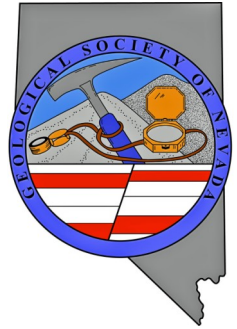


# GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Room 107, Reno, NV 89512  
(775) 323-3500 - Hours Monday -- Friday, 8 a.m. to 4 p.m.  
Website: [www.gsnv.org](http://www.gsnv.org) • E-mail: [gsn@gsnv.org](mailto:gsn@gsnv.org)



January 2013, Vol. 29, No. 1

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## CALENDAR OF GSN EVENTS

### PRESIDENT

**Dave Emmons**  
Kinross Gold USA, Inc.  
[Dave.Emmons@kinross.com](mailto:Dave.Emmons@kinross.com)

### VICE PRESIDENT

**Tommy Thompson**  
University of Nevada, Reno-Mackay  
[thompsonstommyt@aol.com](mailto:thompsonstommyt@aol.com)

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**John Hoskins**  
[cbtr63@sbcglobal.net](mailto:cbtr63@sbcglobal.net)

### TREASURER

**Bob Kastelic**  
Consulting Geologist  
[bob\\_kastelic@yahoo.com](mailto:bob_kastelic@yahoo.com)

### MEMBERSHIP CHAIR

**Carmen Arbizo**  
Inspectorate America Corp.  
[carmen.arbizo@inspectorate.com](mailto:carmen.arbizo@inspectorate.com)

### PUBLICATION CHAIR

**Keith Fowlow**  
Kinross Gold USA, Inc.  
[Keith.Fowlow@kinross.com](mailto:Keith.Fowlow@kinross.com)

### OFFICE MANAGER

**Laura Ruud**  
[gsn@gsnv.org](mailto:gsn@gsnv.org)

### GSN BOARD OF DIRECTORS

**Chairman**  
David Shaddrick

**GSN President**  
Dave Emmons, Current

**Most Recent Past GSN President**  
Bill Howald

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Jared Townsend

**So. Nevada Chapter President**  
Paul Bowen

**Winnemucca Chapter President**  
Leann Giese

**Class A, 2012-2015**  
Lynne Volpi  
Randy Vance

**Class B, 2010-2013**  
David Caldwell  
Marcus Johnston

**Class C, 2011-2014**  
David Shaddrick (Chairman)  
Camille Prens

**Jan. 9, 2013  
Wednesday**

### WINNEMUCCA CHAPTER MEETING (Every 2nd Wednesday).

The meeting will be held at the Martin Hotel, 94 West Railroad St. Refreshments @ 6 PM; Appetizers @ 6:30 PM, Talk @ 7:00 PM. **SPEAKER: Rick Streiff, Principal Exploration Geologist, Newmont Waihi Gold.** Title: "The Taupo Volcanic Zone, New Zealand". (See abstract pg 6).  
**Sponsor: LEGARZA EXPLORATION.**  
For more information contact Leann Graf at [leann.graf@newmont.com](mailto:leann.graf@newmont.com).

**Jan. 17, 2013  
Thursday**

### ELKO CHAPTER MEETING (Every 3rd Thursday)

The monthly meeting will be held at the Western Folk Life Center, 501 Railroad St. Refreshments at 6:00 PM, Talk begins at 7:00 PM. **SPEAKER: Dave Mathewson, VP Exploration, Gold Standard Ventures Corp.** Title: "Discovery of North Bullion gold deposit on the Carlin Trend, Nevada".  
**Sponsor: GOLD STANDARD VENTURES CORP.**  
For more information contact Jared Townsend at [jtowndsend@barrick.com](mailto:jtowndsend@barrick.com).

**Jan. 18, 2013  
Friday**

### GSN MEMBERSHIP MEETING (Every 3rd Friday)

The monthly meeting will be held at the Reno Elks Lodge, 597 Kumle Lane, Reno, NV. Drinks at 6:00 PM, Dinner at 7:00 PM, and Talk at 8:00 PM. **SPEAKER: John Muntean, Director of CREG, UNR.** Title: "Exploration for Gold in a Mature Terrain: Maintaining Nevada's Gold Rush". (See abstract on pg. 3)  
**Sponsor: ENVIROTECH DRILLING LLC.**  
Dinner reservations must be made by NOON Wednesday, January 16th. Contact Laura Ruud at (775) 323-3500 or e-mail [gsn@gsnv.org](mailto:gsn@gsnv.org) for reservations.

**Jan. 24, 2013  
Thursday**

### SOUTHERN NEVADA CHAPTER (Every last Thursday of the month)

The monthly meeting will be held at the Lilly Fong Geoscience Bldg, Room 105. Social @ 6:45 PM and talk @ ~ 7:15 PM. UNLV. **SPEAKER: Jim O'Donnell, Geophysicist and CEO, BC-Geophysics.** Title: "The New Seismic Methods-Sources-Sensors-Sigmias (Recorders)". (See abstract page 7.) For more information contact R. Paul Bowen, 702-247-7765.



## GSN JANUARY MEETING SPONSOR

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*Eric Barnard, Vice President*

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Winnemucca, NV 89445



**FROM THE PRESIDENT**  
**David Emmons, G.S.N. President 2012—2013**

Dear GSN Members,

Happy New Year to everyone and it looks like Santa Claus has delivered the skiers a great gift with a beautiful Sierra snowfall.

We had a great turn out for the December GSN meeting with over 200 having dinner and many more for the presentation and the fund raising activities. The sponsors for the social hour were CGS Mule, LLC, Miranda Gold Corp., and Skyline Assayers & Laboratories. Their generosity provided for a boisterous crowd for the evening.

The speaker was Dean Heitt, Newmont geologist. Dean spoke on the early history of mining and exploration in the area that turned out to be the Carlin Trend. Our speaker for the January meeting will be John Muntean with the Nevada Bureau of Mines and Geology. John will present some ideas on gold exploration in mature areas such as Nevada. It will be taken from a talk that he gave at the Arizona Geological Society symposium in Tucson in 2007.

Thanks to all that volunteered with the fund raising

activities for the GSN Foundation and to those that donated items. GSN gives special thanks to DD Lapointe for organizing the event and to Greg French for being the auctioneer for the live auction.

I have three openings for speakers for the GSN meeting in 2013 (February, March and May). Please contact me if you are interested in giving a presentation at one of these meetings.

The quotation for January –

*"It was during my enchanted days of travel that the idea came to me, which, through the years, has come into my thoughts again and again and always happily—the idea that geology is the music of the earth."* Hans Cloos,

*Conversation with the Earth* (1954)

Signing off for now – see you at the January meeting.



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## *Friday, January 18, 2013 Membership Meeting*

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

GSN CANNOT GUARANTEE DINNER SEATING WITHOUT ADVANCE RESERVATIONS.

Please call 775-323-3500, Fax 775-323-3599 or e-mail [gsn@gsnv.org](mailto:gsn@gsnv.org) by **NOON on Wednesday, January 16, 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, NV

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

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

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### **Exploration for Gold in a Mature Terrain: Maintaining Nevada's Gold Rush**

John Muntean

Director of the Ralph J. Roberts Center for Research in Economic Geology

Nevada Bureau of Mines and Geology

University of Nevada Reno

Gold production in Nevada increased in 2011 for the second year in a row, to a total of 5.54 million ounces. However, production has decreased 10 of the last 13 years from its peak in 1998, when a record 8.82 million ounces were produced. Exploration spending in Nevada remained high in 2011 with over \$600 million in expenditures, the majority of which was by junior companies exploring for gold. Nevertheless, since the price of gold bottomed out at \$279/ounce in 2000, only five new >2 million ounce deposits have been found (Cortez Hills, Long Canyon, South Arturo, Long Canyon, and Gold Rush), a much lower rate of discovery than the previous two decades. Current exploration continues to focus on known areas, many of which contain known resources that have benefitted from the current high price of gold. Is Nevada at the beginning of a long decline that mature terrains inevitably experience? The main geologic challenge in maintaining Nevada's gold production is exploration under cover. Half of Nevada is covered by alluvium, and significant additional areas are covered by pre-ore and post-ore thrust plates and volcanic rocks. The talk will focus on gaps in our knowledge of Nevada's gold deposits that bear on two basic questions facing explorationists: 1) Where to look? and 2) How to detect? Emphasis will be on Carlin-type gold deposits that account for ~80% of Nevada's production. Meeting the challenges of finding new deposits in the future will require a new generation of highly skilled, creative explorationists. Opportunities exist for companies, universities, and government to cooperate in the training of future explorationists and in undertaking studies from the atomic to regional scale to fill the knowledge gaps. The traditional practice of individual researchers working with individual companies needs to evolve. The challenges should be prioritized into individual cooperative projects between multiple companies and research institutions that share results. Models for such cooperative research exist (e.g., CODES, MDRU, AMIRA, CAMIRO).

***Thanks to CGS Mule LLC, Miranda Gold Corp.***

***and Skyline Assayers & Laboratories***

***For Hosting the December 19, 2012 Meeting in Reno!***



# “FACES OF GSN”

## Joseph Kizis, Jr.

I was eight-years-old and swaggering along side my cousin when he matter-of-factly said, “I’m starting a stamp collection.” Tommy was three years older and... heck, he had a pellet gun! When I just as matter-of-factly told him I expected to start a stamp collection pretty soon too, he surprised me with, “I’m tired of you always doing what I do. Why don’t you collect something else... how about rocks.”

“Yeah, well maybe I will. Here’s a good one right here in Grandpa’s driveway,” as I picked up a rounded pebble of bull quartz, abandoned in Connecticut by a receding glacier. I headed for home.

Being a Sunday, my Dad was at the kitchen table reading the newspaper while my Mom was busily working on dinner. “I’m going to start a rock collection,” I muttered as I walked past.

“That’s good... maybe you’ll become a geologist,” offered my Dad, sensing there was more to the story. “Yeah, sure... maybe,” I said under my breath, wondering what the heck a geologist was and what they did. So I headed to our still-new “S&H Green Stamp” encyclopedias to look up geologist. There I found a photo of a rugged-looking fellow in a cowboy hat carrying a Geiger counter over some brightly colored rocks in Utah. People get paid for doing that? That’s what I want to do when I grow up.



**It still looks like a felsic dike to me  
(Wind Mountain pit, Nevada)**

And so I did. An Italian oil company in Denver gave me a scintillometer and sent me to the Big Bend area of Texas to look for uranium. This was my first job after receiving a B.S. degree in Geology from Kent State University. The novelty of lugging around a scintillometer wore off after a couple of years, and I went back to school at the University of Colorado to earn an M.S. degree in Geology. I was fortunate to have Gulf Minerals offer to help support my thesis expenses if I would help them with a uranium project near Austin, Nevada. I took them up on the offer, and working on that project, I fell in love with Nevada.

Upon receiving my M.S. degree, I wanted to explore for base metals, but Exxon’s uranium group offered me too much money for an in-debt grad student to pass up. So I moved to Casper, Wyoming to look for uranium in Montana. After the Three Mile Island disaster, however, Exxon decided to transfer me to Reno to work on their new Mount Hope molybdenum project.

That began a succession of opportunities with several companies to explore for various commodities in Nevada and elsewhere: Sedex Pb/Zn/Ag for Exxon and Amselco in Nevada and Idaho... Au-rich VMS in

Arizona, Colorado and Au in Utah and Nevada for Atlas... then the real fun began. Freshly laid off from Atlas and with a 2-year old toddler in 1992, the entrepreneurial bug bit, although it had been nibbling for some time by then. Such circumstances tend to focus the mind, and I managed to quickly stake a few exploration properties and to pick up a couple of clients for consulting. Over the next several years, I had the good fortune to work with many great people and companies in many interesting parts of the world. But after years of never quite feeling confident about the next mortgage payment as an independent consultant, I joined my first Canadian Junior.

In the mid 1990’s, I was consulting on several projects with mine geologist Steve Bruff. One was Fairmile Gold’s Buffalo Valley project in central Nevada, where we were finding intrusion-related gold deposits using geochemical zoning based on relatively new and inexpensive ICP analyses. The company sent me to Toronto to tell the story to various mining analysts, which was received with appropriate skepticism until we returned with the results of new mineralized holes, as predicted. I soon joined Fairmile as VP Exploration and eventually took over as President.



**Don’t sneeze, that’s the pilot wedged on my left  
(Homestake Ridge, B.C.)**

(FACES OF GSN—Kizis, cont.)

There is nothing better than a Junior with money, but there is not much worse than a Junior without money. So the Fairmile experience did not really end well, and it was back to consulting after a short stint doing environmental work for Science Application International Corp (SAIC) that ended thanks to the 9-11 attacks and subsequent recession. In 2002 I leased one of my properties to one of the Manex Group companies, another Canadian Junior. They asked me to run the exploration program, and then in 2004 asked me to run two of their companies as President. I am still with those companies, although in typical Canadian Junior fashion, the names have changed a few times. During that time, our talented exploration crews have added many ounces of gold and silver to our resource columns.

Being an exploration geologist can be brutal on family life and personal finances, as we all know, not to mention the snakes, bears, bugs, and such... so why do we do it? I guess I do it because it is almost never boring, usually scientifically challenging, and often great fun. The thrill of discovery is hard to explain, except possibly to other high-stake gamblers... and what an interesting mix of activities: one day presenting an overview of our projects to investors at the Mayfair Hotel in London, and the next week flying in a Hughes 500 around the toe of the Cambria Ice Field in northern British Columbia.

To all of you newly minted geologists, as with all professions, it is not always great fun. My worst day professionally was in August 2008 when I got a call that our project's helicopter crashed and killed two drillers, the camp manager, and the pilot. Every year I breathe easier when the last flight leaves our camp in B.C.

Another bad day was when a cardiologist told me that I had a congenital heart defect and needed open-heart surgery... pretty much immediately. That brings me to the GSN.

Rich Delong approached me at a GSN meeting in May of 1998. He cleverly waited until after I had finished my first "lcky" draft. He asked if I would consider stepping in as GSN Vice President for 1998/1999 and then staying on as President the following year, as was the usual progression. I hesitantly said, "Sure... I suppose." That was a great decision, although it was probably good that I did not have any idea how much time being President would consume.

I hesitate to remind any of you who were around in 1999/2000 what it was like to earn a living as an exploration geologist, but the GSN faced similar ugliness during that dark period. The GSN management team stepped up to the challenge. I am most proud that we developed an email version of this monthly newsletter to save increasingly significant postage costs and set up the GSN Foundation to stabilize our philanthropic activities. Greg French and I did most of the "heavy lifting" to set up the GSN Foundation, and I was honored to serve as Chairman of the Board for its first five years. We also helped to re-institute the Winne-mucca Chapter.

It is all very foggy in my memory after these 10 years, but upon being released from the cardiac ICU I began receiving calls and visits from GSN members. Notes, emails, and visits continued well after I returned home. If I did not properly thank any of you then, I will blame it on the pain-killers and thank you now; I appreciated it more than you probably know. I guess in spite of being a group of hard-headed, nomadic individualists, the GSN is a pretty close community. That is one important reason to belong to this great organization.



**The "selling" part of my job  
(Munich, Germany)**



**Sometimes it's hard to believe we get paid for what we do  
(sunrise on a float plane between Prince Rupert and Alice Arm, B.C.)**

# **G.S.N. WINNEMUCCA CHAPTER MEETING**

## **WEDNESDAY, JANUARY 9, 2013**

**Location:** The Martin Hotel, 94 West Railroad St. Winnemucca, NV

**Time:** Refreshments @ 6 pm, Appetizers @ 6:30, Talk @ 7:00

**Drinks & Appetizers Sponsor: LEGARZA EXPLORATION**



## **The Taupo Volcanic Zone, New Zealand**

**Rick Streiff, Principal Exploration Geologist, Newmont Waihi Gold**

**Originally Presented in January, 2011**

The Taupo Volcanic Zone (TVZ) is an active volcanic center located on the North Island of New Zealand. It is a high heat flow zone resulting from the subduction of the Pacific Plate beneath the Indian Plate just offshore to the east of the North Island. The TVZ contains abundant active thermal areas as well some of the world's most violent calderas. In addition, the TVZ contains numerous fossil and active epithermal systems currently depositing precious metals. The study of these actively forming systems helped to pioneer our current understanding of world epithermal systems.

The Taupo Volcanic Zone starts on the southwest end at the Tongariro Volcanic Center, which is comprised of a cluster of andesitic composite volcanoes, some of which have erupted as recently as 2012. The TVZ trends northeast from the Tongariro center, becoming dominantly rhyolitic in the central portion of the North Island, and includes some of the most violent calderas centers such as the Taupo, Okataina and Rotorua calderas. A number of geothermal power stations in this section of the TVZ produce about 10% of New Zealand's electricity. The TVZ becomes andesitic again offshore at the active White Island volcano and continues first as the Kermatec zone as a series of underwater seamounts to Raoul Island, then on as the Tonga trench as far as Samoa, almost 3000 km to the northeast of New Zealand.

### ***THANK YOU TO OUR DONORS FOR OUR SILENT AUCTION!!***

**Mary Stollenwerk – Homemade Jam, Relish & Chutney**

**Lisa Giuliani – Four Handmade hemp lanyards for hand lenses**

**R. Desert Studio – Three stained glass art pieces.**

**Cody Unger & Al Frank (Boart Longyear) – One night stay at the Peppermill – Tuscany Suite, Reno.**

**Dave Bernosky (through Newmont) – Two Nikon scopes with light sources.**

**Randy Vance – Antique Miner's brass carbide lamp, Banded Vein slab from Midas.**

**The Country Rose – Twenty-dollar gift certificate.**

**Ivan Johnston – Ceramic bowl and stand.**

**Mike Beyer (through Newmont) – Vista Vein base metal sample.**

**Cheryl Evans & Nancy Wolverson (Paramount Gold & Silver Corp.) – Napa Valley Cabernet Sauvignon (two bottles).**

**Robert Lutz – Gold Nugget – 2.8 grams.**

**Erin Hart & Andy Hart – Gourmet Hard Ciders**

**Leann Graf – Four handmade throw pillows, Beer Cap wall art, Case Sam Adams, Crown Royal, mineral specimens and display case.**

**The Martin Hotel – Two bottles wine.**

**AND THANK YOU TO INSPECTORATE AMERICA FOR HOSTING THE FOOD AND DRINKS!!**



# G.S.N. SOUTHERN NEVADA CHAPTER MEETING

## THURSDAY, JANUARY 24, 2013

**Location:** Lilly Fong Building, Room #105, UNLV Campus

**Time:** Social Hour begins at 6:45 p.m. with the speaker starting roughly at 7:15 p.m.

### **The New Seismic Methods- Sources-Sensors-Sigas (Recorders)**

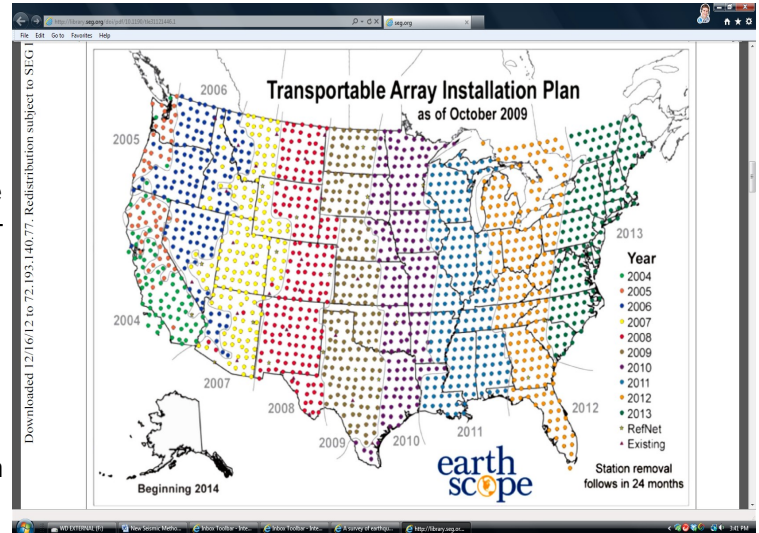
Jim O'Donnell BC-Geophysics

Incorporated Research Institutions for Seismology (IRIS) with Earthscope (USArray) has focused on deep Crustal and Mantle depths (~5 km to ~200 km) using ambient noise and earthquakes as a seismic source to measure seismic tomography (Vs) across the US.

O&G Explorationists are interested in depths to ~10 km and by using closer spacing in arrays and different sensors- are starting to make high resolution measurements of the Crustal structure.

The new seismic methods use arrays of seismic sensors with cable-less recorders to record passive ambient noise and active sources to make seismic Vs and Vp cross sections which are used in O&G exploration.

An explanation of the sources, sensors, and recorders used to make seismic Tomography models in the crust and mantle will be discussed. In the last 15 years shallow seismic has successfully used Rayleigh waves, both Active and Passive, to define Vs models for geotechnical work. Furthermore, 10,000 seismic lines have been run in Las Vegas, NV (2009-12) for a seismic hazard assessment by obtaining the IBC seismic soil site classification-measures average Vs to 30m depth.



### **BIO—JIM O'DONNELL – GEOPHYSICIST- CEO**

Since founding BC-Geophysics in 1995, Mr. O'Donnell has managed and performed geophysical and geotechnical support services for hundreds of projects throughout the western US. In particular he has provided the geotechnical companies in NV an opportunity to use geophysical methods to solve geotechnical problems. BC-Geophysics has state-of-the-art geophysical systems, hardware and software to do Seismic and Electromagnetic tests/surveys for site characterization. Jim has been a geophysicist for more than 50 years having received a BS and MS from UC Berkeley in the 60's; and became a registered geologist in 1970 (#1240) and a registered geophysicist 1974 (#158) in California. His primary work experience has been with NOAA, USGS, DOE (NTS) and ARAMCO (Saudi Arabia) before starting BC-Geophysics. While working for government agencies and the O&G industry he has participated in the latest research methods for geophysical exploration. During the 2012 Society of Exploration Geophysicists (SEG) meeting, held in Las Vegas, he was chairman of the Applied Science Education Program. Jim has been on the board of directors for the NV Earthquake Safety Council since 2002. In the last ten years he pioneered the use of the Refraction Microtremor (ReMi) method used to measure the Shear wave velocity (Vs) for seismic soil site classification as recommended by the International Building Code (IBC). He further developed ReMi, with the use of cable-less seismic systems, to measure to several kilometers depth rather than just 30 m as required by the IBC. The long ReMi lines can be used in O&G exploration in measuring Vs structures over petroleum reservoirs. BC-Geophysics is presently developing/testing new seismic methods that can be used in complex geology as found in Nevada's Basin and Range.



*Jim O'Donnell BC-Geophysics*

*Land and Marine Surveys*

*Geotechnical/Geothermal/Oil & Gas/Mining Applications*

*Seismic Surveys- Passive Surface Waves, Refraction-Tomography*

*Ground Penetrating Radar, Resistivity, Magnetic, & VLF-EM Surveys*

*Geophysics@mysite.com 702.293.5664 702.281.9081 cell*

*Boulder City, NV 89005*

# G.S.N. ELKO CHAPTER MEETING THURSDAY, JANUARY 17, 2013

Location: Western Folklife Center, Elko Nevada

Time: Refreshments @ 6:00 p.m. and Talk @ 7:00 p.m.

Sponsored by: Gold Standard Ventures Corp.

Speaker: Dave Mathewson, GSVC Vice President, Exploration, will be presenting

“Discovery of North Bullion gold deposit on the Carlin Trend, Nevada”.

**Thanks to BOART LONGYEAR**

**For Hosting the December 20, 2012 Meeting in Elko!**



UNR Student Chapter  
Society of Economic Geologists



**Save the Date!**

**March 15-24**

**Annual Spring Break Field Trip**  
**Destination Depends on Your Interest!**

**Iberian Pyrite Belt**

**-\$4000/person**

**Abitibi Greenstone Belt**

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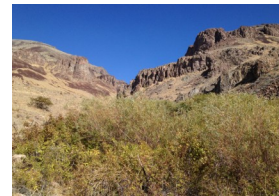
**Ore Deposits of Montana and Idaho**

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*Interested? Contact us with your preference.  
A final decision will be made in early January!*

**Geoff Burtner**  
**geoffreyburtner@gmail.com**

**Dr. Tommy Thompson**  
**tommyt@unr.edu**



## **NBMG/GSN "2014 Nevada Geology Calendar Photo Contest !!!**

**ENTRIES BEING ACCEPTED NOW FOR THE NEVADA  
GEOLOGY 2014 CALENDAR CONTEST!**  
**Who better than Geologists to take photos of the  
endless grandeur of the Geology in Nevada?**

- 1. Deadline for entries is March 31, 2013.**
- 2. Photos need to be taken in Nevada. A location description and/or GPS coordinates should accompany submissions along with description.**
- 3. High quality, high resolution photo files of at least 300 dpi are required for quality printing.**
- 4. E-mail submissions to [gsn@gsnv.org](mailto:gsn@gsnv.org)**

**FABULOUS PRIZES WILL BE AWARDED FOR  
1ST, 2ND AND 3RD PLACE WINNERS!**  
**(NBMG Cartographers will have final say on  
2014 calendar photos)**



## NEWS FROM THE FOUNDATION

Roger Steininger

This year's December meeting was another successful fund raising event for the Foundation. Just over \$14,000 was raised, and since the event started in 2000 a total of \$114,333 has been raised at the December meetings. Our membership stepping forward to support the Foundation, in addition to contributions throughout the year is extremely gratifying. Also, during December Richard Bedell made a very significant gift to the Foundation. Thank you one and all, and specifically you Richard.

Where does all of this money go? Glad you asked. We just committed about \$13,000 in grants for the K-12 Field Trip Support Program. There will be contributions to the UNR and Great Basin College scholarship programs, and grants to support students for UNR Field Camp. We are also planning to continue our support of the NBMG mapping program. Part of the Foundation's mission statement is to develop a sufficient endowment that will maintain our activities if new contributions are not received. While the endowment is approaching that goal, current interest rates do not supply sufficient income to meet expenditures. In the future if interest rates increase the Foundation should be able to maintain itself, but until then we continue to need membership support.

### *Thank you to our generous donors in December*

#### G.S.N. FOUNDATION

##### **PLATINUM LEVEL DONORS \$1,000+**

Richard Bedell  
Louis Saltzer

##### **GOLD LEVEL DONORS \$500-\$999**

Dave & Denise Emmons  
Richard Hipsley

##### **SILVER LEVEL DONORS \$100-\$499**

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Shea Clark Smith  
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James Yeager  
John Zimmerman

#### G.S.N. STUDENT FIELD TRIP FUND

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Jeff Cary  
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John Zimmerman

## Many thanks to all of our fabulous donors to our Christmas Raffle and Auctions!

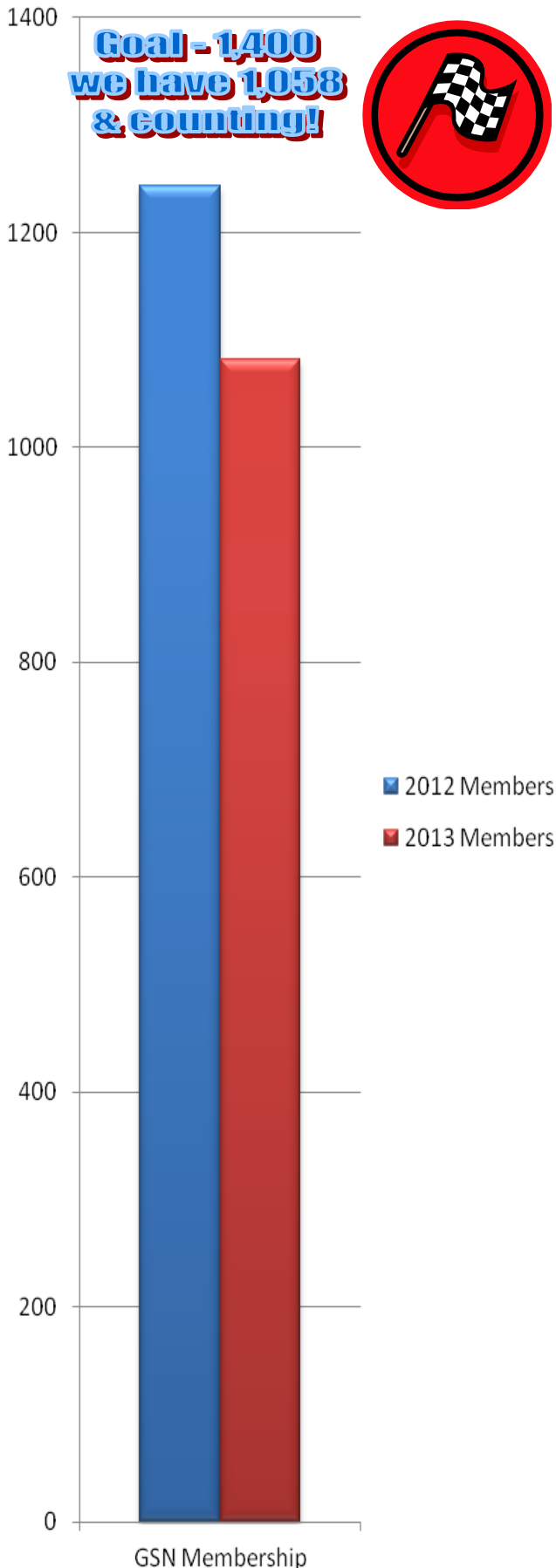


ALS Minerals - Mary Stollenwerk  
Ann.J.New Dolls - Joann Newbury  
April Barber & Tom Callicrate  
Argonaut Gold - Tom Burkhart  
Becky Purkey  
Beth & Jonathan Price  
Boart Longyear - Al Frank  
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Global Hydrologic Resources - Mark Stock  
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Richard Reid  
Roger Steininger, NuLegacy Gold  
Round Mountain Gold—Randy Burggraf,  
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**Goal - 1,400  
we have 1,058  
& counting!**



**Nevada Petroleum & Geothermal Society  
Dinner Meeting: Thursday, January 3, 2013**

*Speaker: Scott Hector, Geologist/Owner  
Hobby Energy*

*Topic: Monterey Shale Play*

**Ramada Reno Hotel; 6:30 PM**

**1000 East 6th Street, Reno, NV 89512**

*Cocktail Reception 6:30*

*Skyline Bar, 14th Floor*

*Hosted by Barbour Well, Inc.*

*Dinner Served at 7:00 PM*

**NPS Members \$20; Non-Members \$23;**

**Students \$10**

**\*\*RSVP to Judy Kareck (775) 827-6111 or**

**[jkareck@lumosenineering.com](mailto:jkareck@lumosenineering.com)**



**The Northern Nevada Section of the  
Society for Mining, Metallurgy, and  
Exploration, Reno, Nevada**

**Monday, January 14, 2013**

**Please RSVP by Noon,**

**WEDNESDAY, January 9, 2013**

**Send RSVP to Diane Lightwood**

**775-682-7379 or [dlightwood@unr.edu](mailto:dlightwood@unr.edu)**

**Happy Hour 6, Dinner 6:45**

**& Talk at 7:30 PM**

**Circus-Circus Mandalay Room**

**Members: \$25, Nonmembers \$30**

**Mackay students enjoy free dinner**

*January Technical Session:*

**Charles A. Jeannes - President and**

**Chief Executive Officer**





# ROCK TALK

## Mexico's Metallogeny

(Submitted by Kenneth F. Clark and David C. Fitch)

Two papers devoted to metallogenic provinces and epochs in Mexico were independently researched and published in 2009. But because of the relative obscurity of these publications, this brief review is brought to the attention of GSN Newsletter readers who, as yet, are not familiar with their contents.

The first was compiled by Antoni Camprubi of the Instituto de Geologia, Universidad Nacional Autonoma de Mexico and entitled *Major metallogenic provinces and epochs in Mexico*, published in June, 2009 by the Society for Geology Applied to Mineral Deposits (SGA News, No. 25). It consists of the main text with diagrams plus Electronic Supplementary Material (ESM: Table 1 and List of References). It can be accessed at <http://www.e-sga.org/index.php?=1284>. This is an authoritative synthesis of deposits whose age has been determined and straddles the Proterozoic-Present interval. The exhaustive text discusses deposit distribution in the light of basement, terrane sutures, faults, plus mineralogic and petrologic associations. Table 1 shows ore deposits by locality, deposit type, age, age determination method, and references. Emphasis is placed along the Pacific margin where magmatic arcs are genetically related to metallic deposits from Jurassic time onwards.

The second article was published in Spanish in December, 2009, and is contained in the second edition of a volume entitled *Geologia Economica de Mexico* (953 p.), being sponsored by the Asociacion de Ingeniero de Minas, Metalurgistas y Geologos de Mexico and by Servicio Geologico Mexicano ( [geoinfo@sgm.gob.mx](mailto:geoinfo@sgm.gob.mx), \$ U.S. 108.00)\*. This compilation contains 110 articles of historic and economic interest, as well as energy, water, non-metallic and metallic deposit descriptions.

The paper by Clark and Fitch can now be obtained in English and is entitled *Evolution of Metallic deposits in time and space in Mexico* ( )\*. Deposits are described by epoch and are woven into the general geology and tectonic characteristics of each time interval. Distribution of ores is shown by individual elements on 14 tectonostratigraphic maps from the Proterozoic to Present. Six epochs are recognized of which the Late Cretaceous-Early Miocene interval displays the greatest number and diversity of deposits, having been first recognized in 1979.

The Oaxaca and Guerrero Terranes are characterized by specific ore assemblages, whereas other provinces straddle several terranes, and their metallic concentrations are attributed to subduction related magmatism along the western margin during terrane assemblage. The resulting tectono-magmatic-hydrothermal mineralizing processes produced the bulk of and increasingly diverse array of economic metallic concentrations particularly in Northern Mexico.

Finally, both articles are accompanied by extensive bibliographies in themselves additional assets in aiding exploration in Mexico's multi-faceted metallogenic terrane.

\*Website will be constructed in mid-January.

## **NEW CREG DIRECTOR NAMED**

Dr. John Muntean has been named Director of the Ralph Roberts Center for Research in Economic Geology (CREG) at the Mackay School of Earth Sciences and Engineering. The Mackay School is part of the College of Science, University of Nevada, Reno.

Dr. Muntean will lead CREG in its mission to direct research in the field of economic geology especially on the formation of gold deposits in Nevada. CREG is a unit of Mackay's Department of Geological Sciences and Engineering.

Following is information about Dr. Muntean: John Muntean is a Research Economic Geologist and Associate Professor with the Nevada Bureau of Mines and Geology at the University of Nevada Reno. He received his BS from Purdue University, his MS from the University of Michigan, and his PhD from Stanford University. Before joining UNR in 2005, John worked 12 years in the mining industry for companies exploring for gold in Nevada, including Santa Fe Pacific, Homestake and Placer Dome. At Placer Dome, he provided technical support for Placer's worldwide near-mine and long-term generative exploration efforts. His research has been on epithermal, porphyry, and Carlin-type gold deposits in Nevada and Latin America.

At NBMG he has also been involved in mineral assessments, mapping projects, database compilations, and reporting on mineral exploration activities in Nevada. He is an active member of the Society of Economic Geologists and the Geological Society of Nevada.

John wanted to pass on the following: "I look forward to working with GSN members to help CREG continue to develop and grow into a world-class research unit in the formation and exploration for ore deposits. I have many ideas that I will bounce off the membership in the near future. I know most of you and I want you to know I welcome your suggestions. My email is [munteanj@unr.edu](mailto:munteanj@unr.edu). Thank you for your continuing support of the CREG program.'

## **OBITUARY**

### **Keith Douglas Jung**

8-16-1928 to 10-6-2012

Doug grew up in Southern California. He earned his Petroleum Engineering degree from Colorado School of Mines in 1953 and an MBA degree in 1970 from USC. He worked in the Petroleum Industry for 39 years.

Doug had many interests besides work. In his younger years he enjoyed golf and tennis. He was an ardent sailor, an outstanding skipper who won many races. In 1984 he won the National Championship in his class.

He loved the outdoors and enjoyed backpacking and cross-country skiing. His lifelong passion was fly fishing. He built his own fly rods and tied his own flies. In pursuit of fishing, he traveled widely around the world.

Doug was a very accomplished artist. He studied under well known watercolor artists and completed art degrees. He entered his paintings in juried exhibits and won numerous awards. At the time of his death he had paintings in three exhibits.

Doug retired in 1992 and lived full time in Mammoth since 1998 where he was actively interested in town issues. He is survived by his partner, Brigitte Berman, his brother, Donald Jung two daughters, Lisa Jameson and Heidi Acedo; and two granddaughters, Lacy and Jami Lockhart.

(Doug will be missed as a regular attendee at the GSN dinner meetings in Reno. If you ever had the pleasure of meeting him, you know he was a kind man and true gentleman.)

# Activity Update

Mike Brady, November 2012

[www.activityupdate.com](http://www.activityupdate.com)

## NEVADA

Waseco Resources Inc.(75%) announced that recent drill results at the Battle Mountain Ridge/SBD Project include 150.0-153.7 meters @ 25.39 gpt Au (No. 5). (resource = 2,630,000 tonnes @ 0.90 gpt Au inferred) *Press Release:* November 12

Hecla Mining Co. announced that it purchased 14,000,000 shares (15%) of Canamex Resource Corp. for \$2,520,000. (resource @ Bruner = 13,600,000 tonnes @ 0.89 gpt Au inferred) *Press Release:* November 19

Solitario Exploration + Royalty Corp. announced that recent drill results at the Mt. Hamilton Project include 47.32-72.8 meters @ 0.50 gpt Au, 11.7 gpt Ag (MH12-04); 43.68-72.8 meters @ 0.80 gpt Au, 20.7 gpt Ag (MH12-15); 96.46-114.66 meters @ 0.82 gpt Au, 25.0 gpt Ag (MH12-16) and 0-52.78 meters @ 0.67 gpt Au, 1.0 gpt Ag (MH12-26). (resource = 6,960,000 tonnes @ 0.76 gpt Au, 3.3 gpt Ag indicated) *Press Release:* November 8

International Minerals Corp. announced that recent drill results at the Gemfield Project include 132.6-149.4 meters @ 0.54 gpt Au (GEM479); 39.6-50.3 meters @ 0.50 gpt Au (GEM485); 36.6-56.4 meters @ 4.86 gpt Au (GEM493) and 44.2-79.2 meters @ 5.06 gpt Au (GEM494). (reserve = 14,300,000 tonnes @ 1.1 gpt Au proven+probable) *Press Release:* November 1

Valor Gold Corp. announced that it purchased a 100% interest in the Reese River Property from Paramount Gold and Silver Corp. for 6,000,000 shares and \$21,000. *Press Release:* November 5

Timberline Resources Corp. announced that recent drill results at the Lookout Mountain Project include 93.0-127.1 meters @ 0.82 gpt Au (BHSE0153C); 96.3-122.5 meters @ 0.94 gpt Au (BHSE0157C); 42.7-73.2 meters @ 0.34 gpt Au (BHSE0160C) and 1.5-21.3 meters @ 0.41 gpt Au (BHSE-161). (resource = 18,838,000 tonnes @ 0.65 gpt Au measured+indicated) *Press Release:* November 12

Scorpio Gold Corp.(70%) announced that recent drill results at the Mineral Ridge/Drinkwater Highwall Project include 0-4.57 meters @ 0.78 gpt Au (MR12468); 0-4.57 meters @ 2.96 gpt Au (MR12469); 42.68-47.26 meters @ 5.93 gpt Au (MR12474) and 103.66-105.18 meters @ 0.62 gpt Au (MR12475). (resource = 4,230,000 tonnes @ 1.47 gpt Au indicated) *Press Release:* November 26

Rye Patch Gold Corp. announced that based on published information by Coeur d'Alene Mines Corp., Rye Patch's LH and OG claims contain 74% of the measured+indicated and 59% of the inferred resources previously reported by

Coeur for the Rochester Property. (resource = 228,600,000 tonnes @ 15.4 gpt Ag, 0.10 gpt Au measured+indicated and 36,850,000 tonnes @ 19.8 gpt Ag, 0.10 gpt Au inferred) *Press Release:* November 7

Nevada Copper Corp. announced that recent drill results at the Pumpkin Hollow/North Project include 463.3-499.6 meters @ 1.67% Cu, 0.29 gpt Au (NC12-36). (resource = 485,840,000 tonnes @ 0.45% Cu, 0.03 gpt Au measured+indicated) *Press Release:* October 30

Miranda Gold Corp. announced that it acquired an option to earn a 100% interest in the Mustang Property from Teslin River Resources Corp. for \$40,000 and the return of 300,000 Teslin shares. *Press Release:* November 1

Klondex Mines Ltd. announced that based on underground development at the Fire Creek Project, the A-Vein averages 95.5 gpt Au over a width of 0.9 meters for 114 meters of strike and the B-Vein averages 43.5 gpt Au over a width of 1.5 meters for 114 meters of strike. (resource = 5,176,000 tonnes @ 9.9 gpt Au indicated) *Press Release:* October 31

Evolving Gold Corp. announced that recent drill results at the Carlin Project include 936.4-945.8 meters @ 12.51 gpt Au (CAR-016.2) and 915.3-922.9 meters @ 11.34 gpt Au (CAR-021). *Press Release:* November 14

Atna Resources Ltd. announced that recent drill results at the Pinson Open Pit Project include 0-47.1 meters @ 1.95 gpt Au (MAG-01); 102.1-136.5 meters @ 4.18 gpt Au (MAG-02); 94.5-110.5 meters @ 0.48 gpt Au (MAG-03) and 82.3-94.6 meters @ 0.62 gpt Au (MAG-04). (resource = 23,102,000 tonnes @ 1.32 gpt Au measured+indicated open pit) *Press Release:* November 15

Redstar Gold Corp. announced that recent drill results at the Root Spring Project include 11.38-21.82 meters @ 0.21 gpt Au, 7.0 gpt Ag (RS12-01); 11.94-21.34 meters @ 0.53 gpt Au, 16.5 gpt Ag (RS12-02); 15.18-17.37 meters @ 0.13 gpt Au, 17.6 gpt Ag (RS12-03) and 0.57-9.92 meters @ 0.08 gpt Au, 1.13 gpt Ag (RS12-05). *Press Release:* November 24





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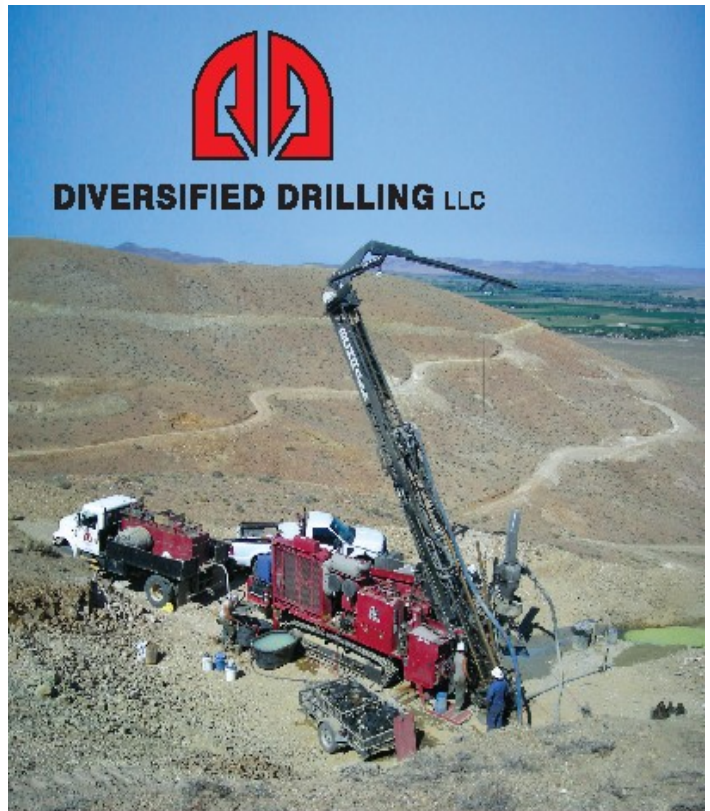
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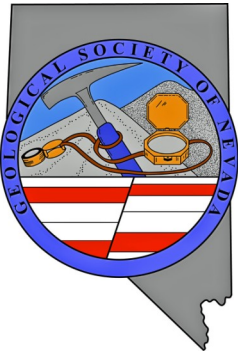


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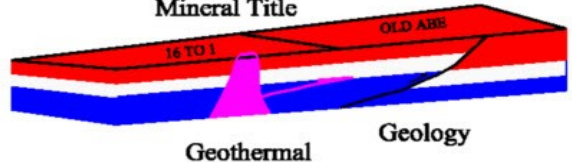
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