

Welcome to The TECHtonic!



TABLE OF CONTENTS

- 1 Dr. Shuhai Xiao AAAS Fellow
- 2 Dr. Madeline Schreiber Leader in Geohydrolgogy
- 4 Welcome, Dr. Megan Duncan
- 5 Student News
- 6 Hokies in Houston
- 7 Giving Day 2020
- 8 Faculty News
- 10 Study Abroad Opportunity
- 11 Alumni News
- **11 Absolute Expert**
- 12 The Museum Piece

SUPPORT GEOSCIENCES. WHAT TO SUPPORT AND HOW TO GIVE.

See back cover.

Dear Friends and Alumni of VT-Geosciences,

Welcome to the latest issue of The TECHTonic, where you'll find stories about the impact that our students, staff, faculty and alumni are having around the world.

In this issue you'll read about the department's continued successes in research, learning, and engagement. You will meet new Assistant Professor Megan Duncan (p. 4), who strengthens our petrology and planetary science groups; reacquaint yourself with Maddy Schreiber, a professor of hydrology celebrating her 20th year on the faculty (p. 2); say "happy trails" to long-time faculty member Mike Hochella, who retired this year (p. 9); and bid farewell to Research Professor Bob Lowell, who sadly passed away this year (p. 8). You'll read about our award-winning faculty and students, including Shuhai Xiao (p. 1), who was elected as a Fellow of the American Association for the Advancement of Science, and our many student scholarship winners.

Of particular note in this issue are some opportunities for alumni and friends to stay involved in the life of the department. These include participation in the upcoming Switzerland Study Abroad trip this fall (p. 10), as well as the annual Spring Banquet and Alumni Dinner (p. 11). The department — and especially our students — are benefitting greatly from increasing involvement of our alumni, from our new alumni-student mentoring program to an upswing in philanthropic giving. A great example of this is described in the Houston Hokies article on (p. 6-7), which includes a story about several of our current students who were able to attend the AAPG Student Expo in Houston in September, thanks to the generosity of our alumni and friends in last spring's Giving Day.

Thank you for your continued support of VT-Geosciences. This is truly an exciting time for the department, and we couldn't do it without your help!

Here

W. Steven Holbrook, Head of Department

ON THE COVER | Falling Creek Reservoir in March 2019, showing Ryan McClure (PhD student, Biological Science) collecting sample at the end of catwalk. See article pg 2-3.

Dr. Shuhai Xiao is elected AAAS Fellow

By Dr. Robert J. Bodnar

Geosciences Professor **Shuhai Xiao** has been elected a Fellow of the <u>American</u> <u>Association for the Advancement of Science</u> (AAAS). This is one of the highest honors of the world's largest scientific society. Shuhai was elected in recognition of his outstanding contributions to paleobiology and geology of early animals and eukaryotes and for distinguished contributions and service to academe and the Earth science community.

Dr. Xiao is a geobiologist who studies the paleo-environment associated with life during the Ediacaran Period, a period of time in Earth history that marks the end of the Neoproterozoic Era and the beginning of the Cambrian Period. Dr. Xiao applies field-based research methods along with state-of-the-art analytical techniques to decipher the environment in which Ediacaran organisms lived and evolved. Dr. Xiao's work has led to a number of major advancements in our understanding of early animal life, its evolution, and its preservation. To



Shuhai Xiao is sizing up an Ediacaran fossil.

say that Dr. Xiao has been prolific as a researcher would be an understatement, as he has already in his relatively short professional



Professor Shuhai Xiao

career published over 200 peer-reviewed journal articles and book chapters, and has edited 9 books, special volumes and field guides. His published work has garnered more than 12,500 citations – his published research is currently cited about 1,500 times each year.

He has received many other honors and awards for his research accomplishments, including the Charles Schuchert Award, which is presented by the Paleontological Society to a person under 40 whose work reflects excellence and promise in the science of paleontology; the Virginia Tech Alumni Award for Research Excellence; Guggenheim Fellow; Outstanding Contributions in Geobiosciences Award from the Geological Society of America and the Virginia Outstanding Scientist award from the Virginia Science Museum. Dr. Paul Hoffman of Harvard University notes that "In my estimation, Shuhai Xiao is the world's most accomplished paleontologist and geologist specializing in the transformative Neoproterozoic–Cambrian era."

Over the last several years, Dr. Xiao has advised nearly 40 graduate students and postdocs, and he serves as a role model and mentor for younger faculty, students and other junior colleagues. **Dr. James Schiffbauer** (PhD 2009), one of Dr. Xiao's former PhD students who is now

a tenured Associate Professor at

the University of Missouri writes ".... after a few phone chats [when he was applying to graduate schools], I realized quickly that Shuhai was someone that was really very passionate about mentoring... During my time as a PhD student, I was able to witness Shuhai growing in prominence in Neoproterozoic geobiology. He accomplishes his research productivity while also providing important services to the scientific community, including his leadership of the Ediacaran Sub Commission of the International Commission on Stratigraphy. All the while, he hasn't lost the passion for mentoring that drew me in some 15 years ago."



Artist reconstruction of a 550-million-year-old animal capable of movement.

Dr. Madeline Schreiber, Leader in

In her 20th year as a faculty member in the Department of Geosciences, Professor **Madeline Schreiber** reflects on the many opportunities she has had at Virginia Tech to engage in exciting, interdisciplinary research in hydrogeology.

A native of New Haven, CT, Dr. Schreiber attended Yale University, starting as a history major with a minor in environmental studies. In her sophomore year, she was required to take a geology course for the environmental studies minor, and admits that before that class, she knew nothing about geosciences. Despite this, after only one week in the course, which was taught by the dynamic Brian Skinner, Maddy became intrigued with



Dr. Maddy Schreiber collecting samples in the Mekong River, Thailand (June 2014) as part of an NSF-sponsored project on arsenic in alluvial aquifers in the Mekong River basin. **Brady Ziegler** (PhD 2018) was also on the trip.



Maddy with students **Katie Krueger** (BS 2017, MS 2019) and **Zack Munger** (PhD 2016) collecting water samples at Falling Creek Reservoir, Roanoke.

geology and switched majors. She attributes her love of geology to the professors at Yale, field experiences in Newfoundland and Montana, and most especially to her undergraduate research experience working with then PhD student Tim Lyons (who is now a professor at UC-Riverside and coincidentally, VT faculty member **Ben Gill's** PhD advisor).

It was during her senior year while doing independent research when Maddy realized that she wanted to pursue geology as career. After college, she worked for several years for an environmental consulting firm in Cambridge, MA, focusing on characterization of contaminated aquifers at Superfund sites in New England. It was through this experience that she became interested in the biogeochemical processes that control contaminant transport in groundwater, and decided to pursue an MS degree in hydrogeology, which she completed at UW-Madison with Jean Bahr. Her intent was to complete the MS degree and re-enter the working world as a professional hydrogeologist, but after one semester as a teaching assistant for a hydrogeology class, she decided that she loved teaching in addition to research, and decided to stay at UW Madison to pursue a PhD.

Geohydrology

By Joshua Benton, MS Student

As a faculty member at VT, Dr. Schreiber has developed a keen interest in the release and transport of geogenic contaminants, including arsenic

Earth Science Education), the department will soon be adding two new options: Geobiology & Paleobiology and

and manganese, in water supplies. She is thankful for being surrounded by amazing colleagues at VT. She fondly remembers when **Don Rimstidt** came into her office during her first year and engaged her in a discussion about arsenic geochemistry, which set her on a productive path of research that

"She attributes her enthusiasm about research to working with remarkable graduate and undergraduate students, which she says keeps her excited to go to work every day."

problems.

continues today. She also greatly appreciates the opportunity to work with faculty and graduate students from other departments at VT, at other universities, and at state and federal agencies on a wide variety of research projects on surface and ground-water quality, mineral weathering, groundwater recharge, and karst hydrology, among others. She attributes her enthusiasm about research to working with remarkable graduate and undergraduate students, which she says keeps her excited to go to work every day.

Dr. Schreiber was appointed Associate Department Head in 2017 and has led a successful effort to revise the undergraduate curriculum for the Geosciences major. In addition to modernizing the four current options (Geology, Geophysics, Geochemistry and

The Hubbard Brook research group in summer 2018, including Maddy (2nd from left) and Josh Benton (MS 2020 - back row, 5th from left). Other team members include PI's Kevin McGuire, Brian Strahm (VT FREC), Don Ross (UVM) and Scott Bailey (US Forest Service) and graduate students Jenny Bower, Stephanie Duston, and Amanda Pennino (not shown).



Environmental & Engineering Geoscience. The revised curriculum includes coursework in geospatial skills, computer coding and data analysis that will help prepare students for solving 21st-century geoscience Maddy comments that "We have a terrific department with top

notch faculty, staff and students, broad research areas, and a perfect environment (the Appalachians) for studying geosciences. With our revised curriculum, students studying geosciences will be provided with the knowledge and skills to understand and solve some of the Earth's greatest challenges and this capability opens up a variety of exciting career options for them".

Welcome, Dr. Megan Duncan

By Jessica DePaolis, PhD Student

Geosciences welcomes **Dr. Megan Duncan**, who joined the department this fall as an Assistant Professor of Petrology.

Dr. Duncan discovered geology at a young age when her 8th grade science teacher simulated the three rock types with brownies and Rice Krispy treats. She realized that a career in the geosciences would tie in with her fascination with the planets, particularly Mars, and has been captivated ever since.

As an undergraduate, she studied Geology at Clemson University. During her undergraduate field camp experience, she recognized her love for hard rocks (metamorphic and igneous rocks) and this experience fueled her interest in pursuing graduate school. She moved to Albuquerque, New Mexico, to pursue her M.S. degree in Earth and Planetary Science at the University of New Mexico, where she undertook a project using high pressure/



Dr. Megan Duncan

temperature experiments to study the effect of carbon on planetary magmas. These experiments use a multi-anvil press and piston cylinders to reach pressure ranges that can simulate conditions inside Earth, Mars, Venus, Mercury, the Moon, and asteroids. She then pursued an experimental Ph.D. at Rice University in Houston, where her advisor was a specialist in carbon. Her projects included studying carbon mobility in subduction zones and in the magma ocean of the early Earth. She really enjoyed focusing on how these processes could be applied elsewhere, beyond the Earth.

During her research as a postdoctoral associate at the Carnegie Institution of Washington in Washington, D.C., she continued experimental studies of core formation on asteroids and the melted Mars to determine its mantle solidus. In a second postdoctoral position at UC Davis, she worked on dynamic, shock experiments (much different from the static experiments she was used to). This introduced new experience studying impact vaporization in the planet-building processes at extreme



Dr. Megan Duncan at Mount St. Helens.

high pressure-temperature conditions. As an assistant professor at Virginia Tech, Dr. Duncan hopes to understand the comparisons that can be made between Earth and the other terrestrial planets by tying her high pressure/temperature experiments (which she will continue in her own lab coming soon on the first floor of Derring) to other studies of planetary interiors, such as geodynamic models. She plans to focus on largescale planetary processes, such as those in subduction zones; using high pressure geochemistry to understand melt flow in a mantle regime; determining mineral stability in different mantle environments; and studying core formation on smaller, asteroid-size planetary bodies. Dr. Duncan hopes to grow overlap between her research and other faculty in the department to build collaborations that will benefit the larger scientific field.

STUDENT NEWS

2019 STUDENT AWARDS

Aubrey and Eula Orange Award in Geosciences: Zhen Guo, Shangxin Liu

Charles Gose, Jr. Scholarship for Geological Sciences: Christopher Griffin



Chinese Geosciences Scholarship: Shuyang Sun, Yezi Yang

Clare Booth Luce Undergraduate Research Award: Michelle (Shelly) Worek, Brianna Miranda

Geosciences Outstanding Service Recognition Award: Christiana Hoff, Kathryn Krueger

Graduate Student Doctoral Assistantships (**GSDA):** Ben Kligman, Selva Marroquín, Qing Tang, Khanh To

Brianna Miranda

Heath Robinson - Roy J. Holden Scholarship: Selva Marraquín, Brenen Wynd

Hokies Abroad Antarctica: Humans and the Environment 2019 Acceptance: Michelle (Shelly) Worek

Institute for Critical Technology and Applied Sciences (ICTAS) Fellowship: Catherine Jeffries, Alexandra Nagurney



Michelle (Shelly) Worek

Leo and Melva Harris Geosciences Scholarship: Alexandria Hoeher, Morrison Nolan, Nathan Roethlisberger

Matthew J. Mikulich Geophysics Scholarship: Joshua Jones

Multicultural Academic Opportunities Program (MAOP) Scholarship: Selva Marroquín

National Science Foundation Fellowships: Christopher Griffin, Devin Hoffman, Matthew LeRoy

Petroleum Industry - Geosciences Scholarship: Kirkland Broadwell, Jessica DePaolis, Christopher Griffin, Maxwell Schwid, Brenen Wynd

Sigma Gamma Epsilon W.A. Tarr Award: Erin Kelly

Tillman Awards for Teaching Excellence: Kirkland Broadwell, Kristin Chilton, Grant Euen

Wallace Lowry Scholarship (Undergraduates): Omar Ghamedi, Abigail Perez Lopez, Jordan Pritchard

Wallace Lowry Scholarship (Graduates): Selva Marroquín, Ben Kligman, Alexandra Nagurney

Student Research: Oilfield Wastewater Density

Richard S. Jayne (PhD 2019) and Assistant Professor **Ryan Pollyea** and their research team from the Department of Geosciences published a study in July 2019 showing that fluid composition plays an important role in the occurrence of injection-induced earthquakes. This study finds oilfield wastewater in Oklahoma and Kansas has a much higher density than fluids in the seismogenic zone. When injected into deep geologic formations, wastewater sinks and increases fluid pressure to levels sufficient to induce



earthquakes. By comparing numerical groundwater models of high density wastewater injections with the earthquake record in Oklahoma and Kansas, the researchers discovered that average earthquake depth increases at same rate as high-density wastewater sinks. They also found that the relative proportion of high-magnitude earthquakes increases with depth, which means that the injection-induced earthquake hazard in Oklahoma and

Kansas may persist much longer than previously thought.

Rick Jayne



Geoscience work study student and design & copy editor for The TECHtonic (Fall 2017-Spring 2019), Lidia Guerra graduated with a bachelor of arts in political science!

Professor Emeritus **Don Bloss** is smiling in the background.



HOKIES IN HOUSTON

Since taking the reins as department head of VT-Geosciences two and a half years ago, one of my main priorities has been to build our alumni relations. It's been a great pleasure getting to know many of our wonderful alumni, whether in person, by email, or on LinkedIn. Positive alumni relationships strengthen our department in many ways. Our alumni share their experience and advice with the department, help mentor our students, and provide financial support that is critical to our mission and helps us compete with our peer departments. Indeed, a major purpose of The TECHTonic is to keep our alumni in the loop on department activities.



Department Head **Steve Holbrook** (third from right), students and alumni at the ExxonMobil Houston Campus in September 2019.

We have alumni in virtually every state of the nation and in many countries across the world, but there are two main geographic concentrations of GeoHokie alumni: Houston, and the Washington DC metro area. These "GeoHokie hotspots" are places where we are focusing some of our efforts in alumni engagement, and I've started by establishing closer relationships with our Houston-area alumni. Over the past two years, I've made three trips to Houston to get to know our alumni there, together with Jenny Orzolek, the Senior Director of Major Gifts for Advancement in the College of Science. (Jenny has been a terrific partner in these trips, arranging all the logistics, coordinating invitations, and generally being a charming and enthusiastic ambassador for VT!)

Each of these trips, which last two to three days, includes meetings with small groups of GeoHokies as well as one-on-one conversations over coffee, lunch, or breakfast. In these conversations I provide an overview of department news, including recent successes, ongoing challenges, and future plans. My experience has been that our friends and alumni really appreciate learning about the goings-on in the department. Even more importantly from my viewpoint, they have lots of great ideas and experiences to share. Our department has much to learn from the wisdom of our alumni!



Steve Holbrook greeting alumni Russ Cooper (left), Phil Pappano (center), and Peter and Rhonda Welch (right).



Department Head Steve Holbrook visits Houston GeoHokies at Fleming's Prime Steakhouse in Houston, Sept. 2019. The VT degrees represented here span nearly four decades, from 1969 to 2018, and the companies represented include ExxonMobil, ConocoPhillips, EnerVest, Chevron, Shell, Noble, and others.

On our Fall 2019 visit to Houston, we were able to do something pretty special. Thanks to the generosity of our alumni, we also brought some graduate students along on the trip. As many of you know, on last year's Giving Day, our friends and alumni donated over \$26,000 in just 24 hours! That generosity enabled us to fully fund the travel of three of our graduate students -- Drew Parent, Max Schwid, and Tyler Rothschild -- to the AAPG Student Expo in September. By participating in the trip and the Expo, these students were able to network with our alumni, interview for internships, and present their work. We hope that these student trips will become an annual tradition, using the Giving Day generosity to "pay it forward" and provide our students every opportunity to network with alumni, learn about careers, and interview for positions.

In the future, we plan to continue our September visits to Houston in coordination with the AAPG Student Expo. We also plan to expand our alumni visits to include events in the Washington, D.C. area, probably in the spring. Stay tuned for more news on that front - and if you get the chance to attend one of our alumni events, please do! It's been a pleasure and a

GIVING DAY 2019 a Success!

Last fall we had our best Giving Day yet, with our alumni and friends donating over \$26,000 in a 24-hour period. That generosity enabled us to establish a new program connecting students to job opportunities and to alumni in the Houston area (see article on this page). For the second year in a row, Geosciences finished first among all College of Science departments in both number of donors and total amount raised on Giving Day. Thank you! Stay tuned for news about how to give this year on **Giving Day**, **March 18-19, 2020**. Help us stay atop the College of Science rankings!

privilege to get to know our extraordinary friends and alumni -- in the Houston area and beyond.



VT-Geosciences graduate students **Max Schwid** (left) and **Drew Parent** (right) at the 2019 AAPG Student Expo in Houston. Their trips were funded by the generous donations of our friends and alumni on Giving Day.

FACULTY NEWS

Ryan Pollyea and **Martin Chapman** presented a new process to explain fluid pressure build-up caused by oilfield wastewater disposal: density differences between wastewater & host rock fluids. (*Nature Communications*)

John Chermak was awarded a \$2,000 grant for "Citizen Science in Introduction to Earth Sciences Labs," for the Center for Excellence in Teaching and Learning. Hosting March 12 – 13, 2020 an IUCRC Conference for the Center for Advanced Subsurface Earth Resource Models (CASERM.mines.edu).

Patricia Dove was appointed to the Virginia Bar Association Committee for Issues of National and State Importance. She also serves on the Department of Energy Council for Chemical Sciences, Geosciences and Biosciences and the Environmental Science Division (EESD) of Oak Ridge National Laboratory.

Shuhai Xiao was selected as the inaugural Patricia Caldwell Faculty Fellow by the College of Science, and was elected as a fellow of the American Association for the Advancement of Science (see page 1).

F. Marc Michel was appointed Division Leader of the Division of Nanoscience in the College's Academy of Integrated Science.

D. Sarah Stamps was awarded Computational Infrastructure for Geodynamics Distinguished Lecturer 2019-2020.



Dr. Richard Law received the Coke Medal from Dr. Nick Rogers, President of the Geological Society of London.

In Memorium: Dr. Robert Lowell

We regret to inform our alumni and friends that **Robert Lowell**, research professor in the Department of Geosciences, passed away on June 24, 2019. Bob joined the Department in 2006 after a long and successful tenure at Georgia Tech. He was a leading authority on mass and heat transfer in seafloor hydrothermal systems, and published numerous high-impact journal articles on this topic. Bob was also co-editor of the 2008 textbook, "Magma to Microbe: Modeling Hydrothermal Processes at Oceanic Spreading Centers." At the time of his passing, he was completing a new book on submarine hydrothermal systems that is certain to become the definitive reference for

modeling these complex systems that drive mass and energy transport in the Earth's crust. It is unfortunate that he did not see this culmination of his lifetime of contributions in this area come to fruition in a single book.

During his tenure at VT, Bob received more than \$1.5 million in research grants and advised 7 grad students and mentored 10 undergrads. Bob's research was supported by the NSF for nearly 40 years. Bob earned his BS in physics from Loyola University in Chicago in 1965, MS in physics in 1967 and PhD in geophysics in 1972 from Oregon State. **Bob Bodnar**, the C.C. Garvin Professor of Geochemistry in Geosciences and a University Distinguished Professor, notes that "Bob Lowell and I met and began collaborating shortly after his arrival at VT. Both of us work on hydrothermal systems, but Bob was a geophysicist who focused on submarine hydrothermal systems, and I am a geochemist who focuses on continental hydrothermal systems. These differing approaches to studying similar processes taking place in different environments led to a successful and productive collaboration that benefited our students as well as others who participated in our lively discussions and classes." Bodnar notes that he and Lowell played racquetball regularly, and he will miss the discussions about research and other nonacademic matters that they conducted while hitting the ball off the walls (and each other).



Kannikha Kolandaivelu (PhD 2018) with Bob at the coffee shop in Johnson's Student Center.

University Distinguished Professor, Michael Hochella, Jr. retires to Montana

Michael F. Hochella, Jr. retired in January 2019 after 27 years in the Department. Mike got his B.S. and M.S. from VT and then went to Stanford, where he finished his Ph.D. in 1981. After a short time at Corning Glass, he returned to Stanford for nine years as a research professor, before relocating to his academic home in Blacksburg, in 1992. He became a University Distinguished Professor in 2007. Mike is an environmental mineralogist and geochemist specializing in



By Dr. F. Marc Michel

applying nanoscience to local, regional, and global processes. He continues this work in Missoula, Montana, where he is a Laboratory Fellow at Pacific Northwest National Laboratory. He also holds Emeritus status at VT.

Dr. Hochella has been honored with Fellowships from the American Association for the Advancement of Science, the Royal Society of Chemistry, the Geochemical Society, European Association of Geochemistry, the Mineralogical Society of America, the International Association of GeoChemistry, the Geological Society of America, and the American Geophysical Union. He has served as principal- or co-author on about 200 papers that have resulted in approximately 16,000 citations. He is a former President of both the Geochemical Society and the Mineralogical Society of America. He is also the Founder and Director of NanoEarth (https://www.nanoearth.ictas.vt.edu/), a node of the National Nanotechnology Coordinated Infrastructure (NNCI), an NSF-funded network of 16 centers spread throughout the United States serving as user and consulting facilities for cutting-edge nanotechnology research.

He has received many awards and medals for research and teaching. These include the Virginia Outstanding Faculty Award (the highest faculty honor in VA), the Distinguished Service Medal from The Geochemical Society, Virginia Scientist of the Year, VT Alumni Award for Research Excellence, the Dana Medal of the Mineralogical Society of America, an Alexander von Humboldt Research Award, and a Senior Fulbright Scholar Award. Mike taught approximately 4,000 students in 10 different courses, from general freshman classes to advanced graduate courses and mentored more than 20 students in graduate research. He is known to his students and colleagues as a persistent advocate for science and education, and a caring friend.

Synergy X-ray Diffractometer: Single-Crystals and Beyond

By Dr. Nancy L. Ross

The Virginia Tech Crystallography Laboratory (VTX), co-directed by Carla Slebodnick (Chemistry) and **Nancy Ross** (Geosciences), forms the nucleus of an educational, research and service center for Virginia Tech and the Commonwealth of Virginia. A broad range of undergraduate, graduate and faculty research programs rely on the unparalleled atomic structural information gained from X-ray diffraction.



The recent acquisition of a Rigaku dual-source single-crystal Xray diffractometer (Synergy) from the NSF-MRI program (shown above) will ensure that VTX will continue to be at the forefront of research on geological materials and geoinspired technological materials under a range of pressuretemperature conditions using devices such as diamond-anvil cells.

STUDY ABROAD OPPORTUNITY



By Dr. Robert J. Bodnar

VT Provost **Cyril Clarke** enjoying the nice (gneiss!) outcrop with Geoscience students at Toce River, Switzerland in Fall 2018.

Geosciences Alumni (Geology Department for some of you) are invited to join students and faculty for field studies in Switzerland and Italy! This is a fantastic opportunity to visit some of the most spectacular and historical geological sites in the world as part of the Department of

Geosciences Study Abroad Program. Fall 2020 will be the fifth year that students spend the fall semester at the Steger Center for International Scholarship in Riva

San Vitale, Switzerland, and the third year that alumni are invited to participate and venture into the field with our



Students in the central Swiss Alps, just below the Klausenpass, with Department Head **Steve Holbrook**.

"This is a trip you need to add to your bucket list."

students and Virginia Tech faculty. Alumni may participate in any of the three excursions that represent a critically important experiential learning activity for our students.

In Fall 2018, alumnus **Jimmy Witmer** (BS 1982) went to the Dolomites & Central Alps for

eight days (Excursion 2) and wrote "This is a trip you need to add to your bucket list."

In Fall 2019, Tony Blair (BS 1968)

participated in **Excursion 3** examining obducted oceanic crust and reported that he "was impressed with the students and with Professor **Eriksson**, learned a lot about geology that he didn't know before, and recommends this experience to fellow alumni."

Approximate dates and costs are listed below. The costs are inclusive upon arrival at the excursion starting point, and do not include international airfares to travel to Switzerland. Please contact **Bob Bodnar**, Coordinator of the Geosciences

Study Abroad Program, at rjb@vt.edu or 540-231-7455.



Tony Blair with students at Cinque Terre, Italy.

Excursion 1. Dolomites and Central Alps: September 5-13, 2020. Cost: \$2,500 per person
Field trip starts in Riva San Vitale and ends in Riva San Vitale or Milan, Italy
Led by Dr. Ken Eriksson
Excursion 2. Trans-Alps (Zurich to Riva San Vitale): September 19-27, 2020. Cost: \$3,000 per
person. Field trip starts in Riva San Vitale or Zurich and ends in Riva San Vitale
Led by Professors Dr. Rick Law and Dr. Mark Caddick

Excursion 3. Cinque Terre, Italy: October 24-27, 2020. Cost: \$1,500 per person Field trip starts in Riva San Vitale and ends in Riva San Vitale or Milan, Italy Led by Dr. Ken Eriksson



See Jimmy's complete review of his experiences.

ALUMNI NEWS

YOU'RE INVITED! 2020 Spring Banquet Saturday, April 4; 6 PM German Club Manor Hyatt Place rooms - use link http://bit.ly/2qHymiD





Left to Right: Tony Blair; Greg Roush; Nathan Roethlisberger; Steve Grimsley; Stephen Scott; Jimmy Whitmer; Bill Fleming; Rick Williams; Steve Holbrook; Bob Popp; Dwight Holland, Neil Johnson; John Chermak; Christa Peters-Lidard; Ed Lener; Chuck Smith; Wilson McClung; Katie Krueger; Kristie Caddick; Lowell Moore; Heather Vandergrift Wilson.

Wendy (Hart) Beckman (BS 1980) earned an MS in English in 2001 and now owns a technical writing business and conducts private workshops. Since 2002, she has published nine books of nonfiction and hundreds of articles, locally and nationally.

J Bret Bennington (PhD 1995) was presented the Neil Miner Award by the National Association of Geosciences Teachers - Fall 2019 GSA Meeting and is currently a professor and the chair of the Department of Geology, Environment and Sustainability at Hofstra University. Kate Craft (PhD 2013) made the top 50 in NASA's Astronaut Selection Program, and is a Principle Staff Scientist at the Johns Hopkins Applied Physics Lab.

Jen Gorce (PhD 2018) is a postdoctoral fellow for the Lunar and Planetary Institute (LPI) and funded through the Astromaterials Research and Exploration Sciences at Johnson Space Center in August 2019.

Brook Haiar (BS 1999, MS 2001) received the Thomas Jefferson Medal for Outstanding Contributions to Natural Science Education and brings students from a variety of schools to Wyoming to study the paleoecology of the Morrison and Cloverly formations.

Dwight Holland (MS 1996) received the Kent Gillingham Award for his contributions to advancing the art and science of situation awareness and spatial disorientation.

Be an <u>Absolute Expert</u>: <u>ROCKS and MINERALS</u>



D. Sarah Stamps, assistant professor in Geosciences, teamed with National Geographic (NG) to create a new children's book on rocks and minerals. The book is part of a NG book series on science and engineering. She was invited to participate after the nonprofit funded several of her research expeditions to Madagascar and Tanzania to study plate tectonics and volcanoes. She also has reviewed NG proposals, attended functions, and given a presentation on her work in Madagascar at NG headquarters in Washington, D.C.

Geology comes alive in this cool book that is geared toward children ages 8-12. Visit the NG store to learn more <u>https://shop.nationalgeographic.com/</u> products/absolute-expert-rocks-



THE MUSEUM PIECE: Silver Anniversary Mineral Sale By Llyn Sharp

One of the Museum's major fundraising events was started decades ago by alumnus **Don Dalton** (BS 1960) with then Director **Dr. Susan Eriksson**. A small gift shop provided income for the Museum in the 1990s and grew into an annual sale event for students and the community. Don has generously donated time, money, and expertise to provide specimens for sale at this event for 25 years!

Over the past 10 years the scope expanded to become the "GeoFair and Mineral Sale", increasing the educational



We were happy to celebrate this Mineral Sale Silver Anniversary with Don Dalton, who drove all the way from Arizona to help put on the event.

There were 43 volunteers from the department sharing their love of geology with over 600 attendees, including many kids and families from the community and those visiting for Family Weekend. Don and the Geology Club had good sales all day: they were able to make large donations to help support the Museum's educational noutefforts. impact. The GeoFair provides hands-on activities in the Museum of Geosciences, highlighting Virginia Tech research and Museum exhibits. This lets students and faculty interact with the public, and serves as a fun introduction to the Museum for many people.



Llyn Sharp at the 2019 GeoFair with Don Dalton andCamille DoPhoto by Shelly WorekPage 1 of



Laura Szcyrba (PhD Student) from the Coastal Hazards Group with the new Flood Model exhibit this year--it was very popular.



Katie Krueger (MS 2019) stepped in when she visited to help **Aly Hoeher** (PhD student) with the Nanoscience Crystal Models station, building atomic models with candies.





2019 Fall Newsletter

Editor: Patricia Dove

Graphics Editor: Piper L. MacNicol

Design & Copy Editor: Mary Jane Smith

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

RESEARCH GROUP PARTICIPANTS: Fluid Inclusion Lab (**Robert Bodnar**);Planetary Science Group (**Scott King**) Coastal Hazards Group (**Robert Weiss**) Paleobiology Group (**Sterling Nesbitt, Michelle Stocker, Shuhai Xiao**) Experimental Petrology Lab (**Megan Duncan**) Modeling and Educational Demonstrations Lab (**Gary Glesener**) Geodesy and Tectonophysics Group (**D. Sarah Stamps**) Nanogeoscience: Crystallography Group (**F. Marc Michel**)

Eszter Sendula (left at scope, PhD student), **Bob Bodnar**, and **Yabin Yuan** (visiting PhD Student from China) at "Bubbles in Rocks"





GEOSCIENCES

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 <u>Department of Geosciences Annual Fund</u>.

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

<u>Please contact:</u> **Steven Holbrook**, Geosciences Department Head 540-231-6521 or <u>wstevenh@vt.edu</u> **Wade Stokes**, Assistant Dean of Advancement 540-231-4033 or <u>lwstokes@vt.edu</u>



LINKEDIN: Geosciences at Virginia Tech

WEBPAGE:



FACEBOOK:





PARTING SHOT

GeoHokies in Houston! Alumni with Department Head **Steve Holbrook** (see article and more pictures on pages 6-7!).