

March 2022



MONTANA GEOLOGICAL SOCIETY

NEWSLETTER

Vol 66 No. 3



Inside this Issue:



P2 / PRESIDENT'S LETTER

Our President discusses the upcoming activities for the MGS this month.



P4 / DR. STRAPOC

Our next in-person & digital luncheon is approaching quickly, so get your RSVP in today!



P5 / RMS-AAPG ABSTRACTS

The deadline to submit abstracts for the upcoming meeting in Denver is March 31.



P6 / ROADSIDE GEOLOGY OF MT

Author Robert Thomas shares his experience writing the updated Second Edition.

Upcoming Events:

Mar 24 - MGS Luncheon/Zoom Talk - Dr. Dariusz Strapoc (p. 4)

Apr 14 - MGS Luncheon/Zoom Talk - Dr. Hilary Martens
(more details coming soon!)

Contact Us:

mtgeo.org / montanageologicalsociety@gmail.com



Add our email address to your contacts so your Newsletters & Luncheon announcements don't end up in Spam!

PO Box 844
Billings, MT 59103

President's Letter

Greetings MGS members!

Old Man Winter is loosening his grip and soon it will be springtime in the Rockies. For those who have experienced this season in Montana, you know to expect the unexpected. One can experience calm sunny days, rain, sleet, and driving snow – sometimes all in the same day! March is the month our mountains typically receive the most snowfall, a welcome addition to late season skiers and all the flatlanders who rely on water for sustenance, livelihood and recreation. I hope all the riders, pinheads and two-plankers out there get one last great powder run!

For the MGS board, this is the time of year we review scholarship applications and begin to seek applications for Montana “Teacher of the Year” (see announcement in this newsletter). We are currently reviewing and plan to announce scholarship recipients this month, in time for the students to apply their award to the upcoming field season. If you are in Billings or vicinity, there’s still time to help at the Science Expo held on the MSUB campus and virtually. For more information visit the website at: <https://www.m-subillings.edu/scienceexpo/>

We held our first hybrid lunch & talk this past month to good reviews, so we’re planning to keep the model in place moving forward. If you’re in Billings and looking for in-person fellowship, please plan to join us for lunch at the Northern Hotel. For all those MGS members scattered across Montana and in other states, please join us remotely from the comfort of your home by requesting a Zoom invite. This month’s talk is coming all the way from France! On Thursday, March 24th, Dr. Dariusz Strapoc (Schlumberger) will present “Drill-bit Metamorphism: Impact Awareness, Monitoring Technology, Mitigation Attempts.” We hope you all can attend in some way.

We have talks in the books for the next few months and are excited to be planning some short field trips for the summer months. Stay tuned!

Jim Suydam
Geologist & MGS President

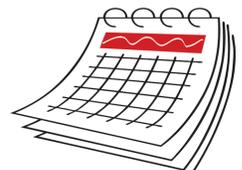
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Don't forget to...

Renew your MGS Membership!

*Use our convenient online renewal system at mtgeo.org,
or print & complete the renewal form at the back
of the Newsletter!*



Who's Who of the MGS

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an Irish gem that
isn't real?*

A sham-rock.

*Have something geological to sell,
give, or find?*

Place a free ad in our MGS Classifieds!

Contact the Newsletter Editor for more information.

MGS Luncheon

Thursday, March 24th

11:45am – 1:15pm (talk starts at 12:15pm)

Join us **in-person at the Northern in Billings** (Speaker will be remote on Zoom), or from the comfort of your home **via Zoom**

RSVP to montanageologicalsociety@gmail.com

If you want to join us at the Northern Hotel, RSVP by latest Friday March 18th.

If you prefer to join us on Zoom, RSVP by Wednesday March 23rd to receive the Zoom link



SPEAKER: DR. DARIUSZ STRAPOC

SCHLUMBERGER, PARIS, FRANCE

Drill-bit Metamorphism: Impact Awareness, Monitoring Technology, Mitigation Attempts

Drill-bit metamorphism (DBM), the thermal degradation of drilling fluid at the drill-bit and rock interface because of drill-bit overheating and inefficient drilling, causes generation of nonreservoir gases, such as alkenes (ethene, propene, etc.), as well as compounds equivalent to petroleum reservoir species, such as alkanes (methane, ethane, etc.) and aromatics (benzene). This process is mainly associated with oil-based mud (OBM), enhanced use of drill bits containing diamonds and turbodrilling, deeper wells, and harder rocks. Intense DBM biases mud gas data interpretation while drilling and in extreme cases, it can generate so-called “ghost reservoirs,” for example in tight hydrocarbon-poor zones. Presence of alkene species at significant concentrations and with good correlation between them implies cracking of OBM and consequently, generation of nonreservoir alkanes as well. Preservation of reservoir information in mud gas may require an adjustment in drilling practice once the DBM is flagged. Presented methodology adapts gas chromatography-mass spectrometry procedure to calculate ethene concentration, thanks to detection of mass/charge ratio of 26 and 30. Additionally, a new compact gas chromatograph flame ionization detector analyzer for ethene and propene with short cycle time has been developed for efficient DBM flagging. In case the drilling practice cannot be adjusted and drilling continues with varying extent of DBM, an in-house methodology subtracts the impact of DBM on the reservoir-derived mud gas. The multi-alkene sensor is a key enabler of this DBM correction. Furthermore, the ability to log clear changes in the carbon-isotope composition of DBM-impacted methane ($d_{13}C-C_1$), ethane ($d_{13}C-C_2$), etc. can be alternatively used to improve the DBM correction of mud gas to represent the indigenous reservoir fluid.

Biography

Dariusz Strapoc received his M.Sc. in geology from Wrocław University, Poland (2002), and his Ph.D. in geochemistry, with a microbiology minor from Indiana University, Bloomington (2007). He then worked as a petroleum systems and biogas geochemist at ConocoPhillips in Houston for 3 years and briefly thereafter as an independent consultant (Dariusz BioGeoChem LLC). Since 2012, he has taken care of interpretation development as a senior geochemist at Schlumberger and has served as an associate editor for the Organic Geochemistry journal since 2015.

CALL FOR ABSTRACTS NOW OPEN!

LIVE IN-PERSON

HYATT REGENCY DENVER
AT COLORADO CONVENTION CENTER



DEADLINE: MARCH 31

SCAN TO SUBMIT YOUR
ABSTRACT

REGISTRATION OPENING SOON!



www.aapgrms.org/annual-meeting/2022-denver

MBMG: *Preserving Montana's Geoscience Collections*

Each year important scientific information is lost, destroyed, or simply discarded by people who no longer want or need it, or are unaware of its educational and research value. The Montana Bureau of Mines and Geology's Data Preservation Group identifies and collects historic geologic information so that it can be organized, inventoried, preserved for future use, and made accessible to the public. For example, the Mining Archives repository includes thousands of mining-related maps and files for many Montana mining properties.

Our archived Collections continue to grow, thanks to the generous donation of information from private and commercial contributors. Several geologists from the petroleum industry have donated information, including interpreted maps, cross-sections, well data, prospect summaries, and other unpublished data.

One such donation from Lloyd Furer is featured on our website.
<http://www.mbm.mtech.edu/Information/Collections/Furer/index.html>

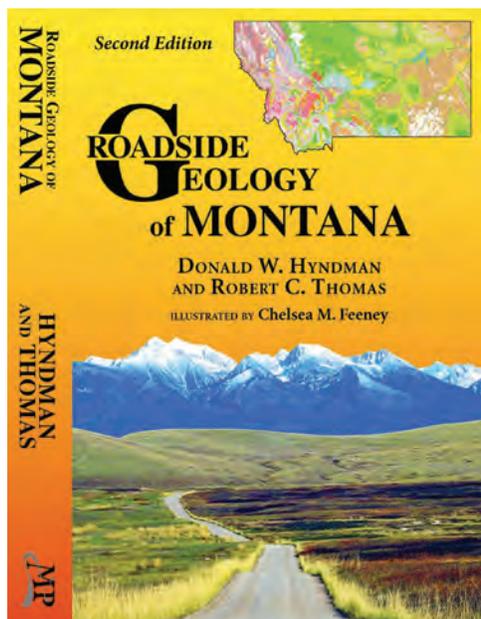
Preserving historic data and interpretations such as these will be beneficial to future oil, gas, and mineral exploration in the State. For information about donating to the MBMG Data Preservation-Mining Archives and Collections, please contact:
Denise Herman (dherman@mtech.edu; 406-496-4729), or
Jay Gunderson (jgunderson@mtech.edu; 406-272-1602).



Roadside Geology of Montana: Second Edition

With warmer weather quickly approaching, we know many of you are getting prepared to hit the road for spring & summer field trips. As you embark on your journeys, we encourage you to bring along a fantastic resource, the Second Edition of the Roadside Geology of Montana.

This second edition comes nearly 50 years after its predecessor, and brings a wealth of knowledge to its readers. We asked author Robert Thomas to share a glimpse of his experience writing this updated edition, and below are his words:



“Shortly after Dave Alt passed, I was approached by Don Hyndman to help him with the 2nd Edition of Roadside Geology of Montana. I was a former graduate student at the University of Montana (M.S. in geology, 1987) and took classes from Don Hyndman. He said he wanted to work with me because I had recently done the 2nd Edition of Roadside Geology of Yellowstone Country and he thought our writing styles were highly compatible. The first edition was in black and white, and much of the content was outdated, having been published in 1986. Initially, my job was to cover southwest and southcentral Montana, and Don was to cover the northern regions of the state. Ultimately, we shared a lot of the work across the state and the book was a completely collaborative effort from start to finish.”

The book is a completely new book. There is a single photograph from the 1st Edition, which provides the sole lifeline to the original book! We did the book in color, ran all the road guides, and took all new photos. We used the Montana Bureau of Mines and Geology maps as base maps and altered them for our purposes. New cross sections were drawn to go with those maps and all new illustrations were created and made beautiful by the talented Chelsea Feeney. Stratigraphic columns with the most up-to-date information were constructed for the entire state, the Mesoproterozoic Belt Supergroup rocks and the myriad of Mesozoic sedimentary formations in Montana. The book starts with an overview of the “First Four Billion Years” of Montana geology, and each regional chapter starts with an overview of the geologic history of that part of the state. In 2021, the book was awarded the prestigious High Plains Book Award, an honor never bestowed before on any of the many Roadside Geology books.”

Be sure to pick up your own copy of the Second Edition of Roadside Geology of Montana before you begin your road trips this season, and don't forget to check out the MGS's interactive Road Log map to find a wide variety of road logs covering the entire state of Montana and areas of Wyoming, Idaho, & Canada. You can access the map at: <http://mtgeo.org/resources/road-logs/>

Geologists in Action

The AIPG has started their very own YouTube Channel, and wants you to be involved!

Here's what the AIPG has to say about their first video series and how you can help spread the word about how being a geologist "rocks":

"Our first series of YouTube videos will focus on "Geologists in Action." Here's where you come in. We want you to make a short (1-5 minute) video of yourself being a geologist. Whether that's in the field, the lab, the office, or some other place, we want AIPG members to be the stars of the show. Be sure to introduce yourself (I'm John Doe, a Certified Professional Geologist with AIPG) and to give a short description of what it is you're doing. You could be removing leaky storage tanks, making a geologic map, analyzing samples in the lab, or talking with clients. We want to share videos of you doing what you do!

Why? Because we know that the general public isn't aware of what we geologists really do. We think this effort can help to change that. And you can be at the center of that action!

You can upload your short videos directly to us online. If your video is chosen for our channel, we'll let you know, and we will be sure to let you know when your video will premiere."

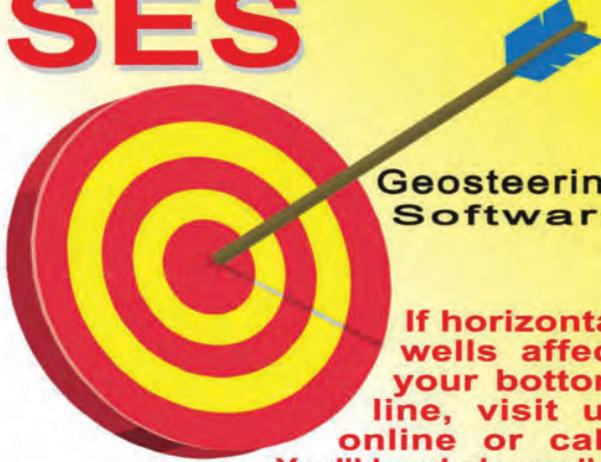
For all the details, including a link to upload your video, please visit the AIPG website here:
<https://aipg.org/news/594957/Geologists-in-Action-Videos-Request.htm>

Are you a consultant seeking work?

One of the many perks of MGS membership is inclusion in the MGS Consultant Directory.

If you'd like to be listed, or edit an existing listing, please contact montanageologicalsociety@gmail.com for an application form.

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Application form for Montana Geological Society K-12 Earth Science Teacher of the Year Award

*What better way to promote earth science in the state of Montana
than to recognize and reward those who do it every day?*

The MGS applauds the hard work of outstanding **K-12 Earth Science Teachers** in Montana. Each year Teacher of the Year (TOTY) applications are reviewed and the most deserving candidate is selected by the MGS Awards Committee to receive \$1000. The MGS winner is then eligible to apply for the regional Teacher of the Year Award (an additional \$2000) through the Rocky Mountain Section of the American Association of Petroleum Geologists (RMS-AAPG). The winner of the RMS-AAPG award becomes the RMS-AAPG nominee for the national American Association of Petroleum Geologists award, which is \$6000 (\$3000 for the teacher and \$3000 for their school). That's the potential for \$9000 in cash awards!

If you teach and promote Earth Science in your classroom or in the outdoors, the MGS encourage you to apply for the TOTY Award. The following completed application form and letter of support is all you need. The 2022 Application Deadline is May 31, 2022.

Qualifications for Nomination

- Teaching must be at a Montana accredited school, any level from K-12.
- Minimum 3 years teaching experience.
- Teaching at least one unit per year on natural resources, defined as:
 - 1) Organic materials such as petroleum, natural gas, and coal,
 - 2) Inorganic substances such as mineral ores, building stone and aggregates,
 - 3) Energy resources from the earth such as geothermal energy.
- Teaching should relate to the scientific study of natural resources, and may include their origin, extraction, historic use, and present use.
- Teaching should also include the use of earth science for decision making related to the preservation of the environment, reclamation, and conservation of resources.

Teacher Contact Information

Name of Teacher	
School	
School Address	
City, ST Zip Code	
Home Phone/Work Phone	
E-Mail Address	

MONTANA GEOLOGICAL SOCIETY

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Education (School, Degree, Year)

Degree #1 _____

Degree #2 _____

Degree #3 _____

MONTANA GEOLOGICAL SOCIETY

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2006 Montana Oil & Gas Fields CD		\$65.00	
2006 AAPG Datapages - MGS Publications DVD		\$180.00	
2006 AAPG Datapages - MGS Publications DVD (MGS Member price)		\$150.00	
2000 50th Anniversary Symposium		\$20.00	
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Shipping and Handling charges - \$5.00 per CD/DVD \$8.00 per book			
Total Due			

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