



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 17 meeting, 7:00 p.m. (social time 6:30)
Shepherd of the Hills Church, 11500 W. 20th Ave., Lakewood CO
All are Welcome! Program:***

New Hominid Discoveries from South Africa, the ‘Cradle of Humankind’: The Anthropological Significance, the Cave Geology, and How Google Earth Contributed to the Discovery.

**Charles Musiba
University of Colorado-Denver**



ABSTRACT

The increased use of Google Earth in the field of paleoanthropology has transformed the way paleoanthropologists conduct their field survey for new sites. Recent discovery and naming of *Homo naledi* from the Dinaledi chamber in the Rising Star Cave System in South Africa offers us new information on the evolution of the genus *Homo* in a way that is challenging us to reconsider what we know about our place in nature. The Dinaledi hominins are perhaps the most spectacular find the field of paleoanthropology has so far produced; their remarkable preservation, depositional history, and morphological features provide us with some information that is helping us understand our complex evolutionary journey. Here I will share with you my personal reflection on the discovery and research on the Dinaledi hominins, and how technology and social media is helping reshape the field of paleoanthropology. Additionally, I will also provide you with a glimpse of other equally important paleoanthropological discoveries of additional hominin footprints from Laetoli in Tanzania.

Charles Musiba (PhD) is an associate professor of biological anthropology in the department of anthropology at the University of Colorado Denver. He is a native of Tanzania, born on the shores of Lake Victoria in Mwanza town where he attended primary and secondary school education before pursuing his undergraduate studies at the JW Goethe University in Frankfurt, Germany (1985). After completion of his undergraduate training, Charles returned back to Tanzania and worked as an assistant conservator of Antiquities in the Department of Antiquities in the Ministry of Natural Resource and Tourism until 1986 when he was awarded a two years Demokritos Foundation fellowship to join the Anthropological Museum of Xanthi as a research fellow followed by a master's degree in human ecology at the Free University of Brussels in Belgium in 1991. Charles passion has always been in prehistory, especially biological anthropology and as a result he received his second master's degree in biological anthropology in 1996 followed by a Ph.D. in 1999 from the University of Chicago.



Charles is a paleoanthropologist who has worked extensively at Olduvai Gorge and Laetoli in northern Tanzania since 1999. His research work on human origins focuses on reconstructing past environments (3.5 – 4.0 million years ago) using proxy data. He is actively involved in conservation and sustainable use of paleoanthropological resources not only to a small select group of people but to everybody in the world through education and cultural exchange programs. His previous work includes the evolution of upright posture and bipedal gait in humans with particular emphasis on the interpretation of the 3.5 million years old fossil hominid footprints from Laetoli in northern Tanzania.

Charles has received numerous recognitions and fellowships including the Germany DAAD fellowship in 1983 and 1992, the Greek Demokritos Foundation fellowship in 1986, the Belgian VUBAROS fellowship in 1989, the British Council Visiting Scholar fellowship in 1991, the University of Chicago Century Scholar fellowship in 1993, the Japanese JSPS Visiting Scholar fellowship in 2004, and the Belgian Royal Museum for Central African Visiting Scholar fellowship in 2005. On top of securing over sixteen research grants and fellowships, Charles has written over forty five peer reviewed articles in paleoanthropological and archaeological journals and edited books.

(more, next page)

Charles is currently serving as a member of the International Council on Archaeological Heritage Management (ICAHM) scientific committee and a member of the Tanzania International Technical Committee that is helping Tanzania to build an on-site museum at Laetoli as a sustainable conservation solution for the 3.5 million years old hominid footprints. Charles has spearheaded a successfully funded proposal for two million Euros from the European Union (EU) to valorize Tanzania’s cultural heritage, he is extensively collaborating with the Ngorongoro Conservation Area Authority (NCAA). He is also a board member for a Denver based Africa School Assistance Project (ASAP) organization that builds schools in Tanzania.

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In case you wondered:
“Hominid and hominin – what’s the difference?”

New definitions

The most commonly used recent definitions are:

Hominid – the group consisting of all modern and extinct Great Apes (that is, modern humans, chimpanzees, gorillas and orang-utans plus all their immediate ancestors).

Hominin – the group consisting of modern humans, extinct human species and all our immediate ancestors (including members of the genera Homo, Australopithecus, Paranthropus and Ardipithecus).

Previous definitions

Current use of the term ‘hominid’ can be confusing because the definition of this word has changed over time. The term ‘hominid’ used to have the same meaning that ‘hominin’ now has. It was therefore a very useful term to designate the line leading to modern humans and was used when referring to various members of our human evolutionary tree.

‘Hominid’ has now been assigned a broader meaning and now refers to all Great Apes and their ancestors. This new terminology is being used in many scientific journals already, and it is only a matter of time (but possibly many years) before everyone catches up to using the new term.

Extracted from (for more, see here),

<http://australianmuseum.net.au/hominid-and-hominin-whats-the-difference>



President’s message, from Peter Barkmann, CSS President: We have been off to a fast start with our energetic 2016 Council and enthusiastic membership. Two great talks, first a dual presentation by Bob Reynolds and James Hagadorn from the Denver Museum of Nature & Science who enlightened us with an overview of our region’s diverse stratigraphy and challenges of revamping a statewide stratigraphic chart. Close on their heels was the fascinating presentation by John Spencer of the Southwest Research Center about the “weird and wonderful geology of Pluto” as revealed by the recent New Horizons flyby. I for one had to remind myself repeatedly that those features are not tectonic features formed of silicate mineral based

sediments or igneous rocks, but instead, are solid phases of what would be gas on our home planet. This definitely pushed us out of our box! As a bonus, we learned that there is more to come as the mission continues out to the Kuiper Belt.

March promises to continue the trend of interesting meetings with Dr. Charles Musiba who will speak about new hominid discoveries in South Africa. We have had great turnout and expect to see this momentum continue. My thanks to all that have helped! We also have two great field trips in the planning stages, the first in June to see the Proterozoic sandstones in the Manitou Springs area led by Christine Siddoway. A second trip is in the planning stages for late August or early September to see Devonian strata and fossil assemblages in the White River uplift led by James Hagadorn. We hope to have a few other local trips scattered in between. Now, for what may be a sensitive subject. Colorado Scientific Society has a long rich history that members are rightfully very proud of. But let’s face it, we are a graying crowd. So here is my challenge: help us bring in new blood. We need to mount a bold effort to reach out and appeal to students and young members of our discipline. There is motivation, and I am excited to see the enthusiasm Council member Melissa Foster brings to the table in wanting to engage young people in our activities. We are planning a student night for the regular September meeting and I want to stress how important it will be for us old gray-hairs to be there in force. Those of us who have been around a few blocks need to step up and help the students get traction. We have much to offer to these budding careers through our collective experience and our ability to mentor and inspire. Don’t be surprised if you get calls from Council members come August “reminding” you all to come cheer the younger set on.

Another idea is floating around the council: Thom Fisher has suggested that CSS resume publication of its proceedings. As I understand, the proceedings have not been published in decades. We have volumes and volumes in our “archives” and they were once a respected source of knowledge. Why not consider reviving in some form? In this digital age, it could be argued that there is no need, given the effort it may take and the availability of information through so many online sources. We already place abstracts from our monthly programs and special lectures on the website, so why bother? Admittedly, it is a challenge to find manpower to compile and review manuscripts on a regular basis. However, the digital age offers easier ways to assemble documents and easier ways to manage graphics. I see several advantages to jump start this once renowned publication. First an annual publication might enhance the visibility of the Society and even elevate its relevance (not that I would consider it irrelevant). Secondly, this could play into a robust effort to engage more young scientists. Such a publication could provide an opportunity for new scientists to get their name out. Through our proceedings there could be an opportunity to mentor young authors as they hone their writing skills and learn to manage the peer review process. Just a thought.....

Peter Barkmann, CSS President

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Note from the editor, the **Proceedings of the Colorado Scientific Society** were published from 1884 (nominal first volume date, 1883) until 1956. You can read more about this on our website, under History; see <http://www.coloscisoc.org/history/history.html> Click on “Proceedings”, and for more, on “Society History” to download the complete “History of the Colorado Scientific Society, 1882-2002” by Edwin B. Eckel.

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>.

Now is the time to renew your membership for 2016! Thank you!

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Save the Date! Thursday, April 14: our 2016 CSS Past Presidents' Dinner. White Fence Farm, 6263 West Jewell Ave., Lakewood CO. Speaker: Matt Silverman, Tempest at Teapot Dome, Wyoming: the Greatest Political Scandal in the History of the American Oil Industry

Dinner will be at about 5:30 p.m. (social time beginning at 5:00). Cost of the dinner will be \$30. To make reservations for the dinner, please write to Linda Barton Cronoble, lbarton1611@gmail.com, or 720-338-1237. You may mail a check to the CSS at P.O. Box 150495, Lakewood, CO 80215-0495 (payment in advance is appreciated) or pay at the door. Due to the restaurant's policy, we must pay for a dinner all who attend the meeting. Please make your reservations by April 7. (A great idea--if you haven't paid dues yet--take care of two things at one time, send in dues + dinner reservations together!)

If you are a member who does not drive and would appreciate a lift to the meeting, please write or call Linda or any of the our other officers and we will do our best to match you up with a ride. Likewise, if you would be willing to pick someone up for a ride to the meeting, please let Linda know. And, if you find yourself to be a member with limited financial means but would enjoy attending this dinner meeting, please contact Linda and we will discretely make some arrangement to help you out. Thank you!

Also, Linda would like a few volunteers to help bring desserts to this meeting. Again, please contact her if you would like to help.

Also Save the Date! For our annual S.F. Emmons Lecture, Tuesday, April 26, "The quest for the only known natural quasi-crystal", by Dr. Lincoln Hollister, Princeton University, Professor Emeritus. This lecture will be held at the American Mountaineering Center auditorium, 710 10th St., Golden, CO.

The lecture will begin at 7:00 p.m.; social time, 6:30 p.m. No charge and all are welcome.

If you are curious about quasicrystals (and who isn't??), try reading the Wikipedia article, <https://en.wikipedia.org/wiki/Quasicrystal>, and this website from Princeton Univ. about the curious story behind the discovery of natural quasicrystals: <http://www.phy.princeton.edu/~steinh/naturalquasicrystals.html> .

More upcoming CSS meetings:

May 19—Stephen Mojzsis, Department of Geological Sciences, University of Colorado, Boulder; title TBA; Dr. Mojzsis' research involves ancient biospheres and the Hadean/Archean Earth

June 25—planned field trip to the Proterozoic Tava Sandstone near Woodland Park, with Christine Siddoway

September 15 (Student Presentation Night) —we may be meeting at a new location for Student Night

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.

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

February's Where is this Rock?

My pictures from February were indeed, as Lisa Fisher wrote to me, of limonite concretions in the Lyons Sandstone: “Hey, I think I know this one - the Lyons SS, near Morrison. There is an outcrop above Red Rocks Elementary School parking lot with these iron concretions, is this where you took the photos?” (Forgive me if I missed anyone else’s reply—I think that Lisa’s was the only response I received this time.) I’m sure that similar concretions occur in many places in the Lyons; but my photos were not from the spot she suggested in Morrison; they were from the outcrop facing C-470, on the grounds of the Chieftain North clay mine, operated by General Shale Brick (formerly, Robinson Brick Co.). My belief has always been that such nodules were original pyrite concretions, oxidized to limonite. Some of my colleagues insist that these nodules must have originally been formed around organic fossil remains, pyritized, then oxidized. I’ve never been certain about the necessarily fossil origin—do some others of you have an opinion about that? --- Pete M.



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Where is this Rock? – *March*



Here is our guessing “rock” for the month. I’m sure some of you have seen this. What do you think—natural, human, or alien-created? Write to Pete Modreski, pmodreski@usgs.gov, if you think you know what/where this is.

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CALL FOR PAPERS

ABSTRACT DEADLINE: April 15, 2016

PETROLEUM HISTORY INSTITUTE 2016 ANNUAL SYMPOSIUM



Casper, Wyoming
“The Oil City”
July 28-31, 2016

REGISTRATION AND EVENING RECEPTION
Thursday, July 28th, 2016

PRESENTATIONS – ORAL AND POSTER
Friday, July 29th, 2016

Symposium Headquarters: the *Ramkota Hotel and Conference Center*, Casper
Proceedings to be published in the 2016 volume of *Oil-Industry History*

FIELD TRIP

Saturday July, 30th, 2016

Stops will include Teapot Dome, site of the 1920's Presidential scandal,
and the giant Salt Creek Field, discovered 1889

For symposium details, see: www.petroleumhistory.org

ABSTRACTS BEING ACCEPTED NOW

Please send abstracts to: Dr. William Brice - wbrice@pitt.edu
or call Marilyn Black – 814-677-3152 ext. 105]



Calendar of Coming Events

Wed., Mar. 16, 2:00 p.m., Earth Sciences Colloquium at the Denver Museum of Nature & Science, **Early Eocene primates and other mammals of western India**, by Ken Rose, Johns Hopkins Univ. VIP room; all are welcome, museum admission is not required. *****Please note the time change; this seminar will begin at 2:00 p.m., NOT at 3 p.m. as is usual for the series.**

Wed., Mar. 16, 7:00 p.m., **Invading the Globe: The Long Journey of Homo sapiens**, by Dr. Jamie Hodgkins, CU-Denver. An AIA (Archaeological Institute of America) lecture series program at the CU Museum of Natural History, Henderson Building, 15th & Broadway, Boulder CO. Free lecture, are welcome. See more at: <http://cumuseum.colorado.edu/events/64849> .

Thurs., Mar. 17, 7:00 p.m., Colorado Scientific Society meeting; **New Hominid Discoveries from South Africa, the ‘Cradle of Humankind’: The Anthropological Significance, the Cave Geology, and How Google Earth Contributed to the Discovery**, by Charles M. Musiba, Department of Anthropology, University of Colorado Denver. No charge, all are welcome; Shepherd of the Hills Presbyterian Church, 11500 W. 20th Ave., Lakewood CO.

Sun., Mar. 20, 11:00 a.m., monthly meeting of the Florissant Scientific Society, **“The Rise and Fall of the Rocky Mountains”**, led by Bob Hickey, meeting indoors at Mueller State Park (south of Divide, CO); with a noontime break to have lunch there. Suggested: in preparation for this talk, read Keith Heyer Meldahl’s book **Rough-Hewn Land: A Geological Journey from California to the Rocky Mountains**. Please see <http://www.fss-co.org/index.html> or contact Beth Simmons for details about the meeting.

Mon., Mar. 21, 11:30 a.m.-1:00 p.m., **Denver Mining Club** weekly luncheon meeting, **“Overview of the Leadville Gold and Silver Mill, Lake County, Colo.”**, by Nick Michael, Union Milling Co. At Golden Corral Buffet & Grill, 3677 South Santa Fe Dr., Sheridan, CO (southwest side of Santa Fe Dr. south of Hampden Ave.); all are welcome; purchase of buffet lunch is required. See www.denverminingclub.org .

Fri., Mar. 25, 3:00 p.m., Earth Sciences Colloquium at the Denver Museum of Nature & Science, **The beginning of the age of dinosaurs in the American west**, by Randy Irmis, Univ. of Utah. VIP Room; all are welcome, museum admission is not required.

Tues., Mar. 29, 5:30 p.m., Rocky Mountain Map Society monthly meeting, **"Marie Tharp, Illustrator of a Paradigm"**, by John Lindemann. Denver Public Library, Gates Room, Fifth Floor. “Marie Tharp’s 1977 image of the world’s ocean floor presented a view that earth scientists had never before seen – Earth with its oceans drained. Tharp’s image that evolved with plate tectonic thought provided the graphic synthesis that made plate tectonic theory the new reality. Her meticulous attention to detail, her tenacity of purpose, her geologic sense, and her artistic eye is made manifest by her near-iconic ocean floor image.”

“John Lindemann has been a professional geologist since his graduation from the Colorado School of Mines in the mid-1960’s. His experience in ore-deposit geology is world-wide. John is a Senior Fellow of the Geological Society of America and maintains professional registration through the American Association of Professional Geologists.”

Lecture & exhibit are free and open to the public. For more info about the meeting see <http://rmmaps.org/> Also see <http://blogs.agu.org/georneys/2010/12/24/a-famous-ocean-floor-map/> .

Apr. 1-3, 55th annual Fort Collins Rockhounds Gem and Mineral Show, at the McKee 4-H Building, Larimer County Fairgrounds, I-25 exit 259 (Loveland exit). 4-8 p.m. Fri., 9-6 Sat., 10-5 Sun. See <http://www.fortcollinsrockhounds.org/gemAndMineralShow.shtml> .

Fri., Apr. 8, 6:45 p.m., **North Jeffco Gem & Mineral Club Silent Auction**; APEX Community Recreation Center, 6842 Wadsworth Blvd, Arvada, CO. Public welcome; free parking, free admission, free refreshments, bake sale too. For more info call Bill Jones 303-503-6288 or email sidewindermin@comcast.net .

Thurs., Apr. 14, the **Colorado Scientific Society annual Past Presidents Dinner** (to honor & introduce past presidents of the society; anyone is welcome to attend) will be held at White Fence Farm, Lakewood, CO. The speaker will be Matt

Silverman, on “**Tempest at Teapot Dome, Wyoming: the Greatest Political Scandal in the History of the American Oil Industry**”. See <http://www.coloscisoc.org/> for more info.

Fri.-Sun. April 15-17, Rocky Mountain Gem and Mineral Show, to be held at Crown Plaza Hotel, 15500 E 40th Ave., Denver, CO (near DIA). 9 a.m. – 6 p.m. Fri. & Sat., 9 – 5 Sun. See <http://www.rockygems.com/april-mineral-show.html> for more info.

Tues., Apr. 26, 7:00 p.m., Colorado Scientific Society annual Emmons Lecture, “**The Quest for and Origin of the Only Known Natural Quasi-Crystal.**”, by Lincoln Hollister, Princeton University, Professor of Geosciences, Emeritus. To be held at the American Mountaineering Center, auditorium, 710 10th St., Golden, CO. No charge and all are welcome. See <http://www.coloscisoc.org/> for more info when it is available.

Sat.-Sun., Apr. 30-May 1, Colorado School of Mines Geology Museum, Rock, Mineral, Book, and Map “Garage Sale”, 9 a.m. – 4 p.m. each day, at the CSM Geology Museum, 13th and Maple Streets, Golden CO.

Sat., May 7, Colorado Mineral Society Silent and Verbal Auction, Holy Shepherd Lutheran Church, 920 Kipling Street, Lakewood, 11am-2:45pm (setup begins at 9am) More information at www.coloradomineralsociety.org.

Sat., May 14, 10 a.m. – 2 p.m., the first “**Dinosaur Discovery Day**” public guided tour day of the year at Dinosaur Ridge, featuring **Boy Scout Day** with special activity booths for scouts and all kids. Walking tours are free; \$4 to ride a guided tour bus to the opposite side of the Ridge (1.2 miles). Visitors Center at 16831 W. Alameda Parkway, Morrison, CO; for more information see www.dinoridge.org .

Sat., May 14, Friends of Mineralogy, Colorado Chapter, Silent Auction. Clements Community Center, 1580 Yarrow St., Lakewood CO, 12:00-4:00.

Coming up during the summer:

Sun., June 26, “Vince Matthews will lead a field trip to the Laramide fold structures along the northeastern flank of the Front Range uplift”. This geology field trip will take place through the informal geology group, the Florissant Scientific Society; see <http://www.fss-co.org/page3.html> for details about this and the group’s other planned meetings and field trips. This trip will leave at 7:30 a.m. from a Park-and-Ride along I-25 at the north end of Denver, and return at 6:30 p.m.

July 15-19, the “2nd Eugene E. Foord Symposium on Pegmatites, Golden Colorado” will take place on the CSM campus. There will be a welcoming reception, two days of oral and poster presentations, and two days of field trips to Colorado pegmatite localities. For further information see <http://www.colorado.edu/symposium/pegmatite/> or the Friends of the Colorado School of Mines Geology Museum page, <https://www.facebook.com/LikeCSMGeoMuseum/> . Pegmatite researchers from around the country and internationally are expected to attend, as well as local presenters. All interested persons are welcome.

July 28-31, Petroleum History Institute, Annual Symposium, “Casper, Wyoming, the Oil City”. For more information see www.petroleumhistory.org .

Special exhibits in 2016:

A new “**Critical Materials**” Exhibit in The Colorado School of Mines Geology Museum is now open. The exhibit highlights critical materials and rare-earth elements - including the minerals the 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. Mandi Hutchinson, graduate student at CSM, played a major role in planning and design of the exhibit. 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, near the Gift Shop.

Unearthed: Ancient Life in the Boulder Valley, at the at the University of Colorado Museum of Natural History (Henderson Building; in the Anthropology Hall), CU campus, Boulder, “This new exhibit features 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.” Open daily, no admission charge.

Western Museum of Mining & Industry, Colorado Springs: a new temporary exhibit opened in February, “**Cheyenne Mountain at 50: Military Icon, Engineering Marvel**”. See <http://www.wmmi.org> ./

For more lecture series during the year see:

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

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

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

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

Denver Region Exploration Geologists Society (DREGS; 1st 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, 3rd Tuesday, 5:30 p.m.), <http://rmmaps.org/>

Western Interior Paleontology Society (WIPS; Denver Museum of Nature & Science, 1st 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, cweisnberg@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@tablemtn.com



Colorado Scientific Society

Application and Membership Update Date _____ Dues and Funds Contributions

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: <i>Colorado Scientific Society</i>	Or register and pay on-line using PayPal at: http://www.coloscisoc.org/membership/duespaypal.htm
Send this form & your check to: Colorado Scientific Society P.O. Box 150495 Lakewood, CO 80215-0495	