



# The Record

Denver Geophysical Society

Volume 48 Number 1 February 2023

## Upcoming Events

### February Luncheon

February 9 @ 12:00 pm  
Wynkoop Brewing Company

### Student Challenge Bowl, Poster Session

March 1, 2023  
Ellie Caulkins Chambers Grant Salon

### 3DSS Conference, Branching Out

March 2, 2023  
Ellie Caulkins Loft

### SEG Short Course

March 3, 2023  
Colorado School of Mines

### April Luncheon

April 13 @ 12:00 pm  
Wynkoop Brewing Company

### May Luncheon

May 11 @ 12:00 pm  
Wynkoop Brewing Company

### DGS 2023 Golf Tournament

August 17, 2023  
Walnut Creek Golf Preserve  
Westminster, CO

### IMAGE 2023

August 27—September 1, 2023  
Houston, TX

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# Executive Corner

By Mark Davidson  
Telemark Energy Services  
DGS Past President

## 2023. Is this the year things get back to normal?

We have seen a dramatic shift in the Oil & Gas industry over the past several years. So much so, that it barely resembles what it looked like just 5 years ago. There is a shift to emphasize business opportunities, such as CCUS, geothermal, helium, and mining that have previously been less lucrative, profitable, or simply of interest to many of our constituents, myself included. I find my work taking me into each of these hemispheres – and others – regularly.

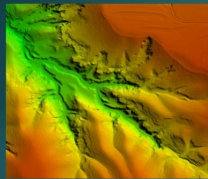
Is this where I thought my career would be 20-odd years into it? Not at all. I assumed, as probably most of us have, that I would retire from a comfortable O&G industry position I enjoyed. Fate, however, found me at the cusp of the Pandemic shifting into a consulting role and changing my professional trajectory significantly. I am still navigating those uncertain waters, but it has provided me a broader scope to focus on than just the O&G sector of energy and provides an opportunity to revisit topics in geophysics I have not since graduate school.

This experience is reflected in conversations with numerous people I have had over the past couple years. Additionally, it can be seen in the 2023 3D Seismic Symposium theme – branching out. This can be interpreted many ways, but I think the gist of it is we must be adaptable to move into spheres that we may never have considered previously in our careers. I hope everyone sees the diversification of talks at the 3DSS as a positive; while it may have changed from the original themes of the 3DSS, it reflects our current industry situation – our industry is changing, and geophysical technologies are evolving and adapting to facilitate and accommodate those changes.

In some ways this is an exciting time to be in our industry. In other ways it is extremely challenging, with restructuring, additional responsibilities heaped upon us, and the ever-present fiscal pressures that always seem to be imposed on projects. But, as they say, change is inevitable. We can only do our best to adapt to the changes and see if we can capitalize on them.



## EE GeoTech

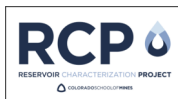
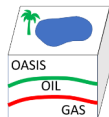
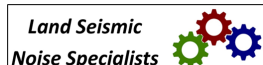


- Map Image Geo-referencing & Digitizing
- Topographic and Satellite Imagery
- Elevation models/Lidar
- Data Mining
- Raster/Vector Analysis
- Coordinate Conversions
- Other GIS needs

Erik Elgerd [eelgerd7332@gmail.com](mailto:eelgerd7332@gmail.com)  
303-915-1241

Thank you to our DGS Holiday Party Sponsors

# SM ENERGY



### Information for Contributors

Your editorial contributions are encouraged, particularly about classes, seminars, personnel news, company news, or other items of interest to the geophysical community. All suggestions and manuscripts should be emailed to DGS at [office@denvergeo.org](mailto:office@denvergeo.org). Targeted deadline for submissions is the first of the publication month (February, May, August, November) but exceptions can be made with the editor's approval. We reserve the right to edit all material according to standard practices.

Opinions expressed within are solely those of the authors. They are not to be interpreted as those of the DGS.

## Denver Geophysical Society

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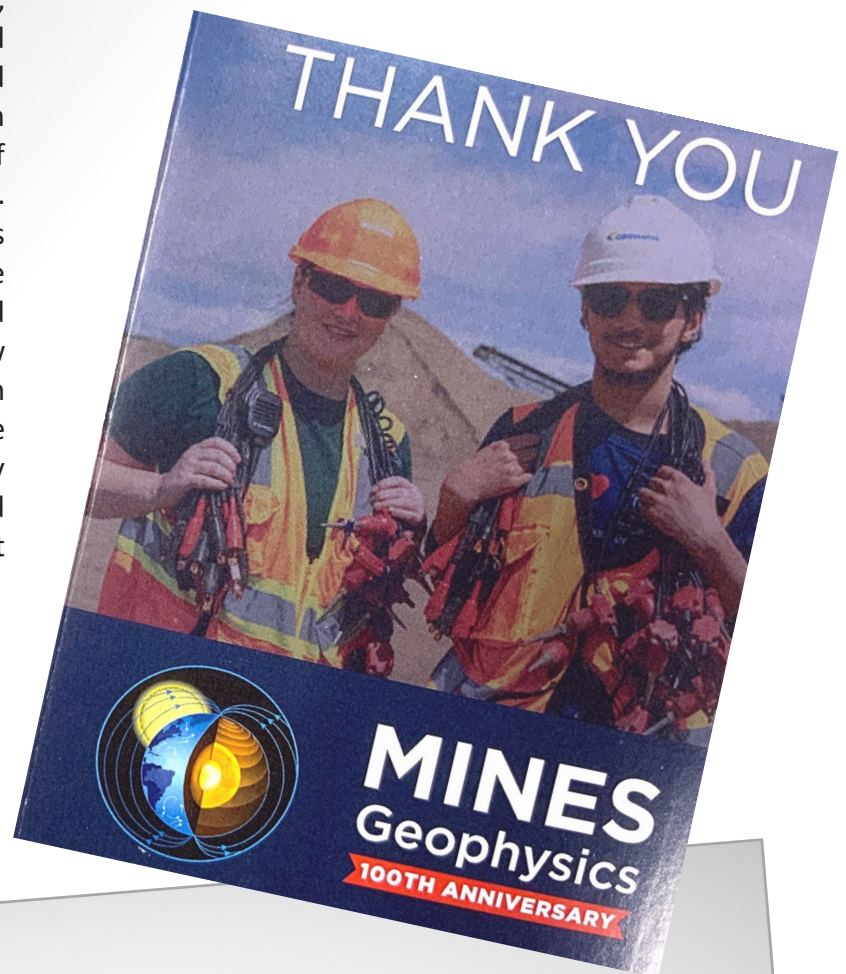
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# DGS Donation to Colorado School of Mines Geophysics

As part of DGS' ongoing outreach program, the Denver Geophysical Society contributed \$10,000 to Mines Geophysics GP@100 Field Experience Endowed Fund. This contribution helped kick-off the Department of Geophysics' 100th Anniversary celebration. By supporting this endowment, geophysics students will have continued access to the high quality legacy Mines Geophysics Field Camp experience — leveraging new technologies while providing hands-on experience for students. To learn more about Mines Geophysics 100th Anniversary celebration events, the GP@100 Field Experience Endowment, and department history, visit the 100th Anniversary website: <https://geophysics.mines.edu/100th-anniversary/>



Dear DGS members,

Thank you for your kind donation to the Mines Geophysics Field Experience Endowment.

Your donation will profoundly impact our students by facilitating their critical hands-on field geophysics training.

With your support, we will preserve the outstanding legacy of the Mines Geophysics field program and lay the foundation

for its continued excellence as a world leader.

Your investment in our students is invaluable, and we are grateful for your generosity.

Sincerely,  
Paul

Thank you note from Dr. Paul Sava, Department Head, Colorado School of Mines Department of Geophysics



# Student Corner — Geoscientists Without Borders

By Cullen Young, Geophysics PhD Student, Colorado School of Mines

Founded in 2008 by the SEG Foundation, Geoscientists Without Borders seeks not only to accomplish humanitarian goals, but also to involve next-generation scientists in worthy causes with a mission to:

- Support humanitarian application of geoscience knowledge and technology around the world; and
- Fund projects that benefit communities in need facing environmental hardship and natural hazards due to resource shortages, natural and human induced disasters.

During the 2022 winter break, Colorado School of Mines faculty and students participated in a Geoscientists Without Borders project in Cotonou, Benin. Associate Professor Jeffrey Shragge, Research Associate Professor Richard Krahenbuhl, Vice President for Global Initiatives John Bradford, and graduate students Brett Bernstein, Wyatt Lindsey, Bailey Mullett, and Cullen Young worked alongside hydrology graduate students from the University of Abomey-Calavi to construct and use low-cost geophysical equipment for hydrogeophysical surveys.



Photo Credit: C. Young



Photo Credit: C. Young

The project started with students and faculty from the Colorado School of Mines Department of Geophysics sharing low-cost equipment designs and best practices for acquiring the necessary components to construct the tools. Following the equipment fabrication workshop, active-source hammer seismic and DC resistivity lines were deployed in an area of Benin where potential future wells could be drilled for freshwater extraction. After data acquisition, team members introduced open-source programming packages and processing techniques that could be used to analyze and interpret the acquired data. The built instruments will remain in Benin for future surveys.



Photo Credit: R. Krahenbuhl

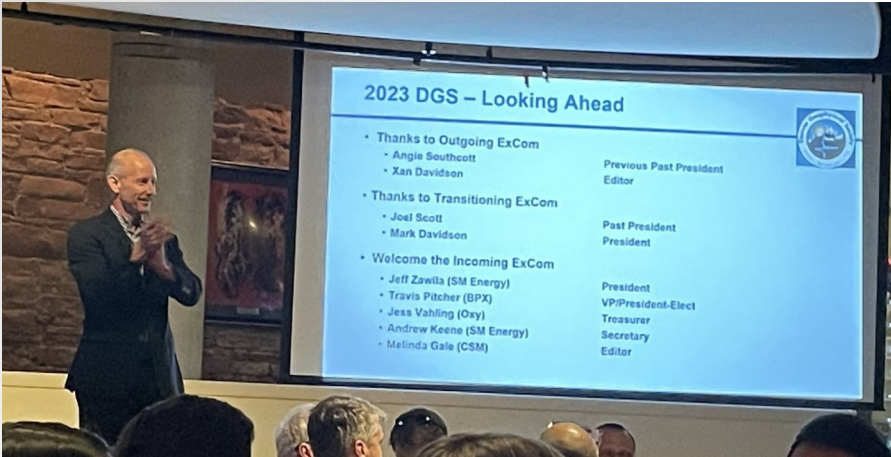
For more information about the SEG Foundation Geoscientists Without Borders program visit

<https://seg.org/About-SEG/Geoscientists-Without-Borders>



# 2022 Holiday Party and Annual Meeting

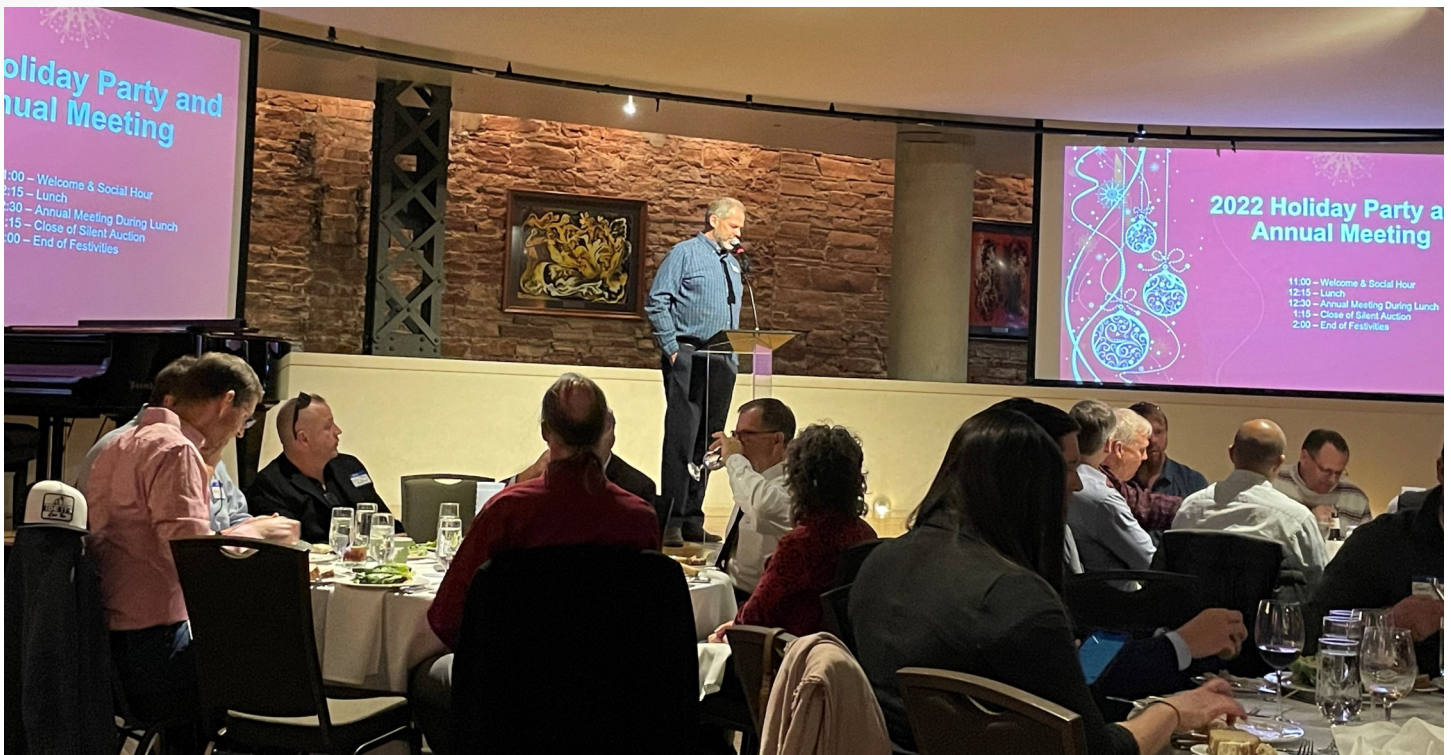
## December 8, 2022



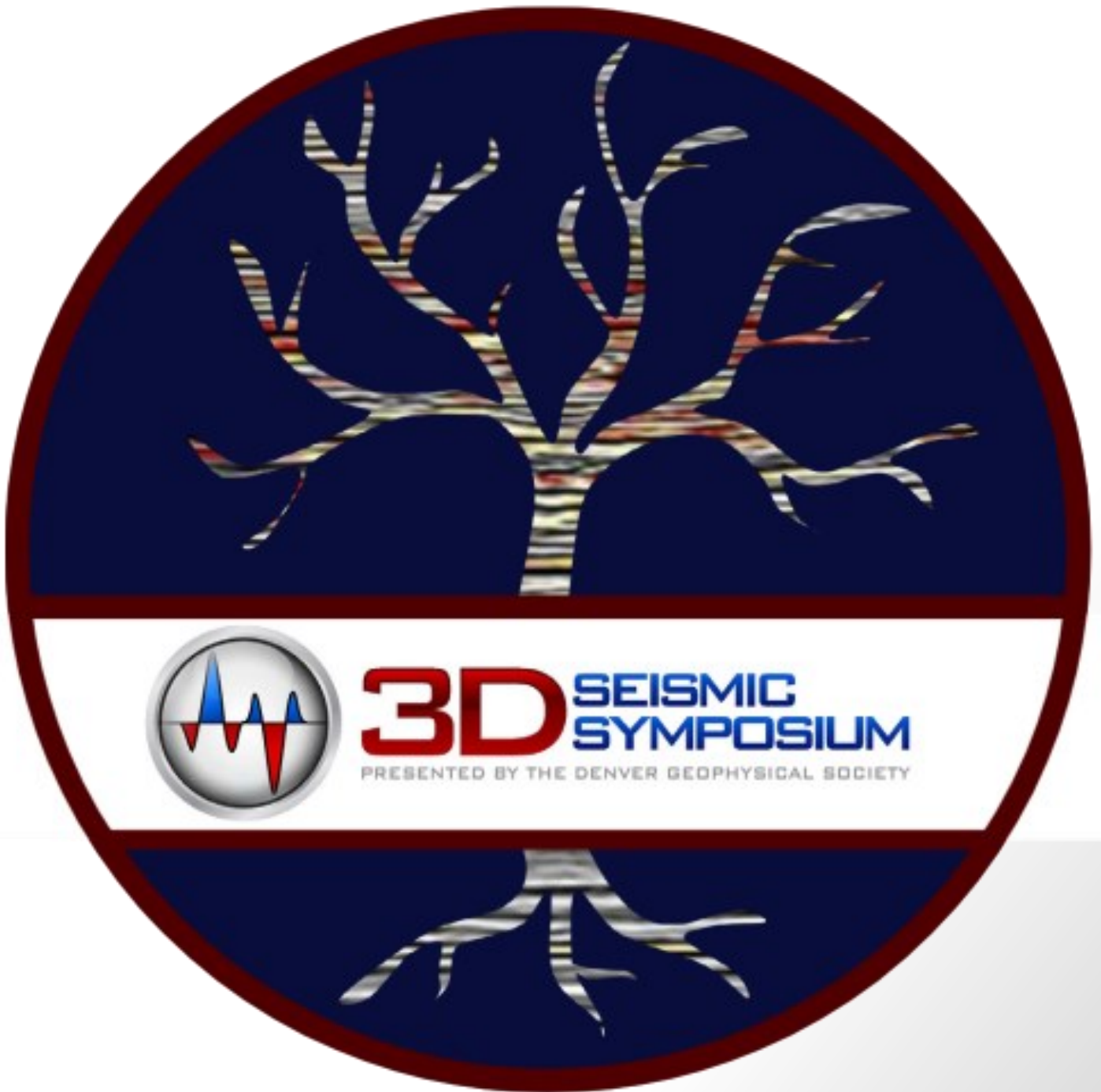
Jeff Zawila, President-Elect, cheering for past and present DGS officers



Morgan Brown, Longest Sweep Award for Contributions and Leadership to the DGS, presented by Angie Southcott



Mark Davidson, President, firing up the crowd at the Annual Meeting & Christmas Party



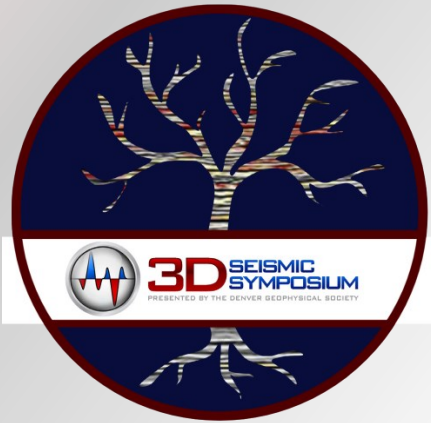
**Thursday March 2nd, 2023**

**Join us the evening before for Happy Hour and  
the Student Challenge Bowl**

**Technical Program coming soon!**

**[Register Here](#)**





# Denver Geophysical Society 3D Seismic Symposium

## Calendar of Events

Come join the Denver Geophysical Society 28<sup>th</sup> 3D Seismic Symposium at the Ellie Caulkins Studio Loft in Downtown Denver! This year's theme is **Branching Out**, with a program of talks ranging from seismic acquisition, processing and interpretation to growing branches of geophysical applications in CCUS, geothermal and induced seismicity.

[REGISTER FOR THE SYMPOSIUM HERE](#)

Arrive early to network at the 3DSS Icebreaker and cheer on university teams in the SEG Rocky Mountain Region Student Challenge Bowl on the evening of March 1st.

[UNIVERSITY STUDENT TEAM REGISTRATION INFO HERE](#)

[CHALLENGE BOWL SPONSORSHIP HERE](#)

Stay an extra day to attend a SEG Distinguished Instructor Short Course the following Friday, March 3 at Colorado School of Mines in Golden. The SEG registration link is [HERE](#).

### SCHEDULE OF EVENTS

Date	Event	Time	Venue
March 1	3DSS Icebreaker And Student Poster Session	5:00pm-8:00pm	Ellie Caulkins Chambers Grant Salon
March 1	SEG Student Challenge Bowl	6:00pm-7:30pm	Ellie Caulkins Chambers Grant Salon
March 2	3D Seismic Symposium Check-in / Breakfast	7:00am-8:00am	Ellie Caulkins Studio Loft
March 2	3D Seismic Symposium Session	8:00am-4:30pm	Ellie Caulkins Studio Loft
March 2	3D Seismic Symposium Best Paper Award	4:30pm-7:00pm	Ellie Caulkins Studio Loft





# Denver Geophysical Society 3D Seismic Symposium

## Preliminary Schedule

2023 3DSS Technical Program				
start time	Title	Author	Affiliation	Basin(s)
8:00 AM	Welcome and introduction	Sarah Gach		
8:10 AM	The Changing Tools and Roles of Geophysicists	Bob Clapp	Stanford	
8:55 AM	A New Horizontal Play at Jonah Field, Wy	Cory Christie and John Hoopes	Jonah Energy	Green River
9:15 AM	The critical need for 3D seismic in site screening and characterization for geological CO2 storage projects: a case study from the Texas Gulf Coast	Mindy Solomon	Oxy Low Carbon Ventures	Gulf Coast
9:35 AM	Seismic imaging of shelf to basin tectonostratigraphic architecture of the NE Delaware Basins and implications for seismic analysis of conventional and unconventional Permian reservoirs.	Xavier Janson	BEG - U of Texas, SLB	Permian
9:55 AM	Break 1			
10:30 AM	From Reprocessing to Well Delivery: Leveraging State of the Art 3D Seismic Data Processing Techniques on a Legacy Land 3D in Uinta Basin	Seth Berman	Ovintiv	Uinta, Green River
10:50 AM	The business of CCS	Lauren Read	BKV dCarbon Ventures	various
11:10 AM	Integration of Seismic Attributes and Engineering Data for Mitigating H2S and Water Production from Horizontal Wells in the Delaware Basin Wolfcamp Formation	Jason Gumble	Antora Geophysical, Henry Resources	Delaware
11:30 AM	Lunch			
12:00 PM	The Mechanics of Induced Seismicity and the System Characterization Challenge	Peter Hennings	BEG	
12:45 PM	Break 2			
1:15 PM	Mikro Teszt: Field study embedding dense patch into production 3D shoot	Morgan Brown	Aspect Energy, Eskaton Seismic	Pannonian Basin, Hungry
1:35 PM	The opportunities & challenges for Seismic Data in Geothermal Exploration	Whitney Trainor-Guitton	NREL	
1:55 PM	Single-Use Fiber Analysis on Fault-Driven Frac Propagation Anomalies in the Midland Basin	Dugan R Hughes	Ovintiv	Midland
2:15 PM	Break 3			
2:45 PM	Distributed Acoustic Sensing on the surface (S-DAS): Insights from a large-scale experiment	Ran Bachrach	SLB	DJ
3:05 PM	Geothermal Analysis and Reservoir Management - The Geysers Case Study	Adrien Caldron	AspenTech, Calpine	California
3:25 PM	Limits of seismic resolution of the modern onshore data used to understand the stratigraphic architecture of Upper Miocene Turbidite deposits from lacustrine Pannonian Basin, Hungary.	István Róbert Bartha	TDE ITS Ltd., Aspect Energy	Pannonian Basin, Hungry
3:45 PM	Closing remarks and best paper voting			
3:50 PM	Happy hour			

# Denver Geophysical Society Student Challenge Bowl

**Wednesday, March 1<sup>st</sup>, 2023**

**Ellie Caulkins Chambers Grant Salon**

**1385 Curtis Street, Denver, CO 80204**

**Doors open at 5:00 pm with food, drink and networking!**

**Student Challenge Bowl starts at 6:00 pm!**

Teams of two students (graduate or undergraduate) from Rocky Mountain Region universities or colleges are invited to enter the Denver Geophysical Society (DGS) and Society of Exploration Geophysicists (SEG) Student Challenge Bowl (SCB). Geological, geophysical and SEG trivia questions are formatted in multiple-choice or true or false.

Teams battle it out with the winning team receiving funds toward travel and lodging to IMAGE 2023 in Houston (27 Aug – 1 Sept 2023) to represent the Rocky Mountain Region in the International Student Challenge Bowl competition.

Maximize your travel dollars and take advantage of the DGS 3D Seismic Symposium on Thursday, March 2nd, and a SEG short course on Friday, March 3rd. Students will be given the opportunity to display a poster at the Symposium.

Registration will close after 16 teams have been confirmed or on February 24<sup>th</sup>, whichever comes first.

To register send the following information to [scb@denvergeo.org](mailto:scb@denvergeo.org)

Team Name:

School:

Student #1 Name:

Student #1 Discipline:

Student #1 Degree, working towards: (BS, MS, PhD):

Student #1 Email:

Student #1 Poster:

Student #2 Name:

Student #2 Discipline:

Student #2 Degree, working towards: (BS, MS, PhD):

Student #2 Email:

Student #2 Poster:



## 2022–2023 Distinguished Instructor Short Course

Friday, March 3, 2023, Colorado School of Mines campus

### *Distributed acoustic sensing for seismic measurements – what geophysicists and engineers need to know*

Mark E. Willis

Halliburton

#### Description

Geoscientists and engineers are very comfortable using seismic data sets acquired with geophones, hydrophones, and accelerometers because we have a long, well-defined set of standards for acquiring, processing, and interpreting them. However, distributed acoustic sensing (DAS) seismic measurements are rapidly augmenting, and in some cases replacing, the data from these conventional tools. Technologists are frequently unaccustomed to using DAS seismic data sets since it directly acquires relative strain or strain rate measurements and not the more familiar pressure, displacement, velocity, and acceleration data. There are also acquisition parameter selections that must be made to optimize the acquired data to accomplish the purpose of the seismic survey. This course is designed to build an intuition and understanding of the value, limitations, and applications of DAS seismic technology. In addition to the lecture and accompanying book, software will be provided, which will allow the student to interactively explore DAS seismic technology.

#### This course will cover

- What are many of the applications for DAS technology?
- How do conventional and DAS seismic measurement systems compare?
- How can we convert between DAS and geophone measurements?
- What is the physics behind DAS measurements and the composition of optical fiber? Do different types of fiber optic cables offer advantages?
- How is a DAS acquisition system architected? How does the fiber optic cable deployment method affect the DAS measurements?
- What is the gauge length and how does it affect the acquired data? How does the pulse width interact with the gauge length to improve data quality?
- What is the angular response of the fiber optic cable to incoming seismic signals? How does the angular response of the fiber affect VSP, surface seismic, and microseismic measurements?
- What are the sources of DAS noise and how are they mitigated? Can we remove the effects of poor fiber optic cable coupling from the seismic data?
- How can we plan and prepare for a DAS seismic survey? What are the key decisions that need to be made and can we model them?
- What are the field deployment issues that we should address? How is handling fiber optic cables different from standard electrical cables? Can the health of the deployed fiber be determined before the survey begins? How is the depth (or distance along the fiber) of each channel of seismic data determined?

For more information and to register, visit:

<https://seg.org/Education/Courses/DISC/2022-2023-DISC-Mark-Willis>

# Monthly Luncheon Talks

Thank you to everyone who has given a talk or is signed up to give one!

January Luncheon Talk

## **Stress rotations and compounding pore-pressures from multiple well injections**

*Jonathan P. McKenna*

Abstract:

Multi-stage, multi-well completions cause pore-pressures to increase around each stage treated, compound from earlier offset treatment stages, then dissipate as the injected fluid leaks off into the rock formation. Local stress changes illuminated by microseismic focal mechanisms can be used to create maps of high and low pore-pressures which, in turn, can be used to guide a dynamic slurry propagation model and estimate fluid and proppant distribution from the injection. Injected slurry volumes respond to these pore-pressure changes dependent upon lag time from previously treated stages.

An example is presented from a multi-stage, multi-well hydraulic stimulation in the Wolfcamp Formation located in Southeast New Mexico. In this location, previous researchers have identified that a normal-faulting stress regime exists with maximum horizontal stress ( $SH_{max}$ ) oriented between N75°E and N83°E with intermediate horizontal stress anisotropy (Lund Snee and Zoback, 2017). Results from this study shows that  $SH_{max}$ =N80°E and stress anisotropy,  $\phi=0.36$  in the virgin stress state. During hydraulic stimulation horizontal stress anisotropy is reduced ( $\phi=0.33$ ) due to stress shadowing and  $SH_{max}$  rotates  $\sim\pm 24^\circ$ . Increased pore-pressures from previous treatments remain elevated for  $\sim 7$  days confining fluid distribution to near the well on ensuing stages. Sufficient pressure dissipates after leakoff providing opportunity for the fluid to propagate into previously opened fractures. Pore-pressure highs can be identified using microseismic hypocenters fitting an altered stress state which differs from events fitting the background unpressured virgin stress state. Since injected fluid migrates toward low pressures and away from highs, we suggest that virgin stress events can be used to guide injected slurry volumes including proppant.





# Monthly Luncheon Talks

February Luncheon Talk

## **Hydraulic Fracture and Reservoir Simulation Model Calibration using Quantitative Tracer Analysis and Geochemical Production Allocations**

*Maggie Albrecht*

Abstract:

Well spacing and hydraulic fracture design optimization are among the most important challenges confronting companies operating in unconventional reservoirs. Reservoir simulation and/or rate transient analysis can help guide development decisions, but these calculations can be affected by non-uniqueness. Model calibration that relies on production and pressure history alone often fails to uniquely resolve important differences in productivity and fracture geometry. Diagnostics such as distributed acoustic sensing, microseismic, and sealed wellbore pressure monitoring capture total hydraulic fracture extent but do not characterize the producing behavior, which ultimately drives asset financial performance. This work demonstrates that tracers and geochemical production allocations can be used to reduce model non-uniqueness. Models that couple hydraulic fractures and reservoir simulation of wells in different landing zones and regions of the Midland Basin were calibrated using quantitative tracer analysis and geochemical production allocations, shared in case studies. This work reveals the connection between completions, geomechanical inputs (such as minimum horizontal stress and toughness), and geochemical production allocations as demonstrated by the vertical distribution of proppant. This work also identifies the roles that well spacing and drawdown play in time-lapse geochemical production allocations and tracer recovery. Both techniques are discussed in more detail in two URTeC 2022 papers, “Using Quantitative Tracer Analysis to Calibrate Hydraulic Fracture and Reservoir Simulation Models: A Permian Basin Case Study” and “Using Geochemical Production Allocation to Calibrate Hydraulic Fracture and Reservoir Simulation Models: A Permian Basin Case Study.”



Maggie Albrecht is a Senior Reservoir Engineer at SM Energy in Denver, CO. She is actively involved in reservoir characterization, field performance surveillance, and using simulation to understand and optimize performance. She has worked conventional and unconventional plays including offshore Equatorial Guinea, Gulf of Mexico, Bakken, Western Canadian/Liard Basins, the Permian Basin, and South Texas. She previously worked for Apache Corporation and Hess Corporation and has a degree in Chemical Engineering from the University of Notre Dame.



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Please visit [denvergeo.org/advertising-in-the-record/](http://denvergeo.org/advertising-in-the-record/) to purchase advertising.

*Congratulations!*

## DGS Award Recipients

**Tim Schield**

**Honorary Membership**

**Morgan Brown**

**Longest Sweep Award**

*for Contributions and Leadership to the DGS*

**Brad Birkelo**

**MegaSeis Award**

*for Contributions to the 3DSS*

## Keep it Professional

Do you have news you would like to share with the community? A job change or a new promotion? Anything that's industry/job related, we would love to share your news. We aren't necessarily looking to share that Bob is now a grandfather but we would love to celebrate your accomplishments. Send 2-3 sentences with your name and what your news is and we'll add it to the next newsletter. For consistency, DGS reserves the right to edit and limit what gets published. So, if you really want your news shared, remember to "Keep it Professional."



# DGS Meeting Notes – December 2022

## Denver Geophysical Society – December 7, 2022 – Excom Meeting

**Attendees:** Mark Davidson, Jeff Zawila, Jess Vahling, Xan Davidson, Angie Southcott, Travis Pitcher, Andrew Keene

Awards received for distinguished DGS members (Stuart Wright, Tim Schield, Morgan Brown, and Brad Birkelo).

Holiday Party ready to go. Sponsor slides set and will cycle through while folks get seated. Mark to bring a laptop, Andrew to call and confirm we have a projector at the venue, planning for ~105 attendees. Joel to bring a silent auction item in addition to the four items Andrew procured.

Slides set for Mark and Jeff's presentation summarizing 2022 as well as introducing 2023.

Andrew to get more gift cards with excess funds generated from Holiday Party attendance/sponsorships:

*Sponsorship: \$9,400*

*Registration: \$2,800*

Andrew to reach out to Avalanche to try to find group event for DGS similar to Rockies events. Focus on day games during the week.

See everyone tomorrow at 10AM!



Jess Vahling, Treasurer, presents 2022 Treasurer's Report at Annual Meeting & Holiday Party

# DGS Meeting Notes – January 2023

## Denver Geophysical Society – January 11, 2023 – Monthly Meeting

**Attendees:** Jeff Zawila, Joel Scott, Travis Pitcher, Melinda Gale, Jess Vahling, Mark Davidson

Minutes were sent on December 7<sup>th</sup>, from the day before the Holiday Party.

**Treasury—** End of December balance: \$110,335.77  
Current balance (1/10/2023): \$114,335.77  
Net Revenue for December 2022: \$5,173.89

Jess is having challenges with paying for Holiday Party (~\$7,000) due to low limit on payment. She is also having challenges with Quickbook and currently troubleshooting. She is working on modifying email preferences so that PayPal emails do not flood our inboxes.

Jeff asks if renewals come in every January 1, but Jess states that it is based on when the member originally initiated their membership. Joel thought it might be nice to have people prorate their payments, but we don't need to adjust. People also may not have member/non-member grace period, in which case they typically renew fairly immediately.

**The Record** – Melinda is planning to sit down with Xan for Editor transition. Melinda would like to get an issue out in early February so that we can get 3Dss updates in there. Standardized article senders need to send Melinda an article by the end of the month. Mark to write “Executive Corner” for the first issue this year. Melinda would like to add a “Student Corner” to increase content and connection with students (likely at Mines).

**3DSS** – Registration for 3DSS needs an email blast (March 2<sup>nd</sup>, Thursday). There was a save-the-date sent in October, and it has been mentioned at luncheons and the holiday party. Joel sent out a draft for the sign-up page and received no negative comments. Joel is happy to send out if there are no issues (Jeff to take a look).

In conjunction with the Challenge Bowl, Melinda wondering if a student poster session could fit into the schedule. Andrew suggests a poster session at the 3DSS during the lunch session might be ideal, but Joel makes the point that we're running out of pace (different venue than list time). Potential for posters up the entire couple days, and we work on space issues as they come up. Joel and Jess on the committee – one of them will propose to the committee about a poster session.

Student Challenge Bowl needs to happen on Thursday, March 1<sup>st</sup> due to other events. Peter Duncan committed to being there. Options for locations. Andrew to be a big part of committee and try to work with Scott to coordinate sponsorship, location, etc.

**Luncheons** – Travis ready to go for his first luncheon as excom member – not many updates for other luncheons, but has received interest for other dates. He hopes to secure a February speaker this week or next. Normally no luncheon in March because of 3DSS, as well as December, and June and July.

**Awards** – Mark is going to get Tim's in the mail. He has not heard back from Stewart, but will try to meet up with Brad in next couple of weeks.

**100<sup>th</sup> Anniversary at Mines** – January Remote Sensing Challenge. GP@100 has raised close to \$150,000. Ken Tubman and Arthur Cheng to visit during tenures as SEG Presidents.

**Golf Date** – August 17<sup>th</sup>, 2023 and cost of ~\$130 - \$185. Hoping to finalize location by the end of the week. Prices seem good and attendance should be as expected.

**Hybrid Meetings** – RMAG worked with SM IT folks to get remote meetings set up. Jeff to take the lead on this, and the goal is to get more folks able to attend. May not need a camera, need to ensure WIFI is good, and speaker needs to use ppt pointer.

**Email notices** – Mark to investigate, and Joel sent a notice about notifications. Jeff needs to make Travis an admin on website. Travis is getting excom emails.

Andrew still working on the Avalanche game. Meetings to continue the day before the luncheon.

## DGS Meeting Notes – January 2023

### Denver Geophysical Society – February 8, 2023 – Monthly Meeting

**Attendees:** Jeff Zawila, Joel Scott, Travis Pitcher, Melinda Gale, Mark Davidson, Andrew Keene

Minutes from January approved.

**No treasury report – Jess on vacation. If walk-ins occur tomorrow, we'll need to send them a bill.**

Jeff and Travis to get together at First Bank to get him on the account as well as to get a debit card. Payment limit on Holiday Party taken care of – Mark was able to pay.

**The Record:** Melinda sent a rough draft this morning, she will email Brad directly to determine if the technical program is set for the 3Dss in order to publish it in the Record. Melinda has photos of a handwritten thank-you note for the donation given to Mines last year and will include it in the Record. Also, Geoscientists Without Borders went to Benin and worked over winter break, and Melinda will confirm she can publish this. She would like to get it out by Friday.

**3DSS:** The program is essentially set, a few talks needing maybe some rearrangement. Brad has most of the abstracts also. Wraps up at 4PM on March 2<sup>nd</sup>. Badges ordered. For the SCB, Scott reached out to 15-20 schools and Joel emailed every DGS member about the happy hour, sponsorships, and SCB. Andrew to follow up with Scott to ensure schools are aware of the event and are signing up. Tanya Inks also to MC, and the RMAG Foundation donated \$1000. Melinda: reach out to her department to see if anyone has posters they'd like to share.

**Loading doc insurance still in the works to understand needs for setting up 3Dss. Jeff needs to sign a document to reinstate insurance to use loading doc. Jeff to do today 2/8. Joel trying to get insurance to auto-renew.**

**Luncheon:** 18 people have registered for the luncheon on 2/9. March we have the month off with luncheons. April and May are set up to get on the books, and Travis working on the rest of the year as well. He hopes to have everything lined up through end of the year by end of Q1. We have a lot of mail in DERL...

**Golf Contract:** We received the contract. It will either be held at Walnut Creek or Legacy Ridge (both in Westminster). The course has included a strange condition that they can null the contract at a moment's notice. Date is Thursday, August 17<sup>th</sup> and will run roughly \$130/person.

**Membership Committee:** Andrew is chair (or can appoint a chair).

**Mark chair of other committees.**

Jeff wondering about interest in a workshop on cyber security. This may include a test of cyber security system for an individual's company. Mark wonders if it is too much of a sales pitch, and also is not sure who the target audience is for this sort of talk. Melinda says there may be a group at Mines that we could leverage, as well as perhaps becoming a panel with the cyber security folks at other companies (BP, SM, etc.). Jeff to send Travis information about Randy and his company's ideas.

Hockey games are off this year – too busy March, too expensive, and night games during the week (not ideal for members). Andrew to reach out to Liberty for their box again next year to try to make it work. Rockies games will be rocking and rolling come springtime!

Travis is getting excom emails.

Andrew still working on the Avalanche game. Meetings to continue the day before the luncheon.



# About DGS

The Denver Geophysical Society (DGS), a chapter of the Society of Exploration Geophysicists (SEG), was chartered in 1950 and has been an active part of the Rocky Mountain region geophysical community for 72 years. Starting in 1995, DGS added the 3D Seismic Symposium to its annual programming.

**Mission Statement:** The Denver Geophysical Society is a nonprofit organization operated by its members to promote the science of geophysics, especially as it applies to exploration, and to promote fellowship and cooperation among those persons interested in geophysical problems.

**By Laws** – The Denver Geophysical Society 2010 Executive Committee updated the By Laws. To review the updated By Laws, [click here](#) or visit the By Laws subtab.

**Committees** – The Denver Geophysical Society is mainly comprised of volunteers that help plan the continuing education courses, monthly luncheons, golf tournament, networking events, student outreach programs and so much more! To learn more about the committees and available volunteer opportunities, email [office@denvergeo.org](mailto:office@denvergeo.org).

**Officers** – The officers are elected volunteers that are an integral part of the governing and planning of the Denver Geophysical Society. Officer terms are dependent upon the position held and range from 1 year to 4 years. If you are interested in running for an officer position, please email [office@denvergeo.org](mailto:office@denvergeo.org).

**Privacy Policy** – At The Denver Geophysical Society (DGS), a chapter of the Society of Exploration Geophysicists (SEG), we are committed to protecting your privacy. We use the information we collect about you to provide member services, process orders, provide on-going support and supply membership announcements.

