

# The TECHtonic

2023 Newsletter  
Department of Geosciences



Department  
of Geosciences

# WELCOME TO THE TECHTONIC!



## TABLE OF CONTENTS

- 1 Museum Updates
- 2 Welcome Dr. Willis
- 3 Alumni News
- 4 Thank You, Tom Burbey
- 5 Patricia Dove Receives IMA Medal
- 6 Faculty and Staff News
- 8 In Memory of Jim Craig
- 9 Student News & Awards
- 11 Welcome Dr. Allen
- 12 The Museum Piece
- 13 Thank you to our donors!

Welcome to the 2023 issue of the TECHtonic!

The past year has been one of further milestones for the department. We continue to grow in all respects. We've added new faculty members (see the articles on Drs. Allen and Naser in this issue). Our graduate student numbers stand at 69, the highest number in at least 15 years. Our sponsored research expenditures have nearly tripled in three years, from \$1.7 M in 2019 to more than \$5 M today. And our faculty continue to win major awards, including — hot off the press! — two more National Academy of Sciences members who were elected this year, Bob Bodnar and Shuhai Xiao, who join Trish Dove as the second and third members of our department with that high honor. (Stay tuned for a fuller account in the next newsletter.)

But the metric I'm most pleased about is our enrollment of undergraduate majors, which has nearly doubled in the past five years, from 66 in 2018 to nearly 130 today. Educating undergraduates and giving them the skills to address the world's challenges are the *raison d'être* of every great university — without undergraduates, we wouldn't exist. The growing strength of our undergraduate program is a testament to the value of our curriculum and the dedication of our faculty and staff in communicating that value. So many of the world's major challenges are geoscience challenges — energy security, resilience to climate change, natural hazards, water resources — the list goes on. Our students go on to make a difference in all of those areas and more, from private industry to public service.

Enjoy this issue of the TECHtonic. I'd especially like to thank those of you who, through your enormous generosity on Giving Day, saved me from receiving a pie in the face (see p. 13). I hope to avoid a similar fate on Giving Day 2024!

Thank you for all you do, and Go (Geo)Hokies!

W. Steven Holbrook, Head of Department

**ON THE COVER** | The 3D-printed life size *Tyrannosaurus Rex* skull known as "VT Rex." VT Rex lives in the Museum of Geosciences in Derring Hall, and loves visitors! See page 1 for more information.

**SUPPORT GEOSCIENCES:  
WHAT TO SUPPORT AND HOW TO GIVE.**

See back cover.

# MUSEUM OF GEOSCIENCES NEWS

On August 9, 2022, the Museum mounted a 3D-printed life-sized *Tyrannosaurus rex* skull (see cover). Volunteers and researchers from the Burke Museum at the University of Washington discovered the original specimen, the Tufts-Love T.rex (UWBM 99000) in Montana in 2015. The Museum of Geosciences is one of only a few institutions with a 3D-printed replica of this individual *Tyrannosaurus rex* specimen. In October, the skull got its Virginia Tech inspired nickname - VT Rex - from the Museum's Twitter poll, beating out proposed names of "Tech Rex" and "Hokie Rex."



The VT Rex!



Students engage with fossils at the Fossil Unwrapping Party. Photo by VT Science

GeoFair also returned after a two-year hiatus in October of 2022. Many visitors came to purchase minerals, rocks, and fossil specimens. Students from the Geology Club along with additional volunteers assisted the Museum with sales and volunteering at fun, interactive stations: Pet Rocks, Fossil Dig, Solar System Station with Omniglobe, and Augmented Reality Sandbox.



The 2022 Geo-Fair

# WELCOME DR. WILLIS



**Mike Willis in Nuuk, Greenland**

In August of 2022, the Department of Geosciences welcomed Dr. Mike Willis to Blacksburg as an Associate Professor of Cryospheric Science, Geodesy, and Remote Sensing!

Dr. Willis grew up traversing the Scottish landscape on weekend outings with his family which inspired his fascination with landscapes, how they change, and how humans interact with them. While studying physical geography at the University of Glasgow, he conducted fieldwork at Svalbard for his undergraduate thesis. Hearing glaciers calve in the Arctic Circle as water-retardant tents caught fire crystallized Dr. Willis' passion for cryospheric research.

Dr. Willis finished his B.S. in Geography in the spring of 1997 and began working for the Byrd Polar Research Center at the Ohio State University where he participated in 8 Antarctic field seasons and completed a M.S. in Geological Sciences (2000), a Ph.D. in Geological Sciences (2008), and a postdoctoral research fellowship (2009). He then began a postdoctoral research fellowship with the Department of Earth and Atmospheric Sciences at

Cornell University until joining the research faculty at Cornell and taking a position as an Adjunct Assistant Research Professor in the Department of Geological Sciences at the University of North Carolina, Chapel Hill in 2012. In 2017, Dr. Willis joined the Department of Geological Sciences at the University of Colorado Boulder as an Assistant Professor and Research Affiliate with the Cooperative Institute for Research in Environmental Sciences (CIRES).

Now at Virginia Tech, Dr. Willis plans to offer courses on the cryosphere, geodesy, and remote sensing image processing. His research interests include the intersection between topography and society, the contribution of land ice to sea level change, and quantifying the location of the surface of the Earth. Dr. Willis is a co-investigator on the NASA Sea Level Change Team and is currently involved in an interdisciplinary study of environmental hazards in Greenland with his wife, Dr. Jessica Rich, who joined the Center for Coastal Studies at VT this fall as a Research Assistant Professor.

When not in the office, Drs. Willis and Rich enjoy watching films together, spending time with friends, and exploring Blacksburg on foot. They also love to travel and visit with family in Pittsburgh.

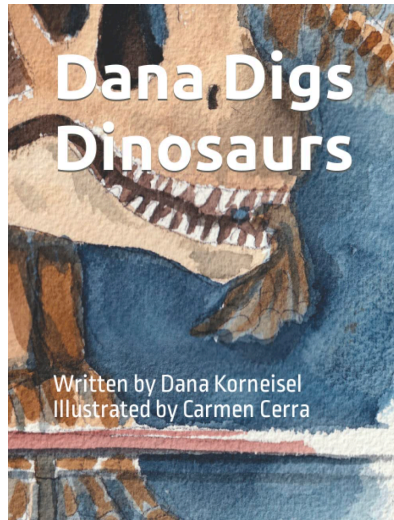
# ALUMNI NEWS

**Scott Evans**, (post-doc, 2021 - 2022) began a tenure-track position at Florida State University in January 2023. He and Professor **Shuhai Xiao** published a paper in the Proceedings of the National Academy of Sciences (PNAS) that linked the Ediacaran mass extinction (~550 Ma) to decreased global oxygen availability.

Scott Evans



In February of this year, **Dana Korneisel** (MS 2019) published a children's book called "Book One: Meet Dana" in her new series "Dana Digs Dinosaurs". The series explores how Korneisel became interested in paleontology and her interest in fossils as a child. The book is illustrated by Carmen Cerra and is recommended for students in preschool to fourth grade.



**Qing Tang**, (PhD 2018), began a faculty position at Nanjing University in Fall 2022

**Carrie Tyler** (PhD 2012) moved to the University of Nevada, Las Vegas starting Fall 2022.

**Chris Griffin** (PhD 2020), Associate Professor **Sterling Nesbitt**, and **Brenen Wynd** (PhD 2022) were among the co-authors of a Paper in *Nature* on the discovery of Africa's oldest known dinosaur.

**Ali Namandayeh**, (PhD 2022) was awarded the PRISM Baker Fellowship from Stanford University. The fellowship is paying for part of Ali's salary and benefits at Stanford, where he began a postdoc in September 2022.

This year's list of Distinguished Lectures for the Mineralogical Society of America includes two department alums: **Matt Steele-MacInnis** (PhD 2013) from the University of Alberta and **Jay Thomas** (PhD 2003) from Syracuse University. Both were PhD students of Professor **Bob Bodnar**.

Former State Geologist **David Spears** (MS 1983) received the Anna Jonas Award for his career contributions towards understanding Virginia's geology. The award was presented at the Virginia Geological Field Conference on November 11, 2022.

**Cody Mason** (PhD 2017) and his advisor, Associate Professor **Brian Romans**, published a study in *Nature Communications* on zircons which formed during the Andean orogenesis and are now found as detrital grains in the Amazon River Fan.

# THANK YOU, TOM BURBEY!

By: Maddy Schreiber

Tom Burbey



**Professor Tom Burbey** retired in August 2022 after 26 years in the Department of Geosciences and recently was awarded with the honor of Emeritus Professor of Hydrogeology. Tom joined Virginia Tech in 1996 after 12 years as a hydrologist at the U.S. Geological Survey in Carson City, NV. He earned MS and PhD degrees in Hydrology/Hydrogeology at the University of Nevada, Reno and a BS degree in Geology from the University of Wisconsin-Madison.

Tom is internationally recognized for his expertise in aquifer mechanics and deformation, land subsidence, numerical modeling, groundwater flow in fractured rocks, aquifer response to carbon sequestration and other topics. In 2010, he was selected as one of 17 international members of the UNESCO International Initiative on Land Subsidence and was also awarded a Fulbright Scholarship to study fracture flow in Rennes France. More recently, Tom was appointed a Visiting Professor at National Cheng Kung University during his research leave in Taiwan in 2020.

Tom served as a Program Manager (2015-2017) for the NSF Hydrologic Sciences Program, a prestigious position that also provides tremendous service to the hydrology community. Tom also served as an Associate Editor for several high impact journals in hydrogeology, including Ground Water, Journal of Hydrology, and Hydrogeology Journal and served on

the Board of Directors, Environmental & Engineering Geosciences. He also currently is the Editor for Remote Sensing in Earth Systems Science–Solid Earth.

During his career, Tom published 75 peer-reviewed journal articles, and close to 20 conference proceedings, with students and colleagues. He and his students gave countless presentations at conferences, with Tom being an invited speaker at close to 40, and keynote speaker at 5 international conferences. He secured funding to support his research group from a wide range of sources, including NSF, DOE/NETL, NASA, Office of Surface Mining and the Virginia DEQ.

While at Virginia Tech, Tom advised 20 grad students, all of whom have gone onto successful careers in academia, federal and state agencies, and environmental consulting. He taught courses in groundwater hydrology, oceanography, numerical modeling of groundwater, quantitative hydrogeology and computational geosciences to students in geosciences, engineering and other majors at VT. During his time at VT, Tom contributed substantial service to the Department of Geosciences, the College of Science and the University. He served as the Associate Department Chair from 2006-2008 and the COSFA Chair from 2005-2007 and the. He also served on the University Athletics Committee and the Oversight and Compliance sub-committee. In 2003, he served as member of Governor Warner's task force for the development of a statewide water policy.

We know that Tom and his wife Ingrid will greatly enjoy their next chapter, as they plan to move to Denver Colorado to be close to one of their daughters and three grandchildren. They also plan to travel extensively during retirement, which includes visiting their other children and grandchildren who live in Richmond and Connecticut.



# DR. PATRICIA DOVE RECEIVES PRESTIGIOUS I.M.A. MEDAL

By Neil Johnson

This past May, the International Mineralogical Association (IMA) announced it was awarding its 2022 Medal of Excellence in Mineralogical Research to **Patricia Dove** for her work as (quoting the citation) “a world leader in the field of mineral reactivity and biomineralogy and a pioneer who has combined key advances and development of new techniques at the atomic level with major insight into large scale processes including the long-term evolution of biomineral systems.”

This medal was first awarded in 2008 and since 2017 has been awarded annually “for scientific excellence and eminence, as represented by long-term outstanding scientific publication in the field of mineralogical sciences. It is to be considered as one of the pre-eminent awards in mineralogical research, and represents a lifetime achievement award. The length of the candidate’s publication list is less significant than the quality of his or her contribution(s). The mineralogical sciences are broadly defined and the candidate need not qualify as a mineralogist. Rather, his or her published record should be related to the mineralogical sciences and should make some outstanding contribution to them. All endeavors are equally suitable for the award: mineralogy, geochemistry, petrology, crystallography, and applied mineralogy. The award shall be made without regard to nationality. Membership in a mineralogical society is not a necessary prerequisite to receive the award.” ([https://mineralogy-ima.org/Medal\\_description.htm](https://mineralogy-ima.org/Medal_description.htm))

The IMA Medal is just the most recent addition to the awards presented to Trish by her peers, which include

those from the Geochemical Society (the F.W. Clarke Medal in 1996), the Mineralogical Society of America (the Dana Medal in 2014) and the U.S. Department of Energy (Best University Research Award in 1999 and 2005). She has also been named as a Fellow in the Mineralogical Society of America (2000), American Geophysical Union (2008) and the Geochemical Society (2010).

With this award, Trish joins a list of mineralogical luminaries including Charles Prewitt (2008), Frank C. Hawthorne (2009), Rod C. Ewing (2015), Emil Makovicky (2017), Gordon E. Brown, Jr. (2018), and Robert Hazen (2021). Of particular note is that both Trish (B.S. 1981, M.S. 1984, working for Don Rimstidt) and Gordon (M.S. 1968, Ph.D. 1970, both working for Jerry Gibbs) are double Hokies. This makes us the only department around the world to have two alums as winners of this prestigious award!

Congratulations Trish!



# FACULTY AND STAFF NEWS

Professor **Nancy Ross** was an invited speaker at the 2022 Goldschmidt Conference. Her talk was entitled "Why Geochemists Need Neutrons" and was part of a pre-meeting workshop entitled "Advanced Neutron Scattering for Earth and Planetary Science".

Associate Professor **Brian Romans** co-authored a paper in *Nature Geoscience* on the role of deltas as major sinks of organic carbon.

Associate Professor **D. Sarah Stamps'** research on the monitoring of the Ol Doinyo Lengai volcano in the East African Rift of Tanzania was discussed in a new book, *Super Volcanoes: What They Reveal about Earth and the Worlds Beyond*, published by W.W. Norton. (2022)

Associate Professor **Ying Zhou's** research on convective flow in the Earth's mantle and its relationship to the Earth's magnetic field was highlighted in the June 23, 2022 issue of the VT News.

Professor **Scott King** has co-authored a paper that models unexpected surface features of Ceres, the largest body in the asteroid belt. The paper in the May 17 issue of *AGU Advances* attributes the heretofore unknown geology of the dwarf planet to radiogenically derived heating.

Professor **Shuhai Xiao** and colleagues published a paper in *Nature* that redefined the origin of *Saccorhytus*, a roughly 535 million-year-old microfossil discovered in rocks in China.

At the American Chemical Society's Fall 2022 meeting a special session was held for Emeritus Professor **Mike Hochella**. This was to honor Mike's numerous contributions in the field of nanogeoscience.

Professor **Bob Bodnar** presented a short course at the Pan-American Current Research on Fluid and Melt Inclusions (PACROFI) Roedder in September 2022.

Professor **Robert Weiss** in his role as the director of the Virginia Tech Center for Coastal Studies is leading research in a study of the source and fate of microplastics in the world's oceans at the Seale Coastal Zone Observatory. This new observatory was funded with a donation by VT alumni Bill and Carol Seale.

Research Scientist **Rachel Reid** gave three 60-min "Skype A Scientist" presentations for 5th grade classrooms in Wentzville, Missouri. As Rachel put it: "Their teacher said they'd been learning about natural disasters recently, so I gave a short presentation about natural hazards and they asked all kinds of awesome questions like "Are earthquakes going to be able to be predicted soon?" and "How do hurricanes get their names?" We rounded out the hour by talking a bit about what I do and how I became a scientist. The students were engaged and excited, making for a really fun experience."



Jim Spotila

Professor **Jim Spotila** was elected a Fellow of the Geological Society of America. Jim was one of only 38 geoscientists elected this year; his citation reads that he was elected "for research and teaching in active tectonics, notably the behavior of continental deformational systems, the interaction of tectonics and surficial processes, and the impact of tectonics on society."

# FACULTY AND STAFF NEWS (COTD)

Advising & Enrollment Manager **April Newcomer** has won the 2021-2022 Outstanding Academic Advisor Award (Professional Advisor category) in the College of Science! April's nomination cited her for having "rare interpersonal skills, a stellar service-oriented mindset toward our students, complete mastery of VT's (sometimes labyrinthine) policies and procedures, support of NACADA core values, unmatched standards of practice, and dedication to mentoring our students toward academic and professional success."

April Newcomer



Congratulations to all of the faculty members who have been promoted or recommended in the past year!

**Susanna Werth** (promotion to tenure-track Assistant Professor)

**Michelle Stocker** (tenure and promotion to Associate Professor)

**Mark Caddick** (promotion to full professor)

**Brian Romans** (promotion to full professor)

Associate Professor **D. Sarah Stamps** has been elected to the inaugural EarthScope Consortium Board of Directors. The Earthscope Consortium is the new structure combining IRIS and UNAVCO, and is responsible for operating substantial instrumentation pools serving both the seismological and geodetic communities.

Associate Professor **Brian Romans** has been selected to participate on International Ocean Discovery Program Expedition 400 to the NW Greenland glaciated margin. The cruise, aboard the scientific drilling vessel *JOIDES Resolution*, will take place August 15 - October 15, 2023.

Assistant Professor **Tina Dura** co-authored an article in *Eos* ("Seismic Sources in the Aleutian Cradle of Tsunamis") that is an engaging and accessible description of how paleoseismology -- that is, the things that the "marsh cats" of Team Dura do -- places crucial constraints on the history of tsunami-generating megathrust earthquakes in a subduction zone.

Professor **Scott King** co-authored a study in *PNAS* using seismic data from the Mars InSIGHT lander to elucidate Mars's interior structure.

Senior Instructor **Neil Johnson** has co-authored a new textbook, *Natural Disasters*, published by W.W. Norton. (2022)

Professor **Tom Burbey**, who retired after the Spring 2022 semester was honored with emeritus status by the Virginia Tech Board of Visitors.

Museum & Collections Manager **Mariah Green** was a panelist for the Field Museum's Black History Month Celebration, *Black in STEM*, held on Feb 21st. The panel is part of the A. Watson Armour III Research Seminar Series.

Professor **Shuhai Xiao** was a co-author (with former post-doc **Scott Evans**) of an article in the November 7, 2022 Proceedings of the National Academy of Sciences (PNAS) that characterizes the first known mass extinction event about 550 million years ago at the end of the Ediacaran Period. The work suggests that this mass extinction was an environmentally controlled event.

# IN MEMORY OF JAMES R. "JIM" CRAIG



Jim Craig on a train in China in 1990

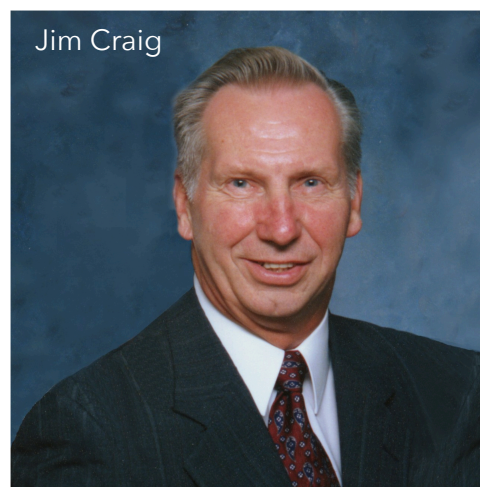
The Department of Geosciences mourns the loss of beloved professor and department chair James R. "Jim" Craig, who passed away on December 23rd, 2022 at the age of 82. Along with his expertise in the geology of mineral deposits, he was known for his work in reflected light petrography (ore microscopy) and perhaps most for his teaching of the fundamentals of resource geology to more than 15,000 introductory students.

Born on February 16, 1940 in Philadelphia, PA, Jim finished his BS from the University of Pennsylvania in 1962, heading to Lehigh University for an MS in 1964 and a Ph.D. in 1965 before heading to the Carnegie Institution of Washington for post-doctoral work. He accepted an assistant professorship at Texas Tech in 1967, then came to Virginia Tech in 1970, where he remained until his 2002 retirement. During his career he published more than 150 scientific papers, including the discovery of a new mineral (Craig, J.R., Carpenter, A.B. (1977) Fletcherite,  $\text{Cu}(\text{Ni},\text{Co})_2\text{S}_4$ , a new thiospinel from the Viburnum Trend (New Lead Belt), Missouri. *Economic Geology*: 72: 480-486.).

Jim was also gifted in the classroom, earning multiple certificates of Teaching Excellence, membership in Virginia Tech's Academy of Teaching Excellence and in 1976, the Sporn Award for Teaching Excellence in freshman classes. He supervised more than 29 thesis and dissertation projects and taught field camp at the departmental field station in Saltville, VA from 1970 to 1974 alongside Geosciences alum Fred Webb. His three textbooks are classics in their fields: *Mineral Chemistry of the Metal Sulfides* (1978, with David J. Vaughan), *Resources of the Earth* (with Vaughan and

Brian Skinner, 1st edition, 1988, subsequent editions in 1996, 2001 and 2010), and *Ore Microscopy and Ore Petrography* (with Vaughan, 1st edition, 1981, 2nd 1994). With departmental colleagues and textbook authors like Don Bloss (optical crystallography) and Bob Tracy (transmitted light petrography), it is no stretch to say that a significant fraction of geoscientists in the US and around the world owe their training on petrographic microscopes in part to Virginia Tech.

Jim's record of service is also notable, having served as Department Chair from 1990 to 1994 (recruiting Bob Bodnar and Mike Hochella as faculty in the process), as a Mineralogical Society of America councillor from 1983 through 1985, as the US representative to the International Mineralogical Association Commission on Ore Mineralogy from 1977 to 2002, and as the chairman of the Virginia Waste Management Board from 1988 to 1992. Upon his retirement, he was named SCHEV's Outstanding Faculty Member for the State of Virginia by then governor Mark Warner.



# GSRS:

## Geoscience Student Research Symposium

The 28<sup>th</sup> edition of The Geoscience Student Research Symposium (GSRS) was held on February 23<sup>rd</sup> and 24<sup>th</sup> at Kelly Hall. The event was kicked off with an opening speech by Department Head **Steve Holbrook**, and the Graduate Program Director, **Brian Romans**, delivered the closing speech. The symposium concluded with a banquet in the Museum of Geosciences, during which Associate Department Head **Maddy Schreiber** presented prizes for the best presentations and science communication efforts. Thank you to our donors and everyone who made this event possible!



Undergraduate students presenting their work during the GSRS poster sessions which were well attended across both days.

Cissy Ming (MS) observing the artwork on display for our new addition to the symposium. GS(art)S is a geoscience-themed art exhibition featuring hand-made pieces from graduate and undergraduate students.



## Student & Postdoc News

Postdoc **Davide Foffa** (first author) and Associate Professor **Sterling Nesbitt** published an article in *Nature* entitled, "Scleromochlus and the early evolution of Pterosauroomorpha." Many media outlets, such as Science News and The Guardian, have reported on their findings.

PhD student **Asenath Kwagalakwe** and Associate Professor **D. Sarah Stamps** completed a successful field campaign deploying GNSS stations in Uganda as part of a large NSF-supported project involving seven institutions, but led by VT, studying rifting in the Albertine-Rhino graben.

# STUDENT AWARDS

PhD student **Alix Ehlers** (Associate Professor **Mark Caddick**), won a best student presentation award from Rolls-Royce during their annual review of the Virginia Tech University Technology Center.

PhD student **Ben Eppinger** (Professor Steve Holbrook) was awarded an NSF Graduate Research Fellowship, a highly competitive award that provides three years of financial support. PhD student **Cece Wood** (Professor **Madeline Schreiber** and Associate Professor **Marc Michel**) received an Honorable Mention in the same competition.

Ph.D. student **Ethan Conley** (Associate Professor **Ryan Pollyea**) won best student poster for his presentation at Virginia Tech Hazards Research Day.

PhD students **Mohammad Khorrami**, **Leonard Ohenhen** (Associate Professor **Manoochehr Shirzaei**), and **Asenath Kwagalakwe** (Associate Professor **D. Sarah Stamps**), were awarded scholarships from the Society of Exploration Geophysicists.

PhD student **Asenath Kwagalakwe** (Associate Professor **D. Sarah Stamps**) was appointed as one of two student representatives on the AGU Geodesy Executive Committee. She will serve a two(+) -year appointment running until the end of 2024.

PhD student **Priya Bose** (Assistant Professor **Megan Duncan** and Professor **Scott King**) won a NASA SCoPE AGU Affiliate Award which contributed to her travels to the Fall AGU meeting.

PhD student **Asenath Kwagalakwe** (Associate Professor **D. Sarah Stamps**) was appointed as one of two student representatives on the AGU Geodesy Executive Committee. She will serve a two(+) -year appointment running until the end of 2024.

PhD student **Faisal Adams** (Associate Professor **Marc Michel**) and MS student **Brenna Knight** (Professor **Patricia Dove**) received Best Poster Awards at the recent Macromolecular Innovations Institute conference. Industry sponsors selected 10 recipients from the 90 posters presented over three days. Faisal presented "Controlled synthesis of imogolite nanotubes: A promising material for novel polymer nanocomposites," and Brenna presented "Examining the role of sulfate functionality in glycomaterials on calcite nucleation through tailored chitosan derivatives."



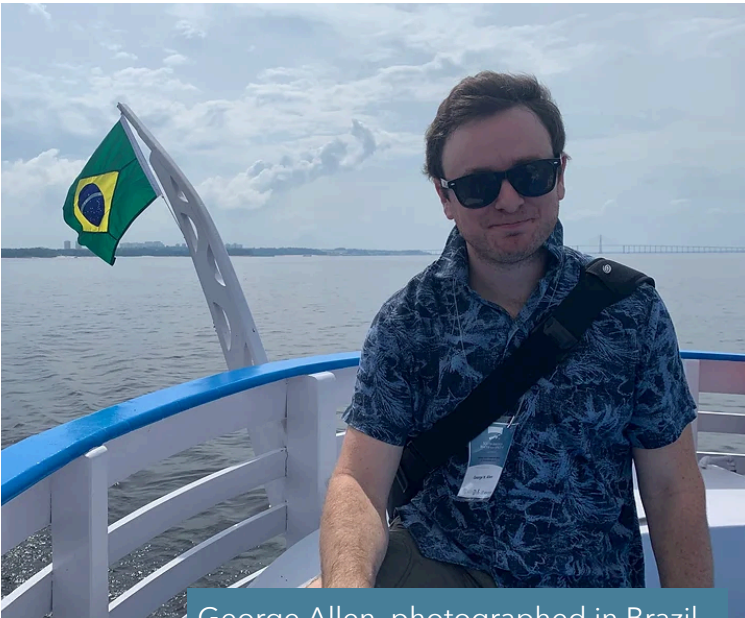
MS student **Cissy Ming** (Professor **Madeline Schreiber**) was awarded the Roy J. Shlemon Scholarship from the Geological Society of America (GSA), which includes a \$3,470 grant from the GSA Environmental and Engineering Geology Division. Cissy is the first VT student to win this scholarship. Cissy was also awarded a Virginia Water Resources Research Center's (VWRRC) Student Competitive Grant for her proposal "Geochemical drivers of effective manganese mitigation by hypolimnetic oxygenation in drinking water reservoirs". And if that wasn't enough, she was also named one of the two national winners of the American Geosciences Institute's 2022 Harriet Evelyn Wallace Scholarship.



Ph.D. student **Yezi Yang** (Associate Professor **Ben Gill**) was awarded a Commonwealth of Virginia Engineering and Science (COVES) Policy Fellowship, a 12-week program of the Virginia Academy of Science, Engineering and Medicine (VASEM). Graduate student and postdoctoral fellows serve as science advisors in a variety of possible placements, including legislative offices, executive agencies, or prominent companies and nonprofits in the state of Virginia.

# WELCOME DR. ALLEN

by Neil Johnson



George Allen, photographed in Brazil

The Department of Geosciences is pleased to welcome George Allen to the faculty as an Assistant Professor of Hydrology and Remote Sensing, starting in Fall 2022. George comes to us by way of Texas A&M from where he has ported his Global Rivers research group so he could hit the ground here running. Quoting from the group webpage “We study inland waters using satellite data, fieldwork, and computer models. We seek to understand how climate change and land use are altering the global water cycle, in particular river and lake hydrology. With rapid advancements in sensor technology, computing power, and model sophistication, it is an exciting time to be studying freshwater at the global scale.”

George spent his early years near Seattle on Vashon Island in Puget Sound and at age five was inspired to learn all he could about volcanic eruptions by a family trip to Mt. St. Helens. At seven, the family moved to Stanford, California, where he finished high school before moving to UC Davis. While there, his early geologic inspiration was strengthened by a course entitled “The Geology of California” taught by department alum David Osleger (boy, the reach of VT Geosciences is wide and deep, isn’t it!). After finishing his undergraduate studies, George headed

east for graduate work at UNC Chapel Hill (where he overlapped with VT Geosciences alum and current colleague Laura Naser), finishing both Master’s and Ph.D. degrees. He then spent a year on post-doctoral work with the Terrestrial Hydrology Group at the Jet Propulsion Lab at Caltech, before starting at Texas A&M in 2018 as an assistant professor in their Geography Department. In his relatively short but impressive faculty career, he has authored or co-authored 34 peer-reviewed papers and has received nearly 1.5 million dollars in awards, including an NSF CAREER award. With Marc Michel and Sarah Stamps also having received CAREER awards from NSF, the Department can now boast three faculty holding this prestigious award.

His future research plans include examining the hydromorphology of headwater streams, remote sensing of plastic debris in freshwater systems, fusing low and high resolution satellite hydrologic datasets with aerial observations and in-situ measurements to develop an improved understanding of Earth’s water resources, and preparing to accommodate data from the Surface Water and Ocean Topography (SWOT) satellite that was launched in mid-December. As for teaching, George is offering undergraduate Geomorphology and a graduate-level research seminar in the Spring 2023 term. In fall 2023 he and Mike Willis will team up for a course on Advanced Remote Sensing in the Geosciences.

Away from the department, George spends time with his two daughters and his high school sweetheart and wife of 12 years, Fiona. He enjoys backpacking, biking, gardening and he is currently preparing to build a treehouse in his new yard. He welcomes any of the VT Geosciences alumni to stop by his office in Derring 5041 to say hi.

# WELCOME BACK, DR. NESER!

by Neil Johnson

The Department of Geosciences is pleased to welcome Dr. Laura Nesar back to Blacksburg! Born and raised in Virginia Beach, she played softball and the mellophone in school, and entered Virginia Tech intending to major in English. However, the Physical Geology course taught by Dr. John Chermak convinced her to try our field and Dr. Jim Spotila's Field Observations course sealed the deal. Dr. Nesar finished her B.S. in Geosciences in the spring of 2008 and moved to the University of North Carolina in Chapel Hill to earn her Ph.D. in 2014. Her research there focused on the structural geology, sedimentology, and stratigraphy of formations that were deposited along the flanks of the Beartooth Mountains as they rose during late Paleocene-Eocene time.

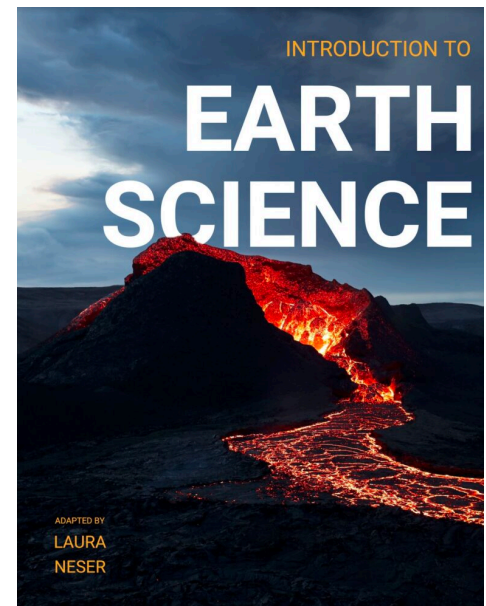
With Ph.D. in hand, Dr. Nesar worked as an athletic tutor and online instructor at UNC, in temporary positions at Chowan University (Murfreesboro, NC) and Indiana State University (Terre Haute, IN), and as a professor at Seminole State College (Sanford, FL) before starting as an Instructor here in the department in the fall of 2021. Although she is currently focused on teaching online sections of Introduction to Earth Science, Earth Resources, Society and the Environment, and Climate History, her teaching background is significantly broader, including Environmental Science, Astronomy, Environmental Ethics, Earth History, Structural Geology, and Field Geology.

In her personal life, Dr. Nesar considers Halloween to be the most important holiday of the year and she and her husband Jim have a cat (Sundae) and two dogs, a beagle-basset hound mix named Mr. Peabody (gotta



Dr. Nesar & Mr. Peabody

love the shout-out to a classic cartoon!) and a beagle (Hopper). All three are rescues and Hopper is one of the Envigo medical facility beagles! And for those of you who did not know her as a VT student, 'Nesar' rhymes with 'professor'!



Dr. Nesar authored a new open Introduction to Earth Science textbook in collaboration with Virginia Tech Libraries. She was recognized at the Conference on Higher Education Pedagogy and the Virginia Tech Authors Recognition Event for this amazing work. The textbook already has over 35,000 downloads, and Dr. Nesar is extremely proud to help provide this text to students and educators at no cost.

# Giving Day "Pie in the Face" Challenge.

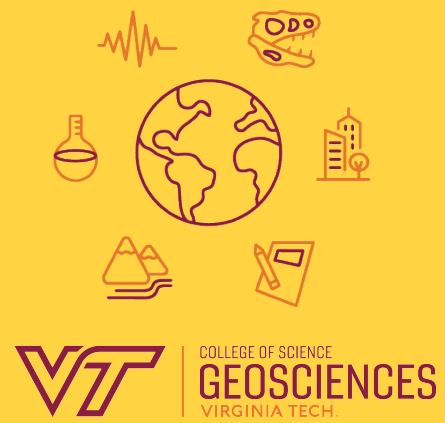
As most of you probably know, Giving Day is the most important fundraising day of the year at Virginia Tech, providing a focused 24-hour period when Hokies everywhere give back to their alma mater. Every year the departments in the College of Science engage in some friendly rivalries to make Giving Day more fun. This year made the rivalry physical, with a Derring Hall "Pie in the Face" challenge between the two departments who share Derring Hall, Geoscience, and Biological Sciences. The stakes: a pie in the face on Pi Day (3/14, get it?). The bet: the department with more donors on Giving Day gets to "pitch" the pie, rather than "catch" it.

Fortunately for Geosciences head Steve Holbrook, our donors came through in a big way, allowing him to pie Biological Sciences department head Bob Cohen. It was a close race, with Geosciences falling briefly behind the night before donations closed, but our alumni and friends really stepped up. This is all the more impressive given that Biology has about ten times the alumni base as our department, proving once again that GeoHokies rock!

When it comes to pies (and Giving Day!), it truly is better to give than receive.



Steve Holbrook pieing Biology Department head Bob Cohen as a result of winning the Biology v Geosciences Giving Day Fundraising Challenge . Photo by Jenny Orzolek



## 2023 Newsletter

Editor:  
Neil E. Johnson

Design & Copy Editor:  
Lily Eligator

Letters to the editor,  
alumni news and other  
comments are  
welcome!

Department of  
Geosciences  
926 West Campus Drive  
4044 Derring Hall  
(MC 0420)  
Blacksburg, VA 24061

Phone: 540-231-6521  
Fax: 540-231-3386  
Email: [mjsmth@vt.edu](mailto:mjsmth@vt.edu)

Geosciences Department at Virginia Tech  
926 West Campus Drive  
4044 Derring Hall (MC 0420)  
Blacksburg, Virginia 24061

## SUPPORT THE FUTURE. SUPPORT GEOSCIENCES.

Please consider donating to the **Geosciences Annual Fund**. Your support is critical to the department's future success. Contributions from our alumni and friends help our many deserving students, provide state of the art facilities, and expand research of career opportunities. Gifts made without restriction allow departmental leaders to immediately respond to opportunities and to allocate resources where they can have the greatest impact. When you receive the College of Science Annual Fund letter or phone call, please earmark your support for the Department of Geosciences Annual Fund.

<https://www.giving.vt.edu/> or all the Office of Accounting at 1-800-533-1144.

Other ways to make an impact:

**Scholarships** - create a named scholarship for a deserving student

**Faculty Chaired Position** - attract an eminent scholar to join our department

**In-kind Gifts and Volunteering** - donate an old car or property or help in the museum

**Bequests** - support VT Geosciences in the future

**Endowment** - invest in our long-term future with a permanent charitable legacy

**Designated Gifts and Sponsorships** - let us know your passion for a personal gift

Please contact:

**Steven Holbrook**, Geosciences Department Head

540-231-6521 or [wstevenh@vt.edu](mailto:wstevenh@vt.edu)

**Wade Stokes**, Assistant Dean of Advancement 540-231-4033 or

LINKEDIN:  
Geosciences at  
Virginia Tech

WEBPAGE:



FACEBOOK:



GIVING:



The Geosciences semester-long study abroad program is based at the Steger Center for International Scholarship in Riva San Vitale, Switzerland in the fall semester. We invite our Geosciences alumni and friends to participate in this field-based experiential learning opportunity by attending one (or more!) of four field excursions that are included in the program; and 8-day Trans-Alp trip, excursions to the Dolomites of northern Italy, and to Cinque Terra, on the Mediterranean coast in northwest Italy, and to Naples, Italy to visit Vesuvius, Pompeii and other locations. To participate, contact Bob Bodnar at [rjb@vt.edu](mailto:rjb@vt.edu) for more details.