



**MONTANA GEOLOGICAL SOCIETY**

# NEWSLETTER

**January 2016**

## **MGS Luncheons:**

**Feb 3rd** : Dr. Julia Wellner presents *Antarctica's sedimentary archives of past glacial history: Tools for understanding climate change* page 6

**Feb 23rd** : E.P. Preston Kerr IV presents *Unlayering the Shannon Formation* page 7

Members can RSVP by email or by calling Doretta Brush at Ballard Petroleum 406-259-8790

All meetings are held at the Billings Petroleum Club at 11:45 a.m. unless otherwise noted

**MGS HOME PAGE:**

<http://mtgeo.org>

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## **Other Announcements:**

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**Don't forget MGS Membership Dues**

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Be nice to your neighbors.

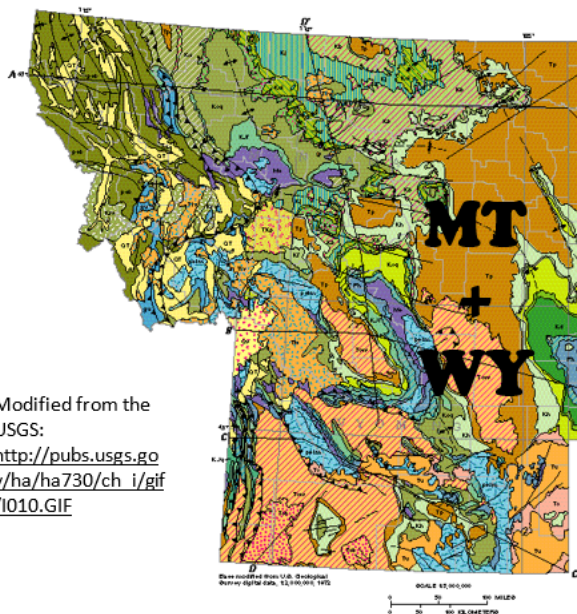
MGS Vol. 60 No. 1

I received an interesting phone call last month from the out-going president of the Wyoming Geological Association (WGA). His organization, like ours, faces declining membership and a need to find relevancy in a state that has far fewer geologists engaged in energy exploration than in years past. We are a strong organization, and we are doing great work in reaching out to schools and universities to educate folks about geology, but what could we be doing to recruit more effectively and grow our membership beyond our base in Billings?

The WGA president was wanting to make his organization more useful to his members by providing a geological library to all its members where they could perform research on regional geology. As such, he proposed trading a DVD of WGA's publications for one of MGS's DVD's of publications, both to be made available to those that want to do research. While I can see how this could help members with their research, it got me thinking about what else could be done to improve our relevancy. Most of our members are not going to travel to an office to look up old papers when so much is searchable online from home. **So I ask you, the members, what are your needs?**

Some thoughts I had in regards to bolstering membership include a repository of PowerPoint presentations on local geology and geological concepts that members could use when they speak at schools or civic groups. Recently, I've been volunteering at many local schools and recognize the time and effort it takes to put together a well-organized and interesting talk that keeps young minds engaged. By not having to recreate presentations from whole cloth for every topic would be a huge help and far less time consuming for volunteers and teachers.

On a similar note, what about an inventory of rock samples for members to borrow when they're visiting students or groups? I have a pretty good set of rocks that I've gathered and had given to me and I'm sure many other members have similar collections. I envision that we could have sample boxes of available documenting rock/mineral type and locale which any member presenting at schools could check out for a week.



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While I don't know that we'll be returning to the days of an annual guidebook, would there be interest in the MGS providing a venue for publication for local geological research? Other small societies do an annual digital publication that gathers student's thesis and research performed by members. Currently a lot of our local MS students don't publish their work, and a lot of our members are doing great research that could easily be lost in ten years since its not be recorded in the public sphere. The University of Montana faculty have offered to provide some peer-reviews, and our own membership is also capable of providing competent peer-reviewing. The papers would then be provided to the membership in a digital format, without any of the costs associated with physical printing.

Just some food for thought. In the words of Bob Dylan, *the times they are a changin'*, and as an organization, we need to change with them. Please share your ideas with the MGS presidency and we would love to include them in the following MGS newsletter.

All the best,

Riley Brinkerhoff

MGS President

## MGS 2016 Short Course

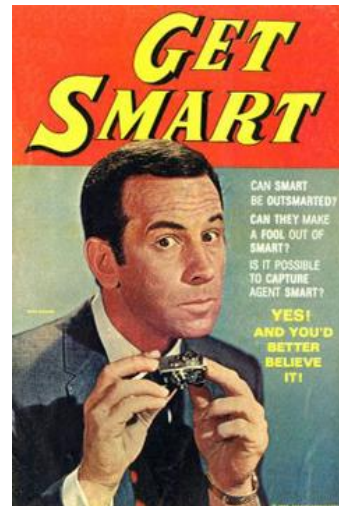
Looking to GET SMART in 2016?



<http://quickbase.intuit.com/blog/7-business-lessons-from-get-smart-and-agent-86>

The MGS is looking to run a short course in 2016 however we need your input! Please vote on a topic for this year's short course which will be held something this spring.

Check your inboxes for the survey monkey link to cast your vote. We would greatly appreciate your input by Monday, January 18 so we can begin preparations.



<http://www.sidhaig.info/gallery/getsmart.html>



## Science Expo March 18<sup>th</sup> -19<sup>th</sup> 2016



### What is the Science Expo?

- A regional science fair for southeastern Montana sanctioned by the Intel International Science and Engineering Fair (ISEF)
  - Held at the Montana State University-Billings (Alterowitz Gymnasium)
- Has Guest Scientist(s) Lectures and
- Interactive Science Exhibits
  - **A way for the MGS to promote and encourage kids to pursue careers in geology and science!**

**\*If you are interested in judging student projects on March 18<sup>th</sup>, volunteering at the MGS booth on March 19<sup>th</sup> 2016 or learning more about this event, please contact Sarah Edwards at [sedwards@sm-energy.com](mailto:sedwards@sm-energy.com) or (406) 869-8763.**





# Teacher of the Year Award for 2015

Catherine Frazer of Absarokee Jr/Sr High School was the 2015 recipient of the Montana Geological Society (MGS) K-12 Earth Science Teacher of the Year Award. Ms. Frazer has taught science for 22 years mostly grade 7-9 Life Science, Earth Science and Physical Science. She believes her students learn best with a variety of teaching methods from traditional lectures to hands on labs and fun activities. Each year Ms. Frazer goes beyond her required teaching duties to have her students compete in local and regional science fairs, Science Olympiad, and Science Bowl.

Absarokee Schools have received generous support from Stillwater Mining Company, and many of the students have family members who are employed there. Although only a few from each graduating class may end up working in mining, Ms. Frazer understands the importance of teaching Earth Sciences to all students. Many of her former students have gone into science related fields or to work in industry, but they all remember her field trips and fun activities. Ms. Frazer received the \$1000 MGS award in December and is eligible to apply for additional awards up to \$8000 through the American Association of Petroleum Geologists (AAPG).



Speaking of inspiring young minds...



## STEM Billings Energy and Engineering Day

STEM Billings is hosting an Energy and Engineering event the afternoon of February 20 at Riverside Middle School, open to all kindergarten through sixth grader students from the Billings area. The event will include hands-on subsurface activities (geology, exploration, etc.), surface activities (refining, processing, chemical treatment, etc.) and relevant applications (engineering design work, structural design, etc.). There will also be an oil and gas production facilities replica for students to explore. Registration is \$20 and opens January 15. If you have any questions, or would like to volunteer at the event, please contact Anna Phelps at (406)869-8794 or [aphelps@sm-energy.com](mailto:aphelps@sm-energy.com).

# MGS PAST PRESIDENT'S DINNER

In honor of Past President Mark Millard, will be held

**Friday February 26<sup>th</sup>, 2016**

Cocktails @ 6:00 pm; Dinner and Program at @ 6:45pm

At the Billings Petroleum Club

**Please RSVP by Feb 23<sup>rd</sup> to**

**[montanageologicalsociety@gmail.com](mailto:montanageologicalsociety@gmail.com)**

**(Meal preference options coming soon)**



**This dinner is OPEN TO ALL MGS MEMBERS and their spouses.**

*The dinner will be free for all members, but we ask that you make a small donation to the MGS Scholarship Fund.*

*Also, if you have any compromising photos of Mark, please forward them to [montanageologicalsociety@gmail.com](mailto:montanageologicalsociety@gmail.com).*

*The photos may just make an appearance in his "Roast" that evening*

**We sincerely hope you can join us in one of the most important MGS social functions of the year!**  
**Please feel free to share stories of Mark, or just come to socialize with other members and thank Mark for his colorful service and dedication.**

# MGS Luncheon Meeting

## Wednesday, February 3rd

**11:45 am – Billings Petroleum Club**

**Please join us for lunch (\$14) and the talk (no charge)**

RSVP – [montanageologicalsociety@gmail.com](mailto:montanageologicalsociety@gmail.com) , or 406-259-8790

An email reminder will be sent 3 days prior to the talk



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### **JULIA WELLNER**

AAPG Distinguished Lecturer

Sedimentologist and Stratigrapher

University of Houston

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### ***Abstract: Antarctica's sedimentary archives of past glacial history: Tools for understanding climate change***

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During times of past extensive glaciations, the Antarctic ice sheet extended from its current position, reaching across the continental shelf. As the ice sheet retreated to its modern extent, the shrinking ice sheet left behind seawater, rather than ancient ice, leaving behind a sedimentary signature of deglacial history. Marine geophysical survey data, including 3.5 kHz profiles and multibeam swath bathymetry, combined with sediment cores, are used to map the extent of past ice, estimate the speed at which it was flowing, and understand the style of retreat. Radiometric dating gives ages of retreat and allows comparison to other global archives. Past periods of glacial retreat, which tend to be diachronous, are compared to the modern day retreat, which is happening across large areas in a short period of time. Ongoing work is targeting records from times of past high CO<sub>2</sub> conditions, like those predicted in our future.

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### **Biography**

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Wellner is a sedimentologist and stratigrapher who works primarily in the Gulf of Mexico and offshore Antarctica on questions related to sediment facies, stratigraphic architecture, glacial history, and sea-level change. She earned her PhD from Rice University in 2001 where she also completed a post-doctoral fellowship. She has been at the University of Houston since 2006 where she teaches stratigraphy, sequence stratigraphy, marine geology, and oceanography. Wellner has completed over a dozen ocean-going cruises collecting seismic data and sediment cores, including eight in Antarctica.



# MGS Luncheon Meeting

**Tuesday, February 23<sup>rd</sup>**

**11:45 am – Billings Petroleum Club**

**Please join us for lunch (\$14) and the talk (no charge)**

RSVP – [montanageologicalsociety@gmail.com](mailto:montanageologicalsociety@gmail.com), or 406-259-8790

An email reminder will be sent 3 days prior to the talk

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## **E.P. PRESTON KERR IV**

Geologist II  
SM Energy Company

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### ***Unlayering the Shannon Formation***

***Powder River Basin, WY***



The Shannon formation is an emerging resource play in the Powder River Basin, and has been a targeted interval in the basin since the late 1800's. Historical development includes several prolific conventional fields, such as Teapot Dome and Hartzog Draw. In many cases, the term "resource play" is associated with formations that are inherently rich in TOC or are vertically proximal to a known source rock. The contemporary evolution of horizontal drilling and stimulation practices, however, has re-opened historic basins in areas that contain conventional-like carrier beds that were once deemed too tight to be developed with vertical wells. The Shannon formation in the Powder River Basin is not juxtaposed against an obvious source rock, nor is it inherently rich in TOC; but it does exhibit ubiquitous oil saturation and has proven to yield economic returns through unconventional development. Lithologically, the formation is comprised of thin to thick bedded shallow marine sandstones that are often heavily bioturbated, and encased above and below by marine mudstones and siltstones. Further, log correlations and historic Shannon production trends indicate that higher flow regime clastics were predominantly deposited in a series of NW-SE orientated sand bodies, which act as stratigraphic sweet spots. This talk will be structured to cover three methodologies that allow for a better description of the Shannon reservoir and associated petroleum system: 1) Described "core facies," and their implications to depositional environment. 2) The establishment of electric "log facies" and the tie to their respective "core facies." 3) Stratigraphic implications of associated "log facies" mapping.

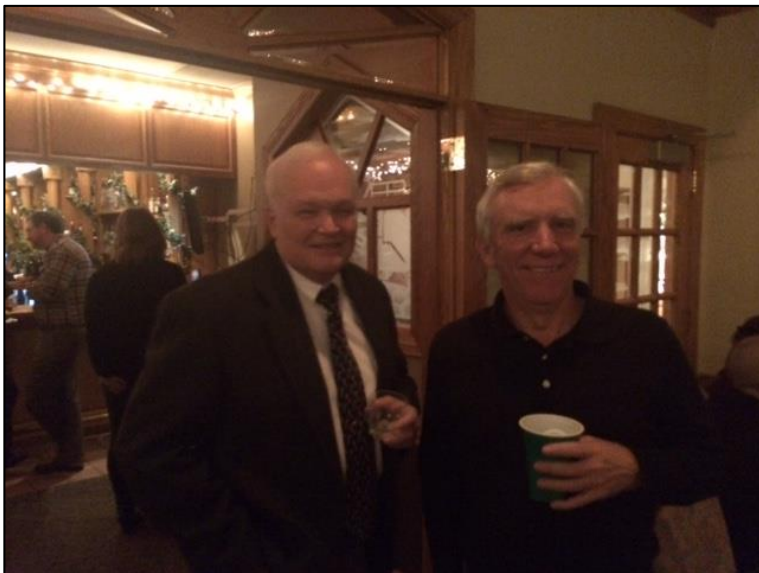
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## **Biography**

Preston Kerr is a geologist at SM Energy Company in Billings, Montana. He received a bachelor's degree in geology from the University of Colorado, and a master's degree in geology from the University of Oklahoma. He is currently pursuing his master's degree in business administration through the University of Montana.

Upon completion of his undergraduate degree, Preston worked as a Geologist and Operations Coordinator for Richardson Operating Company in Denver, Colorado for 1 year before returning to graduate school. After receiving his master's degree, he joined SM Energy's Southern Rockies Asset Team and has been working late Cretaceous siliciclastic reservoirs in the Powder River Basin of Wyoming for the past 2.5 years. Most recently, his focus has been on the reservoir modeling and development planning of the Shannon and Sussex formations.

**A big THANK YOU  
to all sponsors and  
those who were  
able to attend the  
Oilies 2015 party!!!**



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# Other Highlights

Thanks also to our musical entertainment for the night. Guests were able to rock the night away to the vocal and musical sounds of Plots and Rocks and Bob and Jess/Jess and Bob.



**Hope to see y'all back in  
2016!**

To become a member or update your contact information, apply online at:

**STEP 1** <http://mtgeo.org/join/membership-application/>

The screenshot shows the 'Membership Application' form on the MGS website. It includes fields for Name (First and Last), Email, Company/Status, Contact Information (Address, City, State, ZIP Code, Phone (Field), Phone (Home), Phone (Cell), and Email). There is a note at the top: 'If you would prefer to download this form, please click here.'

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**MGS Membership dues!**

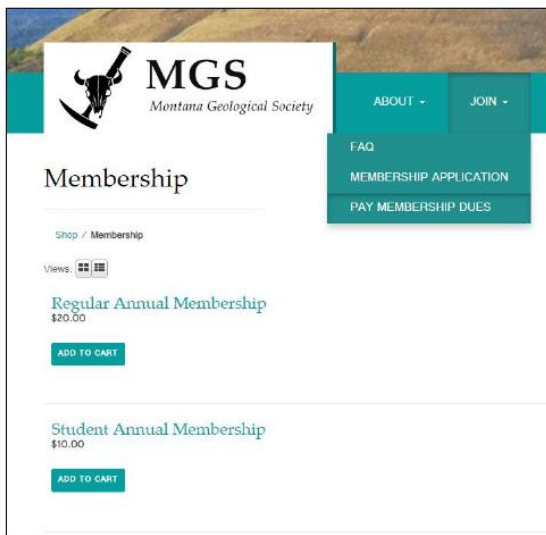


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The MGS has a PAYPAL account now! To pay your dues online click on the following link:

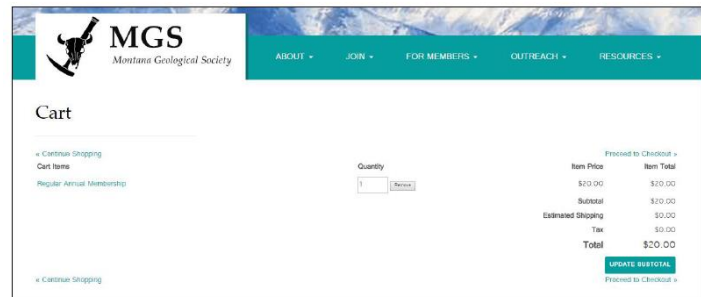
<http://mtgeo.org/shop/category/membership/>

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



Click on the appropriate membership and proceed to checkout.

**STEP 3**



If you already have a PayPal account, you can log in for quicker payment, otherwise, you can pay as a guest by filling out your billing and credit card information.

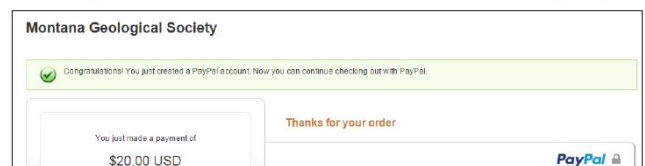
The screenshot shows the 'Checkout' page on the MGS website. It includes fields for 'Contact Information' (Name, Email, Password, Confirm Password), 'Billing Address' (Address, City, State, ZIP Code, Phone), and 'Shipping Address' (Address, City, State, ZIP Code, Phone). There are also fields for 'Card Information' (Card Number, Expiration Date, Cardholder Name) and a checkbox for 'I am a returning customer'.

**STEP 4**

If you have any questions or issues with the website, please contact Sarah Edwards 406-869-8763 or email the **MGS at** [montanageologicalsociety@gmail.com](mailto:montanageologicalsociety@gmail.com)

**STEP 5**

A receipt will be sent to our MGS email account however be sure to also save a copy for your records.



# MONTANA GEOLOGICAL SOCIETY

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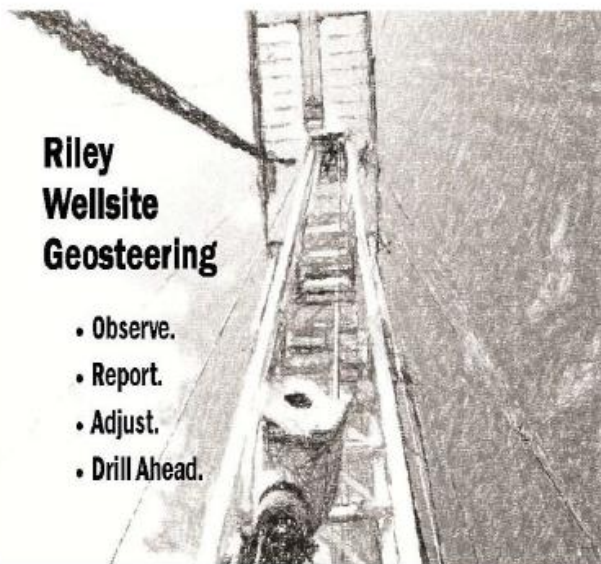
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2006 Montana Oil & Gas Fields CD		\$65.00	
2006 AAPG Datapages - MGS Publications DVD		\$180.00	
2006 AAPG Datapages - MGS Publications DVD (MGS Member price)		\$150.00	
2000 50th Anniversary Symposium		\$125.00	
1998 8th Int'l Williston Basin Symposium		\$55.00	
1998 8th Int'l Williston Basin Symposium Core Workshop		\$30.00	
1997 Big Horn Basin Symposium		\$50.00	
1997 MGS-TRGS: The Edge of the Crazies		\$25.00	
1997 AAPG - Rocky Mtn. Section Meeting / Abstract Volume		\$16.00	
1995 7th International Williston Basin Symposium - Core Workshop		\$30.00	
1995 7th International Williston Basin Symposium		\$100.00	
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# Outline newsletter/to do update events on website

- Presidents letter
  - Picture
- Upcoming luncheons
  - Julie
  - Preston
- MGS Oilies party recap and thank you
- STEM
- Past presidents dinner
- Science Expo-call for volunteers and judges
- MGS course – survey
- Teacher of the year award
- Don't forget to pay your membership dues
  - \$20 since the Late Cretaceous