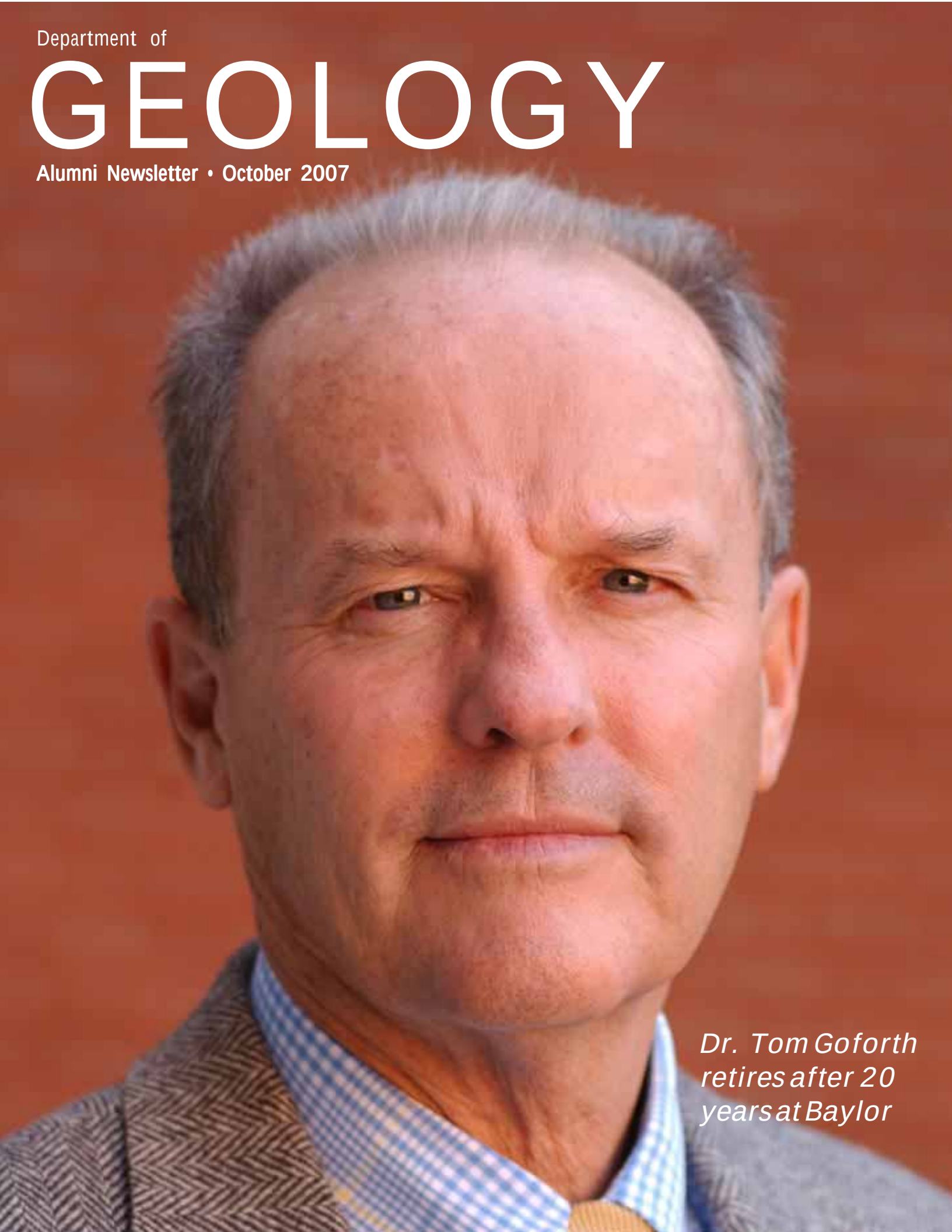
Department of

GEOLOGY

Alumni Newsletter • October 2007



Dr. Tom Goforth retires after 20 years at Baylor

MESSAGE FROM THE CHAIR

THE 2006-07 ACADEMIC YEAR FOR THE GEOLOGY DEPARTMENT

The theme for this year's newsletter recognizes that the Geology Department has been truly blessed with exceptional faculty and leadership over the years. In this issue we remember, and celebrate the tenure of Dr. Thomas T. (Tom) Goforth, whose retirement officially began in August of 2007. Tom served very ably as Chair of the Geology Department for nine years, and was only the 4th Chair in the 70-year history of the Department. After completing his Ph.D. in Geophysics at SMU, Dr. Goforth worked for Schlumberger, Ltd., for 5 years before joining the faculty at Baylor University as the W.M. Keck Professor of Geophysics in 1987. While a member of the faculty of the Geology Department for 20 years, he has taught countless students in the Geo 1401 Earthquakes and Natural Disasters course (and its predecessor courses), as well as teaching Theoretical and Applied Geophysics and Seismology courses. His research papers appear in many of the top-tier journals within his field, and in the past 2 years he published three papers related to his research on explosion seismology, which is relevant to monitoring for compliance to the nuclear test ban treaty. To honor Dr. Goforth's many contributions to the Department and the life of the University, the Department held a retirement dinner at the Cashion Center 5th floor on the Baylor University campus on Saturday, May 5th, attended by over 125 co-workers, former students and colleagues, family and friends with a distinctive Cinco de Mayo theme.

And of course we look forward to seeing all of you alumni again at the Geology Alumni Homecoming event on Friday evening, November 2nd, 2007, from 7:00-9:00 PM in the 4th floor clocktower (room E401) of the Baylor Sciences Building. Come visit with former faculty, classmates, and staff!

ADMINISTRATIVE, FACULTY, AND STAFF CHANGES

After a national search conducted by a professional search firm, Dr. Lee Nordt was appointed Dean of the College of Arts and Sciences in April of 2007. Lee (of our Geology Department) had served previously as interim Dean of the College of Arts and Sciences for two years. Although we will miss him, he has pledged to continue to supervise graduate students, write research papers, and teach the occasional soils or geoarchaeology course that will enable him to stay "connected" with his home Department. We will therefore be searching in the fall of 2007 and spring of 2008 for a replacement faculty position for Dr. Nordt, and also for a replacement for Dr. Goforth as the W.M. Keck Professor of Geophysics. After a national search for a contaminant hydrogeologist in the fall of 2006 and spring of 2007, we received 33 completed applications and interviewed two candidates for the position, however, neither was judged to be the type of individual that we sought and we therefore closed the search. We are approved to resume the contaminant hydrogeology search in the fall of 2007 and spring of 2008, so the Department will be conducting a "triple search", simultaneously searching for three different faculty positions! (see later article on faculty searches in this newsletter).

Dr. Vince Cronin was promoted to the rank of full Professor in the spring of 2007, and in addition, was appointed the new Director of the Center for Spatial Research in the fall of 2006. Dr. Steve Dworkin assumed the position of Graduate Program Director for the Geology Department in August of 2007, succeeding Dr. Stacy Atchley who served faithfully for five years in that capacity during a time of major transformation in the graduate program – thanks Stacy for leading the charge! Dr. Zhaodong (Jordan) Feng, a geomorphologist formerly at Montclair State University in New Jersey, was hired in August of 2006 as an Associate Professor after a competitive national search, and we are very glad to have him aboard teaching Earth Science, Geomorphology, Quaternary Geology and Earth System Science. Dr. Shane Prochnow (Baylor Geology Ph.D. graduate) joined the Center for Spatial Research (formerly CAGSR) in the fall of 2006, and he has been instrumental in providing excellent instruction as a part-time lecturer for our two GIS courses. The search for a Laboratory Coordinator in Geology, which is a non-tenure-track staff position, concluded with the successful hire of Ms. Sharon Browning, a Ph.D. candidate in Geophysics from Memphis University who holds B.S. and M.S. degrees in Geology from Auburn University. Sharon will help us greatly in training our Graduate Teaching Assistants, equipping laboratories, and curriculum development, thereby freeing up faculty for increased research efforts.

FELLOWSHIP EVENTS:

The annual Fall Welcome Picnic was once again held for faculty, graduate and undergraduate students, and spouses and children, at Dr. Steve Driese's house in August of 2006. The Geology Alumni Homecoming Event with food and refreshments was again hosted by the Geology Department in the Baylor Sciences Building in October of 2006 (see photographs later in newsletter). Steve and Marylaine Driese held their annual Christmas Party for faculty and staff in

December of 2006 at their home. And the Geology Department held its second annual Spaghetti Supper event at the Harrington House on the Baylor University campus in February of 2007 for faculty, staff, graduate and undergraduate students, and spouses and children; the event included faculty-student 'roasts" highlighted by Dr. Stacy Atchley's efforts, and an "elucidation" by Dr. Joe Yelderman – the students were up to no good as usual, with the faculty promising to get them back next year! Finally, as noted previously, the Department hosted a retirement dinner for Dr. Tom Goforth in May of 2007.

DEVELOPMENT EFFORTS AND GEOLOGY ALUMNI EVENTS:

The Baylor Geology Alumni Board of Advisors held a business meeting prior to the Geology Alumni Homecoming Event in October of 2006. Planning for a special event to honor achievements of Geology undergraduate students dominated the meeting agenda. Board members, led by Dr. James (Jim) Montgomery, organized a campaign fundraiser for prizes to be awarded at the First Annual Geology Undergraduate Awards Day and Research Fair held on April 20, 2007, where over $3000 in cash and prizes (including a Brunton pocket transit and two hand-held GPS units) were distributed (see article and photos later in this newsletter).

The Geology Department, the Baylor University Development Office, and the College of Arts and Sciences held a dedication event on April 25, 2007 of the Ken and Celia Carlile Atrium in the Baylor Sciences Building. About 100 alumni, faculty, administrators (including President John Lilley and his wife Geri), students and friends attended the event, along with members of the Carlile family and co-workers from Marshall, TX (see related article later in this newsletter). Alumni were also treated to a dedication and tour of the new Beaver-Brown Applied Petroleum Studies Laboratory constructed for Dr. Stacy Atchley in the Baylor Sciences Building. Ken Carlile provided a major gift in 2006-2007 supporting replacement of the roof and renovations of the interior of the Carlile Geology Research Building (to be applied to construction of a future facility), construction of a Beaver-Brown Applied Petroleum Studies Laboratory in the Baylor Sciences Building (dedicated in April of 2007), and establishment of an endowment to support science students at Baylor University. He also provided a critical gift, matched by Baylor University, to support acquisition of a new Rigaku X-ray fluorescence analyzer for analyzing the chemistry of rocks, sediments and soils (see related article later in this newsletter).

Two Endowments first established in 2005-2006 by generous alumni of the Department are also continuing to help us: 1) the Jean Spencer-Jenness Geology Library Endowment is now earning spendable interest – it was established in Jean's memory by her husband Dr. Stuart Jenness and members and friends of the family to supplement Geology acquisitions for the library, and 2) the James W. Dixon Undergraduate Field Assistant Award was established in Dr. Dixon's memory by his family and a bequest left in his will, and is being used to support undergraduate Geology students who would like to gain experience as field assistants working with geology graduate students (see related article on Undergraduate Geology Awards Day in which students supported as field assistants were recognized). Both endowments would benefit from continued contributions by friends and alumni.

GRADUATE PROGRAM:

The Department successfully recruited 2 new Ph.D. students and 3 new M.S. students in the fall semester of 2006, and 7 new students joined the program in the fall of 2007, comprising 3 Ph.D. and 4 M.S. students; of the 18 graduate students in residence the Department had 14 supported as Graduate Teaching Assistants, plus four students supported on externally funded research grants. The graduate student body is now 50% Ph.D. and 50% M.S. students. All of our 2006-2007 M.S. graduates secured employment in the oil and gas industry or in the environmental industry. Recent M.S. graduates going into the petroleum industry had job offers ranging between $80-$90K that were supplemented with $8-$15K signing bonuses! These offers reflect not only the quality of our M.S. program, but also the critical shortage of trained geoscientists relative to industry demand. Ph.D. candidates continue to publish in peer-reviewed journals and prepare a dissertation proposal that is in a form that can be submitted to an external funding agency. M.S. and Ph.D. students were successful in generating external funding through student grants-in-aid of research averaging about $2K/award. Two Ph.D. dissertation proposals resulted in grants submitted to the Petroleum Research Fund of the American Chemical Society (one was funded!) and another was submitted to the National Science Foundation.

UNDERGRADUATE PROGRAM:

The enrollments in Geology major courses such as mineralogy, paleontology, structural geology, petrology and stratigraphy are up considerably over the past academic year, which indicates that we are starting to see the predictable growth in our numbers of B.S. majors in Geology (currently 48) that correlates with increasing prices of a barrel of crude oil (currently at record high levels). Another measure of growth is that the summer field camp course in 2006 had 10 students. The new senior Colloquium course, designated as a capstone in the major, had 8 students enrolled in spring of 2006 and 7 in the spring of 2007. The number of students majoring in Geophysics (B.S.) has been relatively constant but low, as has been the case for both the B.A. in Geography and Earth Sciences – we hope to see some of these trends reverse in the near future, especially given the additional requirements in Texas high schools calling for an additional science elective, which may include Earth and Environmental Science! With the addition of Ms. Sharon Browning as our new Geo laboratory coordinator (see related article in this newsletter), we should be able to revise all of the introductory course laboratories in Geology and Earth Science to a hands-on group-learning format as currently used in Geo 1401 Earthquakes and Natural Disasters,

and in Geo 1405 Physical Geology, which should translate into increased enrollments and student satisfaction with our freshman courses. Of course, with each faculty retirement we are faced with the fact it is difficult to replace the teaching efforts of faculty teaching higher course loads when we hire newer faculty with lower teaching loads. So far we have been able to maintain our status as a Department whose freshman courses are mostly taught by tenured and tenure-track faculty.

RESEARCH PRODUCTIVITY:

Research accomplishments for the Geology Department for the 2006 calendar year included 22 publications, 50 professional presentations, and circa $500K in external funding. Journals in which articles were published include: American Association of Petroleum Geologists Bulletin, Bulletin of the Seismological Society of America, Environmental and Engineering Geoscience, Ground Water, Ground Water Monitoring and Remediation, The Holocene, Hydrological Processes, International Society of Explosive Engineers, Journal of Geology, Journal of Hydrological Sciences, Journal of Paleontology, Palaeo^3 (Palaeogeography, Palaeoclimatology, Palaeoecology), Quaternary Research, Sedimentology, Texas ASCE, and Water Resources Research. Abstracts were presented at the Geological Society of America Annual Meeting in Philadelphia (17 papers!), American Association of Petroleum Geologists Annual Meeting, Texas A & M University Soil Survey and Land Resources Workshop, National On-Site Wastewater Recycling Association, International Conference on Earth Systems and Environments (Beijing, China), as well as a number of other professional organizations and universities.

Some major grants were awarded to Baylor Geology faculty this year. Dr. John Dunbar secured a first-ever (for Baylor Geology) US Department of Energy (DOE) research grant to use resistivity methods to survey the Gulf of Mexico for gas hydrates. Dr. Jordan Feng was awarded a National Science Foundation (NSF) grant to reconstruct climate for the past 50,000 years in central Asia. Drs. Stacy Atchley and Lee Nordt were awarded a Petroleum Research Fund (PRF) grant to study the sequence-stratigraphy and paleoclimatology in Triassic paleosol-bearing alluvial successions. This increased emphasis on publishing, giving professional presentations, and securing external funding is part of an ongoing effort to increase Geology Department visibility at a national level. (For a complete summary see the Geology Department 2006 Research Report included within this newsletter.)

GUEST LECTURERS FOR GEOLOGY 5050 COLLOQUIUM SERIES:

The Geology 5050 Colloquium Series continued with schedule at 3:00 PM in room E231 on Friday afternoons and we continued to hold a 2:30 PM coffee, punch and cookie reception prior to each guest lecture, as well as occasional Saturday field trip and short course experiences. The Department continues to support funding for up to 4-5 out-of-town (= out of driving distance) speakers each semester in an effort to increase Department visibility at a national level and expose Geology students to researchers from across the country. Notable guest speakers in 2006-2007 included: Dr. Scott Meddaugh (Chevron-Texaco), Dr. Howard Harper (SEPM Executive Director, Tulsa), Dr. Britt Bousman (Texas State University), Dr. Justin Marble (University of Arizona), Dr. Paul Goldberg (Boston University), Dr. Jie Zhuang (University of Tennessee-Knoxville), and Dr. Luis González (University of Kansas). We were also treated to a special set of lectures on April 24, 2007 by Dr. Simon Conway-Morris of Cambridge University, who was sponsored by the Vice Provost for Research and the College of Arts and Sciences.

ACQUISITION OF NEW TEACHING AND RESEARCH EQUIPMENT

The Department continues with major efforts to upgrade and broaden its teaching and research equipment base. Our new large-equipment items acquired in 2006-2007 included: (1) a new Malvern laser particle size-analyzer, purchased with College of Arts and Sciences support, (2) a new 2007 Ford Expedition added to our fleet of field vehicles, purchased with College of Arts and Sciences support, (3) a new Rigaku x-ray fluorescence (XRF) unit for determination of major and minor element chemistry, purchased with support from Baylor University, the Vice Provost for Research, and gift support from Dr. Ken Carlile. We also submitted a grant proposal request (with Dr. Steve Dworkin as PI) for a new gas-source stable isotope mass spectrometer to the NSF Major Instrumentation and Facilities Program, partnering with faculty from the Biology Department to try to secure this $350K instrument. We have a Geology "wish-list" for equipment items ranging from $1K to $400K, and we welcome alumni support at all levels in our attempts to modernize the Department's equipment base.

CONSTRUCTION OF NEW BEAVER-BROWN APPLIED PETROLEUM STUDIES LABORATORY:

Thanks to a very generous gift by Geology alumnus Dr. Ken Carlile, a new 660 ft^2 Beaver-Brown Applied Petroleum Studies Laboratory was constructed during the summer and fall of 2006 for Dr. Stacy Atchley and his Applied Petroleum Studies students out of vacant "shell space" in the 4th-floor E-wing of the Baylor Sciences Building. The lab satisfies a pressing need in the Department for dedicated research space for the Petroleum Studies Program, which has 3 new students starting in the fall of 2007, and includes construction of a research space with permanent cabinets, portable tables, power outlets and magnetic wall surfaces for displaying cross-sections, as well as a graduate student office space that can accommodate up to 6 students. Through additional donor support from several oil companies Dr. Atchley acquired three dual-screen high-performance Dell computers for subsurface projects and a large plotter for printing posters and cross-sections.

CONSTRUCTION OF NEW ENVIRONMENTAL MAGNETISM AND GEOMORPHOLOGY LABORATORY:

In May of 2007 a new 660 ft^2 Environmental Magnetism and Geomorphology Laboratory was completed for Dr. Zhaodong (Jordan)

Feng to support his geomorphology and Quaternary geology research program, with funds provided by Baylor University. The lab was constructed out of vacant "shell space" in the 4th-floor E-wing of the Baylor Sciences Building, and will house an instrument that measures mass magnetic susceptibility in core samples of soil and sediments, as well as the new Malvern laser particle size analyzer that will likely be widely used by faculty and students. The Environmental magnetism lab had special requirements for being shielded from stray magnetic fields, and also has an attached office space that can accommodate up to 6 graduate students.

IMPROVEMENTS TO THE GIS TEACHING LABORATORY

Largely spearheaded by the efforts of Dr. Shane Prochnow, and with support from Technology Center Director Dr. Viola Osborn in the Arts and Sciences College Office, we have made major upgrades and improvements to the Geographic Information System (GIS) teaching laboratory. These upgrades include a new file server, new data network switch, and five new Dell Precision 490 high-performance workstations to replace the five PCs currently in the lab that were in the poorest condition. Students will now log into the Baylor Network first when doing assignments, and the lab will be kept clean of viruses and worms with the help of ITS Networking and the Electronic Library. This should remain an outstanding facility for our students and others on the campus in Environmental Studies and Biology. Funding to support these improvements has come from the Department's 2006-2007 capital equipment budget (provided by the College), as well as from special supplemental funding from the College.

UPDATE: RENOVATIONS OF CARLILE GEOLOGY RESEARCH BUILDING HALTED AND GEOLOGY LABS AND EQUIPMENT MOVED INTO O'GRADY BUILDING

After several meetings and discussions with Baylor University officials, and phone discussions with Dr. Ken Carlile, a decision was made to halt planned renovations or replacement of research space in the Carlile Geology Research Building. Although repair of the termite and water damage to the Carlile Geology Research Building is certainly possible, under the new campus plan the Music School will be expanding towards Waco Creek within 5-6 years and the building at that point would be demolished in order to accommodate that expansion. Under these new circumstances I viewed repairs as not a wise use of resources, and as Chair recommended that we not pursue this option. Sadly, the Carlile Geology Research Building was demolished in August of 2007. In August of 2007 the Department was offered the opportunity to move into the O'Grady Building on 2nd Street and LaSalle, formerly the Forensic Sciences Laboratory. Baylor has nicely renovated part of this space, which is 5-6 blocks from the Baylor Sciences Building. There is also ample parking, air conditioning, equipment and sample storage, and an unheated (and uncooled) warehouse area for additional storage. Unfortunately, it is not within easy walking distance, but is just a very short drive.

The Geology Faculty will discuss options for the future for replacement of the Carlile Geology Research Building at their August 2007 retreat, including possibly staying in the O'Grady Building permanently, or constructing a new facility similar in size to the former Carlile Building on the Edgewood Baptist Church property across Speight, 2-3 blocks from the Baylor Sciences Building. The President has not yet approved the site for this purpose and will not make a decision regarding this request until next spring. A new facility will cost around $1M and the Baylor central administration has pledged that it would supplement the remainder of Ken Carlile's current gift towards renovations with BU funds to pay for the project.

MAJOR STRATEGIC PROPOSAL

In the summer of 2006 President Lilley issued a call for Departments, Centers, Colleges and other instructional and research units on the Baylor University campus to submit "Major Strategic Proposals", which were due by December 15, 2006. The goal of this process was to generate innovative ideas across the campus that could propel Baylor University to the desired higher level of national recognition stated in Vision 2012. Support for these initiatives would be above the standard 3% annual incremental growth built into Baylor's budget model. A total of 60 proposals were submitted after the call, and they were reviewed by a University Strategic Planning Council, which made recommendations to President Lilley. In July of 2007 there was an announcement of the proposals selected for advancement, either through enhanced additional funding or increased development efforts. As Chair I submitted a Major Strategic Proposal entitled: "Research Initiative in Terrestrial Paleoclimatology at Baylor University", which takes advantage of the existence of a core group of five faculty in Geology currently engaged in studies of the geologic record of climate change and proposes purposeful growth in this niche area, which no other Geology Department in North America can lay claim to at this time. The proposal was approved for immediate implementation and will permit hiring of three new faculty positions and an instrument technician for the department.

Chris Breed, Deb Jennings, Alex Dixon, Anthony Pasquella, & Daniel Wegert at the Fruita Paleontological area near Grand Junction, CO

DR. TOM GOFORTH

MEMORIES OF HIS CAREER AND OF SERVICE TO HIS PROFESSION AND BAYLOR UNIVERSITY

Dr. Tom Goforth at his retirement dinner hosted by the Geology Department on May 5, 2007.

Tom Goforth first came to the Baylor campus 52 years ago as a freshman. He came to play tennis, and play he did. He was recognized in '57, '58, and '59 as Baylor's most outstanding tennis player. During his three varsity seasons (freshmen weren't eligible in those days), he won 40 NCAA matches to set a Baylor career singles win record, and in later years was nationally ranked by the USTA. But more importantly, while at Baylor he majored in Geology and received a B. S. degree in 1959. He went on to receive a Masters degree at the University of Texas and a Ph. D. in Geophysics from SMU.

Prior to coming to Baylor, he enjoyed a 25-year career working in both geophysical operations and research. At Teledyne-Geotech during the 60's, the main thrust of his work was developing techniques to discriminate between nuclear explosions and earthquakes by seismic means, but individual studies varied from gravity and magnetic surveys to the determination of crustal structure from the inversion of earthquake data. From 1969 to 1982, Dr. Goforth was at Southern Methodist University where he was director of the Geophysical Laboratory. Research at SMU centered on the analysis of seismic surface waves and the automatic detection of body waves. He left SMU in 1982 and joined Schlumberger Well Services with a mandate to establish the oil services giant in the borehole seismic business in the United States. From a zero beginning in 1982, he led Schlumberger to a ten million dollar a year business in 1986, a four-year period in which the oil business was in decline. At Schlumberger, he fostered developments in the integration of well logs, seismic reflection data, and well seismic data; imaging the subsurface using vertical seismic profiles; downhole source applications; and the re-processing of seismic lines using borehole seismic data.

Tom & Royce Goforth dancing at their daughter's wedding.

Dr. Goforth posting an announcement about an earthquake that Baylor's Seismograph detected—1993.

Dr. Goforth joined the Baylor Geology Department in 1987 as the W. M. Keck Foundation Professor of Geophysics, an appointment that he held until his retirement. Each semester for almost 20 years, Dr. Goforth taught a freshman course on earthquakes and volcanoes that filled a large lecture hall with students. He also taught several different advanced courses in various aspects of geophysics.

Dr. Goforth established the W. M. Keck Seismological Observatory. The solar-powered Keck Observatory recorded earthquakes from all over the world and provided high-quality, digital data for research studies. Research utilizing the Keck data included the determination of shallow crustal structure from the inversion of short-period Rayleigh and Love waves produced by quarry blasts. He was also interested in the application of geophysical techniques to engi-

Tom Goforth, Baylor Tennis Player

neering and environmental problems and was active in utilizing shear waves in shallow reflection applications and in using electrical resistivity to map the shallow subsurface.

He became Chairman of the Geology Department in 1995 upon the retirement of Harold Beaver who had succeeded Jim Dixon in 1976. He served as Chairman until 2004 when he was succeeded by the current Chair, Steve Driese.

Dr. Goforth is a member of the Society of Exploration Geophysicists, the Seismological Society of America, and the American Geophysical Union. He served as a member of the SEG Technical Committee with the responsibility of organizing the Near Surface Section sessions for the International Meetings. He has published papers in the Journal of Geophysical Research, Journal of the Acoustical Society of America, Geophysical Prospecting, American Association of Petroleum Geologists, Bulletin of the Seismological Society of America, Transactions of the American Geophysical Union, Geophysics, Geo Info Systems, Seismological Research Letters, Mathematical Geology, and the Journal of Aircraft. These papers have been cited over 150 times in the literature. He is licensed as a Professional Geoscientist in accordance with the provisions of the Texas Geoscience Practice Act.

During his tenure at Baylor, he received external research funding from the W. M. Keck Foundation, Schlumberger Well Services, Union Pacific Resources, Teledyne-Geotech, and the Environmental Protection Agency. He was a member of the Faculty Senate from 1991 through 1996 during which time he was the Vice Chair of the Faculty Self-Study Committee, as well as Chair of the Physical Facilities Committee. In 1995, he was selected the Baylor Centennial Professor. He was a member of the Woodway Park Commission from 1991 until 1997 and served as the Chair of that organization from 1995 until 1997. He was also a

Dr. Tom Goforth

member of the Planning and Zoning Commission of the City of Woodway. He was elected to the Board of Directors of the Baylor Lettermen's Association in 1997.

He and his wife Royce have built a new home on 5 acres in Crawford, Texas, and plan to spend their retirement years there.

Dr. Bill Brown, Dr. Harold Beaver, Dr. Tom Goforth, and Dr. O.T. Hayward— The Four Horsemen of the department.

GEOLOGY DEPARTMENT ACQUIRES NEW XRF INSTRUMENT

In June of 2007 the Geology Department acquired a new Rigaku tube-above, wavelength-dispersive x-ray fluorescence (XRF) unit for determination of major, minor and trace element chemistry of soils, sediments and rocks (see attached photo). This $200K instrument replaces our inoperative Siemens XRF instrument, and will be the cornerstone of our x-ray instrument laboratory located in room E455R of the Baylor Sciences Building, paired with our existing Siemens x-ray diffraction (XRD) instrument that is used to determine mineralogy. Dr. Don Parker and Dr. Steve Driese tried several times to secure National Science Foundation funding for the instrument, but fortunately we were able to fund purchase of the new XRF instrument internally with funds provided by Baylor University (Driese startup equipment funds), the office of the Vice Provost for Research, and generous gift support from Geology Department alumnus Dr. Ken Carlile.

FIELD TRIP TO BIG BEND - JANUARY 2007

Dr. Lee Nordt writing notes, Dawson Creek

Dr. Stacy Atchley at upper Dawson Creek

Dr. Steve Dworkin at upper Dawson Creek

Dr. Steve Dworkin & Dr. Lee Nordt at Rattlesnake Mtn.

ODE TO THE FACULTY

By: Paulette Penney

You can type on your computers with the keys a blazin'
Your knowledge of structure, minerals, and hydro is amazin'

Too bad you have trouble with budgets, deadlines, and such
And sometimes transferring the phone is entirely too much

Your knowledge of geology is astounding
You can publish and produce volumes abounding

Funny how you like to still play in the dirt
And mostly your wives have to pick out your shirt

Some of you like fossils, water or oil.
Others build gadgets with slinkies, syrup, and foil?

The daring like earthquakes, tornadoes, wastewater, and lakes in the winter
Still more would dig in the earth till they got to the center

Floods and erosion, studying countries afar
And Paleosols, whatever they are!

You pick up some things that others leave rotting
Then worry about test scores, tenure and plotting

You have an experiment in your lab that could change mankind
If only your glasses and keys you could find!

While some seek fortune, fame and such whoey,
You wrestle wind, water, and wild buoys.

Rock stars of a different brand
None better to be found throughout this land.

Spaghetti Supper February 2007

ODE TO GRADS & UNDERGRADS

By: Paulette Penney

Our departmental majors are simply brilliant
Why does the Faculty test to see if they're resilient?

They function with precious little sleep
Climb mountains in a van entirely too steep

Saw rocks in a flurry
Eat romein noodles in a hurry,

Taking tests with great ease
Making requests with a please

I find them downright cute and funny
I like them so much even without money.

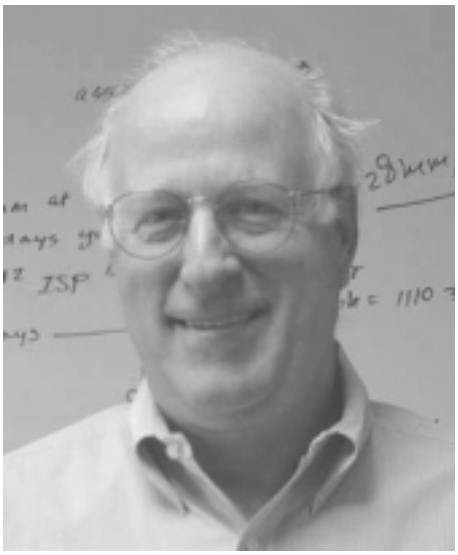
Why do they sweat, fret and grow weary,
Is it for knowledge, money, or some little Dearie.

No, not even for a degree or post-docs,
Tis for that long ago childhood memory of shiny, pretty Rocks!

Spaghetti Supper February 2007

Spaghetti Supper February 2007

From the professors..... PETER ALLEN



It has been another wonderful year with a group of varied activities. In the classroom I am continuing to teach Physical Geology and Engineering Geology in the Fall and Hydrology in the Spring. The two upper level courses still include memos and papers as in the old days. We continue to have fun mixing our time between the beautiful limestone streams and landscapes to the west and the muddy, heal sucking, cursing enhanced, unforgiving prairies and incising streams to the east….ah yes but the Kolaches in West make up for the mud.

On the research front I am continuing to work with cities on stream channel erosion assessment and channel restoration. This involves walking from 1 to 3 miles of channel and evaluating the potential erosion in 200 foot segments for potential placement of structural and nonstructural erosion control measures. At over 50 dollars per square foot, one must be judicious in placing the protection for homeowners.

I am beginning to work with Tess Wynn, an Engineering Professor at Virginia Tech and Jeff Arnold, ARS/ USDA, and Balaji Narasimhan of Texas A&M on a new subroutine for channel erosion which involves assessing the impacts of weathering on channel erodibility (freeze thaw and wet-dry). By not taking these changes into account the models tend to have a poor record in estimating the degree of erosion in continuous simulation models such as SWAT. Channel erosion can account for over 95 percent of total sediment yields in urban watersheds.

Jeff Arnold and Dave Bosch of the ARS and Martin Volk, a German scientist and I are working on implementing a new landscape function into the SWAT model. This will actually allow one to route water and sediment from the hilltop through the valley side slopes and then into the flood-plain. While this has been done on a small scale, implementing such a change on a watershed such as the upper Mississippi becomes quite a chore. This change will also allow better assessment of riparian zones and water quality impacts for placement of Best Management Practices..

Hydrology Class on a "Seepage Run" in Nolan Creek, Texas

I went to Europe last summer to present a paper at the 3rd SWAT International Conference in Zurich. I was accompanied at various times by Peggy, Maggie and Annabel. Maggie and Annabel proved they have mountain goat genes not shared by their father who more slowly panted and groveled behind up the many winding mountain paths. Then, later, last fall, I was invited to lead a modelers group on the SWAT model dealing with sediment transport as part of a larger modeling group of 30 scientists from around the world at the Potsdam Institute in East Germany. This was great in that we got to actually meet in the observatory at the Institute where Einstein worked. Needless to say, I had an extremely small part in this effort but it was fun to be included and the sites in former communist Germany were incredible.

John Dunbar and I continue on in our quest to assess the sedimentation rate in floodwater and water supply reservoirs in Texas. We continue to work for water supply districts, the State, and federal entities in assessing the time rate of sediment moving into the impounded lakes. Rates approach 1-3 cm a year, which doesn't sound like much but, taken in terms of lost water storage, this means on a large reservoir that this is equivalent to 3-4000 people a year who will not be able to get water in the future out of the reservoir….thus the need to know rates and amounts. We also completed our first and perhaps last assessment of sedimentation in an urban string of lakes and rivers in San Angelo. If not for the heat, the 30 degree banks and loading and unloading boats was enough to dissuade John and I from volunteering to attempt further such endeavors.

Also on reservoirs, I worked with Mike Harvey Mussetter Engineers in Colorado and Craig McCrae of Aquafor Beech in Canada on assessment of the erosion potential of the proposed dam on the North Sulphur River in Texas. This was exciting in that both

scientists are among the top in the United States in Fluvial Geomorphology and Engineering. My graduate students continue to excel. Stephanie Capello is working on assessing the time rate of channel erosion in a large watershed using new innovative techniques we came up with to monitor erosion rates. We have developed the "Duratrac" which for less than 50 dollars can give you the cumulative time the water was at a certain level in the channel. This can substitute in some areas for more expensive pressure transducers ($800.00). Dave Coffman is working with John and I on nutrient trap efficiency in Brady Texas on 5 dams as part of a larger EPA project. Owing to our great planning, we started this one this summer when the temperatures are over 100 and the flys won't even buzz around the garbage cans.

This last year we have been putting a lot of time on Lake Whitney studying the impact of salt inputs to the lake from upstream. The salt loweres the lake water quality to the point that water cannot be directly extracted from the lake for use by local cities. A large team of several universities and scientists from Biology and Geology and Environmental Studies departments at Baylor and Bruce Byars, Shane Procnow and others at Baylor are working on this grant. John is using a new towed resistivity array to assess the salinity in 2D and my team is trying to supplement this data with dataloggers and buoys (when they aren't broken, lost or the batteries drained). An alumni, Bob Rodgers is providing invaluable input on the actual culprit, the "Salt Fork" of the Brazos with upwards of 100,000ppm salt seeping into the river upstream of Possum Kingdom reservoir. We will keep you updated on this study next year.

On the home front, I am still commuting on weekends to Dallas to the main house and Peggy. Sarah, and my grandkids, Dulaney and Oliver, live within five minutes so this is a blast. Maggie has one more year in Boston and Maine to complete her Nurse Practioner degree, and Annabel has taken up temporary residence at the University of Colorado in Boulder where she is a junior this fall.

As usual, it has been an unbelievable year with students continuously amazing me and pushing me to try new things and discover so much more. I can't wait for this fall. Hope you all can get by sometime to visit such as Ed Jakubowski, all the way from New Jersey, and Dave Montgomery from Illinois over the last year….great to see everyone doing so well.

Some stuff from last year.

Alvarez, J., Skipwith, W. and Allen, P.M., 2006. River Effects at Highway Crossings Due to Watershed Changes. Paper and Abstract. Texas Section ASCE.

Skipwith, W. , Alvarez, J., and Allen, P.M., 2006. Bentle Branch Storm Water and Stream Bank Stability Study. Paper and Abstract, Texas Section ASCE.

Duke, J.R., White, J.D., Allen, P.M., Muttiah, R.S., 2006. Riparian Influences on Hyporheic-Zone Formation Downstream of a Small Dam in the Blackland Prairie Region of Texas. Hydrological Processes, Vol. 20. (online).

Chen, Pei-Yu, Arnold, J.G., Srinivasan, R, Volk, M. and Allen, P.M., 2006. Surveying Ground Water Level Using remote Sensing: An Example over Seco and Hondo Creek Watershed in Texas. Ground Water Monitoring and remediation., Vol 26, No 2, pages 1-8.

Harmel, R.D., Richardson, C.W., King, K.W., Allen, P.M., 2006. Runoff and Soil Loss Relationships for the Texas Blackland Prairies Ecosystem. Journal of Hydrology Vol 331, pp. 471-483.

Narasimhan, B., Allen, P.M., Srinivasan, R., Arnold, J., and Dunbar, J. 2006. Channel erosion and Best Management Practice Simulation using SWAT. Abstract, ASABE.

Allen, P.M., John Dunbar, B. Narasimhan, R. Srinivasan, Shane Prochnow, and L. Zygo., 2006. Assessment of Erosion Volumes for Model Calibration in Large Watersheds: What is Reality for Reservoir Sedimentation Rates?. Abstract . TRRMS, Austin, Texas.

Allen, P.M., 2006. Urban Geology: Quantifying Geological Descriptions into Guidelines and Ordinances. Amercian Association of Petroleum Geologists Annual Convention Houston Texas. Abstract.

Amercian Association of Petroleum Geologists Annual Convention Houston Texas. 2006. Abstract and Presentation. Urban Geology: Quantifying Geological Descriptions into Guidelines and Ordinances.

TRRMS, Austin, Texas. 2006. Abstract ad Presentation. Assessment of Erosion Volumes for Model Calibration in Large Watersheds: What is Reality for Reservoir Sedimentation Rates?. Peter M. Allen, John Dunbar, B. Narasimhan, R. Srinivasan, Shane Prochnow, and L. Zygo.

Working Paper on Channel Erosion for SWAT Modelers Workshop in POTSDAM, GERMANY, October 2006. In charge of International Working Group for SWAT Model on Channel Erosion Subroutine. Gave two presentations to Modelers during week long conference. http://www.brc.tamus.edu/swat/wmdworkshop06/

Met with and am in the process of establishing a formal working relationship with Helmholtz Centre for Environmental Research – UFZ Department of Landscape Ecology, Liepzig, Germany with Dr. Martin Volk.

Sulphur River where the original channel was about 50 feet wide and 10-15 feet deep. Ah yes, the impacts of channelization.

STACY A TCHELEY

Another year has come and gone and it's once again time to take stock of the "happenings" in my small world that you, the alumni, may have an interest in. This is a motivating factor for many of the faculty to be productive during the year….Everyone hopes to have something meaningful to report.

During the Fall 2006 semester I was on a research leave sponsored by Auriga Energy of Calgary, Alberta. During the leave I was to develop a numerical transform from well log data that would predict the in-place gas reserves and maximum daily gas production for wells potentially drilled within Jurassic Rock Creek Formation of central Alberta. I completed the study and gave a formal review to Auriga during December….Auriga seemed really excited about the work and its applicability to their "bottom-line". Both David Cleveland (Ph.D. student) and I also worked for Auriga Energy during the Summer of 2006 developing a sequence stratigraphic model of the Devonian Swan Hills Formation at Kaybob South Field Gas Unit #1 of central Alberta. It was a great experience for both David and I. Our work included everything from detailed core description, to well log correlation, mapping, reserves assessment, and geologic risk and reserves assessment of development prospects. One well has been drilled thus far from our study and was consistent with our prediction….both in terms of the geology and initial production. Auriga has given David and I permission to publish our results from Kaybob South, and we are currently in the middle of drafting a manuscript for submission to the Bulletin of Canadian Petroleum Geology. We'll hopefully have it submitted (and accepted??) for publication by the time you receive this newsletter.

David Cleveland is the only graduate student that I'm currently advising, i.e., co-advising with Lee Nordt. I've got to brag a bit on behalf of David. David submitted a grant proposal (under Lee Nordt's and my name) to the American Chemical Society Petroleum Research Fund in support of his dissertation on the Triassic Chinle Formation of central and northern New Mexico. To David's credit, the proposal was fully funded….This is usually not the case. In addition, David has submitted the required three manuscripts for his dissertation. One to the Journal of Sedimentary Research (accepted and in-press), a second to Paleogeography Paleoclimatology Paleoecology (in review), and a third manuscript to Nature (in review). The Nature paper is noteworthy because apparently only around 15% of the papers submitted are advanced to the review stage….We'll keep our fingers crossed, but do temper our expectations.

Because I didn't accept any new graduate students last year, due to my 2006 research leave, I had a busy recruiting season during the Spring of 2007…..as I had an urgent need to "reload". My new students for the Fall 2007 semester include both Aislyn Trendell (M.S./Ph.D. student?) and Luke Hunt (M.S. student) from McMaster University, Ontario, and Nate Ball (M.S. student) from Baylor University. All three are great people that I'm anxious to work with. In addition, it appears that I may also serve as a co-advisor (with Lee Nordt) to Chris Gotcher (current M.S. student and prospective Ph.D. student). Lee, Steve Dworkin, myself, David Cleveland, Chris Gotcher, Aislyn Trendell, and alumni Jessica Pritchard took a one-week fieldtrip in May of 2007 to scope-out Chris' thesis area at Petrified Forest National Park (PFNP), Arizona. Chris, like David, is studying the Triassic Chinle Formation. The outcrops at PFNP are fantastic, and will undoubtedly provide future exercises in support of my Graduate Sequence Stratigraphy summer field course.

The family is doing well. My wife Janelle now helps out Paulette Penney in the front office of the geology department three days a week, and my daughters Dallas (age 14) and Audra (age 9) are in 9th and 4th

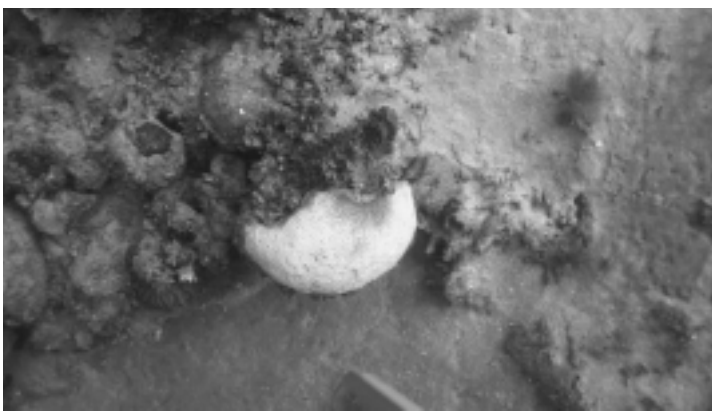
Dave Cleveland, Jessica Pritchard, Chris Gotcher, and Aislyn Trendell at the Petrified Forest.

grade, respectively. We all took a trip to Moab, Utah over Spring Break of 2007 and had a great time hiking and off-roading in Canyonlands and Arches National Parks. Our plans for Summer 2007 in western Canada are to whitewater raft the Kicking Horse River of British Columbia, and take a horseback pack trip into the Kananaskis Country of western Alberta.

To all of my former students…..I miss you and hope to see you soon! Please stop by to see us sometime.

The Atchley family in the Moab Desert.

JAMAICA PHOTOS FROM PEAR TREE BOTTOM SHOWING THE CONSTRUCTION AND DAMAGE TO THE REEFS



RENA BONEM

This has been a busy year for academic advisement within the department with a growing number of undergraduate Geology majors. The number grows daily right now, but I think there are about 50 undergraduates pursuing a B.S. in Geology. At the same time, there are fewer Earth Science and Geography majors. Geophysics seems to grow until students take physics and math. With the growing student enrollment, we did get two new microscopes for the Paleontology lab. Prior to this addition, the most recent purchase of microscopes for that lab was the addition of 6 Nikon scopes in 1981. The other 6 microscopes in the lab are Olympus microscopes that are much older and some now have stripped controls.

In the fall, I taught Invertebrate Paleontology, Historical (Earth Through Time) and World Oceans and went to GSA in Philadelphia. I had no spare time and managed to get sick by the beginning of November! The Spring was a bit more quiet with World Oceans and Oceanography. This was Baylor's SACS accreditation year, so there was a lot of paperwork generated in the Fall and last Spring. Marie Maher finished her M.S. on lagoonal patch reefs in Jamaica this spring and has returned to Tennessee. Isaac Westfield, an M. S. student who went to Jamaica with a small group last summer, is planning to work on identifying the source of the sediment that is covering Pear Tree Bottom reefs since construction of the new coastal highway and the Bahia Principe Hotel. So far, it looks like Isaac and Dr. Dworkin may have to go down without me in August because the doctor has not yet cleared me to dive. If I do end up staying here, I will probably work on some projects that have needed my attention for some time.

On a personal note, my dachshund pack is stable at 6, and Lucy has won lots of agility ribbons and 3 titles since last year. In addition to GSA's profession development committee and Paleo Society's nominating committee, I am still on the board for Central Texas Dachshund Rescue and Waco Agility Group. There is never a quiet moment around my house!

If you have not been able to come to Waco lately, I hope that all of you will be able to come and visit us soon. The most noticeable changes around the department are new labs.

Dr. Bonem and her dogs.

Lucy with her agility ribbons

SHARON BROWNING

Sharon Browning- Geology Freshman Laboratory Coordinator

I received both a bachelor's and a master's degree in geology from Auburn University in 2000 and 2003, respectively. My thesis involved investigation of prehistoric liquefaction features generated by significant earthquakes in the New Madrid seismic zone of the central United States. I remained interested in the processes and tectonic structures that give rise to these earthquakes, and consequently began my dissertation research at the Center for Earthquake Research and Information in Memphis, TN. I am currently finishing my PhD in Earth Sciences at CERI, and looking forward to new challenges in the future. Personally, I have a daughter that I adore, and I am an avid stitcher and cat lover.

Five of my graduate students have completed their MS degrees in geology since the spring of 2006 and have left the Baylor bubble for gainful employment as petroleum geologists. Bill Walker works for Exxon-Mobil in Houston, and is doing well after graduating in May 2006. In his thesis research, Bill worked on creating balanced sections (using well logs and ground-surface geology data) of the Criner Hills Anticline in southern Oklahoma. Alison Jones Nguyen took a break as a consultant for Shell to finish a MS thesis on the Salt Valley Anticline of the Paradox Basin in Utah, and to have her first child. She graduated in December 2006. Brian Bayliss was the first of three students to work on the Malibu fault-reconnaissance study, defending his thesis in late 2006 for a May 2007 graduation. Brian now works for Devon Energy Corporation in Houston. His thesis fieldwork was in the Point Dume quadrangle, just west of the Malibu Beach quadrangle where Lauren Seidman did her thesis fieldwork. Lauren defended in March for a May 2007 graduation, and is now working for EOG Resources in Fort Worth. And Mark Millard defended his thesis related to the Topanga quadrangle (just east of Malibu Beach) in May 2007 for an August 2007 graduation. He has accepted full-time employment with Pioneer Oil and Gas in Fort Worth.

The Seismo-Lineament Analysis Method (SLAM) that we developed to find seismogenic faults is now being applied in several ways. SLAM has been successfully tested in the Santa Monica Mountains, allowing us to locate several previously unmapped faults that are spatially correlated with reported earthquakes. Mark Millard and undergraduate students Ryan Campbell, Ryan Lindsay and Stephen Secrest acquired hypocenter locations and focal mechanism solutions for several large earthquakes associated with ground-surface rupture, including the Parkfield (2004, M6), Denali (2002, M7.9), Hector Mine (1999, M7.1), Superstition Hills (1987, M6.2 and M6.6), and Borah Peak (1983, M7.3) earthquakes. They applied the SLAM process and were able to "find" the known ground-surface trace of the fault that ruptured during each of these earthquakes. They were also successful in applying SLAM to aftershocks. This was an excellent example of undergraduate participation in research, and mentoring of undergraduates by graduate students.

Graduate student David Cleveland has used SLAM to examine earthquakes recorded by a small seismograph network in northern Arizona, and has tentatively associated some of these events with faults in the Grand Canyon. In the coming year, we plan to work with a seismologist at Northern Arizona University in Flagstaff to conduct fieldwork to evaluate the faults that have been implicated in the earthquakes.

Between them these students generated six abstracts presented (as of May 2007) at international professional meetings of the Geological Society of America, American Association of Petroleum Geologists, and the American Geophysical Union. The abstracts can be accessed online at http://www3.baylor.edu/~Vince_Cronin/GradStudents.html. Their thesis work was funded by the Shlemon Fund of the Geological Society of America, the GSA Foundation, Sigma Xi, the Gulf Coast Association of Geological Societies, the SIPES Foundation, the AAPG Foundation, and the Baylor Geology Department.

In the fall of 2006, I joined with several other geologists to begin organizing tribute sessions for my mentor, Dr. Jim Slosson. Jim was a former State Geologist of California with whom I have worked on many projects since I graduated from Pomona College in 1979. A session at the Association of Environmental and Engineering Geologists annual meeting for 2007 has been organized, along with four sessions at the GSA annual meeting, in tribute to Jim's

distinguished career. An associated special issue of the joint AEG/GSA journal Environmental and Engineering Geology has been arranged, for which I will be a guest editor. Jim was aware that we were organizing these tributes, and was deeply moved by the effort. On April 27, 2007, Jim's wife Nancy succumbed to complications of heart disease, and Jim died the next day. It seemed just that they left life as they had lead it for more than 50 years: together. Our work will now be recast as a memorial to Jim. You can read more about the Slossons and our memorial project at http://www3.baylor.edu/~Vince_Cronin/Slosson/.

Toward the end of last summer, I was asked to take over as director of the Center for Applied Geographic and Spatial Research — an interdisciplinary center at Baylor whose name has now been simplified to the Center for Spatial Research (CSR). My theory is that Baylor realized that I was the only faculty member who was not already the director of a center for something, so that is why I was selected for the position. As I began my term as CSR director, two of the three previous employees of CSR had just resigned to pursue other opportunities and the third was on his way out. And someone had neglected to submit budget-

request forms the previous year, so I became director of a center without a budget. We bluffed our way through the year while working on federally-funded research at Lake Whitney, and now are embarking on cooperative arrangements with the Army Corps of Engineers, the Texas Forest Service, the Heart of Texas Council of Governments and other agencies for joint research projects. CSR also teaches the Baylor courses in geographic information systems (GIS) using ESRI's Arc suite of software, and has initiated a series of short courses for professionals. CSR seems to have survived its near-death experience, and is now growing (http://www.baylor.edu/Spatial_Research/).

I was approved for promotion to the academic rank of professor this past spring. The principal effect of this is to bring my salary back to just above the salary at which I started at Baylor in 2002, as measured in inflation-adjusted dollars. And I get to go to more meetings.

In addition to working on my long list of home-improvement projects in the summer of 2007, I will be co-leading an NSF/NAGT sponsored workshop on Teaching Geophysics in the 21st Century (http://serc.carleton.edu/NAGTWorkshops/geophysics07/index.html). Approximately 60 geophysicists who are involved in university education and research will be gathering at the University of Michigan field station near Jackson Hole, Wyoming, in mid-August for the workshop, which will culminate with a field trip to Yellowstone. I will also be participating in an NSF review panel for the Course, Curriculum, and Laboratory Improvement (CCLI) program, and will be working to review abstracts and set the presentation schedule for the Geological Society of America meeting in October. Connor and I will be at Scout Camp for a week, and Kelly will be spending several weeks in the northeast looking at colleges, taking a writing course at Choate, and participating in a young-leader's development program in Washington D.C. She finished her freshman year at Reicher Catholic High School with the highest GPA in her class.

FIELD TRIP TO THE PETRIFIED FOREST - MAY 2007

Jessica Pritchard, Dr. Stacy Atchley, Aislyn Trendell, & Dave Cleveland

Dr. Steve Dworkin, Dr. Lee Nordt, & Chris Gotcher

Jessica Pritchard, Dr. Lee Nordt, Dr. Stacy Atchley, Dr. Steve Dworkin, Chris Gotcher, Aislyn Trendell, & Dave Cleveland

Dr. Lee Nordt & Dr. Stacy Atchley

Dave Cleveland

STEVE DRIESE

I have now completed my third year as Chair of the Geology Department, and have now been reappointed for another three-year term. In the spring semester of 2007 I taught the Geo 5339 Sandstone Petrology course to 3 students (+ 3 audits), and in the fall semester of 2006 I taught the Geo 5340 Paleopedology class to 6 students, with assistance from Lee Nordt. I also taught the graduate Seminar on Grant Proposal-Writing to 2 Ph.D. students and 1 M.S. student, and in the spring semester of 2007 I taught the Geo 43C1 Senior Capstone Colloquium course to 7 graduating seniors – a new twist for the 43C1 course this year was that the top 3 students (evaluated in terms of their Powerpoint presentations on a literature-based research project) were invited to prepare a poster display for a Geology Alumni Advisory Board-sponsored event entitled "First Annual Undergraduate Awards Day and Research Fair" – please see the related article in this newsletter.

I continued supervising three Ph.D. students, and recruited one new Ph.D. student, Jason Mintz from Temple University in Philadelphia, to start in the fall semester of 2007. Deb Jennings continues working on a modern-ancient analog comparison of volcanic-parented soils from Costa Rica and paleosols from the Jurassic Morrison Fm. of the western U.S., in an attempt to distinguish volcanic from climatic signals – interestingly, a suite of barite-bearing soils from College Station (TX) have also proved useful in evaluating the conditions for pedogenic barite precipitation. Deb helped author an NSF grant to support her research that is currently under review. Julia Kahmann continues reconstructing the paleoclimate history and sequence stratigraphy of upper Mississippian paleosol "cycles" in the Pennington Fm. of southeastern Kentucky, using field, microscopic, and geochemical data to try to detect a high-frequency "signal" associated with the migration of the paleo-Intertropical Convergence Zone. Julia helped author a grant submitted to the Petroleum Research Fund to support her research - unfortunately that proposal was not funded, but she was awarded an NSF-EAPSI Research Grant to study loess paleosols in China during the summer of 2007. Aaron Shunk continues researching the paleoclimate records of late Miocene to early Pliocene paleolacustrine and paleosinkhole deposits in eastern Tennessee and north-central Indiana, and with the help of Dr. John Dunbar has discovered tantalizing evidence for high-frequency climate periodicity in rhythmites that includes 24 and 12 year sunspot cycles, as well as 4.4 year ENSO (El Niño and La Niña) cycles. Aaron will be working for Core Labs in Houston on an internship during the summer of 2007.

Steve Driese standing beneath Precambrian-Cambrian paleoweathering surface formed on Thunderbird Metarhyolite, Franklin Mountains near El Paso, TX.

My own research continues to focus on paleoclimate and paleolandscape reconstructions using fossil soils, or paleosols, as well as on applications of pedology and sedimentology to solving environmental problems. I published 3 refereed journal articles in 2006 and have 3 papers accepted or in press for 2007. I presented 7 papers, as either an author or co-author, at the Geological Society of America Annual Meeting in Philadelphia, was a co-author of papers presented at the north-central and southeastern GSA meetings, and presented professional talks for the Texas Academy of Sciences meeting at Baylor University, the Department of Soil and Crop Sciences at Texas A & M University, the Department of Land, Air and Water Resources at the University of California-Davis, and for the Waco Gem and Mineral Society. Four proposals were submitted: 1) With Don Parker as co-PI, we resubmitted a grant proposal to the NSF Instrumentation and Facilities Program to try to secure a new Rigaku XRF for whole-rock and whole-soil geochemical analysis, but this was not funded again – fortunately we found a way to fund the instrument internally (please see related article in this newsletter). 2) A Petroleum Research Fund (PRF) grant to support Julia Kahmann's Ph.D. research (mentioned above) was not funded, 3) A NASA Mars Fundamental Research Grant (with Dr. Doug Ming at the Johnson Space Center, Dr. Tony Runkel at the MN Geological Survey, and Dr. Minghua Ren at the University of Texas at El Paso) to support studies of Precambrian-Cambrian paleo-weathering surfaces, is still pending. 4) An NSF grant proposal (with Drs. Greg Ludvigson and Luis González from the University of Kansas Geology Department) on paleoclimate reconstructions and modern calibrations using pedogenic sphaerosiderite, was awarded funding. I continue to work on the genesis of clay-rich soils called Ultisols near Knoxville, TN, with Dr. Larry McKay (University of Tennessee Department of Earth and Planetary Sciences), as well as on climate studies of Kenyan soils and Quaternary paleosols, with Dr. Gail Ashley (Rutgers

University Department of Geological Sciences). I continue to serve my profession by reviewing submitted manuscripts for the Journal of Sedimentary Research, Sedimentology, Sedimentary Geology, Geology, Palaeo^3, Quaternary Research, Geochimica et Cosmochimica Acta, and Geoderma, and am an Associate Editor for the journal PALAIOS. I reviewed grant proposals for the National Science Foundation and Petroleum Research Fund and continue to serve on the Editorial Board of Sedimentary Geology.

My family and I enjoyed a fabulous 2-week vacation last summer to Europe, joined by the Nordt family, and taking in London, Paris, Frankfurt and Berlin, during one of the record hottest European summers, with one-day in London registering 98^o – this summer's vacation will be much more "tame" with a trip to the beach at Port Aransas, where we expect it to be hot! Marylaine and I are setting Oklahoma sandstone "pavers" as part of an outside patio project, which we hope to complete before the real summer heat sets in. Marylaine continues to enjoy her part-time job as archivist for McLennan Community College, and was involved in organizing historical materials for a 40th anniversary commemorative book for the College. Mary Catherine has graduated from the 9th grade at Midway High School, after taking an orchestra trip to Chicago, and doing well in regional swim meets. She will turn 16 in December, and that means that driving lessons are just around the corner! Our oldest son Nathan is now completing the M.S. Philosophy program at the University of Kansas, and has been invited to continue on in the Ph.D. program there. Our younger son Trevor completed a one-year contract to teach English to Japanese middle school students in Mito, which was a phenomenal experience in total cultural immersion. He has moved back to Knoxville and is seeking employment. In spite of the distance, both Nathan and in-laws Tex and Dottie Hight, manage to make frequent visits to Waco to visit us. Steve and Marylaine continue to be dedicated Lady Bears' season basketball fans, and also enjoy singing together in the chancel choir at First Presbyterian Church, where Steve also serves on the Session.

PUBLICATIONS:

Shunk, A.J., Driese, S.G., and Clark, G.M., 2006, Latest Miocene to earliest Pliocene sedimentation and climate record derived from paleosinkhole fill deposits, Gray Fossil Site, northeastern Tennessee, USA: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 231, p. 265-278.

Lenczewski, M., McKay, L., Pitner, A., Driese, S., and Vulava, V., 2006, Pure-phase transport and dissolution of TCE in sedimentary rock saprolite: Ground Water, v. 44, p. 406-414.

Nordt, L., Orosz, M., Driese, S., and Tubbs, J., 2006, Vertisol carbonate properties in relation to mean annual precipitation: Implications for paleoprecipitation estimates: Journal of Geology, v. 114, p. 501-510.

Driese, S.G., Orvis, K.H., Horn, S.P., Li, Z.-H., and Jennings, D.S., 2007, Paleosol evidence for Quaternary uplift and for climate and ecosystem changes in the Cordillera de Talamanca, Costa Rica: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 248, p. 1-23.

Vulava, V.M., McKay, L.D., Driese, S.G., Menn, F.-M., and Sayler, G.S., 2007, Distribution and transport of coal tar-derived PAHs in fine-grained residuum: Chemosphere, v. 68, p. 554-563.

Driese, S.G., Medaris, L.G., Ren, M., Runkel, A.C., and Langford, R.P., 2007, Differentiating pedogenesis from diagenesis in early terrestrial paleoweathering surfaces formed on granitic composition parent materials: Journal of Geology, v. 115, p. 387-406.

PRESENTATIONS:

Li, Z.-H., Driese, S.G., and Mora, C.I., 2006, Paleoclimate variability revealed by speleothem ä^{18}O and ä^{13}C records from the Raccoon Mountain Cave, east Tennessee, USA: Southeastern section GSA meeting in Knoxville, TN.

Ludvigson, G.A., González, L.A., and Driese, S.G., 2006, Meteoric sphaerosiderite lines from the Atokan (Langsettian) Crooked Fork Group, eastern Tennessee: A first-cut comparison between paleoequatorial precipitation rates from the Carboniferous icehouse and Cretaceous greenhouse world: North-Central section GSA meeting in Akron, OH.

Driese, S.G., Mora, C.I.,and Elick, J.M., 2006, Landscape and climate records derived from Devonian vertic floodplain soils, Catskill Formation, central PA: GSA Annual Meeting in Philadelphia, PA.

Driese, S.G., Ashley, G.M., Li, Z.-H., Hover, V.C., and Owen, B., 2006, Late Holocene equatorial paleoclimate record based upon soils spanning the Medieval Warm Period and Little Ice Age, Loboi Plain, Kenya: GSA Annual Meeting in Philadelphia, PA.

Ashley, G.M., Owen, R.B., Driese, S.G., Park, L.A., and Goman, M., 2006, The importance of groundwater-fed wetlands as a reliable water source for humans in arid environments: GSA Annual Meeting in Philadelphia, PA.

Shunk, A.J., Driese, S.G., Farlow, J.F., Hulbert, R., and Whitelaw, M., 2006, High-resolution stratigraphy and sedimentology of Late Miocene-Pliocene paleolacustrine strata deposited in paleosinkhole settings, eastern US: GSA Annual Meeting in Philadelphia, PA.

Ashley, G.M., Hover, V.C., Driese, S.G., Roure, C.A., McBrearty, S.B., Owen, R.B., and Renaut, R.W., 2006, A changing landscape in the semi-arid tropics: Insights from paleosols, East African Rift, Kenya: GSA Annual Meeting in Philadelphia, PA.

Li, Z.-H., Driese, S.G., and Mora, C.I., 2006, Stable isotope analysis reveals two different carbon sources for speleothem formation in Raccoon Mountain Cave, East Tennessee: GSA Annual Meeting in Philadelphia, PA.

Kahmann, J.A., and Driese, S.G., 2006, Characterization of trace elements in Mississippian Pennington Formation paleosols at Pound Gap, KY: A new paleoclimate indicator?: GSA Annual Meeting in Philadelphia, PA.

Steve Driese and Dr. Ken Orvis (University of Tennessee Geography) examining Pleistocene paleosols in Costa Rica, from Driese et al. (2007), Palaeogeography, Palaeoclimatology, Palaeoecology, v. 248, p. 1-23.

John Dunbar has found a way to combine his interest in near surface geophysics gained since he came to Baylor with his prior experience in the petroleum industry. This year he received a grant from the US Department of Energy to develop an electrical resistivity profiling system to explore for methane hydrate deposits beneath the seafloor (see diagram of the seafloor system). Current estimates indicate that worldwide gas hydrate deposits exceed known deposits of all conventional forms of

The Dunbar family in Hawaii

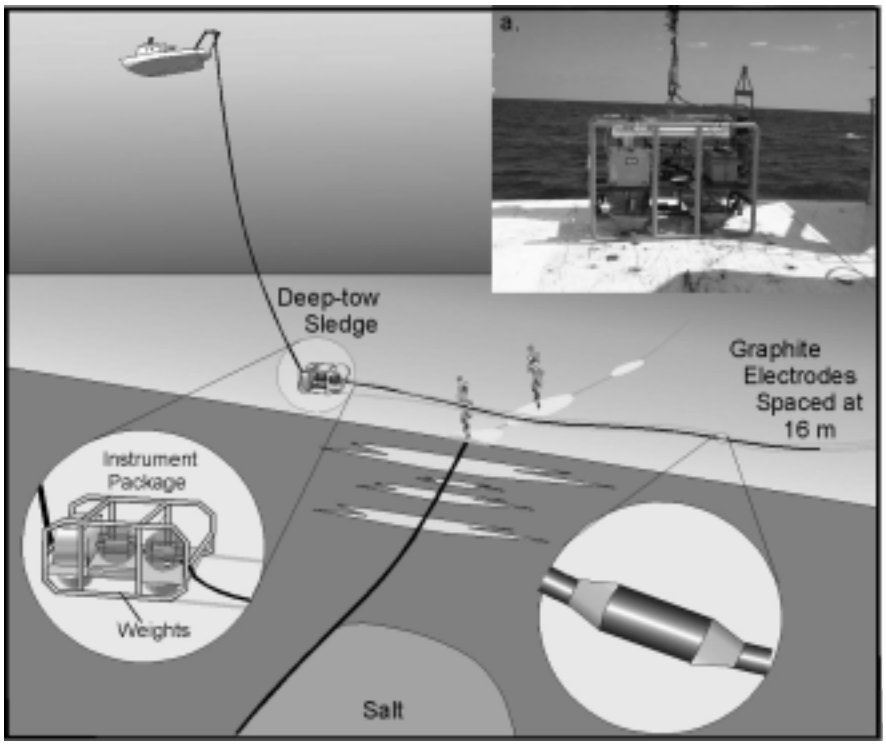
fossil fuels combined. Two missing technologies prevent the use of hydrates as an energy source, (1) a geophysical method for finding hydrates in economic concentrations and (2) an efficient means of production. Dunbar hopes to help solve the first problem. His hydrate exploration system will consist of an electronics module packaged in a high-pressure housing and mounted on a sled and a 500 m – long electrode array. The system will be towed along the seafloor at depths of 3000 ft and more to map gas hydrate concentrations in the first 200 to 300 m below the bottom. Along with his industrial partners, Specialty Devices, Inc. of Wylie Texas and Advanced Geosciences, Inc. of Austin, Texas, Dunbar will spend 2007 designing and building the system. Then he plans to test the system at a site of known hydrate occurrence in Mississippi Canyon Block 118 in spring 2008.

On the home front, John's daughter Tamura is 14 years old and will enter the 9th grade at Vanguard College Preparatory School in the fall. She continues to love reading and is anxiously awaiting the release of the final Harry Potter book. She is looking forward to volunteering at the Mayborn Museum, attending Baylor's University for Young People classes, and going to camps this summer!

John's wife, Anna, who is a 1978 Baylor Graduate, continues her job as the Regional Director of the Waco office of the Texas Commission on Environmental Quality. With the expected growth of the Central Texas population over the next decade, will come environmental challenges. Anna doesn't expect the work in the Waco region will slow down anytime soon.

During June of 2007, the family took a trip to Hawaii. The trip was a realization of John's dream of seeing a volcano and it's effects on the landscape up close. The trip began with four days on the Big Island. The Dunbars stayed at the Volcano Inn in Volcano National Park – which is situated on the rim of Kilauea Crater (see photo). Highlights were walking in the "lava lake" of Kilauea Iki and traveling to the shore where lava enters the ocean. Despite

damage to their rental car from a falling coconut, they had a wonderful time in the park. The second phase of the trip was on Maui – where they stayed in a hotel on one of the most beautiful beaches in the world. The Dunbars snorkeled at Black Rock and were thrilled to see several sea turtles. Despite having to read David Copperfield while lounging on the beach (a summer assignment), Tamura most loved the time spent at Maui. The Dunbars are "saving their pennies" for a return trip in the future.



The Dunbar Hydrate System

STEVE DWORKIN

This year I wrote an NSF proposal for a gas-source mass spectrometer. We'll hear back some time this summer, so keep your fingers crossed. I continue to work on climate reconstructions based on the geochemistry of paleosols. Over spring break, Sandy and I took a trailer out to Big Bend where we met up with Lee Nordt. We exhumed, examined, and sampled the paleosols that are starting to become old friends. We have started a new project in the Petrified National Forest where there are wonderful paleosols. Stacy, Lee, and I along with students David Cleveland, Chris Gotcher, Jessica Pritchard, and Aislyn Trendell just got back from our first trip there. I stumbled upon an 8 foot long salamander buried in overbank muds and we argued over exactly what kind of creature it was.

I have three masters students. Isaac Westfield is geochemically characterizing near shore Jamaican sediments in an attempt to identify the source of the suffocating muds that are killing the reefs. Jana Edwards and Stephen Clark will both be working on the organic geochemistry of Cretaceous rocks with the hopes of getting a better understanding of environmental controls on organic matter accumulation.

I continue to teach Earthquakes and Natural Disasters, Isotope Geochemistry, and Mineralogy. The department is humming along with the acquisition of lots of new analytical equipment. I have been working in the lab quite a bit quantifying organic and inorganic carbon concentrations along with C/N ratios. I still go to Austin quite a bit to do mass spectrometry.

Sandy and I are doing great. We are down to two dogs which is much more manageable. Isaac will be dog/house sitting for us this summer when we go off to field camp. Lastly, work on the house never seems to end and occupies a lot of my time – Sandy has great ideas and I'm too cheap to hire anyone to do it.

Aislyn Trendell, Dr. Steve Dworkin, and Dave Cleveland at the Petrified Forest

Dr Steve Dworkin at the Petrified Forest

A cold morning in the San Juan Mountains

Anthony Pasquella proudly displays his tent

Bryce Canyon

Chris D'Aiuto at the bottom of the Grand Canyon

Matt Jones, Lauren Dubuisson, & Sarah Swint at the Permian Basin

Measuring section at the Petrified National Forest

San Juan Mountains

Sandy & Steve Dworkin setting up their tent

FIELDCAMP 2007

Sarah Swint & Lauren Dubuisson at the edge of the Grand Canyon

Sarah Swint melting the ice

Sarah Swint & Lauren Dubuisson at the Sacramento Mountains

Steve & Sandy Dworkin, Matt Jones, Chris D'Aiuto, Anthony Pasquella, Lauren Dubuisson, & Sarah Swint

The Field Camp Group

The field camp group sketching the Permian Carbonate Reefs

The group at the Petrified National Forest

The group at White Sands NM

ZHAODONG (JORDAN) FENG

This is my first year at Baylor. I spent the first semester of my Baylor time (2006 fall) in central Asia collecting samples and writing papers. I have been on Baylor campus only for 5 months by the time of this writing (May 12, 2007). These 5 months were dramatic in transforming me from a New Yorker to a Texan. For example, my favorable letter was A (Big Apple) and I am now learning to like W (on all trash cans); I was a loyal listener to AM 1010 (New York Talk) and I am now learning to like AM 820 (Texas Talk). The transformation for Shirley (my second daughter) seems much less dramatic. She sees no difference between her previous high school (in New Jersey) and her current high school (Midway High), although she noticed that her peers in her current high school always say: Yes, Mam or Yes, Sir (that never happened in her previous schools). Two more notes on our lives in Texas: (1) we moved in a new home in Hewitt as soon as we arrived (December 28, 2006) and Shirley is going to get her driver's license on August 29, 2007 (her 16th birthday).

Now teaching related. I was a full time teacher in last semester (2007 spring), spending nearly 100% of my time on preparing teaching materials for **PROCESS GEOMORPHOLOGY** (that only had 4 students). We (students and I) were a little disappointed by heavy snow cover during our spring break (around March 10) that prevented us from visiting those beautiful glacial and periglacial geomorphic sites in Rocky Mountains, but our 5-day fieldtrip (as an alternative) turned out to be better than I originally thought: we learned a great deal about the Late Quaternary Fluvial History, River Erosion Processes, and Slope Retreat Models in Big Bend. By the way, I now have 24 sets (i.e., 24 lectures) of well-organized PPT slides (totally over 1200 slides) focusing on nearly all aspects of **PROCESS GEOMORPHOLOGY** and am willing to share with those who are teaching the same course. Next semester (2007 fall), I am going to teach **EARTH SYSTEM SCIENCE** (a graduate course). I taught that course four times before and it was well received. I am also thinking of offering another new course "**QUATERNARY GEOLOGY**" in 2008.

In terms of research, four things are worthy of reporting here. (1) I completed all fieldworks and most of laboratory analyses for my NSF project on: **Mongolian Holocence Climate Change** (it ends on June 30, 2007). (2) My new NSF project on "**Eolian Climatic History during the past 50,000 Years in Westerlies-dominated Central Asia**" was officially transferred to Baylor on March 15 (2007) and I am going to spend a part of my summer (2007) on sampling loess sections in central Asia. (3) I am recently funded by Baylor's Faculty Research Investment Program to conduct a pilot study in central Asia for developing a competitive NSF research proposal on: **High-resolution Reconstruction of the Holocene Climate Changes in the Westerlies-dominated Central Asia**. I am planning to core 10-12 lakes in central Asia this summer and to submit the proposal to NSF on January 8 (2008) if the pilot study goes well. (4) After spending 4 years on studying the Holocene climate changes in the middle reach of the Yellow River (China), I think that I can develop a competitive NSF proposal on: **Holocene Climatic and Environmental Changes and The Cultural Responses in the Yellow River Basin.** I plan to do a brief fieldtrip to the lower reach of the river this summer to enhance this planned proposal.

Peer-reviewed Publications:

1. Feng, Z.-D., An, C.B., Wang, H.B. and Zhai, X.W., 2006. Holocene Climatic and Environmental Changes in the Arid and Semiarid Regions of China: A Review. **The Holocene**, 16: 1-12.

2. Feng, Z.-D, L.Y. Tang, H.B. Wang, Y.Z. Ma, 2006. Holocene Vegetation Variations and the Associated Environmental Changes in the Western Part of the Chinese Loess Plateau. **Paleogeography Paleoclimatology Paleoecology,** 241: 440-456.

3. Feng, ZD., Wang, WG., Li, XQ., Ma, YZ., Zhang, HC., and An CB., 2005. Holocene climate changes in the Mongolian Plateau: preliminary results. **Quaternary International**, 136: 25-32.

4. Feng, Z.-D. and Wang, H.B., 2006. Geographic variations in particle size distribution of the last interglacial pedocomplex S1 across the Chinese Loess Plateau: their chronological and climatic implications. **Catena**, 54: 22-34.

5. An, C.B., Z.-D. Feng, L. Barton, 2006. Dry or humid? Mid-Holocene humidity changes in arid and semi-arid China. **Quaternary Research** 25, 351-361.

6. Li, C.H., Tang, L.Y., Feng, Z.-D., Wang, W.G., An, C.B. and Zhang, H.C., 2006. Late Quaternary climate changes in Jingning area of Gansu Province as recorded by pollen data. **Sciences In China (**D), 36 (5): 453-460.

7. Feng, Z.-D., Zhai, X.W., Wang, W.G., Zhang, H.C., Ma, Y.Z., A.T. Jull. 2007. Eolian climatic variations during the past 30,000 years in the northern Mongolian Plateau, as indicated by geophysical, geochemical and geobo-

tanical proxy data. **Paleogeography Paleoclimatology Paleoecology,** 245: 505-517.

8. Feng, Z.-D., Tang, L.Y., Ma, Y.Z., Zhai, X.W., A.T. Jull. 2007. Vegetation and associated environmental changes during the marine isotope stage 3 in the western part of the Chinese Loess Plateau. **Paleogeography Paleoclimatology Paleoecology,** 246: 278-291.

9. Guo, L.L., Feng, Z.-D., Liu, L.Y., Li, X.Q., Wang, L.X., 2007. Holocene climatic andenvironmental changes recorded in Baahar Nuur lake core in the Erdos Plateau, Inner Mongolia. **Chinese Scientific Bulletin** (in press).

10. Sun, A.Z., Ma, Y.Z., Feng, Z.-D., Li, F. And Wu, H.N., 2007. Pollen-recorded climate changes between 13.0 and 7.0 C-14 ka BP in southern Ningxia, China. **Chinese Scientific Bulletin** (in press).

11. Feng, Z.-D., Wang, L.X., Guo, L.L. and Lee, X.Q., 2006. Bioclimatic dependence of soil-$d^{13}C$ variations along a N-S (32-55 ^{o}N) transect in east-central Asia. **Paleogeography Paleoclimatology Paleoecology** (accepted).

12. Ma, Y.Z., Liu, K.-b., Feng. Z.-D., Sun, A.Z., Wu, H.N. and Li, F., 2007. A survey of morern pollen assemblages and the associattion with the present bioclimatic zones in the Mongolian Plateau**. Journal of Biogeography** (accepted).

Presentations

1. Feng, Z.-D., 2007. late Quaternary Gobi dynamics and the relation to the East Asian monsoon. An International Symposium on Asian Monsoon under Global Warming. New Deli, India. December 20-24.

2. Feng, Z.-D., 2007. Geographic differentiation of the last interglacial paleopedocomplex in the Chinese Loess Plateau. An International Symposium on Paleopedology and Landscape Evolution. Ladakh, India. September 11-14.

3. Feng, Z.-D., 2007. Gobi Dynamics during the past 50,000 years in east-central Asia. GAS Abstract and Presentation. Denver, Colorado. October 10-13.

4. Feng, Z.-D., 2007. Holocene climate changes recorded in Baahar Nuur lake core in the Erdos Plateau of the Inner Mongolian Plateau. AAG Abstract and Presentation. San Francisco, California. April 17-21.

5. Feng, Z.-D., 2006. Holocene climate changes in the Inner Mongolian Plateau. An International Conference on East Asian climate. Lanzhou, China. July 26-29.

6. Feng, Z.-D., 2006. Potential ecology in the severely disturbed Chinese Loess Plateau. Second International Conference on Earth Systems and Environmental Changes. Beijing, China. October 22-26.

7. Feng, Z.-D., 2006. Natural rhythms of Holocene desertification in the Chinese Loess Plateau. Second International Conference on Earth Systems and Environmental Changes. Beijing, China. October 22-26.

8. Feng, Z.-D., 2005. Gobi dynamics and environmental changes in the Mongolian Plateau during past 125,000 years (Geography Department of University of Utah).

Zhaodong and Shirley

My annual newsletter was absent last year during a time of mourning for the loss of our 24 year old son in an accident. James was very much a part of the Geology family. During the 1980's we lived in "fort faculty" a short walk from Sid Richardson. James and his two sisters would visit the department on a weekly basis not only to say "hi" to dad, but also to explore Strecker Museum in the basement. Sometimes I attended the "core of discovery" in the basement where the kids would explain to me the meaning of a diorama, or show me a secret passage known only to them. James also became a graffiti artist using the little white tiles that lined the hallway in Sid Richardson. Inscribed with pencil, his contributions included "Pterodac-tile" and "Tile-rannosaurus Rex". James learned his central Texas geology over several years, while attending many of our Saturday freshman field trips. In my astronomy class, James attended so many star-parties that he could answer most of the questions posed by the students.

Nine months after James died, his older sister, Meredith, gave birth to twin girls. As proud grandparents we have spent considerable time tending the babies. New life does not compensate for loss; hearts can concurrently weep and rejoice.

My wife, Alison, retired from her Baylor Senior Lecturer position in May, 2007. For 22 years Alison taught clothing construction and fashion design for the Department of Family and Consumer Sciences. Alison reports that by any standard of comparison, being a grandmother is more meaningful than teaching.

Although I have retired from broadcast meteorology at KXXV, my career at Baylor continues into its 28th year. My freshman classes in Earth Science and World Geography continue to have full enrollments every semester. Of course by now every lesson is in PowerPoint format, available to all students electronically. Constant improvement is a must, and many of my lessons are in second generation revision.

One area of special study for me this past year has been on climate change, largely as a result of the brouhaha generated by Al Gore's "Inconvenient Truth". Unfortunately in this political season, there is no room in the discussion for scientific evidence. I have

never been more proud of the membership of the American Meteorological Society. In a recent survey, 83% of the AMS members disagreed with the statement that global warming is caused by anthropogenic carbon dioxide. Recent climate research presented at the national convention of the Association of American Geographers (San Francisco, April 2007) concluded a solar cause for global warming. It seems the political action line has decided to ignore warming throughout the solar system from Mercury to Pluto.

James, in loving memory 1981-2006

Don with his twin granddaughters Hanna Ruby and Macey Madelon

LEE NORDT

John Bongino successfully defended his thesis work on the Waco Mammoth site in April and begins working for ExxonMobile in June. David Cleveland is nearing completion of his Ph.D. research having published one paper and submitted two others on his Triassic sequence stratigraphy/climate work. Chris Gotcher is beginning his dissertation field work in the Triassic at Petrified National Forest. Chris will study stratigraphy, fossil soils and the paleontological and paleobotanical records. Steve Ahr is preparing for field work for his dissertation conducting an Alfisol climosequence in Texas. This work will also enhance our understanding of these important soils and their potential for containing buried archaeological features.

I taught Geoarchaeology this past spring with help from John Bongino as my TA. I plan to teach Global Soil Systems this fall for my incoming graduate students. I continue to serve on the Editorial Board of the journal Geology and as Associate Editor of the journal Geoarchaeology-An International Journal.

Garrison is entering his second year at Mary Hardin Baylor playing on the golf team. He is struggling to find a major, but still doing well in his classes. He will work at Cottonwood Golf Course here in Waco this summer.

Kaylee, much to my dismay, will be entering High School in the fall of 2007! She continues with many extracurricular activities, but is focusing mostly on volleyball. She also continues to volunteer at the Mayborne Museum in the summers.

Kathy enjoys working as the admitting nurse for outpatient services at Providence Hospital. Working part-time she is able to travel with Kaylee to her volleyball tournaments, watch some of Garrison's golf tournaments, and attend Baylor functions with Lee.

Our family enjoyed a wonderful two week vacation to Europe this past summer (2006) with the Drieses. We had a whirlwind trip to England, France, and Germany. Unfortunately, we were there during the hottest two weeks on record! As you can see from the photograph, we remained friends at the end of our trip!

I look forward to seeing you all during homecoming weekend!

Publications:

Cleveland, D., **Nordt,** L., and Atchley, S. (accepted). Continental sequence stratigraphy of the late Triassic (Norian-Rhaetian) Chinle strata, northern New Mexico: allo- and autocyclic origins of paleosol-bearing alluvial successions. Journal of Sedimentary Research.

Nordt, L. (in press). Late Quaternary fluvial landscape evolution of the Rio Casas Grandes and San Pedro: Implications for the archaeological record. In Late Archaic Cerros de Trincheras Sites of Chihuahua, Mexico, R. Hard and R. Roney (eds.). University of Utah Press.

Nordt, L., von Fischer, J., and Tieszen, L. (2007). Late Quaternary temperature record from buried soils of the North American Great Plains. Geology 35:159-162.

Prochnow, S., **Nordt**, L., Atchley, S., and Hudec, M. (2006). Multi-proxy paleosol evidence for middle and late Triassic climate trends in eastern Utah. Palaeogeography Palaeoclimatology Palaeoecology 232:53-72.

Nordt, L., Orosz, M., Driese, S., and Tubbs, J. (2006). Vertisol carbonate properties in relation to mean annual precipitation: Implications for paleoprecipitation estimates. Journal of Geology 114:501-510.

Prochnow, S., Atchley, S., Boucher, T., **Nordt**, L, and Hudec, M. (2006). The influence of salt withdrawal subsidence on

The Nordt's and Driese's at the airport during their trip to Europe

paleosol maturity and cyclic fluvial deposition in the upper Triassic Chinle Formation: Castle Valley, Utah. Sedimentology 53:1319-1345.

Nordt, L. (2006). Soils and paleopedology. In Glossary of Geologic Terms, J. Mehl and J. Jackson (eds.). American Geophysical Union. http://previews.georef.org/dbtw-wpd/glossary/search.htm

Presentations, Lectures, and other Scholarly/Creative Activities:

Nordt, L. (2007). Grassland evolution of the southern Great Plains of the U.S.A. Society of American Archaeologists, Austin (April) (invited).

Nordt, L. (2006). Late Quaternary vegetation and temperature change in the central Great Plains based on the isotopic composition of buried soils. University of Kansas, Kansas Geological Lecture Series (March).

Nordt, L., von Fischer, J., and Tieszen, L. (2006). Late Quaternary evolution of North American grasslands inferred from stable carbon isotopes of buried soil organic matter. Geological Society of America Annual Meeting, Philadelphia (October). (invited)

Bongino, J., **Nordt**, L., and Forman, S. (2006). Late Quaternary history of the Waco Mammoth Site: Environmental reconstruction and interpreting the cause of death. Geological Society of America Annual Meeting, Philadelphia (October).

Dworkin, S., **Nordt**, L., and Atchley. S. (2006). Sr isotope ratios and trace element concentrations of pedogenic calcite record environmental conditions in west Texas paleosols spanning the K-T boundary. Geological Society of America Annual Meeting, Philadelphia (October).

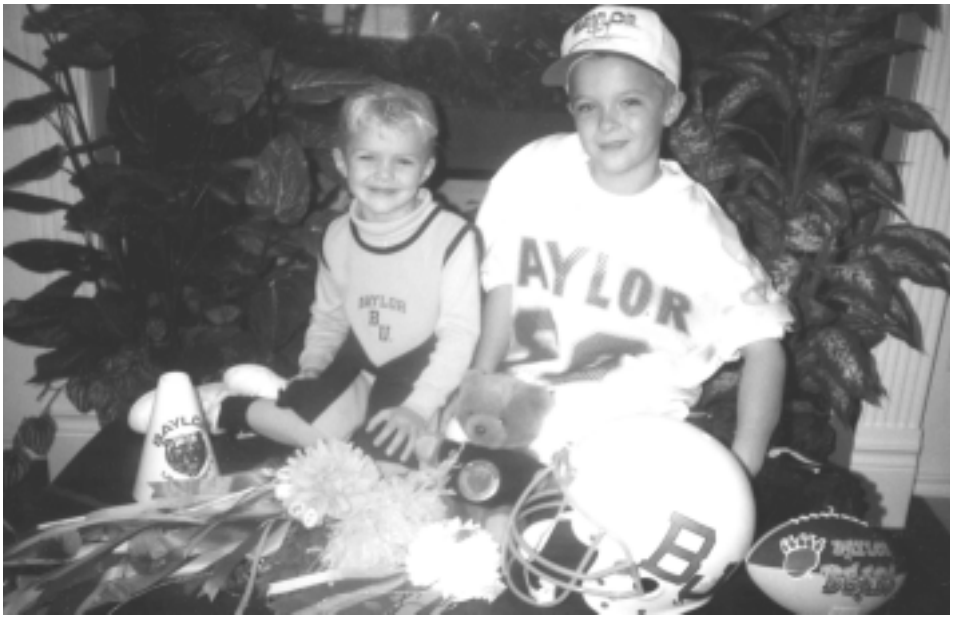
Cleveland, D., Atchley, S., and **Nordt**, L. (2006). Allo- and autocyclic signatures in paleosol-bearing alluvial successions: the triassic (Norian-Rhaetian) Chinle Group, northern New Mexico. Geological Society of America Annual Meeting, Philadelphia (October).

Grants, Contracts, Patents, Software Copyrights:

Dworkin et al. **(Nordt**, L.). MRI: Acquisition of an isotope ratio mass spectrometer for nutrient dynamics and paleoclimate research and student training. National Science Foundation, $342,185 (in progress)

Atchley, S. and **Nordt**, L. (2006). The interrelationship of sequence stratigraphy, paleoclimatology, and terrestrial ichnology in Triassic paleosol-bearing alluvial successions, Moenkopi and Chinle Formations, southwestern United States. Petroleum Research Fund (**FUNDED** $80,000).

Kaylee & Garrison Nordt



Kaylee & Garrison Nordt Christmas 1996

DON PARKER

In May 2006, Don made a third trip to Pantelleria, where he and John White, Baylor Ph.D. and now an Assistant Professor at Eastern Kentucky University, examined the geology of the island and collected geochemical samples for study. Pantelleria is located in the Strait of Sicily, about 70 east of the Tunisian coast. The chief feature of the island is a 45,000 year old caldera, which produced an ignimbrite known as the "Green Tuff." After collapse, the caldera was filled with trachyte lava, which was uplifted to form an 800+ meter structural dome, Montagna Grande. Volcanic eruptions have occurred episodically since, the most recent being a submarine basalt eruption in 1892.

Headquarters of the Pantelleria Volcano Observatory

En route, Don's travel schedule was messed up, and he ended up staying awake for 24 hours, including eight hours at the Nice airport, where he talked with want-a-be's flocking to the Cannes Film Festival. He met up with John at the agreed upon pleasant hotel in Palermo, Sicily. The next day, they flew in the puddle-jumper to Pantelleria where they rented a stone block cabin (a modern Damusci – the traditional Pantelleria abode) made of blocks of Green Tuff. They christened this the headquarters of the "Pantelleria Volcano Observatory." From this base, they conducted expeditions to extreme parts of the island. The weather was perfect, the pizzas were good, and the rocks were extremely peralkalic. Our work on

Mt. Gibeli from summit of Montagne Grande, Pantelleria

Pantelleria, augmented by lab work by Minghua Ren, has already resulted in several publications, and this additional study should produce the definitive work on this volcanic island in the Mediterranean.

Don was pleased to have two theses finished, Joshua Lamb's on crustal xenoliths of the Kilbourne Hole maar volcano, and Anna Perry's study of Cascade Head Basalt in Oregon. The data set for the coastal igneous rocks is now complete. Ph.D. student Daniel Wegert has begun a project on Rio Grande rift volcanic rocks in New Mexico and

Petrology class on McDermott outcrop, near Durango, CO

Colorado; the Fall 2006 Petrology class completed a class project study of the Cretaceous McDermott Formation in the San Juan Basin of southwestern Colorado, which was presented at the regional GSA meeting in Lawrence, KS. Daniel will enlarge this study into one of his dissertation papers. Don completed his field work in the Cerro Castellan quadrangle in Big Bend; he is studying the igneous rocks of the park with John White and Minghua Ren, now a Research Scientist at UT El Paso. Don presented some of the Big Bend work at the same regional GSA in Lawrence, and Anna Perry presented her Oregon thesis work as well.

Don is teaching field camp again in Colorado with Steve Dworkin; he hopes to see some of you at the National GSA meeting in Denver in the Fall.

McDermott Cuesta with purple sandstone and conglomerate.

Hydrogeology class in Natural Bridge Caverns

The hydrogeologic word for this past year was **saturated**. Activities and events that **saturated** Dr. Joe included the search for a contaminant hydrogeologist, facilitating the Graduate Seminar which included the Birdsall-Dreiss distinguished lecturer from the Hydrogeology division of GSA as well as two candidates for the contaminant hydrogeologist position and interviewing candidates at the GSA annual meeting in Philadelphia.

In addition to attending the annual GSA meeting where MS candidate Jason Weckbacher and Dr. Yelderman co-authored a poster, Dr. Joe also attended the Ground Water summit in Alburquerque, NM where he participated in a short course on Spring Ecosystem Inventory (see photo).

The Baylor Wastewater Research Program (BWRP) continues to flourish. Pablo Davila completed his MS and presented his thesis at the National Onsite Wastewater Recycling Association (NOWRA) in Denver. He is employed in the environmental consulting field in the Dallas area. Dr. Yelderman received an additional $160,000 from the TOWTRC to continue his work with constructed treatment wetlands. The new money will fund a project with Co-PI, Dr. Margaret (Maggie) Forbes, who is working at Baylor as a Post Doc in the Center for Reservoir and Aquatic Systems Research. Also the Texas Onsite Wastewater Treatment Research Council (TOWTRC) funded a $95,000 study on microbiology at the BWRP site under the direction of Dr. Rene Massengale (PI) in Biology.

However, in spite of all these great activities, the highlight of the year for Dr. Yelderman was the annual hydrogeology weekend field trip. This past year the class voted to spend their "fall break" traveling west to see some arid zone hydrogeology. In addition to the usual Edwards aquifer springs and a trip through Natural Bridge Caverns, where alumnus, Brian Vauter, provided unique expertise, the class members traveled to Indian Hot Springs and Capote Falls (see photos). The return route included a rainy night in the Davis Mountains and a visit to San Solomon Springs near Balmorhea, Texas.

Hydrogeology class gather data on spring discharge in the Edwards Aquifer

The Yeldermans still live at 706 Woodland West, Woodway, Texas and visitors are always welcome. Dr. Yelderman continues to teach Sunday School at Columbus Avenue Baptist Church. Diane (wife of 30+ years) continues to teach Kindergarten at North Waco Elementary. Logan (son #2) completed his freshman year at Baylor and survived pledging a fraternity. Cal (son #1) graduated from Baylor in May with a BA degree in English and Creative Writing. In case you are wondering where his interests came from, may I remind you that some of my research articles have been described as creative writing. Married daughter, Abigail White, lives in Houston with her husband Jared where she works as a media traffic coordinator for MarCom Advertising and Jared works as an auditor for Price-Waterhouse. Dr. Yelderman's mother, Ada Frances, now resides at St. Catherines care facility off Highway 6 in Woodway.

Stephanie Capello adds an auger flight during a piezometer installation at the Waco Wetlands

The final destination, Capote Falls

REPORT OF BAYLOR UNIVERSITY GEOLOGY DEPARTMENT 2006 FACULTY AND STUDENT RESEARCH ACCOMPLISHMENTS.

Faculty Publications (underline = Baylor Geology Faculty) (* = peer-reviewed)

(1) **Alvarez, J., Skipwith, W. and **Allen, P.M.**, 2006. River effects at highway crossings due to watershed changes: Paper and Abstract: Texas Section ASCE.

(2) *An, C.B., **Feng, Z.-D.**, and Barton, L., 2006, Dry or humid? Mid-Holocene humidity changes in arid and semi-arid China: Quaternary Research 25, 351-361.

(3) ****Atchley, S.C.**, 2006, Jurassic Rock Creek and Lower Cretaceous "Ellerslie" gas development potential across the Carrot Creek region of southern Alberta: (Sponsored by Auriga Energy, Inc.)

(4) ****Atchley, S.C.,** and Cleveland, D.M., 2006, Reservoir characterization and development potential of a retrograde gas reservoir: the Devonian Swan Hills Formation at the Kaybob South BHL Gas Unit #1: (Sponsored by Auriga Energy, Inc.)

(5) ***Atchley, S.C.**, West, L.W., and Sluggett, J.R., 2006, Reserves growth in a mature oil field: the Devonian Leduc Formation at Innisfail field, south-central Alberta, Canada: Bulletin of the American Association of Petroleum Geologists, v. 90, p. 1153-1170.

(6) **Bumgardner, F., Bjelland, A., Haskell, E., Moes, P., Muldrow, J., Wareham, N., White-Swift, E.G. and **Yelderman, J.C.,** 2006, Checklist of the Birds in McLennan County, Texas (Sixth Revision): Central Texas Audubon Society, Waco, Texas, Publication No. 4, 13 p.

(7) *Chen, P.-Y., Arnold, J.G., Srinivasan, R., Volk, M., and **Allen, P.M.**, 2006, Surveying ground water level using remote sensing: An example over seco and Hondo Creek watershed in Texas: Ground Water Monitoring and Remediation, v. 26, no. 2, p. 1-8.

(8) ***Cronin, V.S.**, 2006, Book review – Computational Geosciences with Mathematica by William C. Haneberg: Environmental & Engineering Geoscience, v. XII, no. 4, p. 385-386.

(9) *Duke, J.R., White, J.D., **Allen, P.M.**, Muttiah, R.S., 2006: Riparian influences on hyporheic-zone formation downstream of a small dam in the Blackland Prairie Region of Texas: Hydrological Processes, v. 20. (online).

(10) ***Feng, Z.-D.**, Tang, L.Y., Wang, H.B., Ma, Y.Z., and Liu, K.-b., 2006, Holocene vegetation variations and the associated environmental changes in the western part of the Chinese Loess Plateau: Paleogeography Paleoclimatology Paleoecology, v. 241, p. 440-456.

(11) ***Feng, Z.-D.**, Wang, H.B., and Zhai, X.W., 2006, Holocene climatic and environmental changes in the arid and semiarid regions of China: A review: The Holocene, v. 16, p. 19-30.

(12) ***Goforth, T.T.**, Hetzer, C.H., and Stump, B.W., 2006, Characteristics of regional seismograms produced by delay-fired explosions at the Minntac Iron Mine, Minnesota: Bulletin of the Seismological Society of America, v. 96, no. 1, pp. 272-287.

(13) ***Goforth, T.T.**, and Zhou, R., 2006, Characteristics of seismic waves produced by surface mining operations: Proceedings of the 32nd Annual Conference on Explosives and Blasting Techniques, International Society of Explosive Engineers, v. 1, p. 1-16.

(14) *Harmel, R.D., Richardson, C.W., King, K.W., and **Allen, P.M.**, 2006, Runoff and soil loss relationships for the Texas Blackland Prairies ecosystem: Journal of Hydrology, v. 331, p. 471-483.

(15) *Lenczewski, M., McKay, L., Pitner, A., **Driese, S.**, and Vulava, V., 2006, Pure-phase transport and dissolution of TCE in sedimentary rock saprolite: Ground Water, v. 44, p. 406-414.

(16) ****Nordt, L.**, 2006, Soils and paleopedology, in Glossary of Geologic Terms, J. Mehl and J. Jackson (eds.): American Geophysical Union, Washington, D.C. http://previews.georef.org/dbtw-wpd/glossary/search.htm

(17) ***Nordt, L.**, Orosz, M., **Driese, S.**, and Tubbs, J., 2006, Vertisol carbonate properties in relation to mean annual precipitation: Implications for paleoprecipitation estimates: Journal of Geology, v. 114, p. 501-510.

(18) *Prochnow, S., **Atchley, S.**, Boucher, T., **Nordt, L.**, and Hudec, M., 2006, The influence of salt withdrawal subsidence on paleosol maturity and cyclic fluvial deposition in the upper Triassic Chinle Formation: Castle Valley, Utah: Sedimentology, v. 53, p. 1319-1345.

(19) *Prochnow, S., **Nordt, L.**, **Atchley, S.**, and Hudec, M., 2006, Multi-proxy paleosol evidence for middle and late Triassic climate trends in eastern Utah: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 232, p. 53-72.

(20) *Shunk, A.J., **Driese, S.G.**, and Clark, G.M., 2006, Latest Miocene to earliest Pliocene sedimentation and climate record derived from paleosinkhole fill deposits, Gray Fossil Site, northeastern Tennessee, USA: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 231, p. 265-278.

(21) **Skipwith, W., Alvarez, J., and **Allen, P.M.**, 2006, Bentle Branch storm water and stream bank stability study: Paper and Abstract, Texas Section ASCE.

(22) *Sumrall, C.D., Sprinkle, J., and **Bonem, R.M.**, 2006, An edrioasteroid-dominated echinoderm assemblage from a Lower Pennsylvanian marine conglomerate in Oklahoma: Journal of Paleontology, v. 80, p. 229-244.

* = peer-reviewed journal, ** = proprietary reports or proceedings (not peer-reviewed), *** = text or lab book

Faculty and Student Presentations (underline = Baylor Geology Faculty)

(1) **Allen, P.M.**, 2006, Urban geology: Quantifying geological descriptions into guidelines and ordinances: American Association of Petroleum Geologists Annual Meeting, Houston, Texas. Abstract.

(2) **Allen, P.M.**, 2006, Working Paper on Channel Erosion for SWAT Modelers Workshop in POTSDAM, GERMANY, October 2006. (Allen is in charge of International Working Group for SWAT Model on Channel Erosion Subroutine, and gave two presentations to modelers during week- long conference). http://www.brc.tamus.edu/swat/wmdworkshop06/

(3) **Allen, P.M.**, **Dunbar, J.**, Narasimhan, B., Srinivasan, R., Prochnow, S., and Zygo, L., 2006, Assessment of erosion volumes for model calibration in large watersheds: What is reality for reservoir sedimentation rates? Abstract . TRRMS, Austin, Texas.

(4) Alvarez, J., Skipwith, W., and **Allen, P.M.**, 2006, River effects at highway crossings due to watershed changes: Paper and Abstract, Texas Section ASCE.

(5) Appold, M.S., Enright, R., Galicki, S., Isiorho, S., Lasage, D., Lepper, K., Reichard, J., Sims, W.J, , Wang, H., and **Yelderman, J.C., Jr.**, 2006, Teaching Hydrogeology in the 21st Century; Resources demonstrating the interface between hydrogeology and other scientific and social disciplines: Geological Society of America, Annual Meeting , Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(6) Ashley, G.M., Hover, V.C., **Driese, S.G.**, Roure, C.A., McBrearty, S.B., Owen, R.B., and Renaut, R.W., 2006, A changing landscape in the semi-arid tropics: Insights from paleosols, East African Rift, Kenya: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(7) Ashley, G.M., Owen, R.B., **Driese, S.G.**, Park, L.A., and Goman, M., 2006, The importance of groundwater-fed wetlands as a reliable water source for humans in arid environments: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(8) **Atchley, S.C.**, 2006, Short-course for Husky Energy titled "Introduction to Carbonate Reservoirs" co-taught with Dr. John Weissenberger, Calgary, Alberta.

(9) Bongino, J., **Nordt, L.**, and Forman, S., 2006, Late Quaternary history of the Waco Mammoth Site: Environmental reconstruction and interpreting the cause of death: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(10) Cleveland, D., **Atchley, S.**, and **Nordt, L.**, 2006, Allo- and autocyclic signatures in paleosol-bearing alluvial successions: the triassic (Norian-Rhaetian) Chinle Group, northern New Mexico: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(11) Davila, P.A., **Yelderman, J.C., Jr.,** Doyle, R., Lesikar, B., O'Neill, C., and Rodriguez, S., 2006, Evaluation of a subsurface-flow Constructed Wetland for On-site wastewater Treatment using Standard 40 Protocol (abstract): National Onsite Wastewater Recycling Association, Annual Conference, Denver, CO.

(12) **Driese, S.G.**, "Pedogenic signatures of early terrestrial ecosystems based on micro-morphological and geochemical study of Precambrian-Cambrian paleo-weathering surfaces formed on granite": (talk presented at 43nd Annual Soil Survey and Land Resource Workshop in College Station, TX, February 2, 2006).

(13) **Driese, S.G.**, "Paleosol evidence for Quaternary uplift and for climate and ecosystem change in the Cordillera de Talamanca, Costa Rica": talk presented at the Waco Gem and Mineral Society, October 2, 2006.

(14) **Driese, S.G.**, "Multi-proxy approaches to interpreting climate and time in the geologic record using soils": talk presented at the University of California-Davis, Department of Land, Air and Water Resources, November 29, 2006.

(15) **Driese, S.G.**, Ashley, G.M., Li, Z.-H., Hover, V.C., and Owen, B., 2006, Late Holocene equatorial paleoclimate record based upon soils spanning the Medieval Warm Period and Little Ice Age, Loboi Plain, Kenya: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(16) **Driese, S.G.**, Mora, C.I.,and Elick, J.M., 2006, Landscape and climate records derived from Devonian vertic floodplain soils, Catskill Formation, central PA: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(17) **Dunbar, J.A.** and **Allen, P.M.**, 2006, Long-term sediment yield and the trap efficiency of SCS flood control reservoirs in the Texas Blackland Prairie: (abstract) USDA-CREES conference in San Antonio, Texas, Feb., 2006.

(18) **Dunbar, J.A.** and **Allen, P.M.**, 2006, Sediment yield from the Blackland Prairie from sedimentation and large water supply reservoirs and SCS flood control structures: (abstract) Texas Blackland Prairie, (abstract) Texas River and Reservoir Management Society Annual Meeting, Austin, Texas April, 2006.

(19) **Dworkin, S.I.**, **Nordt, L.C.**, and **Atchley, S.C.**, 2006, Sr isotope ratios and trace element concentrations of pedogenic calcite record environmental conditions in west Texas paleosols spanning the K-T boundary: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(20) **Feng, Z.-D.**, 2006, Holocene Climatic variations in the Mongolian Plateau: (an international RACHAD Conference held in Lanzhou of China, July 26-29, 2006)

(21) **Feng, Z.-D.**, 2006, Potential Ecology in the severely disturbed Chinese Loess Plateau: (2nd International Conference on Earth Systems and Environments held in Beijing, October 22-26, 2006).

(22) **Feng, Z.-D.**, 2006, Natural rhythms of Holocene desertification in the Chinese Loess

Plateaus: (2nd International Conference on Earth Systems and Environments held in Beijing, October 22-26, 2006).

(23) **Greene, D.M.**, 2006, "Climate and Its Effects on Man: The Influence of Ozone Depletion and Global Warming": talk presented before the City Federation of Women, Temple, Texas, January 24, 2006.

(24) **Greene, D.M.**, 2006, "Diverging Points of View on the Global Warming Controversy": talk presented before the Senior Kiwanis Club, Waco, Texas, December 13, 2006.

(25) Josson, E.M., **Atchley, S.C.**, and Kahmann, J.A., 2006, Reservoir quality and continuity, and secondary recovery potential of the Mississippian Pekisko Formation at Twining Field, south-central Alberta, Canada: American Association of Petroleum Geologists Annual meeting in Houston, TX.

(26) Kahmann, J.A., and **Driese, S.G.**, 2006, Characterization of trace elements in Mississippian Pennington Formation paleosols at Pound Gap, KY: A new paleoclimate indicator?: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(27) Li, Z.-H., **Driese, S.G.**, and Mora, C.I., 2006, Paleoclimate variability revealed by speleothem ä^{18}O and ä^{13}C records from the Raccoon Mountain Cave, east Tennessee, USA: Southeastern section Geological Society of America meeting in Knoxville, TN.

(28) Li, Z.-H., **Driese, S.G.**, and Mora, C.I., 2006, Stable isotope analysis reveals two different carbon sources for speleothem formation in Raccoon Mountain Cave, East Tennessee: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(29) Ludvigson, G.A., González, L.A., and **Driese, S.G.**, 2006, Meteoric sphaerosiderite lines from the Atokan (Langsettian) Crooked Fork Group, eastern Tennessee: A first-cut comparison between paleoequatorial precipitation rates from the Carboniferous icehouse and Cretaceous greenhouse world: North-central section Geological Society of America meeting in Akron, OH.

(30) Maher, M.A., and **Bonem, R.M.**, 2006, Construction of a Comprehensive Modern Lagoonal Reef Model for Interpretation of Ancient Bioherms: Annual Meeting, Geological Society of America, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(31) Merino, E., Banerjee, A., and **Dworkin, S.**, 2006, Origin of associated Terra Rossa and Karst by Mineral Replacement Driven by Dissolved Dust: A Striking Case of Chemical Geodynamics: World Congress of Soil Science, Philadelphia, PA, Abstract with Programs.

(32) Merino, E., Banerjee, A., and **Dworkin, S.**, 2006, Dust, terra rossa, replacement, and karst: Serendipitous geodynamics in the critical zone (abstract): Geochimica et Cosmochimica Acta, Volume 70, Issue 18, Supplement 1, August-September 2006, Page 36

(33) Narasimhan, B., **Allen, P.M.**, Srinivasan, R., Arnold, J., and **Dunbar, J.**, 2006, Channel erosion and best management practice simulation using SWAT: Abstract, ASABE.

(34) **Nordt, L.C.**, 2006, "Late Quaternary vegetation and temperature change in the central Great Plains based on the isotopic composition of buried soils": University of Kansas, Kansas Geological Lecture Series (March).

(35) **Nordt, L.C.**, von Fischer, J., and Tieszen, L., 2006, Late Quaternary evolution of North American grasslands inferred from stable carbon isotopes of buried soil organic matter: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(36) Rodriguez, S.L., Davila, P.A., Suchecki, R., and **Yelderman, J.C., Jr,** 2006, Toxicity and Water Quality of Effluent from Three Different On-site Wastewater Treatment Systems (abstract): National Onsite Wastewater Recycling Association, Annual Conference, Denver, CO.

(37) Seidman, L., and **Cronin, V.S.**, 2006, Analysis of seismo-lineaments, DEMs and fieldwork leads to different ideas about active deformation in the Santa Monica Mountains, southern California: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(38) Shunk, A.J., **Driese, S.G.**, Farlow, J.F., Hulbert, R., and Whitelaw, M., 2006, High-resolution stratigraphy and sedimentology of Late Miocene-Pliocene paleolacustrine strata deposited in paleosinkhole settings, eastern US: Geological Society of America, Annual Meeting, Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

(39) Skipwith, W., Alvarez, J., and **Allen, P.M.**, 2006, Bentle Branch storm water and stream bank stability study: Paper and Abstract, Texas Section ASCE.

(40) Suchecki, R.J., Jr., Pertuit, R.K., **Yelderman, J.C., Jr.,** Scheffe, B.L., 2006, Enhancing Biological Nutrient Reduction in Secondary Individual Onsite Wastewater Treatment Systems: WEFTEC Conference in Dallas, Texas.

(41) Suchecki, R.J., Jr., **Yelderman, J.C., Jr.,** Scheffe, B.L., and Pertuit, R.K., 2006, Enhancing biological nutrient reduction in advanced individual onsite wastewater treatment systems (abstract): Colorado Professionals in Onsite Wastewater, CPOW Annual Educational Conference, Western Slope, March 10, Grand Junction, CO.

(42) Suchecki, R.J., Jr., **Yelderman, J.C., Jr.,** Scheffe, B.L., and Pertuit, R.K., 2006, Enhancing biological nutrient reduction in advanced individual onsite wastewater treatment systems (abstract): Colorado Professionals in Onsite Wastewater, CPOW Annual Educational Conference, Eastern Slope, March 24, Golden, CO.

(43) Suchecki, R.J., Jr., **Yelderman, J.C., Jr.,** Scheffe, B.L., and Pertuit, R.K., 2006, Enhancing biological nutrient reduction in advanced individual onsite wastewater treatment systems (abstract): National Onsite Wastewater Recycling Association, Annual Conference, Denver, CO.

(44) Weckbacker, J., and **Yelderman, J.C. Jr.**, 2006, Effects of recharge on groundwater below on-site wastewater drain fields as

related to soil type: Geological Society of America, Annual Meeting, Philadelphia, PA Abstracts with Programs, Vol. 38, No. 7.

(45) White, J.C., Ren, M., **Parker, D.F.**, and Anthony, E.Y., 2006, Aenigmatite-ilmenite-clinopyroxene equilibria and applications to geothermometry and oxygen barometry in pantelleritic melts: examples from Pantelleria (Italy) and Eburru (Kenya): Geological Society of America, presented at Southeastern Section Meeting of Geological Society of America in Knoxville, TN, Abstracts with Programs, v. 38, no. 3.

(46) **Yelderman, J.C. Jr.,** 2006, A Word Picture is Worth a Thousand Graphs or the Use and Abuse of Analogies (abstract): Abstracts volume for the 2006 Ground Water Summit, April 23-27, 2006, San Antonio, Texas, p.171.

(47) **Yelderman, J.C. Jr.,** Lesikar, B., Doyle, R., O'Neill, C., and Davila, P., 2006, Testing a Wetland to NSF Standard 40: Texas On-Site Wastewater Treatment Research Council Conference, Waco, Texas.

(48) **Yelderman, J.C. Jr.,** Wallestad, C., and White, J.D., 2006, Recalibrated Recharge: Solving complxc problems with models: Geological Society of America, Annual Meeting , Philadelphia, PA, Abstracts with Programs, v. 38, no. 7.

Grants and Contracts AWARDED and in force (underline = Baylor Geology Faculty)

(1) **Allen, P.M.**, and **Dunbar, J.A.**, 2006, Contract with Federal Government on Lake Whitney Salinity Assessment ($400,000-1.2 million) Year One.

(2) **Allen, P.M.**, and **Dunbar, J.A.**, 2006, US EPA Grant (in progress) on West Texas Reservoir Sedimentation/chemistry with John Dunbar. (28,000?)

(3) **Atchley, S.M.**, 2006, Funding for construction of the Beaver-Brown Applied etroleum Studies Workroom: $10,000, Anadarko Petroleum Corporation; $5,000 Nadel-Gussman and Associates; $1000 American Association of Petroleum Geologists SW Section

(4) **Atchley, S.M.**, 2006, Student and Faculty support on Kaybob South APS project, Summer 2006, $6,500, Auriga Energy Inc.

(5) **Atchley, S.M.**, 2006, General support towards sequence stratigraphic research (committed for 1Q 2007) $8750 DayLight Energy Inc.

(6) **Atchley, S.M.**, and **Nordt, L.C.**, 2006, The interrelationship of sequence stratigraphy, paleoclimatology, and terrestrial ichnology in Triassic paleosol-bearing alluvial successions, Moenkopi and Chinle Formations, southwestern United States: American Chemical Society, Petroleum Research Fund, May 2006, $79,707, two years.

(7) **Dunbar, J. A.**, 2006, Electrical Resistivity Investigation of Gas Hydrate Distribution in Mississippi Canyon Block 118, Gulf of Mexico: US Department of Energy, $278,166, October, 2006 to September 2009.

(8) **Dunbar, J.A.,** and **Allen, P.M.**, 2006, Sediment prevention through the repair of floodwater-retarding structures in McCulloch County, Texas: Texas State Soil and Water Conservation Board, $28,573, June 2006 to May 2008.

(9) **Feng, Z.-D.**, 2006, (Lead PI): Collaborative research (with Dr. K.-B Liu at LSU): Bioclimatic reconstruction of the past 50,000 years from eolian sequences in the westerlies-dominated Central Asia: Award No: NSF-BCS-0623478; (07/01/2006-06/30/09) Award Amount: total $290,000 (Feng's portion = $150,000).

(10) **Yelderman, J.C., Jr.**, 2006, Awarded extension of the nutrient reduction study for OSSF aerobic systems,

Murphy Cormier, Inc., awarded March 2006 through August 2006, $6,000

(11) **Yelderman, J.C., Jr.**, 2006, Awarded extension of Phase II of the nutrient reduction study for OSSF aerobic systems, Murphy Cormier, Inc., awarded July 2006 through June 2007, $45,000

(12) **Yelderman, J.C., Jr.**, 2006, Awarded an extension of the wetland study grant for $10,000.

Grants, Contracts and Software Patents SUBMITTED (underline = Baylor Geology Faculty)

(1) **Driese, S.G.**, 2006, Evaluating evidence for high-frequency climate forcing of sedimentation and pedogenesis based upon Upper Mississippian paleosols in the U.S. Appalachian Basin and modern analog soils in Timor, Indonesia ($80,000 requested for two years, commencing January 1, 2007). NOT FUNDED

(2) **Driese, S.G.,** Ming, D.W., Runkel, A., and Ren, M., 2006, Pedogenic signatures of early Earth terrestrial weathering systems as partial analogs for past Martian weathering conditions: submitted to NASA, Mars Fundamental Research Program ($244,413 requested for three years, commencing January 1, 2007). PENDING

(3) **Driese, S.G.**, and **Parker, D.F.**, 2006, Acquisition of a wavelength-dispersive XRF instrument for Department of Geology, Baylor University: submitted to NSF Instrumentation and Facilities program ($123,619 requested for one year, commencing January 1, 2007). NOT FUNDED

(4) **Driese, S.G.**, 2006, with 4 University of Kansas (KU) Geology faculty members (Ludvigsen, G., Fowle, D.A., González, L.A., and Roberts, J.A., KU as lead institution), Collaborative Research: Actualistic calibration of the sphaerosiderite paleoclimate proxy: submitted to NSF Geobiology and Low-temperature Geochemistry program ($148,352 requested Baylor University for three years, commencing June 1, 2007). AWARDED

(5) **Dunbar, J.A.**, 2006, Evaluation of sediment survey accuracy, Lake LBJ, Texas: Texas Water Development Board, $30,000, Jan. 2006. PENDING?

(6) **Nordt, L.C.**, 2006, Late Pleistocene adaptations and behaviorial transformations in the South African Highveld Grassland. Collaborator with Co-Principal Investigators Dr. Britt Bousman and Dr. David Brink (submitted). (details?)

WHERE ARE THEY NOW?

Patti Lucas Miller, MD, MS 1984 – Is Board Certified in Internal Medicine and is a hospitalist at a hospital in N. Adams Massachusetts. Patti is married to Patrick Miller who is a mechanical engineer. In her spare time she enjoys fly fishing, hiking, reading and caring for the miller animals. Patrick and Patti have 8 cats, 4 dogs, and 3 horses (2 Percheron draft horse and 1 Morgan).

Suzy Dahl-Crumpler & Dwayne Crumpler, 1985- Their daughter, Lydia Ann Crumpler, was diagnosed in early September 2006 with leukemia. Lydia is doing well — she is still in treatment - and will be until Dec 2008 — but we are through the worst treatment. She has been in remission since the third week — long long ago. There is a 90-95% cure rate for her type of leukemia!!!!

Please keep Lydia and her family in your prayers. To read more about Lydia's recovery visit http://www.caringbridge.org/cb/inputSiteName.do?method=search&siteName=lydiaann

Lydia Ann Crumpler on her first day back to school.

Art & Sue Lynn Bishop – It was great to see Art & Sue Lynn at the 1st annual research fair in April, and we are happy to see that they are doing well.

NEW ARRIVALS

Shane & Micah Prochnow – Saxony Katja Prochnow – September 15, 2006

Charlie & Meredith Greene Highsmith- Hanna Ruby and Macey Madelon – October 24, 2006
(Dr. Don & Alison Greene's Granddaughters)

Mark & Erica Millard – Logan John Millard- July 10, 2007

Dr. Don Greene and his twin granddaughters

CONDOLENCES TO

Dr. Ken & Celia Carlile on the passing of Ken's father, Quinton Bond Carlile, on March 13, 2007

1ST ANNUAL GEOLOGY UNDERGRADUATE RESEARCH FAIR & AWARDS DAY

3:00-4:00 PM, FRIDAY, APRIL 20TH, 2007 – ROOM E231, BAYLOR SCIENCES BUILDING

Introduction of Geology Alumni Board Members present – Sue Lynn and Art Bishop, Frank Hernandez, Tom Moore, and Bob Rogers

Presentation of R.T. Hill Award (outstanding Geology Senior) to Ms. Jessica Pritchard - $500 Scholarship

Dr. Steven Driese, Jessica Pritchard, Anthony Pasquella, Alex Dixon, & Emyris Lane

Recognition of Undergraduates Presented for 2006 Baylor University Honors Convocation on April 11, 2007: Ms. Jana Edwards (B.S. Geology) and Mr. Matt Schreiner (B.A. Geography) - $200 Scholarships to each student, plus dinner with the Chair and a guest at a local restaurant

Christopher d'Aiuto & Jessica Pritchard

Recognition of Undergraduates Receiving James W. Dixon Undergraduate Field Assistant Scholarships for summer 2007: Mr. Christopher Breed, Mr. Alexander Dixon, Ms. Emyris Lane and Mr. Anthony Pasquella – Scholarships to cover actual costs of students working with Geology graduate students as field assistants in Colorado-Utah and Jamaica

Poster Presentation Competition:

FIRST PLACE - Ms. Jana Edwards: "Biodiesel Production of Algae from Eutrophic Lakes" – awarded Brunton pocket transit and leather case

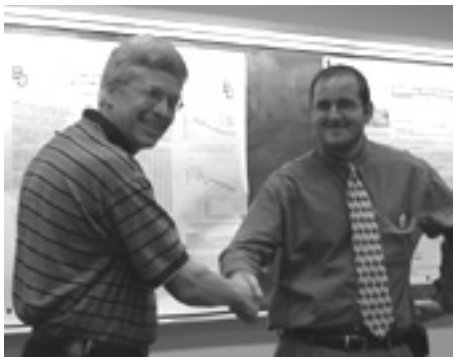
Dr. Steven Driese and Jana Edwards

SECOND PLACE - Mr. Christopher d'Aiuto and Ms. Jessica Pritchard: "Reconnaisance Petrology of the Late Cretaceous McDermott Formation, SW Colorado" – each awarded a Garmin hand-held GPS unit

THIRD PLACE - Ms. Lauren Dubuisson: "The Cretaceous-Tertiary Extinction: The Chicxulub Impact and Planktonic Decline" – awarded a $100 gift certificate to order field equipment for summer field camp

Dr. Steven Driese and Lauren Dubuisson

FOURTH PLACE - Mr. Anthony Pasquella: "Evidence of Aqueous Environments on Ancient Mars" – awarded a $75 gift certificate to order field equipment for summer field camp



Dr. Steven Driese and Anthony Pasquella

Recognition of Jean Spencer-Jenness Geology Library Endowment - $15K means that Geology can now purchase books to supplement its collection

Dr. Tom Goforth & Art Bishop

CONGRATULATIONS TO BAYLOR GEOLOGY GRADUATE STUDENTS!

I am pleased to report that the following Geology graduate students received notification of receipt of awards of grants-in-aid-of-research between June of 2006 and June of 2007:

from the Geological Society of America
Debra Jennings (Ph.D.) - $2,200
Isaac Westfield (M.S.) - $2,200

Aaron Shunk, Ph.D. student was a recipient of a scholarship from the Fort Worth Geological Society in the spring of 2007.

from the American Association of Petroleum Geologists (AAPG)
Aaron Shunk (Ph.D.) – $1700

from the Robert J. Weimer Student Grant, Society for Sedimentary Geology (SEPM)
David Cleveland (Ph.D.) - $1,000
Aaron Shunk (Ph.D.) - $500

from the Fort Worth Geological Society
Aaron Shunk (Ph.D.) - $1000

from Sigma Xi, the Scientific Society
Mark Millard (M.S.) - $500
Isaac Westfield (M.S.) - $400

NSF-East Asian and Pacific Studies Institute Research Grant to work in China (summer of 2007)
Julia Kahmann (Ph.D.) - $15,000

In aggregate, these awards total over $24,500
GREAT JOB STUDENTS AT SECURING RESEARCH FUNDING!

Steve Driese

Matt Schreiner, Dr. Steven Driese, & Jana Edwards at the Spring Honors Convocation

2007 GRADUATES

Congratulations to our graduate students who completed their Graduate degrees in Geology this year!

MAY 2007

Brian G. Bayliss- Master of Science
Test of a Method for Recognizing Unmapped Seismogenic Faults

Marie A. Maher- Master of Science
Comprehensive Model for Modern Lagoonal Patch Reef Systems in Discovery Bay, Jamaica

Anna F. Perry- Master Science
Petrology of Cascade Head Basalt, Oregon Coast Range, USA

Lauren E. Seidman- Master of Science
Analysis of Seismo-Lineaments, DEMs and Fieldwork Leads to Different Ideas About Active Deformation within The Central Santa Monica Mountains of Southern California

AUGUST 2007

John D. Bongino- Master of Science
Late Quaternary History of the Waco Mammoth Site: Environmental Reconstruction and Interpreting the Cause of Death

Mark A. Millard- Master of Science
Linking Onshore and Offshore Data to Find Seismogenic Faults along the Eastern Malibu Coastline

UNDERGRADUATE STUDENTS

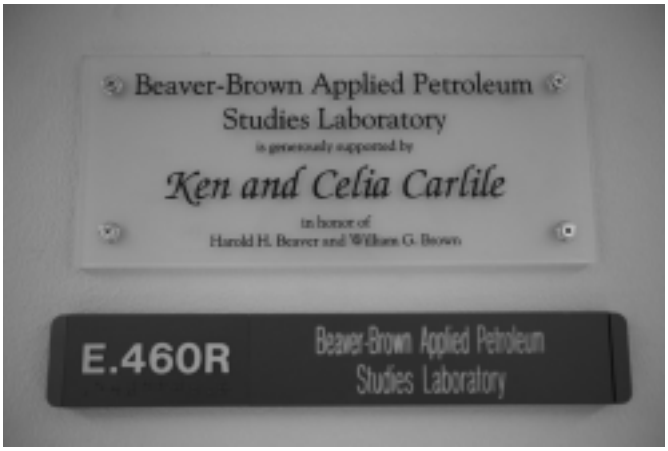
Jessica Pritchard – 2007 recipient of the Robert T. Hill Award for Academic Excellence in Geology

Jana Edwards & Matt Schreiner – Chosen to represent the Geology Department at the annual Honors College Convocation.

DEDICATION OF KEN AND CELIA CARLILE ATRIUM AND BEAVER-BROWN APPLIED PETROLEUM STUDIES LABORATORY

The Baylor University Development Office, Geology Department, and the College of Arts and Sciences held a dedication event on April 25, 2007 establishing the Ken and Celia Carlile Atrium in the Baylor Sciences Building. About 100 alumni, faculty, administrators (including President John Lilley and his wife Geri), students and friends attended the event, along with members of the Carlile family and many of Dr. Carlile's employees from Marshall, TX. The 2:00 PM dedication event was preceded by a dinner that was catered in the Baylor Sciences Building. A & S Dean Lee Nordt offered the opening prayer of appreciation, and Dr. Steve Driese and President John Lilley offered remarks recognizing the Carliles for all of their many contributions to the Geology Department and Baylor University. Geology undergraduate Jana Edwards concluded with the prayer of dedication, followed by a reception in the Atrium. Alumni were also treated to a dedication and tour of the new Beaver-Brown Applied Petroleum Studies Laboratory constructed for Dr. Stacy Atchley in the Baylor Sciences Building, with both Dr. Beaver and Dr. Brown in attendance. Dr. Carlile provided a major gift in 2006-2007 supporting replacement of the roof and renovations of the interior of the Carlile Geology Research Building, construction of a Beaver-Brown Applied Petroleum Studies Laboratory in the Baylor Sciences Building, and establishment of an endowment to support science students at Baylor University. He also provided a critical gift, matched by Baylor University, to support acquisition of a new Rigaku X-ray fluorescence analyzer for analyzing the chemistry of rocks, sediments and soils; the instrument was installed in the Geology x-ray laboratory in the Baylor Sciences Building in June of 2007.

Program for the Ken and Celia Carlile Atrium dedication.



Applied Petroleum Studies Laboratory sign.

Dr Harold Beaver in the Applied Petroleum Studies Laboratory

The Carlile family in the newly dedicated Ken and Celia Carlile Atrium located in the Baylor Sciences Building.

Personal Information Needed

Please complete the information and return along with any other information you feel would be useful to us.
This information will be used to update departmental files.

Name: _____ Class: _____

Degree (s): _____

Phone: _____ Email: _____

Mailing Address: _____

Type of Work: _____ Location: _____

Company Name: _____

Family Information: _____

_____

Hobbies: _____

Interests: _____

Spare time activities: _____

_____

Would you like to share information in the Homecoming Newsletter Section, "Where are they now"? Yes [ ] No [ ]

If yes, write information here: _____

_____

Are you willing to speak to the Department? [ ] Yes [ ] No

Topic: _____

_____

_____

_____

Suggestions: _____

_____

_____

Tear out and mail to:
Department of Geology · One Bear Place #97354 · Waco, TX 76798-7354
Or Email to Paulette_Penney@baylor.edu

Deb Jennings & Daniel Wegert at the 2006 Homecoming Open House

YOU ARE CORDIALLY INVITED
TO JOIN THE FACULTY AND STAFF
OF
BAYLOR UNIVERSITY
DEPARTMENT OF GEOLOGY
FOR
2007 HOMECOMING OPEN HOUSE
FRIDAY, NOVEMBER 2, 2007
7:00 P.M. – 9:00 P.M.
BAYLOR SCIENCES BUILDING
ROOM E.401

Jason Weckbacher & Chris Breed at the 2006 Homecoming Open House

BAYLOR UNIVERSITY
DEPARTMENT OF GEOLOGY

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