Department of
Civil and Environmental Engineering

Colorado State University

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Update From Luis Garcia, Department Head

Dear Alumni and Friends:

As another year nears its end and we reflect on all that has happened, we hope that you will enjoy reading about some of the developments that have taken place in the department.

As many of you are aware, the economy is creating significant challenges; however, our greatest asset is our human capital, from faculty to staff and students, and we continue to excel in the face of adversity.

We are happy to welcome several new faculty members (Jose Chavez, Pinar Omur-Ozbek, and Tom Sale in January and Kimberly Catton and Susan De Long last July). At the same time, we will say goodbye to Deanna Durnford, Richard Gutkowski, Terry Podmore, and Chester Watson, as they complete their transitional retirement at the end of December.

On the student front, there is good news with our enrollments up, both in our civil and environmental programs. We have lots of research projects, and some of them are highlighted herein. In addition, we continue to enhance our Online Master of Engineering program. A brochure is enclosed for your perusal.

We are always happy to share all the updates from many of you. We appreciate all your support and wish you a happy holiday season and lots of success next year.

Ramchand Oad Leads Team on Afghan Water Management Project

An irrigation canal passes through an Afghan village.

Ramchand Oad's quest to find more efficient options for sustainable water use has taken him across the world to Afghanistan, thanks to a three-year, $5.5 million USAID grant awarded to Colorado State University. Oad, professor in water resources and irrigated agriculture in the Department of Civil and Environmental Engineering, has joined with Steve Davies from the College of Agricultural Sciences' Department of Agricultural and Resource Economics.

The team is developing a framework in which Afghanistan can manage its limited water supply to service its irrigated agriculture in a sustainable manner. The project seeks more efficient options for water use and the reduction of water diversion from local water sources.

"We want to find ways to make sure we are not wasting the water that we are taking," Oad said. "More than 80 percent of fresh water supplies in the world are used for irrigated agriculture, so it's important that the Afghanis become more efficient water users."

Three components of the project include a policy review analysis, promoting integrated water resource management, and looking at technological transfer to increase agriculture productivity.

Three decades of conflict in Afghanistan have caused water shortages and inefficient use of aquifers and river basins. Agricultural irrigation uses about 90 percent of available water in Afghanistan.

Oad will work with the ministries of water resources and agriculture to find ways that are beneficial to all as they look at what's working and what's not and determining what plans can be implemented. Field analysis is taking place at Kabal and to the north. For the team members' safety, they are not allowed to go south where there is conflict.

"Water conservation is of global concern," Oad said, "due to predictions that water supplies may be so strained within the next 25 years that conflicts over water rights could occur among countries. In the Middle East, for example, the Nile River Basin is shared by 10 countries. Nearly 250 million people are almost completely dependent upon the Nile. Sustainable water is very likely to become one of our most critical issues in the future."

A typical Afghan home in a rural village.

Faculty News

Richard Gutkowski, through his work with Mountain Plains Consortium, was approved for Associate Status of the Graduate Faculty at North Dakota State University. He was also appointed as a member of the South Dakota State University Adjunct Graduate Faculty. Last year, Gutkowski sponsored three undergraduate students from France who were funded by MPC and NSF. They completed practical training requirements for their degree from Ecole National Superieure Des Technolgies et Industries.

U.S. Interior Secretary Ken Salazar recently honored **Jose "Pepe" Salas** and his partners at three other universities with the U.S. Department of the Interior Partners in Conservation Award for developing new operational guidelines for the Colorado River.

Honored with Salas were representatives of the University of Colorado, the University of Arizona, and the University of Nevada, Las Vegas. Together with the U.S. Bureau of Reclamation and a variety of other government agencies, Salas and his partners helped develop the Colorado River Interim Guidelines, which has been praised as the most important agreement among the seven basin states since the original 1922 compact.

States signing the agreement were Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming. The Colorado River provides water for more than 23 million people and 2 million acres of irrigated land in the southwestern United States and northern Mexico.

Rebecca Atadero's research project, Applying Structural Reliability Methods to Improve the Design of Wind Turbine Gearboxes, was one of 10 projects that received a grant from Cynergy, the CSU Clean Energy Supercluster. The purpose of these supercluster grants is to garner cross-disciplinary collaboration in biofuels, solar, wind, efficiency, and other areas.

Jorge Ramirez was recognized as an outstanding reviewer by the American Geophysical Union. Ramirez is well recognized for his professional contributions in organizing Hydrology Days each year as well as guiding several Research Experience for Undergraduates programs in hydrology.

Chih Ted Yang was the recipient of the Prince Sultan Bin Abdulaziz International Prize for Water, Surface Water Branch: Sedimentation Control in Surface Water Systems. The honor came with a personal award of 500,000 Saudi Riyals, or about $133,000. Yang accepted this award and presented the keynote address at the Third International Conference on Water Resources and Arid Environments in Riyadh, Saudi Arabia, in November 2008.

Yang is a world-renowned expert in sediment transport and river morphology. He developed and published two fundamental laws governing the formation and evolution processes of river systems due to erosion and sedimentation. He is the Borland Professor of Water Resources and director of the Hydroscience and Training Center at Colorado State.

While working for the U.S. Bureau of Reclamation, he developed the Generalized Sediment Transport model for Alluvial River Simulation, or GSTARS, a series of computer models that have been applied in many countries for solving a wide range of river and reservoir sedimentation problems. Yang's dimensionless unit stream power formula for sediment transport has been ranked by the American Society of Civil Engineers, among others, as the most accurate formula in the world for predicting sediment transport rate and concentration in rivers.

Darrell Fontane Honored for Undergraduate Teaching

Luis Garcia, Darrell Fontane, and Sandra Woods.

Darrell Fontane receives the award from CSU President Tony Frank.

Darrell Fontane received the Board of Governors of the Colorado State University System 2007-2008 Excellence in Undergraduate Teaching Award.

Fontane joined Colorado State as an assistant professor in 1983. He currently serves as director of the International School for Water Resources, concentrating his research on water resources decision support systems, computer-aided water management, and integrated water quantity and quality management.

As director of the International School for Water Resources, he is responsible for organizing and administering special, nondegree training for international engineers in various aspects of water resources engineering. He has conducted water resources training in eight countries, most recently this summer in Vietnam.

"The Board of Governors is honored to give this award to Professor Fontane for his efforts to motivate and challenge students," said Douglas Jones, then-board chairman. "Excellence in teaching stimulates the curiosity of students and develops the kind of critical thinkers that the workforce needs today."

Luis Garcia, head of the department, notes that Fontane's name is frequently on a short list of faculty members who students most want to emulate.

"With extraordinary dedication and skill across teaching's many dimensions and venues, Dr. Fontane is a scholar in the area of engineering education," said Dean Sandra Woods.

"But his interaction with students is perhaps his biggest strength as a teacher. He sets high standards for student achievement and then does everything he possibly can to help students achieve those standards."

World's Largest Shake Table Test Conducted in Japan

John van de Lindt and several CSU students, including postdoctoral researcher Shiling Pei, in collaboration with Simpson Strong-Tie, conducted the world's largest shake table test in Miki, Hyogo, Japan.

The test structure was a seven-story condominium with 14,000 square feet of living space composed of 23 residential units. In addition, a first steel story that represented space for several retail shops was added for many of the tests.

The building was erected in the corner of the Earthquake-Defense Laboratory in rural Japan and moved to the shake table platform with two 450-ton cranes. The shake table measures approximately 65 feet by 49 feet and can support buildings weighing up to 2.5 million pounds. The shake table then was set to simulate a ground motion similar to a 7.5 magnitude earthquake.

The purpose of the project was to test a new design and construction approach for mid-rise, wood-frame buildings in earthquake-prone areas. In the United States, 39 states are at risk for earthquakes.

The structure underwent three separate days of testing. Each day of testing provided invaluable data about how structures withstand earthquake events. According to van de Lindt, "The new design philosophy, known as performance-based seismic design, was validated, and then some. The building performed perfectly and would still easily be inhabitable immediately following the event."

This event was the culmination of a $1.4 million grant from the National Science Foundation. The grant was in collaboration with five universities, with Colorado State University in the lead. Also participating were Texas A&M University, Rensselar Polytechnic Institute, the University at Buffalo, and the University of Delaware.

Actuators exposed the day before testing. The shake table is triaxial, meaning it can move in all three directions simultaneously.

The capstone building on the shake table, ready for testing.

Christopher Thornton Contracts to Design, Build Levee System

The United States Army Corps of Engineers has contracted with Colorado State University to design, construct, and operate a full-scale levee overtopping facility at the Engineering Research Center. This will include one of the largest wave simulators in the world, capable of simulating both steady and unsteady overtopping conditions.

Wave simulator tower.

The project will consist of a 28-foot tall, 12-foot wide tower operated by computer that will simulate waves larger than the roughly eight-foot waves that hit New Orleans. The water will be sent into 40-foot-long, 6-foot-wide "trays" that will simulate levees made of concrete and dirt, some with vegetation. Army Corps engineers in Mississippi are building the trays at a facility in Vicksburg, Miss., where they can more quickly grow plants native to the New Orleans area.

Working with a world-renowned group of experts, the CSU team will be responsible for generating guidelines and methodologies for designing levee overtopping protection not only for the New Orleans area but for virtually all levee systems.

Analysis of the damage caused by Hurricane Katrina demonstrated that the protected sides of levee slopes were vulnerable to erosion, and therefore, a potential catastrophic breach existed during large hurricane events. Raising levees to the 1 percent design crest elevation reduces this risk. However, there still remains a risk of erosion during wave-only overtopping events in excess of the 1 percent design loading. The current industry view is that knowledge of resistance to erosion caused by wave-only overtopping is underdeveloped, and knowledge related to designing erosion armoring systems to protect against wave-only overtopping is lacking. Any controlled testing of grass-covered slopes, or any protection system intended to stabilize soil slopes, must be conducted at full scale because of insurmountable scaling effects.

Faculty News

The College of Engineering presented the George T. Abell Outstanding Mid-Career Faculty Award to **John van de Lindt** last spring. John's accomplishments in earthquake building design have received worldwide notoriety.

The 2009 Civil and Environmental Engineering Faculty and Awards were given last spring to **Rebecca Atadero** (Faculty Award for Excellence in Teaching), **Jorge Ramirez** (Outstanding Faculty Performance), **Pierre Julien** (Faculty Award for Excellence in Service), and **Mazdak Arabi** (Faculty Award for Excellence in Research). The Staff Award for Excellence was given to **Linda Hinshaw**.

Karan Venayagamoorthy, **Domenico Bau**, and Ramchand Oad recently hosted visiting professors/scientists who provided special lectures for faculty and students. **Derek Stretch**, professor of hydraulics and environmental fluid dynamics at the School of Civil Engineering, University of KwaZulu-Natal, South Africa, was here on sabbatical and worked with Venayagamoorthy. His seminar was entitled "The Bio-Hydrodynamics of South African Estuaries With Reference to the Isimangaliso World Heritage Site." Bau hosted a Henry Darcy Distinguished Lecturer and brought in **Peter Cook**, a senior principal research scientist with CSIRO Land and Water who presented "Environmental Tracers in Modern Hydrogeology." Oad has been involved in a USAID project dealing with irrigation water delivery in Afghanistan. One of the people who is working on that project with him, **Khan Abdul Hakeem Khan**, water resources specialist, CSU AWATT Project, Kabul, Afghanistan, provided a seminar on "USA/CSU Assistance for Sustainable Water Resources Development and Management in Afghanistan."

They Did It!

Faculty loses to students in the student/faculty softball game! The faculty had their chances but just couldn't pull it off this year and lost to the students the first time since records have been kept of this occasional event. The score was 27-13. "If we want to compete in the future, we must add an additional dimension to the qualifications of future candidates for faculty positions in the department. New faculty must have lettered in any collegiate sport, with softball/baseball being preferred," says team manager, **Tom Sanders**.

The thrill of victory: Chris Turnbull-Grimes laughs all the way to home plate.

The agony of defeat: Neil Grigg swings and misses as catcher Kate Pfretzschner looks on.

New Faculty

José Luis Chávez is an assistant professor in the Department of Civil and Environmental Engineering and started Spring 2009. He earned his B.S. in agricultural engineering from the Universidade Federal da Paraiba (Paraiba Federal University) at Campina Grande, Brazil, in 1992. In 1999, Chávez received his M.S. in irrigation engineering from Utah State University. His Ph.D. was earned in biological and agricultural engineering from Utah State University in 2005. Chávez's expertise includes estimating crop consumptive water use using multispectral remote sensing imagery. His research interests include mapping/modeling spatially distributed crop water use, crop water management, irrigation scheduling, irrigation systems efficiency, precision irrigation, and urban landscape irrigation automation.

Chávez's current appointment includes research, teaching, and extension responsibilities. As part of the research component, he is installing a Large Aperture Scintillometer (LAS) at the CSU Arkansas Valley Research Center (Rocky Ford, Colo.), where a couple of monolithic lysimeters have been installed to determine crop water use and crop coefficients. Once calibrated, the LAS system crop water use, or evapotranspiration (ET) values, will be used in the evaluation of remote sensing (space- and air-borne-based) ET algorithms. The objective is to develop new methodologies to assess the spatially distributed crop water use to improve farmers' irrigation management (scheduling) capabilities and, thus, help save precious water, soil, nutrients, and energy resources.

Susan De Long joined the Department of Civil and Environmental Engineering this fall as assistant professor. Her area of expertise is environmental biotechnology. She was born and raised in Los Angeles, where she observed the negative impacts of human activities on the environment from a young age and decided to pursue a career working to address environmental issues. De Long obtained a bachelor's degree from the University of California at Berkeley in environmental science and a second bachelors' degree in molecular and cell biology.

She obtained an M.S.E. and a Ph.D. from The University of Texas at Austin in environmental engineering. Her master's and doctoral research focused on the development of biological treatment processes (i.e., processes that utilize bacteria to degrade contaminants). During her doctoral research, she continued to develop molecular biology tools for the study of biological treatment processes and focused on the widespread water contaminant, perchlorate. Perchlorate has been identified in drinking water sources in at least 26 states and, therefore, represents a significant public health risk. Fortunately, bacteria that can degrade perchlorate have been identified, and these bacteria can be used in biological drinking water treatment processes to remove perchlorate. De Long developed new molecular biology tools to study and quantify the genes involved in perchlorate treatment to help design, optimize, and monitor biological perchlorate treatment processes.

In August 2009, **Thomas Sale** was promoted from research assistant professor to tenure-track associate professor. Sale's education includes bachelor's degrees in chemistry and geology from Miami of Ohio (1980), a master's degree in watershed hydrology from the University of Arizona (1984), and a Ph.D. in agricultural engineering from Colorado State University (1998). His research and consulting over the past 28 years have focused on innovative solutions for groundwater contamination and development of groundwater resources.

For the past 10 years, Sale has been the primary force behind the development of the Center for Contaminant Hydrology. Currently, the center conducts approximately $700,000 per year in research. To date, the center has provided research support for five Ph.D. students, 14 M.S. students, and 14 undergraduate research assistants. Current funding comes from the University Consortium for Field-Focused Groundwater Contamination Research, DuPont, U.S. Department of Defense, Suncor Energy, American Petroleum Institute, ExxonMobil, GE, ARCADIS, and CH2M Hill. In the last six years, the center has acquired five past and two pending patents.

Pinar Omur-Ozbek is a research assistant and professor in the Department of Civil and Environmental Engineering. She was born and raised in Ankara, Turkey, where she obtained her B.S. degree in environmental engineering from the Middle East Technical University, one of the most prestigious universities in Turkey. Omur-Ozbek had a chance to work for a leading construction company in Turkey to overview the design and construction of a complete infrastructure system (dam, water treatment, drinking water distribution, sewer system, wastewater treatment system, and a landfill project) for her summer internships while she was an undergraduate student.

Omur-Ozbek was intrigued by the emerging environmental issues during her studies and decided to pursue her education in environmental engineering. She received her M.S. degree at Virginia Tech, where she focused on taste and odor problems related to algal products in source waters and its relation to human perception of tap water safety. Realizing her passion for academia, Omur-Ozbek continued with a Ph.D. at Virginia Tech. During her doctoral work, she conducted interdisciplinary research to investigate the metallic flavor of drinking water caused by iron and copper. Her research evolved from sensory analyses to medical and biomedical fields to further study the effects of metal ions on the oral epithelial cells. Findings suggested a possible relation between oxidation of oral epithelial cells with iron and metallic flavor perception of cancer patients undergoing chemotherapy. While conducting sensory analyses, she also developed the first international odor standard to be adopted and used for Flavor Profile Analysis of drinking water. Omur-Ozbek has presented her work in many national and international conferences and published articles in top environmental engineering journals.

The Baby Corner:

Was There Something in the Water?

With Spring 2009 came the announcements of many new arrivals in our Department family. Congratulations to these happy families!

Rebecca Atadero and husband, Todd, celebrated the arrival of their first child, Owen Fox Atadero, born July 6, 2009.

Sybil Sharvelle and **Mazdak Arabi** gave their daughter, Sybil, a new sister, Aryana Isabelle.

Amanda Cox, assistant director of the Hydraulics Lab, along with husband, Kevin, and daughter, Mariella, welcomed Clara into this world on July 1, 2009.

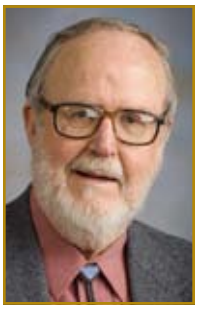
Susan De Long and husband, Frank, brought baby Marco Nicolas Llosa into this word on Nov. 1, 2009.

Kimberly Catton is a research assistant/professor and joined the department this fall. Her area of expertise is in biological fluid mechanics. Catton was born in northern California, where she attended the University of California at Davis and earned a B.S. in biological and agricultural engineering and an M.S. in environmental engineering. Her master's research was on effectiveness of biofilters to remove low concentrations of nitric oxide from engine exhaust. Upon graduation, Catton worked as an engineering consultant for Carollo Engineers, a water and wastewater consulting firm, on wastewater treatment plant design and groundwater supply studies.

After receiving her professional engineering license (P.E.), she moved to Atlanta to study environmental fluid mechanics and marine ecology as an NSF IGERT (Integrative Graduate Education and Research Traineeship) fellow at the Georgia Institute of Technology. At Georgia Tech, she studied the small-scale fluid interactions of marine organisms in the context of ecological concepts, such as predator-prey interactions and species success. Her recent work quantifies the mixing potential of zooplankton aggregations in the ocean. Catton is looking forward to new applications and collaborations at CSU that will allow her to broaden her work into the fields of freshwater ecology and environmental engineering.

Emeritus Faculty

Wayne Clyma



Wayne Clyma, professor emeritus of civil engineering, was honored with the 2009 Kishida International Award by The American Society of Agricultural and Biological Engineers. The award recognized Clyma's interdisciplinary approaches in the improvement of worldwide irrigation water management through teaching, research, and consulting. The Kishida International Award is funded by the publishing company Shin-Norinsha Co., Ltd., of Japan in honor of Yoshikuni Kishida, founder of the firm. The award serves to recognize outstanding contributions to engineering mechanization/technological-related programs of education, research, developments, consultation, or technology transfer outside the United States.

Clyma received the award – with $1,000 – at the ASABE Annual International Meeting on June 24 in Reno, Nev.

Clyma has provided leadership in developing a process for improving water management during the past four decades. The process has made significant impact on improving irrigated agriculture in three different cultures, on three continents, and for many irrigation projects. His applied research has shown that the total water delivered to a field can be reduced by half or more in many instances, and yields have been increased by several magnitudes in several countries.

Clyma has aided various government organizations worldwide to improve irrigation techniques and create water management programs, so they could be more effective in serving the farming communities. He has worked to create a farm-water management program that improved water courses, precision land leveling, and crop production in Pakistan and has also helped design water management programs that led to increased crop yields and improved water management in Egypt. He also helped the U.S. Water Conservation Laboratory in Phoenix implement a Management Improvement Program (MIP) for an Arizona irrigation district. The Charles Valentine Riley Memorial Foundation selected the Arizona MIP as one of four best projects in the United States in serving their clients' (farmers) needs for 1997.

The Egyptian government also honored Clyma in 1999 as part of the 25th anniversary of the Egyptian National Water Center – a project he helped guide. Work in Egypt involved a field team of agronomists, economists, engineers, and sociologists working with Egyptian professionals and farmers to change water management in that country. He also received the Government of Pakistan Gold Medal Award for his meritorious service in water management.

Clyma first joined Colorado State University in 1971 and retired in 1999. He received his bachelor's and master's degrees from Oklahoma State University and his doctoral degree from the University of Arizona.

Jack Cermak

Jack Cermak was awarded the Otto H.G. Flachsbart Medal by The Windtechnologische Gesellschaft e.V. (Wind Engineers from Germany, Austria, and Switzerland). Ing Hans Ruscheweyh traveled to Fort Collins in April 2008 to present the medal and certificate to Cermak before some of his colleagues from Cermak, Peterson, and Peterka and CSU. This honor was bestowed upon Cermak for his pioneering scientific research work for fundamental knowledge in the science of wind engineering and the control of wind actions on buildings and structures.

Cermak is recognized around the world as the father of wind engineering. In 1959, he founded the Fluid Dynamics and Diffusion Laboratory at Colorado State. This revolutionary laboratory is filled with models and wind tunnels that are used to study the effect of wind on manmade and geological structures. As a world-renowned wind engineer, Cermak, together with his colleagues and graduate students, has helped to solve thousands of wind engineering dilemmas.

Cermak's groundbreaking research in 1973 on wind effects on buildings and dispersion of air pollutants led to his election into the National Academy of Engineering.

Jack Cermak and Hans Ruscheweyh.

In addition to his research, Cermak developed the engineering science major, an interdepartmental undergraduate program that he chaired from 1962-1973. Cermak was also one of the founders of the Colorado State University Research Foundation.

In 1984, Cermak initiated the annual Cermak Awards, which recognize a faculty member in each college and the graduate school for providing exceptional advising to students. Cermak also established the Jack E. Cermak Wind Engineering Scholarship, which is awarded each year to an outstanding student in the fluid mechanics and wind engineering program. This year, the scholarship was awarded to **Eric Lee Richards**, M.S. candidate.

CSU Selected to Host New UNESCO Water Center

The United Nations has selected Colorado State University as one of five founding academic institutions in the first UNESCO water center in North America. The other institutions participating are the University of Arizona, the University of New Hampshire, Oregon State University, and Florida International University.

CSU's International School for Water Resources in the Department of Civil and Environmental Engineering will serve as the host organization for the UNESCO center. Also participating from Colorado State are the Colorado Water Institute and the Department of Sociology.

United Nations
Educational, Scientific and
Cultural Organization

James W. Warner, Ph.D. 1981 Civil, associate professor, was employed with the U.S. Geological Survey for 12 years in California after receiving his M.S. in systems engineering and civil engineering from California State University in Fullerton, Calif. He moved with his family to Fort Collins in 1974. After earning his Ph.D. in 1981, he became a professor of civil engineering at CSU and was the Groundwater Engineering Program leader. Warner was a recognized expert in groundwater. He also started his own engineering company, Techlink Environmental in Fort Collins. Warner was devoted to teaching and to his students and was influential in the lives of many. He passed away Dec. 18, 2008, at home.

Maurice Albertson, emeritus professor of civil engineering at CSU and Peace Corps co-founder, died on Jan. 10, 2009. He had just celebrated his 90th birthday in August 2008. Albertson served CSU as the first director of the CSU Research Foundation, director of International Programs, and professor. He served as a consultant to the World Bank, the United Nations Development Programme, and the Agency for International Development, UNESCO, and other agencies on projects dealing with water and sanitation, water resource development, village development, small industry development, and research and education. He also directed the CSU project that led to the establishment of the Asian Institute of Technology in Bangkok, Thailand, and helped develop Colorado State's International Institute for Sustainable Development and Village Earth.

Albertson received the Honorary Proclamation for Maurice Albertson Month signed by Gov. Bill Ritter during Albertson's 90th birthday celebration hosted by Village Earth.

In 2004, Albertson worked with engineering students and faculty at the Tribhuvan University in Nepal to develop and install small hydrogen fuel generators throughout the nation's countryside. Albertson was named a Centennial Professor by the College of Engineering in 1970 and received emeritus status in 1988. In 2006, CSU paid tribute to him with an honorary doctoral degree for his humanitarian work.

Constantine Papadakis, former head of the Department of Civil Engineering and dean of the College of Engineering, passed away in April 2009. Papadakis was the residing president of Drexel University and was a major force in transforming Drexel from a struggling engineering school to the institution it is today, with a law school and a medical school. Taki, as he was known by friends, colleagues, and family, was a native of Greece and earned a master's degree at the University of Connecticut and a Ph.D. from the University of Michigan. He was a Bechtel Corp. executive for many years prior to coming to CSU.

George Oscar Löf passed away Oct. 12, 2009, at the age of 95. Löf joined Colorado State University part-time in 1967, the Department of Civil Engineering as faculty in 1971, and retired in 1987. In 1972, he founded the Solar Energy Applications Laboratory on the Foothills Campus.

Since the 1940s, his career in solar thermal, building analysis, and HVAC systems earned him worldwide recognition as one of the early groundbreaking leaders of solar research. When the lab's first structure, Solar House I, was built in 1974, it was the first house in the world engineered to be both heated and cooled with solar energy. The Solar Energy Applications Laboratory was established to carry out experiments in solar heating and cooling of buildings and solar water heating.

Löf was born in Aspen, Colo., on Dec. 13, 1913, and moved to Denver with his family. He graduated from East High School and earned a bachelor's degree at the University of Denver and his doctorate in chemical engineering from the Massachusetts Institute of Technology. In addition to CSU, Löf taught at Denver University, where he directed the Industrial Research Institute, and he also taught at the University of Wisconsin. Outside of academia, he designed, manufactured, and installed home solar heating systems for the Solaron Corp. In 1957, he built the first solar heating system for his own residence in Denver.

Leroy Crosby, B.S. 1971 Civil, is working for Tetra Tech EC, Inc., as a water resources planner in Savannah, Ga. His two children are now college graduates: daughter Kate from the University of South Carolina, 2007, and son William from Clemson University, 2008. Leroy recently retired from the U.S. Army Corps of Engineers after a 37-year career in water resources planning.

Rick George, B.S. 1973 Civil, was among six new members inducted into the Canadian Petroleum Hall of Fame in September last year. The selection committee for the Canadian Petroleum Hall of Fame Society noted that George, Suncor Energy's chief executive officer, had transformed Suncor Energy from a struggling private entity into one of the most successful bitumen developers in Alberta's booming oil sands region since taking the helm of the company in the early 1990s. From an initial market capitalization of $1 billion in 1992, Suncor has grown to more than $50 billion today, making it the highest valued integrated oil company. Over the same period, the company's oil sands production more than quadrupled to 236,000 barrels per day.

Ted Hall, B.S. 1973 Civil, was one of 40 people and 12 groups who received a Partners in Conservation Award for the Missouri River Bank Stabilization near Vermillion, S.D. He currently is with the Bureau of Reclamation. The other groups involved with this project are Banner Associates; HDR Engineering, Inc.; Lake Regional Contracting, Inc., Lewis & Clark Regional Water System, Inc.; National Park Service; South Dakota Department of Environment and Resources; South Dakota Game, Fish, and Parks; South Dakota State University; TRC Environmental Corporation; and U.S. Army Corps of Engineers.

In January 2009, **Stephen Smith**, M.S. 1975 Civil, assumed the presidency of the Irrigation Association. He brings to the association invaluable experience and background in irrigation. Smith's emphasis in his EPA-funded master's research at CSU was on irrigation upgrades in the Grande Valley of Colorado. Since graduating, he has continued to play an active role in solving the challenges to the irrigation industry. He is currently the chairman and vice president of Aqua Engineering, Inc., in Fort Collins, a company that specializes in agricultural irrigation design, canal modernization, engineering studies, golf course irrigation design, GPS mapping, landscape irrigation design, pump station mechanical design, water conflict resolution, and water feature mechanical design.

David Stewart, B.S. 1976 and Ph.D. 2000 Civil, president and CEO of Stewart Environmental Consulting in Fort Collins, received the University's College of Engineering Honor Alumnus Award. Stewart has been a very active alumnus and is currently serving on the department's Industrial Advisory Board and as president of Engineers Without Borders.

Korean Alumni Association

The Korean Alumni Association of Colorado State University held its first Alumni Day Aug. 30 with golf, hiking, and a banquet dinner. The officers of the Korean Alumni Association are President Ray Cho, Vice President Hyeo-Seop Woo, and Manager Sungje Park.

Pictured are (front row, left to right) Sangyong Kim, M.S. 2005 Social Work; Hyeo-Seop Woo, Ph.D. 1986 Civil; Young J. Kim, Ph.D. 1983 Civil; Soon-Kuk Kwun, M.S. 1974 Ag; Sang-Nae Cho, Ph.D. 1982 Microbiology; Jongsup Park, Visiting Professor 2000-2002 Economics; and Sung-Je Park, Ph.D. 2004 Civil. Back row, left to right: Sung-Chul Kim, Ph.D. 2006 Civil; Chang-Wan Kim, Visiting Scholar 2001 Civil; Gyu-Cheol Shim, Ph.D. 2000 Civil; Dongryul Lee, Postdocorate 1998 Civil; Doo-Ho Park, Ph.D. 2002 Agricultural and Resource Economics; Han-Goo Lee, Ph.D. 2006 Civil; Jin-Sang Kim, Ph.D. 2000 Electrical; Sangwon Kim, Ph.D. 2005 Mechanical; Jin Chul Joo, Ph.D. 2007 Civil; Jinhee Lee, Ph.D. 2005 Civil; Sung Wook Park, M.S. 1999 Business Management; Yoonhwan Woo, Ph.D. 1999 Mechanical; Chae-Won Kim, Visiting Professor 1996-1997 Civil; Suk Hwan Jang, Visiting Professor 2005-2006 Civil; Joon Park, B.S. 2003 Restaurant and Resort Management; and Myoung Hun Kang, B.S. 2001 Computer Information Systems.

The 2008 McDonald Mentoring Award by Tau Beta Pi was given to **Steven Cramer**, M.S. 1981 and Ph.D. 1984 Civil. Cramer is a professor of civil engineering at the University of Wisconsin-Madison and the associate dean of academic affairs. The award recognizes excellence in mentoring and counseling by educators and engineers who are members of Tau Beta Pi.

Gary Skipper, B.S. 1981 Civil, is now vice president of Brown and Caldwell in San Diego. Skipper was previously the owner of MGD Technologies, Inc., which was acquired by Teledyne Isco, Inc., a manufacturer of flow meters and water quality samplers, in December 2005. Skipper continued with Teledyne Isco as flow services manager until joining Brown and Caldwell.

A four-river restoration project in South Korea is being headed up by **Myung-pil Shim**, Ph.D. 1984 Civil, who is with the Land Ministry. This will be the country's largest aqua engineering project ever built.

The cost is estimated at trillions of dollars. This restoration project is designed to provide basic solutions to water-related problems such as drought and flooding. Through the project, the government plans to build two multipurpose dams and 16 reservoirs by 2012. In addition, the plan seeks to purify around 86 percent of the four rivers into "second-class water" where biological oxygen demand is less than 3 milligrams per liter.

Peter McCornick, M.S. 1986 and Ph.D. 1989 BAE, reports he has changed positions and is now director for water policy at the Nicholas Institute, Duke University in Durham, N.C.

Burns & McDonnell named **Paul Fischer**, B.S. 1988 Civil, as the new head of their regional offices. He succeeds the retiring group president, Joel Cerwik. Fischer joined Burns & McDonnell upon graduating, and after four years in Kansas City, Mo., he returned to Denver with the goal of growing the infrastructure practice. His formula for success helped turn the Denver office into a regional success.

Ron Yoder, Ph.D. 1988 Bioresource and Agricultural Engineering, was named a Fellow for the 2009 Class of the American Society of Agricultural and Biological Engineers (ASABE). He worked for the USDA-ARS during his Ph.D. program in BAE with Terry Podmore. Yoder is now the department head of biological systems engineering at the University of Nebraska-Lincoln. He also serves as associate director of agricultural water management at the Institute of Agriculture and Natural Resources.

Julio Kuroiwa, M.S. 1993 and Ph.D. 1999 Civil, is now working at the National University of Engineering (Lima, Peru) as an assistant professor and as a consultant.

Mohamed Rami Mahmoud, M.S. 1993 and Ph.D. 1995 Civil, research professor in the National Water Research Center and undersecretary, head of Central Directorate for Water Resources and Uses in Cairo, Egypt, received the State Recognition Award for Engineering Sciences. The State Recognition Awards for Sciences, Advanced Technological Sciences, Arts, and Social Sciences were established in Egypt according to Law No. 37 for the year 1958 upon a presidential decree. The awards are announced and decided on by the Higher Council for Culture and the National Academy for Scientific Research and Technology. Forty awards are given for science disciplines, of which eight are presented in engineering. Each winner receives a $10,000 award and a certificate. The certificate is presented by the president in a yearly festival. It is the most prestigious award in Egypt regarding science.

Mark Peters, B.S. 1994 and M.S. 2002 Civil, wife, Kristin, and daughter, Sophie, have moved to Brisbane, Australia. He started working with Parsons Brinckerhoff in February 2008 and is enjoying working on a wide variety of projects. Prior to this position, he had been doing a lot more project management and is glad to get the chance to bring his technical skills "back up to speed." A recent $4 billion project was awarded to his company to design and construct a tunnel that will link downtown Brisbane to the airport.

Abdulla bin Ali Al-Thani, M.S. 1996 Civil, is the new vice president of education at the Qatar Foundation. He was previously a member of the teaching faculty at Qatar University in civil engineering and an associate engineer at the RAND-Qatar Policy Institute. After graduating from CSU, Al-Thani received his Ph.D. from the University of Southampton.

Gary Alford, M.S. 1999, was hired in September as the assistant district manager, director of operations, at the North Charleston Sewer District in South Carolina. He oversees the construction, operation, maintenance, and enlargement of sewers and sewage treatment and disposal. The service area is for a population of more than 114,000 and includes 27,525 household and 34 industrial plants. The district presently owns almost 534 miles of sewer lines, 59 pump stations, and a 34 MGD wastewater treatment plant. Alford lives in Goose Creek, S.C., with his wife, Diana, and three children.

Michael Robeson, B.S. 1999 and M.S. 2000 Civil, currently with PROFILE Products, LLC, was the first presenter for the company's webcast series in May. The title of the presentation was "Green Design: New Approach for Sustainable Erosion Control."

Geoff "Ryan" Taylor, B.S. 2002, M.S. 2004 Civil, worked for two years in Park City, Utah, for a hydrogeologist doing multiphase modeling. He is currently employed with a civil engineering firm, also in Utah, as a project engineer/manager. He received his Professional Engineering license in February and is heading up all stormwater modeling for the company. He is also involved in the majority of their subsurface modeling projects.

Over the past year, **John TeBockhorst**, B.S. 2003 Civil, while with Zachry Engineering, was involved in the design of foundation systems for a carbon capture pilot plant at AEP's Mountaineer Station. The plan for a chilled ammonia process developed by Alstom captures CO2 from the flue gas of a coal-fired power plant that can later be used for advanced oil recovery or stored. Inside the detailed process design, TeBockhorst was the lead structural engineer; the scope included all of the foundations and a 34-foot-tall pipe rack. There were seven concrete mat/caps sitting atop a total of 175 auger-cast-piles. All design was performed by **Brooks Webber**, B.S. 2003 Civil, and TeBockhorst. Since this project, TeBockhorst has taken a new position with CH2M Hill.

Russell Anderson, M.S. 2003 Civil, has joined Morrison-Maierle, Inc., as a senior water resources engineer. Anderson has more than five years experience in managing water resources projects.

Jeff Olsson, B.S. 2003 Civil, recently passed the P.E. exam and is now a licensed professional engineer in the state of Montana. He has been with HKM Engineering in Billings, Mont., with the firm's water resource group, since 2005.

Ian Maycumber, B.S. 2004 and M.S. 2009 Civil, returned from the Peace Corps in November 2008 to complete his M.S. In March 2006, the Peace Corps took him to the Philippines, where he spent his first two

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Alumni and Friends Website

www.engr.colostate.edu/ce/alumni.shtml

Look up your former classmates on the Alumni and Friends website! The news is arranged on the website according to graduation year.

Send you own personal or professional news to Linda.Hinshaw@ColoState.edu

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Ian Maycumber clowns around with a municipal engineer at training for Ferro-cement water tanks.

months living with a host family learning the culture and local dialect Kinaray-a. He was then assigned as a water sanitation and solid waste management volunteer for the local government unit of San Joaquin, Iloilo, on the island of Panay. During his two years in San Joaquin, he worked on a variety of projects, which included environmental and solid waste management education in high schools and villages, a municipal water sanitation health survey, and the construction of Ferro-cement water tanks. He also helped train individuals in the production of BioSand Filters, household water filters built from local materials that have been proven effective at removing more than 95 percent of pathogens that cause water-borne illnesses.

Sungje Park, Ph.D. 2004 Civil, has been appointed to a two-year term as member (commissioner) of the Head Committee of the Presidential Commission on Sustainable Development of the Republic of Korea. The Head Committee of PCSD consists of 24 civil commissioners and six government commissioners: the Minister of Strategic Planning and Finance; Minister of Public Administration and Security; Minister of Food, Agriculture, Forestry, and Fisheries; Minister of Knowledge Economy; Minister of Environment; and Minister of Land and Transport and Maritime Affairs (former MOCT).

Jenifer Regel, B.S. 2004 Civil, is now senior consultant, Level 2 Project Engineer, for Booz Allen Hamilton and is supplementing the Air Force engineering staff at Malmstrom Air Force Base in Great Falls, Mont.

Linda Riley, B.S. 2004 and M.S. 2009 Civil, and **C.J. Riley**, M.S. 2003 and Ph.D. 2009 Civil, have made their home in Klamath Falls, Ore. Linda is currently an energy analyst for the Facilities Department at Oregon Institute of Technology (OIT) and program coordinator for the Oregon Renewable Energy Center, which is housed at OIT. C.J. completed his Ph.D. this fall and is an assistant professor with the Oregon Institute of Technology teaching statics, project management, and senior project.

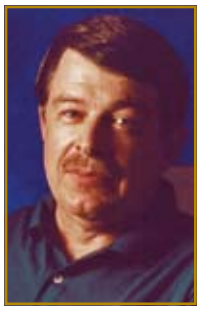
Travis Burgers, M.S. 2005 Civil, received his Ph.D. from the University of Wisconsin-Madison in biomedical engineering. He accepted a job with Vantus Technology, a new company near Milwaukee that will be making patient-specific orthopedic implants, with the primary market being soldiers and veterans. His responsibilities will be to determine what geometry the implant should have and perform FE modeling.

Kathryn Sednek, B.S. 2006 Civil, is working for the Wyoming Department of Transportation and is designing roads in the project development department.

Jonathan Goode, Ph.D. 2007 Civil, is an assistant professor for the School of Civil and Environmental Engineering at Oklahoma State University. Among his many responsibilities, Goode is the faculty adviser for the Engineers Without Borders for OSU. This past March, they traveled to Seis de Mayo, Honduras, for one week to conduct an initial site investigation to determine the needs of the village related to land surveying, drinking water, and wastewater assessment. The next step will be for the EWB-OSU to begin working on several projects for the community.

In Memoriam

Otto Helweg, Ph.D. 1975 Civil, retired dean of the architectural and engineering department at North Dakota State University in Fargo, passed away in November while performing volunteer work in Denver. Helweg's education and humanitarian impacts are numerous and include having a B.S., M.S., and Ph.D., in civil engineering; a Master of Divinity with majors in theology, psychology, and philosophy; an M.B.A. with majors in marketing and finance; and an M.S. with a major in administration of higher education. Helweg and his wife, Virginia, had just spent a successful year in Rwanda, where he was a special consultant to the government of Rwanda, leading an effort to install 40 water wells for the citizens of that country.



Thomas Keefer, B.S. 1967, M.S. 1969, Ph.D. 1971 Civil, died after an accident at Sutron Corporation. After completing his Ph.D., Keefer moved to Slidell, La., where he worked at the NASA Test Facility in Bay St. Louis, Mo. In 1977, he and a partner formed Sutron Corporation, a provider of hydrological, meteorological, and oceanic monitoring products, systems, software, and services. His work with Sutron provided the opportunity to travel and work with agencies in China, India, England, Kenya, Romania, Dominican Republic, Afghanistan, and in-state agencies of the Corp of Engineers and U.S. Geological Survey.

James L. Doyle, B.S. 1941 Civil, served in the U.S. Army during World War II and then spent the majority of his 30 years as a civil engineer with the Bureau of Reclamation working with farmers and developing water systems to deliver and distribute water to farms. After retiring, Doyle worked on a consultant basis for CSU and the North Poudre Irrigation Company. His work involved the states of Colorado, Idaho, Wyoming, Oregon, Montana, and Washington, D.C.

Dale F. Heermann, M.S. 1964, Ph.D. 1968 BAE, passesd away Feb. 22, 2009. Heermann was employed with the USDA Agricultural Research Service until 2005, when he retired. He was awarded the prestigious ASAE Hancor Soil and Water Engineering Award in July 2005 in recognition of his noteworthy contributions in irrigation water management. Heermann is known for developing the mathematical formulation to describe the hydraulics of center-pivot irrigation systems and for creating a computer program for pivot evaluation and design that is currently part of the USDA Natural Resources Conservation Service national toolbox.

Fall 2008 Civil and Environmental Engineering Graduates

Michael Applegate, B.S. 1974 Civil, gave the commencement address for the December 2008 College of Engineering graduation. Applegate is president and CEO of Applegate Group, Inc. He was awarded Engineer of the Year for the State of Colorado in 1993 by Professional Engineers of Colorado and was named Outstanding Engineering Alumni by Colorado State University in 1994.

Applegate is on the organizing committee for the Colorado State University Morgan Library Water Tables of Content committee and serves on the Industrial Advisory Board for the department, as well as on the advisory board for the Professional Learning Institute at CSU.

Front row: Brian Jessee, Jason McNeil, Micah Smidt, Erin Dallinger, Brett Dobinsky, Kelly Larson, Jason Perry, Kyle Plonka, and Laurie Alburn (Academic Adviser).
Second row: Kyle Eitel, Jeff Eulberg, David Heintz, Andrew Coit, Neal Bohnen, Jared Moreng, David Oldham, and Dean Sandra Woods.
Back row: Dr. Karan Venayagamoorthy, Dr. Darrell Fontane, Dr. Marvin Criswell, Dr. Terry Podmore, Dr. Tom Sanders, and Dr. Neil Grigg.

Spring 2009 Civil and Environmental Engineering Graduates

Front Row: Lindsey Tita (CE), Austin Adams (CE), Elliot De Jongh (CE), Brooke Podhajsky (CE), Justin Stoeber (CE), Steve Middlekauff (CE), Brooke Bowman (CE), Zach Elliott (CE), Matt Figgs (CE), and Maria Prieto Riquelme (ENV).
2nd Row: Andrew Jones (ENV), Taylor Ronne (ENV), Ryan Truxal (CE), Blake Bennetts (CE), Matt Eberly (CE), Tyler Mead (CE), Joe Carruth (CE), Nichole Williams (ENV), and Sierra Larson (CE).
3rd Row: Jason Messamer (CE), Jon Link (CE), Ashley Panter (CE), Brad Vassau (CE), Brad Reichel (CE), Evan Jones (CE), Stephanie Luce (CE), Doug Smith (CE), Isaac Anthony (CE), Erik Carlson (CE), Ray Nickle (CE), Michael Jung (CE), Robert Redd (CE), Dr. Neil Grigg, Tina Goncalves (CE), Laurie Alburn (Academic Adviser), and Dr. Becki Atadero.
4th Row: Dr. Darrell Fontane, Justin Ramer (CE), Ryan Pooler (CE), Roger Graham (CE), Justin Richardson (CE), Andrew Fisher (ENV), Tom Miller (CE), Abe Weagraff (CE), Evan Jones, Dr. Karan Venayagamoorthy, and Dr. Ken Carlson.
Back Row: Dr. Luis Garcia, Dan Tuttle (CE), Dr. Suren Chen, Dr. Jorge Ramirez, and Dr. Marvin Criswell.

Don Law, B.S. 1975 Civil, gave the commencement address for the May 2009 College of Engineering graduation. After graduating from Colorado State University, Law worked as an engineer for the Dowell Division of Dow Chemical and The Western Company, both of which are oil-field service companies. In 1980, he formed his own company, Prima Exploration, Inc.

Today, Prima Exploration is active in oil and gas operations throughout the Rocky Mountain region. Law is on the board of directors for two Denver area charitable organizations that promote educational advancement opportunities for disadvantaged youth. He is also a member of the Engineering Dean's Advisory Board at Colorado State University.

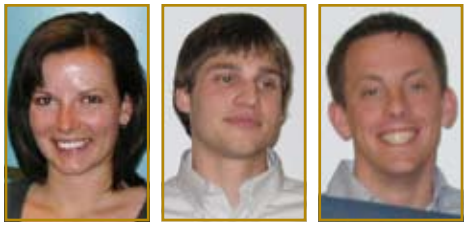
Student News

Chris Olson, graduate student, along with adviser, Larry Roesner, recently developed a tool that will help urban stormwater planners and managers make more effective decisions when planning stormwater best-management practices (BMPs). The tool, called the "BMP Whole Life-Cycle Effectiveness and Cost Analysis Model," was developed in Microsoft Excel®, specifically for use in Front Range communities. The tool allows the user to efficiently determine the expected performance and whole life-cycle costs (construction plus long-term maintenance costs) of various BMPs when implemented within an urban watershed. Doing so gives the user the ability to efficiently test different scenarios of BMP application in an urban watershed to determine which BMP most cost-effectively removes pollutants from stormwater discharges.

CEC Award winners are (from left) Eric Golike (Chemical and Biological Engineering), Nichole Williams (Environmental Engineering), Stephen Middlekauff (Civil Engineering), and J. C. Moore (Colorado Engineering Council).

The Colorado Engineering Council (CEC), as an incentive toward excellence in engineering education, oversees the annual award of a medal to the outstanding senior in each accredited engineering school in the state of Colorado. The outstanding student for each school is selected by the CEC's Student Awards Committee from among three top seniors nominated by each engineering college. The engraved silver medal was presented to **Stephen Middlekauff** this year. Other top seniors included **Eric Golike** of the Department of Chemical and Biological Engineering and **Nichole Williams** in our Environmental Engineering program.

Sebastian Jingxuan Pei was born on Feb. 14, 2009, to **Shiling Pei** and **Hongyan Pei**. He weighed 5 pounds 4 ounces and was 19.5 inches long. Shiling graduated with a Ph.D. in civil engineering in 2007 and is currently working as a research scientist for John van de Lindt in the structural engineering program. Hongyan Liu Pei is currently studying for her Ph.D. in civil engineering.



Leadership Award winners: First-place, Kathryn Pfretzschner; second place, Luke Javernick; third place, Stephen Wheeler.

The American Society of Civil Engineers honored three of our department's seniors with the ASCE Student Section Leadership Awards. **Kathryn Pfretzschner** received first, **Luke Javernick** second, and **Stephen Wheeler** third. In addition to their academic achievements, all three students have been instrumental in making the student ASCE organization a huge success and in creating a positive interest in the regional competitions.

Congratulations to the 2009 U.S. Japan Wood Truss Competition champions. The students competed online for about three hours using Skype and Internet cameras. There were about 27 trusses. Various teams from four Japanese universities as well as the University of Minnesota, Purdue University, and CSU competed. Our students won a cash prize of approximately $800 in addition to the medals. The CSU students involved were **Thang Dao**, Ph.D. candidate; **Lindsi Hammond**, senior; **Katelin Crook**, senior; **Zach Taylor**, senior; and **Omar Amini**, senior.

Ryan Bailey, Ph.D. candidate, received a $7,000 NTU Fellowship this fall for excellence in academics. Bailey was born and raised in Cedar Falls, Iowa. He received his B.S. in civil engineering at Brigham Young University in 2006, followed by an M.S. in environmental science at the University of Guam, where he was involved with research on groundwater resources of small Pacific islands. Currently, he is working with Timothy Gates and Domenico Bau on groundwater flow and reactive transport. He and his wife, Jamie, have three daughters: Emma (4), Marta (2), and Jane (10 months).

James DeHerrera, junior, received the Leonard P. Zick Scholarship for having at least a 3.5 grade-point average and being an active civil engineering student. Born and raised in Alamosa, Colo., DeHerrera attended Alamosa High School and was involved in Future Business Leaders of America, National Honor Society, and Science Club. He graduated salutatorian of his class in 2007 and entered CSU, studying civil engineering in Fall 2007. For the past two years, DeHerrera has also been a resident assistant in Allison Hall on an Engineering Residential Learning Community floor, where he helps more than 30 freshmen engineering residents transition into the college lifestyle and become successful engineering students.

From his Prince Sultan Bin Abdulaziz International Prize for Water, **Chih Ted Yang** funded the Chih Ted Yang scholarship for a graduate student who excels in academics and is studying in the areas of erosion, sedimentation, and/or river morphology. This fall, the scholarship was awarded to Ph.D. candidates **Kristoph-Dietrich Kinzli**, currently working on decision support systems for efficient irrigated agriculture and obtaining an M.S. in fisheries, wildlife, and conservation biology, and **Caleb Foy**, who is working on climate change on water resources of five major river basins in Colorado.

Student Golf Tournament

First-place team, TST.

ASCE's fifth annual student golf tournament held Sept. 26, 2009, was a successful fundraiser again this year for the student organization. This is the chapter's largest revenue generator to support their many activities including the regional bridge and concrete canoe competition. It also proves to be a great opportunity for faculty, potential employers, local engineers, and students to interact. Eleven teams competed this year in a best-ball tournament at the Mad Russian Golf Course in Milliken, Colo. The TST Consulting, Inc., team placed first with a score of 51; second went to Kiewit with a 56; and John van de Lindt's team came in third with a 58.