UA Geology Field Camp, Summer, 2009

UNIVERSITY OF ARKANSAS
DEPARTMENT OF GEOSCIENCES

Fall Semester 2009

GEOSCIENCES ADVISORY BOARD

Message From The Chair - Greetings from all of us in the Department of Geosciences. It has been an interesting year given the national and world economy but I want to assure you that the Department of Geosciences has so far weathered the storm very well. We hope that all of our alumni and friends have also managed through these somewhat trying times and are safe, healthy and prosperous. As most of you know well, Arkansas has always been a rather financially conservative state. This has paid off in the last year through modest budget adjustments for state agencies, including universities, relative to other states. Many other states have seen much more drastic budget reductions, which have resulted in faculty layoffs and elimination of some geosciences programs. In Geosciences here at the University of Arkansas we currently have two active national searches underway to fill faculty vacancies in the area of structural geology (position left open on Pam Jansma's departure), and sedimentology/stratigraphy (position left open as a result of Walt Manger's retirement).

We have had several changes affecting the department since our last newsletter, one of which was the retirement of Dr. Walt Manger in August 2009. Walt joined the University of Arkansas in 1972 as an assistant professor of geology, and was promoted to associate professor in 1977, and to professor in 1981. He served as Chair of Geology in the College of Arts and Sciences from 1984-1992. Professor Manger has enjoyed an impressive career in the field of geology and paleontology where he has spent 37 years teaching and conducting research in the University setting, and providing leadership and instruction to the geology community through public service. He is internationally recognized for his work in Carboniferous stratigraphy and paleontology as evidenced by his professional society affiliations and duties, and impressive publications in the proceedings of the International Cephalopod Symposium and the Russian Academy of Sciences. Dr. Manger is a respected colleague and a beloved teacher held in highest regard by his peers and students. Walt continues to be active in the department teaching Invertebrate Paleontology this fall and serving on several thesis committees.

Another change is the relocation of the Geosciences staff in the Southwestern Energy Office here in Fayetteville. Southwestern Energy has had a cooperative program with Geosciences over about the last decade, supporting several interns each year from the Geosciences program. These interns have worked closely with the professionals at the Fayetteville office. This relationship will change given the closure of the Fayetteville operation, but we are hopeful that an alternate internship model can be devised to continue this valuable industry-university partnership.

On a more positive note, Dr. John Hehr has stepped down as Associate Dean of Arts and Sciences and returned as full time faculty in Geosciences. He has been on research leave this fall but will resume teaching duties this spring in Climatology. He, along with Lynn Hehr and Steve Boss have been pursing funding to enhance geosciences education for secondary teachers.

Dr. Steve Boss, Director of the Environmental Dynamics Ph.D. Program and JoAnn Kvamme, Program Coordinator for ENDY, worked diligently over the last two years to bring the National Association of Black Geologists and Geophysicists (NABGG) national meeting to our campus during September 2009. This was a wonderful conference that allowed Geosciences and the University of Arkansas to show off our assets to a superb group of geosciences professionals and students. It has proven to be a great recruiting tool, as several students have followed with applications for graduate school in the fall 2010.

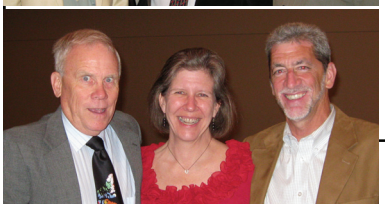
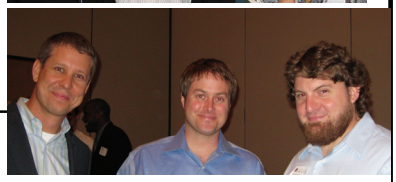
Dr. Jack Cothren took the helm as Director of the Center for Advanced Spatial Technologies as of July 1, 2009. Professor Fred Limp directed this nationally recognized center since the early 90's and stepped out to focus on his teaching and research interests. CAST's focus is GISciences including geospatial data analysis, informatics, and remote sensing. They partner with numerous researchers throughout the university and with a multitude of local, state and federal agencies, and have been a huge asset to Geosciences in terms of student employment and supervision.

We had several alumni and friends pass during the year. Professor John Dixon's wife Jan, passed in October. Jan was a long time faculty at the University Library, and was our Geosciences and ENDY reference librarian. She had a passion for her work that made it a pleasure to interact with her. She was always willing to devote time to help faculty and students find the materials needed for their research efforts. She will be sadly missed. Matt Edmonds, a geologist in Tulsa, (continued on back)

Our **Spring Banquet** was held on April 30, 2009 at the Fayetteville Town Center on the Square. Many alums and friends of the department were present to share in the awards, good food and fun. SGE's and GTU's officers arranged the event including a wonderful donation of wine from Mt. Bethel Winery of Altus, Arkansas.





GTU is the student honor organization for undergraduate and graduate students with interest in Geography. A major in Geography is not required. GTU partners with SGE in the planning, financing, and hosting of the Christmas and Spring banquets, trash pickups, and departmental colloquium. GTU also offers print services to faculty and students who wish to make general large format posters. GTU gives several student awards for conference travel and excellence in membership. The faculty advisor is Dr. **Jackson Cothren**. The current president is **Haunani Verzon**, vice-president is **Maci Edwards,** secretary is **Carrie Davis**, and treasurer is **Aaron Lingelbach.**

SGE is the student honor organization for undergraduate and graduate students with interest in Geology. Anyone with the appropriate academic qualifications may join; having a major in the Geosciences is not required. SGE traditionally has been responsible for the Christmas and Spring banquets, trash pickups along the highway near Devil's Den, departmental colloquium, and rock bags sold to students taking GEOL 1113. The faculty advisor is **Dr. Doy Zachry**. The current president is **Amanda Cains**, vice president **Garrett Hatzell**, secretary **Anna Nottmeier** and treasurer **Rose Feinstein**.

NEW SCHOLARSHIPS

Three new geology scholarships in memory of alumni **Jeff Liner, Britton Redifer** and **Matt Edmonds** were established and awarded this year.

The **Walter Manger** and **Doy Zachry Scholarships** were awarded for the first time this year to students in the geology program. *Should you be interested in contributing to any of these, please contact egsmith@uark.edu.*

The **Malcolm Cleaveland Endowment Fund**, a fund for physical geography or geology students interested in climatology or earth surface processes is available for contributions; it still needs another $12,500 to be at the level necessary to permit awarding of a scholarship. Please consider donating to this worthy cause.

2009 MA and MS Graduates

Kristian Underwood, MA - The Effects of Hillslopes on Trail Degradation, Olympic Park, WA
Kwasi Asante, MA - *Operational Delivery of Mapping Data Using a Low -Cost Aerial Camera (The Case of the TerraHawk)*
Michele McKee, MA - Ecotourism Wadi Rum Nature Reserve: Environmental Perception, Sustainability and Conservation Practices
Ryan Dupree, MS - Provenance and Architecture of Lower Kootenai (Cretaceous) Fluvial Sandstone Bodies, Sandy Hollow/Big Hole Area, SW, MT
Matt Porter, MS - Facies Relationships, Reservoir Assessment and Surface-to-Subsurface Correlation of Bloyd Formation (Pennsylvanian), North Central Arkoma Basin, Arkansas
Zach Mullen, MS - Depositional Dynamics and Stratigraphic Correlation, Basal Atoka Formation, (Spiro-Foster) Middle Pennsylvanian, Arkoma Basin, Eastern OK
Chris Howard, MS - Depositional Architecture and Paleoclimate in a Lower Cretaceous (Aptian) Fluviolacustrine System: the Kootenai Formation, Southwestern Montana
Emily Hollingsworth, MS - Karst Regions of the World (KROW)- Populating Global Karst Datasets and Generating Maps to Advance the Understanding of Karst Occurrence and the Protection of Karst Species and Habitats Worldwide
Daniel Rains, MS - Origin of Quaternary Deposits West of Marianna Gap, Mississippi Alluvial Valley, Eastern Arkansas
Ty Johnson, MS - Geologic Map of Forum Quadrangle with a Karst Inventory, Madison County, AR
Collin Reinhardt, MS - Nutrient Retention and Hydrologic Study of the Watershed Research and Education Center

2009 Scholarships Awarded

Two John Glynn William Field Camp scholarships were awarded to **Jeff Ward** and **Andrew Ashlock**. The Dan Gabor Memorial Field Camp Scholarships went to **Eben Jones** and **Rose Feinstein**. Three Keisler Field Camp Scholarships went to **Eben Jones, Rose Feinstein** and **Sara Butler**. Three Vernon Peppard Field Camp scholarships were awarded to **Angela Rowland, Loren Labusch** and **Trenton Rogers**. A Vernon Peppard scholarship also went to **Karen Buckland.**The Britton Redifer award went to **Curtis Reid**, who also received the James E. Sherman Scholarship. Two Jack Mussett Scholarships were received by **Chven Mitchell** and **Amanda Cains**. The James E. Sherman Scholarship was awarded to **Lane Boyer**, the James Harrison Quinn Memorial Scholarship by **Matt Cope**, the BJ and Rozanna Brown to **Darrell Pennington**, who also won the Mark and Teresa Gentry Award. The Robert L. Tucker Scholarship was awarded to **Loren Labusch**. The Geosciences Department Award was received by **Sara Butler**, the Walter Manger Award by **Garrett Hatzell**, and the Doy Zachry Award to **Kathryn Rawlings**. **Phillip Costello** received the Kern C. Jackson Award, and **Kathy Knierim** the George Hoyt Wagner Award. Two awards were made to Outstanding Quantitative Geographers, **Joshua Jones** and **Mark Cooper.**

CHESAPEAKE SCHOLARS

Chesapeake Energy has created a Chesapeake Scholars program here. Each year from 2007 through 2012 Chesapeake Energy provides $4,000 scholarships to five graduate students who are interested in pursuing careers in the energy industry.

2008 Scholars, from left: Chesapeake representative Robert Seller, Ryan Dupree, Katie Jeffcoat, Chris Howard, Daniel Allen, Tyler Engelhardt, and representing the department are Doy Zachry and Ralph Davis .

2009 Scholars, from left: Daniel Allen, Julie Jacobs, Drew Kreman, Rachel Keng, and Josh Lynch.

2009 Colloquium Schedule

Jan 16 - **Kwasi Asante**, UA Geography Department, *Operational Delivery of Mapping Data Using a Low-Cost Aerial Camera (The Case of the TerraHawk)*

Jan 23 - **Dr. Fred Paillet** , UA Geology Department, *Finding and Delineating Flow Paths in Fractured Bedrock and Karst Aquifers*

Jan 30 - Cancelled due to ice storm

Feb 6 - **Dr. Dennis O'Rourke**, University of Utah, Anthropology Department, *Human DNA Analysis and Research Strategy*

Feb 10 - **Dr. Branden Bream**, Vanderbilt University, *Amazonia in Appalachia? New Insights into the Amalgamation and Break-Up of Rodinia*

Feb 20 - **Dr. W. Ashley Griffith**, NSF International Post-Doc Fellow, *Instituto Nazionale di Geofisica e Vulcanologia, Using Fracture Geometries in Fault Zones to Understand the Mechanical Behavior of Ancient Earthquakes*

Feb 27 - **Sarah Lewis**, UA ENDY Program, *Perception Vs. Reality: Watershed Ecosystem Integrity in the Eye of the Stakeholder*

Stephanie Shepherd, UA ENDY Program, *Land Use Based Analysis of Stream Morphology in the Illinois River Watershed*

Mar 6 - **Dr. Eric Horsman**, USGS Menlo Park, *Microscale to Megascale, Constraints on Relative Rock Strength*

Apr 3 - **Dr. Ray Bradley**, University of Massachusetts Department of Geosciences and Director of Climate System Research Center, *Paleoclimatology*

Apr 10 - **Dr. Don Bragg**, USDA Forest Service, Arkansas Forestry Sciences Lab, University of Arkansas, Monticello, *Vegetation Reconstruction*

Apr 17 - **ENDY Students and Faculty** - *Open Discussion of Ozark Landscape Evolution*

Apr 29 - UA Geosciences Dept. **Advisory Board Members**, *Panel Discussion*

Sept 11 - Nat'l Association of Black Geologists and Geophysicists lectures and *Water on Mars*

Sept 16 - **John Sharp** - Chesapeake - The Haynesville Play

Sept 18 - **Dan Kennefick** - UA Physics Department - *Gravity Bending Light: The original test of Einstein's theory and current work on black holes*

Sept 25 - **Rebecca Mistarz** - UA Geography Department, *Santa Ana Wind Events: An historical reconstruction for southern California from 1895 to the present*

Rose Feinstein - UA Geology Department - *Geologic Map of the Nez Perce Drainage Basin*

Oct 2 - **Matt Covington** - University of Minnesota NSF PostDoc - *Using Dimensionless Numbers to Characterize the Hydraulic and Thermal Responses of Karst Aquifers - Implications and Applications*

Oct 9 - **Chris Cerny** - UA Geography Department - *Historical Ecology of an Old-Growth Shortleaf Pine Outlier in the Cross Timbers of Eastern Oklahoma*

Kathy Knierim - UA Geology Department - *Using stable carbon isotopes to characterize carbon and nutrient dynamics in a northwestern Arkansas cave*

Oct 16 - **Lawrence R. Handley** - USGS Rolla, Missouri - *Re-Engaging Geographic Science to Meet the Needs of a Changing "Climate" toward Science*

Oct 23 - **Maurice Storm** - Crow Creek Energy, Tulsa, *A Geologist in Energy - Beyond the Science*

Oct 26 - **David J. Cowen** - National Geospatial Advisory Committee, National Associate of the National Academy of Sciences, Distinguished Professor Emeritus at the University of South Carolina - *The Changing Geospatial Landscape*

Oct 30 - **Steve Luoni** - UA Community Design Center , *Visioning Rail Transit in Northwest Arkansas: Lifestyles and Ecologies*

MEET THE FACULTY

Dr. Steve Boss has been Director of the Environmental Dynamics PhD program since 2000. He has further developed this program to include the Honors-ENDY Research Mentoring Experience for Students (HERMES). This matches honor undergraduates with PhD students for a mutual educational exchange: undergraduates learn how to conduct research and the graduate students learn to teach and mentor students. He is also very involved with the UA Sustainability issues including the development of the Campus Demotechnic Index (DCI), a measure of progress toward sustainability for our campus and at universities across the US. Dr. Boss conducts research at Yellowstone Lake, regarding the influence of caldera deformation on lake levels and the impacts of highway engineering on the lake shore. Closer to home he is actively involved in measuring the impacts of development on sedimentation in the Beaver Reservoir.

Dr. Van Brahana - Professor, University of Arkansas Department of Geosciences and Program of Environmental Dynamics; Research Hydrologist, Emeritus USGS; Consulting Hydrogeologist, with emphasis on groundwater in karst terrain. Dr. Brahana has recovered nicely from his caving accident last fall when he slipped entering a deep sinkhole and sustained several injuries.

Dr. Malcolm Cleaveland, an Emeritus Professor, is a consultant on a tree-ring project in southern and central Texas that will extend the climatic reconstructions for that region back into the 16th century. The project is funded by the Guadalupe-Blanco River Authority and the University of Texas-Austin. He has made 3 collecting trips to Texas, and those samples will be processed in-house. Lab programs will also be used to do the climatic reconstructions. So far, three sites that have trees going back to the 1400s have been sampled.

Dr. Jackson Cothren was appointed as the Director of CAST in July 2009. His current research includes digital photogrammetry including sensor modeling, DEM extraction, feature extraction and matching for orientation, integration of LIDAR point-clouds, reliability analysis of adjustment models and integration with enterprise-scale Geospatial information Systems. He's been a Research Associate at CAST and received grants from NSF, NASA & the US Amy Corp of Engineers, which included multi-temporal land-cover mapping in Central American and integrated geophysics surveys for archaeological research. Prior to joining the UA he was a Photogrammetric Engineer at the National Air Intelligence Center, US Air Force in Ohio, directing photogrammetric proposals for competitive grants. He was a Scientific Analyst at the National Air Intelligence Center developing proposals being technical program manager for improvement of intelligence collection from multi-source imagery including National Technical Means.

Dr. Fiona Davidson's primary research interests lie in political geography and the European Union, investigating the changing voting patterns in Scottish elections over the last two decades, with particular emphasis on the fortunes of the Scottish National Party, and the impact of the devolution of power to sub-national units in Britain. She is the co-author of two popular books in political geography as well as of a number of articles on Scottish and European politics.

Ralph Davis currently a Professor of Geology and Chair of the Department of Geosciences, teaches General Geology, Environmental Geology and several courses at the graduate level including Hydrogeologic Modeling, Environmental Site Assessment, and Hydrogeologic Field Methods. His research interests are groundwater sustainability/ groundwater declines, contaminant hydrogeology, and water-resources management, including estimation of artificial and natural recharge to aquifers, contaminant transport in all types of geologic media, wetlands/riparian area delineation and assessment, and source water assessment. He is particularly interested in bacterial fate and transport in the very dynamic karst aquifers of northwestern Arkansas, but also has active programs related to water quality and water resources development and management with the Santee Sioux Nation, with reservation lands in northern Nebraska.

Dr. John Dixon is a geomorphologist who joined the UA faculty in 1981. His research interests lie primarily in the area of landscape evolution in Arctic and alpine environments. His research focuses on the role of chemical processes in landscape evolution in cold climates. For the last 15 years he has worked with his colleagues at the University of Illinois in Swedish Lapland where their work has focused on various aspects of landscape geochemistry & the contributions of chemical erosion to landscape denudation. They are also engaged in similar research in the Jotunheimen of southern Norway. His research has been supported by grants from the National Science Foundation & National Geographic Society. He is published in a variety of journals including GSA Bulletin, Geomorphology, Earth Surface Processes and Landforms, and Catena.

Dr. Falko Fye is presently teaching senior-level weather and climatology within the Geography branch of the Geosciences Department. He is also doing research with the Tree-Ring Lab using the tools of GIS and statistics to analyze and interpret tree-ring-derived climate and other environmental data. Prior to 1993 Dr. Fye held various positions in the US Air Force, retiring in the grade of Colonel, with responsibilities in the meteorology career field and specializing in the technical areas of weather forecasting and analysis for aviation support; radiation, radar, and satellite meteorology; remote sensing; software engineering with a large world-class environmental data base; and project management of multi-million dollar data automation acquisitions and facilities. Dr. Fye has 5 degrees: BS—Earth Science, East Texas State U; BS Meteorology, U of Utah; MS Meteorology, U of Utah, MA Geography, UA; and PhD Environmental Dynamics, UA.

Dr. Tom Graff - Dr. Graff's research interests focus upon human geography. In the past he has authored multiple papers on elderly migration patterns. At present he is documenting the expansion of Wal-mart and this firm's diversification into full-service grocery retailing. Dr. Graff has taught courses in Human Geography, Emerging nations, Developed Nations, and Global Studies.

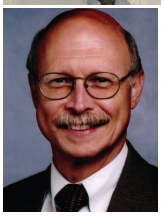
Dr. Peggy Guccione attended the conference, "River to Rock Record" in Aberdeen, Scotland, to focus on characteristics of modern fluvial systems that can be used to interpret ancient fluvial systems in the rock record.. She is writing a paper on natural levees for a volume to be published based on that meeting. During the summer she mentored Rose Feinstein and Curtis Reid in a mapping project that was funded by the USGS EDMAP program. She, Rose, and Curtis spent a month in Montana mapping a drainage basin near Dillon. They mapped everything from the Archean metamorphic rocks to Tertiary and Quaternary gravels that fill the basins. Two geologists from the Montana Bureau of Mines and Geology visited them in the field. They also worked with Dr. Mick Kunk of USGS to sample Tertiary igneous rocks in the field area and later went to Reston, VA to prepare the samples that they collected for Argon dating. Between field work days, Peggy bought a mansion in Butte and converted it to an upscale boarding house.

Dr. Sonja Hausmann - Current projects include paleo-flood history of the Congaree River flood plain in the Congaree National Park, spatial and historical distribution of geosmin and MIB producers in Beaver Reservoir, NW Arkansas, and a paleolimnological study of the Arctic Impact Crater lake Pingualuit in northern Quebec, Canada. Sediments of Pingualuiy taken in May 2007 indicate interglacial cycles in sediments. Planning is underway for an international continental drilling program (ICDP) of the Crater Lake Potrok Aike in Patagonia. Sonja is teaching Conservation of Natural Resources (GEOG 3003), Paleoclimatology (ENDY 5063), and Assessment of Water Quality (ENDY 6023). She is supervising doctoral students Ruchi Battacharya and Byron Winston and the postdoctoral researcher Jessica Black who defended her PhD at Instaar in Boulder, Colorado in June 2006.

Dr. Phil Hays, USGS, - Dr. Hays pursues research in application of stable isotopes and other geochemical indicators in delineating movement and behavior of contaminants in ground-water systems and in characterizing paleoclimate and paleoenvironment. In addition, Dr. Hays serves as Ground Water Specialist for the interagency Natural Resources Conservation Service National Water Management Center, providing assistance in ground-water hydrology and geochemistry to U.S. government entities in the U.S. and abroad; this work involves University of Arkansas students in such diverse research areas as mercury contamination in the Guianas Ecoregion, radionuclide contamination in thermal springs of Hot Springs National Park, and salt-marsh restoration in coastal New England.

Dr. John Hehr - Dr. Hehr's research interests are in the areas of meteorology and climatology and in particular severe storm occurrence over the central interior of the United States. Other interests include paleoclimatology and global change. He was the Associate Dean of the J. William Fulbright College of Arts and Sciences from 1988 to mid-2009, and has now returned to the Department of Geosciences on a full-time basis.

Dr. Ron Konig - Another year has passed and I have survived four more sections of General Geology. I keep telling myself that my students need me, but I'm not so sure anymore. On a more academic side, I am pleased to report the completion of yet another semester of Structural Geology. Teaching this course again, after a 10-year layoff, came as a surprise upon returning from vacation this past summer. If I had not saved some lecture notes, rock samples, etc. I would have been in serious trouble. Considering the above, plus the students going easy on me, did make the semester rather enjoyable. Looks like retirement is yet one or more semesters away. Every time the market undergoes what I perceive to be an "Obama Bounce" the ball loses air and my retirement fund deflates once again. Oh well, teaching is fun and you can't beat the company I keep in the Geosciences Department!



Dr. Fred Limp (Leica Geosystems Chair and Professor in Geosciences, Anthropology and ENDY) Dr. Limp was the founding director of CAST which was started in 1991. He is the PI on a project to do geophysics and scanning at the Egyptian Site of Amarna with Prof Barry Kemp, and he will be leading a joint UA-UCLA group to Cuzco and Machu Picchu where they will be using laser scanning and other techniques to develop the first high-precision 3D database of this World Heritage site. He is a Co-PI on a just awarded $1.2 million grant from the Andrew Mellon Foundation, along with researchers from Penn State, Arizona State, Washington State, York University (England) and SRI. The group will be developing new strategies for digital archiving of a wide range of data. He is also working closely with faculty across UA and elsewhere in research projects that expand the university's capabilities in visualization.

Dr. Walter Manger retired in August 2009, and became emeritus. However, he is still on-campus teaching Paleontology and General Geology! He is active on many thesis committees, and leads field trips whenever asked.

Dr. Glen Mattioli - I began as an experimental geochemist; my interest was in the petrological evolution of the Earth's upper mantle. I also had a strong secondary interest in convergent margin tectonics and island arc volcanism. After a brief sojourn with an oil company, I returned to academe at the Department of Geology at the University of Puerto Rico, Mayaguez. It was there that I met Prof. Alan Smith, a veteran of 25 years of field studies of active and quiescent volcanic systems in the Lesser Antilles; he initiated me into the amazing world of active volcanoes. High precision GPS geodesy, InSAR, and LIDAR techniques were exploding onto the geoscience research horizon. Since 1994, when I participated in my first GPS campaign in the Caribbean, I have been smitten by the vast array of problems that can be addressed using various geodetic techniques. Here I have inaugurated the Geodesy Lab to support our ongoing research in the NE Caribbean. Now I have several NSF-funded research projects.

Dr. Tom Paradise is a Geography Professor and cartographer. He comes from a diverse background in earth and environmental sciences, Middle East and North Africa geography, and cartography and spatial visualization. Before coming to Arkansas in 2000, he was a professor of Geography and Environmental Studies at the University of Hawaii, overseeing their Hazards, and Regional Studies Programs. Paradise has also studied abroad in Rome, Venice, Amman, as well as in the US in Georgia, Hawai'i, Arizona and California. His expertise has been requested by agencies in Italy, Great Britain, Egypt, Morocco, Tunisia, Lebanon, and Jordan, in addition to UNESCO, USIA-USIS, USAID and the US State Dept. He has published more than forty articles, chapters, and books on Petra, Jordan, and has advised numerous foreign agencies on cultural heritage management, stone architectural deterioration, and Middle Eastern and North African geography and architecture, hazards and risk; He has written 3 award-winning, best-selling atlases; He has been "Teacher of the Year", elected by the Arkansas Alumni Association and ASG.

Dr. Dave Stahle's research interests include all aspects of dendrochronology, particularly climate change and the proxy evidence for past variation in the El Nino/Southern Oscillation and other large scale atmospheric circulations. Dr Stahle has developed GIS-based predictive models for the location of ancient forests, and is conducting active research in the United States, Mexico and Africa. Dr. Stahle's research is funded by NOAA , NSF , NPS and the USGS and he has published in a variety of journals including, Science, Nature, Journal of Climate and Bulletin of the American Meteorological Society. Dr. Stahle has taught courses in Physical Geography and Conservation of Natural Resources.

Dr. Ken Steele, Emeritus - I am still dabbling with a few water quality projects. Phil Hays, Joel Galloway (USGS) and I are putting the final touches on a reconnaissance study in Northwest Arkansas for pharmaceuticals and other emerging chemicals of concern in selected wells and springs. Stable isotopes of nitrogen, oxygen and hydrogen are included in the project. A graduate student, Darrell Pennington, has been sampling springs during storm events to ascertain the impact of storm waters on spring water quality. I am involved in a study of well water quality as part of a state-wide monitoring network managed by the Arkansas Natural Resources Commission. The majority of the wells are in the Alluvial and Sparta aquifers. I am enjoying the opportunity to continue some research.

Dr. FangZhen Teng - research interest focuses on the composition and evolution of the continental crust, mantle heterogeneity and the origin and evolution of the solar system. To address these questions, I study both terrestrial and extra-terrestrial materials through analysis of non-traditional stable isotopes (lithium, magnesium and iron). My research techniques involve both purification of targeted elements through column chromatography in a clean lab, and high-precision isotopic analysis using Multi-Collector-Inductively Coupled Plasma Mass Spectrometry (MC-ICPMS). During the past year, I, with the help of Dr. Wei Yang, a visiting scholar, have successfully developed the method for high-precision isotopic analyses of magnesium by using the state of the art clean laboratory in Ferritor Hall and MC-ICPMS in the Arkansas Center for Space and Planetary Sciences. One of proposals based on preliminary data produced in these labs has been funded by NSF for three years. I have two other visiting scholars: Dr. Shan Ke from the School of Earth Science and Mineral Resources, China University of Geosciences, and Mr. Sheng-Ao Liu from the School of Earth and Space Sciences, University of Science and Technology of China.

Dr. Jason A. Tullis completed his fifth year at the University in August. In October Dr. Tullis visited Panama where he demonstrated a new GIS-based algorithm for translating between ecosystem maps sourced throughout Latin America. In addition to continuing various natural resource studies in LIDAR and spectral remote sensing, Dr. Tullis looks forward to a continued Latin American focus in 2010. At home Henry (7) and Charlie (3) are becoming explorers. Also, woodcutting projects are still underway following the 2009 ice storm.

Henry Turner is a PhD candidate who recently defended his dissertation in Space and Planetary Sciences: *Forearc Kinematics in Obliquely Convergent Margins: Examples from Nicaragua and the Northern Lesser Antilles.* He has been appointed as an instructor and has been has been teaching General Geology for a few semesters now.

Dr. Doy Zachry currently teaches Earth Systems History, and Stratigraphy and Sedimentology at the undergraduate level, and Petroleum Geology and Sedimentary Petrology at the graduate level. He also directs the departmental field class in southwestern Montana during the summer. His interests are in the areas of fluvial sedimentology and basin analysis from the standpoint of depositional systems and their response to tectonic activity. His research centers around the stratigraphic and sedimentologic processes that were active during development of the Arkoma foreland basin in Arkansas and Oklahoma during the lat Paleozoic. He is supervising seven graduate students, four of which are investigating the late Mississippian and early Pennsylvanian succession in outcrop at the northern margin of the basin; three are utilizing subsurface data to construct a Stratigraphic framework for similar rocks in the basin.

UNIVERSITY OF ARKANSAS

Department of Geosciences
113 Ozark Hall
University of Arkansas

Nonprofit Org
U.S.POSTAGE
PAID
Permit No. 278
FAYETTEVILLE, ARKANSAS

address label goes here

DEPARTMENT WEBSITE http://geosciences.uark.edu - At the Department of Geosciences website you can find the latest Alumni News for our department, pictures from our events, information for the geology and geography departments, bachelor and master degree information, information about our faculty and staff, as well as their research interests, the latest news, colloquiums, and guest speakers, and many interesting links. Please check us out!

(continued from front) Oklahoma was killed in a tragic traffic incident in July 2009. Matt completed his MS degree with Van Brahana and was initially employed in environmental consulting before moving into the energy industry in Tulsa. An initial donation was made to establish the Matt Edmonds scholarship fund by a group of alumni from the Tulsa area. Continued donations will be needed to fully endow this fund for award of future scholarships. Finally, Jeff Liner passed this last spring after a long battle with cancer. Jeff along with his two brothers, Chris and Robert, all completed masters degrees in geology in the 1980's, and joined the energy industry. Chris and Robert have provided initial contributions to establish the Jeff Liner memorial scholarship fund. We encourage donations to this fund to see that it is fully endowed and scholarships can be awarded in Jeff's memory soon.

The spring break field trip 2009 toured Palo Duro Canyon, Carlsbad Caverns and the Big Bend Park area in Texas. A number of alumni joined Dr. Zachry and I along the way, and also helped defray part of the cost of the trip by covering the cost for an overnight float trip on the Rio Grande for those students attending. This is a significant contribution by the alumni that provides experiences and learning opportunities beyond the students means. It was much appreciated. Van Brahana, Ralph Davis and Erik Pollock will lead this year's trip which is scheduled to cross northern New Mexico, southern Colorado, and eastern Arizona with numerous geological and cultural stops. Dr. Brahana was on sabbatical in the spring and summer of 2009 and took the opportunity to visit many of our national parks. This year's spring break trip will target the geology of our national parks throughout the Four Corners area.

The university recently instituted a facilities fee for the students with a goal of providing appropriate maintenance and upgrade for campus infrastructure. One of the outcomes of this initiative is that our home, Ozark Hall, is slated for a much needed renovation in the next couple of years. The target is for construction to begin in 2012. It will likely take two years to complete. The good news is that we will have nice newly renovated digs when completed. The bad news is we will be moved to swing space for two years during construction. We will keep you posted as this effort moves forward.

These are just a few of the many activities taking place in Geosciences. The remainder of the newsletter gives you a sense of the depth and breadth of our faculty and student activities and accomplishments. The card enclosed with the newsletter contains information about our departmental foundation accounts that support scholarships, field trips, and other departmental activities. Please consider contributing by returning the card along with your check in the enclosed self addressed stamped envelope designating the area for which you wish your contribution to be designated.

Thank you for all your support and happy holidays, Ralph Davis, Chair Geosciences