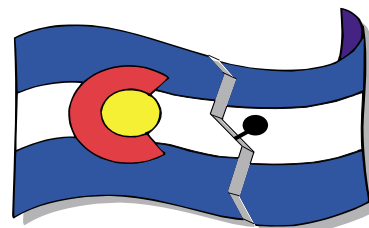


## Colorado Scientific Society

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

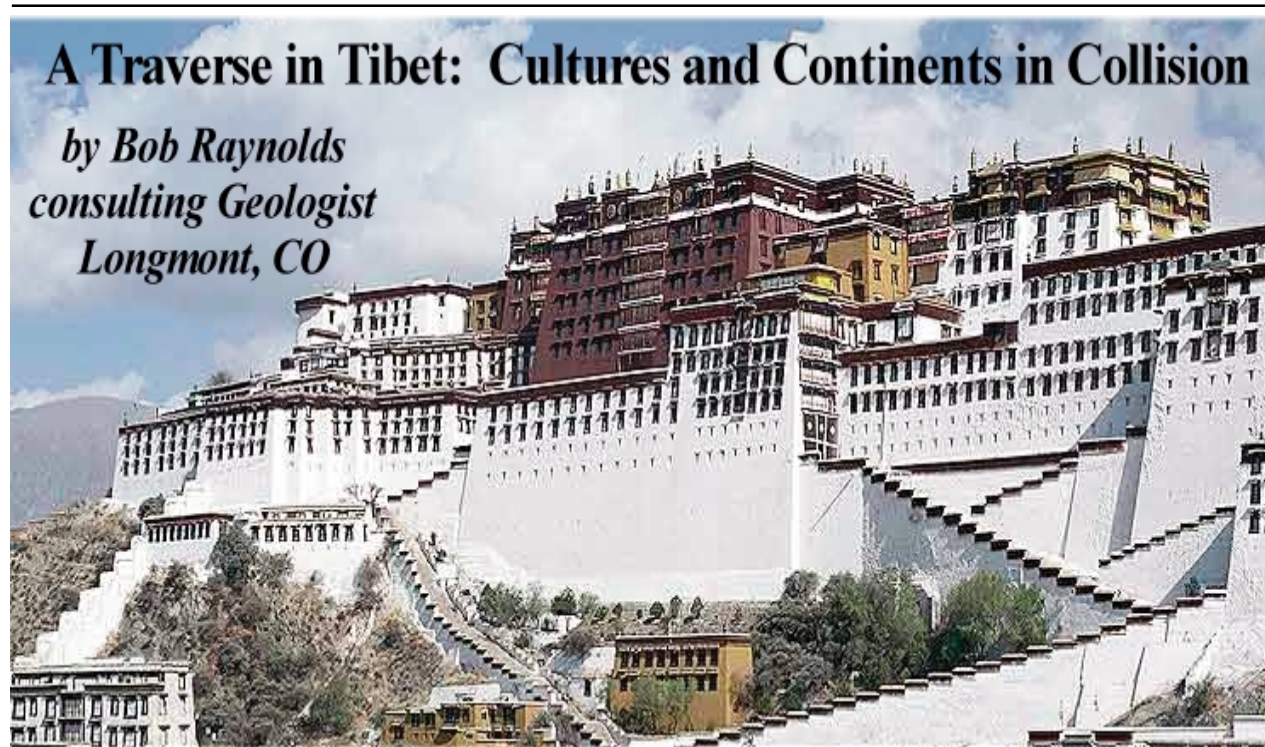
### “Should We Be Concerned About Earthquakes in Colorado?”

*by Vince Matthews  
Senior Science Advisor  
Colorado Geological Survey  
Denver, Colorado*



### A Traverse in Tibet: Cultures and Continents in Collision

*by Bob Raynolds  
consulting Geologist  
Longmont, CO*



Thursday, January 17, 2002

Colorado Mountaineering Center  
710 10th Street (NE corner with Washington)

Golden, Colorado

Social half-hour – 7:00 pm

Meeting time – 7:30 pm



### **Should We Be Concerned About Earthquakes in Colorado?**

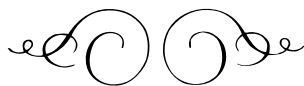
*Vince Matthews, Senior Science Advisor, Colorado Geological Survey, Denver, Colorado*

In general, Colorado is not considered to be at risk from significant earthquake damage. The state is ranked 30th in the nation in terms of Annualized Earthquake Losses by the Federal Emergency Management Agency and Denver is rated by the USGS National Seismic Hazard maps as having about the same seismic risk as Atlanta, Georgia. However, a growing body of data suggests that Colorado may be at greater risk than previously recognized. Colorado has the second largest heat flow anomaly in the North American continent, fifty-nine peaks over 14,000 feet in elevation, and extensive Neogene deformation indicating an active tectonic province. The catalog of Quaternary faults has steadily increased from none in 1960 to nearly ninety in 1998 with many areas of the state unexamined. The large 1882 earthquake has been definitively located in the northern Front Range. Studies of Quaternary faults in Colorado have resulted in thirteen faults being assigned a “maximum credible earthquake” >Mw 6.25 and as high as Mw 7.5. With Colorado’s rapidly growing population (3rd fastest in the nation) significant, additional research needs to be directed toward Colorado’s earthquake hazard.

### **A Traverse in Tibet: Cultures and Continents in Collision**

*Bob Raynolds, Consulting Geologist, Longmont, Colorado*

The dramatic effects of plate tectonics have given us the topographic features of the Himalayan mountain front and the Tibetan plateau. Huge thrust faults carry delaminated continental crust and associated passive margin sediments up and southwards across the northern fringe of India. The suture zone marking the vanished Tethys Seaway is defined by ophiolites and deep-sea trench sediments that now lie exposed to the sun on the Tibetan Plateau. Confrontations of similar magnitude exist between cultures in Asia and Western life-styles, contrasting worlds brought increasingly into contact by the efficiency of communication and ease of travel. This talk will examine some of the manifestations of both styles of collision. The future behavior of the plates may be the easier of the two outcomes to predict.



### **Election Results**

The annual CSS business meeting in December 2001 was relatively well attended, and Michele Tuttle’s presidential address on the catastrophic CO<sub>2</sub> release from Lake Nyos in Africa was very excellent and well received. I would like to congratulate those new officers, councilors, and chairpersons who were elected and appointed at the meeting: Jim Cappa, President-elect; Don Sweetkind, Treasurer; Lisa Finiol, Secretary; Jim White and John McCray, Councilors; Emmett Evanoff, Field Trip chair; Donna Anderson, Program chair; Mearl Webb, Publicity chair. I would like to thank all who serve the society for their volunteer work.

**Next Month: February 21<sup>st</sup>, 2002**

---

The Annual Emmons Lecture will feature a tectonics legend

## **Transtension in Arcs and Orogens**



**John F. Dewey**

**Department of Geology, University of California at Davis**

Metals Hall at the Green Center on CSM campus

Social time 7:30

Meeting time 8:00

Preview an abstract at <http://garnet.geosc.uh.edu/sherriflecture/overview.htm>

## **A Note from the President**

*Eric Nelson, President, Colorado Scientific Society*

I have just completed reviewing a new book, designed for a relatively non-technical audience, titled "Messages in Stone, Colorado's Amazing Geology". It is to be published by Colorado Geological Survey as Special Publication 77, and is being edited by Vince Matthews (one of our new CSS Councilors!), Katie KellerLynn, and Betty Fox. The book is full of beautiful photographs of spectacular scenery and geological features, many of world-class, textbook examples. Having lived in Colorado for 21 years, I thought I was fully aware of just how great the geology and the derivative scenery are in our wonderful state, but my eyes have been opened wider with this book. It also made me realize that, although I co-led a CSS field trip a number of years ago in the Mt. Aetna cauldron region of the Sawatch Range, I have missed quite a few CSS field trips over the years. I have



had some relatively good excuses for missed trips, but I am sure I used the "I'm too busy" excuse all too often. This year we have a new field trip chairperson, Emmett Evanoff, and I look forward to some exciting CSS field trips coming up. I hope other CSS members will read the new CGS book when it becomes available and will become inspired to get involved with CSS field trips.

On another note, I would like to encourage all CSS members not to miss this year's Emmons Lecture. We are extremely fortunate to have John Dewey scheduled to talk on "Transtension in Arcs and Orogens." To those at all interested in how plate tectonics theory evolved in the past 30 years to bind many natural systems disciplines together, John is what I term a "tectonics legend," and I know he will entertain us with his brilliant speaking style.

Regarding other society happenings, our first council meeting of the year is scheduled in January, and I hope to kick off a number of initiatives, including a membership drive (all CSS members will be asked to knock on their work neighbors door with a smile and a CSS pamphlet!), a redesign of the newsletter, and a drive to save newsletter postage through more e-mailings. The geological roadsign initiative is under way with the help of a number of members. I hope 2002 will be a successful year for CSS, and I look forward to seeing all of you at the monthly meetings.

The following item recently came across my e-desk. Because so many CSS members are involved with geoscience research programs, at USGS and elsewhere, I felt that this would make an interesting topic of conversation at Society meetings! The original article was prepared by Margaret A. Baker and David Applegate, AGI Government Affairs Program; their sources include the Baltimore Sun, New York Times, Science, and the Washington Post. This version has been shortened because of space limitations.

---

---

## **OMB Proposes Transfer of Research Programs to NSF**

IN A NUTSHELL: According to press reports, the White House Office of Management and Budget (OMB) plans to use the upcoming fiscal year (FY) 2003 budget request to transfer research programs and facilities at EPA, NOAA, the Smithsonian Institution, and the U.S. Geological Survey to the National Science Foundation (NSF). In a recent speech, OMB Director Mitchell Daniels praised NSF as a model agency. Although the transfers are being presented as a reward for NSF, critics have questioned the appropriateness of the transfer given the targeted, applied nature of many of these programs and the effect that the transfer would have on the programs themselves. The administration's budget request will be released on February 4th, beginning the congressional appropriations cycle. Preliminary indications suggest that Congress may not support the transfers.

The president's FY2003 budget request is due out on February 4th. The development of that budget has been underway for months within the administration in a process orchestrated by OMB. The release of the request marks the beginning of the congressional appropriations process, the second half of the budget cycle. It is the congressional process that gets all the attention because Congress does much of its budgetary work in the public eye with open hearings and widely released bill versions full of specific numbers.

In contrast, the development of the administration's request — a tortuous process with negotiations between agencies, departments, OMB, and other White House offices — is confidential until the February release. Federal agencies initially provide OMB with a budget draft based on OMB-set guidelines. OMB then "passes back" a revised budget at which point agencies have an opportunity to make an appeal before OMB gives them their final pass back. For FY 2003, the final pass back took place December 20th, and the budget request is not expected to change much before its release.

The confidentiality of the OMB process is not airtight, and word tends to leak out when



specific agencies or programs are threatened. This year, the veil of secrecy surrounding the budget request has been drawn back by a series of recent reports in Science, The Baltimore Sun, The Washington Post, and The New York Times describing planned transfers of science programs from four separate federal agencies to the National Science Foundation (NSF).

President Bush and OMB Director Daniels have made it clear that the FY 2003 budget will boost activities related to national security at the expense of other federal programs. It has been less clear what that means for science agency budgets. A positive sign for NSF came last month when Daniels gave a laudatory speech at the National Press Club, citing the foundation as an excellent federal program and noting that NSF allocated more than 95 percent of its funding "on a competitive basis directly to researchers pursuing the frontiers of science" with "a very low overhead cost."

The journal Science reports that OMB is turning words into action by providing a 4 to 5 percent increase for NSF (\$190 to \$240 million) in the FY 2003 request. The bulk of that increase, however, would not be new money but rather transfers of programs from other agencies: EPA's Science to Achieve Results (STAR) grant and fellowship program (\$19 million), NOAA's Sea Grant program (\$57 million), the U.S. Geological Survey's (USGS) national water research program (\$10 million), and the base funding for three Smithsonian Institution research facilities (\$36 million).

Most of the press attention has focused on the Smithsonian research centers: the Harvard-Smithsonian Center for Astrophysics; the Smithsonian Environmental Research Center (SERC) in Maryland; and the Smithsonian Tropical Research Institute (STRI) in Panama. The OMB proposal would transfer the centers' operating budgets — which pay for facilities, maintenance, and salaries — to NSF for distribution as grants. Although the three centers primarily focus on biological and astronomical research, all have earth science programs and employ a number of geoscientists. According to an OMB official quoted in the New York Times, the reason for the transfer is simple: "NSF doesn't do museums and possibly the Smithsonian ought not to be dabbling in random research."

Although EPA's STAR funds university research, the program is considerably more targeted than one finds at NSF, reflecting the program's purpose of providing EPA with research results that address the agency's regulatory decision making needs. In contrast to the external nature of both Sea Grant and STAR, the USGS National (Water) Research Program conducts in-house "basic and problem oriented hydrologic research in support of the mission of the U.S. Geological Survey... Through the years, many of the Geological Survey's major research and resource assessment initiatives related to existing and emerging national water-resources problems had their origins" in this long-term research program.

In an effort to dissuade OMB, the American Institute of Biological Sciences is collecting signatures for a joint letter opposing the transfers, and similar letters have already been sent by the American Association of Museums and the Maryland congressional delegation. According to the Washington Post, OMB has already rejected the Smithsonian's final appeal, meaning that the transfers will appear in the president's request. But the request is just the start of the congressional process, and at the present time it appears highly unlikely that Congress will support the transfers.

Both the Smithsonian and USGS are funded as part of the Interior and Related Agencies appropriations bill, whereas NSF (along with EPA) is funded within the VA, HUD & Independent Agencies bill. In general, the subcommittees handling the individual appropriations bills do not like to turn over programs (and hence money) under their jurisdiction to other subcommittees.

Appropriations staff have also expressed opposition to the transfer of the USGS water research program, noting the mission incompatibility of the highly targeted, mission-supporting USGS research with the fundamental research supported by NSF. It is less clear how Congress would react to the Sea Grant transfer, which would also cross appropriations bills since NOAA is funded within the Commerce, Justice, State, and the Judiciary bill. From a logistical standpoint, the EPA STAR program would be the easiest to transfer since both NSF and EPA are funded by the same bill. But as noted above, the STAR's purpose is to fund applied research that supports EPA's mission. As with the USGS, Congress may find the targeted nature of STAR research to be incompatible with NSF's mandate.





## *A View Through the Brown Cloud*

by Lisa Ramirez Bader

Happy New Year! It's 2002 and not a moment too soon 2001 was getting muy expensivo. The decadal decision of whether to replace the engine or buy a new truck was easily but expensively decided. I adore my '89 Bronco, a.k.a. GEOKTY, and modern cars leave me cold. Whatever happened to American know-how and imagination? Talk about vanilla! All these jelly bean-shaped sedans make me nauseous, soccer-mom vans are OUT, most trucks look like they're on steroids, and I leave the tiny sports cars to my nimble middle-age-crisis pals. It definitely was a no brainer to spend \$6K on a new engine rather than \$35K on a 4-wheeled clone. Charge It! Besides, 6000 King Sooper points is nothing to sneeze at. Yes, interest rates are low, I could have bought something "economical," but I can't get excited over these Y2K chariots, although a purse-sized commuter car may be my next purchase. Two "greenies" have caught my eye: the Honda Insight and the Toyota Prius, electric/gas hybrids. I m sure this sends a shudder through the bituminous souls of my petroleum cohorts, but it's time to wake up and smell the ozone and truly move into the 21<sup>st</sup> Century by embracing alternative energy. Can you say "tax-break"? I can!



## 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 3<sup>rd</sup> 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 Eric Nelson at (303) 273-3811, [enelson@mines.edu](mailto:enelson@mines.edu)

**USGS Geologic Division Colloquium** Thursdays, 1:30 p.m., Foord Rm., Building 20, entrance W3, Denver Federal Center. For information call Laura Strickland at 303-236-5302, or email: [lstrickland@usgs.gov](mailto:lstrickland@usgs.gov) Call for cyber talk info. **January 10**, Jerry Leenheer (USGS/WRD), Biogeochemistry of Soil-Aquifer Treatment of Various Wastewaters. **January 17**, Craig Johnson (USGS/GD/Crustal Imaging and Characterization), Cyanide use in the processing of gold ores: USGS efforts to assess environmental risks. **January 24**, Ralph Root (USGS/NMD), Comparisons of orbital and aircraft hyperspectral systems for classification and mapping of invasive leafy spurge in southwestern North Dakota.

**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.

**Colorado State University Geology Lectures** Mondays, 4:10 p.m., room 316 of the Natural Resources Bldg. Call the Dept. of Earth Resources at (970) 491-5661 for details, or go to: <http://www.cnr.colostate.edu/ER/> (main page, click *seminars*).

**Denver International Petroleum Society (DIPS)** meets the 2<sup>nd</sup> Friday of each month at the



Wynkoop Brewing Co., 18<sup>th</sup> 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 a.m. 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. **January 3** Peter J. Modreski, Geologist, U.S. Geological Survey. Colorado-Wyoming State Line Diamond Deposits. **January 10** Robert Bassett, Attorney, Dorsey and Whitney, Denver. New Coal Mining Opportunities in Colorado: The Lorencito Project. **January 17** Ed Raines, Vice-President, Clear Creek County Metal Mining Association. How I Spent My Vacation: In Search of Cornwall's Mining Past. **January 24** Peter A. Howie, PhD Candidate, Mineral Economics, Colorado School of Mines. Mineral and Metal Prices: Mechanisms, Instability and Trends. **January 31** G. M. L. Robinson, Senior Project Director, Environmental Strategies Corp., Denver. The Mystery of Summitville: Where Did All the Money Go? 303-492-8141.

**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>. **January 14**, Dr. Holly Stein, AIRIE Program, Colorado State University, Re-Os Dating: Ore Geology and Beyond.

**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>

**Friends of Dinosaur Ridge and the Morrison Natural History Museum** 7:00 p.m. at Red Rocks Elementary School at the west end of Morrison. **January 10**, Tracking Dinosaurs in China & A Tracker Looks at Evolution by Dr. Martin Lockley, Geology Professor at the University of Colorado — Denver **February 12**, Junk Science and How to Recognize It, by Jeff Stephenson, Educations Collections Manager, Denver Museum of Nature and Science. Call 303-697-DINO for more information.

**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, 555-17<sup>th</sup> St., 37th floor. **January 18**, Petroleum Industry Perspective 2002: Outlook on O&G Supplies, Demand and Prices. Pete Stark.

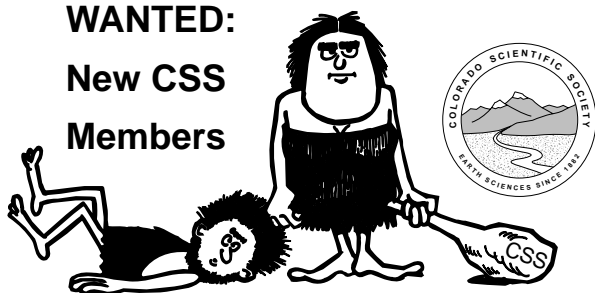
**University of Colorado at Boulder, Geological Sciences Colloquium** Wednesdays, 4:00-5:30 p.m., Rm. 180. Refreshments at 3:30 p.m. on the 3rd floor. For info., call 303-492-8141. Web page: <http://www.colorado.edu/GeolSci/hotlist.html>. **January 16**, Coda Wave Interferometry and applications to geotechnical, hazard, and hydrocarbon reservoir monitoring by Roelof Kees Snieder, CSM. **January 23**, The subduction squeegee: Fluid pressure and flow in accretionary prisms by Barbara Bekins, USGS. **January 30**, High surfaces, glacial troughs and strath terraces: Late Cenozoic evolution of the Laramide ranges and adjacent basins by Bob Anderson, University of California Santa Cruz.

**For a constantly updated, online geo-calendar, visit the Colorado Geological Survey at:**  
[http://geosurvey.state.co.us/pubs/outreach\\_cal/GEOCALENDAR.htm](http://geosurvey.state.co.us/pubs/outreach_cal/GEOCALENDAR.htm)

Colorado Scientific Society  
P.O. Box 150495  
Lakewood, CO 80215-0495

<http://www.coloscisoc.org>

**WANTED:  
New CSS  
Members**



## Colorado Scientific Society Officers, Councilors, and Chairpersons

### OFFICERS

President: Eric Nelson, CSM, 273-3811, [enelson@mines.edu](mailto:enelson@mines.edu)  
President-Elect: Jim Cappa, CGS, 866-3293, [jim.cappa@state.co.us](mailto:jim.cappa@state.co.us)  
Treasurer: Don Sweetkind, USGS, 236-1828, [dsweetkind@usgs.gov](mailto:dsweetkind@usgs.gov)  
Secretary: Lisa Finiol, CSM, 567-2403, [lfiniol@mines.edu](mailto:lfiniol@mines.edu)  
Past President: Michele Tuttle, USGS, 236-1944, [mtuttle@usgs.gov](mailto:mtuttle@usgs.gov)

### COUNCILORS

2000-2002: Bob Fleming, USGS, 279-8122, [juvafleming@msn.com](mailto:juvafleming@msn.com)  
2000-2002: Scott Lundstrom, USGS, 236-7944, [slundst@usgs.gov](mailto:slundst@usgs.gov)  
2001-2003: Graham Closs, CSM, 273-3856, [lcloss@mines.edu](mailto:lcloss@mines.edu)  
2001-2003: Parker Calkin, UCB, 442-2184, [calkin@spot.colorado.edu](mailto:calkin@spot.colorado.edu)  
2002-2004: Jim White, UCB, 492-5494, [jwhite@colorado.edu](mailto:jwhite@colorado.edu)  
2002-2004: John McCray, CSM, 384-2181, [jmccray@mines.edu](mailto:jmccray@mines.edu)

### COMMITTEE CHAIRPERSONS

Best Paper Award: Mark Hudson, USGS, 236-7446, [mhudson@usgs.gov](mailto:mhudson@usgs.gov)  
Database Manager: Cynthia Rice, USGS, 236-1989, [crice@usgs.gov](mailto:crice@usgs.gov)  
Field Trips: Emmett Evanoff, UCB, 492-8069, [evanoff@colorado.edu](mailto:evanoff@colorado.edu)  
Graphics: Lee-Ann Bradley, USGS, 273-8613, [bradley@usgs.gov](mailto:bradley@usgs.gov)  
History: Marjorie E. MacLachlan, USGS-retired, 986-7192  
Membership: Jim Yount, USGS, 236-5397, [jyount@usgs.gov](mailto:jyount@usgs.gov)  
Memorial Funds: Michele Tuttle, USGS, 236-1944, [mtuttle@usgs.gov](mailto:mtuttle@usgs.gov)  
Newsletter Editor: Van Williams, USGS, 236-1289, [vwilliam@usgs.gov](mailto:vwilliam@usgs.gov)  
    Assoc. Editor: Scott Minor, USGS, 236-0303, [sminor@usgs.gov](mailto:sminor@usgs.gov)  
    Assoc. Editor: Mary-Margaret Coates, TECH Edit, 422-8349, [mmcoates@worldnet.att.net](mailto:mmcoates@worldnet.att.net)  
    Assoc. Editor: Vince Matthews, CGS, 866-3028, [vince.matthews@state.co.us](mailto:vince.matthews@state.co.us)  
Outreach: Paul Belanger, Thomasson, 436-1930, [p.belanger@att.net](mailto:p.belanger@att.net)  
Program: Donna Anderson, CSM, 273-3883, [dsanders@mines.edu](mailto:dsanders@mines.edu)  
Publicity: Mearl Webb, 810-1296, [mearlwebb@qwest.net](mailto:mearlwebb@qwest.net)  
Science Fair: Chuck Weisenberg, 238-8806, [cweisnbrg@aol.com](mailto:cweisnbrg@aol.com)  
Webmaster: Bill Wingle, 303-279-1290, [wwingle@uncert.com](mailto:wwingle@uncert.com)



**\*\* STOP!** Don't recycle this until after the talk! Please help us with publicity by posting at least the front page of this Newsletter on a bulletin board. *Thank you!!*