



Earth and Environmental Sciences 2020 & 2021 Department Newsletter



College of Arts
and Sciences

*Department of Earth and
Environmental Sciences*

Earth & Environmental Sciences

2020 & 2021 DEPARTMENT NEWSLETTER

Regular Faculty

Andrea Erhardt, Assistant Professor
Frank Ettensohn, Professor
Rebecca Freeman, Associate Professor
Alan Fryar, Professor
Michael McGlue, Associate Professor
David Moecher, Professor
Keely O'Farrell, Assistant Professor
Dhananjay Ravat, Professor
Ryan Thigpen, Associate Professor
Kevin Yeager, Associate Professor
Ed Woolery, Professor

Research Faculty

Bill Haneberg
Jim Hower, Distinguished Fellow

Senior Lecturer

Kent Ratajeski

Lecturer

Summer Brown

Emeritus Faculty

William Blackburn
Bruce Moore
Kieran O'Hara
Sue Rimmer
Lyle Sendlein
Ron Street
William Thomas

Staff

Adrienne Gilley, Dept. Manager
Pete Idstein, Academic Lab Coordinator
Kimberly Schindler, Lab Manager

Adjunct Faculty

Drew Andrews, KGS
Rick Bowersox, KGS
Seth Carpenter, KGS
Matthew Crawford, KGS
Jason Dortch, KGS
Cortland Eble, KGS
Steve Greb, KGS
John Hickman, KGS
Georgina Lukoczki, KGS
Marty Parris, KGS
Ben Tobin, KGS
Zhenming Wang, KGS
Amy Wolfe, KGS
Junfeng Zhu, KGS

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Stay Connected and Keep in Touch!

You can keep track of department events, the Rast-Holbrook seminar schedule, our contact information, and alumni events via the department web page:

ees.as.uky.edu

If your contact information changes, let us know!
Send a note to, email, or call us!

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The Chair's Reflection

Greetings EES alumni and friends!

Much has happened in the 18 months since our last newsletter. As you can certainly guess, nearly all aspects of our curricular instruction, research, and service have been affected by the ongoing pandemic response. Its consequences have and continue to challenge us in many realized and unrealized ways. That said, not all consequences have been completely negative. One of the more positive outcomes is the new skillsets and comfort we have developed in distance learning technology when the situation necessitated instructional modality go remote to meet the CDC's healthy social distancing guidelines. The faculty and students' ability to logistically transition from traditional in-person classroom instruction to the unfamiliar online format in a matter of a few weeks was nothing short of astounding. Most of our faculty had never participated in or considered remote teaching before; but with focus and dedication, as well as assistance from our department's teaching experts, we were able to successfully make the modality transition in the compressed time window. Although stressful, the process was remarkably smooth and could not have happened without the flexibility, patience, and clever strategies of our faculty, students, and staff. There are other positive outcomes to celebrate, as well as significant problems yet to solve; but by maintaining a "can-do" approach we can realize President Capilouto's goal of establishing a "better normal" once we fully emerge from the pandemic.

The recent challenges also remind us of how very fortunate we are to have exceptionally supportive and philanthropically generous alumni in both good and trying times. Since July 2012, you have given more than \$3.1M to support a range of faculty, undergraduate and graduate initiatives including an Alumni Professorship, teaching and research lab renovations, enhanced graduate stipends, field trip and field camp experiences, discretionary support to help the chair run the department, and more. These resources have allowed EES to shield our students from much of the adverse budgetary fallout during the pandemic students in many A&S departments have endured. Moreover, our alumni resources increased during the period; for example, this past spring we were able to provide new undergraduate and graduate support from three new academic scholarship/fellowship endowments thanks to the Hull, Sullivan, and Thomas families. The Spies' family gifted funds supporting 4 new undergraduate scholarships this year. But it's not simply financial support, our alumni group during the past two years have also volunteered their most valuable commodity: time. This has been used in critical departmental services such as moderating faculty retreats, reviewing department briefs for central administration, serving on administrative search committees, organizing/presenting technical seminars, providing professional career insight, and direct mentoring to our students and younger faculty. The tangible and intangible resources EES alumni provide the Department are why this group is the recognized "model" for the College of Arts and Sciences.

The Chair's Reflection

There have been several significant faculty transitions that have occurred since our last newsletter:

1. Prof. Jim Hower officially retired on June 30, 2021. He has been part of our department faculty for 40 years, beginning as an Adjunct Assistant Professor in 1981 before rising to one of UK's few Adjunct Full Professors in 1999. His prolific scholarship and internationally recognized expertise in coal geology and petrography prompted the College and Provost to transition him to Research Professor (full) in 2016. Jim has accumulated more than 450 peer-reviewed journal articles and book chapters, as well as numerous editorships in the leading coal geology journals. This body of work has also earned him various distinguished medals, awards, and fellowships from the professional community. His commitment to the department has been equally stellar; he has been an exemplary teacher and graduate student mentor/advisor, as well as unselfish department citizen, volunteering for countless service assignments over the years. I am also pleased that he will remain semi-active with us in his post-retirement as a Distinguished Fellow and Research Professor (ret.). In this capacity we can still benefit from Jim's scholarship and expertise.
2. We celebrate and congratulate Profs. Rebecca Freeman and J. Ryan Thigpen on their fully deserved July 1st promotion to Associate Professor with tenure. This is one of the most significant accomplishments a faculty scholar earns during their academic career. Well done!
3. We are delighted to have added eight new adjunct assistant professors from the Kentucky Geological Survey to the EES faculty. Welcome aboard: Drew Andrews, Seth Carpenter, Matt Crawford, Jason Dortch, Gina Lukoczki, Matt Massey, Ben Tobin, and Amy Wolfe. Using new and continuing adjunct faculty through our KGS partnership, along with collaborative efforts with other campus centers, will provide faculty expertise to expand our scholarly capabilities deeper into 21st century geosciences (e.g., artificial intelligence, machine learning, and other computational methods to creatively use the "big data" of natural hazards, environmental geology, and climate change).
4. I am very pleased to announce the approval for the joint appointment of Prof. L. Sebastian Bryson in EES. Sebastian's primary appointment is in the College of Engineering's Department of Civil Engineering where he was recently promoted to Full Professor and appointed the Director of Graduate Studies (DGS). He also holds the endowed Hardin-Drnevich-Huang Professor of Civil Engineering. Sebastian has a long collaborative relationship with faculty and students in EES and will be an important part of our expanding initiatives.

The Chair's Reflection

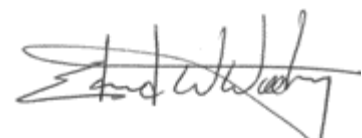
5. We are fortunate to have Prof. Mike McGlue agree to become our new DGS; his first year has seen several new initiatives and program revisions that will significantly improve graduate studies.

6. Also, after a decade of dedicated work as the Director of Undergraduate Studies (DUS) Prof. Rebecca Freeman will take a well-earned break from her administrative role in the Department. She and her vast institutional knowledge have been a critical part of my chair transition, saving/rescuing me from many pitfalls. I know that Prof. Alan Fryar will continue those efforts as he kindly agreed to step into the DUS role. He is well positioned for the appointment with eight years of experience as DGS, as well as serving as DUS for the past few years in the College's Environmental and Sustainability Studies program.

7. The College has recognized the extra effort our faculty invest in students during the past two years. Prof. Andrea Erhardt was recognized with the 2020 A&S Outstanding Graduate Mentoring Award and Prof. Rebecca Freeman with the 2021 A&S Excellence in Teaching Large Classes Award. Our undergraduate and graduate students have benefited immensely from their efforts.

The pandemic response did not halt progress of our M.S. graduate studies initiative with China's Jilin University. EES has finalized agreements with four departments in their college of geosciences. Under the agreements we can accept up to 12 exceptional rising senior undergraduate students from JU's various programs beginning in the Fall of 2022. These students would finish their Jilin University B.S. degree with one year of coursework in our EES curriculum, as well as earn a University of Kentucky M.S. (non-thesis option) degree with an additional year of EES coursework and research project. This has been three years of laborious back and forth; but Prof. Fryar and the committee have worked very hard to make it happen. Several of our faculty already work in China, but this new partnership can provide expanded research and study opportunities for EES as-a-whole.

Finally, I want to acknowledge that the initial two years of my chair appointment have been very different from what I had originally imagined. Neither the Associate Dean of Faculty's two-day Chair's Orientation nor four months of regular leadership workshops (Provost's Academic Leadership I and II) prepared me for the reality of the past 18 months; but realistically, nothing could have. Nevertheless, I was fortunate to find patient faculty (relatively), staff, students, and alumni, as well as thoughtful associate chairs providing the wherewithal to move our program forward. Any failures are certainly on me, but the successes are the result of the larger EES self-governing community. I am grateful for all that you do!



Graduate Student Degrees

(WITH THESIS ADVISOR, AS OF AUGUST 2021)

2019-20

Morgan Black, MS: “Holocene Hydroclimatic and Vegetation Reconstruction in the Sierra Nevada Using Pollen and Stable Isotopes from Convict Lake” (M. McGlue)

William Bond, MS: “The Forestry Reclamation Approach: Measuring Sediment Mass Accumulation Rates in Reclaimed Mine Lands and Naturally Regenerated Logged Forests of Eastern Kentucky” (K. Yeager)

Drew Burford, MS: “Integrated Seismic-Reflection and Microgravity Imaging Across the Southern Boundary of the Charleston Uplift, New Madrid Seismic Zone, USA” (E. Woolery)

Seth Carpenter, PhD: “Characterization of Linear Ground Motion Site Response in the New Madrid and Wabash Valley Seismic Zones and Seismicity in the Northern Eastern Tennessee Seismic Zone and Rome Trough, Eastern Kentucky” (E. Woolery)

Eva Lyon, PhD: “A Multi-Method Investigation of the Modern Sedimentation and Late Holocene Paleolimnology of June Lake (Mono County, CA), and a Survey-Based Analysis of Ninth Graders’ Attitudes Towards Geology” (M. McGlue)

Cara Peterman, PhD: “Tracing Source Contributions to Assess Spatial Patterns of Erosion in a Mixed Land Use Environment: Otter Creek Catchment, Fort Knox, Kentucky” (A. Fryar)

Brooks Rosandich, MS: “Extension of a Quaternary-Active Shear Zone across the Reelfoot Fault Stepover Arm: Evidence from P- and SH-wave Seismic Reflection Imaging” (E. Woolery)

Kimberly Schindler, MS: “The Links Between Gulf of Mexico Seafloor Characteristics and Petroleum Hydrocarbons Following The Deepwater Horizon Oil Spill” (K. Yeager)

Amanda Sherman, MS: “Temporal and Spatial Variability in Groundwater Flow and Chemistry Along the Cumberland River, Atremus, Kentucky” (A. Fryar)

Meredith Swallow, MS: “Determining Rates of Landscape Response to Tectonic Forcing Across a Range of Temporal Scales and Erosional Mechanisms: Teton Range, WY” (R. Thigpen)

Laura Streib, MS: “A Diatom Proxy for Seasonality over the Last Three Millennia at June Lake, Eastern Sierra Nevada (CA)” (M. McGlue)

Frank Tamakloe, MS: “A Joint XRF-d13Ccarb Chemostratigraphic Approach for Characterizing Paleo-Environmental Processes in the Mudstone-Dominated Wolfcamp Formation of West Texas” (A. Erhardt)

Steven Zotto, MS: “Testing for sediment recycling using detrital monazite geochronology, zircon “double dating”, and textures in Pennsylvanian arenites of the Central Appalachian Basin, Eastern Kentucky: Implications for single mineral sedimentary provenance analysis” (D. Moecher)

2020-21

Cristopher Alvarez-Villa, MS: “Identification of the Causes and Extent of Elevated Methane Concentrations in the Groundwater of Eastern Kentucky” (A. Fryar)

Taylor Arrowood, MS: “Analyzing slab holes in subduction zones and their impacts through numerical simulations” (K. O’Farrell)

Aspen Davis, MS: “Admittance Modeling for Elastic Thickness Across the Mars Crustal Dichotomy Boundary” (D. Ravat)

Felicia Harris, MS: “The Tale of 3,000 Zircons: An Investigation of Greenville Sedimentation in Amazonia Using U/Pb Detrital Zircon Geochronology” (D. Moecher)

Autumn Helfrich, MS: “Testing interpretations of the displacement magnitude of the Teton fault and uplift of the Teton Range, WY with integrated flexural-kinematic and thermal modeling” (R. Thigpen)

Nick Powell, MS: “Defining the conditions and extent of southern Appalachian orogenesis in the Inner Piedmont and Blue Ridge of North Carolina” (R. Thigpen)

Jonathan Wilson, MS: “Isotopic and geochemical tracers of groundwater flow in the Shivwits Plateau, Grand Canyon National Park” (A. Erhardt)

Undergraduate Degrees

Bachelor of Arts

Bailee Morrison, Fall 2019
Scott Anderson, Spring 2020
Matthew Watts, Fall 2020
Jennifer Whitney, Spring 2021
Alexandria Thomas, Spring 2021

Bachelor of Science

Bryan Davenport, Fall 2019
Rowan Rich, Fall 2019
John Eblin, Spring 2020
Elizabeth Ann Winebarger, Spring 2020
Trevor Bryant, Summer 2020
Cole Denham, Summer 2020
Mahnad Al-Jabro, Summer 2020
Bailey Foley, Summer 2020
McKenzie Brannon, Summer 2020
Spencer Dixon, Fall 2020
Bronson McQueen, Spring 2021

Undergraduate Awards

Pirtle Outstanding Senior Scholarship

Miysam Al Azri, 2021
Alexandria Thomas, 2020

Rice-Hagan Memorial Tuition Scholarship

Michael Edelen, 2021
Madison Preece, 2021
Ben Ziegelmeyer, 2021

Sigma Gamma Epsilon Tarr Award

Gillian Clark, 2021
Elizabeth Ann Winebarger, 2020

Advancing Science for Kentuckians (ASK) Scholarship

Michele McHugh, 2021
Felicity Shirkey, 2020

Jay G. Henthorne Jr. Scholarship

Gillian Clark, 2021
Bronson McQueen, 2020

Steve and Cindie Sullivan Excellence Award

Alexandria Thomas, 2021

Rast Brown Scholarship

Alexandra Arimes, 2021
Kevin Haller, 2021
Connor Hopps, 2021
Laura Osborne, 2021
Michele McHugh, 2020
Jennifer Whitney, 2020
Elisha Miller, 2020
Michael Edelen, 2020

Curt and Jean Hull and Ed Harris Scholarships

Felicity Shirkey, 2021
Kyle Skeese, 2021
Jack Chappuies, 2021

Diane and Bill Spies Scholarship

Elisha Miller, 2021
Cameron Fordyce, 2021
Elisha Miller, 2021
Jessie Partin, 2021
Lucy Steiner, 2021

Graduate Awards

William and Rachel Thomas Graduate Fellowship

Bailee Hodelka, 2021

Pirtle-Boone Summer Graduate Fellowships

Elizabeth Avery

Ryan Dapkus

Aspen Davis

Ryan Goldsby

Autumn Helfrich

Edward Lo

Nick Powell

Alex Reis

Brooks Rosandich

Brandon Spencer

Jonathan Wilson

Ferm Graduate Research Award

Ryan Goldsby

Sierra Heimel

Gustavo Martins

Edward Lo

Leandro Luz

Shishir Sarker

Yuping Wang

Jonathan Wilson

Outstanding TA Award

Bailee Hodelka, 2021

Alex Reis, 2021

Brandon Spencer, 2021

Felicia Harris, 2020

Autumn Helfrich, 2020

Brown-McFarlan Fund Travel Award

Cristopher Alvarez

Autumn Helfrich

Brandon Spencer

Jon Wilson



Summer Brown and Ryan Thigpen hosted the EESCARS, a virtual awards ceremony, on May 1, 2020. It was an outstanding event, and a much needed respite from the pandemic related stress of the spring semester.



Rast-Holbrook Seminar Speakers

The Rast-Holbrook Seminar Series is a weekly Department event. It is an opportunity for students and faculty to hear about emerging research and for us to showcase the Department. The Rast-Holbrook endowment was made possible by a generous foundational donation by Mr. Charles Holbrook, and numerous donations by alumni made in memory of Prof. Nicholas Rast.

Thank you to all the speakers who joined us, both in person and online in 2020 and 2021:

Philip Prince, Virginia Division of Geology and Mineral Resources

Dr. Alastair Ruffell, Queen's University - Belfast

Dr. Rachel Wood, University of Edinburgh

Dr. Brad Thomson, University of Tennessee

Geoff Plumlee, USGS (Reston)

Dr. Christopher Atchison, University of Cincinnati

Dr. Sean Trim, University of Saskatchewan

Dr. Zhenming Wang, Kentucky Geological Survey

Dr. Amy Wolfe, Kentucky Geological Survey

Dr. Colin Sumrall, University of Tennessee

Dr. Georgina Lukoczki, Kentucky Geological Survey

Dr. Michael McGlue, University of Kentucky

Dr. Michael Hamburger, Indiana University

Dr. Lee Dugatkin, University of Louisville

Bradley Deline, University of West Georgia

Dr. Cedric John, Imperial College London

Dr. Elizabeth Sibert, Harvard University

Dr. Rachel Rotz, Florida Gulf Coast University

Dr. Kendra Murray, Idaho State University

Dr. Ceth Parker, California Institute of Technology

Dr. Kiran Chotalia, University of Florida

Dr. Cat Beck, Hamilton College

Dr. Sarah Evans, Appalachian State University

Dr. Julie Fosdick, University of Connecticut

Dr. Fabiano Pupim, Federal University of São Paulo (UNIFESP)

Dr. Paul Beguelin, University of Muenster

Dr. Ratheesh Kumar, University of Kentucky

Faculty Promotion and Tenure 2021

The Department is very pleased to announce the promotions of Dr. Rebecca Freeman and Dr. Ryan Thigpen to the rank of Associate Professor with tenure. The promotion of a faculty member is always a big deal in universities. Assistant Professors are subjected to a thorough tenure review by experts in their field outside the university; by senior faculty in their home departments; by a college-level committee appointed by the Dean; and by a university-level committee appointed by the Provost. If they pass this review they are appointed to Associate Professor with tenure.



Please join us in congratulating Rebecca and Ryan!

Overcash Student Travel Fund

A major success story for our program in recent years has been the launch of new field-based geoscience courses in the western United States. These courses have been made possible by a field education fund established by Mr. Wendell Overcash (B.S. Geology, 1977). These courses, normally offered at the upper undergraduate and graduate level, have led to outstanding experiences for geological sciences majors in two of the most remarkable geological provinces of the American West: the Sierra Nevada (California) and the Grand Teton National Park (Wyoming). In both cases, EES faculty (Profs. McGlue, Thigpen, and Woolery) led groups of students into the field not only to examine the regional geology and geomorphology, but also to collect new datasets that formed the basis for class projects examining the geological evolution of these amazing alpine environments. These datasets included seismic reflection lines, rock samples for thermochronology, landform maps, and even sediment cores from glacial lakes. Several graduate students in these courses have gone on to use the data in their thesis or dissertation projects, including Dr. Eva Lyon (Ph.D. Geological Sciences, 2019, now visiting assistant professor at Washington and Lee University), Mrs. Meredith Swallom (M.S. Geological Sciences, 2019, now doctoral student at UK), Ms. Rachel Hoar (M.S. Geological Sciences, 2018, now doctoral student at Texas A&M University), Ms. Laura Streib (M.S. Geological Sciences, 2019, now doctoral student at Syracuse University), and Ms. Sarah Johnson (current UK Ph.D. student in Geological Sciences). Eva's sedimentological and geophysical analysis of June Lake (eastern Sierra Nevada) "made the cover" of the Journal of Sedimentary Research in 2019. The department is grateful to Wendell for establishing the Overcash Family Fund, and a new group of faculty hope to do a field course "out west" as soon as pandemic-related travel restrictions are lifted.



Volcaniclastic sediments from the Mono Craters make up the beaches of beautiful June Lake, a glacial lake in the eastern Sierra Nevada. Image is looking west towards June Mountain and Carson Peak. See Lyon, E.C., McGlue, M.M., Woolery, E.W., Kim, S.L., Stone, J.R. and Zimmerman, S.R., 2019. Sublacustrine geomorphology and modern sedimentation in a glacial scour basin, June Lake, eastern Sierra Nevada, USA. Journal of Sedimentary Research, 89(10), pp.919-934.

Visiting Scholars from Iraq

Although most of the Department may not have realized it, from the end of February, 2020, until the end of June, 2021, the Department hosted a husband and wife team of visiting geology scholars from the Department of Geology at the University of Basrah in southern Iraq. Unfortunately, for much of that time, they were isolated due to Covid, and when they were not isolated, they were trying to see nearby parts of the United States. So, they were not around the Department that much.

Dr. Alaa M. Al-Abadi is a hydrogeologist who was working with Dr. Alan Fryar on statistical, machine-learning models for assessing groundwater contamination. His wife, Dr. Amna M. Handhal, is a petroleum geologist who worked with Dr. Frank Ettensohn on subsurface applications of statistical methods in petroleum geology. During their time in Lexington, Dr. Ettensohn and the Iraqi visiting scholars completed three manuscripts, one of which was published and two of which are in various stages of review. The published manuscript dealt with the spatial modeling of hydrocarbon productivity from an oil field in Iraq using statistical means, whereas the other manuscripts dealt with the spatial assessment of gross reservoir heterogeneity using geostatistics and the carbonate-facies analysis of the Upper Cretaceous Mishrif Formation in southern Iraq using borehole image logs and core thin-sections. Besides his collaboration with Dr. Ettensohn, Dr. Al-Abadi published four papers, including two with Dr. Fryar (on probability mapping of groundwater

contamination around an oil field in southern Iraq and on assessing groundwater potential using quantity and quality criteria). Drs. Al-Abadi and Fryar have another manuscript in review on assessing terrestrial water storage in Iraq using GRACE satellite data. In addition, Dr. Al-Abadi began writing a book with the working title "Groundwater Potential Mapping: A Practical Guide". He also reviewed five manuscripts for the journal *Groundwater for Sustainable Development*, for which Dr. Fryar is an associate editor, and participated in Dr. Junfeng Zhu's Groundwater Modeling (EES 685) class. Despite the limitations imposed by the pandemic, their time in Lexington was a very productive interaction for all. This opportunity arose for them through the Iraqi Ministry of Higher Education and Scientific Research and the Iraqi Cultural Attaché in the Iraqi Embassy in Washington, D.C., Dr. Ali Almayahi, who is a graduate of the EES department.



Post-Doc Research in EES

We were very fortunate to have the following post-docs work in the department over the past two years:

Dr. Vanessa Fichtner, under the direction of Dr. Andrea Erhardt, 2018-2020
"INCORPORATION AND DIAGENESIS OF CARBONATE ASSOCIATED SULFATE"

Dr. Ratheesh Kumar, under the direction of Dr. Dhananjay Ravat. 2019-2021
"NEW INSIGHTS ON THE STRUCTURAL EVOLUTION OF THE MARTIAN LITHOSPHERE"

Dr. David Willis, under the direction of Dr. Keely O'Farrell, 2018-2020
"THE INFLUENCE OF CONGESTED SUBDUCTION ON NEW ZEALAND'S TECTONIC EVOLUTION"

Michael Bourque: Alumni Advisory Board Chair's Letter

The pandemic restrictions of the last 18 months have presented an endurance test, impacting our lives in so many ways. We now have the good fortune to begin reconnecting with family, friends and colleagues. Many of us are making new commitments.

In that spirit, I agreed this past spring to accept the Chairmanship of the EES Alumni Board, a diverse and totally wonderful group of Geology alumni. Volunteering our time and resources is the way we say "thank you" for the geology education, encouragement and inspiration we received as students at UK. (My bio: EES Alumni Corner | Earth & Environmental Sciences (uky.edu)) I succeed Wendell Overcash, whose enthusiasm and leadership have guided the Board since 2013. Wendell and the Board worked alongside Department Chair Prof. Dave Moecher to increase financial support for students, sustain programs within EES, update infrastructure in the Slone Building, and fund activities externally to promote the department and reach out to alumni. The EES Alumni Board continues to be recognized as the "type section" for alumni involvement in UK Arts & Sciences. The growing participation and generosity of the alumni community has helped sustain the department financially over the last decade. However, the US economy seriously contracted during the pandemic and state funding pressures on UK finances persist. This is the right time for all alumni to participate. Donations of all sizes are welcome! We encourage our alumni to consider becoming a member of the Board. Stay connected!



This year the Alumni Board welcomed new member Rachel Nally (BS '10, MS '13). Rachel joins a growing list of recent graduates (<10 years) who have generously agreed to participate on the Alumni Board. Our young professionals are positioned to share with the Board a unique and important perspective on their geology education at UK, contemporary student life, career development and the challenges young alumni face in a rapidly changing world.

We are all beginning to emerge from the disruption of the pandemic. However, the impact of climate change on our environment, our health and our livelihoods has entered a critical stage. A low carbon future, diminishing water resources, increasingly severe weather events, and more difficult and competitive mineral extraction driven by emerging technologies are changing priorities in geoscience education. Faculty will develop new research trends and students will seek careers amid shifting employment opportunities. In these challenging times, the financial support from the alumni community is needed more than ever to ensure the department has the resources and flexibility to attract and keep new students with relevant and sustainable programs. I look forward to working on these goals with Department Chair Prof. Ed Woolery and the Alumni Board on behalf of all alumni, faculty members and most importantly, the students.

Michael Bourque, BS '74

We are excited to share the following new endowments, which provide generous scholarships and awards to our EES graduate and undergraduate students:

JAY G. HENTHORNE, JR., ENDOWED SCHOLARSHIP

Awarded for the first time in 2020

STEVE AND CINDI SULLIVAN EXCELLENCE AWARD IN GEOLGY

Awarded for the first time in 2021

WILLIAM A. AND RACHEL L. THOMAS GRADUATE FELLOWSHIP IN GEOLOGY

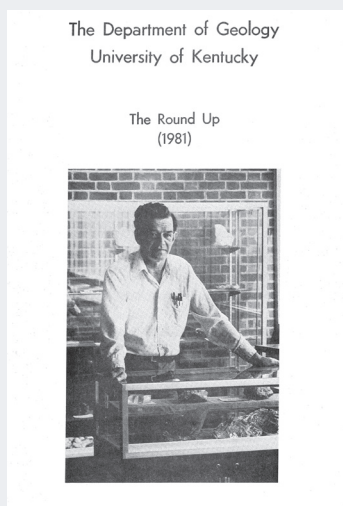
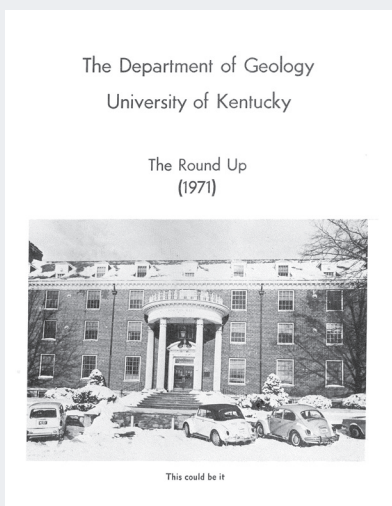
Awarded for the first time in 2021

CURT AND JEAN HULL AND ED HARRIS SCHOLARSHIPS IN GEOLOGY

Awarded for the first time in 2021

TAKING A LOOK BACK...

old newsletters are available to view on our website!



A special thank you to Lila Salvatore, for the donation of several pieces of geological field gear, in memory of her late husband, Jerry Markowitz (M.S. '79), pictured on the right.



Thank You!

The following people, companies, and entities constitute the donors who helped us achieve some of our fundraising goals to various department endowments. Many contributed to more than one fund, and corporate matches were counted as donations.

We greatly appreciate this outpouring of support!

Ms. Patricia A. Anderson
Dr. William M. Andrews, Jr.
Dr. Thomas P. Becker
Mr. Charles A. Black, Jr.
Mr. Michael W. Bourque
Mr. Cal Butler II
Mr. Kristopher Clemons
Mrs. Jennifer W. Connolly
Mr. Thomas P. Coward
Dr. Edward L. Crisp
Mr. Timothy D. Elam
Dr. Frank R. Ettensohn
Ms. Margaret H. Ferm
Dr. Alan E. Fryar
Dr. Douglas R. Gouzie
Mrs. Jill C. Gregory
Mrs. Elizabeth A. Haynes
Mr. Jay G. Henthorne, Jr.
Ms. Carol Hill
Mr. Curtis G. Hull
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Ms. Sarah Mardon
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Mr. Tim Moore
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Mr. Robert R. Orr, Jr.
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Mr. John Roulston
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Mrs. Mary T. Thornton
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Mr. James B. Wixted
Mary Witt Wilson
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