



# Newsletter

of the  
Petroleum Engineering Department  
Colorado School of Mines



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## Greetings From Craig Van Kirk

Imagine yellow school buses filled with kids and teachers arriving at the CSM campus several days per week, and the bus drivers are looking for CSM's VisionDome. Imagine a planetarium-style hemisphere 26 feet in diameter, 22 feet tall, with a projection diameter of almost 25 feet. Imagine yourself with 40 other people inside the VisionDome watching computer generated animations projected onto the interior of the hemisphere; animations of the earth's subsurface, not only in 3 dimensions, but with time-lapse rapid-fire projections showing 4-D "movies" of movements within the earth's subsurface.

The kids will probably want to see volcanism at work, or continental drift, plate tectonics, or earthquakes in action. These types of opportunities for the K-12 kids will be made available to the public whenever the VisionDome is not being used by CSM professors and students, or CSM partners from off campus, for research, teaching, or training purposes.

On August 27 we submitted the final proposal to the National Science Foundation (NSF) to establish a National Engineering Research Center (ERC). The NSF is considering the multi-year, multi-million dollar contract for the new ERC which will be called the Center for Multidimensional Engineered Earth Systems and will be located primarily on the CSM campus in Golden. The four CSM departments of Geology, Geophysics, Mining, and Petroleum Engineering are the prime movers organizing this Center.

The ERC will be designed to help the nation develop technologies to find and produce the

earth's subsurface natural resources in a cleaner and safer environment. The ERC will develop the technology needed to address important environmental and economic issues facing the nation. In addition, thousands of sites cannot be used for commercial development due to soil pollution,



Craig Van Kirk

and the demands on known potable water resources are growing with the increasing population in the United States. The technology needed to find solutions to these and other issues will be developed in a multidisciplinary framework.

The guiding vision of the ERC is to create a facility where people from many geoscientific and engineering disciplines can work together to develop and apply technologies that will increase the beneficial utilization of subsurface resources. A new device called the VisionDome will be at the heart of the ERC. The VisionDome provides a virtual reality environment in which models and data from various disciplines can be visualized by up to 40 people at once.

The mission of the ERC is to develop and share new techniques to:

- A. Locate, visualize and quantify the properties and characteristics of the earth's underground natural resources, including water, petroleum, natural gas, and

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ore bodies of metal and non-metal minerals.

- B. Optimize the strategies used to find and extract these resources in an ecologically and economically sound manner.
- C. Teach students, faculty, and industrial partners to work in multi-disciplinary teams by producing “four-dimensional shared earth models”.
- D. Facilitate cross-fertilization of techniques used by various disciplines, and produce graduates with a broad vision of the earth’s natural resources and their prudent management.

The research program of the ERC consists of the following three systems-level goals:

- I. Dynamic Geosystems Imaging: Improve subsurface imaging using a variety of techniques.
- II. Geosystems Characterization: Improve subsurface characterization by developing more accurate models of anisotropy and heterogeneity.
- III. Subsurface Hydrosystems: Improve the quantitative representation of subsurface hydrological systems.

The ERC will fulfill its mission using multidisciplinary clusters of faculty, staff, and students working together and in collaboration with industry on common data sets from test bed projects that are important to industry and society. Four multidisciplinary thrusts are planned: Subsurface Imaging and Characterization, Geosystems Modeling, Subsurface Resource Exploration and Development, and Human Resource Development. Visualization technology and teamwork will help link clusters of people working in thrust areas with test bed data sets to complete research projects.

The mission of the Human Resources thrust is the development of world class programs in general geoscience education and multidisciplinary geo-engineering team education. Projects will include teacher training, curriculum development, technology transfer, and the development of virtual reality based modules for K-12 education, community colleges, and higher education. The facility will host programs for students, teachers, industry, and the general public.

Wouldn't it be fantastic if CSM could be successful in this bid to the NSF to start this exciting National Engineering Research Center? We four CSM earth-oriented departments of Geology, Geophysics, Mining, and Petroleum Engineering have been working closer together for some time now, and have joined our energies to prepare this joint proposal. Our efforts began last October working

on the pre-proposal, which was submitted to the NSF in January. Of the 89 pre-proposals reviewed by the NSF after January, 29 of us were invited to submit final proposals due August 27.

If we are fortunate enough to be successful, the NSF will visit us at CSM during this coming winter, and final approval would be announced next June. The NSF is considering starting approximately 6 new National Engineering Research Centers during the summer of 2000.

The NSF's support of the ERC is estimated to range from \$2.5 million to \$5.0 million per year for 10 years. Partnerships with CSM and private industry would generate similar amounts of annual support, or levels of funding, so that the annual total budget of CSM's ERC would approximate \$5 to \$10 million. The intent is that after 10 years the NSF would remove itself from funding,



Artist conception of a Vision Dome

and the ERC would be self-supporting after that.

For the next couple months we are expanding our efforts to attain commitments of intent from more partners in private industry to join CSM's ERC at one of three levels, ranging from \$25,000 to \$100,000 per year per partner. Imagine the leveraging and synergism that all participants will enjoy. If you would like any additional information or offer any advice, feel free to contact me anytime.

In other areas of news, the PE Department is doing very well in every way. Secretaries Chris Cardwell and Dee Brown are going strong, as is our laboratory coordinator Bill Robbins. The faculty staff is as dedicated and productive as humanly possible. These teammates of mine make me feel so fortunate and proud to be part of the

CSM family.

Some annual statistics of interest are: the Senior class size is 43; while we attracted almost 20 new graduate students, bringing our total graduate student enrollment to 63, the largest in the history of the PE graduate program. The job market this Fall looks strong, with lots of new companies coming to campus to recruit students.

We're looking forward to the upcoming SPE Conference in Houston in early October. All of us professors intend to be there, and we expect approximately 65 of our students to attend. The Department provides a little more than 50 percent of the students' actual costs to attend, thanks in great part to funds provided through annual alumni donations. Please try to join us in Houston at the annual CSM alumni reception on Tuesday October 5, 5:30 to 7:00 p.m., at the Hyatt Regency Houston Hotel. As usual, we expect 150



to 200 to drop in; I hope you can find the time to come and see old friends and make new ones.

The new Department of Education grant of \$227,000 annually is going very well. We started last Fall semester with 10 new Ph.D. candidates fully supported, and the beginning of this second year looks even more exciting. These "senior graduate students", along with others among our total of 63, provide mature and solid Teaching Assistants for our entire program. Matching funds of approximately \$75,000 per year are provided by the PE Department from our CSM Foundation accounts to satisfy the Department of Education requirements. This is a good example of leveraging and synergism.

I want to thank many of you personally for supporting the PE Department. We very much appreciate and try to put to good use all kinds of support, from cash donations to hosting our trav-

eling groups, especially during the two Summer Field Sessions. Also, your support enables us to continually invest in and maintain our state-of-the-art computer lab for all of our students; sponsor students to attend functions, such as SPE Conferences, et al; host receptions at graduation time; and supplement our annual operating and capital expenses. The results of your partnering with us in this joint venture are obvious. CSM's PE program is healthy and balanced, firmly standing on a solid foundation primarily composed of your strong shoulders.

On a more personal note, I am very happy to say that my family is doing just fine. My wife Denice and I really enjoy our two grandchildren, Gus and Grace, as well as daughter-in-law Amy and son Sam. They are in their third of four years in Portland, Oregon, and clearly prove that "absence does make the heart grow fonder". Also, our dear daughter Connie is preparing (with Denice's help) for her wedding to Marine helicopter pilot Tom Campbell in San Diego on October 30. (Yes, I intend to be in my full Halloween costume on the 30<sup>th</sup> and 31<sup>st</sup>).

On a sadder note, during the past 12 months two of my close family members died suddenly. My older sister Sue died quickly and unexpectedly in early June, as did my Uncle Jack last Thanksgiving. Both of them were instrumental in raising me throughout my life - they are dearly missed.

During the past 12 months we have traveled to Portland a few times, and to North Carolina to visit Connie and Tom during the record-breaking summer heat. In April I was in Abu Dhabi for a few days, and I might be traveling to Kuwait and Qatar in the next few months.

Well, that's enough for now. Please keep in touch and come by for a visit anytime. I hope you enjoy this Newsletter and your contact with CSM's PE Department. Please keep the cards and letters coming. It is very rewarding to us to be kept informed of your activities.

Best Regards, Craig

## Jon Carlson

As reported last year, I continue to teach the undergraduate and graduate well completion and stimulation courses as well as serve as the director of the PERFORM production enhancement research consortium. This consortium currently has 9 members, having lost two due to the merging of sponsors. We are always looking for new sponsors and would appreciate any support you can lend!

When this consortium was started in 1996, the majority of the well completion-related projects dealt with hydraulic fracturing problems. Recently some of the effort has been shifted to deal with sand control completions. One interesting and promising study is developing permeable cement that would allow a cased-hole completion to perform like an open-hole completion with no gravel in the perforation tunnels. When non-Darcy multiphase flow effects are included, this completion method would give a four-fold well productivity improvement over conventional cased-hole gravel pack completions.

PERFORM currently provides partial support for six graduate students. Three SPE papers on PERFORM projects were presented last year.

## Richard Christiansen

During the coming academic year, I expect to enjoy a sabbatical from the normal rush of life at CSM. With this time, I plan to organize notes for three courses: phase behavior, improving oil recovery, and flow through porous media. All of these are courses that I have taught several times since joining CSM in 1990. A portion of the course notes on flow through porous media will become a book on measurement of relative permeability. I would like to teach short courses using these materials if the opportunities arise. (Any income from short courses would come in handy!) If one of these courses is interesting to you, please call.



Richard Christiansen

To further supplement income during the sabbatical, I am working on funding for research on liquid lifting from gas wells, on recovery of oil from oil-water transition



Jon Carlson

zones, and on compositional gradients in oil and gas reservoirs. And, I am looking for a couple of short (one to three months) assignments with corporate technology centers. One assignment for next Spring is not quite settled, so I hesitate to say much about it.

So far, my plans have a strong flavor of uncertainty. Such uncertainty is almost as common in academics as it is in the business sector of the oil and gas industry. From time to time, I hear of a student who has lost his or her job – a too typical example of uncertainty in our industry. I hope that with rising oil prices the job market improves.

From August 1 to 4, I hosted the International Symposium of the Society of Core Analysts here at CSM. Such an event requires long-term planning. A year ago, we were quite concerned for the effect of low oil prices on attendance at the 1999 meeting. Yet, the final attendance count for the Golden event was about 140, just a little less than last year's meeting in The Netherlands. Dr. Shameem Siddiqui, who now works for Aramco, attended the meeting. It was nice to see him again. Next year, the SCA meeting will be in Abu Dhabi. Perhaps, I will see some of our Middle East graduates there.

## Alfred W. Eustes III

### Field Session U.S. Gulf Coast

Once again, it was my pleasure to lead the 29 students of this year's PEGN 315 Field Session I. This year, we visited the U.S. Gulf Coast. Mark Miller was again riding shotgun with me and I had two newcomers to the teaching assistant ranks, Jennifer Miskimins and Eric Bridgford.

We started out the field session by flying to Dallas-Fort Worth. The first challenge of the session was to find the car rental place. After an hour and a half, we left for Fort Worth. Don't ask me why, but my parents hosted the group for a picnic get together at their house in western Fort Worth. As is usual with field sessions, the students, assistants, and faculty ate with great gusto. We spent the time getting to know those with whom we would spend the next 12 days together.

After the picnic, we headed on down to Waco. The next morning, we received a lesson



Bill Eustes

on H<sub>2</sub>S. Jeff Nelson of Ricks Exploration arranged for us to have Hydrogen Sulfide training from Mark Croasmun of Oilind Safety. Brad Crouch of Tres Management Inc., a veteran of field session of 25 years ago, hosted the group as we studied the effects of H<sub>2</sub>S and donned air packs. We are all certified in H<sub>2</sub>S now, not that I really want to get into the stuff. From there, we motored



H<sub>2</sub>S training

over to Lufkin Industries and toured the manufacturing plant with Linda Coulter, Gene Stewart, and Bill Bardwell. Afterwards, we enjoyed a Lufkin style barbecue dinner.

The next day, we fought a major thunderstorm to make our way to Hughes Christensen's The Woodlands bit manufacturing facility. Our host was Bobby Grimes, my representative on the board of the ASME Petroleum Division. He fielded a great group of engineers to show us how bits are assembled. We also had a tour of the new Drilling Simulator Laboratory at The Woodlands. We appreciate

Brian Wiesner, Arin Carmen, Sean Berzas, Allen Sinor, and all the great engineers at Hughes Christensen. The afternoon was spent at Baker Hughes Inteq with Holger Stibbe and his team of engineers including Ed Hill, Mathias Schlecht, and Robbie Redding. We watched how downhole drilling tools are made.



Schlumberger's Sugar Land campus

The next day, Michael Jardon of Schlumberger hosted us at the Sugar Land campus. We toured the NMR research laboratory, MWD/LWD design laboratory, Anadrill offices, and Vector Wireline manufacturing facility. Dylan Davies, Joel McClurkin, and others gave us a great tour. After a good meal in the Sugar Land cafeteria, we drove down to the Rosharon campus. We spent the rest of the day looking at perforator manufacturing (no smoking here!) and took a look at coiled tubing operations. Many thanks goes out to George Spencer, Ray Best, and Marc Allcorn for their patience. That evening, we visited a quaint little establishment called "Pappadeaux's"

courtesy of Michael.

Friday was a slow day. We spent the morning at the Space Center at the Johnson Space Center. I noted in one of the exhibits a replica of the Lunar Drill. The afternoon was spent at the Offshore Energy Museum in Galveston. This is an interesting museum that makes you proud to be a part of the industry. Our day wasn't over yet. We spent the

evening at a backyard shrimp boil, courtesy of one of our student's parents, the Barden's.

Saturday was a travel day. We left Galveston on the Bay Ferry and paid homage to the birthplace of the modern petroleum industry, Spindletop. We even had Eric Bridgford give us a geology lesson on salt domes. From there, we drove on into Lafayette for a demonstration of MWD/LWD tools from Pathfinder. Matt Johnson, an alumnus of three years, Gary Laughlin, Lyn Greenway, and A.J. Broussard hosted the group. I was intent on leaving there to go straight to Slidell

for the night. The students had other ideas. It seems there is a small city on the banks of the Mississippi that we didn't get a chance to visit last year because of a hurricane. The students wanted to rectify that omission. Curiously, I took all of the luggage straight to Slidell and Mark, Jen, and Eric took all the students to New Orleans.

Since everybody showed up by midnight, I assumed all went well (which it did).

The next day, we met with Dennis Heagney for a tour of the largest and newest addition to the Transocean Sedco Forex fleet, the Discoverer Enterprise. It was one of the few times you could board a drill ship from a van. It was in the Pascagoula, Mississippi Ingalls ship yard. We spent the entire day prowling the environs of this formidable ship. Everything about it is superlative. The engines, control systems, dual derrick, dual 5,000 hp drawworks, four 2,220 hp mud pumps, and so on were awesome. It has the most

open floor space I have ever seen on anything that floats. Thank you's go out to Dennis and his team of guides, including the chief engineer and captain of the ship.

Monday was a day of rest. Excuse me, I meant we spent the day studying near-shore clastic depositional environments. We also studied the solar energy influx. It was spent at Pensacola Beach, Florida (my home state).

Recent graduate, Cody Teff of Spirit Energy, arranged for a visit to their Chunchula field, north of Mobile, Alabama on Tuesday. The field superintendent, Van Pattillo and his team consisting of Rick Sisk, Gary Sims, Mike Gable, Danny Roybal,



Johnson Space Center

Daingerfield, Texas for a tour of the Lone Star Steel plant. We thank Glenda Lewis and Kirk Krienke for their hospitality.

The last day was spent back in Dallas. Laura Kline of Mobil Exploration and Production arranged

a great tour of the Dallas Mobil facilities. We saw some of the latest technologies in various areas including reservoir simulation, subsea engineering, and geophysics. We "quickly" (as quickly as molasses running over a glacier that is) motored over to the Drilling Operations Center for a review of Mobil's worldwide drilling operations. Unfortunately, we had to make a 2:30 P.M. flight to Denver so we had to leave Mobil early. We did, however, fill the vans with good Mobil gasoline before we turned them into the rental agency. Our thanks goes out to Bill Donlon, Taras Makogon, Frank Eldred, Rawani Reddy, Brian Sabin, W.S. Whitney, and many other great Mobil hands.

All in all, we had a great field session. We have a lot of good memories. More than that, we had a good cross-

section of the industry, from independents to majors, operators, service companies, and drilling contractors. We also had the opportunity to visit major historical sights and space technology arenas. I know I have left out some of the fine folks that made our field session a great success. Please forgive me. I have a photographic memory, as long as I am around a captioned photograph. Otherwise, it is swoosh over my head. We also got to visit and learn from each other. I was very impressed with this group of students. They were attentive, interested, and polite. We had absolutely no problems with anybody. I had only one problem. Are the streets of Lafayette really designed to baffle



Studying clastic depositional environments

and Eric Johansson, showed us around the Chunchula Gas Plant. After hosting us for lunch, we then toured the field. We finished the day at Nabors Rig 218, drilling an 18,000-foot deep horizontal hole for Spirit Energy.

Wednesday was our longest day of travel. We drove from Mobile to Bossier City, Louisiana. Along the way, we stopped at Vicksburg National Military Park to visit a major Civil War battlefield. It is hard to imagine one of the turning points of U.S. history occurring in such a peaceful location. In addition, along the way, I took my van to my alma mater, Louisiana Tech University in Ruston, Louisiana. It had been twelve



At Pathfinder in Lafayette

the uninitiated?

## Drilling Activities

The one and only student chapter of the AADE (<http://www.aade.org>) is still going strong. This year, one of our goals is to visit more rigs. We even are heading up into the mountains to the Henderson Mine to see a mining drill rig. We also need to raise funds. Any assistance to help us reach our goals would be greatly appreciated.

I am now the Drilling Committee Chair of the Petroleum Division of the ASME. This means that I am the Drilling Symposium Chair for the 2000 ETCE/OMAE ([http://www.asme.org/petroleum\\_division/etce2000.htm](http://www.asme.org/petroleum_division/etce2000.htm)) in New Orleans from February 14<sup>th</sup> to the 17<sup>th</sup>, 2000. We have over 45 drilling papers in preparation to present at the conference. Please consider attending the conference. It is definitely a good place to learn the latest in the "mechanics of drilling".

Even as I write this, I am eagerly preparing to drill my first well in, uh, a long time. Neil Hurley, professor in the Geology Department, has a research project involving the coring of the Lewis shale about 40 miles southwest of Rawlins, Wyoming. The point of the research is to study the world-class turbidite outcrops located there. I am acting as Neil's company man, something I did for ARCO two degrees ago. I'll let you know how it came out at the Alumni Function at the ATCE in Houston.

The Jet Propulsion Laboratory project I told you about in the last Newsletter is coming along. We have identified five areas of drilling concern in the development of the Martian Subsurface Explorer (SSX). The SSX is a self contained tethered robot. It would be designed to penetrate the subsurface paying out a thin tether for power and communications behind it as it drills deeper. You can find a short blurb about it at: <http://ranier.oact.hq.nasa.gov/>



Learning Geology at Spindletop

[telerobotics\\_page/FY97Plan/Chap2d.html#Subsurface](http://telerobotics_page/FY97Plan/Chap2d.html#Subsurface)

The first area is the determination of the drilling penetration energy needs for drilling through permafrost and basalt (two materials expected under the Martian surface). The second area of concern is cuttings transport around the robot. The third area of concern is the sidewall friction effect. The fourth area is rock property expectations under Martian conditions. The fifth area is in directional control. These are tough problems. We are just finishing up the first task for the project.

In July, Dr. Joan Fitzpatrick, Director of the National Ice Core Laboratory in Denver, and I submitted a proposal to design, improve, and execute



On the helicopter deck of the Discoverer Enterprise.

all of the ice coring and drilling for the National Science Foundation for the next five years. Should we be awarded the contract, we would assist scientists in gathering information in and under the world's glaciers and ice sheets. The work would take place around the world. However, the majority of the work would be in Antarctica, either on the West Antarctic Ice Sheet (WAIS) or at the South Pole station.

If you want to see the current state-of-the-art in ice coring, look on the cover of the July-August edition of the **American Scientist**. You can find a web version at <http://www.amsci.org/amsci/issues/Coverstory/coverstory99-07.html>. CSM would not only be



Bill at the Driller's Controls of the Discoverer Enterprise

responsible for execution of drilling operations, but also with the design of new equipment and the improvement of old equipment. It is my intention to meld into the ice coring and drilling business, the best applicable engineering and equipment that the drilling industry can offer. A typical ice core costs about \$1,000 a foot.

It is an exciting time to be in drilling engineering research.

## John R. Fanchi

This has been another roller coaster year in the oil patch. We have seen oil prices drop to money-losing lows and rebound to very profitable



John Fanchi

levels in a matter of months. An increase in hiring was followed by significant layoffs throughout the industry while the rest of the U.S. economy boomed. Trade publications asked predictable questions: Is the oil patch changing? Are the changes permanent? Students wondered if they would

be able to find a job, and if they did, how long would it last. Can a 22-year-old student plan on a career in oil and gas?

The events of the past year may be transitory, as has happened in the past, or they may be a harbinger of things to come. The oil industry is renowned for its ups and downs, but people are asking: was this past year different? By many accounts, it was.

Few outside of the oil and gas industry realize that the oil patch employs some of the most advanced technology in the world, or above it. Advanced technology in subjects ranging from computers to satellites is needed to produce the fossil fuels that provide the energy for most of the earth's economy.

Will fossil fuels continue to play a significant role in the future? More importantly, from a student's point of view, will they be needed for the duration

of a budding career?

This past year I had a chance to explore these questions as I prepared to give a general interest talk on campus. I found, as many of you already know, that we can expect to see many more forecasts of energy requirements as we approach the year 2000. The forecasts will range from the demise of the oil industry to its resurgence and continued dominance. The common thread in all of these forecasts is that they are speculative. As a modeler, though, I am used to working with forecasts. One of the tenets of modeling is that you need to establish a baseline. Chevron has produced a forecast that provides a convenient baseline. It was published in the November 1998 Houston Geological Society Bulletin and some of its results are shown in Figure 1.

We can expect every forecast to be inaccurate to some extent, but the forecast in Figure 1 illustrates the energy mix for the next century assuming a gradual transition from fossil fuels to energy sources that are already being developed. It provides a reasonable baseline for discussing the questions that have been raised by the volatility of the energy sector this past year.

If we look at Figure 1, we see oil and gas growing for the next two or three decades and then diminishing as a percentage of the energy mix. To put this in perspective, a student graduating in 2000 would like a career to last until around 2040

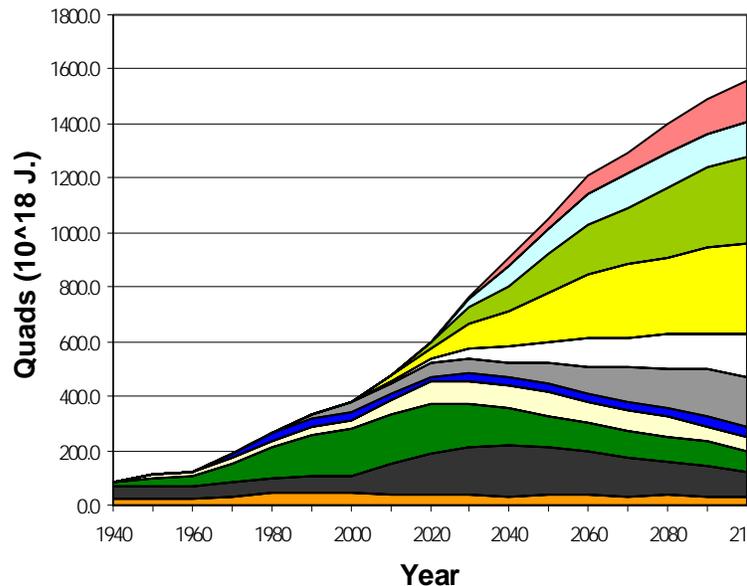


Figure 1: Energy Baseline

or 2050. According to Figure 1, it looks like a petroleum engineering career could easily last that long. But there is a lesson to be learned here. By

mid-career, the energy mix will be transitioning to a more complex mixture of energy resources.

We can quibble about timing and the relative importance of the various resources that will comprise the energy mix in the next century, but we are already beginning to see the scenario in Figure 1 unfold today. Energy companies - the same companies that used to be called "oil" companies a decade ago - will be competing for market share. Students today need to prepare to serve in an evolving energy industry that relies on advanced technology. This is both our challenge and our opportunity.

## Ramona M. Graves

Life has been good again this year. I was on sabbatical last year and as I recently told Craig, I am ready to get back to "normal" work. It kind of upset me that they (the other faculty) could get along so well without me!! However, I am not worried that this year I can reclaim my "control" (or at least they will let me think that).

I spent much of the year working on my laser research. Darien O'Brien '83 and I spent some time in Moscow and St. Petersburg working with some Russian laser physicists. This was my first trip to Russia and I thoroughly enjoyed myself. The scientists were professional and very friendly, the food was good, and our driver always got us to our destination with only minor terror on our part. I also had the opportunity to attend the SPE Drilling Forum held in Bariloche, Argentina. Technically it was great and I got to meet several of our alumni who are working in South America. Even though it was during the school year, my daughter, Lacey went with me. Her rationale was, "We don't do anything in school anyway so I won't miss anything."

Jacob graduated from high school in June. Doesn't have a clue as to what he wants to do so he is taking general classes at Red Rocks. Lacey is a senior in high school. She is going to go to art school, become a professional photographer, and work for National Geographic. Every one who knows us both calls her "little Ramona". I don't agree with this because she talks louder and faster than I do.

I am looking forward to the year. I have come back refreshed and am ready to spend another 17 years at CSM!



Ramona Graves

## Mark Miller

I am still enjoying teaching classes and being the "computer guru" for our department. It has been five years since the department created a computer lab for the students. This year marks the first time that the lab is actually full of computers. We started out with then state-of-the-art 60 MHz machines. Student fees and industry donations have updated these machines to 200 MHz and beyond. Generous software donations have enabled us to train our students on the latest available software. The lab is very successful. Students print over 500 pages/day from the network printer. One of the side benefits is that students have a place to meet other students for interaction.



Mark Miller

We found that our PC machines were not sufficiently adequate for some of the work we needed to accomplish. Professor John Fanchi was able to obtain four SGI Indigo machines this summer. Graduate students are performing reservoir studies on these machines. With these machines, the department has almost 100 machines for use by students and faculty.

Professor Bill Eustes and I took the students on the annual PE 315 summer field session to the Gulf Coast. More information on that trip can be found in his section. I particularly enjoyed touring the technological marvel of the Discoverer Enterprise drill ship and thank Dennis Heagney for the opportunity for our students to visit the ship. The students, TA's and I took a detour to New Orleans while on the trip. After missing out on the New Orleans SPE convention last year, a riot was in the works if it was bypassed this summer. So if you happened to be on Bourbon Street one night this past summer and thought "Where did all these nice students come from?" The answer is CSM, of course, where all nice students come from.

This semester I am fortunate to be teaching a Visual Basic (VB) class for our graduate and undergraduate students. A version of VB is included with Excel and we feel that by giving our students this tool, they will be able to apply programming skills more broadly than if they learned FORTRAN. Programming has come a long way since the days of submitting a FORTRAN deck and patiently awaiting the results. Today programming is much more pleasant, because we can interactively debug a program. Apply logic and go.

## Erdal Ozkan

In the last year's newsletter, I was saying "I joined the department in August 1998 and am looking forward to meeting you at the upcoming SPE Annual Meeting in New Orleans." As we all remember, it turned out to be the first and the only Annual Meeting of the SPE that had to be canceled. Although a whole year has passed since

then and I am already considering myself as part of the family, meeting the alumni at the SPE Annual Meeting in Houston still has the same meaning for me as it had last year. I am really looking forward to it.

I had an excellent year at CSM last year. Often people asked me about the difficulties of adjusting to a new department. I told them that I could not answer this question because

I did not even feel the transition. Everybody is so friendly here at CSM that you feel yourself home the first day you arrive.

Since last summer, I have been involved in various activities in and outside the department. I taught the undergraduate and graduate Well Testing courses, a new graduate course called Horizontal Wells: Production and Reservoir Engineering Aspects, and co-taught the graduate seminar courses with Bill Eustes. My first encounter with the CSM students was excellent. I enjoyed it and I hope the feeling was mutual. I also took a small part (I guess that was my training for the coming years) in the PE 316, Summer Field Session in Massadona. Despite some cold weather and even snow, I thought the camp was very successful and rewarding for the students. For me, it was a nice and different two weeks.

I also continued working on the Optimization of Horizontal Well Completions project, a joint industry project I had started when I was at the University of Tulsa. This project is now continuing in collaboration with the Pennsylvania State University and the University of Tulsa. Of course, I spent a lot of time on other activities. I wrote and presented technical papers, attended meetings, worked with my students, and contributed some of my time and effort to the professional community. Well, I guess it was a busy year and I accomplished enough to feel good about myself.

As I said in the beginning, I missed the opportunity to meet you last year. I hope this year we will meet in Houston and hopefully be in much better spirit because of the optimism inspired by the rising (and hopefully stable) oil price.



Erdal Ozkan

## Robert S. Thompson

Again, I am pleased to report all is well in the Thompson Family. My daughter survived her first year at CU Boulder in the Business Department and is enrolled for the Fall semester. For those who are familiar with the Boulder campus, she is sharing an older house with five other girls "on the hill." Stay tuned. The entire family made the bicycle trek across Iowa in the RAGBRAI. We also survived a week of house boating at Lake Powell. Finally, my wife (Geri), has taken charge of planning and implementing the landscaping efforts at our new home in Morrison, CO. The rock gardens look great.

On the educational front, I managed to convince my committee to give a thumbs-up on the comprehensive exams for my doctoral work at CU Denver. I am now "ABD" (all but dissertation). I just registered for dissertation hours (required 7 hours per semester), and realize that it is time to focus and finish (too many negative numbers on the cash flow time line).

Finally, I am proud to be the recipient of the 1999 AIME Mineral Economics Award that will be presented at ATC Awards banquet in Houston. The award citation reads "for his continuing effort to standardize and increase our industry utilization of economic evaluation and risk assessment techniques." Over the past 18 years I have had the opportunity to work with numerous students. Credit is due these graduates. Thanks...and keep up the good work. Cheers



Robert Thompson

## Society of Petroleum Engineers

### Zan Svendsen, President

On the first Friday of September, the SPE Student chapter began the year with a recruiting booth during the celebration of mines. It appears as though there are many incoming freshmen interested in petroleum this year. Aside from the people who's interest only went as far as what the booth was giving away, there were quite a few new SPE membership forms filled out. Two days before the booth, we had the first meeting with this year's officers. The purpose of the meeting was to discuss the responsibilities of each officer and was expected to last only about a half an hour. However, due to the great enthusiasm each officer has about their specific tasks this year the meeting

could have, and nearly did, continue well into our next class.

The main goals for the SPE this year are fundraising, international recognition, and more integration with other petroleum related professional societies. A total of \$1,000 was raised selling flowers during a fundraiser last spring. This year we are planning to do more, including a golf tournament for all alumni and SPE members next spring. Receiving recognition as an outstanding school chapter has begun with the near completion of our homepage, and will continue with another large turnout of about 60 people attending this year's SPE technical conference in Houston. Other interests in this area include a relentless pursuit of being published in the JPT. Integration with other petroleum related professional societies is the theme of this year's Joint-Session. Already underway, this year's Joint-Session will include the AADE and AAPG student chapters as well as the Denver/CSM SPE chapters. Aside from Joint-Session, monthly meetings will be held jointly with the AADE. Other priorities include making the closing of this millennium and the beginning of a new a time in which the SPE will grow to new heights.

Please take part in our activities and join us for Joint-Session next spring. Information will be posted in the PE department, SPE newsletters, and Denver chapter meetings.

## **American Association of Drilling Engineers**

### **Mike Griffis, President**

The American Association of Drilling Engineers (AADE) is a professional organization that is focused on the science of drilling. Most members of the AADE are directly involved with the petroleum industry, while others represent other industries...geology and mining to name a couple. Currently, the Colorado School of Mines chapter of the AADE is the only student chapter in the nation.

One of the primary goals of the AADE student chapter is interaction with professional members of the drilling industry. Annually, we host a joint session with the local professional chapter of the AADE. At last year's joint session, the

AADE awarded academic scholarships to Sally Rautio, Nicole Jacobs, and Steve Kendrick. On a smaller scale the AADE student chapter hosted several lunchtime learning sessions with a variety of guest speakers, ranging from professional Drilling Engineers to a local water well drilling contractor.

This year our chapter plans on hosting lunchtime guest speakers every other week. As of now, representatives from Schlumberger, Anadarko, and Mobil are coming to speak about technical subjects and careers relating to the drilling industry. We are also planning field trips out to drilling sites and possibly a local mine to observe several types of drilling operations.

If you're in the Golden area, and you would like to attend one of our meetings, feel free to contact Arman Tulegenov, the AADE publicity chair, at [atulegen@mines.edu](mailto:atulegen@mines.edu).

## **Pi Epsilon Tau**

### **John Estabrook, Secretary**

Pi Epsilon Tau, the Petroleum Engineering honor society, is a service organization who's main purpose is to provide a closer bond between its members and the petroleum industry; to broaden the scope of activities of its members; and to maintain the high ideals and standards of the Engineering Profession. Membership is not only based upon high academic standards, but also service to the campus and outside communities.

The Colorado School of Mines Chapter of Pi Epsilon Tau is planning for a busy year. We currently have approximately twenty undergraduate and graduate members from the Petroleum De-



Massadona 1999 - Day 1: If you think this is a snow scene, you are 100% correct. On the final exam, students were asked if it gets cold in Massadona? We are pleased that only one student missed this question.

partment. Late last spring an officer election was held and we elected Alvaro Ranero as President, Louise Jacobsen as Vice-President, Michael Mihaljevich as Treasurer, and John Estabrook as Secretary. The Pi Epsilon Tau officers, along with our advisor, Dr. Ramona Graves, have set some goals and activities for the upcoming year. Our first member meeting is coming up at the end of September and we will be talking to the members to see in what direction they would like Pi Epsilon Tau to go. Then it is off to the SPE Convention in Houston where Pi Epsilon Tau will also conduct a National meeting. Soon after Houston we will be conducting our Induction Ceremony for new members. We are also trying to get our graduating

members recognized in the Commencement Program and possibly get cords to wear during the ceremony. A weekend project is also in the works where we would go into the community to provide a helping hand. As usual we will be helping out around the department with tours, tutoring Petroleum students, and other odds and ends.

The CSM chapter is helping the national organization reorganize to better fulfill our mission and the better facilitate interaction between the university chapters. We look forward to a fun and successful year. If you have any comments or suggestions please feel free to contact our President at [aranero@mines.edu](mailto:aranero@mines.edu).

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1999 PEGN 315 Field Session at the Spindletop Monument