Diversity in Geosciences
National Policies to Local Opportunities

By Philip J. Stokes

Diversity can have many meanings. There’s biodiversity, financial diversification, and even culinary diversity. Beginning in the second half of the 20th century, workplace diversity became a central issue to gender equality. Today, diversity in the workplace is signified by the inclusion of racial and ethnic minorities in numbers relative to those found in the general population.

To the National Science Foundation (NSF), enhancing diversity means increasing the number of traditionally underrepresented students in Science, Technology, Engineering, and Math (STEM) fields. NSF especially seeks to increase the participation of Hispanic, African American, and Native American students in the STEM fields. Hispanic groups, for instance, are incredibly underrepresented in all science fields, yet they make up a majority of the population in many communities across the US.

Diversity seems to fail in geosciences most of all, where less than 7% of Bachelor’s degrees are awarded to traditionally underrepresented students nationally. NSF recognizes that diversity benefits the academic development of all students as it helps to foster cultural awareness. Similarly, a diverse workplace reduces discrimination, improves decision-making, and fosters long-term employee retention.

In the fall of 2009, NSF identified the need to diversify geosciences and funded the creation of the Southern Arizona Geosciences Union for Academics, Research, and Outreach (SAGUARO). SAGUARO represents our local effort to recruit and retain minority geosciences students.

Diversity in Geosciences
National Policies to Local Opportunities

By Philip J. Stokes

Diversity can have many meanings. There’s biodiversity, financial diversification, and even culinary diversity. Beginning in the second half of the 20th century, workplace diversity became a central issue to gender equality. Today, diversity in the workplace is signified by the inclusion of racial and ethnic minorities in numbers relative to those found in the general population.

To the National Science Foundation (NSF), enhancing diversity means increasing the number of traditionally underrepresented students in Science, Technology, Engineering, and Math (STEM) fields. NSF especially seeks to increase the participation of Hispanic, African American, and Native American students in the STEM fields. Hispanic groups, for instance, are incredibly underrepresented in all science fields, yet they make up a majority of the population in many communities across the US.

Diversity seems to fail in geosciences most of all, where less than 7% of Bachelor’s degrees are awarded to traditionally underrepresented students nationally. NSF recognizes that diversity benefits the academic development of all students as it helps to foster cultural awareness. Similarly, a diverse workplace reduces discrimination, improves decision-making, and fosters long-term employee retention.

In the fall of 2009, NSF identified the need to diversify geosciences and funded the creation of the Southern Arizona Geosciences Union for Academics, Research, and Outreach (SAGUARO). SAGUARO represents our local effort to recruit and retain minority geosciences students.

Diversity in Geosciences
National Policies to Local Opportunities

By Philip J. Stokes

Diversity can have many meanings. There’s biodiversity, financial diversification, and even culinary diversity. Beginning in the second half of the 20th century, workplace diversity became a central issue to gender equality. Today, diversity in the workplace is signified by the inclusion of racial and ethnic minorities in numbers relative to those found in the general population.

To the National Science Foundation (NSF), enhancing diversity means increasing the number of traditionally underrepresented students in Science, Technology, Engineering, and Math (STEM) fields. NSF especially seeks to increase the participation of Hispanic, African American, and Native American students in the STEM fields. Hispanic groups, for instance, are incredibly underrepresented in all science fields, yet they make up a majority of the population in many communities across the US.

Diversity seems to fail in geosciences most of all, where less than 7% of Bachelor’s degrees are awarded to traditionally underrepresented students nationally. NSF recognizes that diversity benefits the academic development of all students as it helps to foster cultural awareness. Similarly, a diverse workplace reduces discrimination, improves decision-making, and fosters long-term employee retention.

In the fall of 2009, NSF identified the need to diversify geosciences and funded the creation of the Southern Arizona Geosciences Union for Academics, Research, and Outreach (SAGUARO). SAGUARO represents our local effort to recruit and retain minority geosciences students.
From the Department Head

My last few columns have focused on the financial challenges faced by the Department and University as a consequence of the economic downturn and changes in state policy toward higher education. To be sure, those challenges persist, and I’m confident that the Department will meet them, thanks to our faculty students, alumni, and friends.

So this column is mostly about good news: and it doesn’t get much better than this.

We’re Number One! The 2011 edition of US News and World Report’s “America’s Best Graduate Schools” ranks the UA as #7 in the overall Earth Sciences category, with Earth Science Specialties: #1 in Geology and #10 in Geochemistry. We share the Number One ranking in Geology with the University of Michigan.

This recognition is the result of a lot of hard work and accomplishments – by a lot of people over a long period of time. That includes YOU. Over the long run, departments are probably best known for the students that they have produced. Sure, the UA ranks number one in funding from the Earth Sciences Division of the National Science Foundation, and Geosciences faculty are leaders in their fields and publish lots of great papers. Nevertheless, the true measures of quality are our graduates. We wouldn’t be where we are without our alumni. Congratulations yourself!

I do need to congratulate some other folks for their leadership and support over the many years. I think Ed McCullough was one of the first to see that this Department could become Number One and the first to chart a course to get us here. And it was a distinguished succession of Department Heads that built the momentum: George Davis, Clem Chase, Joaquin Ruiz, and Susan Beck. At the end of my third year in the job, I’m just thankful that I haven’t messed things up too badly (yet).

There’s more good news. Dr. Barbara Carrapa will be joining the Department as an Associate Professor in August. Barbara is a sedimentary geologist who uses low-temperature thermochronology to study the timing and rates of exhumation, erosion, and sedimentation associated with mountain-building and sedimentary basins. She joins us from the University of Wyoming.

I am negotiating with our top candidate to fill a new faculty position in the area of Climate Dynamics. And, we have a search going on in the general area of geosciences applied to the study of mineral resources.

How can we do this when the state’s economy is in the dumps and some elements of the legislature would like to privatize the UA? The answer includes: a Provost who is willing to invest in the sciences, a very supportive Dean, dedicated alumni and friends, and the fact that we are a Number One Department (see above).

I’m also happy to tell you that state voters just approved a temporary sales tax increase, so we could avoid even deeper cuts to K-12 education, state universities, public safety, and health programs. It’s a stopgap measure that will help us survive the downturn, not a long-term solution to the problem of state support for higher education.

Perhaps the most damaging piece of legislation to emerge from this year’s session is the now-infamous SB 1070, Arizona’s own immigration law. No matter where you stand on the law (I think it’s wrong, wrong-headed, and hope that it will be overturned in the courts), it is already having negative consequences for the Department and the University. It is hurting us in recruiting of US minority students and the best Latin American students. We have to move workshops and meetings out-of-state, so our Mexican colleagues can attend. And the law hinders cross-border scientific collaborations that benefit people in both countries.

Rather than end on a downbeat, I have other news to report.

We celebrated our first EarthWeek, a showcase of student research in the new School of Earth and Environmental Sciences. Monday was Tree-Ring Day; Tuesday was GRATIS (Atmospheric Sciences); Wednesday featured El Dia del Agua (Hydrology); and Thursday, Friday, and Saturday’s field trip was dedicated to the 38th annual GeoDaze Symposium.

Norm Meader has retired. It’s hard to believe, and even harder to contemplate how the Department will continue to function without him. After many years of helping to make the Department #1, Norm is moving on to pursue other interests – including his new cabin in Cascabel. Congratulations, thanks, and best wishes!

I’m happy to report that we have established a second organized alumni group for the Front Range area. Many thanks to our new advisory board member, John Dreier, and alumni Dena Smith, Lou Taylor, Robin Sweeney, and Chuck Kluth for all of their efforts.

Our Tucson-area alumni are invited to attend this year’s Geosciences Welcome Party on Friday, August 27th, at the Stillwell House. Watch your mailbox and E-mail inbox for an invitation.

Finally, I want to make special note of Spence Titley’s retirement, after more than 50 years of teaching and research at the UA (page 5). Last fall’s “Spence-Fest” attracted an impressive gathering of students, friends, and colleagues in his honor. Together, we have established an endowment in Spence’s name that will support graduate students in field geology and economic geology. Once again, watch your mailbox for more information about efforts to build this endowment in Spence Titley’s honor.

The Mineral Museum created a small collection of Arizona minerals for display in congresswoman Gabrielle Giffords’ office in the Longworth House Office Building in Washington D.C.
Donors

Many thanks to the alumni, friends, and corporations listed below for their generosity and support during these difficult economic times.

— Individuals —
Stephen G. Ahlgren
Davis Anderson
Mary K. Anderson
John D. Arenson
Nancy Beckvar
Thomas H. Biggs
Robert L. Bingham
Keith R. Blair
Beth Boyd
Jonathan F. Browne
Robert Butler
Carlotta Chernoff
Andrew Cohen
Darlene Coney
Sterling Cook
John E. Cunningham
Raj Herbert Daniel
Marisa Luisa De La Vega
Timothy M. Demko
Omar E. DeWald
Thomas A. Earl
J. Christopher Eckhart
Rolfe C. Erickson
Anna A. Felton
Julia E. Fonseca
Brian K. Galloway
Terrence M. Gerlach
Melissa Giovanni
Howard L. Grahn
Armand R. Groffman
James J. Hardy
Tekla A. Harms
Patricia M. Hartshorne
C. Vance Haynes
James F. Hays
Elaine H. Hazelwood
Tom L. Heidrick
Corolla K. Hoag
Robert B. Holt
Gary Huckleberry
William Willis Jenney, Jr.
Terrance Katzer
Jerome Kendall
John R. Kerns
Susan Kidwell
Charles F. Kluth
Robert W. Krantz
Peter L. Kresan
Michael P. Kutney
Robert L. Laney
Lawrence D. Lemke
Louis A. Lepry
Steven H. Lingrey
Jessica Lopez Pearce
Joseph C. Lyonski, Jr.
Christopher Mars

Brigette Martini
Richard L. Mauger
Edgar J. McCullough, Jr.
Sally J. Meader-Roberts
Peter Megaw
Keith H. Meldahl
Wade E. Miller
Nancy D. Naeser
Stephen J. Naruk
Jack D. Nations
Frank J. Nelson
Alan Chris Notgrass
Elizabeth O’Leary
Judy Parrish
Philip A. Pearthree
Robert H. Peterson
Helen Price
David K. Rea
Seth E. Rees
William A. Sauck
Jeffrey G. Seekatz
Stephen George Shetron
Elena Shoshitaishvili
Douglas B. Silver
John G. Simms
George E. Smith
John R. Sumner
Lawrence T. Sumpter
Louis H. Taylor
Dee D. Trent
David P. Trotz
Margaret E. Venable
Frank H. Wagner III
Harold E. Waller, Jr.
Walter R. Wattenbarger
Paul W. Welber
Edward C. Wellman
Robert E. West
William H. Wilkinson
Mark D. Zoback
Kenneth L. Zonge

— Corporations —
BP Corporation
Chevron
Community Foundation for Southern Arizona
ConocoPhillips
ExxonMobil
Nat’l Electrostatics Corp

Austin Long Remembered

By Chris Eastoe

With the passing of Austin Long, our profession lost a productive and innovative researcher. Early in his career, Austin recognized the potential of isotope geochemistry as a tool for resolving problems in the Earth sciences. Isotopes remained the unifying theme of his life’s work. Synergy, also, was clearly important to Austin; he applied his expertise in isotopes in many fields, and with many collaborators. Last but not least among Austin’s guiding principles were generosity and a strong sense of ethics.

Austin was a native of Wichita Falls, Texas. He began his university studies in his hometown, at Midwestern State University, graduating with a BS degree in 1957. He entered the Masters program at the Lamont Observatory of Columbia University, New York, and he wrote a thesis on lead isotopes in the Coeur d’Alene district, Idaho. It may surprise some that Austin’s first paper was published in Economic Geology. He proceeded to doctoral studies under Paul Damon at the University of Arizona, and in 1966, he defended a dissertation entitled Late Pleistocene and recent chronologies of lakes in Arizona and New Mexico.

His first position was as a Senior Scientist in the Smithsonian’s Radiation Biology Laboratory in Washington, DC, from 1963 to 1968, with a concurrent affiliation as a researcher at the Geophysical Laboratory of the Carnegie Institution. In 1968, he accepted a position as Associate Professor at the University of Arizona, in the Department of Geosciences. He was promoted to Professor in 1987. His appointment eventually became a joint one between Geosciences and Hydrology and Water Resources. He retired as an Emeritus Professor in 1998.

The breadth of his research contributions was remarkable. Austin’s career spanned the development of three different analytical methods for radiocarbon. He and his students published on improvements to all three techniques, and on the application of radiocarbon dating to archaeology, groundwater hydrology, paleontology, paleoclimatology, atmospheric chemistry, and solar physics. Austin served as Editor of the journal Radiocarbon between 1989 and 1999. In archaeology, he contributed to studies of Pleistocene extinctions, the domestication of corn, the Clovis culture, and Native American sites in Arizona. He was interested in the application of isotope techniques to biological systems, and he made fundamental contributions to what are now flourishing fields of research in tree-ring and packrat-midden studies. His expertise in groundwater isotope studies was recognized nationally when he was invited to participate in the evaluation of prospective nuclear waste disposal sites in North Carolina, California, and Nevada (Yucca Mountain). The development of a high-precision method for the measurement of stable chlorine isotopes in Austin’s laboratory led to the application of the technique to natural systems in many other laboratories around the globe.

The placement of a professor’s students speaks to his abilities as a teacher, and in this context Austin left an outstanding legacy. Several of his students have gone on to success in academia, while many more have flourished in consulting and government research organizations. His graduate students made such an impression with one consulting firm that the management repeatedly asked who would be next to graduate.
participate. Graduate student mentors include Meg Blome (paleolimnology), Jessica Conroy (paleoclimatology), Russell Edge (exploration seismology), Willy Guenthner (geochemistry), Jill Onken (geoarchaeology), Devon Orme (geochemistry), Cody Routson (paleoclimatology), Phil Stokes (near-surface geophysics), and Sarah Truebe (paleoclimatology).

In other instances, Geosciences faculty are participating as mentors. Faculty mentors include Mark Barton, Julie Cole, Bob Downs, Jon Pelletier, and Pete Reiners. Student and faculty mentors provide the unique research experiences for undergraduate students that NSF believes can be used to help retain minority students.

One of the main issues that NSF considered while soliciting proposals for diversity programs focused on how to continue to broaden participation after a grant has terminated. In my talk at the 2008 Geological Society of America meeting in Houston, Texas, I highlighted the need for a support network for underrepresented undergraduate students. A major point of the presentation was that minority students in science programs tend to feel isolated and often self-identified as being different from their peers based on race or ethnicity. SAGUARO seeks to eliminate the tendency for minority students to feel like the “only ones” in the geosciences.

SAGUARO internships provide underrepresented students with funding for research projects, community outreach, and academic support. Most of our budget is geared towards exposing students to the scientific experience on- and off-campus. Interns benefit from lab and field training, student desk space, academic advising, mentoring, travel to conferences, and field trips. Moreover, SAGUARO interns are “networking hubs” for local high school students and vocal advocates for opportunities in the earth and environmental sciences at the UA.

At present, we have plans for several field trips, including: 1) assessing local earthquakes to local students at the Saturday Science Academy. Photo courtesy of Mike McGlue.

Geosciences Department and the Arizona Mathematics Science Achievement (MESA) program to present a Saturday Science Academy on the UA campus. Over 100 Tucson-area parents, teachers, middle and high school students participated in the event.

Professor Randy Richardson gave the opening address and highlighted the various types of research undertaken by UA Geosciences. During the day, participants visited six topical stations with themes of Earth history, seismology, hydrology, near-surface geophysics, dendrochronology, and plate tectonics. A final outdoor presentation demonstrated the violent nature of volcanic eruptions when volatiles (liquid nitrogen) were introduced into the magma chamber (a trash bin filled with water). In quite dramatic form, the trash bin gave a Pinatubo-like performance and blasted water several meters into the air.

SAGUARO and UA Geosciences split the cost of the event, with donations from alumni contributing towards each of the activities as well as some well-deserved pizza and drinks for the 20+ graduate and undergraduate volunteers. Geosciences graduate students Kendra Murray and Sarah Truebe superbly directed the Saturday Science Academy. Students who were critical to the success of the event included: Erin Abel, Jeanine Ash, Caroline Cooper, Dan Griffin, Willy Guenthner, Percival Gou, Sarah Ivory, Fariq Mustapha Kamil, Ken LeRoy, Lepolt Linkimer, Alison Macalady, Mike McGlue, Melissa McMillan, Devon Orme, Ryan Porter, Whitney Rutherford, Roxana Safipour, Preston Smith, Luke Sturgeon, Caleb Weaver, Sarah White, and Justin Woods. Additionally, we had the help of SAGUARO interns Meghan Burris, Nicole Conway, Joseph Lopez, and Leanndra Romero.

So what else has SAGUARO been up to? We had an amazing spring semester. Highlights include outreach events at Biosphere 2, the the Tucson Gem and Mineral Show, and Sierra Middle School. Three interns presented research projects at GeoDaze where intern Leanndra Romero received the best undergraduate poster award. Our first SAGUARO graduate, Meg Burris, was accepted for graduate school at the University of San Francisco. We took a field trip to the Colorado Plateau where Willy Guenthner and Sarah Truebe shared their expertise about the local geology and archeology.

SAGUARO remains active through the summer. We currently have eight interns involved in research projects, and we are excited for several upcoming outreach events at Flandrau Science Center, Biosphere 2, and the Mt. Lemmon Sky Center.

Looking forward, we have plans for more local and regional field trips, outreach to local schools and colleges, and research into ways to better understand how to diversify geosciences. It is our goal to vastly improve on both the numbers of underrepresented students graduating with geosciences degrees and the numbers of qualified underrepresented students entering careers in the geosciences. So far, so good!

Mark Your Calendars

The 2nd annual EarthWeek celebration will take place March 30th through April 1st, 2011, at the UA’s Student Memorial Union.

As part of this celebration, the 39th annual GeoDaze Symposium will occur on Thursday, March 31st, and Friday, April 1st, with a field trip on Saturday, April 2nd. Please plan to participate.
Spencer Titley Honored for Half-Century of Teaching and Research at UA

By Mari N. Jensen, UA College of Science

Spencer R. Titley, the economic geologist internationally renowned for his work on the origin of porphyry copper deposits, was honored last fall for his 50-plus years of excellence in teaching and research at the University of Arizona.

In September 2009, the College of Science honored him for his years of teaching and research at the college’s fall gathering of faculty. In November, the Department of Geosciences had a retirement dinner in his honor.

Although Titley supposedly retired at the end of the 2008-09 academic year, it’s hard to tell. He taught an honors course on mineral resources and society last fall and a course on ore deposits this spring.

Karl Flessa, Head of the Department of Geosciences, said, “Spence Titley is as solid a foundation as you can get in the geosciences. He’s the foundation of the Department and shaped its development to its top-10 status today — and his legions of former students have gone on to shape the whole discipline. Field geology, planetary geology, economic geology, geochemistry — Spence has done it all. And he’s always had a keen eye for how geological insight could benefit society.”

Joaquin Ruiz, Dean of the College of Science and Professor of Geosciences, said, “Spence Titley is truly one of the most extraordinary economic geologists in the world.” Ruiz added, “He also has a legacy of educating students so that they themselves have become leaders in their fields.”

Titley started his teaching career at the UA as a university instructor in 1956. He earned his doctorate in geology from the UA in 1958, joined UA’s faculty as an assistant professor in 1960, and rose through the ranks to professor.

He is renowned for the numbers of graduate students he has guided, having so far been the major advisor for 131 master’s and doctoral students.

In 1964, Titley was one of the UA scientists who trained Apollo-astronauts-to-be about the geology of the moon and gave them field experience with moon-like geological features at Meteor Crater in northern Arizona and in other locations.

He has also worked with K-12 students as a member of the Southern Arizona Science Education Coalition. Titley exemplifies the important connection between excellence in research and excellence in teaching.

He was elected to the National Academy of Engineering in 2005 for his research on the origin of the copper in the Southwest copper province. His search for answers has led him to investigate all scales of copper deposits, from entire deposits down to the level of atoms. He has taught courses for geologists throughout the world.

Titley’s findings have enlightened and aided both industrial and academic geologists. He said, “My work has always had a focus on how to adapt scientific discoveries to practical purposes, to the search for ore,” adding that he wants to put “the science we learn to practical purpose for society and the real world.”

Porphyry copper deposits, Titley’s area of expertise, have been the most economically important type of copper deposit for the last 100 years. In the United States, two-thirds of the nation’s copper comes from porphyry copper deposits within 300 miles of Tucson, Arizona. The deposits are part of a chunk of the Earth’s crust geologists call the Southwest copper province.

His work took him to more than 30 countries. When asked about the most fun he’s had as an exploration geologist, Titley recalled a long-ago trip to New Guinea. “It was very exciting to me that when I walked up a creek or down a river or up a mountainside, it was likely I was the first geologist to ever to put his rock hammer on it.”

Of his career, Titley said, “This has never been a job to me. It’s a way of life.”

His numerous honors and awards include the Medal of Merit from the American Mining Hall of Fame, the Penrose Gold Medal from the Society of Economic Geologists, the D.C. Jackling Award from the Society of Mining Metallurgy and Exploration, the Medal for Distinguished Achievement in Mineral Engineering from the Colorado School of Mines, the Career Distinguished Teaching Award from UA’s College of Science, the Creative Teaching Award from the UA Foundation, the Burlington Northern Faculty Achievement Award for Excellence in Teaching, and the Distinguished Faculty Member Award from UA’s Department of Geosciences Alumni Advisory Board.

He is a fellow of the Mineralogical Society of America, the Society of Economic Geologists, and the Geological Society of America. He has served on the editorial boards of the journals Economic Geology and Ore Geology Reviews.

He has a Bronze Star for his service in the Korean War.
Summer 2009, Fall 2009, & Spring 2010 Degrees

Bachelor of Science

Christopher Acheson • Guleed Ali • Katherine Anderson • Justan Bell • Meghan Burris • Seth Davis • Elizabeth Desser • Charlene Estrada • Dominique Giesler • Joshua Golden • Carrie Hollenbeck • Glynis Jehle • Kyle Johnson • Sarah Jorgenson • Christina King • Jennifer La Sure • Claire Landowski • Shannon Langdon • Shoba Maraj • Andrew McCallister • Melissa McMillan • Emily Mortazavi • William Nemecek • Megan Rheume • Javier Rojas-Pocheila • Nicole Russell • Whitney Rutherford • Matthew Thorry • Mark Trees • Layne Trinkley • Robin Van Auken

Master of Science & Doctor of Philosophy

Mehmet Serkan Arca, PhD 2009
Investigation of Cenozoic crustal extension inferred from seismic reflection profiles and field relations, Southeastern Arizona, Roy Johnson

Maria Banks, PhD 2009
Glacial processes and morphologies in the southern hemisphere of Mars, Alfred McEwen

Cemal Berk Biryol, PhD 2009
Complex rupture processes of the Solomon Islands subduction zone earthquake and subduction controlled upper mantle structure beneath Anatolia, Susan Beck

Alyson Cartwright, MS 2010
Chronostratigraphy and hydrologic modeling of Laguna Carri-Laufquén, Rio Negro, Argentina, Jay Quade

Robinson Cecil, PhD 2009
Development and application of geochronometric techniques to the study of Sierra Nevada uplift and the dating of authigenic sediments, Mihai Ducea

Alison Drain, MS 2009
An examination of physical biases in climate models and their implications for oceanic carbon uptake, Joellen Russell

Majie Fan, PhD 2009
Geochemistry and basin analysis of Laramide Rocky Mountain basins, Peter DeCelles and David Dettman

Andrew Frassetto, PhD 2009
Teleseismic studies of the North America Cordillera: evaluating the changing structure, composition, and fabric after subduction, George Zandt

Javier Gil-Rodriguez, MS 2010
Igneous petrology of the Colosa gold-rich porphyry system, Colombia, Eric Seedorff

German Gonzalez-Garzon, MS 2010
Petrographic characterization of two gold-rich banded iron formations in the Foxe Fold Belt, Baffin Island, Canada, Eric Seedorff

William Guenthner, MS 2009
Cenozoic exhumation of the western Antarctic Peninsula: Thermochronologic results from northern and southern Graham Land, Peter Reiners

Rachel Henderson, MS 2009
Determining chemical composition of the silicate garnets using Raman spectroscopy, Robert Downs

Renata Jasinevicius, MS 2009
Characterization of vibrational and electronic features in the Raman spectra of gem minerals, Robert Downs

Kevin Jones, PhD 2009
Mollusk-shell radiocarbon as a paleo-upwelling proxy in Peru, Gregory Hodgins and Jay Quade

David Keeler, MS 2010
Structural reconstruction of the Copper Basin area, Battle Mountain District, Nevada, Eric Seedorff

Marlene Leclerc, MS 2009
14C terrestrial ages and carbonate ages of meteorites from the Atacama Desert (Chile) and the Omani Desert, Timothy Jull

Christian Mathei, MS 2009
Isotopic and geochemical evidence for a recent transition in mantle chemistry beneath the western Canadian Cordillera, Mihai Ducea

James Mayer, PhD 2009
Late quaternary landscape evolution, environmental change, and paleolindian geoarchaeology in Middle Park, Colorado, Vance Holliday

Stephanie McAfee, PhD 2009
Climate change and ecosystem impacts associated with shifts in the mid-latitude storm track in the western United States, Joellen Russell

Lisa Molofsky, MS 2009
A novel approach to lead isotope provenance studies of tin and bronze, Joaquin Ruiz

Kendra Murray, MS 2010
Mafic lavas on the Puna Plateau sample the diverse lithospheric architecture of the long-lived Andean orogen, Mihai Ducea

Phillip Nickerson, MS 2009
Characterization and reconstruction of the Tea Cup porphyry system, Pinal County, Arizona, Mark Barton

Tank Ojha, PhD 2009
Magnetostратigraphy, topography, and geology of the Nepal Himalaya: A GIS and paleomagnetic approach, Peter DeCelles

Lynn Peyton, PhD 2009
Low-temperature thermochronology of the Laramide ranges and eastward translation of shortening in the Sevier Belt, Wyoming, Utah, and Montana, Peter DeCelles and Peter Reiners

Andrea Philippoff, MS 2009
A geomorphic analysis of Hale Crater, Mars: the effects of impact into ice-rich crust, Alfred McEwen and Victor Baker

Alexander Pullen, PhD 2010
The nature of continental rocks during collisional orogenesis and tectonic implications: Tibet, Paul Kapp

Amanda Reynolds, PhD 2009
Geochemical investigations of mineral weathering: Quantifying weathering intensity, silicate versus carbonate contributions, and soil-plant interactions, Jay Quade

Alexander Rohrmann, MS 2009
Minimal erosion in central Tibet since the Eocene and implications for plateau development, Paul Kapp

Soledad Velasco, PhD 2009
Eastern Basin and Range crustal extension: A view from seismology and geodesy, Roy Johnson

Hinako Uchida, PhD 2009
Crystal chemical and structural analyses of some common rock-forming minerals: apinel, kalsilite, clinopyroxene, and olivine, Bob Downs

John Volkmer, PhD 2010
The Cretaceous-Tertiary tectonic evolution of the Lhasa terrane, Tibet, Paul Kapp

Mark Warren, MS 2009
Segmentation and termination of low-angle normal fault domains: Insight from Higley Basin and vicinity, Central Arizona, Roy Johnson
Fall Scholarships

Goran Buble received a Graduate College Fellowship for $4,675.

Rafael Del Rio received a Sulzer Scholarship for $1,850.

Russell Edge received a Sulzer Scholarship for $4,550.

Kendra Murray received the Mark and Mary Lou Zoback Scholarship for $4,550.

Gregory Schmidt received a Graduate College Fellowship for $4,550.

Justin Wood received a ConocoPhillips Scholarship for $17,000, and a Chevron Scholarship for $2,000.

A total of $39,175 was awarded.

Spring Scholarships

William Guenthner received a Sulzer Graduate Scholarship for $4,550.

Jason Mizer received a Vorhees Undergraduate Research Scholarship for $1,000.

Jill Onken received a Sulzer Graduate Scholarship for $4,550.

Justin Wood received the following Graduate Scholarships: $17,000 from ConocoPhillips, $2,000 from Chevron, and $953 from the Sulzer fund.

A total of $30,053 was awarded.

Summer Scholarships

Hande Adiyaman received a John and Nancy Sumner Scholarship for $1,375.

Toby Ault received a Maxwell Short Scholarship for $552.

Madison Barkley received a Chevron Scholarship for $1,270.

Meg Blome received a Chevron Scholarship for $1,500.

Goran Buble received a John and Nancy Sumner Scholarship for $1,500.

Jessica Conroy received a Peirce Scholarship for $463.

Christine Gans received a John and Nancy Sumner Scholarship for $1,500.

Katrina Gressett received a John and Nancy Sumner Scholarship for $1,500.

Andrew Kowler received a Peirce Scholarship for $1,650.

Ryan Leary received a Chevron Scholarship for $1,500.

Lepolt Linkimer received a Coney Scholarship for $1,500.

Michael McGlue received a Kartchner Caverns Scholarship for $1,500.

Jill Onken received a Peirce Scholarship for $4,073.

David Pearson received a Chevron Scholarship for $1,500.

Ryan Porter received a John and Nancy Sumner Scholarship for $1,500.

Cody Routson received a Keith Katzer Scholarship for $1,324.

Joshua Spinler received a John and Nancy Sumner Scholarship for $1,500.

Philip Stokes received a Peirce Scholarship for $1,875.

Diane Thompson received a Wilson Thompson Scholarship for $921.

Mark Trees received a Chevron Scholarship for $1,500.

Sarah Truebe received a Maxwell Short Scholarship for $552.

Kelly Umlauf received a Chevron Scholarship for $1,500.

Sarah White received a Kartchner Caverns Scholarship for $1,290.

Justin Wood received a John and Nancy Sumner Scholarship for $1,500.

A total of $33,345 was awarded.

Field Camp Scholarships

Katherine Fornash received a Diane Ferris Field Camp Scholarship for $1,800.

Sarah Grubaugh received an Ev Mayo Field Camp Scholarship for $1,800.

Traci Skinner received a David Moore Field Camp Scholarship for $1,800.

A total of $5,400 was awarded.

Galileo Circle Scholarships

The following students received a $1,000 Galileo Circle Scholarship from the College of Science. Both donors and scholars attended an awards ceremony in April.

Katherine Fornash, Undergraduate
William Guenthner, Graduate
Alena Kimbrough, Undergraduate
Lepolt Linkimer, Graduate
Andrew McCallister, Undergraduate
Nicholas McKay, Graduate
Kendra Murray, Graduate
Devon Orme, Graduate
Joshua Spinler, Graduate
Sarah Truebe, Graduate

BP Donates 41 “Retired” Workstations to UA

Exploration for natural resources, particularly petroleum, requires considerable computing power to image subsurface geology and to make 3D interpretations. BP and other exploration companies use large numbers of powerful workstations to do their daily work; periodically, they need to upgrade their workstations and retire the old ones. Through the foresight of alumna Dr. Elena Shoshitaishvili and her husband, Dr. Richard Clarke, who work for BP in Houston, the Department of Geosciences received 41 “retired” workstations. Rather than having hundreds of these still-powerful computers end up in landfills, Elena and Richard arranged to have the systems donated by BP to several universities around the country. The UA was the first to receive a shipment of computers, and the computers are being put to immediate use.

The donated computers each has powerful dual-processor computational engines, fast disk drives, 16 Gbytes of memory, and can run Linux or Windows operating systems; they have an estimated market value of about $20,000. Most exciting for many of our labs, the systems can be “clustered” together to do high-performance parallel computing to accomplish complex tasks more quickly and efficiently. Our systems analysts, Kiriaki Xiluri and Isaac Way, are keeping very busy installing new operating systems and configuring the systems for many of the research labs in the Department.

Elena by one of the BP workstations while she was in Tucson for the Advisory Board meeting and GeoDaze in April.
The 38th Annual GeoDaze

The 38th annual GeoDaze Symposium was held at the Arizona Historical Society Museum near the UA main campus April 1st through 3rd, 2010.

The 30 talks and 26 posters showcased the diversity and multidisciplinary nature of geosciences research today. Presentation topics included economic geology; environmental science; environmental geochemistry; geochronology; geophysics; geoscience education; paleoclimate; planetary geology; surface processes; and tectonics, structure, and sedimentology.

Both graduate and undergraduate students participated, and the audience included faculty, staff, and students from the Department; Geosciences Advisory Board members; alumni; and individuals from other academic and professional communities.

Dr. Brian Wernicke, the Chandler Family Professor of Geology in the Division of Geological and Planetary Sciences at the California Institute of Technology, was the keynote speaker. Dr. Wernicke's talk was titled "The California River and Its Role in Carving the Grand Canyon."

Twelve awards were given out during a ceremony that followed the slide show. Congratulations to all of the award recipients.

A big round of applause goes to co-chairs Willy Guenthner and Jill Onken for all of their dedication and hard work, and to all of the individuals on various planning committees who made the event possible.

A very special thanks goes to all of our alumni, friends, and corporate sponsors, whose financial support makes GeoDaze possible each year.

Finally, thanks to all of the students, faculty, staff, Advisory Board members, alumni, and friends for making the GeoDaze tradition of showcasing student research a great success again this year!
Faculty News

George Davis completed a three-year tenure as Chair of NSF’s Advisory Committee for the Directorate for Geosciences.

Owen Davis was nominated to the UA Faculty Senate Committee on Budget and Strategic Planning.

Peter DeCeles received the 2010 Galileo Circle Fellow Award from the College of Science Board of Advisors.

Bob Downs was elected a Fellow by the American Association for the Advancement of Science (AAAS).

Paul Kapp was elected a Fellow by the Geological Society of America

Roy Johnson was selected for a Faculty Sponsorship Program by ConocoPhillips.

Jonathan Overpeck was elected a Fellow by the American Association for the Advancement of Science (AAAS).

Jonathan Patchett was elected a Fellow by the American Geophysical Union.

Joellen Russell received a Provost’s General Education Teaching Award.

Staff News

Norm Meader received a Star Award from the College of Science Staff Advisory Council (CoSSAC).

Anne Chase received a Star Award from the College of Science Staff Advisory Council (CoSSAC).

Student News

Jeanine Ash received a UA Honors College Undergraduate Research Grant to study the interactions between Cerion and hermit crabs on San Salvador, the Bahamas.

Toby Ault received a William G. McGinnies Graduate Scholarship in Arid Lands Studies.

Madison Barkley received a two-year fellowship from the Department of Energy's National Nuclear Security Administration's Stewardship program to study hydrogen environments in minerals.

Ana Collins received a Minority Scholarship from the American Geological Institute.

Jessica Conroy received a COS Graduate Student Award for mentoring. She also received a Philanthropic Educational Organization (PEO) scholar award.

Stephanie Craig received a NASA Space Grant Undergraduate Research Internship for research on new lunar impact craters.

Jesse Einhorn received a summer fellowship for NSF’s East Asia and Pacific Summer Institute (EAPSQ) program.

Christine Gans received a COS Graduate Student Award for Scholarship.

Phil Nickerson was selected as invited speaker for the copper session of the Society of Economic Geologists 2010 conference in Keystone, Colorado.

Jill Onken received the Marie Morisawa Graduate Student Research Award from the Quaternary Geology and Geomorphology Division of GSA. She also received a William G. Pierce Research Grant from the Colorado Scientific Society, and a Graduate Student Summer Award from Brigham Young University.

Phil Stokes received a COS Graduate Student Award for Service. He was also co-winner of the Best Student Paper Award for oral presentation at the 2008 GSA meeting in Houston, Texas.

Jeremy Weiss was selected to attend the Colloquium on Knowledge Innovation at the Science-Policy Interface in San José, Costa Rica, by the Inter-American Institute for Global Change Research (IAI) and the National Center for Atmospheric Research (NCAR). He also received a William G. McGinnies Scholarship in Arid Lands Studies.
Austin Long  continued...

Earlier, I mentioned Austin's generosity and ethical sense – qualities from which I learned and benefited as I began the second phase of my career. Austin's laboratories had a consistent reputation for producing good data and for fair treatment of clients. There was always room for visitors – in Austin's house, too – and the laboratories became an international crossroads where scientists from all over the world were welcome. Because the laboratories received State funding, Austin's policy was to give back to the community by self-funding beneficial research such as the Tucson Basin isotope study.

When retirement came along in 1999, the first signs of a health crisis had already appeared. Sadly, Austin was unable to enjoy most of his retirement as he might have wished, no doubt continuing his pursuit of favorite research topics. True to his devotion to science, he participated in research projects on Alzheimer's disease.

Austin is survived and greatly missed by his wife Karen, whose attentive care enabled him to live at home until his death, and by daughters Lara, Stephanie, Tonya, Kirsten, and Kathy. He is also survived by a host of professional disciples who will continue to benefit from his teaching and research for decades to come.

Memorials

Donald G. Bryant (BS 54)
Donald Bryant died in October 2009 at his home in Denver, after a brief struggle with brain cancer. He was passionate about mining and exploration geology, and he authored and co-authored many published papers during his many years of work for the mining industry. His consulting work took him throughout North and South America, Europe, Africa, and Asia. He was the son of Don L. Bryant, a former professor in the Department of Geosciences. Young Don was a staunch supporter of the Department, a contributor to his science and the geology of Arizona, and a facilitator of many student activities.

Michael J. Fitzgerald
Mike Fitzgerald passed away in August 2009. He was a friend of Geosciences, and he contributed scholarship funds to the Economic Geology Program for over ten years. The Department will miss his scholarship, his contact with students, and his friendly and pleasant demeanor.

David Laird Kuck (BS 52)
David Kuck passed away in December 2009 in Tucson, due to complications related to leukemia and Alzheimer's. He had a BS in Geology (51) and a BS in Mining Engineering from the University of Arizona.

Robert E. Mortimer (BS 75, MS 78)
Bob Mortimer passed away in July 2009 at his ranch near Cochise, Arizona. Bob was devoted to his astronomy interests. He manufactured telescopes, invented a filter for sun observations, and could adapt just about any good camera in order to obtain “heavenly” photographs via the telescope.
Alumni News

Marie (Renwald) Arrowsmith (BS 02)
I just received my PhD in geophysics from Southern Methodist University, and I will be working as a Postdoc at Los Alamos National Laboratory in the area of ground-based nuclear explosion monitoring. My husband and I just purchased our first home in Santa Fe, and are enjoying life with our three rabbits Jake, Inky, and Wumpet.
~ plutonium@gmail.com

Sumit Chakraborty (PhD 90)
Sumit has been elected as Councilor of the Mineralogical Society of America. He is currently a Professor at Ruehr University in Bochum, Germany.
~ sumit.chakraborty@rz.ruhr-uni-bochum.de

Christopher (Kit) Marrs (BS 74, MS 79)
Kit has worked as a mineral exploration geologist and project manager in Alaska and Mexico for more than 25 years. He specializes in volcanogenic massive sulfide, porphyry copper, and precious metal vein deposits. He has managed mining exploration projects in remote locations throughout Alaska. He also has experience in formulating, financing, permitting, and implementing real estate development projects. Kit is a current member of the Geosciences Advisory Board and will be working to organize alumni events in Tucson and Phoenix. Please contact him if you would like to help.
~ kitmtucson@earthlink.net

Dan Olberg (BS 91)
Since leaving the UA in 1991, I have been employed in mineral exploration, and have been working my way around the Pacific Rim in such places as Alaska, Nevada, Peru, Australia, Indonesia, Laos, China, and Mongolia. In 2001, I received my MS in Economic Geology from the University of Tasmania in Australia. I am currently employed as Country Manager ~ China by MMG (Minerals and Metals Group), a Sino-Australian mining company managing exploration programs in China and Mongolia. I am happily married and currently based on the South Island of New Zealand.
~ danolberg@hotmail.com

Christopher Schultz (BS 94)
I’m still working at Hazen Research in mineral processing by physical separation for industrial minerals, base, and precious metals. I’ve been at Hazen for over nine years, and I love the challenges. I’m an avid backpacker, hiker, mountain biker, and trail runner.
~ cestmoicps@comcast.net

Gilbert Stern (BS 57)
Guilbert is consulting in groundwater, petroleum, and engineering geology. He retired from UNOCAL in 1996. He has consulted on various exploration projects worldwide. Countries of former residence include: Saudi Arabia, Qatar, Sudan, Eritrea, Russia, Brazil, Trinidad, Indonesia, and Thailand.
~ gilexplorer@gmail.com

Ellen Wohl (PhD 88)
Ellen received the 2009 Kirk Bryan Award from the Geological Society of America Quaternary Geology and Geomorphology Division. She is currently a professor at Colorado State University.
~ ellen.wohl@colostate.edu

Mark Zoback (BS 69)
Mark was one of the principal investigators of the San Andreas Fault Observatory at Depth (SAFOD) drilling project recently carried out by the National Science Foundation and US Geological Survey as part of the EarthScope program. In the photo below, he is seen (front right) with members of the SAFOD science team reviewing geophysical data from the San Andreas Fault. Mark is a current member of the Geosciences Advisory Board.
~ zoback@stanford.edu

Fifteen Wildcats attended the Vancouver Exploration Roundup Meeting in January, just prior to the winter Olympics.

Front row, left to right: John-Mark Staude (PhD 95), Tom McCandless (PhD 94), Frank Nelson (MS 63), Scott McBride (MS 08), Lance Miller (PhD 94), Brooke Clements (BS 91).

Back row, left to right: Peter Megaw (PhD 90), Brigitte Martini (BS 97), James Lang (MS 86, PhD 91), David Lajack, Eugene Schmidt (MS 73), Rick Fredericksen (MS 74), George Sanders, Moira Smith (PhD 90), Robert Wheatley.

Kit Marrs in northern Alaska during 2007.
Update your contact information!

Name: ____________________________

(Please check one of the boxes below to indicate which address you prefer as your mailing address.)

- Home Address: ____________________________
  ____________________________
  ____________________________
  Phone: ____________________________
  Email: ____________________________

- Business Address: ____________________________
  ____________________________
  ____________________________
  Phone: ____________________________
  Email: ____________________________

Share your news for the next newsletter!

New job? Kids? Back in school? Retired? Attend a national meeting? Take a trip? See a classmate? Please send us your news and a photo by US mail, E-mail (lesa@email.arizona.edu), or the web (http://www.geo.arizona.edu/people/alumni.html).

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________