



Colorado Scientific Society

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

May Meeting, Thursday, May 18, 2017, 7:00 p.m.
American Mountaineering Center Auditorium, 710 10th St., Golden, CO
Social time, 6:30; program at 7:00

Annual S.F. Emmons Lecture

Too Warm, Two Poles: How Past Super Interglacials Should Inform Future Coastal Policy

Julie Brigham-Grette

University of Massachusetts, Amherst

Glacial and interglacial change uniquely imposed on the Bering Strait region some of the most radical changes in sea level and paleogeography documented in the Northern Hemisphere. Following the transition from a forested Arctic 3 million years ago and the first major glaciation of the northern hemisphere about 2.6 million years ago, marine deposits found along the coasts of Alaska and elsewhere record critical transitions in the evolution of Earth's climate but especially times of high sea level. Geologic records of Plio-Pleistocene super interglacials from both the Arctic and the Antarctic show us that ice sheets are more vulnerable to subtle polar warming than once thought. Given that sea level rise today and into the near future is global and not reversible, new approaches will require social and political action aimed at short-term fixes and long-term "managed retreat" of human infrastructure from our coastlines.

Dr. Julie Brigham-Grette is professor in the Department of Geosciences Climate System Research Center at the University of Massachusetts - Amherst. She graduated from Albion College and completed her M.S. and Ph.D at the University of Colorado, with post-doctoral work at the

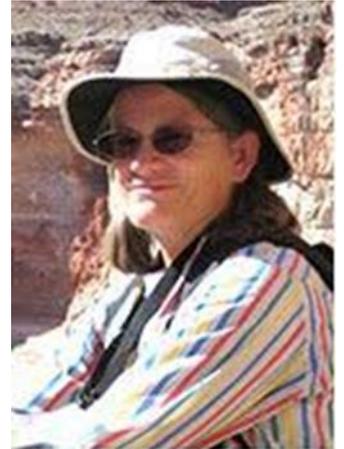


University of Bergen, Norway, and the University of Alberta, Canada. Julie's research interests are focused on the stratigraphy, sedimentology, and chronology of geologic systems that record the climate evolution and sea level history of the Arctic since the mid-Pliocene. Most of her research program is aimed at documenting the global context of paleoenvironmental change across "Beringia", stretching from Alaska and the Yukon across the Bering Sea into Russia. She was co-chief scientist of an expedition to Lake El'gygytyn in northeast Russia that recovered an unprecedented core record of paleoclimate of the past 3.6 million years.

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May 2017 President's Message , Marith Reheis, Scientist Emeritus, U.S. Geological Survey

Our participation at the March for Science was a wonderful experience! From 8:30 AM to 2 PM when we started closing up, there was a constant stream of people, most of whom had comments like "I've never heard of you!" "Wow--you have lectures open to the public? I want to come to some." "Field trips? Can I bring my kids?" The March and the information tables drew whole families. We had a lot of attention, in part because Linda Barton was giving pieces of polished rose quartz to every child, then later a CSM grad student (Phillip Persson) brought and donated a pile of freshly collected mineral specimens, quartz crystals and others--the little ones were not the only ones fascinated. We had run out of CSS flyers by 11 AM, out of program flyers by noon, so then folks just took pictures of the posters and last copies of flyers on the table, or took a membership application so they could at least have the website address. There were many other organizations with information and education tables--even federal agencies such as the Forest Service had a presence. We still have a number of pretty green CSS T-shirts available for purchase [please contact Marith or others of the officers, if interested—ed.].



All those who attended really enjoyed the dinner and special presentation at the Past President's Dinner on May 10. Marking the 135th anniversary of the Society at the Mount Vernon County Club with a Susan Marie Frontczak portraying Marie Curie.

The annual S.F. Emmons lecture will be given at 7 PM on May 18 at the American Mountaineering Center auditorium in Golden (social time beginning at 6:30 PM). This year's lecturer is Julie Brigham-Grette (U. Mass Amherst) on past "super interglacials" and their implications for coastal development policy.

Our first field trip of the year will be a joint field trip with the Florissant Scientific Society on June 25, led by Peter Barkmann on new geologic findings made in South Park by the Colorado Geological Survey, focusing on the area around Hartsel. We'll send exact details later, but if interested, you may write to Peter, Marith, Cal Ruleman, or to Pete Modreski for exact meeting place & time info, once they are decided upon. Our next field trip will be in August to the White River Plateau and vicinity, led by James Hagadorn of the Denver Museum of Nature and Science; likewise, details will be available later.

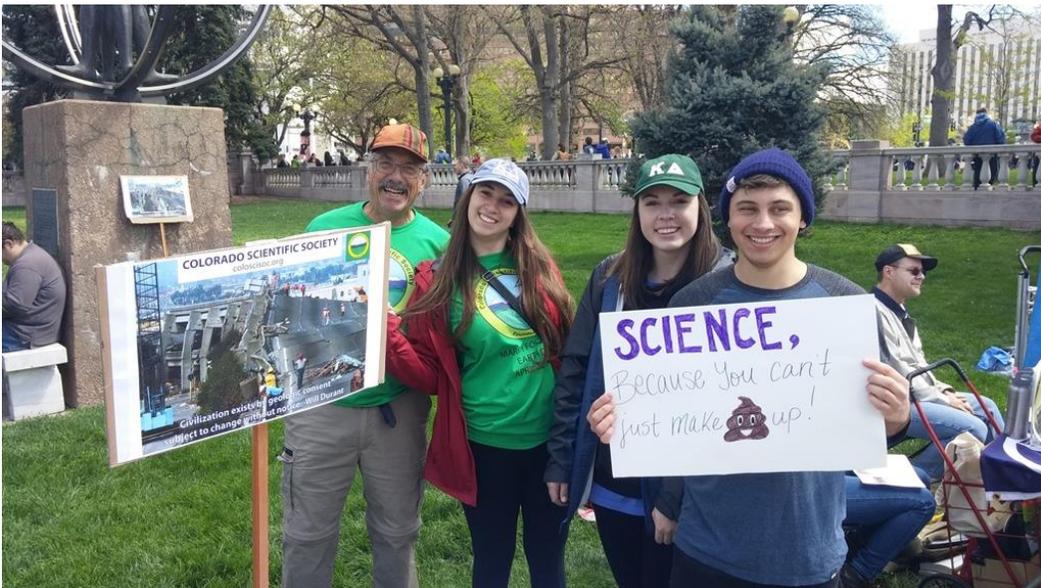
--- Marith

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Women in Science, Geology, Oil & Gas – The Colorado Scientific Society has agreed to be a co-sponsor of a reception and talk organized by the JeffCo Innovators' Workshop, to take place at 6:30 p.m., Wednesday, June 14, at Golden City Hall, 911 10th St., Golden. The speaker will be Robbie Gries, author of the book, *Anomalies: Pioneering Women in Petroleum Geology 1917-2017*. Admission is free, but space is limited to the first guests who RSVP to: <https://tinyurl.com/WomenPetGeol> . A flier about the presentation is attached with this newsletter.



CSS members at the March for Science, April 23, 2017; at our booth, and in the march.





Past (and present) presidents at the CSS Past Presidents' Dinner, May 10 at Mount Vernon Country Club. L-R, Peter Barkmann (2016), Pete Modreski (2012), Lisa Fisher (2011), Bruce Bryant (1985), and, peeking over Bruce's shoulder—[your newsletter editor is very embarrassed, with only part of a face to go on, I am not sure who this is—my apology, someone will have to enlighten me], Karl Kellogg (1997), Emmett Evanoff (2004), Jim Cappa (2003), Bill Nesse (2007), Paul Morgan (2015), Marith Reheis (2017). In the foreground, a table full of Marie Curie's physics and chemical apparatus!



Susan Marie Frontczak giving her performance of "Manya, a Visit with Marie Curie" at the Past Presidents' Dinner. Her performance was remarkable! We all felt like we were really in the presence of Marie Curie.

Samuel Franklin Emmons

From Wikipedia, the free encyclopedia



Samuel Franklin Emmons in 1889

Samuel Franklin Emmons (March 29, 1841 – March 28, 1911) was an American **geologist**. He was born in **Boston, Massachusetts**. He graduated from **Harvard University** in 1861 and studied at the *Ecole des Mines* in **Paris, France**, from 1862 to 1864 and at the **Friberg (Saxony) mining school** in 1865. In May 1867, he was appointed assistant geologist under **Clarence King** on the **American geological exploration of the fortieth parallel**, and in July 1879 became geologist in charge of the **Colorado** division of the **United States Geological Survey**. He traveled extensively throughout the **United States** in connection with his work, and in 1870 made a survey, along with **A. D. Wilson**, of **Mount Rainier**, the highest and most inaccessible peak in the **Cascade Range**. The largest glacier in the contiguous United States, **Emmons Glacier**, is located along their survey route and is named after Emmons.

During the autumn of 1872, with Clarence King, Emmons discovered the locality of the **supposed diamond fields** in Colorado, and was active in exposing their fraudulent character. ^{[1][2]}

Emmons is the namesake of **Mount Emmons**, Colorado, and **Mount Emmons, Utah**.^[3]

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From **History of the Colorado Scientific Society 1882-2002**, on the CSS website at:

<http://coloscisoc.org/wp-content/uploads/2013/12/HistoryOfCSS.pdf>

“On the evening of December 8th, 1882, a number of gentlemen interested in the formation of a scientific association met in the rooms of the United States Geological Survey, in Denver, at the invitation of Mr. Samuel Franklin Emmons.” “Mr. Emmons, in stating the object of the meeting, said that it seemed to him that the time had come for those persons in Colorado who were interested in true science to unite in forming an association or society, whose immediate object would be to facilitate the interchange of scientific observations and ideas, and promote intercourse among the observers themselves. There should be some means of recording and publishing the many interesting and valuable facts which are daily observed in different parts of the State. This could be done through the medium of a society, and the opportunity thus afforded would no doubt act as a stimulus to some to pursue investigations in directions specially open to them.” “An informal discussion ensued in which the advisability of such a step was advocated, and it was agreed to proceed at once to form a permanent organization.” “The following named persons were unanimously chosen as officers for the first year:

President—Samuel Franklin Emmons

Vice-President—Richard Pearce

Secretary—Whitman Cross”

COLORADO SCIENTIFIC SOCIETY, REMAINING TALKS AND TOPICS FOR 2017

- May 18 (Emmons Lecture) Julie Brigham-Grette, University of Massachusetts-Amherst: **Too Warm, Two Poles: How Past Super Interglacials Should Inform Future Coastal Policy** (to be held at the American Mountaineering Center, Golden)
- June 14 **Women in Science, Geology, Oil & Gas** – Reception organized by the JeffCo Innovators' Workshop and cosponsored by the Colorado Scientific Society, 6:30 p.m., Golden City Hall, 911 10th St., featuring Robbie Gries, author *Anomalies: Pioneering Women in Petroleum Geology 1917-2017*. RSVP to: <https://tinyurl.com/WomenPetGeol>.
- June 25 **Hartsel/South Park Field Trip**, led by Peter Barkman
- Aug. 25-26 **CSS Flat Tops/White River Plateau Field Trip**, led by James Hagadorn
- Sept. 21 **Student Paper Night** (to be held at Arbor House, Maple Grove Park)
- Oct. 19 Suzette Morman, Crustal Imaging and Characterization, USGS: **Using Geoscience to Augment Environmental Public Health Studies**
- Nov. 16 Simone Marchi, Southwest Research Institute, Boulder, **Planetary Geology** (exact title TBA)
- Dec. 21(?) Marith Reheis, Emeritus USGS: **President's address** (Arbor House, Maple Grove Park (exact date to be confirmed))

Our meetings are normally held at Shepherd of the Hills Church, 11500 W. 20th Ave., Lakewood (May, September, and December will be exceptions this year). All are always welcome. Social time 6:30, meeting begins at 7. See www.coloscisoc.org for more info.

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Colorado Scientific Society dues are \$25 for regular members, **\$20 if dues renewals are paid before Jan. 31 of each year**, \$10 for corresponding members (outside the Colorado Front Range area) and only \$5 for students. A Lifetime Membership is now available, for \$395.00. Mail 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 if you are uncertain of your dues or 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 attached to this newsletter, or see our website at <http://www.coloscisoc.org/membership/dues.html>.

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

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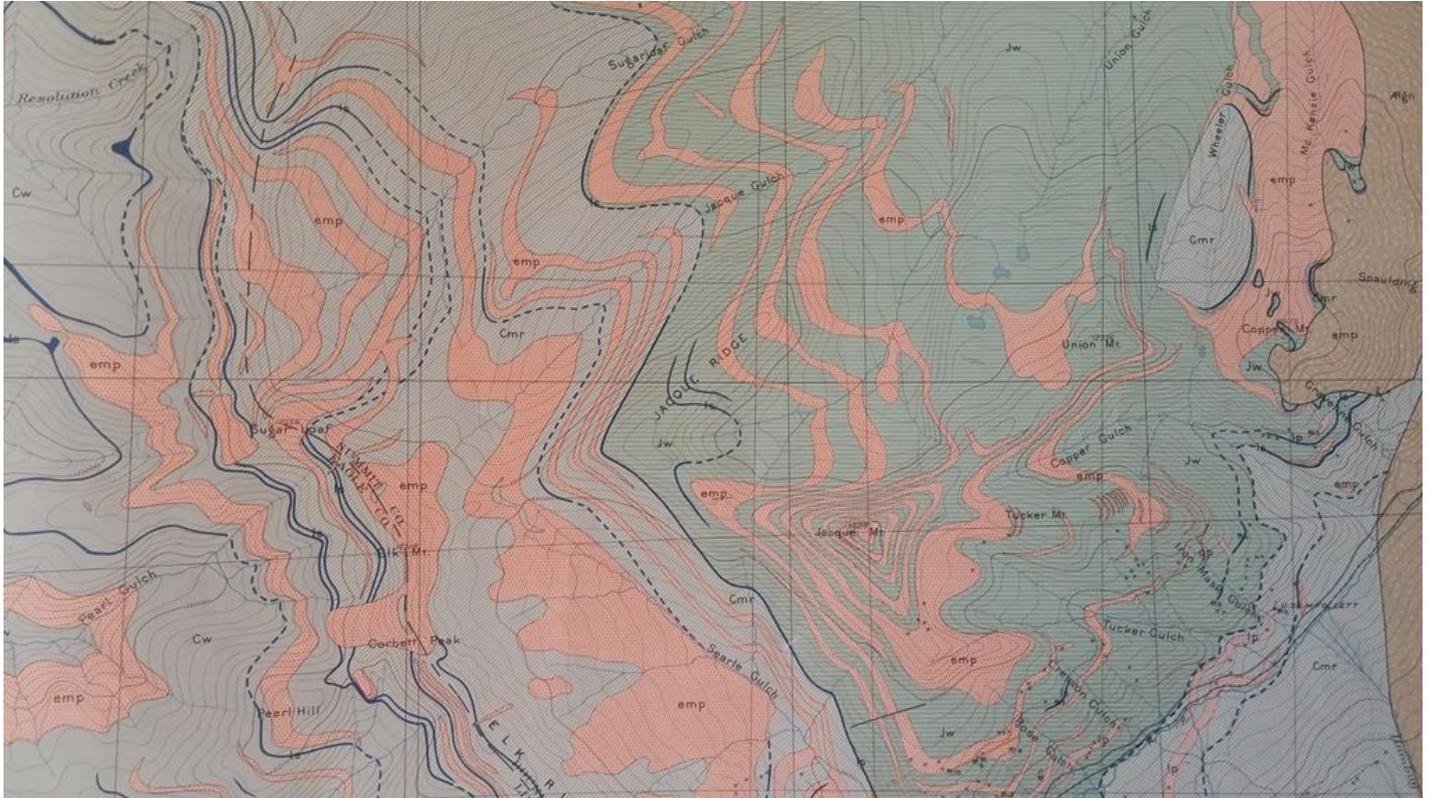
For more news & information about the Society, always check our website, www.coloscisoc.org, or search for us, Colorado Scientific Society, and “like” us on Facebook. Anyone can view our facebook page, whether you have an account or not, at <https://www.facebook.com/groups/511533159044226/>.

April's "Where is this rock?" For the first time as far as I know, I seem to have received no guesses at all for what/where this is (though I'm sure some of you knew). It is Cabezon Peak, New Mexico, a volcanic neck located south and west of Cuba, NM. Near the southeast margin of the Colorado Plateau, it is the largest of the "Rio Puerco Necks", in the valley of the Rio Puerco which, skirting along the edge of the Mt. Taylor volcanic field, drains southward ultimately into the Rio Grande between Belen and Socorro. 7785' in elevation, it stands about 1400'



above the surrounding Upper Cretaceous landscape composed of Mancos Shale capped by Point Lookout Sandstone. It is a popular rock climbing site in New Mexico. And the accompanying picture showed another nearby volcanic neck (that looks like the head of a rhinoceros?), Cerro de Guadalupe (6844').

May "Where is this rock?" This time, instead of a photograph, I'll show a portion of a geologic map. You can tell me where this is, what the geologic feature of special interest is, and perhaps, even what geologic map this is from. It's in Colorado this time; and, perhaps I am hoping that you'll be able to identify this location, even if you can't read the "fine print" topographic feature names on the map. Write to pmodreski@usgs.gov. ---Pete Modreski, CSS newsletter editor



Calendar of Coming Events

Thurs., May 18, 7:00 p.m., Too Warm, Two Poles: How Past Super Interglacials Should Inform Future Coastal Policy, Julie Brigham-Grette, University of Massachusetts-Amherst. Annual S.F. Emmons Lecture of the Colorado Scientific Society; American Mountaineering Center Auditorium, 710 10th St., Golden. No admission charge and all are welcome.

Sun, May 21, noon (shared potluck lunch), 1 p.m. (lecture), “**A geologic cross section of Colorado along the I-70 corridor**”, by geologist Ned Sterne. The monthly meeting of the Florissant Scientific Society; this month, at the Dinosaur Discovery Center, west side of Dinosaur Ridge, 17681 W. Alameda Parkway Morrison (located at Entrance 1, the north entrance, to Red Rocks Park). See <http://www.fss-co.org/> for details, or contact Beth Simmons at cloverknoll@comcast.net . All are welcome.

Mon., May 22, 3:00 p.m., Hyperthermals: Extreme Global Warming Events in the Geological Past, by William Clyde, University of New Hampshire;. Denver Museum of Nature & Science Earth Sciences Colloquium, VIP Room, DMNS, all are welcome, Museum admission not required to attend.

Tues., May 30, 10:30 a.m., USGS Rocky Mountain Science Seminar series, “**The Community Earth System Model (CESM) Large Ensemble Project: A community resource for studying climate change in the presence of internal climate variability**”, by Jen Kay, CU Boulder. Visitors are welcome; in the Building 25 auditorium (enter the Federal Center at the main gate, Gate 1, on Kipling St.; park east of building 25 and use building entrance E-14).

Fri.-Sat.-Sun., June 2-4, Pikes Peak Gem & Mineral Show, sponsored by the Colorado Springs Mineralogical Society. At Mortgage Solutions Financial Expo Center, 3650 N. Nevada Ave., Colorado Springs. 10-5 Fri. & Sat., 10-4 Sun.

Wed., June 14, 6:30 p.m., Women in Science, Geology, Oil & Gas, reception and talk featuring Robbie Gries, author of *Anomalies: Pioneering Women in Petroleum Geology 1917-2017*. Golden City Hall, 911 10th St., Golden. Free but RSVP required, to <https://tinyurl.com/WomenPetGeol> .

Sunday, June 25, Geology of South Park, a field trip focusing on the Hartsel area, led by Peter Barkmann, Colorado Geological Survey. A joint field trip of the CSS and the Florissant Scientific Society; all are welcome to attend. Exact meeting details are still TBA. The trip will follow part of the route of the trip Peter led during the 2016 Geological Society of America annual meeting,

Sat.-Sun., July 15-16, The Florissant Scientific Society will hold its annual multi-day event at the Bear Basin Ranch in southern Colorado, south of Canon City. “Gary Ziegler, ranch owner and international archeologist will show us the culturally modified trees there and tell us about his work in Peru. There is a cabin where 6-8 people can bed down for the night. Campers are welcome. You can look at the Bear Basin Ranch's website to get a feel for the ranch. Other accommodations are available in Westcliffe and Florence. More information, including costs, to come later.” See <http://www.fss-co.org/> for future info to be posted.

Thurs.–Mon., July 20-24, Gold and Silver Deposits in Colorado, a symposium cosponsored by the Friends of the Colorado School of Mines Geology Museum, the CSM Museum, DREGS (Denver Region Exploration Geologists Society), and Friends of Mineralogy, Colorado Chapter. The event will include a welcoming reception at the CSM Museum (Thursday evening), two days of talks (Sat.-Sun., July 22 - 23), a Saturday evening banquet with a speaker, and two days of field trips (Fri. July 21 and Mon. July 24) to historic Colorado gold and silver mining areas, focusing on the Front Range and the northern half of the Colorado Mineral Belt. Registration cost will be \$100; students, \$50; banquet, \$40; each field trip, \$40. The registration form, including the list and full description of the field trips, is now available on the Friends of Mineralogy-Colorado Chapter website, at <http://friendsofmineralogycolorado.org/gold-and-silver-deposits-in-colorado-a-symposium/> (short link: <https://tinyurl.com/goldsymposium>).

Aug. 25-26, CSS Flat Tops/White River Plateau Field Trip, led by James Hagadorn.

Sep. 15-17, 50th annual Denver Gem and Mineral Show, Denver Mart, 451 E 58th Ave., Denver, CO. **Gold and Silver** is the 2017 show theme. See <http://denvershow.org/wp/>

2017 DMNS EARTH SCIENCES COLLOQUIUM SERIES

Location: Denver Museum of Nature & Science, VIP Room (Enter the museum and make a hard left, pass the gift shop on your right, bathrooms on the left, and then the TRex Café on the right; the VIP room is at the far NE corner of the museum, just past the set of 3 TRex Café cash registers). Time: 3:00 - 4:00pm. * Museum admission not required to attend *

Mon., May 22, William Clyde (University of New Hampshire), **Hyperthermals: Extreme Global Warming Events in the Geological Past**

Fri., Sept. 22, Raymond Rogers (Macalester College), **Twenty Years of Paleontological Adventure & Discovery on the Great Red Island, Madagascar**

Mon., Oct. 9, Graham Young (Manitoba Museum), **Tropical fossils from the edge of the Arctic**

Thurs., Nov. 2, Jaelyn Eberle (University of Colorado, Boulder), **Life at the Top of the Eocene Greenhouse World**

Tues., Dec. 5, Ellen Currano (University of Wyoming), **Seeing the forest through the leaves - from Ethiopia to the Rocky Mountains**

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CSS Officers for 2017

President..... Marith Reheis, 303-277-1843, marith16@gmail.com
President Elect..... Bob Raynolds, bob.raynolds@dmns.org
Past President..... Peter Barkmann, 303-384-2642, barkmann@mines.edu
Secretary..... Lisa Fisher, 303-215-0480, lisa.fisher@alumni.mines.edu
Treasurer..... Don Sweetkind, 303-236-1828, dsweetkind@usgs.gov

Councilors

2015-2017: Bruce Geller, bgeller@mines.edu, 303-273-3823
2015-2017 Pete Modreski, pmodreski@usgs.gov, 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
2017-2019: Jim Reed, jim@rockware.com
2017-2019: Chris Morrison, chris-morrison@comcast.net

Committee Chairpersons

Database Manager: Paul Morgan, 303-384-2648, morgan@mines.edu
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: Bob Raynolds, bob.raynolds@dmns.org
Newsletter Editor: Pete Modreski, 303-202-4766, pmodreski@aol.com or pmodreski@usgs.gov
Outreach Chair: open
Past Presidents' Best Paper Award, Peter Barkmann, 303-384-2642, barkmann@mines.edu
Publicity Chair: open
State Science Fair: Chuck Weisenberg, 303-238-8806, cweisnbrg@msn.com **new volunteers wanted!**
Student Programs Chair: Melissa Foster, Melissa Foster, melissa.ann.foster@gmail.com, 707-498-2484
Student Research Grants Chair: Peter Barkmann, 303-384-2642, barkmann@mines.edu
Webmasters: Chris Morrison, chris-morrison@comcast.net, and Barb Warden, bwarden@tablemtn.com