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<https://fourcornersgeologicalsociety.org>

FOUR CORNERS GEOLOGICAL SOCIETY

The Spring of 2023!

APRIL MEETING

SPEAKERS: Fort Lewis Senior Geology Students

TITLE: UNDISCOVERED GOLD OF CHERRY CREEK
Scott Thomas

SHORT TALKS AND POSTERS:

Sierra Carter: Monitoring a transitional snow zone in the San Juan Mountains: Are changing temperature trends impacting snow melt and discharge timing at Relay Creek?

Klara Goldman: Dust on snow as a key factor affecting the timing of discharge in the Animas River

Jaclyn Jack: Using seismic ray modeling to see subduction zone rock deformation effects on geophysical data

Willem Martin: Investigating the obscure geometry of the GTO fault at Lucky Strike Mining Claim in Lisbon Valley, Utah

Patrick Walston: An isotropic analysis of Condry Mountain Schist Serpentine

DATE: Thursday, April 20, 2023

TIME: 5:00 - 6:00 pm: Registration, social time, appetizers & drinks at the Wall of Time Atrium. Sitter Family Hall

5:30 - 6:30 pm: Senior Posters are up & available for discussion in SHF Room 710.

6:30 pm: Meeting and Zoom begins. Introductions and 5 speakers will briefly describe their work, posters and answer questions. SFH Room 710



APRIL MEETING

SPEAKERS: Fort Lewis Senior Geology Students

7:00 pm: PowerPoint presentation by Scott Thomas

The student dinner fund-raising raffle will follow about 7:30 pm

ZOOM LINK: *Join Zoom Meeting:*

LINK 

Join Zoom Meeting - FCGS April 2023 Meeting

<https://fortlewis.zoom.us/j/98086818814>

Meeting ID: 980 8681 8814

COST: \$20/person.

Please RSVP by Monday April 17th if possible. PLEASE go to the website to pay and register or just RSVP: <https://fourcornersgeologicalsociety.org/event>
Or you can email Jeff Geslin at jkgeslin@gmail.com

Student Dinner Sponsors this month are:



Klara Goldman

**Kristin Brown, Chuck
Baltzer, and Jim Ballard
and the FCGS.
AWESOME MEMBERS,
Thank you!**

For student sign up,
please contact Dr. Geslin
at jkgeslin@gmail.com



Sierra Carter doing a salt
slug discharge measurement





Willem Martin in the field in Lisbon Valley.



**** ZOOM LINK ****

Undiscovered Gold of Cherry Creeke, USA

Scott Thomas

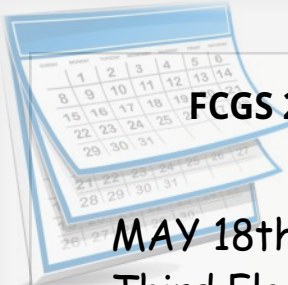
ABSTRACT:

The La Plata Mountains are known for their surprising amount of ore deposits in a relatively small area. Placer mining, however, in the La Plata Mountains has never gained much traction. The rich minerals, such as gold, platinum, magnetite, copper, and gemstones, typically concentrate in stream deposits because of their density, specific gravity, and durability. Because of this, it is relatively easy to test a river for placer deposits. Recently, local prospectors reported gold in Cherry Creek. However, there is no concrete evidence to support this claim in any literature, nor any evidence of the origin of the gold; sampling is required to confirm these reports and narrow down a possible source.



This study provides evidence that there is gold in Cherry Creek. Additionally, it is probable that the Idaho/Mayday Fault, which intersects the creek upstream, is the source. Some gold values upstream from the fault are below the detection limit, but they increase downstream of the fault. The maximum recorded value is 34 parts per billion near the bottom of the creek. The increasing gold content further downstream of Cherry Creek implies that the tributaries feeding into the Creek also contribute to the gold content. Furthermore, these are all located downstream of the fault. The results indicate that Cherry Creek is not of economic value. However, it can be classified as a placer deposit. This study will contribute to the bipartisan infrastructure law (PL-117-58) by defining a new placer deposit. The source of the placer deposit (if confirmed definitively) will contribute to the project's goal of identifying critical mineral research in Colorado and other states. This is also the beginning of the mapping of the Idaho / Mayday fault, as its path is currently unknown as it crosses the creeks. Finally, further sampling would have to be carried out on Cherry Creek to better understand its economic viability.





FCGS 2023 MEETING DATES

MAY 18th: FCGS Spring Party
Third Floor Balcony of SFH



FCGS NEWS NOTES:

- Ballots for new officers will be sent out in early May via email with a link to vote online. It's not too late to throw your name in the hat! The new officers will be announced at our meeting on May 18th.
- Membership dues for the coming year will be due on June 1st. We will send you an email next month advising you of your status and whether or not you need to pay for the coming year.
- A big thanks to all our new professional members and new student members!
- Registration for the Chama Field and River trip opens Friday, April 21st on our website.

2023 RMS-AAPG Annual Meeting *Energy & Plains Solutions*



RMS-AAPG: Energy and Plains Solutions

June 4th - 7th, 2023

Bismark Events Center, Bismark, ND



THANK YOU
KRISTIN BROWN, CHUCK BALTZER AND JIM BALLARD
FOR SPONSORING FLC STUDENT DINNERS
THIS APRIL 2023 MEETING!



“PREZ SEZ” by Jeff Geslin

Happy Spring!

Society activities... This month’s meeting is one of the highlights of the year for the FCGS, as students from FLC will be presenting their senior research projects. The meeting will include posters and talks by 6 students. I think that student presentations are great for both students as well as professional geoscientists in the FCGS. Students get experience synthesizing, summarizing and presenting their work, and we professional geoscientists get to learn something new!



Also coming up, we will have our final meeting before the summer break on Thursday, May 18th. It will be a social “hour” on the third-floor balcony of the Sitter Family Hall. This meeting will be a time to celebrate the election of new board members and thank old ones, talk about the society’s fieldtrip plans, and discuss ideas for next year (including our late summer picnic). Speaking of elections, we will be sending out digital ballots soon, using a Jotform voting link (thanks to Kim Gerhardt for organizing this!). Please see the sidebar for more info.

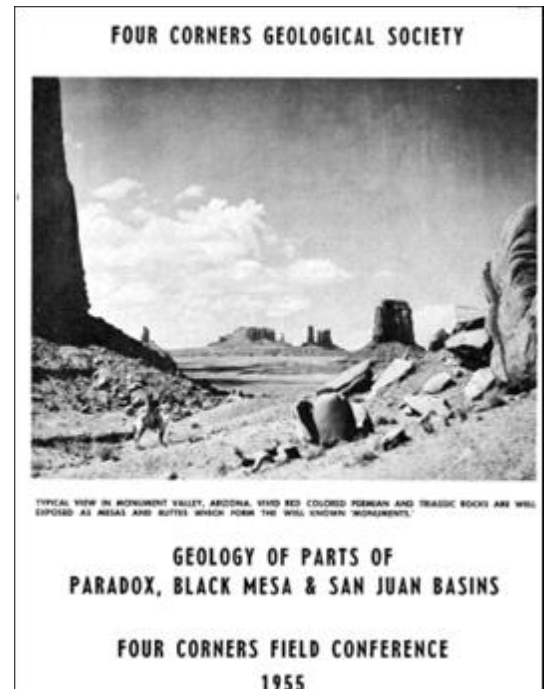
The FCGS and you... Our scientific society has been in existence since 1950. It has evolved over the last 73 years and remains a vibrant organization. I think that this is a testament to our passion for geology. Also, we have a Foundation that is a charitable arm of our society. It formed in 1997, and supports geoscience education and research through grants and scholarships. Together, the society and foundation really play an important role in promoting geosciences in the Four Corners region.

There are several ways that you can be involved, and most do not require a large time commitment:

- Suggest someone to give a technical presentation or volunteer to give one yourself. Do you know someone that is doing interesting research in geology and think they would like to give us a talk? Let us know about it.
- Become involved in the Fieldtrip committee and help organize or lead trips.
- Volunteer for the Society board or Foundation board. If not this year, how about next?

Best regards,

Jeff



From the early days of the FCGS!



Four Corners Geological Society, P.O. Box 1501, Durango, CO 81302
www.fourcornersgeologicalsociety.org



Four Corners Geological Foundation Update

The Four Corners Geological Foundation is pleased to announce that it has given \$500 grants to five Master's degree students toward their research. In alphabetical order, they are:

- Victoria Arnold, Colorado State University, for work on geochemical impacts of the unstudied 1978 Sunnyside Mine flood in the Silverton area, Colorado

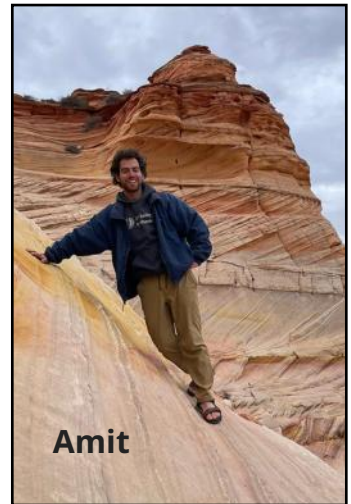


Victoria



Jenna

- Jenna Biegel, University of Arizona, who'll use the internal fabrics of zircon grains to decipher the origin of granites in the Santa Catalina core complex, Arizona
- Amit Millo, New Mexico State University, who'll combine multispectral image analysis and SfM with field work to map a rugged area of the Mazatzal Province, New Mexico



Amit



Alexis

- Alexis Salmeron, New Mexico State University, who'll map the rocks and interpret deformation in another part of the Mazatzal Province, New Mexico
- Thomas Valenzuela, New Mexico State University, for work on the stratigraphy, provenance and age of the San Jose Formation, New Mexico



Thomas

We wish them success in their research and careers! Also, many thanks to our generous donors who've helped us support almost 50 students since the 1990s."



FCGS Field Trip News

FORT LEWIS ON THE WATER (FLOW) FLOAT TRIPS

ROCKY MOUNTAIN ASSOCIATION OF GEOLOGISTS FLOAT TRIP ON THE LOWER SAN JUAN RIVER WITH DR. GARY GIANNINY (57mi)

REGISTRATION IS NOW OPEN!!!

See the RMAG website for more information and to register: (<https://www.rmag.org/index.php?src=events&category=Field%20Trips>).

Dates: June 4-8th
Leaders: Dr. Gary Gianniny, Fort Lewis College and Dr. Rip Langford, UTEP.
Cost: \$1,400 members / \$1,500 non-members.
Transportation: FLC vans from the college and back.
Registration: NOW OPEN, closes May 26th, refunds available until May 10th.
Itinerary: See RMAG website for detailed itinerary.



Trip Description: Come join the RMAG for five days and four nights on the lower San Juan River. Traveling with renowned geologists Dr Gary Gianniny (Fort Lewis College) and Dr Rip Langford (University

of Texas at El Paso), and rafting professionals from Fort Lewis on the Water program, we will enter the Glen Canyon National Recreation Area and float through goosenecks carved deep into the sedimentary section to experience dramatic geology, fabulous outcrops, and world-class hiking opportunities.

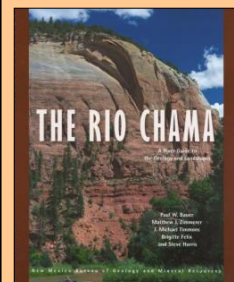
The lower San Juan River exposes the Pennsylvanian Hermosa Group, deposited on the stable, broad, shallow shelf near the western margin of the Paradox Basin. Lithologies outcropping along the river are outcrop analogs for producing intervals at the giant Aneth Oil Field, satellite fields in the Paradox Basin, and at Barker Dome & Ute Dome fields on the Four Corners Platform. Geologists rafting through these folded Pennsylvanian strata can examine phylloid algal and microbial bioherms (oil and gas reservoirs), and organic-rich black shales (source rocks). Higher up in the section, cross-bedded carbonate grainstones appear in the younger Honaker Trail Formation, followed upwards by non-marine terrigenous sediments in the Permian Lower Cutler Group, including rare rhizolith channel-fill conglomerates. Spectacular exposures of the overlying Cedar Mesa Sandstone provide a superb view of the complex facies of a mixed wet eolian and fluvial system.

FCGS FLOAT TRIP ON THE CHAMA RIVER WITH NMBGMR (31 MILES)

REGISTRATION OPENS ONLINE APRIL 21ST!

Dates: Friday, July 21 - Sunday, July 23.
Leaders: Paul Bauer & Matt Zimmerman
Organizer: David Schiowitz.
Transportation: FLC vans from the college and back.
Cost: \$700. Full refund if cancel by June 20th.
Limit: 13 participants
Drop Date: Trip cancelled July 1st if minimum registration not met.

Trip Description: The Chama River, in northwestern New Mexico, is a tributary of the Rio Grande, flowing south from headwaters in the San Juan Mountains of Colorado to Abiquiu, then east around the Jemez volcanics into the Rio Grande rift zone. This trip runs from below the El Vado dam through a designated Wild and Scenic River section to the Big Eddy take-out above Abiquiu Reservoir. The exposed geologic section on this stretch is entirely Mesozoic, cutting down from the Cretaceous, Dakota Sandstone to the Triassic, upper Chinle Formation as we travel south. This trip will be led by several geologists from the New Mexico Bureau of Geology and Mineral Resources (NMBGMR), who published a new geologic river guidebook for the Chama in 2021. The guidebook can be found on their website under Publications: <https://geoinfo.nmt.edu/>.



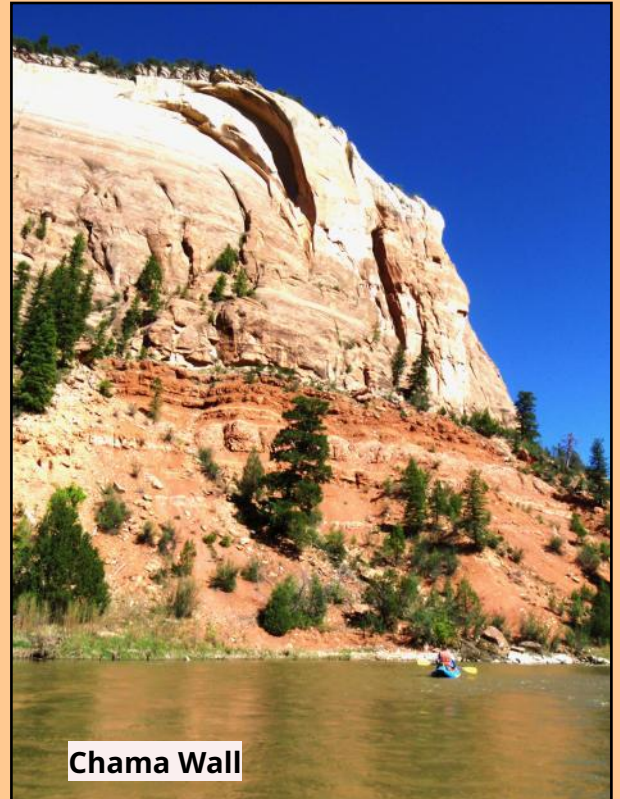
FCGS Field Trip News

SPOTLIGHT ON FCGS FLOAT TRIP ON THE CHAMA RIVER (31 MILES)

Dates: Friday, July 21 - Sunday, July 23.
Leaders: Paul Bauer and Matt Zimmerman



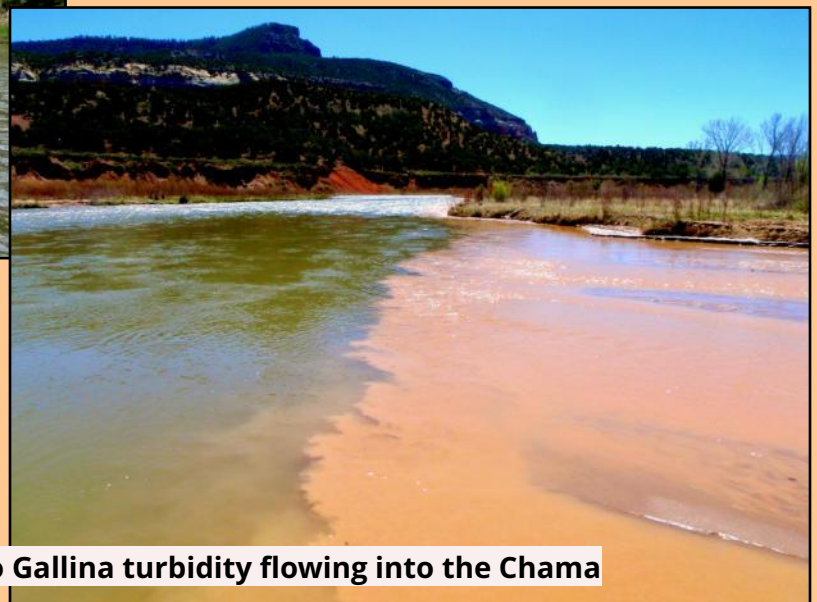
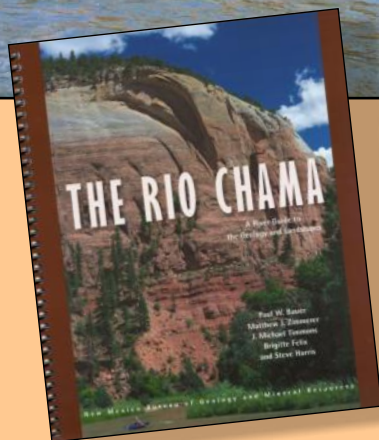
Drone shot of bridge & Valley



Chama Wall



Endrada - Todilto contact



Rio Gallina turbidity flowing into the Chama

FCGS Field Trip News

A TOUR OF JURASSIC LAKE T'OO'DICHI: ALKALINE, SALINE WETLANDS OF THE MORRISON FORMATION IN THE FOUR CORNERS AREA



Brushy Basin Member of the Morrison Formation near Montezuma Creek, UT. This locality, another stop on the field trip, contains tuffs that are variably altered and contain one or more authigenic minerals (e.g., clinoptilolite, analcime).

- Dates:** September 22-24, 2023.
Days: 3 days, 2 nights
Leaders: Dr. Christine Turner and Mr. Neil Fishman, Retired USGS
Organizers: Kim Gerhardt & others
Cost: TBD
Limit: 25 including leaders. To include FLC students & FCGS members.

Trip Description: What rock formation is green, purple, orange and blue, known for dinosaur fossils and hosts uranium? The Morrison Formation! It's all around us in the Four Corners Area, but how much do we really know about the depositional systems that formed it? Join us as we travel from the interior to the margins of the oldest, largest, alkaline, saline wetland in the geologic record with retired USGS geologists Dr. Christine Turner and Neil Fishman. In their interpretation, unusual pore water chemistry related to the alteration of silicic ash from calderas to the west resulted in a diagenetically zoned distribution of zeolitic minerals in the Brushy Basin Member only found west of the Uncompahgre uplift. We will also observe and discuss the tectonic, stratigraphic and sedimentologic aspects of the entire Morrison (including the Salt Wash and Bluff Sandstone Members) as we traverse the depositional basin in the greater Four Corners region.



NEWS FROM AROUND THE REGION

April Grand Junction Geological Society Meeting

Wednesday, April 19, 2023; 7:30 PM Mountain Time; In-person and Zoom

Saccomanno Lecture Hall (Room 141 in the Wubben-Science Building), Colorado Mesa University, Grand Junction, CO

Joint meeting with the CMU Geology Students

This program is designed to give CMU students some insights into careers in geology as well as letting other GJGS members know more about some of our members.

What I did during my career and advice for the future"

Speakers:

Jay Scheevel, Scheevel Geo Technologies, LLC

Doug Underhill, Consulting Professional Economic Geologist

Martin Pitts

Zoom link: <https://coloradomesa.zoom.us/j/94485191782>

Meeting ID: 944 8519 1782

ON THE ROCKS - CEMEX Niobrara Quarry Tour

April 21, 2023; 8:00 am - 5:00 pm

Join RMAG on a field trip to visit one of the best Niobrara exposures in the Front Range at the CEMEX Quarry in Lyons, CO. Trip leaders Steve Sonnenberg and Brown Hawkins will guide us in an examination of the stratigraphy and sedimentology of the Niobrara and the structural geology of the Northern Front Range. Participants will have an opportunity to hunt for Cretaceous-aged fossils including inoceramids, ammonites and azure-colored fish scales along with intriguing forms of pyrite. We will examine outcrops of the Codell Sandstone and Ft. Hayes Limestone, discuss their depositional history and their importance as oil and gas reservoirs in the DJ Basin. The quarry visit includes a tour of CEMEX's Lyons plant, one of the largest producers of cement in Colorado.

This is one of the last opportunities to tour the unique CEMEX quarry location. Operations have ceased and the site is now undergoing reclamation. Reserve your spot today!

Please note that participants are required to bring and wear steel-toed boots/shoes, hard hats, and protective eyewear in the CEMEX quarry according to CEMEX's PPE protocols.

Maximum participant number: 30

Cost: \$40 RMAG member/\$50 non-member

To register and get more info, go to

<https://www.rmag.org/index.php?src=events&srctype=detail&category=Field%20Trips&refno=257>



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