

JANUARY 2020 NEWSLETTER

FOUR CORNERS GEOLOGICAL SOCIETY

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Inside this Issue:

Speaker bios P. 2
Abstract P. 2
Prez Sez P. 3
Field Trip P. 4
2020 Update P. 4
2020 Call for Papers
P. 5
Photo Contest P. 6, 7 & 8
Membership Form
P. 9

JANUARY DINNER MEETING

- SPEAKER:** Steve Cossey, Cossey & Associates, Inc.
- AUTHORS:** Stephen P. J. Cossey, Mark R. Bitter, Gerald R. Dickens, Don Van Nieuwenhuise, James Pindell, Joshua H. Rosenfeld, Alejandro Beltrán-Triviño, Paul Cornick, and Claudia Agnini
- TITLE:** **Paleocanyon Formation and Contemporaneous Oil Seepage near the Paleocene / Eocene Boundary. Tampico-Misantla Basin, E. Mexico - An Update on Previous Fieldwork**
- DATE:** Thursday, January 23rd
- LOCATION:** Vallecito Room, Student Union Building, Fort Lewis College
- TIME:** 5:30 Social, 6:00 Dinner, 6:45 Announcements, 7:00 Talk
- COST:** \$20 per person with RSVP by deadline, \$25 per person post-deadline and while food lasts. \$2 per person talk only.
- STUDENTS:** At least 8 Students can attend for free but we may have sponsorships for 14+. Please contact Dr. Gary Gianniny (gianniny_g@fortlewis.edu).
- RSVP:** By Tuesday, January 21st at 5pm online (<https://fourcornersgeologicalsociety.org/events/> or to Kim Gerhardt (kd@mydurango.net , 970-375-2700).

THANK YOU STUDENT SPONSORS!

**DAVID THOMAS
TREY RESOURCES**



ABSTRACT

At least five major paleo-canyons have been identified in sediment sequences along the western flank of the Tampico-Misantla basin in eastern Mexico. These were formed during the late Paleocene (~56 Ma) and cut into thick unconsolidated Paleocene bathyal sediments. Sediments within two of these canyons have been studied in more detail. The Acatepec paleo-canyon was filled with more than 150 m of slumps, pebbly-mudstones, channel, and channel-levee sediments. The upper part of the sequence contains four paleo-karst intervals that may indicate relative sea-level fluctuations. The San Lorenzo paleo-canyon contains a mass transport complex above its erosional base. At all locations, canyon-fill sediments are deepwater sequences. These are not easy to date because they contain very few lower Eocene biomarkers, but ubiquitous, reworked material, especially including upper Paleocene foraminifera and nannofossils. Dating through detrital zircons and palynology provides a more accurate depositional age, which is lower Eocene. The Paleocene Eocene Thermal Maximum (PETM) has not been identified in the outcrops, although *Apectodinium* [Flag: *Italicize Apectodinium*] spp. dominates palynology samples just



above canyon bases. Bitumen beds formed from paleo-oil seeps at ~56 Ma are found along paleo-canyon margins. The paleo-canyons are spectacular in spatial dimensions. While we cannot exclude a submarine origin, we suggest they were formed by a major drop in Gulf of Mexico sea-level, perhaps by thousands of meters. A subsequent rapid rise provided the accommodation-space for the deposition of hundreds of meters of coarse-grained, conglomeratic, and mud-rich canyon-fill sediments. Pressure decrease caused by the lowering of relative sea-level and erosion could be responsible for seal failure of hydrocarbon traps, creating subaerial oil seeps which fill in desiccation cracks and flow along a major unconformity.



BIOGRAPHY: Steve Cossey, Cossey & Associates, Inc.

Dr. Stephen Cossey received a BSc in Geology from the University of Wales in 1974, and an MSc and PhD in Geology from the University of South Carolina in 1978. His BSc mapping was done in the Khenifra Basin, Morocco. His MSc thesis was on the Carboniferous of Morocco and his PhD was on the Jurassic of Northern Tunisia. He worked for Conoco Uranium exploration and International Exploration from 1978 to 1983 in Ponca City, OK and Sohio/BP from 1983 to 1986 in Dallas, working oil & gas exploration in frontier areas of the USA. He was then transferred to Houston with Sohio in 1986 and joined the BP Exploration via the merger in 1987. From 1990-1992, he spent 2 years based at BP Research in Sunbury,

UK and helped to start BP's deepwater research program. The remainder of the time at BP was spent working exploration in the onshore USA and Gulf of Mexico. In 1995 he left BP and started a consulting company, Cossey & Associates Inc. based in Houston, Texas, specializing in the exploration and exploitation of deepwater clastic sediments. In the last 25 years he has developed deepwater field, reservoir and outcrop databases, field courses and training courses for the oil & gas industry, has consulted for over 150 companies actively exploring in deepwater reservoirs of the world. Cossey and Associates Inc. is currently based in Durango, Colorado and has been working in the Tampico-Misantla Basin in Eastern Mexico for the last 16 years, mostly doing self-funded research.



"PREZ SEZ" by Sabina Kraushaar



Happy New Year!

I welcomed in the new decade with a self-supported mountain bike trip in Big Bend National Park (along the border of Texas and Mexico) with close friends. It was actually much harder than anticipated, and those moments of struggle are what make easy everyday life so great! We call it Type 2 fun - where it's fun when you look back and reminisce about it, but actually very hard while you are doing it. I'm lucky to have started off the new year with a lot of exercise, laughs and great views. I wish all of you a happy 2020, full of prosperity and adventure!



Our President-Elect Jonathan Harvey has been doing a great job at planning interesting monthly talks, and a big thanks to Melissa Clutter for delivering a great presentation in December. We continue to have very high quality newsletter publications put together by Tom Ann Casey and Kim Gerhardt - these volunteers really make FCGS great! A big thanks to Tom Staatz, Jolin Cordalis, Tim Rynott and Rachel Medina for keeping everything running smoothly.

We're looking forward to hosting Dr. Steve Cossey on January 23rd at Fort Lewis College. His work on paleo-canyons and hydrocarbon seeps in Mexico is very interesting and has broad implications for the geology of the Gulf of Mexico. I had the pleasure of doing consulting work for Dr. Cossey in 2014 (how time flies!) and I greatly admire his scientific curiosity. Hope to see you all on the 23rd for an excellent talk.

All the best,

A handwritten signature in black ink, appearing to read "Sabina Kraushaar".

Sabina



ANOTHER GREAT CHRISTMAS PARTY!

**THANK YOU EVERYONE AND SEE YOU NEXT YEAR.
WHERE DOES THE TIME GO??**



FIELD TRIP COMMITTEE NEWS



Save the Date!

February 20th @ Laura Hartman (BLM)

March 12th @ TBD

April 16th @ FLC:
Graduating Seniors
present Senior Theses.

April 30th @ TBD

MARK YOUR CALENDARS!

A trip to the Harding Pegmatite Mine is set for Apr 11 & 12th. The Harding pegmatite is located in the western part of the Picuris Range about 15 miles southwest of Taos, New Mexico.

Here are a couple of links to check out the site:

https://nmgs.nmt.edu/publications/guidebooks/downloads/30/30_p0127_p0133.pdf

<https://www.mindat.org/sitegallery.php?loc=13724>

2020 RMS-AAPG MEETING UPDATE

By Kim Gerhardt, General Co-Chair

TECHNICAL PROGRAM: The website page is up and our **CALL FOR PAPERS** (see page 5) has been emailed to all AAPG members in the Rocky Mountain Section. It will also appear in the February issue of the Explorer. A publicity drive to the RMS Affiliated Societies follows this weekend. We are soliciting oral and poster presentations on 15 technical themes. Submissions close at the end of March (but will probably be extended to mid-April as per tradition). We have 23 chairs who will review abstracts and later preside over sessions. Our 3 Technical Program chairs (Larry Anna, Elizabeth Petrie and Brad Burton) will lay out the sessions schedule in late April. Their deadline is determined by the need to open Registration in May, giving potential attendees enough time to decide to come.

EXHIBITORS: The website page is up and exhibitor booth sales have been underway since late November thanks to Chair Dave Abrahamson. Dave is working with Bruce Lemmon of Global Events Management. Please contact them to reserve a choice location!

SPONSORS: The website page is up and the sponsor drive is underway thanks to Chairs John Youle and Tom Ann Casey. Please contact them to get your name and logo into the Program!

FIELDTRIPS: Fieldtrip chairs Chip Head and Brann Johnson are gathering information from trip leaders on itinerary, logistics and cost estimates. Their webpage is expected to go up in early spring. Currently the fieldtrips going forward are:

Pre-Meeting	Post-Meeting
1-2 days/// <i>Niobrara of the Northern San Juan Basin: Pagosa Springs, Piedra, Durango and Ridgeway, CO.</i> Leader: Walter Nelson.	4 days/// <i>Marginal Marine Reservoir Architecture and Stratigraphy of the Book Cliffs.</i> Leaders: Keith Shanley and Mike Boyles.
1 day/// <i>Piceance Iles and Williams Fork near Grand Junction with Implications for Hydrocarbon Development.</i> Leaders: Rex Cole, Mark Kirschbaum and Steve Cumella.	1 day/// <i>The Uncompahgre Uplift.</i> Leader: Verner Johnson. Destination is Unaweep Canyon.
1-2 days/// <i>Sedimentology, Structure and Salt Movement in Eastern Canyonlands.</i> Leader: Brann Johnson.	1-2 days/// <i>Green River Fm.</i> Leader: Riley Brinkerhoff and Michael Vanden Berg

SOCIAL EVENTS: As in November we are still looking forward to the Ice Breaker, mini-breakers and refreshments in the Exhibit Hall. Offsite we will have a guided geology bicycle tour on Sunday, and an evening at the Dinosaur Journey Museum in Fruita on Monday. We now have definite confirmation that we will be able to show the new Scott Tinker movie, "Switch On" on Tuesday night. A vineyard tour on Wednesday afternoon completes the meeting.

GAPS: Chairs are still needed to oversee Short Courses and the Core Poster Sessions. Also, we still need an All Convention Luncheon speaker. *Suggestions are welcome.*



20/20 VISION

TURN HINDSIGHT / TO FORESIGHT



ROCKY MOUNTAIN SECTION AAPG MEETING

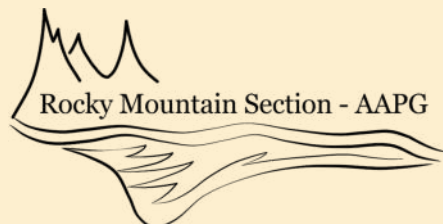
SEPTEMBER 13-16, 2020

TWO RIVERS CONVENTION CENTER, GRAND JUNCTION, CO.

CO-HOSTED BY:

THE GRAND JUNCTION GEOLOGICAL SOCIETY
THE FOUR CORNERS GEOLOGICAL SOCIETY

Mitch Bowers Photography, www.imagewerx.us



CALL FOR PAPERS

MEETING WEBSITE: rmsaapg2020.com

The RMS-AAPG together with the Grand Junction and Four Corners Geological Societies invite abstract submissions for the 2020 meeting. All petroleum geology related topics are welcome, with special emphasis on these themes:

- Hindsight to Foresight: Lessons from the History of Exploration and Production
- The Mancos Shale / Western Niobrara Equivalent: Sedimentology, Geochemistry and Physical Properties
- The Powder River Basin Shale Play, A Rockies Powerhouse
- The San Juan Basin: from Conventional Reservoirs to Resource Plays
- Clastic Reservoirs of the Rockies: Sequence Stratigraphy, Reservoir Quality and Producibility
- Geochemistry and Basin Modeling of Rocky Mountain Petroleum Systems
- Lacustrine Basins: Sedimentology, Stratigraphy, Geochemistry and Petroleum Systems
- The Pennsylvanian System of the Rockies
- Structure, Tectonics, and Geomechanics of the Rocky Mountain Region
- Advances in Seismic Imaging in the Rocky Mountain Region
- The Occurrence and Production of Non-flammable Gasses in Rocky Mountain Area Fields
- Energy Minerals of the Rockies - A Special Session in Honor of Bill Chenoweth
- Applications of Machine Learning and Data Mining to Petroleum Geology and Energy Minerals
- Sustainable Development 1: New Technology and Models for Reservoir Revitalization
- Sustainable Development 2: Carbon Capture Use OR Storage - Turning CO₂ from a Liability to an Asset

SUBMIT ABSTRACTS ON MEETING WEBSITE BY MARCH 31, 2020

PLEASE CONTACT THE TECHNICAL PROGRAM CHAIRS WITH YOUR QUESTIONS.

Larry Anna
LA_Resources@msn.com

Elizabeth Petrie,
epetrie@western.edu

Brad Burton,
bburton@western.edu

VISIT OUR WEBSITE FOR SPONSORSHIP AND EXHIBITOR OPPORTUNITIES

SPONSORSHIP CHAIRS:

John Youle and Tom Ann Casey:
SponsorsRMS2020@gmail.com

EXHIBITS CHAIR:

Dave Abrahamson:
rmsaapg2020ex@gmail.com

GENERAL INFORMATION

GENERAL MEETING CO-CHAIRS:

KIM MISKELL GERHARDT (FCGS) & HEIDI SCHOENSTEIN (GJGS)
aapgms2020@gmail.com

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



FCGS Member Photo Contest - WOW!



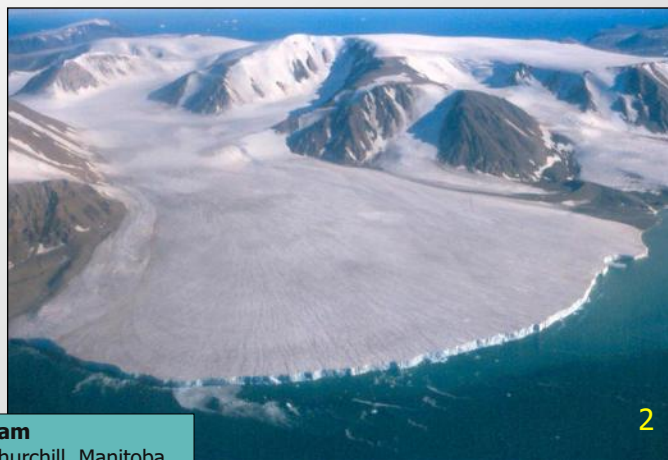
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Stephanie Brightwell-Coates

- 1) U-dig Fossil Quarry in Delta Utah
- 2) Trilobites from House Range – Wheeler Shale



2



2

Randall Cooper

Chimney Rock, near Pagosa Springs



Dr. Charles Burnham

- 1) Polar bear near Churchill, Manitoba, on the west coast of Hudson Bay.
- 2) Unnamed glacier on the southwest coast of Coburg Island, Nunavut, Canada. The Inuit name for this small island is Nirjutiqavvik. The island contains 20+ glaciers, all unnamed. It is located in Baffin Bay between Ellesmere Island to the North and Devon Island to the South, latitude 75°57' North.
- 3) Along the west coast of the Antarctic Peninsula



3



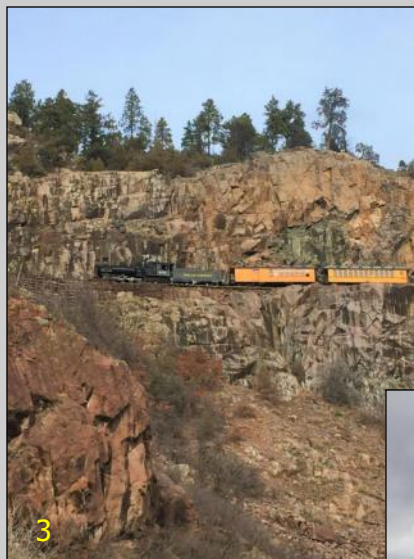
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2



3

Dr. Ron Brogdon

- 1) Twilight Peaks taken from Purgatory
- 2) Lizard Head Peak of the San Juans
- 3) Baker's Bridge Granite and the Train
- 4) Cox Canyon Arch, Cedar Hill NM



4



FCGS Member Photo Contest - WOW!



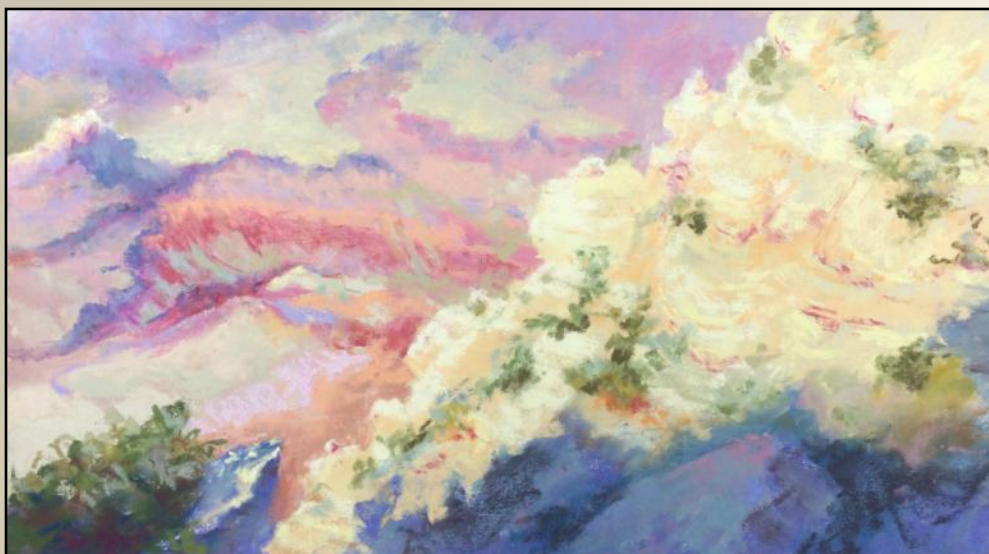
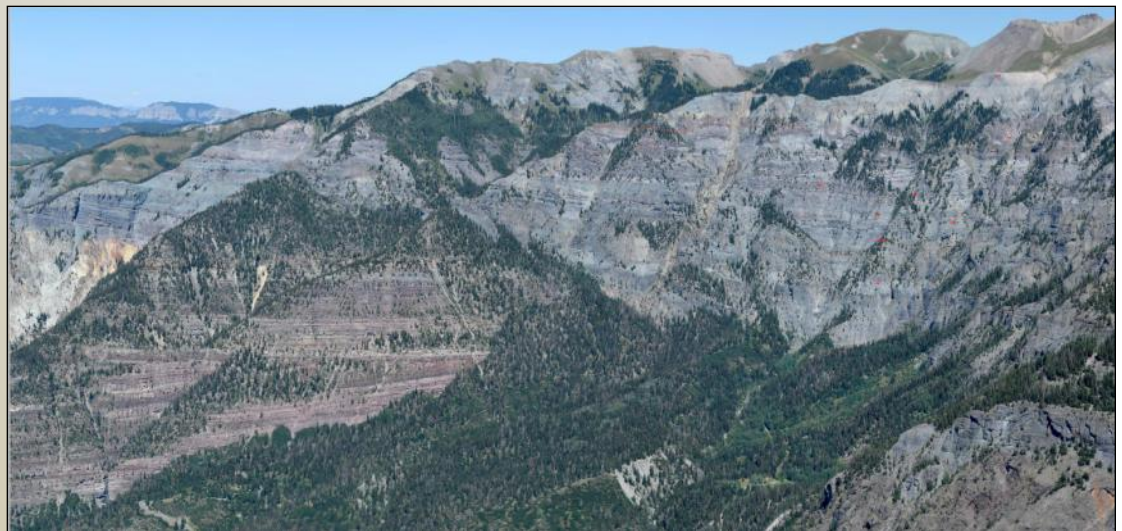
Kallea Cohen

Sea of Clouds
Silver Peak, Santa Catalina Island



Steve Cumella

Panorama of the Triassic Unconformity
looking toward the Ouray Amphitheater
from Hayden Mountain



Dr. Mary Gillam

A pastel painting version of a photo
from the eastern Grand Canyon.
I figured this would add some variety!

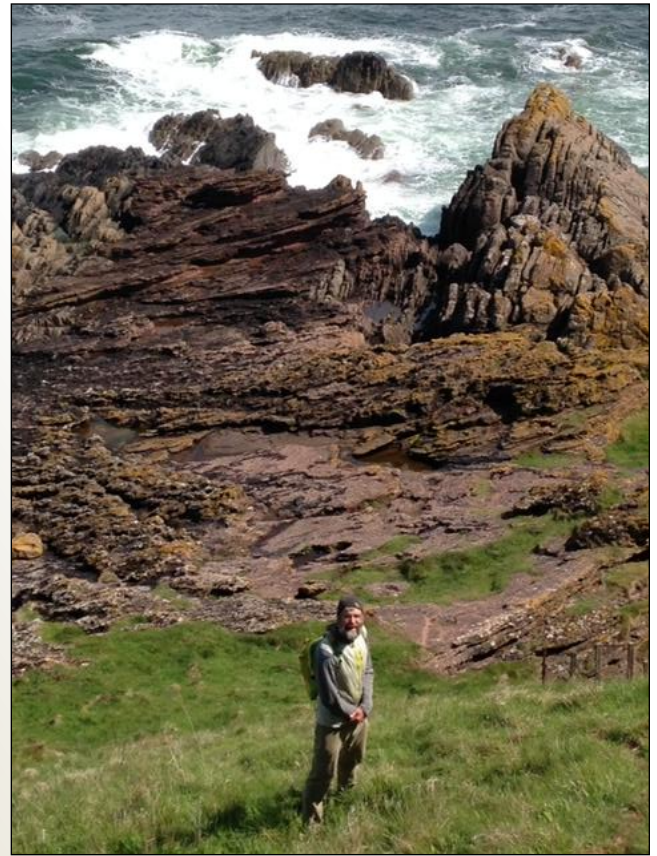


FCGS Member Photo Contest - WOW!



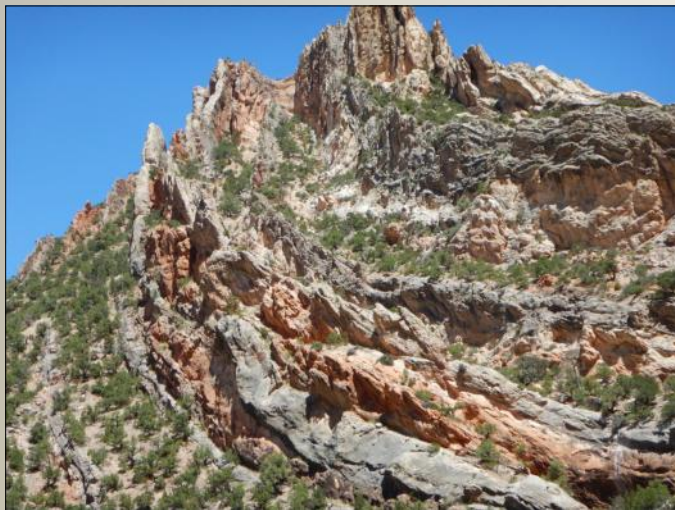
Jim Fassett

Jim with a Paleocene hadrosaur femur on display at UNM Geology Museum in Albuquerque. This fossil was excavated from the Ojo Alamo Ss in the bluffs south of Farmington. Two Paleocene index palynomorphs were identified from a coaly carb shale bed a few feet below this bone site.



Dr. Gary Gianninny's Trip to Geo Mecca

Gary at Sicar Point May 2019



Dr. Kim Gerhardt

Mitten fault on Ladore
San Juan dawn (May 2019)

Coming next month - Photos by Jon Harvey, Bob Krantz, Sabina Kraushaar, Rob Lander, Brandi Maher, Rachel Medina, Paul Oldaker, Jack Rosenthal, Tim Rynott, Lori Schell and Steve Thibodeaux.

Stay Tuned and Thank You
Everyone.





FOUR CORNERS GEOLOGICAL SOCIETY

P.O. Box 1501, Durango, CO 81302

MEMBERSHIP RENEWAL or APPLICATION: June 1, 2019 to May 31, 2020



*Name: _____

*Address: _____ City: _____ State: _____ Zip: _____

*Email: _____ Phone: _____

*Employer: _____

Please Identify a Membership Category:

Active Member	\$25	Any person engaged in the practice or teaching of geology or who holds a Bachelor's Degree in geological science from a college of acceptable academic standards. Degree requirement may be waived if applicant has adequate professional experience. *Highest Degree, Type and Year: _____ *College / University: _____
Associate Member	\$25	Any person who is a graduate of a college of acceptable academic standards with major studies related to, or associated with, geology. Degree requirement may be waived if applicant has adequate professional experience. *Highest Degree, Type and Year: _____ *College / University: _____
Student Member	Free	Any undergraduate or graduate student majoring in geology at a college of acceptable academic standards. *College / University: _____ *Year expected to graduate: _____
Emeritus Member	Free	An Active Member of 65 years old or older who has been a member for 25 years including time spent in military service. *Year emeritus status was awarded: _____
Honorary Member	Free	An Active Member who has contributed distinguished service to the profession of geology and to the betterment of the FCGS. Determination is made by the FCGS Executive Committee. *Year honorarium was awarded: _____

Other Professional Interests:

** Required information for new members. Current Members, please update.*

*Please check your interests:

- ☐ Sedimentology & stratigraphy
- ☐ Structure & tectonics
- ☐ Mineralogy, petrology, geochemistry
- ☐ Igneous geology, volcanology
- ☐ Ore geology and hard rock mining
- ☐ Other mineral extraction
- ☐ Petroleum geology
- ☐ Geophysics
- ☐ Geological engineering
- ☐ Geomorphology
- ☐ Quaternary geology
- ☐ Hydrology & water resources
- ☐ Environmental geology
- ☐ Geography / GIS
- ☐ Other interest (see box)

Please either print, complete and return this form with your check for dues made payable to: "Four Corners Geological Society" and mail to the address above or go online to fourcornersgeologicalsociety.org .