



# NMGS NEWSLETTER

VOLUME 14, NO. 1, FALL, 2011

## **PRESIDENT'S MESSAGE**

**Barry S. Kues**

### **Introduction**

The New Mexico Geological Society has completed another busy year in 2011, and the purpose of this newsletter is to highlight the year's activities and to note some events that are scheduled for the future. The mission of NMGS, broadly speaking, is to promote interest in the geosciences generally and in the geology of New Mexico particularly, and to support geoscience education and study of and publications on the geology of the state. The four core activities that contribute towards fulfilling this mission are the Spring Meeting, the Fall Field Conference, a robust program of scholarships and research grants supporting geoscience students at New Mexico's colleges and universities, and production of publications relating to the geology of the state. The approximately 600 members of NMGS include a wide variety of people, from professional geoscientists in academia, industry, and government, to students, to many who are retired or who work outside of the geosciences but share an interest in the state's remarkable geological environment.

Many members participate regularly in the Society's major functions. I thank all of you who value the Society's activities sufficiently to renew your membership year in and year out. And a special thanks to all of you who donate to the scholarship funds and contribute your time and effort towards the Spring Meeting and Fall Field Conference. These simply would not be possible without your dedicated support. Speaking for the Executive Committee, we are always interested in your thoughts and suggestions regarding all that NMGS does and how the goals of the Society may better be carried out.

### **General Information**

The day-to-day activities of NMGS are managed by the Executive Committee (EC), elected by the membership at the end of each year. The EC acts to ensure that all of the Society's programs are conducted successfully, on time, and within budget, and works to implement new initiatives suggested by members that further the Society's goals. Current members of the committee, in addition to myself, are Nelia Dunbar (NMBGMR), vice-president; Greg Mack (NMSU), treasurer; Virginia McLemore (NMBGMR), secretary; and Kate Ziegler (NMHU), past president. Each officer of the committee stands for election to the next position at the end of the year, with a new secretary joining the committee and the past president rotating off. This sequential movement from secretary through to past president ensures that each member of the EC masters a particular segment of the Society's functions each year, and provides effective institutional memory for the Society. Dr. Mary Dowse, of Western New Mexico University, has agreed to stand for secretary in 2012. A ballot containing the slate of candidates for the EC (with room for write-in candidates for each office) will be sent out electronically to members before the end of this year. Please take the time to review the ballot when you receive it and vote for the candidates of your choice.

The main sources of annual income for the Society are membership dues, sale of publications, and registration fees for the Spring Meeting and Fall Field Conference. The bulk of this income is expended on new publications (generally one new guidebook and a separate volume consisting only of the road logs each year), and in paying the costs of the Spring Meeting and Fall Field Conference (which may or may not show a small profit). Some funds are

also allocated to the New Mexico Bureau of Geology and Mineral Resources, which allows selected personnel to perform essential duties for the Society (we have no paid staff of our own). For the past few years income has slightly surpassed expenditures, and the Society's financial condition has been steady and good even through the economic uncertainties of the past few years. Membership dues for 2012 will be the same as for 2011.

Publications sales are the largest component of the Society's annual income. This includes sales of past editions of the guidebook as well as the most recent one, and other publications currently in print, such as the Geologic Highway Map and Special Publication 11, The Geology of New Mexico. The Society maintains a large inventory of its publications in Socorro, and this year has begun to try to significantly reduce that inventory by offering many older guidebooks at the bargain price of \$5 each. In addition (see below), the Society is committed to publishing three new books (in addition to the yearly guidebooks) within the next three years. All of the Society's publications may be ordered from the NMGS web site and of course are available at the Bureau's offices in Socorro and Albuquerque, at NMGS meetings, and at local and regional meetings of other geological organizations through the much appreciated efforts of Connie Apache, April Brunson, and Susie Ulbricht.

Some Society functions are maintained through each year by certain dedicated individuals, without whom we would find it difficult to operate, and who deserve a strong thank-you from the membership and the executive committee. Virgil Lueth, our managing editor, combines individual papers, road logs, and photos into the field conference guidebook and sees to its publication by the time of the conference. Adam Read maintains the Society's web page, which allows online purchase of publications and registration for meetings. Connie Apache serves as registration chair for the Spring Meetings and Fall Field Conferences. Shari Kelley co-chairs the publications committee with Claudia Lewis and keeps careful track of sales and inventory. In addition, the New Mexico Bureau of Geology and Mineral Resources assists NMGS in many ways, and I am pleased to take this opportunity to thank its Director, Peter Scholle, who retired earlier this year, for his constant support of the Society.

### **NMGS Foundation**

The NMGS Foundation is another important part of the NMGS enterprise. NMGS created the Foundation in 2003 as a separate entity to manage scholarship funds and other assets and donations, to preserve the nonprofit status of the Society, and to shelter these funds from any liabilities faced by NMGS and its executive committee. The Foundation is governed by a board of directors, nominated by the executive committee, and elected annually by the NMGS membership. The vice-president of NMGS serves as one of the five-person board. I wish to thank the members of this year's board – Tony Benson, Laura Crossey, Nelia Dunbar, Tim Lawton, and John Shomaker – for their service and stewardship of the Foundation's assets, allowing the Society to maintain its support of student scholarships and other geoscience-related activities. A ballot for the 2012 board of directors will be sent to the NMGS membership towards the end of the year.

### **Guidebook Award**

Earlier this year we were informed that the Geoscience Information Society, an associated society of the Geological Society of America, had selected last year's NMGS guidebook, Geology of the Four Corners Country, as the winner of its "Best Guidebook Award" for 2011. NMGS guidebooks for 2000 and 2005 also received this award; three winners in 10 years is not bad! To put that in perspective, only two other state geological societies (Nevada and Utah) have received this award during that time, and each won only once. This recognition underlines what NMGS members have long known – our society produces excellent guidebooks each year!

### **New Books**

In addition to the yearly guidebooks, NMGS is in the process of producing three additional books about the geology of New Mexico. The first is a book on the history of the study of New Mexico geology, centered on biographical profiles of 50 to 75 notable geologists who have contributed significantly to our understanding of the geology of the state. Numerous Society

members have volunteered to write profiles for this book, which will be edited by Claudia Lewis and Barry Kues. The second is a volume of contributed papers, edited by Ginger McLemore, providing up-to-date summaries of most of New Mexico's economically important geological resources. The NMGS Special volume on Mineral Resources in New Mexico is proceeding on schedule. At least two chapters are nearly completed (metallic resources and uranium) and should be in review by the end of the year. We hope the entire volume will be completed by the summer of 2012. And the third book, written by Virgil Lueth, will trace the geological evolution of New Mexico's most important mineral deposits. This book will include information on major mining districts and many color photos of outstanding New Mexico minerals. None of these books are far enough along so that we have firm publication dates, but we're hoping to get the first one out by the end of 2012.

### **Web Resources**

The NMGS web site (<http://nmgs.nmt.edu>), maintained by Adam Read, contains all essential information about the Society and its activities, including information on upcoming events, applications and information about various student scholarships and research grants, and a complete list of publications available. The contents of the first 25 guidebooks may be downloaded for free, as can the abstracts for papers in subsequent volumes. We expect to make the contents of some more recent guidebooks available during 2012.

Two new online repositories connected to the website are in the process of being created. The first is a data repository, mainly designed for guidebook authors to allow them to shift voluminous data related to papers from printed appendices to an online data file. The second repository will be a historical archive of information related to New Mexico geologists and NMGS. Ultimately we hope this will be a place for biographical information about geologists who have worked in New Mexico, oral histories, anecdotes and recollections, and the like, that will allow otherwise transitory unpublished information to be preserved.

### **End-of-the-Year Matters**

As in the past, all members will be receiving several communications near the end of the year. In addition to this newsletter, a brochure with an updated list of all NMGS publications will be sent via regular mail, to facilitate your ordering of those much-coveted past guidebooks, geological highway map, and special publications (perusing or ordering NMGS publications may also be done via the Society's web site). In December you will receive membership renewal information and a ballot for the slate of officers for the 2012 executive committee and for the NMGS Foundation Board of Directors. Please take the time to vote and to renew your membership!

In past years all members have received a print copy of the NMGS membership directory. In order to cut printing and mailing costs, and because some members have suggested it, the 2012 membership list will be online at the NMGS web site.

### **Scholarships and Research Grants**

The Society has always placed great emphasis on supporting the education and research of geoscience students at colleges and universities across New Mexico. We accomplish this both through the award of a variety of scholarships and grants in aid of research throughout the year, as well as supporting students with free NMGS memberships, a 35% discount on all NMGS publications, and subsidies for attending the Spring Meeting and Fall Field Conference. These awards are derived from interest generated by funds – much of them donated by past and present NMGS members – managed by the NMGS Foundation. Grant proposals are judged by a committee and scholarships are determined by recommendations from the students' academic departments

The amount awarded to students for scholarships and research grants in 2011 increased significantly over the level of the past few years. In part this was due to an increase in the Foundation's assets this year, but also reflects a concerted effort by Vice President Nelia Dunbar to increase awareness of the availability of these awards, both by students and their academic departments, which included reaching out to several institutions (e.g., branch

campuses) that previously had not been involved in NMGS activities. In addition, the Los Alamos Geological Society provided eight fall field conference scholarships, and NMGS member John Throne and an anonymous member added two additional fall field conference scholarships.

In all, NMGS awarded \$47,500 in graduate and undergraduate research grants, and an additional \$38,100 in scholarships were awarded through NMGS. The total of more than \$85,000 represents a new record for student scholarships and grants, and an important investment in the education of the next generation of geoscientists. We take great pleasure in listing all of the 2011 student award recipients here.

**Frank E. Kottowski Research Award** (\$2500) – Robert Salaz (NMT)

**Graduate Research Grants** (total = \$34,500) – Christopher Clinkscales (NMSU), Corey Dimond (NMSU), Erin Fitch (UNM), Pruthvidhar Geedipally (NMT), Sevon Geil (NMHU), Casey Gierke (NMT), John Gilbert (NMSU), Eva Gladisch (NMSU), Jessica Hubbling (NMT), Tara Jonell (NMSU), Kelsey McNamara (UNM), Vyoma Nenuji (NMT), John Nybo (NMT), Yong Jae Oh (NMT), Alexandra Priewisch (UNM), Trevor Schlosnagle (NMT), Lauren Sherson (UNM), Matthew Sophy (NMT), Mussie Tewelde (NMT), Rhonda Trujillo (NMHU)

**Graduate Mentorship Awards** (\$1500 each) – Christopher Clinkscales (NMSU), Erin Fitch (UNM)

**Lucille Pipkin Undergraduate Research Grants** (total = \$7,500) – Cassidy Dimitroff (NMSU), Joseph Hecker (NMSU), Lucas Middleton (NMSU), Clayton Pilbro (UNM) Gabriela St. Pierre (NMSU)

**Outstanding Student Spring Meeting Presentation Awards** (\$100 each) – Andre Richie (NMT; best paper), Clark Short (NMT; best poster)

**Robert Wellnitz Memorial Scholarship** (\$1000) – Tara Jonell (NMSU)

**Beverly Wellnitz Memorial Scholarships** (\$500 each) – Emily Morton (NMT), Kevin Hobbs (UNM)

**Lucille Pipkin Senior Scholarships** (\$3000 each) – Casey Loofbourrow (ENMU), Rachelle Petrucha (NMHU), Joseph Hecker and Ryan Mulhall (NMSU), Paige Czoski (NMT), Matthew Kidd (UNM)

**Lucille Pipkin Book Scholarships** (\$150 each)

ENMU – Katherine Hamilton, Ryan Jackson, Sarah Delfin  
NMHU – Timothy Bogert, Amanda Melendrez, Christopher LoPresti  
NMSU – Cheylene Keith, Ayobami Folaranmi, Bridgette Miller  
NMT – Alexandra Eisele, Ashley Hutton, Amy Reed  
San Juan College – Katrina Powell, Bonny Keil, Francesca Benally  
UNM – Elizabeth McConaghy, Kevin McKeage, Jesse Sprague  
WNMU – Amanda Karpa, Cassie Hodge (Outstanding Senior Award)

**Fall Field Conference Graduate Scholarships** (\$150 + registration paid)

NMHU – Rhonda Trujillo, Marine Foucher  
NMSU – Tara Jonell, Sarah Machim  
NMT – Mark Green, Drea Killingsworth, Rebecca Morris, Emily Morton, Matt Sophy  
UNM – Alexandra Priewisch, Jason Ricketts, Magdalena Sandoval, April Tafoya

**Fall Field Conference Undergraduate Scholarships** (\$150 + registration paid)

ENMU – Sara Delfin, Katherine Hamilton, Ryan Jackson  
NMHU – Tim Bogert, Danielle Cedillo, Amanda Melendrez  
NMSU – Cass Dimitroff, Joseph Hecker  
NMT – Andrew Arkin, David Kizesni, Natalia Tenorio  
San Juan College – Kristofer Brack, Wanda Henderson, Dennis Marquez, Thomas Murphy  
UNM – Lynn Anderson, Gaylen Barnett, Samantha Cafferky  
UNM-LA – Allan Lerner

UNM-Taos – Linda Glickstein, Ricardo Gonzales  
WNMU – Aaron Beckwith, Christopher Cottingham, Amanda Karpa, Kathy Sorells

**Fall Field Conference Flag people** (registration waived) – NMHU: Adam Brister, Darren Lemen, Christopher LoPresti, Andrew Romero, Salvador Sena

### Spring Meeting

The 2011 annual Spring Meeting was held on Friday, April 15, in the Macey Conference Center on the New Mexico Tech campus in Socorro. The meeting was organized by Karl Karlstrom and Laura Crossey from UNM (technical chairs), with Shari Kelley (NM Bureau of Geology and Mineral Resources) as logistical chair and Connie Apache (NMBG&MR) as registration chair. The theme session was “Manifestations of mantle-to-surface connections in the Southwest”, and Brandon Schmandt (University of Oregon) presented the keynote address, “Western U. S. upper mantle structure: revealing links between small-scale mantle convection and surface geologic activity”. A total of 67 talks and posters were presented at the meeting, many of them by students. About 120 paid registrants attended.

### 2011 Fall Field Conference

The 62nd annual Fall Field Conference (FFC) was held on September 28 to October 1 and featured three days of field trips examining the geology of the Tusas Mountains and Ojo Caliente area in north-central New Mexico. Headquarters for the conference was Espanola, NM. Many thanks go to the organizers, Dan Koning, Shari Kelley, Karl Karlstrom, Scott Aby, and Kirt Kempter for producing an outstanding conference. Putting together a field conference typically begins at least two years before its scheduled time and involves much detailed planning, road-logging, and arrangement of all the logistics (transportation, banquet, barbecue, daily lunches, etc.), as well as production of the accompanying guidebook.



Matt Heizler and Karl Karlstrom assist Dan Koning with his presentation at Stop 1, Day 1 of the 2011 FFC.

This year's field conference brought participants to areas not previously examined by past conferences, in the lovely forested terrain of the southern Tusas Mountains, in which small, secluded, old Hispanic towns like La Madera, Vallecitos, and Petaca have existed since Spanish and Mexican colonial times. On the first day, we examined fluvial facies of the Miocene Tesuque formation and gorges eroded in Proterozoic bedrock, studied kyanite and distorted folds in 1.7 billion-year-old schists and conglomerates, looked at outcrops of a curious mid-Cenozoic rhyolite flow, and collected minerals

from the Apache pegmatite mine near Petaca. The second day began with a tour through several Oligocene tuffs in Canada del Agua and discussion of a perplexing large dacite megabreccia block (or was it an intrusion?) within one of the tuffs; then we looked at volcanic and volcanoclastic units at the old Petaca mill, where more pegmatite minerals were collected; moved on to road cuts near La Madera to examine several Santa Fe Group units and a fault that offsets them; and finished the day climbing around Santa Fe Group road cuts and admiring travertine deposits from ancient hot springs discharging from near the Ojo Caliente fault. The third day of the conference began with a stop at the Ojo Caliente hot springs, after which participants divided into four groups to examine several different aspects of the local geology, including a Miocene tuff ring, an expedition to the middle crust via exposures of Proterozoic metamorphic rocks, inspection of massive ancient travertine deposits and some that are forming today, and a visit to Arroyo Seco to view Santa Fe Group strata overlying Proterozoic bedrock.



Which way is up? Conference attendees puzzle over the structural orientation of the Proterozoic Ortega Quartzite at Stop 1, Day 1.

In addition to the conference leaders, who devoted hundreds of hours to planning and organizing this three-day event, others also played critical roles in making the conference a success, including Virgil Lueth, guidebook managing editor; Connie Apache, registration chairman; Connie and Susie Ulbricht, who managed the publications tables; Mark Mansell and Dave McCraw, who kept the snack and drink truck well supplied; Gina Rhone, who produced the now-traditional annual conference tee-shirts; and the intrepid group of New Mexico Highlands flag people, who

helped keep us from getting lost. We also thank all of the numerous authors of guidebook papers and road logs, and to the speakers at each of the stops, who greatly enhanced our understanding of the geology we were seeing. Thanks also to Dr. Bruce Mansey, of Los Alamos National Labs, who presented an intriguing after-banquet talk on the influence of historical geologic events on the myths and traditions of many different cultures. Total attendance at the conference was 154, including the 43 scholarship students noted above.



Kirt Kempter (far right) explains the geologic evolution of the Chama River valley.

### **2011 NMGS Honorary Member – Jim Fassett**

Each year at the Fall Field Conference NMGS honors one member for extraordinary contributions to the Society over the years. This year we honor Jim Fassett, who is retired from the U. S. Geological Survey but still very active in research. Early in his career, in 1961, Jim moved to Farmington, NM, to study the Upper Cretaceous stratigraphy and coal resources of the San Juan Basin, and began a 50-year association with NMGS. Jim's studies of Fruitland Formation coal deposits, resulting (with Jim Hinds) in the now-classic USGS Professional Paper 676, expanded over the years to include dating of ash beds allowing for precise determination of rates of deposition of coal-bearing strata and regression of the Western Interior's western shoreline. He has also published many papers on coal, coal-bed methane, and oil and gas resources of the San Juan Basin. Mainly based in Farmington, Albuquerque, Denver, and Reston, Jim was posted to Pakistan from 1990-1993, where he led a team that helped to modernize the Pakistan Geological Survey and discovered a giant coal field in the southeastern part of that country.

Since the 1980s Jim has also conducted intensive research on the Cretaceous-Tertiary boundary in the San Juan Basin, involving stratigraphic, paleomagnetic, radioisotopic and paleontologic studies. In several recent publications he has marshaled a variety of evidence for the controversial and thought-provoking hypothesis that dinosaurs may have survived into the Paleocene in northwestern New Mexico. Those who attended the 2010 Fall Field Conference had the opportunity to see some of the evidence and to discuss this idea with Jim.

Jim's contributions to NMGS have extended across the past 50 years. He has organized and led two field conferences to the San Juan Basin, in 1977 and 2010, edited the guidebooks for those conferences, and served as president of the Society (1976) and chaired its Spring Meeting in 2009. In addition, he has served as president of and edited guidebooks for our sister societies in the region, such as the Four Corners Geological Society and the Rocky Mountain Association of Geologists. He will always be identified with the geology of the San Juan Basin in New Mexico, and this honorary membership both commemorates his long record of studies in the region and his commitment and service to NMGS.

### **Upcoming Events**

Several events scheduled for 2012 are worth your attention and are listed below:

**Student Grant-in-Aid Proposals** for research grants, the Kottowski Research Award, and the Pipkin Undergraduate Research Awards must be submitted electronically or postmarked by Friday, February 17, 2012. Details and application forms for these awards are available on the NMGS web site (<http://nmgs.nmt.edu/scholarships/home.html>)

The **Annual Spring Meeting** will be held in the Macey Center in Socorro on Friday, April 27, 2012. The theme session will be on sedimentary basin processes. More information and deadlines for presentation abstracts will be communicated early next year.

The **Rocky Mountain Section, Geological Society of America** meeting will be in Albuquerque on May 9-11, 2012. Numerous theme sessions and some great field trips in several different areas of the geosciences are planned. Contact Laura Crossey (UNM) for more information.

The **2012 Fall Field Conference** is scheduled for October 3-6, 2012, and will be based in Truth or Consequences. It will focus on the geology of Sierra County and will include Rio Grande rift tectonics and sedimentary history; Paleozoic stratigraphy, sedimentation, and paleontology; geology of the Caballo and Mud Springs Mountains; and Tertiary volcanism and mining in the southern San Mateo Mountains. The trip leaders are Spencer Lucas, Virginia McLemore, Karl Krainer, Justin Spielmann, and William Berglof. All members are encouraged to contact the leaders to lend a hand as volunteers or as contributors to the guidebook. Those interested in contributing papers or minipapers are asked to inform the organizers before December 31, 2011, and the deadline for final manuscript submission is March 30, 2012. See the NMGS web site for details on the conference and guidebook format and submission instructions.