GEOLOGICAL SOCIETY OF NEVADA
NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Reno, NV 89512
(775) 323-3500 - Hours Monday -- Friday, 10 a.m. to 5 p.m.
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APRIL 3, 2025 THURSDAY

GSN SOUTHERN NEVADA CHAPTER

The GSN Southern Nevada Chapter meeting will be held at the Beatty Community Center, Beatty, NV. **SPEAKER: Dr. Zhaoshan Cheng, CSM. TITLE: Skarn geometry, zonation, and sectors, and their applications in exploration. SPONSOR: IMDEX.** For more information, please contact Chapter President: Liz McDonald, liz_macdonald@outlook.com. Details on page 7.

APRIL 10, 2025 THURSDAY

GSN WINNEMUCCA CHAPTER

The GSN Winnemucca Chapter meeting will be held at the Martin Hotel, 94 W. Railroad St. **SPEAKER: Stephen Redak, Hecla. Title: To be announced. SPONSOR: HECLA NEVADA.** For more information, please contact Chapter President, Kris Alvarez at: kalvarez@i80gold.com. Details on page 8.

APRIL 17, 2025 THURSDAY

GSN ELKO CHAPTER

The GSN Elko Chapter will hold their meeting at the Western Folklife Center, 501 Railroad St. Elko. **SPEAKER: Caleb Hoffman, Rio Tinto. TOPIC: Technology applied to copper exploration. SPONSOR: SRK CONSULTING.** Please contact Elko President, Ajeet Milliard Ajeet@megllc.net for more information. Details on page 9.

APRIL 18, 2025 FRIDAY

GSN MEMBERSHIP MEETING/STUDENT POSTER NIGHT!

The GSN meeting will be held at the Atlantis Hotel & Casino, Reno, NV. **UNR GRADUATE STUDENTS will be presenting posters for this meeting! SPONSOR: NEXUS ENVIRONMENTAL CONSULTANTS.** Dinner cost is $60. Please register for dinner online or RSVP at this link: **RSVP/DINNER** Details on pg. 3. **PLEASE RSVP BY 5 PM ON MONDAY, APRIL 14th.**

MAY 30 - JUNE 1, 2025 FRI—SUN

GSN SPRING FIELD TRIP

The field trip will head to Ely, NV and will visit the Atlanta Mine on Saturday, then stops near Austin in the Reese River silver district along US50 on Sunday. Register **HERE**!
Details are on page 10.

GSN APRIL 2025 RENO MEETING SPONSOR

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FROM THE PRESIDENT—APRIL 2025
Patty Capistrant
GSN President June 1, 2024-May 31, 2025

Dear GSN Members,

I want to extend a heartfelt thank you to all our members who make the effort to attend our meetings across the state, including those in Reno, Winnemucca, Elko, and Beatty. The camaraderie and energy of these in-person gatherings keep the GSN thriving!

At the same time, we all know how busy life can get, and it's not always possible to attend every GSN event. As such, I am pleased to share some exciting (not-so-new) news: there is now a growing library of recorded speaker presentations, available exclusively to Geological Society of Nevada members!

As many of you know, our speaker events are a cornerstone of GSN's mission to promote geologic education and connection within our broad community. We've heard from members wide and far who want to attend more talks but can't always make it in person. With that in mind, we've updated our recorded talk archive – allowing you to watch past presentations on your own schedule. The video archive includes talks from this past year through the most recent talk in March 2025, as well as an archive of recordings from the COVID era of meetings, when in-person meetings were not possible. Also featured is a talk by Greg Crouch on his book, the Bonanza King!

Speakers	Date	Title
Dr. Sally Goodman	Mar-25	Does **mining** have a golden future?
Dr. Winnie Kortemeier	Feb-25	**Lake Tahoe**: Evaluating the Science - and the Hype - of One of the World's Oldest Freshwater Permanent Lakes
Dr. Jim Faulds	Jan-25	**Nevada**'s Dynamic Geology Journey: Living on the Edge in a Long-Lived Orogenic Belt
Dr. Richard Goldfarb	Nov-24	**Gold Deposits**: The Science and the Science Fiction
Dr. Louise Hose	Dec-21	**Lehman Caves**: An Ancient Cave Formed By Rising, Sulfur-Rich Waters
Tyler Hill	Nov-21	i-80 Gold Corp - **Nevada Portfolio** Overview
Dr. Don Hudson	Oct-21	A Jolly Geologic Jaunt Around **Great Britain**
Dr. Matthieu Harlaux	Sep-21	**Tourmaline** in Magmatic-Hydrothermal Ore Deposits: Garbage Can Mineral or Sensitive Mineral Probe?
Kelly Cluer	Dec-20	**Comstock** Re-Photo Project
Dr. Bill Chavez	Nov-20	The **Porphyry-Epithermal** Environment: Vertical Exaggeration of Alteration-Mineralization Zoning via Late Hydrothermal Overprint and Telescoping
Dan Pace	Oct-20	**Buffalo Canyon RIGD** (Fall Field Trip talk)
Dr. Patsy Moran (presentation by Josh Bonde)	Oct-20	Overview on **Ichthyosaurs** (Fall Field Trip talk)
Doug Silver	Sep-20	Where do we go from here?
Dr. Chuck Thorman	May-20	Regional Tectonics Based On Conodont CAIs and Burial Depths, As Viewed From the **Pequop Mountain**, NE Nevada - An Unbiased Opinion(?)
Dr. Brian McNulty	Apr-20	Identifying lithology and assessing alteration intensity with **pXRF data**: examples from the Myra Falls VHMS district, BC, Canada
Dr. Curtis Johnson	Apr-20	The Relationship Between **Eocene Magmatism** and **Gold Mineralization** in the Great Basin
Dr. Carson Richardson	Jan-20	Deformation, magmatism, and ore deposits of the **northern Shoshone Range**, Nevada
Greg Crouch	Dec-19	Book Overview: **The Bonanza King**

This renewed effort to record and share our events has been made possible since November 2024 through the generous sponsorship of Dr. Simon Jowitt at CREG. We're hopeful that the GSN community will continue to see the value in this resource and support the continuation of live streaming and recording into the future. However, please note that these services come at a cost, and we'll need to consider this as we prepare next year's budget. If you've benefited from these recordings or would like to see them remain part of your membership, I encourage you to reach out to the GSN Executive Committee. Our contact information can be found on the first page of each month's newsletter.

As always, thank you for being part of the GSN. Your involvement and support are what make our organization strong and enduring!

Warm regards,
Patty Capistrant

GSN MEETING in RENO—FRIDAY, APRIL 18, 2025

STUDENT POSTERS COMPETITION!

Sponsor: NEXUS ENVIRONMENTAL CONSULTANTS

TIME: Drinks @ 6:00 pm, Dinner @ 6:30 pm,

Cash Awards after the judging is finished— ~7:30 pm

WHERE: Atlantis Hotel & Casino, 3800 S. Virginia St., Reno, NV

DINNER COST: $60. Please RSVP online by 5 PM on Monday, April 14th at:
DINNER RESERVATION

Marcus Angus, UNR Graduate Student
Constraining Mineralization and Alteration Through New Geologic Mapping at Spring Peak Low-Sulfidation Epithermal System, Mineral County, NV

Travis Fisher, UNR Graduate Student
The Taylor Mining District in White Pine County, Nevada: Geology, Background, and Perspectives

Alyssa Lindsey, UNR Graduate Student
Understanding Overlapping Mineralization of the Ruby Hill Deposit, Eureka, NV

Cutter Morebeck, UNR Graduate Student
Mapping Likely Source Rock of Rhyolite Ridge Lithium Project

Amber Prevallet, UNR Graduate Student
Ore Deposit Study on REN, a Carlin-Type Deposit in Northeastern Nevada

Joe Rosal, UNR Graduate Student
Geochemical Evaluation of Critical Metal Concentrations in Mine Waste in Nevada

Jakob Scheel, UNR Graduate Student
Molten Mayhem: The Fluid-Crystal Tango in Mafic Magmatic Enclave Disintegration

Desiree Guzman, UNR Graduate Student
Investigating Magma Sources of Caldera-Forming Eruptions Using Trace Element Analysis

"FACES OF GSN"

Debbie Struhsacker, Reno, Nevada

Dear GSN Members:

I appreciate this opportunity to describe my career path – which started out similar to many of yours as an exploration geologist – but got sidetracked along the way to lead me to my current role as a mining industry advocate and permitting expert.

My interest in geology started as a kid (a very long time ago!) growing up in Denver, Colorado where my father's family owned and operated Winter-Weiss Portadrill, which built truck-mounted rotary drilling equipment. Because some of their drill rigs were used to explore for minerals and as blasthole drills at mines, my father was peripherally involved with mining, which must have rubbed off on me.

My father loved to take weekend driving trips in the Front Range west of Denver to look at the beautiful scenery. These trips gave me ample exposure to the fascinating crystalline rocks exposed along Interstate 70. Also, I was fortunate to have a science teacher in elementary school whose lesson plans included geology. So I was exposed to geology at an early age.

Fast forward to my college years at Wellesley College in Wellesley, Massachusetts, where this erstwhile French major decided she would take Geology 101 to satisfy one of her science course requirements. At that time, Wellesley had a very charismatic and talented geology professor, Dr. Diana Kamilli. After one course with Dr. Kamilli, I was hooked and decided to double major in French and geology.

I met my wonderful husband, Eric Struhsacker, towards the end of my senior year at Wellesley. Eric, who graduated with a geology degree from Dartmouth and had been accepted at Montana State University in Bozeman where he planned to get a Masters' degree in geology. Eric started his graduate studies at MSU in the fall of 1974 while I stayed in the East to work for Bethlehem Steel in Lehigh, Pennsylvania in their management training program and to look for non-ferrous minerals in the western U.S. where they had grubstaked a well-known exploration group called Minefinders.

Eric and I were married in June 1975 – yes we are celebrating our 50th wedding anniversary this June! (Imaging putting up with me for 50 years...) We moved to Bozeman so Eric could complete his Master's degree. I was fortunate to get a part-time job helping teach some of the introductory geology labs.

I started my graduate work at the University of Montana in Missoula in the fall of 1976 to study igneous petrology under professor Donald Hyndman, the author of the textbook, *Petrology of Igneous and Metamorphic Rocks.* Well best laid plans; Dr. Hyndman was on sabbatical during my second year at Missoula. At first I was really disappointed when I learned this – but there was a silver lining to his absence. Dr. Hyndman asked me to teach his undergraduate petrology course the year he was gone. This experience taught me that there is no better way to learn something than to dig into it deeply enough to be able to thoroughly explain it. This lesson has served me well throughout my career – especially in gaining expertise with the laws and regulations that I've dealt with throughout my career as a permitting and regulatory expert. (More on that later.)

After I graduated from Missoula, Eric and I ended up in Salt Lake City in 1978 where we worked on geothermal energy projects in the western U.S. for the University of Utah Research Institute, which had several U.S. Department of Energy (DOE) geothermal research grants. Working on geothermal energy was really interesting and exciting at a time when the country was still reeling from the 1970s energy crisis and looking for alternatives to oil. But when it became evident in the early 1980s that the DOE funding was drying up, we started looking for other opportunities.

We were lucky to hit the job market when companies were starting to look for hot spring gold deposits – like the McLaughlin deposit that had been recently discovered in California. Mining and exploration companies were interested in our geothermal work figuring that our expertise with geothermal resources (i.e., active hydrothermal systems) would give us insights into paleo- geothermal/ hydrothermal systems.

In 1981, we both joined Chevron Resources, the minerals division of the oil company, and moved to Denver. I worked as an exploration geologist for Chevron until 1985 when the company merged with Gulf Oil. Most of my work for Chevron focused on looking for shallow, oxide gold deposits in Nevada. I joined the legions of Nevada geologists who looked for land with attractive exploration targets that the major mining companies had not already covered with many square miles of mining claims.

The paucity of available land with prospective targets in the all the popular places to look for gold along the Carlin-Trend and elsewhere led me to develop a novel geologic exploration theory called "The Zone of Neglect." This highly sophisticated theory relied on a drafting compass equipped with a pencil and the 500,000-scale geologic map of Nevada. Placing the compass point in Reno, I drew a circle with a radius measuring roughly how far the average geologist could drive in any direction from Reno in about two hours. I figured a two-hour drive was a proxy for the average geologist's bladder capacity, marking the time when they would have to stop for a personal comfort break. An important corollary to the Zone of Neglect theory is "you can't find the next gold deposit if you don't get out of your truck." (cont. on page 5)

"FACES OF GSN"

Struhsacker, D.—Faces of GSN (cont. from page 4)

Armed with this new theory, I looked at many under-evaluated mineral deposits in all of the counties between Washoe and the western margin of Humboldt County. I also looked at a few deposits in California but even then, working in California was difficult so I didn't focus much energy west of the Nevada – California border. Although there were already mining claims on many of the deposits I identified, most of the claim owners were individuals who were interested in leasing their claims –especially to a big company like Chevron.

Failing to see the brilliance of my cutting-edge Zone of Neglect exploration methodology, Chevron laid me off in 1985 after they had swallowed up Gulf Oil and needed to reduce staff. Being laid off was really traumatic for about 24 hours until I realized this was a perfect opportunity to become an independent consultant.

Eric and I moved to Reno in 1986 when Chevron Resources closed its Denver office and transferred Eric to Reno where we have lived ever since. Eric continued to work for Chevron until 1991 when Chevron got out of the minerals exploration business.

In early 1986, Serendipity intervened, precipitating a seismic shift in my career. A friend called to ask if I was available to help SRK, a mining geotechnical engineering company, write the Environmental Assessment for the proposed Big Springs Mine in Elko County, Nevada. Ugh – permitting and environmental stuff. I gritted my teeth and accepted this temporary assignment to help pay our enormous mortgage. Little did I know at the time that I had just unlaced my boots and put my rock hammer away – never to use them again.

It turned out that I really enjoyed this work because it allowed me to capitalize on my geology background and my communication and writing skills. I scrambled to teach myself about the laws and regulations governing mining that had recently been enacted. It was an interesting time to get involved with environmental permitting because many of the applicable regulations were new and everyone – both companies and regulators – were trying to figure out what the regulations meant and how they worked. I also learned a ton from the many talented SRK engineers about how tailings impoundments, heap leach pads and ponds, and other mine facilities must be designed to protect the environment in compliance with the new laws and regulations.

Since then, my career has focused on helping many mineral exploration and mining companies obtain the local, state, and federal permits they need to explore for minerals and build and operate mines. As mining became increasingly controversial and difficult to permit, my career morphed again in the early 1990s and expanded to include advocacy and government relations because there was an urgent need to garner political support for specific projects and defend the industry against onerous state and federal proposed legislation to curtail mining.

Defending the industry became urgent in early 1993 when Congress started debating House and Senate anti-mining bills to upend the U.S. Mining Law to add a confiscatory gross royalty and provisions to erode the law's security of land tenure. If enacted, these bills would have made this law unworkable and significantly reduced mining on western public lands. That's when Kathy Benedetto, Ruth Carraher, two other Reno geologists, and I started the Women's Mining Coalition (WMC). Kathy had the brilliant idea to take women involved in geology and mining to Washington, DC to talk to the women who had just been elected to Congress about our careers and the importance of mining as a way to help the mining industry lobby against these disastrously bad bills.

When we made our first trip to DC in March 1993, we never dreamed that there would be a second or a third, or a fourth trip – or that 32 years later WMC would still be growing and continuing to defend the U.S. Mining Law from legislative assaults and advocate for the hardrock and coal mining industries. Today, WMC is recognized as one of the most effective mining industry advocacy groups. During our upcoming 32nd annual Washington, DC Fly-In in May 2025, we will be meeting with Members of Congress and their staff to continue our advocacy by discussing the need for more domestic mining to reduce the Nation's dangerous dependency on imported minerals from China and other adversaries, and to lobby against this year's perennial House and Senate Mining Law reform bills to radically restrict mining.

(cont. on page 6)

The Women's Mining Coalition's 2023 Washington DC Fly In

Struhsacker, D.—Faces of GSN (cont. from page 5)

During the past 40 years of my career as an environmental permitting and government relations specialist, I've had the good fortune to be involved with many exciting projects and urgent mining policy issues, and to work with many talented technical experts, state and federal regulators, and attorneys.

Since 1986 when we moved to Reno, Eric and I have been active GSN members. We met many of our closest friends at GSN meetings and truly value GSN's many contributions to the professional and social quality of our lives.

Thank you for this opportunity to tell my story. If you have questions, please feel free to contact me at debra@struhsacker.com.

Kathy Benedetto, Ruth Carraher, and Debbie Receiving the Mining Hall of Fame Prazen Living Legends of Mining Award in 2016 at Mine Expo in Las Vegas

NEWS FROM THE FOUNDATION

April, 2025
Bob Felder

It is time to apply for GSN scholarships! The Foundation has several scholarships that support our mission of promoting earth science education. Guidelines and applications for our scholarship programs can be found at **www.gsnv.org/GSN Foundation/Scholarship Opportunities**

The GSN - D.D. LaPointe Scholarship is budgeted for **$12,000** this year and aims to support UNR students studying mineral deposits in Nevada and desiring to work in the minerals industry.

The GSN - Brian Morris Scholarship is budgeted for **$7,500** this year and aims to support students at an accredited university studying exploration for or research on ore deposits, and who have a commitment to working in the minerals industry.

The GSN - Great Basin Scholarship is budgeted for $**12,000** this year and seeks to support students at an accredited university working on (non-resource/commodity based) fundamental geologic studies in the Great Basin.

The GSN – Chuck Thorman Geologic Mapping Scholarship is budgeted for **$4,000** this year and seeks a student at an accredited university whose research project has a significant component of geologic mapping.

Application deadline for scholarships is May 31.

More exciting news about scholarships! Two very generous anonymous donations ($100,000 and $10,000) have been received and directed to the Great Basin Scholarship Fund. The Foundation extends **a huge thank you** to those generous donors. It is the generosity of our members that makes the Foundation a success and allows our many giving programs to succeed and grow. In 2025, our budget for giving has reached $62,000.

The mission of the GSN Foundation is to provide funding for the Geological Society of Nevada's philanthropic contributions around Nevada. This work is not possible without the donations GSNF receives throughout the year, during the holiday party fundraiser and from generous donations from our members. Thank you!!

GSN SOUTHERN NEVADA CHAPTER NEWS

The GSN Southern Nevada Chapter is excited to announce our next meeting on April 3rd!

Speaker: Dr. Zhaoshan Chang, Colorado School of Mines

Title: Skarn geometry, zonation, and sectors, and their applications in exploration

When: Thursday, April 3, 2025

Time: Drinks and appetizers at 6 PM, talk at 7 PM

Where: Beatty Community Center
100 A Ave S, Beatty, NV 89003
(https://maps.app.goo.gl/LC1ZBRP4P1aEhmAH8)

Sponsor:

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Biography: Professor Chang is the Charles Fogarty Endowed Chair and Professor in Economic Geology at Colorado School of Mines. Chang has studied a wide spectrum of mineral systems, including skarn-, porphyry-, epithermal-, IOCG- deposits, greisen/pegmatite W-Sn, and sediment-hosted gold deposits in 19 countries. He works on ore-forming processes and ore controlling factors, magma fertility, regional metallogenesis, and LA-ICP-MS methodology (dating; mineral trace element analysis; isotope composition analysis).

Abstract: To better estimate a skarn zone's distance to the causative intrusion to help exploration, skarn geometry needs to be considered. Based on geometry, skarns are grouped into contact skarns wrapping around a main causative intrusion in the contact zone (mostly <400-500 m thick), and branch skarns that extend outwards for kilometers away from the intrusion (up to 4,500 m drill tested). Branch skarns may occur along apophyses from the main causative intrusion, faults, lithology boundary, favorable carbonate layers, or the contact of older intrusions. Combining skarn geometry and zoning patterns, sectors are defined as packages of traditional zones. Six sectors are defined to better estimate the distance from the main causative intrusion. Sector 1 is the contact skarn. Sector 2 is around apophyses from the main intrusion. Sectors 3-6 are along other fluid channels not in direct contact with causative intrusions, with Sectors 3-4 being distal skarns and Sectors 5-6 CRDs (Carbonate Replacement Deposits). Sector 3 features brown pyroxene, Sector 4 rhodonite, Sector 5 Fe-carbonates, and Sector 6 Mn-carbonates.

We look forward to seeing you at our next chapter meeting for what will be an exciting talk! Please reach out to liz_macdonald@outlook.com with any questions.

GSN wishes to thank our MARCH MEETING sponsors in Reno, Elko, Winnemucca AND Southern Nevada!

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Please join us for the

Winnemucca GSN April Meeting

Thursday, April 10, 2025

The Martin, 94 W. Railroad St., Winnemucca, NV

Food and Drinks at 6 pm; Talk at 7 pm

Speaker: Stephen Redak, Exploration Manager, Hecla

Title: Exploration at the San Sebastián Epithermal Vein System, Durango Mexico

FOOD & BEER SPONSOR:

ABSTRACT:

Stephen Redak – Exploration Manager-Nevada, Hecla Mining Company sredak@hecla.com

The San Sebastián project is located in eastern Durango State in the center of the Mexican Silver Belt. The district is positioned at the intersection of three regional structures that provide the structural framework for control of mineralization. The veins are hosted in Mesozoic Caracol Formation sedimentary rocks. Portions of the district are overlain by Tertiary volcanics that have been affected by strong alteration.

The district hosts a series of high-grade epithermal veins that currently span over three miles of strike length and have a vertical extent of over 1,200 feet. The district is an example of concurrent shallow gold-silver dominant, low-sulfidation epithermal mineralization and deeper intermediate sulfidation polymetallic (silver, copper, lead, and zinc with minor gold) epithermal vein mineralization occurring within a single deposit and structure.

The San Sebastián project was mined for precious metals from 2001 to 2005 and was one of the highest-grade producers in Mexico. Persistent exploration since then resulted in the discovery of both high-grade near surface gold and silver mineralization and also deeper polymetallic mineralization and the mine returned to production from 2015-2020. Total production at the mine to date is 930,000 tons of ore containing 280,000 ounces of gold and 23M ounces of silver with an average grade of 0.27 opt gold and 23 opt silver.

In a challenging exploration environment with very limited surface outcrop, a variety of different exploration techniques have been applied at the project to guide exploration drilling. Exploration methods utilized at the project over the past years include, extensive detailed geological mapping and sampling, large soil geochemistry surveys, a number of different land and airborne geophysical methods, remote sensing, large bedrock lithogeochemistry surveys based on sort vertical reverse circulation (SVRC) drilling, trenching, fluid inclusion microscopy, clay mineral spectrometry, and most recently Raman spectral thermometry.

If you have any questions, contact Kris Alvarez at kalvarez@i80gold.com or 775-621-6195

Please join us for the Elko GSN April Meeting

Thursday, April 17, 2025

Western Folklife Center, 501 Railroad St., Elko, NV

Drinks and Appetizers at 6 pm; Talk at 7 pm

Speaker: Caleb Hoffman, Exploration Technology Specialist
Rio Tinto

Topic: Technology applied to Copper Exploration

FOOD & DRINKS SPONSOR: srk consulting

If you have any questions, please contact GSN Elko Chapter President, Ajeet Milliard, ajeet@megllc.net

THANK YOU TO THESE SPONSORS WHO HAVE AGREED TO SPONSOR THE GSN SPRING FIELD TRIP COMING UP ON MAY 30-JUNE 1, 2025! WE APRRECIATE YOU ALL FOR YOUR GENEROSITY!

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Spring Field Trip!

GSN 2025 Spring Field Trip REGISTRATION Announcement

Esteemed members of GSN, registration is now open for GSN's 2025 Spring Field Trip, May 30th – June 1st with visits to the past-producing Atlanta and Reese River/ Austin districts in northern Lincoln County and Lander County, NV. You can sign up for the trip via the link: **FT REGISTRATION** The trip will depart from the Gold Building at DRI in Reno early in the afternoon on Friday May 30th with two nights stay in Ely, NV. On Saturday, May 31st, we will tour the Atlanta epithermal gold-silver district on the west margin of the Oligocene Indian Peak Caldera Complex. Thank you, Nevada King Gold Corp., for making this tour possible! We will return to Ely for the night of May 31st. On Sunday June 1st, we will head back to Reno via US Highway 50 with stops in the Reese River/ Austin silver district for an overview of the geology, mineralization, and hydrothermal alteration of the Jurassic Austin pluton.

Trip cost will be $325 for a single room and $225 double occupancy. First 5 students are free! Space is limited, so don't procrastinate and reserve your seat to join us on this adventure**!** **REGISTRATION**

For questions or concerns, you can reach out to Steve Weiss, GSN Vice President and Field Trip organizer.

OTHER UPCOMING EVENTS

April 1, 2025 Arizona Geological Society Speaker Series 2025 in person or online. Speaker: Nirio Mendoza Inca ,MSc, Colorado School of Mines. Title: Geology and Hydrothermal Alteration of Red Mountain Litho Cap, Eastern Lake City Caldera, Hinsdale County, Colorado. Streaming live: **ZoomMeeting**. Click here for more information:

April 3, 2025: Nevada Petroleum & Geothermal Society meeting. Speaker: Nick Hinz, Geologica. Title: Fault Controlled, Volcanically Heated, 200 MW Sonik Marapi Geothermal Field, Sumatra, Indonesia. Visit their events page to register: **NPGS**

April 3, 2025: GSN So. Nevada Chapter Meeting will be held at the Beatty Community Center, Beatty, NV. (See page 7 for details)

April 7, 2025: Denver Region Exploration Geologist' Society (DREGS) monthly meeting. Denver Marriott West, Golden, Colorado. Speaker: Paul Bartos, Principal Geologist, AngloGold Ashanti. Title: Discovery of the Silicon Deposit, Nye County, Nevada. More information here: Denver Region Exploration Geologist Society

April 10, 2025: GSN Winnemucca Chapter Meeting. The Martin Hotel, Winnemucca, NV. (See page 8 for details)

April 17, 2025: GSN Elko Chapter Meeting. Western Folklife Center, Elko, NV. (See page 8 for details)

April 21, 2025: Northern NV SME Meeting, Circus Circus Hotel, Mandalay Room, Reno, NV. Speaker and topic to be announced. **RSVP**


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2025 MALRI INSTITUTE
APRIL 23-24, 2025
Harveys | Lake Tahoe
TOPICS AT THE 2025 MINING AND LAND RESOURCES INSTITUTE INCLUDE:
2025 Legislative & Regulatory Update
Geothermal Land Issues
Osage Wind: Shortcuts Lead to Dead Ends
Ethical Considerations in Due Diligence
Lithium Brine
Title Verification in Indian Country
Renewable Energy and Environmental Stewardship on Public Lands
Nevada's Mining Sector Outlook
Canada Update
Alaska Update
A geothermal tour will be held the day before MALRI at the The Steamboat Hills Complex geothermal power plant, owned and operated by Ormat Technologies, Inc.
For more information contact:
education@landman.org | (817) 847-7700

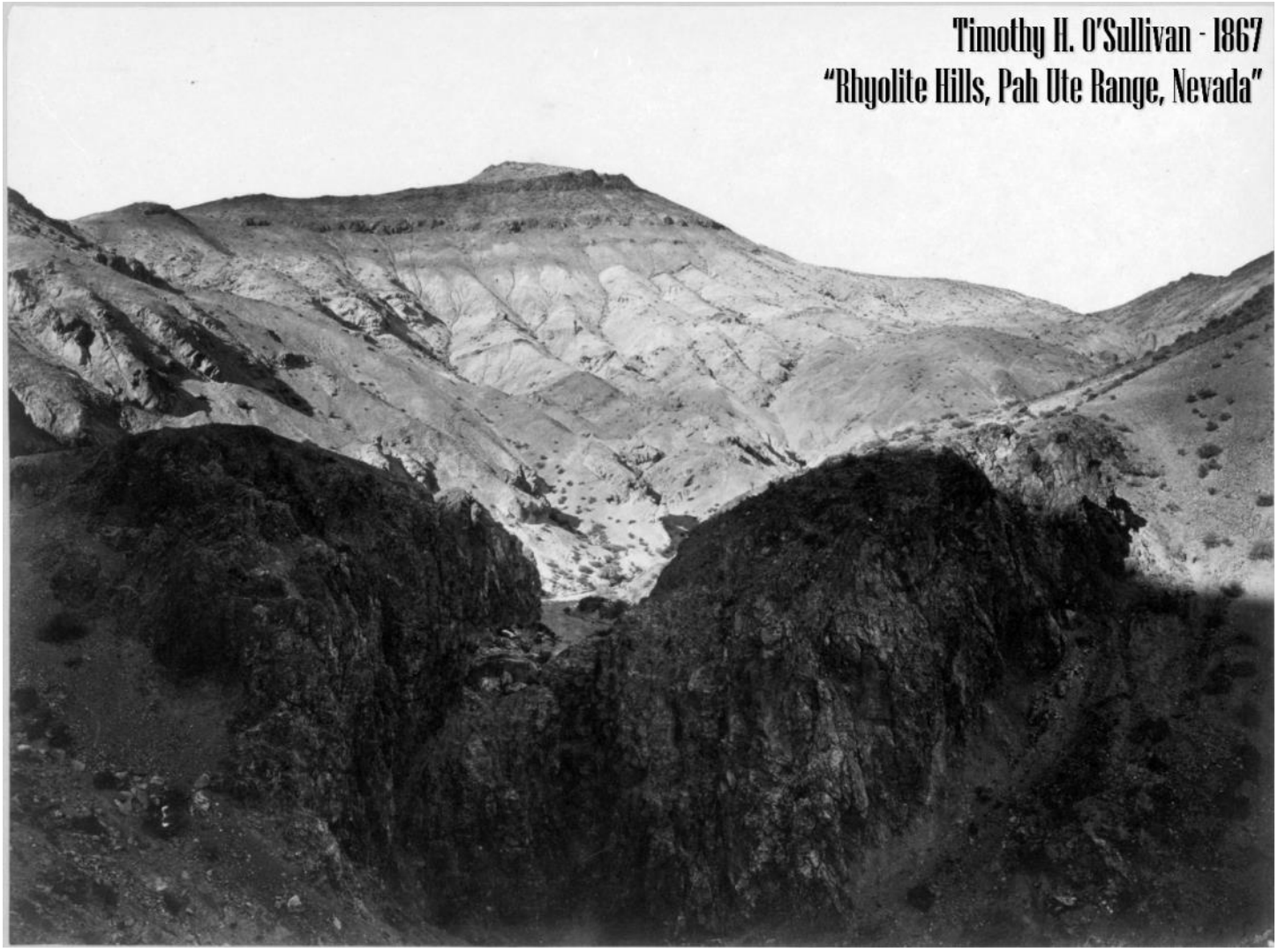
A LITTLE HELP FROM MY FRIENDS, PLEASE

Kelly Cluer is looking for intel on the location of this scene captured by Timothy H. O'Sullivan in 1867 during Clarence King's Geological Exploration of the Fortieth Parallel. The title of the view is usually "Rhyolite Hills, Pah Ute Range, Nevada". That is basically the Stillwater Range and surrounding hills. It does seem to be part of a photo sequence that O'Sullivan captured in 1867 that spanned the Fallon to Sou Hills region. Like many of O'Sullivan's photos, this one has been printed under different names. I have seen it titled "Rhyolite, Dun Glen Range, Nevada" but doubt that fits its geography.

You can find additional information on this photo and download a high quality image from the Library of Congress: Photos, Prints, Drawings | The Library of Congress

Can you believe that when the next GSN Symposium comes around we will have been photographing Nevada's hills and mining camps for 160 years?

I think someone in the GSN has seen this place and can help point me to O'Sullivan's old camera position for a rephotograph. If you have a tip, please drop it to the Comstock Rephoto Hotline: kcluer@yahoo.com. I'd really appreciate it!



Mining Activity Update

FEBRUARY 2025, Mike Brady
LMBrady@aol.com

NEVADA

Coeur Mining Inc. announced that reserves at the Rochester Mine aggregate 504,545,000 tonnes @ 0.07 gpt Au, 12.3 gpt Ag proven+probable. (was 464,045,000 tonnes @ 0.07 gpt Au, 13 gpt Ag proven+probable) *Press Release:* February 18

Orogen Royalties Inc. announced that Anglo Gold Ashanti Ltd. reported to them that the Merlin Deposit now aggregates 355,000,000 tonnes @ 1.06 gpt Au inferred. (was 284,000,000 tonnes @ 0.99 gpt Au inferred) *Press Release:* February 20

Hecla Mining Co. announced that resources at the Hollister Project aggregate 84,500 tonnes @ 81.9 gpt Ag, 19.11 gpt Au measured+indicated and 674,500 tonnes @ 92.1 gpt Ag, 13.65 gpt Au inferred. (was 80,000 tonnes @ 85.3 gpt Ag, 19.79 gpt Au measured+indicated and 583,000 tonnes @ 102.4 gpt Ag, 14.33 gpt Au inferred) *Press Release:* February 12

Nevada King Gold Corp. announced that recent drill results at the Atlanta Project include 272.9-336.9 meters @ 2.72 gpt Au, 17 gpt Ag (AT23WS53); 250.0-317.1 meters @ 1.44 gpt Au, 17.9 gpt Ag (AT24WS70) and 236.3 -304.3 meters @ 1.17 gpt Au, 18.5 gpt Ag (AT24WS76). (resource = 11,000,000 tonnes @ 1.3 gpt Au measured+indicated) *Press Release:* February 19

Eminent Gold Corp. announced that recent drill results at the Hot Springs Project include 272.8-275.7 meters @ 2.2 gpt Au (HSC02). *Press Release:* February 5

Blackrock Silver Corp. announced that recent drill results at the Tonopah West Project include 538.43-540.11 meters @ 364 gpt Ag, 0.03 gpt Au (TXC24-113); 394.08-395.63 meters @ 94 gpt Ag, 1.55 gpt Au (TXC24-114); 471.83-474.88 meters @ 225.4 gpt Ag, 2.41 gpt Au (TXC24 -123) and 370.03-378.62 meters @ 121.6 gpt Ag, 1.23 gpt Au (TXC24-124). (resource = 6,119,000 tonnes @ 2.9 gpt Au, 242.6 gpt Ag inferred) *Press Release:* February 24

Equinox Gold Corp. announced that it offered to acquire Calibre Mining Corp. through a 0.31 share Equinox/1.0 share Calibre exchange ratio. (reserve @ Pan = 24,634,000 tonnes @ 0.34 gpt Au proven+probable) *Press Release:* February 23

Kinross Gold Corp. announced that reserves at the Bald Mountain Mine aggregate 55,772,000 tonnes @ 0.70 gpt Au proven+probable. (was 28,265,000 tonnes @ 0.50 gpt Au proven+probable) *Press Release:* February 10

Viva Gold Corp. announced that recent drill results at the Tonopah Project include 107-111 meters @ 4.6 gpt Au (TG2421); 23-53 meters @ 2.3 gpt Au (TG2422); 49-61 meters @ 0.6 gpt Au (TG2423) and 128-158 meters @ 0.9 gpt Au (TG2424). (resource = 16,204,000 tonnes @ 0.78 gpt Au measured+indicated)

RANGEFRONT
MINING SERVICES

2027 GSN Symposium (27GSNS) – March 2025 Update

Symposium Event Dates: Thursday 22 April to Saturday 1 May 2027

Location: The Nugget Casino, Reno Nevada USA

Theme: Ore Deposits of the Great Basin – Key to America's Mineral Independence nominated by Jessica Bogossian.

News of the month: The logo competition was launched Friday March 21, 2025, and closed Monday March 31. The Committee will be finalising the logo vote count and will announce shortly. The winning logo will receive a **$200 cash prize generously donated by the GSN**. Thank-you to the fourteen logo entrants, as without your logo creation, talent and skill, we would not have a logo competition. Thank-you also to those members that voted, your participation brings fun to the Symposium journey.

The third meeting of the 2025 year was held March 10, 2025 where topics included data storage, the upcoming logo competition, booking keeping and each of the Sub Committee Chairs provided summaries of their future vision and plans. The Committee was delighted to hear the Sub Committee Chairs enthusiasm and awesome group discussion focussed on the schedule and field tours. More good team effort to come.

We **THANK** all volunteers that have stepped up as **GEOSCIENCE LEADERS** to help prepare and deliver the **2027 GSN Symposium**. This month the following geoscientists have volunteered as Sub Committee Chairs.

Chair	Sub Committee
Jessica Bogossian	Talks and Keynote speakers
Ajeet Milliard & Jeffrey Abbott	Short Courses
Patricia Capistrant & Danielle Schmandt	Posters and Core shack
Brooke Clarkson	Publicity-Advertising

We currently have some remaining Co-Chair roles we would like to fill in the next month or two. If you are interested in stepping up into the Symposium leadership team, kindly contact Regina Molloy or Mark Travis. The following roles are vacant and need to be filled a) Talks and Keynote Speakers Co Chair, b) Social events/prizes/facilities Co Chair, c) Publicity-Advertising Co Chair, d) Social Media and Event App Co chair and Registration and payments 2x Chairs.

Recognition and thank-you to Eric Struhsacker for guiding the Symposium Committee over the past six months, your steady guidance, dedication and commitment to GSN is certainly appreciated. From the Symposium Committee. (cont. on page 15)

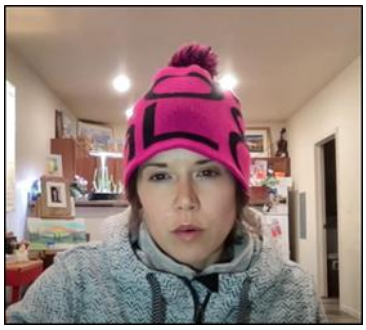
2027 Symposium Update (cont. from page 14)

IN-KIND ASSISTANCE gratefully received

Thank-you to **Rangefront Mining Services** for volunteering to provide in-kind bookkeeping for the duration of the Symposium event including monthly reporting. Your continued loyalty to GSN is very much appreciated.

Thank-you to **SRK** for generously providing a monthly conference room for the Symposium meetings.

This month we introduce the **Symposium Treasurer Christina Ricks biography**, a Geoscientist based in Elko NV.



I grew up in Spokane, Washington and went to Lewis and Clark High School, located in downtown Spokane. I was curious about rocks as a child, but I was a little more interested in archaeology and anthropology. Later, astronomy became my focus and is still a strong interest of mine.

My first work-related exposure to the field of geology came through an internship with United States Geological Survey (USGS) in downtown Spokane, WA and working with a USGS geophysical team out of Golden, Colorado. I was lucky to be a part of a deep crustal magnetotelluric (MT) survey that profiled from Glacier National Park, Montana to Coos Bay, Oregon. Later, I began to work at Teck Cominco's Pend Oreille Mine, located in NE Washington State logging core as a student geologist.

I was appointed Geology Club president for two years, and was a teaching assistant for Eastern Washington University's field camp in the spring/early summer 2008 in addition to other courses. After graduation with a Bachelor of Science in Geology from EWU's College of Health, Science and Engineering, I went to work for Agnico Eagle USA Limited on their West Pequop Project located in the Pequop Mountains in NE Nevada, along with the Summit and PQX (Pequop Extension) Projects. I continued to work for Agnico Eagle through 2023 on a few of their other exploration projects located in and around Nevada, Yukon and British Columbia, Canada, and the Sonora State, Mexico. I am now consulting for Viscount Mining Corporation.

I married in downtown Reno, NV (2016) to the love of my life, and welcomed two boys, William and Ira, who seem to be equally excited about geology.

The next meeting is 14th April 2025 4-5pm PT additional volunteers and interested parties, kindly contact Regina Molloy to receive the meeting details. The incoming Symposium Secretary nomination is now complete and will be voted on at the April 2025 monthly meeting.

All the best with your work and travels over the coming month

From the 27GSNS Symposium Steering Committee

Regina Molloy (Reno) – Chairperson - chairperson@gsnsymposium.org

Mark Travis (Elko) - Deputy Chairperson - depchairperson@gsnsymposium.org

Nomination in process – Secretary - secretary@gsnsymposium.org

Christina Ricks (Elko) – Treasurer – treasurer@gsnsymposium.org

USDA Forest Service
U.S. DEPARTMENT OF AGRICULTURE

STARRY SKIES TO NEON LIGHTS - SPIRIT OF THE Silver State

2025 U.S. Capitol Christmas Tree

We Need

Handmade Ornaments

of varying sizes that are lightweight and durable, colorful and reflective!

Use natural, recyclable or repurposed materials. Ornaments cannot include any commercial logos, political affiliations, or be divisive or offensive. No sharp edges. Ornaments cannot be returned.

Help us make 10,000 ornaments to represent Nevada

500
8 - 10 inches

3,500
9 - 12 inches
weatherproof

6,000
4 - 6 inches

Suggested Themes

Uniquely Nevada, "Home Means Nevada"

Nevada traditions & people

Iconic landscapes & special places in Nevada

How Nevadans enjoy public lands

The wild plants, animals, & geology of Nevada

What public lands represent

Smokey Bear & Woodsy Owl

All ornaments should be submitted no later than: September 15, 2025.
Drop off at ANY Humboldt-Toiyabe National Forest office or mail to:

2025 Capitol Christmas Tree Ornaments
1536 S. Carson Street
Carson City, NV 89701
Contact courtney.ghiglieri@usda.gov for ornament questions
www.uscapitolchristmastree.com

Colorado School of Mines SEG Student Chapter is Planning a Field Trip to China!

China Joint Field Trip: Mines, CODES, Hefei University

Good morning,

As some of you may be aware the Mines SEG Student Chapter has been collaborating with the CODES SEG Student Chapter on a field trip to China. Some brief details regarding the course are below.

- The trip will be focusing on the Middle and Lower Yangtze Belt
- Late June to Early July (~June 26 - July 6th) though dates may shift slightly.
- There will be a workshop prior to the trip held in Hefei (~June 23 - 26)
- Total participant capacity is 30, ~17 for students, currently estimating 11 students from CODES and 6 from Mines. 10 for industry. Other spots are reserved for course leaders.
- Industry members may be charged a sponsorship fee of ~$5000 USD though price structuring is still being established.
- Flights will need to be purchased individually. For students, this also requires the appropriate insurance and registration as with any Mines associated field trip.
- Note that a visa application will be required prior to traveling to China

Due to the logistical requirements of this course it is possible that a deposit will be required once you have fully registered and selected as a participant in the course.

Included here is a link to a poll which will help the chapters establish accurate student and industry participation to improve our ability to finalize logistics.

Link: https://docs.google.com/forms/d/e/1FAIpQLScLJ5_lK1wdI9rtX0FcpZk2cbLf7WJ6OheAYyU5UPIdyMHcaw/viewform

Details regarding this trip will be updating rapidly so please keep an eye out for our emails.

Cheers,

Mines SEG Student Chapter

https://www.segweb.org/

Stories of Mineral Transformation, by Rebecca Lybrand

(Republished from Nature Geoscience, December 2024)

Chemical, physical and biological forces all act to weather minerals. Rebecca Lybrand explores how mineral transformations are ubiquitous in the environment and in our daily lives.

Weathering is an intricate process that reflects the journey of a mineral. It is caused by mineral interactions with water, ice, acids, salts, plants, animals and microorganisms, and physical changes in the environment such as temperature[1]. Mineral weathering has societal importance, with links to the cycling of carbon and nutrients, and even the safe geological storage of spent nuclear fuel[2]. It is equally crucial when identifying strategies for preserving cultural heritage artefacts — such as buildings, statues and medieval stained glass — that are also subject to weathering by water and microbes alike.

Mineral weathering is present in our daily environments and takes on a variety of forms. Some minerals weather by dissolving completely in a solution, as we see when stirring a spoonful of table salt (sodium chloride, NaCl) into a glass of water. Others transform into entirely new minerals by reacting with water, free oxygen, or atmospheric carbon dioxide that mixes with water droplets to form carbonic acid, another agent of chemical weathering. If you have ever noticed the reddish-brown rust that forms on a metal tool or an old bicycle left outside exposed to the elements, you have witnessed evidence for chemical weathering. Refined iron has reacted with oxygen and moisture in rain or the air to form a new mineral informally known as rust — an iron oxide comprised of iron and oxygen (that is, Fe_2O_3).

If we were to pick up a rock along a walk or kneel down to grasp a handful of soil, we would hold a complex and captivating microcosm in our hands. This becomes more intricate when focusing our view to a single sand-sized particle. Microscopic investigations of minerals reveal remarkable glimpses of a micro- to nanoscale world invisible to the naked eye. Mineral surfaces are peppered with evidence of weathering in the form of microfractures, cracks, pits, and sometimes the presence of clay minerals that appear as tubes, elongated ribbons, or even the plate-like pages of a book. One picturesque example is mica weathering, which serves as a natural and prevalent source of potassium to the terrestrial environment[3,4]. Mica, a sheet silicate group that includes biotite, weathers into flexible or brittle sheets with fan-like, frayed edges where weathering has disrupted the planes of its crystal structure at the atomic scale and released potassium to the environment from its interlayer spaces[5].

Organisms also weather minerals. Trees physically weather rocks in search of nutrients or water through root wedging. The roots penetrate into cracks or fractures, grow larger, and mechanically widen the cracks, which eventually splits the rock apart into smaller and smaller pieces. Plant roots also secrete organic acids to indirectly dissolve, release, and access life-supporting elements from minerals, such as the indirect weathering of iron or magnesium from olivine, a mineral that is highly susceptible to weathering. Plant roots associated with soil fungi also directly mine elements such as calcium or phosphorus from minerals including apatite, a common group of phosphate minerals. Fungi forage through soil in search of nutrients or water by extending their filaments across particles of quartz, along the edges of biotite micas (Fig. 1), or through the surface layers of plagioclase feldspars. Fungi are even capable of producing new minerals — including oxalates, oxides, or carbonates — through biomineralization[6]. Bacteria can also etch or tunnel into minerals or basaltic glass grains to access nutrients; the same evidence for bacterial weathering has been detected at the depths of the sea, where bacteria tunnel into the volcanic glass of oceanic basalts, leaving behind signatures of life that may endure for millennia.

Weathering and transformation are therefore foundational to the biosphere, driving element cycling between the inorganic and organic realms. Our planet relies on the transformation of minerals, and ultimately so does our society.

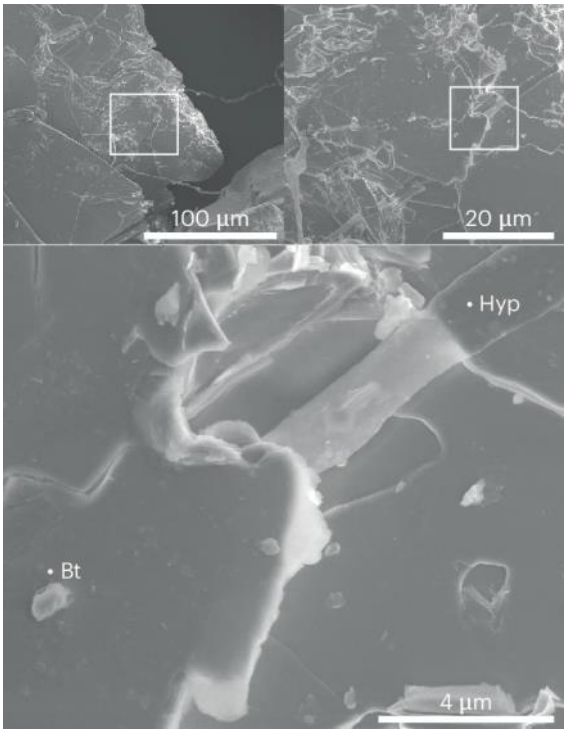


Fig. 1: Evidence of biomechanical weathering as observed using a scanning electron microscope. The micrographs show a fungal hypha (Hyp) penetrating a surface layer sheet of biotite (Bt). Adapted from ref. [7], Springer Nature Limited.

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Full Page (7.5" X 10") = $450.00

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Reno, NV 89512 USA

GSN TRAVELLING BACKPACK PICTURES (Submit your photo to gsn@gsnv.org!)

Elizabeth Zbinden took this picture of her GSN backpack at the top of Cathedral Rock in Sedona AZ on Dec 30, 2024. Cathedral rock is promoted as one of the major vortex sites in Sedona. She did not experience any vortex energy but said that the view is spectacular.

SWICK
Innovative • Productive • Safe

Thank you to Swick for donation of dinner for Laura Ruud at the airport, and also to Tony Eng who bought Laura dinner during PDAC! We appreciate you!

Keaton Sakurada graciously posed with my GSN backpack alongside his Swick Drilling backpack in the airport as we travelled home from PDAC.