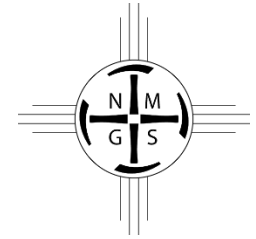


# NMGS NEWSLETTER

VOLUME 21, DECEMBER 2019



## PRESIDENT'S MESSAGE

**Daniel Koning**

As we approach the New Year and contemplate the past one, I am pleased to report on NMGS highlights for 2019. We had another interesting and fruitful Spring Meeting, with the topic of “Recent advances in geophysics in New Mexico.” The Fall Field Conference was fun and informative. I liked the blend of volcanic rocks, Mesozoic sedimentary rocks, and geomorphology. Clayton was a charming town to base the trip from, and I thoroughly enjoyed the banquet venue at the museum.

We should be proud that the New Mexico Geological Society continues to be the premiere organization that promotes the geology of New Mexico. Specifically, the mission of the Society is to advance the public interest in the geosciences (including related sciences like hydrogeology and paleontology), foster research and publication, and encourage cooperation among its members. Much effort is focused on disseminating recent research—via publications, our Spring Meeting and Fall Field Conference—and providing scholarships and grants to students to encourage the next generation of geoscientists. Dedicated volunteers are the backbone to the success of the Society. In addition to those serving on the Executive Committee and Foundation Boards, I give special thanks for the organizers of the Annual Spring Meeting (Shari Kelley and Alex Rinehart) and the Fall Field Conference (Frank Ramos, Matt Zimmerer, and Kate Zeigler). I also thank Andy Jochems for serving as Publications Chair for many years. Alas, he has moved on and we are now seeking a replacement.

I leave with an appeal for volunteers to organize and run future Fall Field Conferences. We really need to get Fall Field Conferences lined up for 2022 and beyond. If you are wrapping up a geoscience project or are charmed about the geology of a particular part of the state, please consider showing it off in a Fall Field Conference trip!

## HIGHLIGHTS FROM 2019

### 2019 Scholarships and Grants-In-Aid

One NMGS's main goal is to support student research. The Society awarded a total of ~\$40,000 to various student initiatives in 2019. Our Grants-in-Aid provide a major source of funding for students to conduct their research. In addition to learning science skills while working on their theses or dissertations, the process of applying for a grant-in-aid is a valuable experience in preparing proposals that is practical for almost any future job. In addition, NMGS grants students free memberships to the Society, discounts on NMGS publications, free

attendance to the Annual Spring Meeting, and numerous field scholarships to attend the Fall Field Conference. As you know, a student's personal income may be rather limited, and footing the \$350 bill to attend a Fall Field Conference could be rather daunting. It's wonderful that through our scholarships students have the opportunity to attend a Fall Field Conference, learn about the geology of a certain place or topic, and also interact with professional geologists. Other scholarships and grants allow students to have money to do a few more essential analyses for their thesis/dissertation, or simply help foot the bill for books.

|  |                 |
|--|-----------------|
| Spring Meeting Registration & Student Memberships      | \$2275          |
| Spring Meeting Best Papers                             | \$400           |
| Pipkin Scholarships and Outstanding Senior (Spring)    | \$4,625         |
| Grants-In-Aid (includes Kottlowski and Cearley grants) | \$26,129        |
| Wellnitz (FCC)   | \$2,000         |
| FCC Scholarships & Student Memberships                 | \$4250          |
| New Mexico Science Fair Awards                         | \$200           |
| <b>TOTAL 2019 STUDENT SUPPORT</b>                      | <b>\$39,879</b> |

The Kottlowski and Cearley Awards go to the top-ranked Grants-in-Aid applicants. The Scholarship Committee and the Executive Committee would like to recognize the three students who received these awards in 2019.

## 2019 Frank Kottlowski Award

**Morgan Wade Maynard Nasholds** (*Masters Student*), New Mexico Institute of Mining and Technology.

PROJECT: UTILIZING  $^{40}\text{AR}/^{39}\text{AR}$  GEOCHRONOLOGY TO UNDERSTAND THE FREQUENCY AND CHARACTERISTICS OF POST-CALDERA VOLCANISM AT THE VALLES CALDERA, NEW MEXICO, USA.



Morgan submitted a solid, well-written application with great organization, layout, and visuals/figures. The proposed study builds on older scientific findings and uses new technology to solidify post-caldera volcanism. The study has both scientific and societal importance because of an analysis of geologic hazards. The research tries to answer hazard questions for the surrounding area in case of new volcanic phases.

## 2019 James and Susan Cearley Awards

**Shay Parker Ridl** (*Masters Student*), New Mexico State University.



PROJECT: DECIPHERING LATE-STAGE, PLIO-EARLY PLEISTOCENE DRAINAGE EVOLUTION OF THE ANCESTRAL RIO GRANDE RIVER IN THE CENTRAL AND SOUTHERN RIO GRANDE RIFT, NEW MEXICO.

Shay prepared a very well-written proposal to study paleoflow of the Rio Grande in southern New Mexico.

**Michael Wyatt** (*Masters Student*), New Mexico State University.



PROJECT: USING GEOCHRONOLOGY AND ISOTOPE GEOCHEMISTRY TO EVALUATE THE ERUPTIVE HISTORY OF THE SCHOOLHOUSE MOUNTAIN CALDERA, SOUTHWEST NEW MEXICO.

Michael detailed the significance of proposed work to define better ages and sequences of volcanism in Mogollon-Datil volcanic field in an organized and thoughtful manner.

### Scholarship Funding

The generosity of donors has done much to advance the goals of the Society. We have benefited greatly from past generous charitable gifts from the estates of Lucille H. Pipkin, Beverly and Robert Wellnitz, and Frederick D. Trauger. These individuals donated reoccurring financial assets to the Society, which continue to support student scholarships to this day. Also, the Los Alamos Geological Society generously sponsors four students every year to attend the Fall Field Conference. In addition to the newly established *Cearley Geochronology Award*, the James and Susan Cearley also fund meritorious Grants-in-Aid awards for a graduate and an undergraduate research project, as well as providing money for students to attend the Fall Field Conferences. Numerous other NMGS members have provided donations to help fund student research or attendance to the Fall Field Conference. I and the rest of the EC really appreciate your generosity, and a list of donors (who wished to be recognized) is provided at the end of this newsletter. If you would like to join in donating to our Society, please visit the following URL:

<https://nmgs.nmt.edu/donations/home.cfm>.

## 2019 Annual Spring Meeting

The Annual Spring Meeting was held on Friday, April 12, 2019, at Macey Center in Socorro. Its theme was “Recent advances in geophysics in New Mexico.” Scott Baldrige, the keynote speaker, gave a synopsis of SAGE (Summer of Applied Geophysical Education) work conducted in a structurally interesting area southwest of Santa Fe. Much thanks to Shari Kelley and Alex Rinehart for organizing the meeting. As in the previous year, there was a student-professional lunch that facilitated interaction of students with geologists from a variety of businesses and government organizations. Thank you Bonnie Frey for keeping this useful function alive.

## 2019 Fall Field Conference: Raton-Clayton Area



Photograph of Capulin volcano, Stop 1 of Day 1. Photo courtesy of Mark Betts.

I trust folks had as good of time as I did on the Fall Field Conference this year. I saw a bit of northeast New Mexico (east of Raton) for the first time a couple of years ago, and I found it rather enchanting with the grassy expanse interspersed with a variety of volcanic cones. To learn about the geologic details of this corner of the state was fun and rewarding.

The weather on the first couple of days was a little chilly or drizzly at times, but nothing that could dampen the enthusiasm of the participants, including 28 students. The first day we visited basaltic volcanic features of Capulin volcano and its smaller counterpart to the north, Baby Capulin. Then we drove to the top of ~8 Ma flows that cap Johnson Mesa for a regional view of the Raton-Clayton volcanic field. There, we gained an appreciation of the amount of landscape denudation that has occurred since ~8 Ma. On Day 2, we drove down Dry Cimarron Valley, seeing and



An essential ingredient for Fall Field Conference – look at the rocks! Photo courtesy of Kent Budge.

discussing: (1) a beautiful waterfall and ages of inset basalt flows, (2) a curious geomorphic bench midway up the canyon walls (due to landslides or differential hardnesses in Mesozoic



Angular unconformity at Steamboat Butte in the Dry Cimarron Valley. The tilted Travesser Fm is overlain by a thick section of Exeter Sandstone. Stop 3 of Day 2. Photo by Kent Budge.

rocks?), and (3) an intriguing angular unconformity and sandstone injectite further down the canyon. We witnessed beautiful weather on Day 3, which allowed great vistas as we drove westward back to Raton and stopped to visit a spectacular mafic dike (Tinaja dike) intruding the Mancos Shale, possibly due to Latir volcanism 50 miles to the west.

Clayton was a charming little town to base the trip, and I really liked holding the banquet and ice-breaker in the interesting Herzstein Museum. We appreciate that

both the Folsom and Herzstein Museums allowed us to peruse their exhibits and use their facilities for our barbeque and banquet. Thanks also to rancher James Boyd for letting us hang out in his yard for lunch on Day 2.

Running a NMGS Fall Field Conference takes notable commitment and work. Running a FFC two-times in two years is a particularly admirable feat. So much kudos to Frank Ramos for taking on the challenge. Other organizers were Kate Zeigler and Matt Zimmerer. Dana Ulmer-Scholle did another professional job with the guidebook and handling last-minute publication problems that arose. Keith Davis helped with the drink truck and many NMGS members volunteered to drive vans. Connie, as usual, did an extraordinary job as the registration chair. A big thank you to all who helped make this year's fall field conference a success!



No, it's not some igneous intrusion, but a sandstone injectite within the Sloan Formation. Stop 4 of Day 2 (Photo by K. Budge).

Photo below is by Kent Budge



This is an igneous intrusion – a great example of a dike. The dike is composed of basanite with coarse hornblende and clinopyroxene crystals and it is cross-cutting Mancos Shale (left side of outcrop). A good end to a great field trip.

## WHAT'S IN STORE FOR 2020

### A new competitive grant for grads or undergrads!

Students and professors -- a new competitive grant has been established called the *Cearley Geochronology Award*. Students can apply for this award on the Grants-In-Aid application that will be available from January 1 through February 21 of 2020. There is a total of \$5,000 available per year to be split among multiple student projects, with a maximum award of \$2,000 per graduate or undergraduate student. This competitive grant will be awarded to exceptional student(s) doing high-quality, field-orientated research at a New Mexico University. The money will fund the preparation, analysis, and evaluation of geologic field samples for the purpose of geochronology. The award can be stand-alone, or be given in addition to other NMGS awards. MUCH THANKS TO JAMES AND SUSAN CEARLEY FOR MAKING THIS AWARD POSSIBLE!

### Grant-in-Aid

This year, the period of time to apply for a 2020 grant-in-aid and research award and graduate mentorships is extended: opening January 1 and ending on Friday, February 21, 2020. The best submittals will be awarded the prestigious Kottowski and James and Susan Cearley Awards. Students whose projects entail field-based geochronology can apply for the *Cearley Geochronology Award* (as a stand-alone or in addition to other grants-in-aid and mentorship awards). More information on competitive scholarships and awards, plus the application forms, can be found at:

<https://nmgs.nmt.edu/scholarships/awards>

### 2020 Annual Spring Meeting

Mark your calendar for next year's Spring Meeting: **Thursday, April 16, 2019**. Note that the meeting is on Thursday due to date conflicts with other Friday events at Macey Center. The organizers of this meeting are Diane Agnew (Albuquerque Bernalillo County Water Utility Authority) and Susan Lucas Kamat (NM Energy, Minerals, and Natural Resources Department). This year's theme is: "*Our Common Future: Reliability, Robustness, and Resiliency for Effective Risk Management Environmental Geology and Hydrology*". By looking at the broader topic of risk management, this conference theme is applicable to a broad range of conference participants having professional backgrounds in oil and gas, water resource management and utilities, university programs, and engineering. However, the traditional variety of geologic, hydrologic, and paleontologic sessions will also be offered. Registration information and the call for abstracts will be available in January at: <https://nmgs.nmt.edu/meeting>

## 2020 Fall Field Conference: Mount Taylor Region

The Mount Taylor geologic compilation map is done, and there is some really cool geology to see at Mount Taylor. Surrounding this Plio-Pleistocene volcano is an interesting array of Mesozoic rocks that: (1) tell a fascinating story of Cretaceous transgression/regressions, and (2) host one of the most lucrative uranium deposits in the world that spurred heavy mining activity in the 1950s through 1960s. This field trip will focus on a variety of aspects of this uranium mining (i.e., ore deposits, milling, and environmental recovery) as well as volcanic and Jurassic-Cretaceous strata. The trip is organized by: Bonnie Frey, Shari Kelley, Kate Zeigler, Fraser Goff, and Virginia McLemore. Mark your calendars for September 23-26, 2020, and if you want to submit a paper the deadline is March 1, 2020. For more details, see: <https://nmgs.nmt.edu/ffc>



View of Mt. Taylor and La Jara Mesa from Day 1, Stop 2 planned for the 2020 FFC. Slopes in foreground are Morrison Formation.

## Future Fall Field Conferences

Although we have 2021 lined up, WE REALLY NEED FOLKS TO ORGANIZE AND RUN FUTURE TRIPS. Suggestions, trip leaders, and volunteers to help with Fall Field Conferences are always welcome. Please submit your suggestions or interests to the Executive Committee.

2021 – Socorro area. We will visit new sites in the Quebradas (northeast of town), volcanic rocks and the Santa Fe Group south of town (possibly visiting the Little San Pascual Mountains as well), and on Saturday Richard Chamberlin will discuss a nicely exposed accommodation zone in San Lorenzo Canyon. A pre-meeting, optional trip will be run in conjunction with Turner



Expeditions of the Fra Cristobal Mountains—which I think have some of the best-exposed Laramide structures in the state as well as a locality where you can see three detachment slides. This conference will be based in Socorro and is being organized by Dan Koning, John Nelson, Richard Chamberlin, Colin Cikoski, and others.

2022 – ???

### **2019 NMGS Honorary Member – Mary Dowse**

The NMGS has a great tradition of awarding an honorary membership that recognizes service to the Society and contributions to the geology of New Mexico. This year’s recipient is Mary Dowse.

The awardee of this year’s honorary membership has been a notable supporter of the Society for two decades, as well as an energetic professor at Western New Mexico University. Her love of teaching and geology has fueled her to run, pretty much by herself, the geology minor program at her university. As a professor, she actively engaged students, many of whom were under-prepared for college, to learn the skills needed to carry them through their university years and into professional life. In addition to this time spent teaching, Mary Dowse has volunteered 5 years to serve on the NMGS Executive Committee (2012-2016). Her enthusiasm for the science of geology is contagious, and few have racked up as much driving miles as her to attend NMGS functions like Fall Field Conferences, Annual Spring Meetings, and Executive Committee meetings. This volunteering effort follows her maxim regarding what is needed for a successful career: volunteer in professional societies and take advantage of professional development opportunities whenever possible. Congratulations Mary!

### **Publications Committee**

NMGS publications are great ways to disseminate geologic research and knowledge to the broader community. Our publications include Fall Field Conference Guidebooks, Special Publications (including my favorite, *The Geology of New Mexico – A Geologic History (SP-11)*), and the New Mexico Geologic Highway map.

Last year, we also released Special Publication 13, a six-volume series (co-published with the NM Bureau of Geology and Mineral Resources) that provide a comprehensive and extensive review of New Mexico’s energy and mineral resources. Written by local experts, this series covers petroleum, coal, uranium, and geothermal energy resources as well as metallic mineral deposits and industrial minerals + rocks. Each volume expounds on the geologic nature of the resource, the history of its development in New Mexico, and the importance of the resource to the world and New Mexico’s economy.

A bit of sad news is that Andy Jochems stepped down as the publications chair this year, after serving for 3 years. We will miss his service and commitment. If any member would like to serve on the publications committee, please contact any of the executive committee members.

Publication sales for 2019 (to-date) totaled \$19,961. This figure includes the FFC Guidebooks, NMGS Highway map, Special Publications, and the NMGS canvas bag. Sales of the newly released Special Publication 13 returned \$1389.

Information about NMGS's publications and prices can be found here:  
<https://nmgs.nmt.edu/publications>

## ACKNOWLEDGMENTS

### A special thanks to Susan Lucas Kamat

Susan is stepping off of the Executive Committee this year. I want to give a big shout-out for all she has done, and is continuing to do, for the society. Serving on the Executive Committee for



Susan Lucas-Kamat (left, past President) is rotating off the EC, but is still very involved with NMGS. On right is Shannon Williams, who will be the 2020 Executive Committee President

five years requires notable commitment, and Susan did the job with a lot of professionalism and appreciation for detail. I will remember her versatility with spreadsheets and number-crunching. It was really nice for me, as the next one in the line-up, to follow such a capable and exemplary person. She's definitely not stepping away from the society, however.

Susan is continuing to serve on the Scholarship Committee and is helping organize both the 2020 Spring Meeting and the

social functions of the 2021 Fall Field Conference. Her volunteering spirit is commendable. Thank you Susan!!!

## 2019 Executive Committee members

**Past President:** Susan Lucas Kamat, NM Energy, Minerals, and Natural Resources Dept.

**President:** Dan Koning, NM Bureau of Geology & Mineral Resources

**Vice President:** Shannon Williams, Daniel B. Stephens & Associates

**Treasurer:** Dan Cadol, NM Institute of Mining and Technology

**Secretary:** Scott Baldrige, emeritus of Los Alamos National Laboratory

## Other NMGS personnel (for 2020)

**NMGS webmaster:** Adam Read

**Registration and secretarial:** Connie Apache

**Scholarship Committee:** Susan Lucas Kamat, Regina Rone, Dan Cadol

**Publications Committee:** Virginia McLemore, Barry Kues, Dana Ulmer-Scholle, Adam Read, Steve Simpson, Chris Wolf

**AAPG Delegate:** Jolante Van Wijk

## DONATIONS

### 2019 NMGS Foundation Donors (as of 12/17/19)

Total donations - \$18,000

Tony Benson

John Bloch (*in memory of Sam Bowring*)

Glen Brown

Thomas Byrd

James & Susan Cearley

Richard Chamberlin

Mary Dowse (*in memory of Dr. John (Jack) Cunningham*)

Rhea Graham

Gretchen Hoffman

Barry Kues

Stephen Maynard

Virginia McLemore

Nancy McMillan

Robert Newcomer

Charles (Jack) Oviatt

Richard Ortiz (*in honor of Drs. Grant Meyer and Paula Watt*)

John Rogers

David Swenson

Charles Thorn

## 2019 NMGS Fall Field Conference Donations

Total donations - \$9425

|   |                        |
|---|------------------------|
| W. Scott Baldrige                       | Mark Betts             |
| Peter Burck                             | James Cearley          |
| Robert Couch                            | Geo-Logic & Associates |
| Susan Hoines                            | David Lemke            |
| Eric Nelson (Los Alamos Geological Soc) | Robert Newcomer        |
| James Sallee                            | Jonathon Sandor        |
| David Swenson                           | Maryann Wasiolek       |

## 2019 NMGS Spring Meeting Donations (includes mixer)

Total donations - \$6855

|                       |                   |
|-----------------------|-------------------|
| W. Scott Baldrige     | James Cearley     |
| Robert Couch          | Paul Drakos       |
| David Ennis           | Nicholas Harrison |
| Michael Hermann       | Fred Hinker       |
| Michaela Gorospe      | Eric Kappus       |
| Lawrence Kemp         | Robert Newcomer   |
| Charles (Jack) Oviatt | Colleen Rust      |
| Paul Schwering        | Charles Thorn     |
| William Turner        | Shannon Williams  |

\$\$\$ THANK YOU ALL FOR YOUR GENEROUS SUPPORT \$\$\$