



## **Colorado Scientific Society**

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

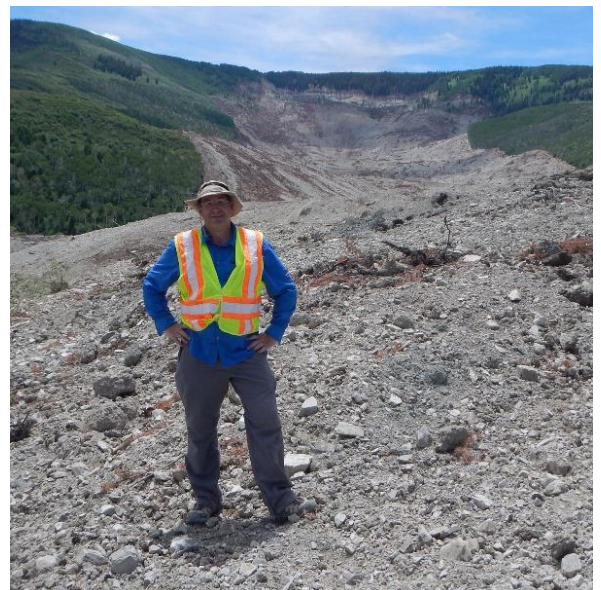
***Thursday, January 15 meeting, 7:00 p.m. (social time 6:30)  
Shepherd of the Hills Church, 11500 W. 20<sup>th</sup> Ave., Lakewood***

***Program: The May 2014 West Salt Creek  
landslide in Mesa County, Colorado***

***by***

***Jonathan L. White***

***Senior Engineering Geologist  
Colorado Geological Survey***



## ***The May 2014 West Salt Creek landslide in Mesa County, Colorado***

***Jonathan L. White, Senior Engineering Geologist, Colorado Geological Survey***

On May 25th near the town of Collbran a very large rockslide rapidly moved almost 3 miles down the West Salt Creek valley, ultimately covering almost a square mile of the valley. The site is within the Plateau Creek basin below the northern flank of Grand Mesa, about 38 miles east of Grand Junction. Earlier the morning of the 25th, smaller precursor landslides occurred that blocked the flow of irrigation water. Tragically, while investigating the initial slide, three local men were killed when the main failure occurred at 5:45 pm. Their remains have not been recovered from landslide deposits that are up to 125 feet deep at the valley floor. Properly described as a sturzstrom rock avalanche, disaggregated shale and marlstone rock from the Green River Formation was pulverized and “flowed” in discrete avalanche surges. The most rapid avalanche pulse overtopped a 250-foot high ridgeline at an outside bend on the west side of the West Salt Creek valley. Preliminary estimates of maximum landslide velocity at that location, based empirically on the overtopped height, may be up to 75 miles per hour. The avalanche moved 39-million cubic yards of rock and soil down 2,100 feet of elevation and caused a 3-minute seismic wave train and 2.8 magnitude earthquake. Currently, a 2,800 by 700 by 500-foot rotated block of highly disturbed and potentially unstable rock remains immediately downslope from the headscarp. The back-tilt of the block has formed a large depression below the headscarp that has filled to form a large sag pond. The spill-over elevation is 15 feet above the current level, at which point the total capacity of the lake will be about 410 acre-ft. In addition to the long-term instability of the block, this raises additional concerns with mud-debris flows with regard to potential pond breaches during next year’s spring runoff, as well as mini-tsunamis if retrogressive failures occur and large rock blocks fall from the headscarp to displace the water.

This presentation will discuss the timeline of the slide, the initial emergency response and on-going landslide study, the geology of the area (and evidence of geologically recent and historic landslide activity), UAV photogrammetry and LiDAR imagery, and a preliminary assessment of the deposit and slide mechanics, as well as the future long-term hazards in the area where this valley-constrained rock avalanche occurred.





## *Incoming President's message – Paul Morgan, Colorado Geological Survey*



With the start of 2015 I look forward to an exciting year of service, following in many very distinguished footsteps, as President of the Colorado Scientific Society. When I look back over the history of the Society and the contributions of its members to the early geology of Colorado, I am proud to be associated with the CSS and I hope to continue the work of the society in encouraging and stimulating geological studies in Colorado through the coming year.

For those of you in the Society who do not know me, I am a geologist/geophysicist with the Colorado Geological Survey. I have been with CGS since 2008 and my work is primarily associated with geothermal resources. As you are probably aware, CGS has been in transition during the past two years, transferring from the Colorado Department of Natural Resources to the Colorado

School of Mines. The transfer has involved two physical moves and we are adjusting to our new home on the southeast corner of the CSM campus.

In addition to the moves, I have had a very busy year, including field work. Among other projects I am a member of the Science team for a Mars Lander Mission, InSight, to make earthquake and geothermal studies on Mars, scheduled for launch in early 2016. I spent the first two weeks on December in Pagosa Springs working with a drilling project for geothermal exploration studies. After five years of anticipation, I hope that the first deep well for geothermal exploration will be drilled in Colorado in 2015. However, my work schedule for 2015 will allow me to be in Denver for most of the year so that I can attend to my duties as President of the Society – no field trips to Mars.

I am still working on a schedule of speakers for the monthly meetings but at the last meeting of the Councilors of the Society (a telecom) the decision was made to form a Speakers' Committee to assist the President in finding speakers. The Presidents have made excellent choices of speakers in previous years, but scheduling a variety of different speakers has been recognized as one of the most difficult tasks for the President to do alone. We hope that spreading the burden of this task will assist the President and increase the variety of speakers. The speaker for our next meeting (January 15) will be Jon White of the Colorado Geological Survey, and the subject will be the May 2014 West Salt Creek landslide in Mesa County, Colorado.

While on the topic of speakers, if you know of a good speaker who would be suitable for one of the CSS meetings, and who would be available free or at very little cost, please suggest them to me and I will try to schedule them for one of our meetings ([morgan@mines.edu](mailto:morgan@mines.edu)).

The Emmons lecture to 2014 has been scheduled. I understand that the tradition for this lecture is to have a speaker on a topic slightly different from the normal monthly meetings. In April the speaker for the Emmons Lecture will be Tom Barclay, Director of the Second Phase of the Kepler Space Telescope Mission, and the subject will be the (successful) search for Earth-like planets. More about this lecture in a later newsletter.

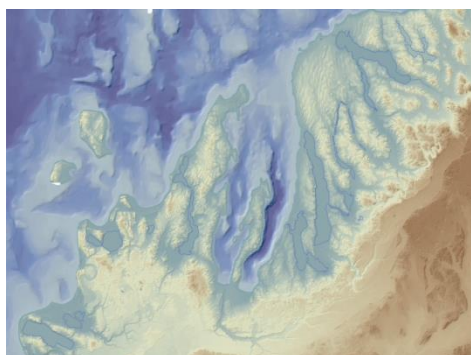
Much of my transition work of the Society was during the time that I was in the field and I am very grateful to officers of the Society for their help during this period. I would like to extend my thanks to all the officers and councilors for running the Society so well making the transition so smooth for me. My special thanks are extended to Scott Lundstrom, 2014 President, Lisa Fisher, Secretary, Don Sweetkind, Treasurer, and Pete Modreski, Newsletter Editor and Councilor.

*(continued, next page)*

If you have any ideas how I may improve the science and/or service of the CSS during the coming year please come and let me know what they are. As I like to scare visitors who come to me at the Colorado Geological Survey for information: “I am from the government and I am here to help!”

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About 32 people attended our Dec. 18 Annual Meeting, potluck dinner, and President’s address. In this photo, outgoing President Scott Lundstrom has just handed the Society’s native silver nugget gavel to incoming President Paul Morgan; a slide of the gavel is shown on the screen too. The audience enjoyed Scott’s talk on landforms produced by continental glaciation. (Speaking of which—in our last newsletter, we asked if you could recognize the



physiographic and bathymetric map that was one of the illustrations from Scott’s talk. It showed the coast of Lake Michigan, centered on Traverse City, Mich. and Grand Traverse Bay. As Scott discussed, the two long, narrow arms of Grand Traverse Bay are interpreted as “tunnel valleys”, formed by channelized meltwater flow beneath the retreating ice sheet.

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***December’s Where is this Rock*** was contributed by Jim Cole. I’m pleased to report that within “minutes” (within 30 of them, to be precise) of my emailing out the newsletter, I received a correct response as to where this is, coming from Beth Simmons. By the way (before I print the answer), Jim had also supplied these clues as to “where is that rock”; not in time to have put them in the December newsletter, but we showed them onscreen at the December annual meeting/potluck, and had Beth explain the answer. Here were Jim’s clues:

- This landscape architectural feature sits in a public park in a famous resort town.
- The park lies on the east bank of its eponymous drainageway.
- The feature is representative of the local “natural order of things”.  
(Now is your last chance to guess, before you turn the page!)

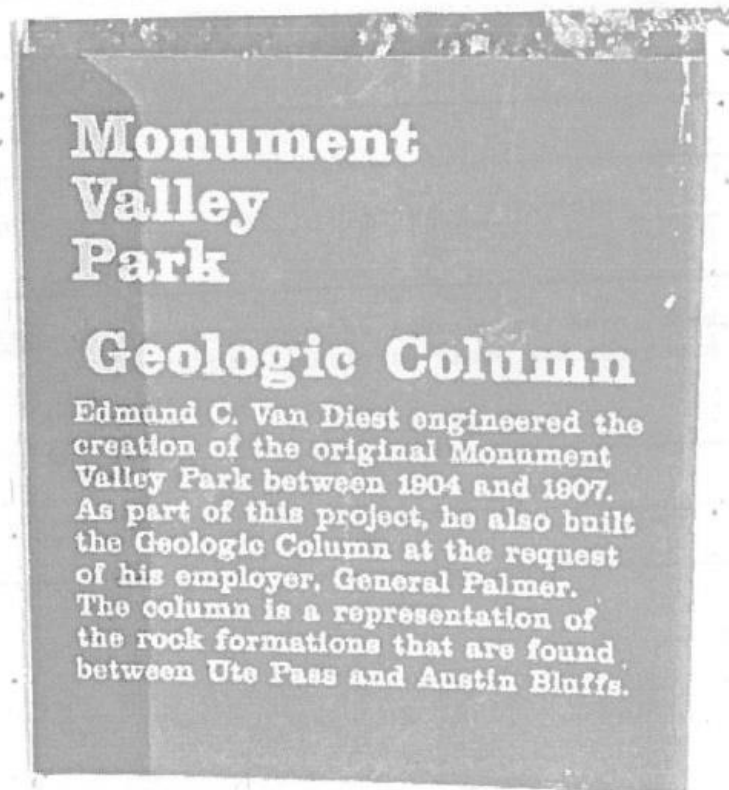
Beth Simmons' short answer was: "The rock wall illustrated is in Colorado Springs and was first described in Earth Science Magazine by Richard M. Pearl."

And here is Jim Cole's complete story about the rock wall:

"This landscape installation is called the "Geologic Column". It sits in Monument Valley Park on the east side of Monument Creek in northern Colorado Springs, Colorado, about one mile north and west of Colorado College. It represents the order and relative thicknesses of the geologic formations underlying Colorado Springs (minus the shaly parts).

"The column begins with Pikes Peak Granite at the base, overlain by Sawatch Quartzite, Manitou Limestone, Fountain Formation, Lyons Sandstone, Lykins Formation, Dakota Sandstone, Niobrara Formation, and Dawson Arkose. The stones are laid-up as bedded formations and expertly dressed and fitted without mortar (Inca-wall style). On the right-hand side of the image, one can see a small "normal fault" that offsets the Fountain Formation, a touch of authenticity added by the stonemasons.

"General William Jackson Palmer (railroad industrialist, Civil War hero, and founder of the city of Colorado Springs) commissioned the work as part of his development of numerous public parks for the city. Colorado College geology professor, Dr. George Finley, designed the column. Edmund van Dienst did the engineering and supervised the construction between 1904 and 1907. The stones were quarried from General Palmer's estate (Glen Eyrie) at the mouth of Queens Canyon at the north end of Garden of the Gods.



The Geologic Column is currently (November 2014) being repaired and refurbished under a grant from the Colorado State Historical Fund, with matching funds from the Friends of Monument Valley Park. The City of Colorado Springs permitted the restoration and is supervising the work.

"To see the Geologic Column, take Exit 143 (Uintah Street) east about 0.3 mile to Cascade Avenue (parkway). Turn north on Cascade and proceed 0.7 mile to Fontanero Street. Turn west on Fontanero and proceed about 0.3 mile to where the street bends southward. A small parking area is located on the right. Follow a gravel roadway south from the south end of the parking area about 200 yds as it descends to a lower stream terrace that makes up most of Monument Valley Park. Turn back north on a good gravel walk about 50 yds to the base of the Geologic Column.

"NOTE: The black and white image shows the interpretive sign for the Geologic Column (the sign no longer exists)."





## ***Where is this Rock? -- January***

Here is our mystery picture for January. Clues: It is in Colorado, it's located within the area of the state's largest historic forest fire, and it is composed of volcanic rock.

You may send your answer/guess to Pete Modreski, 303-202-4766, or [pmodreski@usgs.gov](mailto:pmodreski@usgs.gov).

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### ***Global Warming & Climate Change; a provocative article(s)***

Turning to one of current science's favorite controversial topics, an interesting column was published as a "Saturday Essay" in the Wall Street Journal, Sept. 19, 2014: "Climate Science Is Not Settled; We are very far from the knowledge needed to make good climate policy, writes leading scientist Steven E. Koonin" The link is, <http://www.wsj.com/articles/climate-science-is-not-settled-1411143565?tesla=y> Some excerpts from it:

"The idea that "Climate science is settled" runs through today's popular and policy discussions. Unfortunately, that claim is misguided. It has not only distorted our public and policy debates on issues related to energy, greenhouse-gas emissions and the environment. But it also has inhibited the scientific and policy discussions that we need to have about our climate future. ...

"The crucial scientific question for policy isn't whether the climate is changing. That is a settled matter: The climate has always changed and always will. Geological and historical records show the occurrence of major climate shifts, sometimes over only a few decades. We know, for instance, that during the 20th century the Earth's global average surface temperature rose 1.4 degrees Fahrenheit. ...

"Rather, the crucial, unsettled scientific question for policy is, "How will the climate change over the next century under both natural and human influences?" ...

"We often hear that there is a "scientific consensus" about climate change. But as far as the computer models go, there isn't a useful consensus at the level of detail relevant to assessing human influences."

A follow-up criticism and rebuttal to this, also very well written, was published in *Slate*, Oct. 1, 2014, "Climate Science Is Settled Enough: The Wall Street Journal's fresh face of climate inaction", by Raymond T. Pierrehumbert. The link is: [http://www.slate.com/articles/health\\_and\\_science/science/2014/10/the\\_wall\\_street\\_journal\\_and\\_steve\\_koonin\\_the\\_new\\_face\\_of\\_climate\\_change.2.html](http://www.slate.com/articles/health_and_science/science/2014/10/the_wall_street_journal_and_steve_koonin_the_new_face_of_climate_change.2.html)

I recommend reading both columns! Some good thoughts are expressed, and some good ideas to ponder, "pro and con" as to what we should or shouldn't make priorities to do in response to climate change.

--- Pete Modreski

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The January 3, 2015 *Denver Post* featured a column giving a nice recap about the Snowmastodon discoveries; the online link is [http://www.denverpost.com/Opinion/ci\\_27245582/The-lessons-from-Snowmastodon](http://www.denverpost.com/Opinion/ci_27245582/The-lessons-from-Snowmastodon) .

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## *Calendar of Coming Events*

*Special exhibits continuing in 2015:*

**Steps in Stone: Walking Through Time**, at the University of Colorado Museum of Natural History, CU campus, Boulder. “A new exhibition that features real fossil tracks and trackways from the University of Colorado Museum of Natural History collections”. Open 9-5 weekdays, 9-4 Saturdays, 10-4 Sundays; closed on university holidays. Exhibit runs through December 2015; see <http://cumuseum.colorado.edu/> .

**Brilliant: Cartier in the 20th Century** continues at the Denver Art Museum through March 15. “The DAM will host the world-exclusive exhibition of Brilliant: Cartier in the 20th Century, featuring stunning jewelry, timepieces, and precious objects created between 1900 and 1975. This exhibition highlights Cartier’s rise to preeminence—and the historical events pushing the brand’s evolution—as it transformed itself into one of the world’s most prestigious names in jewelry and luxurious accessories. Organized by the DAM, the exhibition will be on view in the Anschutz and Martin and McCormick galleries on level two of the Hamilton Building. See: <http://www.denverartmuseum.org/exhibitions/brilliant-cartier-20th-century>

**Wed., Jan. 14**, 3:00-4:00 p.m., the first of the year’s Denver Museum of Nature & Science Earth Science Seminar Series: 3:00-4:00 p.m., VIP Room, “**Surviving Earth's largest mass extinction: Amphibians at the Permian-Triassic boundary**”, by Julia McHugh, Museum of Western Colorado. All are welcome.

**Wed., Jan. 14**, 4:00 p.m., University of Colorado Geological Sciences Colloquium, **Dinosaurs of the Lost Continent**, by Scott Sampson, Denver Museum of Nature and Science; CU-Boulder, Benson Earth Sciences Building 180. See <http://www.colorado.edu/geolsci/colloquium.htm> for the full Spring Term schedule.

**Sun., Jan. 18**, 12:00 noon, potluck lunch meeting of the Florissant Scientific Society followed by viewing of “**Dinostampede**” a movie featuring **Martin Lockley and other dinosaur trackers** around the world as they unravel the mystery of the Lark Quarry tracksite in Australia. At the Dinosaur Discovery Center, west side of Dinosaur Ridge, Morrison. All are welcome; no charge.

**Tues., Jan. 20**, 10:30-11:30 a.m., **Megatsunami triggered by giant flank collapse of Fogo volcano, Cape Verde archipelago**, by Ricardo Ramalho, Lamont-Doherty Columbia Univ., in the USGS Rocky Mountain Science Seminar Series; Building 25 lecture hall (use east entrance E-14), Denver Federal Center, Lakewood CO.

**Wed., Jan. 28**, 7:00-8:00 p.m., “Expand your dinosaur knowledge with monthly presentations on all things dinosaur.” First one for the year will be “**Dinosaur 101**”, with Erin LaCount. Free presentation at the Dinosaur Ridge Visitor Center (C-470 and Alameda), Morrison CO; please RSVP to [membership@dinoridge.org](mailto:membership@dinoridge.org) or 303-697-3466x107.

The **Van Tuyl Lecture Series** at Colorado School of Mines (Tuesdays, 4 p.m.) does not yet have its Spring schedule posted as we go to press; see [http://inside.mines.edu/GE\\_Lecture-Series](http://inside.mines.edu/GE_Lecture-Series) once it is posted. See <http://warnercnr.colostate.edu/geo-news-and-events/departments-seminars> for the spring schedule of **CSU Department of Geosciences Seminars** (Fridays, 4 p.m.), which begin Jan. 30. And, Denver Mining Club

luncheon meetings (Mondays, noon) are posted at <http://www.denverminingclub.org/> ; Denver Region Exploration Geologists Society (DREGS; 1<sup>st</sup> Monday, 7 p.m.), <http://www.dregs.org/index.html> ; and Western Interior Paleontology Society (WIPS; 1<sup>st</sup> Monday, 7 p.m.), <http://westernpaleo.org/> .

**Tues., Feb. 3, 10:30 a.m., USGS Rocky Mountain Seminar, Peter Larson (Washington State University), Alteration and fluid flow in large continental hydrothermal systems.**

**Tues., Feb. 3, 3:00 p.m., Denver Museum of Nature and Science Seminar Series, "Making the Rockies by drowning Colorado", by Craig Jones, Univ. of Colorado; DMNS Host: I. Miller**

**Thurs., Feb. 5, 6:00 p.m., the Friends of the Colorado School of Mines Geology Museum** will be instituting a monthly lecture series, to take place on the first Thursday of each month, in the conference room opposite the museum entrance. Topic for this first lecture is still TBA.

**Mon., Feb. 9, 6:00 p.m., the Canon City Geology Club** meets at the Methodist Church Fellowship Hall on the northwest corner of 9th St. and Main, Canon City. David Camerlo will discuss **the clays of Fremont and Custer Counties** and how he uses them to create ceramic works of art. Everyone is welcome. More information: [jgerring@gmail.com](mailto:jgerring@gmail.com) or 719-942-3647.

**Thurs., Feb. 12, 6:00 p.m., Heritage lecture and Exhibit Opening at the Western Museum of Nature and Science, Colorado Springs; Molybdenum and the History of the Climax Mine**, by Mike McDonald, General Manager of the Henderson Mine and former GM of the Climax Mine in Leadville Colorado. Reception at 6 pm and lecture at 7 pm. All Heritage Lectures at WMMI are always free, but please RSVP to 719-488-0880 or [rsvp@wmmi.org](mailto:rsvp@wmmi.org) to reserve a seat.

**Feb. 16-20, Annual book and map sale at the Colorado School of Mines Library, Golden.**

**Tues., Feb. 17, 10:30 a.m., USGS Rocky Mountain Seminar, Christine Smith-Siddoway (Colorado College), Cryogenian sandstone in Colorado: A new terrestrial record for Rodinia revealed through detrital zircon provenance analysis.**

**Thurs., Feb. 19, 7:00 p.m., monthly Colorado Scientific Society meeting; speaker TBA.** Our March meeting will be on Thursday, March 19.

**Feb. 27 – Mar. 1, Gem and Mineral Show**, sponsored by the Denver Gem and Mineral Guild, at Jefferson County Fairgrounds, Golden. No admission charge.

**Science Fairs:** Several schools and organizations are seeking science fair judges in the coming months:

**(1) Jan. 15 and 24, 2015:** these school science fairs within Denver Public Schools are coordinated by the non-profit foundation, Community Resources, Inc. They are *particularly* in need of more judges at these two science fairs, so if you can volunteer to help, *please* do! Contact Debbie Turner, 720-424-2300, or [debbie\\_turner@dpsk12.org](mailto:debbie_turner@dpsk12.org)

Jan. 15, Florida Pitt Waller Elementary School, 21601 East 51st Pl., 8:30-11:00 a.m.

Jan. 24, DPS District Science Fair (at Denver Zoo), 9:00 a.m. to 3:00 p.m.

**(2) Jan. 13: Free Horizon Montessori Public School in Golden** "Invites you to participate as a judge at its annual science and engineering fair on the morning of Tuesday, January 13<sup>th</sup>, (approximately 8:30 a.m. to 12:30 p.m., plus about thirty minutes in advance reviewing the rubric with you – which could be done in person or via phone.) for 4<sup>th</sup> to 8<sup>th</sup> grade children." Please contact Jeannie Collopy-Bach, [jcbach@mymail.mines.edu](mailto:jcbach@mymail.mines.edu) , phone 303.766.0872.



- (3) **Thurs., Feb. 5, Ralston Elementary School** (Genesee exit on Lookout Mountain, Golden), “starting at 5 p.m. As in the past, there will be a complimentary dinner, with beverages, and dessert for all volunteers.” Contact Deb O’Connell, Ralston Science Fair Committee Leader, 720-810-4686, mdoconnell2@gmail.com.
- (4) **Wed., Feb. 25, Denver Metropolitan Regional Science & Engineering Fair** 10:00 a.m.-5:00 p.m. at the Denver Museum of Nature & Science. Lunch will be provided. To register as a judge please visit the website at <http://denversciencefair.com/>. For more information on judging contact Meredith Tennis at [meredith.tennis@ucdenver.edu](mailto:meredith.tennis@ucdenver.edu).
- (5) **Thurs., Apr. 9: The 60th Colorado Science and Engineering Fair**, at Colorado State University in Fort Collins. “Now that the Lory Student Center remodel is complete, there will be 100 more projects than in the past.” The sign-up deadline for judges is Feb. 28; register online at <http://www.csef.colostate.edu/Judges.htm>.

**Emmons Lecture, April 16:** The CSS 2015 Emmons Lecture will take place on Thursday, April 16, at the American Mountaineering Center auditorium, 710 10<sup>th</sup> St., Golden, at approx. 7 p.m. The speaker will be Dr. Tom Barclay, NASA Ames Research Center and the Bay Area Environmental Research Institute; his topic will be “**The Search for Earth-like Planets**”. Tom was recently named Director of the Kepler K2 mission, to continue the search for exoplanets using the Kepler spacecraft.

**Time to pay dues for 2015!** Membership dues are now being accepted; a dues form is in this newsletter and on our website, [www.coloscisoc.org/membership.dues.html](http://www.coloscisoc.org/membership.dues.html). Dues payments are \$20 for regular members, \$10 for corresponding members (outside the Colorado Front Range area) and **only** \$5 for students. You may pay dues by mailing a check to the CSS, or pay with a credit card using PayPal on the CSS website. Please contact CSS Treasurer Don Sweetkind at 303-236-1828 or [dsweetkind@usgs.gov](mailto: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!

***Denver Museum of Nature and Science, 2015 Seminar Series:***

All talks are held from 3:00-4:00 p.m. in the VIP Room at the Museum; all are welcome to attend, and Museum admission is not required to attend these seminars. (Day of the week varies.)

- Jan. 14,** Julia McHugh, Museum of Western Colorado, "**Surviving Earth's largest mass extinction: Amphibians at the Permian-Triassic boundary**", DMNS Host: T. Lyson
- Feb. 3,** Craig Jones, U. of Colorado, "**Making the Rockies by drowning Colorado**", DMNS Host: I. Miller
- Mar. 12,** David Krause, SUNY Stonybrook, "**Bizarre and marvelous dinosaurs and other vertebrates of Madagascar: Insights into the southern end of the world**", DMNS Host: J. Sertich
- Mar. 17,** Catherine Sartin, Johns Hopkins, "**A slice of prehistory: Histological Insights into how Iguanodontian dinosaurs grow**", DMNS Host: J. Sertich
- Apr. 14,** Mark Kirschbaum, Colorado School of Mines, "**The life cycle of a field geologist: Time travel to the Mesozoic**", DMNS Host: I. Miller
- May 12,** Steve Mojzsis, U. of Colorado, "**Early Earth vs. The origin of life**", DMNS Host: J. Hagadorn
- June 4,** Laura Wilson, Fort Hays State U., "**Shiver me timbers! A look into the bones of high-latitude seabirds**", DMNS Host: T. Lyson
- June 5,** Bill Galloway, U. of Texas, "**Birth of huge rivers: The Rocky Mountains' impact on the filling of the Gulf of Mexico**", DMNS Host: B. Raynolds
- Aug. 18,** Paul Myrow, Colorado College, "**The dynamic early Paleozoic world of Colorado: Faunas, environments, tectonics, and large earthquakes**", DMNS Host: B. Raynolds.
- Sep. 15,** Charles Henderson, U. of Calgary, "**The WHAT of conodont science: Insights into Permian oceans and beyond**", DMNS Host: J. Hagadorn
- Oct. 14,** Jeff Over, SUNY Geneseo, "**Conodonts: Deep time clue to mass extinctions in Colorado**", DMNS Host: J. Hagadorn

- Nov. 11, David Evans, Royal Ontario Museum, "**The Southern Alberta Dinosaur Project: A decade of discoveries**", DMNS Host: T. Lyson
- Dec. 9, Mark Clementz, U. of Wyoming, "**From river horses to sea cows: Geochemical approaches to studying aquatic mammals in the fossil record**", DMNS Host: I. Miller

### ***USGS Rocky Mountain Science Seminars - 2015***

All take place in the Building 25 auditorium, 10:30-11:30 a.m. Tuesdays. Visitors are always welcome. Enter the Federal Center via Gate 1 on Kipling St., park in the big lot east of Building 25, and enter the building via the main entrance by the security guard, Entrance E-14.

**January 6**, Andreas Mulch (Stanford/Univ. of Frankfurt), **Paleotopography: From tectonics to the evolution of landscapes and life**

**January 20**, Ricardo Ramalho (Lamont-Doherty Columbia Univ.), **Megatsunami triggered by giant flank collapse of Fogo volcano, Cape Verde archipelago**

**February 3**, Peter Larson (Washington State University), **Alteration and fluid flow in large continental hydrothermal systems**

**February 17**, Christine Smith-Siddoway (Colorado College), **Cryogenian sandstone in Colorado: A new terrestrial record for Rodinia revealed through detrital zircon provenance analysis**

**March 3**, James Jones (USGS Anchorage), **Late Cretaceous through Oligocene magmatic and tectonic evolution of the western Alaska Range**

**March 17**, Marty Goldhaber (USGS Denver), **Critical zone science and global societal challenges**

**March 31**, Alexis Templeton (Univ. Colorado) **Seeking subsurface biospheres sustained by water/rock interaction**

**April 14**, Jake Lowenstern (USGS Menlo Park), **Magma intrusion rates and crustal degassing at Yellowstone: Insights from gas chemistry, isotopes, and emissions**

**April 28**, Bob Raynolds (Denver Museum of Nature and Science). **Colorado's stratigraphy: Do all the pages fit into 8 chapters?**

**May 12**, Kate Scheiderich (USGS Denver), **Investigating stable isotope fractionation in rare earth elements: a case study with cerium**

**May 26**, John Wakabayashi (CSU Fresno), **Anatomy of a subduction complex: Architecture of the Franciscan at multiple length and time scales**

### ***Some upcoming symposia:***

**Mar. 14-15, 2015**, "**Fossils and Flight**" will be the semi-annual "Founders Symposium" sponsored by the Western Interior Paleontology Society. It will be held at the Green Center, Colorado School of Mines campus, Golden, CO. "The symposium will explore "what the fossil record reveals about how life conquered the skies" and will include over a dozen speakers, half-day fossil workshops, a field trip, a poster session, exhibits, and a gallery of paleontology-related art displays. For more information see [http://westernpaleo.org/symposiums/2015\\_pages/about-2015.html](http://westernpaleo.org/symposiums/2015_pages/about-2015.html) .

**Mar. 21**, a one-day workshop/seminar on "**Color in Minerals**" will be held on the Colorado School of Mines campus, sponsored by the Friends of the CSM Geology Museum. Featured presenter will be Dr. George R. Rossman, Caltech, well known for his research on spectroscopy and color of minerals (see his group's website at <http://minerals.gps.caltech.edu/index.html>). More information will be forthcoming.

**July 11-12, 2015**, a mini-symposium on the mineral occurrences and geology of the **Gunnison, Colorado area** is being planned by the Friends of the Colorado School of Mines Geology Museum, to include both lectures and field trips. The meeting HQ will be on the Western State Colorado University campus in Gunnison. The symposium is still in the planning stages; more information will be available later in the spring.

### **2014 CSS Elected Officers**

President.....Paul Morgan, 303-384-2648, morgan@mines.edu  
President Elect.....Peter Barkman, 303-384-2642, barkmann@mines.edu  
Treasurer.....Don Sweetkind, 303-236-1828, dsweetkind@usgs.gov  
Secretary.....Lisa Fisher, 303-215-0480, lisa.fisher@escalantemines.com  
Past President..... Scott Lundstrom, 303-917-2849, pslundstrom@msn.com

### **Councilors**

2013-2015: Marieke Dechesne, 303-236-1289, mdechesne@usgs.gov  
2013-2015: Liz Pesce, pesce.e@gmail.com  
2014-2016: Celia Greenman, celia.greenman@earthlink.net  
2014-2016: (vacant position, to be filled)  
2015-2017: Bruce Geller, bgeller@mines.edu  
2015-2017 Pete Modreski, 303-202-4766, pmodreski@aol.com

### **Committee Chairpersons**

Best Paper Award: Matt Sares, 303-866-3581 x8290, matt.sares@state.co.us  
Database Manager: Paul Morgan, 303-384-2648, morgan@mines.edu  
Field Trips: Cal Ruleman, 303-236-7804, cruleman@usgs.gov  
History: Beth Simmons, cloverknoll@comcast.net  
Hospitality: Jack Krajewski, gijack08@gmail.com  
Membership/Mentor: Liz Pesce, pesce.e@gmail.com  
Memorial Funds: Matt Sares, 303-866-3581 x8290, matt.sares@state.co.us  
Newsletter Editor: Pete Modreski, 303-202-4766, pmodreski@aol.com (*taking over from Linda Barton-Cronoble as of December*)  
Outreach: Linda Barton Cronoble, 720-338-1237, lbarton1611@gmail.com  
Program: Open  
Publicity: Open  
State Science Fair: Chuck Weisenberg, 303-238-8806, cweisnbrg@msn.com  
Webmaster: Barb Warden, 303-278-2701, bwarden@tablemtn.com

**Colorado Scientific Society, P.O. Box 150495, Lakewood CO 80215-0495**  
**<http://www.coloscisoc.org>**





# Colorado Scientific Society

## Application and Membership Update Dues and Funds Contributions

Date \_\_\_\_\_

New Member \_\_\_\_\_

Renewing Member \_\_\_\_\_

\_\_\_\_\_  
(email address)

\_\_\_\_\_  
(Telephone)

\_\_\_\_\_  
(Last Name)

\_\_\_\_\_  
(First Name)

\_\_\_\_\_  
(Initial)

\_\_\_\_\_  
(Address)

The success of most Society activities depends on volunteer help. Please circle any activities for which you can provide assistance. We will pass your name on to the appropriate Committee Chairperson.

Field Trips  
Fund Raising

History  
Newsletter

Outreach  
Program/Talks

### Annual Dues (January – December)

Regular Members \$20 \_\_\_\_\_

Corresponding Members \$10 \_\_\_\_\_

Student Members \$5 \_\_\_\_\_

**Memorial Funds:** These funds support research grants to graduate students in the Earth Sciences throughout the nation. *Please note if contribution is made in the memory of an individual.*

Ogden Tweto Memorial Fund \_\_\_\_\_

Steven Oriel Memorial Fund \_\_\_\_\_

Edwin Eckel Memorial Fund \_\_\_\_\_

Bill Pierce-Heart Mountain Fund \_\_\_\_\_

George Snyder Memorial Fund \_\_\_\_\_

Chuck Pillmore Memorial Fund \_\_\_\_\_

### Endowment Fund:

This fund is used to support the Society's monthly meetings and newsletter, field trips, family night, annual Emmons Lecture, invited speaker honorarium, and special activities.

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

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

Or register and pay on-line using PayPal at:

<http://www.coloscisoc.org/membership/duespaypal.htm>