



Update from Luis Garcia, Department Head

Dear alumni and friends:

As another academic year nears its end, I hope you enjoy reading about some of the developments that have



taken place in the department. We continue to welcome new faculty members – Karan Venayagamoorthy in January and Rebecca Atadero this July. With these hires, we will have added eight new faculty members in the last three years, and we expect to continue hiring about two new faculty members per year.

On the student front, there is great news as well. Our student applications are up, both in graduate and undergraduate programs. Based on the latest data, the number of confirmed undergraduate students is about 35 percent higher than last year at this time. This is great news and reflects the strong demand for our students and the strength of our program. In addition, you will read about Robert (Bob) Longenbaugh's generous \$1 million estate gift.

Our future looks very bright, and we look forward to providing all of you with updates and sharing news of our developments and accomplishments.

Harnessing Wind Power for the Future

In the Wind Engineering and Fluids Laboratory (WEFL) of the civil and environmental engineering department, Bogusz Bienkiewicz, professor and director, is harnessing power for the future.

For more than 40 years, the laboratory has been the center of applied research in wind engineering and fluid dynamics, carried out in three large boundary-layer wind tunnels.

The study of wind issues associated with innovative solar/photovoltaic roofing systems has resulted in the enhancements of the product through reduction in net wind uplift. Collaboration with prominent companies involved with photovoltaic panels and other sustainable energy systems has earned Colorado State University a reputation as a leader in such technologies.

SunPower Corporation, Systems, a subsidiary of SunPower Corporation and a worldwide provider of photovoltaic systems, has greatly benefited from this research, according to its CEO, Tom Dinwoodie.

After Dinwoodie and Bienkiewicz met in 1994, WEFL's wind engineering studies of photovoltaic roofing systems began, based on a concept proposed by Dinwoodie.

What followed were a number of refined wind tunnel investigations and analyses that led to the aerodynamically optimized configurations for SunPower's photovoltaic roofing systems, positioning the company as a global leader.

"Without the validation provided by CSU in the early days, PowerLight (now SunPower Corporation, Systems) would not have become what it is today," Dinwoodie says. "It was a necessary and critical leap to evolve from heavy-ballasted and structure-mounted photovoltaics to the lightweight, low-cost, penetration-free system that we developed with Dr. Bienkiewicz."

Bienkiewicz says the need to focus on alternative power is more critical than ever as prices of crude oil and natural gas continue to skyrocket.



Representative wind tunnel configuration for testing of models of photovoltaic roofing systems, at the Wind Engineering and Fluids Laboratory, Colorado State University.

"Crude oil may not last long," he says. "CSU is in a position to offer solutions and explore alternatives."

Bienkiewicz says the laboratory is among the most unique facilities in the country involved in research and service activities addressing wind effects on buildings and other structures, and their components. In the area of photovoltaic roofing systems, it has assisted a variety of start-up renewable energy companies in the development of their products.

"We've been looking at solar, wind energy, and other clean energy products for a long, long, time – before the (current) energy crisis," he says. "We've become a leader in this area and our research has made major impacts on industries, allowing them to become competitive in the world market."

This success has had an effect on students as well, Bienkiewicz says.

"It's an interesting subject for our students," he explains. "It excites them and teaches them that if they are persistent they can come up with good ideas that can turn into something of universal value."

Alumni News



Ben Urbonas, M.S. 1968 Civil, announced his retirement from Denver's Urban Drainage and Flood Control District in March. Ben worked at the district for approximately 30 years. He is still very active with his nonprofit Urban

Watersheds Research Institute (UWRI). In fact, Ben states, "I'm busier than ever now that I've retired!"

Ginger Evans, B.S. 1977 and M.S. 1979 Civil, joined Parsons Corporation as senior vice president for the Aviation Division in December. She will be based in Washington, D.C. Ginger has more than 25 years of experience in airport development, design, and construction as well as airport security and operations. She spent eight years as associate director and director of aviation for the Denver Municipal Airport System, which included managing the design and construction of Denver International Airport.

Brian Janonis, M.S. 1977 Civil, was named executive director of Fort Collins

Utilities in December. After serving as interim executive director for five months, Brian was chosen from a national search. The city utilities division oversees water, wastewater, stormwater, and electrical power, and employs more than 350 people.



Keith Hjelmstad, B.S. 1978 Civil, was appointed by Arizona State University as the new vice president and dean of the College of Technology and Innovation at the Polytechnic campus. His appointment will start July 1. Keith is

currently a professor in the Department of Civil and Environmental Engineering and former associate dean of academic affairs in the College of Engineering at the University of Illinois at Urbana-Champaign. Keith has 25 years of experience in higher education, with more than 10 of those years in administrative roles.

In memoriam, **John F. Scott III, M.S. 1979 and Ph.D. 1983**, died on March 16 at his home in Fort Collins, Colo. In 1967, John received an academic appointment to

the U.S. Military Academy and after serving in the Army, John returned to get his M.S. and Ph.D. at CSU. He was very active in intramural soccer while at CSU and men's adult hockey in Fort Collins. After graduating, John worked for Northern Colorado Water Conservancy District and then formed his own business, Scott Water Engineers.

Karla Harding, B.S. 1982 Civil, retired from CDOT after 26 years. Harding was director of Region 4, overseeing state highway facilities and projects for northeast Colorado, including Larimer and Boulder counties. As reported by the *Rocky Mountain News* on April 19, Karla addressed her colleagues stating, "...we affect lives in transportation. Everything we do, right down to that maintenance guy that got stuck on the cruddy job of cleaning off that delineator. We save lives ... just remember I am now one of those people whose life you are going to affect."

Luiz Küster, M.S. 1983 Civil, now living in São Paulo, is the energy director of TPI, a Brazilian infrastructure development company. He also is the president of Rio Verde Energia, controlled by TPI, responsible for the 108 MW Salto Hydro Power project with a \$250 million U.S. investment. Salto will generate power in December 2009. Luiz reports his daughter, Kristie, is an M.Sc. student of electrical engineering at TU Dresden, Germany; son Bernardo is a mechanical engineering student at Universidade Positivo, Brazil; and son Bruno is a B.A. student also at Universidade Positivo.

Last fall, Gov. Bill Ritter named **Dick Wolfe, B.S. 1983, M.S. 1986 Agricultural**, as Colorado state engineer. Dick filled the vacancy created by the retirement of **Hal Simpson, B.S. 1967, M.S. 1969 Civil**. Dick served, since 2005, as assistant state engineer in the Colorado Division of Water Resources. He led the South Platte Task Force in examining water issues in the Northeast Colorado Basin and made recommendations on possible solutions to the challenges facing the state's water users.

Dr. Shen-Hsien Chen, M.S. 1985 Civil, received the CSU Distinguished Alumni Award, College of Engineering Honor Alumnus. Dr. Chen has been the director general of Taiwan's Water Resource Agency, Ministry of Economic Affairs since 2003. He and his agency have worked closely with the U.S. Bureau of Reclamation and Colorado State University. The Water Resources Agency and the Bureau of Reclamation jointly founded the establishment and operation

Alumni Focus



Robert Longenbaugh (B.S., 1957; M.S., 1962 Civil) served on the staff in the civil engineering department from 1961 through 1980 and as assistant state engineer in the Office of the State Engineer from 1981 to 1991. Now retired, he lives in Lakewood, Colo., with his wife, Eulalia.

He grew up on an irrigated farm near Cortez, Colo. His parents were married in 1927, the same day they graduated from Colorado Agricultural College, later known as Colorado A&M, and then Colorado State University.

Longenbaugh's interest in Agricultural Engineering led him to Colorado State where, in 1960, he began working in the groundwater hydrology field. Most of his research while at Colorado State dealt with applied problems such as conjunctive use of ground and surface water, groundwater modeling, and artificial recharge demonstration projects.

While in the Office of the State Engineer, he was responsible for supervising the staff that issued well permits, provided support to the Board of Examiners to assure proper construction of wells, and participated in hearings and water court cases establishing groundwater rights.

Since 1991, he has organized groundwater education seminars for the Colorado Water Well Contractors Association to educate realtors, planners, water administrators, financial institutions, and others on the importance of groundwater and its use in order to maximize the water available to Colorado citizens. He is still active today in organizing water education programs.

Although retired, Longenbaugh remains a steward of soil and water.

"I've devoted a lot of my time to protection of our groundwater," he says. "It's a real challenge to make sure we have enough water for the people of Colorado. We need to ensure that the citizenry, legislature, and water administrators understand groundwater so they can make good decisions for our future."



Left to right: Dr. Chen, Dean Sandra Woods, Butch Shoup (CSU Alumni Association board member – president-elect), Bri Essman (Student Alumni Connection member)

of the Hydrosience and Training Center in the civil and environmental engineering department in 2005.

Jamie Johnson, B.S. 1992 Civil, was recently awarded a patent, as reported in the *Northern Colorado Business Report*. Congratulations!

Amy Ritter, M.S. 1993 Civil, informed her graduate adviser, Neil Grigg, that she is working for Waterborne Environmental Inc. The majority of the company's work is for chemical companies in the agri-chemical business. They perform modeling, GIS, and field studies to determine the concentrations of pesticides in surface water and groundwater. The chemical companies use this information to determine if pesticides can be registered for use or to change the label of the pesticide. Amy states, "I always thought that CSU had a great program in civil engineering, especially water resources."

Peter Marxhausen, B.S. 1998 Civil, graduated with his master's in civil engineering from the University of Colorado at Denver in 2004. He has worked as a structural engineer since 1998 and has worked for an engineering forensics firm since 2004. He also has his own design firm and also teaches civil engineering courses at the University of Colorado at Denver. Currently he teaches Senior Design. Peter lives in Highlands Ranch and has three children.

Chris Lehrman, B.S. 2004 Civil, reports that after graduating, he accepted

Fall Civil and Environmental Graduates



Front row: Ashley Heidenreich (CE), Leslie DeWitt (CE), H. Ivan Franco (CE), Trent Hembree (CE), Aaron DeMello (CE), Laurie Alburn, academic adviser.
Back row: Dr. Luis Garcia, Dr. Pierre Julien, Ian Wilson (CE), Nathaniel Jackson (CE), Brandon Isenberger (CE), Dr. Darrell Fontane, Scott Sollenberger (CE), Dr. Thomas Sanders, Dr. Terry Podmore, Dr. Neil Grigg.



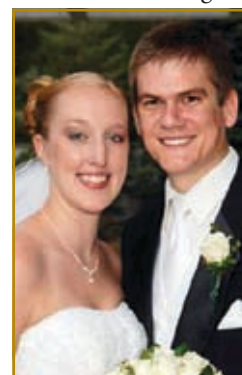
a job with the firm Schmuesser Gordon and Meyer (SGM), a civil engineering firm in Glenwood Springs, Colo., that represents all disciplines of engineering. He is the team leader for the Municipal District team that represents

the majority of the Municipalities and Districts that the company represents.

Aaron Cook, B.S. 2006 Civil, was admitted to the School of Civil Engineering at Purdue University.

Andres Jaramillo, M.S. 2006 Civil, is employed with the Taranaki Regional Council in New Zealand as the geo-

hydro scientific officer responsible for the groundwater, irrigation, and quarries activities in the region.



Roberto (Rob) Suarez, B.S. 2006 Civil, completed a master's degree at the University of Illinois in Fall 2007. He also started a job in Kansas City with Walter P Moore. In July 2007, Roberto married **Kate Mullikin**,

B.A. 2006 Liberal Arts.

Derek Isenhart, M.S. 2007 Civil, is now working in Programs and Projects at Denver Water under Bob Mahoney and **John Bambei**, B.S. 1972 Civil. His direct supervisor is **Matt Turney**, B.S. 1996 Civil.

Nazik El Yaalaoui, M.S. 2007 Civil, returned to Morocco after graduating and is now a cabinet member of the Minister in Charge of Water and Environment. One of his first tasks was to make contacts with international water experts for future cooperation, especially from the United States.

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



Longenbaugh Gift

Former assistant state engineer, longtime faculty member, and Colorado State University alumnus Bob Longenbaugh has named Colorado State's College of Engineering the beneficiary of a \$1 million estate gift.

The planned gift will supplement the Longenbaugh Endowed Scholarship in the Department of Civil and Environmental Engineering. The scholarship supports undergraduate civil and environmental engineering students, with an interest in water resources, who demonstrate significant financial need.

"Bob Longenbaugh has always been generous to Colorado State University," said Sandra Woods, dean of the College of Engineering. "We will always be grateful for his support, advocacy for, and dedication to the University. This gift will enable the civil engineering department to attract qualified students and enables our mission to engineer global solutions."

"The Longenbaugh gift will transform the lives of students through scholarship support, additional funding for water resource research, and state-of-the-art equipment. In addition, the gift will allow us to renovate and update some of our water resource laboratories," said Luis Garcia, head of the civil and environmental engineering department.

Graywater Irrigation

If Sybil Sharvelle has her way, your daily showers will bring flowers.

An assistant professor in the civil and environmental engineering department, Sharvelle's area of expertise is biological waste processing.

Currently, her research focuses on the reuse of household graywater – from baths, showers, hand sinks, and laundry – for landscape irrigation.

Graywater is diverted through a separate plumbing system to a storage tank, while water from the kitchen sink and toilet continues through the sewer system.

"We're looking at irrigation of landscape only," Sharvelle says. "Because graywater can contain very small amounts of fecal material, it is not known to be safe for use in food gardens."

Although graywater irrigation is becoming more popular as a way to sustain water resources, there have been limited studies of potential risks, she says.

The Colorado State University team is studying the application of graywater and any increased levels of pathogens and viruses, negative impacts to soil quality, potential groundwater contamination, and any negative impact to plant health.

"We're looking at all of these potential risks since there is limited scientific data to date," Sharvelle says.

In its mission to fill in the gaps of what is known about graywater, the study will be completed in three steps during a three-year period. Initially, soil samples



will be collected at area household sites that have been using irrigation graywater for more than five years and then compared to analogous soil and landscapes irrigated with potable water.

The second study, operated under a controlled manner for two years, will look at new applications of graywater at selected sites in different climatic regions. A greenhouse experiment will constitute the third study, which will monitor leachate from soils and evaluate the toxicity of graywater to plants.

The resulting research data will serve as a guide for future decision makers, water agencies, regulators, product manufacturers, and consumers to ensure the safety of household graywater irrigation systems.

Sharvelle believes the reuse of graywater may prove to be a boon for cities and counties as well.

"In the future, it would be great to see houses and city buildings alike plumbed for graywater use in flower gardens and parks all over the city," she says.

And there may be further sustainability.

"Eventually, I'd even like to see treated graywater used for toilet flush water," she says. "I think with time and study, people would be more willing to accept it."



Hydrology Days 2008

The 28th Annual American Geophysical Union Hydrology Days conference, headed by Dr. Jorge A. Ramirez, was held March 26-28 at Colorado State University. More than 120 contributed and invited papers were presented in sessions on topics ranging from hydrologic and climatic variability and change, eco-hydrology, watershed science, emerging contaminants, water quality, fluvial geomorphology, and snow hydrology, and in a panel discussion on the topic of sharing water in times of stress and scarcity. In honor of the 50th anniversary of the watershed science program, two sessions were dedicated to that program. The Hydrology Days Award Lecturer was Professor Wilfried H. Brutsaert of Cornell University (pictured with Jorge Ramirez presenting award) who gave the lecture, "The estimation of groundwater storage changes at climatic time scales from low streamflow observations." Other special presentations included the Borland Lecture in Hydrology, "Hydrology in the global change era: the Colorado River as a case study," by Professor Dennis P. Lettenmaier of University of Washington, and the Borland Lecture in Hydraulics, "The dependence of watershed processes on the evolution of the critical zone," by Professor William H. Dietrich of University of California, Berkeley. For the first time this year, these three lectures were webcast in real time. Proceedings and abstracts of Hydrology Days are available online at <http://HydrologyDays.ColoState.edu/>.



Efficient Options for Sustainable Water Use

Ramchand Oad's quest to find more efficient options for sustainable water use will take him across the world to Afghanistan, thanks to a three-year, \$5.5 million United States Agency for International Development grant awarded to Colorado State University.

Oad, professor in water resources and irrigated agriculture in the civil and environmental engineering department, will join in the project with Steve Davies, Ajay Jha, and James Pritchett, from the agricultural and resource economics department.

The team will develop a framework in which Afghanistan can manage its limited water supply and develop an agriculture research system. The project will seek more efficient options for water use and the lessening 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, and become more efficient users," Oad says.

There are three components of the project: a policy review analysis; a determination of water resources for agricultural use; and, in context with the other two, the technological transfer of information to increase agriculture potential.

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.

"We'll be working with the ministries of water resources and agriculture to find ways that are beneficial to all as we look at what's working and what's not and what can be implemented," Oad says.

The field of analysis will take place in and to the north of the capital city, Kabul.

"We must be very aware of security issues," Oad explains. "For our safety, we are not allowed to go south where there is conflict."

Water conservation is of global concern, Oad says, 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," he says. "Nearly 250 million people are almost 100 percent dependent upon the Nile. Sustainable water could become one of our most critical issues."

Testing for Water Management Solutions

For the past 10 years, Tim Gates and his team have conducted intensive field monitoring and computer modeling to identify and solve water management problems in the irrigation-stream-aquifer system of Colorado's Lower Arkansas River Valley.

Gates, professor in the civil and environmental engineering department, says the study aims to provide water managers and users with information to enhance the overall utility of water resources pertaining to agriculture and to the environmental health of the river valley.

Of particular interest is pollution caused by high mineral buildup.

"We're trying to address broader water quality degradation," he says. "We're concerned with salt and selenium concentrations, and more recently, with uranium. As these build up, the productivity of crops goes down and aquatic life is threatened."

The research looks at technology that would improve the efficiency of irrigation and drainage in the area while addressing water quality and conservation.

In addition, the team is addressing problems caused by canals that divert water into the agricultural areas. Seepage from these typical earth ditches also contributes to mineral contamination and water loss.

"We're trying to figure out how to economically seal the canals to reduce that seepage," Gates says.

Researchers have used extensive collected data to build models that calculate water and solute movement, with an eye on finding solutions that will result in pilot field testing.

"It's a fascinating study," Gates says. "We continue to scratch our heads as we go along. But that's part of what makes research so exciting. We have to look at the situation in a variety of ways and remember that diminished water quality is just as important as diminished quantity."

DuPont Patent Gift

A patent from DuPont to Colorado State University is the gift that keeps on giving.

Tom Sale, assistant professor and director of the Center for Contaminant Hydrology in civil and environmental engineering, couldn't be happier.

The ZVI-Clay technology is used for on-site cleaning of contaminated soils.

Through research gifts, royalties, and funded research, the initiative has brought in more than \$1 million to the center.

"These funds have been used to fund students working on ZVI-Clay advancements and for renovation of our laboratory space," Sale says.

The future looks bright for the gift's continued giving.

The next ZVI-Clay project, scheduled in May, will yield a \$150,000 royalty payment.

"We are most excited by the opportunities this is providing," Sale says.

"It seems we are on the verge of realizing the vision we have been pursuing with DuPont over the past five years – advancing innovative environmental solutions, training the next generation of environmental engineers and scientists, sustaining strong environmental research programs, and demonstrating the potential of academic-industrial collaborations."

Faculty News

Dr. Richard Gutkowski participated in the Intermodal Transportation Safety and Security workshop co-sponsored by the National Center for Intermodal Transportation and the Mountain Plains Consortium. Federal-level administrator/directors from the Federal Transit Authority, Federal Transportation Safety Administration, and the (Colorado) Governor's Office of Homeland Security were among the participants. The event was held at Denver University on Feb. 21. Public transit, airport, rail, border, container, air cargo, and other security threats, as well as special needs evacuation during forest fires, were among the topics discussed.

In addition, Dr. Gutkowski, the director of the Mountain Plains Consortium (MPC), participated in a Northern Colorado transportation forum called "Time Out! For a New Tomorrow – A Regional Stakeholder Event" with an emphasis on regional collaboration in transportation. The summit included U.S. Sens. Wayne Allard and Ken Salazar and Gov. Bill Ritter. It was held March 26, in Loveland, Colo. and conducted by the North Front Range Metropolitan Planning Organization. Approximately 500 persons, including citizens via open registration, elected officials, and invited organizational leaders participated. Colorado State University, the Northern Colorado Branch of ASCE, the MPC, and other major civic and business entities were co-sponsors. The summit was part of a progression of efforts to foster regional cooperation in transportation within Larimer and Weld counties and its various municipal jurisdictions. Northern Colorado faces population growth trends that put fiscal pressure on maintaining existing transportation systems, expanding roadways and interchanges, and creating pathways to transit solutions. These occur in tandem with heavily overburdened local, state, and federal transportation dollar resources.



Dr. Richard Gutkowski with Gov. Bill Ritter

Dr. Chuck Shackelford was invited to participate and give a keynote presentation on the subject of remediation at the U.S.-Japan Workshop on Geoenvironmental Engineering held in conjunction with the ASCE Geo-Institute's annual conference in New Orleans, March 7-10. The workshop was attended by about 30 academic researchers and practitioners, approximately half from each country, for the purpose of opening the lines of communication for future collaborative research and educational programs.



Dr. Steven Abt completed his term as a member of the Environmental & Water Resource Institute (EWRI-ASCE) Governing Board of Directors during Fall 2007. In recognition of his many contributions, the EWRI Governing Board minted a coin commemorating his services as the EWRI president and as the deputy commanding general – reserve component to the U.S. Army Corps of Engineers in support of the War on Terrorism.



Dr. Jeff Niemann's research group has been instrumenting two field sites to study the interactions between soil moisture and landscape form. One site is located in the Poudre Canyon west of Fort Collins and exhibits vegetation patterns that depend on topographic aspect. The other site is at the Army's Piñon Canyon Maneuver Site in southeastern Colorado. The topography at this site is produced by ephemeral gullies. Soil moisture at this site may be an important variable for land-management practices.

Dr. José Salas was keynote speaker at the International Conference on Hydrology and Water Resources Management for Hazard Reduction and Sustainable Development (HRSD 2007), UNESCO International Hydrological Program, Nov. 19-23, 2007 at Manila, Philippines.

Salas' talk was on "Characterizing the Dynamics of Droughts Based on Stochastic Methods."



In addition, Dr. Salas was the main instructor at the "I International Course on Stochastic Hydrology" held at the National Agrarian University, Lima, Peru, March 26-28.

In February, Professor **Terry**

Podmore (shown below) traveled to Kapchorwa, in eastern Uganda, with a team from Engineering Ministries International (eMi). The region is characterized by lack of food, polluted water supplies, and poor health. The mission was to evaluate water supplies for domestic water and for irrigation, and to initiate training to improve public health. Dr. Podmore developed plans for expansion of irrigated agriculture to improve food security and nutritional health in the area.



Dr. Luis Garcia, with co-authors Nathan H. Foged and Grant E. Cardon, was selected to receive the *Journal of Irrigation and Drainage Engineering* Honorable Mention Paper Award for the paper "Development of GIS-Based Model to Estimate Relative Reduction in Crop Yield Due to Salinity and Waterlogging," November/December 2006.



Congratulations to **John van de Lindt** for receiving the College of Engineering George T. Abell Mid-Career Award. This award is given to recognize the accomplishments of a mid-career faculty member of the college, recognizing excel-

lence and accomplishments in teaching, research, and service.



Dr. Karan Venayagamoorthy joined the Department of Civil and Environmental Engineering at Colorado State University as an assistant professor in January. Karan received his bachelor's degree in

civil engineering (summa cum laude) and master's degree in civil engineering (cum laude) from the University of Kwazulu-Natal (formerly known as University of Natal) in Durban, South Africa, in 2000 and 2002 respectively. Karan came to the United States to pursue his doctoral studies in civil and environmental engineering at Stanford University, earning his Ph.D. in 2006, specializing in environmental fluid mechanics and hydrology. He spent an additional year as postdoctoral research fellow at the Environmental Fluid Mechanics Laboratory at Stanford.

Karan's primary research expertise is in the field of environmental fluid mechanics and hydraulics with an emphasis on applying numerical simulations of fluid flows to study fundamental problems in civil and environmental engineering. These fundamental problems, such as pollution, floods, mixing, etc., involve rivers, estuaries, lakes, coastal and open oceans, and the atmosphere. It is crucial to address these problems so that we can ensure sustainability of our environmental resources.

Examples of his recent research projects include modeling the effect of aquaculture wastes on coastal water quality, nonlinear internal waves in the coastal ocean, mixing, and dispersion in stratified turbulent flows. Karan's work in environmental fluid mechanics has been published in prestigious journals, such as the *Journal of Fluid Mechanics* and *Physics of Fluids Journal*. Karan has received numerous honors and awards, such as the merit medal from the Engineering Council of South Africa for the most outstanding performance in engineering at the University of Natal in 2000, the S2A3 medal for the most outstanding master's thesis from the South African Association for the Advancement of Science in 2002, and Offshore Mechanics Scholarship from the International Society of Offshore and Polar Engineers (ISOPE)

for outstanding performance at Stanford University in 2006, to mention a few.

Karan first heard about the civil engineering department at Colorado State, when he was an undergraduate student in South Africa, from his hydraulic engineering professor, who spoke highly about the impressive water engineering research program at CSU. He has excellent impressions about the capabilities of the faculty in the civil and environmental engineering program and the College of Engineering as a whole. The opportunity to carry out innovative and cutting-edge interdisciplinary research in water engineering, as well as wind engineering and fluid mechanics, was an important factor in Karan's decision to join Colorado State.

Karan is currently teaching Engineering Dynamics, a core course for civil, environmental, and mechanical engineering undergraduate students. He will develop and teach a graduate level class in computational flow modeling with an emphasis on applications in hydraulic engineering, wind engineering, and environmental fluid mechanics next spring. He is also in the process of setting up a high-performance computing facility to enhance the computational research capabilities in environmental fluid mechanics, water engineering, and wind engineering in the civil and environmental engineering department.

Karan and his wife, Lumina, along with their 18-month-old daughter, Diya, love the scenic beauty of Colorado and hope to learn to ski.



Dr. Rebecca Atadero will be joining our faculty as an assistant professor in July. For the past two years, as a research scientist/instructor, she has taught Structural Analysis and Steel Design to undergraduate students. Rebecca

earned her bachelor's degree in civil engineering from Colorado State University in 2002. She went on to the University of California, San Diego to earn an M.S. and Ph.D. in structural engineering. Rebecca first returned to Colorado State University in 2006 as a research scientist, and she and her husband, Todd, are both excited to continue living in Fort Collins.

As a doctoral student Rebecca studied fiber reinforced polymer (FRP) composite materials for use in the repair and strengthening of existing reinforced concrete structures. FRP materials are composed of very fine reinforcing fibers, most often carbon or glass, embedded in a polymer matrix, such as epoxy. They have been used extensively in mechanical and aerospace applications, and over the past 20 years have seen increasing use in civil engineering. In particular, Rebecca studied the development of probabilistic-based procedures for the design of externally bonded FRP, and considered the variability in the composite material when it is manufactured on site. Understanding and improving the application of such materials is critical in order to provide for continued safety, as our nation's bridges and other types of infrastructure continue to age and experience continued environmental attack and increasing load demands.

Since returning to CSU, Rebecca has worked on several projects including an ongoing project investigating the use of fly ash (a byproduct of energy generation using coal) and fibers from recycled tires to develop sustainable alternatives to Portland cement-based products.

Rebecca plans to continue her research on the repair and rehabilitation of existing structures, giving particular emphasis to the reliability of inspection processes and the condition of the existing structure at the time when repairs are made. She also will continue to study new structural materials such as FRP and fly ash-based products in the structural materials lab she will be developing this summer at the Engineering Research Center on the Foothills Campus. This laboratory, with its equipment for material level tests, will complement the existing large-scale testing equipment in the Structural Engineering Laboratory.

Rebecca states, "I am very excited to have the opportunity to teach and conduct research in my home state of Colorado. As an undergraduate student in the Department of Civil Engineering, I really valued the level of commitment the faculty in the department gave to the students and I look forward to continuing that tradition."

Student News

Young Dae Cho, Ph.D. student, has returned to his work with KOWACO and is in charge of integrated water resources management of the Han River Basin including data acquisition, interpretation of data, measurement of streamflows, creation of rating curves, estimation of water data, etc. This is a challenging assignment, given the large population served in the Seoul Metropolitan Area.



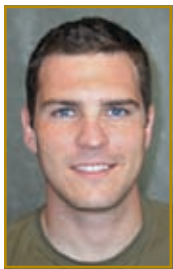
Kimberly Cronin, Ph.D. student, and husband Sean announced the birth of their new son, Bradyn, born

December 26, 2007.



The Borland Hydrology Professorial Scholarship was awarded to **Ernesto Trujillo**, Ph.D. student, in Spring 2008.

The Borland Hydrology Professorial Scholarship provides financial assistance to a hydrology graduate student, and is made available for the best research-oriented students in hydrology. Ernesto is currently studying the relationship between the spatial scaling characteristics of snow depth and the processes controlling the spatial distribution of snow depth at scales between 1 meter and 1,000 meters. Such processes include canopy interception of snowfall, winds, and topography.



The Colorado Engineering Council (CEC), as an incentive for 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 out-

standing 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 **Ryan Horn** this year.

Several of our outstanding seniors were honored at Engineering Days on April 18. **Eric Hettler** received the Outstanding Civil Engineering Student of the Future Award for his extraordinary academic achievement combined with his potential for professional success. The Civil and Environmental Engineering Student Leadership Awards went to **Nicholas**

Mahler (ENV) and **James Foreman** (CEE) for their outstanding records of leadership and service, combined with their academic success. The Ralph Parshall Award given to a civil engineering senior with an outstanding record and professional interest in hydraulics, hydrology, water resources, or environmental engineering went to **Caleb Foy**. The Civil and Environmental Engineering Achievement Awards went to **Ryan Horn** (ENV) and **Hannah Franka** (CEE) for their outstanding combination of academic achievement, leadership skills, and potential for future successes in their fields.

ASCE Student Organization News



ASCE Regional Competitions held in Golden, April 4-5, yielded the following results: the Concrete Canoe (*canoe and team pictured*) received 2nd Place in the Oral Presentation; The Shirt Off your Back Award, for being willing to share wet suits; 3rd Place in the Men's Sprint; as well as 4th and 5th in other races. The canoe was awarded 6th Place overall due to not passing the swamp test.



The Bridge team would have fared well, but one of their welds broke resulting in disqualification. It was a good-looking bridge, though (*team pictured assembling bridge*).

Also, congratulations to **Bobby Redd**, senior, for receiving 3rd Place in the Mystery Design Competition.

The American Society of Civil Engineers honored three of our department's seniors with the ASCE Student Section Leadership Awards. **Erin Dallinger** received first, **Ryan Horn**, second, and **Brian Jessee**, third. In addition to their academic achievements, all three students have been instrumental in making the student ASCE organization a huge success and in building interest in the regional competitions.

Recruitment is Active at CEE

Recruitment events were well-attended and enjoyed by all this past academic year. The departments in the College of Engineering sponsored a prospective student brunch for undergraduate students at the Four Points by Sheraton on January 19. More than 275 students and family members attended. A general welcome was followed with breakout sessions for civil and environmental engineering, chemical and biological engineering, electrical



Alums, left to right: **Kevin Kerber**, **Linda Riley**, **C.J. Riley** (Ph.D. student), **Che Yun Chan**, and **John TeBockhorst**.

engineering, and mechanical engineering. Alums **Che Yun Chan**, B.S. 2005 Civil; **Linda Riley**, B.S. 2004 Civil and current M.S. student; **Kevin Kerber**, B.S. 2001 Civil; and **John TeBockhorst**, B.S. 2003 Civil, formed a panel to answer questions of students and parents about their experiences at CSU and their career successes following graduation. Student Ambassadors, **Anna Schweitzer**, senior; **Nichole Williams**, junior; and **Scott McCord**, sophomore, provided the current-student perspective.

On March 7, the College of Engineering hosted the Graduate Student Visit Day at the CSU campus. Forty-nine prospective graduate students came to visit CSU and, of those, 17 came to visit the Department of Civil and Environmental Engineering. The day included a general welcome with a continental breakfast, then breakouts to the individual departments for visits with faculty and graduate students at their labs. This was followed by lunch with our current graduate students, then a tour and visit with the faculty at the ERC, followed by "food and conversation" at CooperSmith's Poolside (which went on into the wee hours). On Saturday a mini tour of Fort Collins was provided, taking in the Engineering Academic Village, Horsetooth Reservoir, and some areas of town, and ending with lunch in Old Town. Comments received by the visiting students were excellent and several have enrolled for the fall.