

# *Colorado Scientific Society*

*The objective of the Society is to promote  
the knowledge and understanding of Earth science,  
and its application to human needs*

## ***2009 President's Address and Annual Business Meeting***

**Great Basin geology, hydrology and  
the Colorado Scientific Society**

*by  
Don Sweetkind  
USGS*

**Thursday, December 10, 2009**

**Colorado School of Mines—Dept. of Geology and Geological Sciences  
Berthoud Hall, Room 108 (on first floor of building), Golden, Colorado  
Social half-hour – 6:30 p.m. Meeting time – 7:00 p.m.**

# 2009 Colorado Scientific Society President's Address

## Abstract

### Great Basin geology, hydrology and the Colorado Scientific Society

*By Don Sweetkind, U.S. Geological Survey*

Geologic and geohydrologic studies in support of issues of National significance such as nuclear testing, nuclear waste isolation, and groundwater availability have resulted in fundamental advances in geological sciences in the eastern and southern Great Basin. Colorado Scientific Society members have made key advances in regional stratigraphy, caldera-related volcanism, structure, and regional tectonics. These scientific advances often came while working under tight deadlines and for cooperators that demanded information, not research.

Geologic work at the Nevada Test Site (NTS) began in earnest when testing moved underground in 1963, putting a premium on knowledge of subsurface geologic conditions for the purposes of blast containment. Mapping of numerous geologic quadrangles and subsequent compilation at smaller scales document advances in understanding of stratigraphy and structure of Paleozoic rocks and overlying volcanic rocks associated with the southwestern Nevada volcanic field. The NTS nuclear legacy includes two underground tests conducted in Colorado.

Geologic work as part of the Yucca Mountain site characterization included regional structural and tectonic studies designed to understand potential earthquake magnitude and recurrence intervals and age of volcanism at the site. Site-specific geologic studies were keyed to the near-field geologic environment and to the design and construction of underground facilities. Numerous Colorado Scientific Society members provided key scientific contributions to the understanding of the Yucca Mountain site.

A number of regional hydrologic studies have been conducted in part to evaluate the fate (flow paths and travel times) of radionuclides from underground testing areas at the Nevada Test Site and possible future effects of the potential high-level nuclear waste repository at Yucca Mountain, Nevada. These studies require broad knowledge of subsurface stratigraphy and structure sufficient to construct numerical 3-D framework models that serve as the primary geologic input to flow and transport models.

In recent decades, population growth in southern Nevada has put more pressure on available water resources from the allotted withdrawals from the Colorado River, forcing water purveyors to consider large-scale groundwater pumping interbasin diversions. The presence of large-volume springs attest to a significant regional groundwater system. Increased pressure on existing water resources in this arid region come from continued population growth, pressure for economic development, and potential new water uses related to solar energy development. These factors place a premium on understanding subsurface geology and geologic controls on regional groundwater flow.



## President's Message



Dear Society Members,

It has been an honor to serve as your President for the past year although as the many past-Presidents in the Society are aware, I am greatly pleased and relieved to be concluding my service and pass the job on to Scott Minor.

I want to personally thank all of the council members and chairpersons for their support and help over the past year; a year that I believe was very successful. This organization runs on volunteer power, so a big THANK YOU to all of you who contributed time and energy this past year.

We made some changes this year, including moving our meeting location to the Colo. School of Mines campus (well, for most of the meetings) – this move boosted our meeting attendance and greatly reduced our costs. Regrettably, a handful of members have stopped coming to meetings as a result of this move. We have outsourced the maintenance of our web site to a Golden web design firm; so far this partnership seems to be working. We transferred the silver gavel, our single biggest asset, to a display case in the CSM geology museum. The gavel will be available to us whenever we need it, but it will no longer be personally held by each President. We had two very successful one-day field trips this year, each of which was preceded by an evening of talks that focused on the field trip subject matter—this format seemed to work very well. A good example is the October 2009 trip and evening of talks to honor Glen Scott's career. I think most members agree that it is a nice idea to honor long-time members in this way and that we should continue this sort of thing in the future.—Don S.



## 2009 Student Awards—Results of the 2009 CSS Student Night Competition

Members in attendance were treated to five outstanding talks by students from the University of Colorado, the Colorado School of Mines, and the University of Northern Colorado. Each of the five speakers received a CSS coffee mug, a free one-year membership to the Society, and a cash award as follows:

**1st place**, \$450 prize, Byron Straw (M.S. candidate, UNC), “Glacial and Periglacial Deposits of the Lake of the Clouds Cirque, Never Summer Mountains, Colorado.”

**2nd place**, \$250 prize, Tiffany Dawn Jobe (M.S. candidate, CSM), “Static Reservoir Modeling in an Incised Valley Fill: A Case Study in Optimization from Postle Field, Texas County, Oklahoma.”

**3rd place**, \$100 prize, Elizabeth Swanner (Ph.D candidate, University of Colorado, Boulder), “Investigation of a Terrestrial Subsurface Biosphere at Henderson Mine, CO.”

**4th place**, \$50 prize, Michelle Hopkins (first year Ph.D student, University of Colorado, Boulder), “Hadean Thermobarometry Revisited.”

**5th place**, \$50 prize, Ria Brunhart-Lupo (Ph.D. student, CSM), “Forensic Geology—Arid and Humid Climates and Their Effect on Remains.”

The Society congratulates all five students on a job well done. Many members commented on the diversity of the talks, the strength of the science presented, and on the overall enthusiasm of the student presenters. Great job!

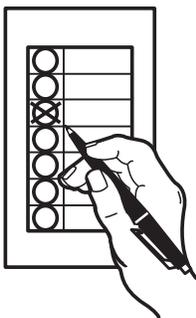


### FREE at the USGS Map Store...

As in past years, bundles of “government surplus” topographic maps are being given away for use as gift wrapping (alternatively, “Suitable for Framing,” if you happen to get a map that you really like!). Available now through Christmas, in-person at the store only at the USGS Map Sales room, Denver Fed. Ctr., Bldg. 810, Lakewood. (enter through the Main Gate, Gate #1, off Kipling St. between 6th Ave. and Alameda).

#### 2010 CSS Officer Nominees

The nominee for president-elect is Lisa Fisher, (CSM). We need volunteers to fill our still-vacant Membership and Program chairs/committees and



Councilor slot. A verbal vote will be taken at the December meeting. If you wish to be nominated or know someone who would be willing to serve, please contact Scott Minor, [sminor@usgs.gov](mailto:sminor@usgs.gov).

#### Dec. 7–11, Holiday Sale at the USGS Map Store, 15% off all items in the store.

The store is run by the Rocky Mountain Nature Association, and sells field guides, other Colorado nature and history books, calendars, CDs, Audubon stuffed birds, National Geographic maps, road atlases, etc., as well as USGS maps. The store is open from 8 a.m. to 4 p.m. weekdays only, and the sale applies to in-store items only (warehouse items not included). Call 303-202-4675 for more information.





## Flatirons Gem and Mineral Show

Dec. 11–13, Boulder County Fairgrounds, 9595 Nelson Rd. (Nelson & Hover), Longmont, CO; (10–6 Fri., 9–5 Sat., 10–5 Sun.)

For details see:

<http://bcn.boulder.co.us/community/fmc/>

## Coming Attractions

The 2010 Emmons lecture will be presented by James Kennett (U.C. Santa Barbara) on Thurs., Jan. 21, 2010 at 8 p.m. at the Green Center. See abstract in the January newsletter.

“Good science consists largely of play disguised as work.”

-- E.O. Wilson

“Thank you for sending me a copy of your book; I’ll waste no time reading it.”

-- Moses Hadas

“I’ve had a perfectly wonderful evening, but this wasn’t it.”

-- Groucho Marx

## Science Fair Judges needed!!

Two more Denver school science fairs have been scheduled for January and volunteers for all of them are very much needed and appreciated. For all except the Grant Ranch School, please contact Debbie Turner, Community Resources, Inc., 720-424-2300, [debbie\\_turner@dpsk12.org](mailto:debbie_turner@dpsk12.org). Judging for all of these will take place in the mornings, so shuck off your jammies and help our future scientists by volunteering your time for these important events!

**Thurs., Dec. 10**, Grant Ranch K-8 School, Littleton; contact [Susan\\_Workman@dpsk12.org](mailto:Susan_Workman@dpsk12.org)

**Tues., Jan. 12**, Smiley Middle School, 2540 Holly St., Denver

**Fri., Jan. 15**, Bryant-Webster K-8 School, 3635 Quivas St., Denver

**Thurs., Jan. 7**, Grant Middle School, 1751 S. Washington St., Denver

**Sat., Jan. 23**, Denver Public Schools District Science Fair, to be held at the Denver Zoo

## Cool Websites!

<http://geology.com/news/> A nice list of Geology news and earth science current events.

<http://www.kidsgeo.com/geology-games/rocks-game.php> Identify the rock game for kids.

<http://www.mms.gov/mmskids/> Minerals Management Service Kids’ Pages

<http://www.georgehart.com/trilobites/trilobite.html> Recipe for “trilobite cookies”!

<http://www.ucmp.berkeley.edu/fosrec/McKinney.html> Use M&Ms to demonstrate radioactive decay.



Machette's San Luis trip June 2007

**Have an idea for a field trip?**

Give us your thoughts! We're always looking for a good margarita...errr... outcrop.

Would you like to LEAD a field trip?

Send your ideas to Scott Minor at [sminor@usgs.gov](mailto:sminor@usgs.gov)!!



Michael still going strong. Wake up Cal!!!



Libby sampling Alamosa's finest after a long day.



**It's Time to Pay Dues for 2010...**

Membership dues for the coming year (2010) are now due. You will find a dues payment form in this issue of the newsletter, or you can download the form from the CSS website:

[www.coloscisoc.org/membership/dues.html](http://www.coloscisoc.org/membership/dues.html)

You will also see a reminder in the mail or e-mail this month. Dues payments are \$20 for regular members; \$10 for corresponding members (outside the Colorado Front Range area), and \$5 for students. You may pay your dues by mailing a check to the CSS, or pay with a credit card using PayPal on the CSS website. If you are uncertain if you owe dues or of your member status, contact CSS Treasurer Don Sweetkind by phone at 303-236-1828 or by e-mail at [dsweetkind@usgs.gov](mailto:dsweetkind@usgs.gov).

As you pay your dues, please consider making an additional contribution to one of our Memorial Funds, which support our student research grants program, or the Endowment Fund, which we use to defray operating costs. Any contributions made in calendar year 2009 (checks dated before 1 January 2010), will be credited toward the 2009 tax year.

Please remember that your entire contribution goes towards generating interest for the grants and that your contribution is 100% tax deductible because the Society is a non-profit Section 501 (c) (3) organization. Through interest income generated by our Memorial Funds, we have awarded over \$125,000 in research grant funding to more than 165 students. This year we also supported the participation of about a dozen students on our field trips through the Pillmore Fund.

PLEASE support our future scientists by generously supporting the Colorado Scientific Society. Thank you!!



## DUES & FUNDS CONTRIBUTIONS COLORADO SCIENTIFIC SOCIETY

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(Last Name)      (First Name)      (Initial)      (current email address to receive newsletter and field trip notices)

**DUES:** Dues are for the calendar year (January-December)

Regular Members (\$20, CO Front Range) \_\_\_\_\_  
Corresponding Members (\$10) \_\_\_\_\_  
Student Members (\$5, enrolled in college) \_\_\_\_\_

**MEMORIAL FUNDS:** These funds support earth-science research grants to graduate students throughout the nation. If your contribution is not specified, it will be distributed equally among the funds:

(A) Ogden Tweto Memorial Fund \_\_\_\_\_  
(B) Steven Oriel Memorial Fund \_\_\_\_\_  
(C) Edwin Eckel Memorial Fund \_\_\_\_\_  
(D) Bill Pierce-Heart Mountain Fund \_\_\_\_\_  
(E) George Snyder Memorial Fund \_\_\_\_\_  
(F) Chuck Pillmore Memorial Fund \_\_\_\_\_  
This contribution is made in the memory of: \_\_\_\_\_

**ENDOWMENT FUND:** This fund is used to support the Society's monthly meetings and newsletter, field trips, family night, annual Emmons Lecture, and special activities.

**TOTAL CONTRIBUTIONS (DUES AND FUNDS):** \_\_\_\_\_  
\_\_\_\_\_

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Please make your checks payable to the Colorado Scientific Society  
**Send this form & your check to:**

**Colorado Scientific Society  
P.O. Box 150495  
Lakewood, CO 80215-0495**



## Earth Science Meetings and Talks

*Newsletter items must be received by the 25th of each month.*



**Colorado Scientific Society's** regular meetings are held the 3rd Thursday of the month at the Colorado School of Mines in Golden (unless otherwise advertised). Social time begins at 6:30 p.m. and talks start at 7:00 p.m.  
For more information, contact Don Sweetkind, at 303-236-1828, dsweetkind@usgs.gov

**Café Scientifique** Wynkoop Brewery, evening science talks at 6:30. Free, except for beer. <http://www.cafescolorado.org>

**Colorado School of Mines, Van Tuyl Lectures** Thursdays from 4–5 p.m. in Berthoud Hall room 241. **Dec. 10.** Jim Bunnell, Colorado Geological Survey, "Critical and Strategic Minerals in the 21st Century." (Rescheduled from October 29.) <http://www.mines.edu/academic/geology>

**Colorado State University, Dept of Geosciences**, Rm 320 Warner College of Natural Resources Bldg., Mondays, 4:00 pm. 970-491-5661. <http://welcome.warnercnr.colostate.edu/geo-training/index.php>

**Denver Mining Club** meets every Monday at the Littleton Country Buffet near Bowles and Wadsworth (8100 W. Crestline Ave., in the shopping center) 11:30–1:00. Purchase of lunch required. **Dec. 8**—Holiday Story Time. You've collected some interesting anecdotes in your career. Share one with the audience, in 5 minutes or so. **Dec. 14**—Auction of Mining Memorabilia. Check your attic, closet, & garage for items to donate, or come and look for that special gift. Books, rocks & minerals, jewelry, prospecting & mining supplies & equipment, and much more: Come help us celebrate our 118th anniversary! **Dec. 21 & 28**—No Meeting. Merry Christmas. Happy New Year. <http://www.denverminingclub.org>

**Denver Museum of Nature and Science** **Dec. 10**, 7:00 p.m., "Sandstorms to Snow Leopards: The Cretaceous Tourist in Mongolia," by Kirk Johnson, Ph.D, chief curator. Phipps IMAX Theater; use IMAX evening entrance. \$12 member, \$15 non-member. <http://www.dmns.org/main/en/General/Education/AdultProgram/Lectures>

**Denver Region Exploration Geologists' Society (DREGS)** meets in the Mutual Consolidated Water Building, 12700 West 27th Avenue, Lakewood. Social 6:00–7:00 p.m. Presentation at 7:00 p.m. Meetings are normally scheduled for the first Monday of each month. **Dec. 7**, "Geology and Pegmatites of the Black Hills, South Dakota," *John L. Lufkin, Consulting Geologist*. For information contact Jim Piper, (303) 932-0137, or the website <http://www.dregs.org>

**Denver Well Logging Society (DWLS)** meets on the third Tuesday of each month, Sept. through May. Lunch and a technical talk at the Wynkoop Brewery begins at 11:30 a.m., 18th and Wynkoop Sts. in Denver. Call Sarah Voight at 720-946-1374 by prior Thursday for reservations. Web page: <http://dwls.spwla.org>

**Friends of Dinosaur Ridge** <http://www.dinoridge.org>. Admission is free, but donations are welcome. 16831 W. Alameda Parkway. Talks at 7:00 p.m. Visitor Center (303) 697-3466 or contact Beth Simmons at [cloverknoll@comcast.net](mailto:cloverknoll@comcast.net) for info.

**Rocky Mountain Association of Geologists (RMAG)** **Jan. 14** *Toni Simo, AAPG Distinguished Lecture*, "Isolated carbonate platforms and mounds (ICPM): Initiation, growth and demise." Reception at 11:30, lunch at noon, talk at 12:30. Reservations by recording at 303-623-5396 until 10:30 a.m., prior Wed. Luncheon \$30. Talk only (no res.)—\$5. Location: Denver Marriott City Ctr., 17th & California. **Upcoming:** 2010 RMAG Short Course by Ron Blakey, Jan. 28, 2010, 8:00 a.m., "Paleogeographic and Paleotectonic Maps—Use, Construction, Interpretation and Example." <http://www.rmag.org/events>.

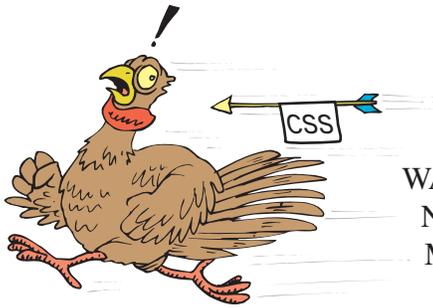
**Rocky Mountain SEPM** Reception at 11:30, lunch at noon, speaker at 12:30. Reservations: [luncheons@rmssepm.org](mailto:luncheons@rmssepm.org), before noon of preceding Friday. \$20.00 lunch, \$3 talk only. Wynkoop Brewing Company, 1634 18th St., Denver. <http://www.rmssepm.org/luncheons.shtml>

**Univ. of Colorado, Boulder, Geol. Sciences Colloquium** Weds., 4:00 p.m., Benson Earth Sci. Auditorium, Rm. 180. Refreshments at 3:30 p.m. on the 3rd floor. **Dec. 9** *Valier Galy, Woods Hole Oceanographic Institution*, "Export and burial of organic carbon in the Himalayan System: a new look at the long and short term C cycles." <http://www.colorado.edu/geolsci/>

**Western Interior Paleontological Society** **Sat., Dec. 12, 7 p.m.**, WIPS Annual Holiday Auction & Potluck Party, Lutheran Church of the Master, 14099 W Jewell Ave., Lakewood, CO (near W. Alameda Pkwy and Bear Creek Blvd). All are welcome to come bid at our silent and verbal auction. Books, fossils, minerals, art and all kinds of geo treasures contributed by WIPS members. Verbal auction for special items is held mid-evening, auction wraps up by 10 p.m. Info.: [www.wipsppc.com](http://www.wipsppc.com) **Mon., Jan. 4, 2010** *Dan Muhs, USGS*, "Paleontological and geochronological evidence for the timing and warmth of the last interglacial period: implications for a future warmer Earth." 7 p.m., Ricketson Auditorium, Denver Museum of Nature & Science (all welcome, no admission charge).

Colorado Scientific Society  
P.O. Box 150495  
Lakewood, CO 80215-0495

<http://www.coloscisoc.org>



WANTED:  
New CSS  
Members

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Treasurer:	Don Sweetkind, USGS, 303-236-1828, dsweetkind@usgs.gov	2008–2011: Lee Shropshire, UNC, 970–352–8778, leeshrop@comcast.net;
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