

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

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Message from the Chair

Dear MGPV members,

This year has certainly presented unforeseen challenges for the plans and events we outlined in the Spring Division Newsletter. Nonetheless, upcoming MGPV virtual sessions and events for GSA 2020 Connects Online are looking spectacular and the Division has accomplished many of its goals for this year. We have awarded 19 student research grants, selected the Early Career and Distinguished Geological Career awardees for 2021, and we are in the process of selecting our new student representatives. Along the way, two new Division officers have joined the Management Committee, Dennis Newell (incoming vice chair) and Amanda Clarke (incoming 2nd vice-chair).



At GSA 2020 Connects Online, October 26-30, MGPV and its associated societies are sponsoring 69 technical sessions, including those within the Pardee Keynote Symposium "Assembling Laurentia". A complete list of sessions appears later in the Newsletter. The Division will not hold its annual joint reception, but the MGPV Business meeting, open to members and others interested, will be held on Wed. Oct 28 at 12-1:30 EDT. A link will be placed on the Division Webpage. Given the virtual format of the meeting, nominators for our 2020 Early Career and Distinguished Geological Career Awardees chose to postpone sessions planned in their honor until the 2021 meeting in Portland, so there will be double awards at that meeting. For 2020 Section Meetings, MGPV endorsed 5 sessions and a field trip, all of which were cancelled.

For GSA Sectional Meetings in early 2021, we have endorsed 14 technical sessions and two field trips – be sure to check abstract deadlines and meeting dates for these as they are announced by GSA and check the MGPV webpage for more information.

This year Graduate Student Research Awards went to 19 individuals: one Carmichael awardee, 15 Lipman awardees and 3 MGPV awardees. Please take time to read the profiles of these outstanding students and their research projects in the later part of the Newsletter. Distributing these grants is one of the most important functions of the Division and we are pleased we can support these researchers during a difficult

year. One goal for this year that we were not able to pursue was outreach to our former student awardees as a way to gather insight into the transition from student to early professional. Since 2011, MGPV has awarded 90 student research awards and we are pleased to see that many awardees are still members of MGPV and GSA. Facilitating this transition in the future is a goal of the Division. To that end, we are now selecting two new MGPV student representatives to gather and contribute initiatives for the future of MGPV and GSA.

MGPV membership continues to be robust, with strong Student and Early Professional membership (882 students and 168 Early Professional, out of 1,980 active members).

I will close with our annual reminder: MGPV needs your active support to continue to represent our community at GSA. We need you to nominate your peers for the Distinguished Geologic Career and Early Career Awards; we need volunteers for MGPV committees (e.g., DGCA, ECA award committees; nominating committees for officers); we need you to propose Theme sessions and Pardee Symposia for the Annual and Sectional meetings. And most importantly, we need you to renew your membership in GSA and MGPV each year and hope that you will encourage others to join as well.

Best regards,
Rosemary Hickey-Vargas, Chair (2020)
Mineralogy, Geochemistry, Petrology, Volcanology Division
Geological Society of America
Florida International University Earth & Environment

Incoming MGPV Officers 2021

Chair 2021. Rosemary Capo is Associate Professor of Geology and Environmental Science at the University of Pittsburgh. She received B.S. and M.S. degrees in Geology from the University of Texas at Austin, a Ph.D. in Geochemistry from UCLA, and worked at the Berkeley Center for Isotope Geochemistry, Lunatic Asylum at Caltech and the Jet Propulsion Laboratory. At the University of Pittsburgh she helped develop the university's Environmental Studies program. Her work centers on the use of natural isotopic and geochemical tracers to understand Earth surface processes, both present and past. Her research includes studies of rock weathering, climate-related soil formation, stratigraphic correlation, paleoceanography, geoarchaeology, and environmental chemistry. Her group is currently working with DOE researchers to apply and develop geochemical and radiogenic and stable metal isotope techniques to address issues related to AMD generation, coal fly ash storage, geologic carbon sequestration, and water-rock interaction in deep sedimentary basins.



She joined GSA in 1984, and previously served on the MGPV Nominating Committee. She has also served as a Guest Editor for *Applied Geochemistry*, and as a panel reviewer for NSF (Laboratory Technician Support, Water Sustainability and Climate) and NASA (Mars Science Laboratory). She has supervised 18 graduate students and numerous undergraduate researchers, and currently teaches Geology, Mineralogy, and graduate Geochemistry courses. She is an active participant on the University of Pittsburgh School of Arts and Sciences Diversity Committee and Task Force. She hopes to strengthen the connectivity of the traditional hard rock disciplinary focus of the MGPV Division with associated fields, and to work towards increasing participation of underrepresented groups in the MGPV Division and leadership.



First Vice-Chair 2021. Dennis Newell is an Associate Professor in the Department of Geosciences at Utah State University and directs the Utah State University Stable Isotope Laboratory. He received a B.S. in Geology from New Mexico Tech, a M.S. in Geology from Colorado State University, and a Ph.D. in Earth and Planetary Sciences from the University of New Mexico. He conducted postdoctoral work at Los Alamos National Laboratory (LANL), and prior to coming to USU was a research geochemist at LANL. Dennis specializes in aqueous and stable isotope geochemistry, with applications to problems in continental tectonics, geofluids, fault-fluid interaction, geothermal energy exploration, and geological carbon sequestration.

Dennis is honored to be considered as 1st Vice Chair for the MGPV Division of GSA. He looks forward to expanding and diversifying the MGPV student and professional membership, advocating for high quality and interdisciplinary scientific sessions, field trips, and short courses or the virtual equivalent at GSA meetings, and interacting with other GSA division. Dennis has been a member of GSA since 1997 and served as the co-chair of the 2018 Rocky Mountain/Cordilleran GSA section meeting.

Second Vice-Chair 2021. Amanda Clarke is an Associate Professor in the School of Earth and Space Exploration at Arizona State University. She completed a B.S. in aerospace engineering at the University of Notre Dame, a year of research in the Philippines under the Fulbright Scholar program, a PhD in Geosciences at Penn State, and a post-doctoral fellowship funded by the Royal Society of London at the University of Bristol. Her research interests include the physics of volcanic eruptions; field and satellite observation of plumes and domes; volcano deformation; highly explosive basaltic volcanism; interpretation of volcanic deposits on Earth, Moon, and Mars; volcano geomorphology; and the interaction between volcanic plumes and Earth's atmosphere. Field sites include the Soufrière Hills volcano (Montserrat), several volcanoes in Indonesia, and volcanic fields in the US and Mexico, among others.



She was a member of the Committee on Improving Understanding of Volcanic Eruptions, which wrote the National Academies of Science ERUPT Report, was elected secretary of the Volcanology, Geochemistry and Petrology section of the American Geophysical Union (2015-2017), and has served on commissions of the International Association of Volcanology and Chemistry of the Earth's Interior (2009-2015), and on the National Academies US National Committee for the International Union of Geodesy and Geophysics (2017-present).

At ASU she has advised 15 graduate students, five post-doctoral scholars, and six undergraduate student researchers. She has served on the Promotion and Tenure committee, chaired the graduate student oversight committee, and is now a member of the undergraduate committee. She recently became a one-year Leadership Fellow for the ASU ADVANCE Program, as part of a team developing university-wide mentoring protocols for faculty from underrepresented groups in STEM.

As an MGPV Division officer she would like to increase participation, visibility, and success in MGPV among students, researchers, and faculty from underrepresented groups, and promote collaboration and conversations among field scientists, modelers, experimentalists, and planetary geologists.

Student Advisory Council Representatives: Lindsey Hernandez, The Ohio State University and Chioma J. Onwumelu University of North Dakota.

Call for Award Nominations: Nomination Deadline: 31 March 2021

MGPV Division Distinguished Geological Career Award (for 2022)

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.

The Award: Consists of Fellowship in GSA, recognition plaque, a \$1,000 cash award, and some travel assistance. The Award will be presented at the 2022 Annual Meeting of the Geological Society of America (Denver, CO, USA), with a brief (5 minute) citation from the nominator, followed by a brief (5 minute) acceptance speech by the awardee.

MGPV Division Early Career Award (for 2022)

The MGPV Early 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.

The Award: Consists of a wall plaque, a \$1,000 cash award, and some travel assistance. The Award will be presented at the Division reception at the 2022 Annual Meeting of the Geological Society of America, (Denver, Oregon, USA) with a brief (5 minute) citation from the nominator, followed by a brief (5 minute) acceptance speech by the awardee.

Nomination Procedure for either award

Nominations will be from the Division membership at large, and should consist of:

- (1) A nomination letter from an MGPV Division member, no longer than 3 pages, summarizing the nominee's most important accomplishments in geological approaches to mineralogy, geochemistry, petrology, and/or volcanology. Special attention should be paid to describing how the nominee's published work demonstrates field-based multidisciplinary geological accomplishments of a

groundbreaking nature. The letter should include the name, address, and contact information of the nominator as well as those from whom letters of support can be expected.

(2) Curriculum Vitae of the nominee.

(3) An additional three letters of support. These letters of support may be submitted by anyone, membership of GSA or the MGPV Division is not required.

Nominations should be forwarded to the Division Secretary-Treasurer, J. Alex Speer at: jaspeer at minsocam.org

Dossiers of nominees who did not receive the award in any given year will be retained and considered for two succeeding years (as long as the eight-year time limit continues to be met); thus, nominations are active for a total of three years even if not updated or re-submitted. Updated information or resubmitted nominations for such candidates may be sent to the Division Secretary-Treasurer during subsequent calls for award nominations for consideration beyond that time.

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>

2020 MGPV Division Distinguished Geological Career Award to Cathy J. Busby

The MGPV Division is pleased to announce that Cathy J. Busby, University of California- Santa Barbara, now Davis is its 2020 MGPV Distinguished Geologic Career Awardee. The award will be presented during the 2020 GSA Annual Meeting, Montreal, QC, Canada.

Cathy Busby is cited for significant contributions to all fields relevant to mineralogy, geochemistry, petrology, volcanology, with emphasis on multidisciplinary, field-based contributions. Dr. Busby has been a professor at the University of California for 32 years. Her B.S. is from Berkeley, and her Ph.D. is from Princeton, both in Geological Sciences. Dr. Busby is one of the most influential and accomplished field geologists of our era, playing a decisive role in shaping our modern view of arc systems. Her work has been well cited to be sure, but citations provide too narrow a view to appreciate her influence. Her ideas, derived from fieldwork, geochronology, and petrologic and sedimentological insights, are remarkably wide-ranging and prescient, providing a 4-dimensional view of arc evolution.

Dr. Busby was perhaps the first to fully appreciate that many arc volcanic systems, and perhaps most calderas, develop within trans-tensional tectonic settings (Busby-Spera 1988) - a recognition that segued into a model of plate boundary formation (e.g. Busby 2013). In the southwest U.S. Cordillera, she established that the timing and deposition of arc-related volcanoes and sediments, and granite batholith emplacement, are controlled by trans-tensional forces, even while the larger tectonic setting is convergent and implicitly compressive.

In terms of cover strata studies, she has spent a significant fraction of the later stages of her career in studying late Tertiary volcanic basins along the eastern California shear zone Walker Lane belt. Based on rigorous field investigations, Dr. Busby and her coworkers reconstructed a complex interplay between



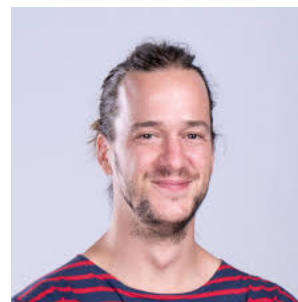
faulting, local basin subsidence, and the temporal and spatial relations between arc and immediately post-arc rift volcanism.

She has traveled and lectured in many countries and most recently has taken the skills honed throughout her career to contribute to the IODP mission, working in the Izu-Bonin-Mariana backarc and on a comparison of the IODP ultra-deep drill site, Izu-Bonin Arc, to a crustal section through an oceanic arc in Baja California.

2020 MGPV Division Early Career Award to Sebastien Biass

The MGPV Division is pleased to announce Sebastien Biass, Earth Observatory of Singapore, Nanyang Technological University, Singapore is its 2020 MGPV Early Career Awardee.

Sebastien Biass is equally adept with field characterization of the geometry of eruption products, quantification of volcanic processes, statistical analysis of field data, and quantitative assessment of volcanic risk (including various aspects of volcanic impact and vulnerability). Dr. Biass's work is pioneering new strategies for the quantitative characterization of tephra deposits and of the associated hazards, impact and risk. The blend of quantitative field measurements and innovative numerical strategies shows a strong appreciation of the importance of statistical and critical treatment of field data within numerical modelling. Such understanding and appreciation are lacking in many numerical studies, which is what makes his scientific approach unique and ground-breaking.



Dr. Biass' unique approach to volcanology stems from combining thorough field studies with state-of-the-art numerical modeling. He developed his own strategies that combine the physical description of explosive eruptions and advanced computing (e.g. parallel modeling) to produce comprehensive hazard and risk assessments. Dr. Biass also dedicated a great effort to characterize uncertainties associated with the derivation of eruptive parameters associated with explosive volcanism (i.e. erupted volume, plume height and mass eruption rate). Since these parameters are used as input parameters in tephra dispersal models, they have a great impact on the final model outputs.

Dr. Biass' contributions to the field – especially in using meticulous field data to improve models of tephra fallout and ballistic transport – stand on their own as powerful contributions.

MGPV Division Student Research Grants

This is the ninth year for the MGPV Division's annual student research awards. Since 2011, the Division has been able to increase the number of awards with the help of the James B Thompson Fund of the GSA Foundation. The 2020 awardees are:

Natashia Drage, Dalhousie University, for her project: *Assessing the interplay between equilibrium and kinetics in regional metamorphism*

Natashia completed her undergraduate degree in Earth Science at the University of Victoria in 2017. During her undergrad, she had the opportunity to work on research projects that focused on geochemical

cycling and mineral deposits. After her undergrad she took her skills into the field by assisting on a regional bedrock mapping project and later working as an exploration geologist.



In the summer of 2018, Natasha was living in a tent while mapping in northern British Columbia. Here she decided that although she loves observing rocks in their natural habitat, her next adventure would be exploring the field of experimental petrology, something she was exposed to briefly in her undergrad.

Natasha began her M.Sc. under the supervision of Dr. James Brennan in the Earth and Environmental Science Department at Dalhousie University in 2019. Her project combines her interests of geochemical processes and economic geology by experimentally investigating the effect of pressure on the formation of chromite deposits. Extensive research has been done over the last several decades to determine the mechanism that forms these economically important deposits; however, no consensus has been reached. Natasha is excited to contribute to the long-standing investigation of anomalous chromite layers and hopes to provide direction

for future chromite deposit research.

These days, if not in the lab, you can probably find her on her bicycle or talking to the plants in her vegetable garden.

Jacob Forshaw, University of Calgary, for his project: *Assessing the interplay between equilibrium and kinetics in regional metamorphism*

Jacob Forshaw is a third year PhD candidate at the University of Calgary studying metamorphic petrology under the supervision of Dr. Dave Pattison. His research is concerned with a fundamental question in petrology: to what degree is the equilibrium model of metamorphism compromised by kinetic impediments to reaction?

Having grown up in Lancashire, UK, he spent most of his spare time climbing and hiking in Cumbria, Snowdonia and various parts of Scotland, which ignited his passion for the Earth Sciences. His enthusiasm for metamorphism developed during a second-year independent mapping project in the French-Italian Alps, which formed part of his undergraduate degree at the University of Oxford. For his Master's project, he tested the ability of recent thermodynamic models to predict mineral compositions and assemblages in mafic granulites. The discrepancies highlighted in this work have implications for estimating the peak pressure-temperature conditions of these rocks and formed the basis of his first publication in the *Journal of Metamorphic Geology*.



In his work at the University of Calgary, he is using a number of laboratory techniques, including EPMA, XR- μ CT and Raman spectroscopy, in order to quantify overstepping in regional metamorphism. Jacob is very grateful to the GSA and MGPV for supporting his research, which will allow him to use LA-ICP-MS to map trace element compositional zoning in regionally metamorphosed garnets. This work will provide the first comparison of trace element zoning in garnet across a prograde sequence and determine garnet's reaction history in amphibolite-facies metapelites.



Christopher Schuler, University of Minnesota-Twin Cities, for his project: *Oxidative Disequilibrium in Iron as a Source of Energy to the Deep Biosphere*

Christopher Schuler is a PhD candidate in the Earth & Environmental Sciences department at the University of Minnesota-Twin Cities. He will be beginning his third year in the program this fall and is co-advised by Dr. Cara Santelli and Dr. Brandy Toner.

Prior to entering graduate school, Chris earned undergraduate degrees in Chemistry and Creative Writing at Carnegie Mellon University. While attending CMU, Christopher was able to gain his first experience in research: he took on several projects in Dr. Terrence Collins' laboratory, studying the synthesis and kinetics of organometallic oxidative catalysts. While working toward this

degree, Christopher also worked as an intern in Dr. Cynthia Gilmour's laboratory at the Smithsonian Environmental Research Center, aiding in research focused on the biogeochemical cycling of mercury in wetlands. This experience opened his eyes to the broad applicability of fundamental chemical concepts to environmental and geological research. A few years later, he decided to attend graduate school and focus on geochemical research.

Christopher's research interests are now broadly centered around interactions between microbes and minerals. His current project is specifically focused on the impact local mineralogy has on the habitability of deep subsurface aquifers; using a field site located below an iron mine in northern Minnesota, he hopes to explore the connections between a banded iron formation and the microbes living within it. Outside of the laboratory, Christopher enjoys hiking and camping throughout Minnesota's beautiful state parks.

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.

"Leye" Oyeleye Adeboye, Oklahoma State University, Stillwater, Oklahoma, USA for his proposal: *Evaluation of Saturate and Aromatic Fraction Biomarkers in the Mississippian Limestone in an Area of the Anadarko Shelf of Oklahoma*

I am a Ph.D. candidate at the Boone Pickens School of Geology, Oklahoma State University, where I work under the supervision of Dr. Tracy M. Quan. My Ph.D. project involves investigating environmental conditions during deposition of sediments of the Mississippian Limestone interval in the STACK play area of the Anadarko Shelf of Oklahoma. My multi-proxy toolkit includes stable isotope geochemistry (nitrogen and organic carbon), major, minor and trace element geochemistry and organic geochemistry (Rock-Eval analysis, biomarker analysis). The

GSA Lipman Research Award has enabled collection of additional organic geochemical data (Rock-Eval pyrolysis, saturate- and aromatic-fraction biomarkers) which will help to resolve questions about organic



matter type and provenance, as well as oil source rock potential of sediments of the Mississippian Limestone. Dr. Natascha Riedinger has provided training and guidance on major, minor and trace element geochemistry, while Dr. Tracy M. Quan has provided training and advice on stable isotope and organic geochemistry.

Before starting my Ph.D., I obtained a B.Sc. (Honours) degree in Geology from the University of Regina, Canada where Dr. Stephen Bend supervised my Honours thesis. Upon completion of my B.Sc. (Hons.), I proceeded to the University of British Columbia, Vancouver, Canada for my M.Sc., where I worked under the supervision of Dr. R. Marc Bustin. After completing my M.Sc., I worked as an Exploration Geologist for a global mining conglomerate. Outside geoscience, I watch and play soccer, and I play drums.

Molly Anderson, University of Florida, for her project: *Petrogenesis of the 8° 20' N Seamount Chain: Modeling Mantle Heterogeneity and Melting in the near-ridge environment*

Molly Anderson is a PhD student at the University of Florida studying petrology and geochemistry of submarine volcanoes with co-advisors Dr. Michael Perfit and Dr. Stephen Elardo. She currently studies a long chain of seamounts near the East Pacific Rise to better understand the upper mantle responsible for forming most of Earth's crust today.



Molly grew up in a farm town outside of Boise, Idaho surrounded by volcanic rocks in the Snake River Plain. Her passion for petrology and geochemistry started with collecting basalts and rhyolites from her own backyard, and continued through field trips to Mount St Helens, a study of lava flows in the Galapagos, and an undergraduate research experience at UNAVCO examining olivine on Mars. She received a BS in Geosciences, a BA in English Writing, and an MS in Geoscience at Boise State University before pursuing a PhD at the University of Florida. In 2018 she participated in her first research expedition to the East Pacific Rise where she dove in submersible *Alvin* to collect seamount basalt samples from the seafloor. This experience solidified her dream of collaborating with other scientists to probe the seafloor and its insights into Earth's interior. She will use the funds from MGPV and GSA to

analyze radiogenic isotopes (Pb, Sr, and Nd) from the seamount basalts and East Pacific Rise basalts to constrain the mantle sources melting to form the oceanic crust, and to build a more robust model for upper mantle heterogeneity and melting systematics near mid-ocean ridges.

Marisa Barefoot, Auburn University, for her proposal: Puerto Rico's Iron Deposits: Developing a Genetic Model through Field Observations and Geochemical Analyses

Marisa received her B.S. in Geology in 2019 and is currently working on her M.S. in Geology at Auburn University. She grew up on the Gulf Coast of Alabama and spent most of her free time fishing in the Gulf of Mexico and Mobile Bay. She carried this love for the outdoors with her through college, eventually deciding to study Geology. She became interested in Economic Geology during her undergraduate education and is continuing this focus during her graduate studies.



Her research focuses on the characterization of several iron deposits in Puerto Rico. Ore deposits form under specific geologic conditions and can be used to gain insight into the geologic history of an area. The geologic and tectonic settings of Puerto Rico have been highly debated, and she hopes to reveal more about the history of the island through this study. Marisa will employ several different geochemical techniques to characterize the deposits and potentially revise their classification. This study will examine the main ore mineral, magnetite, focusing on the trace element and iron and oxygen

isotope compositions. Trace elements behave variably under specific conditions and can be used to distinguish between magmatic and hydrothermal systems. The pairing of trace element and isotope data is a robust geochemical tool for understanding the history of an ore deposit. These data will be combined with field observations and petrographic microscopy to ultimately create a genetic model for these deposits.

Robert Bogue, McGill University, for his project: *Carbon isotopes in tree rings reveal history of volcanic CO₂ emissions at a reawakening volcano in Peru*

Robert Bogue was born and raised in Los Angeles and received his Bachelor of Arts in Geology at Occidental College in 2017. During his time at Occidental, he was given the opportunity to participate in Occidental College's undergraduate Summer Research Program where he studied carbon dioxide emissions at Mammoth Mountain, California. He continued this work for his senior thesis, which led to him working as an intern at NASA Jet Propulsion Laboratory with Dr. Florian Schwandner and Dr. Josh Fisher for about a year after graduating. At JPL, he studied how volcanic carbon dioxide emissions affect trees growing on two Costa Rican volcanoes. He also worked with Dr. Charles Miller on a project focusing on airborne measurements of greenhouse gases in northern Alaska and Canada.



After his internship at JPL, Robert began his doctoral studies at McGill University in Montreal with Dr. John Stix and Dr. Peter Douglas. His research focuses on the relationship between ecosystems and volcanic CO₂ emissions in Peru and Costa Rica. Volcanic CO₂ has a distinct isotopic signature which can be incorporated into trees through photosynthesis and preserved as variations in the carbon isotope ratios of tree rings. Samples of these trees can serve as historical archives of volcanic CO₂ emissions, allowing researchers to retroactively estimate decades or centuries of volcanic CO₂ emissions. Robert is also using satellite imagery to try to detect plant responses to volcanic CO₂ in on a daily scale. These projects can significantly improve our understanding of previously understudied volcanoes as well as helping ecologists understand the ecological effects of rising levels of atmospheric CO₂.

Meredith Cole, State University of New York at Buffalo, for their project: *Vent Morphology and Evolution at Grizzly Peak Caldera, CO*

Meredith Cole graduated with a B.S. in Geology from the University of Georgia in 2012. After finishing their undergraduate degree, they worked in the oil and gas industry for three years as a wellsite geologist. They returned to an academic setting in 2015, and graduated with a M.Sc. in 2018 from New Mexico State University. Their master's thesis used olivine-hosted melt inclusions as the main tool to understand slab-derived subduction contributions to primitive magmas in the southern Cascade arc.



They are currently a 3rd year PhD student at the University at Buffalo. Their research interests relate to caldera-forming eruptions, especially how large magma volumes (100s-1000s of km³) are erupted onto the surface, and the influence of caldera collapse on eruptions and resulting deposits. They have been working on understanding the geometry and evolution of shallow vent structures associated with calderas. Their current project, which is supported by this grant, is a field study of vent structures associated with Grizzly Peak caldera, CO. Grizzly Peak caldera is deeply eroded, exposing several levels of intracaldera deposits, including some of the shallow plumbing associated with the caldera-forming eruption.

Outside of research, Meredith is active as a mentor for undergraduate LGBT+ students in STEM fields. In their spare time, they enjoy painting and playing tabletop roleplaying games.

Lissie Connors, University of Oregon, Eugene, OR for their project: *Assessing Magma Storage and Volatile Fluxes in the Nyiragongo Volcanic Field*

Lissie Connors is a 2nd year Ph.D. student at the University of Oregon, where she studies volcanology, petrology, and geochemistry with Dr. Paul Wallace. Her research examines melt generation, magma storage, and the degassing dynamics of flank eruptions at Nyiragongo and Nyamulagira volcanoes in the East African Rift. Using melt inclusions, she aims to better constrain the magmatic sources of volatile-rich magmas at these two volcanoes, and connect these pre-eruptive volatile concentrations to their high surficial emissions. Using experimentally derived diffusion constraints, she is measuring concentration gradients in olivines to extract timescales of magma storage and ascent preceding eruption.

Lissie first became interested in petrology at Lafayette College, where graduated in 2018 with a B.S. in Geology. Since then, she's also worked at the National Park Service, the American Geophysical Union, and the American Physical Society. Lissie is grateful for the support from GSA and the MGPV division, and looks forward to using these funds for Raman spectroscopy, Electron microprobe analyses (EMP), and Laser ablation (LA-ICP-MS) analyses later this year.

Outside of the lab, she enjoys climbing, playing guitar, and being outside.



Connor Frederickson, Utah State University, for his project: *Fingerprinting paleo-groundwater sources using oxygen isotopes of hematite concretions from the "Boiler Room", Moab area, Utah*

Connor Frederickson is a second year MS student in the Geosciences Department at Utah State University working under Dr. Dennis Newell. After receiving his BS degree in geology from California State University at Fullerton, he chose to continue with his studies with a focus on isotope geochemistry. His current research is focused on utilizing oxygen isotope compositions of iron oxide minerals to decipher paleo-fluid chemistry and patterns of mineralization in Moab, Utah. In pursuit of this goal, he has been working on developing a new method for obtaining oxygen isotope values from iron oxides without the need for laser fluorination. Funding from the MGPV division of GSA will help provide for the creation of thin sections and supplemental iron isotope measurements to be paired with oxygen isotope data from the iron oxide samples.

Through his research, Connor aims to shed light on the geochemical processes responsible for the formation of iron oxide concretions in Moab and other analogous environments as well as enable future research through the development of his new method for obtaining oxygen isotope data from iron oxides. When not in the lab, Connor enjoys exploring the outdoors or relaxing with a good book in hand.



Lisa Hlinka, The Graduate Center, CUNY, New York, NY for her project: *Constraining Timescales of Magma Storage and Ascent, and Potential Climate Impacts of the Columbia River Flood Basalt Volcanism*

Lisa Hlinka is a 2nd year PhD student in the School of Earth & Environmental Sciences at The Graduate Center-City University of New York (CUNY), working with co-advisors, Dr. Marc-Antoine Longpré and Dr. Benjamin Black.



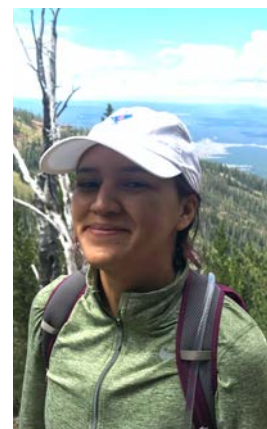
Lisa received a B.S. in geology from Stony Brook University in 2012 and a M.A.T. in Earth Science Education from the American Museum of Natural History in 2013. After which, she enjoyed working for four years as a high-school Earth science teacher in New York City. While teaching her students about exciting Earth Science topics, Lisa decided that she too wanted to contribute to scientific research. Thus, Lisa returned to graduate school in 2017 to pursue a M.A. at Queens College, CUNY, where she engaged in research to study eruptive style controls of Masaya Volcano. Then, Lisa began her Ph.D. research at The Graduate Center in 2019, to research the Columbia River Basalt Group, the youngest and best-preserved Large Igneous Province on Earth.

Lisa is grateful for the financial support received from GSA's Lipman Foundation and MGPV Division; the Lipman Award will directly benefit her academic and professional career by funding the field work portion of her research. Lisa will collect relevant samples from the Columbia River Basalt Group in the U.S. Pacific Northwest. Then she will utilize methods in diffusion chronometry and melt inclusion studies to constrain timescales, physio-chemical conditions, and depths of magma storage, as well as volatile budget throughout the evolution and emplacement of the Columbia River Basalt Group.

Allison Huisa, Northern Arizona University, for her project: *Understanding High Silicic Rhyolite Storage and Duration in a Dominantly Mafic Intracontinental Volcanic Setting*

Allison Huisa is a 2nd year Masters' student at Northern Arizona University working with Dr. Mary Reid. Her research focuses on investigating crystallization ages and compositional evolution of co-crystallizing accessory minerals (zircon, allanite, and chevkinite) from a high silica rhyolite that forms Sugarloaf Mountain in Northern Arizona. A combination of these methods will allow her to have a better understanding of Sugarloaf Mountain's magmatic storage conditions by helping her differentiate between two general possibilities: periodic episodes of thermal inputs and cooling before eruption or if the rhyolite evolved immediately before eruption. Her work will provide a better understanding of silicic volcanic rocks on a larger scale.

Allison is originally from Miami, FL and received her bachelor's degree in geology at Florida International University. Her interest in magmatic evolution sprouted from her pursuit to contribute to natural hazard mitigation work in the future. In her spare time, Allison enjoys painting, cooking and working on bettering her green thumb. She would like to thank GSA Lipman Research Award and the MGPV division for awarding her both grants and supporting her research."





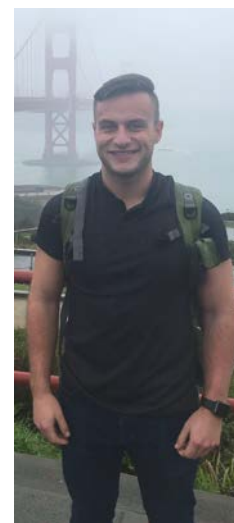
Junyao Kang, Virginia Tech, for his project: *Reconstructing Redox Conditions of Tonian (ca. 1,000–720 Ma) Oceans*

Junyao Kang is a second year Ph.D. student from the Department of Geosciences, Virginia Tech. He works with Dr. Shuhai Xiao to investigate the paleoenvironment of the Neoproterozoic oceans, especially the Tonian seawater redox transition, to better understand the interaction between the biosphere and its environments during this critical interval of Earth history. With the funding from MGPV and GSA, he will conduct a geochemical investigation of Tonian carbonates and shales in the Baishan Area of North China to test the hypothesis that changes in shallow- and mid-depth oceanic redox conditions are correlated with eukaryotic diversification in the Tonian Period.

Before joining Virginia Tech, Junyao got his bachelor's degree in Geology with honors at Peking University in China. As an undergraduate, he investigated the selective dolomitization process of the Neoproterozoic Tonian stromatolites from the Huaibei Group in North China and its related paleoenvironment. After that, he served as a voluntary intern at The Nature Conservancy for half a year. Junyao is interested in the co-evolution of life and environment during Earth history. He also hopes his research about paleoenvironmental change could apply to the environmental problems that the Earth is facing in the Anthropocene, and help us to make long-term predictions, and to develop sustainable strategies to mitigate environmental threats.

Jacob Klug, University of Wisconsin-Madison, for his project: *Magma mixing and explosive eruptions at Planchon-Peteroa Volcano, Chile revealed through minerals and melt inclusions*

Jacob Klug is a PhD student at the University of Wisconsin-Madison. His work is being completed under the guidance of Dr. Bradley Singer. He is currently studying two active volcanic systems in Chile, Planchon-Peteroa volcanic complex and Villarrica Volcano. The broad goal of both studies is to better understand the growth history, geochemical evolution, and the role of volatiles in each system. He will use funding from the Lipman award to measure mineral compositions in Holocene tephra from Planchon-Peteroa with the aim of constraining magma storage conditions, compositional evolution, and timescales of destabilization. In the past he utilized funding from the MGPV division for SIMS measurements of H₂O, CO₂, and trace element concentrations of melt inclusions in plagioclase, quartz, and olivine from Laguna del Maule. Trace element and volatile concentrations were used to characterize reservoir pressure conditions, magma recharge, and rhyolite generation.



In 2019 Jacob obtained a master's degree from the University of Wisconsin-Madison. Prior to attending the University of Wisconsin-Madison he got his undergraduate degree in Geology at St. Norbert College in De Pere, WI. He decided he wanted to pursue a graduate degree studying the geochemistry and petrology of volcanoes after a field trip to Nicaragua peaked his interest. In his free time he enjoys hiking, fishing, and spending time with family and friends. He would like to thank both GSA Lipman Research Award and the MGPV division for supporting his research.



Julia McIntosh, Southern Methodist University, Dallas, TX for her project: *Assessing the silicon isotopic composition of clay minerals from paleosols as proxies for illitization and reconstructing paleoenvironments*

Julia McIntosh is a PhD student in her second year at Southern Methodist University studying sedimentary geochemistry with Dr. Neil Tabor. Julia was born and raised in Austin, TX, where she was taught by her geophysicist father to appreciate geology at an early age. She went on to receive her B.Sc. in Geosciences from the University of Texas at Dallas, where she was mentored by Dr. John Geissman. Beginning in her senior year, Julia interned with the National Weather Service's, West Gulf River Forecast Center. Her work

studying the impact of anomalously high rainfall events on Texas rivers encouraged her interest in researching the causes and effects of catastrophic climate trends in the geologic record. She then transitioned to SMU where she began her Master's research (continuing into her PhD) studying illitization signatures in Illinois Basin fossil soils, or paleosols, to better understand if phyllosilicate genetic origins can be determined by characterizing their mineralogical, elemental, and stable isotopic compositions. Julia's geochemical studies of paleosol phyllosilicates also focus on reconstructing Permian-Triassic paleoenvironments, where she is trying to understand if warming trends determined by the marine carbon isotope record are also preserved from Permian to Triassic-aged paleosols from different paleolatitudes. Julia is currently a Student Representative for the GSA Soils and Soil Processes Division. When she is not in the field or in the lab, Julia enjoys cooking and embroidering local Texas flora. Julia is sincerely grateful for the support from GSA Lipman Research Award and the MGPV division.

Carolyn Mullins, New Mexico State University, for her project: *Provenance Analysis of a Modern Drainage Basin with Laser-Induced Breakdown Spectroscopy*

Growing up on the Mississippi Gulf Coast, very little about my environment inspired me to become a geologist. It was an undergraduate geology course that spurred this interest in me. I attended the University of South Alabama in Mobile and received a BS in Geology as well as a BS in Business Management with a minor in Spanish. During my last year at USA, I was able to participate in the program's field school as well as the USGS EdMap program, in which I was a research assistant gathering field data. These experiences made me wish to continue my education with a focus on research.



Currently, I attend New Mexico State University and work with Dr. Nancy McMillan of the NMSU LIBS lab. We are working to develop a method of using Laser-Induced Breakdown Spectroscopy (LIBS) as a provenance tool for modern sediments. By analyzing LIBS spectra of heavy detrital grains and comparing them to spectra from known whole-rock samples using multivariate analysis, we should be able to correlate heavy detrital grains to their host rock. After graduation, I would like to pursue a career in environmental geology which will allow me to use my knowledge of LIBS, hydrology, and remediation and monitoring to solve real-world problems.

Besides hiking with my dog and field work, my other hobbies include cooking, sewing, music, and gardening. I hope my love of gardening and environmental geology will one day allow me to run a small sustainable agriculture business.

Yon-Gyung Ryuh, University of Waterloo, for her proposal: Bromine isotope compositions of Silurian Salina salts in the Michigan and the Appalachian basins

Rachelle Sanchez, Miami University of Ohio, Oxford, OH for her proposal: *Causes of Chemical Variations in Monogenetic Eruptions: The Magmatic Evolution of Xitle Volcano, Mexico*

Rachelle (Rae) grew up moving around to several places around the world but spent most of her childhood in Washington State. She attended Central Washington University from 2014 to 2019, where she graduated with a B.S. in Geology. During her undergraduate degree, she worked with Dr. Wendy Bohrsen in order to quantify the magma mixing event involved in the 1915 Lassen Peak, California eruption using a thermodynamic model called the Magma Chamber Simulator. Rae was also able to complete an internship during July of 2017 with GeoTenerife, conducting a diffused gas survey on the island of Gran Canaria.

Rae is now a PhD student at Miami University of Ohio working under the tutelage of Dr. Elisabeth Widom. The project goals are to understand the timescales and processes in the evolution of Xitle Volcano, Mexico as well as the origin of the andesite lavas in Xitle and other monogenetic centers in the Sierra Chichinautzin Volcanic Field. This will be accomplished by a multi-faceted approach using petrographic, major and trace element, as well as isotopic analyses.

When Rae is not working on her dissertation, she enjoys caring for her many house plants, cooking, and traveling. Rae is also proud and thankful for the opportunity to be the first generation in her family to be able to earn her undergraduate degree and work.



Carmichael Student Research Award



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.

Hailey Mundell, Pennsylvania State University, for her project: *How do Fluids Leave the Slab? An Investigation of the Scales of Reactive Fluid Flow on the Subduction Interface*

Hailey is a second year Master's student at Penn State University. Her current work is done with Dr. Andy Smye. She is studying the relationship between fluid-rock interaction, deformation, and metamorphism in an eclogite-facies vein system from the Eclogite Zone, Eastern Alps. During prograde burial and heating, the breakdown of hydrous minerals releases fluid into the subducting slab, and fluids are preserved as vein systems upon exhumation. Veins are mantled by an omphacite-rich selvage, grading to pristine eclogite further from the vein margin. Hailey's study focuses on the textural and compositional changes across the reaction selvage, and she uses a combination of phase equilibria modelling, microtextural analysis, and mineral chemistry to evaluate metamorphic conditions, compositional variation preserved in the selvage, and the temporal relationship between deformation, metamorphism, and fluid flow. Direct constraints on the

mechanics of fluid transport within the slab are of high value; models for arc magma genesis require fluid transport from the down-going slab and into the mantle wedge, and the release and movement of such fluids are thought to play a pivotal role in generating and modulating subduction zone seismicity.

Hailey received a BS in Geology from Clemson University in May 2019. She worked with Dr. Lindsay Shuller-Nickles for her undergraduate research, which was a quantum-mechanical study in computational mineralogy. Hailey used the Linux program VASP to perform density functional theory (DFT) calculations on varied atomic and spin configurations along the Ba,Cs Fe-doped hollandite solid solution. The goal of the work was to evaluate the characteristics of hollandite for use as part of a polycrystalline ceramic waste form, with the purpose of storing radioactive Cs from nuclear waste streams.

Hailey's research interest is piqued by a fascination with mineral chemistry and a desire to help improve human safety, whether that be by evaluating storage solutions for high level nuclear waste or improving the scientific understanding of subduction zone seismicity. When Hailey isn't working on her research project, she loves to hike, write novels, and create digital art in Adobe Illustrator.

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 gifts/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 (1 July 2019 through 30 June, 2020):

Lipman Research Fund: Peter W. Lipman and the Lipman Family Foundation Inc.

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

MGPV Division Fund: David G. Bailey, Harvey E. Belkin, Brian L. Cousens, Anita L. Grunder, Matthew G. Guilin, William K. Hart, B. Carter Hearn, Rosalind T. Helz, Christopher D. Henry, Thomas D. Hoisch, William R. Holly, Adam Kent, Xiyao Li, Nathan G. Limbaugh, Carter R. Lindeman, Virginia T. McLemore, Gary S. Michelfelder, Buyanzaya Munkhjargal, Julie Roberge, Rush L. Rodwan, Gary B. Sidder, Thomas Sisson, Peter D. Taylor, Sandra Underwood, James A. Walker.

Ian S.E. Carmichael Research Fund: Mark Bailey, Denton S. Ebel, Judy E. Fierstein, John H. Fournelle, Michael O. Garcia, O. Frank Huffman, Jr., Rebecca A. Lange, Claire T. Lee, Glen S. Mattioli, Barbara P. Nash, James Nicholls, Terry A. Plank, Michael F. Roden, Tracy A. Rushmer, Thomas Sisson, Alan L. Smith, Victor A. Valencia, Johan C. Varekamp.

MGPV at GSA 2020 Connects Online



The Annual Meeting of the Geological Society of America will be held virtually from October 26 - 30, 2020. Registration is now open and the Early Registration Deadline is September 21, 2020. A new twist this year - free registration for student members. GSA member pricing is also available for any member of a GSA Associated Society, such as MGPV's Adhering Societies: MSA, GS, MAC, MSGBI, and CMS. GSA 2020 has created a platform with a virtual lobby, auditorium, tech session rooms, Resource and Innovation Center, the GSA HQ booth, and a chat room. Each session's recorded videos will be available to watch ahead of time, so attendees can plan any questions for the live Q&A.

• **Business Meeting.** The Division will have its required business meeting on Wednesday October 28 at 12-1:15 pm EDT. Links to the meeting (using GOTO Meeting) will be posted on the MGPV webpage. There will be a brief update about the Division, and an opportunity to ask questions or make comments.

• **Award Presentations/Reception.** The in-person events surrounding the 2020 awards at what was to be the Montreal meeting have been postponed until the 2021 Portland meeting. Likewise, there will be no reception.

• **Technical Sessions.** MGPV and its Participating Societies are sponsoring 69 topical technical sessions:

Sessions sponsored by MGPV and its Associated Societies

- T002. Assembling Laurentia: Paleozoic Mobile Margins I.
- T002. Assembling Laurentia: Paleozoic Mobile Margins II.
- T003. Assembling Laurentia: Mesoproterozoic to Early Neoproterozoic Tectonic Evolution of Laurentia and Its Role within the Supercontinent Rodinia I.
- T003. Assembling Laurentia: Mesoproterozoic to Early Neoproterozoic Tectonic Evolution of Laurentia and Its Role within the Supercontinent Rodinia II.
- T008. From Rodinia to Pangea: Evolution of the Appalachian-Caledonian Orogen I.
- T008. From Rodinia to Pangea: Evolution of the Appalachian-Caledonian Orogen II.
- T009. Assembling Laurentia: GEON 14 Enigmas and Advances in Understanding the Crustal Evolution and Paleogeography of the Early Mesoproterozoic North America.
- T010. Subduction Zone Slip Behavior: The Intersection of Deformation and Metamorphism.
- T012. Assembling Laurentia: Neoproterozoic to Cambrian Rifting and Continental Margin Evolution during Breakup of Rodinia and Pannotia.
- T013. Some like It HOT: The Role of Late Extensional Tectonics in Collisional Orogens, with Special Emphasis on the Grenville Orogen.
- T016. Assembling Laurentia: Growth of the Western Continental Margin by Subduction, with or without Terrane Accretion, 190-70 Ma I.
- T016. Assembling Laurentia: Growth of the Western Continental Margin by Subduction, with or without Terrane Accretion, 190-70 Ma II.
- T027. Approaches for Extracting Shear Zone History from the Ductile Rock Record: Probing Their Initiation, Evolution, and Reactivation I.
- T027. Approaches for Extracting Shear Zone History from the Ductile Rock Record: Probing Their Initiation, Evolution, and Reactivation II.
- T030. Assembling Laurentia: Neoarchean Crust Formation and Cratonization.
- T032. Assembling Laurentia: Turning Points in Paleoproterozoic Tectonic Evolution I.

- T032. Assembling Laurentia: Turning Points in Paleoproterozoic Tectonic Evolution II.
- T033. Evolving Perspectives on the Tonian Biosphere and Environmental Change.
- T035. Building the SZ4D Magmatic Drivers of Eruption Theme: Geologic Evidence from Active and Exhumed Arcs.
- T036. Experimental and Petrologic Investigation of Halogens, Sulfur, and Other Volatile Species in Igneous Systems: In Honor of Jim Webster.
- T038. From the Micro to Macro in Metamorphic Geology: Constraining Tectono-Metamorphic Processes with High-Resolution Approaches.
- T039. Granulite Terranes and Evolution of Continental Lower Crust: Insights from the Canadian Shield and Beyond I.
- T039. Granulite Terranes and Evolution of Continental Lower Crust: Insights from the Canadian Shield and Beyond II.
- T041. Volcanism and Tectonics along Rifts and Volcanic Arcs: Understanding the Relationships between Timing, Volumes, and Distributions I.
- T041. Volcanism and Tectonics along Rifts and Volcanic Arcs: Understanding the Relationships between Timing, Volumes, and Distributions II.
- T046. An Interdisciplinary View of Paleozoic Glaciations and Icehouse Climates: Sedimentology, Paleoclimate, Paleontology, Geochemistry, Geochronology, and Modeling.
- T050. Interactions between Life, Tectonics, Climate, and Sedimentary Systems at the Neoproterozoic-Early Cambrian Transition I.
- T050. Interactions between Life, Tectonics, Climate, and Sedimentary Systems at the Neoproterozoic-Early Cambrian Transition II.
- T051. Oceans and Climates through Earth History: From Proxy Reconstructions to Model Assessments (Posters).
- T055. Insights from Microfossils and Their Modern Analogs: From Traditional to Emerging Approaches (Posters).
- T056. Co-Evolution of Earth's Surface Environment and Eukaryotic Life from the Mid-Proterozoic to Early Paleozoic.
- T062. The Co-Evolution of Phanerozoic Climate, Landscapes, and Terrestrial Ecosystems I.
- T062. The Co-Evolution of Phanerozoic Climate, Landscapes, and Terrestrial Ecosystems II.
- T067. Trends and Patterns in Neoproterozoic–Cambrian Biodiversity and Evolutionary Originations I.
- T067. Trends and Patterns in Neoproterozoic–Cambrian Biodiversity and Evolutionary Originations II.
- T077. New Insights into the History of Life from Novel Techniques.
- T087. Growing a Skeleton: Methodological and Theoretical Approaches to Unraveling the Stories Preserved in Skeletal Materials I.
- T087. Growing a Skeleton: Methodological and Theoretical Approaches to Unraveling the Stories Preserved in Skeletal Materials II.
- T095. Sigma Gamma Epsilon Student Research (Posters).
- T096. Mineralogy, Petrology, and Geochemistry: New Approaches to Harnessing the Multidimensionality of Complex Systems I.
- T096. Mineralogy, Petrology, and Geochemistry: New Approaches to Harnessing the Multidimensionality of Complex Systems II.
- T098. Groundwater-Surface Water Interactions Under Climate and Anthropogenic Change.
- T101. Fundamental Insights from Field and Laboratory Studies Related to the Genesis and Ore-Forming Processes Associated with Granitoid Generation and Evolution to Their Related Alteration and Mineralization.
- T103. Geochemical Signatures of Fluid-Rock Interaction: Earth Surface Weathering to Hydrothermal Systems I.
- T103. Geochemical Signatures of Fluid-Rock Interaction: Earth Surface Weathering to Hydrothermal Systems II.
- T105. Assessing the Fidelity of Geochemical Signals in Deep Time: Primary, Authigenic, and Diagenetic Signals in Proxy Data.
- T107. Integrating Geochronological, Geochemical, and Petrological Data—Progress in Petrochronology and Applications.

- T109. Bridging the Laboratory–Database Divide in Geochemistry.
- T118. Impact Cratering across the Solar System.
- T123. Rocks from Space! Using Meteorites to Understand the Physical, Chemical, and Mineralogical Evolution of Planetary Bodies.
- T126. Mapping, Minerals, and Metamorphism—Work Small, Think Big I: A Tribute to the Life of Peter Robinson.
- T126. Mapping, Minerals, and Metamorphism—Work Small, Think Big II: A Tribute to the Life of Peter Robinson.
- T127. Gemological Research in the 21st Century: Gem Minerals and Localities.
- T147. Anthropocene Sedimentology: Exploring Human-Sediment Interactions.
- T153. Soils and Long-Term Environmental Change I.
- T153. Soils and Long-Term Environmental Change II.
- T166. Lakes of the World through Time and Space I.
- T166. Lakes of the World through Time and Space II.
- T179. Applications for DNA Sequencing and Microbial Analysis in Hydrogeology and Environmental Geosciences.
- T182. Novel Outcomes in the Hydrologic Sciences: Emerging Areas of Research, New Educational Approaches, Broadening Participation, and Societal Impact.
- T201. Urban Geochemistry.
- T205. Water, Health and Wealth in a Changing World.
- T206. Global Water Resources and Geohealth: Tracing Inorganic Contaminant Origins, Evaluating Human Health Risks, and Remediation/ Mitigation Strategies.
- T207. Lead Pollution, Exposure, Health Risks, and Mitigation Strategies I.
- T207. Lead Pollution, Exposure, Health Risks, and Mitigation Strategies II.
- T208. Environmental Geochemistry and Health I.
- T208. Environmental Geochemistry and Health II.
- T209. It's the Dose That Makes the Poison: Advances in Exposure and Dose Assessment for Practical Medical Geology.
- T215. Advances in Mineral Chemistry for Petrogenesis and Exploration of Mineral Deposits.
- T216. Rare Earth Elements: The Behavior of Critical Minerals in Sedimentary, Magmatic, and Magmatic-Hydrothermal Systems.

MGPV at GSA Section Meetings

Divisions have the primary responsibility for developing the technical session program for GSA Annual Meetings. GSA is now asking them to take a similar role for the Section meetings, where the Divisions' involvement has generally been low. Please consider developing and submitting theme session topics for 2021 Section meetings and requesting MGPV sponsorship.

MGPV had agreed to sponsor events at the 2020 Combined SE-NE GSA meeting, Reston, VA and the 2020 GSA Cordilleran Section meeting, Pasadena, CA. Unfortunately, these meetings were canceled.

MGPV website: the GSA Connected Community

The Mineralogy, Geochemistry, Petrology, & Volcanology (MGPV) Division [website](http://community.geosociety.org/mgpvdivision/home) 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
1,980	2020 Division affiliates as of 31 August 2020



In 2014, GSA instituted a policy wherein students can join their first Division at no cost. This new policy dramatically increased MGPV membership, increasing student membership from about 30% to 60%. But another result is a loss of income. After 2014, the ups and downs in MGPV membership numbers track the changes in total GSA membership numbers.

Help us sustain a strong Division by renewing, asking others to join, and volunteering. We have several hundred individuals with lapsed memberships, and so there is room to grow.

• **Finances:** At the end of the 2019-20 fiscal year (06/30/2020), MGPV had a (unrestricted) cash balance of \$16,180.69. Dues income in 2019-2020 (GSA's and the Division's fiscal year to July 1 through June 30) was \$7,336.30. This is slightly more than the previous 12-month periods dues of \$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, student travel grants, and the 2020 Distinguished Geological Career and Early Career Awards. In addition, the Lipman Research Fund provided \$45,000 and the Ian S.E. Carmichael Research Award \$1,295 to fund those student research grants.

Division expenses from dues during this period were \$290.09 for AV services, postage, shipping, and freight; \$6,135.08 for student grants (MGPV portion), awards, student and awardee travel support; and \$2,716.86 for the reception (this is 1/3 of the total remaining cost after ticket sales with that balance due shared among MGPV, GS & MSA).

With GSA 2020 Connects Online, expenses that would have accrued from in-person meeting events have been delayed until GSA 2021 in Portland. Also delayed are sessions organized in honor of the 2020

awardees. With dues income and but only one award expense for the 2020-21 fiscal year so far, the MGPV has a (unrestricted) cash balance of \$17,280.69 as of 09/30/2020.

MGPV has enough income for the upcoming 2020-2021 fiscal year to support the MGPV's awards, reception, and perhaps up to three student research grants, but we must keep an eye on membership/dues and GSA Foundation support.

• **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.

The MGPV Management Board consists of ten people, each of whom can appoint one person to serve on committee for one year. Each member of the Management Board (this includes representatives from the Adhering Societies) is entitled (but not required) to select one person to serve on this committee for one year. The Division Chair appoints one of those committee members as the chair. As noted in the piece on the award, next year nominations are due on 31 March 2021, and the Award Committees will make its recommendation by 15 August 2021.

The ***Nominating Committee*** of the Division reports to the Management Board a list of candidates to run for office the following year. The Nominations Committee makes a public call for either volunteers or recommendations to be considered for the open positions of second vice-chair and/or secretary-treasurer. The Committee can also identify possible candidates for office on their own. Additionally, nomination of a candidate to become a Division officer also may be made to the Division Secretary-Treasurer by any four voting affiliates of the division in good standing who also verify that the candidate is qualified and willing to serve in that office. This candidate's name will be forwarded to the chair of the Nominations Committee in time for inclusion in their report to the Management Board.

From the pool of candidates, the Nominations Committee will select a single candidate for each open office by majority vote. In a written report, the Nominations Committee will inform the Management Board of the vote, include the list of individuals considered, and the curriculum vitae. When approved by the Management Board, the nomination(s) shall become the election slate. The membership will be asked for a vote of confidence for the candidates of all open offices. In the event that the vote of confidence fails, the second candidate on the list will stand for a vote of approval or non-approval.

Voting takes place during August, and officers will be inducted at the annual business meeting in the fall (northern hemisphere). For this to happen, the committee needs to be in place by April 1 and the slate submitted to GSA by July 1.

The ***Program Committee*** is a standing committee. 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 Geologic Career Award Committee:** Rosemary Hickey-Vargas (Chair), Mihai Ducea (2019-2021), Maureen Feineman (2019-2021), Andrew Calvert (2020-2022), Mary Leech (2020-2022)
- **Early Career Award Committee:** Rosemary Capo (Chair), John Valley (2018-2020), Tracy Gregg (2020-2022), Dina Lopez (2020-2022), David Peate (2020-2022), Mary Reid (2020-2022).
- **Officer Nominations Committee:** John Shervais (2020 past chair), Anita Grunder (2019 past chair) and Wendy Bohrsen (2018 past chair).

- **Student Research Grants** (for 2020): Rosemary Hickey (Chair), and MGPV Division Officers: John W. Shervais, Rosemary C. Capo
- **JTPC Representative:** Rosemary C. Capo

• MGPV Voting

• **Election 2020.** 332 Division members voted during August 2020. Amanda Clarke, Arizona State University, was elected Second Vice-Chair. Dennis L. Newell, Utah State University, was elected to fill what otherwise would have been a vacant First Vice-Chair position. Rosemary C. Capo, University of Pittsburgh, moved to the Chair position, and Rosemary Hickey-Vargas, Florida International University *Emerita*, to Past-Chair. J Alex Speer, Mineralogical Society of America, continued as Secretary-Treasurer in the second year of a 2-year term.

• **Election 2021.** 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.

The election in 2021 will be for Second Vice-chair and Secretary-Treasurer. For members who have given GSA their e-mail addresses, voting is online. The message notifying you that voting is open will contain the necessary USERID and password for you to do so. Members who do not have internet access will receive a paper ballot through the US mail from GSA.

• **Giving to MGPV.** Did you know that you could donate to the MGPV Division? To make a gift, please go to [GSA Foundation's online giving page](#). Enter a donation amount and then select "Mineralogy, Geochemistry, Petrology, and Volcanology" from the "Category or Area of Interest" pull-down menu. The Division would like to increase its support of student activities.

GSA Student Advisory Council

In April 2014, the 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. Two new MGPV student representatives have been appointed for 2021-2022, Lindsey Hernandez, The Ohio State University and Chioma J. Onwumelu University of North Dakota..

Announcements

from MGPV:

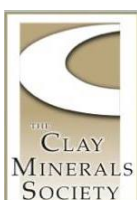
[1] Consider nominating deserving candidates for MGPV Division's Distinguished Geologic Career and Early Career Awards. Procedures and deadline (**31 March 2021**) for nominations are given on the [MGPV Division's Connected Community site](#).

[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 **Mineralogical Association of Canada (MAC) Annual Meeting** is 17-19 May 2021 University of Western Ontario, University of Western Ontario, Canada. This is the GAC-MAC 2021 joint meeting. More information at <https://gacmac2021.ca>.



**Kil Bilimleri
Derneği**
Clay Science Society

- The Clay Science Society (Turkey) and **The Clay Minerals Society (USA)** will co-host the 17th International Clay Conference 2021 in Istanbul, Turkey July 12-16, 2021. **November 15, 2020** is the opening of abstract submission. [Details](#).

- **Nominations for the CMS 2021 Awards.** Deadline is March 7, 2021. [Details](#).

- **The Clay Minerals Society** invites applications for its [Student Research Grants](#). There are several grants of up to \$3000. Application deadline is March 1, 2021. Awardees must be CMS members.

- The **Goldschmidt Conference** will be held 4-9 July 2021 in Lyon (France). Deadline for sessions and workshops proposals is 15 October 2020. [Details](#).



- The [Geochemical Society Meeting Assistance Program](#) was established in 2002 to support geochemistry sessions/symposia at any scientific conference of geochemical relevance. Two sponsorships of \$2,500 each will be awarded following both deadlines, for a total of four per year. Applications are reviewed and approved by the Program Committee. Awards are distributed in United States dollars and must be distributed to an organization (not an individual). The applicant of a funded program should also expect to write up a post-symposium report for publication in *Elements Magazine* and/or *Geochemical News*. Deadlines for applications are **March 31** and **September 30** of each year.

• During this year's Earth Science Week (October 11-17) the Mineralogical Society of America (MSA) with the the American Geosciences Institute (AGI) and several other partners have organized a Minerals Day for Monday, October 12, 2020. The Earth Science Week theme this year is *Earth Materials in Our Lives*. A [Minerals Day microsite](#) has teaching resources, two downloadable posters, and the schedule of free on demand or live webinars (select Events for these)..



• Mineralogical Society of America (MSA). Nominations are sought for the [Roebling](#) 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 [2021 MSA Grant for Research in Crystallography](#) and for the [2021 MSA Student Research In Mineralogy and Petrology](#). There are up to three research grant awards of \$5,000 each. Application deadline is March 1, 2021. Awardees must be MSA members.

• 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.

• MSA will have an exhibit at the [2021 Southeastern GSA Section Meeting](#), 1–2 April 2020 in Auburn, Alabama. The meeting will be held at the Hotel at Auburn University.

• **The Mineralogical Society of Great Britain & 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). Visit <<https://www.minersoc.org/bursaries.html>>.



• **MSGBI** Metamorphic Studies Group 40th Anniversary Meeting is 29–31 March 2021, Cambridge University, UK. [Details](#).

MSGBI seeks nominations for the [Schlumberger Award](#), [Collins Medal](#), [Max Hey Medal](#), and [Barrow Award](#). Application deadlines are 16 April 2021.

• **The Third European Mineralogical Conference (emc2020)** was postponed until 29 August – 2 September 2021 and will still be held in Krakow, Poland. The meeting will focus on current and future challenges in the Earth, planetary and environmental sciences, and fostering an exchange of new views and research results between scientists from Europe and beyond. [Details](#).

emc²020
8-10 september
3rd European Mineralogical Conference



Division Management Board

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Chair (2020)

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vacant

Secretary-Treasurer (2020-2021)

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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

Webmaster: J. Alex Speer

GSA Council/Division Liaison

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