

Geosciences Program NEWSLETTER

For students, alumni and friends of the
Geosciences Program | Spring 2023

A QUARTER CENTURY OF TEACHING AT COLORADO MESA UNIVERSITY (FORMERLY MESA STATE): MY STORY - RICHARD LIVACCARI



Dr. Rick Livaccari riding off into the sunset on his dinosaur. Yee haw!



Dr. Rick Livaccari sporting his autographed golden hammer and plaque.

I have certainly enjoyed teaching here for the past 26 years, but the first year was a bit rough...

When I first interviewed here in March of 1997, the Geology faculty proudly walked me through the north wing of Wubben Hall. The place was strewn with half-empty paint cans, pieces of broken drywall and sundry construction garbage. We also had to wear hard hats because the building was noisily & visibly still under construction. The 'old' south wing of Wubben Hall was also being renovated. Basically, everything was a complete mess & looked like a Magnitude 7 earthquake had just struck the place. But, ironically,

or comically, due to a shortage of available space on campus, some classrooms in the 'old' south wing still held classes despite the construction ruckus. "Don't worry..." they told me "...the building will be finished by the start of the Spring, 1998 semester." I thought to myself... 'ok, but if I get this job, it starts in the Fall, 1997' semester which means I would be teaching in a building still under construction during my first semester. I thought that would be 'fun,' but in hindsight, it was no fun. Back then we had a dean, and there were times when the Dean had to tell the construction workers to stop using heavy machinery because classes were in session (duh!).

So...I taught in classrooms in my first semester that were basically disaster areas. Another interesting side effect of the construction was the fact that there would be no office for me until the construction was finished. So, they provided me with a 'temporary' machine/storage closet next to the entrance to Saccomanno lecture hall. I am glad those days are over.

The good part about all the construction was that I had a brand-new lab & classroom. I was excited about moving into the newly constructed lab. My excitement quickly changed when they showed me the rock and mineral collection. When they moved out of the previous lab, they randomly placed all the rocks and minerals in a bunch of boxes. Yikes, another mess! It took a long time to sort that stuff out and get things organized. I eventually organized the rock & mineral collection to fit into our new lab.

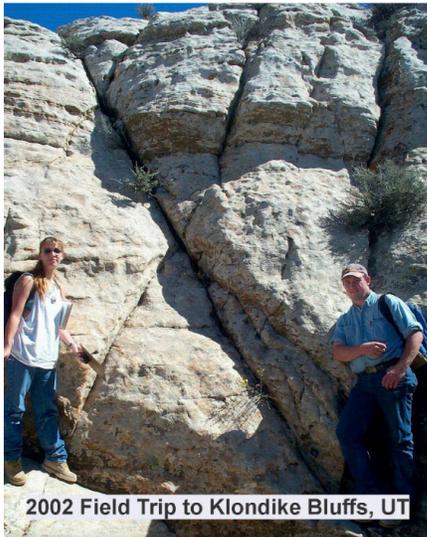
I was extremely excited when I first heard that I got the job here because I could teach my favorite subject: Structural Geology. My second thought, however, was: 'Oh no I also have to teach Mineralogy!' Mineralogy has always been the traditional 'weeding' class of geology programs. I do not teach it like that here at CMU. Nonetheless, Mineralogy class is still a shock to the system of sophomore geology students that are taking their first upper division class. Beginning geology students expect to just have fun looking at cool minerals, instead they get the science of crystallography & the dreaded wooden and green paper crystal models. Oh, the trauma (lol)! There are now several boxes stuffed full of green paper crystal models. If anyone wants to come back and get a souvenir from your mineralogy days, you take one, I will even autograph it for you! I can happily report, however, after all these years that most students passed the course, continued in the Geosciences Program, graduated and obtained gainful employment. Some of the more precocious students even earned 100% on some of the lab exams, a major achievement!

A 'fun fact' about Wubben Hall is that one of the 'renovations' they were doing at that time was removal of some decorative tiles. These tiles were plastered all over the outside of the building and were quite nice-looking. Unfortunately, they were also radioactive and produced radon gas! These decorative tiles were part of the legacy of the infamous uranium processing plant that formerly existed in the Las Colonias – Watson Island area. During WWII, our small town of Grand Junction Colorado was the center of the Manhattan Project's secret effort to mine and refine uranium ore from the surrounding area. When the uranium processing plant was in operation, it produced

plenty of tailings (about 2.2 million tons). The tailings pile sat unprotected until the late 1960's allowing anyone to come and load up their pickup trucks with the free fill dirt to use for construction, landscaping and decorative tile making. It seems to me that the school mascot should be 'Radioactive Man,' not mavericks.

I got a big break in 1999 when Bob Scott of the US Geological Survey contacted our program. Bob Scott, with the backing of the USGS, wanted to make a detailed geologic map of the Colorado National Monument and asked for our help. I gladly pitched in; my job was to map all the Proterozoic rocks. To do this, I hiked every single canyon in the Colorado National Monument. I think I'm the only person other than the founder of Colorado National Monument, John Otto, to have hiked all these canyons. The sad thing is that some of the canyons, like Red and Columbus, cannot be accessed because the entrance is blocked by private property and 'No Trespassing' signs at the canyon mouths. I had to contact the landowners and ask permission to cross their property to get into the monument. The work resulted in the 2001 publication of the 'Geologic Map of the Colorado National Monument and Adjacent Areas' with several co-authors including Prof. Rex Cole and Bill Hood. This work allowed me to get to know the geology of Colorado National Monument quite well. I spent a lot of time in there since then remapping the area to get the details right. Several field mapping projects for summer field camp came out of this work as well. Back when I taught field camp, we would spend weeks mapping within the boundaries of the Colorado National Monument.

When I first moved here, the thing that amazed me about Grand Junction was how much local geology was available. Within a short drive of campus, you can see faults, folds, metamorphic foliations & sedimentary features. This inspired me to create a class called Geology 113 - Field Based Introduction to Physical Geology. In this class, I take intro students (mainly freshmen) on geologic field trips once a week. This course takes advantage of all the nearby geologic locations. The first few semesters I taught this class the enrollments were low, between 10 or 15 students. Because of that, there was only one section of geology 113 which I taught. It has since caught on and become a popular class and the Geoscience program has picked up lots of majors out of this class. There are currently two to three sections of Geology 113 taught every semester by other professors in the program. I am glad I was able to contribute this to the program.

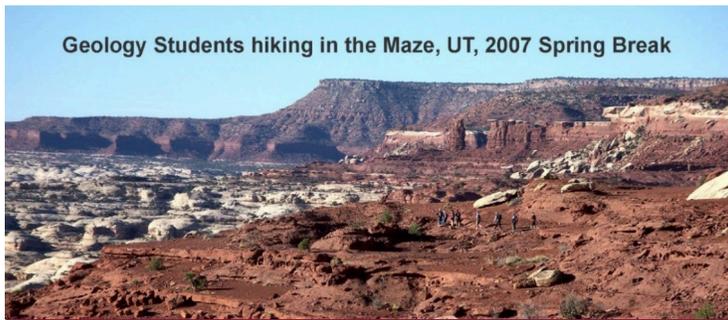


2002 Field Trip to Klondike Bluffs, UT

2002 Field Trip to Klondike Bluffs, UT.

In the early 2000's, I took the students on many memorable, week-long, Spring Break camping and backpacking trips to Utah. For 2007, a dozen students signed up for a Spring Break geology trip that needed 4-wheel drive vehicles. This trip was unusual because the students needed to drive their own personal 4WD vehicles because the school has no 4WD vehicles. This was not a problem. We had five students with 4WD vehicles sign up. So off we went to the

Horseshoe Canyon and Maze Units of Canyonlands, UT for 5-days of primitive camping & hiking. We had good weather and hiked to see the 'Great Gallery' pictographs in Horseshoe Canyon. This canyon is also where Aron Ralston was found and rescued in 2003, after amputating his own arm with a dull pocketknife after getting stuck in Bluejohn Canyon. We managed to see the pictographs with no loss of limbs. After that, we went deep into the Maze. Just like Ed Abbey described in the final chapter of 'Desert Solitaire', we camped at Maze Overlook and hiked to the Harvest scene pictographs in the

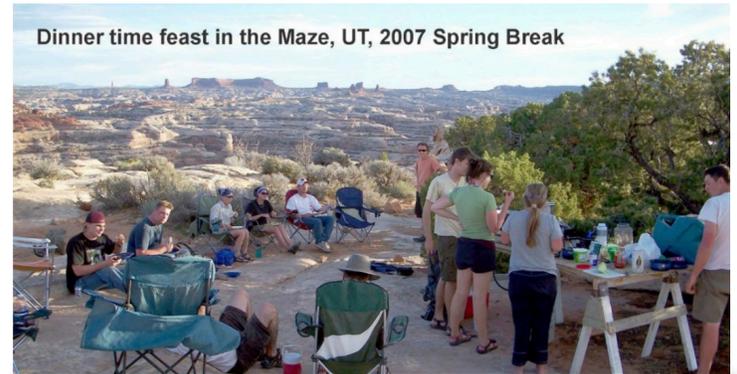


Geology Students hiking in the Maze, UT, 2007 Spring Break

Geology Students hiking in the Maze, UT, 2007 Spring Break.

canyon below. The 4WD road into the Maze is rough and scary in spots. Of the five vehicles we drove in, only one broke down, so it was a good trip.

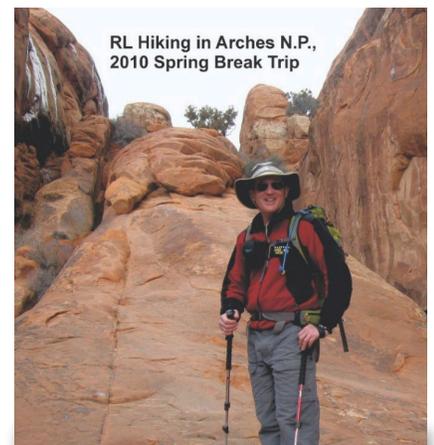
For 2008 we did an even more ambitious Spring Break trip, we backpacked into Angel Arch in Canyonlands N.P. It is a long, two-day hike into Angel Arch, but it was no problem for us because all the students were experienced backpackers. The hike was incredible and Angel Arch is amazing. If you ever get a chance to hike out there, do it...



Dinner time feast in the Maze, UT, 2007 Spring Break

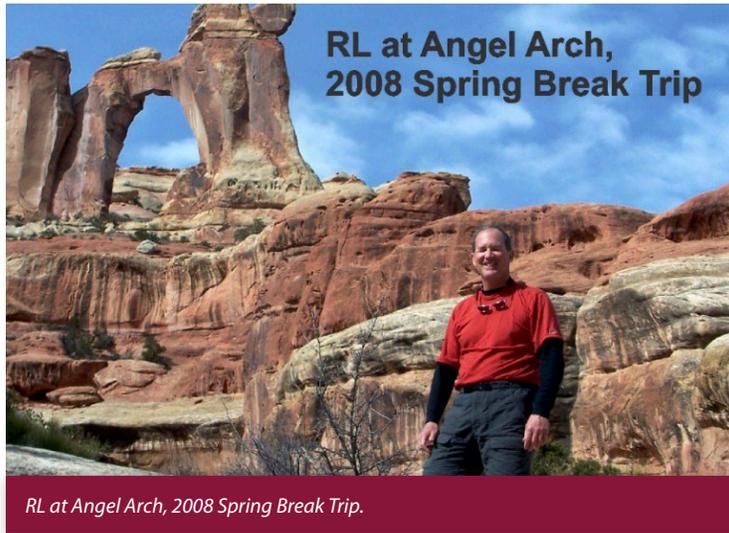
Dinner time feast in the Maze, UT, 2007 Spring Break.

In 2010 we did another spring break trip to Utah. This time we went hiking in Arches National Park and went into the grabens area of Canyonlands. This trip also needed 4-wheel drive vehicles because we had to drive over the infamous Elephant Hill in Canyonlands. It was really fun and exciting to camp in the grabens area.



RL Hiking in Arches N.P., 2010 Spring Break Trip

RL Hiking in Arches N.P., 2010 Spring Break Trip.



What everyone likely remembers about me are the upper division geology core courses: Structural Geology (GEOL301/301L), Crystallography and Mineralogy (GEOL331/331L), Igneous and Metamorphic Petrology (Geol340/340L), and until recently, Summer Field Camp (GEOL480). For some reason, students disliked stereographic projections in both Structure and Mineralogy, but not me, I love them, especially in Structure! I cannot remember how many times I had to tell the Structure students: "...bring your stereonet and push pin to class and don't forget the tracing paper!". We had additional fun in Structure class with the Play-doh, Silly Putty, the fault sand box and modeling clay. Mineralogy lab was a bit of a meatgrinder for both me (evil overseer) and the students (victims). For me, the labs took some effort to set up and the lab exams are difficult to grade. For the students, they had to learn to identify about 185 minerals in hand specimen and about 20 minerals in thin section. I am proud to say that most students endured this and did well. I hope you still have your mineral notebooks that most of you worked so hard on.

For Petrology, students always had a tough time naming plutonic igneous rocks. Students would get frustrated and do poorly on the lab exams. Of course, none of that is my fault, I am just the innocent 'messenger'. The real problem are the multiple naming systems that are still evolving. Even Neil deGrasse Tyson recognized this: "One thing quarks do have going for them: all their names are simple—something chemists, biologists, and especially geologists seem incapable of achieving when naming their own stuff." (Astrophysics

for People in a Hurry). Do you remember all the different rectangles and triangles and dozens of names to choose from? I bet everyone still remembers how to tell AFS from plagioclase, especially in thin section. Hopefully, some of you may still be able to tell the difference between clinopyroxene and orthopyroxene. Everything would change in Petrology Lab when we got to metamorphic rocks, because they lack any rigid naming system. Typically, the grades in Petrology lab would go up after the metamorphic rock lab exams.

There were times in the past when I single-handedly taught the entire six weeks of field camp. We would spend three weeks mapping the local geology in the Colorado National Monument, followed by a week of camping in the Moab area. After that we would do a week-long river trip down Ruby-Horsethief reach of the Colorado River, and for the very last week we would camp in the San Juan mountains and go touring around old mine sites in hired 4WD vehicles. In the 2005 Field Camp, we even climbed Houghton Mountain, a 13er just north of the ghost town of Eureka in the San Juan Mountains.

At first, it was difficult teaching all these upper division classes, but after the first few years, I think I finally got the hang of it. Now, after 26 years, I really have the hang of it. Ironically, when you become best at teaching is when you retire. Oh well, I hope everyone enjoyed these classes. I know it was a lot of work for you as students, but you must admit that the field trips were great!

All things considered; it's been a pleasure being a part of the Geosciences Program at Colorado Mesa University. Over the years, my students and I mapped a large swath of geology from Bridgeport, northward to the Colorado National Monument and westward into Rabbit Valley. I want to thank all the students that helped me with field mapping. There are too many to list here, but you know who you are... I also want to thank all the Professors & Instructors at Colorado Mesa University that I have worked with over the years in the Geoscience program. I hope everyone has some good memories of their time here at CMU, I know I do. I will carry these memories with me forever and I hope you do as well, remember: "The past is never dead. It's not even past." (William Faulkner in "Requiem for a Nun").

Now off to ride my bike....

COORDINATOR'S CORNER - ANDRES ASLAN

Program and Faculty News

As you have just read, big changes are afoot in the Geosciences Program. The retirement of Dr. Rick Livaccari leaves a HUGE hole in our program. Rick is leaving big shoes to fill, but we hope to have a new faculty member soon to teach the classes that Rick has taught so well for so many years. Plus, we have relied on Rick to lead numerous field trips including this year's Adam Trumbo Field Trip to Moab. Rick's love of teaching and field geology will be sorely missed, but we wish him all the best in his next chapter of life!!

What else has been going on? To recap, the Fall 2022 semester was highlighted by several events including the annual Grand Junction Geological Society-sponsored William Chenoweth Field Trip to the Book Cliffs. The trip was led by Rex Cole and Steve Cumella, and ~40 students and GJGS members attended. The other big event of the semester was the national GSA meeting in Denver, which was attended by ~20 current and former CMU geology students and faculty. The semester was capped off by the December graduation of two of our students (**Daniel Arinze '22**, **Cole Wood '22**) with Geology B.S. degrees. Congratulations to our December graduates!

The Spring 2023 semester has our senior Geology students working hard to complete their senior theses. Seniors will present their work at the CMU Student Showcase on April 28th as well as at the May 3th Grand Junction Geological Society meeting. The following is a list of current students and their senior thesis topics.

Miles Garrison (graduating May 2023) — ENSO effects on stable isotope signatures of precipitation from Grand Junction, Colorado.

Laura Kleim (graduating Dec. 2023) — Photogrammetry and analysis of the Cactus Park dinosaur trackway.

William Meyers (graduating May 2023) — Sedimentary and drone image analysis of dinosaur fossil localities, Trail Through Time, Rabbit Valley, Colorado.

Hailey Peters (graduating May 2023) — Magnetic survey of the Glade Park area and evidence of hydrothermal activity, northern Uncompahgre Plateau, western Colorado.

Andrew Schmidt (graduating May 2023) — Honors thesis: Origin of the Dotsero crater.

Faith Urban (graduating Dec. 2023) — X-ray diffraction analysis of Fe-bearing dolomite in the Eocene Green River Formation.

Jackson Weber (graduating May 2023) — Characterization of the "white marker sandstone" at the Dakota-Burro Canyon boundary, Lunch Loop area, Grand Junction.

M.J. Winey (graduating May 2023) — $^{40}\text{Ar}/^{39}\text{Ar}$ detrital sanidine dating of the Goodenough Fm. near Goodenough reservoir, Grand Mesa.

The Geosciences faculty are staying busy with various activities including Verner's continued study of magnetic anomalies on the Uncompahgre Plateau, Rick preparing for the Adam Trumbo spring field trip and life beyond CMU, Cassie's isotopic research in collaboration with Western State, Greg's application of drone technology in both his classes and research (see article below), Kerry's implementation of structure-from-motion photogrammetry in her courses (see article below), Javier's research on the Burro Canyon Formation, and my own work on detrital sanidine dating of Cenozoic deposits in western Colorado. Lastly, we also want to congratulate Dr. Greg Baker for his promotion to full Professor!

APPLICATIONS OF DRONES IN THE GEOSCIENCES - GREG BAKER

Dr. Rex Cole (Professor Emeritus) has been flying drones across the Grand Valley for years. Now when you run into him in “the field” (as many of you do, because he is always out and about) he will typically be packing a drone, known by specialists as a sUAS—small unmanned aerial system. In addition, Dr. Javier Tellez is also known for his sUAS piloting skills, frequently seen examining his strata of interest up close (from a distance) using his sUAS and modelling software. And speaking of modelling software, Dr. Kerry Riley was instrumental in getting critical software used to build structure-from-motion (SfM) three-dimensional models from large photo sets—Metashape Pro, from Agisoft—installed for our students in the computer lab, along with a software package used to analyze time-lapse photogrammetric images (CloudCompare).

In 2019 the hiring of Dr. Greg Baker, who along with his expertise in near-surface geophysical techniques used to tackle groundwater problems—specifically seismic and ground-penetrating radar—brought with him several drones and his FAA (Federal Aviation Administration) Part 107 sUAS Pilots License. Greg also brought over a decade of experience collecting drone data for quantitative analyses in Earth science problems. For example, in his recently-published paper in the journal *Quaternary Research* (Jan 2023) Dr. Baker and his colleagues analyzed nearly 20 km² of high-resolution 3-D drone-based orthomosaic imagery in the White River Badlands of South Dakota. The objective was to map multigenerational dune sets and their calculated paleowind directions integrated with optically-stimulated luminescence (OSL) dates to determine the eolian activity spanning the late Pleistocene through the latest Holocene (roughly 21 thousand years ago through today), reflecting the effects of the last glacial period and Holocene climate fluctuations (Holocene Thermal Maximum, Medieval Climate Anomaly, and Little Ice Age). This Spring, for the second time since arriving at CMU, Dr. Baker also taught an upper-level elective course “Applications of Drones in the Geosciences.”

The class—that will likely become part of the regular course rotation in the near future—integrates survey design, acquisition, and data analysis of drone photogrammetric images for scientific



Brauch to determine the accuracy of boulder geometry and volume estimates from resulting 3-D digital models (right). Note, the image on the right is a digital model, not a photo.



Stratigraphic analysis test of the Brushy Basin Member (Morrison Formation) along Andy's Loop at Little Park Road by William Myers with acquisition parameters (top) and resulting 3-D orthomosaic imagery (bottom) used for interval measurements. Myers plans to use this methodology at Rabbit Valley in conjunction with Dr Julia McHugh to aid in finding additional fossil localities.

hypothesis testing. The semester begins with an overview of FAA rules & regulations to help students identify logistical constraints if they need to pursue sUAS as a tool for projects in their future employment. That is followed with oral presentations and written reports for a “methods” project used to highlight data processing & analysis using aforementioned software tools such as structure-from-motion (SfM) and time-lapse analysis. Several examples of their work are shown in the images and figures.

The end of the course culminates with another oral presentation and associated written report for an “application” project that incorporates their previous methods as applied to an Earth sciences problem. Previous examples of the applications projects include: time-lapse analysis of recent modification of the West Salt Creek landslide scarp; identifying safety hazards along popular rock-climbing routes on Middle Mothers Buttress in Unaweep Canyon; a time-lapse examination of Springtime stream bank erosion in Kannah Creek; mapping Springtime snowpack reduction at a test site on Grand Mesa; potential grave discovery at an abandoned Pentacostal Church site in Grand Valley; and many other cool opportunities. Application projects this year will include more snow-melt analyses (Glade Park), more Spring-flood canyon sedimentological changes (Ladder Canyon), more archaeology, and stratigraphy/structural geology analyses.

Thanks to continued donations from generous alumni, Geology Associates members, and other friends of the Program, courses like this can continue to be taught to Geosciences Program students at the highest levels with the latest state-of-the-art technology. Recent acquisitions by Dr. Baker include a RTK (real-time kinetic) multispectral drone that can simultaneously capture specific “bands” of reflected light in the blue, green, red, red edge, and near infrared wavelengths. An example of the use of the multispectral data for highlighting mineralogical variations in wavelength-related reflectivity is shown from a recent “methods” project that will be tested in the Mica Mine later this Spring. Your continued support is greatly appreciated and continues to help keep the Geosciences Program at the leading edge of education-driven research for our students.

CMU GEOSCIENCES PROGRAM GOES “BACK TO THE FUTURE” – KERRY RILEY

As mentioned in Greg’s article, the Geosciences Program has invested in photogrammetry software that enables students to create high-resolution 3D models (e.g., dense point clouds) from old aerial images and/or modern images taken from smartphones / cameras. Students can compare two 3D models and quantify natural or anthropogenic landscape change in different settings and due to different processes (e.g. mountains, glaciers, landslides, volcanoes, etc.) and across a range of spatial scales (cm’s to 10’s km’s). Agisoft Metashape Professional software was purchased this spring and installed on computers in the Geoscience computer lab as well as in the library. The software enables photogrammetric processing of photographs to produce spatial data in the form of dense point clouds, textured polygonal models, georeferenced orthomosaics, and digital surface/terrain models. Software is used for Structure from Motion (SfM) that uses overlapping images to construct a 3D model of an area of interest and has widespread research applications in geodesy, geomorphology, structural geology, and many subfields of geology. SfM can be collected with a hand-held camera, or a camera mounted on a platform such as an aircraft, tethered balloon, kite, or unmanned aerial system (drone). Students in Applications of Geomorphology (GEOL 402) design and conduct a SFM survey to answer a geomorphic question about a geologic feature, outcrop, river channel, floodplain, or other area of interest. Hydrology/River Dynamic (GEOL 414) students complete a channel change project conducting repeat surveys of a geomorphically active ephemeral channel draining the Uncompahgre Plateau. SFM photogrammetry in conjunction with drones and RTK GPS, allows for inexpensive, high-resolution, photorealistic 3D terrain models over large spatial areas which can be used as a base map for high-resolution surface mapping. SFM photogrammetry software also enables students to create small-scale 3D model of a mineral or rock hand sample, or geologic feature, or outcrop. SFM applications are limitless and Geosciences community

members including students, faculty, and collaborators will all reap benefits of this innovative and fun photogrammetry software.



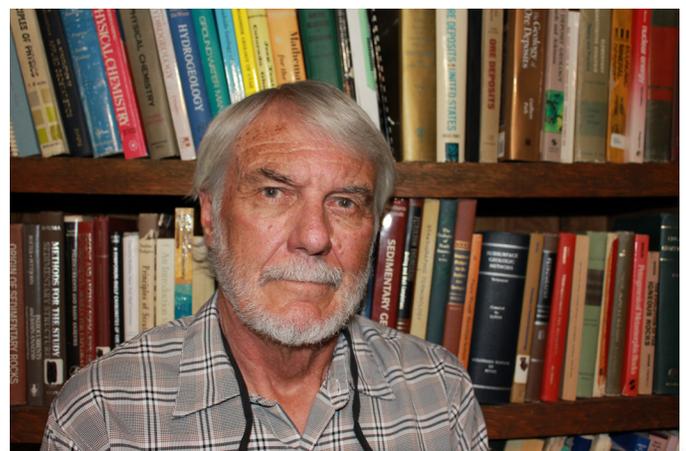
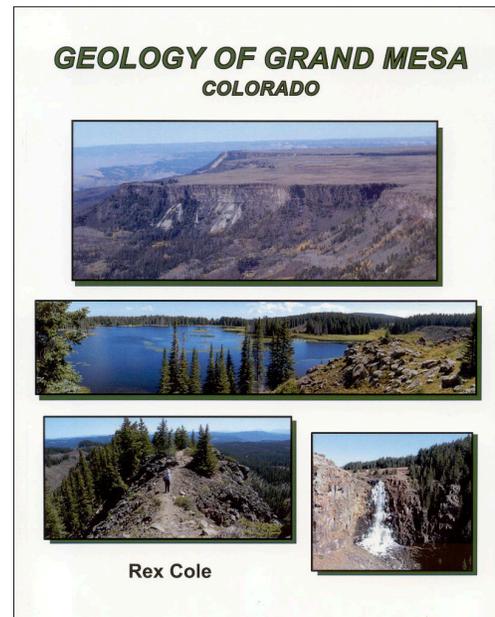
Dr. Kerry Riley and RTK GPS equipment that she is using in her classes.

REX COLE PUBLISHES A BOOK ON THE GEOLOGY ON GRAND MESA

Rex Cole, our most recent Emeritus Professor of Geology (retired in 2020), just published a comprehensive, general-interest book on Grand Mesa. Rex has been fascinated by Grand Mesa since childhood and began conducting research on it in 1978. His efforts intensified when he joined Mesa State College (now CMU) in 1995, including involvement by other CMU faculty members and a number of undergraduate students. Some readers may recall hearing Rex's lectures about the Mesa (e.g., Colorado Geology and Historical Geology) and/or attending various field trips, including Summer Field Camp.

The softcover book was published by Grand Mesa Geoscience Education, LLC (ISBN 979-8-9863844-0-5), with wholesale distribution by LBC Publishing in Denver. Topics include the Cenozoic geologic history of western Colorado, the geologic events that occurred just prior to creation of the Grand Mesa volcanic field, the age and geochemistry of the basaltic volcanism that produced its resistant cap, the erosional history that sculpted

the Mesa by topographic inversion, glaciation, and mass wasting. To date, the book is available at the U.S. Forest Service Visitor Center on the Mesa (seasonal), several local bookstores, and at the CMU library. For more information, please contact Dr. Cole at grandmesageoscience@gmail.com.



Emeritus professor Dr. Rex Cole.

MAV ROCKS GEOLOGY CLUB – JAVIER TELLEZ



Geology trivia event sponsored by Mav Rocks at the CMU Student Center.

With an almost entirely new executive officer group, the newly re-named geology club (Mav Rocks) has successfully planned and executed multiple activities. The activities included hiking events to local outcrops, a geology trivia event, attendance at national conferences and regional meetings, and activities to encourage student applications for grants in Geosciences.

The most significant success for the club during the Fall semester was the outstanding attendance at the annual GSA conference held in Denver. The club was awarded \$1100 from the student body government (ASG) at CMU. The funds were used to assist with gas payments for four cars of CMU students to attend the event. All told, ~20 students and recent graduates met in Denver for the conference. Participation in the networking activities provided fantastic opportunities for our students and future graduates. In addition, Mav Rocks club officer Liam Posovich presented the results of his research at both GSA and the November Grand Junction Geological Society meeting. The club also volunteered at the annual Grand Junction the Gem and Mineral show Sept 24-25 and helped GJGS member Lee Cassin sell mineral specimens the proceeds of which are being used to fund several 2023 Field Camp scholarships. Thank you Lee!

Moving forward into the Spring semester, the club hosted fun hiking outings and a geology trivia event that was a complete success.

Finally, the club is working on increasing its visibility on campus. We have created an Instagram account with about 100 followers and made promotional t-shirts and pens to advertise the club around campus better (as well as to give gear to the members).

If alumni or friends of the program want to give presentations to the club, please contact Dr. Javier Tellez jtellezrodrig@coloradomesa.edu.

MAVERICK ALUMNI

Several Geology alumni helped us this Spring by returning to campus and speaking with the current geology seniors in Seminar (GEOL 490). Having recent alumni speak with graduating seniors in Seminar is something that we do each year, and our students really appreciate the advice and information that alumni have provided. This year's alumni guest speakers included:

Ben Havemen ('13) – Ben is currently an exploration geologist for RESPEC based here in Grand Junction and spoke about recent REE exploration in NV.

Ian Shafer ('17) – Ian is a project manager for the DOE based here in Grand Junction and oversees a portion of the regional National Uranium Mine Legacy program; Ian spoke about his career in both the private sector as well as his work for the government.

Jordan Walker ('20) – Jordan is currently finishing the first year of a Ph.D. program at Baylor University focusing on anoxic events in the Western Interior Seaway; Jordan spoke about applying to graduate school and also gave the February GJGS lecture.

Marisa Connors ('14) – Marisa is currently the geotechnical lab supervisor for Yeh and Associates here in Grand Junction and she spoke both about her graduate school experience at CSU where she received a M.S. degree as well as her current work.

Caden Anderson ('22) – Caden graduated last year and he currently works in the mineral exploration sector for Ivanhoe

Electric; Caden spoke about his exploration work at various locations in UT and has aspirations to apply to graduate school in the near future.

Rachael Lohse ('18) – Rachael is currently employed by Native Navigation as a geophysical logging specialist and spoke about the amazing opportunities and experiences she has had in the energy industry.

Leyna Weller ('22) recently returned from a “dream” trip to South America following graduation and is currently working for the City of Grand Junction as a GIS specialist before she and her husband move to College Park, MD.

Miriam Kane ('20) was recently accepted into a paleontology M.S. program at North Carolina State where she will study shark evolution.

Adam Nawacki ('18) is currently working for Stillwater Mine in Montana as a geologist and is pursuing a MBA online through CSU. Adam is also applying to graduate schools.

Alumni Caden Anderson and Rachael Lohse gave me email addresses for **Pedro Terres Illescas ('21), Tanner Neil ('17), Ivan McClellan ('18)** and we'd love to hear more details from each of you so please email me (aaslan@coloradomesa.edu) with your latest news so we can include it in the next newsletter!

GEOSCIENCES PROGRAM SUPPORT

If you are interested in donating to the Geosciences Program, the CMU Foundation has established a website with a list and description of our current program funds and scholarships. No more checks in the mail! To donate, simply visit:

<https://www.supportingcmu.com/geosciences>

One of the areas of need is funding for students to attend professional meetings such as AAPG or GSA. If you are interested in contributing to this area of need, please donate to the newly established Geosciences Student Research Fund. If you are interested in learning more about establishing a named fund to support the Geosciences program at CMU, please contact Rick Adleman at 970.248.1871.

