



# **Department of Geology Awards**

**April 21, 2023**

**University of Georgia**

# **Geology Department Administration**

## **Department Head**

Dr. Paul A. Schroeder

## **Associate Department Head**

Dr. Adam Milewski

## **Undergraduate Advisors**

Dr. Doug Crowe

Dr. Rob Hawman

## **Graduate Coordinator**

Dr. Steve Holland

## **Franklin College Faculty Senator**

Dr. Steve Holland

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## **Office Manager & Academic Program**

### **Administrator**

Ashley Arnold

## **Administrative Assistant II**

Shay Nash

## **Geology Alumni Advisory Board**

**Mr. Grant Eager, Chair**

Director of Tech Services, US Vulcan Materials Co.

**Ms. Charlotte Abrams**

Branch Chief, Nuclear Regulatory Commission

**Ms. Gigi Beaulieu**

Senior Tech Manager, WSP, USA

**Mr. Jeff Blackmon**

Project Manager, Newmont Gold

**Mr. Skip Forsthoff**

Consultant Geologist, Chevron

**Mr. Ken Gillon**

Consultant, Appalachian Landslide Consultants

**Mr. Alex Glover**

Director of Mining, Active Minerals International, LLC

**Mr. Zach Hall**

Director, Environ Science, Duke Energy

**Mr. John Hayden**

Retired, Consultant

**Mr. Frank Lieth**

US Vulcan Materials Co.

**Mr. Daven Mashburn**  
Senior Exploration Manager, Newmont Gold

**Dr. Vince Matthews**  
Retired, Director of the Colorado Geological Survey

**Mr. Ed Moritz**  
President, Gustavson Associates

**Dr. Wes Myers**  
Retired, Los Alamos National Laboratory

**Dr. Horry Parker**  
Lead Field Project Rep., Black & Veatch

**Ms. Kristen Woods**  
Mine Planner & Geologist, The Chemours Company

**Dr. James Saunders**  
Professor of Geology, Auburn University

**Mr. Jeff Shellebarger**  
Retired, Chevron NA Exploration and Development

## **Undergraduate Accolades**

**B.S. / A.B. Recipients**

**Fall 2022 – Spring 2023 – Summer 2023**

Margaret Burdell  
Quentin Campbell  
Grace Cantele  
Evan Eastabrooks  
Jeremiah Funke  
Davis Hardin  
Raine Morrison  
Natalie Moss  
Ari Schulman  
Oskar Zuchner

## **External Awards**

**American Institute of Professional Geologists Georgia  
Section Scholarship**

Davis Hardin

**American Institute of Professional Geologists National  
Scholarship**

Grace Cantele

**Marshall Scholarship**

Natalie Moss

## Senior Theses/Research and/or CURO

**Margaret Burdell** and Walker, S.E. Live-dead fidelity: The modern death assemblage of the Antarctic Scallop is biased by sea-ice state. *Geological Society of America Abstracts with Programs*. Vol. 54, No. 5 doi: 10.1130/abs/2022AM-377462 Fall 2022.

**Grace E. Cantele.** Determining mercury concentration in minerals, rocks, and soils at Mt Etna, Italy, advised by Mattia Pistone. CURO symposium.

**Sophie Forbes.** Shifting Patterns of Environmental Use on Ossabaw Island, Georgia, USA: A Sclerochronological Time Sequence, advised by Victor Thompson, CURO symposium.

**Jeremiah Funke.** Magmatic sulphide systems in the deep crust of the Ivrea-Verbano Zone, Italy, advised by Mattia Pistone. CURO symposium.

**Davis Hardin.** Crater Saturation of Asteroid 4 Vesta, advised by Christian Klimczak. CURO symposium

**Kade McClain.** A Grain Size Analysis of Legacy and Paleo Sediment; Implications on the Geomorphology and Hydrology of the Region, advised by Paul Schroeder. CURO symposium.

**Natalie Moss.** Warfare and Isotopic Analysis as an Indicator of Violence-Construction of an Osteobiography, advised by Suzanne Pilaar Birch. CURO symposium.

**Natalie Moss.** Warfare at Kaman-Kalehoyuk, Turkey: Isotopic Analysis of Burned Remains-Preliminary Data and Future Directions, advised by Suzanne Pilaar Birch. CURO symposium.

**Jay Mrazek.** Rock-Water Interactions in Tumbling Rock Cave, Alabama, USA: Geochemical Analysis of an Underground Stream System, advised by Todd Rasmussen. CURO symposium.

**Jay Mrazek, Garing, C., Milewski, A., and Rasmussen, T.** Rock-water interactions in Tumbling Rock Cave, Alabama, USA: Geochemical analysis of an underground stream system, AGU fall Meeting 2022 (*Poster*)

**Oskar Zuchner, Margaret Burdell, and Walker, S.** “Frozen dinners” in sea ice as guides to Antarctic Scallop populations and their fossil record. Geological Society of America, Abstracts with Programs. *Geological Society of America Abstracts with Programs*. Vol. 54, No. 5 doi: 10.1130/abs/2022AM-377147 Fall 2022

**Oskar Zuchner.** Scallops on Ice: Is the Fossil Record of the Antarctic Scallop Biased by Sea Ice Conditions? advised by S.E. Walker. Senior thesis research, CURO Symposium.

## **Internal UGA Undergraduate Awards**

### **CURO Research Award**

Jeremiah Funke-Summer 2022

Oskar Zuchner-Fall 2022

Grace Cantele-Spring 2023

## **Undergraduate Department Awards**

### **Outstanding Undergraduate Students 2022-2023**

Margaret Burdell  
Davis Hardin  
Natalie Moss  
Oskar Zuchner

### **Outstanding Field Camp Student 2022**

Jeremiah Funke - Summer 2022

### **Graduate Student Accolades 2022 Summer and Fall Graduates**

**M.S.**

**Elliot Blake.** Controls on the occurrence of vertebrate tracks in the Jurassic Gypsum Spring and Sundance Formations, Bighorn Basin, U.S.A. M.S., advised by Steven Holland.

**Michael Cuilik.** High-resolution mapping of lithospheric discontinuities between the eastern continental margin and continental interior of the North American continent using PKIKP as a virtual seismic source. M.S., advised by Rob Hawman.

**Parker Whitley.** Barrier Island's Shallow Coastal Aquifer response to Storms and Tidal Fluctuations: Case of Sapelo Island. M.S., advised by Charlotte Garing.



## 2023 Spring Graduates

### M.S.

**Holden Aronson.** Determining if and how land use disturbance affects long-term soil erosion rates in the broad basin of the southern Appalachian Piedmont, using *in situ*-produced  $^{10}\text{Be}$  cosmogenic nuclide isotopes in fluvial quartz grains. M.S., advised by Paul Schroeder.

**Sydney Briggs.** Investigating the Topographic Undulations Along Lava Channels on Venus. M.S., advised by Christian Klimczak.

**Laura Hanawalt.** P-Wave Reflectivity of the Crust and Upper Mantle Beneath the Central and Eastern U.S.: Implications for Support of Mountain Topography and a New Criterion for Mapping the Base of the Continental Lithosphere. M.S., advised by Rob Hawman.

### Ph.D.

**Jupiter Cheng.** Origin and Growth of Fractures on Low-Gravity Bodies: Insights From 4 Vesta, 1 Ceres, and Earth. Ph.D., advised by Christian Klimczak.

### Journal Publications or Technical Reports

**Cheng, H.C.J.,** and C. Klimczak. 2022. Structural relationships in and around the Rheasilvia basin on Vesta. *Journal of Structural Geology*, v. 161, p. 104677

**Cheng, H.C.J.**, and C. Klimczak. 2022. Large-scale troughs on Asteroid 4 Vesta accommodate opening-mode displacement. *Journal of Geophysical Research: Planets*, v. 127, p. e2021JE007130

**Richards, D.F.**, A.M. Milewski, and B. Gregory. 2022. The use of airborne LiDAR in assessing coastal erosion in the southeastern USA. *Journal of Geographical Research*, v. 5(3), p. 22–40

Milewski, A., B. Gregory, and **D.F. Richards**. 2022. Develop a method to inventory and monitor the spatial extent of salt marsh habitats at coastal park areas in the southeastern US using remote sensing data. South Atlantic Coast Inventory and Monitoring Network. National Park Service

Holland, S M., K.M. Loughney, and **M. Cone**. 2023. Preferential preservation of low-elevation biotas in the nonmarine fossil record. *Geology*, v. 51(1), p. 111–114

Malasek, T., E. Barding, M.J. Bender, **A. Bonham**, A.J. Mead, Z. Pilgrim, P. Powers, J.R. Patterson, and D. Patterson. in press. Evaluating the fidelity of enamel isotopic data and environmental variation in paleoecological studies: a case study in wild, known-aged, modern white-tailed deer (*Odocoileus virginianus*). *Palaeogeography, Palaeoclimatology, Palaeoecology*

## Presentations at Professional Meetings

**Adeyemi O.**, and P.A. Schroeder. 2023. Mineralogy of per- and poly-fluoroalkyl substances (PFAS) contaminated soils from agricultural fields in Society Hill, South Carolina. Geological Society of America Abstracts with Program, v. 55(2), paper 47-4

**Aronson, H.**, P. Schroeder, A. Darling, and D.S. Leigh. 2023. Determining if and how land use disturbances affect millennial scale erosion rate in the Appalachian piedmont using  $^{10}\text{Be}$  cosmogenic nuclides. Geological Society of America Abstracts with Program v. 54(5), paper 29-6

Beatty, W.L., N.E. Ruhland, S.E. Davitt, **S.I. Khatri**, and A.J. Schroeder, 2022, Megaflora fossils from a dinosaur excavation site in the Late Cretaceous Hell Creek Formation of Western North Dakota. Geological Society of America Abstracts with Programs, vol. 54(5), paper 63-10

**Bonham, A.E.**, and S.E. Pilaar Birch. 2002. Seasonal variation of  $d^{18}\text{O}_{\text{carb}}$  in *O. virginianus* tooth enamel at the onset of the Little Ice Age in Georgia: perspectives from two late pre-contact sites. American Geophysical Union Fall Meeting, abstract 1199694

**Bonham, A.E.**, and S.E. Pilaar Birch. 2002. Sub-annual variation of stable oxygen isotopes in *O. virginianus* tooth enamel as a proxy for seasonality: a case study from Singer-Moye mounds, Georgia. Geological Society of America Abstracts with Program v. 54(5), paper 169-34

**Briggs, S.A.**, C. Klimczak, and P.B. James. 2023. Topographic changes on the surface of Venus observed along lava channels. 54th Lunar and Planetary Science Conference

**Cheng, H.C.J.**, 2022. Simulated structural geology fieldwork in classrooms to bridge the gap between knowledge and the field. American Geophysical Union Fall Meeting, abstract 1064954

**Cheng, H.C.J.**, and C. Klimczak. 2023. Structure and tectonics forming Divalia Fossae on Vesta. 28<sup>th</sup> Meeting of the NSAS Small Bodies Assessment Group. *Invited talk*

**Cheng, H.C.J.**, and C. Klimczak. 2023. Structure and tectonics of the Divalia Fossae on 4 Vesta. Lunar and Planetary Science Conference, vol. 54, abstract 1015

**Cheng, H.C.J.**, C. Klimczak, and **J. Mrazek**, 2022. Displacement length scaling of the mixed- mode Koa'e Fault Zone, Hawaii, HI. American Geophysical Union Fall Meeting, abstract 1063059

Cole, S.R., **C.J. Orchard**, and M.J. Hopkins. 2022. How ubiquitous is the Lilliput Effect? A global, cross-clade investigation of body size over the Late Ordovician mass extinction. Geological Society of America Abstracts with Programs, v. 54(5), p. 262-7

**Cone, M.**, and S. Holland. 2022. Community composition and taphonomy of fossil wood in valley fill fluvial channels of the Pennsylvanian Breathitt Group of eastern Kentucky. Geological Society of America Abstracts with Programs, v. 54(5), p.63-21

**Daniel, C.**, C. Jorgenson, A. Musu, R. Corsaro, M. Stuckelgerger, L. Caricchi, and M. Pistone, 2022. 3D tomographic analysis of volcanic tephra from the 2020–2022 activity of Mt. Etna: insights into magma porosity and crystallinity, and eruption style and intensity. American Geophysical Union Fall Meeting, abstract 1134842

**Davidson, L.J.**, and A.M. Milewski. 2023. Quantifying large-scale hydrologic processes in ungauged basins: remote sensing applications in Souss-Massa basin, Morocco. Georgia Water Resources Conference, Poster 22

**Davidson, L.J.**, and A.M. Milewski. 2023. Remote sensing applications within ephemeral channels: quantifying temporal and spatial flow patterns within the Souss-Massa basin, Morocco. American Geophysical Union Fall Meeting, abstract 1159604

**Demir, Hüseyin** and Paul A. Schroeder (2022) History of Sile clays: More detail provenance perspective. 17th IAPEA, International Clay Conference, Istanbul, Turkiye. Abstracts with program. <https://www.clays.org/international-clay-conference>.

**Donaldson, Y.**, A.M. Milewski, A. Parsekian, **D.F. Richards**, M. Elliot, D. Bustos, and P. Martinez. 2022. Near-surface geophysics to model groundwater flow and recharge of inland freshwater lens in arid southwest, US. Geological Society of America Abstracts with Program, vol. 54(5), paper 203-8

**Donaldson, Y.**, **D.F. Richards**, **S. Becker**, A.M. Milewski, A. Parsekian, M. Elliot, D. Bustos, and P. Martinez. 2022. Hydrogeological investigation of inland freshwater lens development and its impact on dune migration. National Association of Black Geoscientists Conference

Estanus, A., C. Oti, N. Urday, M. Dwanah, **Y.Y. Donaldson**, K. Keating, J.L. Hayes, G. Mount, A. Tarzona, T. Robinson, J. Estrada, C.C. Cano, R.A. DiBiase, and J. Del Vecchio. 2022. Imaging the subsurface of the critical zone in Garner Run and Bear Meadows using electrical resistivity tomography. American Geophysical Union Fall Meeting

Fryar, A., A.M. Milewski, N. Laftouhi, A. Saad, M. Allen, H. Chaney, **L. Davidson**, M. Gee, M. Proteau, and **D.F. Richards**. 2022. Dryland recharge assessment in Morocco (DREAM): cross-cultural education in hydrology and water resources for U.S. students: Geological Society of America Abstracts with Programs, vol. 54(5), p. 248-8

Lee, S., C. Kornegay, K. Keating, J.L. Haye, G. Mount, A. Tarzona, **Y.Y. Donaldson**, T. Robinson, J. Estrada, C.C. Cano, R.A. DiBiase, J. Del Vecchio, and S. Charles. 2022. Observations from seismic refraction survey of solifluction lobes at Garner Run and Bear Meadows, Pennsylvania. American Geophysical Union Fall Meeting

**Loveless, S.R.**, L.R. McCullough, C. Klimczak, K.T. Crane, and P.K. Byrne. 2023. Geomorphology of Mercury's shortening structures shows no grouping into categories. Mercury Exploration Assessment Group Meeting, abstract 6028

**Loveless, S.R.**, L.R. McCullough, C. Klimczak, K.T. Crane, and P.K. Byrne. 2023. Geomorphology of shortening structures on Mercury depicts no grouping into categories. 54<sup>th</sup> Lunar and Planetary Science Conference, abstract 1695

Malayil, A.M., C. Ntim, J. Del Vecchio, D.J. Jacque, T. Robinson, K. Keating, J.L. Hayes, G. Mount, A. Tarzona, **Y.Y. Donaldson**, J. Estrada, C.C. Cano, and R.A. DiBiase. 2022. Understanding the subsurface of Garner Run and Bear Meadows through the eyes of ground penetrating radar. American Geophysical Union Fall Meeting

Milewski, A.M., B. Gregory, S. Cooper, **D.F. Richards**, **F. Zowam**, **Y. Donaldson**, **L. Davidson**, and **J. Mrazek**. 2022. Evaluation of remote sensing-based approaches for salt marsh monitoring. American Geophysical Union Fall Meeting

Milewski, A.M., **D.F. Richards**, **L.J. Davidson**, J. Renner, and S. White. 2023. Surficial aquifer analysis at the Mission Mine Site in Georgia. Georgia Water Resources Conference, talk 4.5.6

**Richards, D.F.**, A.M. Milewski, J.F. Renner, S. White, and **F. Zowam**. 2023. Wetland monitoring change detection of the southeastern United States. Georgia Water Resources Conference

**Richards, D.F.**, and A.M. Milewski. 2022. Coastal dryland subsidence detection using interferometric synthetic aperture radar (InSAR). American Geophysical Union Fall Meeting

Rogers, E.R., M.C. Palucos, A.M. Morgan, R.A. Craddock, **E. Benyshek**, and **D.F. Richards**. 2023. Reconstructing basaltic sediment transport on Mars using terrestrial analog. Lunar and Planetary Science Conference

**Steiner, Peter**, Schroeder, Paul, Markewitz, Daniel and Thompson, Aaron. (2022) Red Maple (*Acer Rubrum*) Imparts Structural Changes to Soil Clay Minerals Not Observed in Soils with Loblolly Pine (*Pinus Taeda*) Geological Society of America Abstracts with Programs. Vol 54, No. 5, 2022 doi: 10.1130/abs/2022AM-380962

**Zowam, F.**, A.M. Milewski, and **D.F. Richards**. 2022. A satellite-based approach for quantifying terrestrial water cycle intensity (WCI) and evaluating its impact on groundwater recharge potential across the contiguous USA. American Geophysical Union Fall Meeting, abstract 1176186

## External Funding

**Oluwaseun Adeyemi:** NE/SE GSA travel grant, Clay Minerals Society travel grant

**Holden Aronson:** GSA travel grant

**Alexandra Bonham:** GSA Graduate Student Research Grant, GSA travel grant

**Jupiter Cheng:** NASA Small Bodies Assessment Group travel grant, AGU travel grant

**Marjie Cone:** SEPM Student Research Grant, GSA Graduate Student Research Grant, GSA Shlemon Meeting Award, GSA student travel grant

**Lea Davidson:** GSA Graduate Student Research Grant, AWG Takken Travel Grant

**Yonesha Donaldson:** GSA travel grant

**Samantha Khatri:** SEPM Student Research Grant

**Stephen Loveless:** NASA JPL travel grant for Mars InSight Seers

**Cade Orchard:** SEPM Student Travel Grant, GSA Shlemon Meeting Award, SEPM Student Research Grant

**David Richards:** GSA Graduate Student Research Grant, GSA travel grant



## **Recognitions**

**Jupiter Cheng:** Senior Student Advisory Member, Geological Society of America Planetary Geology Division

**Stephen Loveless:** Accepted as participant to NASA's Mars InSight mission

## **Internal UGA Geology Funding**

### **Miriam Watts-Wheeler Research Scholarships Fall 2022 • Spring 2023**

Tracy Chukwuma  
Carly Daniel  
Lea Davidson  
Kaitlyn Hulsey  
Samantha Khatri  
Sean Oakey  
Olajide Oladipo  
Cade Orchard

**Miriam Watts-Wheeler Travel Scholarships  
Fall 2022 • Spring 2023**

Oluwaseun Adeyemi  
Holden Aronson  
Alexandra Bonham  
Sydney Briggs  
Jupiter Cheng  
Marjie Cone  
Carly Daniel  
Lea Davidson  
Yannie Donaldson  
Stevie Loveless  
Cade Orchard  
David Richards  
Fabian Zowam

**Gilles and Bernadette Allard Geology Award 2022-2023**

Abubakar Aliyu

**Geology Department Faculty Meeting Representative  
2022-2023**

Lea Davidson

**Outstanding Teaching Assistant Award  
2022-2023**

Yannie Donaldson  
Laura Hanawalt

**Outstanding Graduate Students of the Year 2022-2023**

Holden Aronson, M.S.  
Jupiter Cheng, Ph.D.

**A.A.P.G. International Barrel Award Team \***

Oluwaseun Adeyemi  
Abubakar Aliyu

Holden Aronson  
Grace Cantele  
Fabian Zowam

**\*\*\*Special thanks to:**

Peter Lanzarone: BP  
Devon Verellen: Chevron

## **Alumni Accolades**

### **Outstanding Young Alumni Award**

Pedro Monarrez, Ph.D. 2019

### **Distinguished Alumni Award**

Zach Hall, M.S. 1997

## **New Endowments**

John and Barbara Dowd Professorship in Hydrology Fund

Doug Dvoracek IFP Scholarship Fund

Skip and Cris Forsthoff Undergraduate Research and Field School Fund

David Emory Stooksbury Endowed Scholarship in Geology

Paul and Loretha Thiele Graduate Fellowship Fund

## **Faculty Accolades**

### **Professor of the Year**

Dr. Rob Hawman

### **Teacher of the Year**

Dr. Doug Crowe

### **Shellebarger Professorship**

Dr. Sally E. Walker

### **First-Year Odyssey Teaching Award**

Dr. Mattia Pistone

### **M.G. Michael Award**

Dr. Mattia Pistone

### **Lilly Teaching Fellowship**

Dr. Mattia Pistone

## New/Renewed Faculty Grants

**Dr. Charlotte Garing:** Co-PI. GA Office of Planning & Budget via ASU, Resilient and Sustainable Water-Resources Development Using Deep Groundwater in the Lower Flint River Basin.

**Dr. Steve Holland:** PI. Collaborative research: conference: stratigraphic paleobiology field conference. National Science Foundation.

**Dr. Adam Milewski:** PI. Resilient and Sustainable Water-Resources Development Using Deep Groundwater in the Lower Flint River Basin, (2022-2027).

**Dr. Adam Milewski:** Co-PI. Risk-Informed, Performance-Based Evaluation of Local and Regional Surface and Groundwater Hydrology using Alternative Conceptual Models, Chemours, (2021-2024)

**Dr. Mattia Pistone:** PI. DE BELLO VULCANICO or The Volcanic War: Forecasting Gas Release versus Retention in Magmas prior to Volcanic Eruptions, UGA Sarah H. Moss Fellowship.

**Dr. Mattia Pistone:** PI. DIVE: Drilling the Ivrea-Verbano zone – Phase 1: Drilling into the pre-Permian mafic and felsic lower crust, International Continental Drilling Program (number 04-2020).

**Dr. Mattia Pistone:** Co-PI. Tracking Mercury Pollution Sources: Developing an Analytical Method for Measuring Stable Mercury Isotopes in Environmental and Human Biological Samples, Teaming for Interdisciplinary Research Pre-Seed Program, The University of Georgia, US.

**Dr. Mattia Pistone:** P.I. Flow or blow? Understanding the physics of gas accumulation leading to explosive volcanic eruptions through experiential learning in lab and class with a gas pycnometer, UGA Learning Technologies Grant, Role:

**Dr. Paul A. Schroeder:** PI. Travel support for students and early career scientists to The Clay Minerals Society Conference. National Science Foundation., EAS-2224821.

**Dr. Paul A. Schroeder:** PI. Mineralogy and cation exchange capacity of F-Area aquifer., Battelle Savannah River Alliance, LLC.

**Dr. Sally E. Walker,** PI. Collaborative Research: The Antarctic Scallop as Key to Paleoenvironments and Sea-Ice Conditions: Understanding the Modern to Predict the Past. National Science Foundation.

## **Staff Accolades**

*A Group of High Performing Individuals*

Ashley Arnold  
Julie Cox  
Michael Durham  
Shay Nash

## **Recognized as UGA's Top 100 Student Employees of the Year**

Roman Dzikowski  
Maddie Hurd

## **Recognition of Geology Club**

*2022-2023 Officers*

Grace Cantele - President  
Jay Mrazek - Vice President  
Natalie Moss - Social Media Coordinator  
Oskar Zuchner - Treasurer  
Sierra Wermuth - Outreach Coordinator  
Roman Dzikowski - Trip Coordinator