

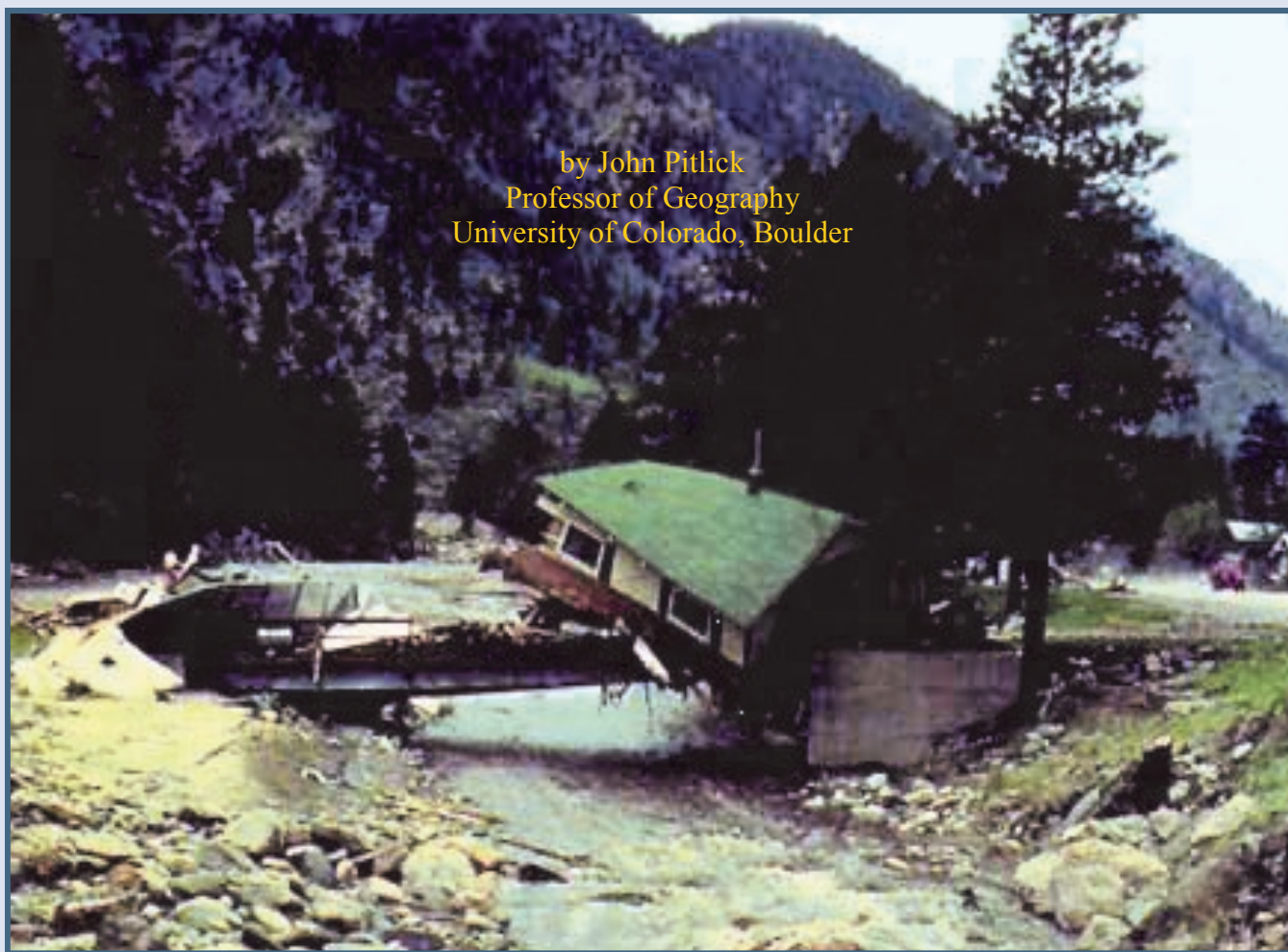


Colorado Scientific Society

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

Thursday, March 20th:

***REGIONAL ANALYSIS OF FLOOD HAZARDS ALONG
THE COLORADO FRONT RANGE***



by John Pitlick
Professor of Geography
University of Colorado, Boulder

**Location—Shepherd of the Hills Church,
11500 W. 20th. Ave. (at Simms St.),
Lakewood, Colorado
Social time— 6:30 p.m. Lecture—7:00 p.m.**



Everyone is Welcome!



Abstract

The hazards associated with rare but intense rainfall are well known in Colorado, and many communities along the Front Range have taken action over the years to mitigate potential damage and loss of life from rare floods. In September 2013, we had the opportunity to observe firsthand what it is like to get half a years-worth of precipitation in one or two days, and we can begin to appreciate how the actions taken to reduce flood risks in the city of Boulder benefited the community as a whole. Nonetheless many questions have arisen in the aftermath of the 2013 flood. For example, media reports have suggested that this was a 100-yr flood. What is the basis for that estimate? How do published maps of inundation for floods with different return periods compare with the extent of flooding in 2013? Did burned areas contribute disproportionately to the floods? We don't have complete answers to all these questions just yet, thus my goal in this talk is to share results from past work (my own, plus others) that will help put the September 2013 floods in perspective



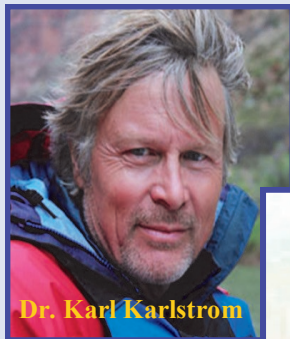
Biography

John Pitlick's research focuses on linkages between surface-water hydrology and geomorphology in high-gradient river systems. The primary objective of this work is to develop a more complete understanding of the coupling between rivers and their surrounding landscapes. Field work is an important component of his research; the strategy used in many projects is to integrate field data with modeling techniques to quantify the effects of sediment transport on the natural functioning of river systems, often at spatial scales >100 km. Several past projects, done in collaboration with aquatic ecologists, have focused on the role of fluvial-hydraulic processes in modifying habitats for fish and benthic organisms. Dr. Pitlick has worked extensively in Colorado and also in the Pacific Northwest and the northern Rocky Mountains. He is co-director of the Graduate Program in Hydrologic Sciences at CU-Boulder. John received his Ph.D. from Colorado State University in 1988.

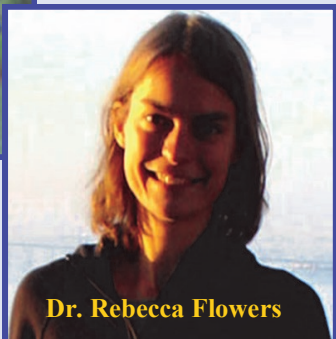
“The Age of Grand Canyon: A Century of Debate”

Friday, April 11, 2014, 7:00 p.m.

Speakers: Dr. Karl Karlstrom and Dr. Rebecca Flowers

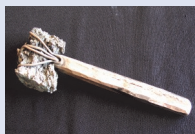


The question of the Grand Canyon's age may not be the most crucial concern on your mind. However, that issue has focused the professional attentions of Dr. Rebecca M. Flowers of the University of Colorado at Boulder and Dr. Karl Karlstrom at the University of New Mexico. They represent two competing views, old canyon (Flowers) vs young canyon (Karlstrom), and the controversy brings to light new technology and raises fascinating questions about what was happening and when in the Grand Canyon's long-ago past.



In their presentation, “The Age of Grand Canyon: A Century of Debate,” each doctor will deliver facts to support their position. They will then engage in a debate on the pros and cons of the issue. They have sparred before on this issue and promise to give an energetic, enlightened debate on the Grand Canyon's youth or old age, highlighted by good humored disagreements about what facts and figures mean that are provided by the latest technology.

Held at the National Mining Hall of Fame & Museum
(ballroom), 120 West 10th Street, Leadville, CO.



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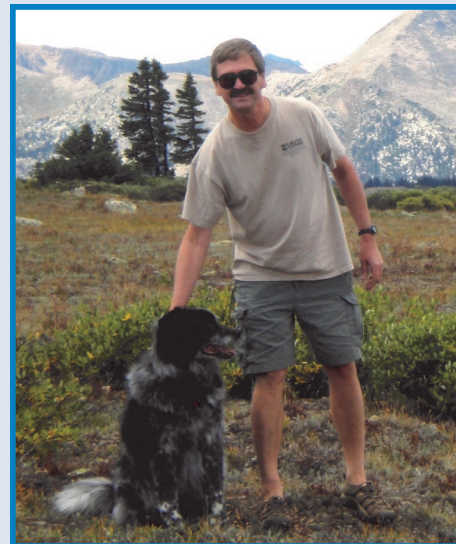
CSS President's Message by Scott Lundstrom

Those who made it to our February 20 meeting saw an excellent, engaging presentation by Jim Paces that was followed by a bit more than 30 minutes of lively questions, comments, and discussion from many members and meeting participants.

For this month's presentation, we are also very fortunate: John Pitlick will provide his perspective as fluvial geomorphologist on the longer term historic record of Front Range floods with due consideration of the broader geomorphic, geographic and geologic context. An interesting summary of the September 2013 event, including its hydro-climatological conditions, was produced within 2 weeks of the event:

<http://wwa.colorado.edu/resources/front-range-floods/assessment.pdf>

The next item concerns ongoing work to the west of the Front Range. Thanks to Jim Cole and Marieke Deschesne and to field trip Chairman Cal Ruleman, a field trip to the North Park and Middle Park region of Colorado is in the process of being organized for the weekend of May 31 -June 1. See the announcement within this newsletter, and we will provide more details in the future as information becomes available. It promises to be an interesting and exciting trip!



Where is this Rock? By Pete Modreski



February – Where is this Rock?

Lake George, Park County, Colorado, looking west through the center of town (such as it is). The rocks of two ages referred to in my caption are the Wall Mountain Tuff (same rock unit as in January's picture), capping the flat-topped hill in the center of the picture; and on the skyline, the higher mountains are the Puma Hills on the north side of Wilkerson Pass, composed of the circa. 1.7 Ga metamorphic complex traditionally known as the Idaho Springs Formation. (The mountain tops here include Farnum Peak, Schoolmarm Mountain, Martland Peak, and Badger Mountain; an extra prize to anyone who can tell us which summits exactly are those visible in the photo, because I'm not sure!



March – Where is this Rock?

Remember, the first person to contact me who knows where this rock is located can have their name in the next issue of the newsletter!

Please send your guess to: pmodreski@usgs.gov.



Calendar of Events- March

Colorado Scientific Society's regular meetings are held the 3rd Thursday of the month at the Shepherd of the Hills Presbyterian Church, 11500 West 20th Ave., Lakewood, CO.
Unless otherwise advertised- Social time begins at 6:30 p.m. and talks start at 7:00 p.m.
For more information, contact Scott Lundstrom, 303-917-2849, pslundstrom@msn.com.

Upcoming CSS Meeting presentations:

Thurs., March. 20th., 6:30 p.m. Social half-hour; 7:00 p.m. Lecture- "Regional Analysis of Flood Hazards Along the Colorado Front Range." Speaker--John Pitlick, Professor of Geography, University of Colorado, Boulder. Shepherd of the Hills Church, 11500 W. 20th Ave. (corner of 20th and Simms), Lakewood. Free admission. Public welcome!

OTHER EVENTS:

Tues., Mar. 18, 10:30-11:30 a.m., USGS Rocky Mountain Seminar, "Geochemical Impacts of CO₂ Leakage into Shallow Aquifers." Speaker--Alexis Navarre-Sitchler, Colorado School of Mines. All interested persons are welcome to come to these biweekly lectures, held in the Building 25 auditorium, Denver Federal Center, Lakewood. Enter the Federal Center via the main gate (Gate 1) on Kipling St., and go north to the large parking lot east of Building 25; enter Bldg. 25 at its main entrance E-14, near the center of the building.

Thurs., Mar. 20, 4:00-5:00 p.m., Van Tuyl Lecture Series, Colorado School of Mines, Berthoud Hall Room 241 "Fluids of Orogenic and Intrusion-Related Gold Deposits: What Can the Compositions Tell Us About Ore Genesis?" Speaker--John Ridley, CSU. Refreshments will be available. All are welcome. See http://geology.mines.edu/GE_Lecture-Series for a full list of this weekly lecture series.

Mar. 20, Colorado Scientific Society Meeting!

Mar. 28-30, Fort Collins Gem and Mineral Show, Larimer County Fair Grounds, Loveland. Friday, 4-8 p.m. Saturday, 9-6 p.m., and Sunday, 10-5 p.m.

Tues., Apr. 1, 10:30-11:30 a.m., USGS Rocky Mountain Seminar, "Origin of Grand Canyon, and Implications for Geomorphology." Speaker-- Brian Wernicke, Cal Tech. Building 25 auditorium, Denver Federal Center, Lakewood. Write to Pete Modreski, pmodreski@usgs.gov, for a complete schedule of spring 2014 USGS Seminars.

Wed., Apr. 2, 4:00 p.m., CU-Boulder Geological Science Colloquium; "The Coming Changes in the Mexican Petroleum Industry and Their Consequences for North America's Energy Supply." Speaker-- Alfredo E. Guzmán, Consulting Geologist. Benson Earth Science Building, Room 180; refreshments will be served at 3:30 p.m. upstairs outside Benson Room 380. All are invited. See <http://www.colorado.edu/geolsci/colloquium.htm> for a list of all the spring term colloquia.

Thur., Apr. 3, Western Museum of Mining and Industry, exhibit opening (6:00 p.m.) and Heritage Lecture (7:00), "Social Life in Western Mining Camps." Speakers-- Mark and Karen Vendl and Duane Smith. Free, but lecture room capacity is limited so advance RSVP is required; write to rsvp@wmmi.org.

Fri., Apr. 11, 7:00 p.m., "The Age of Grand Canyon: A Century of Debate." Speakers-- Dr. Karl Karlstrom and Dr. Rebecca Flowers. Location: National Mining Hall of Fame & Museum (ballroom), 120 West 10th Street, Leadville, CO. The National Mining Hall of Fame and Museum and the Collegiate Peaks Forum will present a free debate between Dr. Rebecca Flowers (CSS Councilor) and Dr. Karl Karlstrom. Come early and spend the afternoon enjoying the Museum and Hall of Fame as well as the spectacular winter scenery that includes the two highest mountains in the entire Rocky Mountains. The question of the Grand Canyon's age may not be the most crucial concern on your mind. However, that issue has focused the professional attentions of Dr. Rebecca M. Flowers of the University of Colorado at Boulder and Dr. Karl Karlstrom of the University of New Mexico. They represent two competing views, old canyon (Flowers) vs young canyon (Karlstrom), and the controversy brings to light new technology and raises fascinating questions about what was happening and when in the Grand Canyon's long-ago past.

Fri., Apr. 11, 6:45 p.m., North Jeffco Gem & Mineral Club Silent Auction. APEX Community Recreation Center, 6842 Wadsworth Blvd., Arvada, CO; free parking, free admission.

Sat., Apr. 12, 10 a.m. - 2 p.m., the first Dinosaur Discovery Day of the year at Dinosaur Ridge, Morrison, CO, featuring: "Bicycles and Dinosaurs." Ride your bike along the ridge and learn about the geology and paleontology from Dinosaur Ridge volunteers!" For more info see <http://www.dinoridge.org/>



Looking further ahead in the coming months:

Apr. 17, Colorado Scientific Society monthly meeting, topic TBA

Apr. 18-20, Colorado Mineral & Fossil Show (Ramada Plaza-Denver Central), 10 a.m. - 6 p.m. Fri. & Sat., 10-5 Sun.

Apr. 18-20, Colorado School of Mines Geology Museum, Book & Garage Sale (rocks, etc.), 9 a.m. - 4 p.m. each day.

May 3, Colorado Mineral Society Silent Auction, Holy Shepherd Lutheran Church, 920 Kipling St., Lakewood CO, 11 a.m. - 3 p.m.

May 10, Dinosaur Discovery Day at Dinosaur Ridge, Morrison, CO; featuring Boy Scout Day.

For more info see — <http://www.dinoridge.org/>

May 10, FM Colorado Chapter, Silent Auction, Clements Community Center, 1580 Yarrow St., Lakewood CO, 12 noon - 4 p.m.

May 15, Colorado Scientific Society monthly meeting, topic TBA.

May 31-June 1, Colorado Scientific Society Field Trip, to the North Park and Middle Park region of Colorado is being organized for this weekend by CSS Field Trip Chair Cal Ruleman.

June 6-8, Pikes Peak Gem and Mineral Show, Western Museum of Mining & Industry, Colorado Springs, sponsored by the Colorado Springs Mineralogical Society

Aug. 7-10, Contin-Tail Rock Show, Buena Vista Rodeo Grounds, Buena Vista, CO

Aug. 14-17, Woodland Park Rock, Gem & Jewelry Show, Woodland Park, CO

Aug. 15-17, Lake George Gem and Mineral Show, Lake George, CO, sponsored by the Lake George Gem & Mineral Club

Sep. 5-7, San Juan Mountains Mineral Symposium, Ouray CO; lectures and field trips; for more information see —

<http://friendsofmineralogycolorado.org/>

Sep. 6-14, Denver Coliseum Mineral, Fossil, & Gem Show

Sep. 7-14, Colorado Mineral & Fossil Show, Ramada Plaza Hotel (formerly Holiday Inn), Denver

Sep. 10, Colorado School of Mines Geology Museum, Reception & Open House, 6-9 p.m.

Sep. 12-14, Denver Gem and Mineral Show, Denver Mart (formerly the Denver Merchandise Mart); the theme of the 2014 show is "Agate"; see — <http://www.denvermineralshow.com/> for more info.

2014 Meteor Showers Guide

Note that the meteor shower dates do not change much from year to year.

Principal Meteor Showers					
SHOWER	BEST VIEWING	POINT OF ORIGIN	DATE OF MAXIMUM*	NO. PER HOUR**	ASSOCIATED COMET
Quadrantid	Predawn	N	Jan. 4	25	—
Lyrid	Predawn	S	Apr. 22	10	Thatcher
Eta Aquarid	Predawn	SE	May 4	10	Halley
Delta Aquarid	Predawn	S	July 30	10	—
Perseid	Predawn	NE	Aug. 11-13	50	Swift-Tuttle
Draconid	Late evening	NW	Oct. 9	6	Giacobini-Zinner
Orionid	Predawn	S	Oct. 21-22	15	Halley
Taurid	Late evening	S	Nov. 9	3	Encke
Leonid	Predawn	S	Nov. 17-18	10	Tempel-Tuttle
Andromedid	Late evening	S	Nov. 25-27	5	Biela
Geminid	All night	NE	Dec. 13-14	75	—
Ursid	Predawn	N	Dec. 22	5	Tuttle

*May vary by one or two days

**Moonless, rural sky

Bold = most prominent

- "Predawn" means an hour or so before morning twilight. Best time to view most major showers.
- "Late evening" means approximately between 10 p.m. and midnight (or a little past).

In general, most major meteor showers are best seen after midnight; some do not even appear until after then. Usually, a better time to see them is after 2 a.m., and the best time is about an hour or so just before morning twilight. Geminids, however, can be seen starting earlier, such as around 9 or 10 p.m., until morning twilight. Sometimes Draconids may be visible at nightfall through early evening.



Science News:

Woolly Mammoths (and rhinos) Ate Flowers

by Tia Ghose —Published February 06, 2014

Woolly mammoths, rhinos and other ice age beasts may have munched on high-protein wildflowers called forbs, new research suggests. And far from living in a monotonous grassland, the mega-beasts inhabited a colorful Arctic landscape filled with flowering plants and diverse vegetation, the study researchers found.

The new research "paints a different picture of the Arctic" thousands of years ago, said study co-author Joseph Craine, an ecosystem ecologist at Kansas State University. "It makes us rethink how the vegetation looked and how those animals thrived on the landscape."

Pretty Landscape

In the past, scientists imagined that the now-vast Arctic tundra was once a brown grassland steppe that teemed with woolly mammoths, rhinos and bison. But recreations of the ancient Arctic vegetation relied on fossilized pollen found in permafrost, or frozen soil. Because grasses and sedges tend to produce more pollen than other plants, those analyses produced a biased picture of the landscape. To understand the ancient landscape better, researchers analyzed the plant genetic material found in 242 samples of permafrost from across Siberia, Northern Europe and Alaska that dated as far back as 50,000 years ago. They also analyzed the DNA found in the gut contents and fossilized poop, or coprolites, of eight Pleistocene beasts woolly mammoths, rhinos, bison and horses found in museums throughout the world.



Image Gallery: Ancient Beasts Roam an Arctic Landscape

The DNA analysis showed that the Arctic at the time had a varied landscape filled with wildflowers, grasses and other vegetation. And the shaggy ice age beasts that roamed the landscape took advantage of that cornucopia. The grazers supplemented their grassy diet with a hefty helping of wildflower-like plants known as forbs, the stomach content analysis found. These forbs are high in protein and other nutrients, which may have helped the grazers put on weight and reproduce in the otherwise sparse Arctic environment, Craine told Live Science.

Vanishing Wildflowers

Between 10,000 and 15,000 years ago, forbs declined in the Arctic study, co-author Mary E. Edwards, a physical geographer at the University of Southampton in England, wrote in an email- "Though it's not exactly clear why, we do know from much other evidence that the climate changed at this time." The ice age was ending and warmer, wetter weather was prevailing. That climate "allowed trees and shrubs to flourish and these would have outgrown forbs by shading them for example," Edwards said.

It's also possible that the vanishing of these high-protein plants hastened the extinction of ice age beasts such as the woolly mammoth. For example, grasslands may have been delicately balanced, with poop from the grazers nourishing the plants, which in turn kept the animals alive. If a big jolt in climate disrupted one part of the chain for instance by depleting the forbs that may have led the whole system to collapse, Edwards speculated. The findings also raise questions about modern grazers such as bison, Craine said. If the ancient beasts dined on forbs, it's possible these wildflower-like plants play a bigger role in the diet of modern bison as well, he said.

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Pleas and Thank Yous

It's Time to Pay Dues for 2014...

Membership dues for the coming year (2014) are now being accepted. You will find a dues payment form in this newsletter or on the CSS Web site: www.coloscisoc.org/membership/dues.html

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.

CSS Treasurer Don Sweetkind will send out an email to all members with information on their dues paid status. If you are uncertain if you owe dues or of your member status, or if you have not received a receipt for a past contribution, contact CSS Treasurer Don Sweetkind by phone at 303-236-1828 or by e-mail at dsweetkind@usgs.gov.



GOLDEN, Colo., March 13, 2014 – Colorado School of Mines ranks 55th in *U.S. News and World Report's* 2015 ranking of engineering graduate schools, an increase from last year's ranking of 57. Several of Mines' graduate programs also ranked highly, including:

- Earth Science: 25th
- Materials Engineering: 29th
- Environmental/Environmental Health Engineering: 32nd
- Chemical Engineering: 45th
- Mechanical Engineering: 52nd
- Physics: 77th

U.S. News rankings are based on expert opinions about program excellence and statistical indicators measuring the quality of a school's faculty, research and students.



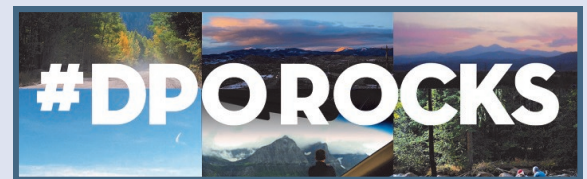
Be Part of the Music! Denver Philharmonic Orchestra

*On April 4, Jeffrey Nytych's geology-inspired piece, **Formations**, will take you on a journey through the history of the Rockies. But we need you — yes, you! — to help transport us there visually.*

*Send us your favorite pics (taken by you) of our beautiful Colorado Rocky Mountains to be included in a cascade of projected images during our **New Formations & Mysterious Mountains** concert on April 4.*

Email us your photos with your name and where it was taken, or tweet at us @DenverPhilOrch and hashtag #DPORocks. We look forward to sharing your favorite mountain vistas with our community!

*By submitting, you agree to allow us to display your name and photographs during our April 4 concert, **New Formations & Mysterious Mountains**. Don't worry — you'll still own the copyright to your images. You also agree that you are the photographer of the submitted work or you have expressed written permission from the photographer to submit on their behalf.*





Colorado Scientific Society Spring Field Trip 2014

Colorado Headwaters Basin –

Five mountain passes, cool rocks, and (maybe) moose!

Leaders: Jim Cole and Marieke Dechesne, USGS

Date: Saturday-Sunday, May 31-June 1, 2014

Departing from Federal Center Park and Ride (and Boulder too)

The cost for transportation and drinks provided will most likely be between \$20-30.

This trip is limited to 30 attendees, so please go ahead and reserve your spot by contacting Cal Ruleman - cruleman@usgs.gov or call: (303) 236-7804

DESCRIPTION

This two-day trip will showcase new insights into the Cenozoic geologic history of the western flank of the Front Range in Grand and Jackson Counties, north-central Colorado. We'll show evidence for widespread major uplift that occurred about 67-61 million years ago, in contrast to contemporaneous subsidence in the Denver Basin and South Park areas. Once the Colorado Headwaters Basin began to downwarp (approximately 61 Ma), subsidence was rapid and deep, and spectacular cannonball gravels were deposited in places. Distinctive volcanic porphyry cobbles are traced to source rocks in south-central Colorado, with intriguing implications for paleodrainage. We'll show evidence for faulting before and during basin filling, and show that many of the big folds and reverse faults in the area are mostly younger than the Paleogene sediments.

The middle Tertiary Period here is marked by diverse volcanic/intrusive rocks in the Rabbit Ears and Never Summer Ranges, and by high-energy stream deposits of boulder gravel and coarse sand eroded from volcanoes and mountain uplifts. The most recent 5 million years history shows evidence of renewed mountain uplift, drainage adjustments and integration, and landscape incision.

Saturday night lodging will be in Hot Sulphur Springs with an optional visit to the hot springs spa. Attendees must call and make their own reservations for Saturday night's lodging. Plan on providing your own breakfast and lunch for Saturday and Sunday.

Lodging options:

The Canyon Motel – (970) 725-3395

Hot Sulphur Springs Resort – (970) 725-3306

Ute Trail Motel – (970) 725-0123



2014 CSS Elected Positions

President:.....Scott Lundstrom, 303-917-2849, pslundstrom@msn.com
President Elect:.....Paul Morgan, 303-866-2611, paul.morgan@state.co.us
Treasurer:.....Don Sweetkind , 303-236-1828, dsweetkind@usgs.gov,
Secretary:.....Lisa Fisher, 303-215-0480, lisa.fisher@escalantemines.com
Past President:.....Matt Sares, 303-866-3581 x8290, matt.sares@state.co.us

We are still seeking volunteers or nominations to fill several vacant posts. They are:

- ◆ **Outreach Chair**
- ◆ **Publicity Chair**
- ◆ **Hospitality Chair**
- ◆ **Program Chair**



We will also gladly accept volunteers to serve on any and all of our standing committees. If you have any questions regarding the duties of these positions, please call your favorite officer, councilor, or chair.

Please consider volunteering—many hands make lighter work and we would love to have a larger pool of ideas and contacts!

COUNCILORS

2013–2015: Marieke Dechesne, mdechesne@usgs.gov
2013–2015: Liz Pesce, pesce.e@gmail.com
2014–2016: Celia Greenman, celia.greenman@earthlink.net
2014–2016: Peter Barkmann,
2012–2014: Rebecca Flowers, 303-492-5135, rebecca.flowers@colorado.edu

COMMITTEE CHAIRPERSONS

Best Paper Award: Matt Sares, 303-866-3581 x8290, matt.sares@state.co.us
Database Manager: Paul Morgan, 303-866-2611, paul.morgan@state.co.us
Field Trips: Cal Ruleman, 303-236-7804, cruleman@usgs.gov
History: Beth Simmons, cloverknoll@comcast.net
Hospitality: Open
Membership/Mentor: Liz Pesce, epesce@mines.edu
Memorial Funds: Matt Sares, 303-866-3581 x8290, matt.sares@state.co.us
Newsletter Editor: Linda Barton Cronoble, 720-338-6201, lbarton1611@gmail.com
Outreach: Open
Program: Open
Publicity: Open
State Science Fair: Chuck Weisenberg, 303-238-8806, cweisnrg@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

History

Outreach

Fund Raising

Newsletter

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>