

May 2017



MONTANA GEOLOGICAL SOCIETY

NEWSLETTER

Vol. 61 No. 8



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P2 / PRESIDENT'S LETTER

Our President discusses the conundrums surrounding the hydrogeology in Stillwater County.



P5 / ROAD LOGS

A reminder & link to visit the MGS website and view digitized road logs & downloadable PDFs to take along with you this summer.



P6 / MT GEOLOGY

Montana has been in the news a lot lately - take a peek at some of the latest discoveries.



P8 / RMS-AAPG

Get registered now for the 2017 RMS-AAPG Section Meeting to be held next month.

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!

Find us on 

PO Box 844
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President's Letter

Dear Membership,

Welcome to summer and the chance to get out in the field and observe all the great geology we have here in Montana. One of my projects over the past three years has been to study the bedrock aquifers of Stillwater County. The bedrock aquifers in my study area include all the non-alluvial aquifers found in sedimentary and volcanic formations ranging from the Mississippian Madison group to the Tertiary Fort Union Formation. My goals are to better understand the stratigraphy and the structure of each formation and the controls on water quality and quantity in this diverse area.

What we know of the shallow subsurface is often limited to the information recorded in water well logs and then we assume layer-cake stratigraphy where aquifers are homogeneous and isotropic. That approach went out the door with one of the first road cuts through the Tongue River member I looked at near Absarokee. It is easy to see why well logs in this formation vary greatly over short distances and well yields are unpredictable.



And as if the variations in the depositional history were not enough to complicate the stratigraphy, the deformation along the mountain front adds more fog to the hydrogeological picture.

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The area labeled A in the photo is a landslide area near Nye. Some of the residents in the subdivision have fair wells, others can't find water. Some of the wells near point B are close to the Stillwater River, but there is insufficient gravel to form an alluvial aquifer, so the wells are completed in the Upper Cretaceous Telegraph Creek/Niobrara exposed at the axis of the anticline. Even though they are close to the river and near the mountain front, they have very poor water quality. Away from the mountain front, wells in fault zones near Absarokee and northeast of Columbus are much more productive than wells in undeformed areas. Most of the bedrock wells I have monitored respond to large precipitation events very quickly, some within hours. I have not found any indication that streams leaving the mountains discharge to the bedrock formations they cross. One of the

big debates with regard to groundwater in Stillwater County is the contribution from mountain front recharge. Many people I have visited with believe the groundwater flows quickly from the Beartooth Mountains to their wells in the foothills. There, I'm told, it is found in underground lakes or streams. One resident had proof of this rapid flow. The water level in his well increased each May when the snow started to melt in the mountains. I tried to explain the level change was more likely influenced by the irrigation canal across the road from his well that is



filled each May, but... A real estate ad at a subdivision near my house claims the water is flowing in an underground stream from the Crazy Mountains to lots near Absarokee. I have been to several wells completed in the Livingston Group Volcanics where you can hear the "stream" flowing in the wells which is actually water cascading from one fracture set to drain out another lower. As for the "underground lakes", I have yet to hear any shore birds, or ski boats in the wells I have inventoried, but I always keep an open ear and mind for new findings. I have found good information from oil well logs in Stillwater County, but if you have any information that may help me sort out the hydrogeology of Stillwater County, please give me a call,

Kevin Chandler
MGS President

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*Why wasn't the
 geologist hungry?*

He'd lost his apatite.

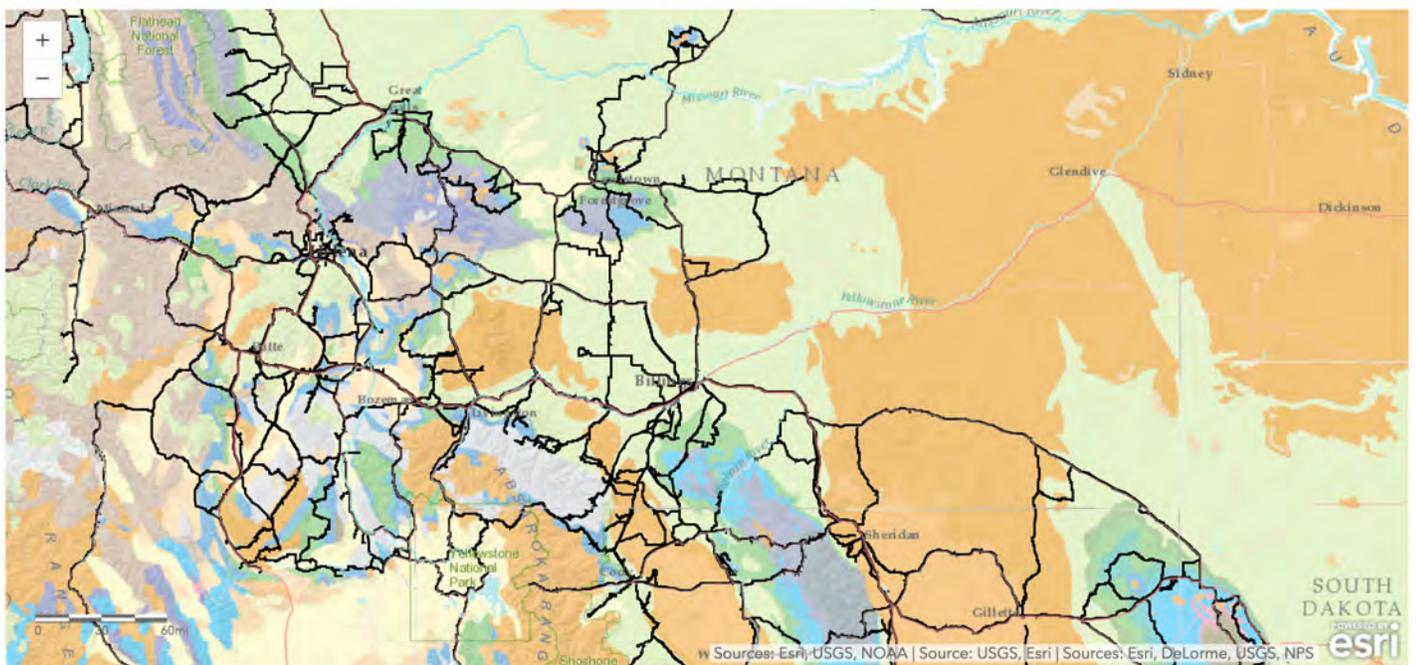
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Planning your summer road trips?

Don't forget to consult the
MGS Interactive Road Log map
before you go!

To find a wide variety of road logs covering the entire state of
Montana and areas of Wyoming, Idaho, & Canada, visit:
<http://mtgeo.org/resources/road-logs/>



“Fungi From a Toxic Mine Pit Have Teamed Up to Produce a New Type of Antibiotic”

The Berkeley Pit may provide researchers with new ways to tackle certain antibiotic-resistant strains of MRSA.

To read the article, please visit: <https://sciencealert.com/fungi-found-in-a-toxic-mine-pit-have-teamed-up-to-produce-a-new-type-of-antibiotic>

“Glaciers Rapidly Shrinking and Disappearing: 50 Years of Glacier Change in Montana”

“The warming climate has dramatically reduced the size of 39 glaciers in Montana since 1966, some by as much as 85 percent, according to data released by the U.S. Geological Survey and Portland State University.”

To read the rest of the article, please visit: <https://www.usgs.gov/news/glaciers-rapidly-shrinking-and-disappearing-50-years-glacier-change-montana>



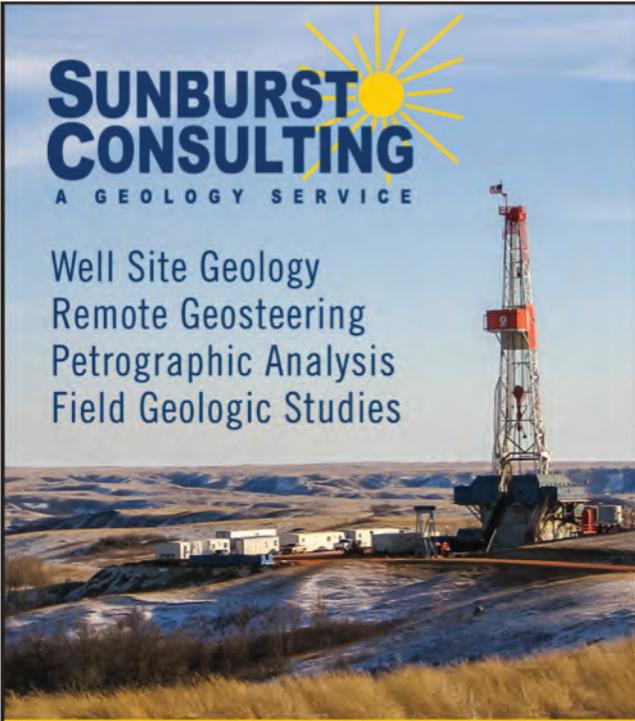
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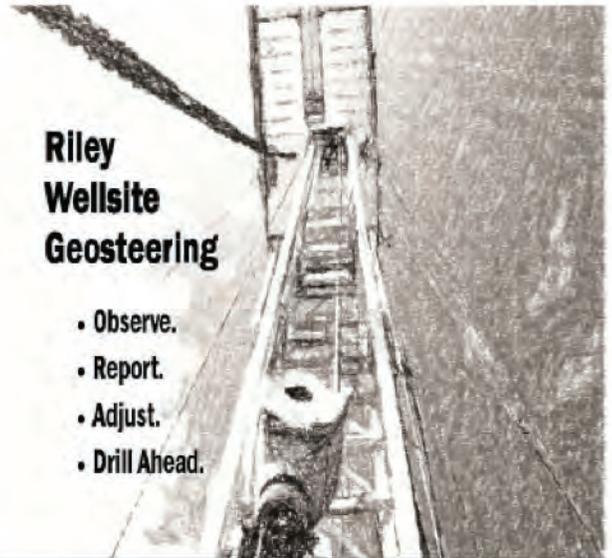
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2017 JUNE 25-28
BILLINGS MONTANA



Early registration ends May 25

<http://rmsaapg2017.com/>

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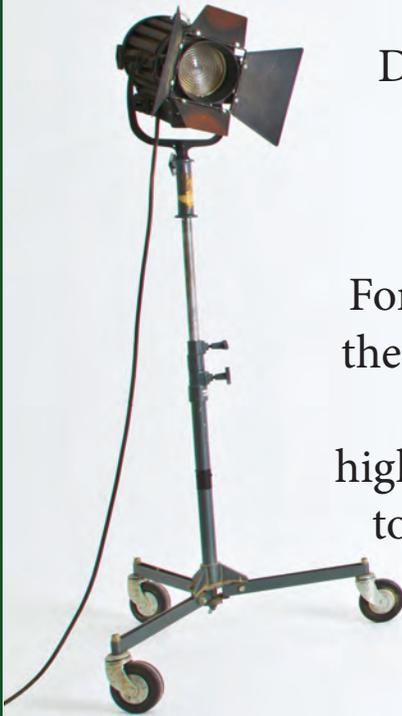
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Geology & Energy Resources of Northern Wyoming

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

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