

GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Room 107, Reno, NV 89512
(775) 323-3500 - Hours Tuesday -- Friday, 8 a.m. to 3 p.m. Monday by appointment.
Website: www.gsnv.org • E-mail: gsn@gsnv.org



September 2013, Vol. 29, No. 7

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CALENDAR OF GSN EVENTS

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Aug 29, 2013
Thursday

SOUTHERN NEVADA CHAPTER MEETING (Every Last Thursday)

The monthly meeting will be held in room 105 of the Lilly Fong Geosciences building, UNLV. **Speaker: Tom Moulin**, author of Red Rock Canyon Visitor's Guide and Southern Nevada Boulder. **TITLE: "Red Rock Canyon: Rock Formations through Time with Paleontological Notes"**. For more information contact Wyatt Bain, bainw1@unlv.nevada.edu. See flyer on page 9.

Sept 11, 2013
Wednesday

WINNEMUCCA CHAPTER MEETING (Every 2nd Wednesday)

The monthly meeting will be held at the Martin Hotel, 94 W. Railroad St., Winnemucca, NV. **Speaker: Greg Dering, NV Bureau of Mines & Geology. Title: "Structural controls of the Tuscarora geothermal field". Food & Drinks Sponsored by Boart Longyear.** Contact Andy Jansen at Andrew.jansen@newmont.com for more information. Details on page 8.

Sept 19, 2013
Thursday

ELKO CHAPTER MEETING (Every 3rd Thursday)

The monthly meeting will be held at the Western Folk Life Center, 501 Railroad St. Appetizers & drinks at 6 pm, Talk at 7 pm. **Speaker: Jean Cline, UNLV. Title: "Ore Deposition in Carlin-type Gold Deposits: Studies of Sample Transects from Dead Rock to High-grade."** **Food/Drinks Sponsored by EnvirosScientists, Inc..** For more info. contact Josh Sovie, jsovie@barrick.com. Details on pg.10.

Sept 20, 2013
Friday

GSN MEMBERSHIP MEETING (Every 3rd Friday of the month)

The monthly meeting will be held at the Reno Elks Lodge, 597 Kumle, Reno. Drinks at 6:00 PM, Dinner at 7:00 PM, Talk at 8:00 PM. **Speaker: Joaquin Ruiz, Univ. of AZ. Title: "Evolution of the Witwatersrand Gold Deposit". Sponsor for the evening is: Boart Longyear.** Dinner reservations must be made by NOON Thurs., Sept 19th. Call Laura Ruud at 323-3500; email: gsn@gsnv.org. **DINNER \$25.00. Students eat for free! (Details pg. 3)**

Sept. 26, 2013
Thursday

SOUTHERN NEVADA CHAPTER MEETING (Every Last Thursday)

The monthly meeting will be held in room 105 of the Lilly Fong Geosciences building, UNLV. **Speaker & Topic TBA.** For more information contact Wyatt Bain, bainw1@unlv.nevada.edu.

Oct 5-6, 2013
Sat & Sun

GSN FALL FIELD TRIP

Round Mountain and the Lunar Crater Volcanic Field. Contact Laura Ruud at the GSN office for more information at gsn@gsnv.org or call 775-323-3500. Details on page 6 and registration on page 7.



BOART LONGYEAR

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FROM THE PRESIDENT
Tommy Thompson, G.S.N. President 2013-2014

Welcome, Fellow GSN Members, to another year of interesting programs and activities. Some of you have already experienced the great BBQ at Dan Kappes' home in August with excellent talks on geology and the investment world. We extend our thanks to Dan for hosting this event! Our Fall line-up will include a wide spectrum of geologic topics including the Witwatersrand, South Africa gold deposits, young (!) volcanic events in the northern Tahoe basin where basaltic flows entered the lake waters, a giant porphyry copper deposit with its hypogene and supergene history, and finally a travel log into spectacular southern Perú at our December gala.

Another event that will be exciting is the Fall GSN fieldtrip (5-6 October) organized by Jon Price. Not only will we see an interesting gold deposit, but we will visit on the second day the volcanic geology of Lunar Crater that plumbed deep into the earth's crust and beyond. Space is limited so, if interested, you should register soon!

We keep hearing the loud proclamations that humans are responsible for global warming and the destruction of scenic areas. As R.A. F. Penrose Jr. eloquently stated in his 1930 Geological Society of America Presidential Address - "Much has been written concerning this material influence of man on the earth, but the opposite effect, that is, the influence of the earth on man, has received much less attention; and yet from primitive times it has been active. It seems proper therefore to note the action of geologic phenomena on man throughout the ages in which he has existed.....These influences may be either beneficial or detrimental to man's welfare..., and at times threaten his very existence." The proclamation by public celebrities (e.g. former V.P. Al Gore) that we must reverse the process is ludicrous to geologists who are aware that the earth has experienced global warming and cooling over its entire history, long before any influence by human activities. Some in the scientific community are beginning to make the public aware that we play a small role in climate change. Just as an example, there are more than 200 active volcanoes on earth; a single volcanic eruption in Colombia emitted more gas (CO₂, H₂S, and others) than the entire Los Angeles metropolitan area in an entire year!! We as geologists need to help inform the public about the earth's climatic cycles over geologic time. As many Renoites will attest, the last two weeks of smoky "climate" are just part of the detrimental effects of natural processes that occur.

"Knowledge of at least the general principles of geology is an important part of any liberal education and is essential in many scientific, literary, artistic, engineering and other pursuits of the present day." (R.A. F. Penrose Jr. 1930).



GSN September 20, 2013 Membership Meeting

Reservations Are Required - Please Cancel if You Are Unable to Attend

Please call 775-323-3500, Fax 775-323-3599 or e-mail gsn@gsnv.org by **Noon on Thursday, Sept. 19, 2013.**

Social Hour: 6:00 PM – Dinner: 7:00 PM – Speaker: 8:00 PM

\$25.00 per person. Location: Elks Lodge, 597 Kumle Lane, Reno, Nevada

Directions: across (W) from the Reno-Sparks Convention Center

(S. Virginia Street, behind the Les Schwab Tire Center)

“Evolution of the Witwatersrand Gold Deposit”

***Dr. Joaquin Ruiz, Dean of the College of Science
and Professor of Geosciences, University of Arizona***

Vice President of Innovation and Strategy

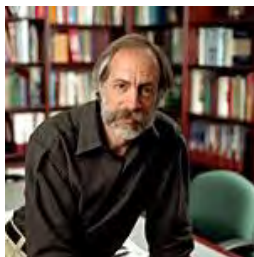
Executive Dean, Colleges of Letters, Arts and Science

Dean, College of Science

Professor of Geosciences

AN ABSTRACT WILL BE SENT OUT ALONG WITH THE MEETING ANNOUNCEMENT NEXT MONTH.

Biography



Joaquin Ruiz received his B.S. in Geology and B.S. in Chemistry at the University of Miami in 1977. He received his M.S. and Ph.D. in Geology from the University of Michigan in 1980 and 1983, respectively. From 1982 to 1983 he was Assistant Professor at the University of Miami. In 1983 he joined the University of Arizona Geosciences Department as Assistant Professor and was promoted to Associate Professor in 1989 and Professor in 1993. He served as head of the Department of Geosciences from 1995 to 2000. He was appointed Dean of the College of Science in 2000, Executive Dean of the Colleges of Letters, Arts and Science in 2009, and Vice President of Innovation and Strategy in 2013. Dr. Ruiz is past President of the Geological Society of America (2010-2011). He is also a Fellow of the Society of Economic Geologists, and a member of the American Geophysical Union, the American Chemical Society, the Geochemical Society, and the National Research Council of the National Academies of Science. He is a member of the Mexican Academy of Sciences and the Governing Board of the Instituto Nacional de Astronomia, Optica y Electronica in Mexico. He has served as Secretary of the Volcanology Section of the American Geophysical Union, Councillor of the Geological Society of America, and as a National Science Foundation Panel Member for the Instrumentation and Facilities Program and the Centers for Excellence in Science and Technology Program. He has served as Associate Editor of the American Journal of Science, Geology, ReVista, and Geofísica Internacional of the Institute of Geology, UNAM. As a scientist with equal abilities in chemistry and in geology, Dr. Ruiz addresses many first-order problems in the Earth Sciences, such as the development of new isotope systems for studying ore deposits and the tectonic processes involved in the growth and evolution of Mexico. His research team addresses problems ranging from the origins of life to present-day climate change.

“FACES OF GSN”

SUSIE MASON

G.S.N. MEMBERSHIP CHAIR 2013



Susie Mason has been a member of the Geological Society of Nevada for a number of years. After assisting Laura Ruud with the 2013 GSN directory and membership processing, Susie was asked if she was interested in becoming an officer for the organization, commencing in June 2013. As we all know, she is “just a girl who can’t...”.

Originally from Snyder, Texas, Susie and her husband Randy have been in the Reno area for the last 27 years. Susie has worked in the land and minerals industry for 40 years and retired in September 2012 from Federal service with the Bureau of Land Management. During the BLM years, Susie held positions with Nevada State Office of the Bureau of Land Management as Branch Chief for the Public Room, State Records Administrator and FOIA (Freedom of Information Act) Coordinator for the final two years.

It is not all work for Susie, though. She also spends time quilting, playing the piano for her church and with the Landman Band, aka Midlife Crisis, reading, providing clothes and meals through the church, doing a lot of puzzles (Sudoku) and exercising.



Land man Band still making music!
Susie is at the piano in the back.

Her true passion, however, is exploration geology and she looks forward to an amazing year with GSN! This article is dedicated to my precious husband, Randy (1975 to present) and to my Momma and Daddy, Charlene and Marvis Hendrix (1946-2010).



Randy & Susie 08-19/2005



Marvis and Charlene Hendrix

GSN 11th Annual “Silver” Summer Series wrap-up

On August 8, 2013 about 170 GSN members and friends gathered for the revival of the GSN’s “Silver” Summer Series BBQ. Our special guest speakers were Brent Cook, author of Exploration Insights and Paul van Eeden, Director of Cranberry Capital.

We started out in the backyard of our generous host and sponsor, **Dan Kappes**. He supplied an amazing feast of tri-tip, pulled pork, fajitas, cornbread & beans from “Men Wielding Fire” BBQ. Everyone brought side dishes and desserts to share so there was PLENTY of food for everyone! **Mine Development Associates** supplied the kegs of Great Basin Brewing Co. beer which is always very much appreciated by the crowd. And new this year, **Robert Schultz, with MRC Corporation** supplied really good Scotch along with wine, soda and water.

The evening started with threatening clouds overhead and rain pouring to the east of us. Everyone was able to eat their fill of BBQ without getting too damp. However, not long after Brent Cook began his talk on the deck, the raindrops started to fall. Even the hardest of geologists in the audience decided that it might be a good idea to finish the talks inside Dan’s house. As we ran into the house a double rainbow came out and gave us the false hope that the rain would stop. It didn’t! Brent continued his talk from the fireplace hearth in Dan’s house as everyone gathered around him, spilling into the dining room, den, and kitchen. Brent expressed his thoughts that a lot of speculative money went into exploration with dismal results. Of 10,000 prospects being explored across the globe, he offered that only about one in a thousand of those projects will turn into a successful mine discovery. Most of the millions of drill holes around the world will turn out to be anomalies. He advised the group to find the fatal flaws in a prospect as quickly as possible and move on. Paul van Eeden took the stage (the hearth?) next. Paul is a well-respected analyst originally from So. Africa and now residing in Canada. Paul keeps his eyes on the big picture of gold. The juniors are really struggling right now to raise money which will result in many of the juniors not being able to survive this downturn. His best advice for the audience was to be critical of your work, your numbers and your prospects. He acknowledged that the markets

throw money at the industry when metals prices are high but mining has now been abandoned by the financial sector. However, every primary industry depends on mining for the tools of its trade so the industry will survive. He encouraged junior exploration companies to look at acquiring projects that have been drilled by others and now languish due to lack of funding. Both speakers emphasized that the industry has to be honest with the fund managers and work to educate them about the long process of exploration and development instead of focusing on the short term results of an isolated drill hole or two.



Brent Cook, presenting his “exploration insights” from the deck of Dan Kappes.



Imminent rain didn’t dampen the enthusiasm of the crowd!



Paul Tietz enjoying a cold Great Basin beer before the presentation.

*Thank you to our
generous donors in August*

G.S.N. FOUNDATION

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STUDENT DINNER FUND

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Bob Kellie
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U of Arizona Alumni Reunion is on!

The University of Arizona alumni reunion will be held in Reno on Thursday, Sept. 19, 2013 in Reno in conjunction with Dr. Joaquin Ruiz's visit to Reno to be the GSN's speaker on Sept. 20th. Any University of Arizona alumni and friends of Dr. Ruiz in the Great Basin are invited to attend the reunion. Please contact Dieter Krewedl at dkrewedl@gmail.com for more information.



G.S.N. FALL 2013 FIELD TRIP

**Round Mountain and the Lunar
Crater Volcanic Field**

Geological Society of Nevada (GSN)

Fall 2013 Field Trip

Saturday, October 5, and Sunday, October 6, 2013

Field Trip Leaders:

Jon Price, Jonathan G. Price, LLC

Terry Jennings, Kinross Gold Corporation

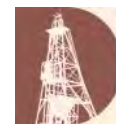
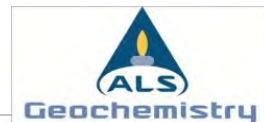
Dave Boden, Truckee Meadows Comm. College

Trip Overview

This two-day trip will take you to Quaternary, Miocene, and Oligocene volcanoes; let you sample the Earth's mantle; and expose you to the two major types of hydrothermal alteration associated with epithermal gold deposits – quartz-adularia (low-sulfidation) and quartz-alunite (high-sulfidation; acid-sulfate). Starting at the GSN/NBMG office in Reno Saturday morning, on acid-sulfate altered andesite, we'll head directly to tours of the Round Mountain and Gold Hill mines, spend the night at the historic Mizpah Hotel in Tonopah, and have a blast collecting bombs and large crystals from Easy Chair crater in the Lunar Crater volcanic field before returning to Reno by dinnertime on Sunday.

REGISTRATION FORM ON PG. 7!

**Thank you
Field Trip Sponsors!**



Desert Ventures, Inc.
Mineral Exploration Services

Geological Society of Nevada (GSN) Fall 2013 Field Trip
Saturday, October 5, and Sunday, October 6, 2013

Round Mountain and the Lunar Crater Volcanic Field

Field Trip Leaders: Jon Price, Jonathan G. Price, LLC
Terry Jennings, Kinross Gold Corporation
and Dave Boden, Truckee Meadows Community College

Saturday, October 5th:

Depart Reno @ 7:00 a.m. for Round Mountain & Gold Hill Mine Tours.
Sack Lunch Provided.
Dinner and Overnight at the Mizpah Hotel, Tonopah, Nevada.

Sunday, October 6th:

Breakfast on your own
Depart the Mizpah Hotel @ 8:00 a.m. for Lunar Crater Volcanic Field.
Sack Lunch Provided
Return to Reno @ ~ 6:30 p.m.



FALL 2013 Field Trip Registration

Name: _____

Company: _____

Address: _____

Cell Phone #: _____

Email: _____

Person to contact in case of emergency:

Name: _____

Phone: _____

Lodging: Single _____ Double _____

Double roommate: _____

*Non-members are encouraged to become members of the GSN for \$50 annual dues in order to take advantage of the reduced rate.

MEMBER COSTS:	Double Room (Limited #)	\$245.00
	Single Room	\$275.00
	Room Not Required	\$155.00
STUDENT MEMBERS COMPED BY G.S.N.:		\$0

*NON-MEMBER COSTS:	Double Room (Limited #)	\$295.00
	Single Room	\$325.00
	Room Not Required	\$200.00

Amount included with this form: \$ _____

Paid with Check Number: _____

Credit Card # _____

Visa: MasterCard: Expiration date: _____

3-digit security code (back of credit card): _____

Signature: _____

(as it appears on card)

Payments must be made by September 25, 2013

No Refunds after September 25, 2013

Fax form to: (775) 323-3599 or mail to GSN office:
2175 Raggio Pkwy, Reno, NV 89512 or email to gsn@gsnv.org

G.S.N. WINNEMUCCA CHAPTER MEETING

Wednesday, September 11, 2013

Location: The Martin Hotel, 94 W. Railroad Street

Food and Drinks Sponsored by: BOART LONGYEAR



Speaker: Greg Dering and Dr. Jim Faulds, Nevada Bureau of Mines & Geology

Talk title: "Structural controls of the Tuscarora geothermal field"

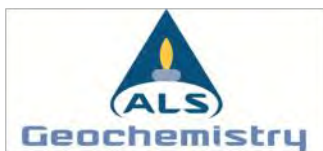
ABSTRACT

Detailed geologic mapping, structural analysis, and well data have been integrated to elucidate the stratigraphic framework and structural setting of the Tuscarora geothermal area. Tuscarora is an amagmatic geothermal system that lies in the northern part of the Basin and Range province ~90 km northwest of Elko, Nevada. The geothermal area is dominated by late Eocene to middle Miocene volcanic and sedimentary rocks, all overlying Paleozoic metasedimentary rocks. A geothermal power plant was constructed in 2011 and currently produces 18 MWe from an ~170°C reservoir in argillite and silty limestone. Analysis of drill core reveals that the subsurface geology is dominated to depths of ~700-1000 m by intracaldera deposits of the Eocene Big Cottonwood Canyon caldera, including blocks of basement-derived megabreccia.

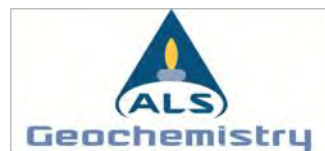
Two distinct structural settings at different scales appear to control the geothermal field. The regional structural setting is a 10-km wide complexly faulted left step or relay ramp in the west-dipping range-bounding Independence-Bull Run Mountains normal fault system. Geothermal activity occurs within the step-over where sets of east- and west-dipping normal faults overlap in a northerly trending accommodation zone. The distribution of hot wells and hydrothermal surface features, including boiling springs, fumaroles, and siliceous sinter, indicate that the geothermal system is restricted to the narrow (< 1 km) axial part of the accommodation zone, where permeability is maintained at depth around complex fault intersections. Shallow up-flow appears to be focused along several closely spaced steeply west-dipping north-northeast-striking normal faults within the axial part of the accommodation zone. These faults are favorably oriented for extension and fluid flow under the present-day northwest-trending regional extension direction indicated by previous studies of GPS geodetic data, earthquake focal mechanisms, and kinematic data from late Quaternary faults.

The recognition of the axial part of an accommodation zone as a favorable structural setting for fluid upflow may be a useful exploration tool for developing drill targets in both fossil and active epithermal systems. The presence of several high-temperature systems in northeastern Nevada demonstrates the viability of electrical-grade geothermal activity in this region despite low present-day strain rates as indicated by GPS geodetic data. Geothermal exploration potential in northeastern Nevada may therefore be higher than previously recognized.

**ELKO CHAPTER
AUGUST 2013 BBQ SPONSOR**



**WINNEMUCCA CHAPTER
AUGUST 2013 SUMMER BBQ SPONSOR**



**Thanks to
ALS GEOCHEMISTRY
for sponsoring & cooking at the
Elko Chapter meeting in August!**

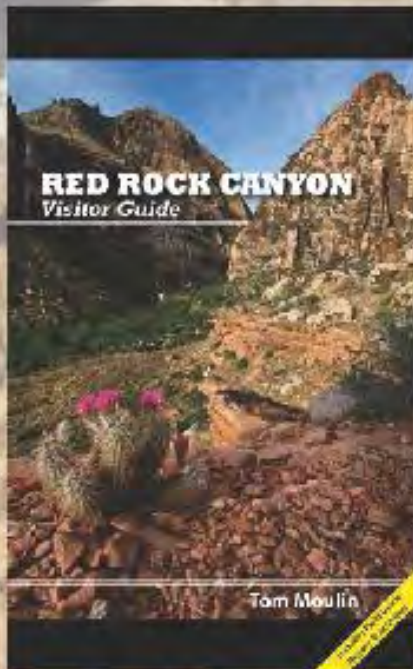
**Thanks to
ALS GEOCHEMISTRY
for sponsoring the
Winnemucca Chapter
meeting in August!**



Geological Society of Nevada

Southern Nevada Chapter Fall Kickoff Meeting

Want to learn about the Geology of Red Rock Canyon?



Don't miss *Red Rock Canyon: Rock Formations Through Time With Paleontological Notes*; a presentation by Tom Moulin, author of the Red Rock Canyon Visitor Guide.

The meeting will be **August 29th at 7pm** in room 105 of the Lilly Fong Geosciences building on the UNLV campus. Free food and refreshments. **All ARE WELCOME!**
For more information contact Wyatt Bain (bainw1@unlv.nevada.edu)

G.S.N. ELKO CHAPTER

Thursday, September 19, 2013

6:00 p.m.—9:00 p.m.

Western Folklife Center

501 Railroad St., Elko, Nevada

Food and Drinks Sponsored by:



Speaker: Dr. Jean Cline, UNLV

“Ore Deposition in Carlin-type Gold Deposits: Studies of Sample Transects from Dead Rock to High-grade”

Jean S Cline¹, John Muntean², and Anthony Longo^{1,3}

¹University of Nevada Las Vegas, Las Vegas, Nevada, USA; ²Nevada Bureau of Mines and Geology and University of Nevada Reno;

³Spire Exploration, LLC, Reno, Nevada, USA

In spite of their relatively recent discovery and restriction to northeastern Nevada, USA, Carlin-type gold deposits comprise one of the three most productive gold districts in the world. Geochemical and geophysical studies indicate that major deposit trends are in part crustal-scale structures, likely related to continental rifting. The deposits occur in early Paleozoic silty, pyritic, carbonaceous limestone formed during rifting of western North America. Subsequently, the rocks were subjected to hundreds of millions of years of compression that produced extensive ground preparation later utilized by ore fluids. Plate tectonic activity in the late Eocene changed the tectonic setting from compression to tension, triggering deposit formation. Acidic, gold-bearing fluids drawn into re-opened structures rose to within a few kilometers of the Earth’s surface where they sulfidized available iron and formed trace element-rich pyrite. The resulting deposits may be a product of the spatial coincidence of ideal host rocks and an influx of acidic, gold-bearing fluids that reacted with the host rocks and deposited gold.

Studies of these deposits require microanalyses to identify ore and alteration minerals and determine conditions under which the deposits formed. This is because gold and associated trace metals are structurally bound at submicrometer scales in pyrite, and alteration minerals accompanying gold-bearing pyrite may be sparse, fine-grained, and difficult to identify. Also, multiple generations of pyrite and alteration minerals are common, yet the stages genetically associated with gold must be identified and analyzed to inform about mineralization processes.

Detailed studies have been key to unraveling processes related to deposit formation and have employed a sampling strategy developed during early studies of fluid inclusions. This strategy has become a critical first step and involves collecting short transects of samples from “dead” rock to gold ore. Such transects minimize rock variability and reveal phases and changes to the rock temporally associated with gold.

Early fluid inclusion studies determined pressure-temperature conditions of ore formation at the Getchell deposit and succeeded as a result of analyzing high-grade samples containing fluid inclusions in quartz that contained gold-bearing pyrite. Similar studies provided consistent ore fluid temperatures and salinities for other Carlin deposits.

Subsequent studies employing this strategy have contributed to identifying:

- a deep magmatic or metamorphic ore fluid source at Getchell, and a meteoric fluid source at Betze-Post
- ore fluid pathways that are highly channelized at Getchell
- the spatial and temporal evolution of ore fluid pathways at Betze-Post using oxygen isotopes
- a changing metal composition of the ore fluid that varied in time and space
- a chemical “stratigraphy” in ore-stage pyrite rims that recorded the temporal evolution of the ore fluid and its pathways at Getchell
- a single, evolving mineralizing event that formed Getchell, Betze-Post, and Cortez
- high-ore grade that correlates directly with a lengthier period of ore fluid flow at Turquoise Ridge
- high-grade ore in a heterolithic breccia was the product of dissolution and collapse at Cortez Hills.

Geologists Needed! **October 12 and/or 13 - to Help the** **Public Appreciate Geology**

The Nevada Bureau of Mines & Geology (NBMG) is asking geologists (and their families and friends) to participate in the sixteenth annual Earth Science Week field trip. The same trip will be run on each of two consecutive days. These are popular trips that typically have 50 to 100 people each day. In keeping with this year's national theme, "Mapping Our World," the trip will focus on identifying rocks and minerals, then mapping the geology around the NBMG-GSN office on the DRI campus. Fresh and hydrothermally altered andesite (and related intrusive rocks) and silica ledges, characteristic of high-sulfidation epithermal gold deposits, will be easy to identify.

The trip is free, but you should register for it at <http://www.nbmgs.unr.edu/>, where you can also view or download the short guidebook. The guidebook will be all a GSN member should need to be a knowledgeable co-leader on the trip. We would like to have a good number of geologists participate to answer questions from the general public and to help identify rocks and minerals that people bring from their homes.

You are welcome to help either or both days, Saturday, October 12, or Sunday, October 13. We will start promptly at 8:00 a.m. each day at the NBMG-GSN office on the west side of the DRI campus, 2175 Raggio Parkway, Reno, NV 89512. We will return to the building for breaks and lunch together to discuss what has been discovered so far. Most people will be ready to finish mapping by 3:00 or 4:00 p.m..


As an inducement, GSN members who help will receive two fantastic gifts: a Nevada-shaped pin made from a rock found near the NBMG-GSN office and a rare-earth (Fe₁₄Nd₂B) high-strength magnet on a string, the best geophysical tool for identification of magnetite and pyrrhotite.

Thanks,

Jon Price, GSN Vice President



NBMG-GSN office
on the DRI campus, Reno.

	<p>NEVADA MINERAL EXPLORATION COALITION <i>The "Voice" of Nevada Exploration</i></p> <p>P.O. Box 1734 Elko, NV 89803 www.nvmec.org</p>
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Join Us!
October 15, 2013

Save the Date: October 15

NMEC 2013 Annual General Meeting

The Nevada Mineral Exploration Coalition is excited to announce the date for this year's Annual General Meeting. We have had a very busy year, which included a highly successful legislative session, and now we want to hear from you!

The meeting this year will take place at the Nugget Casino in Sparks on Tuesday, October 15. The meeting will commence with our annual business meeting, along with an update of our legislative achievements and what we can expect going forward. There will be numerous panel discussions facilitated by Nevada's foremost experts on topics of interest to you including federal land transfers, permitting, sage grouse updates, venture capital outlook, implications of SJR15 on the exploration industry, and a forum where you will have an opportunity to take full advantage of your membership by voicing any of your concerns to a panel of Nevada legislators. We will also be looking for suggestions as to what we can further do as an organization to represent YOUR specific interests.

Dave Shaddrick
President, Nevada Mineral Exploration Coalition



G.S.N. CHAPTERS ARE ACTIVE AND GROWING!!



The G.S.N. is proud to have three Chapters in the state of Nevada. They are located in Elko, Winnemucca and Las Vegas. The Elko Chapter was the first one organized back in 1990. In March 1990 the official operating guidelines for the Elko Chapter and the GSN Computer Users Group (CUG) were drafted. I believe Borden Putnam, III was the first Elko Chapter President and Jeff Parshley headed up the CUG. (The CUG Chapter was disbanded a few years later). Bo organized the first Elko Chapter Field Trip and published a guidebook titled "Carlin & Cortez Trends: Comparisons and Contrasts". It is GSN Special Publication #12 and yes, I have copies for sale for only \$20/each! (If you were there, more details and corrections are welcome!)

In the GSN meeting minutes from October 1990, Eric Seedorff reported on the idea of a "Vegas Chapter". The Southern Nevada Chapter held their first meeting on March 21, 1991 with Jean Cline as President along with Brian Dozier and Mark Stock listed as initial organizers. Jean helped to organize the GSN's Spring 1991 Field Trip to the Lake Mead region, Halloran Springs district, Nelson district and Castle Mountain. This is GSN Special Publication #13 and they are out of print but I have it for sale on a CD of 10 guidebooks for only \$15.

The Winnemucca Chapter held it's inaugural meeting in March, 2000 with Peter Mitchell of Newmont giving a talk on the Batu Hijau in Indonesia. Bruce Braginton was the first Winnemucca Chapter President. The Chapter has grown to almost 300 members with about 70 people in regular attendance at their monthly meetings. At one time, there was also the GSN Basin & Range Geophysical Chapter for a few years but I'll have to do a bit more research to find the information on that now defunct Chapter.

If you've never been able to attend one of the GSN Chapters' meetings, you are really missing out! There is a groundswell of young and enthusiastic geologists who volunteer their precious time off to be officers and run the organizations flawlessly. Of course there are some "seasoned" geologists in each Chapter who have guided them on how the GSN works and what it means to be a part of this great organization that we call the Geological Society of Nevada!

I am personally so thankful for these individuals who volunteer each year to step up as officers and continue the work of GSN. They each donate their valuable time to make their Chapter the best it can be. GSN is known for its great speakers, generous sponsors but especially for its camaraderie among the geologic community as a whole. You can always count on a lively geological discussion at any meeting you attend but in the same conversation, be asked about how your job is going or about how your family is doing. Thank you to all the current 2013-2014 GSN Chapter officers for all you do!

ELKO

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WINNEMUCCA



Courtesy of Peg O'Malley. Circa 1993

Activity Update

Mike Brady, July 2013

www.activityupdate.com

NEVADA

Canamex Resources Corp. announced that recent drill results at the Bruner Project include 123.8-125.6 meters @ 37.9 gpt Au (B-1316). *Press Release: July 17*

Paramount Gold + Silver Corp. announced that recent drill results at the Sleeper/West Wood Project include 0-45.72 meters @ 0.59 gpt Au, 4.3 gpt Ag (PGC13-031); 23.32-97.54 meters @ 0.35 gpt Au, 0.5 gpt Ag (PGC13-032) and 75.74-381.0 meters @ 1.08 gpt Au, 10.5 gpt Ag (PGC13-033). (resource = 326,963,000 tonnes @ 0.33 gpt Au, 3.9 gpt Ag measured+indicated) *Press Release: July 16*

Veris Gold Corp. announced the start-up of underground mining operations at the Starvation Canyon Mine at a 600 tpd rate. (reserve = 883,600 tonnes @ 6.04 gpt Au proven+probable) *Press Release: July 22*

Star Gold Corp. announced that recent drill results at the Longstreet Project include 54.6-58.2 meters @ 0.53 gpt Au, 2.0 gpt Ag (LS-1301); 0-14.6 meters @ 0.52 gpt Au, 30.6 gpt Ag (LS-1302); 30.9-40.0 meters @ 0.10 gpt Au, 32.0 gpt Ag (LS-1303) and 16.4-52.8 meters @ 0.30 gpt Au, 10.5 gpt Ag (LS-1305). (resource = 4,600,000 tonnes @ 0.65 gpt Au, 15.7 gpt Ag indicated) *Press Release: July 9*

Scorpio Gold Corp.(70%) announced that recent drill results at the Mineral Ridge Project include 24.38-38.72 meters @ 0.67 gpt Au (MR13556); 38.1-44.2 meters @ 1.32 gpt Au (MR13561); 4.57-7.62 meters @ 1.53 gpt Au (MR13562) and 25.91-32.0 meters @

1.64 gpt Au (MR13563). (resource = 4,230,000 tonnes @ 1.47 gpt Au indicated) *Press Release: July 22*

Premier Gold Mines Ltd. announced that recent drill results at the Cove/Helen Project include 412.7-423.5 meters @ 19.6 gpt Au (AX-35); 561.6-572.0 meters @ 40.40 gpt Au (AX-36); 428.9-441.4 meters @ 5.16 gpt Au (AX-37) and 591.2-594.7 meters @ 15.34 gpt Au (AX-39). (resource = 356,000 tonnes @ 20.14 gpt Au, 41 gpt Ag inferred) *Press Release: June 27*

Klondex Mines Ltd. announced that drifting and sampling along the Joyce (A1) structure at the Fire Creek Project returned a 144.2 meters continuous strike that averaged 132.8 gpt Au over a 0.6 meter average width. (resource = 5,176,000 tonnes @ 9.9 gpt Au indicated) *Press Release: July 10*

Corvus Gold Inc. announced that recent drill results at the North Bullfrog/North Sierra Blanca Project include 134.3-150.9 meters @ 0.58 gpt Au, 2.6 gpt Ag (NB12-119); 109.7-176.8 meters @ 0.52 gpt Au, 1.1 gpt Ag (NB13-219) and 71.6-198.1 meters @ 0.37 gpt Au, 2.0 gpt Ag (NB13-220). (resource @ North Bullfrog = 15,000,000 tonnes @ 0.37 gpt Au indicated) *Press Release: July 10*

Corvus Gold Inc. announced that recent drill results at the North Bullfrog/Yellowjacket Project include 86.5-202.7 meters @ 0.59 gpt Au, 1.5 gpt Ag (NB13-341); 98.7-193.1 meters @ 0.20 gpt Au, 1.0 gpt Ag (NB13-342) and 118.2-126.6 meters @ 10.72 gpt Au, 10.4 gpt Ag (NB13-344). *Press Release: July 9*

The **Arizona Geological Society** just released dozens of out-of-print Digests and Field Trip guides.

You can find their Publications Archive page at: [AGS Publications Archive](#)

If you have any questions or encounter any problems please contact:

Michael Conway, Ph.D. | Chief, Geologic Extension Service
Arizona Geological Survey | 416 W. Congress, Ste. 100 | Tucson, AZ 85701
520.209.4146 | c. 520.971.3688 | Michael.conway@azgs.gov

IT'S TIME TO RENEW YOUR DUES FOR 2014!! I am including a membership form here for your convenience. You can also renew your dues online using PayPal through the GSN website: <http://www.gsnv.org/membershipform.php>

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2014

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The Geological Society of Nevada (GSN) is a non-profit, educational organization whose principal objective is to promote the advancement of geological sciences, especially as they relate to Nevada. GSN supports the dissemination of information through meetings, field trips, publications and academic endeavors. Membership is open to geologists, geophysicists, geochemists, engineers, educators, students, prospectors or anyone else with an interest in the geological sciences and/or the goals of the GSN.

The membership year begins on January 1. Annual dues of \$50.00 (\$25.00 for full time students) are due prior to December 31. The GSN conducts a Field Trip in the Fall and one in the Spring of each year. Monthly meetings are held in Reno, Winnemucca, and Las Vegas (Southern Nevada Chapter) September through May. The Elko Chapter holds meetings January through December.

Please help support the GSN Foundation when renewing. Foundation dollars are used for the Kindergarten through 12th grade Field Trip Grant Program, Nevada Mapping Grants and University of Nevada scholarships.

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Yes No

Optional Chapter Affiliation (to be eligible for chapter voting and emails from those Chapter Officers)

Elko Chapter Southern Nevada Chapter Winnemucca Chapter

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ROCK TALK

Oldest Rock Art in North America Revealed

(Reprinted from www.livescience.com. By Megan Gannon, News Editor | August 14, 2013 08:04am ET)

On the west side of Nevada's dried-up Winnemucca Lake, there are several limestone boulders with deep, ancient carvings; some resemble trees and leaves, whereas others are more abstract designs that look like ovals or diamonds in a chain.

The true age of this rock art had not been known, but a new analysis suggests these petroglyphs are the oldest North America, dating back to between 10,500 and 14,800 years ago.

Though Winnemucca Lake is now barren, at other times in the past it was so full of water the lake would have submerged the rocks where the petroglyphs were found and spilled its excess contents over Emerson Pass to the north.

To determine the age of the rock art, researchers had to figure out when the boulders were above the water line.

The overflowing lake left telltale crusts of carbonate on these rocks, according to the study by researcher Larry Benson of the University of Colorado Boulder. Radiocarbon tests revealed that the carbonate film underlying the petroglyphs dated back roughly 14,800 years ago, while a later layer of carbonate coating the rock art dated to about 11,000 years ago.

Those findings, along with an analysis of sediment core sampled nearby, suggest the petroglyph-decorated rocks were exposed first between 14,800 and 13,200 years ago and again between about 11,300 and 10,500 years ago.

"Prior to our study, archaeologists had suggested these petroglyphs were extremely old," Benson said in a statement. "Whether they turn out to be as old as 14,800 years ago or as recent as 10,500 years ago, they are still the oldest petroglyphs that have been dated in North America."



Researchers found that petroglyphs discovered in western Nevada are at least 10,500 years old, making them the oldest rock art ever dated in North America. Credit: University of Colorado



Credit: Larry Benson, CU Boulder

Researchers previously believed the oldest rock art in North America could be found at Long Lake, Ore., in carvings that were created at least 6,700 years ago, before being covered in ash from the Mount Mazame volcanic eruption.

The deeply carved lines and grooves in geometric motifs in the petroglyphs at Winnemucca Lake share similarities with their cousins in Oregon. As for what the petroglyphs represented to their Native American creators, researchers are still scratching their heads.

"We have no idea what they mean," Benson said. "But I think they are absolutely beautiful symbols. Some look like multiple connected sets of diamonds, and some look like trees, or veins in a leaf. There are few petroglyphs in the American Southwest that are as deeply carved as these, and few that have the same sense of size."

The findings will be detailed in the December 2013 issue of the *Journal of Archaeological Science*.

GREAT BASIN & WESTERN CORDILLERA MINING GEOPHYSICS SYMPOSIUM—INAUGURAL ELKO, NEVADA ~ 23RD NOVEMBER, 2013

The GSN Elko Chapter and local Elko geophysicists are hosting the inaugural Mining Geophysics Symposium on Saturday, November 23, 2013 at the Western Folklife Center, 501 Railroad St., Elko, NV.

Presentations welcome on mining and exploration geophysics case histories from the Great Basin & Western Cordillera and technological advancements.

Please contact them by email at: mininggeophysicssymposium@gmail.com for more details or to register.

Nevada Petroleum & Geothermal Society

SEPTEMBER 5, 2013

Speaker: Richard Allis,
Director Utah Geological Survey.

Title: Our Transforming Energy Sector - a Utah
Perspective on Trends and Changes.

Ramada Reno Hotel, 1000 East 6th Street, Reno, NV

Cocktail Reception 6:30, Skyline Bar, 14th Floor

hosted by Boart Longyear.

Dinner Served at 7:00 PM.

NPS Members \$20; Non-Members \$23; Students \$10.

RSVP by Sept. 3 at the following link:

<https://docs.google.com/forms/>

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Monday, September 9, 2013

Technical Session Title: Unum Projectum – Duo
Cuprum Metallic—“One Project – Two Mines”

Speaker: Bob McKnight, P,Eng. MBA

Please RSVP by 5 PM, Wednesday, September 4, 2013

RSVP to Sarah Peters, 775-376-0677 or

speters@enviroincus.com

Happy Hour @ 6pm, Dinner Served @ 6:45pm;

Talk Starts @ 7:30pm

Circus-Circus Mandalay Room

Members Dinner Cost: \$25, Nonmembers Dinner Cost: \$30

Mackay students enjoy free admission & dinner

OTHER UPCOMING EVENTS

August 30 - University of Arizona Tree-ring Research Lab in Tucson. No charge. Time: 2-4 pm. Tour this state-of-the art tree-ring facility on the UA Campus. Children are welcome.

September 4-6, CIME 2013: China International Mining Expo 2013, Beijing, China.

September 8-11, AAPG International Conference and Exhibition, Cartagena, Colombia.


September 9—Denver Region Exploration Geologists' Society (DREGS). Speaker: Byron Berger. Topic: Arc volcanoes: Cu-Au Refineries. CSM, Berthoud Hall Room 241, Golden CO. Social @ 6 pm, Presentation @ 7 pm. Website: <http://www.dregs.org>.

September 24-27 —SEG Conference—Whistler 2013: Geoscience for Discovery. Whistler, BC, Canada. Visit www.seg2013.org for details and to register online. • **SEG'S NEVADA FIELD TRIP - Carlin Trend: Tour of Northern Nevada with a mix of classic Carlin deposits and recent discoveries — September 28 – October 3, Moira Smith, Dave Rhys and Marcus Johnston.** <https://www.segweb.org/pdf/events/2013/13SEG2013.pdf>.


September 25—Nevada Water Resources Association Fall Dinner Forum. Integration of Water Demands for Oil & Gas Development in Northern Nevada. 6 p.m. at Best Western Plaza Hotel, Reno, NV. Only 10 seats left! Contact Tina Triplett to register. creativerno@charter.net; www.nvwra.org.

September 25-28 - New Mexico Geological Society Annual Fall Field Conference, I-40 from Flagstaff to Grants, NM(co-hosted by AGS). NMGS invites AGS members to participate in the pre-meeting field trip of the South Rim of the Grand Canyon, the 3-day field trip to Grants, and the post-meeting trip. Day 1 will tour Sunset Crater with a banquet meal at Meteor Crater before stopping at Winslow for the evening. Day 2 will be spent at Petrified Forest National Park with a stay in Gallup. Day 3 offers options to Tour Mount Taylor, the tuffs of San Mateo Canyon, or McCarty's lava flow field. There are only a few spots left so you must act fast. See <http://nmgs.nmt.edu/ffc/registration/home.cfm> for registration details. ***Only 21 Spaces Left***


September 27-29—NMEC is hosting the 1st Annual Great Basin Rendezvous at Camp Lamoille near Elko, NV. Contact Dave Shaddrick, DShaddrick@aol.com or Warren Thompson, wthompson@premiergoldmines.com for more information.



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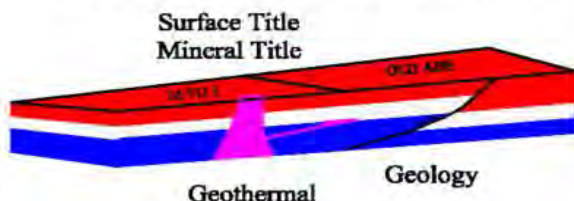
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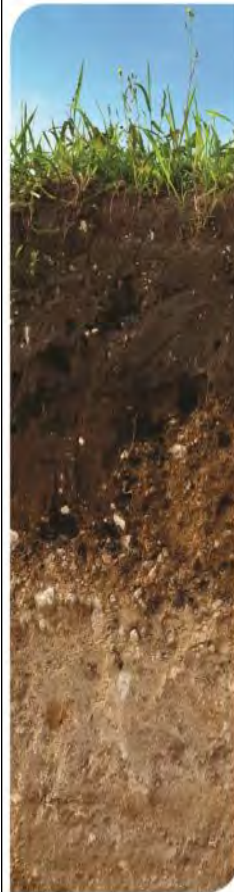
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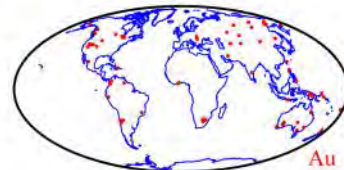
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