

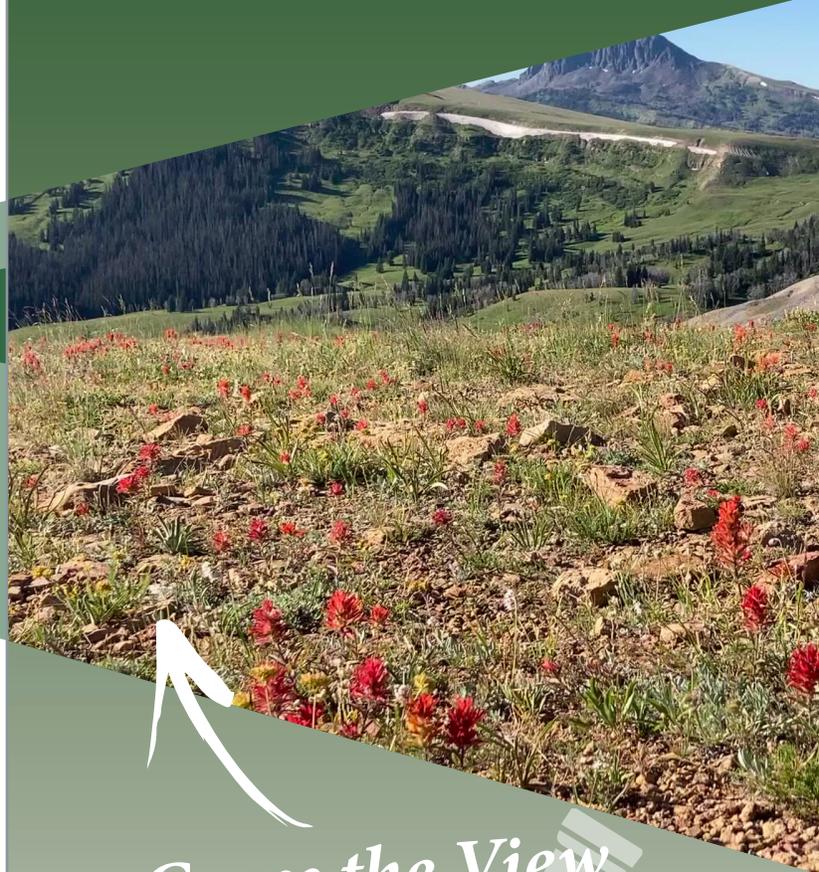
August 2021



# MONTANA GEOLOGICAL SOCIETY

## NEWSLETTER

Vol 65 No. 5



### Inside this Issue:



#### **P2 / PRESIDENT'S LETTER**

Our MGS President discusses the harsh drought experienced by our beautiful state.



#### **P6 / CALL FOR PAPERS**

Time to submit your papers & proposals for the upcoming 2022 MGS Field Conference!



#### **P7 / DR. MARINO**

Our first talk of the 2021-2022 season is set for September 15 -- don't miss out on hearing Dr. Marino!



#### **P8 / IN THE NEWS**

Check out the latest updates in the world of geology, including a series of recent Yellowstone quakes.

## Guess the View

Where in Montana is this?  
Answer on Page 5.

Contact Us:

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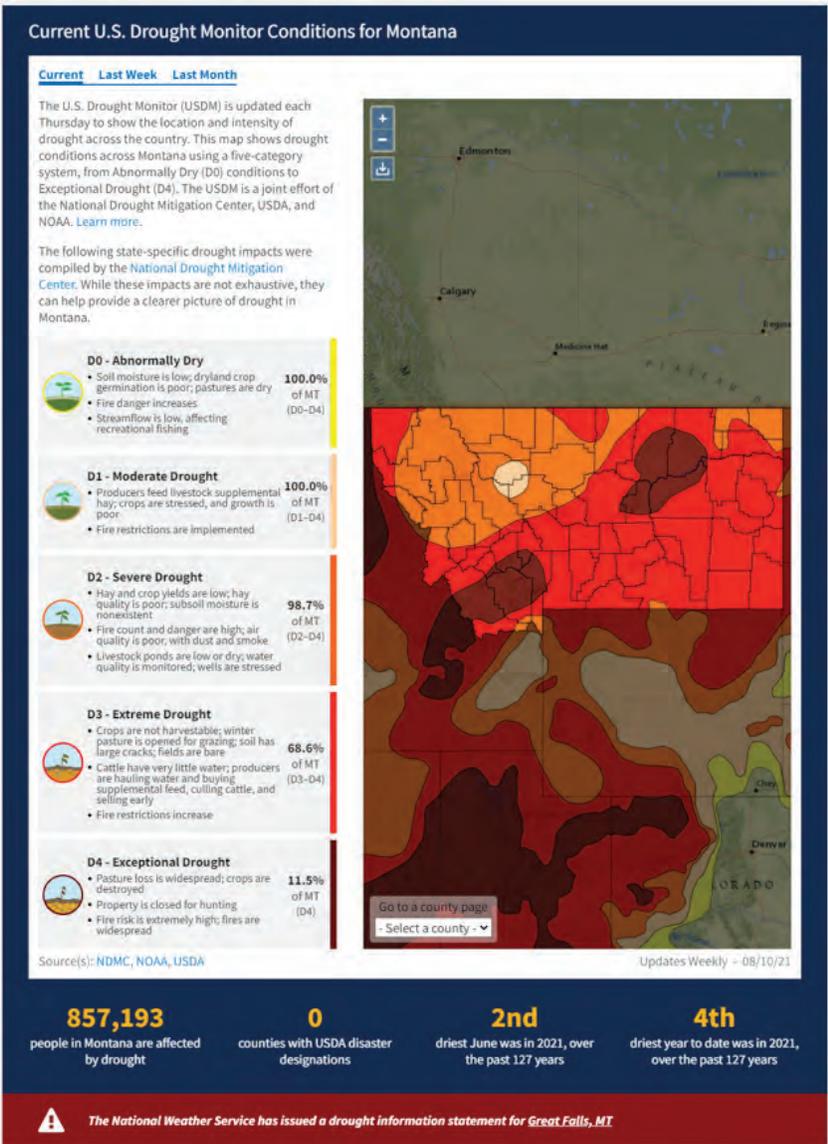
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# President's Letter

MGS Members,

As the summer field season wanes, the skies filled with smoke, precipitation nowhere to be seen, and temperatures still roasting, I hope you all have found some time to enjoy the outdoors. Typically, as the mercury rises, I find myself moving higher into the mountains to find some colder temperatures and seek out exciting new hikes and return to the old standbys. This year, summer projects which failed to launch last year have kept me pinned to my work and limited my free time, but I have still managed to find a few outdoor endeavors to satisfy the call of the mountains.

One of the big topics this year is the exceptional drought which this state, and many others across the western US, have endured. One hundred percent of Montana is currently experiencing Moderate Drought or worse (Figure 1). Over 68-percent of Montana is currently experiencing Extreme Drought, with over 11-percent of the state experiencing the highest level of drought, exceptional.



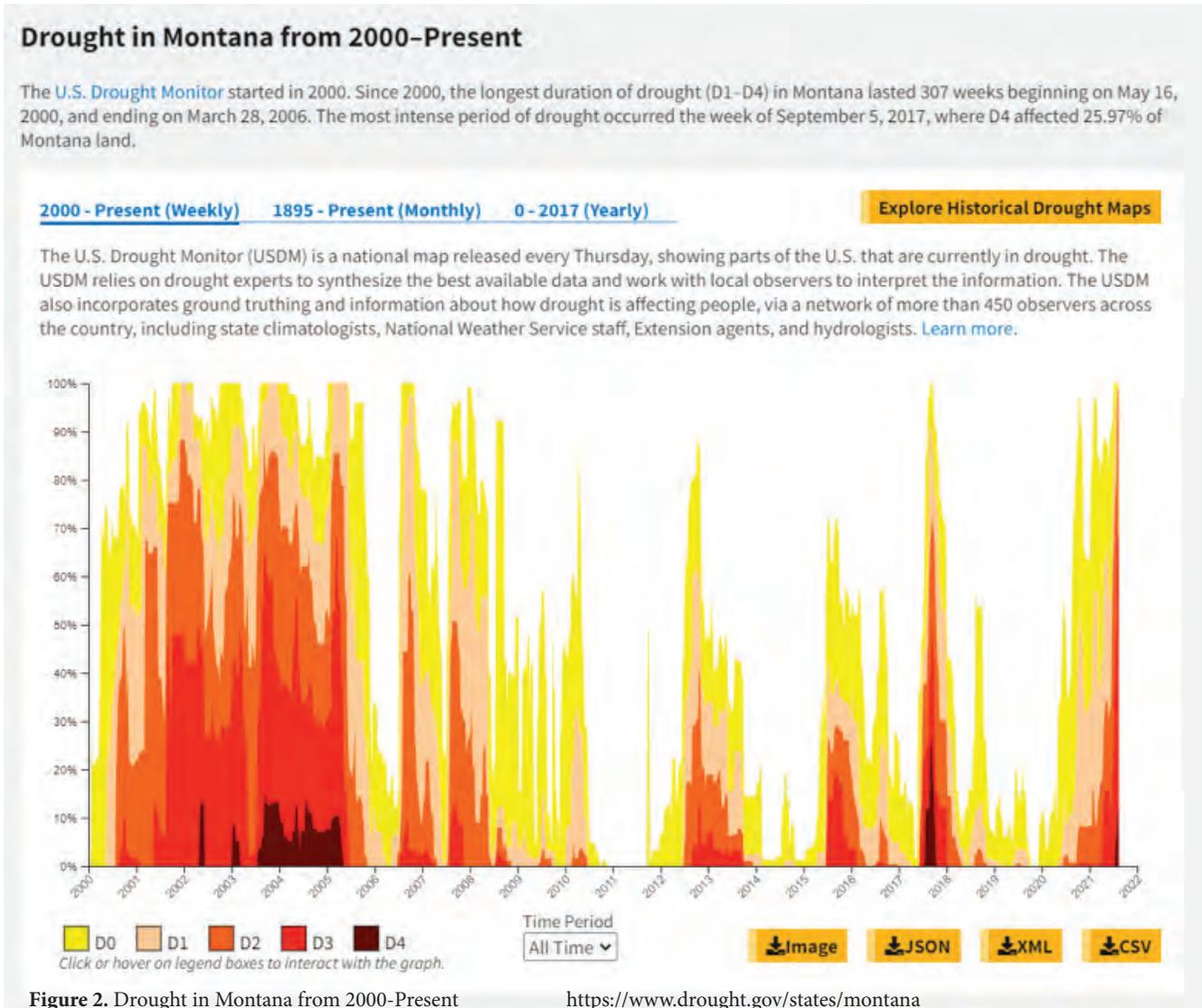
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Figure 1. Current U.S. Drought Monitor Conditions for Montana

<https://www.drought.gov/states/montana>

Taking a deeper dive at some of the historical data, Montana has experienced extreme drought 16 years out of the last 21 years (Figure 2). This period of drought doesn't yet compare to the 307 straight weeks of drought starting in May 2000 and ending in March 2006, but it's certainly concerning, especially when we have not had very substantial snowpack. Last week I was out on the water in a boom deployment training, and I would say the average depth of water in the Yellowstone River was about 18-inches, barely enough to get a jet boat afloat.



As I sit here typing this letter indoors, with our A/C running and its filters doing their part to block smoke particulates, I think about the drought and its impact of the fire season, which had an early start this year and looks like it will continue for a while. Although there's not much we can do to make water out of thin air, what we can continue to do is be stewards of the environment around us. As you try to enjoy the outdoors these next few months, make sure to avoid leaving your vehicle running, don't drive through tall brush which may easily ignite, make sure trailer chains don't drag on the ground, make sure that muffler hanging on the ground gets fixed and your breaks are not grinding metal-on-metal, etc. Be efficient with your lawn watering; many counties and cities are enacting policies to reduce over-utilization of water, but water early in the morning when the ability of the ground to absorb the water is at its peak (reduced winds, cooler temps, less chance for evaporation).

I hope we gain some assistance from Mother Nature soon, but in the mean time I hope everyone is safe out there and can find a way to enjoy the rest of the summer.

Thank you,  
Spenser Kuhn  
MGS President

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*Place a free ad in our MGS Classifieds!*

Contact the Newsletter Editor for more information.

# Guess the View:

## *Answer*



*This photograph shows the view south along the crest of the Gravelly Range in southwestern Montana. Black Butte, on the horizon, is the highest peak (10,547') in the range and is composed of early Miocene basalt and phonolite.*

*Photo submitted by:  
Jim Suydam*

Do you have photos of past MGS events, MGS members, or Montana geology?

**If so, we'd like to see them!**

For a chance to have your photo featured in the MGS Newsletter & MGS Facebook page, please submit your photograph(s) and full name to [montanageologicalsociety@gmail.com](mailto:montanageologicalsociety@gmail.com)



# MGS Field Conference

## Call For Papers & Proposals Deadlines Extended!

The MGS is currently accepting proposals for Road Logs and papers for inclusion in the Field Guide for the 2022 MGS Field Conference, to be held in the Paradise Valley region.

### How To Submit a Proposal or Paper

Please submit proposals and papers in either Word or PDF format via email to [montanageologicalsociety@gmail.com](mailto:montanageologicalsociety@gmail.com), with the subject line: “2022 Field Conference Road Log Proposal” or “2022 Field Conference Paper Submission”

Road logs must be submitted by ~~August 31, 2021~~ **September 30, 2021**.  
Papers must be submitted by ~~November 15, 2021~~ **December 15, 2021**.

For more information, please contact:

Sarah Friedman  
[sarah.friedman@msubillings.edu](mailto:sarah.friedman@msubillings.edu)



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# MGS Virtual Luncheon Meeting

**Wednesday, September 15th**

**12:00 – 1:00pm**

**Open to MGS members via Zoom**

RSVP to [montanageologicalsociety@gmail.com](mailto:montanageologicalsociety@gmail.com)  
by Tuesday September 14<sup>th</sup> to receive the Zoom link



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## DR. GENNARO G. MARINO

MARINO ENGINEERING ASSOCIATES, INC., SAINT LOUIS, MO

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### Mine Subsidence: Cause, Effect, Mitigation

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This presentation covers key aspects of mine subsidence engineering, a subject that is not well understood, and embraces a number of engineering disciplines. It focuses on the causes of mine subsidence and how mine stability relates to the resulting ground movements. Different mining and geologic conditions determine the mode of failure of the mine. The mode of mine failure in turn affects the resulting subsidence movement. Prediction of subsidence and damage potential are also key aspects of subsidence engineering. Case histories will be presented which illustrate different ground movement and damage scenarios. This presentation will be presented in a manner that will be understandable to anyone that would be interested in learning more about mine subsidence.

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### Biography

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Dr. Gennaro G. Marino received his Ph.D. in Civil Engineering in 1985, from the University of Illinois. His thesis topic was related to mine subsidence and structural response to subsidence over room and pillar mines. Dr. Marino presently has a P.E. license in 28 states.

Over the course of his career, Dr. Marino has authored over 100 articles and publications on subsidence engineering topics. In 2015, Dr. Marino received Distinguished Alumnus Award from the Civil and Environmental Engineering Alumni Association of the University of Illinois. In 2013, The Academy of Geo-Professionals (AGP) of ASCE recognized Dr. Marino as a Diplomate Geotechnical Engineer (D.GE) for his superior expertise and experience, strong ethics, commitment to life-long learning and continued professional development in the field of Geotechnical Engineering. In 2011, Dr. Marino was selected as the Central Illinois, ASCE Civil Engineer of the Year. Marino Engineering Associates, Inc. was chosen as 1st runner-up for the Central Illinois, ASCE Civil Engineering Project of the Year for 2010.

Working in the area of mine subsidence for over 40 years in various ore fields in the U.S., Dr. Marino has researched and consulted on all aspects of subsidence engineering with government agencies, engineering and architectural firms, surface owners, as well as pipeline, insurance and mining companies. His work includes planning, mining and abandonment stages of room and pillar to high extraction workings, as well as related cause and origin investigations.

## **“Yellowstone rattled by swarm of more than 140 earthquakes in past day, geologists say”**

*“Earthquake sequences like these are common and account for roughly 50% of the total seismicity in the Yellowstone region.”*

To read the article, please visit:

<https://phys.org/news/2021-07-yellowstone-rattled-swarm-earthquakes-day.html>

## **“Lake Huron sinkhole surprise:**

## **The rise of oxygen on early Earth linked to changing planetary rotation rate”**

*“The rise of oxygen levels early in Earth's history paved the way for the spectacular diversity of animal life. But for decades, scientists have struggled to explain the factors that controlled this gradual and stepwise process, which unfolded over nearly 2 billion years.”*

To read the rest of the article, please visit:

<https://www.sciencedaily.com/releases/2021/08/210802114448.htm>

## **“Icy waters of 'Snowball Earth' may have spurred early organisms to grow bigger”**

*“A new study tackles one of the oldest questions in the history of the planet: How did living organisms get so big?”*

To read the article, please visit:

<https://www.sciencedaily.com/releases/2021/07/210729122058.htm>

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