

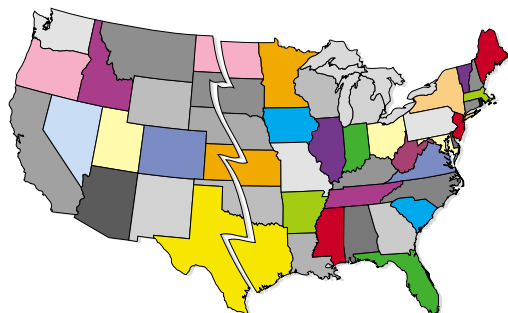
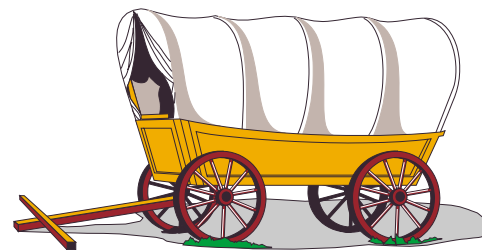


Colorado Scientific Society

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

“Risk in America: A historical perspective, and challenges for the public earth scientist”

*by Christine Turner
U.S. Geological Survey*



“National Seismic Hazard Maps”

*by Charles S. Mueller
U.S. Geological Survey*



Thursday, May 17, 2001

Colorado Mountaineering Center
710 10th Street (NE corner at Washington)
Golden, Colorado
Social half-hour – 7:00 pm
Meeting time – 7:30 pm



Risk in America: A historical perspective, and challenges for the public earth scientist

by Christine Turner, USGS

Pioneer literature and diaries are rife with examples of the kind of uncertainty and risk that were commonly accepted as part of everyday life a little over a century ago. We read these accounts and experience vicariously the sense of high adventure that accompanied the happenings of daily life in the American West. Similarly, the “western” movie genre is readily recognized as an idealized sense of the American experience. As a society, however, we lately have lost this acceptance of the inherent uncertainty of life and have moved toward the current situation where “zero risk” is desired in most aspects of our lives. We wish to be protected from the vicissitudes of nature. We want to be assured of “zero casualties” before we endorse declarations of war.

How does the public earth scientist respond to the current “risk averse” culture that we find ourselves in? Earth scientists are often more aware of the limits to their data and interpretations than potential users of the information. Our new understandings of complexity and interdependence give us a greater sense of humility as scientists, even as models get more “precise”. To secure public funding for our scientific research in the face of increased societal expectations, we are tempted to promise the outcome that the public seems to want from us—elimination of risk. Is it reasonable to make these assurances, or is it a potential set-up for failure and disappointment when the public discovers that we may not be able to live up to such promises? Is it in our purview as public earth scientists to help the public understand the limitations of science, or will that only encourage a decrease in funding, thus eliminating our chances to gain scientific understandings that would help us to at least mitigate against certain outcomes? Some would argue that this is the greatest challenge facing the earth scientist today as we are increasingly engaged in the public policy arena.



National Seismic Hazard Maps

by Charles S. Mueller, USGS

The U.S. Geological Survey has recently completed new seismic hazard maps of the United States. The maps depict probabilistic ground motions that are of interest to structural engineers: peak ground acceleration and spectral ground motion at periods of 0.2, 0.3, and 1.0 second for 10%, 5%, and 2% probabilities of exceedence in 50 years. Innovations in methodology include the direct use of historical seismicity (counted on a grid and smoothed), inclusion of more than 450 specific faults with geologically determined slip rates, and use of background zones based on broad geologic criteria to account for hazard in areas with seismic potential but little historic activity. Alternative models of seismic activity and ground-motion attenuation are accounted for in a logic-tree formalism. Engineering-design maps derived from the ground-motion maps are included in the 1997 National Earthquake Hazards Reduction Program Recommended Provisions for Seismic Regulations for New Buildings and underpin the year 2000 International Building Code.

A View Through the Brown Cloud



April showers bring May snowstorms...sigh...my lilac bushes are touching their toes thanks to this wet snow. Maybe it's Mother Nature's way of reminding me that I haven't touched my toes in years and it's practically bikini weather (at least it was yesterday). Aiyeeee! We won't even go there. Luckily I won't need to do much hiking on the CSS field trip to the Kemmerer fossil fish locality this August. I will definitely be there bashing on rocks and greedily packing away my treasures to be shown off at my office and home. *Share* a pallet? I don't *think* so!



Membership Renewals—2001

A third of the year has passed us by, and we've managed to whittle down the number of unpaid members to 65. That means about 300 of you have done the right thing and paid up for 2001, for which we are immensely grateful. However, if you haven't paid up yet, this may be your last Newsletter of the year.

If you are unsure as to whether or not you are in this elite corp of unpaid members, please look on the mailing label of your newsletter. The upper right-hand corner should say 2001-Reg (or Stu or Corr) if you are paid up. If it says 2000, you are in arrears, and we would appreciate prompt payment of your dues (Reg-\$15, Corresponding-\$10, Student-\$5). Dues payment forms can be downloaded from our website (<http://home.rmi.net/~css/join.html>).

Unpaid members receive newsletters through May; after that we turn up the heat and resort to dunning and public embarrassment as our tools.

Michael Machette, Treasurer

...Machette would like to close out the books because:



CSS Treasurer's Job Opening

One of the more important volunteer jobs in the Society is that of Treasurer. The Treasurer handles all money matters for the Society and makes sure the Society stays on an even financial keel. During the past decade, we've been lucky to have Don Nichols, Paul Williams, and Michael Machette serve as Treasurers. During this period, the Treasurer's records have been computerized, and Cyndi Rice (USGS) is now managing the member data.

After 6 years as Treasurer, Michael has indicated that he will step down this summer. The Society needs to find a responsible individual to handle the Society's fiscal affairs, hopefully for a period of several years. This individual needs access to a modern computer (Pentium or Power Mac), be able to operate Quicken (for banking), Excel (occasional spreadsheets), and MS Word (letters and Treasurer's reports). Michael estimates that the job only requires 1-2 hours/week in the slow months (April-November), but takes as much as 4-6 hours/week during the dues paying season. Much or all of this work could be done at home.

If you are interested in this high-status position or know someone that might be, please contact Michele Tuttle (303-236-1944, mtuttle@usgs.gov), sooner than later. Thanks.



Colorado Scientific Society Research Grants awarded for 2001

The Colorado Scientific Society Memorial Funds Committee, consisting of Bob Fleming, Scott Lundstrom, Bruce Bryant, and Mark Hudson (Chair), met April 17, 2001 to evaluate research proposals for the Tweto, Oriel, Eckel, Synder, and Pierce Funds. Proposals from 21 Ph.D. and M.S. candidates from 16 different universities throughout the United States were submitted. The total of 21 proposals was a decrease from the last year's 32 proposals, but all were of high quality.

In all, 11 grants totaling \$8775 were awarded from the Tweto, Oriel, Eckel, and Synder Funds. These included: two full and two partial awards, totaling \$3475, from the Tweto Fund for research in the Rocky Mountains; two full and two partial awards, totaling \$2300, from the Oriel Fund for research in the central and northern Rocky Mountains; two full and one partial award, totaling \$1700, from the Eckel Fund for research in Quaternary geology and economic geology; and one full and one partial award, totaling \$1300, from the Snyder Fund for research on Precambrian geology of the Rocky Mountains. No proposals for research on the Heart Mountain detachment were received this year so no Pierce Fund award was made. We are confident that these 11 funded research grants are of the highest quality and fulfill the intentions of the many donors to the Colorado Scientific Society Memorial Funds.

Richard S. Barclay, \$450–Tweto Fund, University of Florida, MS, “*Floral change and rates of recovery at a new K-T boundary section in the Denver basin of Colorado*”

Amanda B. Fisher, \$1000–Oriol Fund, Colorado State University, MS, “*Geometries and kinematics of Laramide basement-involved anticlines*”

Kurt L. Frankel, \$900–Tweto Fund, Lehigh University, MS, “*Post Laramide tectono-geomorphic evolution of Sierra Nacimiento, southern Rocky Mountains, New Mexico*”

Eric T. Goergen, \$875–Snyder Fund, University of Missouri, Columbia, MS, “*Evaluating the timing of Paleo-Proterozoic reworking of the SE margin of the Wyoming Archean province in the Laramie Range of southeastern Wyoming*”

Abby West Howell, \$1500–Tweto Fund, Colorado State University, MS, “*Paleozoic structures of the Sacramento Mountains, Otero County, New Mexico, and implications for Ancestral Rocky Mountain tectonics*”

Joseph P. Kopera, \$700–Snyder and Tweto Funds, University of Massachusetts, MS, “*Tectonic history of ~1.7 Ga quartzites in the southwest United States: an application of monazite dating with electron microprobe*”

Cristina Millan, \$700–Eckel Fund, Ohio State University, MS, “*Geology and origin of intrusion brecciation on Red Cone Peak, Park County, Colorado*”

Cornel Olariu, \$900–Oriol Fund, University of Texas, Dallas, MS, “*Study of “terminal” distributary channels from delta-front deposits, integrating outcrop data with GPR data, Panther Tongue sandstone, Utah*”

Cal Ruleman, \$650–Eckel and Oriol Funds, Montana State University, MS, “*Mid-Pleistocene to Holocene tectonic activity along the Madison Range fault, southwest Montana*” (2nd yr funding)

Zachary St. Jean, \$500–Tweto and Oriol Funds, Montana Tech, MS, “*Geologic mapping of Tertiary and Quaternary deposits in the Ruby Dam area, SW Montana*”

John G.V. Van Hoesen, \$600–Eckel Fund, University of Nevada, Las Vegas, Ph.D., “*The Paleoclimate and late Quaternary glacial chronology of Great Basin National Park, Nevada*”

Science Fair Winners

On Thursday, April 12, Tom Sutton, Andy Warnock, and I judged the projects in the Colorado State Science Fair and awarded 4 special prizes given yearly by the CSS.

The winner of the Senior Division \$100 prize was Christine Knoblauch, an 11th grader at Monte Vista High School. Her project titled “Whose fault is it anyway? The Alamosa River” showed that pollution in the Alamosa River comes not just from Summitville, but from several other tributaries draining other mining areas.

Second place in the Senior Division (\$75) went to Evan Burgess of Fairview High School whose project “Dating paleo-glaciers with a GIS-based analysis of moraine erosion” demonstrated that moraines around Fremont Lake, Wyoming, have age-related differences in topographic expression which can be quantified using a computer based system. This is the third consecutive Year that Evan has won a CSS award!

First place in the Junior Division (\$75) went to David Sumpter, an 8th Grader at Swink School. In his project “A study of earthquake potential in Southern Colorado,” David plotted known faults, potentially active faults, and the known stress field on a map along with epicenters of recorded earthquakes. He also found a remote potentially active fault in SE Colorado and photographed some of the evidence for this designation. The best Junior project I’ve seen in 4 years.

Second place in the Junior Division (\$50) went to Tyler M. Keck, a 7th grader at Monte Vista Middle School for his project, “Runaway water: does polyacrylamide help reduce soil erosion?” (Polyacrylamide is an additive placed in irrigation water).

Note that two of the four awards went to students from Monte Vista—population 4,130!

Chuck Weisenberg, CSS Science Fair Coordinator

...and a note from one of the winners:

Dear members of the CO Scientific Society,

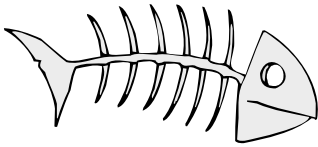
Thank you for the money. I plan to use the money for next years science fair project. This is a great thing you do for us.

Thank you,
David Sumpter
Swink School
La Junta, CO

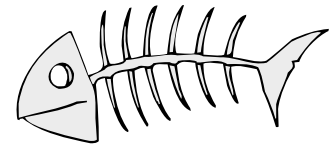


Editor’s note: I don’t know about you folks, but when reading the titles of the research grants and the science fair projects I felt encouraged to see that this type of work is being carried on by the next generation and with gusto! Please help us continue this tradition by your continued support to the memorial funds and by *paying your dues*. Pretty please? (oh and showing up for the talks would be nice...y’all missed two great talks last month!!)





2001 FIELD TRIPS

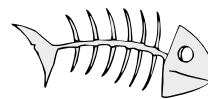


Well, there's good news and bad news. The bad news is that the proposed day trip to the Sweet Home Mine will have to be postponed indefinitely. I talked to Brian Lees and he said that the mine geologist that gives the tours isn't available this spring and he doesn't know when he will become available. I'll keep in touch with him and perhaps we can schedule the trip later this summer.

The good news is that our trip to the Wyoming fossil fish locality near Kemmerer is ON. This will be a 3-day trip on August 17-19. We are scheduled to tour the fossil fish quarry on the morning of the 18th. The cost of the tour is \$65 and includes a pallet of rocks that are guaranteed to contain 8-10 fossil fish. This cost may be split between two people who will then share the pallet. Transportation to and from the quarry is included along with instruction and tools for splitting the rocks. People will be there to explain the types and species of fish that can be found and help identify the fish from your pallet. Other details of the trip will be forthcoming as we get our stops and leaders arranged. Some of the possible stops we could make are at the new nahcolite (NaHCO₃) mine, oil shale areas and the Ranglely oil field, and Dinosaur National Monument. I also plan to pass through the Snowy Range/Medicine Bow Mts., either on the way up or on the way back, depending on scheduling. It's not too early to plan for this trip so let me know if you are interested. Projected cost for the trip is about \$230 plus the \$65/32.50 for the quarry. This would include 2 nights lodging (shared), meals, and transportation. If some of you would like to do the fossil fish quarry, but not the rest of the trip, we could arrange to meet up with you on Sat. morning, August 18. If this appeals to you, let me know and we can work out the details

We really need some leaders for this trip. If anyone has knowledge of the field trip areas and is interested in going on the trip, please let me know as soon as you can.

I'm still hopeful for a spring trip in late May or early June. A tour of the Lyons Quarry with a discussion of the stratigraphy and depositional environments of the area is under consideration and I am trying to arrange for a leader and permission to go into the quarry.



Sherm Marsh
spmarsh2@home.com
Tel: 303-986-0939
Fax: 303-986-5433



Wanted:

Newsy and nosy notes for our Highlights column.

Have you moved from the Denver area but would like to let your friends in the Society know what you're up to? Do you have a hobby you'd like to tell us about? Have you retired to the good life and want to rub our noses in it? Here's your chance!

Please submit articles to Lisa Bader, lbader@usgs.gov, or USGS, Box 25046, ms 980, DFC, Denver, CO 80225. Thanks and I look forward to hearing from you.





Earth Science Meetings and Talks

Newsletter items must be received by the 4th of each month. This may include special events, open houses, etc...thanks!



Colorado Scientific Society's regular meetings are held the third Thursday of the month at the Colorado Mountaineering Center in Golden (unless otherwise advertised). Social time begins at 7:00 p.m. and talks start at 7:30 p.m. For info., contact Michele Tuttle at (303) 236-1944 or mtuttle@usgs.gov

Colorado School of Mines Lectures For Heiland Lectures at 4:00 p.m. on Fridays, contact Michelle Szobody (303) 273-3451. For Van Tuyl Lectures at 4:30 p.m. on Thursdays, call the Dept. of Geology at (303) 273-3800.

Denver International Petroleum Society (DIPS) meets the 2nd Friday of each month at the Wynkoop Brewing Co., 18th and Wynkoop Sts. Reception begins at 11:30 a.m., lunch at 12 p.m., program at 12:30 p.m. Make reservations (required) by leaving message at (303) 623-5396. Reservations accepted after 8 a.m. on Friday until 10:30 a.m. on Wednesday prior to the meeting. Cancellations accepted until 11:00 am Wed. prior to the meeting. Cost: \$15 for lunches; talk only is available for \$2 (make checks payable to "D.I.P.S."). Contact Keith Murray at (303) 986-8554 for information.

Denver Mining Club meets every Thursday (except when noted) at Country Harvest Buffet at Villa Italia, 7200 W. Alameda Ave., Lakewood, 11:30 a.m.–1:00 p.m. **May 10 Jim Piper**, Geologist, Piper Geo-Computing, Inc., *Geographic Information Systems in Borate Exploration: A Case Study at "Old Borate"*; **May 17 Jim Brierley**, Biohydrometallurgical Consultant, *Commercial Applications of Biotechnology in the Mining Industry*; **May 24 Barbara Filas**, V.P. Mining and Environment, Knight Piesold Services, *World Bank Group Policies and Guidelines (Did Someone Move the Goalposts?)*; **May 31 Grigori Abramov**, President, Borehole Mining International, Inc., *Introducing Borehole Mining—An Array of Applications*.

Denver Region Exploration Geologists' Society (DREGS) meets in the Consolidated Mutual Water Company Building, 12700 West 27th Avenue, Lakewood. Social hour 6:00-7:00 p.m. Technical presentation at 7:00 p.m. Meetings are normally scheduled for the first Monday of each month. For info. contact Jim Piper, (303) 932-0134, or the website <http://www.dregs.org>.

Denver Well Logging Society (DWLS) meets on the third Tuesday of each month, Sept. through May. Lunch and a technical talk at the Wynkoop Brewery begins at 11:30 a.m., 18th and Wynkoop Sts. in Denver. Subject matter usually deals with the application of well logs to oil and gas exploration. Call Elice Wickham at 303-573-2781 for reservations. Web page: <http://dwls.spwla.org>

Rocky Mountain Association of Geologists (RMAG) Reception at 11:30 a.m., lunch at 12:00 p.m., talk at 12:25 p.m. Reservations taken by recording at 303-623-5396 until 10:30 a.m., Wed. before the luncheon. Cancellations are taken until 11:00 a.m. on Wed. at 303-573-8621. Luncheon cost is \$20 payable to RMAG at the door. Reservations are not required for talk only---cost is \$3. Meeting location: Denver Petroleum Club, Anaconda Tower, 555-17th St., 37th floor.

USGS Geologic Division Colloquium Thursdays, 1:30 p.m., Foord Rm., Building 20, Denver Federal Center. **May 10 Terry Boyle (USGS)** *Assessing Land-Use Threats to Stream Ecosystems Using GIS-Based Risk Analysis*; **May 17 Ron Beck (USGS-EROS Data Center)** *Landsat 7: An Important Data Source and a USGS Success Story*; **May 24 Lisa Doner (USGS)** *Reconstructing Late Holocene Climates from Lake Sediments*. For information call Pat Poole at 303-236-5438, or email: ppoole@usgs.gov

University of Colorado at Boulder, Geological Sciences Colloquium Wednesdays, 4:00-5:30 p.m., Rm. 180. Refreshments at 3:30 p.m. on the 3rd floor. For info., call 303-492-8141.

University of Northern Colorado, Greeley, Earth Science Seminar Fridays, 4:00-5:00 p.m., Ross Hall, Rm. 3310. For a schedule, call UNC Dept. of Earth Sciences: 970-351-2647.



Colorado Scientific Society
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Lakewood, CO 80215-0495

<http://shell.rmi.net/~css/>



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