

December 2017



MONTANA GEOLOGICAL SOCIETY

NEWSLETTER

Vol. 62 No. 2



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now for 2018

Upcoming Event:

Dec 21 - Oilies Christmas Party

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President's Letter

Membership,

As we approach the busy holiday season, I would like to give my assessment of the state of the MGS and a preview of the upcoming year. First of all, I am very honored and excited to serve as the President of the MGS. With the past year of experience behind us, I feel the current team of officers and board members is great and primed to lead a successful year for the society.

Thank you to those of you who participated in our online survey. The feedback we received suggests that most of you think the MGS's mission should serve students and professionals in education, academia and industry. Many want to see community outreach, support for our educators, the encouragement of young students in science, as well as social and educational opportunities for our members. These are all things the MGS plan to pursue in the coming year through scholarships, sponsorships, volunteering opportunities, luncheons, banquets, and a field trip.

We hope you plan to be an active participant in our efforts to enrich our community and profession this year. I think a worthy and reasonable goal for which to strive with our efforts is to make the following quote by Carl Sagan less true: "We live in a society exquisitely dependent upon science and technology, in which hardly anyone knows anything about science and technology."

Thanks for reading,

Felipe Pimentel
MGS President

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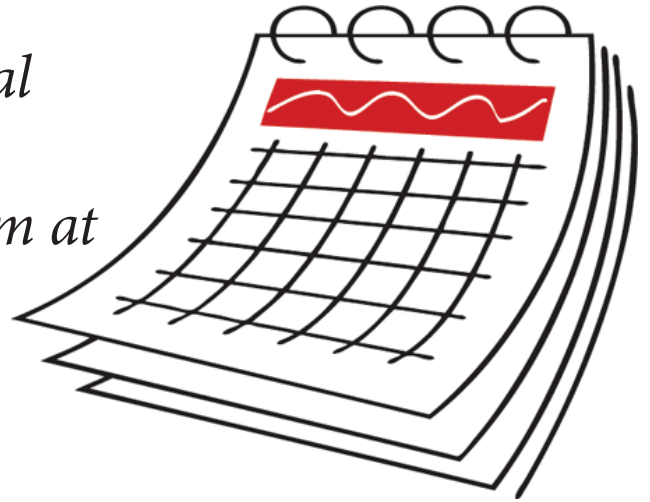
Meet your new MGS Secretary Spenser Kuhn

Spenser grew up in southern Oregon and received his B.S. in Geology from Florida State University. While attending FSU, he worked at the Antarctic Marine Geology Research Facility involved in deep sea sediment and ice core procurement. He joined NorAm Wellsite Services in Billings, MT as a Wellsite Geologist and moved into a management role as their Operations Geologist after two years in the field. After seven years with the company, he decided to pursue other opportunities involving wilderness conservation and both community and youth outreach. He volunteers as the head coach for West Billings Bandits lacrosse and enjoys rock hunting outings with his wife and dogs whenever they can.

It's that time of year again....


Time to Renew your MGS Membership!

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geologist if...

You have ever found
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explain to airport
security that
a rock hammer isn't
really a weapon.

Have something geological to sell, give, or find?

Place a free ad in our MGS Classifieds!

Contact the Newsletter Editor for more information.



*Happy Holidays
from the MGS!*

*We wish you a happy, healthy,
successful New Year.*



Montana Geological Society 2018-2019 Annual Research Scholarships

Purpose

The Montana Geological Society (MGS) is a non-profit organization created in 1949 "...to promote interest and research in geology and allied sciences and their practical application, and to encourage fellowship and cooperation among the members." This annual award supports these goals by providing financial assistance for up to two student dissertation, thesis, or senior projects involving Montana geology and by providing a venue for students to present their work to geology professionals in Montana.

Award

Up to two scholarships, one for **\$2,000**, and one for **\$1,000**, may be awarded each year to the most qualified applicants. The successful applicants agree to present their research results at a luncheon meeting of the MGS in Billings, MT, and will receive reimbursement for travel expenses to and from Billings in addition to the scholarship amount.

Basis of Award

All projects will be reviewed by a committee composed of Officers and Board Members of the MGS. The award will be made based on project merit, difficulty, and innovation appropriate for the applicant's educational level. Projects in the early to middle stages of research will receive preferential consideration over those at or near completion. The awards will only be made to fully qualified and deserving applicants, if any, as determined by the committee.

Eligibility

Scholarships are available to full-time students working toward a BA, BS, MS, or Ph. D degree in an accredited geology or earth science program at a Montana college or university. The research area must be based at least partially in the state of Montana.

Application Packet

Applicants must submit **1.)** a **brief** cover letter that summarizes the applicant's educational background, current student status (B.S., M.S., Ph. D), anticipated graduation date, and research interests. Include name, mailing address, email address, and phone number, **2.)** a **short** (300 words or less), **concise** summary of their approved or proposed project that includes study area, purpose, and applicability of research to Montana geology, along with an advisor's signature, **3.)** a work flow timeline, and **4.)** an estimated itemized annual budget which specifies how the funds from this award will be used. The budget must include the amount and source of all other project funding.

Deadlines

Applications can be emailed (preferred) or mailed. Emailed applications (as attached file(s) in any standard format) must be sent to montanageologicalsociety@gmail.com no later than 11:59 p.m., **January 31, 2018**. Mailed applications must be post marked no later than **February 1, 2018**, and should be addressed to: Montana Geological Society, PO Box 844, Billings, MT 59103. Awards will be announced and payment made in the form of a check to the successful applicant(s) by **April 1st**.

MSU Geology Club

South Fork Deep Creek Exploration

The Montana State University Geology Club, like most Montanans, have a difficult time staying away from the astonishing views and incredible geology of Paradise Valley. Before the winter season hit and snow blanketed the mountains of southwest Montana, the Geology Club took a field trip to investigate the diverse rocks along the South Fork of Deep Creek in the Absaroka mountain range. It is truly remarkable in Montana how fast one can get from their home to a locality with beautiful, exotic geology (regardless of where you live!). We left Bozeman on a cold, mid-October morning, and after a quick drive we arrived at our trailhead. Packing up our rock hammers, maps, and hand lenses, we set out for an epic adventure.

The trail initially led us several hundred vertical feet up a grassy slope at the mouth of the South Fork Deep Creek drainage. The only rocks we saw during this first half mile of hiking were large, refrigerator-sized chunks of gneiss that we concluded had been pushed out of the Absaroka by a large glacier (Figure 1). After a half-hour of hiking, we reached the actual creek and the entrance of the large glacier-carved valley that Deep Creek now runs through. This entry provided exceptional views. The region we were hiking was right in the middle of the carnage from a fire that burned over 12,000 acres in the late summer of 2012. Consequently, nearly all the trees in this drainage are branchless black spikes sticking out of the Earth. The lack of branches opens up the views nicely, and it enabled us to view the towering, 10,000 peaks to our east as we hiked further into the drainage.



Figure 1. Starting the day by investigating large chunks of Archean gneiss. Credit: LeaAnne Harbour



Figure 2. Segregation of mafic and felsic minerals creating 'gneissic banding' within Archean gneiss outcrop. Credit: Erica Duncan

References:

Locke, W.W., Clarke, W.D., Custer, S.G., Elliott, J.E., Lageson, D.R., Mogk, D.W., Montagne, J., Schmitt, J.G., and Smith, M., (1995). The middle Yellowstone Valley from Livingston to Gardiner, Montana: A microcosm of northern Rocky Mountain geology: Field guide to geologic excursions in Southwest Montana, Northwest Geology, v. 24, p. 1-65



Figure 3. Chlorite quartzite that has undergone greenschist facies metamorphism. Credit: Erica Duncan

The rocks in this region are incredibly diverse and have been jumbled into a disorganized pile due to the glaciations and extensive rock fall. As part of the North Snowy Block, most of the rocks we saw were metamorphosed Archean basement that included schists, metamorphosed granites, quartzites, marble, and a huge amount of migmatitic gneiss (Figure 2) (Locke et al., 1995). The rocks that our club found most interesting and beautiful were the quartzites, which ranged in color from light pink to a dazzling blue-green (Figure 3). We hiked and geologized for nearly four hours, and eventually reached a substantial amount of snow. After eating lunch and sharing stories, we headed back down the drainage. The walk back towards the car was equally as entertaining geologically, and we found many beautiful samples to add to our collections.

We departed the canyon and before we descended back to the trailhead, we were given one last incredible view into the heart of Paradise Valley. Small cumulus clouds drifted effortlessly over the Gallatin Range to the west, and the late-afternoon sun reflected off the meandering Yellowstone River. A slight breeze carried the crisp fall air through the valley and across the grassy slope as we hiked slowly back to the cars. The day had provided us with a needed intermission from the invigorating academic environment of MSU. It is days like this that can completely rejuvenate one's motivation to pursue a career in Earth Sciences.

Written by: Caden Howlett

If you'd like to share a geological experience (trip, hike, etc.) or an upcoming event in next month's newsletter, please submit your text & images to montanageologicalsociety@gmail.com.

For Independent Consultants

MGS Membership,

The Montana Geological Society is conducting an annual update of its website, including the Consultant Directory. This Directory is mean as a service to those members who operate as independent consultants; and the goal is to provide a means for the general public to locate geologic consultants with various types of technical expertise.

If you are a consultant and wish to be included in the list on the MGS website, please complete the attached form and return it to the MGS (via email or other) before December 31. All submissions will be subject to review and approval by the MGS Board of Directors prior to posting.

NAME: _____
COMPANY NAME (if applicable): _____
PHONE NUMBER: _____
EMAIL ADDRESS: _____

Are you an Active or Honorary member of the MGS ? ___ Y/N

Are you professionally certified or a certified geologist with the AIPG or similar professional societies? If so, list certifications:

Do you consider yourself to be an “independent consultant” ? ___ Y/N

Are you actively seeking consulting work ? ___ Y/N

Brief description of your area(s) of expertise:

Indicate your preference for being listed in one of the following categories:

- | | |
|--|---|
| <input type="checkbox"/> Petroleum/Oil & Gas | <input type="checkbox"/> Environmental/Hydrogeology |
| <input type="checkbox"/> Hardrock/Mining | <input type="checkbox"/> Geophysics |
| <input type="checkbox"/> General Geology | <input type="checkbox"/> Geotechnical Data Services |

You are cordially invited to the

2017 Oilies Christmas Party

*Let us eat, drink and be merry, and
share the spirit of the season with friends.*

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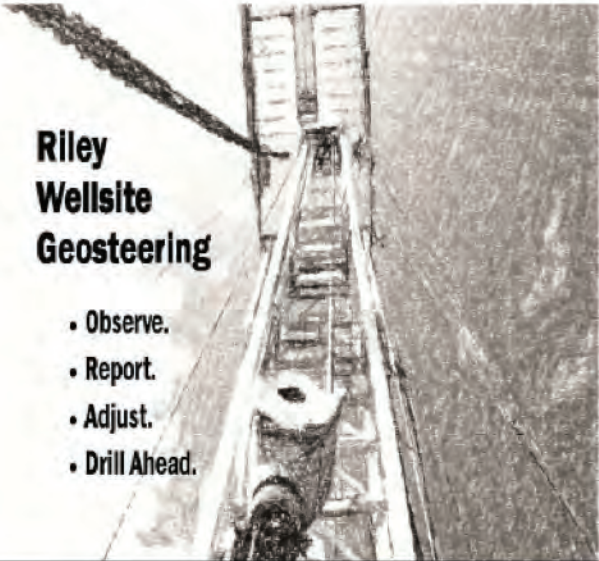
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City _____ State _____ Zip _____

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E-Mail _____

AAPG Member (please circle) YES NO

Education (School, Degree, Year)

Degree #1 _____

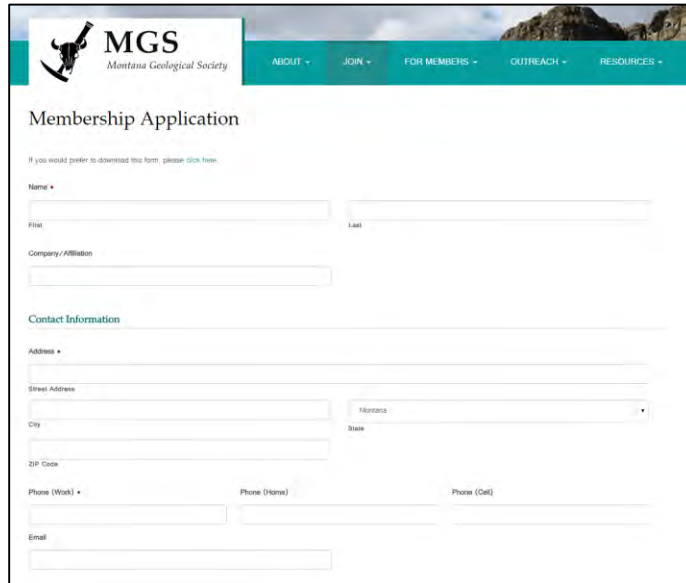
Degree #2 _____

Degree #3 _____

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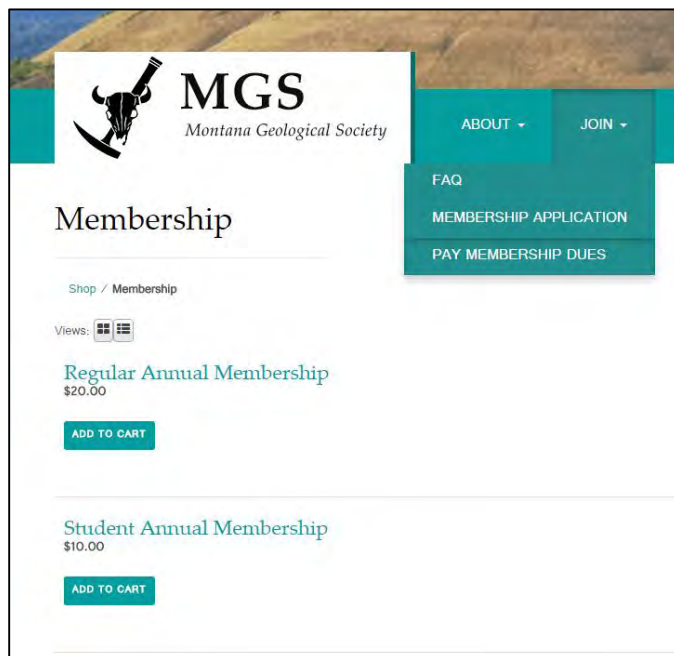


The screenshot shows the MGS Membership Application form. At the top left is the MGS logo (Montana Geological Society) with a bison head icon. A teal navigation bar contains links for ABOUT, JOIN, FOR MEMBERS, OUTREACH, and RESOURCES. The main heading is "Membership Application". Below it, a link says "If you would prefer to download this form, please click here." The form fields include: Name (First and Last), Company/Affiliation, Contact Information (Address, Street Address, City, State, ZIP Code), Phone (Work, Home, Cell), and Email.

The MGS has a PAYPAL account now! To pay your dues online click on the following link:

<http://mtgeo.org/shop/category/membership/>

*Membership dues: \$10 student, \$20 regular



The screenshot shows the MGS Membership page. At the top left is the MGS logo. A teal navigation bar contains links for ABOUT and JOIN. A dropdown menu is open under JOIN, showing options for FAQ, MEMBERSHIP APPLICATION, and PAY MEMBERSHIP DUES. The main heading is "Membership". Below it, a breadcrumb trail says "Shop / Membership". There are two membership options listed: "Regular Annual Membership" for \$20.00 and "Student Annual Membership" for \$10.00. Each option has an "ADD TO CART" button.

Click on the appropriate membership and proceed to checkout.

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