

Newsletter of the GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division

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Message from the Chair

Dear GSA MGPV members,

Happy Fall 2023 to everyone. I am looking forward to seeing you in Pittsburgh at the GSA Connects Annual Meeting October 15 – 18. We have many interesting and fun events planned.



First Vice Chair Alan Whittington and I will convene a special MGPV Division awards session [Wednesday, 18 October 2023, 8:00 AM - 12:00 PM] to honor our 2023 awardees: Distinguished Geological Career Award (DGCA) recipient Professor Katharine V. Cashman and Early Geological Career Award (EGCA) honoree Professor Carolina Munoz-Saez. Student awardees will also be recognized, including travel grant winners supported by the James B. Thompson endowment, and research grantees, supported by the Lipman, Carmichael, and Hollister Student Research Grants and the Division's scholarship funds. Thank you for your generous contributions and please attend this special session to congratulate the group!

The MGPV scientific program covers a wide range of disciplines. We've endorsed or co-endorsed 74 Topical and 5 Disciplinary Sessions, and 3 Pardee Keynote Symposia. These include several volcanology, igneous petrology, and geochemistry technical sessions to honor our senior award winner Dr. Cashman.



coming this Fall
logo redesign contest

Our student representatives, Madeline Murchland, Chuck Lewis, and Emily Fischer have been busy! They are convening a student poster session [Tuesday, 17 October 2023, 8:00 AM - 5:30 PM] and will host a mixer for students and recently graduated MGPV members that same evening from 6–8 pm at Revel [242 Forbes Ave]. Also, please visit the MGPV Booth and/or Division Display Space to chat with representatives and browse our displays and new merchandise.

We thank our Joint Technical Program Committee (JTPC) representatives Alan Whittington (first vice chair) and Elisabeth Widom (second vice chair), for crafting the exciting 2023 MGPV program. We welcome our new incoming second vice chair, Dr. Jade Star Lackey of Pomona College, and say goodbye to outgoing Past Chair Dennis Newell. We recognize our Management Board and their respective societies, and our awards committees. And, last but certainly not least, a special thanks goes to Alex Speer our newly re-elected Secretary-Treasurer. Alex guided us through the complexity of the last few years and was a critical leader in designing successful MGPV programs at GSA Connects and distributing our awards and many grants.

I will close with our annual reminder: MGPV needs your active support to continue to represent our community at GSA. We continue to be the largest GSA Division and our strong Student and Early Career membership bodes well for the future [662 students and 122 Early Career, out of 1549 total members as of August 2023]. Please do not let your memberships lapse -- renew your membership in GSA and MGPV each year and encourage your peers, students, and mentors to join or renew. Remember, student membership is free! If you would like to learn more or contribute to leadership, join us at the MGPV Division Annual Business Meeting on 10 October 2023 at 02:00 PM Eastern Time. The Zoom information will be sent to you.

See you in Pittsburgh,
Amanda B Clarke
Chair (2023) Mineralogy, Geochemistry, Petrology, Volcanology Division
Geological Society of America
Arizona State University, School of Earth and Space Exploration

New MGPV Officer starting 2024 terms

According to the Division By-Laws, the current Division Chair (Amanda B. Clarke) will advance to the office of Past Chair, the current Division First Vice-Chair (Alan Whittington) will advance to the office of Chair, and the current Second Vice-Chair (Elisabeth Widom) will advance to the office of First Vice-Chair. The Secretary-Treasurer (J. Alex Speer) has completed the first year of a 2-year term. The 2023 balloting was for the election of a Second Vice-Chair and Secretary-Treasurer. Those elected:

Second Vice-Chair 2024. Dr. Jade Star Lackey: Dr. Lackey is a Professor and Chair of Geology at Pomona College. Jade Star is an igneous and metamorphic petrologist with expertise in stable isotope geochemistry. His research aims to evaluate the how mantle and crustal melts contribute to the formation of continental crust in convergent margin batholiths. Dr. Lackey integrates petrologic and isotopic data from range of mineral phases (e.g., zircon and garnet) to understand how magmas and hydrothermal systems evolve chemically, as well as how their volatile budgets can inform past global change.



Secretary-Treasurer 2024-2025 (2-year term). Dr. J. Alex Speer: Dr. Speer is now retired from being Executive Director of the Mineralogical Society of America, Chantilly, VA. He is an MSA Fellow and is a member of GSA and AGU. His research interests have included mineralogy, igneous and metamorphic petrology, radon hazards, low-temperature geothermal energy resources, electrocrystallization, and tribology. Geologic areas of interest included the Nain anorthosite complex, Labrador and the 300 Ma granites of the southeastern United States. His priority is the efficient running of MGPV so that members can focus on organizing and supporting sessions, field trips, and other Division events at the annual and section meetings, and to promote collaboration among the MGPV Division, MGPV-related Associated Societies, and GSA Sections and other Divisions.



Call for Award Nominations: Nomination Deadline: 31 March 2024

MGPV Division Distinguished Geological Career Award (for 2025)

The MGPV Distinguished Geological Career Award goes to an individual who, throughout his/her career, has made distinguished contributions in one or more of the following fields of research: mineralogy, geochemistry, petrology, volcanology, with emphasis on multidisciplinary, field-based contributions. This award emphasizes a geological and multidisciplinary approach. Geological work is by nature general and has an important field component, with Earth as the natural laboratory. Nominees need not be citizens or residents of the United States, and membership in the Geological Society of America is not required. The award will not be given posthumously.

Award details and nomination procedures are [online](#).

MGPV Division Early Geological Career Award (for 2025)

The MGPV Early Geological Career Award goes to an individual near the beginning of his/her professional career who has already made distinguished contributions in one or more of the following fields of research: mineralogy, geochemistry, petrology, volcanology, with emphasis on multidisciplinary, field-based contributions. This is a new award that was generously endowed by the estate of James B. Thompson Jr., who believed in the importance to geology of understanding minerals - both their internal characteristics, and their external "social lives" (his term for their relations with each other). This award emphasizes a geological and multidisciplinary approach. Geological work is by nature generalistic and has an important field component, with Earth as the natural laboratory. J. B. Thompson's work, regardless of subject, was always based on solid field observations. In his acceptance speech for the Day Medal in 1964 he said,

“True success in the laboratory should stimulate field investigations rather than discourage them. It would be embarrassing indeed if we were to construct an internally consistent geology, chemically and physically sound, perfect in fact but for one flaw: the lack of a planet to fit it.”

The individual must either be [1] before the age of 36 or [2] within 7 years of the awarding of the terminal degree. If the former, the candidate must be 36 or less on January 1 of the year the award is decided. If the latter, the award must be decided prior to December 31 of the seventh year past the terminal degree. These time limits for the award can be extended for up to two years based on circumstances that have interrupted the nominee's career (i.e., serious illness, childbirth, care giver, etc.). Nominees need not be citizens or residents of the United States, and membership in the Geological Society of America is not required. The award will not be given posthumously.

Award details and nomination procedures are [online](#).

2023 MGPV Awardees

MGPV is sponsoring a session at 2023 GSA Annual Meeting, Pittsburgh, PA, for our 2023 Distinguished and Early Geological Career Awardees to include citations, acceptances, and awardee lectures. Our awardees:

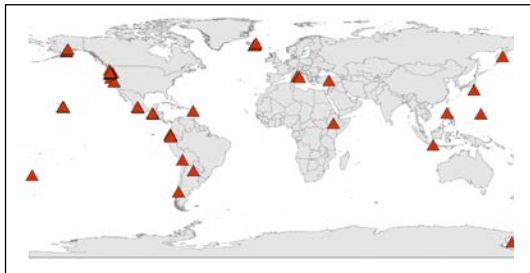
2023 MGPV Division Distinguished Geological Career Award to Katharine Venable Cashman

Katharine Venable Cashman, University Oregon is an American volcanologist, former professor of volcanology at the University of Bristol and Philip H. Knight Professor of Natural Science at the University of Oregon.

Dr. Cashman was educated at Middlebury College, Vermont where she was awarded a Bachelor of Arts degree in Geology and Biology in 1976. She continued her studies at Victoria University of Wellington in New Zealand and then completed her PhD at Johns Hopkins University, Maryland, in 1986. Her PhD research applied theories of crystal size distributions to volcanic systems.



Dr. Cashman has made numerous notable advances in the fields of petrology and volcanology, using innovative, multidisciplinary approaches to tackle a wide variety of geologic problems. Importantly, her investigations are founded upon primary field observations and fundamental field research. Kathy's research has spanned an extraordinary variety of volcano types, tectonic settings, and world-wide locations (see map). Her work extends from the storage and ascent of magmas to the dispersal of volcanic ash in the atmosphere and the architecture of crustal magmatic systems. Her field observations, mapping, and stratigraphic and temporal sampling of volcanic products underpin her scientific method. These field results form the basis for subsequent investigations that range from petrologic analyses of volcanic products to quantification of macro- and microtextures of rocks to analog and high-temperature experimentation. She has incorporated concepts and theory from the fields of material science, fluid dynamics, atmospheric science, materials science, hydrology, and geomorphology to bring interdisciplinary expertise to solve petrologic and volcanic problems. Furthermore, she has highlighted the incredible value of traditional Indigenous knowledge and oral traditions for unravelling eruption histories, reinforcing hazard communication, and strengthening community resilience. As a mentor, she has passed on her passion and expertise for multidisciplinary research to over 50 graduate students at University of Oregon and University of Bristol, many of whom have gone on to successful careers in volcanology, academia and beyond.



2023 MGPV Division Early Career Award to Carolina Munoz-Saez

Carolina Munoz-Saez, University of Nevada, Reno NV received her B.S. (2005) and M.S. (2007), Geology, University of Chile, Santiago, Chile, and her PhD at the University of California, Berkeley in 2016. She completed postdoctoral fellowships at the University of Chile, and then at Lamont-Doherty Earth Observatory and at the City College of New York. She currently is an Assistant Professor at the Nevada Bureau of Mines and Geology, Mackay School of Earth Sciences and Engineering, University of Nevada, Reno.



Carolina's publications present a nice mix of field and laboratory measurements and quantitative analysis for understanding systems (magma-hydrothermal systems) rather than on method application, she has established cross disciplinary, international collaborations with hydrologists, geophysicists, geochemists, sedimentologists, microbiologists, and planetary scientists from many research institutes to obtain a broader and more wholistic understanding of these complex systems. Carolina's papers present results and interpretations from geologic mapping, radiocarbon dating, analog laboratory experiments, laboratory measurements of siliceous sinter mineralogical, chemical and mechanical properties, analyzing the role of thermophile bacteria in the diagenesis of sinter deposits, numerical modeling of groundwater flow and heat transport, time-series analysis, application of geophysical methods, aqueous geochemistry, and thermodynamic modeling of temperature-dependent water-rock reactions. Combined, this multidisciplinary approach has provided an improved understanding of a range of process taking place in magma-hydrothermal systems such as geyser dynamics, multiphase heat and mass transport, sinter diagenesis, and the structure, geometry, and evolution of thermal basins.

Carolina is now branching into a completely new and exciting research project that was recently (January 2022) approved for funding by the National Science Foundation. The large-scale interdisciplinary study that she will be leading with experts from across several Earth science disciplines from US and Chilean institutions includes glaciologists, experts in exposure dating using cosmogenic isotopes and volcanologists. The study's goals are to quantify hydrothermal responses in the El Tatio volcanic-hydrothermal field to glacial unloading in the Chilean Andes. El Tatio is an ideal natural laboratory to investigate these interactions because based on Carolina's research (Muñoz-Saez et al., GRL 2020) it preserves exceptional morpho-stratigraphic evidence of volcanic, glacial, and hydrothermal activity since the last deglaciation. The new study has significant potential to provide important information because it has implications for hazard assessments (phreatic eruptions and hydrothermal explosions), for regional climate reconstructions, and for the exploration of mineral deposits and geothermal energy resources. In addition to her prolific research, Carolina has been engaged in outreach with the historically marginalized native communities who own and operate the land at the El Tatio geyser field. She spent a significant amount of time and energy explaining the research that she and her colleagues have carried out, its relation to their operations, and how they can become more involved in the science and the preservation of the unique geyser field.

MGPV Division Student Research Grants

This is the eleventh year for the MGPV Division's annual student research awards. The Division has been able to provide these awards with the help of the James B. Thompson Fund of the GSA Foundation. The 2023 awardees are:

Alaina Helm, Virginia Polytechnic Institute and State University, Blacksburg, VA for her project *Experimentally Constraining a New Trace Element Barometer in Garnet*

Alaina Helm is a third year Ph.D. student at Virginia Tech advised by Dr. Mark Caddick. Her research uses petrologic techniques to better understand fluid-rock reactions at convergent margins. In this study, she grows garnet in equilibrium with Li, Na, K, Rb, and Sr rich fluids at different pressures to identify trace element ratios that could potentially function as a geobarometer. Experiments are being conducted using a piston cylinder apparatus working with Dr. Megan Duncan in Virginia Tech's experimental petrology lab. Alaina is very grateful for the financial support from the MGPV Division and GSA, who are providing funds for electron microprobe and ICP-MS analysis of experimental results. Alaina's other active research projects focus on thermodynamic predictions of fluid compositions equilibrated with subducted lithologies and identification of metasomatic signatures within the rock record.



Alaina received a bachelor's degree from Oberlin College in Geology and Archaeological studies. While there, she completed a senior honors thesis focused on the petrology of the San Onofre Blueschist with Dr. F. Zeb Page. She also completed a senior capstone project working with Dr. Amy Margaris and the Smithsonian to digitally reunite Alaskan ethnographic items collected by Edward William Nelson in the late 1800's and subsequently dispersed across the globe through museum trades by the Smithsonian.

Victoria Konieczka, University of Wyoming, Laramie, WY, for her project: *CO₂-Water-Rock-Interactions and Metal Mobility from The Opeche Formation, Powder River Basin, WY, USA.*



Victoria Konieczka is starting her second year as a master's student in the Geology & Geophysics Department at the University of Wyoming. Her advisor is Dr. John Kaszuba, a geochemist who specializes in water-rock interactions. Victoria's research investigates potential metal mobility and the geochemical caprock integrity of the Opeche Formation in the Powder River Basin. The Opeche Formation is the primary seal to the Minnelusa Formation, a target CO₂ reservoir. Her research aims to 1) constrain the potential metal release from the Opeche Formation upon interacting with CO₂ and 2) access the geochemical differences between the basal gray conglomerates and red mudstones of the Opeche Formation.

Victoria received her bachelor's degree in Geology from Central Michigan University (CMU). During her time at CMU, Victoria studied trace element zoning within a giant spodumene crystal using portable XRF with Dr. Mona Sirbescu. During her undergraduate studies Victoria also worked in Analytical Sciences at the Dow Chemical Company in Midland, Michigan.

Victoria enjoys spending time with her best friend Donovan and her family. She also enjoys hiking, camping, and hammocking outside in nature.

Victoria Extends a special thanks to MGPV and GSA for providing the opportunity to students to receive research funding and for supporting her research.

Leah Shteynman, Arizona State University, Tempe, AZ, for her project: *The U-Pb system and structure of natural reidite*.

Leah Shteynman is a third year PhD candidate at Arizona State University advised by Dr. Tom Sharp. She is broadly interested in sample-based planetary geology. Her primary research uses electron microscopy and radiometric dating methods to understand the ways in which the mineral zircon changes when it is affected by shock metamorphism during impact cratering. Her current project uses samples from Rochechouart impact structure, France to understand U and Pb behavior in reidite, the high-pressure polymorph of zircon formed during impact events. The financial support provided by the MGPV Division and GSA will allow for further analyses to be done for this project.

Leah received a bachelor's degree from Lafayette College in Geology. At Lafayette, Leah completed a senior honors thesis on the geochemistry of zircon-hosted melt inclusions in Ordovician K-bentonites with Dr. Tamara Carley. She also conducted research on shock metamorphism in zircon with Dr. Steven Jaret at the American Museum of Natural History, which is what got her interested in planetary geology.

Outside of research, Leah enjoys doing arts & crafts, being outdoors, and traveling. She is also involved in science outreach and service, including as a University of Arizona Sky School instructor and as part of the steering committee for the Geosciences Education & Mentorship Support program.



Lipman Student Research Grants

The Lipman Research Fund was established in 1993 and is supported by gifts from the Howard and Jean Lipman Foundation. The purpose of the fund is to promote and support graduate-student research in volcanology, petrology, geochemistry, and mineralogy. The president of the Lipman Foundation, Peter W. Lipman, was the recipient of a GSA research grant in 1965, the 2004 GSA Distinguished Service Award, and the first MGPV Distinguished Geological Career Award in 2010.

John Ajayi, University of Connecticut, Storrs, CT, for his project: *Reconstructing Paleoelevation of Taiwan Orogenic belt using Isotope Geochemistry of Fluvially-exported Catchment-integrated Organic Molecular Biomarkers*.

John Ajayi is a Ph.D. student at the University of Connecticut where he works under the supervision of Dr. Michael Hren to apply a novel approach for reconstructing the paleoelevation of mountain belts. His study area-Taiwan is located at the site of convergence between the Eurasian and the Philippine Sea Plates. The Taiwan orogen is an archetypal example of an arc-continent collision, thus serving as a model for studying such systems in the world today. However, constraining the height of the mountains through time is very challenging. Generating records of the paleotopography of mountains is very important to understand the feedback between atmospheric and climatic dynamics, deep Earth tectonic processes, and surface weathering and erosion. The height of the mountain represents a balance between these.

John's project involves using the organic molecular hypsometric approach established for modern Taiwan to reconstruct the



paleotopographic history of the orogen in the last 3 Ma. Empowered with this tool, he will also provide an along-strike orogenic reconstruction of the mountain paleoelevation to investigate the two tectonic evolution models proposed for Taiwan which have generated debates within the scientific communities.

Before joining UConn, John completed his bachelor's degree at the Federal University of Technology, Akure in Nigeria. He seeks to become a versatile geochemist, using his knowledge of geochemistry and geochemical patterns to unravel complex questions in Earth sciences. When he is not working on his research, he spends time outdoors with family and friends and loves visiting new places.

Erin Alexander, Arizona State University, Tucson, AZ for her project: *Seeing Beneath the Surface: Using Geomorphology and Geochemistry to Map Hot Spring Regions*.



Erin Alexander is a M.S. student at Arizona State University working with Professor Everett Shock and Professor Kelin Whipple on studying geochemistry and geomorphology in hydrothermal regions. She researches hot spring regions in Yellowstone National Park to understand how geologic structures in the subsurface influence hot spring geochemistry and fluid pathways. Yellowstone is best known for its diverse and dynamic hot spring regions: temperatures range from cool to boiling, pH can range from acidic to alkaline, and volcanic gases and water-rock reactions combine to form a geochemical array of unique hot spring compositions. The first step in understanding how such biogeochemical diversity can exist in these regions is to evaluate how fluid gets

to the surface to form hot springs; faults and local stratigraphy play a big role in fluid access to the surface. Though Yellowstone is well-mapped in non-thermal areas, thermal areas are incredibly difficult to map due to acid erosion, sinter resurfacing, multiple glaciations, and thermal alteration. Understanding these thermal areas therefore requires an integrated approach of field geologic mapping, LiDAR geomorphic mapping, and hot spring geochemical mapping. Erin utilizes field observations and geomorphic inferences to understand where faults are and uses hot spring geochemistry to understand what kinds of fluid are rising up the faults. She is currently working on Midway Geyser Basin and the Mud Volcano area in Yellowstone.

Erin is grateful for the support of the Lipman Student Research Grant, which will help fund a two-week field season in Yellowstone this summer to map more parts of the park.

Brooke Benz, University of Missouri, Kansas City, MO for her project: *Defining the volcanic and magmatic history at Askja Volcano, Iceland*.

Brooke Benz is a second year PhD student at the University of Missouri, Kansas City under the mentorship of Dr. Alison Graettinger. Her PhD research focuses on the magma storage conditions at Askja Volcano in central Iceland by determining residence times and recharge rates of the storage system. Part of this project will focus on analyzing basalts of various ages, gabbro xenoliths, and rhyolite domes that are buried by glaciovolcanic lavas for whole-rock and mineral geochemistry to understand the entire scope of magmatic processes at Askja. In addition to this, she is characterizing the Holocene volcanic vents structurally,



stratigraphically, petrographically, and geochemically to determine what the most likely style of eruption could be at Askja.

With the support of the Lipman Student Research Grant, Brooke will be able to continue her research project by returning to the field in summer 2023 and then analyze the petrology, whole-rock geochemistry, and mineral geochemistry of the various eruptive units at Askja to better constrain the magmatic setting.

Brooke grew up in Ironton, Missouri surrounded by the volcanic and plutonic rocks in the St. Francois Mountains. She graduated with her bachelors' degrees from Missouri State University in Geology and Wildlife Conservation and Management in 2018 and a master's degree in Geology in 2020. Brooke hopes to continuously help the public learn more about volcanoes and get people excited about science in general.

Brooke is very grateful for the support that the Lipman Student Research Grant and the Geological Society of America's Mineralogy, Geochemistry, Petrology, and Volcanology Division has provided and is excited for the future of her research project.

Emilie Bowman, University of Arizona, Tucson, AZ for her project: *Investigating the crustal thickness and topographic evolution of the southern Central Andes of Northern Chile and Argentina.*



Emilie Bowman is a PhD candidate at the University of Arizona (UA) working with Dr. Mihai Ducea and Dr. Ananya Mallik. Emilie is a tectonic petrologist with research focusing on understanding the processes that control crustal thickening, magmatism, lithospheric removal, and ore formation during the evolution of continental arcs, particularly Cordilleran systems like the central Andes. To do so, she uses a variety of techniques, including geochemistry, experimental petrology, and thermodynamic modelling.

Before joining UA, Emilie obtained her undergraduate degree in geology from the University of Texas at Austin and a master's degree from MIT. From her undergraduate research onwards, Emilie has always pursued research that uses the investigation of igneous rocks to understand large-scale tectonomagmatic processes ranging from continental to oceanic rifting, the construction of Cordilleran arcs, and ore formation in collisional and subduction systems.

Emilie is very grateful to the GSA Lipman Research Award, which she will use to fund whole rock major and trace element geochemical analyses on rocks collected from the central

Andes frontal to retroarc. These analyses will be used to calculate crustal thickness and paleo-elevation through time, ultimately to provide insight into the processes responsible for high magnitude shortening, crustal thickening, and topographic development in this region.

Catriona Breasley, University of British Columbia, Vancouver, BC, Canada for her project: *The geochemistry, petrology and mineralogy of the Prof pegmatite, Revelstoke, BC*

Catriona Breasley is a Ph.D. fellowship student at the University of British Columbia under the supervision of Dr. Lee Groat, Dr. Tania Martins (Manitoba Geological Survey), and Dr. Robert Linnen (Western University). Her Ph.D. research forms a two-part project looking at classifying and geochemically analyzing the Prof pegmatite, British Columbia and a project in collaboration with Sinomine Resources Group Ltd and the Manitoba Geological Survey focusing on lithium mineralization within the Tanco pegmatite, Manitoba. This thesis will compare the geochemistry of two lithium bearing pegmatites to assess the origins and styles of lithium mineral crystallization. The growing importance of lithium as a commodity as the world transitions to green technologies makes studying the geological processes for concentration and the nature of lithium mineralization attractive and extremely important.

Thanks to the generous support of the Lipman Student Research Grant, Catriona will be able to use a variety of techniques to geochemically analyse, visualize and identify the Prof pegmatite mineralogy including electron probe micro analyses (EPMA), cathodoluminescence (CL) and mineral liberation analysis scanning electron microscopy mapping (MLA SEM).



She completed her integrated master's degree with first-class honors at the University of St Andrews in Scotland. Her master's thesis, supervised by Dr. Eva Stüeken and Dr. Michael Byrne, investigated deep-sea polymetallic deposit formation beneath the Arctic ice sheet using Python modeling of hydrothermal vent plumes. She is the current Co-President of the UBC Society of Economic Geologists' student chapter and has received multiple departmental scholarships and international research grants to support her Ph.D. research.

Haley Dietz, Idaho State University, Pocatello, ID, for her project: *Quantifying pre-eruptive water content of eastern Snake River Plain basaltic melts using plagioclase hygrometry, Idaho, USA*

Haley Dietz is a second-year master's student at Idaho State University working with Dr. Kendra Murray. Her thesis research involves applying plagioclase hygrometry to basaltic melts of the eastern Snake River Plain in Idaho. A plagioclase hygrometer estimates the pre-eruptive water content of a magmatic melt at the time of plagioclase crystallization. Inputs for the hygrometer include compositional data of individual plagioclase phenocrysts, which can be obtained using an electron microprobe. Funding from the GSA Lipman Student Research Grant will support travel to a collaborating lab where Haley can use an electron microprobe and collect quantitative compositional analyses across plagioclase crystals. This research will advance the understanding of eastern Snake River Plain basalt petrogenesis, which will contribute to assessing regional volcanic hazards.

Haley was born and raised in Albuquerque, New Mexico, where the Sandia Mountains sparked her interest in geology. She graduated with a Bachelor of Science in Earth and Environmental Science from the New Mexico Institute of Mining and Technology (NMT). At NMT, Haley worked for Virginia McLemore where she helped characterize rare earth element deposits in New Mexico, inspiring her interest in geochemistry and igneous rocks. In her free time, Haley likes to read, hike, and cook.



Cameron Essex, University of Wisconsin-Milwaukee, WI, for their project *Paleoenvironmental Reconstructions of the Pleistocene Ice Sheet Informed by Glacio-Volcanic Deposits in Northeast Iceland*.

Cameron Essex is a second year M.S. student at the University of Wisconsin-Milwaukee and advised by Dr. Barry Cameron. Their M.S. research will focus on four famous tuyas and their glacio-volcanic deposits in northeast Iceland: Gæsafjöll, Búfell, Bláfjall, and Herðubreið. Tuyas are common glacio-volcanic edifices in Iceland, and one of the main products of their formation is volcanic glass. Volcanic glass contains dissolved volatiles such as CO₂, H₂O, and SO₃, and the pressure-dependence of volatile solubility in magmas allows estimation of the ice thickness at the time of eruption by measuring the volatile content. The objective of this study is to analyze the geochemical characteristics of glass extracted from the four tuyas in order to determine if the glass is a viable tool for determining ice thickness change over time that existing field observations suggest.



With the support of the Lipman Student Research Grant, Cameron will be able to support an extended field season for their research project in Summer 2023. Afterwards, they will return to analyze the volatiles in volcanic glass using Fourier Transform Infrared (FT-IR) spectroscopy and isotopic step-heats. Plus, they will use Ar-Ar and paleomagnetic dating of the sub-aerial lavas that cap the four tuyas in order to constrain the environmental conditions in northeast Iceland during the last ice age.

Cameron grew up in Hoffman Estates, Illinois, and always had a curiosity about the Earth and how other planets operate. They graduated with their bachelor's degree from Illinois State University in Geology in 2022, and during that time became intellectually stimulated with the subject because of the combination of field and lab work. Cameron looks forward to being an active member of the geoscience community by organizing diversity, equity, inclusion, and accessibility spaces for LGBTQ+ people, and expanding their knowledge in the area of overlap between climate change, volcanoes, water resources, and geochemistry. In their spare time, Cameron enjoys cooking and baking, experimental dance, running through the wilderness, and a social night out.

Cameron is thankful for the support and consideration of the Lipman Student Research Grant and Geological Society of America's Mineralogy, Geochemistry, Petrology, and Volcanology Division has provided and is excited to continue working on their research project.

Lydia Fairhurst, Dalhousie University, Halifax, NS, Canada for her project *Emplacement conditions of class 1 kimberlites as recorded in natural and experimentally produced reaction products on mantle-derived chromite and ilmenite*.

Lydia Fairhurst is a third-year PhD candidate working with Dr. Yana Fedortchouk in the Experimental High Pressure Geological Research Lab at Dalhousie University (Canada). Her research, in collaboration with DeBeers Exploration and Northwest Territories Geological Survey, focusses on utilising reaction products formed on mantle-derived oxide minerals (ilmenite and chromite) to provide information on the melt and volatile composition of kimberlites and their crystallisation and emplacement conditions. Thanks to the generous support of the Lipman Student Research Grant, she is able to fund the completion of piston-cylinder experiments. This is vital to her research since the methodology involves an integrated approach in which she analyses



reaction products in natural and experimental samples. Her research on oxides is also economically significant, since the findings will contribute to a better understanding of diamond preservation in kimberlites.

Lydia is originally from the United Kingdom where she did her undergraduate degree (integrated bachelor and masters) at University of Birmingham (UK). This included completion of an independent five-week geological mapping project in Wales and a thesis on the petrology of Carboniferous age basalts and dolerites from the West Midlands (UK). She developed a love for the field aspect of geology during her undergraduate degree, and although her PhD research doesn't involve it directly, she has continued her involvement as a teaching assistant for Dalhousie University's field school three years running.

Serena Formenti, University of British Columbia, Vancouver, BC, Canada for her project: *Studying the composition of the Deep Mantle from the Surface of the Earth: Investigating Clues in the Northwest Hawaiian Ridge*

Serena Formenti is a Ph. D. student at the University of British Columbia, at the Pacific Centre for Isotopic and Geochemical Research under the supervision of Dr. Dominique Weis. Her Ph. D. project focuses on the evolution and structure of the Hawaiian mantle plume and the underlying deep mantle. Using 20 unique and rare samples from the Northwest Hawaiian Ridge (NWHHR), Serena is conducting thorough geochemical characterization of the sample set. Many geochemical signatures remain unchanged between deep mantle melts and volcanic rocks comprising the volcanoes, allowing her to study the deep mantle indirectly. The data provides insight on the deep mantle sources of the Hawaiian mantle plume and the nature and timing of a significant period of plume strengthening that occurred along the length of the NWHHR.



The Lipman Student Research Grant is generously supporting strontium isotope analysis of the NWHHR basalts via thermal ionization mass spectrometry. Currently, this is the best way to obtain high-precision strontium isotope data, which speaks to the composition of the mantle, specifically as it relates to the presence of absence of recycled crustal materials.

Serena completed her honors Bachelor of Science at McMaster University in Hamilton, Canada. Her thesis focused on local geohazards and structural geology. Meanwhile, she was introduced to isotope geology working with Dr. Alan Dickin to obtain neodymium-samarium model ages for ancient crustal material located in Quebec, Canada.

Aside from academics, Serena is passionate about science outreach and hosted two seasons of a geology-focused podcast "Backyard Geology" of the Geology Podcast Network, highlighting important geologic sites across Canada and across the world.

Kailee Gokey, Miami University of Ohio, Oxford, OH for her project: *Mineralogy and Geochemistry of Gold in Mine Waste in Tonopah, Nevada: Implications for Potential Recycling and Environmental Benefits for an Underserved Community*

Kailee Gokey is a fourth year PhD student at Miami University of Ohio under the current supervision of Dr. Mark Krekeler. Her research will focus on identifying “invisible gold” in arsenic-bearing pyrites in mine waste from Tonopah, NV, and exploring the implications for mine waste reclamation. Thanks to the Lipman Student Research Grant, she will be able to obtain in-depth bulk chemical data via inductively coupled plasma mass spectrometry (ICP-MS) and electron microprobe analysis (EMPA) which will allow for the quantification of gold in waste samples, and thus provide insight into the economic feasibility of reclaiming this waste as a potential ore source.

Kailee completed her B.S. at West Virginia University where she developed a passion for environmental pollution research. During her time at Miami, she has been able to further explore her interest by working on various environmental pollution research projects with topics ranging from road sediment contamination in the southwestern US to the study of $PbCrO_4$ pigmented road paint in the Midwest.



Alexander Hammerstrom, University of Massachusetts, Amherst, MA for his project *Trapped: Using Cascadian olivine-hosted melt inclusions to decipher the petrogenesis of primary magmas in a continental arc setting.*

Sarah Hickernell, Stanford University, Stanford, CA for her project *Coevolution of Intrusive and Extrusive Magmas: Mineral Records of the Searchlight Magmatic System, NV.*

Sarah Hickernell is a fourth-year Ph.D. candidate at Stanford University working with Dr. Ayla Pamukcu. Her work focuses on volcano-pluton connections, where she works on improving our understanding of the magmatic conditions and timescales that lead to eruptions of silicic magmas. She utilizes textural and geochemical information recorded in minerals and glasses to evaluate pre-eruptive magmatic conditions, like storage pressures and volatile contents. She applies mineral diffusion chronometry to evaluate the timescales over which silicic volcanics are stored in the crust as eruptible magma bodies. This work is being conducted on the Miocene-age Searchlight Pluton and Highland Range Volcanic Sequence in southern Nevada, a ~90°-tilted silicic pluton overlain by volcanics that are thought to be cogenetic on the basis of geochemistry, geochronology, and field relationships. She has also acted as the Research Assistant for the Stanford-USGS SHRIMP-RG laboratory since January 2022, where she supports users collecting high quality in-situ geochronological and trace element data.



Sarah obtained her B.S. from Union College in 2018, where she majored in geology and minored in environmental science & policy. She first became interested in geology at Union and decided to pursue igneous petrology research after conducting field work and research for her senior thesis, in which she investigated mafic enclaves from an andesitic

lava dome in Dominica, Lesser Antilles. She would like to thank the MGPV for awarding her the Lipman Research Award and appreciates the support GSA has provided for her research.

Rachel Holsteen Bruyere, Arizona State University, Tempe, AZ for her project *Highly Explosive Mafic Volcanoes: A New Model of Volatile Solubility*

Rachel Holsteen Bruyere is a 6th year Ph.D. candidate at Arizona State University working with Dr. Amanda Clarke and Dr. Kurt Roggensack. She earned her B.S. in Geology at Baylor University and A.A.S. in Interior Design at Pikes Peak Community College. She is studying mixed volatile (C-O-H) solubility in mafic magmas.



Her piston cylinder studies of volatile solubility will be paired with natural sample analyses of olivines and olivine-hosted melt inclusions from a pair of explosive events at Tecolote volcano, Pinacate Volcanic Field, Sonora, MX. This work, with support from the Lipman Research Award, will evaluate the volatile budget, magma storage conditions, and melt evolution of these deposits using Raman spectroscopy, FTIR, EPMA, and will work collaboratively with Dr. Melanie Barboni's group to adapt their recent triple quadrupole laser ICP-MS techniques for use on mafic melt inclusions. This combination of techniques will provide valuable insight into the conditions of Tecolote's magma prior to explosive eruption.

Beyond her research, Rachel is active in science communication, speaking with students in local schools and via Skype-a-Scientist at an age-appropriate level. She also serves as a student representative on the AGU VGP Executive Committee and as a member of a local public school district's Supplemental Materials Committee in between keeping up with her two sons and two pugs.

Samuel X. Hudziak, University of Iowa, Iowa City, IA for his project *Constraining the age and stratigraphic correlation of the Saunders Ash, Mt. Taranaki, New Zealand*

As an undergraduate geoscience major, Samuel Hudziak was faced with a difficult decision when presented with the choice to either forgo his final two years of National Collegiate Athletic Association (NCAA) eligibility as a member of the Men's Hockey team or spend a semester abroad in New Zealand studying geology. He chose to pursue his academic interests and had the opportunity to immerse himself within the incredible geology of New Zealand which fostered the desire to pursue geoscience as a career. This led to earning his MS in planetary sciences from The University of Iowa and internships with NASA utilizing remote sensed planetary analogue data to aid in the understanding of the lunar surface for future missions to the moon.

Currently he is pursuing his PhD at Iowa where his aim is to broaden his background in geochemistry while growing as a researcher and teacher to contribute ideas and foster learning opportunities within the community. He looks forward to utilizing the funding received for the Saunders Ash project to further international collaboration with the University of Auckland and to acquire key data for his PhD projects in contribution towards understanding Mt. Taranaki.



Kaitlyn Hulsey, University of Georgia, GA for her project *Building up magma reservoirs in the Earth's crust: the case of Stone Mountain.*

Nathanael Kilburg, University of Iowa, Iowa City, IA for his project *Characterizing the Matlock Keratophyre using high precision major and trace element geochemistry.*



Nathanael Kilburg received his undergraduate degree in geology from Iowa State University in 2016 and decided to go straight into the workforce instead of pursuing a higher degree. He worked for a few organizations that mainly focused on environmental conservation (geophysical surveying, groundwater contamination and regulation, and agricultural conservation planning), such as the Indiana Department of Environmental Management and the Conservation Districts of Iowa.

He chose to pursue his M.S. degree at the University of Iowa not only due to family ties, since his sister and mother did their graduate studies here previously, but also after a few meetings with Dr. David Peate at the University of Iowa, he decided his interests aligned with Dr. Peate's current research. He knew he wanted to transition back into a geology-focused career after his last professional work experience, so he decided pursuing a graduate degree and doing research was a great way to make that transition and to enhance his career opportunities as well.

Nathanael is currently figuring out his future career goals but may pursue a PhD after his M.S. degree is completed. He looks forward to utilizing the funding of the Lipman Research Award to broaden our understanding of the geologic history of Iowa's basement.

Jisoo Kim, Arizona State University Tempe, AZ for her project: *Magma reservoir and volatile content: Implications for future inter-caldera activity at Valles Caldera, New Mexico, USA.*

Jisoo Kim is a 4th year Ph.D. candidate at Arizona State University. She uses field observations, petrography, microanalytical methods, and numerical methods to explore pre-eruptive processes in post-caldera volcanic settings and the development of distributed volcanic fields. Current projects include:

- (1) developing a magma mixing model based on the Pietre Cotte explosive sequence at Vulcano Island (Italy),
- (2) exploring the role of tectonics on the development of the Sentinel-Arlington Volcanic Field (Arizona), and
- (3) refining understanding of the magma plumbing system of Valles Caldera (New Mexico) using melt inclusion studies from the most recent explosive sequence, El Cajete.



Jisoo is also interested in applications of remote sensing and petrological analyses to volcano monitoring and eruption response. She earned an M.S. in Geological Sciences from ASU in 2020 (thesis title: *"Transitions in Eruption Style at La Fossa Cone, Vulcano, Italy"*) and a B.A. in Earth Science from the University of Pennsylvania in 2018 (thesis title: *"Habitat vs. Body Form Analysis of Fishes Over Time"*).

Outside of research, Jisoo also serves on the Executive Committee of United Campus Workers Arizona, the wall-to-wall union for workers at ASU and the University of Arizona.

Laura Lapham, University of Connecticut, Storrs CT for her project *Post-Glacial fire and climate history of Southern New England*.

Mikkel Louis, Oregon State University, for her proposal: *Constraining eruption initiation mechanisms for cyclic explosive eruptions at Misti volcano, Peru*



Mikkel is a Ph.D. student at Oregon State University where she works with Dr. Frank Tepley III. Her primary research goal is to try and determine what processes were required to produce the Late Pleistocene felsic eruptions of the Cayma stage at Misti volcano, Peru. At Misti, there are four rhyolitic to dacitic tephra-fall deposits that comprise the Cayma stage. These tephra-fall deposits come after a time of andesite producing eruptions that suddenly shift composition to the oldest rhyolite unit of the Cayma stage. Mikkel wants to better understand what caused this abrupt change in composition and how that relates to whole-rock silica contents decreasing through the Cayma stage. Developing a more robust history of previous eruptions at Misti, including the infrequent felsic eruptions is important as Misti is still an active volcano.

Prior to being at OSU, Mikkel completed her MS in Geology (2022) at Western Washington University with Dr. Jackie Caplan-Auerbach. Her thesis detailed the progression of submarine eruptive sounds from West Mata volcano, NE Lau Basin using a moored hydrophone array. She received her BS in Geology (2018) with a minor in Mathematics from Central Washington University where she did undergraduate research with Dr. Wendy Bohrsen using the Magma Chamber Simulator to complete computational models of the Steens Basalt (SE Oregon).

When Mikkel is not working on her research she likes to spend time with family, read, and explore new places.

Pablo Moreno-Yaeger, University of Wisconsin-Madison, Madison, WI for his project *Volatiles and rhyolite genesis within a predominantly basaltic to andesitic arc*.

Pablo is a Chilean Ph.D. candidate at the University of Wisconsin-Madison under the advice of Professor Brad Singer. His research aims to understand and explain the effect that ice loading and unloading has on continental arc volcanoes. To do this, Pablo investigates three different volcanoes in the Andean Southern Volcanic Zone (SVZ, Chile) that were covered by ~1.5 km thick Patagonian Ice Sheet between 45 and 18 ka. Pablo dates effusive products and constrains its magma storage to explore the evolution of volcanoes before, during and after glaciation.



Pablo on top of Mocho-Choshuenco volcano. Lanín volcano is seen in the back.

With the Lipman Research Award, Pablo will be able to measure water contents using the Secondary Ion Mass Spectrometer (SIMS).

He was born in San Bernardo, Chile and graduated from Universidad de Chile in Geology. After his graduation, he worked as a teacher for undergrad geoscience classes in southern Chile and then moved to Madison, Wisconsin where he graduated as a Master in Geoscience after investigating the magma storage conditions in Mocho-Choshuenco volcano (Chile).

Hans Naake, University of Cincinnati, Cincinnati, OH for his project: *Isotope Fractionation of a Paleoclimate Evaporation Proxy Produced by Two Diatom Communities*.



Hans Naake is beginning his second year as a master's student at the University of Cincinnati. He is advised by Dr. Aaron Diefendorf, a geochemist who specializes in biomarkers and paleoclimate reconstruction. Hans' research involves investigating and developing the utility of highly branched isoprenoids (HBIs) as a proxy for paleoclimate reconstructions. By sampling and analyzing the isotopic composition of HBIs in modern lake sediments, he aims to discern if different diatom communities within the same lake produce HBI's with differing isotopic fractionation, which would affect how this proxy could be used in paleoclimate reconstruction. Along with his advisor, Hans would like to give special thanks to Dr. Tom Lowell and lab assistant A.J. Kmetz for their invaluable help in his research, as well as all others that have contributed to the team effort that is science.

As an avid enjoyer of the outdoors since childhood, Hans's interest in natural science began developing at a young age. Trips with family and friends to various national and state parks, such as the Grand Canyon and Glacier National Park, made him realize the importance of environmental protection and sparked a passion for promoting public engagement with science. After graduating with his B.S. in Geology from the University of Cincinnati and working in the construction industry for a few years, he decided to return to school for his master's degree. Along with his research, he volunteers with a group called Science Harvest which brings science demonstrations to local farmers markets to help promote interest in earth science to kids and adults alike.

Hans would like to extend his most sincere gratitude to the GSA, and especially the the Howard and Jean Lipman Foundation and MGPV Division, for this award that will be highly beneficial to his research.

Jackson Oakey, University of Georgia, Athens, GA for his project *Flow or Blow? Understanding magma flow in conduits during vesiculation*

Jackson Oakey is a second-year M.S. student at the University of Georgia working with Dr. Mattia Pistone. His work focuses on volatile degassing and conduit wall rock interactions in temperatures relevant to silicic magmas. He utilizes rheological textures in the field preserved by lava flows and experimental procedures in the lab to evaluate volatile loss as a control on the transition from explosive to effusive eruption transitions. Experimental procedures include the use of high temperature furnaces and Scanning Transmission Electron Microscopy. This work is being conducted on the Rocche Rosse obsidian lava flow located on Lipari Island off the northern coast of Sicily. The effusive Rocche Rosse lava flow occurred ~500 years after the explosive Mt. Pilato eruption with both eruptions bulk rock chemistry being homogenous aside from volatile contents.



Jackson obtained his B.S. from Middle Tennessee State University in 2021, where he majored in geology. He decided to pursue research in Magma rheology after he completed a project and presented a poster at GSA connections 2021 conference working with Dr. Warner Cribb on estimating magma ascent rates of Mt. Hood. He would like to thank the MGPV for awarding him the Lipman Research Award and is grateful for the support GSA has provided for his research as with their funding he will be able to cover the expenses of fieldwork.

Trent Olson, University of Iowa, Iowa City, IA for his project: *Constraining the crystallization conditions of the Mt. Taranaki, NZ MASH zone.*



Trent Olson is a Ph.D. candidate at the University of Iowa under the supervision of Dr. David Peate. His Ph.D. research focuses on the geochemical conditions found within the magma chamber(s) that feed Mount Taranaki. Xenoliths of crystal cumulates from the MASH zone are being used for *in-situ* analysis of amphibole, pyroxene, and apatite to constrain the melt-crystal equilibrium conditions that would have formed those phases. The amphibole and pyroxenes will be used to determine the T-P conditions of crystallization. A particular focus will be on the volatile element (F, Cl, S, OH) concentrations in the amphiboles and apatites to test for changes in equilibrium conditions at different stages of storage within the plumbing system. The final piece of the project is to test a novel use of XANES to determine sulfur speciation within apatite and how that speciation would be affected by the redox state in the magma chamber.

With the support of the Lipman Student Research Grant, Trent will be able to acquire the large geochemical data set, using both EPMA and LA-ICP-MS, needed to construct a geochemical model of crystal-melt equilibrium conditions for the Mt. Taranaki, NZ MASH zone.

Trent completed his B.S. degree, with honors, at North Dakota State University in Geology in 2018. During his undergraduate, he had an opportunity to engage in research that fueled an interest in doing more research. He then completed his M.S. at the University of Iowa in 2021 before continuing to do a Ph.D. Trent has become an advocate for the neurodivergent that are completing graduate degrees.

Michael Powell, Dalhousie University, Halifax, NS, Canada for his project *High field strength element behaviour in late stage felsic systems*

Michael Powell is a Ph.D. candidate at Dalhousie University under the supervision of Dr. James Brenan. His thesis research is focused on the behaviour of the high field strength elements (HFSE, e.g., Zr, Hf, Nb, Ta) in late-stage felsic magmas. This research employs a high-temperature experimental approach to elucidate the roles that micas and exsolved volatile phases play in the concentration and fractionation of HFSE. Michael will also investigate the role of Fe-Ti oxides in the segregation of HFSE in natural samples from the South Mountain Batholith of Nova Scotia, Canada. Through the generous funding of the Lipman Research Award, Michael will be able to acquire the high-purity noble metal tubing required to perform his experiments. This tubing becomes the vessel into which experimental samples are loaded and is vital to ensuring the experiment is conducted in a closed system.



Michael is also the Vice President of his department's graduate student society and is leading the effort to re-establish a student chapter of the Society of Economic Geologists at Dalhousie. Prior to starting his doctoral studies, Michael completed his BSc. (Hons) in Earth Sciences and Biology at Dalhousie University, where he also completed a Certificate in Geographic Information Systems. Outside of academia Michael enjoys backpacking, reading Steinbeck, and watching Notre Dame football.

Anna Ruefer, Stanford University, Palo Alto, CA for her project *Big vs little: the generation, storage, and eruption of explosive rhyolitic eruptions*

I'm a 2nd year PhD candidate at Stanford University, working with Dr. Ayla Pamukçu. I earned my B.S. in Geology at James Madison University in Virginia and M.S. at Baylor University.

I'm fascinated by super-sized, explosive eruptions and using erupted glass and minerals as tiny messengers of the processes that stirred Earth to life in such a cataclysmic way. My dissertation work, funded in part thanks to the Lipman Research Award, focuses on one of the most dramatic expressions of explosive volcanism in Earth's history, the great ignimbrite flare-up in western Nevada. Here in the Stillwater caldera complex, a series of nested calderas record multiple cycles of eruptions of various sizes, all of which erupted in geologically rapid succession. Later, tectonics dissected the rocks, exposing the plutonic roots of the system. This is a fascinating place to explore how these magmas are generated, stored, and eventually mobilized. I hope to do this using the petrologists' toolbox, including geochemistry, geobarometry, and diffusion chronometry.



Erik J. Schoonover, Pennsylvania State University, University Park, PA for his project *Connecting plutons and volcanoes through zircon depth profiles*.



Erik Schoonover is a 3rd year PhD candidate at The Pennsylvania State University in the Department of Geosciences. Under the mentorship of Dr. Jesse Reimink, his research is pushing the use of depth profiling by split stream LA-ICP-MS on igneous zircons to understand the thermal and chemical evolution of granitoid magmas. This research looks at one of the outstanding questions in igneous petrology: the connection between plutons and volcanoes. Plutonic and volcanic zircons from the Organ Mountain caldera and batholith will be compared by their geochemical trajectories in temperature space. The thermochemical history of the two populations can help elucidate if the magmas coevolved or were independent.

Erik found his love for rocks in the Keweenaw Peninsula of Michigan on an introductory field course. While studying chemistry at Hope College, an interest in geology turned into a passion after taking a petrology course. There he learned he could apply his chemistry background to the more tangible geosciences. A REU at the American Museum of Natural History in New York City solidified a path to study petrology. After graduating with a B.S. in Chemistry and Geology, Erik moved to Penn State to work at the

intersection of geology and chemistry.

In his free time, Erik spends time in Philadelphia with his new wife, hikes the trails of State College, and plays pickleball and disc golf.

Elizabeth Shade, University of Cincinnati, Cincinnati, OH for her project *Fluorescence as a Tool in Diamond Origin Tracing*.

Isabella McCune Ulate, Colorado State University, Fort Collins, CO for her project: *Weathering in Rocky Mountain Alluvial Valleys*

Isabella Ulate is a second year Masters student at Colorado State University in the Department of Geosciences working in the GeoPAST group. Under the mentorship of Dr. Jeremy Rugenstein, her research focuses on alluvial floodplains' contribution to the weathering budget of a mountain range using a well-studied alluvial floodplain at the CSU Mountain Campus in the northern Front Range. The study site is ideal for understanding how an alluvial valley contributes to weathering due to the active connection between the groundwater and surface water, the well-constrained groundwater dynamics, and the silicate lithology of the surrounding catchment. Quantifying the contribution of alluvial valley sediment weathering to the mountain's overall weathering budget is important for better understanding what role these types of mountain environments play in the global carbon cycle.



Isabella received her B.S. in Chemistry from Virginia Tech, with a concentration in inorganic synthesis. Through an amazing opportunity to work with the United States Antarctic Program for two winter seasons, she discovered a fascination for geochemistry and global climate processes. In her free time, she is an accomplished violinist and performs with the CSU Symphony. She also greatly enjoys crafting, camping, live music, and cuddling with her cat, Barnabas.

Brooke Vander Pas, Indiana University Purdue University at Indianapolis for her project: *Isotopic and Geochemical Evidence for Potential Terrestrial-Oceanic Anoxia Ties from Near-Polar Early to Middle Devonian Coastal Sequences*.

Brooke Vander Pas is a sixth-year Ph.D. student at Indiana University Purdue University at Indianapolis working with Dr. William Gilhooly III. Her work revolves around the land plant expansion, particularly during the Devonian marine extinctions, in a high-latitude Devonian sequence as most previous research has focused on equatorial regions despite being hypothesized as global events. Using well-correlated (i.e., spores) coastal samples, her main goal is to use a chemostratigraphic approach as a more rapid and widely applied method to track the source and timing of increased nutrient load in the higher latitudes to test whether these events were truly global.



Brooke obtained her B.S. from the University of Wisconsin Oshkosh where she discovered her passion for geology and teaching. During her time at Oshkosh, Brooke was involved in two research projects, focusing on detrital zircons with Dr. Timothy Paulsen and the effect of microborings on *Poecilozonites* shells from Bermuda with Dr. Eric Hiatt, in addition to student teaching and tutoring. Her time at Oshkosh further developed her interests in geology and inspired her to continue her education at Indiana University Purdue University at Indianapolis.

In her spare time, she enjoys traveling, baking, painting, and spending time with family and friends. She would like to thank the Howard and Jean Lipman Foundation and the MGPV Division for awarding her the Lipman Research Award.

Ethan Wagner, Missouri State University, Springfield, MO for his project: *Geochronology of the rhyolites and andesites of the Bursum caldera, Mogollon-Datil volcanic field, New Mexico.*

Ethan Wagner is a M.S. student currently studying at Missouri State University, working as a teaching assistant for mineralogy labs and conducting research with Dr. Gary Michelfelder on geochemistry and geochronology in New Mexico. His thesis research focuses on the geochemistry and geochronology of zircons from the resurgent domes of the Bursum caldera in the Mogollon-Datil volcanic field, New Mexico. This study seeks to understand the temporal and spatial relationship of the resurgent domes related to the 28 Ma Bursum caldera which span the transition from rhyolite to basaltic andesite volcanism which records this transition occurs abruptly between 27-26 Ma. In addition, this research will provide new age dates for the understudied Fannef Rhyolite which makes up the resurgent domes. Special thanks to the Lipman Student Research Grant, which will provide funding for ID-TIMS analysis and LA-ICPMS analysis of zircon, along with funding for summer field work.



Ethan Wagner received his Bachelor's degree from Stephen F. Austin State University, TX, with an undergraduate research project titled "hXRF Analysis of Metamorphic Xenoliths and A Bulk Compositional Comparison of Metamorphic Units in the Llano Uplift, Texas". In the future Ethan Wagner plans to work for the NPS or similar organization to be directly involved with the preservation, understanding, and education of our earth's natural areas.

Zachary Walton, University of Kentucky, Lexington, KY for his project *Carbonate Content as a Control on REE Distribution in the Illinois-Kentucky Fluorspar District.*

Jiawei Wang, Cornell University, Ithaca, NY for his project *Weathering Kinetics of Granitic Iron-bearing Minerals*



Jiawei Wang is a PhD student in the Department of Earth and Atmospheric Sciences at Cornell University. After completing the first year at Fernandez's CritChem Lab, his research focuses on the kinetics of water-rock interactions during the chemical weathering, especially the dissolution kinetics of iron-bearing minerals. His goal is to obtain the kinetic parameters of key mineral dissolution through experiments, and to constrain the weathering in different environments and geological periods with complimentary geochemical modeling. Thanks to the Lipman Student Research Grant, Jiawei will work on the dissolution experiments of Fe-bearing minerals in granitoids under different oxygen levels, which will help us understand weathering in deep-time and its role in global carbon cycle. The cost of building reactor for controlled oxygen concentration will be covered by this precious research funding.

Jiawei comes from China and received his Bachelor's Degree in Geochemistry at University of Science and Technology of China. He was interested in the redox reconstruction and relationship between environmental and biological evolution during the Ediacaran period when the first animals emerged. Because of the due to the global pandemic he was only able to continue his PhD career in USA in 2021.

In his spare time, he enjoys playing guitars, hiking, and relaxing with his friends. Coming all the way to the United States, the transition has been exciting but also challenging for him. Over the past year, Jiawei has received a lot of support in his academic journey. Especially, it was with the encourage and support from Dr. Fernandez, his advisor, that he was able to apply for and obtain this valuable grant.

Thomas Williams, Brown University, Providence, RI for his project *Across-Arc Variability of Major, Trace, and Volatile Elements in the Andean Southern Volcanic Zone*

Tom Williams is a third year PhD student at Brown University, working under the supervision of Stephen Parman and Alberto Saal, and he has a fascination for everything related to volcanic volatiles. Funding from the Lipman Fund and the MGPV Division of the GSA will enable him to analyse volatile elements in olivine-hosted melt inclusions from sites across the Southern Andes Volcanic Zone. This will be used to establish the budget and distribution of mantle volatiles in the region, a necessary step towards understanding the role that different processes play in contributing to the generation and evolution of magmatism in the southern Andes.



Tom grew up in the United Kingdom and completed his integrated master's degree with first-class honours at the University of Oxford. He has a love for the outdoors, and outside of research he enjoys hiking, cycling, skiing, and taking part in any random sport he gets asked to play (e.g., Underwater Hockey).

Frank Wroblewski, University of Idaho, Moscow, ID, for their project: *Validating the Visible and Near-Infrared Reflectance of Glass with Electron Microscopy*.

Frank Wroblewski is a Ph.D. Candidate at the University of Idaho working with Dr. Erika Rader. His research focuses on determining the distribution of glass-rich variations on basalt flow surfaces using remotely sensed and *in-situ* measurements of visible and near-infrared spectra. In doing so, Frank is interested in developing a more comprehensive, and accessible, approach to understanding how lava flows and other glass-rich landforms may record their emplacement conditions on Earth and other rocky bodies like the Moon, and Mars through spectral data.

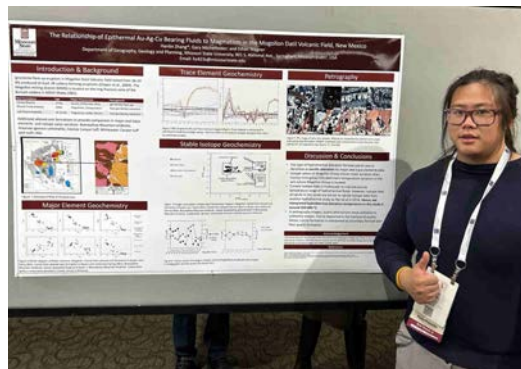


Frank is grateful for the funding provided by the Lipman Research Award, where he will be able to validate the petrology and glass content of samples gathered from Krafla, Iceland, by comparing scattered electron image data of the basalts to spectral data collected in the field.

Prior to the University of Idaho, Frank obtained a B.S. in Geology from Northland College in 2019, during which he gained interest in planetary geology during an internship at the Lunar and Planetary Institute.

Hanlin Zhang, Missouri State University, Springfield, MO for his project: *Trace element and Hf-Isotope analysis of zircons from Sanit Francois Terrane.*

Hanlin Zhang is a graduate student currently studying at Missouri State University in geology and working as a teaching assistant for the introductory geology labs. Hanlin Zhang's research interests covers economic geology, igneous petrology, and experimental geology. His thesis research focus on the relationship between the Pea Ridge Iron Oxide-Apatite (IOA)-Rare Earth Element (REE) deposit in the St. Francois Mountain Terrane and the Mesoproterozoic Granite-Rhyolite Provinces. This research aims to determine the relationship between the diversity of igneous rocks in the two provinces and the contributions of the crust versus the mantle in each. In addition, the Pea Ridge deposit is being investigated for its potential interaction with the two granite-rhyolite provinces. Special thanks to Lipman Student Research Grant, Hanlin Zhang will have the access to perform whole rock trace element compositions, radiogenic isotope ratios, and zircon trace element and Hf isotope ratios to test hypotheses related to the source of the granites, and the interaction between the IOA deposit and the crustal melting during the formation process of the SRPG.



Hanlin Zhang received his Bachelor's degree in Beloit College, WI, with an undergraduate research project titled "*Hydrothermal Alteration of the Clay Cap in the Creede Mining District*". The challenges and excitement in completing his undergraduate research ignited his ambition for economic geology which inspired him to pursue a master's degree. In the future, Hanlin Zhang plans to get a position with the Missouri State Geology Survey to do more investigation in economic deposit in Missouri State.

Carmichael Student Research Grant

The Ian S.E. Carmichael Research Award was established in 2018 to support graduate student research and related activities in the fields of igneous petrology and volcanology.

Caitlin Bates, California State University, Fullerton, for her project: *Can low-volume magmatism generate large-scale eruptions? Petrologic investigations of the Jurassic Standard and King Creek plutons, CA, to test the hypothesis that they underwent melt loss to eruptions.*

Caitlin is a second year Master's degree student at California State University, Fullerton working with Dr. Vali Memeti. During her undergraduate years, Caitlin developed a love for research. Her first project, conducted under the direction of Dr. E. Erik Bender at Orange Coast College, was a petrologic examination of mantle xenoliths from the Dish Hill cinder cone in the Mojave Desert, CA to address questions about lithospheric mantle composition and metasomatism. She went on to receive a B.S. in Geology from California State University, Fullerton in 2022, under the advisement of Dr. Memeti. Her senior thesis research investigated the timing and magma source of the Late Jurassic Sonora dike swarm and Standard pluton in Sonora, CA, with a comparison to other Jurassic dike swarms in the Sierra Nevada batholith.



Her current research project is focused on the Standard and King Creek plutons, which were emplaced during the Late Jurassic low-volume magmatic flare-up event, to determine whether the plutons lost melt, possibly to volcanic eruptions. Neither

pluton has preserved volcanic deposits, thus detailed petrologic and geochemical studies of the two plutons will provide evidence of past melt loss through the presence of cumulate textures, a comparison between melt compositions derived from mineral chemistry and whole rock compositions, and an estimate of potential melt loss volume and its composition via geochemical modeling. The Ian S.E. Carmichael Research Award will provide funding for Caitlin to conduct mineral-scale trace element analyses using LA-ICP-MS at the Texas Tech University GeoAnalytical Laboratory.

In her spare time, Caitlin enjoys sewing costumes, dancing, and visiting new waterfalls.

Hollister Graduate Student Research Grants

The Lincoln S and Sarah W. Hollister Graduate Student Research Awards Fund supports research grants to graduate students working on field-based theses and dissertations that use the tools of metamorphic petrology for understanding the formation of continental crust. Tools include, but are not limited to, phase equilibria based on data obtained with the electron microprobe or SEM/EDS, radiometric analysis, ductile deformation including data from EBSD, fluid inclusions, trace element analysis, and crustal seismology. As relevant, the awards will seek to enhance the recipient's ability to reach remote regions and to conduct research in the safest manner possible.

Michael Gordon Barnard, Louisiana State University, LA, for his project: Elucidating an Environment of Tourmalinization for Paleoproterozoic Tourmalinites from the Tusas Mountains, New Mexico.



Michael "Mike" Gordon Barnard is an American Geoscientist entering his second year of his Master's degree studies at the Louisiana State University. He is supervised by Dr. Barbara L. Dutrow and is a member of the Tourmaline research group.

Mike's Master's thesis is focused on a newly recognized tourmalinite locality from the Cerro Colorado Tusas Mountains. These ca. 1.69 Ga tourmalinites were originally described as fine-grained amphibolite's and are hosted within an unusually altered staurolite-garnet-biotite schist. Understanding the formational conditions of the Cerro Colorado Tusas mountains tourmalinite will provide valuable information on the chemical evolution of Proterozoic crust where outcrop is typically not preserved.

Mike is very thankful for the financial support provided by the Lincoln S and Sarah W. Hollister Graduate Student Research Award which will allow him to conduct field studies in the Cerro Colorado Tusas Mountains as well as to collect additional major, minor, and trace element data on tourmalinites with the EMPA.

Mike received his undergraduate degree in Geology from Norwich University in Northfield, Vermont in 2021 with minors in English and Philosophy. After graduation Mike worked as a wellsite geologist in west Texas and New Mexico with Impac Exploration Services and later in the Gulf of Mexico and North Atlantic with Halliburton. After graduation Mike would like to work as an economic geologist to identify new resources and evaluate known deposits of critical elements needed for the energy transition. Besides a love for tourmaline, Mike enjoys cooking, hiking, and fishing for the new lake record large-mouth bass.

Student Travel Grants

MGPV Travel grants support student travel to the annual GSA meeting. The funds for this award were endowed by the estate of James B. Thompson Jr., who recognized the value of presenting results at meetings and attending field trips for students preparing for careers in the geosciences.

- **Emma Burkett**, University of New Hampshire, *Assessing Crustal Storage throughout the Eruptive History of Augustine Volcano*
- **Juliana Curtis**, Miami University of Ohio, *An Integrated Petrological, Geochemical, and Geochronological Study of Megacrystic K-Feldspars from Cretaceous-Aged Intrusions, Central Nevada: Insights Into Earth's Magmatic Record Keepers*
- **William Dufresne**, Clemson University, *Electron-Phonon Interactions and Resonant Multiphonon Scattering in Hematite*
- **Jisoo Kim**, Arizona State University, *Magma reservoir conditions and volatile concentrations for inter-caldera El Cajete sequence at Valles Caldera, New Mexico, USA*
- **Sarah Lamm**, University of Kansas, *Elucidating the Structural State of Opaline Silica by Raman Spectroscopy*
- **Quinton Mindrup**, Kansas State University, *Impact of Seawater Alteration on Cu Isotope Composition of Oceanic Basalts along the South Atlantic Transect: IOPD Exp 390/393 & Lithium Concentrations in Cenozoic Rhyolite Vitrophyres and Quartz-Hosted Melt Inclusions: Implications for Lithium Deposits in the Northern Great Basin (U.S.A.)*
- **Allyson Murray**, University of Michigan, *Direct Evidence of a Magmatic-Hydrothermal Hypersaline Ore Fluid at the Enigmatic El Laco Iron Oxide Apatite Deposit*
- **Ellen Polites**, University of Wyoming, *The Full Picture of REE Mobilization in Low Temperature Sedimentary Basins: Water, Rock, and Oil in The Big Horn Basin, Wyoming*
- **Christine Reimer**, Bowdoin College, *Origin of Rhyolite from Crystal Mush: Plutonic Lithics From the Ohakuri Ignimbrite, Taupo Volcanic Zone, New Zealand*
- **Mary Roach**, Louisiana State University, *Multiple fluid interactions recorded in tourmaline from the Dorothy China Clay Pit, Cornwall, UK*

Contributors

There are several permanent Funds that provide a source of income for critical programs and services offered by GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division. Income from these funds provide for a range of student research and travel grants and recognition awards. Some are single donor gifts or bequests, but many members contribute to the MGPV Division each year by including a contribution with their dues. Here we want to extend our gratitude to those who helped support the Division:

Lipman Research Fund: Monica G. Easton, Cynthia A. Gardner, Shari A. Kelley, Charles T. Lewis, Gary S. Michelfelder, Alyssa Pascoe, Michael P. Poland, Jeffrey G. Ryan, Eugene I. Smith, Alan L. Swenson, John A. Wolff

The James B. Thompson Jr. Fund: estate of Dr. James B. Thompson, Jr.

MGPV Division Fund: John R. Bowman, Michael Brown, Rosemary C. Capo, John F. Casey, Thomas V. Dagenhart, Christopher G. Daniel, Monica G. Easton, Rachel Echevarria, Maureen D. Feineman, Lydia K. Fox, Cynthia A. Gardner, Rosemary Hickey-Vargas, William R. Holly, Abram Z. Jeremenko, Dhurba Kandel, Shari A. Kelley, Richard A. Ketcham, Jeffrey S. Lee, Charles T. Lewis, Xiyao Li, Andrea Magli, Virginia T. McLemore, Gary S. Michelfelder, Calvin F. Miller, Peter I. Nabelek, Alyssa Pascoe, Terry L. Pavlis, Michael R. Perfit, Michael P. Poland, Michael F. Roden, Jeffrey G. Ryan, Jane Selverstone, Thomas Sisson, Eugene I. Smith, John A. Speer, Alan L. Swenson, Sandra Underwood, Johan C. Varekamp, John A. Wolff, James D. Wright

Ian S.E. Carmichael Research Fund: Maureen D. Feineman, Michael F. Roden, Thomas Sisson, Johan C. Varekamp

The Lincoln S and Sarah W. Hollister Graduate Student Research Awards Fund: John R. Bowman, John F. Casey, Christopher G. Daniel, Lydia K. Fox, Peter I. Nabelek, Terry L. Pavlis, Jane Selverstone, James D. Wright

Giving to MGPV

You can donate to the MGPV Division, either when you renew or any other time at the [GSA Foundation's online giving page](#). Enter a donation amount and then select “Mineralogy, Geochemistry, Petrology, and Volcanology Division Fund” from the “Select a Fund” pull-down menu.

There are several other permanent Funds that provide a source of income for programs and services related to the Mineralogy, Geochemistry, Petrology, and Volcanology Division:

- James B. Thompson, Jr. Endowment
- Howard and Jean Lipman Foundation
- Lincoln S and Sarah W. Hollister Graduate Student Research Awards Fund
- Ian S.E. Carmichael Research Award

Income from these funds provide for a range of student research and travel grants and recognition awards. Some are gifts or bequests, but many members contribute to the MGPV Division each year by including a contribution with their dues.

Remember:

Renew your MGPV Division membership when you renew your GSA membership.
Encourage your MGPV-interested colleagues to join:
<http://community.geosociety.org/mgpvdivision/join>

MGPV at Pittsburgh, Pennsylvania

15-18 October 2023

An In-Person and Accessible Meeting. GSA will record for on-demand viewing after the meeting has ended all Pardee Keynote Symposia, Presidential Address & Awards, Noontime Lectures, Special Lectures, and Halbouty Distinguished Lecture, along with all topical and discipline sessions.



74 Topical and 5 Disciplinary half-day Sessions as well as 2 Pardee Keynote Symposia endorsed and co-endorsed by MGPV Division and its Adhering Societies (27 are poster sessions)

- T005. Carbon and Hydrogen Storage in Geologic Systems (Posters).
- T005. Carbon and Hydrogen Storage in Geologic Systems.
- T007. Linking Critical Minerals and the Geologic Framework of North America I: The USGS Earth Mapping Resources Initiative (Earth MRI) and Related Activities.
- T007. Linking Critical Minerals and the Geologic Framework of North America II: The USGS Earth Mapping Resources Initiative (Earth MRI) and Related Activities.
- T007. Linking Critical Minerals and the Geologic Framework of North America: The USGS Earth Mapping Resources Initiative (Earth MRI) and Related Activities (Posters) .
- T008. Critical Research on Critical Minerals in Western North America (Posters).
- T008. Critical Research on Critical Minerals in Western North America I.
- T008. Critical Research on Critical Minerals in Western North America II.
- T009. Regional Characterization of Critical Mineral Potential (Posters).
- T009. Regional Characterization of Critical Mineral Potential.
- T010. Characterization of Critical Metals in Unconventional Ores to Inform Recovery Potential (Posters).
- T010. Characterization of Critical Metals in Unconventional Ores to Inform Recovery Potential (Posters).
- T010. Characterization of Critical Metals in Unconventional Ores to Inform Recovery Potential.
- T010. Characterization of Critical Metals in Unconventional Ores to Inform Recovery Potential.
- T017. Environmental Geochemistry and Health (Posters).
- T017. Environmental Geochemistry and Health I.
- T017. Environmental Geochemistry and Health II.
- T034. Early Involvement in Geoscience Research Among K9–16 Students Can Ensure Sustained Growth of the Discipline (Posters).
- T042. Records of Quaternary Climate, Hydrology and Landscape Evolution in the Great Basin, USA.
- T086. Subduction Zone Processes in the Evolution of Ophiolites, Continental Crust, and Orogenic Belts (Posters).
- T086. Subduction Zone Processes in the Evolution of Ophiolites, Continental Crust, and Orogenic Belts I.
- T086. Subduction Zone Processes in the Evolution of Ophiolites, Continental Crust, and Orogenic Belts II.
- T087. Unravelling Timescales of Magmatism, Metamorphism, and Crustal Evolution (Posters).
- T087. Unravelling Timescales of Magmatism, Metamorphism, and Crustal Evolution I.
- T087. Unravelling Timescales of Magmatism, Metamorphism, and Crustal Evolution II.
- T088. Urban Geochemistry (Posters).
- T088. Urban Geochemistry.
- T091. Advances in Non-Traditional Stable Isotope Measurements and Utility as Proxies in Modern and Paleo-Settings (Posters).
- T091. Advances in Non-Traditional Stable Isotope Measurements and Utility as Proxies in Modern and Paleo-Settings I.
- T091. Advances in Non-Traditional Stable Isotope Measurements and Utility as Proxies in Modern and Paleo-Settings II.
- T094. GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division Awards Session.
- T106. Sedimentary Geology Division/SEPM Student Research Poster Competition: Dynamics of Stratigraphy and Sedimentation (Posters).
- T109. Advances in Detrital Heavy Minerals: Applications and Methods (Posters).
- T109. Advances in Detrital Heavy Minerals: Applications and Methods.
- T110. Creative Contributions in Volcanology and Petrology I: In Honor of Katharine V. Cashman, Recipient of the 2023 Distinguished Geological Career Award from the Mineralogy, Geochemistry, Petrology and Volcanology Division.
- T110. Creative Contributions in Volcanology and Petrology II: In Honor of Katharine V. Cashman, Recipient of the 2023 Distinguished Geological Career Award from the Mineralogy, Geochemistry, Petrology and Volcanology Division.
- T110. Creative Contributions in Volcanology and Petrology III: In Honor of Katharine V. Cashman, Recipient of the 2023 Distinguished Geological Career Award from the Mineralogy, Geochemistry, Petrology and Volcanology Division.

- **T110. Creative Contributions in Volcanology and Petrology: In Honor of Katharine V. Cashman, Recipient of the 2023 Distinguished Geological Career Award from the Mineralogy, Geochemistry, Petrology and Volcanology Division (Posters).**
- T114. Impact Cratering Across the Solar System.
- T122. Planetary Exploration and Education: How We Learn about Our Solar System and Beyond.
- T124. Venus: Earth's Hotter Twin.
- T127. Karst Sedimentary, Paleoclimate, and Historical Records (Posters).
- T139. Assembling a Craton: Recent Insights into Precambrian Assembly and Growth of Laurentia and Its Cratonic Components.
- T140. Hydrothermal Systems and Their Geologic Records.
- T141. Arsenic, Fluoride, and Other Geogenic Contaminants in Groundwater: Advances in Application of Data Science, Machine Learning for Risk Assessment and Monitoring for Sustainable Mitigation of Associated Health Hazards (Posters).
- T141. Arsenic, Fluoride, and Other Geogenic Contaminants in Groundwater: Advances in Application of Data Science, Machine Learning for Risk Assessment and Monitoring for Sustainable Mitigation of Associated Health Hazards.
- T145. Advances in Managed Aquifer Recharge.
- T149. Geologic Carbon Storage (Posters).
- T149. Geologic Carbon Storage.
- T153. Mineral Informatics and the Evolution of Earth, Planets, and Life: In Honor of MSA Awardee, Shaunna M. Morrison (Posters).
- T153. Mineral Informatics and the Evolution of Earth, Planets, and Life: In Honor of MSA Awardee, Shaunna M. Morrison (Posters).
- T153. Mineral Informatics and the Evolution of Earth, Planets, and Life: In Honor of MSA Awardee, Shaunna M. Morrison.
- T153. Mineral Informatics and the Evolution of Earth, Planets, and Life: In Honor of MSA Awardee, Shaunna M. Morrison.
- T154. A Session in Honor of Georges Calas, Professor Emeritus, Sorbonne Université, Paris, France, and 2023 Roebling Medalist of the Mineralogical Society of America I.
- T154. A Session in Honor of Georges Calas, Professor Emeritus, Sorbonne Université, Paris, France, and 2023 Roebling Medalist of the Mineralogical Society of America I.
- T154. A Session in Honor of Georges Calas, Professor Emeritus, Sorbonne Université, Paris, France, and 2023 Roebling Medalist of the Mineralogical Society of America II.
- T154. A Session in Honor of Georges Calas, Professor Emeritus, Sorbonne Université, Paris, France, and 2023 Roebling Medalist of the Mineralogical Society of America II.
- T156. Transforming the Mineral Sciences with Raman Spectroscopy.
- T156. Transforming the Mineral Sciences with Raman Spectroscopy.
- T157. Early Career Investigators in Mineralogy and Crystallography.
- T157. Early Career Investigators in Mineralogy and Crystallography.
- T160. Convergent Margin Systems (Posters).
- T160. Convergent Margin Systems.
- T162. The Andes from Top to Bottom (Posters).
- T162. The Andes from Top to Bottom.
- T164. Geological and Geophysical Constraints on Orogenic Architecture as Windows to Tectonic Style Through Time (Posters).
- T164. Geological and Geophysical Constraints on Orogenic Architecture as Windows to Tectonic Style Through Time.
- T167. New Insights into Controls on the Behavior of Orogenic Systems and their Associated Basins (Posters).
- T167. New Insights into Controls on the Behavior of Orogenic Systems and their Associated Basins.
- T170. Exploring Strain Partitioning and Kinematic Evolution of the Lithosphere: In Honor of Micah Jessup (Posters).
- T170. Exploring Strain Partitioning and Kinematic Evolution of the Lithosphere I: In Honor of Micah Jessup.
- T170. Exploring Strain Partitioning and Kinematic Evolution of the Lithosphere II: In Honor of Micah Jessup.
- T173. Maximum Depositional Ages (MDAs) from Detrital Mineral Geochronology: Recent Advances in Sampling, Experimental Designs, Interpretive Tacts, and Chronostratigraphic Applications.
- **T175. Mineralogy, Geochemistry, Petrology, and Volcanology Division: Session for Graduate and Undergraduate Students (Posters).**

Disciplinary Sessions (co-)endorsed by MGPV Division

- **D14. Recent Advances in Mineralogy and Petrology**
- **D15. Recent Advances in Mineralogy and Petrology (Posters)**
- **D21. Recent Advances in Volcanology (Posters)**
- D32. Relevant Topics in Geochemistry
- D33. Relevant Topics in Geochemistry (Posters)

Pardee Keynote Symposia (co-)endorsed by MGPV Division

- P2. Spotlight on Positive and Diverse Female Role Models.
- P3. Addressing Society's Urgent Need for Critical Minerals; From Policy to Practice.

• **Lectures or Special Events.**

MGPV is sponsoring a session for 2023 Distinguished and Early Geological Career Awardees' citations, acceptances, and awardee lectures: T94. GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division Awards Session, Wednesday, 18 October 2022; 8:00 AM - 12:00 PM, PCC 317/318L

- Introductory Remarks
- Recognition Of 2023 Student Research Grant Awardees
- Intro, Citation, and Acceptance to 2023 EGCA Award to **Carolina Munoz-Saez**, Nevada Bureau of Mine and Geology and University of Nevada Reno
- MGPV Early Geologic Career Award Lecture: *Sinter Deposits Recording the Evolution of Hydrothermal Systems*. C. Munoz-Saez, L. Sankovitch, M. Manga, And S. Hurwitz
- Discussion
- Intro, Citation, and Acceptance to 2023 DGCA Award to **Katharine V. Cashman**, University of Bristol/University of Oregon
- MGPV Distinguished Geologic Career Award Lecture: *Following the Three: A Volcanic Career Woven in Twists and Turns*. K. Cashman
- Discussion

There are also several sessions in honor of the 2023 EDGCA Awardee:

- T110. Creative Contributions in Volcanology and Petrology: In Honor of Katharine V. Cashman, Recipient of the 2023 Distinguished Geological Career Award from the Mineralogy, Geochemistry, Petrology and Volcanology Division (54645) GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division

• **Reception.** There will be no joint reception with MSA and GS this year.

• **Business Meetings.** MGPV operational meetings will be virtual via Zoom, and will NOT require registering for GSA Connects 2022 to attend:

- Management Board Meeting: 2-4 pm, Tuesday, September 26, 2023
- Annual Business Meeting: 2-4 pm, Tuesday, October 10, 2023

MGPV at GSA Section Meetings

Divisions have the primary responsibility for developing the technical session program for GSA Annual Meetings. GSA has asked Divisions to take a similar role for the Section meetings, where the Divisions' involvement has generally been low, and remains so. Please consider developing and submitting theme session topics for Section meetings and requesting MGPV endorsement. The deadlines for doing so for the 2024 meetings have passed, so think about 2025.

• **2023 Section Meetings**

- MGPV endorsed sessions at the 2023 GSA Cordilleran Section Meeting in Reno, Nevada and the 2023 Joint SE-NE Section GSA meeting, Reston, VA.

- MGPV exhibited at the 2023 Joint Southeastern-Northeastern Section (Reston, VA) meeting sharing space with the Mineralogical Society of America and the Friends of Mineralogy.



• **2024 Section Meetings**

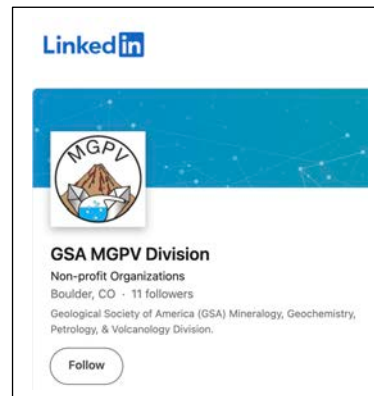
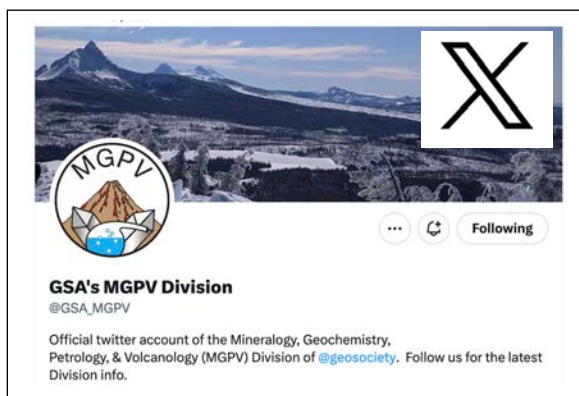
- 15-16 April 2024 MGPV has inquired about exhibiting at the 2024 Southeastern Section Meeting (Asheville, North Carolina)

MGPV online

GSA Connected Community. The Mineralogy, Geochemistry, Petrology, & Volcanology (MGPV) Division [website](#) is hosted on GSA’s Connected Community. There is a (1) public portion of the MGPV website with the Division description, MGPV awards, resource library, newsletter archive, and events calendar as well as a (2) Division-member-only portion that includes a searchable Division directory, discussion group. GSA’s Connected Community is a member-only, on-line community.



As a member of the MGPV Division, you have been subscribed to the Daily Digest version of the MGPV Division’s General Discussion Group, meaning that you will receive one e-mail every day containing all of the previous day’s posts, if any. If you’d like to change that to no emails (you can view the discussion on-line but won’t receive e-mail) or to real time (you will receive an email every time something new is posted), use the “Community Notifications” item in the “My Account” menu of your profile.



MGPV Division Organizational Items

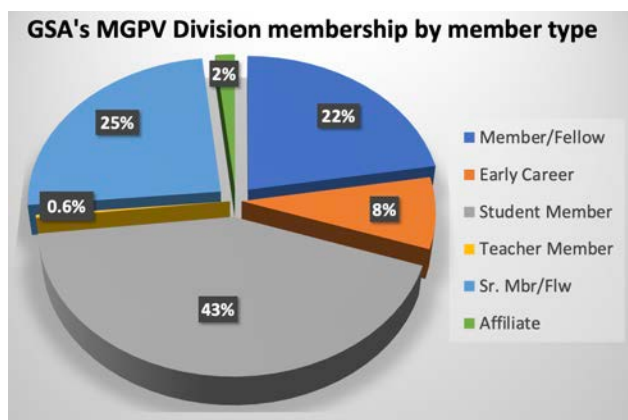
• **Membership.** The Division grew rapidly after it was established in October of 2009:

547 2009 Division affiliates as of 31 December 2009
 972 2010 Division affiliates as of 30 December 2010
 1,437 2011 Division affiliates as of 30 December 2011
 1,434 2012 Division affiliates as of 30 December 2012
 1,385 2013 Division affiliates as of 30 December 2013
 2,261 2014 Division affiliates as of 30 December 2014
 2,249 2015 Division affiliates as of 30 December 2015
 2,238 2016 Division affiliates as of 30 December 2016
 1,976 2017 Division affiliates as of 30 December 2017
 2,035 2018 Division affiliates as of 30 December 2018
 1,849 2019 Division affiliates as of 31 December 2019
 1,796 2020 Division affiliates as of 31 December 2020
 1,716 2021 Division affiliates as of 31 August 2021
 1,712 2022 Division affiliates as of 31 August 2022
 1,549 2023 Division affiliates as of 31 August 2023



In 2014, GSA instituted a policy wherein students can join their first Division at no cost. This policy dramatically increased MGPV membership, increasing student membership

from about 30% to 60%. But another result was a loss of income. After 2014, the ups and downs in MGPV membership numbers more or less track the changes in total GSA membership numbers.



GSA provided a variety of demographics about MGPV members shown in the accompanying tables. As of the end of August, 93.5% of MGPV members reside in North America. At 43%, students comprise the largest portion of MGPV member types. There is diversity in geographic Section membership though more MGPV members belong to the Cordilleran Section 34% of MGPV member have been GSA member for 3 years or less, but for any subsequent time-period the membership numbers are relatively even at 7-14%. There is a wide range of MGPV members' professional interests and employment.

Financial Summary (2022-2023, GSA's and the Division's fiscal year run July 1 through June 30):

As of 06/30/2023, MGPV had an unrestricted cash balance of \$32,455.69.

Income

Dues income was \$6,507.48. This is a significantly less than previous 12-month periods: \$7,128.13 (2021-2022), \$7,129.16 (2020-2021), \$7,336.30 (2019-20), \$7,626.86 (2018-2019), \$7,556.65 (2017-2018), and \$7,437.98 (2016-2017).

The Division received \$16,000 in transfers from the James B. Thompson, Jr. Fund of the GSA Foundation to support 3 student research grants, 10 student travel grants, and the awards and travel expenses for the 2023 Distinguished Geological Career and Early Career Awardees. For the 2023 student research

grants, the Lipman Research Fund provided \$87,500, the Hollister Graduate Student Research Awards Fund \$2,260, the Ian S.E. Carmichael Research Award \$1,820, and the GSA Foundation \$1,170. The GSA Foundation amount was to make up the short fall in the Carmichael and Hollister Research Awards.

Expenses

Division expenses during this period were \$78.00 for AV services, meeting, postage, shipping, and freight. \$7,000.00 was dispersed from the Thompson Fund for the DGCA and EGCA awards, and student and awardee travel support. \$98,830 was dispersed for student research grants from the Lipman, Hollister, Carmichael, and Thompson Funds. There were no reception expenses for either the GSA 2022 Connects or the upcoming GSA 2023 Connects meetings. This is a savings of about \$5,000 (this is 1/3 of the total remaining cost after ticket sales with that balance due shared among MGPV, GS, and MSA).

Liabilities

Exhibit expenses for the 2022 and 2023 GSA Annual Meetings: \$750.00

• Committee and Appointed Post Volunteers:

Division members help with the important tasks of the Division by serving on committees and in appointed posts. You might be asked to serve on one of them.

The ***Distinguished Geological Career Award Committee*** and the ***Early Career Award Committee*** encourage and evaluate nominations for the respective awards and reports to the Management Board their selections.

The ***Officer Nominations Committee*** of the Division reports to the Management Board a list of possible candidates to run for office the following year.

The ***Student Research Grants*** and ***Travel Grants Committees*** of the Division evaluate proposals submitted by the students for possible funding by the MGPV, Thompson, Lipman, or Carmichael Funds.

The ***Program Committee*** is a standing committee whose members also serve on the GSA Joint Technical Program Committee (JTTC). It plans and arranges for the technical sessions and symposia of the division at the Annual and Sectional Meetings of the Geological Society of America, and other external meetings as may be directed by the Management Board.

We thank the following individuals who volunteered for MGPV committees and posts this past year:

- **Distinguished Geological Career Award** (2024 award): Alan Whittington (Chair), University of Texas at San Antonio, Dawnika Blatter (2022-2024), US Geological Survey, Peter LaFemina (2022-2024), Pennsylvania State University*, Cailey Condit (2021-2023), University of Washington*, Gregory Dumond (2021-2023), University of Arkansas, Pamela Kempton (2023-2025), Kansas State University, Frank Tepley (2023-2025), Oregon State University
- **Early Geological Career Award** (2024 award): Elisabeth Widom (Chair), Miami University (of Ohio), Karen Bemis (2021-2023), Rutgers State University, Loÿc Vanderkluysen (2021-2023), Drexel University, Munir Humayun (2023-2024), Florida State University, Becky Lange (2023-2025), University of Michigan, Tyrone Rooney (2023-2024), Michigan State University, Paul Tomascak (2023-2025) State University of New York at Oswego
- **Nomination for Officers** (for 2023 ballot): Dennis Newell (Chair), Utah State University, Rosemary Capo, University of Pittsburgh, former MGPV Past Chair, Rosemary Hickey-Vargas, Florida International University, former MGPV Past Chair

- **Student Research Grants** (for 2023): Past Chair: Dennis L. Newell (Chair), Utah State University, Chair: Amanda B. Clarke, Arizona State University, 1st Vice-Chair: Alan Whittington, University of Texas-San Antonio, 2nd Vice-Chair: Elisabeth Widom, Miami University (of Ohio)
- **Student Travel Grants** (for 2023): J. Alexander Speer (Chair), Mineralogical Society of America, Alan Whittington, University of Texas-San Antonio, Elisabeth Widom, Miami University (of Ohio), Kevin Murphy, Mineralogical Society of the United Kingdom and Ireland
- **Program Committee (JTTC)**: Alan Whittington, University of Texas-San Antonio, Elisabeth Widom, Miami University (of Ohio), J. Alexander Speer, Mineralogical Society of America

• MGPV 2023 Election.

The MGPV Management Board changes yearly after the Division Annual Business Meeting at the GSA Annual Meeting. Elections are held over 30 days during the summer (northern hemisphere), for the position of Second Vice Chair and biennially for the position of Secretary-Treasurer. The positions of Past Chair, Chair, and First Vice-Chair are filled in succession by the individuals from the preceding office. The election will also be the time when members are asked to approve any Bylaw changes. The election of Division officers only requires that the Secretary-Treasurer notify GSA of the results. Any Bylaws changes must be submitted for GSA Council approval a month before a GSA Council meeting.

- xxx Division members voted during August-September 2023. Dr. Jade Star Lackey was elected to the position of Second Vice Chair for a one-year term. Dr. J. Alex Speer was elected Secretary-Treasurer for a 2-year term).

MGPV Student Representatives on the GSA Student Advisory Council

In April 2014, GSA Council established the Student Advisory Council (SAC) as a forum through which student members of the GSA could communicate directly with the Council. The SAC consists of ~35 members appointed as representatives from GSA Divisions, Sections, or Committees and has one non-voting seat on the GSA Council. Three new MGPV student representatives were appointed by MGPV: Emily Fischer, Brown University, Chuck Lewis, Oregon State University, Madeline Murchland, University of Idaho. Their report:

In our first half year as student representatives, we have worked to engage the student community of MGPV. We recently established a [Slack channel](#) for MGPV students to network and share events and opportunities in the community. There are currently 25 members in the channel and we will work to continue to grow membership. We also run the Twitter account and are [accepting open submissions](#) for students to be featured on the page. The goal is to highlight the work of the MGPV student members, as well as to spread awareness about different opportunities for engagement within the division.

We have also implemented a quarterly webinar with topics solicited by survey response to the MGPV community. The first webinar was a career panel where our invited panelists discussed their careers in industry, government, and academia. Our panelists were Katie Ardill from Texas Tech University, Zach Grimaldi from Piedmont Lithium, and Matt Loewen from the Alaska Volcano Observatory. We advertised on the Slack channel, Twitter, MGPV and GSA student community discussion boards, and through listservs. Around 15 students attended.

Our next webinar topic will cover what students can expect at the GSA meeting. Because this is a general topic, and not specifically related to MGPV, we are collaborating with the GSA Headquarters. We are also organizing an additional online session where students presenting posters or orally at the conference will have an opportunity to practice their presentation and receive feedback from other students.

Finally, the three student representatives are co-advocates for session T175. *Mineralogy, Geochemistry, Petrology, and Volcanology Division: Session for Graduate and Undergraduate Students (Posters)* at the GSA meeting in Pittsburgh. We are excited to start this first MGPV session dedicated to students. 45 students have submitted abstracts.

Announcements

from MGPV:

[1] Consider nominating deserving candidates for MGPV Division's Distinguished Geologic Career and Early Career Awards. Procedures and deadline (**31 March 2024**) for nominations are given on the [MGPV Division's Connected Community site](#).

[2] Consider nominating deserving MGPV members for GSA Fellowship. The deadline is 1 February each year. GSA members are elected to Fellowship in recognition of distinguished contributions to the geosciences. The criteria for GSA Fellowship, the nomination process, the names of current fellows are given on the [GSA website](#).

from the Adhering Associated Societies:

- A listing of MGPV-related Scientific Meetings and Events is on the [Elements magazine calendar site](#).

- The 2024 Joint Annual Meeting of the **Geological Association of Canada (GAC)** and the **Mineralogical Association of Canada (MAC)** will be held on **19-22 May 2024** at Brandon University, Manitoba, Canada. This meeting will include all the expected GAC and MAC programming, as well the **10th International Symposium on granitic pegmatites** with field trips and special sessions.



The theme of the meeting is “**At the Heart of the Continent**”. You can expect an excellent scientific program and a variety of field trips and short courses. [More information](#).



- The 2024 61st Clay Minerals Society Meeting will be held in Hawaii, 3-6 June 2024. [More information](#).

[CMS 2024 Research Grant](#), Student travel awards, Deadline, February 1, 2024. Award nominations for the Clay Minerals Society [Marilyn and Sturges W. Bailey Distinguished Member Award](#), [George W. Brindley Clay Science Lecture](#), [Marion L. and Chrystie](#)

[M. Jackson Mid-Career Clay Scientist Award](#) due March 1, 2024

- **Geochemical Society (GS)**. The next [Goldschmidt Conference](#) will take place in Chicago, IL. The calls for Session and Workshop Proposals are now open and the submission deadline is 14 October 2023. [More information](#).



• Nominations for 2024 awards must be received by October 31, 2023. The V.M. Goldschmidt Award is the society's highest honor for major achievements in geochemistry over a career, the F.W. Clarke Award honors a single outstanding contribution to geochemistry or cosmochemistry by an early-career scientist and the C.C. Patterson Award is presented for an innovative breakthrough in environmental geochemistry of fundamental significance within the last decade, particularly in service to society. [More information](#).

• **Mineralogical Society of America (MSA).**

Minerals Day. Minerals Day 2023 is 9 October 2023, the second day of Earth Science Week website: www.mineralsday.org. The Mineralogical Society of America had asked those who care about minerals to share what they think EVERYONE should know about minerals and mineral science and why. We depend on minerals in so many ways, but what do people really need to know to make wise life choices that involve the world's mineral resources? The schedule of presentations and the links to register will be available shortly on the Minerals Day website.



42nd FM-TGMS-MSA Tucson Mineral Symposium: Held in conjunction with the Tucson Gem and Mineral Show, it will take place on Saturday, February 10, 2024. The symposium theme is "**Pegmatites: Crystals Big and Beautiful**". The symposium is cosponsored by the Tucson Gem and Mineral Society, the Friends of Mineralogy, and the Mineralogical Society of America. Presentation titles must be submitted prior to July 15, 2023. Abstracts, presentation images, speaker biographies, and photographic headshots must be submitted prior to September 1, 2023. Further details about the symposium are on the FM [website](#).

Nominations are sought for the [Roebing](#) and [Dana](#) Medals and [MSA Award](#). You need not be an MSA member to nominate someone. Nomination deadlines are June 1.

The Mineralogical Society of America (MSA) invites applications for the [2024 MSA Grant for Research in Crystallography](#) and for the [2024 MSA Student Research In Mineralogy and Petrology](#). There are up to three research grant awards of \$5,000 each. Application deadline is 1 March 1 2024. Awardees must be MSA members; MGPV student members are invited to apply.

• The [Mineralogical Society of America's Undergraduate Prize](#) (formerly *American Mineralogist* Undergraduate (AMU) Award) program recognizes outstanding students who have shown an interest and ability in the discipline of mineralogy. Each student is presented a certificate, receives a student membership in MSA with access to the electronic version of *American Mineralogist* and *Elements*, and a *Reviews in Mineralogy and Geochemistry* or *Monograph* volume chosen by the sponsor, student, or both.

• **The Mineralogical Society of the United Kingdom & Ireland (MSGBI)** offers [travel/research bursaries](#) directly and through its constituent special interest groups (Applied Mineralogy, Clay Minerals, Volcanic and Magmatic Studies, Metamorphic Studies, Geochemistry, Environmental Mineralogy Group, Mineral Physics, Geomicrobiology).



Nominations for the 2025 Mineralogical Society of Great Britain and Ireland awards are being accepted and should be sent to the Chair of the Awards Committee at the Society's office, to arrive not later than 15 April 2024: [Neumann Medal](#); [Collins medal](#); [Max Hey medal](#); and [Barrow Award](#).

[Forthcoming Mineralogical Society Meetings](#).

MGPV Division Management Board (2023)

Officers: 5 Members; Chair, 1 year; First Vice-Chair, 1 year; Second Vice-Chair, 1 year; Secretary-Treasurer, 2 years; immediate Past Chair, 1 year

Management Board: 6 Members; consists of the Division officers and Student Representative. The Management Board of the MGPV Division also includes representatives of the Adhering Societies. (Any Associated Society of the Geological Society of America which is in good standing may become an adhering Associated Society member of the Division.)

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Welcome to the newsletter of GSA's Mineralogy, Geochemistry, Petrology, and Volcanology (MGPV) Division. Aside from the Division website, newsletters are one important means for GSA Division leaders to communicate information to their members, and they serve as an archive for the Division.

The MGPV Division publishes two newsletters per year. The first after GSA's and Division's Annual Meeting and before any elections, deadlines for abstracts, and nominations. A second newsletter is issued a month or so before the Annual Meeting. Newsletters will contain Division news, calls for award nominations and meeting abstracts, announcements of upcoming meetings, ballot and officer candidate information, meeting news, award acceptances, and other important news and information.

If you are a member that has email access, a notice will be sent by GSA alerting you that a new issue has been posted on the website. Those members who do not have internet access will receive the newsletter in paper form through the US mail sent by GSA. Issues of the newsletter, both present and future, will be available for retrieval in electronic Portable Document Format (pdf) on the Division's website.

The MGPV Division leaders welcome your feedback to the newsletter of the Mineralogy, Geochemistry, Petrology, and Volcanology (MGPV) Division.

Newsletter Editor: J. Alex Speer

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GSA Council/Division Liaison

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