



UNIVERSITY OF WYOMING

COLLEGE OF ENGINEERING AND APPLIED SCIENCE

FORESIGHT

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The Value of Clean Drinking Water
(see story, page 4)



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*Persons seeking admission to the University of
Wyoming shall be considered without regard to race,
color, religion, sex, national origin, disability, age,
veteran status, sexual orientation, or political belief.*

Dear Alumni and Friends,

Imagine wading through 100 meters of marsh, overgrown with waist-high water hyacinth to reach enough open water so that you can fill a five-gallon bucket and then carrying that bucket on your head back to your home, a return trip of 2-3 kilometers. When you get home, you boil the water in an attempt to neutralize the various contaminants. Imagine doing that for several hours every day to provide for your family. Then imagine your children doing the same thing to provide water for their school day. The woman in the cover photo lives that life.

Our chapter of Engineers Without Borders (EWB-WYO) is once again the cover story in Foresight, and not without good reason. EWB-WYO has risen to the forefront for social justice on the University of Wyoming campus. Increasing numbers of students from the College and the University at large are actively engaged in our project in Kenya. We are planning multiple fundraising events to support this project. The technical design team is evaluating alternative means of supplying water to seven schools in the Waondo sublocation in Southwestern Kenya. Our students are solving real multidisciplinary problems with real clients who have become our partners, not just recipients of our aid.

We anticipate a three or four phase project, with the first phase to involve pumping water from Lake Victoria or nearby wells and delivering it to the main road about 0.7 miles away. Subsequent phases will include installation of distribution lines to the various schools in the sublocation and possible water treatment processes if needed. Alternatives for rain water catchment systems, use of hand or treadle pumps, and wind-turbine electrical systems are also being considered. At this time, we are sharing our preliminary design alternatives with the community members to gain their perspective and priorities. Our evaluation criteria include: initial cost, sustainability, constructability, water quantity, water quality, and use of appropriate technology.

The vision of EWB-USA is a world in which all communities have the capacity to meet their basic human needs. You can help. You can serve as a technical mentor for a project; you can join the Wyoming professional chapter of EWB, which we plan to launch at the WES Convention in Laramie in February; you can volunteer your time and expertise to EWB-USA to review project proposals and designs submitted by chapters around the country; and you can contribute to our fundraising efforts. Send us a note or give us a call if you want to get involved. Lindy Johnson (ljohns23@uwyo.edu) is taking the lead to establish the Wyoming profession chapter. I continue to serve as faculty advisor for EWB-WYO. I think you'll find, as I have, that it's some of the most important work you can do. There is no better way to "hold paramount the safety, health, and welfare of the public" than through such service.

Dick Schmidt
Associate Dean

ON THE COVER:

Engineers Without Borders (EWB-WYO) traveled to the village of Mbita, Kenya to help find solutions to the unsafe drinking water conditions (story on page 4). Photographs courtesy of the EWB-WYO student project team.

PAUL DELLENBACK APPOINTED HEAD OF UW MECHANICAL ENGINEERING DEPARTMENT



Dean Rob Ettema of the University of Wyoming College of Engineering and Applied Science is pleased to announce the appointment of Dr. Paul Dellenback as Department Head of the UW Department of Mechanical Engineering. The appointment is for a three year term.

“Dr Dellenback has shown steady commitment to the department’s prudent growth and advancement,” says Dean Ettema. “Among his efforts, he has taken on a leading part in the development of the new baccalaureate degree in Energy Systems Engineering. Based in his department, the degree’s curriculum includes upper-level courses from university units with expertise in broader

aspects of energy development, such as environmental processes and permitting.”

Paul has served in the position of Undergraduate Program Coordinator for Mechanical Engineering during the past three years, and served as Acting Department Head in Mechanical Engineering for the past two. In addition, he is directing the research of two M.S. students and continues to teach two courses per semester. His current research projects include an experimental investigation of heat transfer enhancement downstream of oscillating jets, and modeling of gas turbine engine performance using synthetic gas fuels which has relevance to gasification and IGCC power generation.

Recent honors include the Tau Beta Pi Outstanding Undergraduate Teaching Award in 2008 and UW Mortar Board Outstanding Academic Advisor Award in 2005. In addition, he has been honored five times as a UW Mortar Board “Top Prof.”

CONTENTS

ENGINEERS WITHOUT BORDERS WORKING FOR CLEAN WATER	3
ELLBOGEN FOUNDATION BUILDS EWB-WYO ENDOWMENT	4
PLANNED GIVING OPPORTUNITIES	5
GIVING TO THE COLLEGE	6
ENGINEERING SHOP PROVIDES QUALITY TECHNICAL SUPPORT	7
ATMOSPHERIC SCIENCE STUDIES SNOW STORMS.....	9
ANTARCTIC RESEARCH CONTINUES	10
NETWORKING MADE EASY.....	11
FACULTY AND STAFF COUNCILS PROMOTE COLLEGIALLY.....	11
WYOMING MINING ASSOCIATION AWARDS \$6,000 IN CASH.....	12
SENIORS PARTICIPATE IN DESIGN SYMPOSIUM	13
52 HONORED DURING COMMENCEMENT EXERCISES	14
STUDENT, FACULTY, AND STAFF HIGHLIGHTS	15
EDUCATION AND ENGINEERING TEAM UP FOR TAILGATE.....	17
SCHOOL PRIDE EXHIBITED DURING HOMECOMING.....	17
IN MEMORIAM.....	18

ENGINEERS WITHOUT BORDERS-WYOMING WORKS TO BRING CLEAN WATER TO WAONDO

Courtesy of Josh Fuller

The student chapter of Engineers Without Borders—Wyoming (EWB-WYO) returned home in August 2009 after completing an initial three week site-assessment in one of the poorest regions of Kenya. The team, consisting of Faculty Advisor Dr. Dick Schmidt, Technical Mentor Dr. Thom Edgar, Project Manager Josh Fuller, Civil Engineering Senior Christine Rumsey, Chemical Engineering Senior Steve Ftaclas, Energy Systems Engineering Sophomore Lucas Lang, and International Studies Sophomore Allison Beaufort, worked to develop relationships and ultimately a partnership and memorandum of understanding between the community and EWB-WYO.

The Nyanza Province, brought to international prominence by being the birthplace of President Barack Obama's father, is comprised of 12 districts. Located within the Suba District, the Mbita division is made up of nine locations. EWB-WYO's newly acquired program is located within the Gembe East Location, more specifically the Waondo Sub-Location. With a population of roughly 5,000 people, the sub-location has five primary schools, one polytechnic school, and one secondary school; none of which have a formal clean water supply. It became extremely clear, during numerous meetings with the area leaders, school principals, and community members, that the lack of water is the limiting factor for social, economic, and educational development.

Most of the site assessment was spent accomplishing key goals necessary for the technically and culturally competent design of a water supply system. Strong community relationships were established, community concerns were surveyed, and technical analyses of the water quality and terrain were conducted. EWB-WYO has completed the post-assessment report and is now working on an alternatives analysis. The group will then proceed to eventual design and construction tentatively scheduled for July-August of 2010 and for the following four years.

An Engineers Without Borders project offers an unparalleled opportunity for technical development and personal growth. It also provides essential aid to those in the most desperate need of help. The EWB-WYO team experienced the challenges of a community, but also the resilience and dedication of people who are ready to create change in their lives. Inspired by their experiences, the EWB-WYO team is now working hard to apply their skills and develop sustainable solutions that will deliver a reliable water source to the community. Contributions to the Kenya Program will serve both objectives: educating future engineering leaders and providing critical life-support systems for the poorest of the poor.



JOHN P. ELLBOGEN FOUNDATION BUILDS EWB-WYO ENDOWMENT

Courtesy of EWB-WYO

The John P. Ellbogen Foundation recently granted \$250,000 to the Engineers Without Borders (EWB-WYO) Wyoming student chapter to support international opportunities. Earnings from the gift will provide approximately \$9,000 annually to support student participation in EWB-WYO programs and help pay implementation costs.

In July 2008, Ambassador Tom Stroock agreed to serve as campaign chairman to raise a \$2 million endowment to support EWB-WYO projects. Toni Cupal and Mike Volpi have added their support to the campaign by contributing \$50,000 with an equal State match. With a current value of \$400,000, support is still needed for this important international learning experience.

Students participating in EWB projects benefit in numerous ways including:

- Developing an understanding for their opportunities and responsibilities for service;
- Learning to integrate their technical expertise within the fabric of a societal context;
- Developing a rich, genuine awareness of another culture; and
- Developing a greater appreciation for the gifts they have received and become more inclined to continue to share those gifts.

Though engineering provides the technical component of the organization, EWB-WYO also looks across campus to include a variety of disciplines in project teams. Input and participation is sought from anthropologists, educators, statisticians, sociologists, health professionals, economists, and entrepreneurs to address the economic, social, political, and cultural aspects of a project. The most basic human need is a safe, reliable water supply. Beyond that, EWB projects include agricultural development, transportation (bridges and road stabilization), power systems, air quality, public health, and education. Hence, EWB needs expertise from outside the College to solve the breadth of problems faced by developing communities worldwide.

Now in the design phase of the Mbita, Kenya project, the objective is to design and install a water collection and distribution system for a network of seven schools in a 25 square kilometer district area near Lake Victoria. The water distribution system is expected to serve approximately 2,500 students and their families. With support from the John P. Ellbogen Foundation, Toni Cupal and Mike Volpi, and you, we can make this happen.

Please consider your gift to the EWB-WYO Endowment. Gifts may be mailed to the UW Foundation, 1200 East Iverson Street, Laramie, WY 82070.

EWB-WYO student participants are shown, (previous page) with several new acquaintances from the village of Mbita, during their visit to Kenya last August to conduct a three week site assessment. Villagers (below) must hike to and from water sources, spending most of the day gathering water for daily living. Christine Rumsey (right) gives high fives to children in the village of Mbita during a game of frisbee. Photos courtesy of EWB-WYO.



PLANNED GIVING OPPORTUNITIES

Director of Planned Giving, Tracy Richardson, is here to help you find out more about the planned giving options available to you. Born and raised in Casper, Wyoming, Richardson earned a B.S. in Marketing in 1998 and J.D. in 2002 from UW. He also earned an LL.M. in Taxation from the University of Florida College of Law. He practiced with a boutique tax and estate planning firm in Jacksonville, Florida for three years and had his own practice in Casper prior to joining UW.

There are many ways to give, and all types of charitable giving may not suit all people. The best way to approach planned giving is to begin with an in-depth analysis of your financial, estate, and charitable planning goals, needs, and desires. This process should involve your legal and financial advisors so that you maximize your personal objectives as tax efficiently as possible.

Here are a few examples of planned giving opportunities that you may find surprising.

CHARITABLE REMAINDER TRUSTS

A charitable remainder trust can be established with a gift of assets such as stock, real estate, or cash. The assets are sold by the trust and the proceeds are invested in a diversified portfolio. You receive a lifetime income from the trust and significant tax advantages. After your lifetime or a term of up to 20 years, the remaining trust assets go to the University of Wyoming Foundation for the benefit of the specific program you designate within the College of Engineering and Applied Science. The UW Foundation is able to serve as trustee if the foundation's remainder interest is irrevocable.

There are two basic types of charitable remainder trusts. Both carry pay-out rates of a minimum of five percent. The minimum gift to establish a charitable remainder trust with the UW Foundation is \$50,000 in cash, securities, or mortgage-free real estate.

CHARITABLE REMAINDER UNITRUST

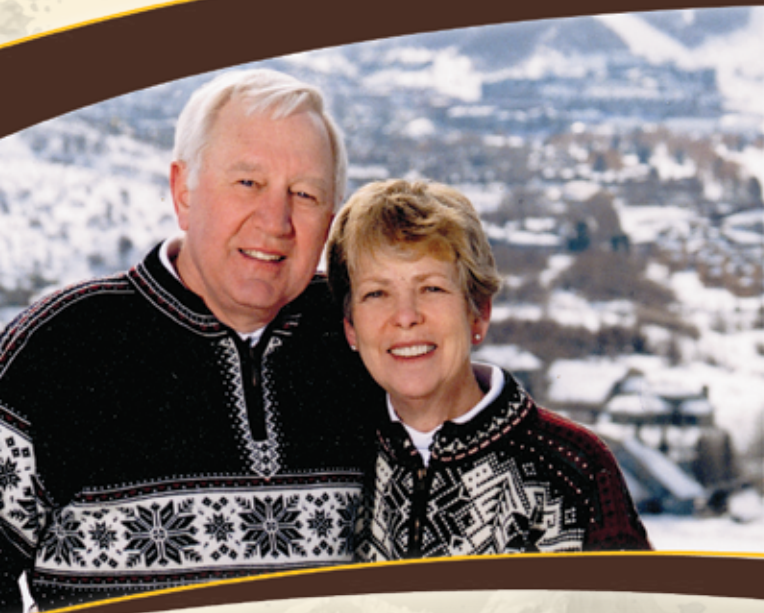
This type of trust pays out a fixed percentage from the trust each year. The value of the unitrust is recalculated annually, and the payout amount is also recalculated accordingly, keeping the percentage rate constant. The dollar distribution will vary annually depending upon the investment performance of the trust assets.

CHARITABLE REMAINDER ANNUITY TRUST

This type of trust pays out a fixed percentage of the initial value of the trust each year (e.g., for a \$100,000 trust with a five percent pay-out rate, the amount would be \$5,000 per year). The dollar distribution will not change.

Contact Tracy to discuss all your planned giving options.

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GIVING TO THE COLLEGE

There are many ways you can help support students and programs within the College. Below is a preview of four distinct ways you can make a difference.

CLINE CHAIR IN ENGINEERING AND ENVIRONMENT AND NATURAL RESOURCES

Roy Cline (B.S. civil engineering 1960) and his wife, Caryl, of Bellevue, Wash., have committed more than \$2.4 million (value with state match) to UW to support an endowed faculty position shared between the College of Engineering and the Haub School and Ruckelshaus Institute for Environment and Natural Resources (RIENR). The Cline Chair in Engineering and Environment and Natural Resources focuses on providing leadership to UW students in the areas of watershed and hydrological modeling and research. This Chair was appointed to Professor Fred Ogden in the Department of Civil and Architectural Engineering.

BENCH DEDICATED IN MEMORY OF RALPH AND JANET SCHAEFER

Family members of Ralph Schaefer, Jr. (B.S. 1942, M.S. 1950, electrical engineering) and Janet Watt Schaefer (B.S. 1948, geology) have made a lasting gift by dedicating a bench on the UW campus in their memory.

The gift of a tree, a bench, or a picnic table for the UW campus enhances the beauty and versatility of the UW grounds, and is a living and lasting tribute to you as the donor as well as the individual you honor through your gift.

HAROLD AND BONNIE JANE KESTER SCHOLARSHIP

Having experienced first hand financial hardship in the pursuit of a college education, Harold (civil engineering 1941) and his wife, Bonnie Jane (music education 1941), established this endowed scholarship fund when they donated an 800 acre ranch near Buffalo, Wyoming. The Kesters are among the Colleges' most generous supporters. Harold served on the UW Foundation Board, the National Advisory Board for the College and on the H.T. Person Endowment Committee. The Harold O. and Bonnie Jane Kester Structures Research Laboratory was named to recognize their support to engineering programs and the H.T. Person Endowment. Additionally, the Kester's provide support for the College through the Harold O. Kester Graduate Fellowship.

BOILEAU COMPUTING LABORATORY

Oliver C. Boileau, Jr. and Nan E. Boileau established The Boileau Facilities and Technology Endowment with their gift to the UW College of Engineering and Applied Science. Their gift met the criteria for the State Matching Program previously funded by the Legislature and added additional funds for use in maintaining and equipping The Boileau Computer Laboratory. The computer lab is available to all engineering students, faculty and staff and supports design software and student group sessions. The computers provide the latest hardware and software to enable students to perform design projects that simulate the "real world," and better prepare them for their careers. Sadly, Ollie passed away in 2007, but UW students will continue to benefit from his and Nan's generosity now and far into the future.

Roy and Caryl Cline (previous page, left) provide support to the College through an endowed faculty position. Pictured (previous page) at a newly dedicated bench in honor of Ralph and Janet Schaefer are son R. Gregory "Greg" Schaefer (B.S.C.E. 1978, M.S.C.E. 1982), his daughter Kayleigh Schaefer (current student), and her nephew Alex. Below, left Bonnie Jane Kester (right), with longtime friend and College Student Advising Coordinator Susan McCormack, provides support through student scholarships. Ollie Boileau (below, right) is shown in the Boileau Computing Laboratory in the College, UW photos.



ENGINEERING SHOP PROVIDES HIGH QUALITY TECHNICAL SUPPORT TO STUDENTS

The College of Engineering and Applied Science Shop is available at no cost for student projects provided the project is of reasonable scope. The Shop faculty and staff operate a large number of machine tools with a wide array of capabilities and provide assistance with precision machining of ferrous and non-ferrous metals and plastics. Master-CAM software is utilized in conjunction with two machining centers and a CNC Lathe. The welding area is equipped to do MIG or TIG welding. A tubing notcher and tubing bender can handle sizes up to 2" in diameter. In addition, a precision waterjet machine center is available for cutting two-dimensional shapes in a variety of materials.

Student work requests are submitted to the Shop Manager Rob Erikson, in the form of a printed drawing based on the Shop Drawing Template. Drawings must convey all pertinent information about the part in order for it to be manufactured correctly. An electronic version of the solid model must be emailed to the shop manager for CNC work. The College provides SolidWorks Education Edition in several labs. SolidWorks contains excellent tutorials that will assist students in creating an viable model.

In addition, the College Shop is available for the fabrication, modification, and repair of college related instructional and research equipment. Priority is given to the support of teaching and research projects within the college. The Shop will also provide support to other University colleges and associated entities as time and funding permits. Funded projects are currently billed at the Fee Book published rate of \$60/hr. Cost sharing is available for college projects which are billed at \$40/hour.

While limited quantities of some materials may be available, students are advised to procure their own material necessary to complete their project. If a student (or student group) must have work completed that is beyond the abilities of the student or beyond the capabilities available in the Walk-in area, the student must consult with the Shop Manager for permission to complete this work in the Shop. Prior to assisting the student with fabrication, a properly detailed drawing of the requested part must be submitted. Upon receipt of the drawing, the Shop Manager will schedule either technician assistance for the student or the manufacture of the part by shop technicians.

continued on next page



With an extremely supportive staff including Shop Manager Rob Erikson, Master Technician's Michael Allen and Mike Schilt, Senior Technician Vince Dauer, and Engineering Aid Peter Jay, the Engineering Shop has recently worked on large scale projects including the hexapod, wind tunnel, mechanical engineering student projects, and ASCE bridge student project. Each of these individuals provides one-on-one instruction in the operational use of equipment within the Shop. Students also must read and understand the Shop Handbook for safety training and work with Dr. Erikson on additional training for specific machines.

Additional projects include:

- Atmospheric Science Balloon
- Atmospheric Research Airplane
- Hydrology Lab Flumes
- APT Carburetor Parts
- Telescopic Camera Housing (Physics Dept.)
- Solar Stock Tank Heater
- Electrical Engineering Senior Design

Michael Allen demonstrates the CNC Lathe (previous page, left) while Vince Dauer operates the CNC mill (previous page, right). Below are examples of precision metals manufactured in the Shop. Shop personnel shown right include Vince Dauer, Rob Erikson, Michael Allen, and Mike Schilt, UW photos.



ATMOSPHERIC SCIENCE STUDIES SNOW STORMS

A Department of Atmospheric Science team is supporting a major National Science Foundation-funded campaign in the Midwest aimed at Profiling of Winter Storms (PLOWs). This is a study of severe winter storm systems in Illinois and neighboring states, particularly examining fronts and precipitation bands around these storms. The team -- UW senior research scientists Jeff French, Larry Oolman, Dave Leon, and Sam Haimov, and Associate Professor Zhien Wang – are supporting PLOWs with measurements from the Wyoming Cloud Radar (WCR) and Wyoming Cloud Lidar (WCL). For the PLOWs campaign, the radar and lidar are mounted on the NSF C130, a specially instrumented research aircraft operated by the National Center for Atmospheric Research (NCAR) based in Boulder, Colorado. The aircraft is based in Peoria, Illinois during the period November 2009 - February 2010. The photo shows Dr. French operating WCR on the C-130 during a recent flight.

Every year there are nearly 7,000 deaths, 600,000 injuries, and 1.4 million accidents nationwide due to adverse road conditions primarily associated with winter weather events. To improve the 0-48 hour cool season precipitation forecasts, a greater understanding of the structure of cyclonic weather systems is required. PLOWs is focusing on winter weather and is designed to increase our understanding of the winds and cloud processes that govern the variability of precipitation within mid-latitude cyclones. The lead principal investigator for the project is Prof. Bob Rauber at the University of Illinois at Urbana-Champaign (UIUC), with co-PIs Greg McFarquhar (UIUC), Brian Jewett (UIUC) and Kevin Knupp (Univ. Alabama-Huntsville). UW/ATSC is playing a major role by providing airborne radar and lidar measurements from within these storms. Characterizing the cloud dynamics and precipitation in these storms is central to the PLOWs research for understanding cloud processes that control these severe winter weather events.

Jeff French (below, left) operates WCR on the C-130 during a recent flight. University of Illinois PI Prof. Robert Rauber (below, right - center, in blue) with students in front of the NSF C-130 aircraft. Photos courtesy of the Atmospheric Science Department.



ANTARCTIC RESEARCH CONTINUES

On August 16, 2009, Professor Terry Deshler and three graduate students, Leslie Baran, Mahesh Kovilakam, and Stephanie Lubberda, left Laramie for McMurdo Station, Antarctica at 78°S. After a few weather delays in Christchurch, New Zealand, they arrived “on the ice” on August 22. Their goals were to continue vertical profile measurements of stratospheric ozone and aerosol particles during the austral late winter and early spring. The first ozone flight was on August 24, before the sun appears above the horizon, and the last one on October 26, the time when the sun never sets. The 18 ozone measurements completed between these dates help to document the 2009 ozone hole. The measurement results are available at <http://www-das.uwyo.edu/~deshler/Data/MM09/09MM.html>.

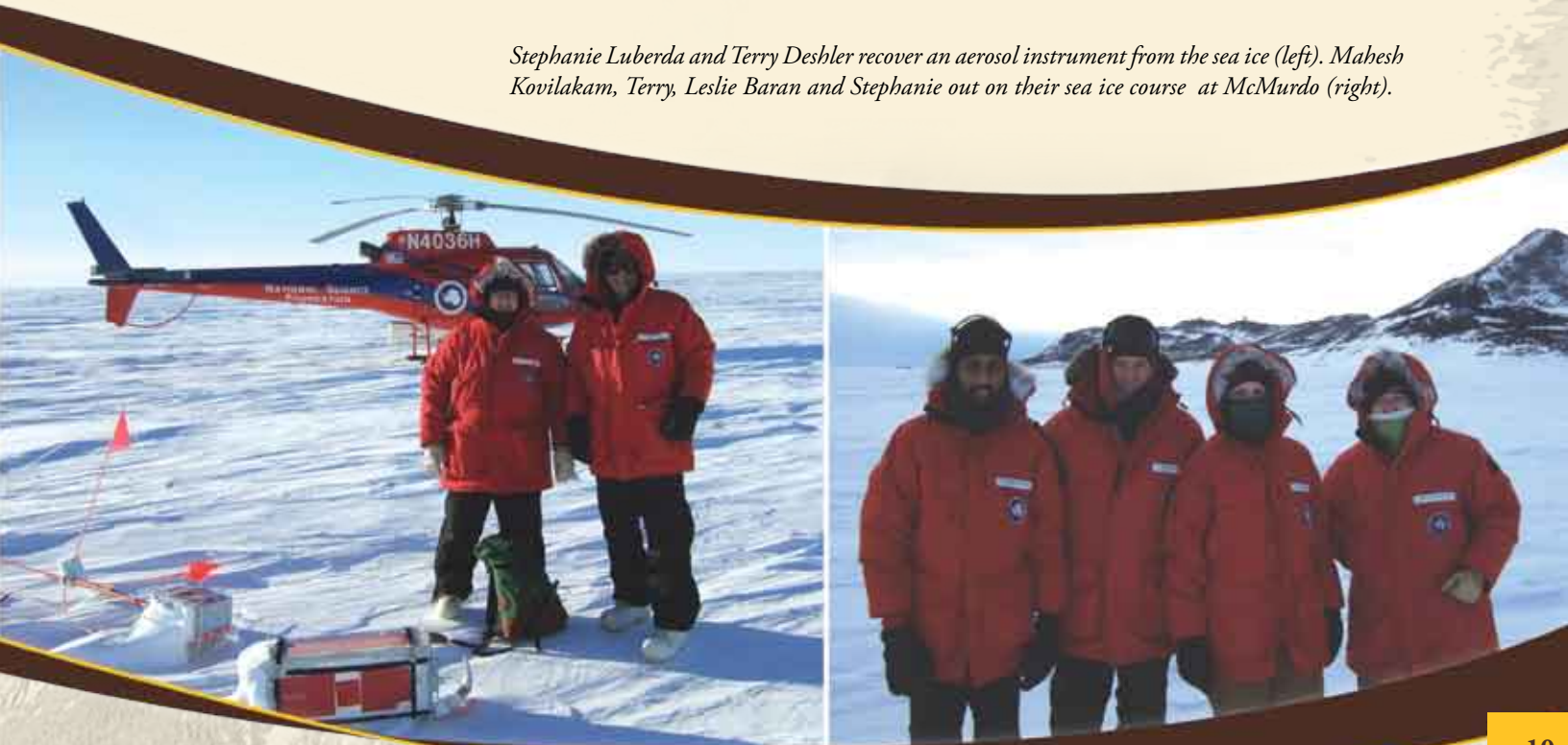
Comparing the 2009 measurements with our previous 24 years of similar measurements suggests that while severe ozone loss still occurs, the ozone loss since the early 2000s has not been as severe as observed in the late 1990s. The reasons for this are not completely clear, although it is premature to expect recovery of the ozone layer from the international controls on chlorofluorocarbons (CFCs) initiated by the Montreal protocol, in 1987, and its amendments. Since removal of chlorine from the stratosphere is a much slower process than its growth, due to CFCs, stratospheric chlorine will

not be reduced below amounts in the early 1990s until after 2020.

To help explain the higher ozone observed in the 2000s, Stephanie is looking into the climatology of stratospheric temperatures over the past 20 years, to see if warmer temperatures and thus fewer polar stratospheric clouds (PSCs) characterize the 2000s. If true, this would help explain the differences in ozone since PSCs are necessary to convert inactive into active chlorine which attacks ozone. Leslie's research project is focused on a more complete understanding of the chemical concentration cell, which forms the basis for each of the small instruments used to measure ozone. While this primarily involves laboratory work, in Antarctica Leslie gained experience in making ozone measurements. Mahesh's project is focused on a better understanding of our stratospheric aerosol measurements and their comparison with satellite instruments. In Antarctica, Mahesh gained some first hand experience in completing several aerosol flights. These require more expensive and bigger instruments which are recovered.

In 2009 three aerosol measurements were made and all instruments were recovered using helicopters. This is the second time for Mahesh and Leslie in McMurdo, the first for Stephanie, and the 15th for Terry.

Stephanie Lubberda and Terry Deshler recover an aerosol instrument from the sea ice (left). Mahesh Kovilakam, Terry, Leslie Baran and Stephanie out on their sea ice course at McMurdo (right).



NETWORKING MADE EASY

Join us on Facebook! The College has joined Facebook in an effort to increase communication with future students, current students, alumni, employers, and supporters about College activities. Interactive, informative, and an excellent resource for alumni will help the College achieve a more actively engaged support group for College activities.

What you can find:

- Links for each Department to the corresponding College web page
- Pictures of current and past events within the College
- Pictures from professional society events (cookouts, meetings with guest speakers, etc.)
- Pictures from engineering students who have studied abroad
- Links to news articles pertaining to the College

- faculty, staff, and student events
- Links to scholarships, internships, educational videos, employers, and upcoming event notices
- Information on student deadlines or critical reminders (midterms, finals, job fair, registration for classes), as well as key accomplishments of alumni (i.e., Ken Kennedy as a 2009 UW Distinguished Alumni, Barbara Scott's 2009 Distinguished Engineer Award, and Randy Eresman as the 2009 Hall of Fame inductee).

It's easy to join by signing up with your e-mail address and creating a password. By signing up and connecting to the College Facebook page, you can also ask questions of our faculty and staff. The site is checked every day in an effort to provide consistent updates on what is happening in the College and respond to your questions.

FACULTY AND STAFF COUNCILS PROMOTE COLLEGIALITY

The Dean of the College of Engineering and Applied Science requested creation of both a Faculty and Staff Council in order to express and share experiences, concerns, and provide increased communication between staff, faculty, academic professionals, and students. Both councils promote good relations and cooperation within the college with the purpose of creating a more cohesive culture and to promote increased cooperation within the UW community.

Faculty Council membership includes three faculty and Academic Professionals employed at the College. Each member is elected by their peers within the College and serves a three year term. Meetings are held to assist and advise in the conduct of college business in such areas as the faculty or the dean shall request.

Faculty Council officers for this academic year include Chairman David Whitman, and Secretary Suresh Muknahallipatna. Other members representing each department within the college include Dave Walrath, mechanical; Michael Barker, civil engineering; Lindy

Johnson, teaching AP; Perry Wechsler, research APL; Maohong Fan, chemical engineering; Tom Parish, atmospheric science; and Tom Bailey, computer science.

Membership of the Staff Council consists of benefited staff and administrative professionals, both full-time and part-time, in the College of Engineering and Applied Science. The Staff Senate representative serves as an ex officio member. Council members serve for a two year term and are elected by administrative support, college support, research support and technology support personnel within the college. Staff Council members meet at least six times each year to address staff concerns and issues, suggestions for improvements, and networking and professional development opportunities.

Current Staff Council officers for this fiscal year include Chair Rimvyda Valiukenas, Vice-Chair, James Waldram, Secretary Gale Bandsma, and Member-at-Large Mike Schilt.

WYOMING MINING ASSOCIATION AWARDS

\$6000 IN CASH TO THREE UW STUDENTS

The Wyoming Mining Association recently awarded three cash awards to University of Wyoming students to recognize innovative, practical, and technical solutions to address design challenge questions.

Held November 5, 2009, the First Annual Wyoming Mining Association Student Symposium was hosted by the UW College of Engineering and Applied Science. The symposium provided students exposure to career opportunities and real life problem solving challenges in the mining industry.

To take part in the Design Challenge, students had to select one of four questions devised by the mining industry and construct a poster with their response. Questions ranged from addressing noise issues to successful sagebrush revegetation. Winners were selected to receive a \$2000 cash award in the following categories: Most Innovative Solution, Most Practical Solution, and Best Technical Solution. Dale Nuttall, Board President of the Wyoming Mining Association, commented that he was 'happy with the participation and impressed with the quality of the projects'.

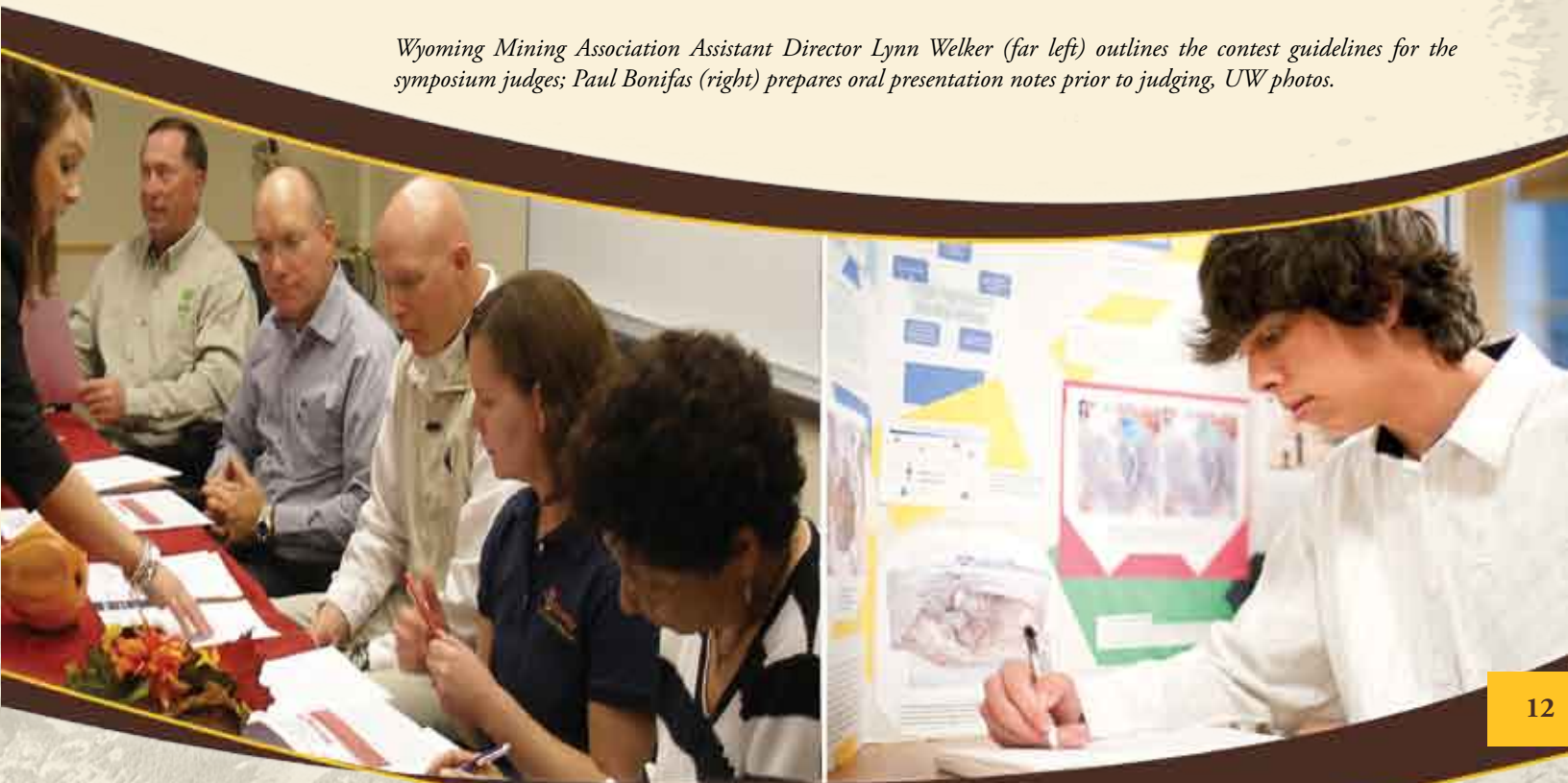
There were seven entries for the Design Challenge which were reviewed by a panel of experts from the bentonite, coal, trona, uranium industries, and a representative from the

UW College of Engineering and Applied Science to select the three winners. The Most Innovative Solution award was presented to Gretchen Heberling of Greensboro, Maryland, for her work on noise reduction. The Most Practical Solution award was presented to Kenneth Brenneman of Riverton, Wyoming, for his work on hearing protection. The Best Technical Solution award was presented to Paul Bonifas of Casper, Wyoming, for his work on subsidence.

"It bodes well for the future of Wyoming when you see bright, young people using their minds in innovative ways," said Marion Loomis, Executive Director of the Wyoming Mining Association.

The Wyoming Mining Association (WMA) is a statewide mining organization whose mission is to communicate information on the significance of a healthy mining industry. WMA promotes the overall industry through active involvement in the legislative process, regulatory policy development, public education, and relevant public policy forums. The WMA represents bentonite, coal, trona and uranium companies and the mining associates (vendors, suppliers and contractors) in Wyoming. Wyoming leads the nation in the production of bentonite, coal, soda ash produced from trona, and uranium. It's membership consists of 34 mining companies and 133 supply companies.

Wyoming Mining Association Assistant Director Lynn Welker (far left) outlines the contest guidelines for the symposium judges; Paul Bonifas (right) prepares oral presentation notes prior to judging. UW photos.



SENIORS PARTICIPATE IN DESIGN SYMPOSIUM

On December 3, 2009, the University of Wyoming College of Engineering and Applied Science held the 15th Annual Senior Design Symposium. Over 60 college seniors representing architectural, civil, chemical, petroleum, mechanical, computer science, and electrical and computer engineering exhibited and presented individual, team, and interdisciplinary design projects. Their projects were judged by over 20 judges representing business, industry, and the University.

A CAPTAINS CHAIR FOR KYLIE

Kylie Porter is a 15 year old girl who has Spastic Quadriplegia. The disease manifests itself in spastic muscle movements and little to no trunk support being supplied by Kylie, causing her to use a power wheelchair for mobility. There are currently no crash tested vehicle seats that have been modified for use by someone with limitations consistent with those of Kylie, and there are no wheelchair tie-downs rated for accidents over 30-mph.

Doug and Chele, Kylie's parents, requested a design for a modified captain's chair to fit in their 1996 E-150 Ford Econoline suitable for Kylie's unique needs. A modified captain's chair has been designed using the basic structure of a captain's chair that is designed for the model and year of vehicle owned by the Porter family. The modified seat can also be installed in other full-size vans made by companies other than Ford. A head/neck support was added to the

seat using the existing head rest attachments that will hold Kylie's head in a vertical position to substitute for the muscle tension that she lacks in her neck. Lateral supports were also added to the seat so that she will not fall to either side of the chair, substituting for her lack of trunk support. A 4-point seat belt was used in place of the traditional 3-point seat belt and is mounted to the floor of the vehicle.

"We are very excited about the design and have heard of other families that are waiting for this type of help," said Chele Porter. "This is very marketable and a much needed improvement for Kylie."

Senior students Tarn Bohnet, Jason Mascarenas, and Alexandra Peterson designed the modified chair for their senior design project. Required for graduation, the students felt that "helping someone in the community while working on a real-life problem was important for the team," said Alexandra. Students spent over 370 hours working on the design. Funding for the seats was provided by the Wyoming Institute for Disabilities (WIND) and metal was donated by High Country Fabrication in Casper, Wyoming.

SYMPOSIUM SPONSORS

The UW College of Engineering and Applied Science, American Council of Engineering Consultants (ACEC), the Rocky Mountain Power Foundation, and the Volpi/Cupal Engineering Design Fund sponsor the Symposium.



Kylie Porter tries out the modified captains chair with senior mechanical engineering students Jason Mascarenas, Laramie, Wyo., Alexandra Peterson, Windsor, Colo., and Tarn Bohnet, Laramie, Wyo., conducting last minute adjustments. Kylie (right) enjoys the benefits of the new chair. UW photos.

52 HONORED AT COMMENCEMENT EXERCISES

Fall commencement exercises were held December 4, 2009. Congratulations to the following graduates and good luck in all your future endeavors!

Doctor of Philosophy

Nina Loahardjo, Petroleum Engineering
Richard Semaan, Mechanical Engineering
Xiuyu Wang, Petroleum Engineering

Master of Science

Shashidhar Belbase, Civil Engineering	Ryan R. Peterman, Electrical Engineering
Beau Braunberger, Chemical Engineering	Hermion Berhane Russom, Civil Engineering
Raghu Raj Prasanna Kumar, Electrical Engineering	Rajeswari Siloju, Computer Science
Daniel Kunkel, Mechanical Engineering	Alexander Ross Voigt, Civil Engineering

Bachelor of Science

Architectural

Brett Robert Charles Allen
Marcus Daniel Bolton
Jonathan D. Bonck
Shawn David Cooney
Wendy Jo Daisley
Rocky Donovan Heid
Rebecca Johnson**
Alexander C. Jording***^
Addison Michael MacMahon
Jonathon Schumacher
Richard Vasco

Chemical Engineering

Titus Michael Reed
Heather Jane Young

Civil

Shawn David Cooney
Brendan Shea Dorsey-Spitz
Jeramiah Layne Irick
Forrest R. Maclean
Brian P.A. Martin
Aaron Brainard Morency
Timothy Sean Palik
Jeremy Ryan Quist
Ryan Wyatt Rasmussen
Ashley Christine Roland
Leith T. Sheets ^***
Jared Joseph Stiver
Richard Vasco

Computer Engineering

Stephen Grace

Petroleum Engineering

Stewart Russell Bell^

Electrical

John Wesley Barksdale III
Brandon Kwoklone Chiu
Kyle Albert Fox
Thomas James Hapka
Russell C. Martin
Jerad Meidinger
Zachary Paul Zahller

Mechanical

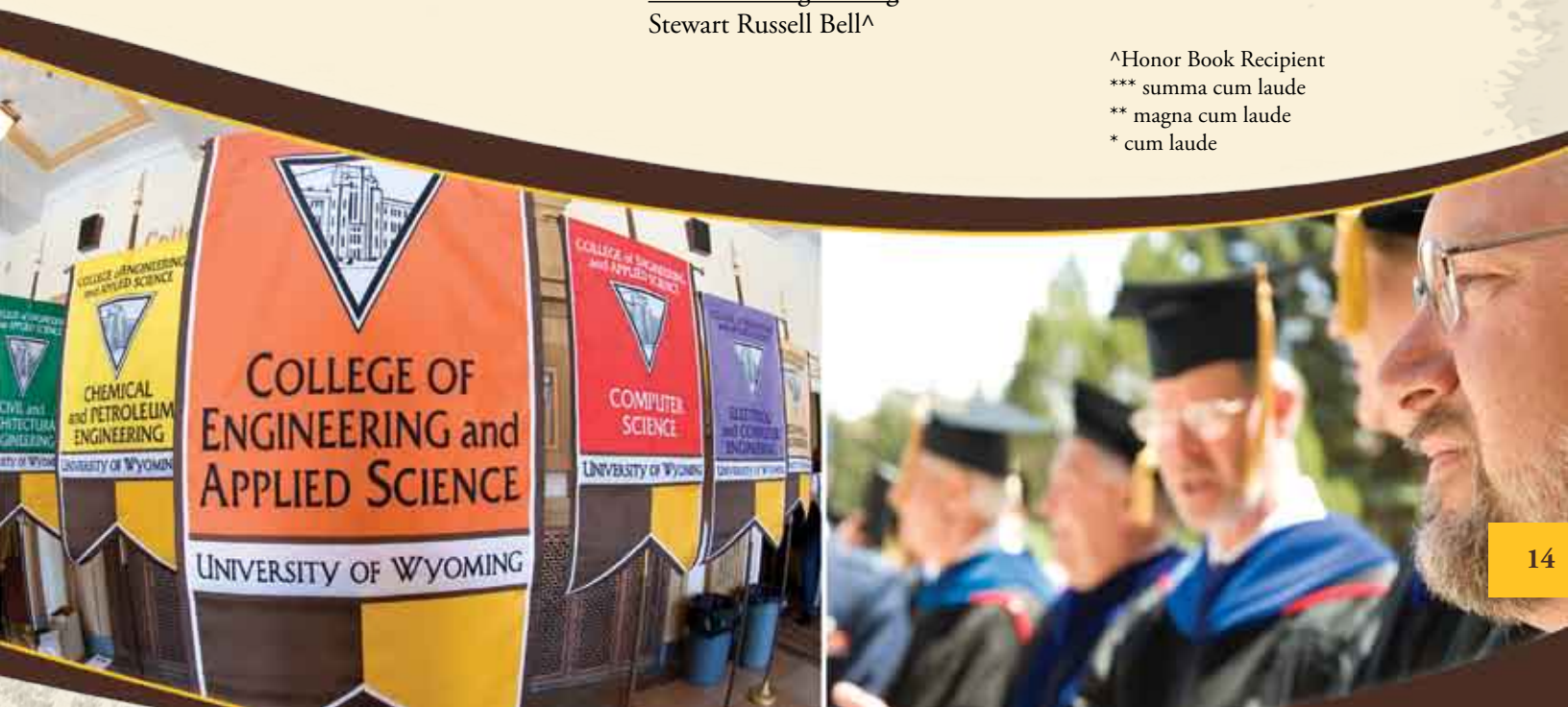
Anthony Albert Allais^
Ashli L. Babbitt
William Joseph Barnes
Tarn A. Bohnet
Samantha Graye Fritz
Jason Gasper Mascarenas
Jeffrey A. Parkins
Alexandra L. Peterson
David Christian Webber

^Honor Book Recipient

*** summa cum laude

** magna cum laude

* cum laude



STUDENT HIGHLIGHTS

UW ITE - BEST STUDENT CHAPTER AWARD AND STUDENT TRAFFIC BOWL CHAMPIONS

The UW Institute of Transportation Engineers (ITE) Student Chapter received the Best Student Chapter Award for the Western District for 2008-2009 and marked the second year in a row the chapter has won this award. The Chapter beat out 32 chapters in 13 states for the honor. In addition, the UW Student Chapter won the first ever District 6 Student Traffic Bowl at the District 6 Meeting last year in Denver.

Students accepting the Best Student Chapter Award (below, left) include: from left to right, Alyssa Reynolds (District 6 Student Activities Coordinator), Scott Koch, Jessica Troemner, Zeb Coulter, Jenna Buddemeyer, Brendan Dorsey-Spitz, Monica Suter (District 6 President), and Alan Moore.

COMPUTER SCIENCE STUDENTS PARTICIPATE IN REGIONAL PROGRAMMING CONTEST

Twelve UW Computer Science students, under the direction of Coach and Brandon Skari, participated in the 2009 Rocky Mountain Regional ACM Contest last October. Hosted at multiple sites across North America, the Rocky Mountain Regional Contest draws students from colleges and universities throughout Arizona, Utah, Colorado, Wyoming, Eastern Nevada, Idaho, Montana, Alberta, Saskatchewan, and New Mexico. Winners selected from regional contests worldwide advance to the 2010 ACM Programming Contest World Finals in China to compete for scholarship awards. With four teams of three students each, UW teams placed 22nd, 25th and 35th of 40 teams within the region.

The contest provides college students with opportunities to interact with students from other universities and to sharpen and demonstrate their problem-solving, programming, and teamwork skills.

UW student teams included (pictured below, right): Jay Wuensch, Gillette, Wyo., Matt Enlow, Cheyenne, Wyo., and Ryan Harrod, Gillette, Wyo.; Frank Zebre, Laramie, Wyo., Nick Anderson, Douglas, Wyo., and Dietrich Wambach, Guernsey, Wyo.; Zeb Fross, Shoshoni, Wyo., Laura Buehner, Laramie, Wyo., and Chris Prosser, Thermopolis, Wyo.; and Sean Ludtke, Cheyenne, Wyo., Shawn O'Neill, Cheyenne, Wyo., and Tyler Bjornestad, Powell, Wyo.



FACULTY AND STAFF HIGHLIGHTS

EDGAR RECEIVES ASCE AWARD



Associate Professor Thomas V. Edgar of the Department of Civil and Architectural Engineering, was selected as the ASCE Professor of the Year for 2009. Thom received a B.S. in civil engineering from the University of Colorado in 1972, M.S. in 1975, and Ph.D. in 1983 both in the field of civil engineering and both from Colorado State University. He is a registered P.E. in Wyoming and Colorado. His research specialization is in the area of flow, deformation and pollutant migration in saturated and unsaturated porous media, slope stability, and expansive soils.

Thom was also the recipient of the John P. Ellbogen Meritorious Classroom Teaching Award in 2002, the UW Excellence in Advising Award in 1997 and 2001, and the Mortar Board "Top Prof" award in 1985, 1990, and 2000.

STEVE BARRETT EARNS TOP PROF AWARD

Professor Steve Barrett of the Department of Electrical and Computer Engineering was selected by Robert Streeter, UW Cap and Gown Chapter of Mortar Board student, as a "Top Prof" for 2009. Members of the senior honor society selected professors who have made a positive impact on their lives at UW. These professors go beyond normal classroom expectations to help their students succeed, both in college and later in their careers. Steve is a registered Professional Engineer in Wyoming and Colorado. His areas of expertise include image processing, medical laser applications, and embedded controllers. He earned a B.S. in electronic engineering technology (1979) at the University of Nebraska Omaha. He earned an M.S. in electrical engineering at the University of Idaho Moscow (1986) and a Ph.D. at the University of Texas Austin (1993).



STAFF MEMBERS CELEBRATE SERVICE TO UW

Several College staff members reached milestone anniversaries at UW in 2009. Vic Bershinsky of the Electrical and Computer Engineering Department and Antony Bergantino of the Civil and Architectural Engineering Department have both achieved their 15 year anniversary. Sherry Johnson who works in the Civil and Architectural Engineering Department and Rimvyda Valiukenas of the Atmospheric Science Department reached their 25 year mark on campus.



Joining fellow staff members listed above is Theresa Lucero, a 30 year staff member at UW. Theresa (pictured left) began her career at UW as a part-time assistant with the summer program and worked her way into her current position as accounting associate senior with the College of Engineering and Applied Science Dean's Office. Theresa has worked in various positions at UW, including graphic artist with the Communication Services Office(now Media Relations) and as an accounting associate with the Department of Chemical and Petroleum Engineering. She is a Laramie native with close family ties and spends her spare time with family and her three puppies Rocky, Sadie and Max.

We need your help! A critical part of our ABET accreditation process is feedback from our alumni on career growth and accomplishments. At this time we need information from alumni who graduated from the College between 2003 to 2006.

If you fall into this category, please send us a copy of your current resume to Dr. Steve Barrett, Ph.D., P.E. at steveb@uwyo.edu.

Thank you in advance for your help.



ENGINEERING AND EDUCATION TEAM UP FOR TAILGATE

Homecoming festivities at Tailgate Park last October were cancelled due to heavy snow collapsing some of the tailgate park tents. With lack of freezer space for 600 cookies and hamburgers buns that couldn't be returned, the College of Education and College of Engineering and Applied Science had a big challenge - what to do with all that food? Deciding to host a tailgate "after-party" lunch for students, faculty,

and staff solved the dilemma. The Colleges teamed up to serve over 600 students, faculty and staff in less than an hour following the cancellation of tailgate last October. Students from both Colleges were able to enjoy a College-hosted lunch served by members of both Dean's offices. Look for the College partnership at Homecoming tailgate 2010, and hope for good weather!

COLLEGE EXHIBITS PRIDE AT HOMECOMING

Braving six inches of snow that fell overnight, the UW Mechanical Engineering Department won the Most Original entry in the October 2009 Homecoming Parade with their mini baja and moonbuggy (below left) exhibits. The Department entered the parade with the mini baja project which placed 19th at the national competition last year. In addition to the mini baja, the mechanical engineers entered the parade with the moonbuggy student project (lower left) which brought national attention to UW by placing third at

the NASA Great Moonbuggy Race in Huntsville, Alabama. External Relations Coordinator Baillie Miller and senior mechanical engineering student Ashli Babbitt led the College lineup (pictured below, right). Other College of Engineering and Applied Science entries in the Homecoming parade included Hall of Fame and Distinguished Engineer along with the Engineers Without Borders Wyoming (EWB-WYO) float. *Above photo by Ryan Kobbe, photos shown below by Thyra Page.*



IN MEMORIAM

Sadly since our last issue, we have lost the following alumni. Our sympathy goes out to the families of our valued alumni.

Richard S. Adams	B.S. Civil Engineering, 1948	Keedysville, MD
Emmet G. Adamson	B.S. General Engineering, 1950	Midland, TX
Gale M. Baker	B.S. Mechanical Engineering, 1935	Leawood, KS
Keith R. Barnes	B.S. Mechanical Engineering, 1952	Rapid City, SD
Robert J. Cottle	B.S. Electrical Engineering, 1949	Cheyenne, WY
David E. Cornell	B.S. Electrical Engineering, 1959	Encampment, WY
George A. Dale	B.S. Civil Engineering, 1959	Cheyenne, WY
Jack D. Dewey	B.S. Civil Engineering, 1956	Farmington, NM
Frank Ferentchak	B.S. Civil Engineering 1950	Diamondville, WY
Robert P. Fuhs	B.S. Mechanical Engineering, 1956	Klamath River, CA
	B.S. Civil Engineering, 1960	
Robert T. Halbert	B.S. General Engineering, 1958	Longmont, CO
George H. Hargreaves	B.S. Civil Engineering, 1943	Logan, UT
Jim C. Lagos	B.S. Civil Engineering, 1940	North Hollywood, CA
Daniel E. Lockhart	B.S. General Engineering, 1967	Bryan, TX
Lt. Col. James J. Mangan	B.S. Electrical Engineering, 1972	Denver, CO
Charles D. McAlister	B.S. Electrical Engineering, 1957	Raleigh NC
Paul K. Ogawa	B.S. Mechanical Engineering, 1947	Raleigh, NC
Stanley L. Stark	B.S. Civil Engineering, 1961	Craig, CO
Darrell T. White	B.S. Civil Engineering, 1943	Billings, MT



David J. Hofmann, one of the pioneers of stratospheric aerosol and ozone research, passed away in Boulder, Colorado, on August 11, 2009. In 1971, as professor in the UW Department of Physics and Astronomy, he and Prof. Jim Rosen began making regular balloon-borne measurements of the size distribution of stratospheric aerosol in the

Laramie Valley, and set the stage for the stratospheric ballooning research in the Department of Atmospheric Science that continues today. Together they initiated the first regular measurements of stratospheric aerosol since these

particles were first measured a decade earlier. Dave and Jim maintained this record for the next 20 years, convincing one agency after another of the value of the measurements. These measurements remain unique in providing stratospheric aerosol size distribution information, and the global aerosol record is anchored by Dave and Jim's pioneering measurements. He hired Terry Deshler as research scientist, and then facilitated Terry's move to become professor in the Department of Atmospheric Science when he left UW to become chief scientist at NOAA/CMDL in 1991 after his 25 year career at UW. Under Terry's leadership, the stratospheric ballooning activity continues to the present day, building upon Dave's pioneering legacy.

He is survived by his partner, Shirley Purcell, daughters Gretchen and Jennifer, and son Karl.

NATIONAL ENGINEERS WEEK LECTURE SET FOR FEBRUARY 17

Roger Pielke, Jr. of the University of Colorado will speak during engineering week on February 17. The talk is sponsored by the College through the H. T. Person Memorial Endowment and the Kaiser Ethics Project. Roger has been on the faculty of the University of Colorado since 2001 and is a Professor in the Environmental Studies Program and a Fellow of the Cooperative Institute for Research in Environmental Sciences (CIRES). Roger's research focuses on the intersection of science and technology and decision making. In 2006 Roger received the Eduard Brückner Prize in Munich, Germany for outstanding achievement in interdisciplinary climate research. Before joining the University of Colorado, from 1993-2001 Roger was a Scientist at the National Center for Atmospheric Research. Roger is an Associate Fellow of the James Martin Institute for Science and Civilization at Oxford University's Said Business School. He is also a Senior Fellow of the Breakthrough Institute. He is also author, co-author or co-editor of five books.



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UPCOMING EVENTS

Wyoming Engineering Society Convention
February 4-5
UW Conference Center/Hilton Garden Inn
Laramie, Wyoming

National Engineers Week Lecture
February 17

Tau Beta Pi Honors Banquet
April 23
UW Conference Center/Hilton Garden Inn
Laramie, Wyoming

For information about upcoming events please contact
the Office of Communications at (307) 766-4248
or by e-mail to envevents@uwyo.edu.

CALL FOR NOMINATIONS

**Wyoming Eminent Engineer and
Outstanding Alumnus Engineer**

If you know of an outstanding engineer you wish to nominate for the Wyoming Eminent Engineer award or Wyoming Alumnus Engineer award please contact Steven Barrett at SteveB@uwyo.edu or visit the Tau Beta Pi Web site at www.eng.uwyo.edu/societies/tbp and click on Eminent Engineer Nominations. Deadline has been extended to February 15, 2010.

Jackson, Wyoming photo by Thyra Page. Devils Tower photo (right) courtesy of Fred Chapp.

