



Fall semester 2010 finds us extra busy!



Dr. Ramona M. Graves

The PE faculty, students, and administrative assistants are busy getting ready to attend the first SPE ATCE to be held overseas. As a department we will be making a great showing - 10 faculty attending, 12 technical papers to be presented, 22 students attending, 2 administrative assistants attending (for student and faculty supervision) various committee meetings, and we are one of the few US Petroleum Engineering Departments to be holding an Alumni Reception. Many faculty are taking this opportunity to visit companies based in Europe to report on research

activities and develop potential new research opportunities. I keep telling the CSM administration: "Yes, we are going to Florence on business!"

Marquez Hall architectural design is in the final stages. The commitment and excitement in the faculty is amazing. They each realize this is a once in a lifetime opportunity to design a teaching and research environment where they will be spending the rest of their careers. Many of you have built homes...now image me making final design decisions while attempting to make 4 "wives" and 7 "husbands" happy. In reality, it has been so enjoyable watching them discuss/debate and come to solutions that will not only serve our needs in the near future but also for generations of students to come. If you want to keep abreast of the demolition of the Annex (some of you may be more familiar with its former use - Jefferson County Jail) and the on-going construction of Marquez Hall, we have a webcam set up so you can follow the progress <http://ccit.mines.edu/webcam>. Now that building Marquez Hall has begun, we are entering into the next fund raising phase. With almost twice the sq footage, enough faculty and graduate student offices, larger undergrad labs, real experimental research space, and almost twice the number of computer stations for student use, we need to equip and furnish Marquez Hall. Plan on hearing from me on this at another time!

Our student numbers appear to have leveled out (see statistics box). We have about 120 students/class at the undergraduate level. Since they don't take their first PE class until their sophomore year, this means we contact ~360 undergraduate students/semester. Thanks in large part due to the continued support of you and your companies, we are still able to provide an educational experience that includes the summer PEGN 315 company visits and PEGN 316 Massadona, unlimited computer usage and printing, class trips to frac jobs, drilling rigs, etc, and the bottomless

PE STATISTICS FOR 09-10

New Research Contracts \$3.4 MM

GRADUATES

PhD	1
MS/ME	22
BS	97
Placement as of May (%)	87

CURRENT ENROLLMENT

PhD	27
MS/ME	48
Seniors	125
Juniors	120

*Sophomore/Freshmen - do not declare until Spring Semester



Receiving the Distinguished Member certificate at ATCE 2009.

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candy dish. Our graduate program continues to grow and improve. This year we had over 250 applications, accepted only 40 and 21 new graduate students started this fall. Our required minimum GRE scores for acceptance are among the highest on campus. If you remember the statistical information from last year's newsletter, our new research funding was \$2.5 MM. Note this year it is \$3.4 MM. Over a 30% increase in one year. I am so proud to be associated with this group of researchers. They are helping to make your alma mater even more respected!

General faculty news: The CMG Chair position was filled – Yu-Shu Wu, the Harry D. Campbell Chair was filled – Azra Tutuncu, and the Steve Chesebro' Distinguished Chair is still full – Hossein Kazemi. One of my goals when I accepted the Department Head position is to have all faculty have the recognition of a Chair or Professorship. I have ways to go on that goal!

Bill Eustes, Will Fleckenstein, and Craig Van Kirk did an outstanding job representing Mines and the Petroleum Industry as we were inundated with interview request and information from media sources regarding the Gulf of Mexico disaster. Erdal Ozkan was on sabbatical last year and this year Jennifer Miskimins is currently on sabbatical. She has just begun her SPE Distinguished Lecture tour in Australia. I think she is also studying modern carbonate deposition at the Great Barrier Reef! Manika Prasad received tenure so we can look forward to her being part of the team for a long time. In their second year as faculty, both Dwayne Bourgoynne and Xiaolong Yin received research grants and are moving nicely toward tenure. Linda Battalora and Mark Miller still carry a large load with undergrads, so the research faculty can focus on continuing to do great research. And finally, our newest faculty member, Azra Tutuncu, has already proven to be a fantastic addition of our staff. See her article for details.

My family and friends tease me constantly because I am a person that does not like change. As an example, I have lived in the same house for 25 years and have never rearranged the furniture. But this year I am faced with one of the biggest changes this department has seen in 30 years - CRAIG OFFICIALLY RETIRED LAST SUMMER!! So after writing that and taking a deep breath, I force myself to remember..... this is a TRANSITIONAL RETIREMENT. Meaning he has a contract to continue working and contributing to the department and CSM on a ½ time basis. We had worked on a plan for quite some time. So, Craig will be here in his office, wearing his baseball cap for the next (at least) three years!

I continue to teach PEGN 308 Rock Properties to the sophomores and PEGN 413 the senior design lab. Teaching is my joy and my sanity! I advise two thesis based MS students and 1 PhD student. Being in the classroom is for



Green bean popsicles in China!

my heart and advising graduate students is for my brain.

I'm still traveling ...a lot. Last November, John Humphrey (GE) and I along with Dr. Nigel Middleton, CSM Executive Vice President of Strategic Enterprises, were invited to Almaty, Kazakhstan to participate in the celebration of Kazakhstan National Technical University's 75 Anniversary. We also participated in a SPE Time and Talent Workshop on Best Practices in Petroleum Engineering Education. I'll be presenting the outcomes of this workshop at ATCE in Florence. Chevron continues to be a great facilitator in the KazNTU/CSM partnership.

In January, I represented several of CSM's faculty from PE, GE, and GP at the first Abu Dhabi Petroleum Institute research partner meeting. Absolutely fabulous meeting! Being able to compare our CSM research with other US and International Universities' research reinforced the quality, teamwork, and enthusiasm Mines' faculty continue to demonstrate. The major responsibility for presenting our research fell to one of our more senior PhD students, Ali Al-Sumaiti. His poise and professionalism impressed all! He was also a magnificent tour guide (see photo).

Stayed pretty close to home for the remainder of the spring semester with the usual trips to Calgary, Arkansas, Houston, D.C. etc. until Field Session! I returned to PEGN 316 Massadonna to present an award in recognition of over 20 years of support to Craig Stratton and the PLS team. I'm sure many of you remember the great Production Logging Course they give every summer. I also walked through the cabins and many of your names written on the rafters, walls, and ceiling brought back great memories. Since I was in the area, I met up with Bill Eustes' PEGN 315 Field Session and got to tour Shell's oil shale project with them.

I returned to China with Yu-Shu Wu in July for a mid-project research review. This was in Shanghai and as luck would have it, the World Expo (formerly known as the World Fair) was being held there. Yu-Shu, along with his wife Jamine, and daughter Stephanie, gave me one of the greatest experiences in my life by making sure that I got to attend (see photo).

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The remainder of the summer was Marquez Hall planning. Oh, and my 40 year class reunion. Who were those old people from my class?

Kids, Jake and Lacey, are great! Everything is the same with my family and life in general. This is a good thing with all the excitement at Mines.

As I read the first paragraph of Hossein's newsletter article, I thought what great words of wisdom! I should try and emulate him....and then I read the last sentence of that paragraph and I found out that I already am emulating him!!

Keep in touch!



Ramona, Ali Al-Sumaiti, David Olsen (MT) in Abu Dhabi

PETROLEUM ENGINEERING

RESEARCH PROFESSOR & CSM PRESIDENT, M.W. SCOGGINS



Dr. Scoggins on the steps of Guggenheim

When the Mines calendar turns to August- which seems to come around more quickly every year - you can sense the increasing level of activity and excitement on campus. The squares on everyone's calendar start filling up with meetings, planning sessions, reports to give, reports to receive, numbers to study and facts to consider.

As I recently sat in one of those critical, do-not-disturb meetings, an old friend from industry stopped by the office to say hello and introduce me to his son, who will be a freshman starting classes on August 24. I was sorry we couldn't visit, although I know I'll connect with them in the coming months.

Still, it was a reminder of what the heightened anticipation and activity are all about: Our students, a select and selective group of exceptional individuals.

Undergraduate applications to Mines for this fall were up about 36 percent, with applications from resident students

showing an increase of about 25 percent, and applications from non-residents up almost 42 percent over the same time last year. Our graduate school is also reporting impressive growth.

Of course, the Petroleum Engineering Department, highly regarded around the world, is an important contributing factor to the increased demand for a Mines education. As you read this newsletter, you'll understand why.

Mines has long been known for its outstanding teaching faculty, and in recent years research activity has been growing and receiving widespread notice. Facilities to maximize all this talent are a priority. So we look forward to the construction of Marquez Hall, which will provide the PE Department with leading-edge classrooms, laboratories and office space. The groundbreaking ceremony for Marquez Hall will be held in early October, with construction starting in early 2011 and completion anticipated in the summer of 2012.

As you know, this is all happening in a challenging economic environment, which accounts for some of the long planning sessions I mentioned earlier. But we're seeing opportunities and finding answers. Mines continues to move forward. Join me in wishing my old friend's son and every Mines student a great new school year.

FACULTY LETTERS

LINDA A. BATTALORA



Linda with PEGN 481 Seminar student Jamie Sheets.

The 2009-2010 academic year was full of activity and changes in the Department. This year promises to be equally as busy, and we are excited to meet the challenges of educating and graduating top-quality petroleum engineers.

This year I am slated to teach our graduate and undergraduate petroleum engineering seminars as well as Fossil Energy, a new course for the newly revised Energy Minor, Environmental Law, a graduate level course that I developed and taught last Fall, and Multidisciplinary Engineering, which Dr. Mark Miller and I teach along with our colleagues from the Geology and Geophysics Departments. I was also appointed as the coordinator of the PEGN 315 Field Sessions and led a group of 35 students to Southern California and Bakersfield once again this summer. (Read about the 2010 PEGN 315 California Field Session elsewhere in this Newsletter!)

I remain active in the Society of Petroleum Engineers International (SPE) and continue to serve as the Faculty Advisor to the CSM Student Chapter of SPE and as a Board Member of the Denver Section. Our SPE Student Chapter had another great year. We received over \$25,000 in undergraduate and graduate scholarships from SPE International Inc. and the SPE Denver Section. With funding from various industry partners, SPE Denver Section and student organized fundraisers, approximately 120 students attended ATCE 2009 in New Orleans. The annual Joint Session Meeting in April with the Denver Section was a tremendous success. We were pleased by the SPE Denver Section attendance and grateful for their financial contribution. Additionally last spring, the CSM Student Chapter organized a Clay Shoot that was an overwhelming success. The students are presently working on the upcoming Golf Tournament that promises to be another great fund-raiser. We are proud of our Student Officers for their tremendous leadership, professionalism and organizational skills. For the past several months, they have

devoted countless hours to organizing the student trip to Florence, Italy for ATCE 2010. We look forward to telling you about it in our next newsletter!

In December, I attended the annual International Petroleum Technology Conference (IPTC) in Doha, Qatar where I co-chaired the Environmental, Health & Safety technical session. In addition to experiencing the conference and the Middle Eastern culture, it was great to see many of our former CSM students at the technical paper sessions and social events. I am looking forward to co-chairing the EHS technical session at the 2011 IPTC in Bangkok, Thailand in the spring.

Last fall, President Scoggins selected me as one of four female faculty and administrative employees on campus to participate in the 2009-2010 Academic Management Institute. This elite program provides opportunities for honing leadership and communication skills relevant to academic administrative positions and networking with female faculty statewide. It was an honor to be selected and I enjoyed the opportunity immensely.

Also last fall, I started my PhD program at CSM in the Division of Environmental Science & Engineering. In addition to my full-time faculty duties in the PE Department, I am studying under the direction of Dr. John R. Spear in the area of applied microbiology and beginning research of microbial activity in reservoirs and production operations.

I continue to work closely with the Association of International Petroleum Negotiators (AIPN) of which I am a member and for which I serve on the Education Committee. One of my favorite duties is to judge the annual Writing Competition that is open to all universities that have an affiliation with AIPN. Additionally, it is my pleasure to select one

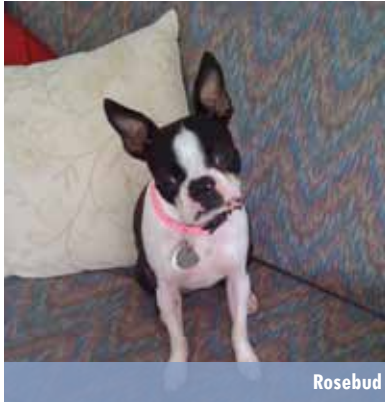


Linda and Brent Koren discussing "i-Field" at Chevron's Kern River

BATTALORA CONT.

student from our Department to attend the annual conference all expenses paid by AIPN. This unique opportunity allows the student to network with engineers, negotiators, attorneys, and management and to learn the most current issues in the upstream segment of the oil and gas industry.

Outside of CSM, I maintain my legal consulting practice in the area of international oil and gas law. It is a pleasure to work with my colleagues at Grand Auzas & Associés of Paris, France and to occasionally have them co-teach with me a short course on international hydrocarbon agreements.



Rosebud

A few personal notes: "Rosebud" is now twenty-one months old.

Where does the time go? At doggie daycare, her favorite pastimes are running through the legs of the "Big Dogs" and sleeping in the laps of the handlers. At home, she is an ardent "watch dog" and provides many moments of comic relief. When she occasionally "acts out" I wonder - "what's with this? I sent her to the best schools!" She is fourteen pounds of Boston terrier brilliance (and exuberance) and is a joy to be around.

Although I gave up the idea of auditioning for "Swan Lake" last year, I am still taking ballet classes three times a week. I've added hath yoga to my fitness repertoire of swimming and ballet. I like saying "ohm" at the beginning and end of class but I dislike "pigeon pose." I can get into it, but I can't get out!

Thanks for your continuing support of the Petroleum Engineering Department and Mines! We look forward to seeing many of you at ATCE 2010 in Florence, Italy and of course, we always enjoy seeing you on campus for alumni events and recruiting!

DWAYNE A. BOURGOYNE



Loving Life in Colorado

Greetings alumni, supporters, and friends. The job of Assistant Professor at Colorado School of Mines must be very fun, because time here flies very fast. I would not believe that another year has passed except for the fresh new crop of faces listening with sleepy eyes to my first lectures of the semester. That, and the recognition that my older girl is starting Fifth Grade and "baby" is starting First.

Yesterday in diapers and tomorrow in college. I am realizing the vital importance of saving both memories and money.

This semester I am again teaching our undergraduate Drilling class alongside Dr. Eustes. We partner together to teach the Drilling and Completions classes, with Dr. Eustes acting as lead for Drilling and with me as lead for Completions. It has been an effective partnership, and Dr. Eustes' strong drilling experience has helped immensely in my training. (I am an oil industry mechanical engineer, but have never worked as a driller.)

As part of our collaboration Dr. Eustes and I are revamping this two-course series and adding more opportunities for "active learning" exercises. That's a new name for "learning by doing," which education research has shown to be more effective than the traditional lecture. As most of us have experienced, the best learning takes place when the student gets actively engaged in applying his/her knowledge to solving problems. We plan to call the new classes Drilling Engineering I and II, and the student's effort will center on producing a complete well construction plan for a real oil and gas play. We will provide data on an existing field and require them to plan a new well. The class will be taught in modules such as "casing design" and "cement planning," and the student will complete a section of the well plan in each module.

Special effort will be given to presenting the input data to the students in the same form they would see it in the field, communicated through reports, memos, and emails from other parts of the "company." In some cases the data will be incomplete and inconsistent, and they will be required to sort it out, justify their assumptions, and present their results in a professional form. Written and oral presentation skills will be taught through this imitation of the real-world process. You can help us with this approach if you have suitable data sets that you can donate to the department. Well plans, daily drilling reports, mud records, and logs are among the kinds of information we could use. Reservoir and

BOURGOYNE CONT.

production data for the same field could be used for similar projects in the undergraduate logging, well-testing, and production engineering classes, improving the continuity of the department curriculum. If you have data we might use, please let us know.

In addition to the undergraduate classes, I am teaching my first graduate class this semester on Advanced Drilling Fluids. I look forward to the small class size and challenging nature of the material. In that class also, I am emphasizing communication skills along with the technical material, and will be administering oral as well as written examinations. So far the students appear nervous at the prospect but enthusiastic about improving the skills so important in our industry. I remind them constantly that the ability to convey their ideas clearly and persuasively is as important as the idea itself.

The topic of advanced drilling fluids fits well into my prior experience and training in fluid mechanics and my current research efforts in wellbore cementing. The tragic blowout and spill in the Gulf of Mexico this summer has generated a lot of interest in the safety of deepwater operations including the casing design and cementing practices that may have contributed to the accident. As many of you know, deepwater GOM well construction is made particularly



Dr. Bourgoyne with two students from his Advanced Drilling Fluids class, Nijat Mehtiyev, and Donates Ezeabasili. The PE Department thanks Brady Allen and Mi-Swaco for the generous donation of their drilling fluids manual for the class text book this semester

challenging by the often narrow margin between pore pressure and fracture gradient. In some instances we are drilling wells that are extremely difficult to cement. I am seeking industry partners and federal funding for research in deepwater cementing that would lower the risk of future blowouts. Step one in that process is speaking with industry experts about what improvements are needed and where it makes most sense to begin. I welcome any insight that any of you might provide. Have a great year, stay in touch, and thank you for your support.

ALFRED W. EUSTES



Dr. Alfred W. Eustes

Every year brings challenges and opportunities. Since our last newsletter, this year hasn't been any different. In fact, for a change, the only thing that I considered really personally challenging is the use of my new hearing aids. I can tell a real difference in listening since I got them in January. A lesson to us all: Take care of your ears and protect them from high levels of noise. I didn't.

I continue to teach the drilling courses on and off campus. We had 140 students in PEGN 311 and 110 students in PEGN 361. I also continue offering a graduate course a semester as well as taking on the leadership of a section of PEGN 315 field session. The field session is covered in another section. I have also been traveling to Tripoli, Libya where I have taught three short courses thus far. That has been a lot of fun with eager and well engaged students. Plus, my class room overlooks the Mediterranean Sea. My last trip was in June when I was invited to the American Embassy to watch the US and Algeria play in the World Cup. By the time I got through embassy security (granted we were late picking up ice for the embassy), the Americans had their miracle finish and the game was over. Oh well, I did get to meet the US Ambassador.

In other news, I have been in the news. With recent events in the Gulf, I was asked by local and national media to explain some of the technical matters. So, I have been interviewed by television, radio, and by the print media including the local Denver stations, New York Times, Washington Post, Los Angeles Times, and Denver Post. I was even asked to comment live on MSNBC. I dressed up nicely, went to the

EUSTES CONT.

Channel 9 studios, and was sitting in front of the camera with microphone on, when MSNBC canceled my appearance because of riots in Greece and a 1,000 point drop in the Dow. Go figure.

We ask a lot of you for our students. We have tours, meetings, gifts, and donations because of your generosity. I must thank all of you. But I want to single out the following folks. I must thank Truman Beran, Clinton Dattel, and Dr. Mark Kuchta of the Mining Department up at the Edgar Mine, David Hobbs, Tim Anderson, and their team at Noble Energy and Randy Sprouse and his teammate Anadarko for graciously donating their time and efforts for giving the PEGN 311 class a number of tours! We had six groups go out over the semester. I also want to thank Dennis Heagney and Steve Newman of Transocean for coming on campus last December to give a "state-of-the-art" talk, as they have done every year, on the "Introduction to Offshore Drilling". It was then that Steve told me of his exciting news that he had been named CEO of Transocean as of January 2010. After recent events, I can't think of more of a baptism of fire than what Steve and all the others involved with the unfortunate events in the Gulf. My heart goes out to all of them working hard to limit the damage. I also acknowledge the efforts of the Denver Chapter of the AADE. Besides scholarships, they have donated many pieces of equipment such as scanners, video projectors, mud kits, and repairs.

We are in the final phases of the Marquez Hall design. The drilling simulator is over thirty years old and is on its last

legs. I have even cannibalized parts of the subsea panel to keep the rest of it going. We need an upgraded simulator to go in on the first floor of the new Marquez Hall. We have started local fund raising to purchase the upgrade; but, the campaign is in its infancy. I will be letting you all know more as the program starts rolling.

In other news, I have been named the Undergraduate Coordinator for the upcoming ABET accreditation cycle in 2012. For us to have a successful outcome (six more years of accreditation), we will need to document outcomes. We have been doing a good job here on campus. However, it is the alumni that ultimately show our success. We will be asking for your assistance in the coming year to assess how the department is working. Typically, we survey our alumni with certain questions to highlight how well (or not) we prepare you for your careers. Be looking for it soon. Thank you in advance for your responses.

As I said last year, I have been blessed. I work for the best petroleum department in the world. I work with an excellent faculty and staff. The students are the best. The alumni are wonderful. I am traveling and seeing unique places. I have some really cool opportunities. My health appears to be improving all the time. I have a fantastic wife and two wonderful children (even if one of them goes to the University of Wyoming). I will continue to be visited by you and visiting you, maybe on field session or a conference or wherever our paths may cross. Until then, stay safe. And protect your hearing.



WILL FLECKENSTEIN - BP ADJUNCT PROFESSOR



Will and Miss Ellie

This year BP supported my position as BP Adjunct Professor, and it was with particular horror when I watched the first video of the stricken Deepwater Horizon. My heart and prayers go out to the families of the eleven killed in the explosion and those injured. My graduate drilling class was scheduled to discuss well control and safety that week,

and images of the burning rig and the ROV footage of the continuing blowout served as a somber reminder of the importance of what we do and the consequences of losing control of a well. BP sponsored Dwayne Bourgoynne and my attendance at this year's OTC, which included a tour of BP's facility. I was struck by the all-hands approach to respond to the disaster that BP is taking, and the number of empty offices that BP had as they shift resources to deal with the blowout and resulting spill. I wish BP well in their continued efforts.

This fall, I will be teaching an interdisciplinary class focused on Shale reservoirs with Dr. Tom Davis from Geophysics and Dr. John Curtis from Geology. This is an exciting course focusing on an area that has been very successful in adding to worldwide reserves and production, and particularly in the US. It seems that every month a new name pops up as a significant source of hydrocarbons, led by the Barnett, and followed by the Haynesville, Marcellus, Bakken, etc and

FLECKENSTEIN CONT.

now the Niobrara north of the Colorado School of Mines itself in Golden. The Shale hydrocarbons are enticing, but bring conflicting pressures with them. The very nature of the development is rig and service company intensive, great for employment, but intrusive on land owners. The resources are onshore, and therefore not capable of an oil spill in the ocean, but public concerns mount about the chemicals used in the fracture stimulations and methodologies to drill these wells.

The techniques to develop these shale reservoirs with horizontal wells are for the most part tools that have been developed for conventional completions and modified for use in shale completions. Frac Baffles, Perf and Plug, water fracs, are all technologies that were modified and have been very successful, but a great deal of opportunity to improve upon and replace these technologies exists. About six year ago, I decided it made sense to refocus my research efforts to try to develop Intellectual Property, that would have an economic benefit to the CSM from royalty and licenses, and I focused my consulting on Intellectual Property matters, to learn what is patentable and more importantly, what is valuable when it is patented. This last year that effort has made it to the point of passing the practicality test within the Department, then the Technology Transfer Office process of deciding to commit the resources of the school to seek patent protection and now the disclosures are in the hand of the School's IP law firm, where it has to pass the prior art hurdles and mature into a series of unique and patentable claims. The next stage of the process is to market those

inventions, and look for a partner (either an operator or service company, or both) to commercialize those claimed inventions. Any alumni interested please contact us.

This initiative to develop Intellectual Property from the Department research is important for several reasons. First it has a flywheel effect, where IP income comes back to the Department and School and is available to fund further research efforts, by making it possible to fund the work necessary to harvest patents from other funded research, by directly paying for prototypes, or funding research needed for proof of concept. It also allows the Department to have funds available to compete for grants requiring matching funds, in case the researcher cannot procure other funds. Second, the development of the IP enhances the reputation of the School and Department, since all major Research Institutions, such as Cal Tech or MIT, have very successful (and profitable) Technology Transfer. These Institutions have developed the culture and "know-how" to identify research that has economic value, and move that research through the process that results in patents that generate revenue back to the institution; in effect – a working flywheel. Other disclosures are in the pipeline, but hopefully these current disclosures will get the flywheel moving, which is the tough part – then it is only a question of increasing the momentum.

I hope everyone has had a wonderful year and look forward to seeing many of you at the CSM Alumni Reception at the SPE ATCE in Florence.

HOSSEIN KAZEMI - CHESEBRO' DISTINGUISHED CHAIR



Dr. Hossein Kazemi with Post-doc Binsham Ju

It is Friday night, July 16, 2010, 11:20 pm and I am writing this newsletter from Seeley Lake, Montana while on my only week of vacation this summer. This newsletter is no different than so many other reports I have written or must write. Add to this my students' technical papers, theses and other documents that I must review. Obviously, it is the age of the internet and we must work 24/7! Ironically, in the June 28/

July 3, 2010 issue of Newsweek, Tony Komaroff reports that Harvard doctors' secrets for healthy living is to "ditch your iPhone." How true! But, I would say: Ditch you iDevices two days per week and one month per year for better health, improved creativity, and increased productivity. Nonetheless, between my CSM email, my home email, and my BlackBerry, the students daily discussion needs, the research clients, I don't have much choice but to keep on using my iDevices every single day and respond to messages 24/7.

On the serious side, I am extremely pleased with the outcome of events in the last twelve months. Here are the reasons: 1) Seven of my PhD students were working either as industry interns this summer or were full-time industry employees. 2) The remaining five+ PhD students were active conducting research at CSM. 3) We were able to start a couple of very important experimental research programs. In the first program, we purchased and installed a quarter of a million dollar ultrafast centrifuge in the PE Department to obtain oil recovery data to verify the validity of the mass transfer

KAZEMI CONT.

functions in fractured reservoirs --Thanks to Mr. Ali Al-Sumaiti's (PhD candidate) persistence. In the second program, a local EOR research company, Tiorco, hired one of our students as summer intern to conduct oil recovery experiments in long fractured cores using a half a million dollar, state-of-the-art, core flooding equipment. These latter experiments complement our centrifuge experiments. Preliminary results were exciting. Hopefully, we will buy a core flooding equipment for the Department in the foreseeable future. In the meantime, we are very grateful to the management of Tiorco for their help, especially Dr. Charles Thomas, and for the collaborative research work we are conducting using their equipment. 4) It looks like at least two of our students will defend their PhD thesis in time to obtain their doctoral degrees in December 2010. A third PhD student could also make the December deadline, or at least defend his thesis by December. 5) Our research programs for Aramco (two projects), the Abu Dhabi Petroleum Institute (two projects), and PEMEX are progressing well and several new research projects (a notable one from Kuwait Oil Company) are in the formative stage.

On a couple of different fronts, 1) I watched the incredible games of the Soccer World Cup, with Spain winning the World championship. I will miss these games until the next World cup in four years. 2) I anxiously followed the events surrounding BP's Macondo well from April 20 until successful installment of the second containment cap on July 15. It was very difficult to get hold of reliable data; nonetheless, I tried to stay informed. Interestingly, the estimated produced GOR was around 2000 scf/STB prior to shut-in, after which the tubing pressure at the cap rose to 6700 psia with the expectation to

reach 8000 – 9000 psia. As of July 19, the pressure had gone up to 6792 psia and rising. These data could provide the basis for a nice term paper!

As for the upcoming fall semester, I am very excited about the prospect of making significant progress in our research program – especially our experimental work. In the fall, the only course I will teach is Reservoir Simulation I, with a revised and improved content and approach. In the spring 2011, I will similarly revise the content for my course on Enhanced Oil Recovery. Much of these changes are designed to improve the quality of instruction and focus on the practical aspects of technology.

I wish all of you -- my colleagues, friends, and students -- the best in health and success in the coming year.



Coach Kazemi with his U-12 girls soccer team. (Standing next to Coach is his granddaughter, Ava. Georgia, twin to Ava is 6th to the left of Ava.)

MARK G. MILLER



Enjoying the last day of summer field session.

Most of the 2009-2010 academic year was concentrated on three c's: classes, computers, and change. Classes were full. One fall semester class had over 130 students in it. It was difficult to tell if students were going or coming. Fortunately, there were four teaching assistants to help out. Splitting the

group into two sections for the spring semester helped out a lot. I again was privileged to help with the summer field session in Rangely. While driving in the rain with Geology Professor Donna Anderson, I found that it was fairly easy to find the contact of the Mancos Shale. When you land in the ditch, you have found it. Matthew Hoffman, Maverick Stimulation, and Greg McIntosh, Anadarko Petroleum, again helped us out in our 2010 Petroleum Superschool field trip. Thanks to a better economy, we had a lot more Superschool students than last year. They also seemed to be more focused and had good attendance, which also may be a function of the economy.

Lab computers have felt the strain of our increased enrollments. Once the semester starts, the labs have students in them almost 24 hours a day. You might think that Friday night at midnight would be a safe time to do

MILLER CONT.

maintenance. However, Friday nights are the Kazakh student “competitions”. Because of the heavy use, mice, keyboards, and monitors failed left and right in the fall semester. Alumni donations and student fees funded the replacement of nearly half of the lab computers over the winter break. The operating system and programs were updated on all the machines. Not only were bad mice, keyboards and monitors fixed, this resulted in operating system crashes and corrupt profiles dropping to zero in the spring semester. Unfortunately, the main file server’s motherboard gave out over the summer. This cascaded into replacing the motherboard, hard drives, and operating system. Because all of the license servers were tied to the old motherboard, they needed to be replaced also. I am thankful it was the summer and not in the middle of the semester.

The change component of the year consisted of preparing for Marquez Hall and preparing for Yu-Shu’s new EMG

center. Many meetings were held over the past year to help design the petroleum engineering side of the building. Computer labs, visualization, classrooms, meeting spaces, etc, everything needed to be considered. How many, how big, what if, what about, specifications of every detail were considered. Preparing for the new EMG center involved cleaning out a storage room. It was painful getting rid of spare computers and printers. Ok, so there was quite a bit of other experimental equipment that hadn’t seen the light of day since it was put there in 1992. However, much of what I had was active storage. The storage room allowed me to scavenge parts like fusers, power supplies, and monitors. Now, we will have to rely on buying new. It was ironic that in the days following the dejunking, us dejunkers got an email: Has anybody seen this particular piece of equipment????

JENNIFER L. MISKIMINS



Jennifer and Zoey

Greetings! It is good to once again have this opportunity to speak with you. This is an extremely enjoyable article for me to write this year because I get to let you know that I’m going to be on sabbatical this coming year. This will be my first sabbatical as a Mines’ faculty member, and I am truly looking forward to what I have planned this coming year, which mainly consists of serving as an SPE Distinguished Lecturer (DL) for 2010-2011.

Last year, after a fairly meticulous interview process, I was informed of my selection as an SPE DL. It will probably be of no surprise to most of you that the topic of my lecture is hydraulic fracturing in unconventional reservoirs. At this point in time, I am scheduled to give 29 lectures in a variety of countries and states including Australia, New Zealand,

the United Kingdom, the Netherlands, Germany, Italy, Kazakhstan, Brazil, Pennsylvania, West Virginia, Texas, Louisiana, and Oklahoma. I hope that with all of these locations, I will have the opportunity to meet as many Mines’ alumni as I possibly can. If you’re interested, my official schedule will be posted on the SPE website – please stop by and say “hello” if the opportunity presents itself.

My DL tour will not be my only traveling endeavor for the coming year. I will likely be visiting TU Delft in the Netherlands for several weeks in early 2011. While at Delft, I will be involved in teaching some courses, as well as strengthening our CSM-TU Delft exchange program. I will also be attending the ATCE in Florence and maybe one or two other trips thrown in there. Needless to say, I’ve had to add some pages to my passport.

While on sabbatical, I won’t be away from Mines 100% of the time. I won’t be teaching any classes this year, which I will miss, but I will continue working with my graduate students and conducting my research programs including the FAST (Fracturing, Acidizing, Stimulation Technology) Consortium. These areas are just too hard to step completely away from for an entire year.

So, I think you can agree that this will be a very interesting year for me. It is definitely one that I’m very excited for and greatly anticipating. My first trip starts in August in Australia, and after that it’s off to the races. I hope that over the next year, my path will cross with many of yours. (Oh, and that’s Zoey, my 2-year-old rescue dog in the picture with me – she is NOT happy about all the traveling!!)

MANIKA PRASAD



Holi Manika (Ramona note: google Holi)

There will be no stapling!

(Inspired by Lynne Leach)

"There will be no stapling!" Even the most innocuous statements take on a bizarre meaning at field camp. This year would be no different.

A friend had told me a really funny story some time ago from her high school camp about licking frogs. Apparently, a bunch of kids had heard that frogs excrete hallucinogenic substances. So, they sneaked out at night to get cheap thrills by licking said frogs. Hilarious story, a bit far - fetched, but funny and believable ...for high school kids!

So how did I get here? This is Day 7 of the second field camp session and I am lecturing college seniors about how my friend's high school teacher had to announce one morning that there will be "no licking of frogs from now on"!?

Turns out that camp does strange things to people. I had been getting my usual batch of morning reports that started with "hate it here" and progressed on to "actually, camp is getting to be fun". Then, one morning, I read

"I got stapled at the tavern and it was fun!"

I put that note aside with a note to self to ask niece to decode stapling. Like I said, camp does strange things to you.

After I read a few more of "got stapled" plus quite a few "we stapled xx (*insert any name*) and it was fun", I realized, I needed help to decode fast.

Merriam-Webster (<http://www.merriam-webster.com/dictionary/stapling>) explained that it meant "to provide with or secure by staples" and that a staple was "b : a small wire both ends of which are driven through layers of thin and easily penetrable material (as paper) and usually

clinched to hold the layers together"
(<http://www.merriam-webster.com/dictionary/staple>).

Hmmm... I know camp does strange things to you but I could not imagine a bunch of college juniors getting stoked by stapling their homeworks together even if it had been a large assignment. There had to be another meaning.

The TAs were just as mystified. So, I asked a group of students. Turns out they got hold of a staple-gun and then...

"... we thought it would be fun to staple Steve* ..."

"Excuse me? Do what? How?"

They look at me as if to say "*how dense can she get?*"

"Like, we held the staple gun to Steve*'s chest and hit the button."

"It was hilarious! I almost pe..."

"Wait, wait, wait. Let me get this straight - you drove metal pins into Steve*'s chest? Was he passed out? Did he pass out?"

"*I know I am ready to*"

"No, he liked it!"

"And then everyone wanted to get stapled!"

"Yo Mike*! Show Dr. Prasad your staple marks. She does not believe us."

"*Please not Mike* - he is the serious one.*"

Pale chest in front of me with little red puncture wounds.

"You should have been there, Dr. Prasad. It was soooo much fun. See, we made pictures."

Photos of chests, arms, etc. flash in front of me with little red puncture wounds. I think YouTube, I think FaceBook, I think MySpace, I think finally CSM will make the ranks of party schools and our students will also get invited to parties at neighboring schools. Then, I see myself at the Rangeley emergency room explaining how the tetanus-infected / swollen / puncture wounds came to be.

"*Ma'am where were you in all this?*"

* names are altered to protect the guilty

real name

PRASAD CONT.

Hence, the next morning lecture started with:

“There will be no stapling of chests, arms, legs, or any other body parts.”

This experience does offer two possibilities:

1. The junior year was so tough that stapling falls way below the pain-threshold.

OR

2. Students can take on much more pain than what we can ever inflict. So, bring on the assignments and surprise quizzes.

I prefer the second option.

In any case, “staple guns” are now a banned item at camp. If you were thinking of visiting us next year, please leave your staple guns at home. I am sure you can manage without them for one day.

All in all, it was a fun trip. On the last day, it rained continuously. We packed in the rain and had to take the final exam in the Rangeley town library. The librarian was extremely nice and accommodated everyone. She even apologized that so many had to sit on the floors. And on the drive home, we hit sleet, snow, and fog.

Like I said, it was yet another normal year of field camp.

We did get our ladder fixed by Bob#, da Builder! One fine afternoon, Bob climbed the ladder to fill the shower tanks. The ladder decided that it had seen enough and Bob came crashing down. Thankfully, he was not hurt. Instead, he gave us a list of supplies and made the ladder in one afternoon. Thank you, Bob!!



In more routine news:

I received tenure.

I am putting together a research sediments research group to study clean, clay-rich, and organic-rich sediments. If you are interested, please contact me.

MS students Kenechukwu Mba and Sunny Wu are scheduled to graduate this summer. Kene will also present a few papers on his results at the ATCE and the SEG and AAPG annual meetings.

Two new MS students will join the group this Fall and two Ph.D. students will join the group in the Spring. With that, we have the following petroleum engineering students in the RockAbuse Group:

1. Kenechukwu Mba; MS thesis topic: Bakken shales; expected to graduate in Summer 2010
2. Wenhui Wu; MS thesis topic: Heavy Oil properties; expected to graduate in Summer 2010
3. Patricia Castillo; MS thesis topic: Tight Sand flow properties
4. Utpalendu Kuila; PhD thesis topic: Clay and Shale properties
5. Ravi Sharma; PhD thesis topic: Effects of Fluids on Carbonate properties
6. Piya Degongkit (new); MS thesis topic: Estimating Reserves and Errors therein in Unconventional Reservoirs
7. Shrey Mahar (new); MS thesis topic: TDB
8. Ryan Vera (undergraduate student help)
9. Ryan Stef (undergraduate student help)

We also have a visiting scholar, Baoqing Xu for a year from SINOPEC in China. Baoqing has expertise on petrophysics, with a focus on production logs. We are very excited to have him here.

Weiping Wang is continuing as a researcher in our group. Weiping measures fluid properties. We have also added George Radziszewski to manage our very new micro-CT scanner and to make high-temperature measurements on oil shales.

Add another 7 geophysics students advised by Mike Batzle, we will have about 20 RockAbuse.

** names are altered to protect the guilty
real name*

AZRA NUR TUTUNCU - HARRY D. CAMPBELL CHAIR



Dr. Azra Nur Tutuncu

Dear Colleagues,

I am delighted to write you in the CSM Alumni Newsletter as a new faculty and honored to be part of this distinguished organization as the Harry D. Campbell Chair in Petroleum Engineering department. My transition from the industry has been so far effortless having worked with CSM alumni colleagues side by side many years during my Shell research, operation

and leadership assignments and my involvement in the recruitment effort here. I am looking forward to contributing the renowned high quality teaching and research effort at the department.

We have been mesmerized during the Spring and most of the Summer 2010 by Deepwater Macondo well blowout incident that triggered a massive oil spill resulting the worst environmental disaster in the US history. A great contribution of this unfortunate incident has been the public education aspect of its extensive media coverage by the support of experts from industry and academia. The incident disclosed the ingenuity and technical sophistication of petroleum engineers in the public eye by not only accomplishing drilling and extracting of oil and gas a mile below subsea floor, but also real time monitoring and controlling complicated operations remotely.

Another notable personal event in late June was the 44th US Rock Mechanics Symposium and 5th US - Canada Symposium for me. As the President of the American Rock Mechanics Association hosting the Symposium, I had opportunity to meet many colleagues from around the world who are devoted experts in integration of rock engineering, mining and civil engineering. As rock-fluid interactions, geomechanics, reservoir evaluation, integrated borehole stability, drilling and formation damage are part of my research interest areas, I am also passionate about integrating geosciences, geomechanics and engineering in my teaching and research projects at CSM following my persistent track record on multidiscipline education and industry project execution history.

The global need for energy, particularly natural gas will continue to be an incentive for unconventional gas resource development worldwide in spite of many challenges lie ahead. In the United States and Canada, new technologies have started to enable operators to unlock the vast potential

from these challenging reservoirs, boosting production levels of the natural gas production within the last few years. However, the need for enhancements in integrated reservoir characterization, improvement in understanding of stimulation and monitoring techniques, environmentally adequate handling, processing, and disposal of injected and produced fluids and solid waste continue to be essential for success in the expansion of the unconventional gas developments worldwide. Together with the newly established Unconventional Natural Gas Institute (UNGI), CSM Petroleum Engineering department will have significant impact on not only supplying the much needed technology development and transfer to complement this gap in the oil industry, but also provide expertise to minimize the persistent shortage of the specialized expertise needed to develop these resources successfully worldwide.

UNGI is an umbrella organization focusing and building on the unconventional natural gas research studies and expertise currently preside at Colorado School of Mines. It is established as a "Center of Excellence" with a unique focus on tight gas, shale gas, coal bed methane, hydrates, deep gas and as well as collaborating with oil shale, heavy oil sand and heavy oil carbonates Research Centers at Mines. Chemical Engineering, Chemistry & Geochemistry, Engineering, Environmental Science and Engineering, Geology & Geological Engineering, Geophysical Engineering and Petroleum Engineering Departments with inclusion of eight Centers in these departments are closely involved in the UNGI research effort. The UNGI has a noble role as a bonding organization not only reinforcing the existing research programs and showcasing the ongoing interdisciplinary research programs, but will also play a key role as an information clearinghouse for government agencies and the public in the area of unconventional resource exploration and development for years to come.

As the new director of the Unconventional Natural Gas Institute (UNGI), I am very excited about the opportunities in contributing toward the solutions for the immense challenges in Unconventional Resource Development and in collaborating with all of you who face these challenges in your daily tasks at the oil and gas industry, federal and state government or in various academic organizations. I am delighted to be part of this massive effort as a member of the winner team at CSM and looking forward to working in partnership with each one of you in the near future.

As one of the first campus-wide event toward defining the full range of the challenges involved in Unconventional Resource Development, we are hosting the 1st UNGI Workshop entitled **Technical and Economic Challenges in Commercial Development of Unconventional Gas Reservoirs**, on Thursday October 21, 2010 following the Oil Shale Symposium at the Colorado School of Mines

TUTUNCU CONT.

campus. I hope you have already received an invitation for the Workshop and have marked your calendars. If you are interested in attending, our website (ungi.mines.edu) has details on the Workshop, the agenda plus you can register there. I would like to cordially invite you and your team members at your organizations who have interest in Unconventional Reservoirs to this event to be held at the CSM Green Center. The workshop is intended to bring together multidisciplinary technical people from industry, academia and government to define the challenges ahead. We hope to encourage synergy across the spectrum, including the contributions of researchers working on recovering resources associated with full spectrum of shaly formations

and unconventional gas reservoirs. In addition to several speakers, we will have two Panel Discussions (one in the morning and one in the afternoon) to capture the speaker key messages and enable all attendees to provide their top priority challenges to the discussion. Research and development will be a clear way allowing E&P and service companies to overcome the major technical challenges of unconventional plays and continue to meet growing energy demand for the foreseeable future. I look forward to meeting you at the campus during the UNGI Workshop and hearing your ideas on how to solve these challenges together by developing the most suitable integrated research programs here at Mines.

CRAIG W. VAN KIRK



Craig and Dr. Mohammed Al-Jawad (PE professor at Bagdad University) looking for Petra Jordan

Here are my best wishes to you and yours, and I hope you are happy and healthy. Since our last PE Newsletter a year ago there have been no major changes in my life, my wife Denise and I very much enjoy our kids and 7 grandkids, and all of us are quite healthy and happy. Some of the “gang of 7” are old enough now to accompany us on international trips and meet some of our CSM alumni (and their kids or grandkids!).

This fall semester I am fulltime busy on many fronts as I have been for the past 32 years. Starting in January I will cut back to 50% time, as part of my transitional retirement plan, and remain at that level for the next few years.

Last school year I taught 2 undergraduate courses and 2 graduate courses, plus a couple “one-on-one special topics” customized courses with 2 students in each of them. Naturally, I continue to serve on graduate student research committees which tend to focus on reservoir engineering and management topics; very interesting and fun. In addition to these teaching and research components, the “service” part of my activities is filled with domestic and international projects which are very exciting.

Back to the teaching—I have always believed that the major reason anyone should want to become a professor should be to provide “learning” for the next generation, which must include the teaching component. Teaching has always been the most satisfying part of my activities here with CSM, and this past year’s experiences for me were no exception. I continue to be pleasantly surprised with each new group of students, from the 100 “freshpeople” in PE102 to the 100 seniors in PE423 (Res I) and throughout the graduate student group of Masters and PhD candidates in courses and as part of their research activities.

These pleasant surprises come in many forms, but the main ones I am referring to are the “new questions” raised by the students, or new ways of looking at old questions, or the fact that these new times require new perspectives and solutions. In fact, the teaching part does not stop outside the classroom. I believe all of us professors continue to try to teach no matter where we are or whom we’re with, in any setting, always with good intentions and sometimes with welcome and excellent outcomes.

Another component of the teaching part is the positive feedback we receive from the students at the end of the day, or from alumni who “got out” quite recently and are on their first job and amazed to find that something we tried to teach them here at CSM is actually useful, to alumni who have been out long enough to have reached levels of accomplishment and can share their wealth (of knowledge) with others. This teaching stuff is the best part to be part of—to teach others “how to fish” and then to “teach the teachers” how to teach others how to fish. And so on and so forth.

This school year I look forward to teaching undergraduate courses to the new “freshpeople” and the seniors, and graduate courses on reservoir-related stuff. The undergrad

VAN KIRK CONT.

classes have 100 students these days, while my grad classes have 30 or so. Totally challenging and fun.

The research component ranges from informal spontaneous conversations in the hall with graduate students to the formal and final defense for the PhD student after the several years of in-depth research. Most of my research activities relate to reservoir management, with some of the projects being more theoretical in nature while others are quite specifically directed at an actual oil or gas field somewhere on earth. These actual reservoir studies are always focused on some combination of very difficult reservoir problems and/or very large reserve and financial consequences.



Crag and wife Denise with CSM's SPACE Director, Gary Baughman at work in Istanbul.

These research activities are so satisfying in themselves that it is no wonder that some professors feel complete even without classroom teaching, but I prefer both classroom teaching and research. In fact, they cannot be separated simply into two distinct activities—they overlap naturally into a continuum of activities. No wonder I have difficulty telling one from the other, sometimes.

The final component of the three pieces of professorship is the service, or outreach activities, reaching out beyond the classroom and research lab. In the past PE annual Newsletters I have described several of my outreach activities, and many of them continue to mature to higher levels while there are several new ones which are just now underway. The successes of CSM's PE program throughout these many years have attracted a wonderful variety of invitations to create new partnerships. Most of these are some combinations of teams composed of International Oil Companies (IOCs), National Oil Companies (NOCs), global PE universities (old ones and new ones), Ministries of Oil and Ministries of Higher Education, and a variety of government agencies representing the USA and/or other countries.

Many of my outreach activities include CSM PE alumni, and I have reported to you in recent annual Newsletters some of the higher profile ones, such as, our new Marquez Hall project. There are many others, too numerous to mention here, but all very satisfying on a variety of levels for a variety of good reasons.

During these past 12 months since our last Newsletter, I have been especially active on our ongoing and maturing project to help Iraq start a new university in Basra. In addition, I continue to work on our expanding ties to the oil and gas sectors in a variety of

other countries, such as, Libya, Saudi Arabia, Algeria, China, Kazakhstan, Vietnam, India, UAE, and others. Each of these opportunities comes to us via invitations for us to assist them in creating programs similar to what we have accomplished here at CSM in our PE program over a period of many years, with world-class alumni, research results, papers, education and training practices, and many other "outreach" activities which people have come to know and want.

The Iraq activities have a variety of components, and the new Basra Petroleum College is the top priority. The BPC will be similar in many respects to CSM, with PE as the focal point with programs in geology, geophysics, process engineering, petroleum economics, industrial management, and business law and contracts. The plan is to offer BS, Masters, and PhD degrees in 6 departments and to provide education, research, professional training, and global outreach activities at state-of-the-art and world-class standards of excellence. The recently submitted budget request for the construction phase of the new BPC campus went to the Iraq Ministry of Oil at a level of \$100 million US, one measure of the significance of this project in which CSM plays such a vital role as one of the key team members.



Craig overlooking Petra in Jordan

VAN KIRK CONT.

My engagement with Iraq has been pretty much continuous over the past 35 years, and these current activities are so satisfying. Indeed, during these many years I have come to know many Iraqis who have had successful careers both within and outside Iraq, and they are all ready to help out in any (and many) ways.

On a broader note, during this past year I presented a paper at an SPE Conference in Beijing China in June, and I have 2 more papers to be presented in September at the annual SPE ATCE in Florence Italy. These 3 papers are co-authored with my CSM outreach partner Gary Baughman, Director of Special Programs and Continuing Education (SPACE) here at CSM. He and I are teammates on most of these outreach activities which I refer to, and we enjoy our many days of

hard work together and/or our international (and sometimes domestic) travel adventures. We “offer our experience, expertise, options, and advice for your consideration”.

In summary, I continue to very much enjoy being part of the CSM and PE team, and I look forward to at least several more years of these kinds of activities in pursuit of being helpful if and however I can be. Your input and feedback is welcome and very much appreciated, so please keep the cards and letters coming. I hope to see many of you in Italy at the upcoming SPE Conference, or if not, anytime and anyplace.

Take care, and my best to you and yours, sincerely,
Craig Van Kirk



YU-SHU WU - CMG CHAIR



Yu-Shu Wu in Siena, Italy

My second year as a faculty member of the PE at Mines has been one of the most rewarding and best years in my career. In particular, working with Dr. Kazemi and Dr. Yin, we have received two major research proposals, one on CO₂ sequestration and the other on geothermal reservoir engineering, funded by the DOE. Among the highlights of my second year at CSM also includes being awarded the CMG (Computer Modeling Group) Reservoir Modeling Chair in our PE Department. This is a tremendous honor to me personally and I would like to thank both the PE faculty members and our alumni at CMG for their support and trust of me with the honor.

In my second year, I continue to learn and improve myself in teaching and research as well as service. I feel more comfortable when working and interacting with our students, faculty and staff members. I have tried to broaden my areas of teaching and to advise several more M. S. and Ph D. students. In addition, I have had more enjoyable opportunities to interact with our alumni on campus, during field trips, and at conferences, with more positive experiences.

I would like to mention that we are building an Energy Modeling Group (EMG) within our PE department with the support from CMG foundation and Mines. The main objective of the new research group is to enhance our department modeling capabilities in energy related fields, such as conventional and unconventional petroleum reservoir simulation, geothermal systems, and CO₂ sequestration. We welcome involvement and support from our alumni and students for the new EMG activities in the coming years.



XIAOLONG YIN



Dr. Xiaolong Yin in China

2009-2010 was a busy and exciting year for me. I enjoyed the two classes that I taught for the first time – PEGN 310 Reservoir Fluid Properties and PEGN 601 Applied Mathematics. For PEGN 310 Reservoir Fluid Properties, in particular, I thank Dr. Burgoyne for the many pleasant co-teaching experience and discussions. In Summer 2010, I took a PEGN 315 field session group to Kansas, Oklahoma, Texas, and Southern Colorado, with Dr. Wu and Al Sami. As the many field sessions that we have had, this one was a wonderful trip. I want to use this opportunity to thank the companies, our dearest friends and alumni that have kindly supported us.

The research activities are progressing well. I am working with Dr. Wu on a DOE-funded research project on CO₂

sequestration. The objective is to develop a comprehensive numerical simulator to model the complex physical, chemical, thermal, and geomechanical effects associated with CO₂ sequestration in saline aquifers. I am also working with Dr. Neeves in the Chemical Engineering Department at CSM and two collaborators in Missouri University of Science and Technology on another DOE-funded research project. The objective is to develop a suite of experimental and modeling tools to characterize multiphase flow in nano-sized pores that are prevalent in tight gas and shale formations. Oh and yes – my first graduate student successfully defended his thesis in May 2010. Michael Newman's thesis is titled "Lattice Boltzmann Simulation of Non-Darcy Flow in Synthetic 2D and 3D Porous Media Models and Numerical Characterization of Tortuosity".

Finally, a caption for my "Picture of the Year". I spent some time in China visiting my parents in the summer. The picture was taken in a National Forest about 100 miles south of my hometown of Lanzhou. At first sight it looks very much like the red rocks. However when examined closely they are actually large conglomerates – not sandstone. Moreover, the red conglomerate formation is very thick – more than 1,000 feet. The heavy buildup of conglomerates in this area is believed to be due to the rise of the Qinghai-Tibet Plateau. As this location is right on the edge of the high-rise plateau, it became a "dumpster" for the pebbles to gather and a thick layer of conglomerates formed.

AL SAMI



Al Sami

When I switched from industry to academics, I thought it was the end of wearing several hats at the same time. Well, I was mistaken as those hats are still there, but the colors are different. As the Director of Engineering and Technical Advisor for so many years in industry, training of young engineers always has been an essential part of my responsibilities.

My main complaint was always about an indisputable gap between academics and industry, which made my job harder and more complicated as well as elongating the

training periods. I always told myself, if some day I get a chance to talk to the engineering institutes, I will share my frustration with them.

Delivering a few lectures at University of Colorado about industry's expectations and standards weren't fruitful enough. That was the main motive for me to leave the industry and join academic in order to be a part of the solution myself rather than asking others. Here I am in the heart of it. I love it and I am proud of it. Now, that the Fall term has already started with all familiar faces in 413, I am facing another challenge that I love.

The good news is that the Marquez Hall construction has already started. The design review of the building was the spice of our summer time which everyone pitched in and the final review was successfully completed. We are all excited about our new building.

PE FACULTY 2010



Front row- Craig Van Kirk, Manika Prasad (Ramona note: Manika is sitting down - she's not that short), Xiaolong Yin; Back row- Linda Battalora, Azra Tutuncu, Erdal Ozkan, Bill Eustes, DeAnn Craig, Mark Miller, Dwayne Bourgoyne, M. W. Scoggins, Ramona Graves, Yu-Shu-Wu; Missing: Will Fleckenstein, Jennifer Miskimins, and Hossein Kazemi

HOLA FROM THE PE OFFICE STAFF



Denise and Terri doing a zip line through the Cloud Forest



Patti at Devil's Tower on the 315 field session

School, school, school... not this year! We are going let you know "What we did over summer vacation". Of course we don't have the entire summer off, but we made the most out of our vacation time. This summer all three of us took off at the same time leaving Dr. Graves to "hold down the fort" with a few student workers.

Terri and Denise went to Costa Rica with their families to see the sights: zip-lined through the Monetverde Cloud Forest; drove through San Jose rush hour traffic on a Friday night in a rain storm playing "name that tune"; couldn't take enough pictures at the La Paz Waterfall park of humming birds,

monkeys, sloths, birds, frogs, wild cats, orchids, waterfalls; had breakfast with the monkeys in Quepos; explored the rain forest on trails and suspension bridges; swam in the Pacific Ocean at Manuel Antonio Nature Preserve; enjoyed the hot springs by Volcan Arenal; and relaxed at Finca Luna Nueva, a biodynamic farm by La Fatuna. 680 pictures and enough laughs to last us until next summer.

Patti went into a different direction with her family and headed to the Florida Keys. She spent time on the water deep sea fishing (caught a BIG one), swimming in the Gulf of Mexico (without oil), bicycling, hiking, walking the beaches and relaxing by the pool. She also has 680 pictures of her trip and a tan that will last until next summer.



Graves holding down the fort.

MARQUEZ HALL 2010

MARQUEZ HALL: THE FUTURE OF PETROLEUM ENGINEERING AT COLORADO SCHOOL OF MINES

The school is making great strides toward the construction of Marquez Hall (pronounced "Markus"), the new, state-of-the-art facility funded entirely by private gifts. Join faculty, students, alumni and donors for the public groundbreaking ceremony, taking place at 4 p.m., Friday, October 8, just west of 16th and Arapahoe Streets.

Marquez Hall will be built on the site formerly occupied by the CSM Annex, which housed the foundation, alumni association and continuing education offices. These offices moved to new homes over the summer, and demolition of the existing building is set to begin in early fall. Construction is slated to begin in early 2011, and, if all goes as planned, Marquez Hall will open its doors in late summer 2012.

"Marquez Hall has already enabled the petroleum engineering department to make great advances, even though we are just entering the construction phase," says Department Head Ramona Graves. Features planned for the new facility - "smart" classrooms, visualization labs and one of the most sophisticated drilling simulators in the country - have helped attract new faculty members with a complementary range of expertise to the department.

With the support of the extended Mines community, the school surpassed its \$25 million goal for Marquez Hall and continues to raise funds to outfit the building with cutting-edge technologies and equipment. Most recently, Schlumberger pledged \$1 million to the facility, and the Bill Barrett Corporation made a \$125,000 commitment. Petroleum engineering professor and Mines alumnus Will Fleckenstein '86, MS '88, PhD '00 added \$50,000 to bring his total contribution to \$100,000, and more than \$1.3 million was received from the estate of Mahir M. Jalili '71.



President Scoggins accepting a million dollar check from ConocoPhillips' for Marquez Hall from Fran Vallejo, VP for Finance and Treasurer, ConocoPhillips

Find a complete list of lead donors to Marquez Hall at <http://petroleum.mines.edu/>.

To maximize the impact of the Marquez Hall project, Mines' student government approved the use of extra student fees to allow for an extension of the planned facility. With their help, an addition will fulfill an urgent campus need for general academic space, adding 25,000 square feet of lecture, laboratory and classroom space to the 60,000 square feet allocated for PE.

Tim Marquez, a 1980 PE alumnus, and his wife, Bernadette, issued the \$10 million challenge grant for this world-class facility in 2005. Since then, other alumni, friends and corporate partners have stepped up to the plate to make the landmark facility a reality for Mines.

"Support from industry partners and alumni like you continues to be one of the reasons we graduate such highly motivated, qualified petroleum engineers," says Graves. "Please join us for the groundbreaking event on October 8, and help celebrate this exciting development for PE and for Colorado School of Mines as a whole."

MARQUEZ HALL

**GROUNDBREAKING
OCTOBER 8, 2010**



STUDENT ORGANIZATIONS

SOCIETY OF PETROLEUM ENGINEERS



Michael D. Lessard

As things are ramping up here at Mines this year, I would like to take this opportunity to introduce myself. I am Michael Lessard, your Colorado School of Mines Society of Petroleum Engineers Student Chapter President. This past year has been nothing short of spectacular for our chapter. We have had tremendous growth and success on all fronts. It is mine and the chapter's goal to maintain this momentum we have

had over the past several semesters and to one day soon be named the outstanding student chapter.

Looking ahead to this coming year, we are very excited to be hosting our third annual Colorado School of Mines SPE Golf Tournament on Friday September 10, 2010, at the breathtaking Arrowhead Golf Club. This tournament just keeps getting better and better! Last year we had over 80 student and professional golfers out on the course with us and set our record for fundraising.

We are very excited about the formation of our new Energy Education Committee, which serves to educate the local community about the energy industry as a whole as well as the profession of petroleum engineering. We look forward to a couple of visits we have planned for this fall to local middle schools and high schools. We would like to extend a very special thanks to BP for their generous donation to help us bring this mission to life.



Second Annual SPE golf tournament held at breathtaking Arrowhead Golf Club

We set another chapter record this past spring with our "Lunch and Learn" meetings. We averaged a minimum of one "Lunch and Learn" per week, and many weeks we had two meetings. These meetings have provided our members with exciting opportunities to see first-hand some of the projects and challenges that are currently being faced in industry.

These meetings have also provided our chapter with a great way for our members to get to know professionals in the industry better and establish relationships with them.

Our annual spring Joint Session meeting, where the student chapter hosts and organizes a joint meeting with the Denver SPE professional chapter, was another record-breaker for us this year and helped bring the semester to very positive close. Our guest of honor and speaker Keith O. Rattie, who is the former CEO, President and Chairman of the Board for Questar Energy, shared his thoughts on climate change and how it will shape the future of the energy industry. We had over 150 people total in attendance. Furthermore, we had the single largest attendance from the professional community, over 60 professionals, in the history of our chapter.



Golf team Anadarko- Kailey Kilcrease, Matt Volkmar, Max Berglund, and Mike Weaver

This past April we held our very first annual Colorado School of Mines SPE Sporting Clays Tournament and fundraiser at the beautiful Kiowa Creek Sporting Club, and had an outstanding showing of over 60 student and professional shooters. We tentatively have scheduled our second annual tournament for this coming spring, on Friday April 15, 2010 at Kiowa Creek Sporting Club.

Last fall we were able to send over 100 students to the ATCE in New Orleans, which was one of the largest showings of any other school chapter. This year we are sending over 20 students to ATCE in Florence, Italy, which is another phenomenal showing for our chapter. This opportunity certainly could not have been possible without the continued tremendous support that we have had from alumni from the professional community.

In closing, I would like to thank all of our supporting alumni and those in the professional community who have helped our chapter get to where we are today. We anxiously look forward to your continued support in the coming year ahead. I would also like to give a special thanks to the department faculty and staff who have provided immeasurable help and support to our chapter. Please feel free to contact me if you would like to get involved with our chapter or if I can answer any questions you might have, mlessard@mines.edu

Best Regards,
Michael D. Lessard

STUDENT ORGANIZATIONS

PI EPSILON TAU



Keith in Petronas Twin Towers, Malaysia

Greetings, my name is Keith Cheong and I was the chapter president for the 2009/2010 term of Pi Epsilon Tau, Tau Chapter at the Colorado School of Mines. I come from Malaysia, "Land of Good Weather, Good Food and Nice People". I spent four memorable years here in the Colorado School of Mines working towards my Bachelors of Science degree in Petroleum Engineering. Learning from the best

crew of professors in the industry was definitely a lifetime experience that was worthwhile; I have never regretted a second spent here despite our undergraduate program being dubbed one of the most rigorous in the world!

Pi Epsilon Tau is an honor society amongst petroleum engineers which was established at the Colorado School of Mines in 1983. This honor society accepts students that perform well academically show strong leadership and qualities such as integrity, diligence and sociability. All these qualities are what it takes to make a successful and respectable petroleum engineer that will contribute in a positive way to their company and eventually society as a whole.

This year members of Pi Epsilon Tau assisted with the annual Race for the Cure and also collaborated with Friends of the World, a non profit organization to hold a fundraising event for the Haiti earthquake victims. Members also represented the Petroleum Engineering department in hosting a series of department tours.

On Monday the 12th of April 2010, the Tau chapter initiation ceremony took place topping the previous year's ceremony as being the largest initiation ceremony in the history of the chapter. Fifty-one student members were initiated along with Dr. Karl Nelson who was initiated as an honorary member. The ceremony was a great success given the splendor and grandeur of the event made better with a huge turnout. President Bill Scoggins who stayed for the entire ceremony found the initiation ceremony to be a very interesting one given that new initiates will have their one minute of fame when Dr. Ramona Graves reads interesting facts about them as they receive their membership certification.

The 2009-2010 committee members who planned the initiation ceremony and also the year's activities are as follow:

Ing Keith Cheong- Senior (**President**)
Kinzie Beavers- Senior (**Vice President**)
Graham Patton- Junior (**Secretary**)
Estevan Bunker- Junior (**Treasurer**)
Amanda Bell- Junior (**Initiation Chair**)
Jonathan Harrelson- Junior (**Social Chair**)
Laura Yanowich- Junior (**Activities Officer**)

All the committee members worked hard throughout the year and did a very good job in governing the honor society and organizing events. A special congratulation is well deserved.

The new committee members were elected on the 5th of May 2010. They are as follows:

Graham Patton-Senior (**President**)
Amanda Bell-Junior (**Vice President**)
Keith Stevens-Senior (**Secretary**)
Barbara Fletcher-Junior (**Treasurer**)
Andrea Switzer-Junior (**Initiation Chair**)
Victoria Marques-Senior (**Social Chair**)
Ghysella Nababan-Junior (**Activities Chair**)

I offer my best wishes to the new committee members and hope that they will continue to keep the standards high for Pi Epsilon Tau to remain a prestigious honor society which provides a base for current students and alumni in industry to network in the future.

With regards- Keith Cheong (President)- Senior 2009/2010



Ing Keith Cheong- Senior (President), Amanda Bell- Junior (Initiation Chair), Estevan Bunker- Junior (Treasurer) Dr. Ramona Graves- (Faculty Advisor), Jonathan Harrelson- Junior (Social Chair), Laura Yanowich- Junior (Activities Officer), Graham Patton- Junior (Secretary), Kinzie Beavers- Senior (Vice President)

STUDENT ORGANIZATIONS

AMERICAN ASSOCIATION OF DRILLING ENGINEERS



Kaily Kilcrease, Juliane Von Pichl, Leidy Boyce enjoying the 2010 Premier Drilling Fluids Conference in Houston, Texas.

The Colorado School of Mines student chapter of the American Association of Drilling Engineers (AADE) welcomes you back to another enjoyable year at Mines! We have exciting plans for this upcoming year and can't wait to share them with you.

This past semester was an exciting one for our chapter as we had a couple events to attend. First, were elections where we had three strong sophomores join the already outstanding group of officers. Next, we headed off to the Denver student chapter's joint meeting where we had the opportunity to share the latest and greatest about our school with professionals in the industry. Lastly, we headed down to Houston, Texas for the Premier Drilling Fluids Conference where we got to sit in on the latest research papers involving drilling and the nuances that are surfacing. While we were there, we toured the Hughes Christiansen bit factory and learned how they make the different types of drill bits that are used today.



From left to right, Jordan Robinson, Stuart Allen, Justin Cremer, Devin Roswold, Hunter Dunham, Leidy Boyce, Juliane Von Pichl, Kaily Kilcrease, Tucker Gordon, Brent Vangolen, Devin Frank, and Dr. Alfred Eustes in Houston, Texas for the 2010 Premier Drilling Fluids Conference.

For this upcoming year, we have big plans being put together for our members. We are setting up "lunch and learns" that will be presented by industry professionals on topics that are relevant to AADE and new technology in our industry. Also, we are going on tours to such as Schlumberger and Edgar Mine - Deep into the Mine. AADE will be reaching out to increase our membership by being more active in the community and getting other majors on campus more involved. We understand that drilling is not just for petroleum engineers, but also for mechanicals, civils, geology, and many more! Our members will have plenty of opportunities to network with industry professionals at AADE Denver Chapter meetings, Fin Feather and Fur Food Festival, Premier Drilling Fluids Conference, and more to come.

I would like to finish with a special thanks to Dr. Alfred Eustes for supporting AADE as the faculty advisor. He has dedicated his own time and work to keep this organization thriving. Also, I would also like to thank the current officers for planning this exciting upcoming year for our members.

Our current officers:

President: Juliane Von Pichl (Senior)
Vice President: Devin Roswold (Senior)
Secretary: Hunter Dunham (Junior)
Treasurer: Jonathan Harrelson (Senior)
Web-Master: Keith Stevens (Senior)
Joint Session: Devin Frank (Junior)
Ben Radelet (Junior)
Justin Cremer (Grad Student)
Kaily Kilcrease (Senior)

We look forward to seeing you and working with you this next year. If you have any questions or comments, feel free to contact me at avonpichl@mymail.mines.edu.

Best regards,
Colorado School of Mines AADE Student Chapter
Juliane Von Pichl



FIELD SESSIONS

PEGN 315 FIELD SESSION IN WYOMING, NORTH DAKOTA, AND COLORADO

by: Alfred Eustes

This year, I took a group of 39 students, along with Dwayne Burgoyne, Patti Hassan, and two graduate students, Justin Cremer, and Anil Tolkhan. We traveled to North Dakota, a place I have never visited before.

Our first stop, after a safety lesson from “Charlie” at Mines, was a stop at Midwest City, Wyoming and **Anadarko’s** Salt Creek CO2 Injection operations. There, after Darin Stone explained how the field worked, Brandon VanderVoort and Steve McPherson (who with his wife gave the faculty team a lovely previous evening) showed us the inner details of their EOR project. We left there and headed to Gillette and **Williams** coal bed methane operations. There, Brian Wold, Joe Olson, Lore Barritt, and Sean Stewart explained how they do what they do and then proceeded to show us on a tour of their production wells and water treatment facilities. They have a lot of water to handle. Since we had some of the afternoon left and we were heading to South Dakota, we drove over to Devil’s Tower. A geology study, so to speak; and, maybe an alien encounter of the third kind.

The next day, all we had to do is drive to North Dakota so I took the group on a tour of the Black Hills and Mt. Rushmore. We all met back at Spearfish and headed north en-mass. We stopped at one gas station in South Dakota way out of the way. I thought about it. Between our fuel purchase for five 15-passenger vans and 44 people buying drinks and junk food, that small town had an infusion for about \$500.



Visiting Devil's Tower

In any event, we had to stay about 100 miles from our final destination as lodging is scarce in the Bakken area. So, we ALL got up and left at 5:00 AM for **Whiting’s** Bakken operations. I know that John Chrisman and Dana Greathouse had a bet we would be late. We were precisely on time! We spent the morning with them and with John



Group at Anadarko's Salt Creek Operations Center

Paneitz and Monte Madsentouring their drilling operation (Pioneer 67), production facilities, and a frac job. For lunch, they had mutually arranged with **EOG** for us to go to **EOG’s** Stanley office for a catered steak and burger lunch. The **Whiting** folks turned us over to the capable hands of **EOG** to continue our visit to the Bakken. We visited their drilling operations (DHS 12), a frac job, production facilities, and, in an unusual operation, their rail facility for transporting oil back to Oklahoma!



John, Explaining Rig operations to students

Saturday saw us on the road through Montana to Gardner, the north entrance to Yellowstone National Park. On Sunday, I told the vans that I would see them in Jackson. We all scattered and visited the many sites in Yellowstone. I might add it snowed the previous night so for the first time, I drove a 15-p van on snow. It wasn’t a lot but it got my attention.

We had some problems with cell reception on this trip. So in Billings, I bought some hand-held radio’s capable of 35 mile range. Yeah right. Any way, we had the students come up with “handles” for call signs. My van was “top drive”. Justin’s was “rubber duck”, Patti’s was “paddy wagon”, Anil’s was “monty mark” (don’t ask what the other names they had, I vetoed them), and Dwayne’s was “gold member”. When Ramona joined us later in the week, she christened herself, “red ranger”.

FIELD SESSIONS

WYOMING, NORTH DAKOTA, AND COLORADO CONTINUED

On Monday, on a cold, blustery, and snow filled day, **Questar**, **Shell**, and **Ultra** joined forces to show us the Pinedale anticline operations. This was a unique day as all three organizations had a representative stay with us all day and visit all three companies operations. Definitely a unique day in field session. A lot of people helped out this day. In the field, we had Kevin Williams with **Questar**, James Sewell with **Shell**, and Cally McKee with **Ultra** guiding us around all day. At **Ultra's** wellsite, Rick Litzel, Dan Bulfer, Terry Allen, and Buck Runyan kept us safe as we toured the various activities on that ultra-busy pad. I also want to point at that Emily Kelley and as always, Diana Hoff, **Questar's** Field Manager, helped organize the entire tour.

We left the Pinedale Anticline for the warmer climate of Rock Springs. I always like to show all aspects of our business so there, we visited two service companies, **Halliburton** and **Weatherford**. At **Halliburton**, we toured their camp, the largest in the world for them. Kristen Ellifritz organized it but helping guide use were Derek Tremelling, Boyd Smiley, Tracie Pecheny, Dave Franke, Lacy Nations, Justin Slaugh, Ron Tussey, Chris Lee, Ramiro Rivera, Pat Ritzke, and Jesse Mayne. We headed on over to **Weatherford** Rock Springs that afternoon. There, never one to miss an opportunity to assist the school was Rick Davis. One of these days, I need to hire Rick as a teaching assistant. He and the team there had laid out some wellhead components. But also, in a unique situation, earlier that day, they had a short course on well control equipment for a local operator laid out. They had disassembled parts and demonstrations of well control equipment laid out all around the shop. Given the events in the GOM, this was a timely demonstration. Thank you goes out to Todd Logan, Steve O'Brien, Brad Franks, Gary Brown, Bart Todino, and Rick Davis.

The next day, we drove out to **BP's** Wamsutter operations center. We toured that grand facility followed by a visit to a 10-well pad that was prepared for stimulation operations. I appreciate the level of detail and attention to safety that Bart Todino and Vince Hixon gave us. Plus the catered lunch was good. I also must thank Olivia Bommarito for getting this organized. She did it all the way from Anchorage!

We left Wamsutter and headed to the big city of Craig, Colorado. There, we met up with Ramona and lost a van. No, we didn't physically lose it, it broke down. Thus starts another tale to be told another time. In any event, we visited **Shell's** Mahogany Oil Shale Demonstration project. There is a lot of R&D going on out in the wilds of Colorado. We appreciate Tracy Boyd and Rick Mykitta's guidance and Joe Leimkuhler for helping us get this visit organized.



Finally, the last day saw us in Glenwood Springs. I had asked Alf Tischler and Joe Yokley of **Williams** (again) if we could visit an H&P Flex 4S rig (H&P 280) being as I am a drilling engineer. Of course, they and Susan Alvillar got that organized and there we were with Tony Fanzone, Delbert Dowling, and Jarvis Abbey looking at the one of the state-of-the-art purpose built land drilling rigs.

As always, these field sessions make the education you received at Mines unique. Very few schools go through the effort we do for this educational effort. And I can assure you that this does NOT happen without your efforts to make it happen. I realize that this can be disruptive, costly, and even painful. But think back to your education. Did field session mean anything to you? It does to me. And I thank you all.



FIELD SESSIONS

PEGN 315 FIELD SESSION IN CALIFORNIA by: Linda Battalora



Venoco Platform Gail

Thanks to the generosity and enthusiasm of our many alumni and friends, the 2010 PEGN 315 Field Session in Southern California and Bakersfield was a great success. In addition, for the first time in three years, we had no emergency room or urgent care visits! Once again, Terri Snyder, Administrative Assistant in the PE Department, joined us on the Field Session. Without her help, the Field Session would never have left the ground - literally - as she organizes all of the flight arrangements and vans for all of the PEGN 315 Field Sessions. Dr. Manika Prasad heard of how much fun we had last year so she, too, signed on for the California trip. Starting from LAX on May 17, 2010, we traveled to Ventura which became our base for the next five days. Our first full day was spent with **Weatherford** in the morning and **DCOR** in the afternoon. Our tour of Weatherford "Oil Country" was followed by a delicious lunch catered by **Weatherford** at the "Petroleum Club." Next we visited **DCOR's** Rincon Offshore Separation Facility for a tour and slide presentation. Many thanks to Andrew Prestridge and Kris Khircher for planning an educational day!

On Wednesday, we visited Venoco's Platform Gail. Once again, Matt Ott and Gary Lower lead our tour of the platform and supervised our safe arrival and departure. The remaining days in Ventura included a scenic geology field trip on the beach led by **Aera Energy** geologist, Jon Schwalbach and accompanied by **Aera Energy** engineer Dave Mayer; a visit to the San Miguelito Oil Field including a birds-eye view of the Ventura anticline led by **OXY/Vintage** geologist, Don Miller; a tour of the **SoCalGas** storage facility; a road side geology field trip to see (and touch) the Highway 150 oil seeps; and an informative Environmental, Health & Safety presentation by Karol Ballantine of **Aera Energy**. We stayed very busy during the days in the Ventura area and in the evenings, the students enjoyed the beach, going to movies, and getting to know one another.



Tour of Weatherford "Oil Country"

On Sunday, May 23, 2010, we drove to Bakersfield for a tour of the Kern County Museum, the CSM Alumni Picnic and three more action-packed days. For the first time in more than three years, the students experienced "seasonable" temperatures in Bakersfield! Along with the good food and meeting CSM alumni and families at the picnic, the students were mesmerized by Lonnie Kerley's culinary skill with the grill! We would like to thank Tiffany Brewster, Peter Ashton, Lonnie and Dawn Ann Kerley, Dave and Billie Mayer, Joe and Beth



Lonnie Kerley takes a break from the grill during the Alumni Picnic.



Jon Schwalbach, Aera Energy, instructing students on beach Geology Field Trip

FIELD SESSIONS

CALIFORNIA CONTINUED

Nahama and many others who worked behind the scenes to organize this wonderful social event. We also thank Mike and Patti Starzer and **Bonanza Creek** for sponsoring the event.



Mike McCarter, Oxy/Thums, discussing operations on Island White.

Our trip to Bakersfield comprised many highlights! The students were keenly interested in the tour of **Vaquero's** field operations including tank batteries and portable steam generator led by Joe Nahama. The "visuals" were enhanced by Joe's encouragement of the students to "smell the oil!" Once again, **Aera Energy** provided a comprehensive tour of the Belridge Field led by CSM alumni Michael Dixon, David Wahl, Jeff Kim and Indar Singh, including lunch and a panel presentation. We are appreciative of **Aera Energy's** support throughout the Field Session, starting in Ventura. The students were impressed by the **BJ Services** yard tour and were familiar with some of the equipment and techniques used in the **Core Lab** facility. Linda Specht of Core Lab never disappoints - she always has cookies and soda ready for the students after the tour. Finally, we would like to thank **Chevron** and CSM alumni Lynn Ayers, Geordie Chambers, Scott Harrison and Brent Koren for planning and hosting the cogeneration facility tour followed by a delicious lunch and a panel discussion.

We spent our last day of Field Session with **THUMS/OXY** Long Beach, Inc. We would like to thank Candra Janova for organizing an interesting and exciting day of presentations about **THUMS** and the Wilmington Field, demonstrations by **Tiger HD** wireline services, and a tour of Island White. CSM alum Mike McCarter gave a detailed tour of the rig operations that were commencing on Island White at the time. Additionally, the students enjoyed breakfast and lunch provided by **OXY**.

We are very grateful to our industry partners, alumni and friends in the area for their hospitality once again this year. The California Field Session would be possible without your generosity and interest in the education and professional development of our students, the future of the oil and gas industry. Thanks again! We hope to see you next year!



Lynn Ayers and Geordie Chambers explaining Chevron's Kern River Operations



Michael Dixon, Aera Energy, conducts tour of Belridge Field.



FIELD SESSIONS

PEGN 315 FIELD SESSION – KANSAS, OKLAHOMA, TEXAS, SOUTHERN COLORADO

By: Xiaolong Yin

Our field session group is made up by 37 students, Al Sami, Dr. Wu, and . In addition, we were assisted by three wonderful graduate Teaching assistants throughout the trip. Kelly Ramirez, from Venezuela, was a reservoir engineer prior to coming to Mines; Feng Xiao, from China, has many laboratory experiences on production; Wisam Assiri, from Saudi Arabia, is an experienced chemical engineer working for an oil company. In 12 days, we have really covered 3000 miles and visited 5 different states. We observed conventional and unconventional gas production, primary and improved oil recovery operations, as well as drilling and completion. It was an wonderful trip.

We started our trip at 10AM on May 17th, after the morning safety briefing held together with Dr. Eustes' Dakota group. First day is a driving day – we arrived at Liberal, Kansas at roughly 9pm, CT.

The next morning, we visited Anadarko office in the Hugoton field about 30 miles west of Liberal. This trip was arranged by our Alumni Nick Creadon and Dave Kapple as well as Randy Schultz, Sr. production engineer. Hugoton field, first produced in 1928, used to be the largest natural gas producing area in North America. After 72 years, it still makes up over 40% of Kansas' total gas production. We toured the central booster station and the gas processing plant. Many thanks to the excellent presentations by Marty Mills, and Gary Allen.



It was a bit cold that morning.

After the 3-hour tour, we headed back to Liberal, took lunch over there, and set off for our next destination – Halliburton in Duncan, Oklahoma.

We arrived at Halliburton at 8pm. Thanks for the kind arrangement of Dr. Rendon and the staff, the on-site restaurant waited for and accommodated us despite our late arrival. Just like last year, Halliburton's gracious accommodation is outstanding.



A day is over: students enjoy soccer in Halliburton's Training Center.

The next morning, our "Camp Ore-Digger" started from the Halliburton Research Center, where Halliburton engineers showed us their R&D activities. In the afternoon, we visited the manufacturing center where many Halliburton service equipments are made.

The second day of "Camp Ore-Digger" is just as exciting. We started the day in the field camp. After that, Halliburton arranged a tour to the nearby Sim Sand Unit, operated by Chaparral, where anthropogenic CO₂ from a nearby coke factory is injected for enhanced oil recovery. We had a great time! Many thanks to Jerry Rendon, David Jones from Halliburton, and Bill Domstead from Chaparral, and many other engineers that I was not able to put down their names. After the activities of the day were over, we continued the trip to Dallas/Fort Worth.



Halliburton engineer giving presentation to the students.

Friday May 21st – we visited Devon Energy in Bridgeport, Texas. This tour was organized by alumni Dan McCorkell and, George Jackson. The first stop was a huge gas plant. After that, we toured a drilling rig, and in the afternoon, a hydraulic fracturing operation.

FIELD SESSIONS

KANSAS, OKLAHOMA, TEXAS, SOUTHERN COLORADO CONTINUED

After taking a one-day break in Dallas / Fort Worth, we resumed the road trip on Sunday, May 23rd, heading to the Permian Basin. After we arrived at Midland, Texas, we visited the Permian Basin Oilfield Museum. It is a wonderful museum that focuses on not only the historic development of oil in the Permian Basin, but also technology and equipments. The museum welcomed us wholeheartedly. They even invited former chief geologist of Texaco, Dr. McGookey, who gave us a wonderful talk on geology.



Dr. Rendon (in red hat) describing CO2 injection to students at the Sim Sand Unit.

Monday, May 24th – in the morning we visited Schlumberger well services facility. This trip was arranged by Allen Starky our long-time friend in Denver and Aaron Galt the well services engineer in Midland, Texas. Mitch Gentry – a Schlumberger engineer – showed us a wonderful demonstration of fracturing fluid property modification. In the afternoon, we visited Pioneer Natural Resources and toured the operation in the Spraberry Unit. We looked at the many rod pumps and surface facilities in the unit – a great



Dr. Wu raising a question to a Kinder Morgan engineer during the SACROC tour.

case of a field that is still under primary recovery assisted by artificial lift.

On Tuesday, we visited the SACROC Unit, operated by Kinder Morgan CO2 Company, in Snyder, Texas. It was a very nice example that with modern CO2-EOR technology and reservoir engineering even an aged field can be rejuvenated to be productive and profitable. We are very grateful to Dr. Tipton (Marathon Oil) and Mr. Darrell Ricketson (Kinder Morgan VP) for setting up the tour for us. We also greatly appreciate the field crew: Kerry Miller, Lucas Wagner and Kirby Head for their warm host and wonderful presentations.

Wednesday, May 26th was another driving day – at the day end we rested in Santa Fe, New Mexico. The next morning, we came to the last stop – Raton Basin. Again, we were hosted by Pioneer Natural Resources who produces coal bed methane in this area. In the morning, we had a geology tour looking at coal bed outcrops. In the afternoon, we were



Dr. Wu looking at my camera with Albert (Pioneer) in the background giving a speech. (Spraberry)



Looking at a coal outcrop in the Raton Basin near Trinidad, Colorado.

FIELD SESSIONS

KANSAS, OKLAHOMA, TEXAS, SOUTHERN COLORADO CONTINUED

given a very nice tour of the field – a unique example of production operation carried out in rugged terrains. I want to thank Dave Holmes for setting up both tours for us – Permian Basin and Raton Basin. In addition, I want to thank the field crew: Albert Garza, Elton Smith, Kevin Tanner, Beau Tinnin and many others, for their guide and excellent presentations.

On Friday morning, we took the trip home. Thanks for the excellent work of faculty members and the teaching assistants on the team – no accidents, no surprises. Thanks again to our alumni and the companies – for your continuous support on our field sessions!



Picture taken at a hydraulic fracturing site during the visit to Devon Energy.



FIELD SESSIONS

PEGN 316 FIELD SESSION - MASSADONA

Once again, the Massadona PEGN 316 Field Session II was run over four weeks, two sections at two weeks each. We had 55 students attend the first session from May 16 – 27, and 57 students attend the second session from June 1 – 12, for a total of 112 students – the largest group in recent memory. As is becoming normal with this field camp, we had a large staff set up to handle it including four faculty members and eight TA's. Donna Anderson from the GE Department, Mark Miller, and Manika Prasad, in addition to myself, Jennifer Miskimins were all involved at some point in time. We had three TA's from the PE Department, Juan Carlos Carratu, Patricia Cuba, and Sunny Wu, and two TA's from the GE Department, Ria Brunhart-Lupo and Raju Sitaula. In addition to the CSM TA's, Raffaello Sacerdoti from **Encana**, Peter Bucknam from **Yates Petroleum**, and Genevieve Shope from **Schlumberger** all volunteered their time to join us and lead the masses.



Measuring sections

This year, I'd like to introduce you to a new camp song, "Sweet Home Massadona" comprised by first session camp attendee Keith Stevens. Keith is an excellent guitar player, and as I'm sure you'll agree, he has done a good job capturing the spirit of Massadona!

"Sweet Home Massadona"

(Sung to the tune of Sweet Home Alabama)

By: Keith Stevens

Feet Feet keep on hurtin'
Sunshine's burning my skin
Drawing sketched of the Weber Sand
And in the Debate I hope I win, I hoped I'd win...

Other Majors talk trash about us
Telling lies to bring us down
I hope these Chem E's they remember
An "Oilman" don't "need" them around, any how...

CHORUS

Sweet Home Massadona
Where there's nothin' much to do
Sweet Home Massadona
Dr. Graves I'm coming home to you

Out in Rangely they Love their An'cline
The Castlegate dips steep than low
But the Mesa Verde's a different story
'cuz its environment's fluvial

*Chorus

When it's windy we remember
Chad and Jonny's tent blew down
And the green river it reminds us
That even pain can't make us frown

* Chorus



Bella teaches class

As usual, the only way we pull off this camp is with the help of companies that sponsor visits and help us tie in the geology with the petroleum engineering side of things. This year, we'd like to thank **EOG Resources** for joining the fold and **Production Logging Services** for their annual short course. Additionally, a HUGE THANK YOU to **Chevron** and Andy Walla for their great patience in light of some incidences that happened during our visit to their facility.



Looking to the future

FIELD SESSIONS

PEGN 316 FIELD SESSION - MASSADONA



Some of the instructional crew.



Raffello the geologist- don't make him mad.



Session B group photo



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Colorado School of Mines
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MARQUEZ HALL

Please join the Mines community Friday, October 8, 2010 at 4 p.m.
at the corner of 16th and Arapahoe as we break ground for the
university's world-class petroleum engineering building.

Celebrate with students, faculty, alumni and friends, and help thank
the generous donors who have made this state-of-the-art facility a reality.
Reception to follow

Please contact Kim Spratt at 303.273.3138 or
kim.spratt@is.mines.edu with questions.

