



MICHIGAN SECTION AIPG NEWSLETTER

IN THIS ISSUE

From the President’s Desk

by Tim Woodburne, CPG

A good mix of curious science was helpful...

I believe that curiosity and creativity in science and geology help solve investigations and lead to closures. The following is a true story about a project I worked on.

One particular project that required extra scientific curiosity was a dredging project. A lake association wanted to dredge sediments from their lake to allow better access to boat slips and other areas along the shoreline. The lake association obtained bottom sediment samples for testing to obtain a dredging permit. They selected a disposal site for the dredging material and obtained soil samples for laboratory analytical testing. The samples were tested for Michigan 10 Metals; polynuclear aromatic hydrocarbons (PAHs); polychlorinated biphenols (PCBs); and biological oxygen demand (BOD). In addition, several samples were subjected to the Synthetic Precipitation Leaching Procedure (SPLP) to determine the potential of leaching contaminants from the dredging spoils. The testing results came back basically negative – no significant concentrations of metals, and PAHs and PCBs were below detectable levels of the testing procedures. The leaching tests also passed and did not indicate any

problems. These results were expected and desired.

Having reviewed all this, the dredging and the disposal site were approved by the MDEQ. At MDEQ’s suggestion, monitoring wells were installed around the disposal site. The MDEQ project manager recommended arsenic as the critical metal to test in groundwater samples. In the first round of groundwater samples, everything seemed to go as planned – arsenic was pretty low and there were no worries. But by the second round of sampling, high arsenic levels were detected in the groundwater samples, and we wondered why. After confirmatory samples were collected, the arsenic levels were still going up! The lake association wanted to keep dredging to improve their lake, but their goals were now defeated by this undesirable issue. The dredging project had to stop.

Initially, we believed a specific area from the lake had higher arsenic concentrations. Perhaps the samples were collected poorly? Maybe not enough samples had been collected? Were samples taken in the wrong spot completely?

Article continues on Page 6...



2018 Annual Meeting

Check out the 2018 Annual Meeting highlights and see what you missed!

Page 16



Student Chapter News!

See what three of the Michigan Section’s student chapters have been up to!

Pages 8, 19, & 22

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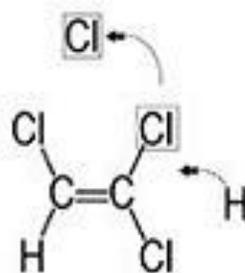


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-- Continued from Page 1 --

We checked the data carefully, and this was not the case. We started looking at other sources to understand the arsenic readings. Did the soil of the disposal site have high arsenic? No – all background levels were low. How then did we have high arsenic levels in the groundwater samples with seemingly no source for the arsenic? Hmm... very curious!

The BOD levels in the dredged material were very high. I dug into this issue. I had to do some research to understand what this could do to the underlying soil. The ultimate questions: where was the arsenic coming from and how did it get to the high levels we were seeing in the groundwater? I found out that high BOD can reduce oxygen levels in the soil. With reduced oxygen levels, metals change oxidative states to become mobile and enter the groundwater. Therefore, high BOD levels caused metals to dissolve and elevate arsenic concentrations in the groundwater even from soil that has "normal" or background levels. This seemed to be the answer.

Having said all of this – be curious about your work and understand how it will affect people and the surrounding environment. The work

that we do ultimately has some impact – negative or positive – on the surrounding area and environment. This ultimately has an impact on people living in the area. This impacts our society. The decisions we make, small or large, determine the impact. Always have courage and do your best.

Finally, this is my last message as President, and I want to say thank you to everyone who actively participates in Michigan Section activities. I have rediscovered that there is a relatively small group of core volunteers who work on Section events. I thank the officers: Linda for her final year on the board, Adam who is always there, and Amy, Sara, and Bill who will move up a position each year. I want to thank everyone who has attended a quarterly meeting, or volunteered in some way for the golf outing, the Summer Workshop, the summer field trip, and the student chapters. We cheer for the new members, students participating in the student posters, and students applying for a scholarship for undergraduate study! Each of you helps to make Michigan Section a great section and for that I simply want to say thank you!

2019 Section Secretary Election

The 2019 election for Section Secretary opens as of November 1, 2018. The Section Executive Committee has received not one, not two, but THREE qualified candidates for 2019 Section Secretary. Their bio and statements are included below, and will be sent to our members via email on November 1. All CPGs, professional members, young professional members, students, and associate members of the Michigan Section are eligible to vote. Specific instructions for voting will be provided by email.

Mellisa Powers-Taylor, YP-0190

Please accept my statement of interest in running for the AIPG Michigan Section Secretary position. I have been an active member of the AIPG since I was a student at Wayne State University. In 2012, I was a vocal member in starting the AIPG WSU Student Chapter, where I served as both president and vice president. During my time as president of the WSU Student Chapter, I lead a team of students to organize a joint meeting and fundraiser with the Michigan Section which was held at the Detroit Historical Museum in spring of 2015. This successful fundraiser raised



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money to fund departmental and club field trips. Since leaving WSU, I have maintained my active role in the Michigan section and currently serve on the Awards Committee. I believe that this experience has prepared me well to take on the challenge of serving on the Michigan Section Executive Committee. I have seen first hand how beneficial our organization is to its membership, and I hope that I can continue to serve you as the next Secretary.

I studied my undergraduate and graduate work at Wayne State University. My masters researched focused on the background levels, geochemical forms, and bioavailability of arsenic in urban soils and how they relate to environmental risk assessment. Since leaving WSU, I worked in environmental consulting for 3 1/2 years where I focused on remediation of former manufacturing facilities and MGP sites, as well as working on coal combustion residual landfill sites. I currently work as a Project Manager for the MDEQ RRD Superfund Section where I oversee and coordinate work at multiple Superfund sites in Michigan.

Curt Chapman, MEM-2912

I am a fairly new member of AIPG, although I have been attending meetings for the past fifteen years. What has always impressed me about the Michigan Section is the diversity of

the member geologists. We are professional geologists, who are regulators, professors, consultants, and corporate managers. We all get together, enjoy each other's company, exchange ideas, and promote our profession. The best thing about Geology is that it's a hands-on science, easy to teach and demonstrate, where you can touch the subject, not just look at it under a microscope or through a telescope, or define it as a mathematical equation. That's why on our field trips you will find the non-geologists like the retired oncologist and his wife or the retired purchasing agent from one of the Big Three. In what other science can you walk along the outcrop in the UP with a magnet and find an iron deposit or go into the center of a meteorite crater in southern Ohio and find upturned vertical rock layers and S-folds in land of "original horizontality"?

What has truly impressed me, is how much this section supports and promotes the student sections and encourages students and their professors to attend our regular meetings. I believe it's imperative that members attend the student chapter meetings to discuss what we as professional geologists do and answer student questions about jobs and careers. It might even be useful to dust off the old thesis or dissertation and present that to the student chapters as a way to promote graduate education. That's why AIPG is critical to

professional geologists like ourselves to promote the exchange of ideas and information, and to inspire the next generation of geologists, who will take our place and carry on with our science and as members of AIPG.

My name is Curt Chapman and I have been a professional geologist for now, over forty years. I was born in Battle Creek, Michigan and moved to Indianapolis during junior high school. I received my Bachelors in Geology from Indiana University and my Master's in Geology from Miami of Ohio. With my Master's in hand and along with a new bride, we moved to Houston Texas, where I went to work for Texaco at their Bellaire, Texas offices as a development geologist. Along the way, I went back to school at night and worked on a MBA in Finance from the University of Houston. During my twelve years in Houston as petroleum geologist, I was fortunate enough to be employed by four oil companies, who allowed me to work from the border with Mexico on the south to Canada on the north, as well as from the intermountain basins of the Rocky Mountains to the west to the Appalachian Plateau on the east. As the fortunes of the domestic oil industry waned in the late 1980s, I, like many others, made a career change to the environmental industry with a move back to Michigan. First as a consultant with GZA GeoEnvironmental, then into the corporate world with Chrysler, and

ultimately back to consulting for the last seventeen years with August Mack.

I consider myself to be lucky, since I was able to turn what was an interest in high school, collecting Mississippian crinoids in western Indiana with some friends down the street for the Indiana State Museum into a career that continues to this day and will do so for many years to come. And, as hard as I tried to interest my three children into becoming geologists, none have taken up the standard and yet each of the three kids has an appreciation for the science in their own way: the oldest recently sent back a picture from the Bavarian Alps taken by her husband, where she is standing in front of steeply dipping limestone with a fold and she remembered to use herself as scale; the middle child brings me to her classroom once a year to talk to the kids about rocks; and, the youngest now rides his bicycle around the Oakland Hills east of San Francisco looking for ancient volcanoes. So, in their own ways, they all have an appreciation for dad's profession and passion.

Kalan Briggs, YP-0304

I graduated from Wayne State University in 2016 with a B.S. in Geology. I joined the AIPG as a student member in 2012 and maintained a very active membership including attending most chapter meetings and annual field trips. My college coursework was highlighted with directed studies researching anthropogenic soils throughout the Detroit area and attendance of the Clemson University Hydrogeology Field Camp. I have been working as a geologist in the environmental consulting arena for approximately four years specializing in vapor intrusion, Part 213, and site characterization. During my young career, I have identified the unfortunate gap of knowledge between the public and the private environmental consulting world which has planted a seed of passion within me to help bring the two together. My efforts have led me to taking the time and having small conversations, enlightening common civilians, to leading efforts in extending professional knowledge and insight to future professionals. My hope is that with the extra knowledge more individuals will have the opportunity (or perhaps desire) to take action, get involved, and understand the world we live on and just how critically important it is to respect it and treat it like home.

Outside of the professional arena, my free time is spent with my wife and dog, where we take any opportunity that presents itself to get outside. Between work and home, I serve on the Michigan Association of Environmental Professional (MAEP) Board where I am involved

specifically with the Annual Golf Outing committee, the Membership committee, the Professional Development Meeting (PDM) committee, and the joint AIPG/MAEP PDM committee. Additionally, I serve on the AIPG Workshop committee and volunteer during the event. I am professional resource to Wayne State University, Central Michigan University and Eastern Michigan University involved with mentoring students into the professional life. I have experienced first hand just how important this organization is and look forward to contribute to its future success.

WMU goes to Iceland!



AIPG Student Chapter Field Excursion to the Land of the Midnight Sun

The past several years it has been my privilege to work with an amazing group of students at the Western Michigan University Student Chapter (SC) of AIPG. They "lava" rock puns almost as much as they "lava" geology. The group meets at least once a week and is always planning something new and fun that will help us engage our student population and local community. They volunteer at rock and mineral shows, organize geology-themed bake sales, and coordinate outreach events and professional seminars.

One of the most rewarding aspects for them is in taking field trips. Field experience is crucial in the Geosciences as it is difficult to grasp three-dimensional concepts on a two-dimensional whiteboard. These experiences are pivotal in grasping key concepts in geology, but they also help them grow as individuals. Last spring, a group of thirteen AIPG student members, myself and Dr. Joyashish Thakurta from the Department of Geological and Environmental Sciences at WMU embarked on an epic adventure to explore one of the youngest and perhaps the most geologically spectacular countries in the world – Iceland! Our SC plans a field trip each spring but never before have they travelled internationally. When Iceland was first proposed as a destination for the spring 2018 trip, there was a sentiment of disbelief that the students could raise enough money, properly plan and execute an international expedition of this magnitude. It presented a unique set of opportunities and challenges to the group both in the preparation and execution of the trip. I will tell you about some of our experiences, a bit about Iceland and why we chose to travel there, and the reason I would encourage you to go and geologize there as well.

It was the first time that several of the students had left the US and even a first plane trip for another. Airfare to Iceland has decreased dramatically in the past several years, and we were able to get comfortable round-trip tickets from Chicago to Reykjavik non-stop for around \$600 USD each. I have seen deals where they are as low as \$200. The cost of vehicle rentals and fuel for the trip was a notable expense that warranted a very aggressive and concerted fundraising effort. One of the three vehicles that we rented was a VW camper van which was helpful in accommodating a SC member who is disabled as well as providing a warm, dry bed for one night for each of the student members during the trip. This van was specifically funded by a private donor and a grant we received from the International Association for Geosciences Diversity. In the end, each student had to pay about \$500 USD each out of pocket and the rest of the trip was paid for through the support of AIPG and fundraising within the SC.



2018-19 WMU AIPG SC Officers pictured at Svatifoss Waterfall in (L-R) Raigen Blake – Vice President; Erin Huggett – President; Michael Roberts – Secretary; Stephanie Buglione – Treasurer. Photo courtesy of Shelby Hurst.

We chose to travel in late April because the timing is between semesters for us. Not many tourists are coming this early in the season and many of the campgrounds will let you stay there free of charge. It is still relatively cold, wet and rainy this time of year compared to the peak tourist seasons in June and July and was between 32- and 45-degrees Fahrenheit the entirety of the trip. We even got a fair amount of snow at times, but nothing us Michigan folks couldn't handle. The barren island tundra is the windiest habited place on Earth so do not bother bringing an umbrella. The SC members developed a field trip guide that we used while travelling in Iceland. In preparing a field trip guide, the students took ownership of an area of geologic interest and became the "expert" for their location. They then taught the rest of us about the geology and history of their areas as we travelled and explored that region or feature. They did a fantastic job

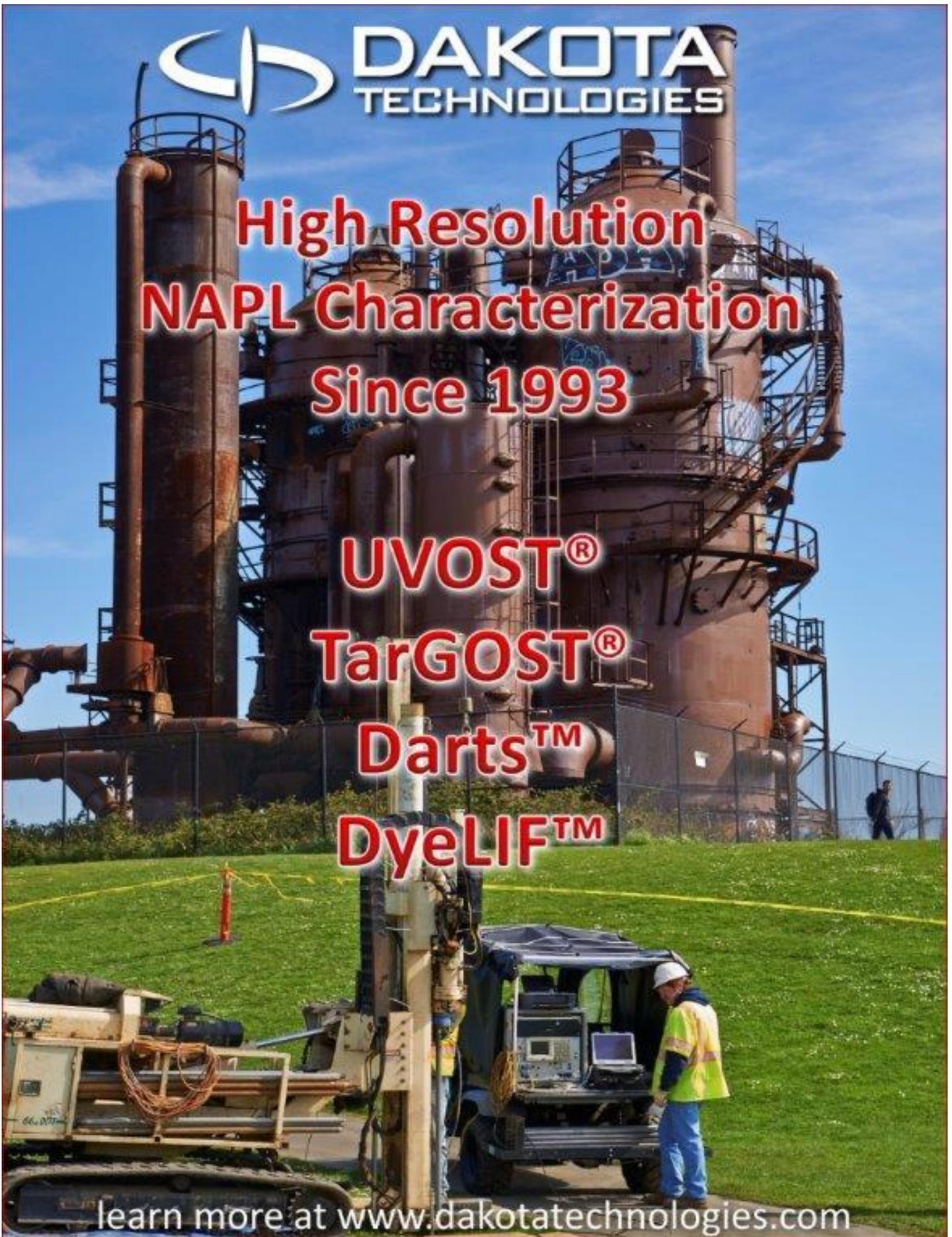


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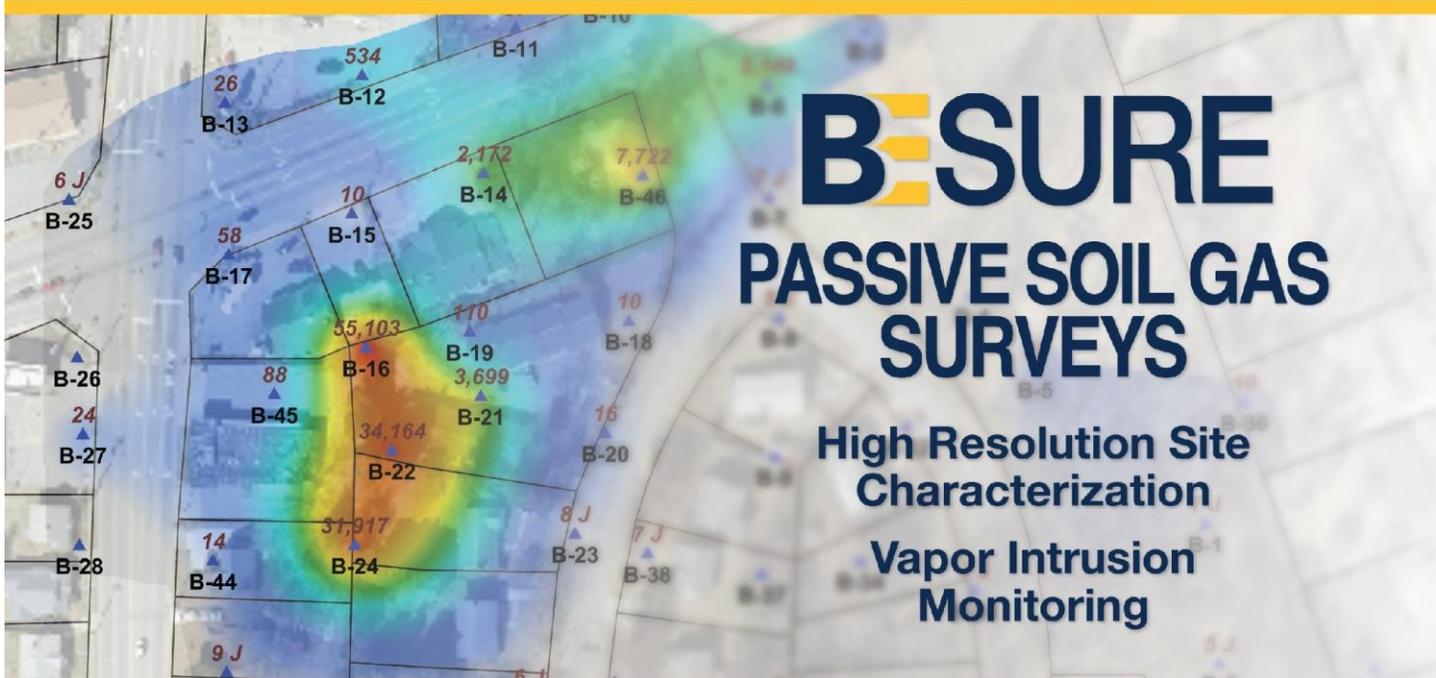
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researching and guiding us all through the excursion.

After some nervousness and anticipation, we departed from Chicago O'Hare and arrived at Keflavik International Airport early the next morning. After a brief stop in downtown Reykjavik to visit the Icelandic Phallological Museum (yes, this is a real thing – with many real “things” on display) and another stop at the local Bonus store for food and supplies, the group headed into the unpopulated interior of the country to our first campground in Hveragerði with plans to visit Þingvellir (Thingvellir) National Park the next day. Iceland is very sparsely populated with ~ $\frac{1}{3}$ of the total population living in the Reykjavik area and a total population density of only 3.28/km². I would like to mention that it is also one of the safest countries in the world. Crime rate is extremely low and medical care is excellent. Still, one should remain cautious as the threat of natural hazards caused by weather and geology is a real risk and one that the group took very seriously.

The Hveragerði campground is located within walking distance to a park which had wonderful geothermal pools that can be entered for about \$10 USD for the day. This is common throughout the country. Iceland

takes advantage of its rich natural energy and is one of the cleanest and greenest countries in the world. Geothermal heating meets the heating and hot water requirements of nearly all buildings in Iceland and most of the nation's electricity is generated through geothermal and hydro-power plants. Hveragerði has a school, fueling stations, a coffee shop, pub and restaurant and was a lovely little Icelandic town, indeed. Near the edge of town there is an old building foundation with some fantastic graffiti art there that provided an excellent place for the group to take some photos before we headed out the next morning. To summarize much of the rest of the trip, I think it is only appropriate to give individual acknowledgment to the AIPG student members and describe briefly the areas that they chose to lead us.

At Þingvellir, J.P. Hager led us on a fascinating tour of the UNESCO World Heritage Site known for the Alþing (Althing), the site of Iceland's parliament from the 10th to 18th centuries. Þingvellir played a central role in the history of the country, and its history runs almost parallel with the history of the Icelandic Commonwealth. The first parliamentary proceedings at Þingvellir in the summer of 930 united the nation in a common cultural heritage and give Iceland its national

identity. Ripe with historical, cultural, and geological significance, the park allows one to walk through a rift valley that separates the North American and Eurasian tectonic plates (yes, we brought a frisbee). It is incomparable in the sense that nowhere on Earth is the architecture of a mid-ocean ridge system better exposed or as accessible for inspection. Nearby campsites do not open until June 1st, but we were able to make accommodations with the rangers at the Park to camp next to the visitor center anyway. They even opened the bathhouse with hot showers and a drying room for us to use. This quickly became a popular spot with many of the students who really wanted to get out of the elements. The campground had a covered cooking and eating area. We were very spartan in our meal planning and typically ate PB&J sandwiches and dehydrated MRE-style backpacking food for the duration of the trip to help defray costs. Food and beverage in Iceland is expensive, and we recommend stocking up at home and making sure to visit the duty-free at the airport. It was an alluring spot with snowcapped mountains shrouding us in the backdrop, and we even saw an arctic fox come near our campsite that evening!

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Hiking in the MOR rift at Thingvellir. Photo courtesy of Shelby Hurst.

At Gulfoss, ("Golden Falls") Raigen Blake taught us about the hydrology, petrology and glacial geology that can be viewed at this stunning location. Here we were able to get a stratigraphic view of the area's recent geologic history and witness an excellent example of rapid erosion. We saw some spectacular glacial polish and striations there. At Gulfoss, the average annual mean flow rate is about 37,000 gal/sec. and is undoubtedly the most impressive waterfall one may ever see. You never have to worry about carrying extra water in Iceland as you can drink the water straight from the river almost anywhere on the island!

At our next stop, Micheal Roberts introduced us to Geysir. This area is particularly rich in hot springs and geothermal activity. Changes in the activity of Geysir and the surrounding geysers are strongly related to earthquake

activity and the name "Geysir" itself is derived from the Icelandic verb geysa ("to gush"). The Icelandic language is very difficult and interestingly has changed very little in over 1,000 years from its old Norse origin. Luckily nearly everyone there speaks English. We even collected some water samples from the hot springs there for isotopic analysis.

Erin Huggett chose Flúðir for our next destination, a small village in Southern Iceland known for a variety of geologic features, greenhouse agriculture, and active geothermal systems. When looking around in Flúðir, one can't help but see the looming peak of Mt. Miðfell. The glacial lake and the spectacular view from the top were well worth the 159m vertical hike. The group noted some sedimentary rocks, including sandstone, siltstone, conglomerate and tillite, but mostly the area is comprised of basalts and lesser breccias. We also got to see some of the famous Icelandic ponies at the base of the mountain. One student collected an awesome specimen of a "bread-crust" type volcanic bomb and another recovered a small opal specimen on our saunter. After exploring most of the day, the group went to the "Secret" Lagoon for a soak in the geothermal pools there. It was just what the group needed at that point in the trip.

Elizabeth Gaines introduced us to Dyrholaey and the lovely town of Vik. Dyrholaey has a

lighthouse that is upon an arch that expands out over the sea. From the upper portion of Dyrholaey, we could see Myrdalsjokull glacier and the Reynisdrangar sea stacks. In the lower portion, one can see Arnardrangur ("Eagle Rock"). It was fantastically windy up there and worth it to see the Puffins nesting in the rocks at a distance below.

Shelby Hurst showed us around Reynisfjara, the famous black sand beach with well-defined columnar basalts. This was an awesome spot for us to collect samples and take photos. If you go there, you MUST be aware of "sneaker" waves that are a real risk on the beach. Several tourists have gotten too close to the surf and been swept out to sea in past years. One can easily see why the location was chosen as a location for the opening scene is a recent Star Wars movie. At Vik, we stayed at a beautiful campsite located near the town center. Vik is THE place to go for Icelandic Wool gear.

Jon Andrews was so excited to tell us all about (and to pronounce) Eyjafjallajökull. At 5,417 feet of elevation, Eyjafjallajökull consists of a volcanic caldera completely covered by an ice cap. Numerous outlet glaciers and spectacular waterfalls are visible along the roadside exposing the strata of the various lava flows in the area. The explosive volcano erupted as recently as 2010. We also stopped



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to see one of the famous “dwarf houses” built into the hillside there.

Brittany Little’s location was Jökulsárlón, the glacial lagoon and Svinafellsjokull Glacier in Skaftafell National Park. These locations provided us with the opportunity to get up close to the terminus of an active glacier and to see icebergs littered about in a crazy blue Icelandic lagoon.

At Dverghamrar there are two large peculiar columnar basalt rock formations, which SC member Genna Gotts taught us have a unique site of geological and cultural importance. Dverghamrar translates into “Dwarf rocks”. It should be noted that Iceland has a very rich history colored by fabled characters. Modern Icelandic culture still holds many superstitions and spiritual viewpoints conveyed by the many Sagas written during the Dark Ages, including the belief in mythical figures such as elves and trolls. If you look closely, you may even see some at Dverghamrar.

Michael Leonard taught us about the vast Eldhraun lava field. The eruption there lasted from 1783 to 1784 and was a cataclysmic event for much of Western Europe which led to disease and crop failure. It is believed the fallout of ash and the airborne haze blocking sunlight may have contributed to the French

Revolution. The landscape there and throughout much of Iceland is bizarre and you truly feel like you are on another planet at times. The vast undulating lava fields are covered by a thick carpet of moss in most places giving it a lush but disturbingly desolate appearance. If you visit Iceland, please do not walk on the moss! It can take decades to regrow and it is an important natural resource of Iceland.

Joey Birdsall enriched our experience by choosing Fjadrargljufur, a river canyon that is 100 meters at its highest point and spans over a mile long. The canyon was formed in the last 10,000-12,000 years and features the glacial meltwater-fed Fjadra river which carves its way through younger Pleo-Pleistocene aged rocks. More specifically, the river carved through the Sida group, which consists of a 700-meter-thick volcanic succession formed by 14 large-volume sub-aqueous eruptions from the Eldgja and the Laki eruptions.

Stephanie Buglione, led us on a hike through the former Skaftafell National Park, which was recently adopted into the Vatnajokull National Park. There we observed a retreating glacier and active outwash fan at Skaftafellsjokull (Skaftafell glacier). This was the best opportunity we had to get up close

and personal with an active glacier which was a humbling experience. The visitor’s center there has a very nice display that explains the various rock-types and talk about the retreat of the glaciers in Iceland.

Evie Murgia led us to Svartifoss and Foss a Sidu, waterfalls located on the southern coast of Iceland near the town of Hof. Although Iceland features approximately 10,000 waterfalls, Svartifoss and Foss a Sidu stand apart from the crowd. Svartifoss is known for its unique columnar basalts and dark coloration which creates visual contrast with its surrounding landscape. Svartifoss can be observed directly via a short hike from a convenient parking area within the national park. Not far away lies Foss a Sidu, an 82-meter-tall waterfall which sits in the backyard of an Icelandic farmer.

Towards the end of the trip, morale appeared to be getting low and it seemed to me that we would all benefit from a hot shower and warm bed, so I surprised the group by renting an Airbnb on the night before last. We were able to find one in the remote countryside that had enough beds for all of us and the students were very grateful to be inside for a spell. On the last night, we all had a hot meal together in the quaint fishing port town of Grindavik. This was a nice opportunity for us to reflect on

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the week's adventure and we all went around the table and individually expressed our gratitude. It felt to me like it gave us some closure on our trip and helped us rejuvenate before we headed back across the pond to Chicago.



AIPG WMU Student Chapter hoisting the colors at the Dverghamrar columnar basalts. Photo courtesy of Joyashish Thakurta.

Why did the group choose Iceland and what makes Iceland such an interesting place for a field trip? Iceland has it all! The island nation is overloaded with physical geology: including

active volcanoes, crustal deformation, regularly erupting geysers, thermal pools, active glaciers, braided streams and breathtaking waterfalls. The land of ice and fire, Iceland is the perfect place to witness Earth's natural processes in action. Formed from volcanic eruptions over some 24 million years, it is the only place on Earth where you can stand on the Mid-Ocean ridge on dry land. As opposed to Michigan, the vegetation cover does not impede exposures in Iceland making it what is probably the best example available to us that mimics the structure of the very first landmasses formed on Earth. It can be viewed as a window into the deepest past of geological history. Also, they have amazing hotdogs there and did I mention – there are no mosquitos!?! I would do it all again in a heartbeat.

Thomas Howe, WMU AIPG Student Chapter Faculty Liaison

News from the 2018 Annual Meeting

The 2018 AIPG Annual Meeting was held in Colorado Springs on September 8-11. Once again, the Michigan Section had a significant contingent of members at the meeting, including nine students from the CMU student chapter and five CPGs.

The primary meeting activities included the business meetings (National Executive Committee and Advisory Board Meetings),

field trips, and technical presentations. There was also the usual icebreaker and Foundation silent auction, awards reception, and student seminars. The networking opportunities are fabulous and valuable to both students and professionals alike. You have the opportunity to make lifelong friends.

This year our delegate to the National Advisory Board was Amy Hoeksema, our Section Vice President. This was Amy's first Annual Meeting. The following is a summary of the Section's activities she reported to the advisory board, information she came away with and also her overall impressions of the Annual Meeting.

The AIPG 55th Annual National Conference in Colorado Springs was my first experience at a National Conference, and it truly was enriching and eye-opening to say the least. As the Michigan Section Vice President, I was afforded the opportunity to participate in the AIPG 2018-2019 Joint Executive Committee & Business meetings to give a brief report about all the great accomplishments the Michigan Section has completed this year. These accomplishments include over \$8,500 in donations to foster student learning and growth, recognition that we now have five student chapters, and a request to reduce the cost of annual dues, especially for our senior members.

Delegates from each of the AIPG Sections were invited to present their reports. I was energized

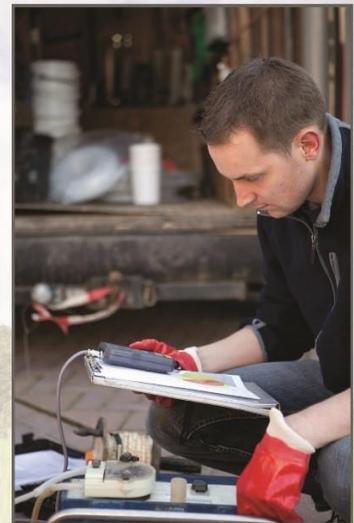


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by the accomplishments of the other Sections, but also surprised that many of the Sections struggle to get members engaged. This really made me proud to be part of the Michigan Section where we have some of the most engaged members across the U.S. As I listened to the State Delegates, I realized that they are giving so much of their personal time to help keep our profession viable, that I found myself compelled to do more, which is why I accepted the nomination as an Advisory Board member. A few of the Sections have implemented mentorship programs and the American Geoscience Institute representative indicated that we are seeing a downturn in government funding for the geosciences and schools are getting rid of the geoscience curriculum. This is very disconcerting to me and therefore, I will be looking at ways we can promote geoscience careers in our high schools and how we can build a mentorship program within our section. If any of you have ideas or would like to be involved in a subcommittee about these topics, let me know. I would love to have some help.

Although I didn't know many people when I reached the National Conference, everyone was very friendly and welcoming; I now have many new friends and colleagues. I even ran into a few colleagues that I had lost track of. Along with the wonderful networking and professional development, the field trips were amazing and the silent auction pieces were phenomenal. I am looking forward to the next Annual National Conference in Vermont – put it on your calendar, you won't be disappointed and I hope to see you there.

Here is what a few of the Section's CMU student attendees had to say about the meeting:

Going to the AIPG section meeting was definitely worth while! Not only was it incredible to explore the beautiful area of Colorado Springs, but talking to and learning from geology professionals was an incredible experience! - Carly Hoeft

It was really great to meet professionals who were so excited to work with students! - Jaclyn Oliver

I liked the intimacy of the event, it was easy to reconnect with members throughout the meeting. - Kailey Gray

Note that next year's Annual Meeting will be held in Burlington, Vermont September 14 to 17, 2019. Please consider attending the meeting, and meeting with AIPG members from around the country.

This year, I will be stepping down from the National Executive Committee as outgoing

Past President. I will miss serving our Section as a National officer, but still plan to attend future Annual Meetings and participate in the business meetings. Although I will no longer be on the National Executive Committee, the Michigan Section will have not one, but TWO individuals serving in 2019. Erica Stevenson, YP-0238 was elected to the committee as the recently created Young Professional position. And I nominated Amy Hoeksema to the National Advisory Board; she was one of the four candidates elected as advisory board members. I'm sure both will do a great job representing Michigan, and will keep us informed about what the National Executive Committee is doing. Please congratulate both Erica and Amy on being on the National Executive Committee when you see them!

Adam Heft, Michigan Section Newsletter Editor

MTU Student Chapter News



The field trips for the year started off with a trip to Cliff Mine near Eagle River in the Keweenaw collecting calcite, copper, and prehnite. On September 20, the chapter met for pizza and pop. The chapter sponsor gave a presentation on the Hard Rock and Heavy Metal summer field trip to Marquette, including show and tell rock specimens from Eagle Mine (nickel and copper ores), Lindberg Quarry (Kona Dolomite), Jasper Knob (Jaspillite), Stonington (Bill's Creek Shale) and Rockport (Hexagonaria Percarinata, aka Petoskey Stones).



AIPG MTU Student Chapter members at the Adventure Mine. Photo courtesy of Sienna Meekhof.

On September 22, the student chapter took a field trip to High Rock Bay in Keweenaw County to look for Lake Superior agates. High Rock Bay provides access to several miles of secluded, undeveloped Lake Superior shoreline with beautiful bedrock and gravel beaches. The rock outcrops at the shoreline

include the Lake Shore Trap Basalts member of the Copper Harbor Formation. The agates occur as amygdules in the basalt, and weather out by wave action where they can be found in the beach gravel. It was a beautiful early fall day, and some nice agates were found. On September 29, the club also went to the Adventure Mining Co. for a tour and pasties afterwards.

Member Input Sought

The Section Executive Committee is seeking input from members on a variety of topics. Do you have any suggestions regarding speakers/presentation topics that you would like to hear? What about field trips or other events? Some place you'd like to see us go, or something you think the membership would enjoy doing? Then make your voice heard; please send your suggestions to one of the members of the Executive Committee; any of the six members would be glad to hear from you. AIPG is your organization. Please help keep it relevant and interesting for all by participating.

Support Our Sponsors!

The Section Executive Committee would like to remind its members to support the companies advertising in the newsletter. Consider working with these companies, and when you speak with their representatives, let them know that you saw their ad in the Michigan Section newsletter.

Regulatory Roundup

In August, we witnessed record numbers at the polls in Michigan for the primaries! Election day is right around the corner. Hopefully, the trend continues. Not only does your vote matter, but even more importantly is your awareness and participation in the policy decisions after the polls close, the celebrations and time of reflection on the campaigns end, and the swearing in ceremonies conclude.

We are the professionals who know the science and should join the conversation as those with the expertise to help the policy makers who do not always have the expertise in our chosen field to make sound decisions that are beneficial to the health and well-being Michigan's citizens. Education and knowledge are power. We have the ability to educate people on issues that they may not even realize impacts them. We have the power to improve the credibility of our profession with the public. Don't let the empty negative words about science that are flung around today deter you. We are providing the following links to help you find the most current trending topics.



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This edition's spotlight focuses the new boards that will oversee certain DEQ functions.

The following is an excerpt from an article about the boards from the Gongwer News Service dated October 4, 2018.

Snyder Launches New DEQ Boards

[Governor Rick Snyder](#) announced Thursday the initial appointments to the two boards that will oversee some Department of Environmental Quality functions.

The initial appointees to the Environmental Rules Review Committee are, for terms expiring October 4, 2020: Janet Barlow of Clio to represent independents and a statewide organization that represents small businesses, James Clift of Lansing to represent Democrats and a statewide environmental organization, Eric Pessell of Delton to represent independents and public health professionals and Nicholas Ramos to represent Republicans and a statewide manufacturing organization.

For terms expiring October 4, 2021: Tyler Ernst of Lansing to represent Republicans and a statewide agricultural organization, Mark

Fowler of East Jordan to represent Republicans and local governments, John Myers of Northville to represent Democrats and the solid waste management industry and Grant Trigger of West Bloomfield to represent independents and the general public

The first full terms go to Helen Taylor of Okemos to represent independents and a statewide land conservancy organization, David Maness of Midland to represent Republicans and the oil and gas industry, Fadi Mourad of Farmington Hills to represent independents and public utilities that engage in the generation, transmission or distribution of electricity and Robert Nederhood of Grosse Pointe Park to represent independents and the general public.

The appointments by the governor are subject to Senate advice and consent.

For the Environmental Science Advisory Board, Kimberlee Kearfott of Ann Arbor, Dianne McCormick of Howell and Ashley Moerke of Sault Sainte Marie will serve terms expiring October 4, 2019; Lawrence Lemke of Mount Pleasant, Steven Pernecky of Ann Arbor and George Wolff of Farmington Hills will serve terms expiring October 4, 2020; and Lauren Brown of Ann Arbor, John Matonich of

Marenisco and Joan Rose of Williamston will serve terms expiring October 4, 2021. Ms. Rose will serve as chair at the pleasure of the governor.

There is also a new feature for searching for current bills that allows you to download an excel table with the bills listed on the Michigan Legislature's website.

Proposed Rules
Natural Resources and Environmental Protection Act, PA 451 of 1994, as amended, bill search
Safe Drinking Water Act, PA 399 of 1976, as amended, bill search
Gas Safety Standards, PA 165 of 1969, as amended, bill search

Article provided by Sara Verbrugge-Pearson, CPG – MDEQ RRD

Michigan Section Members Have Longevity

It's that time of year again; at our upcoming annual meeting, we will be recognizing our Michigan Section members for their longevity milestones. The following is a summary of

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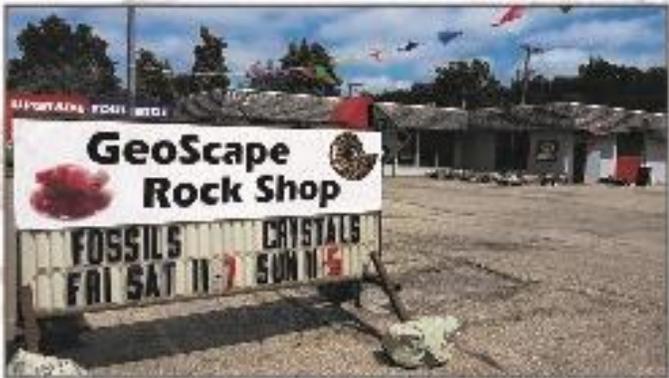


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those that will receive longevity awards at the meeting:

Five Years: Mitchell Adelman, MEM-2404; Clara Brennan, SA-4748; Duane Hattem, AS-0101; Stephen Hoekwater, MEM-2354; Matthew Irvine, CPG-11640; Hans Lechner, SA-4414; Derrick Lingle, YP-0149; Cameron Manche, SA-4660; Derek Marranca, MEM-2469; Amber Pontius, YP-0073; Alanna Punch, SA-4624; Jonathon Sanders, SA-4617; Aaron Snow, MEM-2895; Zachary Spotts, YP-0192; Neal Turluck, SA-4339; and Nicklaus Welty, CPG-11649.

10 Years: Lisa Noblet, CPG-11238; Kevin Ringwelski, CPG-11211; Jennifer Ritchie, CPG-11223; Robert Sadowski, CPG-11236; Thomas Stolz, CPG-11171; and Pamela Wheeler, MEM-1517.

15 Years: Michael Adams, CPG-11117; Arlene Anderson-Vincent, MEM-0248; Robin DeWyre, CPG-10747; Michael Friedhoff, CPG-11093; Randall Glass, CPG-10861; Michael Ingersoll, MEM-0547; Michael Kovach, CPG-10753; Nicholas Larabel, CPG-10754; Daphne McNeary, MEM-0464; Tammy Rabideau,

CPG-11021; Michelle Racz, CPG-10732; Tracy Repp, CPG-11119; Karyn Selle, MEM-0200; and Kristine Shimko, CPG-10771.

20 Years: Adam Heft, CPG-10265; Bridget Klueger, CPG-10369; Dawn Prell, CPG-11222; Frederick Simms, CPG-10292; Mark Peterson, CPG-10345; Michael Kasenow, CPG-10324; Paul Bartz, CPG-10368; Sara Pearson, CPG-10650; Scott Park, CPG-10371; Todd White, MEM-0095; Vincent Buening, CPG-10318; and Walter Bolt, CPG-10289.

25 Years: Gregg Brettmann, CPG-08938; Amy Hoeksema, CPG-08902; Robert Reichenbach, CPG-09090; Mark Siegman, CPG-09089; Mark Sweatman, CPG-08698; and John Wise, CPG-09018.

30 Years: Thomas Pavlik, CPG-07536; Mark Shellhorn, CPG-07527; and John Yellich, CPG-07538.

40 Years: Robert Hilty, CPG-04360.

Congratulations to all members receiving Longevity awards this year. The Michigan Section Executive Committee appreciates your longstanding involvement with AIPG!!

We hope you will all attend the Section's annual meeting on November 29 at Weber's Inn in Ann Arbor to receive your award.

CMU Student Chapter Attends Annual Meeting



We are the Central Michigan University student chapter for AIPG. This year nine of us attended the Colorado Springs National Conference. This was an

amazing opportunity for us to network with professionals in our field. Our favorite student event was the speed networking session! We enjoyed meeting professionals from so many areas of geology ranging from petroleum to toxicology. This event really helped us get a picture of what life after graduation will be like, there is a unique job out there for every interest. A recurring theme at this conference was that there are so many non-traditional geology jobs! The presentation on geology in forensics by Terrance Zich really resonated with many of our student members.

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Section Website Page - Student Information

Be sure to check out the newest page, "Student Information" located on the website at <http://mi.aipg.org/studentsinfo.html> features information about the Student Chapters of the Michigan Section. Currently, the annual reports for each of the chapters has been uploaded; additional information will be added in the future. Please check out the page to see what our student chapters have been up to recently!

Welcome New Members

The Michigan Section is continuing to grow. Please welcome the following new CPGs, Professional Members, Young Professional Members, Associate Members, and Students:

Brian Westhoff, CPG-11947; Charles Hackel, MEM-2998; Jonathan Haynes, MEM-3008; Leonard Mankowski, MEM-3031; Samantha Strahl, MEM-3046; Jessica Argue, SA-9501; Kayla Bicknell, SA-9376; Wyatt Bostick, SA-9377; Kelly Brown, SA-9276; Marissa Buehler, SA-9516; Catherine Butchart, SA-9378; Michael Chretien, SA-9379; John DeYoung, II, SA-9538; Adam Donahue, SA-9539; Alica Downard, SA-9562; Lincoln Grevengoed, SA-9540; Leevi Hansen, SA-9372; Kristina Harbin, SA-9380; Stephan Hlohowskyj, SA-9503;

David Kelly, SA-9515; Alexander Lamore, SA-9556; Sasha LaPonsa, SA-9381; Trey Meechan, SA-9547; Sienna Meekhof, SA-9328; John Phillips, SA-9491; Michael Roberts, SA-9536; Jonathan Schaap, SA-9542; Ben Gorp, SA-9414; Leah VanLandingham, SA-9345; Cathleen Yung, SA-9391; Aislinn Deely, YP-0344; Andrew Gordon, YP-0369; and David Greening, YP-0377.

To each of our new members, the Michigan Section Executive Committee would like to welcome you to our Section and encourage you to attend Section meetings and other events. You are also welcome to provide information for the Member's Corner articles.

Where in Michigan? Contest

The August 2018 edition of the newsletter featured a photograph of a reduction zone in the Jacobsville Sandstone along the shore of Presque Isle Park in Marquette. Dan Wiitala correctly identified the photograph.

This edition features a new photograph at the top of the first page. The first person to correctly identify what the photograph depicts (feature name, location, and formation) will win AIPG swag! Submit your



AIPG CMU Student Chapter members (and several of the Michigan Section members) at the Annual Meeting in Colorado Springs. Photo courtesy of Adam Heft.

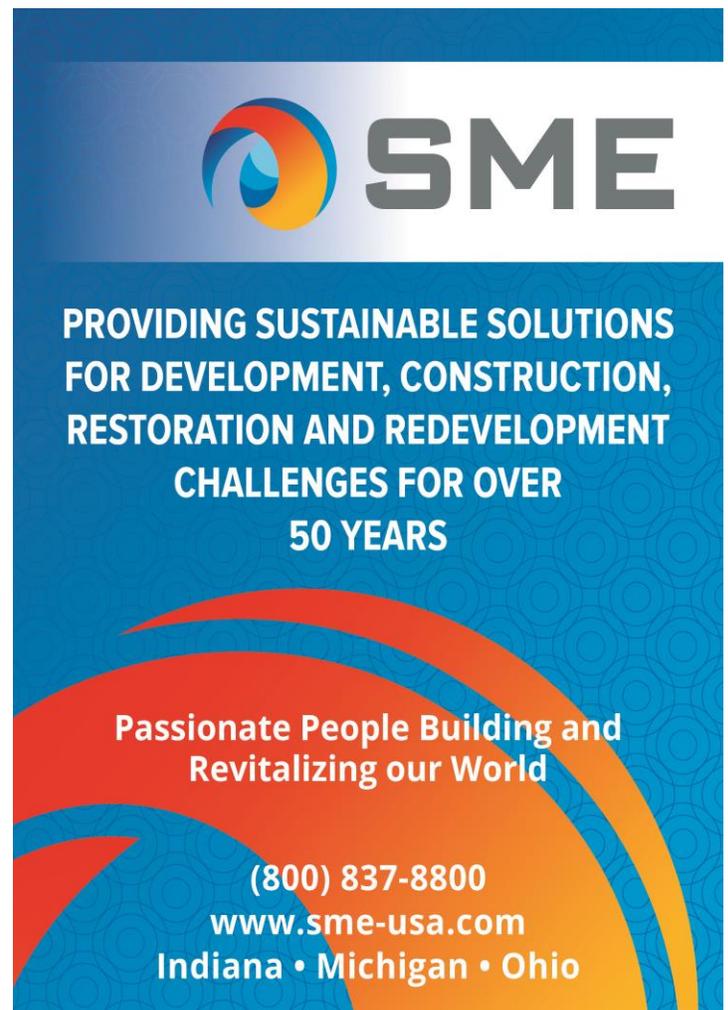
Making the trip to Colorado was a great investment in our careers as we made connections with professionals outside of Michigan. Of course, one of the best parts of Colorado was the beautiful geology around us. Our group took a trip to the Garden of the Gods for a fun day of hiking. We would like to thank all the professionals who gave us their time and insight to help us grow as geologists. We hope to bring a large group out to Vermont next year!



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entry to the Editor; only one per person per issue please.

Did You Know?

This article is intended to remind members of various aspects of AIPG and benefits of membership. If there is something you would like to see featured in this column, please contact the Editor...

According to the Section 2.3.1.1 of the AIPG Bylaws, requirements for "Continuing Professional Development are as follows: A voluntary program for recognizing Continuing Professional Development (CPD) activities by Certified Professional Geologists has been approved by the Executive Committee. All CPGs are encouraged to participate in the CPD Program. Details about this program can be found on the Institute's web site and descriptions of and discussions concerning the CPD have been and will continue to be published in The Professional Geologist.

Michigan Section to Host Upcoming Annual Meeting

As some of you may have heard (or seen in the Coming Events section of the newsletters), the Michigan Section is planning to host the 2021 Annual Meeting, which will be held in Marquette. Adam Heft will be serving as the meeting's Chairman. During the next few months, planning for the meeting will begin, and the meeting's committee will be formed. If you are interested in helping plan the meeting, please send an email expressing your interest to Adam Heft at adam.heft@wsp.com.

Section Website Reminders

The Michigan Section is building a database of geologic photographs on our website. Please submit photographs that you are willing to share to Adam Heft at adam.heft@wsp.com. Don't forget to include your name and a short explanation of what the photograph depicts. The

photographs will be uploaded to the website periodically.

If you have suggestions on other items that should be included on the History page, please let a member of the Section Executive Committee know.

Newsletter Notice via E-mail

Please be sure that you continue to receive the Section newsletters and other announcements. Submit an updated e-mail address to Adam Heft at adam.heft@wsp.com. If you move or change places of employment, don't forget to send your new contact information to both the Section and to National. If you are not receiving announcements directly from the Editor, it is because your email address is not up to date.

Interesting Geology Links

The Editor has received links to various interesting geology-related sites. Some of the more interesting links are included here. If you have any links to geology-related links that you

would like to share, please forward them (with a citation, if applicable) to the Editor.

Thanks to Mark Francek of Central Michigan University for sharing via the "Earth Science Site of the Week" emails.

World Faces Global Sand Shortage:
<https://www.npr.org/2017/07/21/538472671/world-faces-global-sand-shortage>.

From Ptolemy to GPS, the Brief History of Maps:
<https://www.smithsonianmag.com/innovation/brief-history-maps-180963685/#Q7uCiQDlzRl24zTh.99>.

Video on How Some Sinkholes Form:
<http://digg.com/video/how-do-sinkholes-form>.

1.7-Billion Year Old Chunk of North America Found Stuck to Australia:
<https://www.cbsnews.com/news/billion-year-old-chunk-of-north-america-found-stuck-to-australia-geologists/>.

Employment Opportunities

To serve our members, and provide added value, the Michigan Section posts ads for employment or other opportunities in the Section newsletters. Employment ads will run for one edition unless renewed. There is no cost to our members or sponsors for this service. Send your employment opportunities to the Editor.

Several recent employment opportunities have been submitted to the Michigan Section. These positions are all on the Michigan Section AIPG website at:
<http://mi.aipg.org/jobs.htm>.

Member's Corner

The Member's Corner includes information about the Section's membership. This is your chance to provide information on where you are and what you are doing. Simply send the information to the Editor for inclusion in this section.

No Members Corner articles were received for this edition of the newsletter.

2018 Michigan Section Executive Committee

Here are the current officers of the Michigan Section. Be sure to talk with them at the Section's events when you see them...

Coming Events

November 4-7, 2018: GSA Annual Meeting, Indiana Convention Center, 100 S. Capitol Avenue, Indianapolis, Indiana. Meeting details available on the GSA meeting website: [Meeting website](#).

November 15, 2018: Ohio Section AIPG Annual Meeting and Dinner Presentation – location and details to be announced. www.aipg-ohio.org.

November 29, 2018: Michigan Section AIPG Annual Meeting, Weber's Inn, Ann Arbor. Dr. William B. Harrison III of Western Michigan University will be speaking on "Revised Bedrock Map of Wayne County, Michigan: An Opportunity to Reassess the Natural Resources of Wayne County." See the Insert below...

Location: Weber's Inn, Ann Arbor.

Dinner: Choice of: Marinated flank steak, grilled, thinly sliced with au jus; Northern lakes whitefish with lemon crumbs and almonds; Vegan roasted portabella topped with roasted red pepper, garlic, spinach, sun dried tomatoes & fresh tomatoes with a balsamic reduction. With roasted fingerling potatoes, green bean almandine, house salad with dried cranberries and almonds, rolls, and dessert table.

Schedule: Cash Bar 5:30-6:30 PM, Dinner 6:30 PM, and Speaker 7:30-9:00 PM.

Cost: Students free, Members \$30.00, Non-members \$50.00.

March 15-17, 2019: Michigan Gem & Mineral Society, "Igneous is Bliss" exhibition. Jackson County Fairgrounds. Information is available at: www.mgmsrockclub.com.

May 3-5, 2019: 60th Anniversary Rock and Mineral Show "Rockrama". Kalamazoo County Expo Center. Information is available at: www.kalamazoorockclub.org.

June 10-11, 2019: SAVE THE DATE! AIPG Michigan Section's Environmental Risk Management Workshop at the Ralph A. MacMullen Conference Center in Roscommon, Michigan. Call for Abstracts coming in November 2018.

September 14-17, 2019: 56th Annual AIPG Meeting to be held in the Burlington, Vermont.

October 11-13, 2019: Michigan Mineralogical Society, "The Show" Greater Detroit Gem, Mineral, and Fossil Show. Information is available at: www.michmin.org.

Fall 2020: 57th Annual AIPG Meeting to be held in Sacramento, California; dates TBD.

Fall 2021: 58th Annual AIPG Meeting to be held in Marquette, Michigan; dates TBD.

2018 AIPG Michigan Section Executive Committee



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Left: Group on the first morning of the trip near Hveragerði campground (L-R) Brittany Little, Erin Huggett, Shelby Hurst, Evie Murguria, Genna Gotts, Raigen Blake, Michael Leonard, Dr. Joyashish Thakurta, J.P. Hager, Michael Roberts, Stephanie Buglione, Elizabeth Gaines, Jon Andrews (Front) Joey Birdsall. Photo courtesy of Tom Howe.

Above: Tom Howe and JP Hager pointing out each other's faults at the Dwarf Rocks, Iceland. Photo courtesy of Jon Andrews.

**Michigan Section
American Institute of Professional Geologists
ANNUAL MEETING ANNOUNCEMENT**

November 29, 2018

**REVISED BEDROCK MAP OF WAYNE COUNTY, MICHIGAN: AN OPPORTUNITY TO
REASSESS THE NATURAL RESOURCES OF WAYNE COUNTY**

Featured Speaker

[William B. Harrison III](#)

Location: Weber's Inn, Ann Arbor, MI (Map attached)

Cost: Students Free, Members \$30.00, Non-members \$50.00. Registration is payable electronically via Eventbrite (see link below) or at the door by cash or check; however, prepayment is preferred and speeds up the check-in process at the door. *Please note: Cancellations made within 48 hours of the meeting and/or "No Shows" will be charged and expected to pay the registration fee.*

Dinner: Choice of: Marinated flank steak, grilled, thinly sliced with au jus; Northern lakes whitefish with lemon crumbs and almonds; Vegan roasted portabella topped with roasted red pepper, garlic, spinach, sun dried tomatoes & fresh tomatoes with a balsamic reduction. With roasted fingerling potatoes, green bean almandine, house salad with dried cranberries and almonds, rolls, and dessert table.

Time: Cash Bar 5:30-6:30 PM, Dinner 6:30 PM, and Speaker 7:30-9:00 PM

RSVP: On the Eventbrite website no later than November 26th at: <https://www.eventbrite.com/e/aipg-michigan-section-annual-meeting-tickets-51934255757>. You can select your meal choice and pay online if you choose, or pay at the door by cash or check.

Abstract: The Michigan Geological Survey through the US Geological Survey StateMap Program has constructed a revised bedrock map of Wayne County, Michigan. Previous maps by Sherzer (1911) and Mozola (1969) were hampered by lack of well control in northern and western Wayne County.

Wayne County is densely urban through much of the eastern and southern portions of the county, with over 1.8 million people living in the area. Current revitalization programs and extensive renovation of many of the major highways has led to recognition among the city planners and administrators that natural resources are key components to infrastructure programs. Wayne County has historically produced sand (glass, injection molds, construction fill), clay (ceramics), rock salt (road de-icer), brine and sulfur (various chemical applications), and oil and gas. The Detroit Salt Mine produces 2-3 million tons of rock salt a year from underground mines below Detroit.

Infrastructure planning has promoted new geological investigations that have yielded a wealth of subsurface bedrock samples and data. Michigan Department of Transportation projects, as well as, a proposed combined sewer overflow system in northern Wayne County yielded more than 100 cores in the past decade. Several quarries in southeastern and southern Wayne County provided access to samples and estimates of the bedrock surface elevation beneath thin glaciolacustrine deposits. Combined with historical drilling, a revision of the Wayne county bedrock map has become feasible.

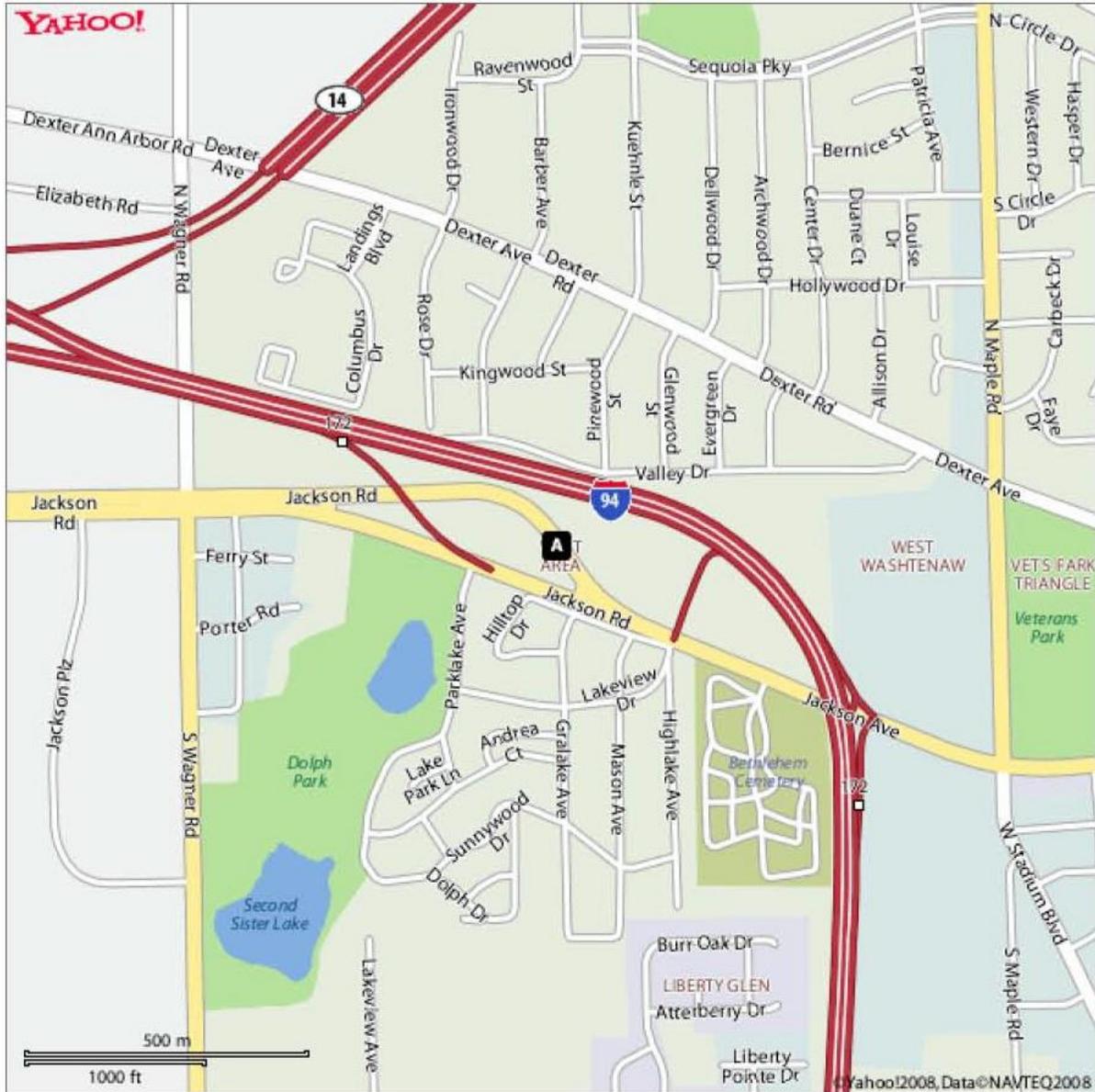
The revisions to previously published maps include refinements of the contacts between Devonian and Mississippian bedrock units in northern and central Wayne County. Access to both historical and modern cores has provided valuable materials for revising descriptions of the rock units in the area – some of which have not been described in decades. Mozola (1969) did not attempt to subdivide the Detroit River Group or Traverse Group into formations. The new cores show that individual formations in these two groups are mappable through the county.

Speaker Bio: Dr. William B. Harrison, III is Professor Emeritus and Director of the Michigan Geological Repository for Research and Education in the Department of Geological and Environmental Sciences and Michigan Geological Survey, Western Michigan University. He received his Bachelor's and Master's degrees from the University of South Florida and his Doctorate from the University of Cincinnati. He taught Geology courses at WMU for 30 years and founded the Core Repository in 1982. He has dozens of publications on Michigan geology and supervised over 50 students on Master's and Ph.D. projects while on the faculty at WMU. He is also co-editor and contributing author to the 2018 Geological Society of America Special Paper 531 entitled "Paleozoic Stratigraphy and Resources of the Michigan Basin", a compendium of 15 recent research papers on the geology of the Michigan Basin.

AIPG Michigan Section Meeting November 29, 2018

Weber's Inn, Ann Arbor

Map of 3050 Jackson Ave, Ann Arbor, MI 48103-1907



When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.