



FOUR CORNERS GEOLOGICAL SOCIETY NEWSLETTER

Since 1950

www.fourcornersgeologicalsociety.org

A micro-photograph of small skeleton-bearing plankton sea creatures. When such creatures die, their shells fall to the bottom of the ocean, carrying the tell-tail oxygen isotopic ratio appropriate to the temperature of the surface waters where they lived. —from The University of Michigan



February Newsletter

February 26, 2010 FCGS Meeting and Presentation in Durango – p.2

The Prez Sez – p. 3

Message from RMS-AAPG Prez – p. 3

Meeting Presentation – p. 5

Abstract: Deciphering Paleozoic paleoclimate changes using oxygen isotopes of marine apatite

Maya Elrick

Calendar of Events and Happenings — p. 5 - 13

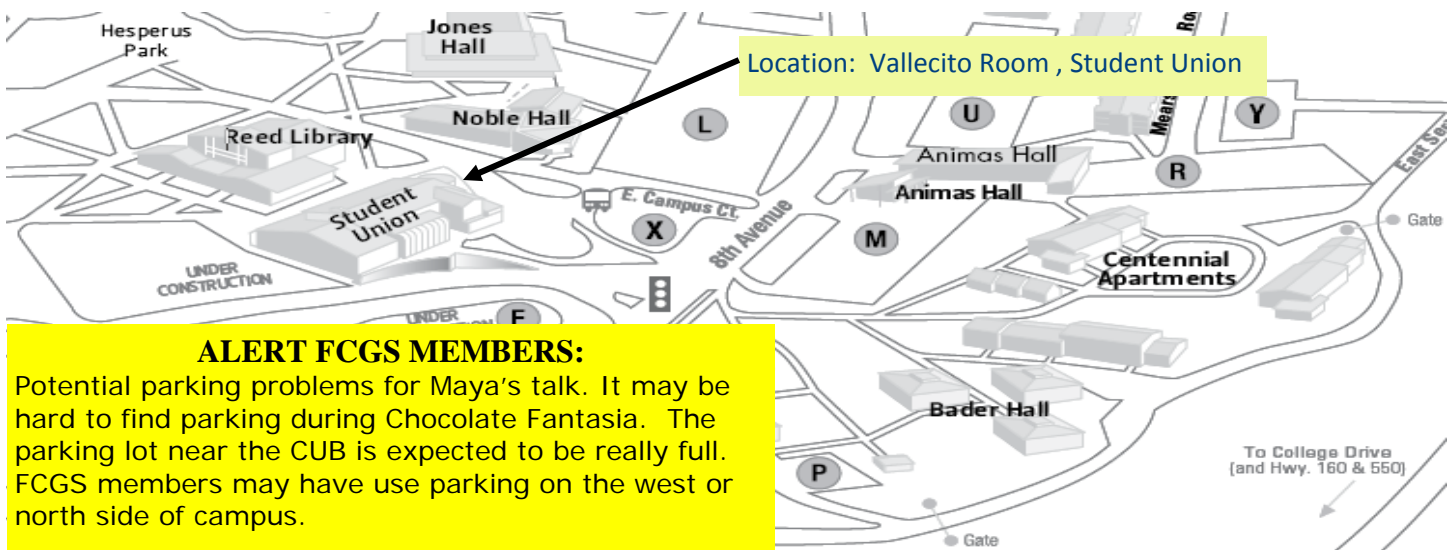
American Association of Petroleum Geologists

Rock Mountain Section Meeting hosted by Four Corners Geological Society – p. 14

Four Corners Geological Society



DATE: Friday, February 26, 2010
SPEAKER: Mya Elrick
TOPIC: Deciphering Paleozoic paleoclimate changes using oxygen isotopes of marine apatite
PLACE: Vallecito Room, Fort Lewis College, Durango, CO
AGENDA:
 5:30 p.m.— Social Hour
 6:30 p.m.— Dinner
 7:30 p.m.— Presentation
COST: \$20.00 per person (dinner and talk), \$2.00 per person (talk only).
RESERVATIONS: Jim Hornbeck—jhorngeo@yahoo.com or 505-320-2167
 Jeff Cary—Jcary3@hotmail.com or 970 749-5845



ALERT FCGS MEMBERS:
 Potential parking problems for Maya's talk. It may be hard to find parking during Chocolate Fantasia. The parking lot near the CUB is expected to be really full. FCGS members may have use parking on the west or north side of campus.

MEMBERSHIP RENEWAL:

Membership dues are always due now. We continue to sign up new members and renew memberships. We have been receiving many renewals. Dues are \$20.00 per year. To renew your membership there is a membership form our website. If you haven't sent in your renewal, send it today!!

Position	Affiliation	Business Phone	Email	
Secretary	Jeffrey Brame	Brame GeoScience, LLC	970-259-1505	geostar20@aol.com
Treasurer	Tom Staats	Jet West	505-325-8531	tstaatz@aol.com
Vice President	Jeffrey Cary	Self	970-749-5845	Jcary3@hotmail.com
President	James Hornbeck	Hornbeck Geological Consult	505-320-2167	jhorngeo@yahoo.com
Publications Editor	Tom Ann Casey	D.J. Simmons	505-326-3753, ext. 20	tcasey@djsimmonsinc.com
Newsletter Editor	Paul Montoia	City of Farmington	505-599-1393	pmontoia@famt.org
Past President	Chip Head	ConocoPhillips	505-326-9772	Charles.f.head@conocophillips.com

970-259-1505
 505-325-8531
 970-749-5845
 505-320-2167
 505-326-3753, ext. 20
 505-599-1393
 505-326-9772

Prez Sez,

Hello to all of our FCGS members! Thank you to the members who made time to attend our January meeting in Farmington and listen to a very interesting talk by Zack Swaney centered on rocks along the eastern edge of Lake Meade. Thanks Zack for sharing your work with us.

Please join us in Durango this month for Professor Maya Elrick (Earth and Planetary Sciences – UNM) regarding Paleozoic paleoclimate changes. Please come and enjoy the evening with our membership and remember to make a reservation early to help us in planning for the meals.

FCGS Publications Digitization and Sale:

We still have a need for volunteers who would be able to contribute some time to a committee responsible for the complete list of all the society's publications. I've attached a (preliminary) list compiled by AAPG and reviewed by the never-tiring Tom Ann Casey (thank you Tom Ann).

What I am asking our members to do is review this and make additions/revisions/suggestions and, for now, provide me with your thoughts (email would be great).

Anyone interested in helping with this effort please contact me at the below addresses. Thanks.

Regards,

Jim Hornbeck

jhorngoe@yahoo.com

505-326-2401 (Office), 505-320-2167 (Cell)

RMS-AAPG,

Dear Fellow Geoscientists and Affiliated Society Presidents,

Greetings from Durango, CO and Farmington, NM. With this message I send best wishes to you and a personal invitation to join us in Durango, June 13 to 16, 2010, for the Rocky Mountain Section American Association of Petroleum Geologists Annual Meeting (pgs 10 & 11).

I also have a request. We are trying to get the word out to all our fellow geoscientists on the technical program and need your help. Is there any way you could help us by doing the following?

- Put a link on your website (if you have one) to our Four Corners Geological Society website. The address is: www.fourcornersgeologicalsociety.org.
- Send out an email to your membership with the attached Word doc file. This is our [Call for Papers](#). The deadline will be upon us in only 2 months and we need to get the word out and the abstracts in.
- Run the attached [Call for Papers](#) in your newsletter. I am attaching a pdf file.

I very much appreciate your assistance.

Please contact me or Kim Gerhardt (kim@mydurango.net) if you have any questions, or if we can return a favor and help you with something. I look forward to seeing you all in Durango in June. It should be a great time – check out our website for the technical program, field trips, short courses and fun social activities!

Best regards,
Tom Ann Casey
2009-2010 RMS-AAPG President

Dear FCGS Members,

Will you help me find missing books or donate a book to help us with our book scanning project? We will be sending a copy of all of our publications to AAPG to scan. They will then turn them into digital files and sell them on AAPG Datapages. We will also be able to get CDs for us to sell.

We need a copy of the following 10 publications. (See below.) The copy will not be returned, but it will be preserved forever as a digital file, for all to use. Please let me know (ASAP) if you have one of these books you would be willing to donate.

Thanks so much for your help,

Tom Ann Casey
Book Chairperson

Four Corners Geological Society		
Date	Title	Authors
1952	Geological symposium of the Four Corners region.	Sherman Wengerd
1955	Geology of parts of Paradox, Black Mesa, & San Juan Basins, Four Corners field conference.	
1957	Geology of southwestern San Juan Basin, second field conference.	A.A. Loenig
1960	Geology of the Paradox Basin fold and fault belt, third field conference.	
1963	Shelf carbonates of the Paradox basin, fourth field conference.	Ralph O. Bass
1967	Field trip road log: northeastern Paradox Basin salt anticline area.	C.M. Molenaar
1968	Durango-Silverton guidebook	
1969	Geology and natural history of the Powell Centennial River Expedition [Grand Canyon], fifth field conference.	
1973	Cretaceous and Tertiary rocks of the Southern Colorado Plateau - A Memoir.	James E. Fassett
1975	Canyonlands country, eighth field conference	James E. Fassett
1976	Geologic Map of the Grand Canyon	

 COM.Geo 2010

 1st International Conference on Computing for Geospatial Research & Application
Conference and Exhibition 21-23 June 2010 Washington, DC

Full and Short Papers Submission Deadline	[Feb. 28, 2010]
Courses Proposal Submission Deadline	[Feb. 28, 2010]
Tech Talks / Posters Abstract Submission Deadline	Mar. 31, 2010
Panel / PanelPlus Abstract Submission Deadline	Mar. 31, 2010

CALL FOR PAPERS

International Mine Water Association – Sept 5-9, 2010 Cape Breton, Nova Scotia, Information: <http://www.IMWA2010.info>

Four Corners Geological Society

Date	Title	Authors	Available From	Library Call #	Remarks / Copies for
1952	Geological symposium of the Four Corners region.	Sherman Wengerd			
1955	Geology of parts of Paradox, Black Mesa, & San Juan Basins, Four Corners field conference.				
1957	Geology of southwestern San Juan Basin, second field conference.	A.A. Loenig		A FCGS 1957	
1959	Isopachous relations and probable warping during Late Pennsylvanian time in the Aneth area, San Juan County, Utah - Bulletin No. 1.	M. Dane Picard		A FCGS 1959	
1960	Geology of the Paradox Basin fold and fault belt, third field conference.			A FCGS 1960	
1963	Shelf carbonates of the Paradox basin, fourth field conference.	Ralph O. Bass		A FCGS 1963	
1967	Field trip road log: northeastern Paradox Basin salt anticline area.	C.M. Molenaar			
1968	Durango-Silverton guidebook			A FCGS 1968	
1969	Geology and natural history of the Powell Centennial River Expedition [Grand Canyon], fifth field conference.			A FCGS 1969	
1971	Geology of Canyonlands and Cataract canyon, Cataract Canyon river expedition, sixth field conference.	Donald L. Baars, and C.M. Molenaar		A FCGS 1971	
1972	Cretaceous and Tertiary rocks of the Southern Colorado Plateau - A Memoir.	James E. Fassett, and Lee Kilgore			
1973	Geology of the canyons of the San Juan River - A river runner's guide, seventh field conference.	D.L. Baars	FCGS; \$8	A FCGS 1973	
1975	Canyonlands country, eighth field conference	James E. Fassett			
1978	Oil and gas fields of the Four Corners area, Vol. I & II	James E. Fassett	FCGS; \$35	A FCGS 1978	
1979	Permianland - a field symposium, ninth field conference.	D.L. Baars	FCGS; \$12	A FCGS 1979	
1983	Oil and gas fields of the Four Corners area, Vol. III	James E. Fassett	FCGS; \$18	A FCGS 1983	
1984	Paleotectonics, San Juan Mountains, Dolores formation, paleosols and depositional systems; Jurassic depositional systems, San Juan Basin; Quaternary deposits and soils, Durango area [field trip guidebook]	Douglas C. Brew	FCGS; \$16	A FCGS 1984	37th annual meeting, GSA Rocky Mt. Sec.
1987	Geology of Cataract Canyon and vicinity, tenth field conference	John A. Campbell	FCGS; \$16	A FCGS 1987	
1995	Historical timeline for Colorado hydrocarbons including coal, oil, and gas seeps, shallow shows, and discovery wells up to 1927	Paul Oldaker			
1997	Natural fracture systems in the southern Rockies.	Jay C. Close and Tom Ann Casey	FCGS; \$36	A FCGS 1997	



Abstract

Deciphering Paleozoic paleoclimate changes using oxygen isotopes of marine apatite

Million year-scale (or 3rd-order) transgressive-regressive sequences (few 10s to ~100 m-thick) are common throughout the Precambrian through Cenozoic marine record and are often correlated between sedimentary basins and across widely separated continents implying eustatic origins. Tectonically driven changes in mid-ocean ridge spreading rates/lengths are too slow to account for the calculated 3rd-order sea-level rise/fall rates and typical orbital frequencies (~20–400 ky) driving climate change are too fast. To address the origins of Middle Devonian and Middle Pennsylvanian My-scale sequences, we have analyzed the oxygen isotopes of marine apatite (conodonts) to evaluate whether sequence development was controlled by paleoclimatically driven changes in ice volume (glacio-eustasy) and/or seawater temperature change (thermo-eustasy).

For both the Devonian and Pennsylvanian sequences, oxygen isotope values decrease and reach their lowest values within transgressive deposits and values increase and peak within regressive deposits. The magnitudes of isotopic shift range from 1-2‰, which suggests glacio-eustatic sea-level changes on the order of >50 m and imply significant continental ice sheet growth and melting; this is particularly surprising for the Devonian sequences as they accumulated during a time that was traditionally thought of as ice free. ("greenhouse" climate). The most plausible climate driver for these My-scale glacio-eustatic sea-level changes is long-period eccentricity (~2.4 My) and obliquity (~1.2 My) variations.

Dr. Maya Elrick is a professor at the University of New Mexico. He completed his Ph.D. at Virginia Polytechnic University in geology in 1990.

Calendar of Events and Happenings

AIPG

Upcoming Colorado Section - CO-AIPG February Luncheon

Date: **Tuesday, February 16, 2010**

Speaker: Len Ackland, School of Journalism & Mass Communication, University of Colorado, Boulder, CO

Title: **"A Nuclear Power Renaissance? Why Germany says No"**

Time: **11:30 AM** social gathering; Noon luncheon and subsequent speaker presentation

Where: Petroleum Club, 1325 Glenarm Street, Denver, CO.

Cost: Cost is \$25 with advance reservation and \$30 at the door. Paid parking available along the street (metered) or in the adjacent parking lots and parking structure.

EMCD FEBRUARY MEETING

What: Extractive Metallurgy Chapter of Denver dinner

When and Where: Thursday, **February 11** at 6:00 pm at the Holiday Inn, 7390 W. Hampden, Lakewood, CO.

Speaker: Tom Millensifer

Topic: **"In the beginning was the word, and it wasn't Rhenium."**

Contact: RSVP by Tuesday, **February 9** to Tom Millensifer at MrRhenium@aol.com or telephone 303-972-6601. The meeting cost will be \$30.00.

RMAG

Rocky Mountain Association of Geologist Friday Luncheon

Date: **February 5, 2010**

Speaker: **Brian Moss**

Topic: **“Stratigraphic, Petrophysical, and Lithologic Analysis of the Devonian Three Forks Formation, Williston Basin, North Dakota”**

Where: RMAG luncheons are held in downtown Denver at the **Marriott City Center** at California and 17th St.

When: Lunch is served at 12 Noon and the Program begins around 12:20 pm.

Costs: The price of the luncheon is \$30.00. All lunch attendees must pay prior to the lunch with a credit card, Paypal, Check, or Cash. If payment is not made by Thursday prior to the lunch, your lunch will be canceled or sold.

Contact for reservations: 303-573-8621 ext. 2

SEG

Society of Economic Geologists

CSM-SEG Short Course - Epithermal Precious Metal Deposits

March 11-12, 2010

Venue: SEG Course Center, 7811 Shaffer Parkway, Littleton, CO 80127, USA.

Course Presenters: Jeff Hedenquist (SEG 1986 F), Hedenquist Consulting Inc., Ottawa, Canada. Antonio Arribas, R. (SEG 1994 F), Newmont Mining Corporation, Denver, CO, U.S.A.

Early registration ends **Feb. 15!** Please download the registration form at http://www.segweb.org/activities/Registration2-DayMarch2010Course_2_7xx.pdf

DIPS

DENVER INTERNATIONAL PETROLEUM SOCIETY

Date: **Friday, February 19, 2010**

Title: **“The Channel Stacking Matrix: A Method to Relate Deep-water Channel Stacking Pattern to Reservoir Parameters”**

Speakers: **Renaud Bouroullec**, Department of Geology and Geological Engineering, Colorado School of Mines, Golden, CO

Where: Wynkoop Brewing Company, 1634 18th Street, Denver

When & Costs: Gather at 11:30 am; Lunch served at Noon; Price: \$15 for members and \$18 for non-members for lunch. It is \$3 for just the talk.

Contact: Bob Zilinski, at rezilin@aol.com or call 303-885-0615 to make **reservations before Wed., Noon, February 17**

ROGUES' Nite Out

First **ROGUES' Nite Out** of 2010 will be **February 18** at the Wynkoop @ 5:30 PM.

ROGUES - a “geospatial social networking group” of the old-fashioned kind... face-to-face over beer (or wine).

500+ members; we usually have 50 to 70 ROGUES attend socials (every 6 weeks).

No dues, no officers, no elections; no rules... just right! (cash bar)

Reply to ken@kenturnbull.com if you wish to receive the full invite with details.

Denver Region Exploration Geologists' Society February Meeting

Date: **February 1, 2010, Social hour: 6:00 to 7:00 p.m.**

Presentation: 7:00 p.m.

Location: Consolidated Mutual Water Company, lower level, 12700 W. 27th Ave., Lakewood, Colorado.

Speaker: **Iain Scarr**, Vice President - Development, Lithium One, Inc.

Topic: **“Lithium One: A Two-Pronged Approach to Developing New Lithium Supply in**

SME January Luncheon

What: SME Colorado Section lunch

Topic: "Rare Earth Minerals - The Indispensable Resource for Clean Energy Technologies"

Speaker: MARK A. SMITH, CEO, Molycorp Minerals

Where: The University Club, 1673 Sherman Street, downtown Denver Thursday

When: Thursday January 21, 2010. Gather at 11:30 am. Lunch from noon to 1:30 pm.

Particulars: Reservations required by noon, Tuesday, January 19, 2010. Cost: \$30 per person. Students welcome at \$15 per person with reservation. Reservations via email to Erik Ronald, erik.ronald@riotinto.com, or phone, 303-520-9083.

SEMINARS OF INTEREST:

Platts 4th Annual Rockies Gas and Oil

What: Production & Price Outlook, New Legislation, New Markets, & Infrastructure Development

Where: Westin Westminster, Westminster, Colorado

When: April 22-23, 2010 **Note:** Register by **March 12, 2010** and SAVE \$300! For more information, go to <http://www.platts.com/ConferenceDetail.aspx?xmlpath=2010/pc018/index.xml>

EPA Ground Water Symposium

The EPA Symposium on Ground Water-borne Infectious Disease Epidemiology, Etiologic Agents and Indicators will be held from **January 26-27, 2010**, at the Carnegie Institute of Washington in Washington, DC. During this public meeting, speakers will discuss newly published and forthcoming information on epidemiology studies for people who consume drinking water from public systems supplied by groundwater. Speakers will focus on endemic disease and predictive methods. There will also be discussions of pathogen and fecal indicator occurrence and transport - primarily E. coli and Cryptosporidium - in the subsurface. Details about the agenda and registration information can be found at: <http://www.epa.gov/ncer/events/#jan2610>

New USGS Web Page on Redox and Aquifer Vulnerability to Contamination

You can access a new United States Geological Survey web page on redox that highlights publications and a decision-support tool for determining aquifer vulnerability to contamination by visiting <http://oh.water.usgs.gov/tanc/NAWQATANCRadox.htm>. Included is direct access to a recently released USGS Fact Sheet that extends a previous USGS analysis and framework of redox processes, which was highlighted in NGWA's publication, *Ground Water*, to additional principal aquifer systems using a larger set of USGS water-quality data.

Fundamentals of Oil and Gas Property Acquisition and Finance

Mar 10-12, 2010, Denver, CO

This 3-day course is designed for industry professionals requiring an understanding of unique aspects of oil and gas property transactions.

Costs: \$2095 USD; CEU: 2.4; PDH: 24

Early Bird Pricing: A 10 % discount for all registrations received and paid by credit card 45 days prior to the course start date. Early Bird pricing is available **until January 24** for this course.

Instructor: Gerald Henderson

Should you require additional information or further clarification about this course, please see <http://www.peice.com/events.aspx?search=location&value=1141>

"Bizarre Map Challenge" (BMC): A National Map Design Competition

Hosted by the National GeoTech Center (<http://www.geotechcenter.org/>) and San Diego State University. Contact (Q&A) e-mail address: bmc@geography.sdsu.edu

Goal: To promote spatial thinking and geospatial technology awareness in high schools, community colleges, and universities in the United States. To inspire curiosity about geographic patterns and map representation for students and the broader public.

Awards: 1st prize: \$5000 cash, 2nd prize: \$1000 cash, 3rd prize: \$600 cash, 4th - 10th prizes: \$200 cash for each

Timeline:

- . **March 1st - March 22nd, 2010** : Accepting map entries (on-line form) from the BMC website (URL to be announced on March 1st, 2010)
- . April 12, 2010: Announcing the TOP TEN bizarre map challenge design finalists
- . April 12 - April 26, 2010: Two week on-line voting on the BMC website
- . April 27, 2010: Announcing the 1st, 2nd, and 3rd prize winners.

Call for Posters

ASD Inc. is accepting poster abstracts for the **Art, Science and Applications of Reflectance Spectroscopy** scientific symposium taking place in Boulder, Colorado, **February 23-25, 2010**. The symposium is a one-of-a-kind scientific event highlighting advances in the use of reflectance spectroscopy, new and different applications and techniques, and provides the opportunity for a diverse community to gather and interact. The symposium is co-sponsored by the Geoscience and Remote Sensing Society (GRSS), a member organization of the Institute of Electrical and Electronic Engineers (IEEE). Poster abstracts are due **no later than December 1, 2009**, with the proceedings paper due by **January 15, 2010**. On line registration is now open, with Early Bird discounted rates **ending January 15, 2010**. For more information visit the website:

TEACHERS' CORNER AT CSM GEOLOGY MUSEUM

The Colorado Mining Exhibit Foundation of Lakewood has sponsored and set up a third Teacher's Corner exhibit, this time at the new Colorado School of Mines Geology Museum.

The Foundation provided the 9 ft x 9 ft space frame Velcro exhibit and material featuring the Mineral Industry Institute's GREAT web site < mii.org >. The display answers the question: "Now that I have learned about rocks and minerals, where can I get impartial information on modern mining and reclamation?" If you would like to help with funds, displays, large mineral samples, and/or volunteer time, contact Guy Johnson, Exhibit Coordinator, Colorado Mining Exhibit Foundation, 568 South Carr Street, Lakewood, CO 80226, (303) 969 - 0365 or GPJ222@aol.com

GeoEvents

(comp. by P. Modreski, USGS-Denver)

Where: Dinosaur Ridge Visitor's Center, 16831 W. Alameda Parkway, Morrison, CO.

Fri-Sat-Sun, Feb. 26-28, Gem and Mineral Show, Jefferson County Fair Grounds, sponsored by the Denver Gem and Mineral Guild. Free admission! 10-6 Friday and Saturday, 11-5 Sunday. 15200 W. 6th Ave. (frontage road south of 6th Ave., west of Indiana St.).

Sat., Mar. 6, 9:30 a.m. – Noon, special lecture program at the American Mountaineering Center, 710 10th St., Golden, sponsored by Plan Jeffco and other groups; **Rosalie Edge: Hawk of Mercy**, Dyana Furmansky; **Migrating Hawks at Dinosaur Ridge, an update from the Rocky Mountain Bird Observatory**; Jason Beason, Special Monitoring Projects Coordinator for RMBO.

Fri., Mar. 12, USGS Free GPS, Map, & Compass Class - Building 810 on the Denver Federal Center, Lakewood; Map & Compass sessions 9-11:30 a.m.; "Using GPS with Topo Maps" 12:30-5:00 p.m.; Free to anyone, but reservations are required and space is limited; call 303-202-4689 or write to gpsworkshops@usgs.gov . More information: <http://www.cr.usgs.gov/gpsworkshops/>

Fri., Mar. 12, What's this Rock?; 7:00 p.m., Lookout Mountain Nature Center, 910 Colorow Rd. Golden, CO, phone 720-497-7600. This program is an elementary introduction on how to identify common minerals and rocks. Ages 13 – adult. Free program but registration is required. Visit <http://lmnc.jeffco.us> to register."

Sat., Mar. 20, Rocks and Minerals; 9 a.m., Lookout Mountain Nature Center, 910 Colorow Rd. Golden, CO, phone 720-497-7600. Enjoy an auto tour with Jack Reed, Emeritus Scientist at the U.S. Geological Survey, to see and learn about outcrops of sedimentary, volcanic, metamorphic and intrusive rocks in the local area. Ages 13 – adult. This is a free program but registration is required. Please visit <http://lmnc.jeffco.us>

Park County Mining Association Meeting

Park County Mining Association meets at 10:00 AM at Alma Town Hall, 59 East Buckskin Road.

MEETINGS OF OTHER SOCIETIES



Albuquerque Geological Society Newsletter

Volume 10, Number 140(A)

January 22, 2010

Noon Meeting
DO NOT MISS - MARK YOUR CALENDAR

Topic: Basin-Centered Gas Accumulations: Revisiting the Type Areas with Integrated Datasets

NOTE: Bruce's plane is due in about 11:30 AM. If it is late and can't get to The Golden Corral by 12:00 thereabouts, Sean Connell will present his Talk.

Speaker: Bruce Hart

Date: Wednesday February 3, 2010

Time: 11:30 to 13:00

Place: Golden Coral @ NE Corner of Eubank and Central

Please RSVP if possible to wturner@waterbank.com

Evening Meeting

Topic: Tour of the Northeast Brooks Range Alaska

Speaker: Jerry Peace

Date: April 22, 2010

Time: 5:30 PM

Place: Fiesta Restaurant Carlisle and Montgomery

Please RSVP if possible to wturner@waterbank.com

WGA

Wyoming Geological Association

Topic: Multiple Pay Tight Gas Sands

Speaker: Mike Ebbard

Date: February 3, 2010

Time: Dinner is at 6:00 p.m., Lecture at 6:45 p.m.

Information: For more information see their website at <http://www.wyogeo.org>

CSM GEOLOGY MUSEUM BOOK

When: Mon.-Fri., Feb. 15-19

What: The Colorado School of Mines (CSM) Geology Museum used book sale February 15-19 from 9-4 daily. Similarly, most prices will decrease about 50% each day.

Where: Museum book sale will be in the Museum building. Museum address is 1310 Maple Street, Golden and their phone number is 303-273-3815.

CSM ARTHUR LAKES LIBRARY ANNUAL BOOK SALE, 9 am to 4 pm each day.

When: Monday, Feb. 15 **Silent Auction:** Advance e-mail and postal mail bids will be accepted for Silent Auction items. The 2010 Silent Auction Bid List is now available.

Contact: Heather Whitehead, 303-273-3540 or see, http://library.mines.edu/About_the_Library/LBNews_Booksale

Arizona Geological Society

Date: Tuesday, January 5, 8:00 pm (dinner 7:00 pm)

Topic: *Magmatic PGE deposits associated with mafic and ultramafic rocks*

Speaker: Dr. Michael L. Zientek, U.S. Geological [Survey](#)

Where: Sheraton Four Points, Conference Center

- **February 2, 2010** - Leslye Obiora, *UA Law Professor, former Minister of Solid Minerals in Nigeria*
Topic: The challenges of mining and mineral exploration in Africa
- **March 2, 2010**—Wayne Ranney, *supported by the Arizona Humanities Council*
Topic: to be announced
- **April 6, 2010** - Rachele Wagner, *NAU Courtright Scholar*
Topic: Miocene fault and basin analysis along the Boulevard and Dry Wash faults, northern Frenchman Mountain, Lake Mead domain, Nevada
- **September 7, 2010** — Marcia McNutt, *Director, U.S. Geological Survey* **Topic:** to be announced
- **November 2, 2010** — Peter Megaw **Topic:** Discovery of the Fresnillo West Mining District, Mexico
- **December 7, 2010** — Susan Miller, *author*

FIELD TRIPS

Late March/Early April 2010 - Arizona Geological Society – Morocco (via Frankfurt) Leader Doug Shakel

February 12, 2010 (Friday) Geology of Cerillos and the Gallisteo Basin, \$95 per person.

February 21, 2010 (Sunday) Geology of Ojo Caliente, Plus a Soad! \$115 per person.

April 3, 2010 (Saturday) Geology of Tent Rocks, \$20 per person.

April 16, 2010 (Friday) – Geologic Hike at the Ojito Wilderness Area. \$95 per person.

April 22, 2010 (Thursday) Geology of Abiquiu, \$20 per person.

April 23, 2010 (Friday) Geology of the Southern Sangre de Cristos, Santa Fe to Las Vegas, \$95 per person.

All field trips are listed as running from 9:00 a.m. to 5:00 p.m.. For more information, visit:www.sfccnm.edu

Benson Earth Sciences lecture hall (380), Boulder, CO; Wednesdays, 4 pm; refreshments are served at 3:30 on the 3rd floor. Dinner at 6:00 p.m. and Lecture is 6:45 p.m. For more information, see their website: <http://www.wyogeo.org/>

Date: Feb. 3

Speaker: Mike Eberhard - (SPE Distinguished Lecturer)

Topic: **Multiple Pay Tight Gas Sands**

Other: Above meeting:

Tucson Gem and Mineral Show – January 30 – February 12.

Business to business Gem Trade Show. 4475 S. Country Club Road.

Information: info@glwshows.com This is one of the worlds largest gem and mineral shows. Not to be missed if you have never attended.

9TH ANNUAL ESTANCIA BASIN WORKSHOP

On-line registration is open for the 9th annual Española Basin Workshop on website:

<http://esp.cr.usgs.gov/ebtag/upcoming.html>.

Register by March 1, 2010. **The abstract deadline (for poster presenters and invited speakers) is February 19, 2010.**

When: Thursday March 4, 2010

Where: The Santa Fe Community College (Main Building, Jemez Complex), Santa Fe, NM. See our website for a location map.

The theme: Watersheds & Surface Water of the Española Basin

Contact: Doug McAda, U.S. Geological Survey, 5338 Montgomery NE, Suite 400, Albuquerque, NM 87109, 505-830-7943 dpmcada@usgs.gov

GEOLOGY SEMINARS AT UNIVERSITIES:

[New Mexico State University Geological Sciences Colloquium](#) — Wednesdays at 4:00 PM in Room 189 Breland Hall (BD), [University Department of Geological Sciences](#). Refreshments are served at 3:45 PM. To be announced. To ensure a seat. E-mail geology@nmsu.edu or call 646-2708 for information.

[New Mexico Tech Bureau/EES Seminar Series](#) — usually Thursdays at 4:00 pm during the spring and fall semesters sponsored by the Bureau and the [Department of Earth & Environmental Science](#). See the schedule at (<http://www.ees.nmt.edu/seminar.html>)

[University of New Mexico 401/501 Colloquium Series](#) — [Department of Earth & Planetary Sciences](#) Friday afternoons at 2:00 PM in Northrop Hall, Room 122 (the large Lecture Hall at the east end of the building). Refreshments are available before the talks beginning at 1:45 PM. Upcoming talks are: To be announced.

CSM EXECUTIVE LECTURE SERIES

[Colorado School of Mines](#) — **CSM Van Tuyl Lecture**: The next Van Tuyl Lecture will be Thursday, **February 4th** at 4 p.m. in Berthoud Hall 241.

Speakers: **Dr. Christine Siddoway**, Geology Department Chair, Colorado College, and **Steven A.F. Smith**, Istituto Nazionale di Geofisica e Vulcanologia (INGV) Rome.

Title: "Structural geology of the Garden of the Gods: fault linking zones in a contractional setting, examined within the context of the Laramide orogeny"

CSM-SEG Short Course - Epithermal Precious Metal Deposits

March 11-12, 2010

Venue: SEG Course Center, 7811 Shaffer Parkway, Littleton, CO 80127, USA.

Course Presenters: Jeff Hedenquist (SEG 1986 F), Hedenquist Consulting Inc., Ottawa, Canada. Antonio Arribas, R. (SEG 1994 F), Newmont Mining Corporation, Denver, CO, U.S.A. Early registration ends **Feb. 15!** Please download the registration form at http://www.segweb.org/activities/Registration2-DayMarch2010Course_2 April 2010 -

University of Colorado Lectures

Benson Earth Sciences lecture hall (380), Wednesdays, 4pm (unless otherwise noted); refreshments are served at 3:30 on the 3rd floor. For more information see: <http://www.colorado.edu/GeolSci/>.

February 10. Kurt Konhauser, University of Alberta. "What banded iron formation can tell us about life in the Precambrian."

February 17. Dave Budd, University of Colorado - Boulder. "Motivations and Learning Strategies Students Bring to Introductory Geology & How Instructors and Learning Environment Affect Those Motivations and Attitudes."

February 22. Ramon Arrowsmith, Arizona State University, Earthscope. "High spatial resolution tectonic geomorphology and earthquake geology along active fault zones of western North America." (This is a **Monday** Colloquium).

March 3. Vince Matth **Stray Gas Conference Presentations Available**

Stray Gas Conference Presentations Available

A Stray Gas Workshop was held on November 4-6, 2009 in Pittsburgh, sponsored by the U.S. Geological Survey Pennsylvania Water Science Center in cooperation with the Office of Surface Mining, Reclamation, and Enforcement, U.S. Department of the Interior, PA Department of Environmental Protection, and the Pittsburgh Geological Society. Workshop focused on the scientific basis for the assessment and analysis of stray or fugitive gases such as methane or carbon dioxide. You are invited to view the presentations from the workshop on the USGS website under the "Workshop Presentations" tab at http://pa.water.usgs.gov/stray_gas/ ews, Colorado Geologic Society.

SPRING NORTH AMERICAN COALBED METHANE FORUM

The North American Coalbed Methane Forum will hold its Spring session on **April 28-29, 2010**, the Hilton Garden Inn Pittsburgh, Southpointe near Canonsburg, PA. The forum is titled *Coalbed Methane from Prospect to Pipeline* will consist of two day-sessions with presentations covering technical, regulatory, and legal aspects of coalbed methane development and production. For more information, contact Ihor Havryluk at 412-445-5803, havryluk@zoominternet.net or Dr. Kashi Aminian at 304-293-7682 ext. 4, khashayar.aminian@mail.wvu.edu, or visit the website www.nacbmforum.com

Mon.-Fri., Feb. 15-19: CSM GEOLOGY MUSEUM BOOK SALE

The Colorado School of Mines (CSM) Geology Museum used book sale February 15-19 from 9-4 daily. Similarly, most prices will decrease about 50% each day.

Where: Museum book sale will be in the Museum building. The Museum address is 1310 Maple Street in Golden and their phone number is 303-273-3815.

CSM ARTHUR LAKES LIBRARY ANNUAL BOOK SALE, 9 am to 4 pm each day.

When: Monday, Feb.15 Silent Auction: Advance e-mail and postal mail bids will be accepted for Silent Auction items. The 2010 Silent Auction Bid List is now available.

Contact: Heather Whitehead, 303-273-3540 or see, http://library.mines.edu/About_the_Library/LBNews_Booksale

Sun., Feb. 21, Florissant Scientific Society, monthly meeting, Woodland Park, CO; Jay Temple, "Global Climate Change";

Where: Woodland Park Library, 218 E. Midland Ave.and the Casa Grande Restaurant. (just east of McDonalds along US 24) at 11:30 AM.

Mon, Feb. 22, 7:30 p.m., "Fireside Chat" at Dinosaur Ridge: The Variety of Front Range Structural Interpretations – Radical Thoughts about Peculiar Faults, by Ned Sterne, consulting geologist.

Where: Dinosaur Ridge Visitor's Center, 16831 W. Alameda Parkway, Morrison, CO.

Fri-Sat-Sun, Feb. 26-28, Gem and Mineral Show, Jefferson County Fair Grounds, sponsored by the Denver Gem and Mineral Guild. Free admission! 10-6 Friday and Saturday, 11-5 Sunday. 15200 W. 6th Ave. (frontage road south of 6th Ave., west of Indiana St.).

Sat., Mar. 6, 9:30 a.m. – Noon, special lecture program at the American Mountaineering Center, 710 10th St., Golden, sponsored by Plan Jeffco and other groups; **Rosalie Edge: Hawk of Mercy**, Dyana Furmansky; **Migrating Hawks at Dinosaur Ridge, an update from the Rocky Mountain Bird Observatory**; Jason Beason, Special Monitoring Projects Coordinator for RMBO.

Fri., Mar. 12, USGS Free GPS, Map, & Compass Class - Building 810 on the Denver Federal Center, Lakewood; Map & Compass sessions 9-11:30 a.m.; "Using GPS with Topo Maps" 12:30-5:00 p.m.; Free to anyone, but reservations are required and space is limited; call 303-202-4689 or write to gpsworkshops@usgs.gov . More information: <http://www.cr.usgs.gov/gpsworkshops/>

Fri., Mar. 12, What's this Rock?; 7:00 p.m., Lookout Mountain Nature Center, 910 Colorow Rd. Golden, CO, phone 720-497-7600.This program is an elementary introduction on how to identify common minerals and rocks. Ages 13 – adult. Free program but registration is required. Visit <http://lmnc.jeffco.us> to register."

Advertising

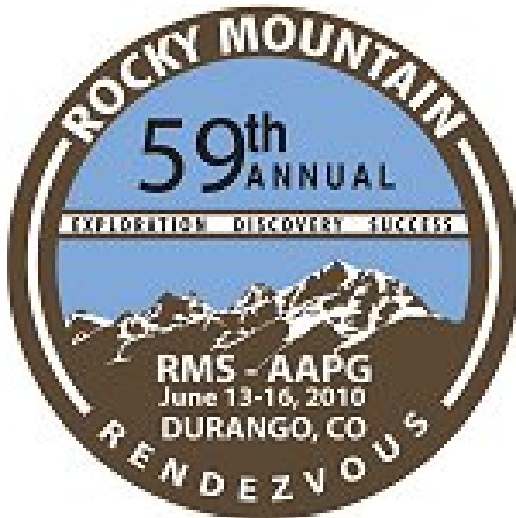
For Sale:

Map Cabinet, upright, for rolled maps, ca. 1950s, from old Continental Oil Bldg in Denver, 1' deep X 5' long X 5' high, solid wood w/ flip-up top and drop-down front. \$350. Contact Bill Freeman 505-368-1041 (w); 505-334-1673 (h) for details/pics.

Advertising rates for the Four Corners Geological Society Newsletter:

Full Page Ad (7½"x 9½") \$100/mo or \$1,000/yr. Half Page Ad (7½"x 4½") \$50/mo or \$500/yr
¼ Page Ad (3½"x 4½") \$25/mo or \$250/yr. Business Card (3½"x 2") \$10/mo or \$100/yr
Odd sizes are \$3.50 per column inch per month, minimum \$10.00

For more information, please contact the FCGS Treasurer. Tom Staatz (505) 325-8531. Proceeds will go toward the further development of the Society (i.e. offset meeting costs, publications, etc.)



59TH ANNUAL CONVENTION

Rocky Mountain Section

of the

American Association of Petroleum Geologists

JUNE 13-15, 2010

DURANGO, COLORADO

For more information, go to:

www.fourcornersgeologicalsociety.org

Technical Sessions - Oral and Poster

- Shale Gas and Fractured Shale Plays of the Rockies
- Tight Gas Sands and Fractured Sandstone Reservoirs
- New Insights into the Paradox Basin
- San Juan Basin – Mature Basin?
- New Concepts and New Discoveries in the Rocky Mountain Overthrust Belt
- Uranium Geology in the Rockies
- CO₂ Sequestration - What Have We Learned So Far?
- Geothermal Energy – From Hot Springs to Produced Water
- Advances in Completion Technologies & Microseismic Monitoring
- Geomechanics / Deformation Styles in the Rockies
- Multi-scale Observations and the Application of Remote Sensing and Lidar to Rocky Mountain Petroleum Exploration
- Sedimentology and Stratigraphy of Rocky Mountain Basins
- Structure of Rocky Mountain Basins
- Student Papers

Abstract Deadline:

February 1, 2010

FIELD TRIPS

- Pennsylvanian Hermosa Fm., from Shelf to Basin
- Upper Cretaceous Reservoirs of the San Juan Basin
- From the San Juan Basin to the San Juan Mountains:
 - Pt. I: Paleozoics of the Animas Valley North
 - Pt. II: Cretaceous to Paleogene of Animas Valley South
- Aeolian Reservoir Analogs

SHORT COURSES

- Source Rocks 101
- Geology and Geochemistry of Uranium Deposits
- Geological Interpretation of LWD Logs and Images

Hosted by:



**The Four Corners
Geological Society**