

### STUDENT, FACULTY AND ALUMNI NEWS

#### 2009 EEES Student Awards

The accomplishments and contributions of the following students have been recognized by these department awards:

A. Ray Abernathy Fellowship  
Jennifer Horner

Linvil G. Rich Fellowship  
Darryl Jones

2009 Graduate Teaching Assistant Award in Geological Sciences  
Curtis Gebhard

Environmental Scholars  
Hailian Liang  
Dan Matz  
Sam Sarkar

Thomas F. Logan, Jr. Geology Merit Award  
Kirk Ellison  
Ben Robinson

Jean G. Stillwell Award  
Jamie Ryan

## Engineering Environmentally, Economically, and Socially Sustainable Solutions

It seems the word "sustainability" is everywhere these days, and with good reason. The environmental challenges facing the world today are complex and will not be solved easily. Albert Einstein once said, "We can't solve problems by using the same kind of thinking we used when we created them." Indeed, we need to rethink the way we address environmental issues to discover workable solutions that tackle problems holistically. Graduates of engineering and sciences programs need to be increasingly aware of the larger implications of the problems they encounter, possessing not only technical expertise, but a broader understanding of the economic, environmental, and social contexts in which they work. Corporations worldwide are recognizing the need to incorporate sustainability initiatives into their business strategies, and are adopting the principles of proactive environmental management and green engineering. "Green" engineering emphasizes a systems approach to designing products and processes, and considers the environmental impacts of a product from resource extraction to end-of-life.



In order to better prepare our graduates for changing workplace demands, the Department of Environmental Engineering and Earth Sciences (EEES) has introduced a new focus area called Sustainable Systems and Environmental Assessment for the M.S. degree in environmental engineering and science. The focus area builds upon new and existing courses, such as Pollution Prevention and Industrial Ecology, Environmental Systems Analysis, and Risk Assessment. The focus area is designed to provide a basis for the analysis of complex interactions between human and natural systems. Students in this focus area learn to understand and use the tools at the cutting edge of sustainability research, which include life cycle assessment, total cost accounting, risk assessment, and sustainable development principles. The addition of the new focus area strengthens the EEES department's position at the forefront of environmental research and education activities.

## Dr. Bob Fjeld Retires



Dr. Robert A. Fjeld, the Jerry E. and Harriet Calvert Dempsey Professor of Waste Management, retired March 25, 2009. Dr. Fjeld initiated the "nuclear option" in the department in 1980. Since that time, Dr. Fjeld has been responsible for graduating 61 MS students, 7 PhD students, and mentoring 4 post-doctoral assistants. Dr. Fjeld can be credited with bringing over \$4.5M in research dollars to the University. The outcomes of Dr. Fjeld's research endeavors have been published in over 60 refereed publications, 40 conference proceedings papers, 20 research reports, and 90 professional presentations. A capstone achievement in Dr. Fjeld's career is his textbook entitled, "Quantitative Environmental Risk analysis for Human Health, which is coauthored with Keith L. Compton and Norman A. Eisenberg.

Dr. Fjeld earned his B.S. degree in Nuclear Engineering from North Carolina State University in 1970, a M.S. in Nuclear Engineering with a minor in air pollution from The Pennsylvania State University in 1973, and a Ph.D. in Nuclear Engineering from The Pennsylvania State University in 1976. Dr. Fjeld was an assistant professor at Texas A&M University for 4 years before coming to Clemson. He is a licensed Professional Engineer and a Fellow of the Health Physics Society. He has served on numerous professional committees and review panels as well as editor for numerous journals.

Although officially retiring from classroom teaching, Dr. Fjeld plans to continue his research endeavors in the environmental aspects of nuclear technologies, specifically the transport and measurement of radionuclides in the environment. In his spare time, he plans to spend more time with his grandchildren, in his garden and on his bicycle.

## Chair's Corner

Dear EEES alumni and friends:

Here are some highlights of the exciting events and accomplishments in the Department since our last issue.

**Dr. Shelie Miller** received the National Science Foundation (NSF) CAREER Award. This is the most prestigious of NSF awards for a junior faculty member. This brings the number of our CAREER award recipients to five.

**Dr. David Freedman** was awarded the 2008 Association of Environmental Engineering and Science Professors (AEESP) Outstanding Publication Award. This very prestigious recognition by the AEESP is given annually to recognize the author(s) of a landmark publication.

Our graduate students received national recognition as well: **Jesse Addison** was selected to receive the American Water Works Association's (AWWA) Second Place 2009 Academic Achievement Award for the best Master's Thesis. **Darryl Jones** was selected by AWWA as the 2009 LARS Ph.D. Fellowship recipient, and **Dave Hisz** won the Outstanding Student Paper Award at the 2008 Fall Meeting of the American Geophysical Union in San Francisco.

We had another very successful **David Snipes Hydrogeology Symposium** with over 350 attendees, and **Dr. Bob Fjeld**, Dempsey Professor emeritus, organized a "Climate Change Discussion" event where scientists Michael C. MacCracken and John R. Christy presented contradictory viewpoints on the primary drivers of global warming.

For more news and information items, please visit our web page. In this issue, we also acknowledge our donors since July of 2008. We greatly appreciate these donations during these tough economical times, and we are thankful for your continued and most generous support. THANK YOU!

**Tanju Karanfil, Ph.D., P.E., B.C.E.E.**  
Professor and Chair



## Student Awards/Student News

**Jesse Addison** was selected to receive the American Water Works Association's (AWWA) Second Place 2009 Academic Achievement Award for the best Master Thesis.

**Darryl Jones** was selected by AWWA as the 2009 LARS Ph.D. Fellowship recipient.

**Dave Hisz** won the Outstanding Student Paper Award at the 2008 Fall Meeting of the American Geophysical Union in San Francisco.

**Dr. Tanju Karanfil's** Research Group attended 19th Annual SC Environmental Conference (March 21 - 25). They presented six posters and five of them won awards: Jia Hu, Ting Shao, Darryl Jones, Sule Kaplan, Amer Kanan, and Meric Selbes.



## New Faces/Department News



**Anne Cummings** joined the EEES technical staff as the department analytical Lab Manager in January. Anne received her Master's degree in Chemistry from The Georgia Institute of Technology in 1996. She will work very closely with the EEES faculty and students to maintain and supervise our research infrastructure and support teaching of some laboratory courses.

**Dr. Jim Castle**, professor in EEES, and John Rodgers, professor in Forestry and Natural Resources, were recently awarded more than \$800,000 to find economical and environmentally sensible ways to treat waters that come out of the ground during oil and natural gas production. Funding is from the U. S. Department of Energy and Chevron. Castle and Rodgers are developing constructed Wetland systems to treat the contaminated water for reuse.



**Dr. Shelie Miller** received a National Science Foundation CAREER Award of \$400,000 for a project entitled "Creating a Predictive and Dynamic Life Cycle Assessment". This prestigious award is granted to junior faculty members demonstrating potential for excellence in both research and education. She is currently analyzing switchgrass, a hardy perennial grass that shows promise as a biofuel.

**Dr. David Freedman** was awarded the 2008 Association of Environmental Engineering and Science Professors (AEESP)

Outstanding Publication Award. This very prestigious recognition by the AEESP is given annually to recognize the author(s) of a "landmark environmental engineering and science paper that has withstood the test of time and significantly influenced the practice of environmental engineering and science." **Freedman, D. L., and J. M. Gossett. 1989. Biological reductive dechlorination of tetrachloroethylene and trichloroethylene to ethylene under methanogenic conditions. Appl. Environ. Microbiol. 55(9):2144-2151.**

Dr. Robert G. Ford of the US Environmental Protection Agency gave the inaugural seminar for the **Dr. Alan W. Elzerman Seminar Series** on April 10, 2009. The Elzerman Seminar Series was established to honor the contributions of **Dr. Elzerman** to the department, university and environmental chemistry by **Dr. Cindy Lee and Riley Stevens**. Each year for the next five years, two alumni from the department will present a seminar about their career in environmental engineering and science or hydrogeology.

**The 17th annual Clemson/Dave Snipes Hydrogeology Symposium** was held on April 2, 2009 at the Madren center here on the Clemson campus. This year's event attracted over 370 attendees and 26 exhibitors. Attendees were a mixture of environmental consultants, state level regulatory officials, federal researchers, and academics. The opening remarks were made by **Dr. Tanju Karanfil** and the Dean of the College and Engineering and Science, **Dr. Esin Gulari**. The keynote presentation was made by Dr. Peter Cook of Australia. Dr. Cook is the 2009 Darcy Lecturer. He talked about the use of environmental tracers for increasing confidence and reducing uncertainty in groundwater model predictions.

## Student Awards/Student News

**Dan Matz** has set up the blog site below for his research trip to India. The project will study the water budget in a rural Indian village called Salri in the state of Madhya Pradesh. "The blog will update my adventures and progress on the research project. Please check it as often as you can and feel free to post comments!!" [www.dansindiablog2009.blogspot.com](http://www.dansindiablog2009.blogspot.com)

**Dr. David Freedman** will present four papers at the Tenth International Battelle Symposium on In Situ and On-Site Bioremediation, Baltimore, MD (May 5-8, 2009), along with doctoral students **Huifeng Shan** and **Vijai Elango** and undergraduate researcher **Audrey Bone**. In addition, **Dr. Freedman** will be chairing a session entitled "Anaerobic Biodegradation Improvements."

**EEES** has joined up again with **Adopt the Highway** to make South Carolina a little more beautiful. The first clean up on April 10 had a fantastic turn out of about 20 students and faculty. Everyone had a great time, and it was awesome to see everyone come together to help keep our roads a bit cleaner. The next cleanup will be in the Fall.

**For further details**, see the e-newsletter on the department web page <http://www.clemson.edu/ces/departments/ees/>

## Alumni Profile/Alumni News

### Paul Benson



Paul H. Benson graduated from Clemson in 1962 with a BS in Geology. He received a PhD in Geology from the University of North Carolina in 1968 and then began a career in the oil and gas industry. Paul joined

Amoco as an exploration geologist in New Orleans and later moved to their international exploration group in Chicago. After an assignment with Amoco in London he joined The Superior Oil Company in Houston and later returned to London to manage their Exploration Office. Mobil acquired Superior in 1986 and Paul was ultimately appointed to the position of Vice-President of Exploration for Mobil Oil Canada in Calgary.

Dr. Benson retired from Mobil in 1996 and now lives in the Clemson area. Paul is a member of the Advisory Board for the Bob Campbell Geology Museum in Clemson.

**Dr. Claudia Gunsch** (EE&S MS 2000) received National Science Foundation (NSF) CAREER Award. She is currently an assistant professor at Duke University. **Dr. David Freedman** served as Claudia's advisor.

**Dr. Stephen Graef** (EE&S PhD 1976) retires after 17 years with Renewable Water Resources, ReWa, (formerly Western Carolina Regional Sewer Authority) on January 17, 2009. During retirement, he will serve as a part time special consultant to the Executive Director of ReWa, as well as providing some private consulting affiliations that do not conflict with ReWa. He and his wife Catherine, are currently involved in a community project and they look forward to some elderhosteling. **Dr. Graef** was selected for the 2009 Stanley E. Kappe Award which is presented by the American Academy of Environmental Engineers.

**Richard Edwards** (EE&S MS 1974), Director of Pfizer's Waste and Wastewater Networks and recently celebrated his 30th anniversary working with the company in the environment field, will be traveling to Kampala, Uganda later this month to work with Water Aid as a Global Health Fellow. Water Aid's extensive network and resources span 17 countries in Africa and Asia and play a key role in the wider international WASH campaign, advocates for water, sanitation, and hygiene for all. In Uganda, Richard will support local efforts in urban waste and wastewater planning/project execution, and help establish viable sanitation programs.

**Russ Miller** (Geology BS 1996) and Hydrogeology MS 1998) and his wife Kylee had their second child Hadley Brooks Miller on November 3, 2008. Hadley weighed 8 lbs 11 oz and has an older sister, Gracen who is 3.

**Dr. Hui Tan** (EE&S PhD 2002) welcomes a son, Jonathan Yu Tan. Jonathan was born March 14, 2009; he weighed 7 lb 14 oz, and is 20 inches long.

**Pramoth Chandrikamonan Mohan** (EE&S MS 2004), and Sangeetha Mohandas married on March 23, 2009

**Hassan M. Pressley** (MS August 2004) will be getting married on August 1, 2009 (<http://www.hassanandmia.weddingwindow.com>).

