

Geosciences Program

NEWSLETTER

For alumni and friends of the geosciences program
Spring 2020


COLORADO MESA
UNIVERSITY
DEPARTMENT OF PHYSICAL AND
ENVIRONMENTAL SCIENCES



Rachael Lohse, '18, a wellsite/mudlogger geologist, showing off a bit on the rig. Image courtesy of Rachael Lohse.

MUDLOGGING: STILL A RITE OF PASSAGE FOR MANY CMU ROCK HEADS

A significant number of recent Colorado Mesa University geology graduates have obtained full-time employment as mudloggers/wellsite geologists (MWGs). Although employment opportunities for MWGs tend to wax and wane with oil and natural gas prices, relatively stable and economic oil prices for the last several years have kept the door open for geology grads seeking good paying, entry level positions. Weak natural gas prices have meant that most of this type of work is no longer in the nearby, gas-rich, Piceance Basin, but in more distal, oil-saturated fields.

The terms wellsite geologist and mudlogger have merged somewhat in recent years. In general, the terms refer to a geologist who stays on a drilling location from start to finish and is responsible for recording, and to some extent, interpreting geologic data during the drilling process. This is commonly called "sitting a well" and is still a rite of passage into the oil and gas industry for many entry-level geologists.

The purposes of this article are to give CMU geology students who are considering career options an idea of what employment as a MWG entails and to give an update on these recent graduates who have been, or are working as, MWGs (my apologies to any I've missed): **Tim Bowers, '18, Mike Getz, '18, Michael Feil, '14, Rachael Lohse, '18, Ivan McClellan, '17, Tanner Neil, '17, Mariaha O'Dell, '17, Evan Pellowski, '18, Morgan Pratte, '18, Alexandra Price, '14, Marshall Thurmon, '18, and Adam Trumbo, '15** (deceased, see Spring, 2019 issue of this newsletter). The generalizations in this article are based in large part on comments from several of the alumni in the list above.

A MWG records geologic data during the drilling process, typically for oil and gas wells, but also for other well types, e.g., injection or mineral exploration wells. The types of data collected vary somewhat, but typically include a gamma ray log, lithology of cuttings (chips of rock created primarily by the drill bit), hydrocarbon shows, other gases, formation tops, reservoir targets, and so on, and the drilling depths with which the data are associated. Much of this data is obtained from the mud which is circulated in and out of the hole during drilling, and is why this task has historically been termed "mudlogging".

Depending on the company, and the aptitude and experience of the MWG, other tasks might be performed.

A mudlogger/wellsite geologist (MWG) records geologic data during the drilling process...much of which is from the mud circulated in and out of the hole during drilling...thus "mudlogging."



Mike Feil, '14, on the rig, February, 2020, Powder River Basin, Wyoming

These can include training new hires, running a mass spectrometer, performing x-ray fluorescence analysis, or even geosteering (controlling the direction of the drill). These latter typically involved higher pay, but can also involve changing jobs or moving into an offsite office.

All of the alumni interviewed for this article work 12-hour shifts, seven days a week and are housed on site, typically

from when drilling starts on a well until drilling is completed. Depending on the company and the amount of drilling going on, an MWG might get time off every 2 to 5 weeks, but some work several months without a significant break. This is not quite as bad as it might seem because any

interruption in the drilling process due to problems or the need to run casing, coring, etc., generally results in a day or two paid break for the MWG until drilling resumes.

Normally the MWG will live at the well site for the duration of the drilling process in accommodations provided by the employer. These vary depending on company and location from large and fairly nice, furnished trailers, to smaller camp-type trailers. Some alumni shared a room with their shift partner, others had their



The late Adam Trumbo, '15, helps flare a well. Image courtesy of Michael Feil, '14

own room, but in general considered the accommodations to be pretty good.

In general CMU alumni like the pay, the work experience, learning new techniques, and exposure to new geology. Monthly income varies widely depending on the actual number of days worked, from as low at \$2,000 to as high as \$10,000, but \$5,000 to \$7,000 per month seems to be typical. Virtually everyone contacted indicated the pay was the best part of the job, and many are paying off student loans and saving for unexpected downturns and layoffs.

Other benefits are meeting a lot of new people from various fields and learning about the industry in general. One comment: "I've gained a plethora of knowledge about drilling operations and met some incredible people along the way. I've logged all the formations in the Delaware Basin with the exception of the Precambrian. I've been lucky to see such a wide array of strata and unique drilling

"I've been lucky to see such a wide array of strata and unique drilling conditions under high temperatures and pressures in a short period of time. I've obtained valuable knowledge as a geologist."

conditions under high temperatures and pressures in a short period of time. As a result, I've obtained valuable knowledge as a geologist while experiencing the relationship it has in regards to drilling wells. I also can't complain about the extended periods of time off I have to travel and do activities I enjoy."

Our alumni agreed unanimously that the extensive travel and time away from home were the most difficult parts of employment as MWGs. Most of the work is in Texas, New Mexico, or Wyoming. In addition to the driving, being separated from loved ones and family was difficult for all. Several suggested that having a relationship with a significant other is a challenge with this type of employment. One alum commented, "...my social life has been diminished, and I find it difficult, but not impossible, to maintain if not build relationships of various kinds..."

For those interested in MWG employment, alumni interviewed recommend taking all available "soft rock" courses and being competent with computers and software, but also suggested all geology courses are important. To quote one grad, "Get very comfortable using binocular microscopes. Take field-based Dep. Systems with Dr. Jones, the way he

teaches describing rocks is exactly how we do it in this job. EXACTLY. Pay attention in Sed. Strat because the job is describing sedimentary rocks."

Although most obtained employment via online applications, many were able to reference an existing employee who was also a CMU grad. In other words, who you know matters a lot when it comes to job applications! Make friends with those

Thanks for all the generous donations!

The Geosciences Program and students greatly appreciate the strong financial support provided by the following alumni and friends of the program:

THE GEOSCIENCES TUITION SCHOLARSHIP

Verner Johnson

THE RICHARD D. DAYVAULT ENDOWED SCHOLARSHIP

Richard Barkley

GEOSCIENCES PROGRAM Junichi Funayama

GEOSCIENCES LABORATORY

Arizona Geological Society
– University of Arizona
Dr. William Hood

graduating seniors, they might help you down the road! Field Geologic Services (Grand Junction-based company), Excellence Logging, and Impac Exploration Service are a few of the companies who have hired CMU grads.

Historically, MWG employment has been a good entry level position for recent graduates, but almost all geologists move on to other employment, in or out of the petroleum industry, in a few years. Roughly half of the alumni listed above have moved on to other positions, some in oil and gas, some in other fields. •

COORDINATOR'S CORNER

PROGRAMMING AND FACULTY NEWS

Drs. Rex Cole and **Larry Jones** are retiring at the end of the spring semester. Rex has been a cornerstone of the Geosciences program for 25+ years. It's hard to fully appreciate all the contributions that Rex has made to the program but his devotion to leading field trips, providing key connections with the Western Slope energy resource community, and his efforts to train our students in Sedimentology will be sorely missed. In summary, Rex has been the "face" of the program for a long time, and it is hard to realize that he won't be teaching next fall. However, Rex isn't going away. Rex will continue to work on his myriad of projects and plans to emulate Bill Hood's emeritus presence on campus. Larry has been an integral part of the Geosciences program for 10+ years spread out over two stints (he tried to escape us during 2007-2013 but it didn't work!). Larry has done an incredible job mentoring students in the field and the classroom, developing new dynamic courses, working tirelessly to increase the visibility of the Geosciences program as well as the number of scholarships available to our geology students, and importantly, Larry is the originator and driving force behind the program's newsletter. For all of Larry and Rex's efforts, we offer sincere appreciation and thanks!!!



Dr. Rex Cole



Dr. Larry Jones

With the departure of senior faculty comes the addition of new faces to campus. **Dr. Greg Baker** joined the Geosciences faculty in the Fall semester. Greg comes to CMU with extensive experience in the shallow subsurface environment with an emphasis on ground water and geophysics. He also brings interests in geologic applications of drone technology. Greg has taught previously at University of Buffalo, University of Tennessee-Knoxville, and University of Kansas so he has hit the ground running, and he is already working closely with our students. **Dr. Cassie Fenton** was also hired as a tenure-track faculty member in geochemistry this past fall. Cassie, of course, is well known to our students and program having taught for the past three years as a full-time Instructor. Cassie is currently working with students on several projects and helping to lead the effort to revamp the Environmental Geology curriculum. **Dr. Kerry Riley** has stepped into the vacant Instructor position in the geology program, and she is now a permanent full-time faculty member at CMU. Kerry



Students, faculty, and alumni turned out for the Spring Adam Trumbo Memorial Field Trip to Onion Creek, Utah, April, 2019

is teaching a wide range of courses including a Spring Break raft trip focusing on the geology of the Colorado Plateau.

2020 CMU GEOLOGY STUDENT PRESENTATIONS AT THE APRIL 29TH GRAND JUNCTION GEOLOGICAL SOCIETY (GJGS) MEETING

Each spring, the April GJGS meeting is set aside to showcase CMU student research. Presentations are a combination of short talks and posters, and this meeting is scheduled for Wednesday, April 29. This is a great way to see what our geology students are working on at CMU.

Thank you to everyone for your continued interest and support of the CMU Geosciences Program. We hope everyone is well and that we see you soon! •

~ **Andres Aslan**, Geosciences Program Coordinator

MAVERICK GEOLOGISTS

Alumni News

Tim Bowers, '18, Michael Feil, '14, and Rachael Lohse, '18, are currently working as mudloggers or wellsite geologists for Field Geo Services, Inc., of Grand Junction. Their work locations vary from Wyoming to Texas. Tim has started grad school at Texas A & M and hopes to move on to operational geology. Mike would like to get a master's degree at some point, and Rachael plans to continue to gain experience and work her way into a more advanced opportunity, probably in oil and gas. **Evan Pellowski, '18,** recently accepted a new position with 20-20 Resources at their tar sands facility in the Uinta Basin. He is currently doing quality control work on their experimental retort process. **Marshall Thurmon, '18,** is mudlogging for Excellence Logging and working in the Delaware Basin of Texas and New Mexico.

Sally Potter-McIntyre, '06, is now an Associate Professor of Geology at Southern Illinois University Carbondale and was awarded tenure in July, 2019. Congratulations, Sally!

Scott Schindelar, '12, reports: "After Graduating from CMU in 2012 with Geology and Math degrees, I went into the Oil and Gas Industry. I used this income to qualify for loans and purchase rental properties around Grand Junction. I made a full transition to real estate in 2016 after generating enough passive rental income to support my cost of living. I opened Real Property Management NOW with a partner in mid-2016 which we've grown to over 500 units under management with five in-house staff members (two of whom are CMU alumni). We have since purchased and renovated 2755 North Avenue (VAULT) into a modern executive office building and coworking space. I enjoy providing jobs, housing, and updated office space to the community in the hopes of improving Grand Junction. I miss working in the field of geology but still collect minerals and donate my time when asked for geology discussions (ex: Girl Scouts 2019 Mica Mine hike). In my free time I volunteer on the STRIVE foundation board, frequent the CMU gym and racquetball courts, play softball on a local league, mountain bike when I can, and spend as much time as I can with my beautiful family. I am a proud alumnus of CMU as is my fiancée Cassidy (International Business BA) and believe the degrees that I earned in line with a firm financial plan gave me a significant edge when entering the real world."

We always like to hear from our former students. If you can, please drop by or send an email and let us know what you are doing! •

CLUB ACTIVITIES

The American Association of Petroleum Geologists (AAPG) Student Chapter at Colorado Mesa University

The Colorado Mesa University (CMU) student chapter of American Association of Petroleum Geologists (AAPG) continues to be a very active geology club. The club hosted two guest speakers at their monthly meetings last fall. The first speaker was CMU Geosciences alumna **Professor Alexis Navarre-Stichler, '00**, from Colorado School of Mines. Dr. Navarre-Stichler spoke about her geochemistry research and her involvement in Mines' Hydrology Master's program. The club also hosted **Dr. Greg Baker**, new Geosciences faculty member at CMU. He spoke about his research involving unmanned aerial vehicles (UAV; drones).

CMU AAPG was also involved in philanthropic and fundraising activities. On National Public Lands Day (September 28) the officers helped Bureau of Land Management geologist Erik Eckberg replace sun-damaged signs along the Devil's Canyon



AAPG Student Chapter volunteers helped replace sun-damaged signs along Devil's Canyon Trail, Fall, 2019. Left to right, Jordan Walker, Alex Jaquez-Caro, Josh Schlag, Heidi Schoenstein, and Brandi John.



Faculty and students at the entrance to the West Elk coal mine, Spring, 2019. Image courtesy of Cody Rapke.

Trail (image above). The signs inform the general public about the trail's geologic significance. CMU AAPG catered the Western Slope Field Conference last fall, and helped welcome students and faculty from nearby western-slope colleges and universities.

Minerals, rocks, and fossils are popular topics for the club. The group received a generous donation of various rocks and minerals from local geologists, and organized and hosted a Mineral and Rock Sale in the Student University Center. All proceeds went to club, and many mineral specimens went home with non-geology students. The group did a great job of increasing visibility of the geology club and program here on campus. Our students are still involved in plenty of rock-hounding and mineral hunting. Last semester they ran a fossil-hunting expedition in the Juana Lopez Member of the Mancos Shale near Whitewater. Sources say the students scored some seriously cool bivalves and ammonites!

Another highlight of late last spring was a field trip to the West Elk coal mine (image above). The trip was hosted by CMU alumnus **Cody Rapke, '15**, who was recently hired as Head (continued on page 6)



Alumnus Reno Davidson, '19 and Thomas Marso collect a sample for isotopic analysis from a boulder near Lake Mead, Arizona.



Geology students (left to right) Alex Jaquez-Caro, '19, Dana Berg, Stacy Neel, Sherri Buxton, Josh Schlag, and Jordan Walker at the New Mexico Tech argon research lab, summer, 2019.

STUDENT SPOTLIGHT

Several CMU students are working on two separate research projects under the supervision of Dr. Cassandra Fenton. **Thomas Marso** and recent graduate **Reno Davidson, '19**, helped collect samples for cosmogenic dating near Lake Powell in March, 2019, as part of a project to determine rates of fault movement and potential earthquake hazard along the Mead Slope Fault near Hoover Dam and Las Vegas. The project is funded by the USGS Earthquake Hazards Program and is a collaboration between Fenton and the Arizona Geological Survey.

The Western Colorado Stable Isotopes in Precipitation Network (WeCSIP) collects precipitation and river water in Western Colorado for isotopic analysis and involves Fenton and scientists from Fort Lewis College and Western Colorado University. CMU students **Mayah Baker** and **Abigail Winkler** are working on this project and are learning the basics of sample collection and preparation for hydrogen and oxygen stable isotope analysis.

Current geology students **Dana Berg, Sherri Buxton, Nicole Mejia-Mendoza, Stacy Neel, Josh Schlag, and Jordan Walker** along with recent grad **Alex Jaquez-Caro '19** joined Professor Andres Aslan's project developing the use of detrital sanidine to date fluvial sediments and rocks. The project was funded by the CMU Unconventional Energy Center. Preliminary lab and field work began last spring and culminated during the summer with a week-long visit to New Mexico Tech in Socorro to work in Dr. Matt Heizler's argon lab. Student research is leading to multiple senior theses, and a portion of Alex's detrital sanidine research was presented in a poster by Alex, Josh, and Nicole at the 2019 National Geological Society of America meeting in Phoenix in September. Sherri, Stacy, Josh, and Jordan will hopefully present their work at the 2020 Rocky Mountain Section American Association of Petroleum Geologists Meeting this coming September, which will be held in Grand Junction. •

NEW REFRACTION SEISMOMETER

I am very pleased and excited to announce that the Geosciences Program soon will have GEODE 24-Channel Seismodule by Geometrics thanks to a \$25,000 Unconventional Energy Fund Grant. It will be a badly needed improvement for our geophysics class. We still have the old Geometrics/ Nimbus ES-1210 12-channel refraction seismometer that was donated by Conoco Oil Company in 1992. I used this instrument for "show and tell" in geophysics class, but it is now inoperable, and the digital display is defective. Parts are no longer available so the repair companies can not repair it. Since the refraction seismometer is a critical instrument for our program here, I prepared grant proposal to the Unconventional Energy Center Fund to purchase a new state-of-the-art refraction seismic instrument. The grant was approved spring, 2019, and the seismometer is on order. I will tell you more about the refraction seismometer in the next newsletter. •

~ **Verner C. Johnson**, Professor of Geology

(Club Activities, continued from page 5)

Geologist at the West Elk. Faculty **Drs. Cassandra Fenton** and **Larry Jones** tagged along. The long wall miner was operational this year and was part of the tour. Thanks, Cody, you ROCK!

As always, the CMU AAPG chapter is interested in hosting speakers, particularly those who would like to talk about local geology or who can provide job-finding guidance to geology graduates. The Chapter would also be interested in hearing from geologists who would like to take students on local field trips. Interested individuals should contact AAPG Student Chapter president Josh Schlag: jdschlag@mavs.coloradomesa.edu. The AAPG Student Chapter Facebook page is: facebook.com/groups/216688775533834/ •

OBITUARIES

Harold (Skip) Hase, Jr.

August 26, 1941 - October 4, 2019

It is with deep regret and sadness that the Geoscience Program reports the passing of former instructor Harold (Skip) Hase, Jr., on October 4, 2019, at HopeWest in Grand Junction. As reported in the Autumn 2016 Newsletter, Skip retired from CMU after 22.5 years of service, teaching mainly Survey of Earth Science and Physical Geology. He also participated in Summer Field Camp and the Mineral Resources class. Prior to joining CMU, he worked as a mine and exploration geologist for Calumet and Hecla in the upper peninsula of Michigan and for Inspiration Consolidated Copper Company in Arizona and Colorado. He had deep knowledge and experience in the exploration for base and precious metals, industrial minerals, and uranium throughout the U.S., including Alaska.

Skip was active in the Grand Junction Geological Society (elected Councilor) and as a volunteer at Colorado National Monument, assisting with the Geology of Colorado National Monument summer course. Skip was generally a quiet man and had a dry sense of humor. He was well liked by his students and received a President's Recognition Award.

Skip obtained his B.S. in Geology from the University of Wisconsin – Milwaukee and his M.S. in Geology from Michigan Technical University. He is survived by wife Barbara in Grand Junction, and two sisters in Wisconsin.

Those wishing to honor Skip can make a donation to the Geosciences Tuition Scholarship Fund, via CMU's Foundation (supportingcmu.com/give/scholarships).

Skip retired from CMU after 22.5 years of service, teaching mainly Survey of Earth Science and Physical Geology. Prior to joining CMU, he worked as a mine and exploration geologist.



The late Harold "Skip" Hase (front row, third from right) with students at Independence Pass, June 23, 2010.

Robert Paul Kirgan, '77

November 18, 1951 – September 3, 2017

Robert Paul Kirgan, '77, passed away on September 3, 2017. Bob worked for Encana and Gunnison Energy. A more complete record of Bob's life can be found at <https://www.legacy.com/obituaries/gjsentinel/obituary.aspx?n=robert-paul-kirgan&pid=186619601&fhid=6510>

Steven Corr, '15

January 5, 1989 – May 12, 2019

<http://www.haskellfuneralhome.com/obits/obituary.php?id=713038>

ADAM TRUMBO MEMORIAL SPRING FIELD TRIP APRIL 4, 2020

Our field trip this year will be led by Dr. Rex Cole focusing on the geology of the **Glenwood Canyon and Rifle areas**. We had a great trip to Onion Creek last spring (see photo, page 4) and we hope that students and alumni will join us again – everyone is invited! Alumni – if you want to attend, please email Dr. Andres Aslan (aaslan@coloradomesa.edu) that you are coming, and we will arrange a meeting place and time.



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BASE LEVEL: FROM THE EDITOR

This is my last issue as newsletter editor. I would like to thank everyone who has helped for the last 6 ½ years, including various faculty who have contributed copy and alumni who have sent us updates. Special thanks go to Lisa Smith and Jeremy Smith who have taken care of layout and arranged for printing and mailing. Thanks, everyone! •

~Larry Jones, Newsletter Editor, Instructor of Geology
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