



# Colorado Scientific Society

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

## Short Summer Newsletter

**September Meeting – Student Paper Night**  
**Thursday, September 15, 2016, 5:45-9:00 p.m.**  
**Arbor House, Maple Grove Park (Applewood area)**  
**14600 W 32nd Ave., Golden CO 80401**

A happy hour social (5:45-7:00) followed by student talks (6 students, 15 minute slots).  
Food and Drink: BYOB (yes- a true happy hour social!). CSS will provide light snacks.

Do you know a student or recent (2016) graduate looking to share their research? Or a student gearing up for a GSA or AGU talk? Please encourage them to submit an abstract for the CSS student talk night!!!

We will be accepting talks from 6 students. Each talk should be 12 minutes with an additional 3 minutes for questions. Students who are not selected as a speaker are welcome to participate in the student poster session- recycled posters from previous presentations are encouraged as well! Who is eligible: Graduate students, undergraduates, and recent (2016) graduates

Best of all- the CSS members will vote for their favorite talk. Please come out to vote!!! The "Best in Show" winner will be treated to a \$250 grand prize!! All other speakers will be given a small award to cover gas/ transportation.

Abstracts will be accepted through midnight on September 2, 2016. Please submit abstracts to: [melissa.ann.foster@gmail.com](mailto:melissa.ann.foster@gmail.com). Students will be notified as to whether they are selected as a speaker by September 8, 2016.

CSS members: please come out and support our students! This is a wonderful opportunity to share your experience in the work force, mentor students, and check out some of the cutting-edge research going on in our own backyard! We would love to incorporate students into CSS activities- so your participation at this event is critical!

*We are holding the following field trip **instead** of the previously planned trip to the Colorado Devonian in the Flat Tops area—that trip will be rescheduled for a future time.*

## **CSS Field Trip, Saturday, August 27, 2016**

### **Colorado's Permian-Triassic: the Lykins Formation**

Leader: Dr. James Hagadorn, Denver Museum of Nature and Science

This field trip will focus on the Permian-Triassic Lykins Formation of eastern Colorado. This unit is of interest because it may contain the Permian-Triassic boundary, and information about what happened locally during this event. Given the nascent nature of our research on the unit, we welcome your interpretations, criticism, and insights about the geology we'll see on the field trip. This field trip will consist of up to four stops, progressing roughly from the bottom of the Lykins to its top. There will be opportunities to see the units' contact with the underlying Lyons Sandstone and the overlying Jelm Formation. There will be a brief detour out of stratigraphic order so that we can see a gypsum quarry that highlights the Blaine Gypsum Member of the Lykins Formation—a member rarely seen in surface outcrops.

#### Stop 1: Golden Maintenance Facility

This stop will focus on surveying the transition from the Lyons Sandstone to the upper Forelle Member of the Lykins Formation. The first half of this stop provides a cross-sectional view of the lower part of the Lykins Formation, illustrating from bottom to top, the Greenacre Lentil, Falcon Member, and Forelle Member. Stromatolites, solution cavities, and related features are all visible in these units. At the second part of this stop, we will examine and discuss an enigmatic bed top in the upper Forelle Member, which is locally brecciated, contorted, and possibly slumped. How might these bedforms have formed?

#### Stop 2: Park Creek Reservoir

This stop offers an opportunity to walk the section from the upper Lyons Sandstone through the lower half of the Lykins Formation. Herein we will see the unit's main carbonate members, including the basal carbonates and the Falcon, Forelle, Poudre, and Park Creek members. We will discuss their contacts, possible karst features, and possible loci of deposition. We will eat lunch at this stop.

#### Stop 3: Monroe Gypsum Quarry

This private quarry offers a rare opportunity to see a clean exposure of the Blaine Gypsum Member of the Lykins Formation. Here, the gypsum is mined as a cement additive, and more rarely is mined in the region for artist's alabaster and as an agricultural soil amendment. At this locality, do the evaporites show signs of subaerial exposure or demonstrably marine features?

#### Stop 4: Optional Stop—Red Mountain Open Space

This offers an opportunity to hike through the 'color transition' of the Red Hill Shale Member of the Lykins Formation, and see the contact with the overlying Red Draw Member of the Jelm Formation. At this site, participants may discuss the depositional environments or diagenetic conditions that fostered the color change in the Lykins Formation, the marine versus nonmarine nature of the redbeds, and similarities between the Jelm and Lyons formations.

We will meet at 7:30 a.m. at the Woolly Mammoth Park-and-Ride at the NW corner of Hwy 40 and I-70, across from the SunMart gas station. Attendees should bring personal drinks and lunches/snacks. We will return sometime between 5 to 7 pm. Travel will be by car-pooling in personal vehicles; there will be no registration fee. Contact Cal Ruleman to attend; [cruleman@usgs.gov](mailto:cruleman@usgs.gov), 303-236-7804. Registration deadline is Aug. 23.

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**Upcoming CSS meetings & field trips:**

**August 27** field trip with James Hagedorn, DMNS, to the Lykins Formation along the Front Range

**September 15, Student Presentation Night** — at Arbor House in Maple Grove Park, Golden

**October 20— Climate Change, Part I and II:** Part I, A Geologist’s View (tentative title), by William W. Little, Professor of Geology, Brigham Young University-Idaho, Rexburg, Idaho; and Part II, Climate Models, Data, Predictions, and Model Uncertainty (tentative title), Thomas R. Fisher, CEO, Escalante Mines Inc. Evergreen, Colorado. At our regular meeting place, Shepherd of the Hills Presbyterian Church, 11500 W. 20th Ave., Lakewood CO.

**November 17— Joe Sertich**, Curator of Vertebrate Paleontology, Denver Museum of Nature & Science; Title TBA; Dr. Sertich’s research involves global changes and the evolution of terrestrial ecosystems during the Mesozoic

**December 15**—Potluck dinner, Annual Meeting, and President’s Address

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**Colorado Scientific Society dues** are \$20 for regular members, \$10 for corresponding members (outside the Colorado Front Range area) and only \$5 for students. Mail a check to the CSS or pay with a credit card using PayPal on the CSS website. Contact CSS Treasurer Don Sweetkind at 303-236-1828 or dsweetkind@usgs.gov if you are uncertain of your dues and membership status. Extra payments to contribute to our Memorial Funds or Endowment Fund are always most welcome; you’ll see a list of them on the membership form, or see our website at <http://www.coloscisoc.org/membership/dues.html>.

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

**<http://www.coloscisoc.org>**

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**Calendar of upcoming events**

**Aug. 11-14, Contin-Tail rock & mineral show**, Buena Vista, CO; see [www.facebook.com/ContinTail](http://www.facebook.com/ContinTail) . Local and nationwide rock & mineral sellers, outdoors under tents in a “swap meet” setup, at the Buena Vista Fair Grounds.

**Sat., Aug. 13**, 10 a.m. – 2 p.m., **Dinosaur Discovery Day** at Dinosaur Ridge, 16831 W. Alameda Parkway, Morrison, CO. Featuring “Reptile and Bird Day”. “Come on over to Dinosaur Ridge to see live birds and reptiles! We’ll be celebrating the relationships between these groups of animals with special guests like the Denver Zoo, Wild Wings Environmental Education, and many more! We’ll also have hands-on dinosaur stations at the Visitor Center and scientists along our trail to teach about the fossil footprints, bones, and the local geology to visitors. Dinosaur Discovery Days are free outdoor events open to the general public. Guides are stationed along the Dinosaur Ridge Trail at the most significant interpretive sites. Visitors hike at their own pace or take the Shuttle Bus (one way) at \$4 per person (three and under ride free). At the Visitor Center, Hands-on Dinos for kids includes the Backyard Bones Dinosaur Dig, the Cretaceous Crossroads Dinosaur Tracking Area, Track Painting (paint a fossil and take it home), gold panning, fossil sifting, and other activities depending on the theme for the day. The indoor exhibit, Trek Through Time, has free admission all day. See <http://dinoridge.org/DDD.html> .

**Sun., Aug. 14**, 12 noon, monthly meeting and annual picnic of the **Florissant Scientific Society**, to be held at Dr. Don McGookey's cabin in Fairplay, Colorado. "This year we have a special guest, Phil Persson, who, with Don, will discuss the similarities and differences between the Pikes Peak Batholith and the similarly aged Llano Uplift of Texas. Phil is working on his Ph.D. at CSM, studying the Mt. Rosa intrusion, always thought to be part of the Pikes Peak batholith, but may not be. Come hear what they have to tell us!" For driving instructions to McGookey's cabin, beautifully situated in a lovely mountain valley northwest of Fairplay, please contact Beth Simmons, [cloverknoll@comcast.net](mailto:cloverknoll@comcast.net). ALL interested persons are welcome to attend; membership in the FSS simply consists of giving your name and email address to Beth, to receive information about each monthly meeting or field trip.

**Aug. 18-21, Woodland Park Rock, Gem, & Jewelry Show**, Woodland Park, CO; see <https://www.facebook.com/woodlandparkrockandgemshow/>

**Aug. 19-21, Lake George Gem & Mineral Show**, sponsored by the Lake George Gem and Mineral Club, Lake George, CO. See <http://www.lggmclub.org/>

**Fri., Aug. 26**, 3:00 p.m., **Earth Sciences Colloquium at the Denver Museum of Nature & Science, Hot and high times in the western U.S., 80 Ma to Present**, by Katie Snell, CU Boulder. In VIP Room. All are welcome, museum admission is not required.

**Sept. 10-18, Denver Coliseum Mineral, Fossil, and Gem Show**, 10-6 daily, 4600 Humboldt St., Denver CO. Free admission. See <http://www.coliseumshow.com/>.

**Sept. 11-18, Colorado Mineral and Fossil Show**, 10-6 daily except 10-5 Sun. 9/18. Ramada Plaza - Denver Central, 4849 Bannock St., Denver, CO. Free admission, and free shuttle to the Denver Mart. See <http://www.mzexpos.com/denver>.

**Wed. – Sat., Sept. 14-17, Denver Fine Mineral Show**, at Marriott Denver West, 10-6 Wed.-Fri., 10-5 Sat., 1717 Denver West Blvd., Golden CO. Free admission. See <http://www.finemineralshow.com/>.

**Wed., Sept. 14**, 6:00-9:00 p.m., **Open House at the Colorado School of Mines Geology Museum**. All are invited; refreshments and viewing of new exhibits prepared for the coming year. A chance to meet museum curators, mineral collectors, and dealers who are in town for the Denver Gem and Mineral Show.

**Thurs, Sept. 15, 5:45-9:00 p.m., Colorado Scientific Society, Student Presentation Night**, at Arbor House, in Maple Grove Park, 14600 W. 32<sup>nd</sup> Ave., Golden (Applewood area). All are welcome to attend, no admission charge, free refreshments. A selected group of graduate students from area universities will give presentations about their geology/earth science thesis research topics, and all attending will be able to vote for "the best presentation". For details see <http://www.coloscisoc.org/>.

**Sept. 16-18, 49<sup>th</sup> annual Denver Gem and Mineral Show**, Denver Mart, Denver, CO. **Minerals of Africa** is the 2016 show theme. 9-6 Fri., 10-6 Sat., 10-5 Sun. See <http://www.denvermineralshow.com/> or <https://www.facebook.com/Denver-Gem-And-Mineral-Show-154290574610235/?fref=ts>

**Fri., Sept. 23**, 3:00 p.m., Earth Sciences Colloquium at the Denver Museum of Nature & Science, **Jurassic-Cretaceous paleogeographic evolution of the Western Interior Seaway**, by Ron Blakey, Colorado Plateau Geosystems. In Ricketson Auditorium. All are welcome, museum admission is not required.

**Mon., Sept. 29**, 3:00 p.m., Earth Sciences Colloquium at the Denver Museum of Nature & Science, **Deciphering the Rocky Mountains**, by Beth McMillan, University of Arkansas-Little Rock. In VIP Room. All are welcome, museum admission is not required.

**Thurs., Oct. 20, 7:00 p.m., Colorado Scientific Society October meeting, Climate Change, Part I and II**, by William W. Little & Thom Fisher. Shepherd of the Hills Presbyterian Church, 11500 W. 20th Ave., Lakewood CO. Social time beginning at 6:30; meeting & program at 7:00. All are welcome to attend; see [www.coloscisoc.org](http://www.coloscisoc.org).

**Oct. 25-28, Geological Society of American Annual Meeting, Denver, CO** (plus pre- and post-meeting field trips). See <http://community.geosociety.org/gsa2016/home> . Abstracts deadline is July 12.

**Thurs., Nov. 17, Colorado Scientific Society November meeting, Terrestrial ecosystems during the Mesozoic**, by Joe Sertich, DMNS. Shepherd of the Hills Presbyterian Church, 11500 W. 20th Ave., Lakewood CO.

**Thurs., Dec. 15, CSS Potluck dinner, Annual Meeting, and President's Address**

*Special museum exhibits:*

The "**Critical Materials**" exhibit continues at the Colorado School of Mines Geology Museum. It highlights critical materials and rare-earth elements - including the minerals these elements can be derived from - essential to the development of advanced technology and energy. The exhibit is a joint project of the Critical Materials Institute at the School of Mines and the Colorado School of Mines Geology Museum. The exhibit focuses on the elements Li, Y, Te, Nd, Eu, Tb, Dy, their minerals, and their uses in technology. You'll find the exhibit downstairs in the museum, which is open daily, 9-4 Mon.-Sat., 1-4 Sun., no admission charge; see [http://www.mines.edu/Geology Museum](http://www.mines.edu/Geology_Museum) .

**Unearthed: Ancient Life in the Boulder Valley**, on exhibit at the University of Colorado Museum of Natural History (Henderson Building; in the Anthropology Hall), CU campus, Boulder. Featuring a collection of 80+ stone tools known as The Mahaffy Cache that was found in a Boulder backyard in 2007. The artifacts were studied by CU Boulder Professor of Archaeology Doug Bamforth, Ph.D. He dates the tools to 13,000 years ago at the end of the last ice age. The exhibit includes interactive elements and video, as well as replicas of the tools that visitors can pick up and hold." The museum is open daily, no admission charge. See <https://cumuseum.colorado.edu/> .

*For more lecture series during the year see: (the several university lecture series will resume in September)*

**Colorado Café Scientifique in Denver**, monthly lectures on science topics held either at Blake Street Station or Brooklyn's, Denver; open to the public, no charge other than refreshments you may choose to purchase; see <http://cafescicolorado.org/> .

**CU Geological Science Colloquium** (Wednesdays, 4 p.m.) see <http://www.colorado.edu/geosci/colloquium.htm>

**CSU Dept. of Geoscience Seminars** (Fridays, 4 p.m.), see <http://warnercnr.colostate.edu/geo-news-and-events/department-seminars>

**Van Tuyl Lecture Series, Colorado School of Mines**, (Tuesdays, 4 p.m.): [http://inside.mines.edu/GE\\_Lecture-Series](http://inside.mines.edu/GE_Lecture-Series)

**Denver Mining Club** (Mondays, 11:30), see <http://www.denverminingclub.org/>

**Denver Region Exploration Geologists Society** (DREGS; 1<sup>st</sup> Monday, 7 p.m.), <http://www.dregs.org/index.html>

**Florissant Scientific Society** (FSS); meets monthly in various Front Range locations for a lecture or field trip; meeting locations vary, normally on Sundays at noon; all interested persons are welcome to attend the meetings and trips; see <http://www.fss-co.org/> for details and schedules.

**Rocky Mountain Map Society** (RMMS; Denver Public Library, Gates Room, 3<sup>rd</sup> Tuesday, 5:30 p.m.), <http://rmmaps.org/>

**Western Interior Paleontology Society** (WIPS; Denver Museum of Nature & Science, 1<sup>st</sup> Monday, 7 p.m.), <http://westernpaleo.org/> .

## 2016 CSS Elected Officers

President.....Peter Barkmann, 303-384-2642, barkmann@mines.edu  
President Elect.....Marith Reheis, 303-277-1843, marith16@gmail.com  
Past President..... Paul Morgan, 303-384-2648, morgan@mines.edu  
Secretary.....Lisa Fisher, 303-215-0480, lisa.fisher@alumni.mines.edu  
Treasurer.....Don Sweetkind, 303-236-1828, dsweetkind@usgs.gov

### Councilors

2014-2016: Celia Greenman, celia.greenman@earthlink.net  
2014-2016: Chris Morrison, chris-morrison@comcast.net  
2015-2017: Bruce Geller, bgeller@mines.edu, 303-273-3823  
2015-2017 Pete Modreski, pmodreski@usgs.com, 303-202-4766  
2016-2018: Linda Barton Cronoble, lbarton1611@gmail.com, 720-338-1237  
2016-2018: Melissa Foster, melissa.ann.foster@gmail.com, 707-498-2484

### Committee Chairpersons

Database Manager: Don Sweetkind, 303-236-1828, dsweetkind@usgs.gov  
Field Trip Chair: Cal Ruleman, 303-236-7804, cruleman@usgs.gov  
GSA Meeting Co-chairs, Lisa Fisher & Libby Prueher  
History Chair: Beth Simmons, cloverknoll@comcast.net  
Hospitality Chair: Linda Barton Cronoble, 720-338-1237, lbarton1611@gmail.com  
Membership Chair: open  
Newsletter Editor: Pete Modreski, 303-202-4766, pmodreski@aol.com or pmodreski@usgs.gov  
Outreach Chair: open  
Past Presidents' Best Paper Award, Marith Reheis, 303-277-1843, marith16@gmail.com  
Program Chair: Thom Fisher, thom.fisher@esclantemines.com, 303-674-1233  
Publicity Chair: open  
State Science Fair: Chuck Weisenberg, 303-238-8806, cweisnbrg@msn.com  
Student Programs Chair: Melissa Foster, Melissa Foster, melissa.ann.foster@gmail.com, 707-498-2484  
Student Research Grants Chair: Paul Morgan, 303-384-2648, morgan@mines.edu  
Webmaster: Barb Warden, 303-278-2701, bwarden@tablemntn.com