



GRAND VALLEY
STATE UNIVERSITY
GEOLOGY DEPARTMENT

Iceland—Summer 2019

Reflecting on Iceland 2019 Study Abroad by Steve Mattox

Imagine every GVSU Geology student experiencing Study Abroad in Iceland. Not only would they construct their geologic knowledge in a unique location, a touchstone for many of their classes, but they would advance their confidence in international travel and adjusting to a new culture.

Two sparks started this fire. A few years ago, during exit interviews for geology seminar, **Andrew Alder** (B.S. Geology 2017) and **Sara Thurkettle** (B.S. Geology 2017) lamented at the lack of interesting Issues courses in the upper-level general education sequence. Shouldn't there be something of interest to geology majors? The second spark was an idea of how to add more diversity and more majors to our geology program. In collaboration with Tari Mattox at Grand Rapids Community College we submitted an NSF grant to partner GRCC students with GVSU geology majors for course work in Iceland. After our first proposal failed, we were strongly encouraged to resubmit but our second try was again denied. Oh, the painful sting of NSF rejection! But no matter, the extra 200 hours invested by each of us in each proposal set us up well for running the course.

Peter Wampler runs an excellent Study Abroad to Haiti that is valued by our students. I gained deeper appreciation for Peter and all my peers that run Study Abroad programs as we built our program. From start to finish it took about two years. We developed a prospectus with a budget estimate and presented it to a

committee. With their approval, and a modest stipend, Tari and I spent nearly four weeks in Iceland in Summer 2018, visiting more than 120 field locations. We were guided by Dr. Thor Thordarson, one of Tari's coworkers back at Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia. Thor has gone full circle, or nearly circumnavigated the globe, with degrees from Iceland, University of Texas, and University of Hawaii at Manoa and research and academic placements from Tasmania to University of Edinburgh. He is now a professor at University of Iceland. We returned to GVSU, revised our proposal, and the program was approved.

ICELAND 2019 STUDY ABROAD CONTINUED ON PAGE 4



At Hallgrímskirkja church in the heart of Reykjavik.
Note the use of columnar basalts forms in the architecture,
Summer 2019

Greetings from the Chair


FIGEN MEKIK, PH.D.
 PROFESSOR OF GEOLOGY
 UNIT HEAD OF GEOLOGY
 DEPARTMENT

Figen Mekik
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This year has been one of many changes in Geology! What hasn't changed is that our students are graduating and securing gainful employment with the skills they learned in our program. In the passing of each academic year, our faculty make gains to be more vibrant and prolific. Our field trips are going strong, including a very eventful one to Florida this year

led by **Dr. Peter Riemersma**, a week-long field trip to the Florida Everglades over Spring Break 2019 called Geology, Natural History and Water Resources of Florida! Our alums tell us that it was the field trips that became the most memorable parts of their experiences with us. Speaking of our wonderful alumni, it is with a heavy heart that I must report a great loss we have suffered this year. Our alum and beloved student, **Mr. Jory VanEss** (B.S. Geology 2018) unexpectedly passed away due to a work related accident. We miss him.

Some highlights of the year include a change in our department office. **Ms. Janet Potgeter** left us for a promotion in the Center of Scholarly and Creative Excellence. We are very lucky to have **Ms. Mitzi Loving** as our new office coordinator and from day one she has infused the job with magic. Her energy and can-do attitude is contagious! We also have a very new visiting professor in our department this year: **Ms. Hannah Pankratz** (soon to be Dr.), who is surviving her first semester with aplomb. Our faculty efforts and contributions have been awarded: **Dr. Ian Winkelstern** received a prestigious National Science Foundation grant this year! **Dr. Ginny Peterson** accepted the PEW Teaching Excellence Award 2019 and I will receive this award in 2020. The very esteemed Niemeyer Award was presented to **Dr. Steve Mattox**. Finally, **Dr. Caitlin Callahan** has received the GVSU 2020 Outstanding Early

Career Scholar Award. **Dr. Patrick Colgan** continues to work diligently on his research with undergraduate collaborators and has received the college nomination for the Outstanding Undergraduate Mentoring Award.

In other news, **Mr. Greg Wilson**, **Dr. Kevin Cole** and **Ms. Susan Jansen** attended the Tucson Gem and Mineral Show, bringing back some gorgeous specimens that are now on display in our Miller Case. **Dr. John Weber** has invested much of his teaching time to instructing GEO 100 (*Environmental Geology*) and GEO 111 (*Exploring the Earth*) students this year, availing them to his passion for Geology.

Dr. Stephen Mattox developed a 12-week course in Iceland called Geology in the Land of Fire and Ice. The initial offering of this Spring/Summer 2019 course was met with great success and has been scheduled again in Summer 2020. **Dr. Caitlin Callahan** has added Integrated Science courses to her teaching schedule, while maintaining her core instruction with Geology major courses this year. She has taught GEO 175 (*Research Tools for Geosciences*) where she welcomes our new majors into the fold, and GEO 214 (*Solid Earth Materials and Systems*) with **Drs. Ginny Peterson** and **Kevin Cole**.

In addition, **Dr. Peter Wampler** continues important work in Haiti with much public acclaim. Most recently, he has been selected by the Provost to co-direct the Making Waves Initiative. While we are happy for him, I do have sad Geology Department news concerning **Professor Wampler**; he is transferring from our department to teach full time in the Honors College starting in Fall 2020. In the future, he will make cameo appearances to teach GEO 320 (*Geomorphology*) and GPY 307 (*Geographic Information Systems*) for us. However, he will no longer be housed in our department.

Dr. Tara Kneeshaw has dedicated many hours to help GVSU students with remedial work and to entice her students in her General Education courses to fall in love with Geology.

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To boot, she has started teaching GEO 112 (Earth History) and has taken an important role in the Making Waves Initiative. Undeniably, she is literally making waves through her research project with student, **Jessalyn Gonzalez** (B. S. Geology, expected in 2021), whose poster earned third place in Hydrogeology at the annual meeting of the Geological Society of America (GSA) this year!! **Mr. John VanRegenmorter** has brought in beautiful fossils on loan to us from the Grand Rapids Public Museum and gave an excellent talk at the College of Liberal Arts and Sciences (CLAS) Research Colloquium.

Ms. Kelly Heid continues to draw in very capable geology majors from her introductory courses and is very excited about her new weather station on campus!

I am continuing as the Unit Head of this esteemed department into my fourth year. I am working on publishing a paper, co-authored with **Dr. Ian Winkelstern**. Additionally, I received the College nomination for the PEW Teaching Excellence Award. It is with great pride that we can say, all of the Geology faculty have had a extremely industrious 2019 with continuous growth.

As always, Geology is a happening department and will continue to be so in the future. Please send us your stories, tell us of your accomplishments, and keep us close to your hearts! We are always grateful to our alumni who send us job and internship announcements for our current majors. **Adam Wygant** (B.S. Geology 1993) was our alumnus in residence this year and gave an excellent talk while he was on campus. We are grateful to Indian Mounds, Tulip City Gem and Mineral Club and the Tremba, Lefebvre, and Gibson families for providing our students with scholarships and awards. We are appreciative to the Miller family who help us to maintain and enrich a beautiful mineral display in our Department.

Your GVSU Geology professors miss you and wish you the very best!

Geology 2019 The ROCK TABLE OF CONTENTS:

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Grand Valley State University educates students to shape their lives, their professions, and their societies. The university contributes to the enrichment of society through excellent teaching, active scholarship, and public service.

Iceland—Summer 2019

ICELAND 2019 STUDY ABROAD CONTINUED FROM PAGE 1

Over the next six months, I invested time and energy to recruit 16 students into the program, including three geology and one geo-chem major. We met five times in the winter semester to get started on their geology training and to cover logistics. Running in the background was booking flights, reserving rooms, planning meals, and wondering if there really was no bathroom along that eight-hour stretch of road. We were ready to go.

I noticed the student across the aisle tense up as the plane rushed down the runway. Two of our students had never been on an airplane, let alone out of the country. After a short stop in Minneapolis, our redeye flight that took us over Greenland, was only five hours. The drive from the airport to Reykjavik took us over lava younger than 871 AD. Beautiful, endless basalt, mostly inflated pahoehoe. Thor met us at the large 3D map of the island in City Hall and gave a refresher on the general geology of Iceland. A walk over to the Harpa Concert Hall and up to the Hallgrímskirkja church helped to tire out the students and give them the layout of the city. After settling in at the Reykjavik City Hostel, we soaked in the thermal pool at Laugardalsvöllur to end our first day.

Most days were breakfast at 7, leave at 8, and try to be back in town by 6 or 7 pm. I won't go into the minutia of each day, but would gladly share our itinerary or guidebook if you send me an email. Let me share several of the highlights.

Students traversed the mid-Atlantic ridge as it comes onshore on the Reykjanes Peninsula. The "Bridge Across the Continents" is certainly a misnomer but the structural features and the cross-section of the lava flows are exceptional. The volcanoes of the West Volcanic Zone and the extensional tectonics in Þingvellir National Park illustrated a divergent plate boundary better than any textbook or classroom lecture. We could easily add extra days here. We visited the Alþingi where Iceland's parliament was established in 930 A.D. Nearby is Geysir and the spectacular Gullfoss, crowded with tourists but classic

geology. At Fossvogur the students teased out sea-level changes using sedimentary layers. As we headed west Eyjafjallajökull towered above us and the coastal rocks preserved the interaction of lava with the ocean. A couple stops along the sandur plains testified to dramatic changes in the landscape in the last 200 years. In Skaftafell National Park we hiked a few hours and overlooked merging alpine glaciers with their retreating snouts. Thor joined us in the Eastern Fjords where we walked through frozen magma chambers and visited the George Walker Museum. There's not many tourists this far east and the students commented that these were some of their favorite days. Returning west we stopped at Breiðamerkurjökull to explore the glacial landscape laid bare in the last few decades. I think our last geology stop is a thick stack of pillow lavas that



Iceland Study Abroad S. Mattox with students above Skaftafellsjökull, along the south coast., July 2019

formed a table mountain during the last glacial. It's a lot of geology in 12 days.

It wasn't all work and rocks. On Day 6, we set the students loose in Reykjavik to visit a variety of museums and thermal pools. Their last full day is a "free day" with students making their own plans to go fishing, horseback riding, shopping, or just relaxing in town. The students also valued the Icelandic perspective on sustainability including our carbon-neutral lodgings.

Iceland—Summer 2019

ICELAND 2019 STUDY ABROAD CONTINUED FROM PAGE 4

The students were a gift. Most were sophomores and they ranged from business to psychology majors. Their interest and energy were sustained. They did all we asked. Nearly every picture showed them engaged, looking at the outcrops and writing notes in their field books. The near constant chatter and silly photos on WhatsApp were rewarding additions to the trip. I saw a student on her phone when we were high above a glacier and later learned she was using



*Iceland Study Abroad students with S. Mattox : A close look at the mixing of basalt and rhyolite magmas at Eystrahorn, July 2019
Note how the students are bundled up*

FaceTime to share with her dad. It's rewarding to know the students in depth.

The class is set for summer 2020. With little effort I quickly had nearly twice the number of students working on their online applications than I could take. Integrated Science students can now count the course towards their major. I am working to remove any financial barrier for potential geology majors. With careful planning a student can offset the program fee for travel. For example, careful academic advising can help a student earn seven credits and pay for only four. There is also a new Lakers Abroad merit-based scholarship that can provide \$2000 to incoming students. I am working to alert potential geology majors to this opportunity.



Iceland Study Abroad students with S. Mattox. Exploring the composite dike at Streitishvarf, Eastern Fjords, July 2019

Two final observations. The course would not be possible without the support and expertise of Tari Mattox and Thor Thordarson and the logistical help of GVSU's Padnos International Center, especially Elena Selezneva and Hannah Claywell. Lastly, ...maybe we need a Study Abroad class across southern Canada.



Iceland Study Abroad students with S. Mattox, July 2019

News from Geology Faculty

Caitlin Callahan (callahca@gvsu.edu)

Year Five (Fall 2019) This past academic year, I taught some new-to-me courses in the Geology program: in the fall, GEO 175 (*Research Tools for Geosciences*) and GEO 486 (*Geology Reading Seminar*) and in the winter, GEO 214 (*Solid Earth Materials and Systems*). The GEO 214 class took a joint fieldtrip with GEO 414 (*Advanced Petrology*) to the corner of North Carolina and Virginia; the photo below shows me (second row, first on the left) and the 214 students at the Grayson Highlands State Park (VA) with the Appalachian Mountains in the background. The merged classes resulted in lots of opportunities to learn from each other. As can be seen in the picture, the weather was manageable for early April; there was even a little bit of sun on occasion.

The past year also marked the end of my term as an associate editor (AE) for the Journal of Geoscience Education (JGE). In geoscience education, the premiere outlet to publish both discipline-based education research (DBER) and scholarship of teaching and learning (SOTL) studies is the JGE. AE's are responsible for recruiting peer reviewers for manuscripts, synthesizing their reviews, and making recommendations about the suitability of manuscripts for publication. Between the fall of 2015, when I arrived at GVSU, and December of 2018, when my term as an AE ended, I completed 26 reviews. Overall, I found the work to be incredibly gratifying: I am pleased to have contributed to an increase not only in the visibility but also in the rigor of scholarship in geoscience education.

In July, I completed my duties as co-chair of the 2019 Earth Educators' Rendezvous. The Rendezvous is a national conference intended for any and all who are interested in teaching and learning in the geosciences. This year the conference was jointly hosted by Vanderbilt University and Tennessee State University (TSU) in Nashville, Tennessee. TSU has the distinction of being the largest and only state-funded historically black university in Tennessee. The setting was a prominent consideration in the process of building the program. Notably, the plenary session on Thursday featured a panel of faculty from Historically Black

Colleges and Universities, including one from TSU. In all, there were 301 attendees coming from universities with graduate programs, primarily undergraduate institutions, two-year colleges, and K-12 schools.

The conclusion of my efforts on the JGE and the Rendezvous have enabled me to turn my attention to some new research ventures and to finalize some existing projects. In terms of new projects, I am collaborating with **Meghan Martinez**, a GVSU Integrated Science major, to explore questions related to how students cope with uncertainty in solving scientific problems. This research builds on some of the work that I completed in my dissertation. In terms of existing projects, my collaborators and I are preparing manuscripts related to our NSF-funded research in the importance of social capital for persistence of students and professionals in STEM fields.



"Caitlin Callahan and the GEO 214 class in Virginia"
Grayson Highlands State Park, April 2019

Kevin Cole (colek@gvsu.edu)

Greetings! This is my 30th year teaching at GVSU. I will soon become a fossil! Last spring, I spent more time working on the department collection. Susan Jansen, Greg Wilson, and I traveled to Tucson for the Gem and Mineral show in January to obtain more specimens. I will continue to work on the displays to showcase our many treasures.

News from Geology Faculty

For Spring break, we escaped to Big Bend National Park. Where we explored some of Big Bend State Park's wonderful geology. It would make for a nice field trip in the future.

Our first stop was in Springfield, Missouri to Visit **Katy Reminga** (B.S. Geology 2017) and **Sam DeYoung** (B.S. Geology 2017) who were studying at Missouri State University. Peter Wampler just happened to be there at the same time to give a seminar to the MSU students. At the conclusion of Winter semester, we joined the AAPG field trip to the Niagara area in NY. Camping was still a bit cold, but the campfires were inviting. We visited a power plant and visitor center learning a lot of history on the introduction of electricity into society.

In June, we did our customary trip out west. California was eager for the water supply and it made hiking in June more difficult. We spent about 3 weeks in Wyoming exploring the many mountains and visiting the Wyoming State University Geology museum. They have a wonderful geology library. We also explored the Glacier National Park and visited **Danielle DeWeerd** (B.S. Geology 2019). She captained a boat on Lake McDonald; we boarded with her and received a Geology tour from the boat.

In the fall, **Ginny Peterson** and I took the GEO 214 students to Bancroft. Because GSA was so early this year, we left for Bancroft, Canada in early October. Since the weather was cool, we opted to lodge in a cabin and this made meal prepping easier.

In November we had the GEO club cider pressing event with many current students and alums attending. This was our last visit with **Jori VanEss** (B.S. Geology 2018) who tragically passed away the following week. We will miss him. Keep exploring and enjoying geology, it never gets old.

Patrick Colgan (colganp@gvsu.edu)

Hope everyone is healthy and happy! This year was memorable with interesting research with students and colleagues, rewarding teaching, and a small bit of travel. During the winter semester, I taught *GEO 420 (Glacial and Quaternary Geology)* and *GEO112 (Earth History)*. We had a very cold field trip in glacial

as is usual. In the fall semester, I taught *GEO 220 (Earth Surface Materials and Systems)* for the third time. Our new curriculum now has all geology sophomores taking a class that covers water and the hydrosphere, Earth systems, sediments and soils, and critical zone processes. We had great field trips to look at water issues in Ottawa County and an afternoon trip to the ravines. *GEO 220 (Earth Surface Materials and Systems)* has been fun and I think it will help broaden our students, and expose them to new research fields and career paths. I also taught *GEO175 (Research Tools for the Geosciences)* to some excellent Geology and Earth Science majors and non-majors!

Taylor Weeden (B.S. Geology 2019) graduated and moved on to Baylor University to work with Dr. Steve Forman on eolian geomorphology and OSL dating. Taylor was awarded the Council for Undergraduate Research Award for excellence in undergrad research she did with me over the last two years.



GEO 420 Field Trip, Winter 2019

I'm sure Taylor will do great work at Baylor. In the summer, I worked in the field with **Tyler Baker** (B.S. Geology, expected in 2020). Tyler's research was funded by a Gibson Summer Scholarship (GVSU) and continues research started by **Ella Larson** (B.S. Geology, expected in 2020). He examined groundwater springs and the small valleys they erode. I co-authored a commentary on a recent paper published in the *Journal of Great Lakes Research*. The reply questioned proposed geophysical evidence for a Younger Dryas age meteorite impact event in the Saginaw Bay area of Michigan. I also co-authored

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a journal article submitted to *Quaternary Research* with geography Professor Randall Schaetzl and his grad students at Michigan State University. This paper has been accepted and we just submitted our final revisions, hopefully it will be out soon. The paper looks at variation in glacial till deposited by the Saginaw lobe in lower Michigan during the last glaciation. Our data include over 300 grain size analyses of till samples, a spatial grouping and principal component analysis, and clay mineral data from XRD, which show that Saginaw lobe tills are a mixture of illite-rich, fine-grained lake clays, and kaolinite-rich sandy sediment derived from sandstone bedrock and sandy glacial sediments. The tills vary systematically down-ice and provide evidence for a regional scale subglacial sediment-mixing process-model.

In May, **Kelly Heid** and I traveled to Florida to see my dad, and help him around his house. He has a pool so we really didn't suffer in the Florida heat. Most of my summer effort went into writing up research, and working on on-going research projects. In between work, Kelly and I made a couple of trips to Detroit to see the hapless Tigers lose, and do some gambling at Greektown Casino. It was fun to explore Detroit. We also drove out west to see my sister in Bend, Oregon. It was a good trip as my two nieces are now teenagers and a lot of fun. We also enjoyed driving across the West and exploring eastern Oregon mountains along the way. In September, I went to GSA in Phoenix, and it was great to see all the GVSU alums and current students there at the meeting. Many of our alums are in grad school or are in industry or academia and it is always great to see them. Best wishes in the New Year!

Kelly Heid (heidk@gvsu.edu)

Amazing how time flies, I am happily starting up my eighth year as an affiliate faculty member. It's always exciting meeting a new crop of students, and this year I have an especially nice group of young adults. I am still teaching GEO111 (*Exploring the Earth*) and the GEO 203 (*Weather and Climate*) classes, and

enjoying a change of pace with one GEO100 (*Environmental Geology*) section. It's always enjoyable sharing information about how the physical world works and the various environmental hazards that they hear about in the news.

This summer, I devoted time with family. I took a girls trip with my sister and mom to Cape Cod. In late July, Pat and I took Sammy, our Jack Russell for a quick trip to Oregon to visit Pat's sister and nieces. Sammy was over the moon having more laps to snuggle in and had a great time being spoilt by the girls.

Tara Kneeshaw (kneeshta@gvsu.edu)

Greetings! 2019 has been another whirlwind of a year. A lot has happened, for one I turned 40 (yikes!) and Josh surprised me with a trip to the Dominican Republic so that is how we started the year. But perhaps more notably, I've gotten involved in a new avenue of research evaluating the hydro geochemistry of unique wetland/bog systems housing native wild rice in southwest Michigan. This "pristine" work has been a nice addition to my usual work on toxins and it has provided opportunities for a number of student projects. The fieldwork has been challenging, requiring bushwhacking and then wading through often waist deep wetland material. Nonetheless, many of our students have volunteered to assist and all valued the experience. Two current students, **Jessalyn Gonzalez** (B.S. Geology, expected in 2020) and **Jillian Ashton** (B.S. Geology, expected 2020) worked on this research over the summer and fall supported by the McNair Program and Gibson Field Study Scholarships. Both Jessalyn and Jillian presented their research at the 2019 GSA annual meeting in Phoenix, AZ and I am happy to share that Jessalyn won 3rd place for her presentation in the

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Jessalyn Gonzalez receiving 3rd place award at the Hydrogeology Reception GSA Phoenix, AZ, Sept. 2019

Hydrogeology Division's student poster competition! In addition to that research, I have continued to work with a number of students on a wide variety of seminar research projects, many of which continue to focus on the degradation of polyaromatic hydrocarbons in tar sands oil as well as other new and emerging contaminants. In others areas, I was elected to the University Academic Senate and served on the Executive Committee of the Senate during Winter 2019. It has been a rewarding experience to be engaged with the university in this different context (though I do miss having Friday afternoons open, haha!). The summer seemed to go by in a blur as, in addition to a lot of field and lab work, I again taught the Groundwater Sampling and Monitoring portion of Western Michigan University's Hydrogeology Field Camp two times, where we again had a lot of great GV geology students participate. I also served again as a mentor for the Student Academic Success Camp, continued to serve as a Student Success Partner (working to help first year students transition in to life as a college student), and I even got to play unit head for several weeks. In the midst of all that, Josh and I managed to squeeze in a

vacation. We recently bought a camper and got a new puppy (Blu – a high-energy, extremely intelligent Blue Heeler who just turned 7 months old). Nobody wanted to dog sit the new puppy (can't blame them!) so we decided to take both dogs and find some place quiet to camp. Where did we end up? The Upper Peninsula and then several days on Drummond Island (a first for me!). So, we didn't get far but it was a nice, relaxing get away. 2020 is shaping up to be another fun and busy year and hope it is for all you as well. As always, please stay in touch, we love hearing from you!



Geohydrology students taking stream measurements at Aman Park Fall 2019



T. Kneeshaw's Mork and Blu on the car ride home from their first UP vacation, Summer 2019

News from Geology Faculty

Stephen Mattox (mattoxs@gvsu.edu)

Winter semester, I was on sabbatical and reached my goal of three peer-reviewed articles accepted in science education journals, all with undergraduate co-authors. I hid in plain sight in the DeVos campus atrium and enjoyed the disruption in routine. Much of my energy goes to the Integrated Science majors as I continue to direct their program. We have a great team that prepares these science educators and I see the students landing the exact jobs they want, many here in west Michigan. I took a group of these students to a national conference in St Louis, Missouri and a regional conference in Cincinnati, OH with three students presenting their work. In the spring, I tested 241 high schools students for college physical geology credit. About forty three percent passed and five are now majoring in geology at GVSU (2), Hope College, Arizona State, and Michigan Technical University (MTU). **Ashley Meyer** (B.S. Geology 2010) joined the program with 12 of her 13 students passing! My summer work with Michigan Tech concluded. I'm proud to have played a small part in a very large project to write Michigan-centric middle school science curriculum aligned to the Next Generation Science Standards. The Iceland Study Abroad course was a success with 16 students and the co-teaching of Tari Mattox of Grand Rapids Community College and Thor Thordarson of University of Iceland. Three geology and one geo-chem student were part of the group. After the students headed home, Tari and I spent extra days in Thingvellir National Park and on the Snæfellsnes Peninsula. We will return in Summer 2020 with a new crop of students.

William Neal (nealw@gvsu.edu)

Some say old wines do not travel well, and when they do travel, they must "rest" on arrival. I've entered the "old wine" phase of life's journey. Two overseas trips in the past year were the highlights, and 'rest' was sought in between, but another saying is "No rest for the wicked." I tailed along with some of the family to Spain in June – Barcelona and Madrid, including a couple of day trips to sites I had

visited back in 1971 while attending an international geology field conference [just before moving to Grand Valley]. Montserrat, a great wedge of Tertiary conglomerates shed off of the rising Pyrenees, is a great geologic feature, and El Escorial is a great historical site located on the uplands of the Spanish Meseta. Our second outing was in October to Scotland – Edinburg with day trips to Loch Lomond and into England to Harry Potter's castle (Alnwick), followed by a 5-day trip to the Orkneys. I have a perspective now as to why Scotland was, in part, the birthplace of modern geology. Closer to home, we had a family reunion on Beaver Island with folks coming in from all over the U.S. This was our 4th year to visit Beaver, and we've watched the progressive inundation of the island's shoreline by the rising Lake Michigan – an analog of the global sea-level rise. To use the buzz word, this continued rise of the Great Lakes has now reached the 'tipping point' where little protective beach is left, and shoreline retreat threatens houses and property. Its 'déjà vu' of the 1970's and 1980's! No one seems to remember that far back in time when the last round of high water devoured the shoreline – houses and all. Obviously, I failed to get the word out about coastal hazards! I still enjoy having an office on campus, thanks to the support of my colleagues and the Dean, and try to live up to the privilege by continuing to be productive professionally. But it also allows watching the department's continued success, to communicate with alumni, and visit with those who get the chance to stop by the department. I must admit that seeing our earlier alumni now retiring, including our own **Patty Videtich**, causes a grandfatherly view of the department – reinforced by children of alumni now on the GVSU student roster. Its always good to hear from or see you 'old timers'! I'm around most afternoons, on my abbreviated work schedule. Its been a full year in terms of professional activities. The heaviest responsibility was continuing on an editorial team for a special issue of Ocean and Coastal Management, that included reviews of 25 manuscripts, as well as several peer reviews of

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papers for Southeastern Geology and two Elsevier journals, plus friendly edits for co-workers. After reviewing Nelson Rangel's Coastal Scenery book (Journal of Coastal Research), I've continued to work with him (Universidad del Atlántico, Colombia), and we've had a Coastal Care beach-of-the-month article published, as well as a paper in the Marine Pollution Bulletin. Other items are in the works. And I still have not made the cover of the Rolling Stone magazine, but have given interviews to a couple of reporters



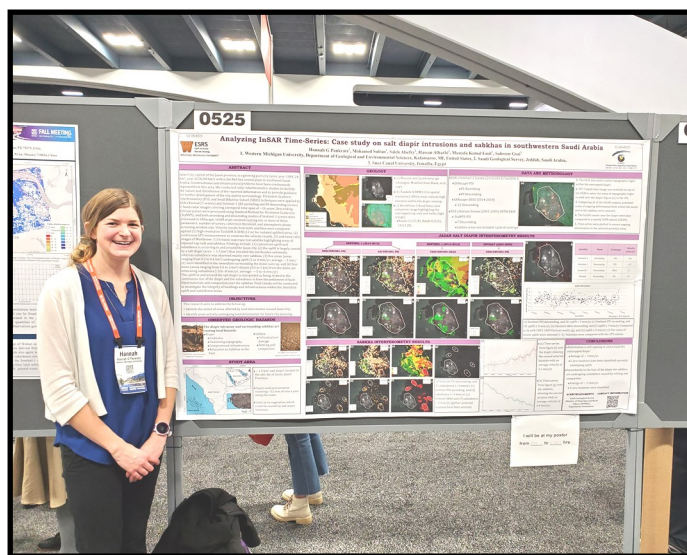
W. Neal near the Burgess Shale site

(see <https://bvibeacon.com/shore-fix-in-cane-garden-bay-unlikely-to-last/> and <https://www.atlasobscura.com/articles/cemeteries-grave-buried-erosion-climate-change>). Finally, I apologize to **Ron Green** (B.S. Geology 1978) for once again not being at GSA to collect the beer that he owes me. I'd request that he save me the trouble, and just ship it to me, but alas "Beer does not travel well."

Hannah Pankratz (pankrath@gvsu.edu)

I am not sure where the year went! I am just wrapping up my first year of teaching at GVSU after being hired in the summer. Besides how hectic my schedule is, it has been a great experience. All of the faculty and staff have been extremely helpful in my transition into the department, and I felt right at home. In the fall semester, I taught three sections of GEO 100 (Environmental Geology) and one very large section

of GEO 105 (*Living with the Great Lakes*), in total, I have 325 students! I am looking forward to teaching a new course for me, GEO 103 (*Oceans*), in the winter semester. I am currently wrapping up my dissertation and Western Michigan University on understanding salt diapir related deformation in Saudi Arabia. I am also currently involved in some projects with the Michigan Geological Survey regarding surficial mapping and improving the online database of water



H. Pankratz AGU Presentation in San Francisco, Dec. 2019

well logs in Michigan. With my crazy schedule and the driving, I don't get much free time, but I was able to present my research at the 100th AGU Fall Meeting in San Francisco—December 9-12, 2019. I am excited for the year to come, and I can't thank everybody enough for welcoming me into such a great community of geologists! Cheers to all in the new year!

Ginny Peterson (petersvi@gvsu.edu)

It was great to connect with several of you at the GSA meeting in Phoenix. Our recent grads: **Nick Brown** (B.S. Geology 2018), **Connor Cain** (B.S. Geology 2018), **Reece Elling** (B.S. Geology 2016), **Ben Pummell** (B.S. Geology 2018) and **Natalie Renkes** (B.S. Geology 2016) who were in attendance at the convention are now pursuing graduate work and it was fun to see the great things they are doing.

News from Geology Faculty

Always great to connect with **Ron Green**, who actually graduated from GVSU before I did, and once again I had to make apologies for **Bill Neal's** absence. I got to connect with a few alums who graduated from Grand Valley the same year that I did. **Lynn (Wolfe)** and **Dale Mason** (both: B.S. Geology 1980) live in the Phoenix area (recently retired) and we connected for the first time since we graduated! I also had a chance to spend time with another contemporary **Ann Bykerk-Kauffman** (B.S. Geology 1980), who recently completed her sabbatical (at Chico State University) and presented a beautiful map of a faulted area in southern California. I have been working this year to move some work with different student collaborators to publication. **Dan Tjapkes** (B.S. Geology 2017) is currently in graduate school at University of Massachusetts. He and I are working to finish a manuscript related to

southern Appalachian dunites is telling us and this was the focus of our talk with **Ben Pummell** (B.S. Geology 2018) at GSA. This builds on earlier work of **Sam DeYoung** (B.S. Geology 2017) and **Jory VanEss**. Most recently, **Thomas Byars** (B.S. Geology, expected 2021) has started a project to evaluate the water content in some of these dunites. In the last year I also worked with **Eric Schuemann** (B.S. Geology, expected 2020), who explored volcanic textures in rhyolites from the Keweenaw Peninsula in the context of formation of the rift.

I taught GEO 414 – Advanced Petrology – for the first time in the winter semester. A couple of years ago we revised the department curriculum and the Mineralogy-Petrology content got restructured into 3 different classes. All of our students take GEO 214 (*Solid Earth Materials and Systems*), which provides the foundational concepts and skills of mineralogy and petrology. They also all take GEO 220 (*Surface Earth Materials and Systems*) so that they get a broad foundation at the 200 level. Our traditional geology majors also take GEO 314 (*Petrography*), which builds on the min-pet foundation and develops analytical experience, principally through thin section work and uses of XRD and other data. Advanced petrology focused on learning petrology through geochemistry and phase diagrams in the context of



Campsite along the Grand Ronde River, northeastern Oregon, (Peterson image), Summer 2019

deformation and metamorphic conditions along the Chunky Gal Mountain Fault. This builds on previous work with **Carly Gilewski** (B.S. Geology-Chemistry 2013) and **Eric Armstrong** (B.S. Geology 2015). We are working to revise a draft and get it submitted soon. My collaborator, **Jeff Rahl** and I made some progress this summer in understanding what our Crystallographic Preferred orientation data from



GEO 311 students at Van Hise Rock on the Baraboo trip. (Peterson image), Fall 2019

News from Geology Faculty

plate tectonics. It was fun to be able to teach these concepts at the 400 level and I had a great group of students. This fall I am once again teaching GEO 311 (*Structural Geology*) as well as GEO 214 (*Solid Earth Materials and Systems*). This meant field trips to both Bancroft and Baraboo. Jon (my husband) came along and was a great help on both trips.

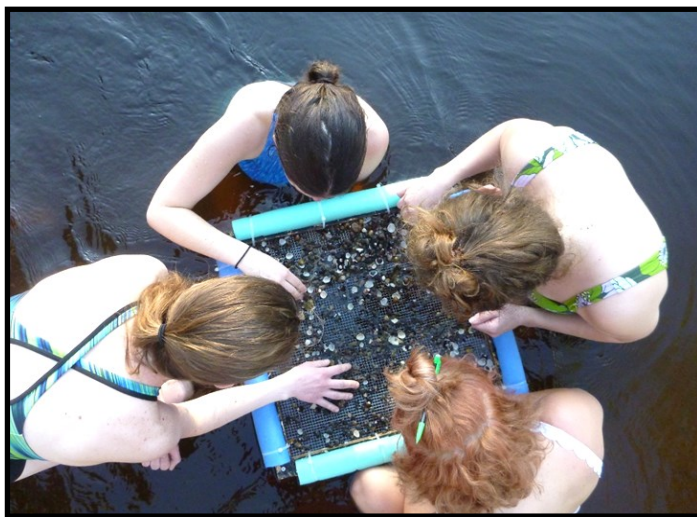
I am still quite active in professional service beyond Grand Valley. I continue to serve as a facilitator for departmental workshops as part of the NAGT Building Strong Geosciences Departments program and I am continuing as the Chair of the Geosciences Division of the Council on Undergraduate Research (CUR) – this is my last year of a 3-year term.

Jon and I did one significant vacation this year to the Pacific northwest where my brother and his family live. Jon and I did some camping for a few days in Olympic National Park, we got to hang out on my brother's organic farm on Vashon Island for a few days, and the highlight was a 4-day whitewater kayaking trip (self-guided) with my brother's family on the Walowa-Grand Ronde river in northeastern Oregon. This was through 40 miles of wilderness where we saw only one other boat and so much wildlife, including more eagles than we could count. We were surrounded the whole time by Columbia River basalts. We also moved our daughter, Casie's household belongings from Washington, DC back to our house while she does her final year of school as a physical therapist in clinical placements. She just returned from 3 months in Sydney, Australia and heads next to her final placement in Salt Lake City. We look forward to her being done with school. Another big change for us is that my mom just moved back to Grand Rapids into a retirement community. It is great to have her close to us and enjoying her new digs.

Peter Riemersma (riemersp@gvsu.edu)

I continue to work with students on research projects and this year, current student **Emily Bergel** (B.S. Geology, expected 2021) presented a poster research on "Characterization of Florida Beach Sand to Promote Public Education and Appreciation of Earth Science" at the annual GSA meeting in Phoenix,

Arizona. In addition, Peter Wampler and I chaired a session on "Improving Scientific Literacy and Dispelling Misconceptions about Wicked Water Resource Problems" at the meeting.



GEO 380 students search for fossil shark teeth in the Peace River, Florida during their spring break field trip, 2019

I also gave a talk on groundwater misconceptions and media coverage of groundwater contamination events. Another student, **Lauren Chwojnicky** (B.S. Geology, expected 2021) presented her Fish Lake microbialite research at GVSU Student Scholars Day and upon graduation immediately got a job with the distinguished environmental consulting firm of Fishbeck, Thompson, Huber and Carr. GVSU students **Madeline Okkonen**, aka the Finn (B.S. Geology, expected 2021) and **Rachel Rilett**, aka the Rescuer (B.S. Geology, expected 2021) continued the work on Fish Lake microbialites with funding from the Gibson scholarship. With the assistance of **Ian Winkelstern**, we had a tour of the University of Michigan oxygen isotope lab and had some carbonate nodule samples analyzed there.

This year has included more field trips than usual! At **Larry Fegel's** (B.S. ESCI 1973) suggestion, I took advantage of GVSU's first mid-winter break to take a group of ten interested students to Lake Cumberland, Kentucky to examine well exposed Mississippian mud mounds accessible only by boat. Larry arranged to have retired University of Cincinnati paleontologist and

News from Geology Faculty

professor Dave Meyer (author of “Sea Without Fish”) to be our guide. We successfully dodged the rain while on the lake and collected the most spectacular crinoid specimens that I have ever seen. With alumni **Zach Curry** (B.S. Geology 2015), I attended the Michigan American Institute of Professional Geologists (AIPG) field trip to Bancroft, Ontario and enjoyed visiting outcrops with engaging professionals. It was another year without any whole trilobites being found during the GEO 312 Kentucky field trip, but perhaps **Ian Winkelstern** will have better luck as instructor of the course in 2020.

Inspired by a field trip to Florida while a graduate student at the University of Wisconsin, I developed and taught a new GEO 380 course on “Geology,



Geology students with P. Riemersma visited the crinoid rich Mississippian Mud Mounds at Lake Cumberland Kentucky over the mid Fall 2019 break

Natural History, and Water Resources of Florida” to 14 students. Students led class discussions and developed a field guide on a wide variety of topics that included vertebrate fossils, sinkholes, springs, the Everglades, oranges, shell coquina, beach sand, and fossil reefs. The highlight of the class was a 10 day field trip to Florida during spring break. After our trip, I can guarantee that students have a deeper understanding and new appreciation for that daily glass of orange juice.

This summer I again helped develop and organize the 8th Annual Allendale Community Field Day, with a theme of “Things That Shine”. This year was our best attended event with over 150 participants. A highlight as the fluorescent mineral station borrowed from the Tulip City Gem and Mineral Club that I ran with free fluorescent minerals for the kids to take home. In other summer news, my son Dakota and I headed out west to Wyoming on our annual adventure. We collected fossil fish and petrified wood, but also did some reconnaissance sedimentology field work. We examined and sampled stromatolites from a variety of locations within the Eocene Green River Formation in preparation for future projects. As Dakota is a high school senior this year (interested in geology!), we visited some schools during our road trip: The University of Colorado Boulder, Carleton College, Beloit College). Which incredibly expensive, selective school he ends up attending will be a topic for next year’s newsletter.

Another exciting event this fall was having my GEO100 and GEO105 volunteers grab bystanders to



Geology students with P. Riemersma at the top of the rich Mississippian Mud Mounds at Lake Cumberland Kentucky over the mid Fall 2019 break

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participate in the GVSU Making Waves “Water Carnival”. The Carnival included a water balloon toss and water rocket launch and popular prizes for participation were amethyst and quartz from my collection.

Other highlights of the year include supervising the Energizing Our World “Hydropower” event, coordinating the 15th Geology Chili Contest and the 13th Earth Science Week, organizing a geology major exit interview, and the geology calendar.

Now more than ever, the geology department needs your (alumni) support. Our meager departmental budget has been reduced even further by university wide cuts. This has impacted our ability to offer field trips. You can help us by contributing to the Richard H. Lefebvre Geology Field Education Endowment that supports our mission to offer quality geology field experiences.

John Vanregenmorter (vanregjo@gvsu.edu)

I’m sad to say this is my last year as a visitor at GVSU, but I’ve been having way too much fun here anyway. This year I presented research at the GSA national convention on a unique collection of fossils housed at

Grand Rapids Community College. This is an ongoing project, and I am likely taking on an independent study student next semester to continue work on this project. With help from experts around the country, we hope to complete the identification and cataloguing of this collection.



John VanRegenmorter talks stream features to his GEO 111 lab in Little Mac Ravine, Spring 2019

I am also working on a research project in Eocene mammalian fossils from the Great Divide Basin in Wyoming, and hope to publish results early next year. I am continuing my outreach to local schools, recently visiting a preschool where I talked fossils to nearly 100 very enthusiastic children. I am planning on working with Grand Valley’s “Pathways to College” program next semester as well.

Patricia Videtich (videtichp@gvsu.edu)

Hello Everyone! My big news this year is that I moved home to Muskegon! I hadn’t planned to move for another year, but I was being harassed by my brothers who said there “may be a recession next year”, “you had better move while the moving is good”, etc. Plus, my parents aren’t getting any younger, so very quickly in late June I decided to take the plunge. It turns out getting a house ready to sell, choosing realtors, selling a house, buying a house, packing up, and actually moving are all very stressful endeavors! But in the end, it all worked out and September 13



John VanRegenmorter at Fisherman’s Island State Park, 2019

News from Geology Faculty



Columbia Gorge of Washington, P. Wampler with wife, Leslie, and friends, Nov. 2019

(oops, Friday the 13th!) I finally moved to my new home. After vacillating many times between the merits of a house versus a condo, in the end, I decided on a condo.

I like my new place a lot, and I have to admit that I have enjoyed seeing someone else mow my yard, blow my leaves around! Plus, I have a readymade community of 30 people so I have gotten to know folks much more quickly than I ever managed to in a neighborhood with individual houses, so that's nice too. Needless to say, all this moving goings-on has kept me from moving out of my office! So . . . that, along with vacating several cabinets full of rocks, are



P. Wampler with Pablo Lleradni-Roman in Puerto Rico, Jan. 2019

my next tasks. In the meantime, I still frequent 229 Padnos and Muskegon is not all that far from GVSU, so if anyone is visiting the department please let me know and I will make every effort to be there to see you. All the best to everyone in 2020!

Peter Wampler (wamplerp@gvsu.edu)

I was on Sabbatical last year and I am adjusting to teaching again this fall with a new Freshman sequence course for the Frederick Meijer Honors College called Making Wave - Water for a changing world. I am team teaching with colleagues Dr. Eric Snyder and Dr. Tara Hefferan. We have had many outdoor adventures on boats, in the ravines, along the Grand River, and on the Lake Michigan shoreline. In October of 2018, I was selected by the Provost Maria Cimitile to co-lead the Making Waves about Water Initiative with **Dr. Kate Remlinger**, a colleague from the English department (www.gvsu.edu/makingwaves). The two-year initiative is creating collaboration and opportunities across campus among students, faculty, staff, and community. The initiative is providing new ways to explore and investigate the many ways that water touches our lives, from being a life-force to defining GVSU in relation to the Grand River and Lake Michigan. The Initiative will empower students to explore how water is critical to humanity through experiential learning that takes place in coursework, Michigan Waves Initiative (MWI) activities, study abroad opportunities, and engagement with community partners.

As part of my sabbatical I also had the privilege of sharing my research at several universities across the U.S. and in Puerto Rico where I got to hang out with a former GVSU colleague **Dr. Pablo Llerandi-Roman**. We spent a few days exploring the geology of Puerto Rico and the impacts from Hurricane Matthew. In November my wife Leslie and I visited Oregon State University to give a presentation about my Haiti research in their Water Resources Seminar series.

I took a sabbatical from travelling to Haiti but I hope to lead another group of intrepid study abroad students there in 2020

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(www.gvsu.edu/haitistudyabroad). The political unrest has been unusually bad this year so I am hopeful that all will be calm when we are scheduled to go in May and June. I have been working with honor student Caolan Keenan on an interesting project using sand and charcoal to create water filters from materials we can find in Haiti. Our preliminary results are very promising and I hope to expand on this preliminary research in the future.

My last bit of news I share with a mixture of sadness and excitement for new opportunities. I have accepted an offer by the Frederick Meijer Honors College to join their faculty beginning in the fall of 2020. The reasons for my transfer are complex and in no way reflect my respect for the Geology Department and the amazing teaching, research and support that the dedicated faculty and staff provide for students. The transfer will mean that I can provide helpful advice, guidance, and mentoring for honors students interested in pursuing geoscience, science, and environmental careers. I will continue to look for interdisciplinary research and learning opportunities that cross department and college boundaries.

John Weber (weberj@gvsu.edu)

I hope that all of you alums are doing well, are happy, and continue to lead productive and fulfilling lives. For me, 2019 was a challenging, but productive, year professionally. But first some family news: Teya Li is now in 8th grade and is really enjoying her music and theater life, and Sarah continues to learn and teach Iyengar yoga. Following up on a productive sabbatical that I took in 2017-18 to write-up results from a backlog of collaborative projects, many involving GVSU students, many papers are now coming out. I taught a summer field course and did digital field structural mapping in Azerbaijan, and ran several summer geo-tours at the Tippet Rise Art Center in Montana. I continue to serve on the Board of the Sustainable Innovations Initiatives and the Yellowstone Bighorn Research Association, both non-profits. I gave talks at Notre Dame University, The University of Toronto, a UNESCO Tsunami meeting in Martinique, and an Earthquake Hazards meeting in

Seoul, South Korea, and contributed to two Trinidad posters and one Andes talk at the fall AGU meeting. In the department, I hosted three external speakers and our 2019 Distinguished Alum, Michigan State Geologist **Adam Wygant** (B.S. Geology 1993).

I continue to serve as Faculty Advisor to our GVSU AAPG Student Chapter. Thanks to generous support from the AAPG Week's Fund, the AAPG Chapter visited Niagara Falls and learned about its geology, hydropower generation, early canal systems, and toxic pollution at Love Canal.

Greg Wilson (wilsong@gvsu.edu)

I have been very fortunate to work with a great group of dedicated student helpers. We have continued efforts of the last few years to better organize department materials. We have been updating the computer inventories for each of the department collections (rocks, minerals, fossils, maps, and field equipment). We also continue to move some of these inventories into a new university system – *Filemaker*.



G. Wilson at the Tuweep Overlook on the North Rim of the Grand Canyon, May 2019

We have also been working on using this system to organize and make use of the variety of field equipment for research and field trips. I have not been teaching this fall, but am looking forward to teaching in Honors again this Winter. This past May, **Peter Riemersma** and I were able to travel to Arizona. We visited Zion, Bryce (in the snow), Death Valley (to get

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out of the snow), and slot canyons in the Grand Staircase of the Escalante (including Buckskin Gulch and Peekaboo-Spooky). We also camped at Toroweap (Tuweep) on the North Rim of the Grand Canyon for a night. I also was able to travel with **Peter Riemersma** and **Peter Wampler** to the GSA meeting in Phoenix. It was a bit strange having the meeting in September but, we enjoyed visiting Phoenix.

We had a number of current students attend, and also we saw a number of alums at the meeting as well. It is always a great part of the meeting to get updates on the accomplishments of our alumni. After the meeting we visited the Sedona area and evaluated it for future trips. Sedona offers great hiking in beautiful red rocks, nearby old mining towns, and is considered an “Energy Vortex” and who doesn’t like having some extra cosmic forces. My family is doing well. Cooper is now teaching Spanish at a high school in New York City. Luke started a new job as well working for L3, a company that makes aviation parts. He and Ashley were married this summer, Cooper performed the ceremony.

My grandson Bode turned 5 in November and continues his amazing development. I am very appreciative of the time I get to spend with him, and he is teaching me all about Pokemon.

Ian Winkelstern (winkelsi@gvsu.edu)

Hi everyone. Though it still feels like I just got here, I’m settling into my second year in the department. It has been a busy year of teaching new classes and occasionally getting into the field. I’m excited to take on Geo 312 (Sedimentation-Stratigraphy) for the first time during the winter semester. With a modest grant from the Pew teaching center, I’m hoping to give students opportunities to integrate real chemical data into their group projects. Field trip planning is well underway too. I’ve also had fun this year helping with Peter R’s microbialite research – we took students to visit the isotope lab at the University of Michigan, and I’m really interested to see the data that comes out of that. In addition to teaching,

this past summer I was able to do some field work in Bermuda with collaborators at U of M. I was fortunate enough to be able to bring my wife Colleen and daughter Paige along for the ride as well.

We are working on the sedimentology of some of the interglacial deposits there, along with efforts to reconstruct past climates using fossil shells. I was very excited to hear in July that those efforts will be supported and expanded upon via an NSF grant we received. I intend to use the funds to support field research with GVSU undergrads in 2020. I hope to get to the GSA North Central meeting in May as well – please say hello!



I. Winkelstern, wife Colleen and baby Paige working hard in Bermuda, 2019

Geology Faculty

Geology Faculty (Left to Right): Kevin Cole, Ian Winkelstern, Peter Riemersma, Ginny Peterson, Greg Wilson, Figen Mekik (chair), Steve Mattox, Tara Kneeshaw, Caitlin Callahan, Hannah Pankratz, and John Weber. Missing: Kelly Heid and Pat Colgan

2019-20 Geology Department Faculty and Staff

[Caitlin Callahan](#) – Assistant Professor

[Kevin Cole](#) - Associate Professor

[Patrick Colgan](#) – Professor

[Kelly Heid](#) - Affiliate Faculty

Tom Hendrix—Emeritus Professor

[Tara Kneeshaw](#) - Assistant Professor

[Mitzi Loving-Johnson](#) - Department Coordinator

[Stephen Mattox](#) – Professor

[Figen Mekik](#) – Professor & Unit Head

[Bill Neal](#) - Emeritus Professor

[Hannah Pankratz](#) - Visiting Faculty

[Ginny Peterson](#) - Professor

[Peter Riemersma](#) - Associate Professor

Norm TenBrink—Emeritus Professor

[John VanRegenmorter](#) – Visiting Instructor

[Patricia Videtich](#) - Emeritus Professor

[Peter Wampler](#) - Professor

[John Weber](#) - Professor

[Greg Wilson](#) - Instructor & Lab Coordinator

[Ian Winkelstern](#) - Affiliate Faculty



Patrick Colgan and Kelly Heid

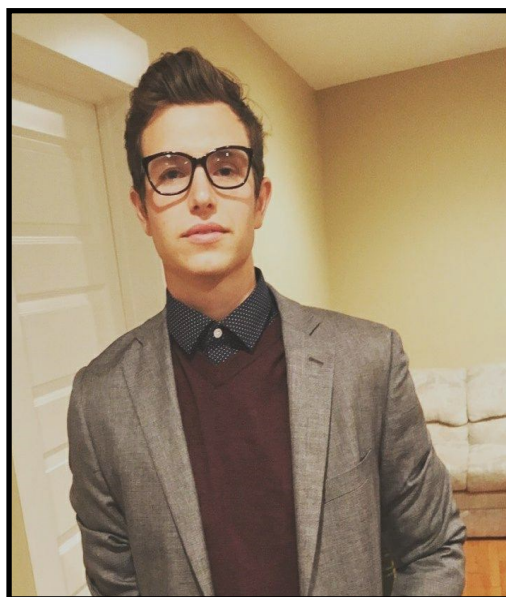
**GEOLOGISTS
ACCEPT THE
EARTH AS IT IS
EVEN WITH ALL
ITS FAULTS**

UnKNOWN PUNster ©2018

In Memorium—Jori VanEss



Jory VanEss (1994-2019) – Sadly, Jory VanEss (B.S. Geology 2018) died as a result of a work-related accident in November 2019 while doing emissions testing at a work site in Ohio. Jory was from Hudsonville, Michigan. He will be greatly missed by his family, friends and his geology community. Jory was an extremely thoughtful and intelligent young man, a hard worker, and a joy to all students and faculty in our department. Ginny Peterson commented that “Jory stood out in his classes for his intelligence, persistence, and excellent problem-solving skills”.



Jory VanEss, 2017



Jory VanEss (second from left) with other GVSU graduates Nick Brown, Tiffany Gentner, and Eric Armstrong at the 2018 North-Central GSA meeting in Ames, Iowa (Peterson image), 2018

In 2018, Jory was awarded the Council for Undergraduate Research (CUR) Geosciences Award for Excellence in Undergraduate Research. Jory was nominated by his faculty mentor Ginny Peterson, and he was selected by the department faculty to receive this award. Jory also received a prestigious GSA Best Student Poster Award for his research that he presented at the 2018 NC GSA meeting in Ames, Iowa titled, Exploring methods to determine the strain ellipsoid in dunites to interpret EBSD patterns.

In the course of his research, Jory was instrumental in helping to establish protocols in the department Microscopy Lab to collect and create large-area microscope images using integrated camera and image-processing software. These protocols facilitated new research directions for his and subsequent student projects.

Jory did field camp with the University of Oklahoma in summer of 2018. After graduation, Jory worked for an environmental services company in mid-Michigan. Jory's family encourages donations to “Geology Student Field Camp Endowment” in memory of Jory VanEss.



Jory VanEss explaining his poster at the 2018 NC GSA meeting (photo by Ginny Peterson), 2018

*Alumni News***Graham Crockford** (GEO, 1989)

Program Manager/Michigan Office Practice Lead/
Client Service Manager at TRC Companies, Inc.



*Graham Crockford,
undated photo*

Fellow Geo Alumni,

I cannot recall the last time I sent in a newsletter entry, but it has been embarrassingly long. It has been over 29 years since graduating from GVSU (December 1989). I really cannot believe how fast it has gone. So here is my life story in about 800 words. After graduating high school, I

originally enrolled at UofM as an electrical engineering student, but I wanted something different, and I was just not very passionate about that career choice. With a sense for adventure and service, I joined the USAF Reserve to work some of my youthful bugs out and obtain some personal discipline. The USAF provided me with both. With renewed focus and sense of purpose, upon returning from basic training and technical school, I reflected on my future and decided on my chosen career of geology with the intent of experiencing the outdoors in ways that electrical engineering could not satisfy. This resulted in a change in college venue to GVSC.

As a transfer student from the much larger campus of UofM, I really valued the intimate learning experiences I gained while a student at GVSU in what was at that time a relatively small, but very well-respected geology program. **Dick Lefebvre, Norm Tenbrink, Bill Neal, Tom Hendrix, Tom Bee, and Greg Wilson** were all at the helm of the geology program back then. They all had high expectations, challenged us to do our best, but most of all are very fine people. Fun fact...I was one of the first few geology majors to graduate after GVSC became GVSU. I was also fortunate to have an amazing part time job at the Grand Rapids Public Schools where I worked with **Larry Fegel** and his assistant in his science road show as **Professor Lazlo**; how often do you get to break a cinder block

on your boss's chest while he laid on a bed of nails. An amazing experience that I often reflect on!

From a career perspective, I have spent most of my professional life trying to solve challenging and complex environmental projects that resulted from industrial activities of the mid-late 1900's. Early on, I was employed by small and medium sized environmental consulting and engineering firms. I spent my early years focused on solid waste management issues and landfill regulatory compliance. This was during a time when there was limited landfill capacity, new landfills needed to be permitted to meet consumer needs, and Michigan's solid waste regulations were relatively immature as Subtitle D was relatively new. During this time, I leveraged my passion for groundwater sciences into an opportunity to manage groundwater protection programs for a regional liquid/solid waste management company, where I coordinated groundwater monitoring programs, developed groundwater sampling protocols, and developed low flow sampling methodology while the science was still young. Believe it or not, although math was not my passion, I also developed skills in groundwater statistics, which we still use today.

I have been fortunate to work for the same firm, TRC, for the past 22 years. TRC has over 5,000 employees, so it probably classified as a larger firm. In my current role, I am managing the environmental business practice for TRC in Michigan, in a role that allows me to develop strategic business plans, mentor staff, manage the day-to-day business, and work closely with clients to solve challenging assignments. In my current role, I serve as a mentor to TRC staff on issues related to chlorinated solvent investigation and remediation, vapor intrusion, Coal Combustion Residual (CCR) management/remediation, and emerging contaminant issues including PFAS and 1,4-dioxane investigation and remediation. Working with great people, interesting projects, and great clients energizes me each day. I even get to spend some time with another GVSU alumni, **John Tweddale**, who works in TRC's Madison Wisconsin office.

Alumni News

Since graduating, I have done my best to keep the rubber side down and experience as much as life has to offer. On a personal level, I have been happily married to Gretchen for over 29 years. We have known each other since middle school, but I had to spend a few years figuring out that she was the right one for me. It has been an amazing adventure to say the least and she truly is my best friend! We love to spend time hiking with our dogs, currently two Chesapeake Bay Retrievers, and we really enjoy our time camping, boating, fishing, kayaking, and most especially backcountry skiing and mountain biking. I am also very passionate about woodworking, a skill I picked up from my father.

In October 2018 I had the privilege to visit GVSU and share my thoughts on the environmental consulting business with students and faculty as part of the Geology department's seminar program. I really enjoyed the opportunity to meet the faculty and spend some time with students, giving a perspective of a career in environmental consulting. Hopefully the students learned something from someone with a receding hairline, and grey highlights. Call me anytime for a repeat performance.

John Maier, (GEO '1993, '2001, '2007)

Sr. Scientist, Laboratory Services
Corium, Inc.

Hello!

I haven't updated my profile in a long, long time, so I thought I'd do so this year.

In 1993, I graduated with a B.S. in Biology, started working in a laboratory, and got married. Big year. I continued to take classes at night and eventually graduated with my BS in Earth Science in 2001, winning the Tremba Scholarship that year. I stopped working and used the award to attend grad school at GVSU to get my teaching certificate. I was a substitute teacher for 3 years while taking more classes. In 2003, I started working in a lab part time while teaching part time, and I really enjoyed both jobs. In 2004 I was hired full time at Corium, Inc, a

small pharmaceutical company specializing in transdermal delivery system development and production. In the last 15 years I have stayed at Corium and am now a senior scientist working in product research and development. I completed my Masters of Education in 2007.

Meanwhile, I also had 2 daughters, who are now 24 and 20 and both in engineering. I am active in church and play bass in the praise band. I also write and record music and build my own instruments. My wife and I love to go to concerts, travel, hiking and other outdoor adventures. I have a pretty good sand collection from all the beaches and rivers I have visited in my travels and still keep my eyes on the ground when hiking because you just never know what great rock specimens you may stumble across. I appreciate the education I got at GVSU but I really loved my geology classes the most. Minerology, Petrology, and Glacial really made me look at the rocks and landforms around me in a totally different way. I loved it.

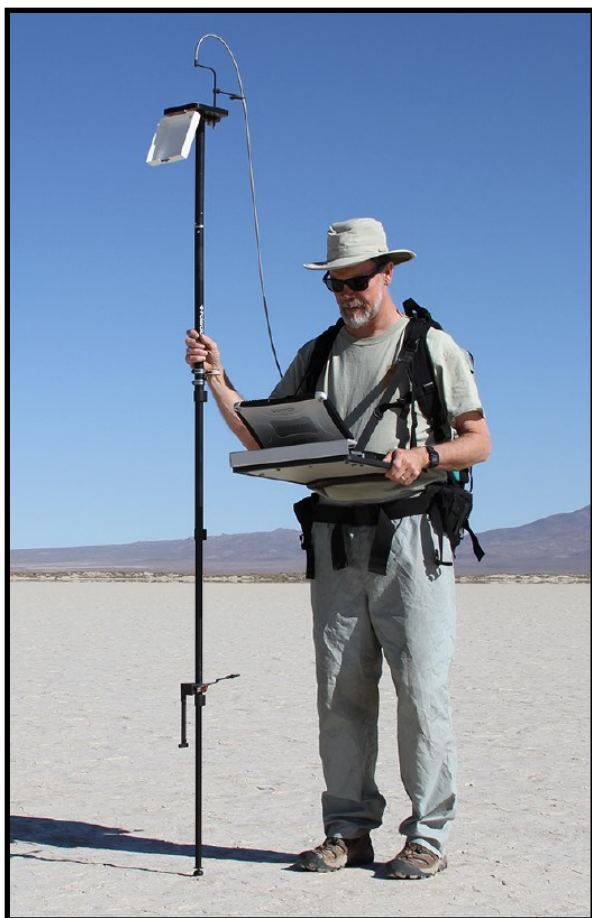
Well, that's about it. If you've gotten this far, thanks. Have a fantastic day!



John Maier, Crater Lake, undated photo

*Alumni News***Gregg A. Swayze (GEO, 1982)**

Has it really been 37 years since I graduated from GVSU (actually GVSC back then)? I'm still plugging away at the USGS in Denver spectrally mapping oil spills, REE minerals, lithium clays, and dust. I've never lost the knack of being late with publications as the Deepwater Horizon oil spill was nearly ten years ago and I'm just putting the finishing touches on diagrams for a journal article. Some things never change, though in my defense I'm working on it at night and on weekends in between mountain hikes and bike rides. Most of my Mars mineral mapping is in the past though I actually got a crater named, having sold it as a possible future rover site. Alunite is my new favorite mineral and is hosted by a 3.6 Ga relict hydrothermal system the size of Yellowstone's Norris Geyser Basin in that crater.

*Gregg A. Swayze*

This year I've been getting to know lots of desert playa calibration sites in Nevada and California as we've embarked on a USGS funded mission to map the surface mineralogy of these states using hyperspectral data collected by JPL/NASA in 2018. **Tom Hendrix** would be happy to know I've requested my third NAGT intern to help with this project. As a pre-retirement bonus I've been enlisted to serve as a Co-I on the EMIT science team tasked with building an imaging spectrometer for the International Space Station to evaluate the effects of dust mineralogy on climate change models. Never a dull moment! Familywise, my eldest son Neal is working on his Master's at Colorado State University looking at tree canopies with drones while my younger son Jeff is studying business at Front Range Community College. My wife Sheryl is happily semiretired and soon we will both leave the work-a-day world behind. Our plans are brewing for snowbirding in southern Arizona and California. And yes, it still gets cold in Colorado in the winter. The only question I have is what was Ingrid's head doing on the floor of that van during the department field trip back in the spring of 1980?



Hilary Trojniak,
www.gobles.org/, 2016

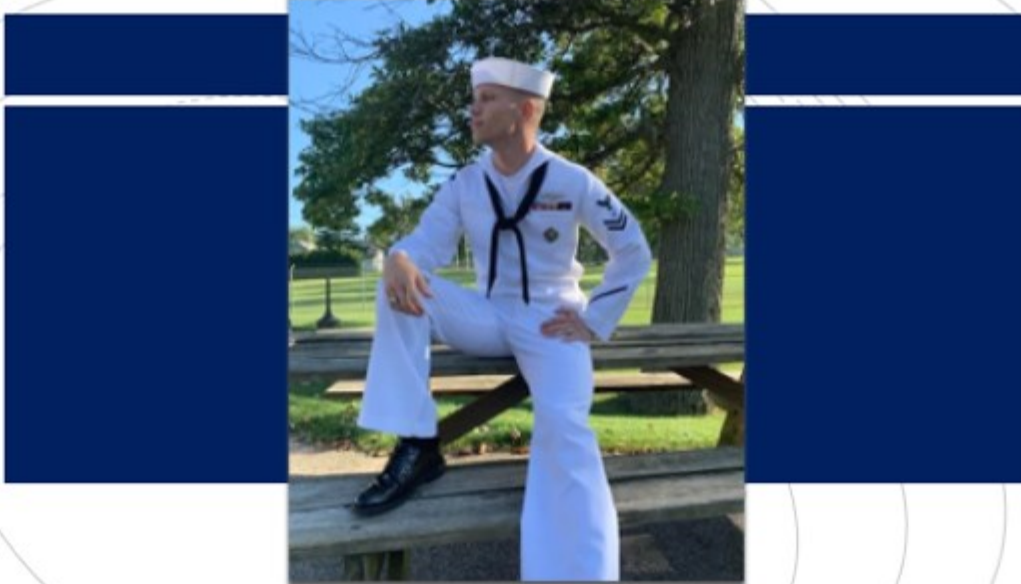
Hilary Trojniak, (GEO, 2012)

This is Hilary Trojniak, GVSU Earth Science alum, class of 2012 with updates. I'm currently teaching at Michigan Great Lakes Virtual Academy, a K-12 school, and my husband and I welcomed our second daughter, Lillian, into the world on September 12th.

Thanks for the continued emails from GVSU Geology Department. I appreciate being able to stay in touch.

Alumni News

Jordan Koster



Naval Intelligence Analyst
GEO 2013 Graduate

Natalie Renkes

Geology
Anthropology
2016 Graduate

Collecting in situ rocks that contained naturally-occurring asbestos (mainly actinolite) in McCullough Range, NV. She will take the collected rocks to the lab and directly drill out the fibers to examine them with the FESEM.



Alumni News

ANDREW ALDER
GEOLOGY 2017 GRADUATE



SARA THURKETTLE
GEOLOGY 2017 GRADUATE



PICTURED CONDUCTING A RIVER
SURVEY OF THE GREENBRIER RIVER IN
WEST VIRGINIA TO MODEL PALEO
FLOODS USING HEC-RAS AND
ESTIMATE CHANNEL ROUGHNESS
VALUES FOR CATASTROPHIC FLOODS.
SUMMER 2019



2019 Student Awards and Scholarships



Tara Kneeshaw with the 2019 Outstanding Geology Major: Marissa Buehler, 2019

Outstanding Geology Major

Marissa Buehler

Edward L. Tremba Geology Scholarship is awarded by the Geology Department in recognition of demonstrated academic performance, superior intellectual ability, and potential for significantly contributing to the geologic profession.

Diana Bullen Ross Helmer

Kristi Hill Eleanor Larson

Nicholas Priehs Eric Schuemann

Zachary Stuart Claire Thomassen

Taylor Weeden

The Norman and Helen Gibson Geology Field Study Scholarship is awarded to support undergraduate geology students in conducting scientific research.

Jillian Ashton Mentor: Tara Kneeshaw

Jessalyn Gonzalez Mentor: Tara Kneeshaw

Tyler Baker Mentor: Patrick Colgan

Claire Thomassen Mentor: John Weber

Jared Myers Mentor: John Weber

Madeline Okkonen Mentor: Peter Riemersma

Rachel Rilett Mentor: Peter Riemersma

Council of Undergraduate Research Outstanding Student Research Award 2019

Taylor Weeden Mentor: Patrick Colgan

Indian Mounds Scholarship

Eleanor Larson Claire Thomassen

The Geology Department Scholarship

Ian Beek

Simon Kinne

Eleanor Larson

Jared Byers

Madeleine Dunckley

Leah Goodrich

Janelle Cook

Ethan Gardner

Lillian Minnebo

Julia Agrusa

Hanna Szydlowski

Madeline Mennenga

2019 Student Awards and Scholarships

Tulip City Rock and Mineral Club Scholarship is awarded to students chosen by the Geology faculty, and who have shown significant leadership and service.

Vincent Hrnyak

Cathlynn Shagonaby

Josh Walker

Geology Study Field Camp Fund provides support to students who will attend field camp

Robert Allor Univ. of Indiana - Bloomington

Gavin Balcom Western Michigan Univ.

Emily Bergel University of St. Andrews

Diana Bullen University of Michigan

Thomas Byers Missouri State University

Lauren Chwojnecki University of Wichita

Danielle DeWeerdHaiti

Jessalyn Gonzalez Western Michigan Univ.

Aaron Hall Western Michigan Univ.

Montana Hauke S. Dakota School of Mines

Kristi Hill Western Michigan Univ.

Vince Hrnyak Illinois State

Eleanor Larson University of Michigan

Conner Palm Western Michigan Univ.

Trevor Pickett Southern Illinois Univ.

Nick Priehs Missouri State University

Colleen Rankin Missouri State University

Kayla Rooney Western Michigan Univ.

Eric Schuemann Missouri State University

Cathlynn Shagonaby Western Michigan Univ.

Zachary Stuart Western Michigan Univ.

Jake Szilagyi Western Michigan Univ.

Daryn Taylor Southern Illinois Univ.

Julia VanDam Western Michigan Univ.

Taylor Weeden Missouri State University

Lindsey Wiley S. Dakota School of Mines



Council of Undergraduate Research Outstanding Student Research Award 2019 recipient: Taylor Weeden (Kneeshaw image), 2019

Council of Undergraduate Research Outstanding Student Research Award 2019

Taylor Weeden Mentor: Patrick Colgan

2019 Graduates and Club Officers



Class of 2019 Graduates

Robert Allor
Gavin Balcom
Emily Bergel
Lauren Chowjnecki – (FTCH Eastown)
Danielle DeWeerd
Leah Goodrich
Jessalyn Gonzalez
Aaron Hall
Ross Helmer – (Western Michigan University)
Kristi Hill
Vince Hrmyak
Conner Palm
Trevor Pickett
Nick Priehs – (Missouri State University)
Kayla Rooney
Eric Schuemann
Kayla Schulte
Cathlynn Shagonaby
Kera Sharpe
Zachary Stuart
Jake Szilagyi
Daryn Taylor
Claire Thomassen
Julia VanDam
Taylor Weeden – (Baylor University)
Lindsey Wiley



Geology Club Officers AY 2019-20

Geology Club Officers 2019-20

President: Madeline Okkonen
 Vice-President: Colleen Rankin
 Secretary
 Membership Officer: Jillian Ashton
 Financial Officer: Ella Larson
 Sales: Diana Bullen
 Faculty Advisor: Kevin Cole

[Join Us on Facebook!](#)

The Geology Club at Grand Valley State University
 Seymour K. & Esther R. Padnos Hall of Science #115
 One Campus Drive
 Allendale, Michigan 49401-9403
 Office Telephone: (616)-331-3151
 Office Fax: (616)-331-3740
 Electronic Mail: GVSU_GeoClub@hotmail.com

GVSU AAPG Student Chapter 2019-20 Officers:

President: Ethan Gardner
 Vice-President: Diana Bullen
 Secretary
 Membership Officer: J. Dietrich
 Financial Officer: Hunter Gotal

GEO Student Scholars Day Presentations 2019

**GEO Student Scholars Day
Presentations 2019**

**3 Causes of Ordovician Aged Deformation within
the Point Pleasant Formation in Northern
Kentucky (Riemersma)**

Diana Bullen
Leah Goodrich
Brendan Huehn
Eleanore Larson

**Continuation of an Analysis of Polycyclic
Aromatic Hydrocarbons (PAHs) following a Tar
Sands Oil Spill in the Kalamazoo River
(Kneeshaw)**

Nicholas Actis

**Environmental and Kinetic Aspects of
Polycyclic Aromatic Hydrocarbon
Biodegradation (Kneeshaw)**

Zachary Stuart

**Exploring the Role of Chertification and
Dolomitization on the Silurian Brassfield
Formation of Northern Kentucky (Riemersma)**

Aaron Hall
Jared Myers
Conner Palm
Kayla Schulte

**Groundwater Springs Erode Sapping Valleys,
and Moderate Stream Environments in Ottawa
County, Michigan (Colgan)**

Eleanore Larson

**Harry Potter and the Silurian Stone Unraveling
the Conditions that Produced the Silurian
Bisher Formation Unconformity in Kentucky
(Riemersma)**

Spencer Hower
Jason McWhinnie
Madeline Okkonen
Rachel Rilett

**Origin and Growth of Freshwater Microbialites in
Fish Lake, Michigan (Riemersma)**

Lauren Chwojnicky

**Origin of the Fossiliferous Limestone in the Kope
Formation; Variability in Storm Frequency and
Sediment Supply (Riemersma)**

Kierstin Bachman
Ryan Karrip
Trevor Pickett
Daryn Taylor

**Textural Analysis of Keweenaw Rhyolites Relat-
ing to the Formation and Structure of the
Midcontinent Rift (Peterson)**

Eric Schuemann

**The Genesis of Ball and Pillow Structures in the
Fairview Formation; Maysville, Kentucky
(Riemersma)**

Derek Holmes
Kayla Rooney
Cathlynn Shagonaby
Kera Sharpe
Joshua Walker

**Using Fossil and Lithologic Evidence to Deter-
mine the Cause of Cyclicity Between Mud and
Shell-rich Deposits in the Upper Ordovician
Fairview Formation, Northern KY (Riemersma)**

Tyler Baker
Ian Beek
Lauren Chwojnicky
Colleen Rankin
Claire Thomassen

2019 GEOs at GSA – Phoenix

2019 GEOs at GSA – Phoenix



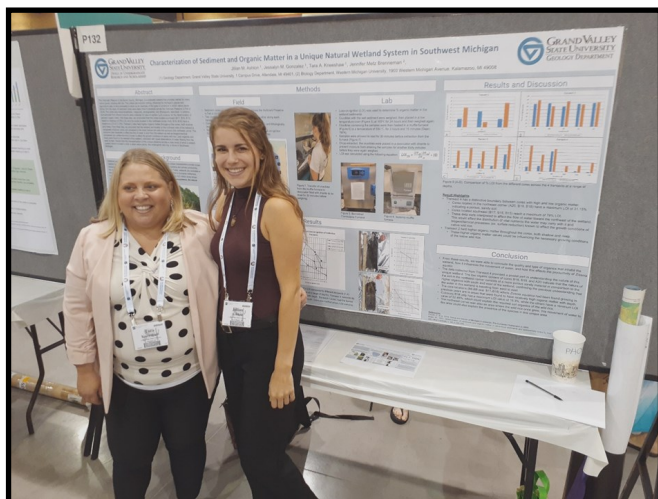
GVSU Geologists made a good showing at the meeting with many faculty in attendance (Caitlin Callahan, Kevin Cole and Susan Jansen, Pat Colgan, Tara Kneeshaw, Steve Mattox and Tari Mattox, Ginny Peterson, Peter Riemersma, John Van Regenmorter, Peter Wampler, Greg Wilson); 3 current students presenting research (Jillian Ashton, Emily Bergel, Jessalyn Gonzalez) and 7 current students attending the meeting but not presenting (Tyler Baker, Thomas Byars, Ella Larson, Trevor

Pickett, Colleen Rankin, Daryn Taylor, Claire Thomassen). The students in attendance made good connections for future professional opportunities and graduate school. In addition, we connected with several of our alums, both at the GVSU pole at the Group Alumni event and/or throughout the meeting. It was fun to connect with recent alums as well as those who graduated many years ago.

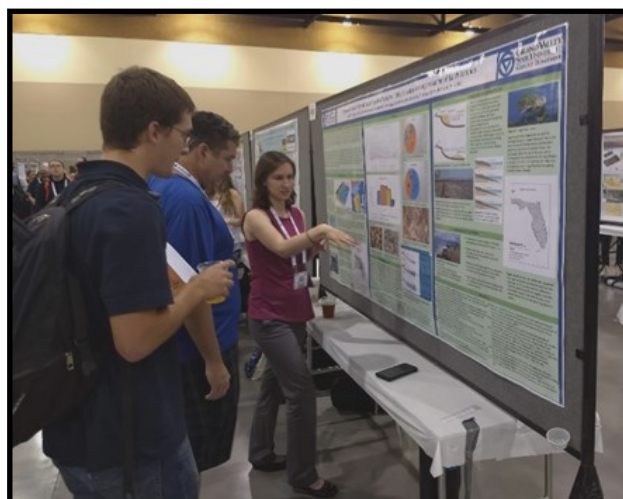
Alums in attendance included: Nick Brown, Ann Bykerk-Kauffman, Connor Cain, Reece Elling, Ron Green, Dale and Lynn Mason, Ben Pummell, Natalie Renkes, Elizabeth and Steve Shields (with son, Bauer), and Jim Walters.

Jillian Ashton, Jessalyn Gonzalez, Tara Kneeshaw, and Jennifer Brenneman, CHARACTERIZATION OF SEDIMENT AND ORGANIC MATTER IN A UNIQUE NATURAL WETLAND SYSTEM IN SOUTHWEST MICHIGAN

Emily Bergel and Peter Riemersma, CHARACTERIZATION OF FLORIDA BEACH SAND TO PROMOTE PUBLIC EDUCATION AND APPRECIATION OF EARTH SCIENCE"



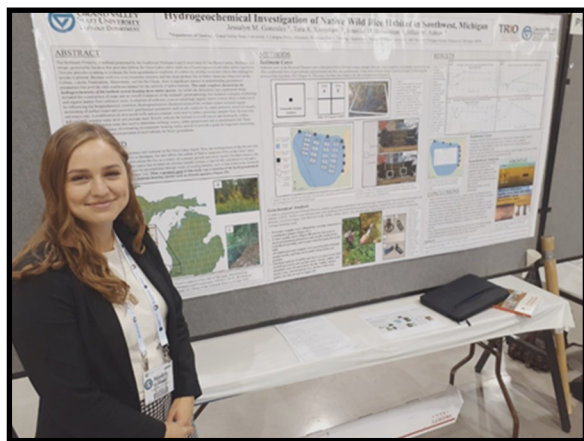
Tara Kneeshaw and Jillian Ashton with GSA poster
(Colgan image) September 2019



Emily Bergel presenting her GSA poster to John Van Regenmorter
(alum and faculty) and Ben Pummell (B.S. Geology 2018)
(Wampler image), September 2019

2019 GEOs at GSA – Phoenix

Jessalyn Gonzalez, Tara Kneeshaw, Jennifer Breneman, and Jillian Ashton, HYDROGEO-CHEMICAL INVESTIGATION OF NATIVE WILD RICE HABITAT IN SOUTHWEST MICHIGAN (*3rd place student poster award*)



Jessalyn Gonzalez with her poster. (Colgan image)

Ryleigh Landstra, Tari Mattox, and John VanRegenmorter, THE STERNBERG COLLECTION AT GRAND RAPIDS COMMUNITY COLLEGE

Steve Mattox and Paige Bush, GENDER AND RACE IN PHYSICAL GEOLOGY TEXTBOOKS: THE CAUCASIAN MALE STEREOTYPE OF GEOSCIENTISTS CONTINUES TO DOMINATE

Ginny Peterson, Jeffrey Rahl, and Benjamin Pummell, B-TYPE OLIVINE CRYSTALLOGRAPHIC PREFERRED ORIENTATION (CPO) FABRICS AND TEXTURAL ANALYSIS OF CUMULATE DUNITES FROM THE BUCK CREEK COMPLEX, NORTH CAROLINA

Hannah Scherer, Caitlin Callahan, David McConnell, and Katherine Ryker, HOW TO WRITE A LITERATURE REVIEW ARTICLE FOR JGE: KEY STRATEGIES FOR A SUCCESSFUL PUBLICATION

Peter Riemersma and Peter Wampler – session advocates -- IMPROVING SCIENTIFIC LITERACY AND DISPELLING MISCONCEPTIONS ABOUT WICKED WATER RESOURCE PROBLEMS

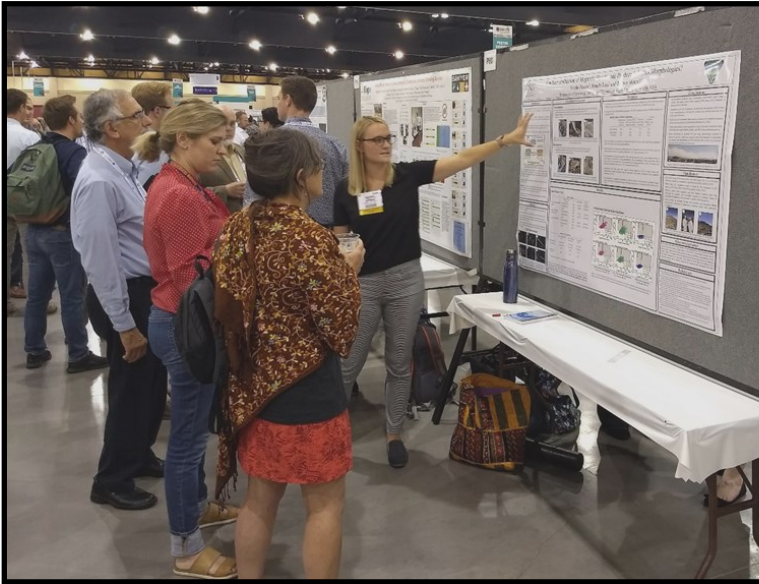
Peter Riemersma, EXPLORING MISCONCEPTIONS AND POOR CONCEPTUAL UNDERSTANDING OF GROUNDWATER, INCLUDING MEDIA COVERAGE OF GROUNDWATER ISSUES

Peter Wampler, Azizur Molla, and Richard Rediske, CHALLENGES AND CULTURAL COMPLICATIONS OF TEACHING ABOUT CLEAN WATER IN HAITI



Group shot of GVSU alums, faculty, and current students at GVSU alumni gathering (Wampler photo), September 2019

2019 GEOs at GSA – Phoenix



Alum, Natalie Renkes, presenting her MS research, (Wampler photo), September 2019



Hanging out at the campfire. Emily, Jessalynn, and Jillian (Colgan image), September 2019

2019 GEOs at GSA – Phoenix

Alum, Connor Cain, presenting his MS research
(note 1st place ribbon). (Wampler photo), September 2019



Steve and Elizabeth Shields with their son Bauer, September 2019



Current students at the GVSU alum gathering (Colgan image), September 2019

Thank You 2019 Donors

PLEASE SUPPORT GEOLOGY & EARTH SCIENCE FUNDING

Thanks to the continued generosity of alums, friends, and faculty of the Geology Department we have several endowed funds that help to support our students and further the mission of the department. Once an endowed fund exceeds the \$30,000 level the department can spend up to 5% of the fund each year. All of the funds listed below have exceeded the \$30,000 mark and are being used to support out students and department!

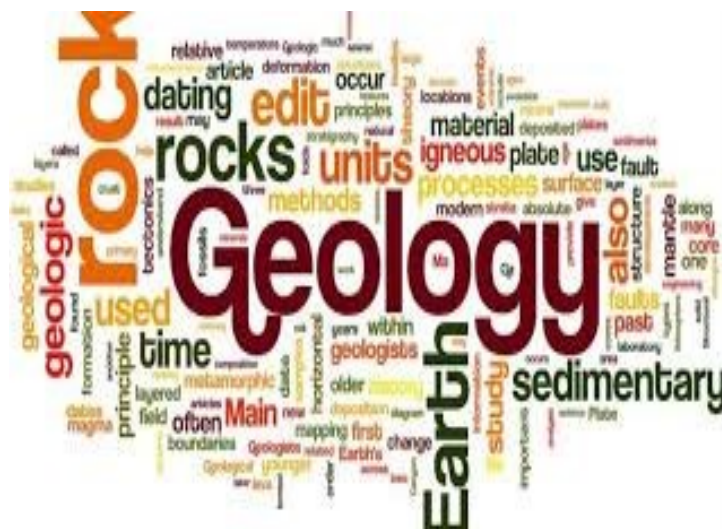
The specifics concerning each fund and the guidelines for contributing as well as the information on how to donate can be found at:

<https://www.gvsu.edu/giving/funds.htm>

and Search: GEOLOGY

If you have questions about the process of giving, please contact University Development at 616-331-6000 or

universitydevelopment@gvsu.edu.



FUNDS THAT DIRECTLY SUPPORT STUDENTS:

Edward Tremba Geology Scholarship - This scholarship is awarded on the basis of merit to upper level students who have demonstrated excellence in academic performance, intellectual ability, and potential for significantly contributing to the geosciences profession. Students must have a GPA of 3.0 or better.

Norman and Helen Gibson Geology Field Study Scholarship - This scholarship honors long-time Tulip City Gem and Mineral Club member, Norman Gibson and his wife Helen. It supports students pursuing geosciences or geoscience education research.

Geology Student Field Camp Fund - This fund provides support to all of our students who are attending field camp.

Thank You 2019 Donors

FUNDS THAT SUPPORT
THE DEPARTMENT MISSION:

Richard H. Lefebvre Geology Field Education

Fund -This new scholarship will help to support department field trips. The cost of field trips has gone up significantly without an increase in our budget and we have had to resort to passing along those expenses to students. This fund will help us maintain a strong field- based focus to education in the department.

Geology Development Endowment - This fund helps with special needs in the department such as matching funds for equipment or outside speakers.

Paul & Florence Miller Family Mineral

Collection - This fund was started by Paul Miller, who made a significant donation of minerals to the department. The fund supports additions to the collection as well as displays.

Thank You 2019 Donors!***(October 2018 – January 2020)***

Thomas and Lisa Baldwin
 Robert Bodziak and Rachel J. Kunkel-Bodziak
 Arthur and Caryl Brintnall
 Michael and Joanna Buboltz
 Julie A. Carbine
 Patrick Colgan and Kelly Heid
 Ronald and Beverly Gibson
 James Grant
 Marguerite Hampton
 Patricia Hossink
 Alexander E. Kiewit
 Greg and Laurie Kimball
 Caitlin Leslie
 Gary and Judith Mast
 Stephen and Tari Mattox
 William and Mary Neal
 David and Glenda Rogers
 Chester A. Smith
 Richard and Theresa Stolarz
 Thomas and Stephanie Surine
 Edward Tremba and Rosemary Ney-Tremba
 Marcia VanEss
 Patricia E. Videtich
 James and Bonnie Walters
 Gregory Wilson
 Tulip City Gem and Mineral Club



Geology 2019 Guest Speakers

*** Tuesday, April 9th**

"Play elements and a mock lease sale"
(co-sponsored by GVSU AAPG Student Chapter)
Fred Schroeder, Seismic Stratigrapher
Subsurface Consultants & Associates, LLC
Exxon/ExxonMobil—retired
AAPG Mini-Course

*** Tuesday, April 9th**

"Decoding the sedimentary record of continental collision: foreland basin U- Pb detrital zircon ages record ongoing transition from subduction to collision in the Caucasus"
Alex Tye, (PhD Candidate)

*** Tuesday, October 8th**

"Careers and Opportunities in the Geosciences"
GEO 111
Christopher B Melby
Geologist and Assistant Project Manager
GZA consulting in Grand Rapids

*** Monday, October 14th**

"Environmental Remediation – A Risky Business"
Gary Mast** (Geology 1991)
Senior Project Manager
SES Environmental
Grand Rapids, Michigan

*** Monday, October 14th**

"Tracing Central Andean Water Cycling and Variability with Stable Water Isotopes"
Phoebe Aron (PhD Candidate),
University of Michigan
Department of Earth and Environmental Sciences
Ann Arbor, Michigan

** denotes GVSU Graduate

*** Tuesday, October 15th**

"Great Lakes Rocks: 4 Billion Years of Earth History in the Great Lakes Region"
Dr. Stephen Kesler
(author of a book with the same title as his presentation)
Emeritus Professor
Earth and Environmental Sciences
University of Michigan -Ann Arbor

*** Thursday, October 24th**

"My path from Geology to Energy and Mining Regulation and Policy"
Adam Wygant** (Geology 1993)
Director and State Geologist
Oil, Gas, and Minerals Division
Michigan Department of Environment,
Great Lakes, and Energy Quality (EGLE)
2019 Distinguished Alumni in Residence

*** Wednesday, Oct. 30th**

"Severe Weather Dynamics"
GEO 203
Jim Maczko
National Weather Service
WCM - Warning Coordination Meteorologist PEM -
Professional Emergency Manager

*** Monday , November 11th**

"Clues about the Break-up of the African Continent"
"Science as a Story-Telling" public talk
Dr. Sarah Stamps
Virginia Polytechnical Institute
Geodesy and Tectonophysics Laboratory
Computational Infrastructure for Geodynamics (CIG)
Distinguished Lecturer

*** Monday, December 2nd**

"Cretaceous Coastlines: Paleoecology of Southern Alberta, Canada, 75 million years ago"
Dr. Cory Redman, Science Curator,
Grand Rapids Public Museum

Geology 2019 Faculty Publications

- Schaetzl, R.J., Baish, C., **Colgan, P.M.**, Knauff, J., Bilintoh, T., Wanyama, D., Church, M., McKeehan, K., Fulton, A. and Arbogast, A.F., (in press), A Sediment-Mixing Process-Model of Till Genesis from Till Texture and Clay Mineralogy of the Saginaw Lobe (Michigan, USA): Quaternary Research.
- Schaetzl, R.J., Sauck, W., Heinrich, P., **Colgan, P.M.**, Holiday, V.T., 2019, Commentary: The Putative Saginaw impact structure, Michigan, Lake Huron, in the light of gravity aspects derived from recent EIGEN 6C4 gravity field model: Journal of Great Lakes Research, v. 45, p. 12-20.
- Colgan, P.M.** and Weeden, T.L., 2019, New LiDAR-derived DEMs provide new insights into the landscape history of Muskegon and Oceana Counties, Michigan: Michigan Academician, v. 46, p. 74.
- Mattox, S.**, Ketelaar, J., and VanderWel, R., accepted, Finding the Next Diamond Mine: The Science Teacher.
- Bush, P., and **Mattox, S.**, 2019, Decadal Review: How Gender and Race of Geoscientists are Portrayed in Physical Geology Textbooks, Journal of Geoscience Education, <https://doi.org/10.1080/10899995.2019.1621715>
- Sobolak, Christina, and **Mattox, S.**, 2019, Exploring and Teaching Sedimentary Rocks of Michigan, Michigan Science Teachers Association Journal, v. 64, no. 1, p. 60-67.
- Mattox, S.**, 2019, Strategies for Connecting Rocks and Fossils to Changes in Landscape, National Science Teachers Association regional conference, p. 90.
- Mattox, S.**, and Fowler, T., 2019, Teaching Shapes and Kinds of Land and Bodies of Water Using Model and Images, National Science Teachers Association regional conference, p. 39.
- VanSpronsen, A., **Mattox, S.**, and Amon, S., 2019, Using Legos to Model Impacts and Benefits of Dams, National Science Teachers Association regional conference, p. 45.
- Mattox, S.**, and Mattox, T. 2019, Using Claims, Evidence, and Reasoning to Evaluate Volcanic Risk, NSTA 67th National Conference on Science Education, p. 46.
- VanSpronsen, A., Amon, S., and **Mattox, S.**, 2019, Impacts and Benefits of Construction and Removal of Dams, Michigan Science Teachers Association Annual Conference Program, p. 55.
- Mattox, S.**, and Frymier, C., 2019, Community review of a teacher friendly version of the stratigraphic column of Michigan, Michigan Academy of Science, Annual Conference.
- Rangel-Buitrago, N., Anfuso, G., Bonetti, J. and **Neal, W.J.**, (Editors), in press SPECIAL ISSUE: Vulnerability Assessments as a Tool for the Coastal and Marine Hazards Management. Special Issue, Ocean & Coastal Management: (2019) <https://www.science.com/journal/ocean-and-coastalmanagement/specialissue/10WS96B3RKO>
- Rangel-Buitrago, N., **Neal, W.J.**, and. de Jonge, V.N., 2019, Risk Assessments as Tools for the Coastal Erosion Management: Cartagena de Indias, Colombia, as Case Study. Ocean & Coastal Management
- Rangel-Buitrago, N., Gracia, A., Velez-Mendez, A., Carvajal-Florián, A., Lilibeth Mojica-Martinez, L., **Neal, W.J.**, 2019, Where Did This Refuse Come From? Marine Anthropogenic Litter on a Remote Island of the Colombian Caribbean Sea. Marine Pollution Bulletin, 149, 110611. <https://doi.org/10.1016/j.marpolbul.2019.110611>

Geology 2019 Faculty Publications

- Rangel-Buitrago, N., Gracia, A., and **Neal, W.J.**, 2019, Santa Veronica Beach, Atlantico, Caribbean Coast, Colombia: A Model of Small Community Beach Loss, Wrong Responses. July-August Beach-of-the-Month, Coastal Care. <http://coastalcare.org/2019/07/santa-veronica-beach-atlantico-caribbean-coast-colombia-a-model-of-small-community-beach-loss-wrong-responses-by-nelson-rangel-buitrago-adriana-gracia-william-j-neal/>
- Neal, W.J.**, 2019, Book review "Coastal Scenery: Evaluation and Management" Rangel-Buitrago (Editor). *Journal of Coastal Research*, v. 35, no. 1, p. 240. <https://doi.org/10.2112/JCOASTRES-D-18A-00007.1>
- Also published in April 2019, *Just Cerfing (CERF)*, v. 10, no. 4, p. 56-57. <https://indd.adobe.com/view/4f3b1a15-3bcd-4b5d-a92c-f4afcd9cbb58>
- Peterson, V.L.**, Rahl, J.M., and Pummell, B., 2019, B-type olivine crystallographic preferred orientation (CPO) fabrics and textural analysis of cumulate dunites from the Buck Creek complex, North Carolina, *Geological Society of America Abstracts with Programs*. Vol. 51, No. 5, doi: 10.1130/abs/2019AM-337453
- William Neal media interviews:**
- "Experts: CBG shore fix unlikely to Last" BVI Beacon, 7 March 2019, p. 1, 10-11 [quoted]. [From 28 Feb. interview]. Published on-line 12 March 2019 as "Shore fix in Cane unlikely to last, experts say" by Freman Rogers. <https://bvibeacon.com/shore-fix-in-cane-garden-bay-unlikely-to-last/>
- "From Indonesia to Ingonish, Some Bones Won't Stay Buried: As seas and storms erode coastlines, cemeteries are giving up their dead" by Jennifer S. Holland, in *Atlas Obscura*, October 28, 2019. <https://www.atlasobscura.com/articles/cemeteries-grave-buried-erosion-climate-change>
- Weber 2019 Peer-Review Publications (*GVSU undergraduate researchers.)**
- Weber, J.**, Geirsson, H., La Femina, P., Robertson, R., Churches*, C., Shaw*, K., Latchman, J., Higgins, M., and Miller, K., 2019, Fault creep and strain partitioning in Trinidad-Tobago: Geodetic measurements, models, and origin of creep. *Tectonics*, 38. <https://doi.org/10.1029/2019TC005530>
- Weber, J.**, Koeberl, C., Wilson, B., and *Posner, E., 2019, Reconnaissance reassessment of the Late Eocene Oceanic unit, Barbados: microtektite geochemistry, zircon U-Pb geochronology, micropaleontology, and provenance, in: Koeberl, C., and Bice, D. (Eds.), *Geological Society of America Special Volume "250 Million Years of Earth History in Central Italy: Celebrating 25 years of the Geological Observatory of Coldigioco*.
- *Elling, R., Philip Farfan, P., and, **Weber, J.**, 2019, Cunapo Conglomerate, Northern Basin Floor and North Flank of the Central Range, Trinidad: Neogene Syn-Contractile or Syn-Transpressional Tectonic Marker Unit – Field and Petrographic Study, in: Bartolini, C. (Ed.), *American Association of Petroleum Geology Memoir 123: Eastern Caribbean-Northeast South American Boundary–Tectonic Evolution, Basin Architecture, and Petroleum Systems*, doi10.1306/13692264M1233858.
- Weber, J.**, Elmore, P.D., Hamilton, C., *Alder, A., Koeberl, C., and Pope, M., 2018, On the Backs of Giants – Geology of the Kentland Impact Structure, Newton County (Kentland) Quarry, Indiana (USA) – Building on Ray Gutschick's Legacy, in: Florea, L.J., (Ed.), *Ancient Oceans, Orogenic Uplifts, and Glacial Ice: Geologic Crossroads in America's Heartland: Geological Society of America Field Guide 51*, [https://doi.org/10.1130/2018.0051\(15\)](https://doi.org/10.1130/2018.0051(15)).

Geology 2019 Faculty Publications and students

Goswami, C., Jana, P. and, **Weber, J.**, 2019, Evolution of landscape in a piedmont section of Eastern Himalayan foothills along India-Bhutan border: A tectono-geomorphic perspective, *Journal of Mountain Science*, 16(12), 2828-2843, <https://doi.org/10.1007/s11629-018-5208-7>

Kyle W. Meyer, Sierra V. Petersen, Kyger C. Lohmann, Joel D. Blum, Spencer J. Washburn, Marcus W. Johnson, James D. Gleason, Aaron Y. Kurz and **Ian Z. Winkelstern**. In press. *Nature Communications*. Biogenic carbonate mercury and marine temperature records reveal global influence of Late Cretaceous Deccan Traps

S. V. Petersen, W. F. Defliese, C. Saenger, M. Daëron, K. W. Huntington, C. M. John, J. R. Kelson, S. M. Bernasconi, A. S. Colman, T. Kluge, G. A. Olack, A. J. Schauer, D. Bajnai, M. Bonifacie, S. F. M. Breitenbach, J. Fiebig, A. B. Fernandez, G. A. Henkes, D. Hodell, A. Katz, S. Kele, K. C. Lohmann, B. H. Passey, M. Y. Peral, D. A. Petrizzo, B. E. Rosenheim, A. Tripathi, R. Venturelli, E. D. Young, and **I. Z. Winkelstern.**, 2019, *Geochemistry, Geophysics, Geosystems*. May 2019. Effects of Improved ^{17}O Correction on Interlaboratory Agreement in Clumped Isotope Calibrations, Estimates of Mineral-Specific Offsets, and Temperature Dependence of Acid Digestion Fractionation.



GEO203 students Arboretum Heid, Fall 2019



Devils Millhopper Sinkhole. Riemersma, 2019



GEO 280 students starting their stratigraphic columns of the Fossvogur sediments. The layers record the deglaciation history near Reykjavik and include basal till, beach conglomerate, laminated mudstone, and glaciomarine diamictite. Pleistocene basalt is at the base of the section., Iceland, 2019

The Making Waves Initiative

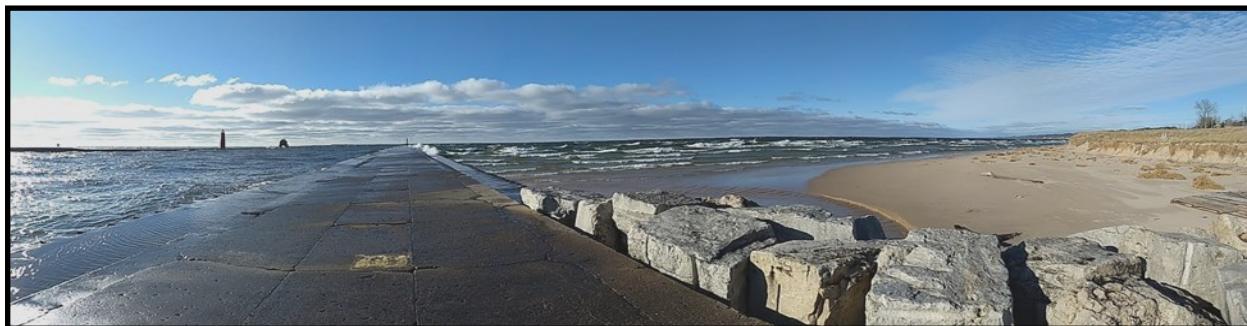
Making Waves about Water is a University initiative to create collaboration across campus among students, faculty, and staff, as well as with the community. The goal of the Initiative is to explore and investigate the many ways that water touches our lives, from being a life-force to defining GVSU in relation to the Grand River and Lake Michigan. The Initiative has the potential to clearly define GVSU: a liberal arts institution where we integrate theory with practice to prepare students for the challenges of our world. Key goals of the Making Waves Initiative (MWI) are to:



- 1) Support and encourage interdisciplinary collaboration by creating cooperative learning for students, staff, and faculty and within the community around the central theme of water;
- 2) Set GVSU apart as a liberal arts institution in West Michigan with a unique approach to exploring and learning about resources and activities across disciplines, locally and globally; and
- 3) Build and sustain community engagement opportunities and co-curricular activities related to water.

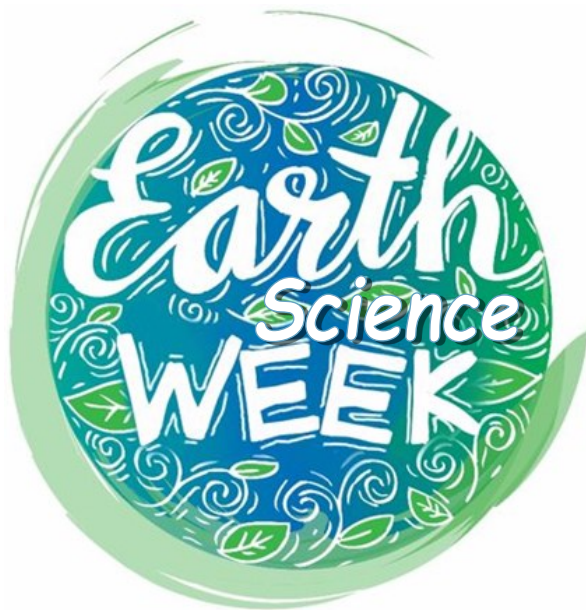


The MWI is a two-year effort that will commence in the fall of 2019. Over 70 faculty and staff are working on 10 teams to come up with, and implement, ideas, projects, and activities to enhance student learning and through enhancements or modification to curriculum, student events, and community engagement. You can learn more about the MWI on our website at www.gvsu.edu/makingwaves.



Earth Science Week 2019

Over 100 students attended talks during Earth Science Week that featured alumni Gary Mast, GVSU professor Peter Wampler, University of Michigan PhD candidate Phoebe Aron and retired U of M professor Steve Kessler. Dr. Kessler introduced his recent book on the geology of the Great Lakes, "Great Lake Rocks: 4 Billion Years of Earth History in the Great Lakes" written for a general audience. Gary used case studies to illustrate the type of work that environmental geologists conduct. Phoebe showed the kind of investigations and questions that isotopes can help answer. Peter Wampler highlighted the challenges involved in searching for solutions to water quality issues in Haiti. Riemersma has organized the Earth Science Week talks for over 15 years, highlighting how old he is.



GVSU Earth Science Week 2019

Monday , October 14th

"Environmental Remediation – A Risky Business"

11 – 11:50 AM in Lake Michigan Hall 176

Gary Mast (GVSU alum)

Senior Project Manager

SES Environmental

Grand Rapids, Michigan

Monday, October 14th

"Tracing Central Andean Water Cycling and Variability with Stable Water Isotopes"

4:30 – 5:30 PM in Manitou 122

Phoebe Aron

PhD Candidate, University of Michigan

Department of Earth and Environmental Sciences

Ann Arbor, Michigan

Tuesday, October 15th

"Great Lakes Rocks: 4 Billion Years of Earth History in the Great Lakes Region"

11:30 – 12:30 in Manitou 122

Dr. Stephen Kesler (author of a book with the same title as his presentation)

Emeritus Professor of Earth and Environmental Sciences

University of Michigan

Ann Arbor, Michigan

Wednesday , October 16th

"Wells, Wandering Seeds, and Workable Water Solutions for Haiti".

11 – 12 (noon) in Manitou 122

Dr. Peter Wampler

Department of Geology

Grand Valley State University

Geology Students in the Field



GEO 201 students on granites at Wetmore Landing, near Marquette, (Mattox image) Fall 2019



Student Jillian Ashton preparing to install soil piezometers at the Hultmark Preserve in Bloomingdale, MI., 2019



Geohydrology students doing soil infiltration tests Fall 2019 (Kneeshaw image), 2019



Student Jessalyn Gonzalez collecting porewater samples at the Hultmark Preserve in Bloomingdale, MI., (Kneeshaw Image), 2019

Geology Students in the Field



GVSU Geology students on Wheeler Peak, Arizona during their 2019 summer field camp experience
(photo by Taylor Weeden, B.S. Geology 2019)



GEO 100 Ravines, K. Heid, Fall 2019



GEO 111 Aman Park, K. Heid, Fall 2019

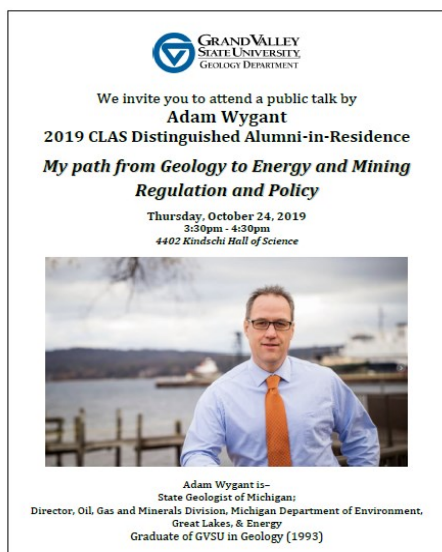
Distinguished Geology Alumnus 2019

Adam Wygant (GEO 1993) Named Distinguished Geology Alumnus 2019

One of the alumni news highlights of the past year was Adam Wygant's appointment as Michigan's 16th State Geologist and Director of the Oil, Gas, and Mineral's Division of the MDEQ on December 30th, 2018. In Adam's words:

"As director, I am privileged to work in the regulatory world in both mining and energy which is rare. The politics, administrative duties, geology, and technology all keep me very challenged and fulfilled professionally.

As State Geologist, I..... have special responsibilities in mine taxation, continued support of the Michigan Geological Survey, and being the number one cheerleader of all things geology in our state."



For those who may not know the GVSU Geology Department's history, our founder, John Lucke was the former State Geologist of Connecticut. So, there is a 'thread' through time!

Adam's career contribution to our science in Michigan was already significant, and he stands as highly qualified for these two most responsible positions. The Geology Department recognized Adam's achievements this Fall as our choice for the

Department's distinguished alumnus for the 'CLAS Alumni in Residence Week'. He was on campus for two days to visit with our students and faculty, and give two presentations including a public lecture "My path from Geology to Energy and Mining Regulation and Policy". On October 25th he was among the CLAS honorees recognized at a luncheon in their honor. Some old timer geo-faculty had the pleasure to be in attendance (see photo below), along with Adam's wife, Holli (nee Burt, a GVSU 1993 alumna, criminal justice) and parents, Al and Patricia. We learned that it was Adam's father Al, GVSU's first chief detective and a friend of Norm TenBrink, who steered his son to get himself into college --- even selecting Adam's first set of courses that included Norm's Physical Geology class. That course was Adam's geo-inspiration, declaring geology as his major "and never looking back." Although he didn't become a glacial geologist, he followed a broad range of geologic subdisciplines in his career; a pattern we see in many of our alumni, and an aspect of science that our majors should expect in their careers. He has also remained in contact with many of his peers from student days. So, congratulations and a big thanks to Adam for taking a break from his now weighty responsibilities to visit with us. And a belated thanks to Al for his insight into his son's potential!



Celebrating Adam's visit to campus, from L to R: Kevin Cole, John Weber, Adam Wygant (Michigan State Geologist and GVSU 2019 CLAS Distinguished Alum), Tom Hendrix (ret. GVSU), Bill Neal (ret. GVSU). (Photo by Holli Wygant), October 2019

*Geology Archives– “Pick and Boots”***GV GEO Mystery Memorabilia: The Truth is out there.****Pick and Boots –****The Saga Concludes****By P.E. Videtich**

In the 2018 newsletter we asked if anyone remembered who designed the Geology Club patch (see below). Earlier we had established that **Bill Neal** (GV professor 1971 - 2004) came up with the slogan, “Pick of the Midwest”, but not who actually designed the patch.

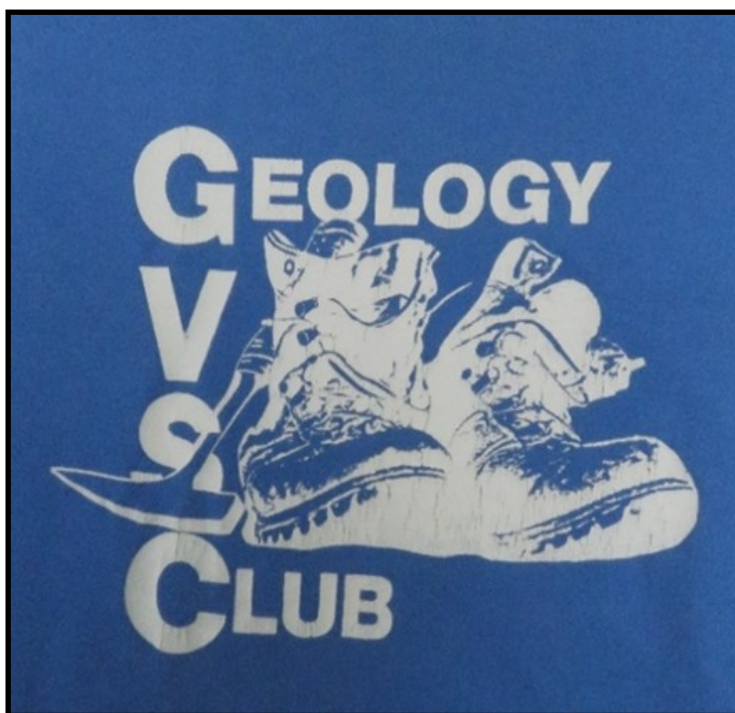
The query drew a couple of responses with the most probable explanation coming from **Roger Haskins** (B.S. Geology 1973) who wrote, “The shoulder patch was designed by **Harry ‘Bud’ Bowles** (B.S. Earth Science 1972), in 1972 as part of design competition for the incipient Geology Club.

We had a couple of dozen made (I still have mine) at that time.” As for the origin/timing of the boots (see below), we received no further insights, so their exact origin may forever remain a mystery! But both Bill and Greg Wilson (B.S. Geology 1983; Geology Lab Supervisor 1995 – present) have vague recollections that the boots may have been a stock sketch, so if two “vague recollections” add up to a “historical fact”, then that is probably the case.

Thanks to Roger and others who helped shine a little light on the origin and timing of the “Pick and Boots”. And again, if you have any mystery geo paraphernalia please send us a photo and we will see if any other alums can give us some insights.



Grand Valley State College Geology Club patch, undated photo



Grand Valley State College Geology Club “Pick and Boots” undated photo

*Geology Archives– The “Rock”***The Rock****W. J. Neal and P.E. Videtich**

In August we received a query from Sandy Lefebvre who wrote, “Do you know the story behind this?” Attached was the above copy of a 1985 memo about a “rock” from then, President Lubbers to Sandy’s late husband, Richard Lefebvre (Dick; GV professor 1967 - 1998). Patty Videtich and Bill Neal immediately realized it was in reference to the boulder that sat between the SE corner of old Loutit Hall and Little Mac Bridge. Patty’s sleuthing found Dick’s original memo to President Lubbers regarding the rock (see memo on page 47).

The green diorite boulder had been unearthed during the construction of the original Loutit Hall, and we geology profs made reference to the rock as evidence of our campus topography’s glacial heritage, a fine example of an erratic, and an example of a specific igneous rock from a much earlier time in Earth history. But nothing stays the same, and fraternity brothers, sorority sisters, and other students often had time on their hands for mischief, so the rock ultimately was painted, and not with Steno’s laws of stratigraphy, but commonly with strange and exotic Greek letters!

As we recall, the initial paint job(s) was sand-blasted off, but literally overnight new coats soon appeared — thus raising some hackles within the geologic community (Don’t tread on our rocks!).

Fortunately, presidential wisdom ruled, and the object that prompted these evil paintings was moved to a less central location in Robinson Field east of the Commons, near Robinson House, where painters could make repeated visits to the rock, establish a tradition of questionable art, and allow the works to accumulate lit-par-lit. In recent years, the Holton-Hooker Learning and Living Center was built where Robinson Field used to be, so the rock was moved again and now resides in front of Copeland House (see below).

All sorts of groups continue to deface the rock, including high school kids staying in the dorms while attending a variety of summer camps. The girth of the rock has undoubtedly grown with time! Given the historic significance of this glacial artifact, we invite you the reader to submit any recollections you may have regarding “The Rock”. Where was the rock when you attended Grand Valley? Were you at GV when it made one of its infrequent moves? Did you ever stoop so low as to paint the rock yourself?

You can come clean with us, we are sure Dick would forgive you. Send us your recollections (nealw@gvsu.edu; videtich@gvsu.edu), and we will share them with all in the 2020 newsletter.



Which one is oldest? The organization, the rock or the fossil?
William Neal standing near “The Rock”, 2019

Geology Archives- The "Rock"

COPIES TO: Dean Kindschi
N. Ten Brink

MEMORANDUM

TO: President Lubbers	FROM: R. H. Lefebvre
SUBJECT: Ecopornography	DATE: 1/3/85
	FILE NO.:

Standing outside my window is an object that changes color on an almost daily basis. It is stared at, giggled over, and wondered about by many who cross our campus. A few of us, however, try to ignore this thing that used to be a rock.

It would seem that the college has allowed enough time to pass in this grand experiment-turned-disaster. For some time now the geology faculty and students have put up with this abomination at their very doorstep. It may be asking too much of others to view it in the same light but now it is not only causing discomfort to geologists but, one would think, to all who care about the aesthetics of our environment.

It seems that once the college placed its seal of approval on "painting the campus" as a means of establishing "tradition" at Grand Valley, it did not take long for the idea to catch fire. The number of incidents in which the surrounding area - bridge, walkway, trees (!) - have also been painted has increased dramatically.

Isn't it time to put an end to this attempt to establish a Grand Valley identity by splashing paint on what is a very beautiful setting? Aren't there other accomplishments that guides from Admissions can point out to prospective students and their friends and families? Lest one of us gets painted as we stand and ponder it, let's get rid of the rock or stick it out in the middle of a field - far away from the Geology Department!

Richard Lefebvre's 'memorandum to Emeritus President Lubbers, January 1985

**MEMORANDUM**

TO: Professor Richard Lefebvre
FROM: Arend D. Lubbers, President
RE: The "Rock"
DATE: October 23, 1985

Dick:

When evil is removed from sight, it is often forgotten. I hope you will not walk east of the Commons very often. I have the authority to remove the rock, but as you know, rocks are hard to destroy. Every campus must have its eccentric traditions. The rock is one of ours, but I will do my best to keep it out of your sight.

Thank you for your note.

Richard Lefebvre's 'The Rock' memorandum to Emeritus President Lubbers, October 1985

ALUMN 2019



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Winter 2019 graduates at the Geology Department's post-graduation reception" (Kneeshaw image), 2019



Graduating seniors at the Winter 2019 Silly Seniors Award Ceremony (Kneeshaw image), 2019



Graduating seniors at the Fall 2019 "Silly Seniors Award Ceremony (Kneeshaw image), 2019

SENIOR 2019