 and above)

- Expo table space and two full event registrations
- Introduction and acknowledgement at each platform lecture, breakfast, luncheon and the banquet
- Organization logo on the WaTER Conference home page with link to organization's website
- Information posters and/or banners displayed at registration, reception, banquet, breakfasts, lunches and workshops
- Organization logo on the printed conference program
- Organization logo on top tier of all sponsorship listings (printed, Web, etc.)

Banquet Sponsors
($7,500 to $9,999)

- Expo table space and one full event registration
- Introduction and acknowledgment at the banquet
- Organization logo on banquet information web page
- Information poster at entrance to banquet
- Organization logo on second tier of all sponsorship listings (printed, Web, etc.)

Platform Speaker Sponsors
($5,000 to $7,499)

- Expo table space and one full event registration
- Acknowledgement at each platform lecture
- Information poster at entrance to breakfasts and luncheons
- Organization logo on third tier of all sponsorship listings (printed, Web, etc.)

International Travel Scholarship*
Sponsors ($2,500)

- Expo table space and one full event registration
- Organization logo on fourth tier of all sponsorship listings (printed, Web, etc.)

*These scholarships will help fund travel, lodging and conference registration costs for a practitioner in the area of water or sanitation from a developing country.

There is no registration fee for the post-conference workshop, but all participants must pre-register by Oct. 17. Seating may be limited and will be assigned on a first-come basis. Contact info: http://WaTER.ou.edu

Call for Abstracts
Abstracts for oral presentations and posters on any topic related to water or sanitation issues in emerging regions, are due June 15, to: conferenceservices@ou.edu

We are soliciting abstracts from all technical and non-technical topics and sectors (e.g., science, engineering, health, anthropology, sociology, business, meteorology, geography, education and cultural issues) relevant to water and sanitation in remote regions of developing countries.

Topical areas include, but are not limited to, the following:

- Fluoride mitigation systems
- Appropriate drilling technologies
- Novel WASH technologies
- Drinking water treatment innovations
- Ground water exploration/production systems
- Treatment wetlands for water quality mitigation
- Rainwater harvesting
- Conservation and reuse technologies
- Social entrepreneurship/microfinance
- Cultural and behavioral change
- Climate change effects on water resources
- Public health assessments
- Capacity building

Terracon Foundation Scholarship Announced


L-R: Osborne and Bright

The Terracon Foundation has generously committed to fund an annual scholarship of $5,000 per year for five years to the University of Oklahoma, starting in 2010. The scholarship is awarded to a student pursuing a master's degree in civil engineering, emphasizing soil mechanics/ geotechnical engineering. The geotechnical engineering faculty nominate outstanding students and the Terracon leadership team interviews each nominee and makes the final selections. In 2010, the inaugural recipients for this award were Marc Breidy and Atefeh Fathi and in 2011 the recipients are Zachary Bright and Colin Osborne.

Sooners Without Borders Co-hosts Sister Rosemary Nyirumbe

Nyirumbe, center, with Sooners Without Borders members

The University of Oklahoma recently expanded the student organization "Engineers Without Borders" to "Sooners Without Borders." The move was made to develop the organization into a campus wide group and invite involvement of all disciplines. In February, SWB, along with the Center for Social Justice and the University of Oklahoma Women's and Gender Studies Program, hosted a talk by 2007 CNN Hero Sister Rosemary Nyirumbe. Nyirumbe spoke to students, faculty and members of the Norman community about her work at the St. Monica Girls Tailoring School in Gulu, Uganda. The purpose of the school is to give shelter to girls and women who were abducted and raped by members of the Lord's Resistance Army.

The LRA, a once-popular rebel group in northern Uganda, has lost support over the last 21 years of war due to its infamous policy of abducting children and forcing them into servitude as soldiers and "wives." As a result, these young women are shunned by their families and communities and many now have children. The St. Monica Girls Tailoring School empowers women and teaches them the skills necessary to make a living for themselves and their children as well as providing needed psychological and medical assistance.

Professional Football Player Discusses Relief Work in Africa

Each spring, during the College of Engineering's Board of Visitors meeting, a distinguished guest or alumna is invited to deliver the Sam Wilson Lecture. This past spring, the lecture was delivered by former Sooner football All-American Roy Williams, a co-founder of Pros for Africa, a nonprofit relief organization based out of Oklahoma City. The organization partners with professional athletes, business professionals and other supporting organizations to supply the people of African countries with food, water, clothing, medicine and other necessities. Williams spoke to the audience about his trips to Uganda with other professional football players to donate their time and resources. Pros for Africa is responsible for the organization of trips and resources and enlists the help of several other organizations in completing these tasks.

Roy Williams

"The College of Engineering was proud to co-host this unique event for our students and the community. Pros for Africa is doing great work partnering with professionals from all walks of life," said Thomas Landers, College of Engineering dean.

Gina Hodges Receives NSF Graduate Fellowship


Gina Hodges

Gina Hodges was awarded a National Science Foundation Graduate Research Fellowship in 2011. Hodges is working on a master of science degree in civil engineering and plans to use the fellowship to complete her degree. She grew up in Oklahoma and transferred to the University of Oklahoma from Rose State College in 2007. In 2010, she graduated with a meteorology degree and received the Academic Achievement Award from the School of Meteorology. Hodges says that the fellowship is a wonderful opportunity to pursue a more diverse background through various coursework in engineering that will complement her current meteorology degree and will allow her to work in the areas of hydrometeorology and water resources. She currently is working with the Atmospheric Radar Research Center under advisers Yang Hong, Ph.D., and Jonathan Gourley, Ph.D. Her research focuses on hydrologic modeling and contributing to advancements in flash flood prediction to save lives and property. The research will lead to improvements in predictions of flash-flood timing, location and rainfall magnitudes. In the past, she has worked to motivate middle school children, and in particular young women, to pursue careers in math, science and engineering. She would like to use the NSF fellowship as an example and opportunity to continue promoting these career fields.

Tichansky Awarded SMART Scholarship


Eric Tichansky

Eric Tichansky was awarded the Science, Mathematics and Research for Transformation Scholarship by the Department of Defense in April. The purpose of the SMART Scholarship for Service Program is to increase the number of scientists and engineers working at Department of Defense laboratories. The scholarship provides students with full tuition, a stipend for living expenses, summer internships and employment with the Department of Defense following graduation.

Tichansky, a sophomore from Tulsa, is an environmental engineering student in CEES. “I am so blessed to receive this great opportunity! The School of Civil Engineering and Environmental Science provides so many ways for students to gain experience and knowledge, which helped me qualify for this award,” Tichansky said.

Tichansky found his interests in water resources early on when he interned at the U.S. Army Corps of Engineers, Tulsa District, in 2009-2010. “After working for the Corps, I was certain I wanted to pursue a degree that involved water resources, and I knew OU would be the place to do it,” said Tichansky.

Tichansky is an undergraduate research assistant for the OU WaTER Center and says he owes his inspiration and success here at OU to his mentor, professor David Sabatini, director of the OU WaTER Center. Since stepping on campus as a freshman in 2009, Tichansky has been involved in Engineers Without Borders and is a member of the Alpha Tau Omega fraternity. After graduation, Tichansky plans to pursue a graduate degree in environmental engineering and serve his country as a civilian while working for the Department of Defense.

Trevor Grout Receives Student of the Year Award

L-R: Musharraf Zaman, OU College of Engineering associate dean of research and graduate programs; Jewellyn Grout, spouse; Trevor Grout, OU engineering student; Michelle McFarland, Oklahoma Transportation Center assistant director; and Tony Dark, OTC executive director.

Trevor Grout, an engineering graduate student at the University of Oklahoma's Atmospheric Radar Research Center, was presented with the Oklahoma Transportation Center's student of the year award at the 14th annual Council of University Transportation Centers' award banquet, held recently in Washington, D.C. Grout was one of 60 recipients recognized nationally for outstanding achievement in and contribution to transportation research and education.

Since July 2009, Grout has been working with collaborators on a project titled "Proactive Approach to Transportation Resource Allocation Under Severe Weather Emergencies." The goal of the project is to develop tools that aid maintenance managers in making resource allocation and deployment decisions to mitigate severe winter weather.

"Trevor is a unique fit for this project as it necessitates the need for a multidisciplinary approach from both the meteorological and engineering perspectives," said Yang Hong, associate professor in OU's School of Civil Engineering and Environmental Science. "Trevor's background with a bachelor's degree in meteorology, as well as working toward his master of science in civil engineering degree, undoubtedly gives him a great advantage. This award truly testifies to the interdisciplinary weather enterprise at OU."

Amy Hufnagel Receives Scholarship Award

L-R: Hufnagel with her advisor Thomas Kang, Ph.D.

Amy Hufnagel was named the 2011 recipient of the Post-Tensioning Institute's Edward K. Rice Scholarship. The scholarship was established in 2010 to honor Edward K. Rice for his exceptional contributions to the post-tensioning industry, and is awarded to students who study in the area of concrete structures with a clear focus on post-tensioning design and application. Hufnagel will graduate this summer from the University of Oklahoma with a master of science degree in civil engineering with a structural emphasis. Her thesis research focuses on secondary effects of post-tensioned concrete flat-plate structures, as well as punching shear resistance of slab-column connections.

CEES Student Receives NCAA Today's Top VIII Award

Amy Backel

Oklahoma Track and Field alumna Amy Backel was named one of eight recipients of the NCAA Today's Top VIII Award. The two-time All-American and 2010 Big 12 champion in the javelin, completed her civil engineering degree requirements with an overall 3.98 grade-point average en route to becoming Oklahoma's first-ever, male or female, three-time College Sports Information Directors of America Academic All-American. Backel was one of two track and field athletes nationally to receive the honor and the only student-athlete from the Big 12 Conference to do so.

The NCAA Today's Top VIII Award recognizes current student-athletes who will have completed their athletic eligibility for their success on the fields and courts, in the classroom and in the community. The honorees are selected by the NCAA Honors Committee, which is composed of athletics administrators at member institutions and nationally distinguished citizens who are former student-athletes. Backel received her award at the NCAA Honors Celebration on Jan. 14 during the 2011 NCAA Convention in San Antonio.

The award is the latest in a long list of achievements for the Dillsburg, Pa., native. Backel was named the 2010 OU College of Engineering Outstanding Senior in Civil Engineering and has been named to the Academic All-Big 12 first team all four years of her athletics career, carrying a 4.0 grade-point average for three of the four years. In her collegiate career, Backel, who is beginning work on her master's degree in engineering, recorded a B just once.

Backel owns six All-Big 12 honors and also was recently named a recipient of the Big 12's Dr. Prentice Gautt Postgraduate Scholarship. During her college career, Backel served as president of Oklahoma's Student-Athlete Advisory Committee and served on the Big 12 Student-Athlete Advisory Committee from 2008 to 2009. Backel also was the 2007 recipient of OU's Dan Gibbens Outstanding Scholar Athlete of the Year Award and Athletics Council Service Award.

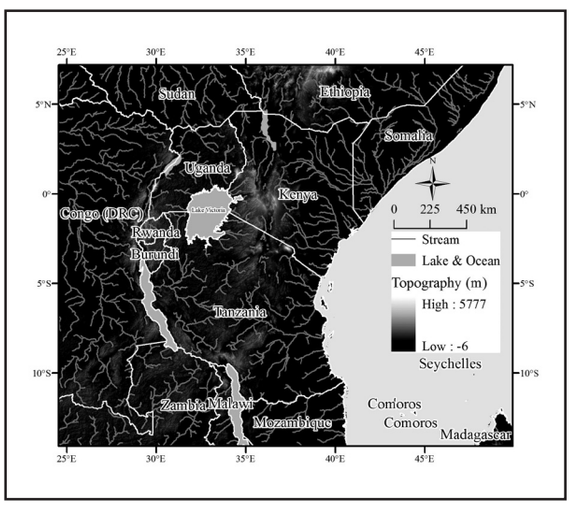
The OU record holder in the javelin, Backel was the top collegiate finisher in the event at 2010 USA Track and Field Championships. Along with her individual academic achievements, Backel helped guide the OU women's team to the top spot in the 2010 U.S. Track & Field and Cross Country Coaches Association Academic Team rankings.

Hong Receives Water Resource and Climate Variability Research Grants

Yang Hong

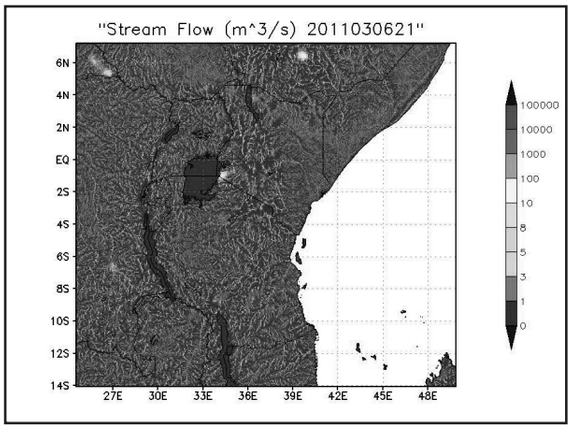
CEES associate professor Yang "Eric" Hong, Ph.D., leads the Remote Sensing and Hydrology Lab (hydro.ou.edu) at the National Weather Center (nwc.ou.edu) and also serves as a co-director of the OU WaTER Center (WaTER.ou.edu). He also is an affiliated faculty member of the Atmospheric Radar Research Center (arrc.ou.edu), the Center for Spatial Analysis (csa.ou.edu) and the Center for Analysis and Prediction of Storms (caps.ou.edu). Hong's expertise is in remote sensing (primarily satellites), hydrology, water resources and climate variability. Several of his projects focus on hydrologic hazard prediction and water resources in emerging regions.

The 21st century is arguably "the century of water." Most places in the world already face water-related problems, including water shortage and floods that can impact food availability, cause epidemics, and threaten life and infrastructure. In addition to these problems, one of the major manifestations of Earth's climate change will be in terms of water cycling, which includes changes in regional precipitation regimes, evapotranspiration/evaporation rates, and the frequency and severity of meteorological and hydrological extremes (e.g., severe weather, floods and droughts). Such changes would, in turn, impact water management, agriculture, construction, transportation, communications, marketing and energy production, among other human activities. These problems are having the greatest impact on low-income communities of the developing world, where vital economic dependence on water resources, combined with high population growth and low investment capacity, exacerbate vulnerability to climate variability and change. The regional foci of Hong's projects are East Africa (in particular Kenya and Ethiopia, which represent two of the poorest countries of the developing world and simultaneously the most vulnerable to climate change impacts) and the Himalaya region (Nepal, Bhutan and Pakistan). The scientific focus is on the interactions between climate, water and livelihood patterns that constitute the fundamental building blocks for understanding vulnerability of these impoverished agriculture-driven societies to climate variability and to develop adaptation capacity at both the local and regional levels.



Topography, Stream Network and Lake & Ocean of the KMD Region

Hong recently received a grant from the Pakistan — U.S. Science and Technology Cooperation Program. The project, titled "Capacity Building in Disaster Risk Assessment and Management through Training and Research in Geo-informatics and Hydrometeorological Hazard Risk Reduction Strategies," focuses on increasing Pakistan's capacity to reduce the risk of damage from potential natural disasters, including developing an early-warning system for floods by integrating real-time remote sensing information and predictive hydrometeorological models. The project



Stream Flow

was one of only 28 selected from 270 applications submitted to the program and will be completed in three years. Half of the total budget ($500K) will be directly spent training Pakistani university academics in disaster prediction and risk management techniques.

"Pakistan is a country prone to hydrometeorological disasters – flooding, landslides and droughts," said Hong. "Monsoon flooding that began in late July 2010 has affected 20 million people in that country. This has left one-fifth of the country under water and prompted intense and sustained relief assistance from the United States and other international donors. These recent floods in Pakistan have underlined the need for countries to be better prepared for extreme weather events. Currently, the flood risk assessment and management system in Pakistan deals with rescue and relief. Adequate adaptation practices need to be strengthened and people's local capacities to adapt need to be supported and enforced. The early-warning system will help map flood zones, determine the potential economic impact of flooding and reduce the risk of damage and fatalities in vulnerable communities."

Ultimately, the project should build the national capacity of Pakistan in natural disaster risk mitigation through training and research in geographical information science, according to Hong. "We are likely to see more extreme events in the future, particularly in the Hindu-Kush Himalayan region. The international climate, water and development communities need to ensure that adequate support is channeled to the region in a way that enforces ongoing best practices in adaptation," said Shahid Habib, project collaborator and chief of the Office of Applied Sciences at NASA Goddard Space Flight Center. For more info: http://sites.nationalacademies.org/PGA/dsc/pakistan/PGA_058736 or http://blogs.nasa.gov/cm/blog/whatonearth/posts/post_1288240080113.html.

Hong also has a project jointly funded by NASA and the U.S. Agency for International Development (USAID). He is the science team member of the five-year SERVIR (meaning "to help" in Spanish) initiative that integrates satellite observations, ground-based data and forecast models to monitor and forecast environmental changes and to improve responses to natural disasters for such socioeconomically vulnerable yet disaster-prone regions as Africa, Central America and South Asia. SERVIR enables scientists, educators, project managers and policy implementers to better respond to a range of issues, including disaster management, agricultural development, biodiversity conservation and climate change. Initial applications will address three societal benefit areas: disasters (flood potential mapping, flood forecasting and post-event flood mapping), health (Rift Valley Fever risk mapping), and biodiversity (impacts of climate change on biodiversity and coral reef monitoring).

Hong's team also is working with researchers at the NASA Marshall Space Flight Center to develop and transfer a forecasting component into the decision-making support system to the Regional Center for Mapping of Resources for Development, based in Kenya. For example, Hong is working with the Kenya Meteorological Department to implement a high-resolution distributed hydrologic model: the Coupled Routing and Excess STorage, or CREST, model. The model assimilates real-time satellite rainfall products as a boundary condition

and incorporates atmospheric model-based rain forecasts to map streamflow, evapotranspiration and soil moisture. These rain forecasts will give decision-makers longer lead-times for flood forecasting, allowing more time for preparation and reaction. These forecasts will be available through the SERVIR-Africa website. Currently, Hong's team has implemented a global and regional hydrological prediction system forced by near real-time satellite rainfall and atmospheric model forecasts (eos.ou.edu).

NSF Fellow Christopher Cope Represents OU WaTER Center in Ethiopia

In the spring, graduate student Christopher O. Cope traveled with Oklahoma City-based Water4 Foundation for three weeks to Ethiopia as a representative of the University of Oklahoma's WaTER Center. Water4 is an international nonprofit development organization, focused on providing safe drinking water to impoverished peoples worldwide. They do this by training in-country, non-governmental organizations and government agencies in low-cost, manual water well-drilling techniques and low-cost, longer-life PVC water pump installations. One of Water4's countries of emphasis is Ethiopia. Cope, who has traveled in conjunction with the WaTER Center to Brazil, Cambodia and Ecuador, was privileged to be invited by Water4 to join them in Ethiopia.

Prior to leaving, Cope participated in Water4's drilling and pump installation training, where he learned the methods he would soon be teaching. As part of a three-person Water4-led team, Cope traveled to rural communities outside of Asosa, Bahir Dar and Mojo, Ethiopia, where he contributed to the teaching process and assisted in drilling three wells. While the main objective of the trip was to teach in-country organizations and agencies how to drill and complete their own wells, it was an added bonus for Cope to know that some of the wells he helped drill would potentially provide safe drinking water

Cope with members of Water4 Team, Care International, the local mayor, and local villagers outside of Bahir Dar

Care International representatives and villagers manually drilling a new well

Ethiopian villagers who assisted in drilling a well outside of Bahir Dar

to Ethiopian villagers. The greatest reward, however, was seeing the excitement of the local NGO, Ethiopian Ministry of Water and village representatives as they learned how to drill and complete more affordable drinking water wells themselves.

Cope, who is pursuing a master's degree in civil engineering with a water resource management emphasis, was able to provide water quality testing assistance to the Water4 team. He was able to test for certain microbial and chemical water quality indicators during the trip and train Ethiopian representative organizations, such as WaterAid, the Millennial Water Alliance and World Vision, in the same.

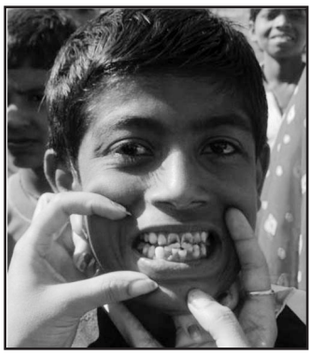
NSF Fellow Laura Brunson Represents OU WaTER Center in India

Laura R. Brunson

Laura R. Brunson was awarded the T.H. Lee Williams International Travel Scholarship in December 2010. This scholarship made it possible for her to travel to Nagpur, India, to present research findings at the International Conference on Sustainable Water Resource Management and Treatment Technologies. Brunson traveled to India in January to spend two weeks attending the conference and learning more about water quality and fluoride issues. During this time, she met with many researchers at the National Environmental Engineering Research Institute of India and visited water treatment facilities in several different communities. At the conference, Brunson presented research conducted under the umbrella of the OU WaTER Center (WaTER.ou.edu) titled "Innovative and Sustainable Technologies for Treatment of Drinking Water with Elevated Fluoride Concentrations" and co-chaired a presentation session.

NEERI graduate researchers and Brunson (center) at the conference banquet.

The conference was attended by more than 300 delegates representing 17 countries. When asked about highlights of the trip Brunson said, "The opportunity to learn from and connect



A child in Seoni, India exhibiting dental fluorosis.

with researchers working on water issues from all around India was amazing! Thanks to the generous hospitality of the people at NEERI, I was able to visit several defluoridation plants and a successful community-managed water system, which resulted in gaining valuable knowledge and making new connections for the OU WaTER Center." Brunson is a National Science Foundation Graduate Research Fellow and doctoral student in the School of Civil Engineering and Environmental Science. Her research focuses on sustainable methods for fluoride removal from drinking water and social entrepreneurial methods of implementing water treatment solutions in developing regions. Additional funding for this trip was generously provided by the College of Engineering, the School of Civil Engineering and Environmental Science and the WaTER Center.

WaTER Center Graduate Student Travels with Pros For Africa

Damon Webster, CEES graduate student, recently had the privilege to travel to the country of Uganda with Pros For Africa. PFA is a nonprofit relief organization founded in 2009 that partners with professional athletes, business professionals and other organizations to focus on African children in need. Co-founders include Reggie Whitten, Bill Horn, Jay Mitchell, Adrian Peterson, Tommie Harris, Roy Williams and Mark Clayton (see related articles page 6).

PFA has organized a yearly trip to Gulu, Uganda, to provide assistance to a wonderful humanitarian, Sister Rosemary Nyirumbe. Sister Rosemary has helped develop a compound that supports a daycare, clinic, orphanage and vocational training center to help the victims of poverty and the civil war that ravaged Uganda over past decades.

The purpose of Webster's trip was to assess the water quality of several wells that had been drilled in cooperation with PFA over the past couple of years. He tested the wells for microbial and basic chemical contamination. While testing the wells he noted that the PFA partner in charge of coordinating well drilling activities, the Water-4 Foundation, did a spectacular job of protecting them from microbial contamination. None of the wells tested showed chemical contamination of arsenic or fluoride from the aquifer. Webster was able to meet with the coordinator for the United Nations Children Fund (UNICEF) in Uganda to discuss prominent sanitation issues in the region as well.

L-R: Adrian Peterson, Webster and Nelson Peterson

In addition to his work with water and sanitation, Webster was able to help with many of the other activities PFA had organized. He helped in the pharmacy for the clinic that saw almost 2,000 people, worked with Feed the Children to distribute food to 2,500 people, placed batteries in hearing aids for the Sarkeys Foundation (which fitted 2,000 people with their devices) and helped dig a well for a school under construction. It was an amazing amount of work accomplished in an amazingly short amount of time. Webster is excited about the future work that the University of Oklahoma can accomplish with PFA and is extremely grateful that he was allowed to participate in this endeavor.

Amy Cerato Receives Casagrande Award


Amy Cerato

Associate professor Amy Cerato, Ph.D., P.E., received the 2010 Arthur Casagrande Professional Development Award. The award is presented by the Geo-Institute Board of Governors in recognition of outstanding accomplishments as evidenced by completed works, reports or papers in the field of geotechnical engineering. Cerato's specific award citation was "for her outstanding contributions in research, teaching and service to the geotechnical engineering profession." The award was established to provide professional development opportunities for outstanding young practitioners, researchers and teachers of geotechnical engineering.

Robert W. Nairn Named the Richard I. and Lela M. Barnhisel Reclamation Researcher of the Year

Associate professor Robert W. Nairn was named the Richard I. and Lela M. Barnhisel Reclamation Researcher of the Year by the American Society of Mining and Reclamation. This award is intended for individuals demonstrating substantive contributions to the advancement of reclamation science and/or technology through scientific research. The individual must be contributing meaningful information/science relating to the economic, social, environmental or ecological effects of surface mining. The individual must have been involved in reclamation/rehabilitation research for a significant length of time to achieve significant measureable advances in the field. This award is especially meaningful because it is voted on by Nairn's peers in the American Society of Mining and Reclamation.

Robert W. and Amanda K. Nairn Receive the United Way of Norman's Service to Youth Education Award


Amanda and Bob Nairn receive United Way Award

Associate professor Robert Nairn and his wife, Amanda, received the United Way of Norman's Service to Education Award. The couple's biggest impact has been revamping the Outdoor Classroom at Jefferson Elementary School in Norman. The Outdoor Classroom was in disrepair following some construction at the school. The Nairns saw the importance and potential of the classroom and had a vision to improve it. They applied for, and received, a $7,000 grant for the renovation. They then provided the leadership and physical effort to complete the project. Amanda also has developed a program utilizing the outdoor classroom called "Plant Patrol." This program teaches students about animals, plants, recycling and the environment. The Nairns donated their $400 award check to the Jefferson Elementary PTA.

David Sabatini Named 2010 DaVinci Institute Fellow


David Sabatini

Professor David A. Sabatini, Ph.D., P.E., was named a 2010 DaVinci Institute Fellow. The DaVinci Institute is a unique private partnership of leaders in higher education across the state of Oklahoma. The goal is to nurture the arts, sciences, humanities and education in Oklahoma as these fields undergo transformations in the 21st century. Professor Sabatini has compiled an exceptional teaching portfolio while maintaining his outstanding performance in externally funded research, archival publications and professional service. In 2006, he formed the Water Technologies for Emerging Regions Center to meet the growing need for a university-based program with the personnel and resources to play a key part in the international water supply and sanitation scene through the transfer of appropriate and sustainable technologies. The mission of the WaTER Center is to engender peace by promoting health, education and economic development through water and sanitation solutions for impoverished regions, using innovative teaching, research and service initiatives, and through international leadership activities.

Sabatini Receives 2011 Water Environmental Federation Award of Merit with Distinction for Work in Developing Countries

Sabatini also was the recipient of the 2011 Water Environment Federation Award of Merit with Distinction for Work in Developing Countries. The Water Environment Federation Pioneer Award for Disinfection is awarded to an engineer or scientist for their pioneering work in the area of disinfection. Professor Sabatini received this award for his work in establishing the OU WaTER Center and his pioneering research in removing fluoride from drinking waters in developing countries. Skeletal fluorosis is a bone disease caused by excessive consumption of fluoride, and is endemic in over 25 countries. It has been estimated that 200 million people suffer from skeletal and dental fluorosis worldwide.

We'd love to hear from you! If you have news to share in the next issue of *Communiqué*, please contact us:

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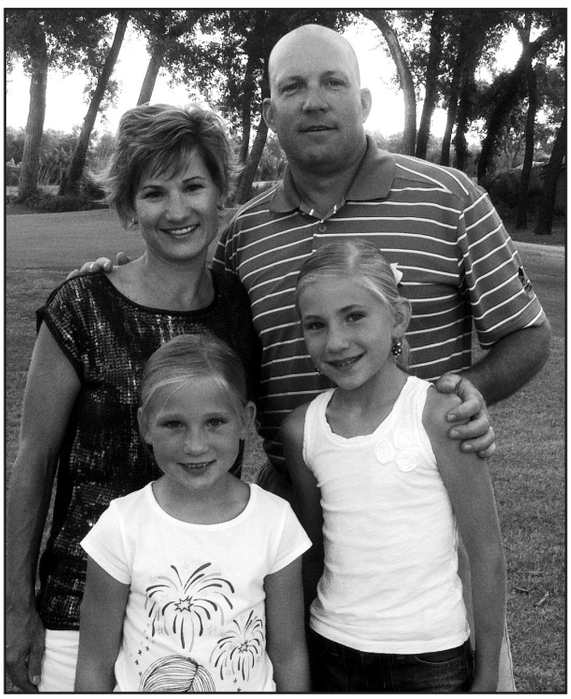
or cees@ou.edu

Alumni News

Bret Cabbiness, P.E. – Cabbiness Engineering



Vicki and Bret Cabbiness with Jenna and Ashlee.

Bret Cabbiness received his bachelor of science degree in civil engineering from OU in May 1991. Today, he is a successful engineering entrepreneur, having founded Cabbiness Engineering in Norman in August 2009.

Cabbiness began his professional career with summer internships at the Oklahoma Department of Transportation and the Oklahoma Turnpike Authority, making a career in transportation engineering seem certain. However, an acquaintance made during his first ODOT internship, OU CEES graduate Karl Baldischwiler, asked him if an opportunity in the engineering consulting business appealed to him. The thought of another challenge enticed Cabbiness to make a career change and in January 1992, he began working in the private engineering consulting business. “I will always be indebted to Karl for taking a chance on me,” Cabbiness said. “He taught me how to be a good engineer and a good manager.” Cabbiness has now worked in the Oklahoma consulting engineering market for nearly 20 years. His professional experience as an engineering intern working on municipal and state transportation projects under the guidance of a professional engineer encouraged him to focus on becoming a licensed professional engineer and then toward becoming an engineering project manager for multiple projects for local communities and state entities during the 1990s. “Becoming a licensed professional engineer was one of my proudest achievements,” Cabbiness says.

In 2006, having worked as a project manager for 10 years, Cabbiness was invited to join the ownership group at Smith, Roberts, Baldischwiler, LLC. It was a testament to hard work, determination and sometimes being receptive to constructive criticism. “Unless you are born into company ownership, it is not easy to break into that level of our business,” Cabbiness says. “There were times when I wasn’t completely sure that ownership was the direction to take with my career. I really enjoyed designing and project management! I enjoyed coming to the office and solving our client’s problems or challenges with our engineering staff.”

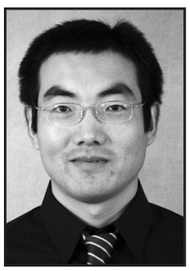
In August 2009, Cabbiness started Cabbiness Engineering in Norman, Okla. “It just seemed like the right thing to do for me and my family at that time,” Cabbiness commented. “Having been very fortunate to build strong relationships with several other design professionals, the jump to sole ownership was fairly easy. The company received a couple of great opportunities from colleagues to get started that were especially helpful particularly when you look at the economic climate of Oklahoma, the United States and the world at that time,” Cabbiness said.

The company was built on a solid business plan and executed to perfection by the staff. Once only a three-person firm composed of Cabbiness, his wife, Vicki, and one CADD technician, the company has grown in two short years to five full-time employees and two part-time employees. “We feel very blessed, very fortunate to have a great staff and work for some terrific clients,” Cabbiness said. Some of Cabbiness Engineering’s clientele include the cities of Ponca City, Edmond and Oklahoma City, as well as ODOT. They also are pleased to be associated with such architectural firms as Pinnacle Design Group, The McKinney Partnership and LWPB. Cabbiness Engineering also has the privilege of working with Corix Utilities of Oklahoma, which manages a majority of the utility infrastructure at OU’s Norman campus.

The journey through OU not only brought Cabbiness to Norman permanently, but also afforded him the opportunity to meet his wife, Vicki (Ziegler) Cabbiness. They met on a blind date the week of final exams their senior year and were married a “short seven and a half years” later. They reside in Norman minutes from campus and have two wonderful daughters, Ashlee, 10, and Jenna, 7. The family enjoys time together at the girls’ soccer and softball games as well as playing family golf, and like any OU raised family, they enjoy tailgating at football games, watching Sooner basketball and catching a few OU softball or baseball games in the spring.

Once termed by his faculty adviser as “a pet project to see if I can get him to graduate,” Cabbiness is still very involved with OU as an active member of the CEES Visiting Council. “The Visiting Council has been a lot of fun for me. It is a great way for me to personally give back something to the university other than financial support. I wish all CEES graduates could spend at least one year on the council and see for themselves the outstanding performance and standards of CEES students, faculty and staff.”

Chunyang Liu Joins Faculty at South Carolina



Chunyang Liu

Chunyang Liu (Ph.D., 2009) joined the University of South Carolina as an assistant professor in fall 2010. USC hired Liu through a national search to establish their unsaturated soil mechanics research program. Liu’s dissertation in CEES was titled “A Coupled Hydraulic-Mechanical Elastoplastic Constitutive Model for Unsaturated Sands and Silts” and his major adviser was professor Muralee Muraleetharan.

2010 Graduates

Spring

B.S. Architectural Engineering
Patrick A. Crowder
Tyler J. Swope

B.S. Civil Engineering
Amy N. Backel
James R. Folsom
John R. Goodman
Jacob G. Grasmick
Christopher Hill
Amy C. Hufnagel
Moustapha Ibrahim Ary
Shannon K. Jenkins
John S. McCarter
Johnathan A. Miller
Kristy S. Olabimtan
Preston C. Petty
Jessica M. Prince
Joshua T. Rains
Michael J. Rice
Mohammad M. Salama
Shay V. Smith
Alan T. Taylor
Joseph H. Tuttle, III
Michael A. Van Zandt
Andrew P. Wilshire

B.S. Environmental Engineering
Erin E. Garifalos
Zachary J. Hollandsworth
Nicki Nabavizadeh
Derek W. Stevens

B.S. Environmental Science
Lu Liu

M.S. Civil Engineering
Getta Ashabi
Chris Davis
Mark Emde
Kyle Haskett
Yu Huang
Nick Hussey
Kyu Kim
Kah Mun Lam
Dhaval Mehta
Luis Nieto
Goran Radinovic

M.S. Environmental Engineering
Alan Romero Garrido
Cody Neely
Anupkumar Patil

Ph.D. Civil Engineering
Pranshoo Solanki
Priyantha Wijesinghe

Ph.D. Environmental Engineering
William Strosnider

Summer

B.S. Civil Engineering
Yonathan Reches

M.S. Civil Engineering
Michaela Campbell
Lina Garcia
Nur Hossain
Hassan A. Kaznee

M.S. Environmental Science/Engineering
Beatriz Santamaria

Ph.D. Civil Engineering
Charbel Khoury

Fall

B.S. Civil Engineering
Sarah Beth Ferguson
Brittini M. Norris
LaVon Q. Prince
Dylan C. Sullivan
Cindy N. Tran

B.S. Environmental Engineering
Kimberly R. Douglas

M.S. Civil Engineering
Bruce Hanlon
Eric Holderby
Samuel Rendon
Fifame Sagbohan
Jean Baptiste Varnier

M.S. Environmental Engineering
Dane Morris

M.S. Environmental Science
Alex Brewer

2011 Graduates

B.S. Architectural Engineering
Paul Boer, Jr.
William S. Carlton
Brian A. Harting
Colin J. Osborne
Travis L. Poole
Jesse E. Berdis
Bradley J. Reid
Cassondra A. Underwood

B.S. Civil Engineering
Christopher S. Breazile
Zachary P. Bright
Jeremy D. Christiansen
Christopher S. Colijn
Theresa T. Dinh
Brandon T. Ezell
Angel A. Gonzalez
Matthew P. Helton
Brandon R. Humann
Hunter G. Journey
Omar J. Lozano
Katrina M. McNeil
Maxwell V. Morris
Gerardo Quinonez
Derek G. Reid
Robert A. Rival
Kyle R. Renevier
Nicole E. Rowlette

B.S. Environmental Science
Bridgett A. Neighbors
Katherine J. Ryan
Nathan A. Zlomke

M.S. Civil Engineering
Amy Backel
Atefeh Fathi
David Frank
Chris Hill
Joe Howell
Roy Khalife
Karrthik Kirupakaran
Joel Miller
Thanh Minh Ngo
Wassim Tabet

M.S. Environmental Engineering
Mary Mach

M.S. Environmental Science
Pradeep Adhikari
Tamara Greenleaf
Jennifer McAllister

Ph.D. Civil Engineering
MD. Zahid Hossain

Ph.D. Environmental Science
William Andrews

2010-2011 Faculty Awards and Honors

- Amy Cerato received the 2010 Arthur Casagrande Professional Development Award.
- Robert Nairn received the Richard I. and Lela M. Barnhisel Reclamation Researcher of the Year award from the American Society of Mining and Reclamation and the United Way of Norman's Service to Youth Education Award
- David Sabatini was named a 2010 DaVinci Institute Fellow and received the 2011 Water Environment Federation Award of Merit with Distinction for Work in Developing Countries.

2010-2011 Student Awards and Honors

- Amy Backel received the 2010 NCAA Today's Top VIII Award and was named the 2010 Outstanding Senior in Civil Engineering.
- Zachary Bright received the 2011 Geotechnical Engineering Scholarship.
- Laura Brunson won 1st Place in the Science Category of the 2011 Student Research and Performance Day competition.
- Sarah Carter received a 2010 American Society of Mining and Reclamation Research Grant at the masters' level.
- Aissata Cisse was named 2011 Outstanding Senior in Environmental Engineering.
- Ati Fathi received first place in the poster competition at the 2011 GeoFrontiers Conference.
- Trevor Grout received the Oklahoma Transportation Center's Student of the Year Award.
- Gina Hodges received a National Science Foundation Graduate Research Fellowship.
- Amy Hufnagel received the 2011 Post-Tensioning Institute's Edward K. Rice Scholarship.
- Julie LaBar received a 2011 doctoral level Student Research Grant from the American Society of Mining and Reclamation.
- Tahsina Mahmood and Rouzbeh Ghabchi received third place in the poster competition at the 2011 GeoFrontiers Conference.
- Lu Liu was named 2010 Outstanding Senior in Environmental Science.
- Nicki Nabavizadeh was named 2010 Outstanding Senior in Environmental Engineering.
- Buck Neely won First Place, Best Student Oral Presentation, at the 2010 American Society of Mining and Reclamation meeting.
- Bridgett Neighbors was named 2011 Outstanding Senior in Environmental Science.
- Colin Osborne received the 2011 Geotechnical Engineering Terracon Scholarship and was named 2011 Outstanding Senior in Architectural Engineering.
- Leah Oxenford received Third Place, Best Student Oral Presentation, at the 2010 American Society of Mining and Reclamation meeting and the 2011 ASMR Memorial Scholarship at the doctoral level.
- Ceara Parks received the 2010 University of Oklahoma University College PACE Award.
- Derek Reid was named 2011 Outstanding Senior in Civil Engineering.
- William Strosnider received Second Place, Best Student Oral Presentation, at the 2010 American Society of Mining and Reclamation meeting.
- Eric Tichansky received the Science, Mathematics and Research for Transformation Scholarship from the Department of Defense.

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The goal of the School of Civil Engineering and Environmental Science

The goal of the School of Civil Engineering and Environmental Science is to provide a high-quality educational experience for undergraduate and graduate students in the areas of environmental, geotechnical, transportation, architectural and structural engineering and environmental science. The educational experience is accomplished through innovative classroom instruction aided by computer and multimedia-based instruction, laboratory experiences and student mentoring. The products of this experience are engineers and scientists capable of critical thinking, devoted to a lifetime of learning, and highly sought after by employers.

Contributing writer and editor: Robert Knox, Ted A. Kritikos Chair, Presidential Professor, Director, School of Civil Engineering and Environmental Science

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