

# DECEMBER 2018 NEWSLETTER FOUR CORNERS GEOLOGICAL SOCIETY

## DECEMBER DINNER MEETING

### OFFICERS OF THE SOCIETY

**Past President:**

Jim Corken

**President:**

Tim Rynott

**President-Elect:**

Sabina Kraushaar

**Treasurer:**

Tom Staatz

**Secretary:**

Helen-Mary Johnson

**Newsletter Editors:**

Kim Gerhardt

Tom Ann Casey

**Website:**

Tim Matthews

Rachel Medina

*To contact an officer click:*

<https://fourcornersgeologicalsociety.org/about/>

**SPEAKER:** Chris Putnam and Maurice Foye  
DragonflyAL

**TITLE:** *"TunnelVision™ Using Drones to Build 3D Models of Underground Colorado Gold Mines"*

**PLUS:** Poster Session by Fort Lewis College Graduating Geoscience Majors

**DATE:** Thursday, December 13<sup>th</sup>

**TIME:** 4:30 pm -5:30 pm Student Posters & Discussion  
5:30 pm Social Time and Bar  
6:00 pm Dinner, 6:30 pm Talk

**LOCATION:** Fort Lewis College, Vallecito Room

**COST:** \$20/person with RSVP by deadline. 25/person post deadline (Dec. 11th) and/or at the door while food lasts. \$2/person talk only. 10 students can attend for free IF- they contact Dr. Gary Gianniny ([gianniny\\_g@fortlewis.edu](mailto:gianniny_g@fortlewis.edu)) by Dec. 11th

**RSVP:** By Tuesday, December 11<sup>th</sup> at noon.  
Please RSVP and pay online using this link:  
<https://fourcornersgeologicalsociety.org/events/>  
or RSVP to Jim Corkan [rjcork@aol.com](mailto:rjcork@aol.com) or  
Tom Ann Casey [talcgeo@gmail.com](mailto:talcgeo@gmail.com)

Gold King Mine in 1899,  
Colorado Public Radio

Thank you DragonflyAL & HRL Compliance Solutions, Inc. for sponsoring 10 student attendees!



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Four Corners Geological Society, P.O. Box 1501, Durango, CO 81302  
[www.fourcornersgeologicalsociety.org](http://www.fourcornersgeologicalsociety.org)



## Save the Date!

**January 17<sup>th</sup> @ FLC:** Jay LeBeau. "Basin Scale Geologic Processes: Impact on Wolfcamp Unconventional Oil Play Elements, Delaware Basin, Reeves County, Texas.". Great info on the Permian Basin.

**February 21<sup>st</sup> @FLC:** John Lorenz: *Comparing Natural Fracture Systems in the San Juan, Piceance, Raton and Green River Basins*

**March 21<sup>st</sup> @ FLC:** Topic is Renewable Energy, Speaker TBD.

**April 25<sup>th</sup> @ FLC:** *FLC Geoscience Senior Theses.*

**Spring '19** Watch this space for Spring / Summer '19 Field Trip announcements (see pg. 3).



## Using Drones to Build 3D Models of Underground Colorado Gold Mines



In 2017 DragonflyAI coordinated with Newmont Mining to further develop the ability to utilize UAS technology in underground mining systems. This technology allows for infrastructure quantification including asset location, volumetric calculation, planning visualization and more. This breakthrough was a technological challenge in capturing and building photogrammetric data sets without the aid of satellites and GPS systems



## BIOGRAPHY: Chris Putnam

Chris Putnam, DragonflyAI, UAS Data Analyst / Pilot.

Mr. Putnam has been with DragonflyAI since 2014 leading a team of specialized staff with what has become an industry leading UAS company. In 2016 DragonflyAI was acquired by HRL Compliance Solutions, Inc. and integrated into several environmental program within the oil and gas, mining, transportation, agriculture, and recreation industries. Mr. Putnam was a key developer of several proprietary trademarked services that currently lead the drone industry in several sectors, including Tempography™, and Tunnel Vision™. His detailed knowledge of the technology has led to the successful implementation of several R&D concepts to market. With the experience in R&D and delivering actionable data, Mr. Putnam continues to lead HRL's UAS capabilities through everyday applications.

**January Meeting: Mark your Calendar for the 17th!**  
**Jay LeBeau of Red Willow Production speaking on the Delaware Basin. We are expecting an Awesome talk!**





## FIELD TRIP COMMITTEE NEWS

As mentioned in last month's newsletter, we are in the very early planning stages of kicking off a couple of exciting trips for the first half of next year: "Geology of the Bluff, UT Area", and "Methane Seeps and Hydrology of Durango and Vicinity". Tentatively, the Bluff Area trip will be on a Saturday in mid-March to early-April and (again tentatively) will examine Pennsylvanian through Jurassic stratigraphy, Geomorphology and petroglyphs. We'll probably reserve a group campsite next to the river at Sand Island for those wishing to arrive on Friday night. But of course, lodging is also available in Bluff - or you can make the 2½ hour drive to Bluff on Saturday morning.

The Methane Seeps/Hydrology trip will tentatively be on Saturday, May 11 and will focus primarily on Fruitland Fm. outcrops and gas seeps with a possible excursion to the Long Hollow Dam to discuss maintenance issues. Other topics under consideration include water rights issues, court cases, hydrology models, potability, etc. It will also be a Saturday trip with stops beginning south and west of Durango continuing east along the Fruitland outcrop to the Pine River.

Please keep these trips in mind as you begin filling in your calendars for 2019. If you have any expertise in either trip, we would appreciate your help in planning them. Please contact Jim Corken, Field Trip Committee Chair if you have input or would like to help in any way through this link:

<https://fourcornersgeologicalsociety.org/about/>

## Fort Lewis College Geoscience Seniors Poster Abstracts



- **Mateo Sanabria** - *New geochronology of plutons in the Wilson Range*
- **Isaac Korce and Luke Dohm** - *Geomorphic mapping and terrace geochronology in Bears Ears National Monument*
- **Sierra Heimel** - *Lithologic influences on cave formation, Grand Canyon NP*
- **Paula Pletnikoff** - *Assessing impact of climate-change-driven river capture, Yukon Territory*
- **Jonathan Montano** - *Assessing extent of Uranium contamination at the Durango Dog Park*
- **Jade Colbert** - *Using drones to survey movement of the Missionary Ridge Rockfall in 2018*
- **Colin Scheaffer** - *Thermo-kinematic modeling of exhumation rates in the central Himalaya*
- **Brandon Miller** - *Using historic aerial photographs and new technology to measure movement of the Engineer Mtn rock glacier*
- **Jeremy Bekis** - *Uranium mineland remediation on the Navajo Nation (internship)*
- **Otto Lang** - *Taking the pulse of Kilauea Volcano: Using zoned olivine to decipher magmatic timescales*
- 



## “PREZ SEZ” by Tim Rynott



Ladies and Gents,

I'm writing this from Houston, whilst on a business trip to Texas and South Louisiana. In conjunction with the holiday spirit, I'm reminded of a previous business trip, where I had an inspirational encounter with a hotel employee. A middle-aged

woman working the front desk had three-fourths of her face covered with severe discoloration. The initial internal edginess was quickly offset by this woman's warm, gracious and inviting smile. We chatted a bit, and I became smitten by her undeniable and unequivocal *joie de vivre* (love of life).

Upon checking out the next day, my 'new friend' was absent, but a co-worker informed me that she was born with a hereditary skin defect, and while growing up, just learned to adapt to being different.

Life can be tough, and life loves to hurl challenges when least expected, but only you control your destiny. The holidays provide the opportunity to give thanks, and to always remember someone out there has it much much tougher than you. Wake up with a smile while stretching your arms high to the sky, and be thankful no matter the circumstances.

.....In the spirit of closing out 2018, I thought it would be fun to make my predictions for next year. Maybe this will inspire your own predictions. ☐☐

Here goes:

1. The price of oil will average \$65 to \$70. (which is an optimal range - all things considered)
2. Henry Hub natural gas prices will stay bullish the next several months, and then average \$3.00 to \$3.50 the

remainder of the year.

3. Range Resources will purchase the Pittsburgh Steelers, and promptly change their name from the Steelers to the Frac'ers - the best PR move in the history of our industry.
4. China will top that by purchasing Venezuela.
5. The La Plata County 'Bridge to Nowhere' will still go *Nowhere*.
6. And, my beloved Saints will win the Superbowl!



Thanks to everyone who made the recent FCGS meeting in Farmington. We had record attendance, including welcoming a large contingency from outside the Four Corners area. Highlighting the event was Jack Rosenthal with DJR Energy delivering very bullish and exciting numbers for the potential oil resource in the southern Mancos trend. We were also treated to a well-received and thought-provoking poster session by Sabina Kraushaar and Paul Spear. Thanks very much Sabina and Paul!

As for this month's meeting.....we are quite excited to have **HRL Compliance Solutions, Inc** speak about drone technology. HRL is one of the top drone innovators in the country, and their endeavors will blow your mind. Additionally, HRL agreed to be our student sponsor for this month! Kudo's to HRL, and to our own member **Brian Skyles** (Business Development Assoc at HRL), for his assistance in making this happen.

Lastly, an extra bonus for our upcoming Dec 13th meeting will include a poster session by some very bright graduating FLC Geoscience majors. Be sure to arrive early enough to mingle with these Geo-leaders of tomorrow!

Rock on.....Tim



### HOLIDAY PARTY DECEMBER 8<sup>th</sup>

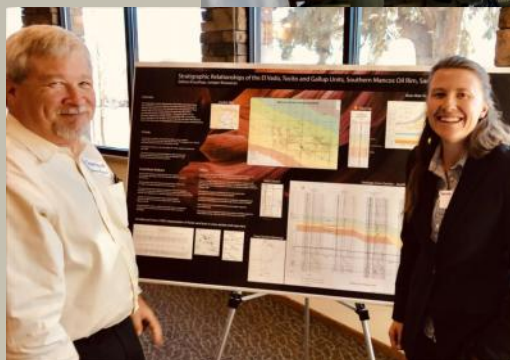
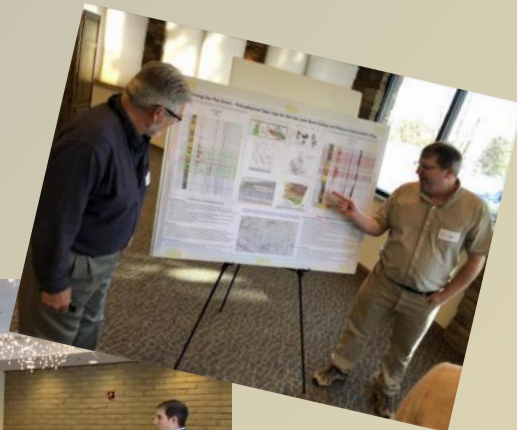
🎄 Join the Durango Petroleum Club and the 4Corners Landmen and Engineers for a holiday party on December 8<sup>th</sup> from 5:30 to 9 pm in the basement of the Irish Embassy. FCGS members & guests welcome! It is free. Please check our website for details.

[fourcornersgeologicalsociety.org/events/](http://fourcornersgeologicalsociety.org/events/) 🎄





# NOVEMBER MEETING



## Membership Renewal - How Are We Doing This??

Because the FCGS changed their dues year from the previous calendar year to the new “activity year” (June 1-May 31) membership payments have bifurcated. Members who paid a year ago are paid through December 2018. Members who joined this summer and fall came in after we started the new system. They are paid through May 31<sup>st</sup>, 2019 and don’t need to do anything until next spring.

If you are one of the “Paid Through December 2018” group you are being sent a notification email and also a PayPal Invoice for \$12.50. This is an offer to extend your membership for half a year at a pro-rated fee, which takes you through the rest of the winter lecture series.

This will be the last fall membership drive. After this memberships are synced again and we will ALL be asked to pay dues in May for the June 1, 2018 – May 31, 2019 year.

December ‘18 group: You can renew by PayPal (respond to the invoice) or check (mail it to our PO Box). But please don’t renew through our website Membership page as that is now set up on the new system. (Also, please don’t pay at the Treasurer’s desk at a meeting.)

This pro-rated option expires on February 1<sup>st</sup>, when traditionally, non-paying members are suspended.

Thank you for your support of the Society. The FCGS is dedicated to serving the geoscience community in our area through talks, fieldtrips and publications. We also help underwrite thesis research by Fort Lewis College seniors and student attendance at our dinner meetings.

We hope you’ll continue your membership and be a part of our future.





# FOUR CORNERS GEOLOGICAL SOCIETY

P.O. Box 1501, Durango, CO 81302

**MEMBERSHIP RENEWAL or APPLICATION: June 1, 2018 to May 31, 2019**



\*Name: \_\_\_\_\_

\*Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

\*Email: \_\_\_\_\_ Phone: \_\_\_\_\_

\*Employer: \_\_\_\_\_

## Please Identify a Membership Category:

<b>Active Member</b>	\$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. <i>*Highest Degree, Type and Year:</i> _____ <i>*College / University:</i> _____
<b>Associate Member</b>	\$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. <i>*Highest Degree, Type and Year:</i> _____ <i>*College / University:</i> _____
<b>Student Member</b>	Free	Any undergraduate or graduate student majoring in geology at a college of acceptable academic standards. <i>*College / University:</i> _____ <i>*Year expected to graduate:</i> _____
<b>Emeritus Member</b>	Free	An Active Member of 65 years old or older who has been a member for 25 years including time spent in military service. <i>*Year emeritus status was awarded:</i> _____
<b>Honorary Member</b>	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. <i>*Year honorarium was awarded:</i> _____

**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](http://fourcornersgeologicalsociety.org) .**