



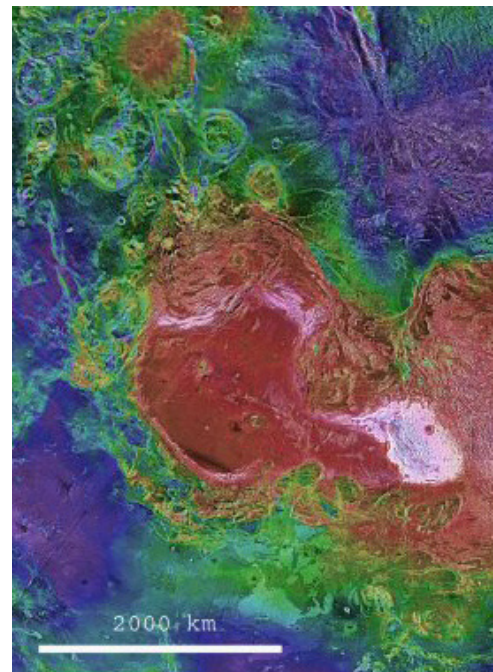
Colorado Scientific Society

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

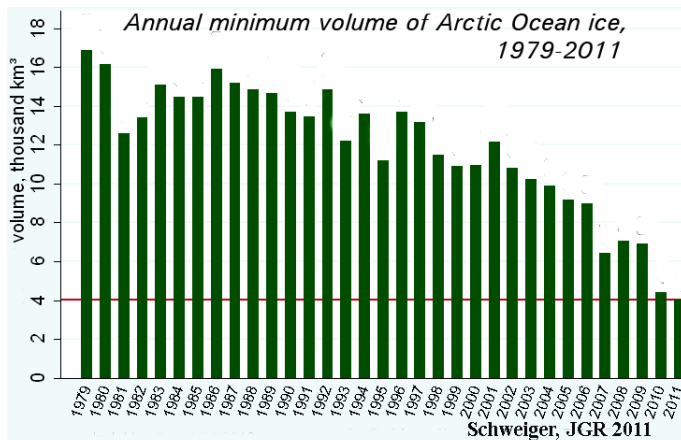
TWO talks by: Warren Hamilton
Distinguished Senior Scientist
Department of Geophysics,
Colorado School of Mines

Talk #1:

**The Ancient Surface of Venus is
Saturated with Impact Structures,
and its Lowlands are Covered
with Marine Sediments**



“The Arctic Ocean will soon be ice-free in late summer. The rapid exponential decrease is a cascading effect of positive feedback.”



Talk #2:
**Anthropogenic Global
Climate Change**

**NOT
Wednesday!!**

Thursday, May 17, 2012

Shepherd of the Hills Presbyterian Church

20th Ave. at Simms St., Lakewood

Social half-hour—6:30 p.m. Meeting time—7:00 p.m.

**SAME
LOCATION!!**

May Abstracts

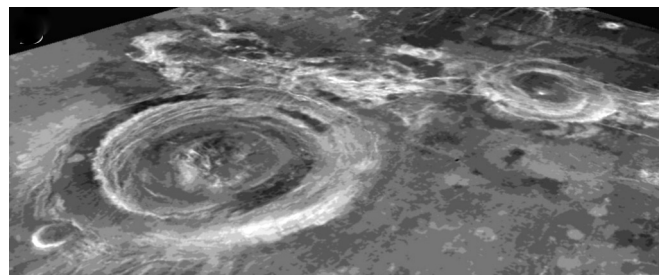
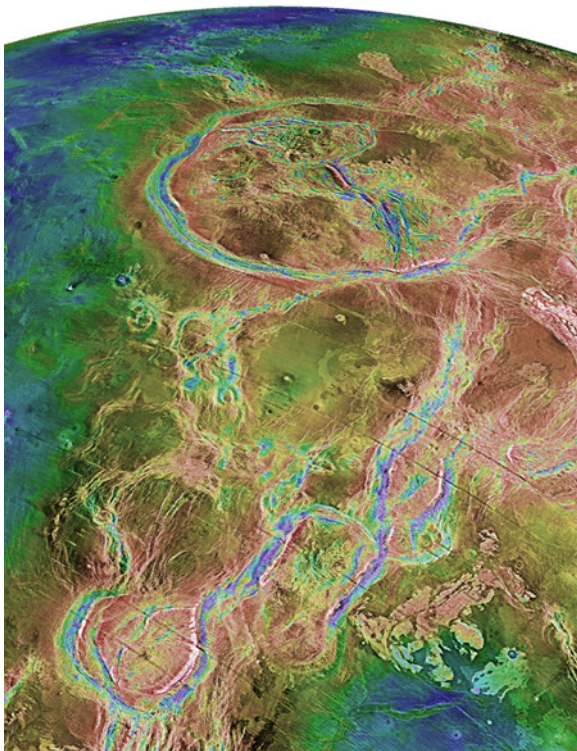
Two talks by:

Warren Hamilton
Distinguished Senior Scientist
Department of Geophysics, Colorado School of Mines

The Ancient Surface of Venus is Saturated with Impact Structures, and its Lowlands are Covered with Marine Sediments

Radar imagery of Venus shows thousands of rimmed circular depressions, up to 2,000 km in inside-rim diameter, that saturate both highlands and lowlands, have apparent impact morphology, and must be mostly older than 3.9 Ga if indeed impact structures. Conventional wisdom force-fits interpretations to the incompatible assumption that the

planet is too active internally to preserve an ancient landscape, ignores most of the large circular structures, and assigns those that are considered to young and diverse, up and down “plumes” of “unique to Venus” types. Imagery and geodesy falsify these popular assumptions. There is broad overlap in degree of modification between the 1,000 variably-modified small craters accepted by all as “young” impacts, and the far more numerous and mostly larger and older circular structures. Purported evidence for terrestrial plumes has all been disproved, so there is no earthly basis for export of plume fantasies to another planet. Venusian plains display abundant sedimentary features, but no igneous ones despite their popular designation as flood basalts. The sediments variably bury terrain-saturating and water-re-worked impact structures, and are compacted into them.



Anthropogenic Global Climate Change

Strong evidence supports the scientific consensus that greenhouse gases and other human-generated pollutants are affecting global climate, most conspicuously by warming. Diverse and interlocking evidence from atmosphere, cryosphere, and hydrosphere will be summarized. Interactions have been complex, non-linear, and include cascading feedbacks. The large amount of heat going to high latitudes, and the large temporal variations in partitioning between air and water, have been major surprises. Extrapolations and predictions are highly uncertain, and whether or not threshold and runaway effects will be severely damaging is unclear. Ideological and economic campaigns of anti-science disinformation and defamation have contributed much to the gridlock that now precludes rational political discussion of the issues.

Warren Hamilton moved to the Colorado School of Mines after a long USGS research career. Membership in the National Academy of Sciences, the Penrose Medal of the Geological Society of America, and the Distinguished Service Medal of the U.S. Department of the Interior are among his many research honors. His current work focuses on changing terrestrial tectonics and geodynamics through time, the mechanism of plate tectonics, and Venus.

President's Message, by Pete Modreski



LAST CHANCE... to visit the Dinosaur Tracks Museum in Denver!

As was mentioned in last month's newsletter, the CU Dinosaur Tracks Museum on the Auraria Campus will close permanently after the end of this month. The earlier target date for closing was May 10, but Martin Lockley informs us that the Museum will probably remain open most days (hours are noon to 5:00 p.m., Mon.–Thurs.) through the end of May. I encourage you to go see the museum if you have a chance, and if this is of interest to you—it's really quite a "museum" and one can learn a lot about the paleontology of dinosaur (and many other) animal footprints, and "feet" too for that matter. The museum is located in the basement of the St. Cajetan's building on the Auraria Campus.

Admission is free. To confirm that the museum will be open when you try to visit, call Karen Houck at the museum office, 303-556-5261 or email: dinotracksmuseum@ucdenver.edu.

See <http://www.ahc.edu/campusmaps/ahc3d.pdf> for an Auraria campus and parking map.

We had set up a date of May 3 on which CSS members or others could meet to tour the museum. Only three of us were there, but Martin gave a very nice tour, with a lot of animated description and discussion about many of the tracks and trackways, how they were found, and what they tell us about dinosaur locomotion. (I'm hoping to have Martin give a talk to the CSS, perhaps next fall; he did so once before, but his studies have "progressed much" since then.). A few pictures from the tour on May 3 are below. AND...

As background before Warren Hamilton's talk on Venus, I'd like to suggest the Wikipedia articles on Venus, and Geology of Venus:

<http://en.wikipedia.org/wiki/Venus>

http://en.wikipedia.org/wiki/Geology_of_Venus

St. Cajetans building



Museum entrance

Imagine finding shoes
for these!



Martin in the museum





Did you know... “Spheres”, is an online magazine published by CIRES, the Cooperative Institute for Research in Environmental Sciences, affiliated with CU. Their latest edition (#6, from 2011) is themed. “Solid Earth,” and has very good articles about earthquakes, tsunamis, glaciers, groundwater, “How Risky is the [Rio Grande] Rift?”, “Birth of the Rockies,” highlighting recent research. One only wishes that the articles were longer—most or all are just one page. The link to it is

<http://cires.colorado.edu/science/spheres/>



Previous issues, all posted online, have been on air, and snow & ice (2011), ecology and education outreach (2010), and water (2009). All worth looking at! The upcoming 2012 issue will mark the 45th anniversary of CIRES, with articles about Greenland ice sheets, lakes around the world, earthquake technology, geothermal prospecting, and more.



SPRING MEGA SALE at the USGS STORE: Over 60,000 selected items for only \$1 !!!

SALE EXTENDED through JUNE 4th! Buy selected USGS Maps and Products at wholesale prices.

Have questions?

Please call 1-888-ASK-USGS (1-888-275-8747) Select Option 1, or email us at: usgsstore@usgs.gov.

Additional Information:

Standard shipping cost estimations for \$1 sale items:

* \$5 Handling charge on all orders.

• 1–25 maps -> \$5.00

* Shipping charges apply.

• 26–50 maps -> \$7.50 • 51 + maps -> \$10.00

*All sales are final. *While quantities last.

Use the online search tool at:

[http://store.usgs.gov/b2c_usgs/usgs/zInvReductionSearchStart/\(xcm=r3standardpitrex_prd&layout=6_1_61_55&uiarea=0&ctypc=areaDetails&care=0000000150&cit=00000001500000002787\)/.do](http://store.usgs.gov/b2c_usgs/usgs/zInvReductionSearchStart/(xcm=r3standardpitrex_prd&layout=6_1_61_55&uiarea=0&ctypc=areaDetails&care=0000000150&cit=00000001500000002787)/.do)

Here are two very nice new USGS publications that those who have visited Hawaii might be interested in:

Eruptions of Hawaiian Volcanoes—Past, Present, and Future, by Christine Heliker, Donald A. Swanson, and Robert I. Tilling, 2010, USGS GIP (General Information Product) 117, 63 p. **FREE** (as long as the supply lasts!). Product #247664; also downloadable online. This is a newly revised second edition of a booklet originally published in 1987.

The story of the Hawaiian Volcano Observatory—A remarkable first 100 years of tracking eruptions and earthquakes, by James P. Kauahikaua, Janet L. Babb, and Robert I. Tilling, 2011, USGS GIP-135, 69 pp. **FREE**; Product #318323; also downloadable online. “The year 2012 marks the centennial of the Hawaiian Volcano Observatory (HVO).”

These and other USGS publications may be purchased in person at the Map Store in Building 810, Denver Federal Center, or ordered online via the USGS Store, <http://www.store.usgs.gov> (\$5 P&H charge per order).

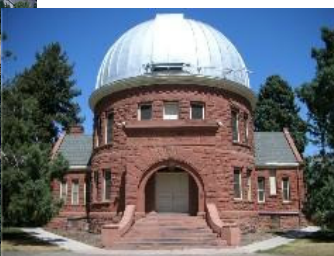


*Shall we try this one more time?
We've had clouds, snow, rain...
what's next?*

**CSS Family Event on Saturday, May 26, 7:30 p.m.
A Night Out at the Chamberlin Observatory Open House hosted by the Denver-
Astronomical Society (DAS) (meet at the South entrance)**

Guests can view the heavens through the observatory's famous 20-inch aperture Alvan Clark-Saegmuller refractor for a \$1 per-person fee. An added bonus on Open House nights is that DAS members set up their telescopes on the observatory grounds (Observatory Park) to share with anyone and everyone interested in the wonders of the universe—stars, planets, galaxies, nebulae, star clusters and more! If you have a telescope and can't figure out how it works, bring it and someone will help you!

For more information about the observatory, go to: <http://www.denverastro.org/openhouses.html>



The University of Denver's
historic Chamberlin Observatory

Chamberlin Observatory
2930 East Warren Avenue
Denver, Colorado 80210
Information line: 303-871-5172

And...speaking of being “spaced out”....

The June 5 transit of Venus will be visible in Denver (with proper observing equipment) on the late afternoon of Sunday, June 5. The transit will begin at 4:05 p.m. local time, and will not be complete until after sunset (10:48 p.m.). See: <http://www.transitofvenus.org/> <http://transitofvenus.nl/wp/where-when/local-tran->

Eclipse Coming May 20—An annular solar eclipse occurs when the Moon's apparent disk is just smaller than the Sun's disk and the Sun appears as a brilliant ring. The eclipse can only be safely observed with approved solar filters or by projecting an image of the eclipsed Sun onto a flat white surface. You may want to order some solar shades ahead of time.

http://eclipse-maps.com/Eclipse-Maps/Gallery/Pages/Annular_solar_eclipse_of_2012_May_20.html

<http://www.onlinesciencemall.com/eclipse-glasses-safe-solar-shades.html>

Interesting Web Pages (thank you C. Turner):

Rapid Sierra Nevada Uplift Tracked by Scientists:

http://www.sciencedaily.com/releases/2012/05/120503162021.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily+%28ScienceDaily%3A+Latest+Science+News%29

Earth History and Evolution: Cypress Tree Distribution Reflects the Breakup of Pangaea

http://www.sciencedaily.com/releases/2012/05/120503120116.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily+%28ScienceDaily%3A+Latest+Science+News%29

Ancient Volcanic Blast Provides More Evidence of Water on Early Mars

http://www.sciencedaily.com/releases/2012/05/120504135732.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily+%28ScienceDaily%3A+Latest+Science+News%29

Volcanoes Sound-Off on the Life-Cycles of Eruptions

http://www.sciencedaily.com/releases/2012/05/120508152009.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily+%28ScienceDaily%3A+Latest+Science+News%29

Colorado School of Mines (CSM) Geology Museum Musings, by Bruce Geller, Director, CSM Geology Museum

I have lots to report about our Museum this round. Since my last communication, we had our combined Book Sale/Garage sale that was successful, held many receptions from across campus, received a grant from the Golden Civic Foundation, displayed at the Tucson, Denver Guild, and Fort Collins mineral shows; and have received many donations. In late April, we closed the bidding on our Sealed Bid Auction and notified the winning bidders.

Our semester has recently wound down and I expect 5 of our 12 Student Aides to graduate on 5/11. Knowing that, I had to interview another crop for staffing us this autumn, and then created summer schedules for the Aides who will help us during our heaviest visitation months.

The Advisory Council has met monthly and ratified an Optical Instruments Protocol. Ongoing projects involve cataloguing new specimens and improving our database.

I held weekly meetings with our Collections managers and volunteers. These folks ran our Book/Garage Sale and have been busy keeping our Gift Shop well stocked—so much so that our year-to-date sales are up 110% over the same period in 2011. Our volunteer ranks have now risen to 54, with the addition of several high school students. Our Facebook fans number 529. We just revised our brochures and had 20,000 reprinted through the generosity of Jane and Marshall Crouch.

I have met monthly with our 12 Student Aides, who have led a vast majority of our tours this spring, helped with our Book/Garage Sale, and rung up all of our Gift Shop sales. All of our Student Aides received CPR and AED training.

One of our Student Aides, Patricia Littman, compiled our attendance data from 2011, which are very impressive. For example, we had over 20,500 visitors from all 50 states and 62 foreign countries. This means that we averaged 56 guests per day, an increase of 22% over 2010. Interestingly, over 80% of our guests were first-time visitors, and only 18% were K–12 school students.

Our Friends of the CSM Geology Museum support group is going strong. We now have over 112 members since our inception 2.5 years ago! Three FCSMGM members toured the Royal Ontario Museum, and eight members toured a Denver area collector's "rock room" in March. Several field trips are being planned for later this year. As always, FCSMGM members receive 20% discounts in our Gift Shop.

As for upcoming events, Secretary of the Interior, Ken Salazar will be on campus 5/21 at 1:30 P.M. to formally designate Stop #2 of our Bob Weimer Geology Trail as a National Natural Landmark. All are welcome to attend the festivities.

Similar to last year's display of Colorado rare-earth specimens, loaned to us by various Colorado mineral collectors, our featured Colorado mineral this year for display is barite (from as many collectors and Colorado localities as possible). We invite all barite collectors to submit digital photos of these specimens. We realize that many of you may have qualifying candidates, so our Museum staff reserves the right to select the very best loans for this display. Those selected pieces should arrive in our Museum before August 1st, so we can begin creating the exhibit. The loan paperwork is simple and the loan period will be for one year. This will be one of the new displays we want to feature at our Annual Open House on September 12, from 6 P.M.–9 P.M. Please phone me any questions or concerns. (303-273-3823)

Of course, all your club members are welcome to attend our Annual Open House. Come meet some of our Museum Advisory Council members, Student Aids, volunteers, members of the Friends of the Colorado School of Mines Museum, see our new acquisitions, our ever-evolving collection, and our newest displays. Some of you might even enjoy a visit to our Gift Shop. We hope to see you then.

Come visit our Museum during our normal hours: Monday–Saturday, 9 A.M. to 4 P.M., Sundays 1 P.M.–4 P.M., except for certain legal and school holidays. Admission to our Museum is free (donations are greatly appreciated), but parking fees are required in our lots and on campus streets Monday through Friday before 5 P.M. From May 15th–August 15th, free parking is permitted in the neighborhood streets north and east of the Museum.

Wow....



Fri-Sat-Sun, May 19–20, Cheyenne Mineral & Gem Show, held at American Legion Post #6, 2001 E. Lincolnway, Cheyenne, WY; sponsored by the Cheyenne Gem and Mineral Society. As Pete Modreski's friend from that club points out, "Cheyenne is only 12 miles from Colorado!"

Fri-Sat-Sun, June 22–24, Pikes Peak Gem and Mineral Show and Rock Fair held at the Western Museum of Mining and Industry, Colorado Springs. For more info. see: <http://www.csms.us/> or www.wmmi.org



Earth Science Meetings and Talks

Newsletter items must be received by the 25th of each month.

Colorado Scientific Society's regular meetings are held the 3rd Thursday of the month at the Shepherd of the Hills Presbyterian Church, 11500 West 20th Ave., Lakewood, CO (unless otherwise advertised).

Social time begins at 6:30 p.m. and talks start at 7:00 p.m.

For more information, contact Pete Modreski, at 303t202-4766, pmodreski@aol.com



Denver Mining Club May 14 *James "Whitey" Hagadorn, Curator of Geology, Denver Museum of Nature & Science*, "Deep Time Slime (on the role of microbes in sedimentary environments)." The DMC meets on Mondays at the Golden Corral Buffet & Grill, 3677 South Santa Fe Dr., Sheridan, CO 80110 (Southwest side at Santa Fe Dr. & Hampden Ave.) 11:30–1:00. Purchase of lunch required. Visitors always welcome! Dick Beach, Secretary, 303-986-6535

Denver Museum of Nature and Science May 23, 7:00 p.m., *Ka Chun Yu and Bob Raynolds*, "Digital Earth: Explore the World from Space." Gates Planetarium. **May 31**, 7:00 p.m., *Ellen Stofan*, "Exploring Titan by Boat." Ricketson Auditorium, Book Sale and Signing. \$8 member, \$10 non-member. <http://www.dmns.org/learn/adults/after-hours/>

Denver Region Exploration Geologists' Society (DREGS) meets in the Colo. School of Mines, Berthoud Hall Room 241, Golden, CO. Social 6:00–7:00 p.m. Presentation at 7:00 p.m. **May 14** *Jim A. Paschis, Consulting Geologist, Boulder, CO*, "Rare earth element associations within hydrothermal uraninite ores from the Schwartzwalder Mine, Golden, Colorado, USA." For information contact Jim Piper, (303) 932-0137, or the website <http://www.dregs.org>

Rocky Mountain Association of Geologists (RMAG) June 13 *Dick S. Bishop, Ph.D., Executive Director and Chief Geologist of RSK*, "What is the current potential shale and gas production in the U.S.?" Register at: http://www.rmag.org/i4a/ams/amsstore/category.cfm?category_id=3. Member price \$35, Non-member price \$45. Location: Denver Marriott City Ctr., 17th & California. <http://www.rmag.org/i4a/pages/index.cfm?pageid=3424>.

SME Colorado Section May 19, Annual Awards and Recognition Banquet *Ken Brunk*, "My return to Nevada, It is not deja vu all over again!" Cocktail reception at 5:30 p.m., dinner at 6 p.m. Place: The University Club, 1673 Sherman St., Denver, corner of Sherman & 17th Ave. Cost: \$45 per person, \$50 at the door without Reservation. Students welcome at \$15 per person with reservation. Pay at the door. Reservations via email to Cathy Begej by noon on Monday, May 16, Email CathyBegejSME@gmail.com, 720-889-6112 See for more info.: <http://www.smenet.org/docs/public/SMECOLORADOSECTIONMay2011.pdf>

Upcoming Family Field Trip! Save the Date! More info. forthcoming in June.

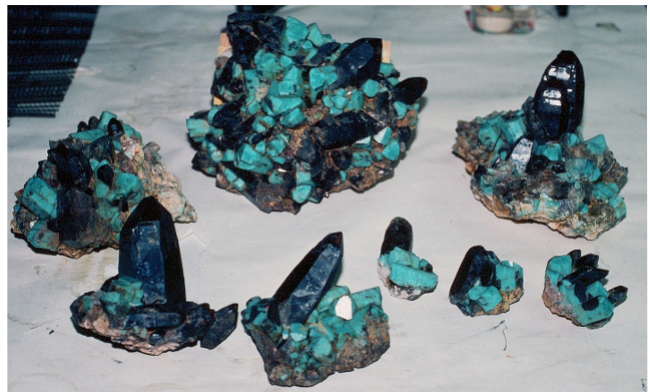
Colorado Scientific Society, Family Field Trip, 8:30 a.m., July 21, 2012

Amazonite-bearing pegmatites in the Pikes Peak batholith near Harris Park, Park County, Colorado

Leader, Pete Modreski, USGS; pmodreski@usgs.gov, 303-202-4766, cell phone 720-205-2553

The Pikes Peak batholith, age about 1 billion years old, is famous for its abundance of granite pegmatites containing hollow miarolitic cavities ("pockets") lined with crystals of smoky quartz and microcline feldspar. Some of the microcline is the blue-green variety, amazonite. Other minerals found in the pegmatites include albite, fluorite, topaz, goethite, hematite, biotite, and less commonly, such minerals as columbite, zircon, cassiterite, and rare-earth minerals.

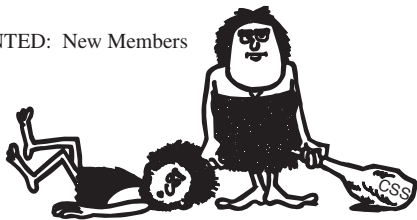
Pegmatites occur mainly at a number of places within the batholith where late-stage plutons have intruded into the main mass of the batholith; famous locations include Crystal Park, Cameron Cone, Sentinel Rock, Stove Mountain, Mount Rosa, and Glen Cove, all near Pikes Peak itself; the Crystal Peak area north of Lake George and Florissant, the Tarryall Mountains; Devils Head; Wigwam Creek; and the area we will be visiting near Harris Park.



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

<http://www.coloscisoc.org>

WANTED: New Members



OFFICERS

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2010-2012: Liz Pesce, pesce.e@gmail.com
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2011-2013: Ben Harrison, 303-417-9633, benjh@earthlink.net
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Program: VOLUNTEERS NEEDED! CONTACT PETE MODRESKI FOR MORE INFO!
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Webmaster: Table Mountain Web Design, 303-278-2701, bwarden@tablemtn.com



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