

May 2018



MONTANA GEOLOGICAL SOCIETY NEWSLETTER

Vol. 62 No. 7



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P2 / PRESIDENT'S LETTER

Our President discusses the Uinta Mountains and Utah Geology after a visit to SLC for AAPG.



P7 / RMAG COURSE

Interested in data analytics software? Check out this course offered at a discount to MGS members!



P8 / MBMG

Mark your calendar for the 4th Annual Mining & Mineral Symposium to be held in Butte.



P11 / GOLF TOURNEY

The annual Wiggle Pickers tournament is right around the corner -- Get registered today!



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

Find us on 

PO Box 844
Billings, MT 59103

President's Letter

Membership,

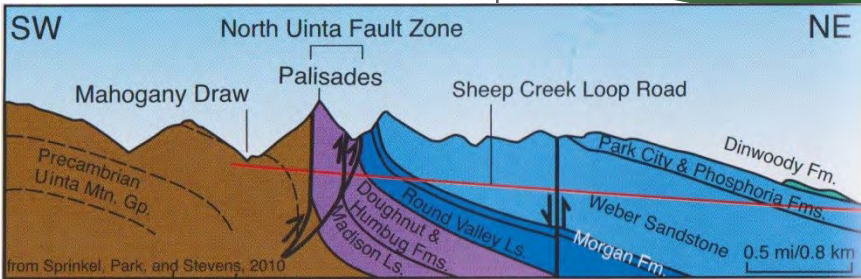
I had the opportunity to observe some impressive geology while in Utah recently for the annual AAPG conference in Salt Lake City. I ran into some of our members, past and present, so for my letter this month, I wanted to share some pictures of my trip and write some about Utah geology.

First stop on the drive to SLC was Flaming Gorge which crosses the border between south-west Wyoming and northeast Utah. It is fed by the Blacks Fork and Green Rivers and snakes through Horseshoe and Kingfisher Canyons before crossing the North Uinta Fault of the east-west trending Uinta Mountain Range and entering Red Canyon. Red Canyon and Flaming Gorge get their names from the dark red colors of the Triassic Moenkopi and Chile Formations which were laid down by tidal flats of rivers & streams.

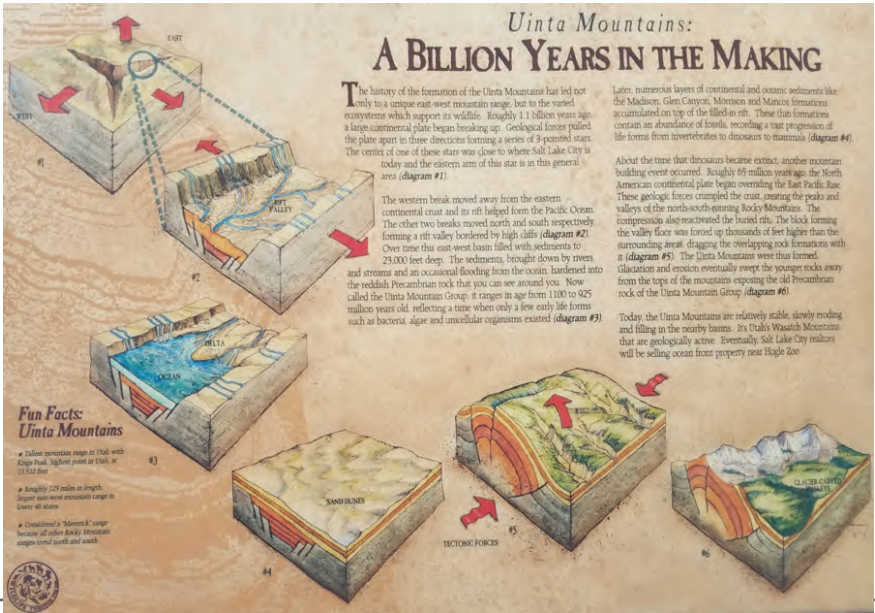


Flaming Gorge Reservoir

A short drive southwest from Flaming Gorge is the spectacular Sheep Creek Canyon Geological Area. Over 1 billion years of geologic history are preserved within the area including the Middle & Upper Proterozoic Uinta Mountain Group. These rocks were deposited during a period of rifting associated with the breakup of Rodinia.



Cross section of Sheep Creek Geological Area (Roadside Geology of Utah, 2nd Ed.)



2017-2018 MGS Officers

President	Felipe Pimentel	352-514-3607
Vice President/Speaker Coordinator	Sarah Friedman	406-896-5931
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Past President	Kevin Chandler	

After deposition of the Uinta Mountain Group, a prolonged period of 450 million years of deposition and erosion occurred. No rocks from this period are preserved. Later, sediments of Mississippian age spread across the unconformable erosion surface formed on the Uinta Mountain Group as oceans transgressed across the region. Marine conditions dominated the rest of the Paleozoic Era, except for the Late Pennsylvanian to Early Permian interval as the eolian Weber Sandstone was



Southwest entrance (Felipe Pimentel)



Descending into the canyon with the Uinta Group on the left and the Madison LS forming the Palisades cliffs ahead



Close up of the fault representing a gap of about 416 million years-cool



Close up the of the near vertical beds of the Madison forming the Palisades cliffs



Madison LS:
Left – Big Spring with flowing groundwater



continued on p. 5...

Who's Who of the MGS

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*One tectonic plate
bumped into
another and said...*

"Sorry, my fault"

*Have something geological to sell, give, or find?
Place a free ad in our MGS Classifieds!
Contact the Newsletter Editor for more information.*



Continuing into the canyon



Lower Weber—slightly darker than the upper Weber and weathers into blocky outcrops



upper Weber—lighter and weathers into more rounded outcrops, highly cross-bedded



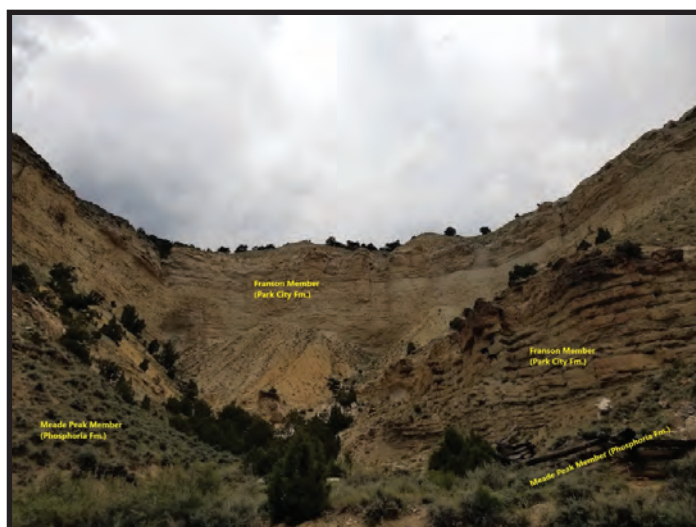
Tower Rock Hoodoo, upper Weber Fm.



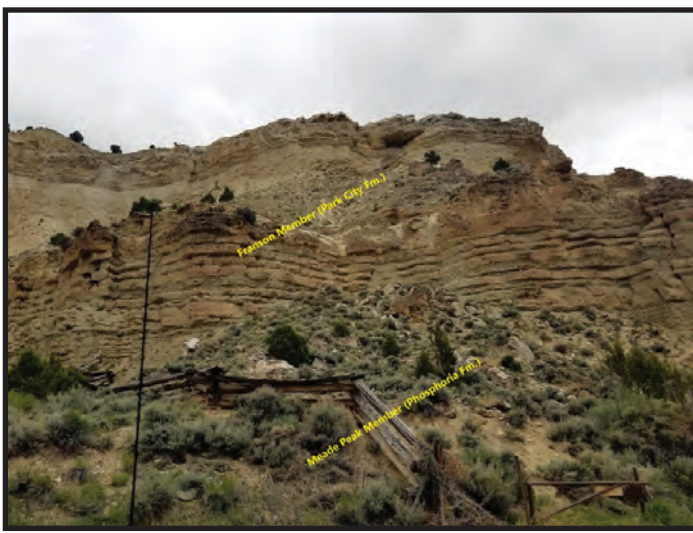
Contact between the blocky lower Weber and more rounded upper Weber



First of four “panoramic” shots from left to right at the exit of the area (1 of 4)



(2 of 4)



(3 of 4)



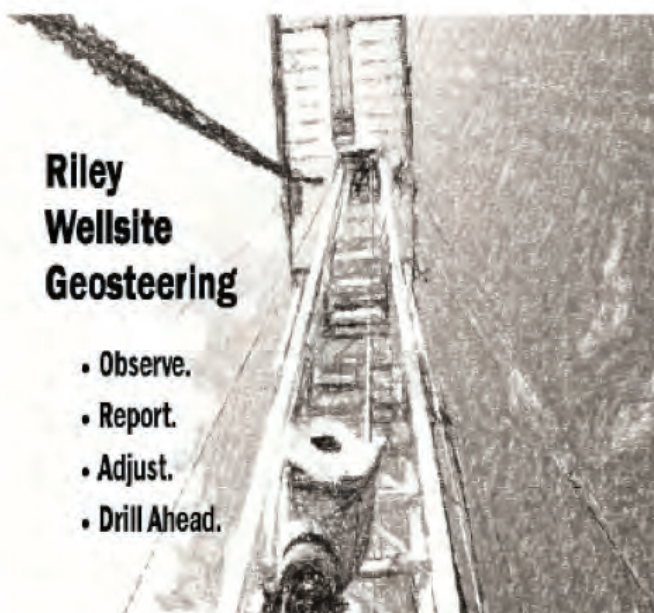
(4 of 4) Exiting the canyon

deposited. The youngest rocks in the geological area are from the Triassic Dinwoody Formation. Classic faults and folds of the Laramide orogeny uplifted the Uinta Mountains between 70 and 40 Ma resulting in some impressive sights seen at the Sheep Canyon loop.

If you ever get a chance to see the Sheep Creek Geological Area, don't pass it up.



Continuing on, the canyon opens into a valley with this view to the north. The Lower Triassic Dinwoody Formation is behind us to the south (not pictured)



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MGS, PO Box 844

Billings, MT 59103

June 7, 2018

8:30am - 5:00pm

Location: LMKR GeoGraphix, Denver

Register online at www.rmag.org.

Member Price: \$200

Non-Member Price: \$250

Student/Unemployed Price: \$175

**MGS Members receive special
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**To get the RMAG member rate,
call or email Kathy Mitchell-Garton
at 303-573-8621 x1 or
kmitchellgarton@rmag.org**

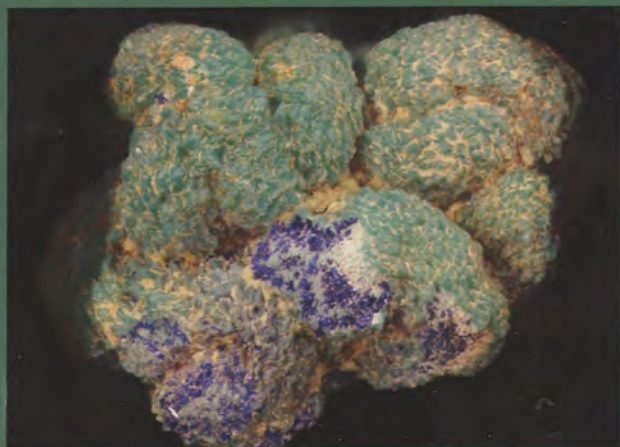
2018 RMAG Spotfire Course

Courtney Brown - Blue River Analytics

This course provides an introduction to one of the industry's gold standard data analytics software: TIBCO Spotfire. During the course we will cover loading industry data, as well as how to build visualizations and interact with the tool.

Courtney has been with Blue River Analytics for 2.5 years providing Spotfire training and consultative services. Prior to Blue River Analytics she worked at TriZetto, A Cognizant Company as a Customer Success Lead. There she was responsible for her client's implementations, problem management, training and process improvement. Courtney holds a degree in Psychology and Economics & Organizational Management from Agnes Scott College.

SAVE THE DATE!



4TH ANNUAL MINING AND MINERAL SYMPOSIUM

OCTOBER
10-13, 2018

BUTTE, MONTANA

FOR MORE INFORMATION, SEE OUR WEBSITE:
WWW.MBMG.MTECH.EDU



TALK MINERALS IN BUTTE, MONTANA: THE RICHEST HILL ON EARTH

The 4th Annual Montana Bureau of Mines and Geology Mining and Mineral Symposium will provide a forum where professionals, students, and amateurs interested in mineralogy and economic geology can share knowledge about mineral occurrences in the northern Rocky Mountain Region. The forum includes oral presentations, poster sessions, a student poster competition, and field trips.

The MBMG will formally publish the Symposium Proceedings. If you are interested in submitting an abstract or paper, please contact:

Stanley Korzeb
Economic Geologist
406-496-4171
skorzeb@mtech.edu

Kaleb Scarberry
Geologist
406-496-4743
kscarberry@mtech.edu



Front photo: Chrysocolla pseudomorphs after azurite with some unaltered azurite microcrystals, Leonard mine, Copper Cliff district, Missoula County, Montana. Above: malachite microcrystals from Copperopolis. Photos courtesy of Michael Goble, Aurora, CO.

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July 18-19, 2018 | 8:30am-4:00pm

LMKR GeoGraphix (707 17th Street, Denver, Co 80202)

Register online at www.rmag.org

Member Price: \$300

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Student/Unemployed Price: \$150

Geostatistics Course

**MICHAEL J. PYRCZ, Ph.D., P.Eng - University of
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Class will be accessible to geoscientists and data scientists with no previous experience with geostatistics. We will build up from data integration to spatial estimation and simulation along with uncertainty modeling to support decision making. After completion the students will understand: (1) the benefits and uses of geostatistics, (2) the common spatial and uncertainty modeling workflows, (3) how to better integrate their domain knowledge into the geostatistical model.

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**38th Annual
Wiggle Pickers Open Golf Tournament**
(Scholarship Fund Raiser)

Dear Golfer,

The **38th** Annual Billings Geophysical Society **"WIGGLE PICKERS OPEN"** golf tournament will be held on **Saturday, June 23rd, 2018**. This year, as before, Lake Hills Golf Club in Billings, Montana will host. Our first team on Saturday will be teeing off at **10:00 A.M.** so please plan accordingly.

The tournament tees off **Friday, June 22nd** with the pre-tournament cocktail party and dinner at the course. No host cocktails served at **6:15 PM and dinner at 7:30 PM**. A practice round for those interested has also been scheduled for **10:00 A.M. Friday, June 23rd** (see enclosure).

The complete Saturday golf package includes 18 holes of golf, cart, trophies, flag prizes on every hole, refreshments, barbecue (for golfers only), and a derby for the four low-net teams. Mulligans will be available for purchase the day of the tournament.

The society awards up to three \$1000 scholarships each year to students studying in the geoscience field. This is all made possible by your generous support of this golf tournament.

Teams will be drawn at the Friday dinner with each team having an, A, B, C, and D player. Format will be best 2 out of 4 net scores on each hole. Starting tee time this year will be **10:00 A.M.** Registration begins at **9:00 A.M** so we ask that you please make sure you check in no later than **9:30 A.M.** Our plan is to start the Derby right after the BBQ and awards, at about **5:00P.M.**

Handicaps will be calculated using previous BGS golf tournament scores (we will use scores from as far back as we can find.) Golfers without previous tournament scores please list your last 5 nine-hole scores or your last 3 eighteen-hole scores on the enclosed sign-up sheet and a handicap will be calculated for you.

COST

Friday Dinner (No Host Bar) & Saturday Golf & Barbecue:

Complete Package - (spouse/guest – Friday night dinner only) - **\$165**

Complete Package - Individual - **\$120**

Friday Dinner Only - **\$50**

Saturday Golf & Barbecue Only:

* Entry Fee - **\$65**

Spouse/Guest – BBQ Only - **\$15

*List each golfer separately on the enclosed entry form

**If your spouse/guest is not golfing and is joining you for the BBQ please note that on your entry form (see cost above)

PLEASE SUBMIT ENTRIES NO LATER THAN MONDAY JUNE 11th

If you have any questions please contact Tom Hewett at 406/281-8203 or thewett@ballardpetroleum.com

**Entry Form
on Next Page**





38th Annual Wiggle Pickers Open Golf Tournament

Entry Form

GOLFER

5 nine hole scores or
3 eighteen hole scores

Handicap

Sponsor
Y or N

Dinner
attending

Friday Dinner
& Saturday Golf

Saturday Golf
Only

Friday Dinner
Only

----- (check one) -----

	9 Hole _____ or 18 Hole _____						
	9 Hole _____ or 18 Hole _____						
	9 Hole _____ or 18 Hole _____						
	9 Hole _____ or 18 Hole _____						
	9 Hole _____ or 18 Hole _____						
	9 Hole _____ or 18 Hole _____						

Total Amount Enclosed: _____

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Is Renewable Energy “Good” and Fossil Energy “Bad”

There is a narrative in the US and Western Europe that suggests renewable energy is clean, green and good, and fossil energy is dirty, black and bad. But is any form of energy, at scale, really good or bad, and is that even a useful construct when considering energy? That depends, of course, on what is meant by good and bad. If good means limited emissions at the generation source, then renewables, and nuclear, are good. On the other hand, if good means more land for nature, then the mining, manufacturing, capture and equipment disposal of intermittent, low density renewables and associated backup batteries is not so good. Perhaps good means lifting humans from poverty and maintaining healthy economies to keep the workforce employed and allow for economic investment in the environment. In that case, good is any form of energy that is available, affordable, and reliable, such as coal and oil. But that is changing, slowly. The future energy mix will vary by geopolitical region and be driven by economics, resource availability, politics, technology, and sustainability.

Dr. Scott Tinker's passion—bringing academe, government, industry, and NGOs together to address major societal issues in energy, environment, and the economy—has led him to nearly 60 countries where he has presented 700 keynotes and invited lectures to government, industry, academia, and the public. Dr. Tinker is an AAPG Halbouty Leadership Medalist, GCAGS Boyd Medalist, a Fellow of the Geologic Society of America, and has been broadly awarded by AIPG, AGI, AAPG, and TIPRO for his successful efforts to engage the public in science.



MONTANA GEOLOGICAL SOCIETY

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2006 Montana Oil & Gas Fields CD		\$65.00	
2006 AAPG Datapages - MGS Publications DVD		\$180.00	
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