

August 2017



MONTANA GEOLOGICAL SOCIETY NEWSLETTER

Vol. 61 No. 11



Inside this Issue:



P2 / PRESIDENT'S LETTER

Our President details his recent array of encounters while hiking Granite Peak.



P6 / TOPAZ MTN

Montana Tech students give tips & hints on how to find extraordinary minerals while exploring Topaz Mtn.



P8 / MINERALS

Don't miss out on the next meeting of the Gem & Mineral Club, scheduled for Thursday, September 7.



P11 / WGA

Find all the details for the quickly approaching WGA's 2017 Annual Field Conference to be held in Casper, WY.

Contact Us:
mtgeo.org / montanageologicalsociety@gmail.com

Find us on 

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

Dear Membership,

Hope your August is going well and you have some time to enjoy the short Montana summer. We have had the chance to get out on several adventures, but the smoke from all the fires has hindered my ability to see the geology. We recently traveled out to Long Beach, WA, over White Pass and could hardly see all the interesting basalt flows. There was no chance to see Mount Saint Helens or Mount Rainier. The coast was nice, and we actually had two days of sunshine on the beach.

Returning home, we made our way into the Beartooth Mountains for an attempt to climb Granite Peak. I thought that there may be less smoke at the higher elevations, but there seemed to be no stratification. Even when we got to the Froze-to-



Death Plateau at sunrise, the snow was falling though the smoke at 11,500 ft. After the snow stopped, we made our way across the plateau to the knife ridge between Mount Tempest and Granite Peak.

cont. on page 3

2016-2017 MGS Officers

<i>President</i>	<i>Kevin Chandler</i>	<i>406-272-1605</i>
<i>Vice President</i>	<i>Felipe Pimentel</i>	<i>352-514-3607</i>
<i>Treasurer</i>	<i>Sarah Friedman</i>	<i>406-896-5931</i>
<i>Secretary</i>	<i>Tom Hewett</i>	<i>406-281-8203</i>
<i>Past President</i>	<i>Riley Brinkerhoff</i>	

Sunrise snow squall on Mount Peal 8/11/17



New snow on Granite Peak, 8/11/17



Even with the smoke, it was easy to see the new snow on Granite Peak where it had collected in cracks on the north face. The snow had failed to clean the air making it hard to see Mount Wood, but I was happy to reach the summit and get back in one piece. The climbing conditions were highly dependent on the rock type and weathering. The snow bridge at the approach to the peak lies in a weathered out dike that creates a notch in the knife ridge. My daughter and I met four other climbers, all first timers on the peak. The eldest, Ron,

was climbing his 49th high point in the USA, and now only has Hawaii left on his list. Friendships develop quickly when you entrust your safety to total strangers, and can celebrate their success. After a long day of climbing Granite Peak, a day fishing and exploring the lowlands around our base-camp was welcome. The wide variety of rocks, the structures, and the glacial polished surfaces kept me occupied when not pulling in cutthroat trout.

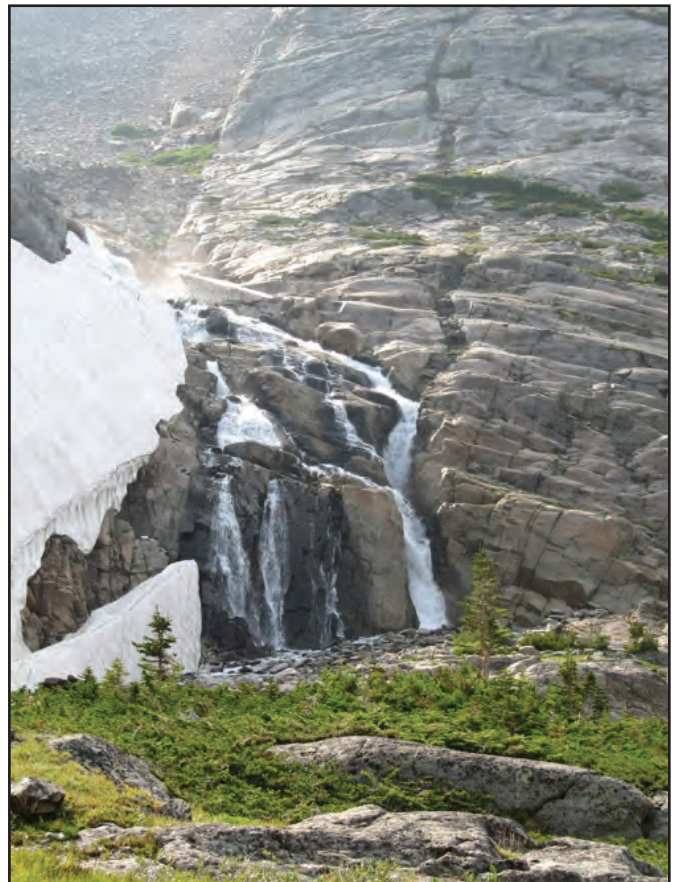
We even had time for a couple quick dips in the pool at the bottom of Phantom Creek Falls. I have always been fascinated by the way the falls hang a right turn from the glacial striated granite when they hit the basaltic dike.

With each trip I find something new and I hope you will, too.

Kevin Chandler
MGS President



Back safe across the snow bridge!



A whale of a rock! (foot for scale)

Who's Who of the MGS

BOARD OF DIRECTORS

Mike Bryant
Steven W. VanDelinder
Betsy Campen
Robert Schalla

AAPG-ROCKY MOUNTAIN SECTION

Delgate: Mark Millard
Alternate: Don French
Foundation: Rob Diedrich 303-830-5875
Chair for 2017 AAPG Section Meeting:
Robert Schalla

COMMITTEES

Awards and Continuing Education:
Anna Phelps

Field Trips:
Gary Hughes 861-2072

Social:
Betsy Campen 652-1760

University Liaison:
Steven W. VanDelinder

Publications:
Duncan McBane 252-3170
Montana Oil & Gas Fields Update:
Jim Halvorson 656-0040

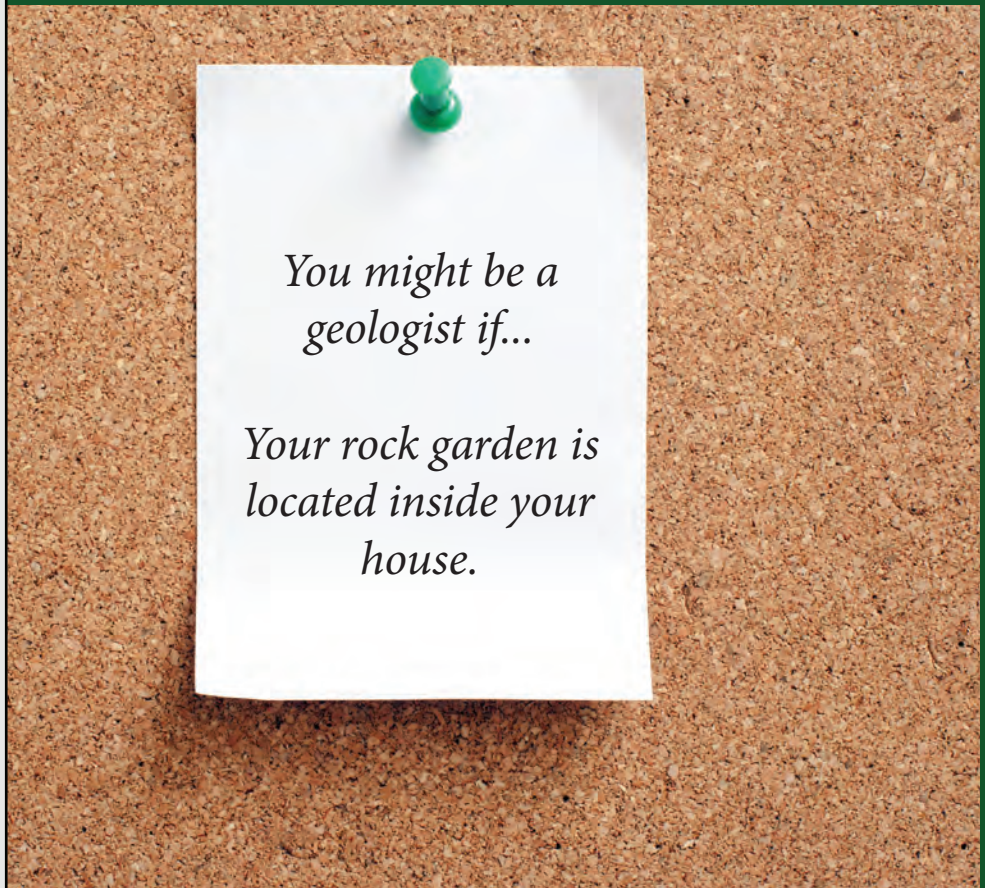
PUBLICATION SALES

Doretta Brush 259-8790

NEWSLETTER EDITOR

Jessica Renstrom 294-7841

MGS Classifieds



Looking for a home: Whole set of hand created photo geology of the northern Rockies done by Reagan Tucker. Collection is about the size of two banker boxes. Contact Betsy Campen or MGS at montanageologicalsociety@gmail.com if interested.

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

Inflow intelligence to improve well productivity at a fraction of PLT costs.



Johnson Matthey

**Know more, spend less with
Inflow, the smarter way to
gather data from your reservoir.**

A Tracer Production Log™ gives long-term data to help you optimize field development:

- Maximize full field potential at a dramatically lower cost than a PLT
 - Determine clean out efficiency
 - Years of oil inflow data along wellbore by surface sampling
 - Identify position and quantify water inflow over several years
 - Packer / plug / sleeve integrity measurement
- Know where you are and where you want to be.**

www.tracerco.com/reservoir-characterisation

Tracerco
Providing Insight Onsite

ENVIRONMENTAL CONSULTING SERVICES

Hydrology | Geology | Engineering | GIS

- NEPA: CAT EX/EA/EIS
- GIS
- Expert Testimony
- Engineering Design
- Environmental Permitting
- Environmental Compliance
- Water Management
- Environmental Due Diligence
- Remediation

Independent Expertise in
Water Resources and the Environment

BILLINGS: 1500 Poly Drive Suite 103 | Billings, MT 59102 | 406.655.9555
HELENA: 303 Clarke Street | Helena, MT 59601 | 406.443.6169

www.hydrosi.com  **HydroSolutions®**

Interested in placing an ad?

Contact Jessica Renstrom at
jess.renstrom@gmail.com with your ad or pricing to
create one for your business or event.

2017 Advertising Rates:

Full Page - \$100/month

Half Page - \$50/month

Quarter Page - \$25/month

Business Card- \$10/month

All ads must be prepaid.

Send payment to:

MGS, PO Box 844

Billings, MT 59103

Exploring Topaz Mountain

The Thomas Mountain Range, located in Juab County, Utah is a rock-hounders dream.

Here, minerals such as topaz, garnet, red beryl, bixbyite, and pseudobrookite are nestled in the area's rhyolites. Geodes are also widely associated with this mountain range, as the Dugway Geode Beds are located just to the north. Within the southern part of the Thomas Range (around 14 miles across) are Garnet Basin to the west, and the geological attraction that the area is most known for, Topaz Mountain.

The main digging site for topaz on Topaz Mountain is an area known as "the Cove" or the "the Amphitheatre." Roads to get to this spot are rocky and rough (as are all of the surrounding dirt roads), so a vehicle with high clearance would be the best option. The internet has an abundance of maps to help navigate to the general area, and large, brown signs are posted at the beginning of the roads as well.



There are a few different ways to enjoy a topaz-hounding trip here. One, it is quite easy to sift through the unconsolidated sediments in the ravine towards the base of the mountain, or two; use chisels, large mallets, rock hammers, and sledgehammers to break into the rhyolites. The rocks out there are tough! Be on the lookout for any weaknesses within the rock. Particularly, keep an eye

out for small, soft, sandy spots where plants have rooted themselves. This work can be very hard on your hands, so make sure to pack gloves and tweezers, as well as a first aid kit and plenty of water, to ensure the safest trip possible as the nearest town is around 45 miles away.



cont. on page 7

Depending on the amount of hiking that is desired, there is easily accessible loose topaz the base of the mountain, or topaz and red beryl located in the rhyolites in the higher elevations. Topaz Mountain is a wonderful place where topaz can be found anywhere and everywhere! Don't be afraid to explore a little and walk off the beaten path.

Oftentimes when exploring Topaz Mountain, little white crystals of topaz in the dirt will catch your eye! You'll pick one up, and spot another crystal or two just a couple feet uphill. This is a good sign. Chase the trail of crystals uphill until they stop, and then look for the source! As topaz-bearing cavities are exposed and weathered, the topaz crystals are carried downhill in the dirt. At the same time, prolonged exposure to the sun will render the topaz colorless or white, while the topaz within the vugs of the rock are more of a beautiful rose gold, champagne color.



Though the Dugway Geode Beds fall under the Bureau of Land Management (BLM), there are parts of Topaz Mountain that are under private ownership and are clearly marked as such, but there is still a vast amount of land for public enjoyment! Topaz Mountain is a wonderful place for any beginner to the rock-hounding world, as well as for the professionals, and can be a fun and memorable trip for any age group.

Submission written by:
Eva Hover and Jon Szarkowski,
Montana Tech students



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.



Upcoming Meeting on September 7!

Visit billingsgemclub.com or Facebook for more information.

SES

Geosteering Software

If horizontal wells affect your bottom line, visit us online or call. You'll be glad you did!

SES is for geologists who are dissatisfied with drafting-tool methods of geosteering horizontal wellbores. SES is 3D technical geosteering software that makes wellbore stratigraphic tracking quick-n-easy, accurate, and easily shared. Unlike any other geosteering software, SES provides a complete suite of software features to handle your horizontal drilling needs.

Ph. 720-279-0182

SES Geosteering Software

www.makinhole.com

Hydrometrics, Inc.
consulting scientists and engineers

Founded in 1979, Hydrometrics provides an expansive range of science and engineering services for the oil and gas and mining industries, ranging from the Arctic Circle to South America.

- ♦ Oil & Gas Industry Support
- ♦ Refinery & Marketing Terminal Environmental Support
- ♦ Civil, Geotechnical, Chemical, Geological, and Environmental Engineers
- ♦ Hydrogeology, Geochemistry, and Reclamation Specialists
- ♦ Permitting and Compliance
- ♦ EA and EIS Support
- ♦ Remedial Investigations and Construction
- ♦ SPCC and SWPP Preparation
- ♦ Dam Design and Investigation
- ♦ Water Rights
- ♦ Solid and Hazardous Waste Management
- ♦ Power Probe and Auger Drilling

Helena (406) 443-4150 • Billings (406) 656-1172
Missoula • Kalispell • Coeur d'Alene
www.hydrometrics.com

ROAD TRIP!

*Where have you been this summer?
If your summer vacation includes Montana geology, we'd love to see it!*

To submit your photos for inclusion in the MGS Newsletter & MGS Facebook page, please submit your high-resolution photograph(s), caption(s) and full name to montanageologicalsociety@gmail.com

Find us on 

"Like" the Montana Geological Society to keep up-to-date with the MGS.



KC Oren
General Manager

Denver Office:
1020 15th Street
Denver, CO 80202
303.249.9965

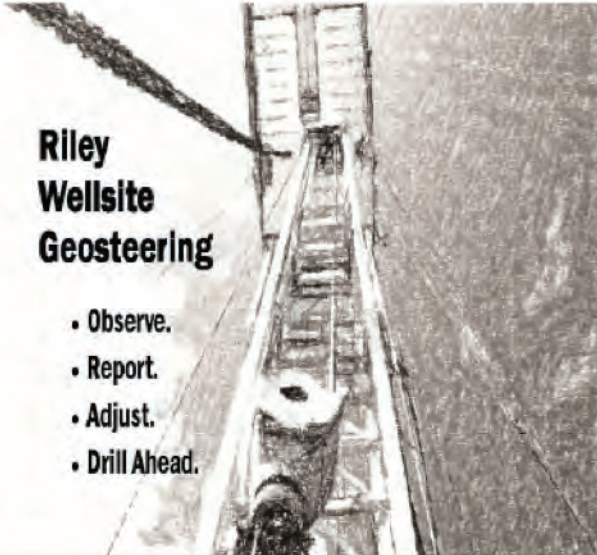
Postal Address:
Frisco, Colorado 80443-0063

Email: KC@GeoStarSolutions.com



Well Site Geology
Remote Geosteering
Petrographic Analysis
Field Geologic Studies

406.259.4124 sunburstconsulting.com



**Riley
Wellsite
Geosteering**

- Observe.
- Report.
- Adjust.
- Drill Ahead.

Jackson Riley, Geologist
406.780.0627 (cell) • 406.633.9487 (office)
geology@rileywellsite.com

Wyoming Geological Association

Geology & Energy Resources of Northern Wyoming

September 8-11, 2017

**NEW
DATE!**



Conference to be
held in beautiful
Casper, Wyoming

More details to
come!

This year's conference will focus on all general (energy AND non-energy-related) geologic topics in the northern half of Wyoming.

Call for Papers

You are invited to submit a technical paper relating to this year's theme. Collected papers will undergo peer review and will be released in an upcoming WGA Guidebook. Submit papers to info@wyogeo.org by **JUNE 5, 2017**

Call for Speakers

In addition to papers, we are inviting people to present at a one-day technical session on topics related to this year's theme.

FOR MORE INFORMATION ON PAPER GUIDELINES OR SPEAKING, CONTACT:

Mike Mellin: 307-702-0813
mike.mellin@ur-energy.com

Jesse Self: 307-315-1891
jesse.self@ur-energy.com

MONTANA GEOLOGICAL SOCIETY

P.O. Box 844

Billings, MT 59103

Membership Renewal

Last Name _____

First Name _____ **Middle Initial** _____

ANNUAL DUES:

_____ **\$20.00 Regular**

_____ **\$10.00 Student**

Please update the information below if needed. Please leave blank if nothing has changed:

Company/Affiliation _____

Mailing Address (work or home)

Street _____

City _____ **State** _____ **Zip** _____

Phone (w) _____ **Phone (h)** _____ **Phone (c)** _____

E-Mail _____

AAPG Member (please circle) YES NO

Education (School, Degree, Year)

Degree #1 _____

Degree #2 _____

Degree #3 _____

MONTANA GEOLOGICAL SOCIETY

AAPG - RMS CONFERENCE SALE PRICE LIST

PUBLICATION	QUANTITY	PRICE	TOTAL
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	
1999 Thrust Systems of the Helena Salient		\$20.00	
1998 8th Int'l Williston Basin Symposium		\$20.00	
1998 8th Int'l Williston Basin Symposium Core Workshop		\$20.00	
1997 Big Horn Basin Symposium		\$20.00	
1997 MGS-TRGS: The Edge of the Crazyes		\$20.00	
1997 AAPG - Rocky Mtn. Section Meeting / Abstract Volume		\$10.00	
1996 AAPG - Rocky Mtn. Section Meeting / Abstract Volume		\$10.00	
1995 7th International Williston Basin Symposium - Core Workshop		\$20.00	
1993 Energy and Mineral Resources of Montana		\$20.00	
1991 6th International Williston Basin Symposium		\$20.00	
1991 Geology & Horizontal Drilling of the Bakken		\$20.00	
1991 AAPG - RMS Field Trip: Beartooth Mountains		\$7.50	
1991 AAPG - RMS Field Trip: Eagle Sandstone, Billings		\$7.50	
1991 RMS Field Trip #1 Nye-Bowler Linemont		\$7.50	
1991 Sequence Stratigraphy of Eagle Sandstone		\$7.50	
1990 Bakken Workshop Short Course Study Notes #1		\$10.00	
1989 Geologic Resources of Montana		\$20.00	
1986 Geology of the Beartooth Uplift		\$20.00	
1985 Montana Oil & Gas Fields		\$20.00	
1971 Stratigraphic Names of Montana		\$10.00	
1969 Econmic Geology of Montana		\$20.00	
Shipping and Handling charges - \$5.00 per CD/DVD \$8.00 per book			
Total Due			

Billing / Shipping Information

Name _____ Company _____
 Address _____ City, State, Zip _____
 Email Address _____

Please make checks payable to: Montana Geological Society. Visa and MasterCard also accepted.

Visa / MasterCard (circle one) _____ Expiration Date _____
 Name as it appears on the Card _____
 Phone Number (_____) _____

Mail orders: Montana Geological Society, PO Box 844, Billings, MT 59103

Email orders: dbrush@ballardpetroleum.com

Phone orders: Doretta Brush (406) 281-8228